4.3.4 XRP-II (Inventory, Logistics and Maintenance {ILM} Manager)

ILM Manager, or just ILM, helps the M&O staffs at the DAACs, EOC, and SMC maintain records that describe all inventory components, as well as their assembly structures, repair histories, and locations. The system keeps chronological histories (a record of the transactions) of receipt, installation, relocation, transfer, archiving and relocation of inventory items. ILM is used by the Procurement, Property Management, Maintenance, and Logistics teams in managing the tangible property of NASA's EOSDIS project.

ILM is a heavily customized application of the commercially available manufacturing management system XRP-II, particularly its Product Information, Inventory Management, Purchasing Management, and Work Order Processing modules. The customizations adapt the product to the ILS processes used for ECS. Since XRP-II supports managing ECS baseline data too, ILS operators have access to the Baseline Manager's data query screens and reports as well (see Section 4.3.3).

XRP-II is a legacy-based application. It has a character-based (non-GUI) system of menus and data entry screens (so it can support dumb terminals) and an embedded COTS database (UNIFY). The vendor has tailored many of the original displays, making them ECS-specific, and has added and changed numerous functions to facilitate ECS property and maintenance management. The system provides a transaction-oriented environment for data input and modification. While an operator is logged into the XRP-II program, he is engaged in a database session.

ILM menus and screens take into account how business rules and logistics concepts are applied on the ECS project. This document does not address these considerations in detail, but the following general introduction should help.

Each inventory item is identified by a unique Equipment Inventory Number (EIN). In the case of hardware items, an EIN corresponds to a silver sticker affixed to the item. The most significant relationship maintained among inventory items is EIN structure. EIN structure is ILM's implementation of XRP-II's product structure; that is, the parent-component pairings that define the ingredients -- or bill of material -- for an assembly. Product structures have active and inactive dates that establish the timeframe during which the pairing is in effect. Sections 1.6.2 and 4.1 of the *XRP-II Product Information Manual* discuss product structures in more detail. 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. Others such as consumables are issued but not 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.

Table 4.3.4-1 summarizes the operator functions that XRP-II supports. The sections that follow present how to use XRP-II features that were customized for ECS inventory, logistics, and maintenance management. Refer to the following manuals for an understanding of the original XRP-II product and for descriptions of functions and features that were not customized:

- *XRP-II System Reference Manual* - presents an overview of XRP-II and describes system-related functions associated with using it.

- *XRP-II Product Information Manual* - presents a full description of XRP-II's product information module in context of XRP-II's integrated set of manufacturing-oriented applications.

- *XRP-II Datalook/Datarite Reference Manual* - presents a technical reference for the on screen database editor (DATALOOK) and report generator (DATARITE) incorporated in XRP-II and used to create custom screens and reports.

- *XRP-II Tools, Techniques, and Conventions Manual* - presents a description of methods and utilities an XRP-II support engineer would use to perform low-level maintenance on XRP-II's database, screens, and reports.

- *UNIFY Developer's Reference* - presents a guide with examples for using UNIFY's tools to develop database applications. It also describes many UNIFY messages.

- *UNIFY Direct HLI Programmer's Manual* - presents a technical reference for programmers of UNIFY RDBMS applications and contains a summary of UNIFY's error log file and common error messages.

- *UNIFY Developer's Tutorial* - a practical tutorial and functional reference for using UNIFY.

- *ACCELL Publication Package* - describes how to install ACCELL.

- *ACCELL Release Notes* - describes software changes that occurred after the ACCELL and UNIFY manuals were printed.

Section 4.3.3 XRP-II (Baseline Manager) also discusses XRP-II. Readers not familiar with XRP-II should read through that section, including Sections 4.3.3.2.11 (System Utilities) and 4.3.3.2.12 (System Tools) which discuss functions needed and used to support ILM.

Refer to EOSDIS and ECS configuration management plans and procedures for definitions of such terms as baseline, configuration item, control item, and configured article used in this document.

Table 4.3.4-1. Common ECS Operator Functions Performed with ILM

Operating Function	Character-based User Interface	Description	When and Why to Use
ILM function selection	ILM Main Menu from ECS Management System Main Menu	Start XRP-II and navigate to appropriate screens.	To access any of ILM functions for property management, inventory ordering, purchase order processing, property maintenance, or system management configuration.
Property Management	EIN Menu, EIN Transactions, or ILM Report Menu from ILM Main Menu	Maintain information for property items, their structure and inter-relationship.	Entering information for new items, modifying information, defining and maintaining the structure of the properties that are composites (bill of material), installation and relocation of property.
Inventory Ordering	Inventory Ordering Menu from ILM Main Menu	Define and manage ordering information for the inventory items.	Establish order point and monitory inventory levels.
Purchase Order Processing	PO / Receiving Menu from ILM Main Menu	Purchase order preparation and monitoring receipt of inventory items.	Generate purchase order and record receipt of inventory.
Property Maintenance	Maintenance Menu from ILM Main Menu	Manage information for required repairs and preventive maintenance.	Predefine scheduled maintenance, recording and monitory
ILM Configuration	ILM Master Menu from ILM Main Menu	Manage configuration information for ILM.	ILM administrative function to define and maintain parameters required by ILM, maintain user information, export and import ILM information.

4.3.4.1 Quick Start Using XRP-II (ILM)

ILM was designed to assist in the tracking of government property items, for each site individually and in a consolidated manner for the SMC. It is a character-based, menu-driven system whose user interface was inherited from the XRP-II product. It employs screens for entering data, processing transactions, and generating reports. Menus are used for navigating to the screens. Figure 4.3.4-1 depicts the hierarchy of menus and screens for ILM. XRP-II provides the capability to modify screens and menus and to develop new, custom reports to meet changing requirements.

All XRP-II menus are similar in appearance and function the same way. Only the titles and selections vary. Selections may vary for different operators using the same menu. This happens if each has different permissions.

Data is entered via the keyboard. On data screens, fields are usually traversed from left to right, then row by row. Labels for fields whose values can be modified are displayed in upper case. The database is updated at the time a field's value is changed, and records of changes are written to transaction logs.

Most data entry screens have form and table views for displaying data records but some have neither view, having been designed solely to initiate processes. Form views offer full screen layouts of a data record's fields, whereas table views offer rows of records in a window that is panned to see columns of fields. Some table views have fewer fields than their corresponding form views, either by design or to accommodate system limitations. Screens are usually displayed in INQUIRY mode, which precludes changing any values. Operators must enter ADD, INSERT, DELETE, or MODIFY mode in order to update the database.

XRP-II menus and screens provide simple and quick one or two keystroke commands that support various navigation, data entry, and processing functions. Functions are screen-dependent, so XRP-II uses a menu near the bottom on each display to list which commands are available. On data entry screens, the menu differs according to mode. The list for INQUIRY mode has three parts due to its size. (Using the **M**ore command cycles through them). Table 4.3.4-2 summarizes the "bottom-line" commands used in ILM. More detailed descriptions can be found in the *XRP-II System Reference Manual,* Section 2.6, and the other ILM-related XRP manuals such as the *XRP-II Work Order Processing Manual.*

XRP-II also provides online help, which can be entered by pressing <F1>. Help superimposes on the display a textual description of a field, screen, or command. Help is controlled using its own set of bottom-line commands. If no help is available for the topic selected, a "No help for …" message appears on the status (last) line of the display. The Help command has to be exited by using the **Q**uit command or <**F3**>.

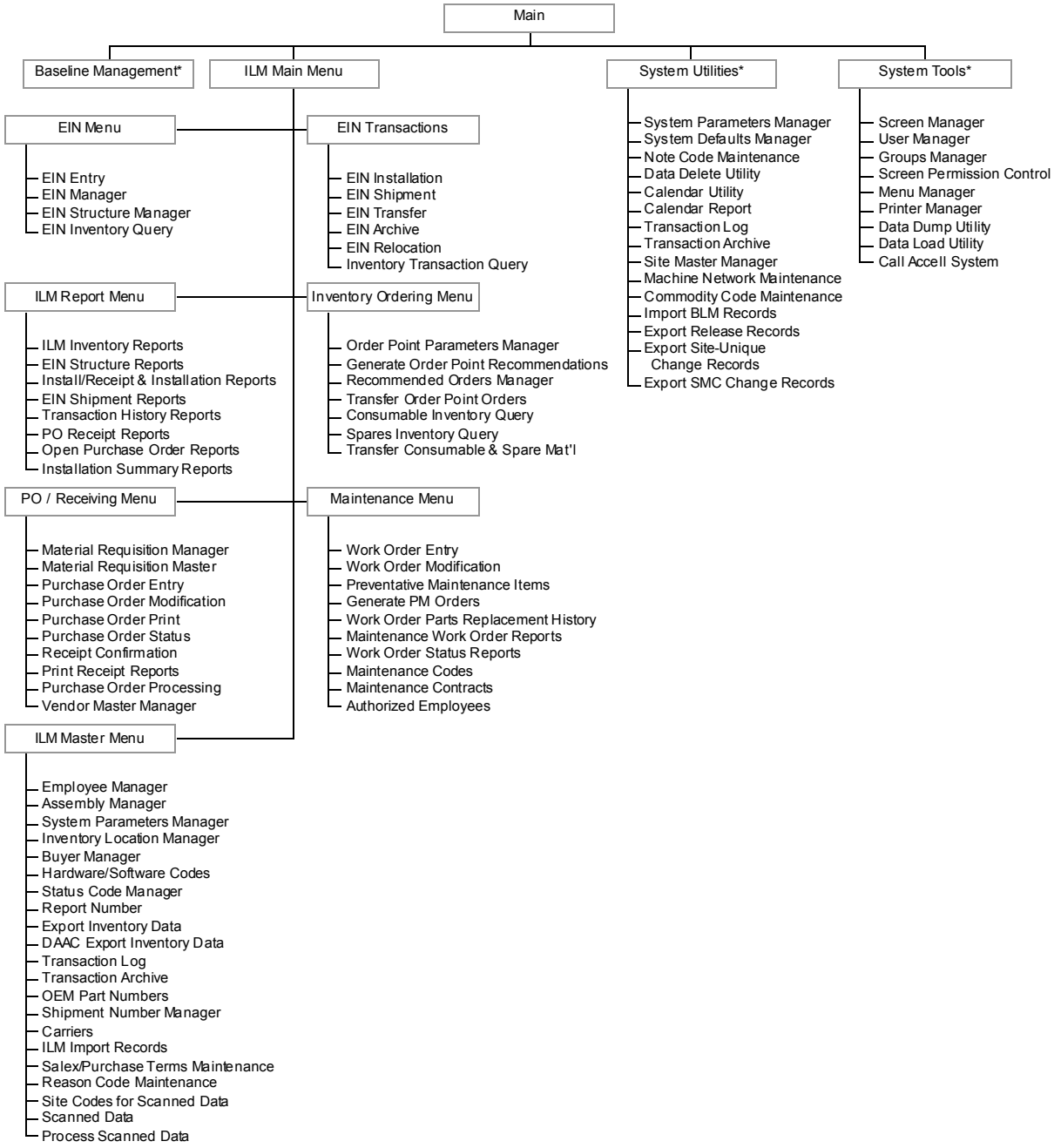

Figure 4.3.4-1. ECS ILM Management System Menu Structure

* The Baseline Management, System Utilities, and System Tools menus are discussed in Section 4.3.3.2.

Table 4.3.4-2. XRP-II's Bottom Line Commands for ILM (1 of 3)

Commands	Description
Commands used with ILM menus	
<**F1**>	Displays a description for the highlighted option.
<**F3**>	Moves back to the previous menu.
<**F5**>	Selects the highlighted option.
<**F8**>	Exit XRP-II.
Commands used with ILM screens	
<**F1**>	Invokes online help and displays a submenu for identifying the help target. Same as the **H**elp command.
<**F2**>	Clears the value from the field.
<**F3**>	Exits the screen or function. Same as the **Q**uit command.
<**F5**>	Starts a sort, select, find, or ad hoc report function after entry of parameters is completed.
<**F7**>	Copies data into or from a block of text.
<**F9**>	Tags and returns a value when executing a zoom command.
.Cartons	Invokes the cartons page on the EIN Shipment screen so the number and sizes of cartons in a shipment can be recorded.
/Add	Invokes ADD mode so new records can be added (created) in the database. New records are placed after the current record.
/Copy	Copies values from "tagged" fields to corresponding fields in other records. If no values are tagged, copies -- to the field in which the cursor resides – the value from the corresponding field in the preceding record.
/Delete	Deletes the displayed record from the database.
/Insert	Invokes ADD mode such that new records can be inserted (created) in the database. New records are placed ahead of the current record.
/Items	Invokes the items page of a data entry screen so a set of related records can be attached to the current record. Examples of related records include the line items for a purchase order and the components of a parent EIN.
/Modify	Invokes MODIFY mode so an existing database record can be updated.
/Note	Enables free-form text to be associated with a data entry screen for a user.
/Report	Invokes ad hoc report processing for the set of records currently selected on a screen.
/Sort	Allows the current set of selected records to be sorted according to operator-specified sort criteria.
/Zoom	Allows a set of records related to the current record to be displayed. Tagging any field in one of those records causes a value from that record to be returned and entered in the field at which the command was invoked.
Addr	Invokes the vendor address maintenance screen so multiple addresses for a vendor can be recorded.
Bom	Invokes a screen to display the Bill of Material (i.e., list of first-level components) for an item, if any.
Changes	Displays the record of changes logged for a purchase order line item.

Table 4.3.4-2. XRP-II's Bottom Line Commands for ILM (2 of 3)

Commands	Description
Check	Validates certain data entered for a batch of inventory transactions prior to the transactions being processed.
Copy-bill	Adds to an EIN's Bill of Material (BOM) the BOM from another.
Copy-dates	Copies active and inactive dates -- defined for an EIN's structure in its structure manager record -- into the product structure records for the EIN's children.
Copyein	Creates a new item by copying all the fields except the EIN Number from another item.
Copypart	Creates a new item by copying all the fields except the EIN Number from another item.
Duplicate	Creates copies of a purchase order line item to support multiple deliveries on different dates.
Execute	Starts the processing of a major, supporting function attached to the screen.
Find	Locates and displays the first record having field values the operator specifies. Repeating the Find command without changing the search criteria locates the next record that qualifies.
Go	Locates and displays a record having a specified sequence number. The format is "*n*g", where *n* is the number.
Help	Invokes online help and displays a submenu for identifying the help target.
Justify	Used with table view, places the column the cursor is in next to the column(s) of record key data at the left edge of the screen.
Left	Shifts the data window to the leftt for displays that cannot fit all fields in one window.
More	Displays more bottom-line commands. In general, XRP-II provides three menus of bottom-line commands for screens, since all commands available to a screen cannot fit on one line. This command cycles through these menus.
Next	Moves the display "forward" to the next record (in form view) or next page of records (in table view).
Prior	Moves the display "back" to the prior record (in form view) or prior page of records (in table view).
Quit	Exits the current screen or function. (This command is not available when in ADD, INSERT, or MODIFY modes, as it would be mistaken for a character being entered in a field.)
Right	Shifts the data window to the right for displays that cannot fit all fields in one window.
Select	Invokes query-by-example record filtering and displays a submenu for specifying the criteria to be used. See *XRP-II System Reference Manual*
Tag	Identifies a specific record and field whose value is to be used when adding new records or copying data. Tagged values are highlighted on the screen.
Untag	Removes the "Tag" from all field on the screen.
View	Toggles between "form" or record display and "table" or list display.
Where	Invokes a screen to display the first-level parents or assemblies having the EIN-controlled item as a component.
Write	Saves the current record to a file designated by the operator.

Table 4.3.4-2. XRP-II's Bottom Line Commands for ILM (3 of 3)

Commands	Description
Commands used in ADD, INSERT, and MODIFY modes	
<**F1**>	Invokes online help and displays a submenu for identifying the help target.
<**F2**>	Erases the character string in the field.
<**F3**>	Exits the mode.
<**F4**>	Switches among typeover, insert, and replace modes for data entry.
<**F6**>	Enters the default value for the field.
Commands used in DELETE mode	
H	Invokes online help and displays instructions on how to use the Delete command.
L	Invokes the line-by-line method for deleting records.
n	Specifies the number of records to delete starting with the current record.
Q	Exits the mode.
Commands used with online help	
C	Display help for bottom-line commands available to the screen. Commands are listed on the bottom-line menu, and the More command can be used to cycle through them. Type any highlighted keys to display the help text for those keys.
F	Display help for the screen field on which the cursor has landed.
Q	Exit online help.
S	Display help for the screen.

When entering data in XRP-II screens, operators should keep the following in mind:

- XRP-II is case sensitive. It interprets data exactly as it is entered, taking the case of your input string into account.
- Each menu and screen has a set of "bottom line" commands, so named because the command menu appears in a menu at the lower part of the display. The menu uses boldface to indicate which keystroke(s) invokes each command.
- The record counters Last and Current appear on the topmost line of screens that display multiple data records. Last corresponds to the total number of records in the display; while Current indicates which of those records the cursor is on.
- Most screens are presented in INQUIRY (i.e., query) mode. Operators must enter ADD or INSERT mode in order to add new records, MODIFY mode to change existing values, and DELETE mode to remove one or more records. Exit back to INQUIRY mode by pressing <**F3**>.
- After entering a new value in a data field, operators must move the screen's cursor from the field in order to save the value in the database. This allows a change to be cancelled or revised before it is stored. The cursor can be moved by pressing the <**ENTER**>, <**TAB**>, or any of the cursor keys.

- Since XRP-II has a character-based user interface (not GUI), navigation, item selection, and cursor movement is handled using the keyboard. A terminal's mouse has limited utility. There is no placing the mouse pointer on an item and double clicking, and there is no dragging and dropping. However, your windowing system may allow you to use your mouse to cut and paste.

- The **/Z**oom command often appears at the right of the bottom-line menu when the cursor is at a field having corresponding data in a related database table. This indicates that a ZOOM screen is available to help you select the data value to enter. To operate a ZOOM screen do the following:

  - Enter **/Z** in as the first two characters in the field. A pick list will appear in a box with your cursor positioned at the top of the list.

  - To select an item, use appropriate keys and available commands to move the cursor to the desired record, then press **<T>** for Tag**.** XRP-II will highlight the value you've selected.

  - Press **<Q>** or <**F3**> to return to the data entry screen. Your selection now appears in the data entry field.

It is important to note that the relational database management system XRP-II uses, UNIFY, does not support rules requiring entries in specific fields. ILM attempts some enforcement via the data entry screens, either by establishing default values where feasible when new records are created, or by blocking an operator from advancing the cursor past a null field when in ADD, INSERT, or MODIFY modes. However, database updates can occur in ways that bypass these mechanisms, so operators must ensure required data is entered.

4.3.4.1.1 Invoking XRP-II (ILM) from the Command Line

In order to use ILM, an operator must be logged in on XRP's host server and his userid registered in XRP with appropriate privileges. The userid must also be a member of the Unix file system group owning the XRP-II files, which is typically "xrp".

To run ILM from the command line prompt, type either:

a) **<*principal dir name*>/scripts/ilmusr** [<***terminal_id***> [<***terminal_type***>]]

where *principal dir name* is the directory at which XRP-II is accessed (nominally, /usr/ecs/OPS/COTS/xrp)

or

b) **ilmusr** [<***terminal_id***> [<***terminal_type***>]]

if XRP's scripts directory has been added to your path.

The "terminal_id" argument identifies the IP address or host name at which XRP-II menus and screens are to be displayed. The address, which is only needed only in an X-windows

environment, must not include a ":0.0" sufix. XRP-II will prompt the operator for an address if the argument is not provided. The "terminal_type" argument specifies terminal configurations (e.g., ansi, xterm, ddterm, and vt100). If the argument is not present, XRP-II checks the TERM environment variable to determine the terminal type and whether or not the product supports it.

The "ilmusr" script determines the operator's terminal type, prompts for a terminal id if necessary, and reads the ILM configuration file to establish the right operating environment. The script then starts XRP-II, passing it the operator's userid which it obtains from the system.

Upon invoking XRP-II, ECS operators see a menu screen, which one depending on the "entry menu" and "screen group" the operator was assigned. Assignments are based on the operator's role, and they affect the screens and functions the operator can invoke. Made by someone with XRP administrator privileges, assignments are discussed in the Baseline Manager part of this document (see Sections 4.3.3.2.12.2 - 4.3.3.2.12.4). The following are ILM-related roles XRP-II is deployed pre-configured to support:

- ilmadmin - full privileges to all operator and system administrator functions within ILM;
- ilmuser - all ILM operator privileges only;
- ilmlog - logistics management data update privileges only;
- ilmmaint - maintenance management data update privileges for central ILS managers;
- ilmmntd - maintenance management data update privileges for a site's local maintenance coordinator;
- ilmquery - ILM data query privileges only;
- ilmupdt - (Reserved);
- xrpadmin - all privileges (both ILM- and BLM-related) for whomever is responsible for sustaining the application.

The sections below discuss all ILM's menus and screens. The order of resentation follows the menu hierarchy. Read the *XRP-II System Reference Manual* to familiarize yourself with using the menus and screens before proceeding to the material in Section 4.3.4.2.

4.3.4.2 XRP-II Main Screen

The initial display an operator sees upon invoking XRP-II is typically the ECS Management System Main Menu (Figure 4.3.4-2), or just Main Menu for short. It helps operators navigate to the following submenus:

- Baseline Management Menu – provides access to XRP-II functions for maintaining control item and bill of material information;
- ILM Main Menu – provides access to XRP-II functions for maintaining inventory, logistics, and maintenance information;
- System Utilities Menu – provides access to XRP-II functions for maintaining system information that spans functional domains;
- System Tools Menu – provides access to aids for registering XRP-II users, assigning permission, customizing data entry screens and menus, and performing general-purpose database dumps and loads.

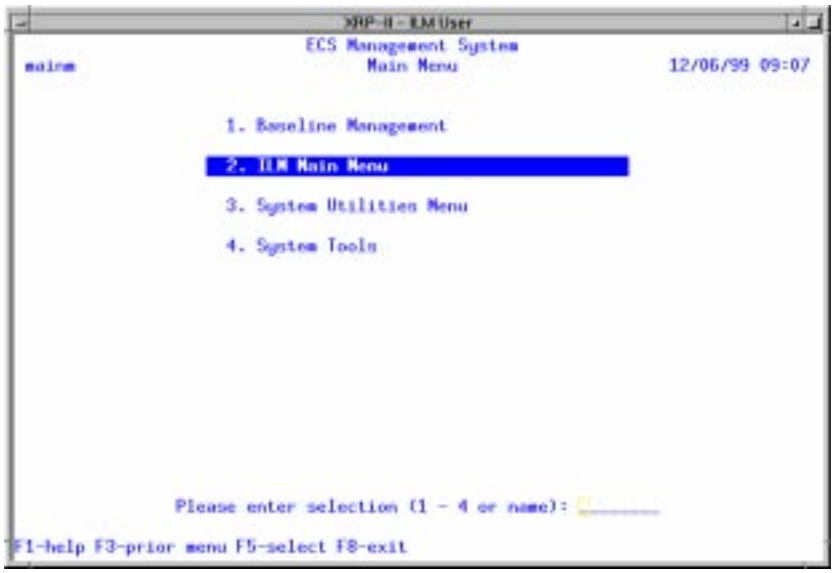

Figure 4.3.4-2. ECS Management System Main Menu

Operators select from XRP-II menus either by typing an option number and pressing <Enter>, or by moving the cursor to the option to highlight it then pressing <Enter> or <F5>. For the experienced operator, XRP-II provides a shortcut that bypasses the menu hierarchy. Each XRP-II menu and screen is identified by a name at its top left corner. Operators familiar with these names can just type a name at any menu to navigate directly to the desired display.

Note: While navigating by name bypasses the menu hierarchy, it does not circumvent access restrictions. That is, operators cannot access menus and screens for which they have no permissions.

The submenu ILM operators will most often select is the ILM Main Menu (Figure 4.3.4-3). It helps them navigate to the following, additional submenus that contain screens grouped according to major operating function:

- EIN Menu - for managing the catalog of EIN-controlled items;
- EIN Transactions - for processing transactions about EIN installations, shipments, transfers, and relocations;
- ILM Report Menu - for producing pre-defined reports available to all operators;
- Inventory Ordering Menu - for managing the inventory of consumable items and spare parts;
- PO / Receiving Menu - for processing procurement requisitions, orders, and receipts;
- Maintenance Menu - for managing maintenance actions and data;
- ILM Master Menu - for managing ILM parameters and reference information.

Figure 4.3.4-3. ILM Main Menu

The sections that follow focus on the functions and features that are part of the ILM Main Menu. Other ECS Management Main Menu selections were discussed in the XPR-II (Baseline Manager) section of this document and are not repeated here.

4.3.4.2.1 EIN Menu

Options provided on this menu (Figure 4.3.4-4) allow the operator to navigate to a set of screens for managing and accessing information about EIN-controlled items. These include:

- EIN Entry – for adding records about new, EIN-controlled inventory items;
- EIN Manager (EDF) – for updating the data describing any EIN in the system;
- EIN Structure Manager (EDF) – for manually associating EINs with a system machine (i.e., its parent EIN)
- EIN Inventory Query – for browsing EIN records;
- EIN Structure Manager – for browsing EIN structures for items at the local site;
- EIN Manager – for browsing data describing EINs at the local site.

The following subsections describe these screens.

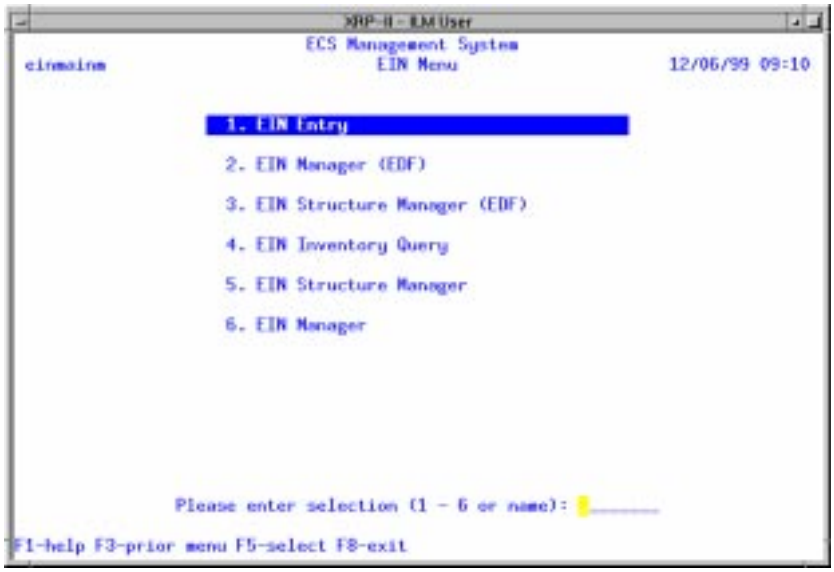

Figure 4.3.4-4. EIN Entry Menu CHUI

4.3.4.2.1.1 EIN Entry Screen

Th EIN Entry screen (Figure 4.3.4-5) is designed to enter records identifying EIN-controlled inventory items into the database. It is presented to the operator upon receipt of items at the receiving dock. It is also presented in the EIN MENU to allow entry of items outside the receiving process. This screen is presented to the operator in ADD mode. Records for all EIN-controlled inventory items must be created through this screen. Table 4.3.4-3 describes the screen's fields.

Figure 4.3.4-5. EIN Entry CHUI

Table 4.3.4-3. EIN Entry Field Descriptions (1 of 3)

Field Name	Data Type	Size	Entry	Description
EIN	String	20	required	Identifier for an EIN-controlled inventory item. This field is for the entry of the actual silver tag numbers attached to each item. If an item must be controlled by ILM but does not receive a silver tag, operators can press RETURN at the field prompt to have the system assign the next sequential number available based on the value for Last EIN in the System Parameters file. This number, whether entered or assigned, must be used for all machine configuration operations as well as reporting and maintenance functions.
SERIAL NUMBER	String	30	optional	Serial number of the item.

Table 4.3.4-3. EIN Entry Field Descriptions (2 of 3)

Field Name	Data Type	Size	Entry	Description
OEM PART NUMBER	String	34	optional	Manufacturer's or vendor's part number. The operator may zoom to the OEM Parts table and choose the number, if it had been entered there previously. (See the section on OEM Part Numbers.)
OEM DESCRIPTION	String	40	optional	Manufacturer's or vendor's description for the item. This field reflects the description of the OEM PART NUMBER entered in the field above, but provides the ability for the operator to modify it in the EIN file.
CONTROL ITEM ID	String	20	optional	Identifier of a corresponding, version-controlled item in the BASELINE MANAGEMENT system. The operator may enter the ID if known, or perform a zoom to the baseline data file.
ECS NAME	String	30	optional	Name of the machine with which the item is associated.
HDWSFT CODE	String	10	optional	Code for classifying inventory items by type. The operator may zoom to the Hardware/Software Codes file and choose the code, if it had been entered there previously. (See the Hardware/Software Codes section.).
MOD/VER	String	24	optional	Model or Version of the item. If the operator had chosen a known OEM Part, this field will be written with the information from that file.
MFG	String	6	optional	Code used for the manufacturer.
YEAR MFG	String	4	optional	Year (4-digit) the item was manufactured. This field defaults to the year specified in the systems parameter data file. (See the System Parameters Manager section.)
VENDOR	String	6	optional	Code for the vendor from whom the item was purchased. The operator may zoom to the Vendor data file and pick the desired code if it had been entered there previously. (See the Vendor Master Maintenance section.).
SOFTWARE LIC NUM	String	10	optional	License number for a software type license item.
MAINT VENDOR	String	6	optional	Code for the item's maintenance vendor. The operator may zoom to the Vendor data file and choose the appropriate code if it had been entered there previously. (See the Vendor Master Maintenance section.)

Table 4.3.4-3. EIN Entry Field Descriptions (3 of 3)

Field Name	Data Type	Size	Entry	Description
MAINT CONTRACT	String	15	optional	Identifier for the Maintenance Contract under which the item is covered. The operator may zoom to the Contract data file and choose the desired contract number if it had been entered there previously. (See the Maintenance Contracts section.) .
STATUS CODE	String	1	optional	Code that designates the status of the item. The following values are set when processing transactions: R = Received; S = Shipped; I = Installed; A = Archived;
NASA CONTRACT	String	11	optional	Identifier designating the government contract used for this item. This information is automatically assigned and can not be changed.
RELEASE CODE	String	10	optional	Code for distinguishing the release status of the item.
PO NUMBER	String	10	optional	Identifier of the purchase order against which the item was received. The system sets the value during Receipt Confirmation processing.
TRAN CODE	Numeric	3	system-supplied	Code designating the transaction type. The value will always be set to '03' and is not modifiable by the operator.
LOCATION	String	8	optional	Identifier that designatesan inventory location. The operator may zoom to the Inventory Locations table and choose the code, if it had been entered there previously. (See Inventory Location Manager.)The system sets the value during all EIN transaction processing. (See the EIN Transactions section.)
BUILDING	String	6	optional	Identifier for the building where the item can be found.
ROOM	String	6	optional	Identifier for the room where the item can be found.
USER	String	8	optional	Code for the person who has the item. The operator may zoom to the Employee table and choose the code, if it had been entered there previously. (See the Employee Maintenance section).
UNIT COST	Numeric	10	optional	Price of each item.
WARRANTY EXP DATE	Date	2	optional	Date the warranty on the item ends. This field defaults to 365 days from the date of entry.

4.3.4.2.1.2 EIN Manager (EDF) Screen

The EIN Manager (EDF) screen is designed to view or modify all EIN-controlled inventory items. Although operators may modify most fields on the screen, they should rely on ILM's transaction processing functions for this as much as possible. The functions set standardized values for many of the fields and ensure values in corresponding records are set at the same time. Only operators thoroughly trained in XRP-II's data interdependencies should use this screen. Table 4.3.4-4 describes the screen's fields.

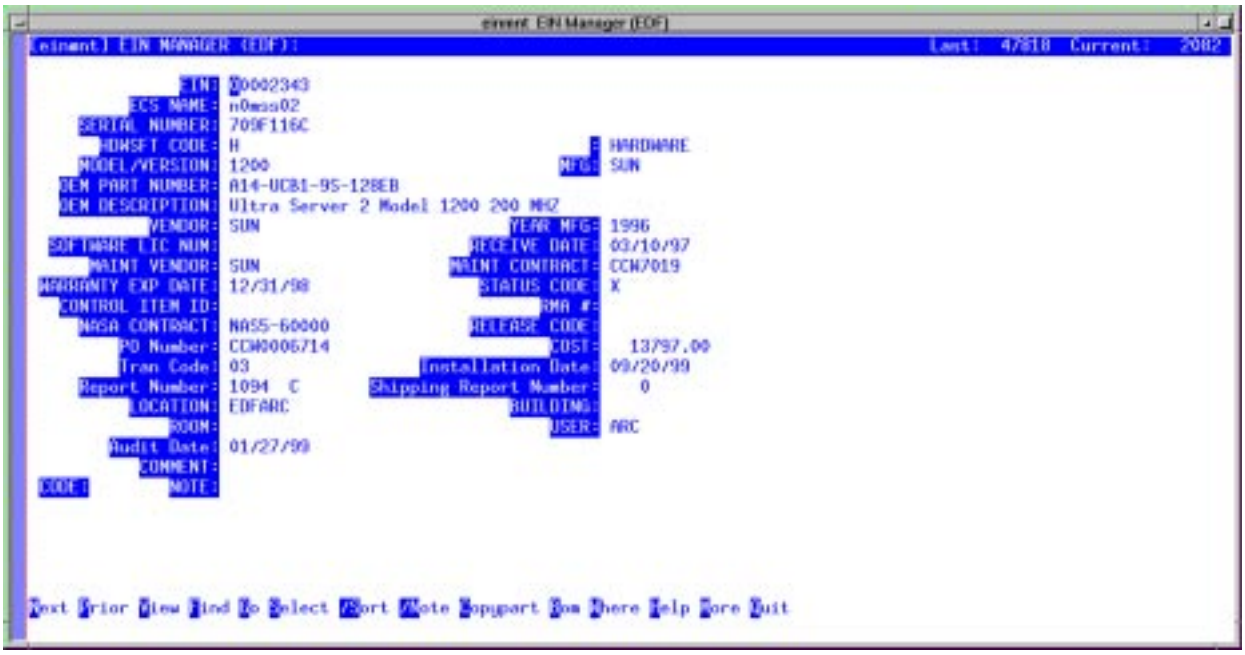

Figure 4.3.4-6. EIN Manager (EDF) CHUI

Table 4.3.4-4. EIN Manager (EDF) Field Description (1 of 3)

Field Name	Data Type	Size	Entry	Description
EIN	String	20	required	Identifier for an EIN-controlled inventory item. This field is for the entry of the actual silver tag numbers attached to each item. If an item must be controlled by ILM but does not receive a silver tag, operators can press RETURN at the field prompt to have the system assign the next sequential number available based on the value for Last EIN in the System Parameters file. This number, whether entered or assigned, must be used for all machine configuration operations as well as reporting and maintenance functions.
ECS NAME	String	30	optional	Name of the machine with which the item is accociated.
SERIAL NUMBER	String	30	optional	Serial number of the item.
HDWSFT CODE	String	10	optional	Code for classifying inventory items by type. The operator may zoom to the Hardware/Software Codes file and choose the code, if it had been entered there previously. (See the Hardware/Software Codes section.).
MODEL/VERSION	String	24	optional	Model or version of the item. If the operator had chosen a known OEM Part, this field will be written with the information from that file.
MFG	String	6	optional	Code used for the manufacturer.
OEM PART NUMBER	String	34	optional	Manufacturer's or vendor's part number. The operator may zoom to the OEM Parts table andchoose the number, if it had been entered there previously. (See OEM Part Numbers.)
OEM DESCRIPTION	String	40	optional	Manufacturer's or vendor's description for the item. This field reflects the description of the OEM PART NUMBER entered in the field above, but provides the ability for the operator to modify it in the EIN file.
VENDOR	String	6	optional	Code for the Vendor from whom the item was purchased. The operator may zoom to the Vendor data file and pick the desired code, if it had been entered there previously. (See the Vendor Master Maintenance section.).
YEAR MFG	String	4	optional	Year (4-digit) the item was manufactured. This field defaults to the year specified in the system parameters data file.
SOFTWARE LIC NUM	String	10	optional	License number for a software type license item.

Table 4.3.4-4. EIN Manager (EDF) Field Description (2 of 3)

Field Name	Data Type	Size	Entry	Description
RECEIVE DATE	String	8	optional	Date item was received from vendor.
MAINT VENDOR	String	6	optional	Code for the item's maintenance vendor. The operator may zoom to the Vendor data file and choose the appropriate code if it had been entered there previously. (See the Vendor Master Maintenance section.)
MAINT CONTRACT	String	15	optional	Identifier for the Maintenance Contract under which the item is covered. The operator may zoom to the Contract data file and choose the desired contract number if it had been entered there previously. (See the Maintenance Contracts section.) .
WARRANTY EXP DATE	Date	2	optional	Date the warranty on the item ends. This field defaults to 365 days from the date of entry.
STATUS CODE	String	1	optional	Code that designates the status of the item. The following values are set when processing transactions: R = Received; S = Shipped; I = Installed; A = Archived;
CONTROL ITEM ID	String	20	optional	Identifier of a corresponding, version-controlled item in the BASELINE MANAGEMENT system. The operator may enter the ID if known, or perform a zoom to the baseline data file.
RMA #	String	16	optional	Reference to the return material authorization number assigned to an item.
NASA CONTRACT	String	11	system-supplied	Identifier designating the government contract used for this item. This information is automatically assigned and can not be changed.
RELEASE CODE	String	10	optional	Code for distinguishing the release status of the item.
Po Number	String	10	optional	Identifier of the purchase order against which the item was received. The system sets the value during Receipt Confirmation processing.
COST	Floating	10.2	optional	Purchase cost of the item.
Tran Code	Numeric	3	system-supplied	Code designating the transaction type. The value will always be set to '03' and is not modifiable by the operator.
Installation Date	Date	2	system-supplied	Date the item was installed. The system sets the value during EIN Installation processing.
Report Number	Numeric	4	system-supplied	Identifier under which all installation reports for the EIN are grouped.
Shipping Report Number	Numeric	2	system-supplied	Report number assigned to the item when the item is shipped. The system sets the value during EIN Shipment processing.

Table 4.3.4-4. EIN Manager (EDF) Field Description (3 of 3)

Field Name	Data Type	Size	Entry	Description
LOCATION	String	8	optional	Identifier that designatesan inventory location. The operator may zoom to the Inventory Locations data file to pick an appropriate code if it had been entered there previously. (See the Inventory Location Manager section.) The system sets the value during all EIN transaction processing. (See the EIN Transactions section.)
BUILDING	String	6	optional	Identifier for the building where the item can be found.
ROOM	String	6	optional	Identifier for the room where the item can be found.
USER	String	8	optional	Code for the person who has the item. The operator may zoom to the Employee table and choose the code, if it had been entered there previously. (See Employee Maintenance).
Audit Date	Date	2	optional	Date the item was physically inventoried last
COMMENT	String	60	optional	Miscellaneous information specific to the item.
CODE	String	2	optional	Identifier for a type or category of note associated with the item
NOTE	String	60	optional	A message that can be associated with the item.

4.3.4.2.1.3 EIN Structure Manager (EDF) Screen

The EIN Structure Manager (EDF) screen is designed for defining a structure for a machine (i.e., assigning child items to parents manually). It consists of a header screen for identifying the structure's parent EIN and attributes about the structure (Figure 4.3.4-7 and Table 4.3.4-5), and an items page for specifying each parent's children (Figure 4.3.4-7a and Table 4.3.4-5a).

The header screen is always presented to the operator in INQUIRY mode. Using the **/A**dd bottom-line command enters ADD mode so an EIN can be defined as a parent. If desired, the operator can enter either a PO number or a vendor code. This will limit the EINs the system presents whenever the ZOOM function is invoked on the screen's items page. Leaving both fields blank or null lets the ZOOM function display all EIN items. When complete, the operator exits ADD mode by typing <**F3**>, then uses the **I**tems command to get to the items page for adding or changing the parent's EIN children.

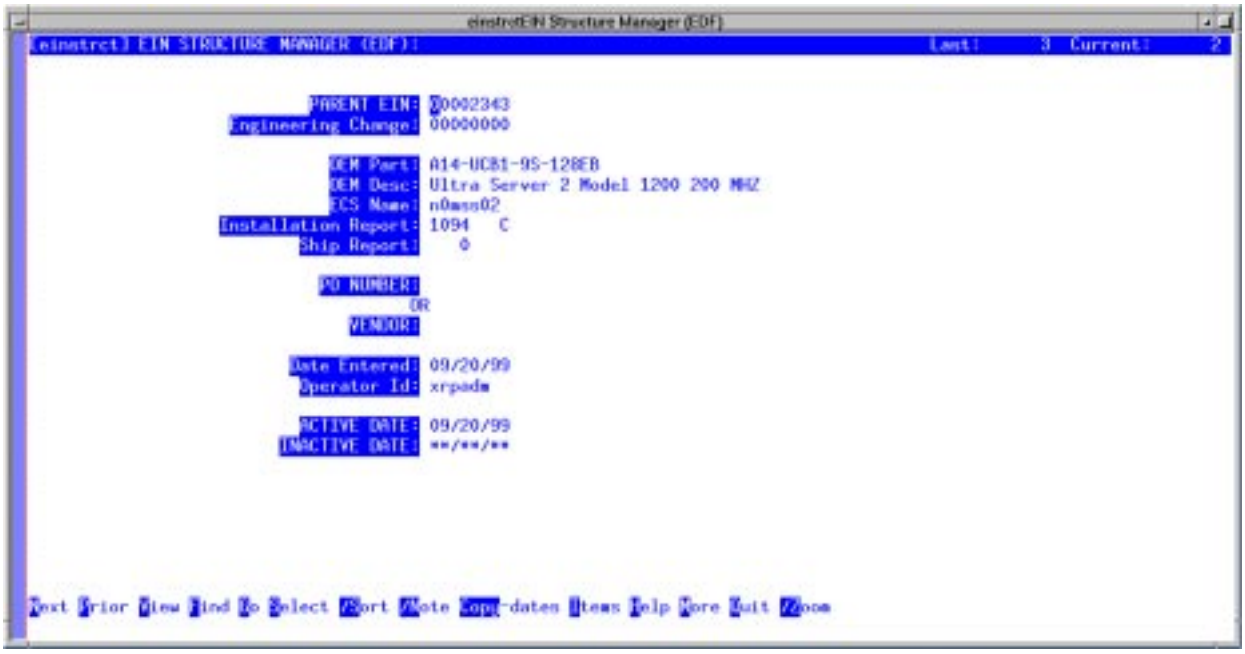

Figure 4.3.4-7. EIN Structure Manager (EDF) CHUI

Table 4.3.4-5. EIN Structure Manager (EDF) Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
PARENT EIN	String	20	required	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
Engineering Change	String	8	required; <**ENTER**>	Product structure change number assigned to the parent EIN when its EIN record was added to the database. The operator should press <ENTER> at this field to allow the system to assign the default, “00000000”, when adding new records.
OEM Part	String	34	system-supplied	OEM part number for the item entered as the parent EIN.
OEM Desc	String	40	system-suppied	OEM Description for the item entered as the parent EIN.
ECS Name	String	30	system-supplied	Name of the machine with which the item is associated.
Installation Report	Numeric	4	system-supplied	Identifier under which all installation reports for the EIN are grouped.
Ship Report	Numeric	3	system-suppied	Report number assigned to the item when it is shipped.

Table 4.3.4-5. EIN Structure Manager (EDF) Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
PO NUMBER	String	10	optional; cannot be used when Vendor field is	Number of the purchase order against which the parent EIN item was received. The PO will be used to aid item selection when adding children items to the parent. The operator may zoom to the PO table and choose the number, if it had been entered there previously. (See the Purchase Order Entry section.). If a PO Number is entered, the operator may not enter a Vendor Code in the next field.
VENDOR	String	6	optional; cannot be used when PO Number field is	Code for the Vendor from whom the item was purchased. The code will be used to aid item selection when adding children items to the parent. The operator may zoom to the Vendor data file and pick the desired code if it had been entered there previously. (Vendor Master Maintenance.) If a Vendor code is entered, the operator may not enter a PO number in the field above.
Date Entered	Date	2	system-suppied	Date when this record was added to the database.
Operator ID	String	8	system-suppied	Login ID of the operator who added the EIN structure parent record to the database.
ACTIVE DATE	Date	2	optional	Default effective date on which components are assigned to the Parent EIN. Actual dates, which can vary among components, can be set via the screen's items page and by transactions that alter EIN structures. NOTE: **/**/** = earliest system date.
INACTIVE DATE	Date	2	optional	Default effective date on which components are no longer assigned to the Parent EIN. Actual dates, which can vary among components, can be set via the screen's items page and by transactions that alter EIN structures. NOTE: **/**/** = latest system date.

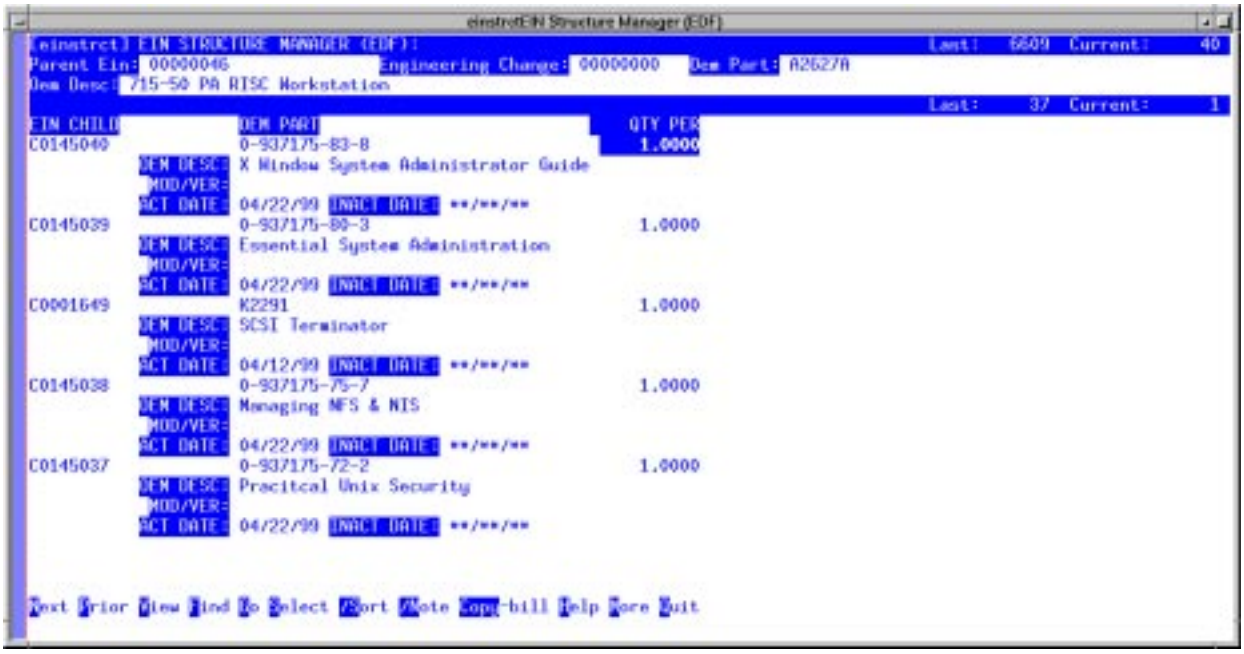

Figure 4.3.4-7a. Items Page for EIN Structure Manager (EDF) CHUI

Table 4.3.4-5a. Items Page for EIN Structure Manager (EDF) Field Descriptions

Field Name	Data Type	Size	Entry	Description
EIN CHILD	String	20	required	EIN for a child item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
OEM PART	String	34	system-supplied	OEM part number for the item entered as the parent EIN.
QTY PER	String	34	system-supplied	Number of items in the EIN structure for the parent.
OEM DESC	String	40	system-suppied	OEM Description for the item entered as the parent EIN.
MOD/VER	String	24	system-supplied	Model or version of the item. If the operator had chosen a known OEM Part, this field will be written with the information from that file.
ACTIVE DATE	Date	2	required	Effective date on which the EIN child is assigned to the Parent EIN. NOTE: **/**/** = earliest system date.
INACTIVE DATE	Date	2	required	Effective date on which the EIN child is no longer assigned to the Parent EIN. NOTE: **/**/** = latest system date.

4.3.4.2.1.4 EIN Inventory Query Screen

The EIN Inventory Query screen (Figure 4.3.4-8) is designed to view the inventory location of EIN controlled items. The operator may sort and select by any field on the screen and then print a report of the data. This screen is displayed in INQUIRY mode only and the operator may not modify any data with this screen. Table 4.3.4-6 describes the screen's fileds.

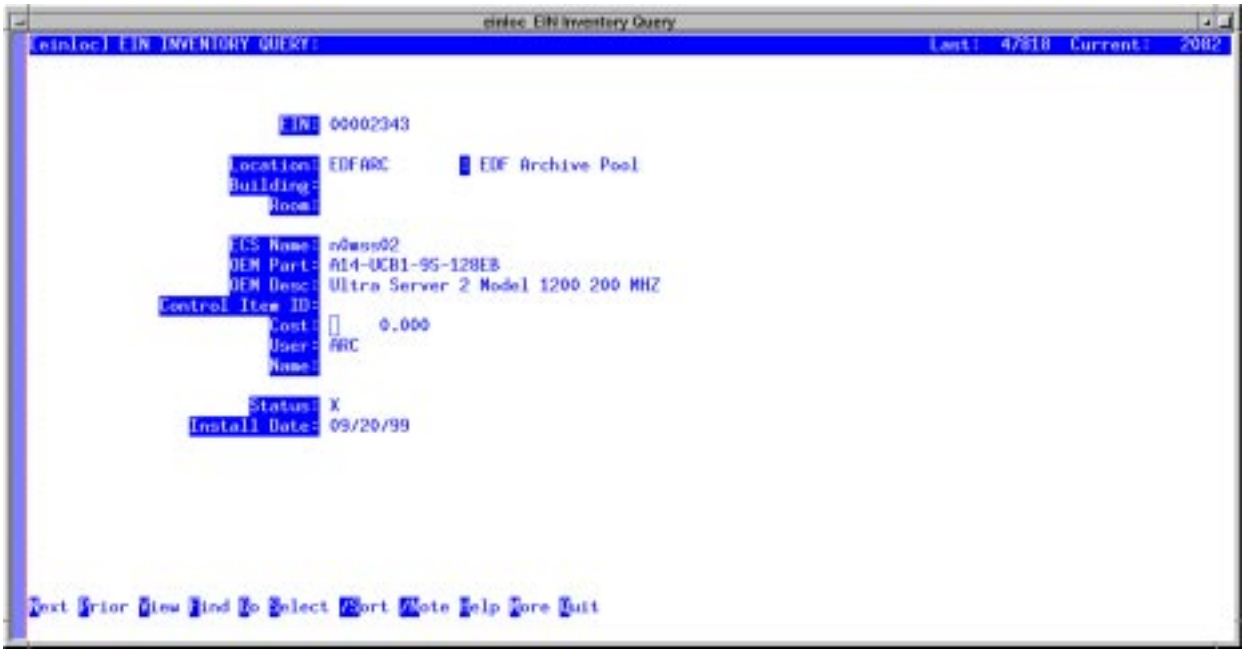

Figure 4.3.4-8. EIN Inventory Query CHUI

Table 4.3.4-6. EIN Inventory Query Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
EIN	String	20	system-supplied	Identifier for an EIN-controlled inventory item.
Location	String	8	system-supplied	Identifier that designates an inventory location.
Building	String	6	system-supplied	Identifier for the building where the item can be found.
Room	String	6	system-supplied	Identifier for the room where the item can be found.
ECS Name	String	30	system-supplied	Name of the machine with which the item is associated.

Table 4.3.4-6. EIN Inventory Query Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
OEM Part	String	34	system-supplied	Manufacturer's or vendor's part number for the item.
OEM Desc	String	40	system-supplied	Manufacturer's or vendor's description for the item.
Control Item ID	String	20	system-supplied	Identifier of a corresponding version-controlled item in the BASELINE MANAGEMENT system.
Cost	Floating	9.2	system-supplied	Cost of the item.
User	String	8	system-supplied	Code of the person who has the item.
Name	String	30	system-supplied	Name of the person who has the item. It is obtained from the employee file based on the value in field User.
Status	String	1	system-supplied	Code that designates the status of the item. The following values are set when processing transactions: R = Received; S = Shipped; I = Installed; A = Archived;
Install Date	Date	2	system-supplied	Date the item was installed.

4.3.4.2.1.5 EIN Structure Manager Screen

This screen is the DAAC equiavalent of the EIN Structure Manager (EDF) screen. (See section 4.3.4.2.1.3). It performs the same functions, except it accesses the EIN structure records for items located at the local DAAC only.

4.3.4.2.1.6 EIN Manager Screen

This screen is the DAAC equivalent of the EIN Manager (EDF) screen. (See Section 4.3.4.2.1.2.) It performs the same functions, except it accesses the EIN records for items located at the local DAAC only.

4.3.4.2.2 EIN Transactions

The EIN Transactions menu (Figure 4.3.4-9) lets operator navigate to a set of screens for performing transactions to install, ship, transfer, archive, and relocate inventory items, It also provides access to a screen for browsing the log of past inventory transactions. Each of these screens is described in a separate subsection that follows.

Figure 4.3.4-9. EIN Transactions Menu

4.3.4.2.2.1 EIN Installation Screen

The EIN Installation screen (Figure 4.3.4-10) is designed for updating property records to reflect installation of EIN-controlled items. It has a header screen for specifying the parent EIN involved and some installation parameters, and an items page for designating which of the parent's children EINs are being installed. The transaction can be run only if it is initiated at the SMC or if the specified parent EIN is located at the local site.

Operators complete the fields on the header screen, using Table 4.3.4-7 as a guide, then use the Items command to invoke the items page (Figure 4.3.4-11 and Table 4.3.4-8). The items page lists all the parent's children EINs, displaying two lines per item. Operators choose which children are being installed by entering MODIFY mode and typing "**Y**" in the Install column for applicable items. They next press <**F3**> twice to exit both MODIFY mode and the items page, then type "**E**" at the header screen to execute the transaction and, if desired, print a report.

Upon receiving the Execute command, XRP-II checks if the parent EIN is already installed. If it is, the operator is asked to confirm it should be re-installed. If the response is "Y", it proceeds to check if there are also children to process; if the response is "N", the install is abandoned.

For each item being installed (parent as well as children), XRP-II updates the EIN's location and user data based on the installation parameters, sets its status to "I" and its install date to the current date, and gives the EIN an appropriate install report number and report alpha character. Children EINs that are being installed inherit the parent's ECS name as well as its install report number and alpha character. Also for each item, XRP-II adjusts inventory counts for the gaining and losing buildings and writes an "INS" record in the inventory transaction log to capture details of the

event. This includes date/time of the event, operator initiating it, location changes, reason for change, and authorizing CCR or trouble ticket.

Upon completing the transaction, XRP-II generates an installation report that the operator can display on screen, print, or save to a file, or cancel by pressing <**F3**>.

Note: EIN Installation does not alter any EIN structure records.

Note: If the parent EIN has an installation report number, its report alpha character is incremented according to the Report Number conversion table. Otherwise, it is assigned a new report number one greater than the last used as specified in the system parameters table.

Note: The Location field must not be null, or the item will not get installed.

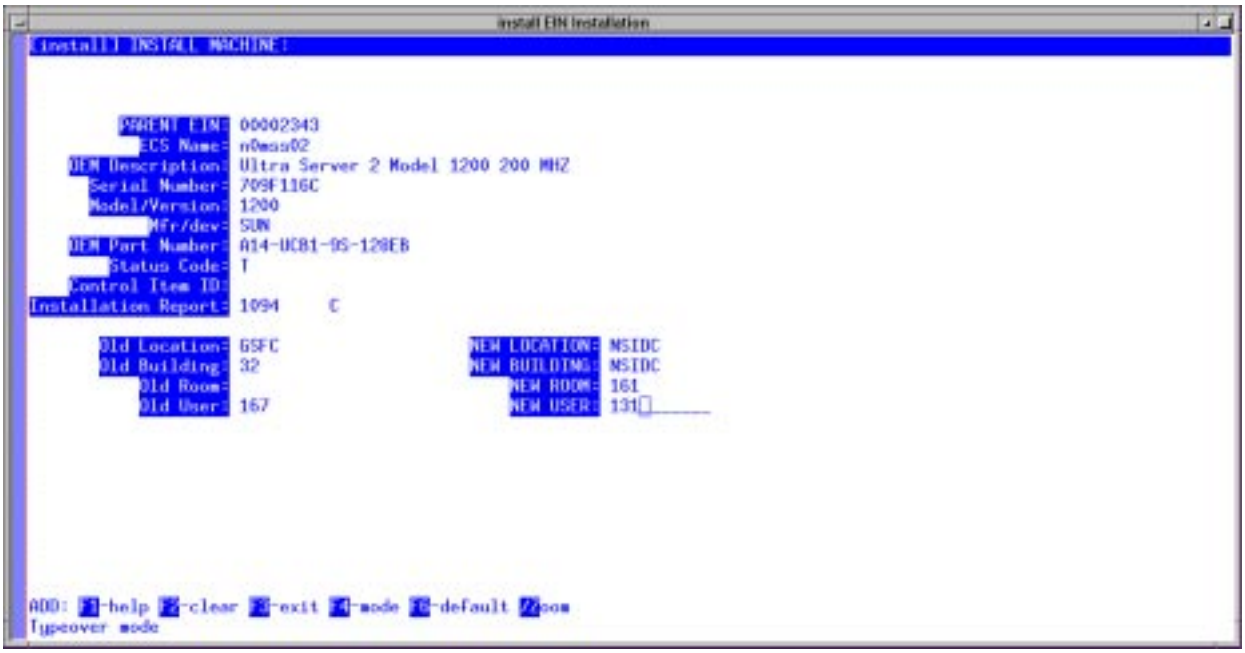

Figure 4.3.4-10. EIN Installation CHUI

Table 4.3.4-7. EIN Installation Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
PARENT EIN	String	20	required	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
ECS Name	String	30	system-supplied	Name of the machine with which the item is associated.
OEM Description	String	40	system-supplied	Manufacturer's or vendor's description for the item. The value is obtained from the EIN file.
Serial Number	String	30	system-supplied	Serial number of the Parent EIN. The value is obtained from the EIN file.
Model/Version	String	24	system-supplied	Model or version of the item. The value is obtained from the EIN file.
Mfr/dev	String	6	system-supplied	Code used for the manufacturer of the item. The value is obtained from the EIN file.
OEM Part Number	String	34	system-supplied	Manufacturer's or vendor's part number for the item. The value is obtained from the EIN file.
Status Code	String	1	system-supplied	Code that designates the status of the item. The value is obtained from the EIN file.
Control Item ID	String	20	system-supplied	Identifier of a corresponding, version-controlled item in the BASELINE MANAGEMENT system. The value is obtained from the EIN file.
Installation Report	Numeric	4	system-supplied	Identifier under which all installation reports for the EIN are grouped. The value is obtained from the EIN file.
Old Location	String	6	optional	Code for the inventory location as currently recorded for the EIN. The value is obtained from the EIN file.
Old Building	String	10	optional	Code for the building as currently recorded for the EIN. The value is obtained from the EIN file.
Old Room	String	6	optional	Code for the room as currently recorded for the EIN. The value is obtained from the EIN file.
Old User	Numeric	4	optional	Code for the user as currently recorded for the EIN. The value is obtained from the EIN file.
NEW LOCATION	String	6	optional	Codefor the inventory location where the EIN(s) are being installed. The operator may zoom to the Inventory Location table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.)
NEW BUILDING	String	10	optional	Code for the building where the EIN(s) are being installed.
NEW ROOM	String	6	optional	Code for the room where the EIN(s) are being installed.

Table 4.3.4-7. EIN Installation Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
NEW USER	Numeric	4	optional	Code for the user of the EIN(s) being installed. The operator may zoom to the Employee table and choose the code, if it had been entered there previously. (See the Employee Manager section.)

Figure 4.3.4-11. EIN Installation Items Page CHUI

Table 4.3.4-8. EIN Installation Items Page Field Descriptions

Field Name	Data Type	Size	Entry	Description
CHILD	String	20	required	Identifier for an EIN-controlled inventory item that is a child of the parent EIN being installed. The system displays its OEM description on the succeeding line
INSTALL	String	1	optional; Y or N	Flag designating if the item is being installed.
St	String	1	system-supplied	The status of the item.

4.3.4.2.2.2 EIN Shipment Screen

The EIN Shipment screen (Figure 4.3.4-12 and Table 4.3.4-9) is designed for recording shipments of EIN-controlled items from one place to another. It consists of a header screen and three items pages invoked via bottom-line commands. The header screen describes the shipment itself and has two of the items pages. The first is the Cartons page for describing the cartons in a shipment (Figure 4.3.4-13 and Table 4.3.4-10). The second is the Ship EIN Parents page for listing parents being shipped (Figure 4.3.4-14 and Table 4.3.4-11). The Ship EIN Parents page has the third items page, Ship Item, which is used to list which children EINs are being shipped with its parent (Figure 4.3.4-15 and Table 4.3.4-12).

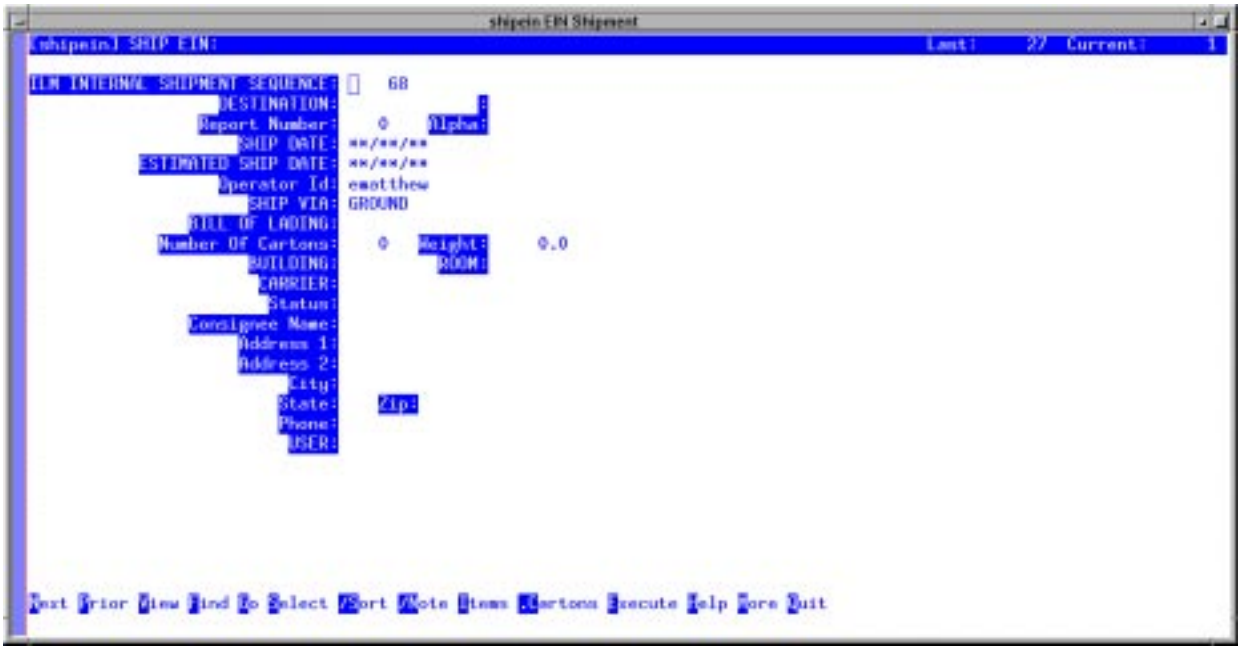

Figure 4.3.4-12. EIN Shipment CHUI

Shipments can include one or more parent EINs and one or more children EINs for each parent, but the system does not track which carton contains each item. Each shipment is accorded a unique system number and reports of shipments are serialized by site. This transaction can be run only if it is initiated at the SMC or if the parent EINs are at the local site.

Operators complete the fields on the header screen stipulating the shipment's parameters, then type "**.C**" (the Cartons command) to invoke the Cartons page. The Cartons page is presented in ADD mode to facilitate adding records that identify the shipment's packages. Pressing <**F3**> twice exits ADD mode and returns to the header screen where the Items command can be invoked.

Table 4.3.4-9. EIN Shipment Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
ILM INTERNAL SHIPMENT SEQUENCE	Numeric	6	required; <**ENTER**>	Internal shipment sequence number maintained by the system. The operator should always press return at this field to allow the system to assign the next internal sequence number.
DESTINATION	String	6	optional	Code for the inventory location to receive the shipment. The operator may zoom to the Inventory Location table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.)
Report Number	String	4	system-supplied	Report number assigned to the item when the item is shipped. Each site has its own number. So, items shipped from any inventory location at the site share the same number.
Alpha	String	4	system-supplied	Code letter identifying a sequence number for the shipping reports generated by a site.
SHIP DATE	Date	2	optional	Date the item(s) is actually shipped. The value defaults to the current date.
ESTIMATED SHIP DATE	Date	2	optional	Date the item(s) is estimated to ship.
Operator Id	String	8	system-supplied	Login ID of the operator recording the transaction.
SHIP VIA	String	20	optional	Method by which the item(s) is shipped.
BILL OF LADING	String	12	optional	Identifier for the shipment's Bill of Lading.
Number of Cartons	Numeric	4	system-supplied	Number of cartons in the shipment. This value is calculated from entries on the Cartons page.
Weight	Floating	7.1	system-supplied	Total weight of theshipment. This value is calculated from entries on the Cartons page.
BUILDING	String	6	optional	Identifier for the building to which the item is being shipped.
ROOM	String	6	optional	Room number to which the item is being shipped.
Carrier	String	6	system-supplied	Code for the carrier handling the shipment. The operator may zoom to the Carrier data file and choose the appropriate code, if it had been entered there previously. (See the Carriers section).
Status	String	1	system-supplied	Code that designates the status of the item. The following values are set when processing transactionsL R = Received; S = Shipped; I = Installed; A = Archived.
Consignee Name	String	30	system-supplied	Name of the consignee at the destination location. The value is obtained from the Inventory Location record for the entered Destination.
Address	String	30	system-supplied	Address to receive the shipment. The value is obtained from the Inventory Location record for the entered Destination.

Table 4.3.4-9. EIN Shipment Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
City	String	20	system-supplied	Name of the city to receive the shipment. The value is obtained from the Inventory Location record for the entered Destination.
State	String	2	system-supplied	Code for the state to receive the shipment. The value is obtained from the Inventory Location record for the entered Destination.
Zip	String	10	system-supplied	Zip code for the shipment's destination. The value is obtained from the Inventory Location record for the entered Destination.
Phone	String	18	system-supplied	Phone number for the consignee at the shipment's destination. The value is obtained from the Inventory Location record for the entered Destination.
USER	String	8	optional	Code of the person who will receive the item. The operator may choose to zoom to the Employee data file to choose the appropriate code, it it had been entered there previously. (See the Employee Manager section.)

Next, operators type "**I**" (the **I**tems command) to display the Ship EIN Parents page, which is presented in ADD mode, too. They enter the EIN for each parent being shipped, then press <**F3**> to exit ADD mode. Now they invoke this page's **I**tems command to display the Ship Item page for any parent that they highlight with the cursor.

The Ship Item page lists each a parent's children EINs that are <u>not</u> already being shipped (i.e., status not equal to "S"). Operators type **/M** to invoke MODIFY mode, then place a "**Y**" in the Ship column for each child to include in the shipment. Pressing <**F3**> twice exits back to the Ship EIN Parents page so another set of children can be included. When done, typing <**F3**> on this page returns to the header screen where the transaction can be executed.

Upon receiving the Execute command, the EIN Shipment process changes the EIN record of every item in the shipment to reflect the shipment's destination, building, room, and user. It sets each item's status to "S" and gives it a shipping report number and alpha character appropriate for the sending site. Also for each item, XRP-II adjusts inventory counts for the gaining and losing buildings and writes an "SHP" record in the inventory transaction log to capture details of the event. This includes date/time of the event, operator initiating it, location changes, reason for change, and authorizing CCR or trouble ticket.

<u>Note</u>: Operators can specify children EINs on the Ship EIN Parents page in order to ship them without their parents.

<u>Note</u>: Using the Ship EIN Parents page to specify a parent EIN that has already been shipped so that the Ship Item page can be used to designate children causes the parent to be shipped again.

Note: Operators cannot re-ship children EINs while their status is "S". However, they can re-ship Parent EINs in order to ship their children, but the system will prompt for confirmation first.

Note: EIN Shipment does not alter EIN structure records.

Note: EIN shipment reports are numbered by site. Each site has its own shipping report number (see Shipment Number Manager section), and XRP-II automatically assigns a new alpha character for each shipment from the site. Shipping report alpha characters are incremented according to the Report Number conversion table (see Report Number section).

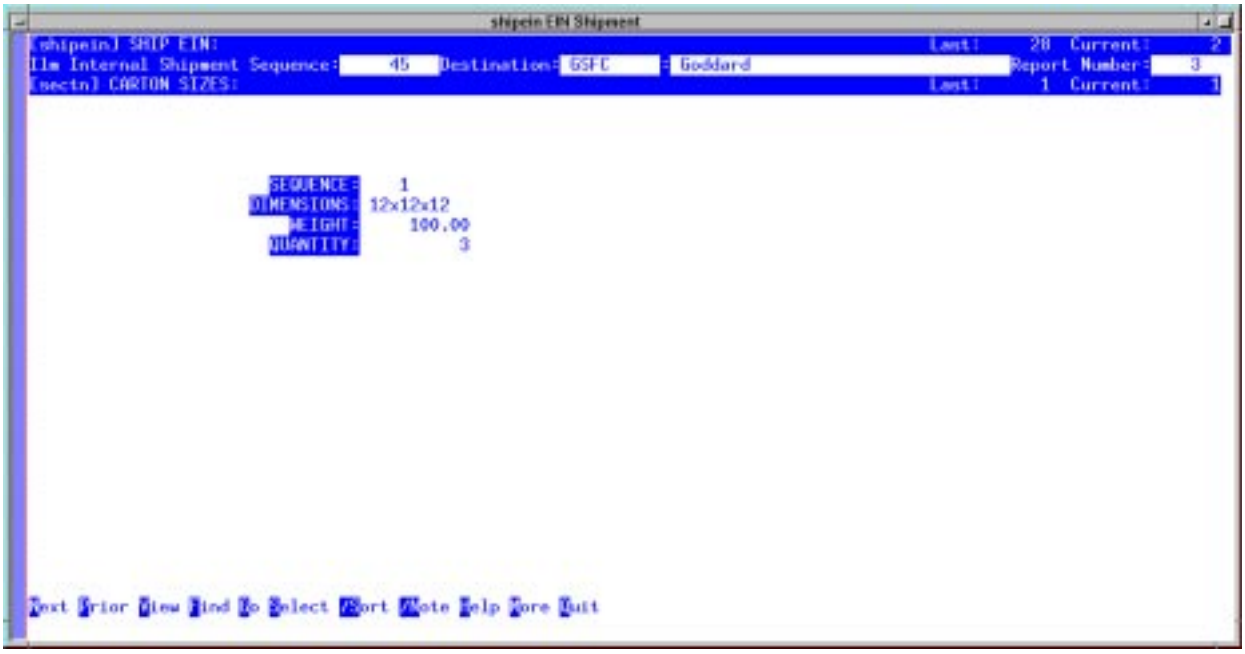

Figure 4.3.4-13. Carton Size Page for EIN Shipment

Table 4.3.4-10. Carton Size Page for EIN Shipment Field Descriptions

Field Name	Data Type	Size	Entry	Description
SEQUENCE	Numeric	4	required	This field is the automatically assigned sequence number of the cartons data attached to the shipment header record.
DIMENSIONS	String	8	optional	Enter the actual dimensions of the box.
WEIGHT	Floating	7.1	optional	Enter the weight of the box.
QUANTITY	Floating	10.1	optional	Enter the quantity of the boxes having the same dimension and weight.

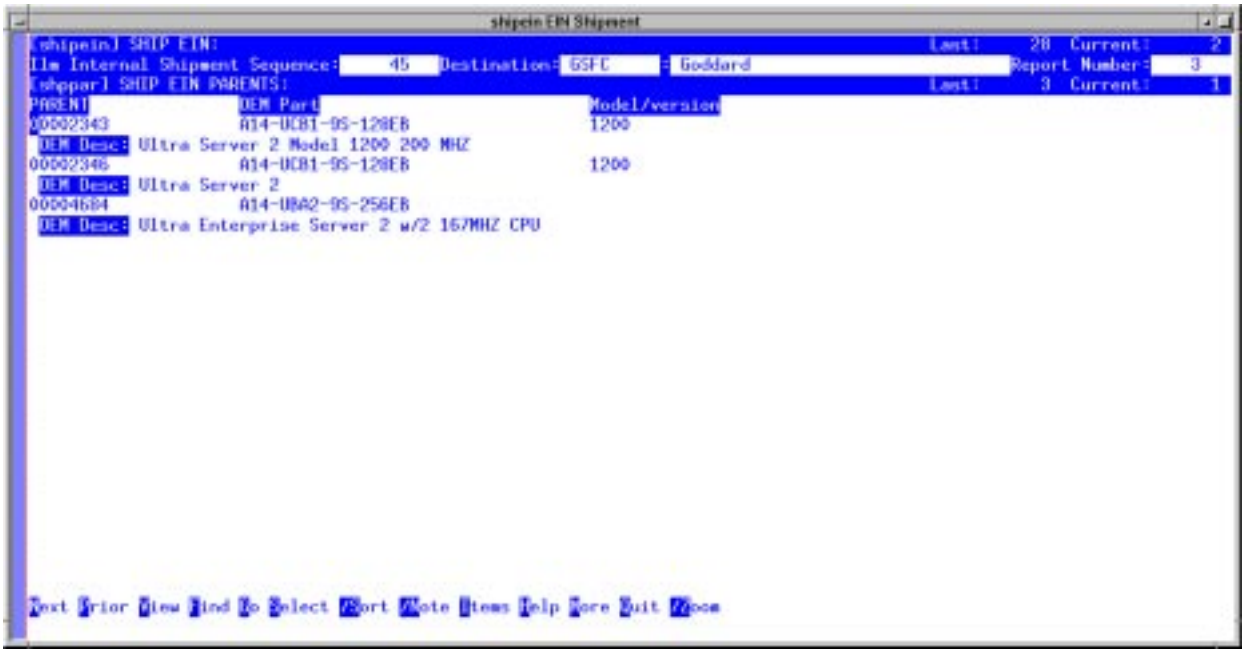

Figure 4.3.4-14. Items Page for EIN Shipment

Table 4.3.4-11 describes the fields on the Items Page for EIN Shipment screen.

Table 4.3.4-11. Items Page for EIN Shipment Field Descriptions

Field Name	Data Type	Size	Entry	Description
PARENT	String	20	required	Enter the Parent EIN number to be shipped.
OEM Part	String	34	system-supplied	Manufacturer's of vendor's part number for the item.
Model	String	24	system-supplied	Model or version of the item.
OEM Desc	String		system-supplied	Manufacturer's or vendor's description for the item.

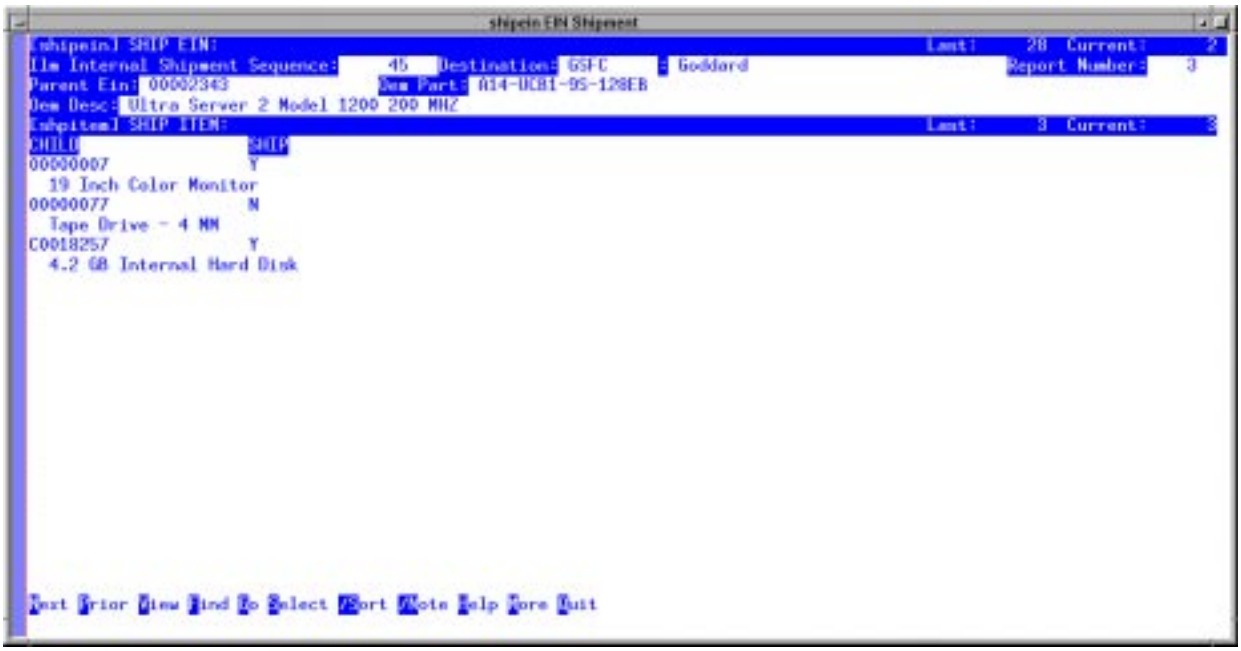

Figure 4.3.4-15. Items Structure Page for EIN Shipment

Table 4.3.4-12. Items Structure Page for EIN Shipment Field Descriptions

Field Name	Data Type	Size	Entry	Description
CHILD	String	20	required	EIN for a component of the parent. Its description from the EIN record is displayed on the line underneath.
SHIP	String	1	optional; Y or N	Flag designating whether the EIN is included in the shipment. A null value is the same as “N”.

4.3.4.2.2.3 EIN Transfer Screen

The EIN Transfer screen (Figure 4.3.3-16) is designed for updating property records when a machine and all its children are being moved from one inventory location, building, room, or user to another. The screen is presented to operators in ADD mode, so they need only identify the parent EIN, specify its new destination and user, press <**F3**> to exit ADD mode, and type "**E**" to execute the transaction. The transaction can be run only if it is initiated at the SMC or if the specified parent EIN is located at the local site. Screen fields are described in Table 4.3.4-13.

Upon receiving the Execute command, XRP-II checks if the specified EIN has any parents. If it does, it notifies the operator to use the EIN Relocation function instead (not always appropriate advice) and terminates. If the EIN has no parents, XRP-II updates the EIN records for the parent and all its children, storing data from the header screen, a status of "T", and the current date as the installation date. Also for each item, XRP-II adjusts inventory counts for the gaining and losing buildings and writes a "TR" record in the inventory transaction log to capture details of the event. This includes date/time of the event, operator initiating it, location changes, reason for change, and authorizing CCR or trouble ticket.

Upon completing the transaction, XRP-II generates a transfer/receipt report that the operator can display on screen, print, or save to a file, or can cancel by pressing <**F3**>.

Note: EIN Transfer does not alter any EIN structure records.

Note: No transaction exists for assigning an EIN child to a new room or user without its parent.

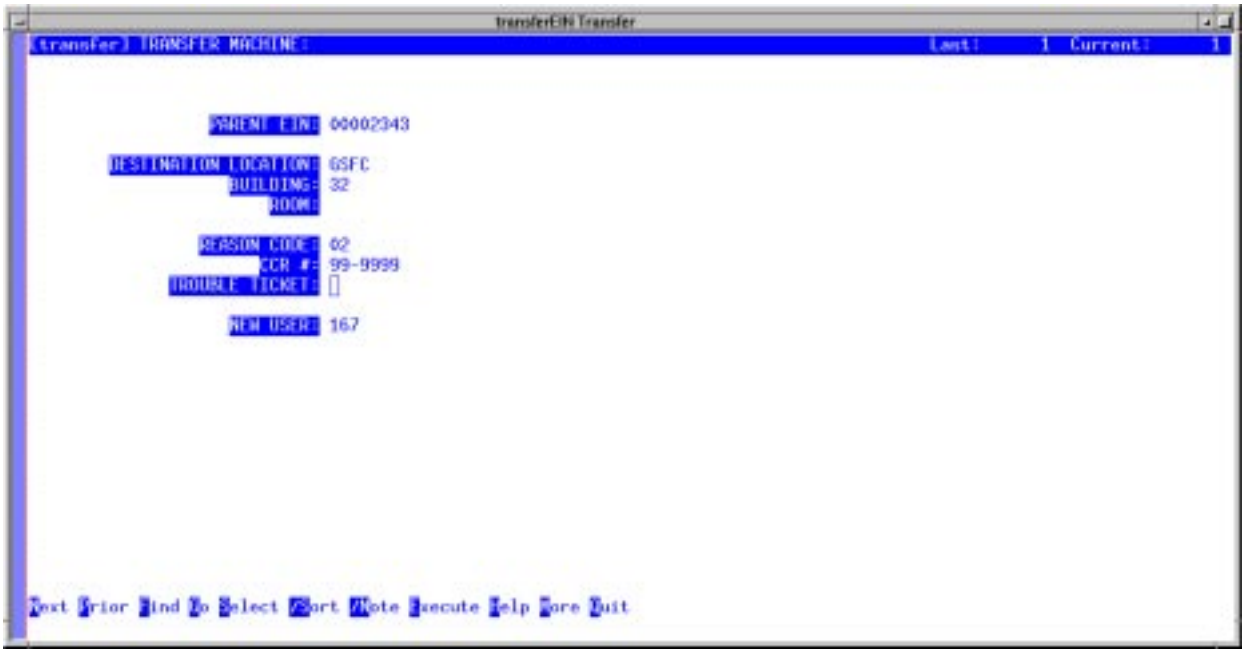

Figure 4.3.4-16. EIN Transfer CHUI

Table 4.3.4-13. EIN Transfer Field Descriptions

Field Name	Data Type	Size	Entry	Description
PARENT EIN	String	20	required	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
LOCATION	String	6	optional	Code for the inventory location gaining the item. The operator may zoom to the Inventory Location table and choose the code, if it been entered there previously. (See the Inventory Location Manager section.)
BUILDING	String	6	optional	Identifier for the building gaining the item.
ROOM	String	6	optional	Number for the room gaining the item.
REASON CODE	String	4	optional	Code for the reason for the transaction. The operator may zoom to the Reason Code table and choose the code, if it had been entered there previously. (See the Reason Code Maintenance section.).
CCR #	String	30	optional	Identifier for the CCR authorizing the transaction
TROUBLE TICKET	String	15	optional	Identifier for the trouble ticket associated with the transaction.
NEW USER	Numeric	4	optional	Code of the user gaining the item. The operator may zoom to the Employee data file and choose a code, if it had been entered there previously. (See the Employee Manager section.)

4.3.4.2.2.4 EIN Archive Screen

Operators use the EIN Archive screen (Figure 4.3.4-17) to transfer an EIN and/or its children to an archive location and code them as unavailable for use, such as when items have failed and cannot be repaired. It has a header screen for identifying the parent EIN involved and for specifying archiving parameters (Table 4.3.4-14), and it has an items page for designating the children EINs (Figure 4.3.4-18 and Table 4.3.4-15). The transaction can be run only if the process is initiated at the SMC or if the specified parent EIN is located at the local site.

Operators complete fields on the header screen, then use the Items command to invoke the items page. The items page lists all of the parent's current children EINs using two lines per item. Operators select the children being archived by entering MODIFY mode and typing "**Y**" in the Archive column for applicable items. They next press <**F3**> twice to exit both MODIFY mode and the items page, then type "**E**" to execute the transaction and, if desired, print a report.

Upon receiving the Execute command, XRP-II first checks to ensure the Archive Parent field has been set and, if not, issues a warning and abandons the process. It then renders each designated item inactive as a child in EIN structures as of the current date, effectively de-allocating it from its parent. It updates the item's EIN records with values from the header screen and changes its status to "X", its user to "ARC", and its installation date to the current date. Also for each item, XRP-II

adjusts inventory counts for the gaining and losing buildings and writes an “INS” record in the inventory transaction log to capture details of the event. This includes date/time of the event, operator initiating it, location changes, reason for change, and authorizing CCR or trouble ticket.

Upon completing the transaction, XRP-II generates an archive report that the operator can display on screen, print, or save to a file, or can cancel by pressing <**F3**>.

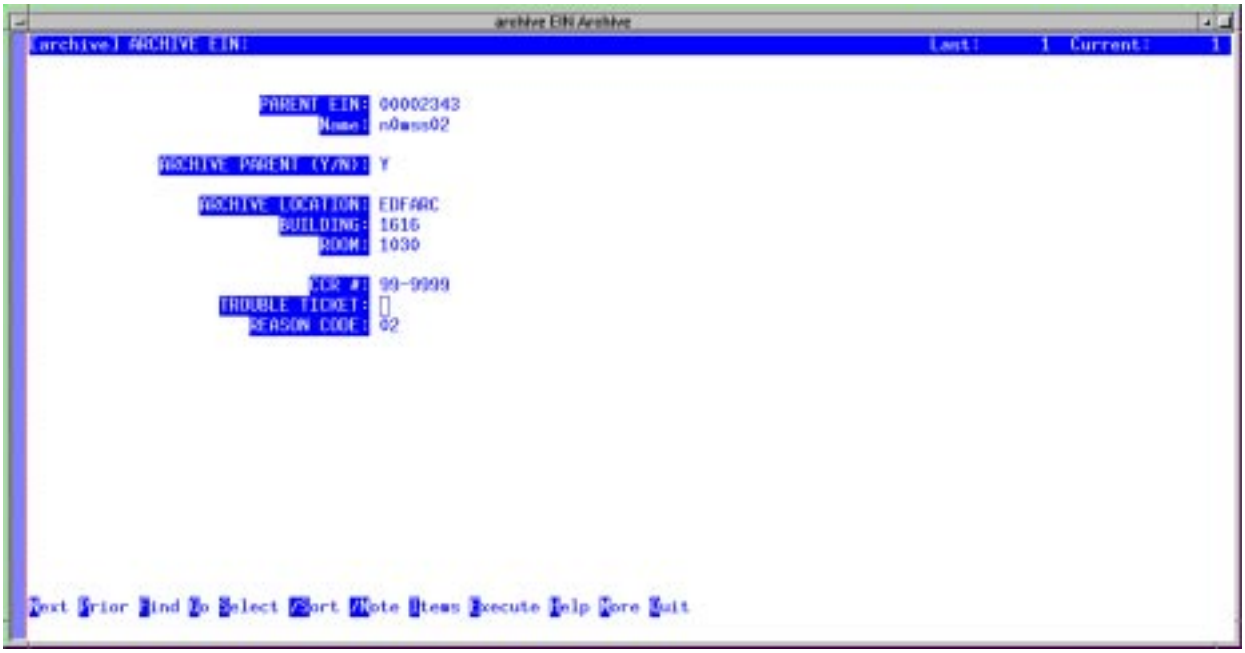

Figure 4.3.4-17. EIN Archive CHUI

Table 4.3.4-14. EIN Archive Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
Parent EIN	String	20	required	EIN for the parent of the item(s) being archived. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry Manager section.).
Name	String	30	system-supplied	Name for the machine with which the item is associated. The value is obtained from the EIN record of the parent EIN.
Archive Parent (Y/N)	String	1	required; Y or N	Flag designating if the parent EIN is to be archived. Enter Y if parent is to archived along with children

Table 4.3.4-14. EIN Archive Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Archive Location	String	6	optional; location must be of type "archive"	Code for the inventory location where the item is being archived. The operator may zoom to the Inventory Location table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.)
Building	String	6	optional	Identifier for the building gaining the item.
Room	String	6	optional	Identifier for the room gaining the item.
CCR #	String	30	optional	Identifier for the CCR authorizing the transaction
Trouble Ticket	String	15	optional	Identifier for the trouble ticket associated with the transaction.
Reason Code	String	4	optional	Code for the reason for the transaction. The operator may zoom to the Reason Code table and choose the code, if it had been entered there previously. (See the Reason Code Maintenance section.).

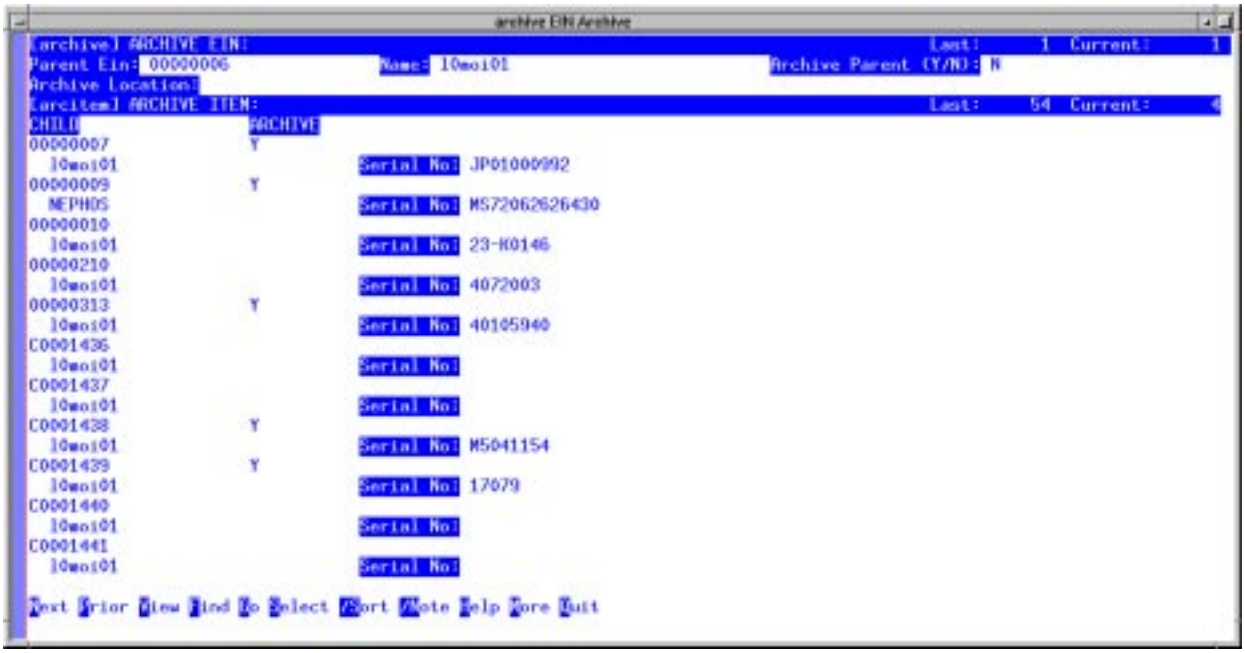

Figure 4.3.4-18. Items Page for EIN Archive CHUI

Table 4.3.4-15. Items Page for EIN Archive Field Descriptions

Field Name	Data Type	Size	Entry	Description
CHILD	String	20	required	EIN for a component of the parent. Its description and serial number from the EIN record is displayed on the line underneath. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry Manager section.)
Serial Number	String	30	system-supplied	Serial number of the item.
ARCHIVE	String	1	optional Y or N	Flag designating whether the EIN is to be archived. A null value is the same as "N".

4.3.4.2.2.5 EIN Relocation Screen

The EIN Relocation screen (Figure 4.3.4-19) is designed for updating property records when "relocating" an EIN-controlled item; that is, associating an EIN with a new parent. It consists of a header screen for specifying relocation parameters and an items page for designating which of a parent's children EINs are relocating. The transaction can be run only if it is initiated at the SMC or if both the source and the target parent EINs are at the local site.

Figure 4.3.4-19. EIN Relocation CHUI

Operators can choose whether to relocate a parent EIN with all of its children or just some of its children by themselves. Relocating a parent reassigns the specified EIN, as an assembly, from its current parent to the new one. Relocating children reassigns only designated children EINs from the specified parent to the new one.

Operators complete the fields on the header screen, using Table 4.3.4-16 as a guide. To move a parent and all of its children, they enter the value "**P**" in field Parent or Children, then type "**E**" to execute the transaction. If children are relocating alone, they enter the value "**C**", then invoke the Items command to pick which ones. On the items page (Figure 4.3.4-20 and Table 4.3.4-17), operators type **/M** to enter MODIFY mode and place a "**Y**" in the Relocate column of each affected component. They next press <**F3**> twice to exit both the mode and page, then execute the transaction.

Upon receiving the Execute command, the EIN Relocation process first determines whether or not the parent is being relocated. If it is, XRP-II renders it inactive if it is a child in existing EIN structures, and adds it to the EIN structure for the new parent. This assures it is tied to the new parent alone. If only children EINs are relocating, XRP-II renders each inactive as components of the parent EIN, and adds them to the EIN structure for the new parent.

XRP-II changes the EIN record of every relocating item to reflect the ECS name and location of the new parent, a status of "R", and the current date for an installation date. Also for each item, XRP-II adjusts inventory counts for the gaining and losing buildings and writes an "INS" record in the inventory transaction log to capture details of the event. This includes date/time of the event, operator initiating it, location changes, reason for change, and authorizing CCR or trouble ticket.

Upon completing the transaction, XRP-II generates a relocation/receipt report that the operator can display on screen, print, or save to a file, or can cancel by pressing <**F3**>.

Note: Relocate a child EIN to a new parent EIN by specifying its parent EIN and choosing to move the item as a component. This version of ILM handles attempts to specify a child EIN as a parent to be moved incorrectly.

Note: Use the system-filled field for "Serial Number" to be certain of any part being moved.

Table 4.3.4-16. EIN Relocation Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
EIN	String	20	required	Identifier for an EIN-controlled inventory item. This field is for the entry of the actual silver tag numbers attached to each item. The operator may zoom to the EIN table and choose an EIN, if it had been entered there previously. (See the EIN Entry Manager section.)
Serial Number	String		system-supplied	Serial number of the item.

Table 4.3.4-16. EIN Relocation Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
(P)arent or (C)hildren	String	1	optional; P or C	Flag designating if the entire parent or only some children are being relocated.
New Parent EIN	String	20	required	Identifier for a parent EIN to which the item(s) is being relocated. The operator may zoom to the EIN table and choose an EIN, if it had been entered there previously. (See the EIN Entry Manager section.)
Reason Code	String	4	optional	Code for the reason for the transaction. The operator may zoom to the Reason Code table and choose the code, if it had been entered there previously. (See the Reason Code Maintenance section.)
CCR #	String	30	optional	Identifier for the CCR authorizing the transaction.
Trouble Ticket	String	15	optional	Identifier for the trouble ticket associated with the transaction.

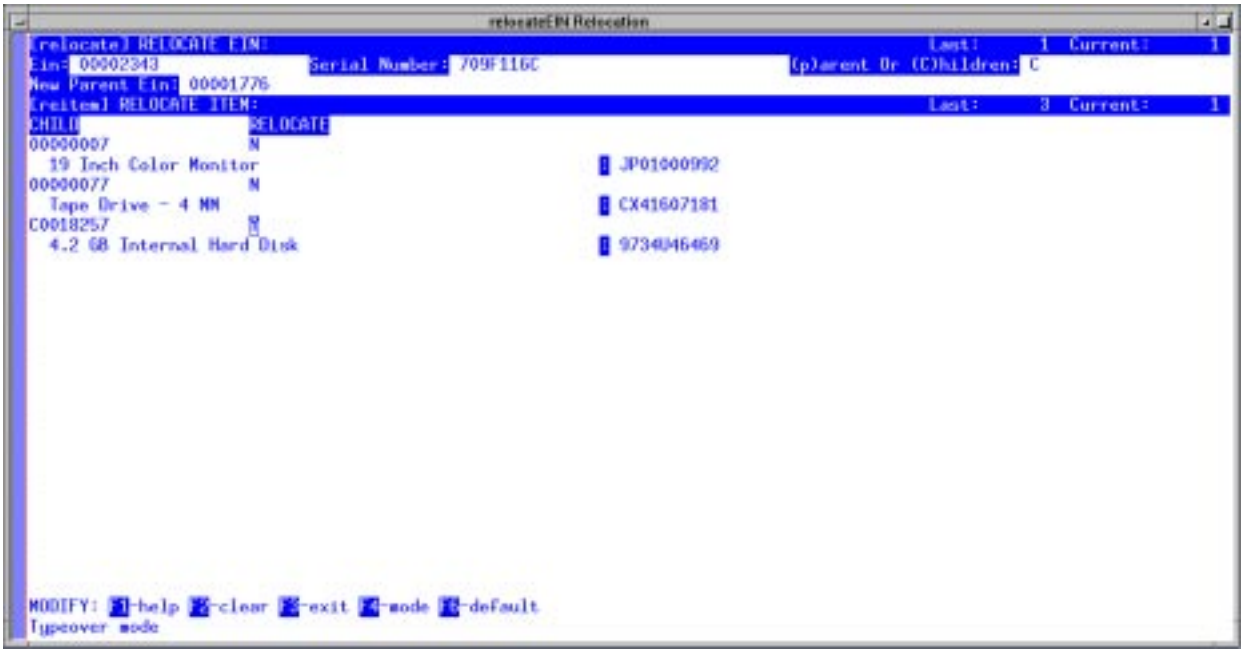

Figure 4.3.4-20. Items Page for EIN Relocation CHUI

Table 4.3.4-17. Items Page for EIN Relocation Field Descriptions

Field Name	Data Type	Size	Entry	Description
CHILD	String	20	required	EIN for a component of the parent. Its description and serial number from the EIN record is displayed on the line underneath. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry Manager section.)
RELOCATE	String	1	optional Y or N	Flag designating whether the EIN is to be relocated. A null value is the same as "N".

4.3.4.2.2.6 Inventory Transaction Query Screen

This screen (Figure 4.3.4-21) allows operators to browse the log of all inventory transactions performed on items in the database. The operator may sort and select on any field on the screen and print ad hoc reports of sorted data, if desired, using XRP-II's report command. Table 4.3.4-18 describes the screen's fields.

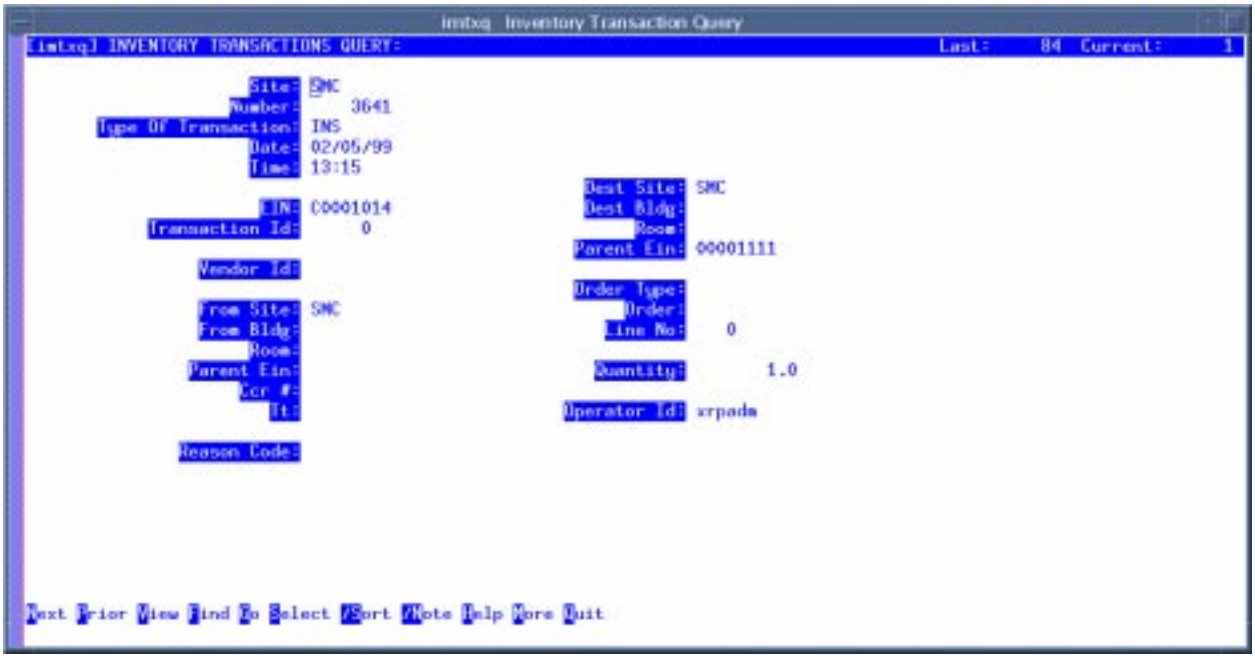

Figure 4.3.4-21. Inventory Transaction Query Screen

Table 4.3.4-18. Inventory Transactions Query Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
Site	String	6	system-supplied	Code for the site that entered the transaction.
Number	Numeric	8	system-supplied	Record number of database record being observed.
Type of Transaction	String	3	system-supplied	Code assigned to the type of transaction being performed. INS – Installation; REL = Relocation; TR = Transfer; ARC = Archive; SHP = Shipment; RX = Receipt;
Date	String	2	system-supplied	Date the transaction was entered.
Time	Time	2	system-supplied	Time the transaction was entered.
Dest Site	String	6	system-supplied	Code for the inventory location gaining the item.
EIN	String	20	system-supplied	EIN of the item involved in the transaction. The operator may zoom to the EIN table and choose an EIN, if it had been entered there previously. (See the EIN Entry Manager screen.)
Dest Bldg	String	6	system-supplied	Identifier for the building gaining the item.
Transaction Id	Numeric	6	system-supplied	Number assigned to a particular transaction
Room	String	6	system-supplied	Number for the room gaining the item.
Vendor Id	String	6	system-supplied	Code for the vendor from whom the item was purchsed.
Parent EIN	String	20	system-supplied	EIN of the parent item involved in the transaction.
Order Type	String	2	system-supplied	Code for the type of order, if any, involved in the transaction. PO = purchase order; SO = sales order; WO = work order; VR = Return to vendor; CR = return from customer.
From Site	String	6	system-supplied	Identifier for the building losing the item.
Order	String	6	system-supplied	Identifier for the order, if any, involved in the transaction.
From Bldg	String	6	system-supplied	Identifier for the building losing the item.
Line No.	Numeric	4	system-supplied	Line number of the item on the order if an order is associated with the transaction.
Room	String	6	system-supplied	Number of the room losing the item.

Table 4.3.4-18. Inventory Transactions Query Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Parent EIN	String	20	system-supplied	EIN of the parent item losing the item. The operator may zoom to the EIN table and choose an EIN, if it had been entered there previously. (See the EIN Entry Manager screen.)
Quantity	Floating	10.1	system-supplied	Number of items in the transaction.
CCR #	String	30	system-supplied	Identifier for the CCR authorizing the transaction.
Tt	String	15	system-supplied	Identifier for the trouble ticket associated with the transaction.
Operator Id	String	8	system-supplied	Login ID of the operator performing the transaction.
Reason Code	String	4	system-supplied	Code for the reason for the transaction.

4.3.4.2.3 ILM Report Menu

XRP-II produces numerous ILM reports. Screens that generate most of the ones associated with inventory or logistics are accessed through the ILM Report Menu (Figure 4.3.4-22). The rest are generated when EIN transactions are processed. All contain information derived from records stored only in the XRP-II database on the host where the report is requested.

Most of the screens accept record filtering parameters and, in some cases, a range of values for them. Section 3.4.5 in the *XRP-II System Reference Manual* explains how to enter range specifications. The output that results can be written to the terminal or to a file or printer. When sending to a printer, XRP-II uses the one defined as the default in the operator's environment settings at the time the program was started.

Figure 4.3.4-22. Report Menu CHUI

The following screens are tied to the ILM Report menu:

- ILM Inventory Reports - for printing all items contained within the designated location(s). A cost report is included displaying the actual cost of items selected.
- EIN Structure Reports – for printing all designated EIN parents and components in a multi-level bill format.
- Install/Receipt Report - for printing a report of a parent EIN configuration so a hard copy can be sent to the receiving organization for sign off.
- EIN Shipment Reports - for printing copies of reports about shipments performed previously.
- Transaction History Reports - for printing a history of all inventory transactions logged by the system.
- PO Receipt Reports – for printing all receipts that have occurred for designated POs, vendors, or dates.
- Installation Summary Reports - retrieves and prints all a list of EINs installed during a specified timeframe.

The sections below discuss these screens. Sample outputs can be found in Section 4.3.4.8.1.

4.3.4.2.3.1 ILM Inventory Reports Screen

The ILM Inventory Reports screen (Figure 4.3.4-23) is designed to retrieve and print all items contained within designated location(s). A cost report is included for displaying the actual cost of items selected. Table 4.3.4-19 describes the screen's fields.

Figure 4.3.4-23. ILM Inventory Reports CHUI

Table 4.3.4-19. ILM Inventory Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
Location	String	8	optional	Code for an inventory location. The operator may zoom to the Inventory Location table and choose the code, if it had been entered there previously. (See the Inventory Location Manager screen.)
Note 1	String	60	optional	A 60-character note to include in the report.
Note 2	String	60	optional	A 2nd 60-character note to include in the report.
Inventory Report - By Location	Numeric	2	required	Number of copies of this report to generate.
Costed Inventory Report	Numeric	1	required	Number of copies of this report to generate.

4.3.4.2.3.2 EIN Structure Reports Screen

The EIN Structure Reports screen (Figure 4.3.4-24) is designed to retrieve and print designated parents and components in a multi-level bill format. Table 4.3.4-20 describes the screen's fields.

Figure 4.3.4-24. EIN Structure Reports CHUI

Table 4.3.4-20. EIN Structure Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
EIN OR RANGE	String	20	required	Identifier for an EIN-controlled inventory item, or range of such items (e.g. EDF00000000001-EDF99999999999).
NUMBER OF LEVELS TO EXPLODE	Numeric	2	optional	Number of levels to display for a particular parent structure.
EXPLOSION QUANTITY	Numeric	2	optional	Quantity of each EIN to reflect in the report.
DATE OF BILL	Date	2	optional	"As of" date used in selecting records from the configuration history of the item.
TYPE OF SORT	String	1	optional; Null, S, or N	Code that specifies the field to be used for sorting the data for the report. Null is equivalent to EIN number.
NOTE 1, NOTE 2	String	40	optional	A 40-character note to include in the report.
EIN MULTI-LEVEL REPORT	Numeric	2	required	Number of copies of this report to generate.

4.3.4.2.3.3 Install/Receipt Reports Screen

This screen (Figure 4.3.4-25) is designed to allow the operator to print a report of a parent EIN configuration and send the hard copy to the receiving organization for sign off. Table 4.3.4-21 describes the screen's fields.

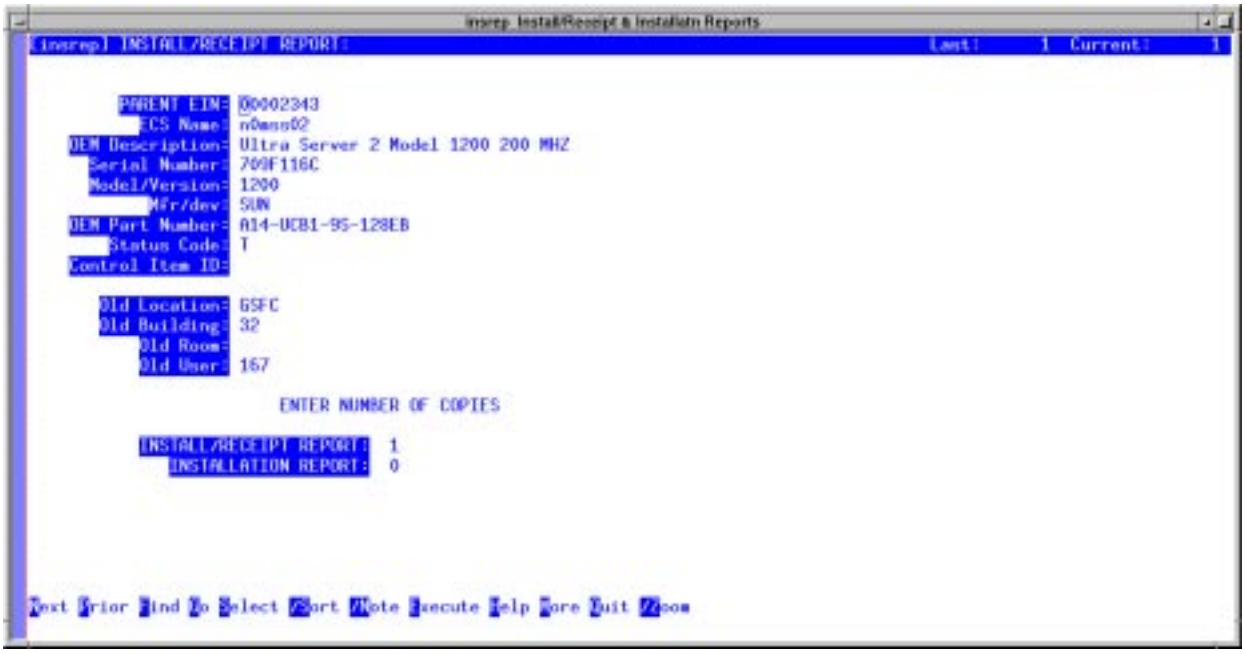

Figure 4.3.4-25. Install/Receipt Report CHUI-

Table 4.3.4-21. Install/Receipt Report Field Descriptions (1 of 2)-

Field Name	Data Type	Size	Entry	Description
PARENT EIN	String	20	required	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
ECS Name	String	30	system-supplied	Name of the machine with which the item is associated.
OEM Description	String	40	system-supplied	Manufacturer's of vendor's description of the item.
Serial Number	String	30	system-supplied	Serial number of the item.
Model/Version	String	24	system-supplied	Model or version of the item. If the operator had chosen a known OEM Part, this field will be written with the information from this file.

Table 4.3.4-21. Install/Receipt Report Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Mfr/dev	String	6	system-supplied	Code for the manufacturer or developer of the item.
OEM Part Number	String	34	system-supplied	Manufacturer's or vendor's part number for the item.
Status Code	String	1	system-supplied	Code that designates the status of the item. The following values are set when processing transactions: R = Received; S = Shipped; I = Installed; X– Archived
Control Item ID	String	20	system-supplied	Identifier of a corresponding version-controlled item in the BASELINE MANAGEMENT system.
Old Location	String	6	system-supplied	Code for the current inventory location where the item can be found.
Old Building	String	6	system-supplied	Identifier for the current building where the item can be found.
Old Room	String	6	system-supplied	Number of the room where the item can be found.
Old User	String	10	system-supplied	Code of the person having the item.
INSTALL/RECEIPT REPORT	Numeric	2	required	Number of copies of this report to generate.
INSTALL REPORT	Numeric	2	required	Number of copies of this report to generate.

4.3.4.2.3.4 EIN Shipment Reports Screen

The EIN Shipment Reports screen (Figure 4.3.4-26) is designed to allow the operator to print a report of a shipment that was performed previously within the system. Table 4.3.4-22 describes the screen's fields.

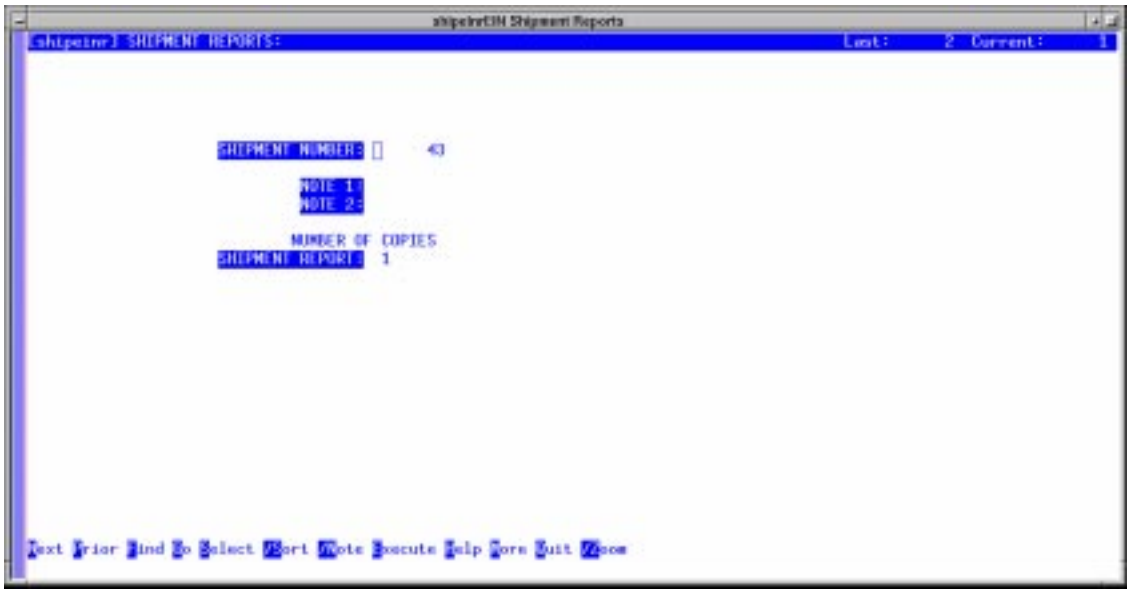

Figure 4.3.4-26. EIN Shipment Reports CHUI

Table 4.3.4-22. EIN Shipment Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
SHIPMENT NUMBER	Numeric	6	required	Sequential number assigned to a shipment
NOTE 1, NOTE 2	String	40	optional	A 40-character note to include in the report.
SHIPMENT REPORT	Numeric	2	required	Number of copies of this report to generate.

4.3.4.2.3.5 Transaction History Reports Screen

The Transaction History Reports screen (Figure 4.3.4-27) is designed to allow the operator to print a history of all transactions contained within the system. Its fields are described in Table 4.3.4-23.

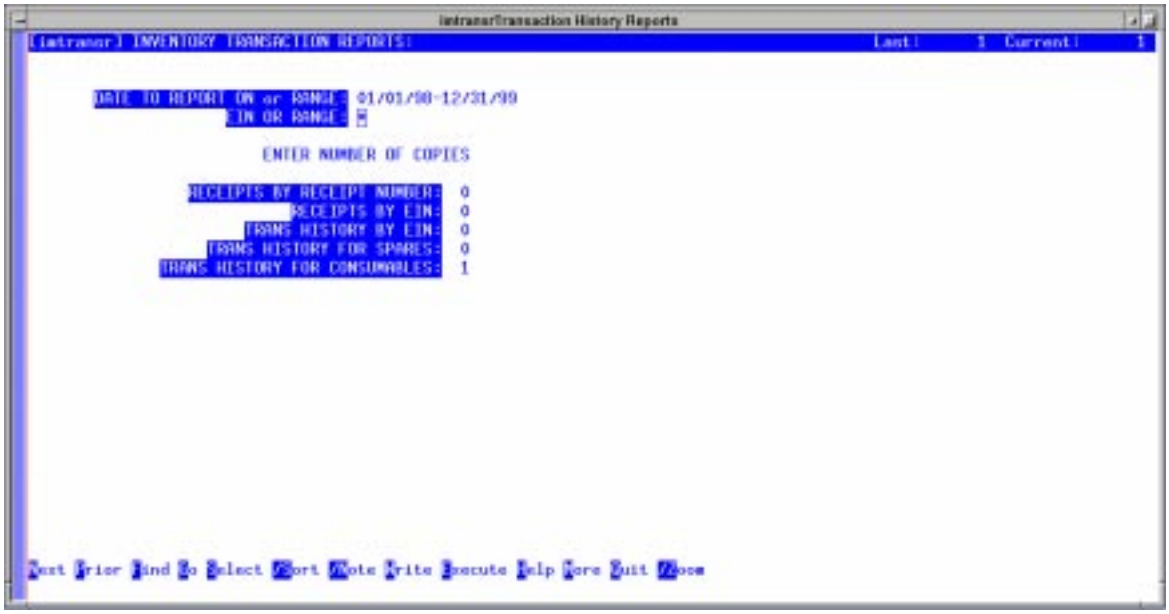

Figure 4.3.4-27. Transaction History Reports CHUI

Table 4.3.4-23. Transaction History Reports Field Descriptions

Field Name	Data Type	Size		Description
DATE TO REPORT ON or RANGE	Date	2	required	Date or date range to report on.
EIN OR RANGE	String	20	optional	Identifier for an EIN-controlled inventory item, or range of such items (e.g. EDF00000000001-EDF99999999999).
RECEIPTS BY RECEIPT NUMBER	Numeric	2	required	Enter number of copies of this report to generate.
RECEIPTS BY EIN	Numeric	2	required	Enter number of copies of this report to generate.
TRANS HISTORY BY EIN	Numeric	2	required	Enter number of copies of this report to generate.
TRANS HISTORY FOR SPARES	Numeric	2	required	Enter number of copies of this report to generate.
TRANS HISTORY FOR CONSUMABLES	Numeric	2	required	Enter number of copies of this report to generate.

4.3.4.2.3.6 PO Receipt Reports Screen

The PO Receipt Reports screen (Figure 4.3.4-28) is designed to retrieve and print all receipts that have occurred for the designated vendor during a specified time interval. Its fields are described in Table 4.3.4-24.

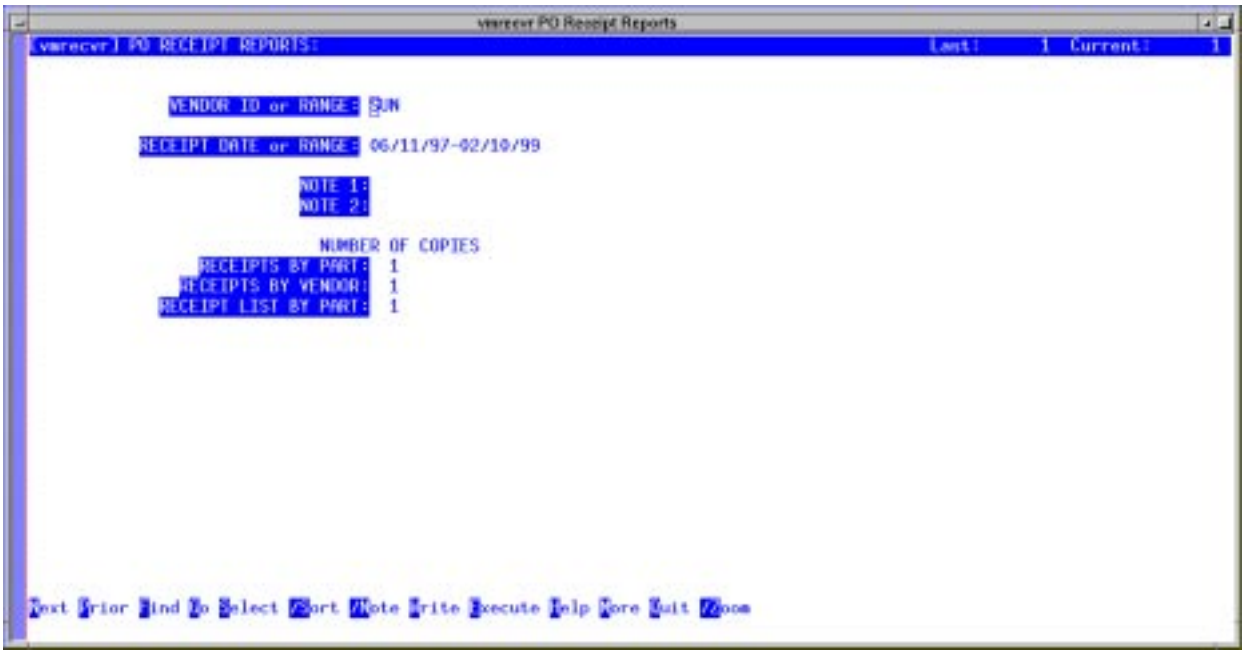

Figure 4.3.4-28. PO Receipt Reports CHUI

Table 4.3.4-24. PO Receipt Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
VENDOR ID or RANGE	String	6	optional	Code or range of codes of the vendor(s) to report.
RECEIPT DATE or RANGE	Date	2	optional	Receipt date(s) to report.
NOTE 1, NOTE 2	String	40	optional	A 40 character note to include in the report.
RECEIPTS BY PART	Numeric	2	required	Number of copies of this report to generate.
RECEIPTS BY VENDOR	Numeric	2	required	Number of copies of this report to generate.
RECEIPT LIST BY PART	Numeric	2	required	Number of copies of this report to generate.

4.3.4.2.3.7 Installation Summary Reports Screen

The Installation Summary Reports screen (Figure 4.3.4-29) is designed to retrieve and print a list of EINs installed during a specified timeframe. Table 4.3.4-25 describes the screen's fields.

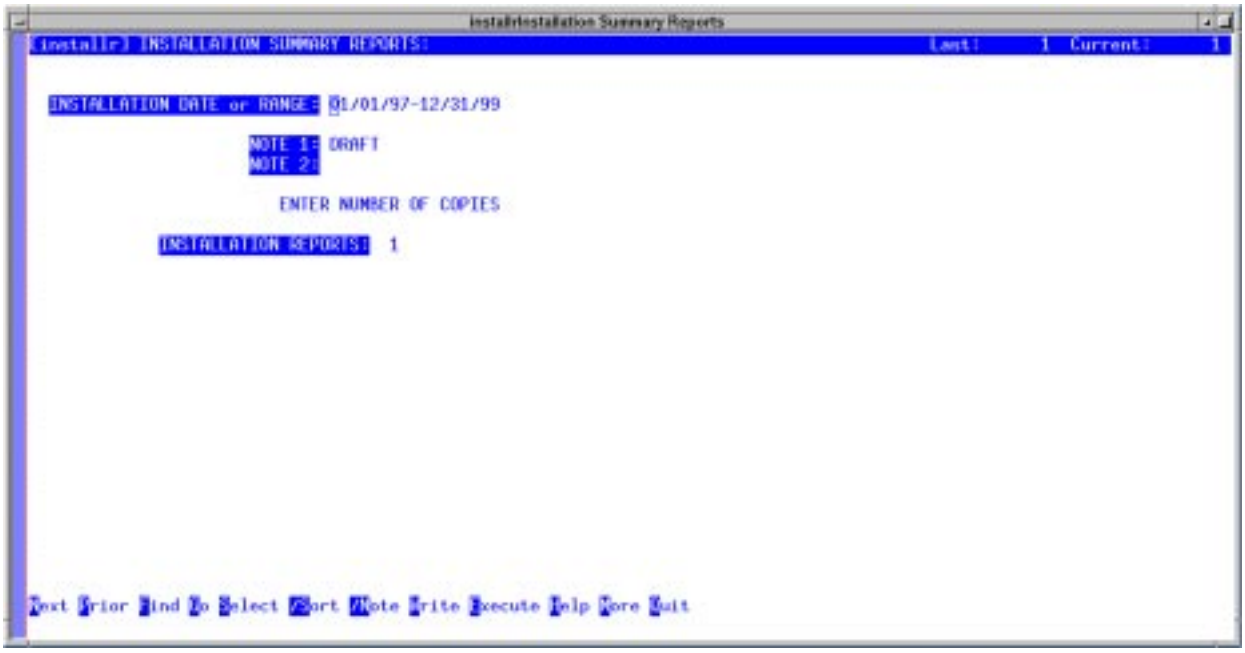

Figure 4.3.4-29. Installation Summary Reports CHUI

Table 4.3.4-25. Installation Summary Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
INSTALLATION DATE or RANGE	Date	2	optional	Date or range of dates on which installation(s) occurred.
NOTE 1, NOTE 2	String	40	optional	A 40 character message to include in the report.
INSTALLATION REPORTS	Numeric	4	required	Number of copies of this report to generate.

4.3.4.2.4 Inventory Ordering Menu

ILM allows operators to designate individual OEM parts for order point control. Order point processing takes advantage of XRP-II features that monitor parts' inventory levels and automatically generates recommendations for orders. ILM can readily convert to purchase requisitions those recommendations an operator approves.

Access to order point processing routines is through the ILM Inventory Ordering menu (Figure 4.3.4-30). The menu helps the operator to navigate to the following screens:

Order Point Parameters Manager – for identifying items to be order point-controlled and specifying control parameters for each.

Generate Order Point Recommendations - for examining all items designated for order point control and generating a "recommended order" for each item whose inventory quantity has fallen below the control values.

Recommended Orders Manager - for changing the status to "T" for each item to be transferred to the requisition or work order files.

Transfer Order Point Orders - for transfering all recommendations whose status has been set to "T" to the Requisition file (if the item is coded as a Buy item) or to the Work Order file (if the item is coded as a Make item).

Consumable Inventory Query - for viewing information about inventory items designated as consumables.

Spares Inventory Query - for viewing information about inventory items designated as spares.

Transfer Consumable & Spare Material - for transfering items designated as consumable or spare from one inventory location to another based on the location of a designated machine (parent EIN) with which the item is to be associated.

These screens are described in the sections below.

Figure 4.3.4-30. Inventory Ordering Menu CHUI

4.3.4.2.4.1 Order Point Parameters Manager Screen

This screen (Figure 4.3.4-31) allows operators to designate items to be order point-controlled and to define the parameters XRP-II is to use in determining when a new part should be ordered and in what quantity. Table 4.3.4-26 describes the screen's fields.

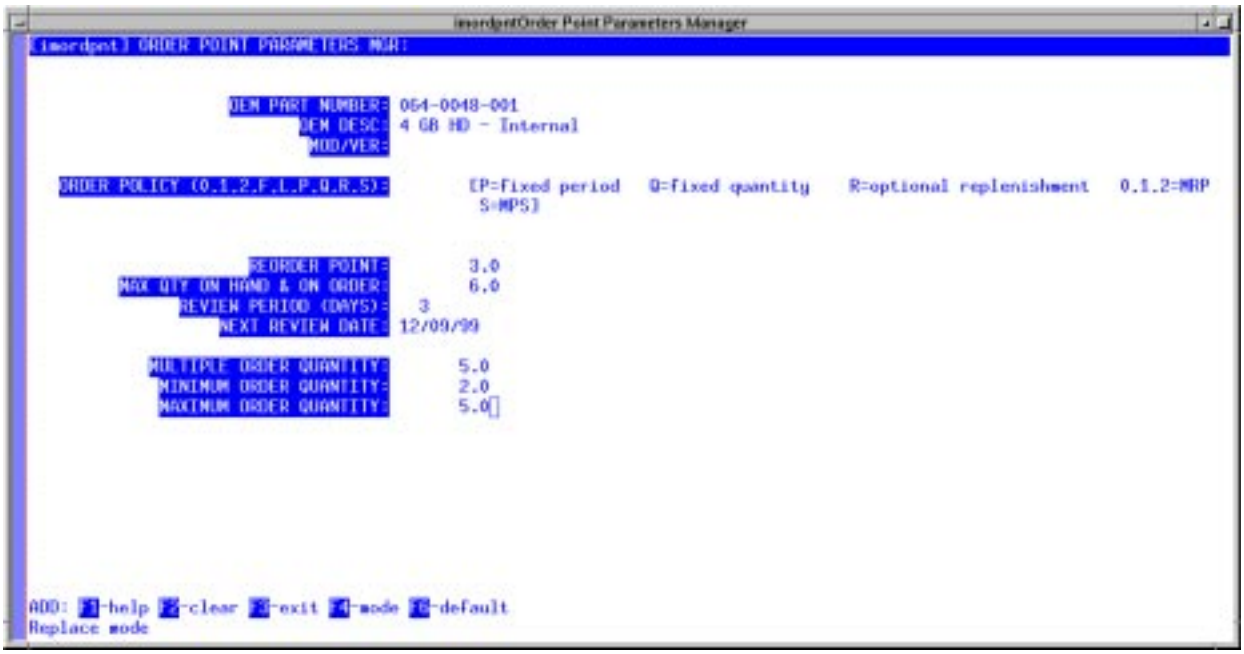

Figure 4.3.4-31. Order Point Parameters Manager CHUI

Table 4.3.4-26. Order Point Parameters Manager Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
OEM PART NUMBER	String	34	required	Manufacturer's or vendor's part number. The operator may zoom to the OEM Part table and choose the number, if it had been entered there previously. (See the OEM Part Numbers section.)
OEM DESC	String	40	system-supplied	Manufacturer's or vendor's description for the part.
MOD/VER	String	24	system-supplied	Model or version of the part.
ORDER POLICY	String	1	optional; 0, 1, 2, P, Q, R, or S	Type of ordering policy such as P = Fixed period, Q = Fixed quantity etc.
REORDER POINT	Floating	10.1	optional	Quantity at which reorder of the part should occur.

Table 4.3.4-26. Order Point Parameters Manager Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
MAX. QTY ON HAND & ON ORDER	Floating	10.1	optional	Maximum number of items in stock plus the number on order.
REVIEW PERIOD	Numeric	3	optional	Number of days in the order interval. Applicable only if the order policy is P, Q, or 2.
NEXT REVIEW DATE	Date	2	optional	Date the system is to next evaluate whether to recommend placing an order for the part.
MULTIPLE ORDER QUANTITY	Floating	9.1	optional	Number of items to include in a multiple parts/items order.
MINIMUM ORDER QUANTITY	Floating	9.1	optional	Minimum number of items to order or reorder.
MAXIMUM ORDER QUANTITY	Floating	9.1	optional	Maximum number of items to order or reorder.

4.3.4.2.4.2 Generate Order Point Recommendations Screen

Operators use the Generate Order Point Recommendations screen (Figure 4.3.4-32) to generate recommendations to order parts whose inventory levels have fallen below their respective control values. Control values are set via the Order Point Parameters Manager (see Section 4.3.4.2.5.1). Type "**Y**" at the prompt on the screen to initiate the process.

Figure 4.3.4-32. Generate Order Point Recommendations CHUI

4.3.4.2.4.3 Recommended Orders Manager Screen

This screen (Figure 4.3.4-33) is designed to permit operators to review system-generated recommendations for ordering order point-controlled parts and to designate which ones are to be transferred to the requisition or work order files for action. Recommended orders have status "R". Changing a status to "T" approves the order for transfer, which is done via the Transfer Order Point Orders screen (see Section 4.3.4.2.4.4). Changing it to "X" will cause it to be deleted the next time order point recommendations are generated. Table 4.3.4-27 describes the screen's fields.

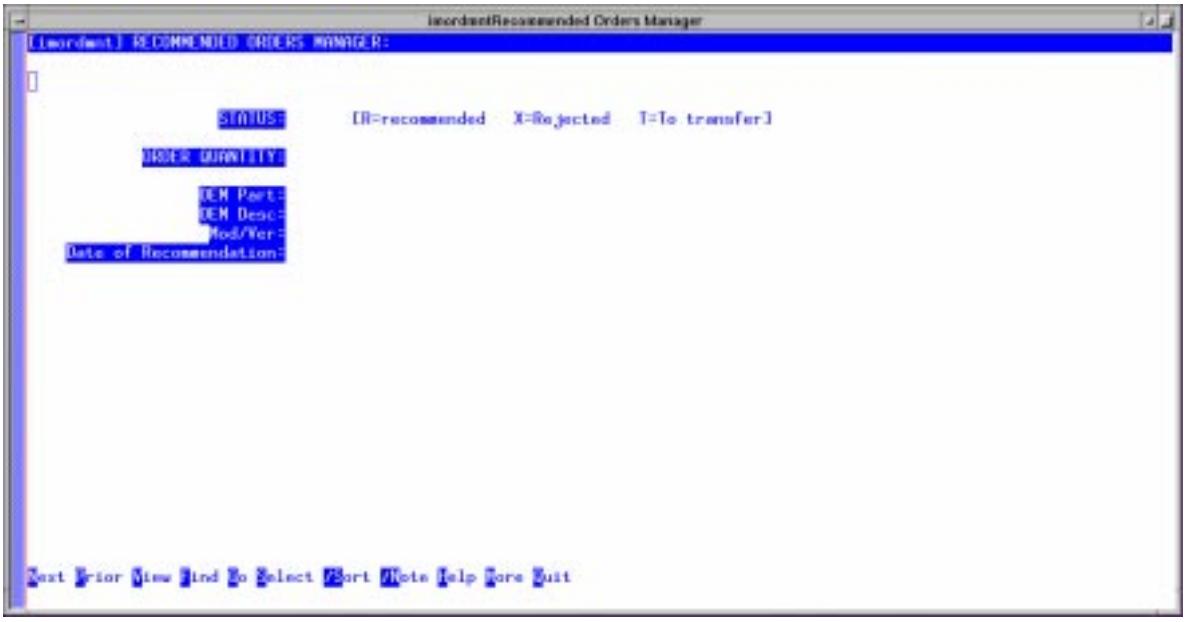

Figure 4.3.4-33. Recommended Orders Manager CHUI

Table 4.3.4-27. Recommend Orders Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
STATUS	String	1	optional; R, X, or T	Code for the status of the recommended order. R = recommended; X = rejected; T = to transfer
ORDER QUANTITY	Floating	9.1	optional	Quantity to order
OEM Part	String	34	system-supplied	Manufacturer's or vendor's identifier for an item.
OEM Desc	String	40	system-supplied	Manufacturer's or vendor's description for an item.
Mod/Ver	String	24	system-supplied	modelor version of the item.
Date of Recom-mendation	Date	2	system-supplied	Date the recommendation was generated.

4.3.4.2.4.4 Transfer Order Point Orders Screen

The Transfer Order Point Orders screen (Figure 4.3.4-34) is designed to transfer order recommendations whose status had been set to "T" to a material requisition file. Orders for to be purchased (i.e., coded as "B" for buy part in the EIN file) get transferred to the purchase order requisition file, while parts to be manufactured (i.e., coded as "M" for make part in the EIN file)s

get transferred to the work order file. Type "**Y**" in response to the prompt on the screen to initiate the process.

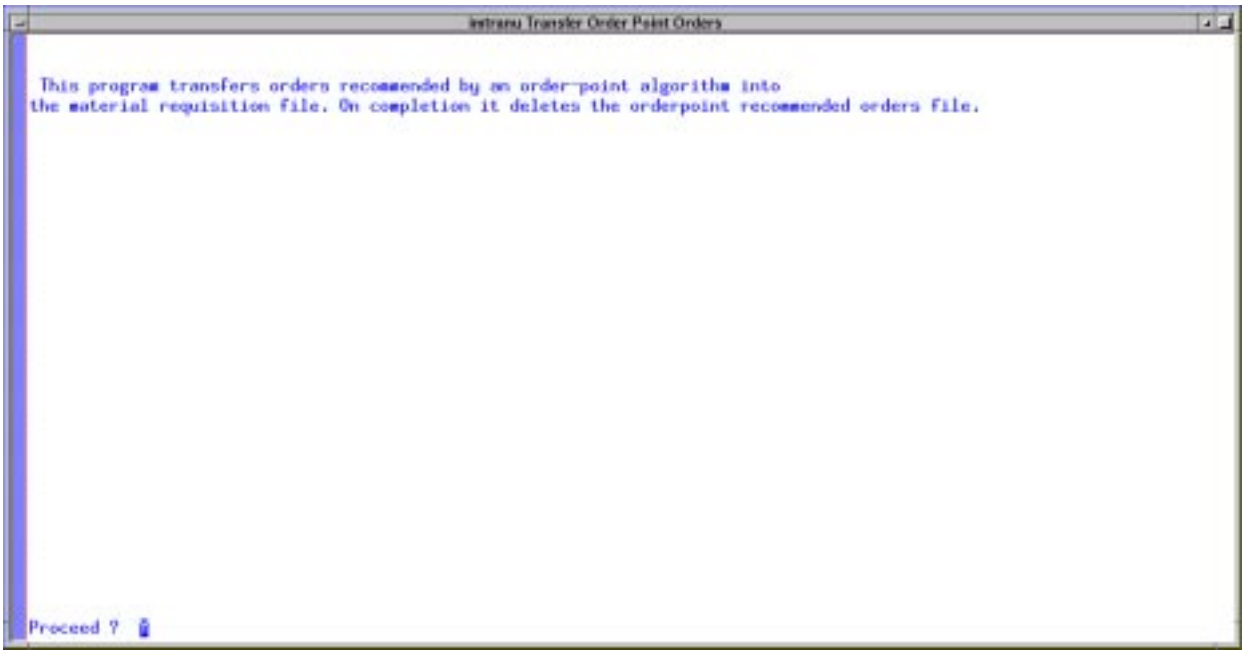

Figure 4.3.4-34. Transfer Order Point Orders CHUI

4.3.4.2.4.5 Consumable Inventory Query Screen

The Consumable Inventory Query screen (Figure 4.3.4-35) allows the operator to view the inventory for only those items designated as consumable and, at the DAACs, for only those items at the local DAAC's inventory locations. Table 4.3.4-28 describes the screen's fields.

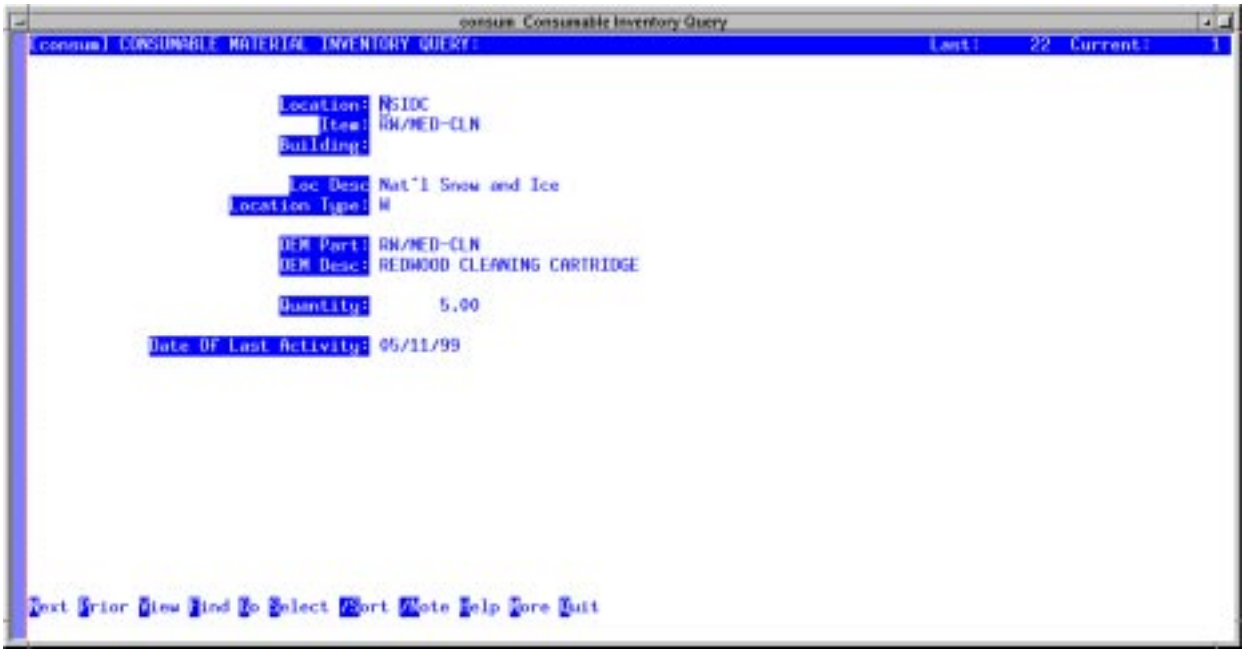

Figure 4.3.4-35. Consumable Inventory Query CHUI

Table 4.3.4-28. Consumable Inventory Query Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
Location	String	8	system-supplied	Code for the inventory location where the item can be found.
Item	String	34	system-supplied	EIN for the consumable item. This value is obtained from stock location file where it had been stored during receiving and/or transfer processing. The value corresponds to the EIN of the part in the EIN file which, for consumables, should be the same as the OEM part number for the item.
Building	String	6	system-supplied	Identifier for the building where the item can be found.
Loc Desc	String	30	system-supplied	Name of the inventory location where the item can be found.
Location Type	String	1	system-supplied	Code that distinguishes among inventory locations according to purpose or function. Null or S = stock, R = received material, N = non-nettable material, W = work center, A = archive.
OEM Part	String	34	system-supplied	Manufacturer's or vendor's identifier for an item. For consumable items, this value should be the same as Item above.

Table 4.3.4-28. Consumable Inventory Query Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
OEM Desc	String	40	system-supplied	manufacturer's or vendor's description of the item.
Quantity	Floating	10.1	system-supplied	Quantity of the items for the inventory location at the building.
Date of Last Activity	Date	2	system-supplied	Date of last transaction performed for the item at the inventory location and building.

4.3.4.2.4.6 Spares Inventory Query Screen

Operators use the Spares Inventory Query screen (Figure 4.3.4-36) to browse inventory records of spare items. Table 4.3.4-29 describes the screen's fields.

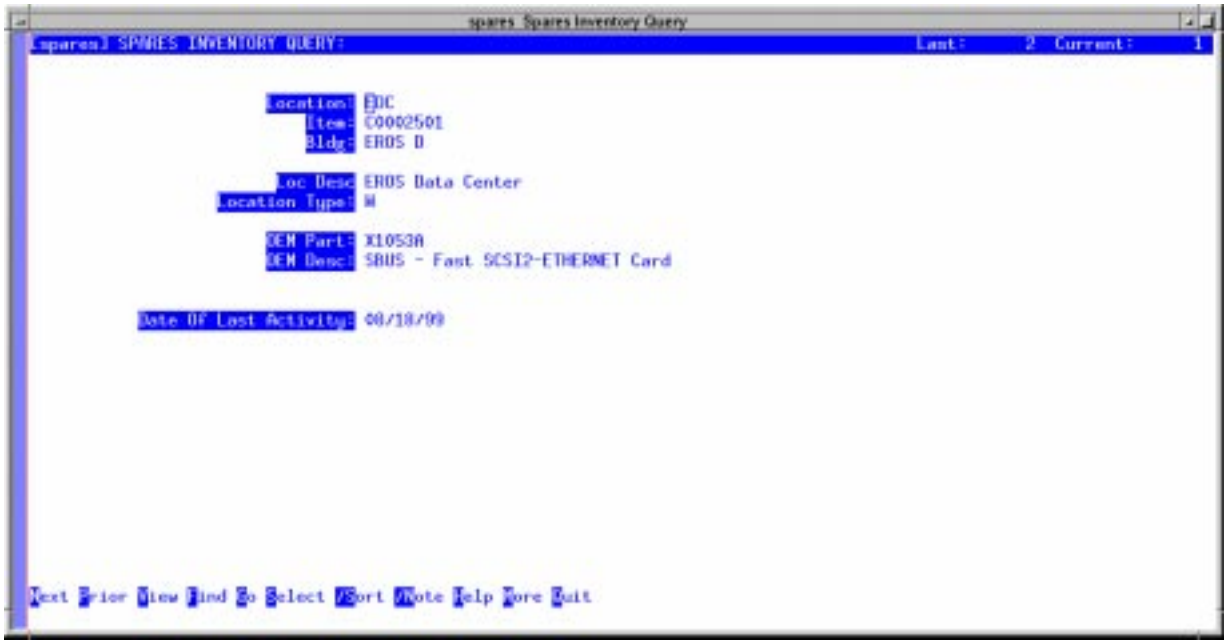

Figure 4.3.4-36. Spares Inventory Query CHUI

Table 4.3.4-29. Spares Inventory Query Field Description

Field Name	Data Type	Size	Entry	Description
Location	String	8	system-supplied	Code for the inventory location where the item can be found.
Item	String	34	system-supplied	EIN for the spare item. This value is obtained from stock location file where it had been stored during receiving and/or transfer processing. The value corresponds to the EIN of the part in the EIN file.
Bldg	String	6	system-supplied	Identifier for the building where the item can be found.
Loc Desc	String	30	system-supplied	Name of the inventory location where the item can be found.
Location Type	String	1	system-supplied	Code that distinguishes among inventory locations according to purpose or function. Null or S = stock, R = received material, N = non-nettable material, W = work center, A = archive.
OEM Part	String	34	system-supplied	Manufacturer's or vendor's identifier for an item. For consumable items, this value should be the same as Item above.
OEM Desc	String	40	system-supplied	Manufacturer's or vendor's description of the item.
Date of Last Activity	Date	2	system-supplied	Date of last transaction performed for the item at the inventory location and building.

4.3.4.2.4.7 Transfer Consumable & Spare Mat'l Screen

This screen (Figure 4.3.4-37) is designed to allow the operator to transfer a quantity of an item designated as consumable or spare to the inventory location, building, and room of an operator-specified parent EIN, effectively issuing or transfering the item(s) from one location to another.

After entering values that define the transaction, type "**C**" to check it, then "**E**" to process it. Checking causes XRP-II to validate that needed information is not missing and to warn if either inventory levels are insufficient at the specified location and building or if the transaction establishes the building as a new stock location. Processing causes XRP-II to add the item(s) to the configuration of the parent EIN and adjust item counts at both the losing and gaining inventory locations. It also records the event in the inventory transaction log. (See the Inventory Transaction Query section, 4.3.4.2.2.6). Table 4.3.4-30 describes the screen's fields.

Note: This screen does not change the status of the item transferred.

Note: Consumables transferred to a parent EIN are not listed on EIN structure screens since consumables are not considered EINs.

Figure 4.3.4-37. Transfer Consumable & Spare Mat'l CHUI

Table 4.3.4-30. Transfer Consumable & Spare Material Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
BATCH NUMBER	Numeric	8	required	Identifier for the transaction. Type <RETURN> to let the system assign the next number in sequence.
DATE	String	2	optional; defaults to current date	Date of the transaction.
OEM PART	String	34	optional	Manufacturer's or vendor's part number for the consumable or spare item(s) being transferred.
QUANTITY	Floating	10.1	optional; defaults to 0.0	Quantity of the item to transfer.
REASON CODE	String	4	optional	Code for the reason for the transfer. The operator may zoom to the Reason Code table and choose the code, if it had been entered there previously. (See the Reason Code Maintenance section.)
FROM LOCATION	String	6	required	Code for the inventory location where the item can be found. The operator may zoom to the Inventory Location and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.)

Table 4.3.4-30. Transfer Consumable & Spare Material Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Type	String	1	system-supplied	Code that distinguishes among inventory locations according to purpose or function. Null or S = stock, R = received material, N = non-nettable material, W = work center, A = archive.
BUILDING	String	6	optional	Identifier for the building where the item can be found.
ROOM	String	6	optional	Room number where the item can be found.
NEW PARENT EIN	String	20	required	EIN for the parent item whose inventory location, building, and room number are to be used as the destination for the transfer.

4.3.4.2.5 PO/Receiving Menu

ILM's PO/Receiving funtions support procurement and receipt of property against purchase orders (PO's). The PO/Receiving menu (Figure 4.3.4-38) helps operators navigate to the following set of screens:

- Material Requisition Manager – for initiating the process of requisitioning consumables or spares. Requisitions require approval of the procurement manager before they can be added to a purchase order.
- Material Requisition Master – for buyers to examine all manual and system-generated requisitions for placing purchase orders with vendors.
- Purchase Order Entry – for entering new purchase orders.
- Purchase Order Modification – for updating information about a purchase order and its line items.
- Purchase Order Print – for printing a purchase order document for subsequent mailing to the vendor and/or copies for the receiving dock.
- Purchase Order Status – for browsing information about any purchase order.
- Receipt Confirmation – for recording receipt of materials against a purchase order. (This is the primary means of adding items to the EIN catalog.)
- Print Receipt Reports – for printing copies of past receipt reports.
- Purchase Order Processing – for closing open PO's that meet established criteria.
- Vendor Master Manager – for maintaining a reference list of vendors and their addresses.

Figure 4.3.4-38. PO/Receiving Menu CHUI

4.3.4.2.5.1 Material Requisition Manager Screen

The Material Requisition Manager screen (Figure 4.3.4-39) allows operators to create requisitions manually for items to be purchased. Operators designated as authorized buyers can subsequently use the requisitions when adding line items on purchase orders. (See Section 4.3.4.2.5.3) The screen displays for an operator only those requisitions that have been entered by that operator. Table 4.3.4-31 describes the screen's fields.

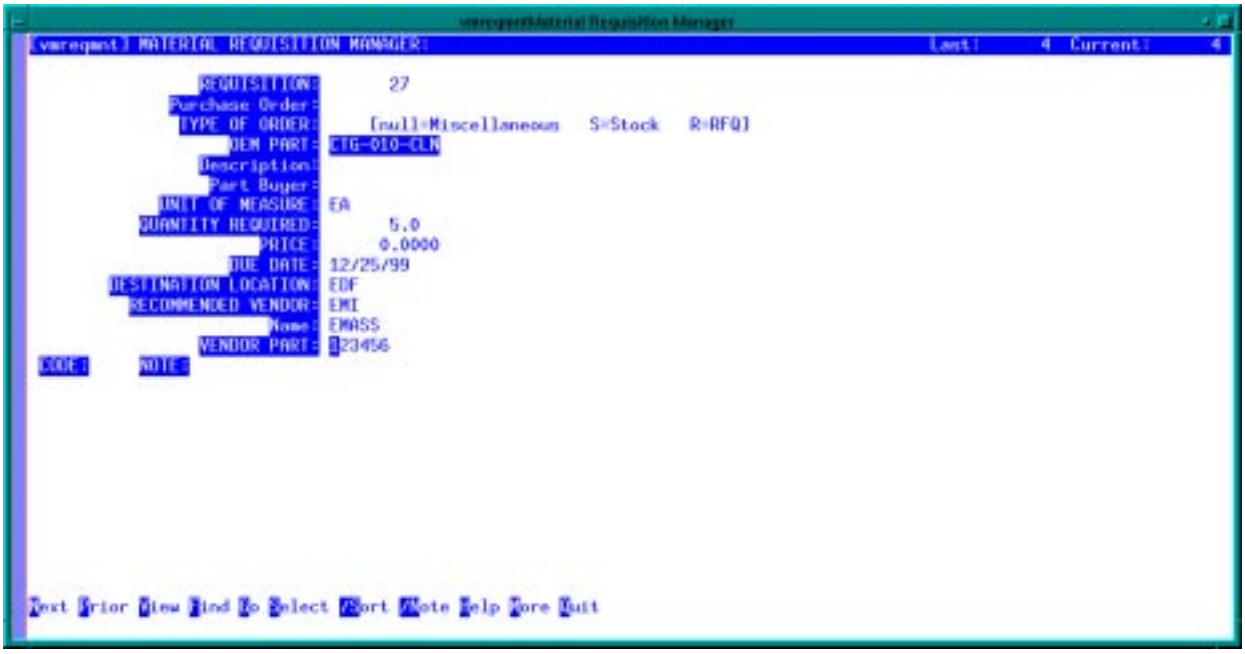

Figure 4.3.4-39. Material Requisition Manager CHUI

Table 4.3.4-31. Material Requisition Manager Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
REQUISITION	Numeric	8	required	This field is the requisition number assigned to this Material Requisition. It automatically generated when the operator presses the <ENTER> key.
Purchase Order	String	10	system-supplied	Identifier for the purchase order to which the requisition has been transferred.
TYPE OF ORDER	String	1	required; null, S, or R	Code that distinguishes among purchase orders according to purpose. Null = Misc.; S = Stock; R = RFQ
OEM PART	String	34	required	Manufacturer's or vendor's part number for the item. The operator may zoom to the OEM part table and choose the identifier, if it had been entered there previously. (See the OEM Part Numbers section.)
Description	String	40	system-supplied	Manufacturer's or vendor's description of the item.
Part Buyer	String	6	system-supplied	Code for the person authorized to purchase the item. The value is obtained from the EIN file, if the part and its buyer had been recorded there previously.

Table 4.3.4-31. Material Requisition Manager Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
UNIT OF MEASURE	String	2	optional	Purchase unit of measure used for buying the item. The operator may zoom to the UOM table and choose the unit of measure, if it had been entered there previously. (See the UOM Manager section.)
QUANTITY REQUIRED	Floating	9.1	optional	Number of item to order.
PRICE	Floating	11.4	optional	Expected item price.
DUE DATE	Date	2	optional; default is "**/**/**"	Date by which the item is required. By convention, the value "**/**/**" is interpreted as, "as soon as possible".
DESTINATION LOCATION	String	6	optional	Code for the inventory location where the item is to be added to stock. The operator may zoom to the Inventory Locations table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.)
RECOMMENDED VENDOR	String	6	optional	Code identifying the preferred vendor. Use the /Zoom screen to assist your selection. ILM fills in the name fields for you when you make this selection.
Name	String	30	system-supplied	Name of the vendor. The value is obtained from the Vendor Master record corresponding to the recommended vendor's code.
VENDOR PART	String	16	optional	Vendor's part number if it differs from the OEM part number entered earlier on this screen.
CODE	String	2	optional	Identifier for a type or category of note associated with the item.
NOTE	String	60	optional	A 60 character note associated with the item.

4.3.4.2.5.2 Material Requisition Master Screen

The Material Requisition Master screen (Figure 4.3.4-40) allows operators to browse, delete, and update all requistions in the system, as well as to add new ones. Accordingly, its use is often restricted to certain employees, such as buyers. Table 4.3.4-32 describes the screen's fields.

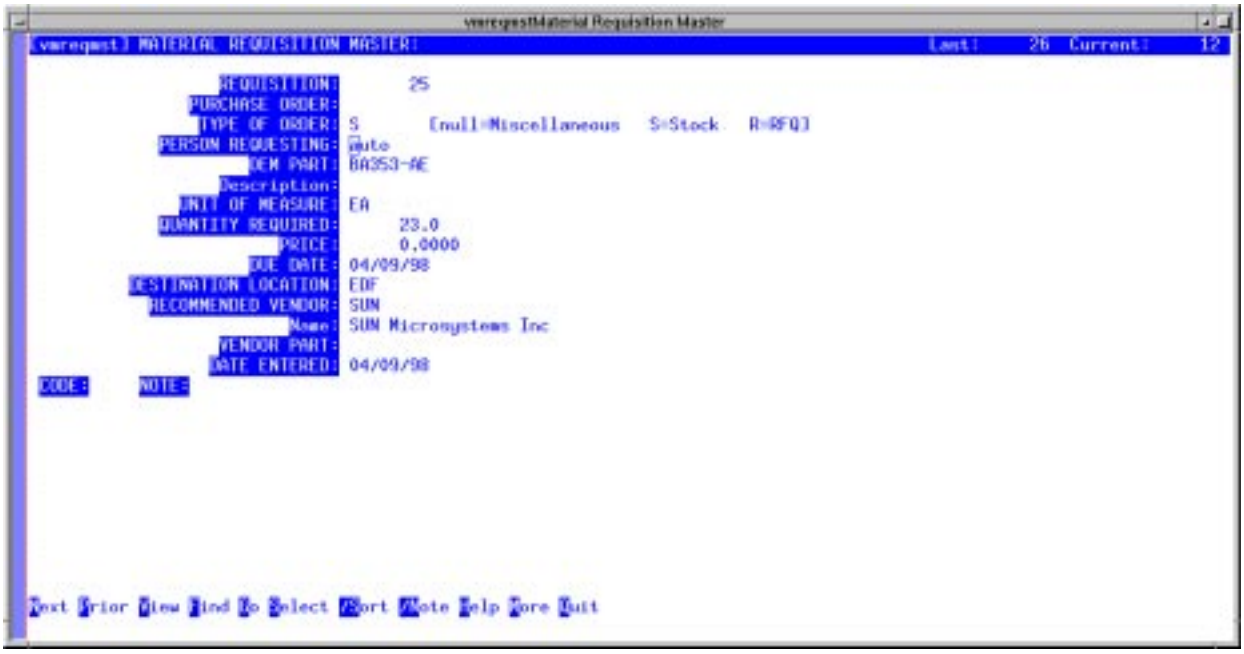

Figure 4.3.4-40. Material Requisition Master CHUI

Table 4.3.4-32. Material Requisition Master Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
REQUISITION	Numeric	8	required	The requisition number assigned to this Material Requisition. It is automatically generated when the operator presses the <ENTER> key.
PURCHASE ORDER	String	10	system-supplied	Identifier for the purchase order to which the requisition has been transferred. The field may be modified only if the new value has been entered previously in the Purchase Order file.
TYPE OF ORDER	String	1	optional; null, S, or Q	Code that distinguishes among purchase orders according to purpose. Null = Misc.; S = Stock; R = RFQ
PERSON REQUESTING	String	8	system-supplied	Name of person completing the requisition. Automatically filled in from the operator's login ID.
OEM PART	String	34	optional	Manufacturer's or vendor's part number for the item. The operator may zoom to the OEM part table and choose the identifier, if it had been entered there previously. (See the OEM Part Numbers section.)
Description	String	40	system-supplied	Manufacturer's or vendor's description of the item.

Table 4.3.4-32. Material Requisition Master Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
PART BUYER	String	6	optional	Code for the person authorized to purchase the item. The value is obtained from the EIN file, if the part and its buyer had been recorded there previously.
UNIT OF MEASURE	String	2	optional	Purchase unit of measure used for buying the item. The operator may zoom to the UOM table and choose the unit of measure, if it had been entered there previously. (See the UOM Manager section.)
QUANTITY REQUIRED	Floating	9.1	optional	Number of item to order.
PRICE	Floating	11.4	optional	Expected item price.
DUE DATE	Date	2	system-supplied	Date by which the item is required. By convention, the value "**/**/**" is interpreted as, "as soon as possible".
DESTINATION LOCATION	String	6	optional	Code for the inventory location where the item is to be added to stock. The operator may zoom to the Inventory Locations table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.)
RECOMMENDED VENDOR	String	6	optional	Code identifying the preferred vendor. The operator may zoom to the Vendor table and choose the code, if it had been entered there previously. (See the Vendor Master Manager section.) ILM fills in the name field for you when you make this selection.
Name	String	30	system-supplied	Name of the vendor. The value is obtained from the Vendor Master record corresponding to the recommended vendor's code.
VENDOR PART	String	16	optional	Vendor's part number if it differs from the OEM part number entered earlier on this screen.
DATE ENTERED	Date	2	system-supplied	Date the requisition was created.
CODE	String	2	optional	Identifier for a type or category of note associated with the item.
NOTE	String	60	optional	A 60 character note associated with the item.

4.3.4.2.5.3 Purchase Order Entry Screen

The Purchase Order Entry screen (Figure 4.3.4-41) is used to create new purchase orders. As such, it is always presented to the operator in ADD mode when invoked. Enter data to identify and describe the purchase order itself, using Table 4.3.4-33 as a guide. Then, use the Items command

to invoke the screen's items page (Figure 4.3.4-42) in order to specify the items to purchase. The items page too is presented in ADD mode, and its fields are described in Table 4.3.4-34.

When adding a line item to a purchase order, pressing <**ENTER**> at the sequence number field lets XRP-II assign the next number availablem, and entering a requisition number automatically inserts the item's OEM part number, destination location, due date, quantity, and price values from the requisition file. Line item data will appear on purchase order reports and be used later by the Receiving process.

The items page itself has an Items bottom-line command and two other commands not found on most screens. This Items command invokes a Material Requisition Query screen (Figure 4.3.4-43) for browsing the records in the requisitions file. Its fields are described in Table 4.3.4-35. A Duplicate command lets operators conveniently add additional copies of a line item for which different delivery dates are desired. A Changes command lets operators view the log of any changes that may have been made to the line item's quantity or price via the Purchase Order Modification screen (see Section 4.3.4.2.5.4).

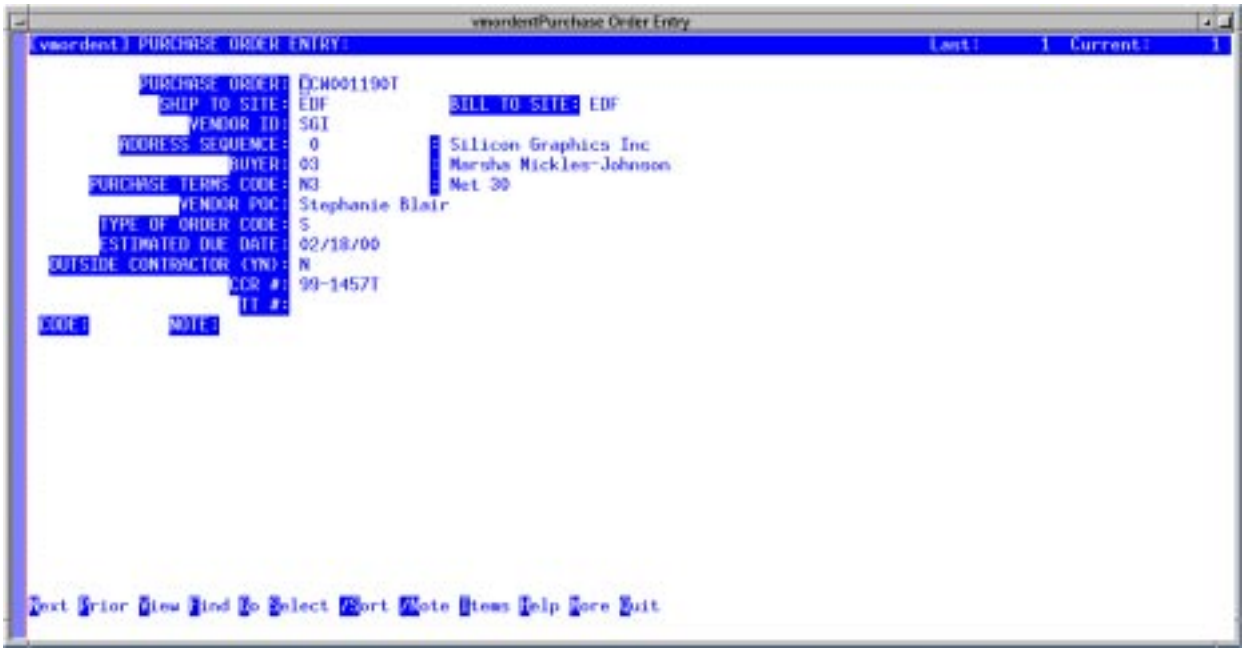

Figure 4.3.4-41. Purchase Order Entry CHUI

Table 4.3.4-33. Purchase Order Entry Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
PURCHASE ORDER	String	10	required	Identifier for the purchase order. Press <RETURN> to have the system provide the next available number.
SHIP-TO SITE	String	6	optional; defaults to the local site	Code for the site to which the material is to be shipped. The default is the local site. The operator may zoom to the Site Code table to choose the code, if it had been entered there previously. (See the Site Master Manager section.)
BILL-TO SITE	String	6	optional	Code for the site which the vendor is to bill. The default is the local site. The operator may zoom to the Site Code table and choose the code, if it had been entered there previously. (See the Site Master Manager section.)
VENDOR ID	String	6	optional	Code for the vendor from whom items are being purchased.
ADDRESS SEQUENCE	Numeric	2	optional	Code designating which of the vendor's addresses to use.
BUYER	String	6	optional	Code for a person authorized to purchase the item. The operator may zoom to the Buyer table and choose the code, if it had been entered there previously. (See the Buyer Manager section.)
PURCHASE TERMS CODE	String	2	optional	Code for the terms under which the purchase is being made. The operator may zoom to the Purchase Terms table and choose the code, if it had been entered there previously. (See the Sales/Purchase Terms Maintenance section.)
VENDOR POC	String	30	optional	Name of the person designated as the point of contact at the vendor facility.
TYPE OF ORDER CODE	String	1	optional; defaults to "S"	Code that distinguishes among purchase orders according to purpose. This field should always be left at the default of 'S'.
ESTIMATED DUE DATE	Date	2	optional; defaults to 45 days past the current date	Date the material being ordered is expected.
OUTSIDE CONTRACTOR (Y/N)	String	1	optional; "Y"	Flag indicating if the vendor is an outside contractor. This field should always be set to "Y"
CCR #	String	30	optional	Identifier for the CCR authorizing the purchase.
TT #	String	15	optional	Identifier for the trouble ticketassociated with the purchase order.

Table 4.3.4-33. Purchase Order Entry Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
CODE	String	2	optional	Identifier for a type or category of note associated with the item.
NOTE	String	60	optional	A 60 character note associated with the item.

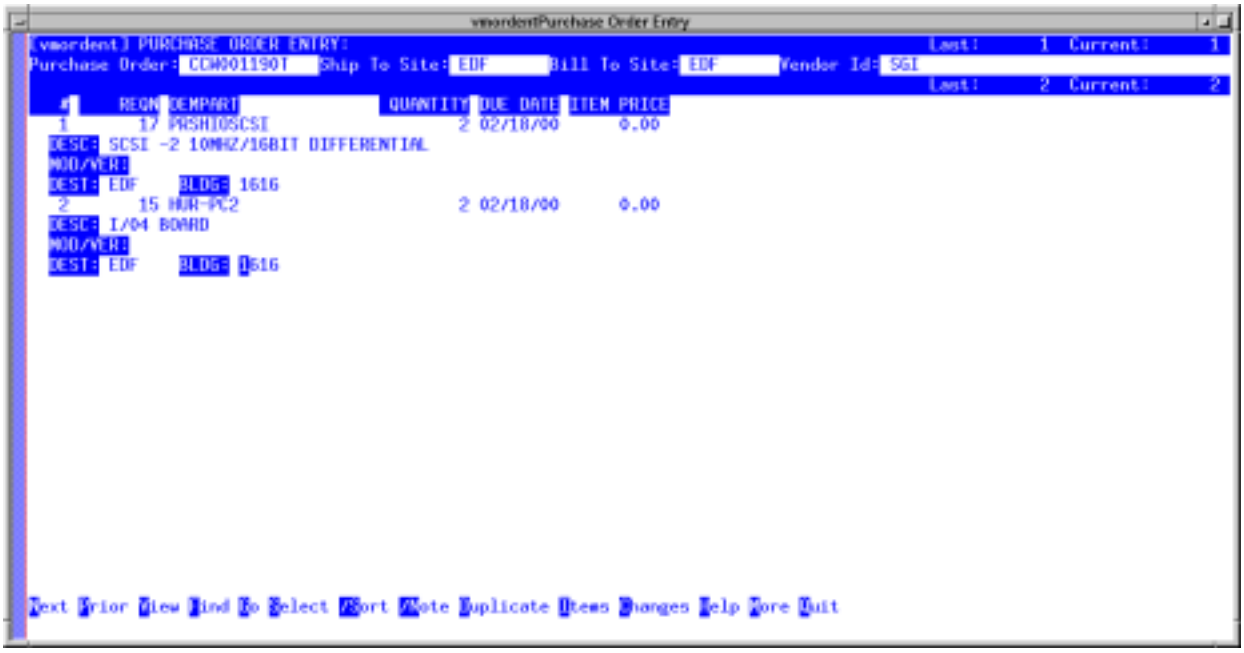

Figure 4.3.4-42. Items Page for Purchase Order Entry CHUI

Table 4.3.4-34. Items Page for Purchase Order Entry Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
#	Numeric	4	required	Sequence number for the purchase order's line items.
REQN	Numeric	8	optional	Number identifying the requisition satisfied by this line item.
OEM PART	String	34	required	The manufacturer's part number of the item(s) you are ordering. The field, DESC, is automatically filled with the selected part's description when you make this selection. The operator may zoom to the OEM Part table and choose the number, if it had been entered there previously. (See the OEM Part Numbers section.)

Table 4.3.4-34. Items Page for Purchase Order Entry Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
QUANTITY	Floating	10.1	required; default is “1”	Number of items on order.
DUE DATE	Date	2	optional; default is 45 days past the current date	Date the item is due to be received.
ITEM PRICE	Floating	11.4	optional; default is the cost from the OEM Part table	Purchase cost of the item. Same as COST.
DESC	String	40	optional	A description of the item. If a value for OEM part number had been entered, the system supplies the manufacturer’s or vendor’s description if one is available.
MOD/VER	String	24	optional	Model or Version of the item.
DEST	String	6	optional; default is the PO’s value for Ship-to Branch	Code for the inventory location where the item is to be shipped. The operator may zoom to the Inventory Location table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.).
BDLG	String	6	system-supplied	Identifier for the building where the item is to be shipped.

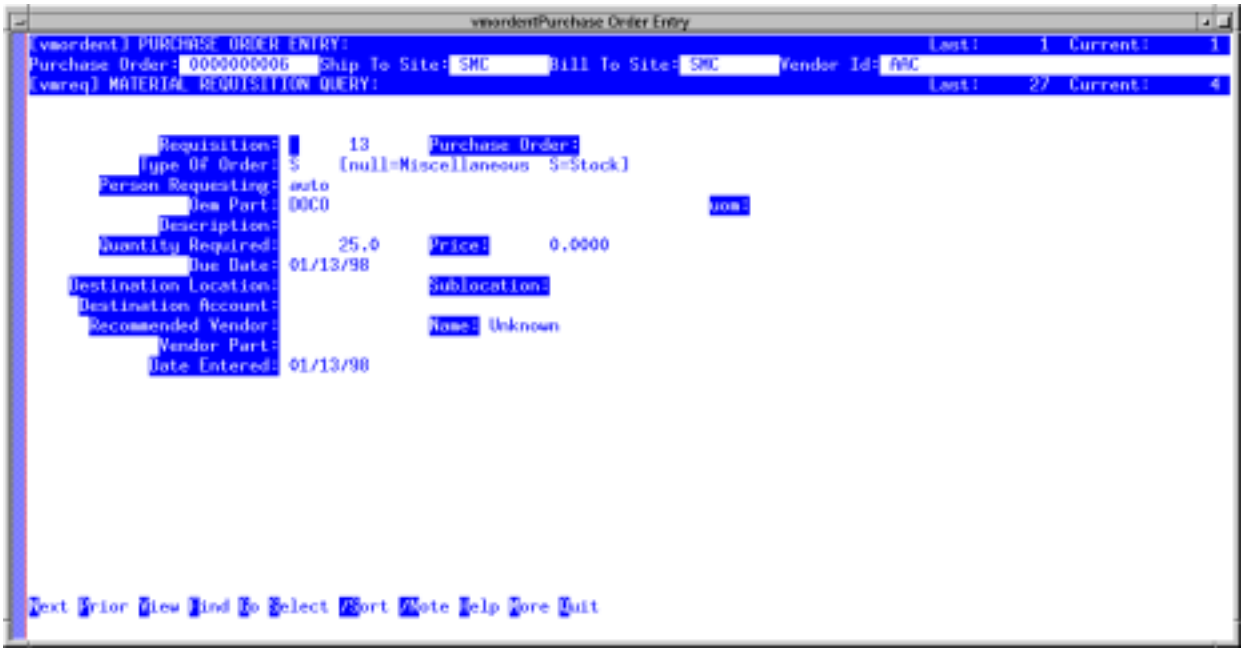

Figure 4.3.4-43. Material Requisition Query CHUI

Table 4.3.4-35. Material Requisition Query Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
Requisition	Numeric	8	system-supplied	The requisition number assigned to this Material Requisition.
Purchase Order	String	10	system-supplied	Identifier for the purchase order to which the requisition has been transferred.
Type of Order	String	1	system-supplied	Code that distinguishes among purchase orders according to purpose. Null = Misc.; S = Stock; R = RFQ
Person Requesting	String	8	system-supplied	Name of person completing the requisition.
OEM Part	String	34	system-supplied	Manufacturer's or vendor's part number for the item.
Description	String	40	system-supplied	Manufacturer's or vendor's description of the item.
uom	String	2	system-supplied	Purchase unit of measure used for buying the item.
Quantity Required	Floating	9.1	system-supplied	Number of item to order.
Price	Floating	11.4	system-supplied	Expected item price.

Table 4.3.4-35. Material Requisition Query Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Due Date	Date	2	system-supplied	Date by which the item is required. By convention, the value "**/**/**" is interpreted as, "as soon as possible".
Destination Location	String	6	system-supplied	Code for the inventory location where the item is to be added to stock.
Sublocation	String	6	system-supplied	Identifier for the building where the item is to be added to stock.
Destination Account	String	6	system-supplied	Identifier for the financial account for the requisition.
Recommended Vendor	String	6	system-supplied	Code identifying the preferred vendor.
Name	String	30	system-supplied	Name of the vendor. The value is obtained from the Vendor Master record corresponding to the recommended vendor's code.
Vendor Part	String	16	system-supplied	Vendor's part number if it differs from the OEM part number entered earlier on this screen.
Date Entered	Date	2	system-supplied	Date the requisition was created.

4.3.4.2.5.4 Purchase Order Modification Screen

The Purchase Order Modification screen (Figure 4.3.4-44) is used to update existing, open purchase orders; that is, orders with their status code "blank" (Active) or "R" (Released). Changing the quantity of a line item, its price, or expected date are common reasons to use this screen, as is adding a new line item to the purchase order. Changing the order's status to "C" (Complete) or "X" (Cancelled) causes the status to change in each line item. It also renders the order closed. Closed orders may be viewed through the Purchase Order Status screen only. This screen functions in much the same way as the Purchase Order Entry screen discussed in the previous section, but it includes a feature that tracks the history of changes to the quantity or price of a line item, viewable via the Changes bottom-line command.

Table 4.3.4-36 describes this screen's fields, while Figure 4.3.4-45 and Table 4.3.4-37 describe its items page. The Material Requisition Query screen, available from this screen's item page, is the same as the one for Purchase Order Entry's item page. See Section 4.3.4.2.5.3 for the description.

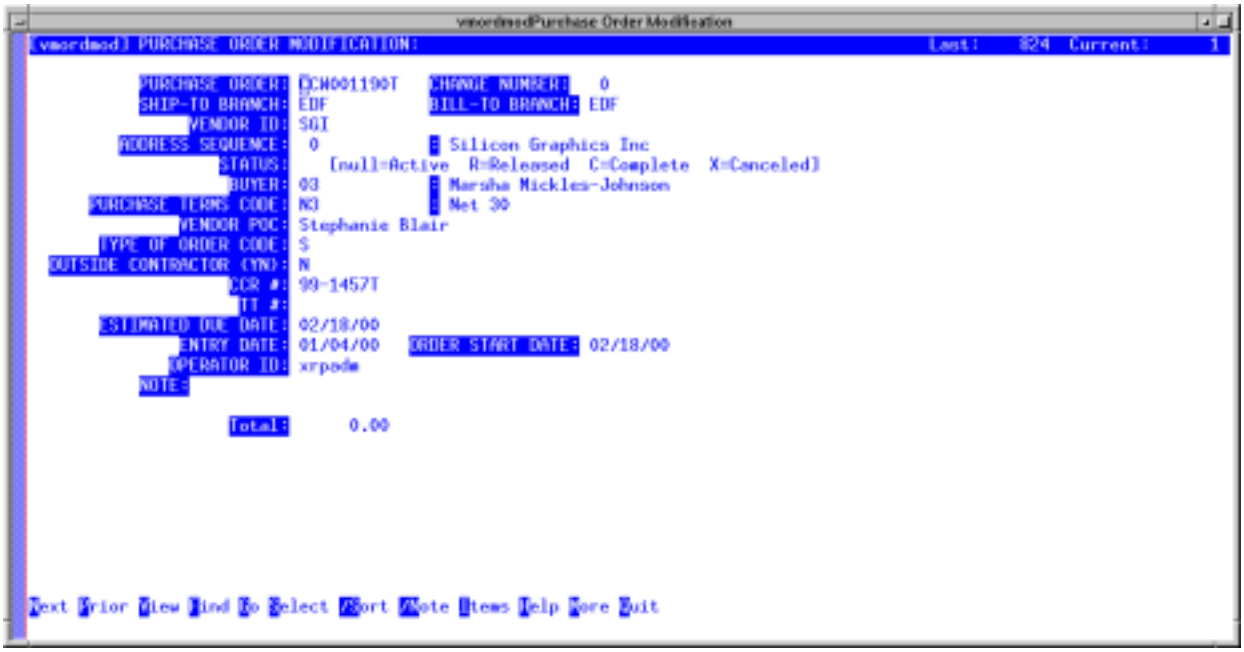

Figure 4.3.4-44. Purchase Order Modification CHUI

Table 4.3.4-36. Purchase Order Modification Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
PURCHASE ORDER	String	10	required	Identifier for the purchase order.
CHANGE NUMBER	Numeric	3	optional	Number identifying the revision level for the PO.
SHIP-TO BRANCH	String	6	optional	Code for the site to which the material is to be shipped. The default is the local site. The operator may zoom to the Site Code table and choose the code, if it had been entered there previously. (See the Site Master Manager section.)
BILL-TO BRANCH	String	6	optional	Code for the site the vendor is to bill. The default is the local site. The operator may zoom to the Site Code table and choose the code, if it had been entered there previously. (See the Site Master Manager section.)
VENDOR ID	String	6	optional	Code for the vendor from whom items are being purchased.
ADDRESS SEQUENCE	Numeric	2	optional	Code designating which of the vendor's addresses to use.

Table 4.3.4-36. Purchase Order Modification Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
STATUS	String	1	optional; null, R, C, or X	Code for the status of the purchase order. Null = Active; R = Released; C = Completed; X = Cancelled. NOTE: The system updates the status to "C" automatically when certain criteria are met. See the Purchase Order Processing section for details.
BUYER	String	6	optional	Code for a person authorized to purchase the item. The operator may zoom to the Buyer table and choose the code, if it had been entered there previously. (See the Buyer Manager section.)
PURCHASE TERMS CODE	String	2	optional	Code for the terms under which the items are being purchased. The operator may zoom to the Sales/Purchase Terms Code file and choose the code, if it had been entered there previously. (See the Sales/Purchase Terms Manager section.)
VENDOR POC	String	30	optional	Name of the person designated as the point of contact at the vendor facility.
TYPE OF ORDER CODE	String	1	optional	Code that distinguishes among purchase orders according to purpose. This field should always be left at the default of 'S'.
OUTSIDE CONTRACTOR (YN)	String	1	optional; Y or N	Flag indicating if the vendor is an outside contractor. This field should always be set to "Y"
CCR #	String	30	optional	Identifier for the CCR authorizing the purchase.
TT #	String	15	optional	Identifier for the trouble ticketassociated with the purchase order.
ESTIMATED DUE DATE	Date	2	optional	Date the material being ordered is expected.
ENTRY DATE	Date	2	optional	Date the purchase order was created.
ORDER START DATE	Date	2	optional	Date the purchase order should be released in order for the material to be received when due.
OPERATOR ID	String	8	optional	Login ID of the operator who added this order to the database.
NOTE	String	60	optional	A 60 character note attached to the PO.
Total	Numeric	10	system-supplied	Value of the order.

Figure 4.3.4-45. Items Page for Work Order Modification CHUI

Table 4.3.4-37. Items Page for Purchase Order Entry Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
#	Numeric	4	required	Sequence number for the purchase order's line items.
REQN	Numeric	8	optional	Number identifying the requisition satisfied by this line item.
OEM PART	String	34	required	The manufacturer's part number of the item(s) you are ordering. The field, DESC, is automatically filled with the selected part's description when you make this selection. The operator may zoom to the OEM Part table and choose the number, if it had been entered there previously. (See the OEM Part Numbers section.)
QUANTITY	Floating	10.1	required; default is "1"	Number of items on order.
DUE DATE	Date	2	optional; default is 45 days past the current date	Date the item is due to be received.

Table 4.3.4-37. Items Page for Purchase Order Entry Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
ITEM PRICE	Floating	11.4	optional; default is the cost from the OEM Part table	Purchase cost of the item. Same as COST.
DESC	String	40	optional	A description of the item. If a value for OEM part number had been entered, the system supplies the manufacturer's or vendor's description if one is available.
MOD/VER	String	24	optional	Model or Version of the item.
DEST	String	6	optional; default is the PO's value for Ship-to Branch	Code for the inventory location where the item is to be shipped. The operator may zoom to the Inventory Location table and choose the code, if it had been entered there previously. (See the Inventory Location Manager section.).
BDLG	String	6	system-supplied	Identifier for the building where the item is to be shipped.
STATUS	String	1	optional	Code for the status of the item. Null = Inactive; F = Firm planned; R = Released; C= Complete; X = Cancelled

4.3.4.2.5.5 Purchase Order Print Screen

The Purchase Order Print screen (Figure 4.3.4-46) prints user-specified Purchase Orders for mailing to the vendor or providing copies to the receiving dock. The system prints "active" purchase orders only (i.e., those having a null status code), unless the operator had specified to include orders previously released.

Enter values to be used as criteria for selecting which purchase orders to print, then invoke the Execute bottom-line command. Table 4.3.4-38 describes the screen's fields.

Note: Printing an active purchase order in effect releases it, and causes the system to change its status to "R".

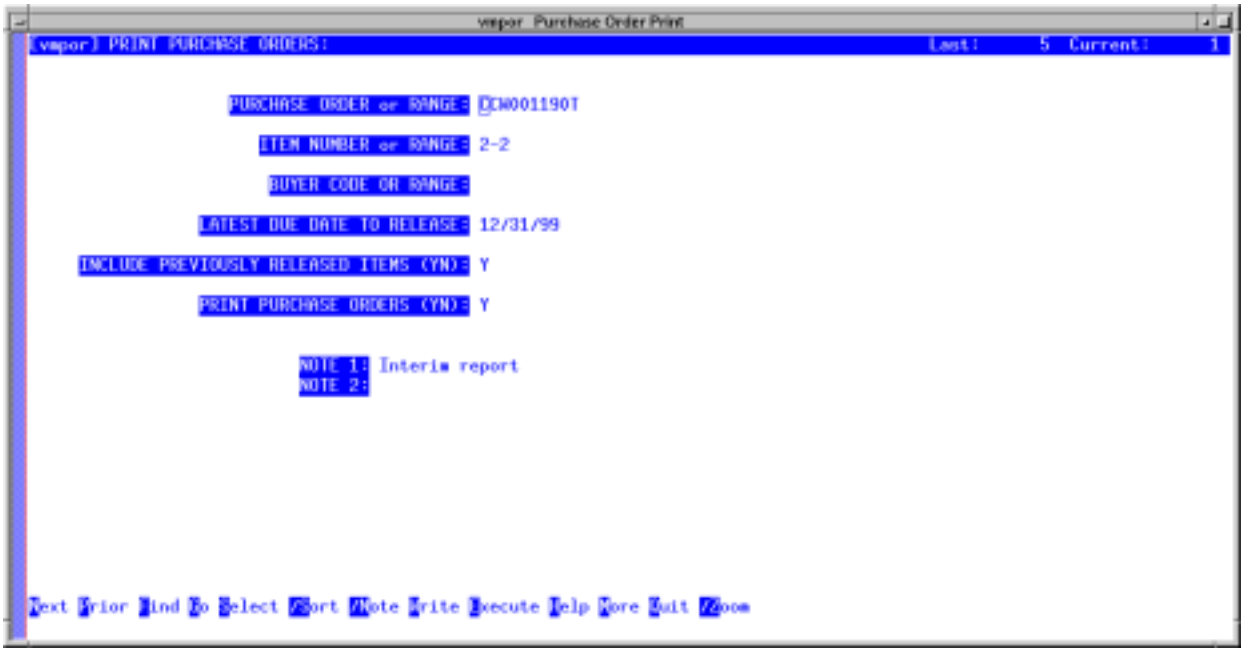

Figure 4.3.4-46. Purchase Order Print CHUI

Table 4.3.4-38. Purchase Order Print Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
PURCHASE ORDER or RANGE	String	10	required	Identifier for the purchase order. The operator may zoom to the Purchase Order table and choose an identifier, if it had been entered there previously. (See the Purchase Order entry section.)
ITEM NUMBER or RANGE	String	8	optional	Item number(s) to report.
BUYER CODE OR RANGE	String	2	optional	Code used to identify the buyer. The operator may zoom to the Buyer table and choose the code, if it had been entered there previously. (See the Buyer Manager section.)
LATEST DUE DATE to RELEASE	String	8	optional	Date beyond which a purchase order must not be due. This entry keeps purchase orders from being printed, and thereby released, too early.
INCLUDE PREVIOUSLY RELEASED ITEMS (YN)	String	1	optional; Y or N	Flag designating whether to include in the report any purchase orders previously released. If set to “N”, only “active” PO’s are printed.

Table 4.3.4-38. Purchase Order Print Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
PRINT PURCHASE ORDERS (YN)	String	1	required; Y or N	Flag designating whether to print PO's that are currenty "active" (i.e., having a null status code). Entering "Y" prints these PO's and sets their status to "R". If set to "N", the system only prints labels.
NOTE 1 and NOTE 2	String	40	optional	A 40 character message to include in the report.

4.3.4.2.5.6 Purchase Order Status

The Purchase Order Status screen (Figure 4.3.4.47) lets operators browse all purchase order records, including those that have been closed or cancelled. No updates are allowed. The items bottom-line command is available and is the same as the Purchase Order Modification screen's (refer to Section 4.3.4.2.6.5.4), except it does not allow updates either. Table 4.3.4-39 describes the screen's fields.

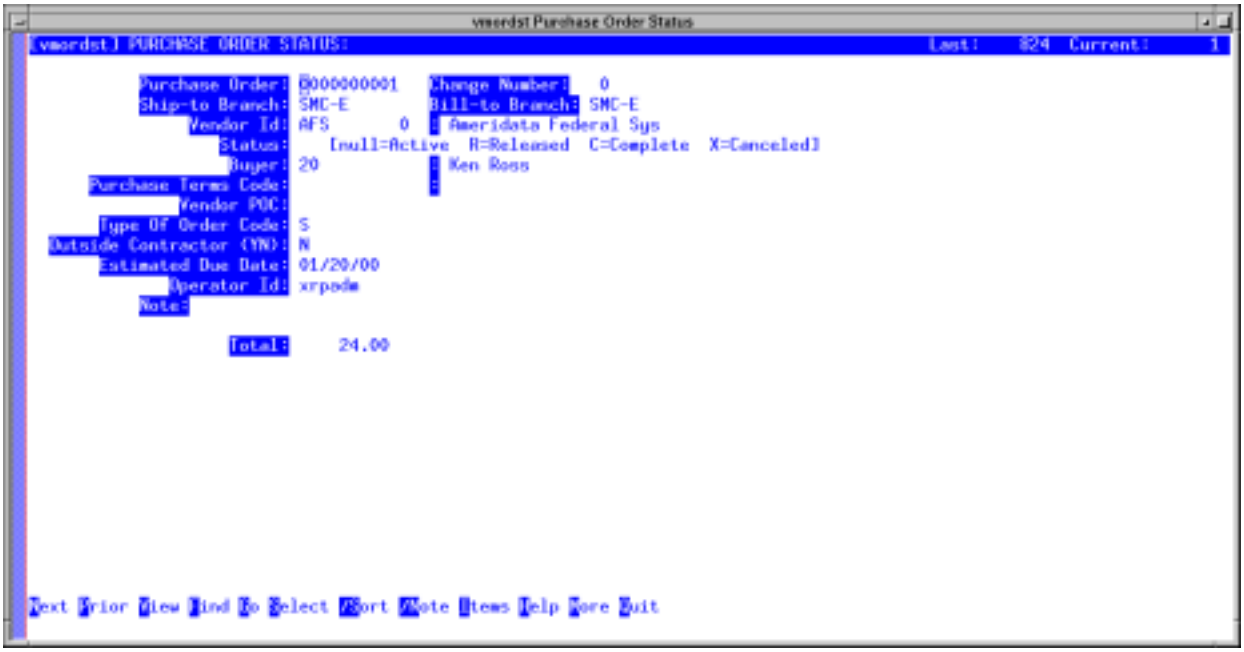

Figure 4.3.4-47. Purchase Order Status CHUI

Table 4.3.4-39. Purchase Order Status Field Descriptions

Field Name	Data Type	Size	Entry	Description
Purchase Order	String	10	system-supplied	Identifier for the purchase order.
Change Number	Numeric	3	system-supplied	Number identifying the revision level for the PO.
Ship-To Branch	String	6	system-supplied	Code for the site to which the material is to be shipped.
Bill-To Branch	String	6	system-supplied	Code for the site the vendor is to bill.
Vendor Id	String	6	system-supplied	Code for the vendor from whom items are being purchased.
Status	String	1	system-supplied	Code for the status of the purchase order. Null = Active; R = Released; C = Completed; X = Cancelled.
Buyer	String	6	system-supplied	Code for a person authorized to purchase the item.
Purchase Terms Code	String	2	system-supplied	Code for the terms under which the items are being purchased.
Vendor Poc	String	30	system-supplied	Name of the person designated as the point of contact at the vendor facility.
Type Of Order Code	String	1	system-supplied	Code that distinguishes among purchase orders according to purpose. This field should always be left at the default of 'S'.
Outside Contractor (YN)	String	1	system-supplied	Flag indicating if the vendor is an outside contractor. This field should always be set to "Y"
Estimated Due Date	Date	2	system-supplied	Date the material being ordered is expected.
Operator Id	String	8	system-supplied	The login ID of the operator who added this item to the database.
Note	String	60	system-supplied	A 60 character note attached to the purchase order.
Total	Numeric	10	system-supplied	The system calculated value of the order.

4.3.4.2.5.7 Receipt Confirmation Screen

The Receipt Confirmation screen (Figure 4.3.4-48) handles receiving of materials obtained through purchase orders. It is the primary means of adding to the catalog of EINs in the system and adjusting inventory records to account for new items, including consumables and spares.

Received items are tied to receipts, a receipt being a list of items received against the same purchase order. Although multiple purchase orders cannot use the same receipt, a purchase order can use multiple receipts as long as at most one of the receipts is open at a time. That is, operators can

accumulate items in an open receipt until all the purchase order's items have been received, or they can close a receipt as they wish and open new ones as needed for the order's remaining items. Closing all receipts each day permits tracking how many items were received each day.

When items arrive, create a new receipt, if necessary, always letting the system assign the next, sequential number for an identifier. Enter the purchase order number and other details. If a receipt is alredy open for that PO, the system will warn you to use it instead. It won't be hard to locate since the screen displays only "open" receipts. (Using table view or the Find command on the purchase order field should help.) Table 4.3.4-40 describes the Receipt Confirmation screens fields.

Use the Items command to add the new items to the receipt. The items page (Figure 4.3.4-49) will display all of the order's line items regardless of status and quantity due. Enter in this screen the actual quantities of each line item received and then exit. Upon exit, the system will ask to process the transaction and, if the response is yes, attempt to determine for each item received whether it is a consumable, or spare. Consumables are processed automatically, but an EIN Entry Manager screen is invoked for each spare and other EIN received so the items can be properly catalogued. The system will also ask to close the receipt if it determines no more items are due against the purchase order. Table 4.3.4-41 describes the items page's fields.

Note: Consider listing the same part as different items on a receipt if the items were received at different locations.

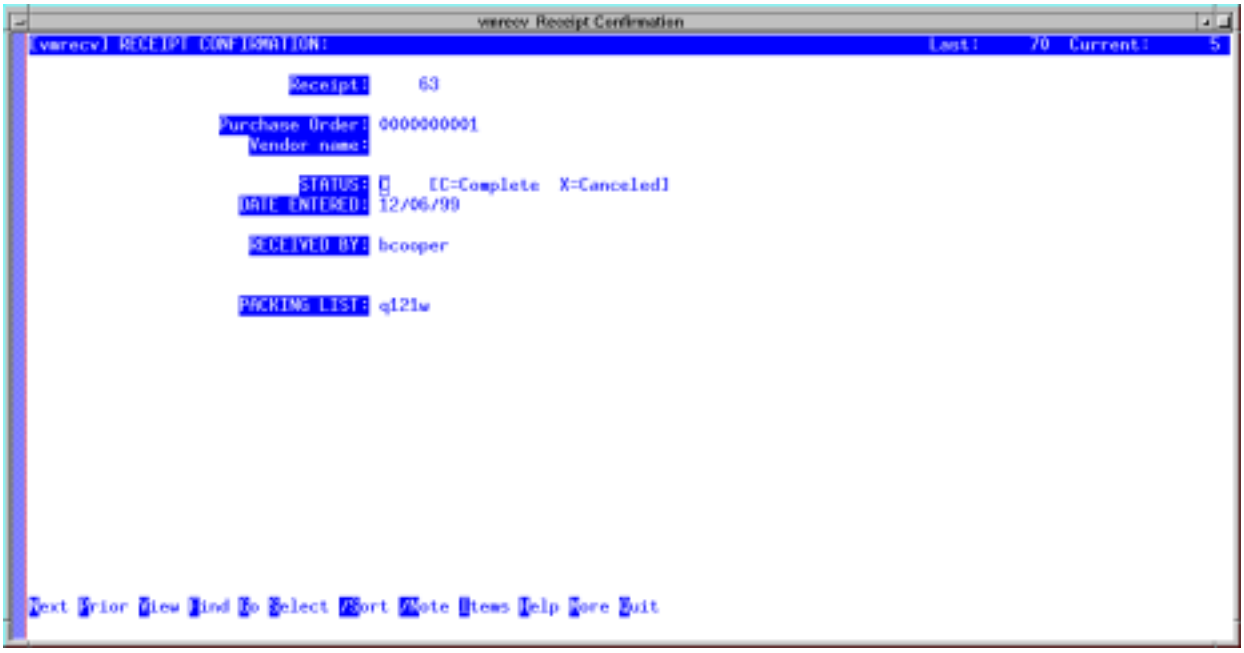

Figure 4.3.4-48. Receipt Confirmation CHUI

Table 4.3.4-40. Receipt Confirmation Field Descriptions

Field Name	Data Type	Size	Entry	Description
Receipt	Numeric	6	required	Number assigned to order during receipt process
PurchaseOrder	String	10	optional	Identifier forthe PO associated with this receipt
Vendor name	String	35	optional	Name of the vendor fulfilling the PO.
STATUS	String	1	optional	Code for status of the receipt. Null = Open; C = Complete; X = Cancelled
DATE ENTERED	Date	2	system-supplied	Date the receipt was created.
RECEIVED BY	String	4	optional	Identifier for the operator entering this receipt.
PACKING LIST	String	20	optional	Tracking Identifier/ ID of the packing list included in the received shipment.

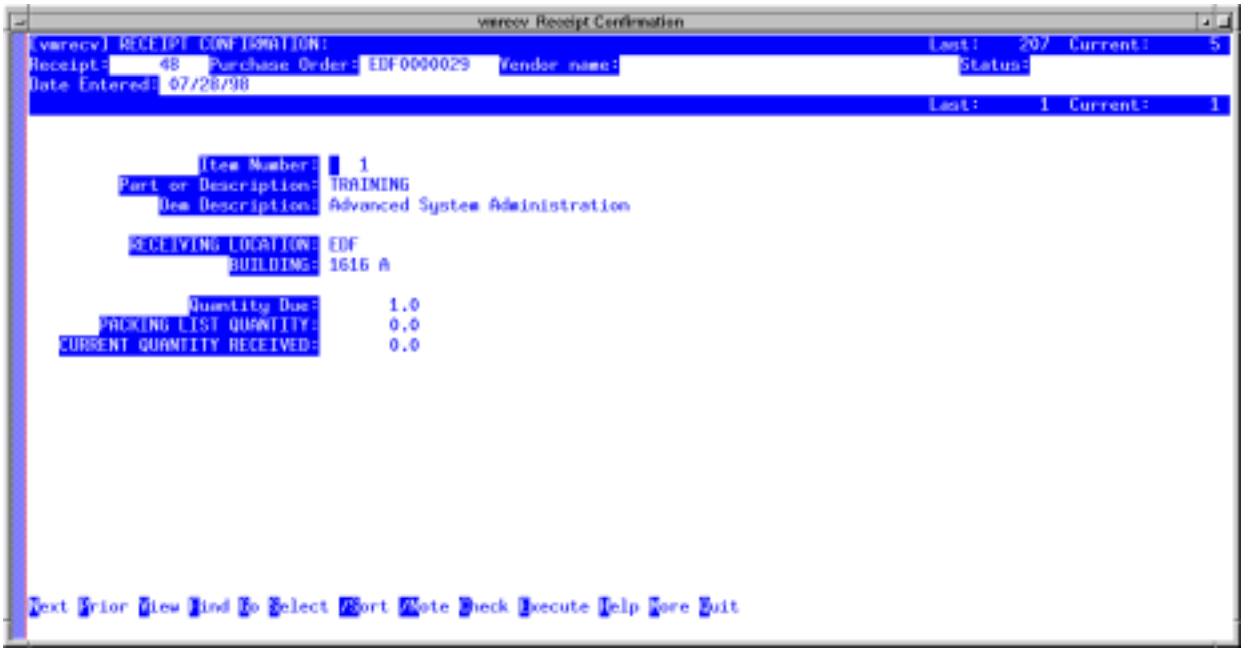

Figure 4.3.4-49. Items Page for Receipt Confirmation CHUI

Table 4.3.4-41. Receipt Confirmation Field Descriptions

Field Name	Data Type	Size	Entry	Description
Item Number	Numeric	4	system-supplied	Sequence number for the item on the item page.
Part or Description	String	10	optional	Manufacturer's or vendor's part number for the item.
Oem Description	String	35	optional	Manufacturer's or vendor's description of the item.
RECEIVING LOCATION	String	1	optional; default is the destination from the purchase order line item's record	Code for the inventory location receiving the item.
BUILDING	Date	2	optional; default is the building from the purchase order line item's record	Identifier for the building where the item is to be delivered.
Quantity Due	Floating	9.1	system-supplied	Quantity of the item still due: the sum of the original order quantity, plus the quantity authorized for return to the vendor, minus the quantity received to date.
PACKING LIST QUANTITY	Floating	9.1	optional	Quantity shown by the vendor on the packing list.
CURRENT QUANTITY RECEIVED	Floating	9.1	required	Quantity of the item received this transaction.

4.3.4.2.5.8 Print Receipt Reports Screen

The Print Receipt Reports screen (Figure 4.3.4-50) provides the ability to print past receipt reports. Enter record selection criteria and the number of copies required as indicated by Table 4.3.4-42, then invoke the Execute bottom-line command. Respond to the report processing prompts as appropriate.

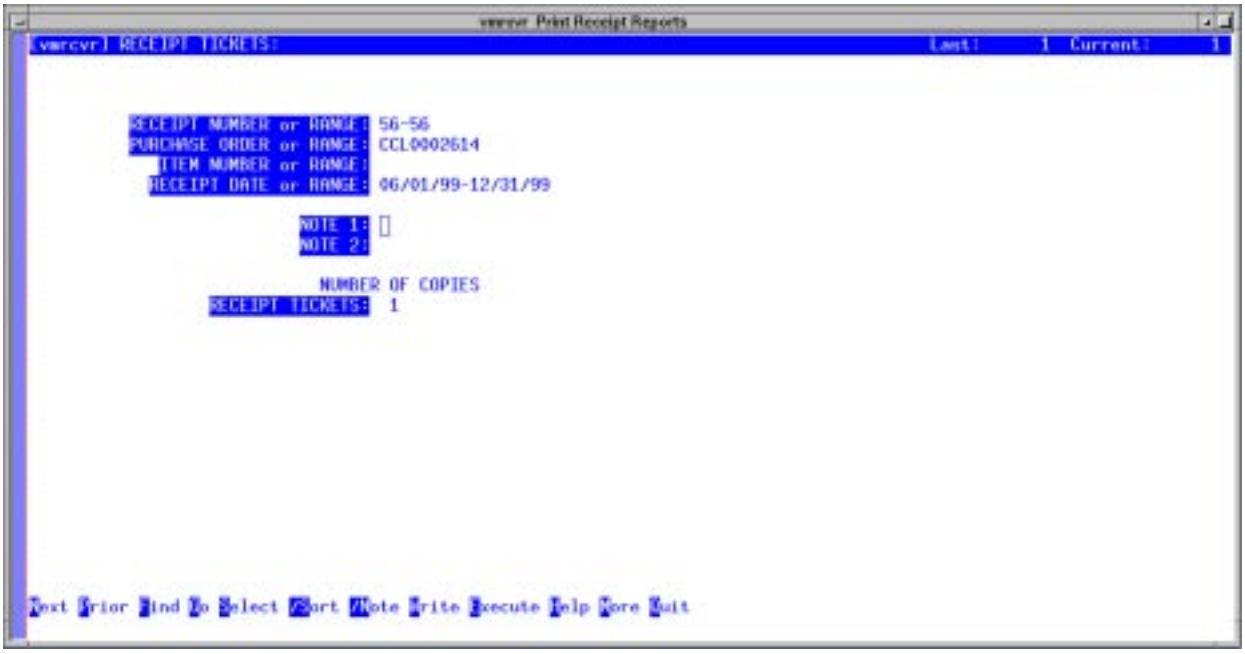

Figure 4.3.4-50. Print Receipt Reports CHUI

Table 4.3.4-42. Print Receipt Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
RECEIPT NUMBER or RANGE	String	6	required	Receipt tracking number(s) to report. The operator may zoom to the Receipts table and choose the nunber, if it had been entered there previously. (See the Receipt Confirmation section.)
PURCHASE ORDER or RANGE	String	10	optional	Identifier or range of identifiers for one or more purchase orders. The operator may zoom to the Purchase Order table and choose the nunber, if it had been entered there previously. (See the Purchase Order Entry section.)
ITEM NUMBER or RANGE	String	8	optional	Item number(s) to report.
RECEIPT DATE or RANGE	Date	2	optional	Receipt date(s) to report.
NOTE 1 and NOTE 2	String	40	optional	A 40 character message to include in the report.
RECEIPT TICKETS	String	1	required	Number of copies of the report to print.

4.3.4.2.5.9 Purchase Order Processing Screen

Operators use the Purchase Order Processing screen (Figure 4.3.4-51) to close all open PO's that meet established criteria: namely, the percentage of completion of each item and the number of days without any activity in the order. Values for these parameters are preset in the System Parameters table to "0" and are not modifiable via data entry screen in the ILM configuration deployed. As is, running this program will automatically close all PO's not modified since the previous day.

Enter either "**F**", "**B**", or "**A**" in response the screen's prompt to run the program in the foreground, run it in the background, or reject running it at all, respectively.

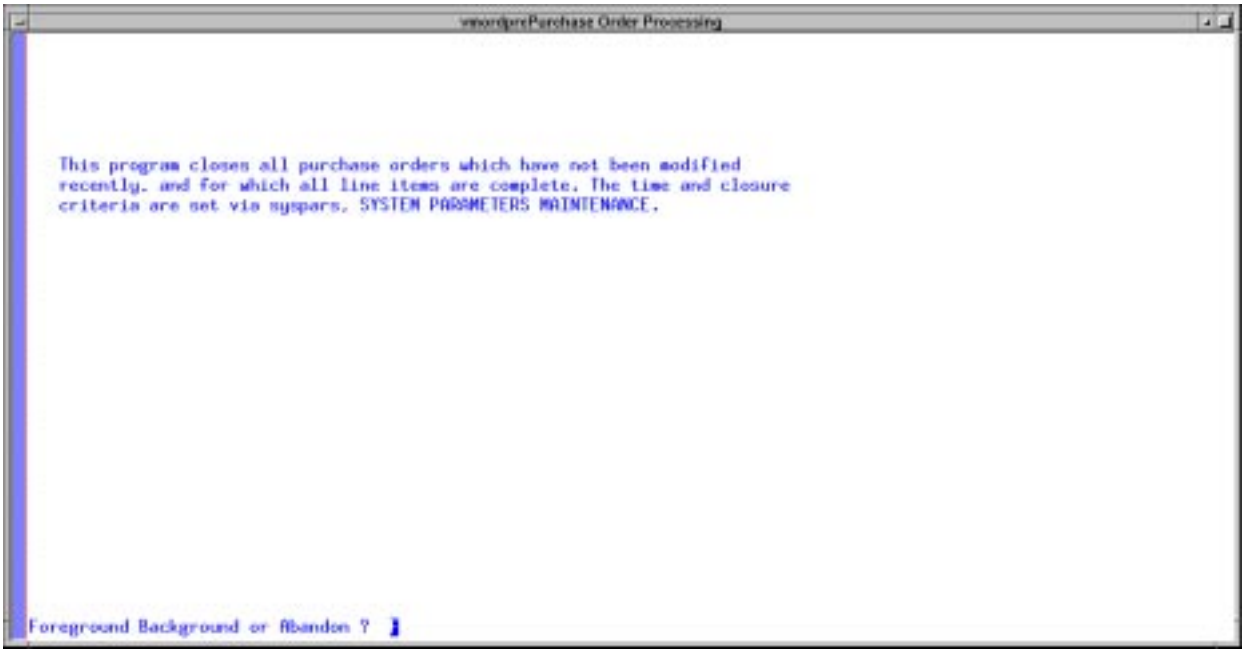

Figure 4.3.4-51. Purchase Order Processing CHUI

4.3.4.2.5.10 Vendor Master Manager Screen

The Vendor Master Manager screen (Figure 4.3.4-52) permits the entry and modification of vendors and address data to the system. The operator enters or modifies the fields for this screen as required (see Table 4.3.4-43), then uses the screen's Addr command to invoke the address page (Figure 4.3.4-53) to update address data for the vendor (see Table 4.3.4-44).

Figure 4.3.4-52. Vendor Master Manager CHUI

Table 4.3.4-43. Vendor Master Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
VENDOR ID	String	6	required	Code for a vendor from whom items are purchased.
NAME	String	30	optional	Full name of a vendor from whom items are purchased.
PAYMENT TERMS CODE	String	2	optional	Code for the default payment terms for invoices for the vendor. The operator may zoom to the Payment Terms table to choose the code, if it had been entered there previously. (See the Sales/Purchase Terms Maintenance section.)

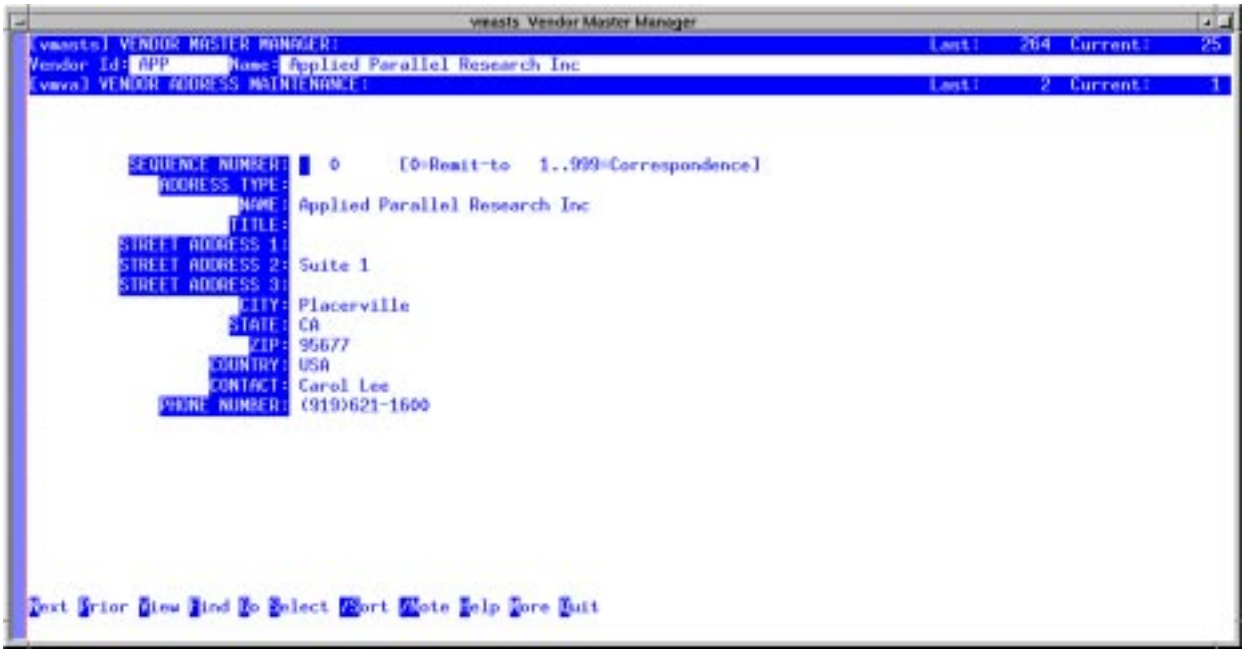

Figure 4.3.4-53. Address Page for Vendor Master Manager CHUI

Table 4.3.4-44. Address Page for Vendor Master Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
SEQUENCE NUMBER	Numeric	3	required	Number that uniquely identifies each address for a company. The value “0” is interpreted as the default.
ADDRESS TYPE	String	2	optional	Code that distinguishes among purposes for which the address is used.
NAME	String	30	optional	Company name or individual’s name thtat appears as the first line of the address.
TITLE	String	20	optional	Title of an individual at the company.
STREET ADDRESS 1, 2, 3	String	30	optional	Address for the vendor.
CITY	String	20	optional	City part of address
STATE	String	2	optional	State 2 character abbreviation of address.
ZIP	String	10	optional	Zip code of address.
COUNTRY	String	16	optional	Country in which the vendor is located.
CONTACT	String	30	optional	Name of a contact at the address.
PHONE	String	18	optional	Telephone number of address

4.3.4.2.6 Maintenance Menu

The ILM Maintenance Menu (Figure 4.3.4-54) helps operators navigate to data entry screens used to record and track maintenance oriented data, generate and track Work Orders for maintenance actions, and schedule preventative maintenance for appropriate items. These screens, which are discussed in the subsections below, include:

- Work Order Entry - for entering work orders for repairs.
- Work Order Modification - for updating work orders as maintenance activity proceeds.
- Preventative Maintenance Items - for designating which items in the EIN file require preventative maintenance.
- Generate PM Orders - for generating work orders for items needing preventative maintenance.
- Work Order Parts Replacement History - for reporting items replaced under one or more work orders.
- Maintenance Work Order Reports - for reporting about maintenance activity on selected machines.
- Work Order Status Reports - for reporting the status of work orders.
- Maintenance Codes - for defining failure codes to be used when describing repairs and replacements.
- Maintenance Contracts - for managing information about maintenance contracts with vendors and suppliers.
- Authorized Employees - for identifying employees permitted access to vendors for repair notification.

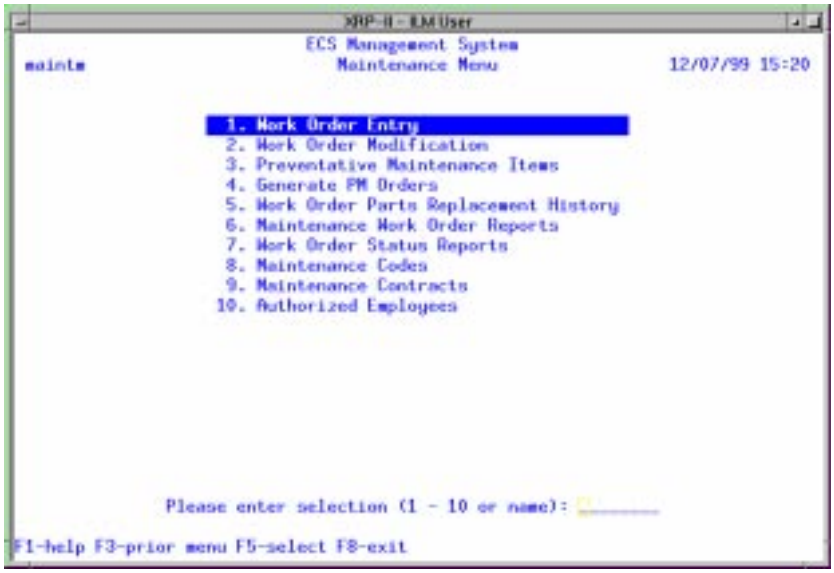

Figure 4.3.4-54. Maintenance Menu CHUI

4.3.4.2.6.1 Work Order Entry Screen

Operators use the Work Order Entry screen (Figure 4.3.4-55) to create a maintenance work order (MWO); that is, a work order for repairs. The screen is always presented in ADD mode to faciliatate data entry. This screen describes the work order itself and is written against the item for which failure data is collected, usually a parent item in an EIN structure. Table 4.3.4-45 describes this screen's fields.

Components undergoing maintenance are identified on the items page attached to this screen (Figure 4.3.4-56). Table 4.3.4-46 describes the items page's fields. Work order line items can be added at the time the work order is created, or at some later time using the Work Order Modification screen (see Section 4.3.4.6.2). Upon exiting Work Order Entry, newly created work orders can be viewed only by using the Work Order Modification screen.

To create a maintenance work order, complete the required fields then exit ADD mode by pressing <**F3**>. Then, to specify the component(s) needing attention, invoke the items page using the Items command. Before displaying the page, XRP-II will create a line item identifying each current child EIN of the parent. Fill in field values as required, using the "Replace or New" field to designate components that have been replaced or repaired. Designating the components brought is as replacements may require an extra step. In most cases, new (replacement) items will not yet have been added to the EIN or structure files, so XRP-II would not have created a line item for them. Add replacement EINs to the EIN file (see Section 4.3.4.2.1.1, EIN Entry Manager Screen). Then add them as line items on the work order items page, and designate them as "New". When finished, exit the items page.

As the items page is exited, XRP-II may ask to "process changes". It does so whenever a line item has been marked as a replacement or new since the last time changes were processed. If the answer is "Y", the system updates EIN property records. Structure records for the parent item are made to reflect any configuration changes, effective the date the change is processed. Location data of the parent is copied to the new components' EIN records as well.

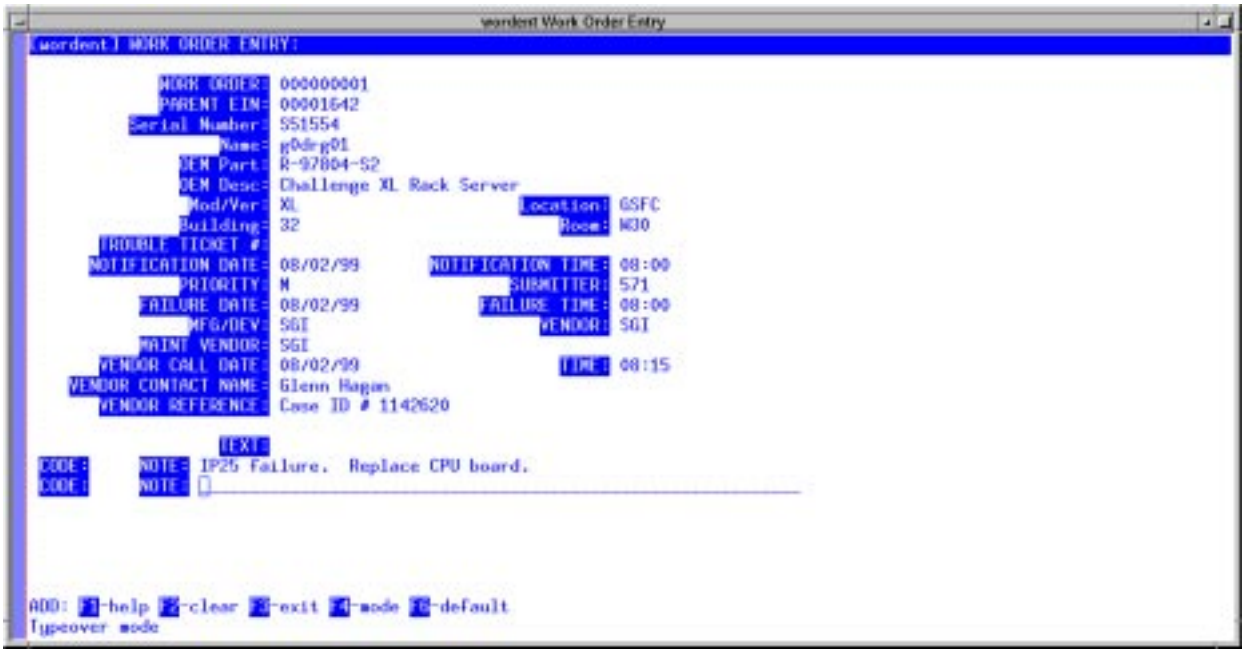

Figure 4.3.4-55. Work Order Entry CHUI

Table 4.3.4-45. Work Order Entry Field Descriptions (1 of 3)

Field Name	Data Type	Size	Entry	Description
WORK ORDER	String	10	required; <**RETURN**>	Identifier for the work order. The operator should always press RETURN. It causes the system to assign the next sequential number available based on the value for last work order number in file last.wo.*x* in the XRP database directory. The value typically has the first 3 characters of the site's code as a prefix.
PARENT EIN	String	20	optional	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
Serial Number	String	30	system-supplied	Serial number of the item entered as parent EIN.

Table 4.3.4-45. Work Order Entry Field Descriptions (2 of 3)

Field Name	Data Type	Size	Entry	Description
Name	String	30	system-supplied	Name of the machine with which the item is associated.
OEM Part	String	34	system-supplied	Manufacturer's part number for the item entered as Parent EIN.
OEM Desc	String	30	system-supplied	Manufacturer's description for the item entered as Parent EIN.
Mod/Ver	String	24	system-supplied	Model or version of the item entered as Parent EIN.
Location	String	8	system-supplied	Designator for the inventory location of the item entered as Parent EIN.
Building	String	6	system-supplied	Building where the item entered as Parent EIN is situated.
Room	String	6	system-supplied	Room where the item entered as Parent EIN is situated.
TROUBLE TICKET #	String	15	optional	Identifier for the trouble ticket associated with the work order.
NOTIFICATION DATE	Date	2	optional	Date notification of the failure was made.
NOTIFICATION TIME	Time	2	optional	Time notification of the failure was made.
PRIORITY	String	1	optional	Priority assigned to the work.
SUBMITTER	String	10	optional	Code of the employee who submitted the problem and caused the work order to be opened. The operator may zoom to the Employee table to choose the code, if it had been entered there previously. (See the Employee Manager section.)
FAILURE DATE	Date	2	optional	Date that the failure occurred.
FAILURE TIME	String	2	optional	Time that the failure occurred.
MFG/DEV	String	6	optional	Code for the manufacturer or developer of the item. The operator may zoom to the Vendor table and choose the code, if it had been entered there previously. (See the Vendor Master Manager section.)
VENDOR	String	6	optional	Code for the vendor from whom the item was procured. The operator may zoom to the Vendor table and choose the code, if it had been entered there previously. (See the Vendor Master Manager section.)
MAINT VENDOR	String	6	optional	Code for the item's maintenance vendor. The operator may zoom to Vendor table and choose the code, if it had been entered there previously. (See the Vendor Master Manager section.)

Table 4.3.4-45. Work Order Entry Field Descriptions (3 of 3)

Field Name	Data Type	Size	Entry	Description
VENDOR CALL DATE	Date	2	optional	Date the vendor was called and informed of the problem.
TIME	Time	2	optional	Time the vendor was called and informed of the problem.
VENDOR CONTACT NAME	String	30	optional	Name of the vendor point of contact.
VENDOR REFERENCE	String	20	optional	Identifier to be referenced when contacting the vendor about the problem with the item.
TEXT	String	8	optional	Press /Z at this prompt to obtain a free form text window. The operator should enter the failure / repair details in this window. When complete, press F3 to exit the text window.
CODE	String	2	optional	Identifier for a type or category of note associated with the item.
NOTE	String	60	optional	A 60 character note that can be associatedwith this item.

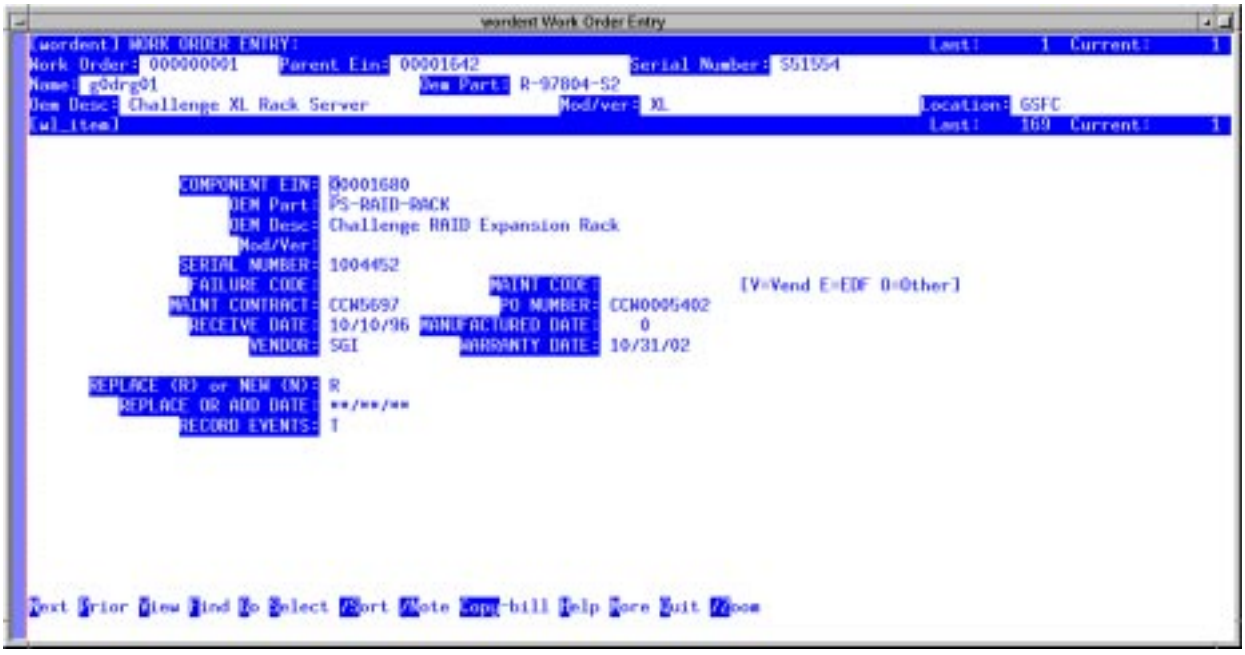

Figure 4.3.4-56. Items Page for Work Order Entry CHUI

Table 4.3.4-46. Items Page for Work Order Entry Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
COMPONENT EIN	String	20	required;	Identifier for an EIN-controlled item that is a child (component) of a parent EIN. The operator may zoom to the EIN table to choose an identifier, if it had been entered there previously. (See the EIN Entry section.)
OEM Part	String	34	system-supplied from EIN record	Manufacturer's or vendor's part number for the item.
OEM Desc	String	40	system-supplied from EIN record	Manufacturer' or vendor's description of the item.
MOD/VER	String	24	system-supplied from EIN record	Model or Version of the item.
SERIAL NUMBER	String	30	optional	Serial number of the item.
FAILURE CODE	String	2	optional	Code that distinguishes among item failures according to their cause. The operator may zoom to the Maintenance Codes table and choose the code, if it had been entered there previously. (See the Maintenance Codes section.)
MAINT CODE	String	3	optional	Code that distinguishes among dispositions for repaired or replaced items.
MAINT CONTRACT	String	15	optional	Identifier for the maintenance contract as assigned by Purchasing or provided by the vendor. The operator may zoom to the Maintenance Contracts table and choose an identifier, if it had been entered there previously. (See the Maintenance Contracts screen.)
PO NUMBER	String	10	optional	Identifier for the purchase order against which the item was received. The operator may zoom to the Purchase Order table and choose an identifier, if it had been entered there previously. (See the Purchase Order Entry section.)
RECEIVE DATE	Date	2	optional; default is the date from the item's EIN record	Date the item was received.
MANUFACTURED DATE	Numeric	4	optional	Date the item was manufactured.

Table 4.3.4-46. Items Page for Work Order Entry Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
VENDOR	String	6	optional	Code for the vendor from which the item was purchased. The operator may zoom to the Vendor data file and pick the desired code. NOTE: This data must be previously entered using screen Vendor Master Maintenance (vmasts).
WARRANTY DATE	Date	2	optional	Date the warranty period ends.
REPLACE ® or NEW (N)	String	1	optional; null, R or N	Flag designating the item as having been repaired, replaced, or new. R = Repaired or Replaced; N = New; null = Not affected.
REPLACE OR ADD DATE	String	8	optional	Date the item was replaced or added.
RECORD EVENTS	String	1	optional	Press /Z at this prompt to obtain a free form text window. The operator can enter the failure repair details in this window. When complete, press F3 to exit the text window.

4.3.4.2.6.2 Work Order Modification Screen

The Work Order Modification screen (Figure 4.3.4-57) provides the ability to update maintenance work orders as maintenance activity proceeds. This screen is used as additional information about the repair becomes known. It functions much the same as the Work Order Entry screen (see Section 4.3.4.2.6.1), except it can accept more information and can be used to view all work orders except those that are "retired" (i.e., status = R).

The operator can enter or modify information in fields that allow it (see Table 4.3.4-47), then use the Right command to move to the chargeable hours page to record these downtimes. Figure 4.3.4-58 depicts the page, and Table 4.3.4-48 describes its fields.

The operator can also invoke the screen's items page to review the line items on the work order. This is the same screen used by Work Order Entry. After using the Items command to enter the screen, the operator can record information about items repaired or replaced and those that are new.

Note: Operators cannot use this screen to create new work orders. Use the Work Order Entry screen instead.

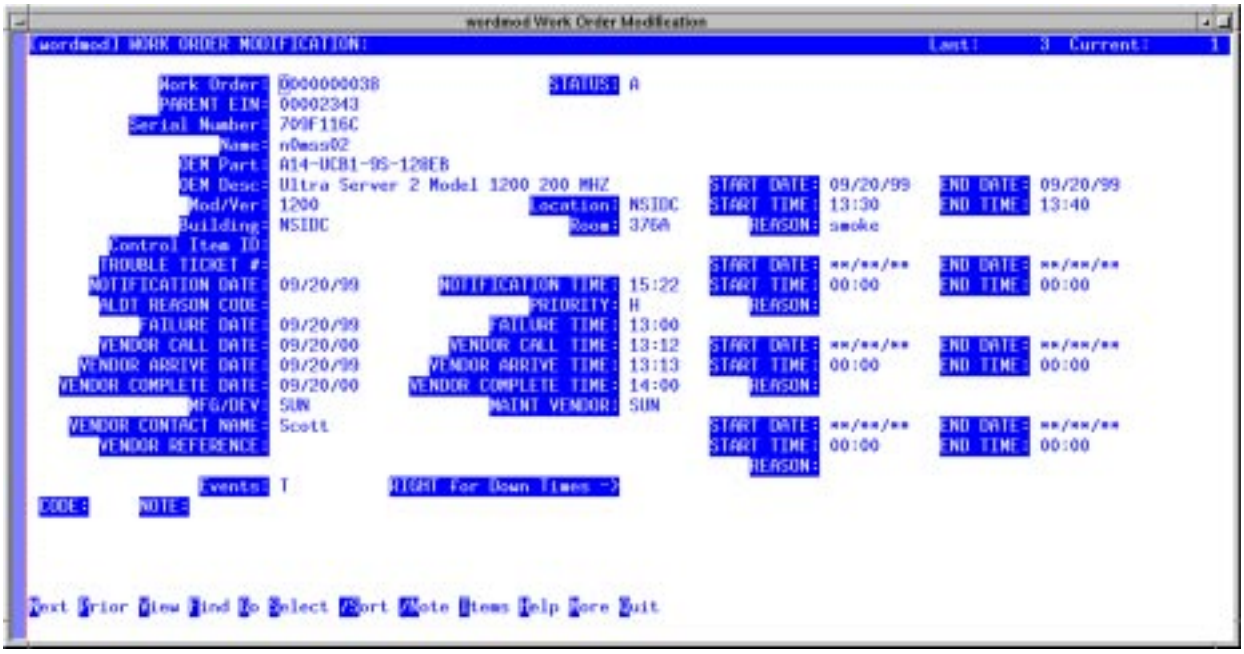

Figure 4.3.4-57. Work Order Modification Screen

Table 4.3.4-47. Work Order Modification Field Descriptions (1 of 3)

Field Name	Data Type	Size	Entry	Description
WORK ORDER	String	10	system-supplied	Identifier for the work order.
STATUS	String	1	optional; O, A, P, or R	Code for the status of the work order. O = Open; A = Audit; P = Property; R = Retired.
PARENT EIN	String	20	optional	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
Serial Number	String	30	system-supplied from EIN record	Serial number of the item entered as Parent EIN.
Name	String	30	system-supplied from EIN record	Name of the machine with which the item is associated.
OEM Part	String	34	system-supplied from EIN record	Manufacturer's part number for the item entered as Parent EIN.
OEM Desc	String	30	system-supplied from EIN record	Manufacturer's description for the item entered as Parent EIN.

Table 4.3.4-47. Work Order Modification Field Descriptions (2 of 3)

Field Name	Data Type	Size	Entry	Description
Mod/Ver	String	24	system-supplied	Model or version number of the item entered as Parent EIN.
Location	String	8	system-supplied from EIN record	Designator for the location where the item entered as Parent EIN is situated.
Building	String	6	system-supplied from EIN record	Building in which the item entered as Parent EIN is situated.
Room	String	6	system-supplied from EIN record	Room in which the item entered as Parent EIN is situated.
Control Item ID	String	30	system-supplied from EIN record	Baseline control item id for the item entered as Parent EIN.
TROUBLE TICKET #	String	15	optional	Identifier for the trouble ticket associated with the work order.
NOTIFICATION DATE	Date	2	optional	The date problem was reported. This field is initialized with the current date but can be modified.
NOTIFICATION TIME	Time	2	optional	The time problem was reported. This field is initialized with the current time but can be modified.
ALDT REASON CODE	String	10	optional	Code for the maintenance action's administrative logistic delay time (ALDT) .
PRIORITY	String	1	optional	Code for the priority assigned to the work.
FAILURE DATE	Date	2	optional	Date that the failure occurred.
FAILURE TIME	Time	2	optional	Time that the failure occurred.
ALDT	Floating	9.1	optional	Duration, in hours, of any administrative logistic delays due the failure (i.e., delays, after repair has started, that prevent the "system" from returning to an available state).
VENDOR CALL DATE	Date	2	optional	The date the maintenance vendor was called.
VENDOR CALL TIME	Time	2	optional	The time the maintenance vendor was called.
VENDOR ARRIVE DATE	Date	2	optional	The date the maintenance vendor actually arrived to perform the repairs.
VENDOR ARRIVE DATETIME	Time	2	optional	The time the vendor actually arrived to perform the repairs.
VENDOR COMPLETE DATE	Date	2	optional	Date the repair was completed.

Table 4.3.4-47. Work Order Modification Field Descriptions (3 of 3)

Field Name	Data Type	Size	Entry	Description
VENDOR COMPLETE DATETIME	Time	2	optional	Time the repair was completed.
MFR/DEV	String	6	optional; default is value from EIN record	Code identifying the manufacturer or developer of the specified parent EIN. The operator may zoom to the appropriate data file and pick the desired code. NOTE: This data must be previously entered with screen Vendor Master Maintenance (vmasts).
MAINT VENDOR	String	6	optional; default is value from EIN record	Code identifying the maintenance vendor for the specified parent EIN. The operator may zoom to the Vendor data file and choose the appropriate code. NOTE: This information must be previously entered using screen Vendor Master Maintenance (vmasts).
VENDOR CONTACT NAME	String	30	optional	Vendor point of contact
VENDOR REFERENCE	String	20	optional	Operator has option to enter any information in reference to the vendor
Events	Text	N/A	optional	Free form field for describing maintenance-related activities. .
CODE	String	2	optional	The administrator can set up codes for their specific needs if desired.
NOTE	String	60	optional	This field is used to enter a 60 character note attached to this item.
START DATE	Date	2	optional	The date a delay began in repairing the system.
START TIME	Time	2	optional	The time a delay began in repairing the system.
END DATE	Date	2	optional	The date a delay in repairing the system ended.
END TIME	Time	2	optional	The time a delay in repairing the system ended.
REASON	String	4	optional	A code for the reason a delay was encountered.

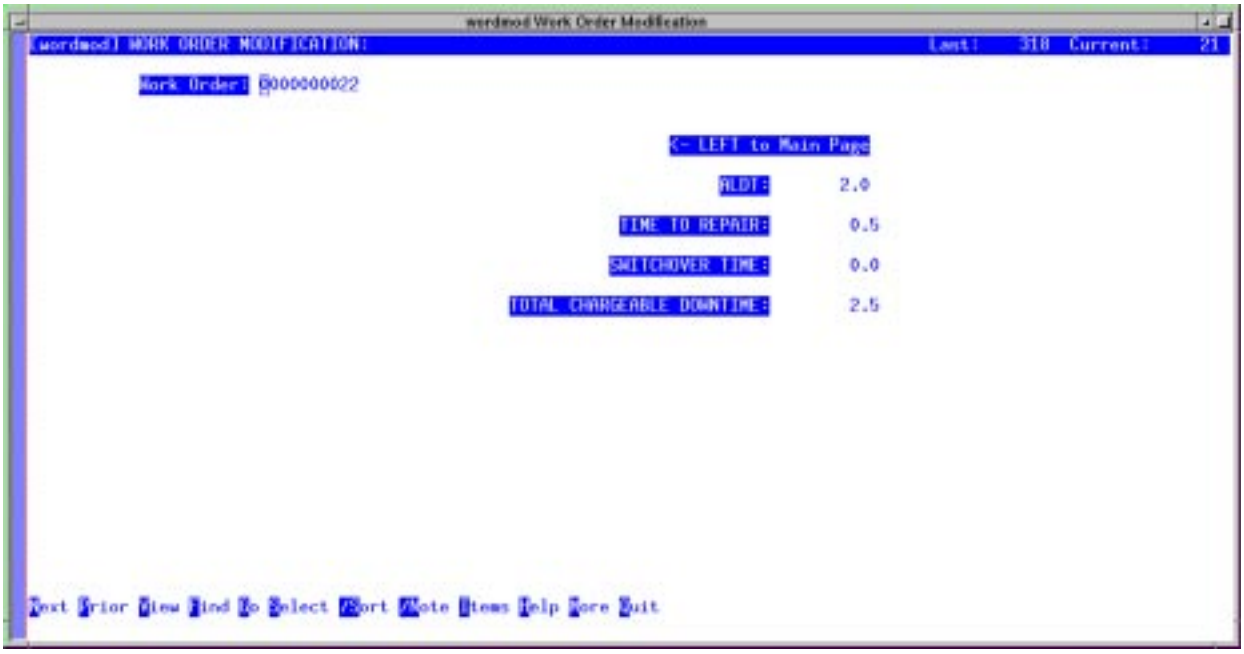

Figure 4.3.4-58. Chargeable Hours Page for Work Order Modification CHUI

Table 4.3.4-48. Chargeable Hours Page for Work Order Modification Field Descriptions

Field Name	Data Type	Size	Entry	Description
Work Order	String	10	system-supplied	Identifier for the work order.
ALDT	Floating	10.1	optional	Administrative logistic delay time (ALDT) Specified in hours.
TIME TO REPAIR	Floating	10.1	optional	Time required to effect the repair. Specified in hours.
SWITCHOVER TIME	Floating	10.1	optional	Time required for system switch-over. Specified in hours.
TOTAL CHARGEABLE DOWNTIME	Floating	10.1	optional	Time to be charged for downtime. Specified in hours.

4.3.4.2.6.3 Preventative Maintenance Items Screen

The Preventative Maintenance Items screen (Figure 4.3.4-59) provides the ability to designate which items in the EIN file undergo preventative maintenance (PM) and to establish a maintenance

timetable for each. The operator uses XRP-II's Select, Sort, and Find commands to obtain a list of items to be modified. The operator then enters a 'Y' in the set field and a frequency of maintenance in days. When a date of last maintenacne is entered, XRP-II will calculate when maintenance is due next. Table 4.3.4-49 describes the screen's fields.

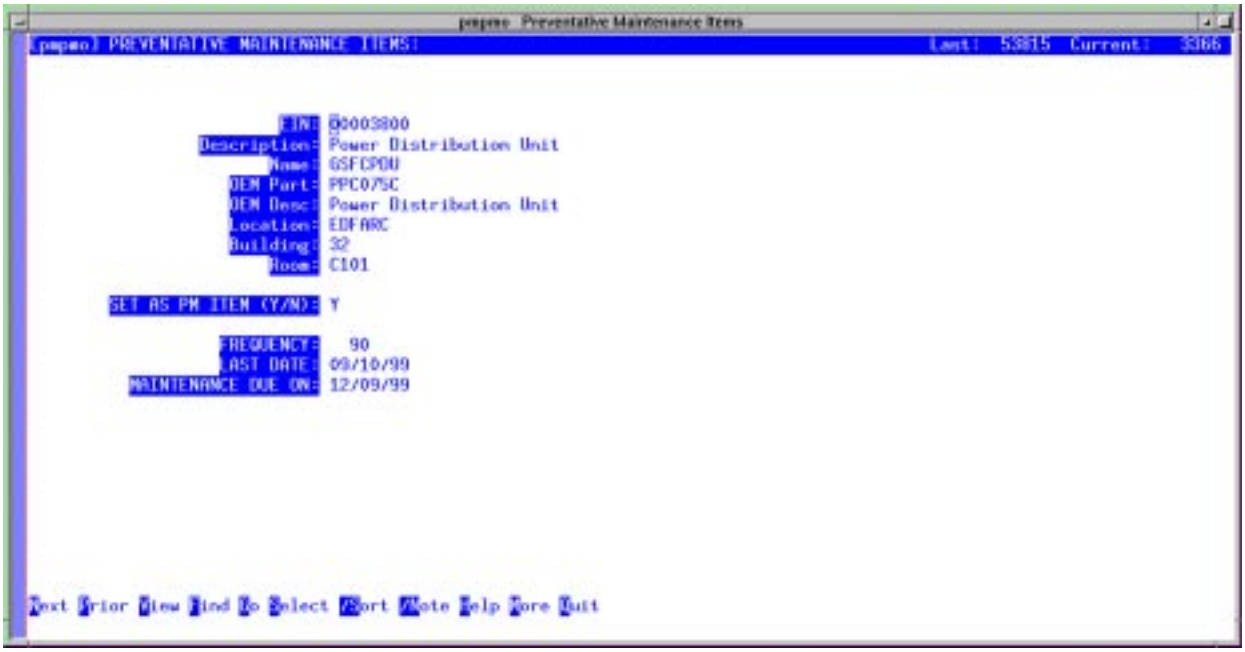

Figure 4.3.4-59. Preventative Maintenance Items CHUI

Table 4.3.4-49. Preventative Maintenance Items Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
EIN	String	20	required	Identifier for an EIN-controlled inventory item.
Description	String		system-supplied	Manufacturer's desciption of the item.
Name	String	30	system-supplied	Name of the machine with which the item is associated.
OEM Part	String	34	system-supplied	Manufacturer's part number for the item entered as EIN.
OEM Desc	String	30	system-supplied	Manufacturer's description for the item entered as EIN.
Location	String	8	system-supplied	Code for the inventory location where the item can be found.

Table 4.3.4-49. Preventative Maintenance Items Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Building	String	6	system-supplied	Identifier for the building where the item can be found.
Room	String	6	system-supplied	Room where the item can be found.
SET AS PM ITEM (Y/N)	String	1	optional; Y or N	Flag designating the item is to undergo preventative maintenance. Y = Yes; N = No.
FREQUENCY	Numeric	3	optional	Number of days between PM's.
LAST DATE	Date	2	optional	Date PM was performed for this item.
MAINTENANCE DUE ON	String	8	optional	Date the next PM is due for this item.

4.3.4.2.6.4 Generate PM Orders Screen

This screen, depicted in Figure 4.3.4-60, generates work orders for items needing preventative maintenance. When executed, XRP-II creates orders for all items needing PM prior to the operator-specified cutoff date. It also prints a summary report of orders created. Table 4.3.4-50 describes the screen's fields.

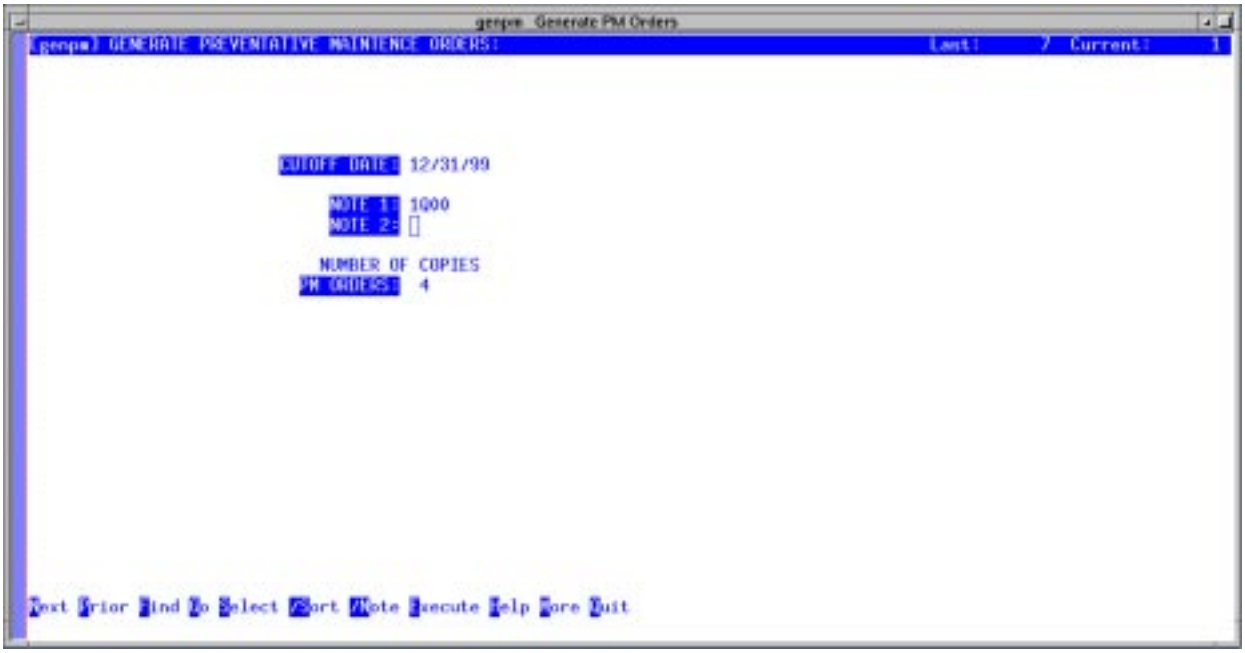

Figure 4.3.4-60. Generate PM Orders CHUI

Table 4.3.4-50. Generate PM Orders Field Descriptions

Field Name	Data Type	Size	Entry	Description
CUTOFF DATE	String	8	required	Enter the last date for the system to examine PM items and generate orders.
NOTE 1 and NOTE 2	String	40	optional	A 40-character note to include in the report.
NUMBER OF COPIES	String	1	optional	Number of copies of the report to generate.

4.3.4.2.6.5 Work Order Parts Replacement History Screen

The Work Order Parts Replacement History screen (Figure 4.3.4-61) generates reports detailing parts replaced under maintenance work orders. The operator enters a Work Order number or range of numbers and a number of copies wanted, then uses the Execute command to print the history reports. Table 4.3.4-51 describes the screen's fields.

Figure 4.3.4-61. Work Order Parts Replacement History CHUI

Table 4.3.4-51. Work Order Parts Replacement History Field Descriptions

Field Name	Data Type	Size	Entry	Description
WORK ORDER or RANGE	String	25	required	Identifier for a work order or range of orders.
NOTE 1 and NOTE 2	String	60	optional	A 40-character note to include in the report.
NUMBER OF COPIES (WORK ORDER HISTORY REPORT)	String	1	required	Number of copies of the report to print

4.3.4.2.6.6 Maintenance Work Order Reports Screen

Operators use the Maintenance Work Order Reports screen (Figure 4.3.4-62) to generate reports about maintenance work done on selected machines. The operator enters record selection criteria and the number of copies wanted, then uses the Execute command to print the reports. Table 4.3.4-52 describes the screen's fields.

Note: At least one record selection criteria field must contain an entry. Otherwise, no records will be included in the report.

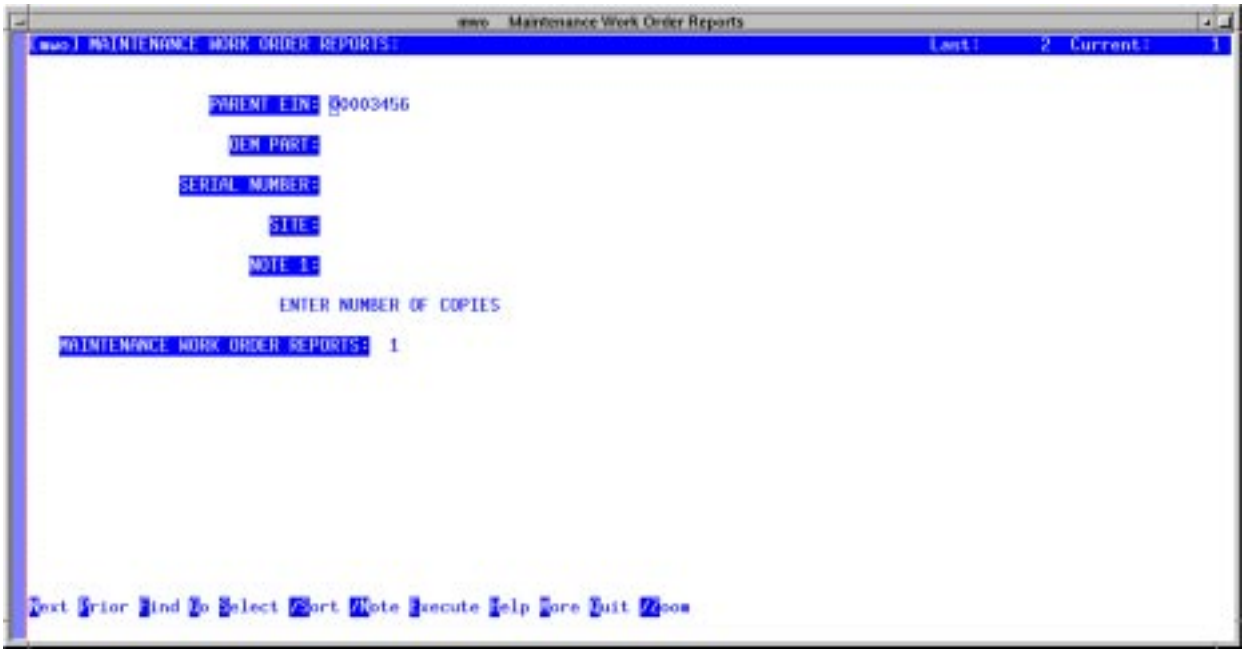

Figure 4.3.4-62. Maintenance Work Order Reports CHUI

Table 4.3.4-52. Maintenance Work Order Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
PARENT EIN	String	20	optional	EIN for the parent item in an EIN structure. The operator may zoom to the EIN table and choose the EIN, if it had been entered there previously. (See the EIN Entry section.)
OEM PART	String	34	optional	Manufacturer's part number for an item. The operator may zoom to the OEM Part file to choose the part number, if it had been entered there previously. (See the OEM Part Numbers section.)
SERIAL NUMBER	String	30	optional	Serial number of an item. The operator may zoom to the EIN file to choose a serial number, if it had been entered there previously. (See the EIN Entry section.)
SITE	String	6	optional	Code for a site at which items can be found.
NOTE 1	String	40	optional	A 40 character message to include in the report
Maintenance Work Order Reports	Numeric	1	required	Number of copies of the report to print.

4.3.4.2.6.7 Work Order Status Reports

The Work Order Status Reports screen (Figure 4.3.4-63) provides status reports covering selected work orders. The operator enters record selection criteria and the number of copies wanted, then uses the Execute command to print the reports. Table 4.3.4-53 describes the screen's fields.

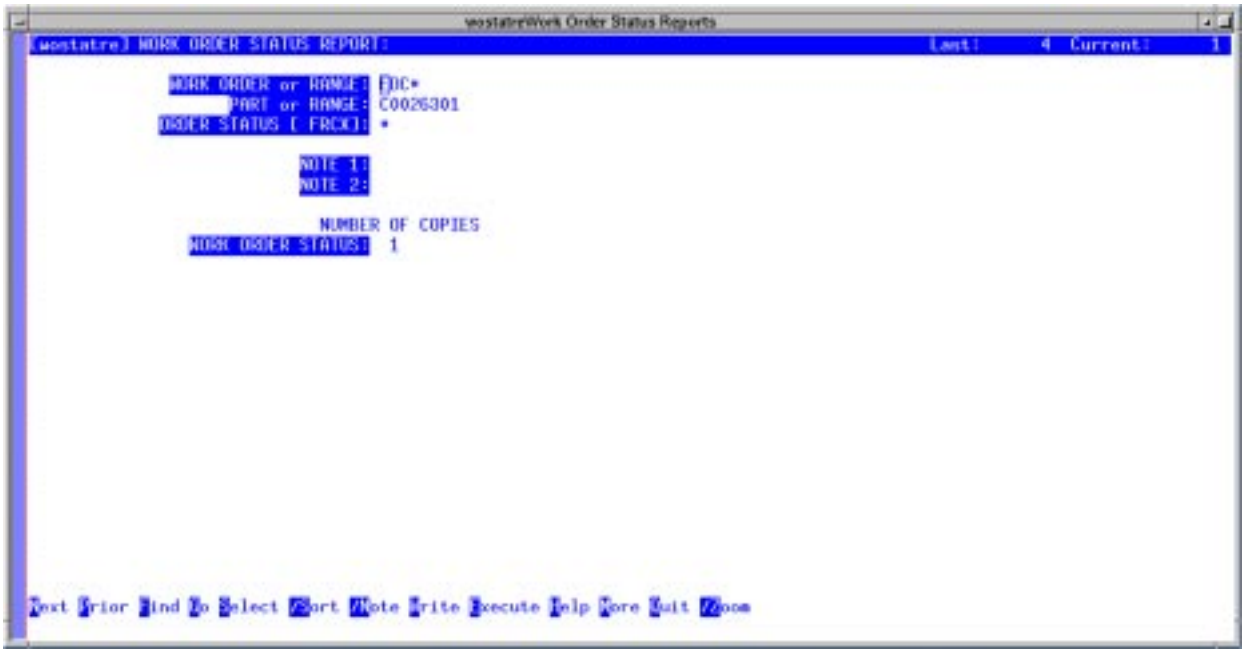

Figure 4.3.4-63. Work Order Status Reports CHUI

Table 4.3.4-53. Work Order Status Reports Field Descriptions

Field Name	Data Type	Size	Entry	Description
WORK ORDER or RANGE	String	25	optional	Identifier for a work order or a range of orders. The operator may zoom to the Work Order file to choose an identifier, if it had been entered there previously. (See the Work Order Entry section.)
PART or RANGE	String	34	optional	Manufacturer's part number or a range of numbers for items. The operator may zoom to the OEM Part file to choose the part number, if it had been entered there previously. (See the OEM Part Numbers section.)
ORDER STATUS [FRCX]	String	2	optional	Code for the status of a work order.
NOTE 1, NOTE 2	String	40	optional	A 40 character message to include in the report.
WORK ORDER STATUS	Numeric	1	required	Number of copies of the report to print.

4.3.4.2.6.8 Maintenance Codes Screen

The Maintenance Codes screen (Figure 4.3.4-64) provides the ability to define the failure codes that may be used with descriptions of repairs and replacements. Values entered here are referenced by the items pages of the Maintenance Work Order Entry and Maintenance Work Order Modification screens discussed in Sections 4.3.4.2.6.1 and 4.3.4.2.6.2, respectively. Table 4.3.4-54 describes the screen's fields.

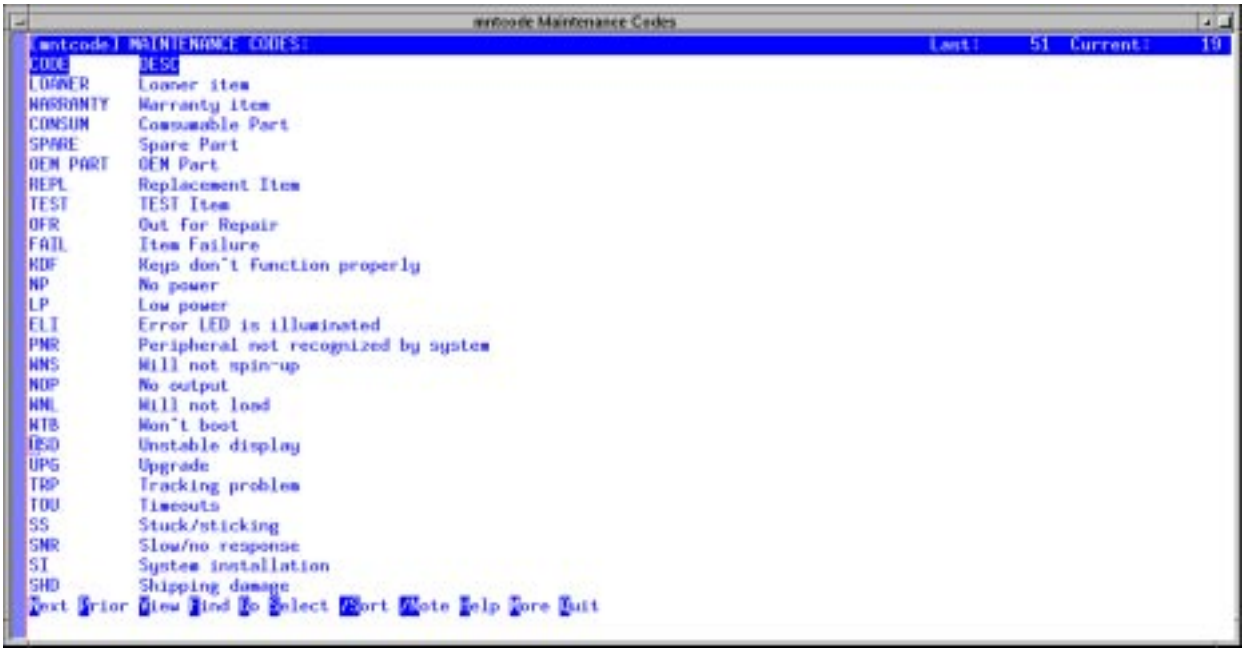

Figure 4.3.4-64. Maintenance Codes CHUI

Table 4.3.4-54. Maintenance Codes Field Descriptions

Field Name	Data Type	Size	Entry	Description
CODE	String	2	required	Code that distinguishes among item failures according to their cause.
DESC	String	30	optional	Description for the failure code.

4.3.4.2.6.9 Maintenance Contracts Screen

The Maintenance Contracts screen (Figure 4.3.4-65) provides the ability to track information about maintenance contracts in place with vendors and suppliers. The contract number is the key field and should be the actual number that Purchasing or the vendor assigns. The data entered here supports data entry for the EIN Entry and EIN Manager screens (Sections 4.3.4.2.1.1 and 4.3.4.2.1.2) as well as the Items pages of the Work Order Entry and Work Order Modification screens (Sections 4.3.4.2.6.1 and 4.3.4.2.6.2). Table 4.3.4-55 describes the screen's fields.

Figure 4.3.4-65. Maintenance Contracts CHUI

Table 4.3.4-55. Maintenance Contracts Field Descriptions

Field Name	Data Type	Size	Entry	Description
CONTRACT ID	String	15	required	Identifier for the maintenance contract as assigned by Purchasing or provided by the vendor.
VENDOR	String	6	required	Code for the vendor with whom the contract is placed. The operator may zoom to the Vendor table and choose the code, if it had been entered there previously. (See the Vendor Master Maintenance section.
START DATE	Date	2	optional	Date the contract is to become effective.
END DATE	Date	2	optional	Date the contract will expire.
PO NUMBER	String	10	optional	Identifier for the Purchase Order under which maintenance was procured.
PIN	String	20	optional	PIN number applicable for authorization for vendor contact.

4.3.4.2.6.10 Authorized Employees Screen

The Authorized Employees screen (Figure 4.3.4-66) provides the ability to enter and maintain the employee codes for persons permitted to contact vendors about needed repairs. Operators create a record for each employee authorized for each contract with each vendor. This permits assigning the employee to some (but not all) the maintenance contracts with a particular vendor and to some (but not all) vendors on a particular maintenance contract. Records identifying the employees must have been entered in the Employee table first (see Section 4.3.4.2.7.1). Table 4.3.4-56 describes this screen's fields.

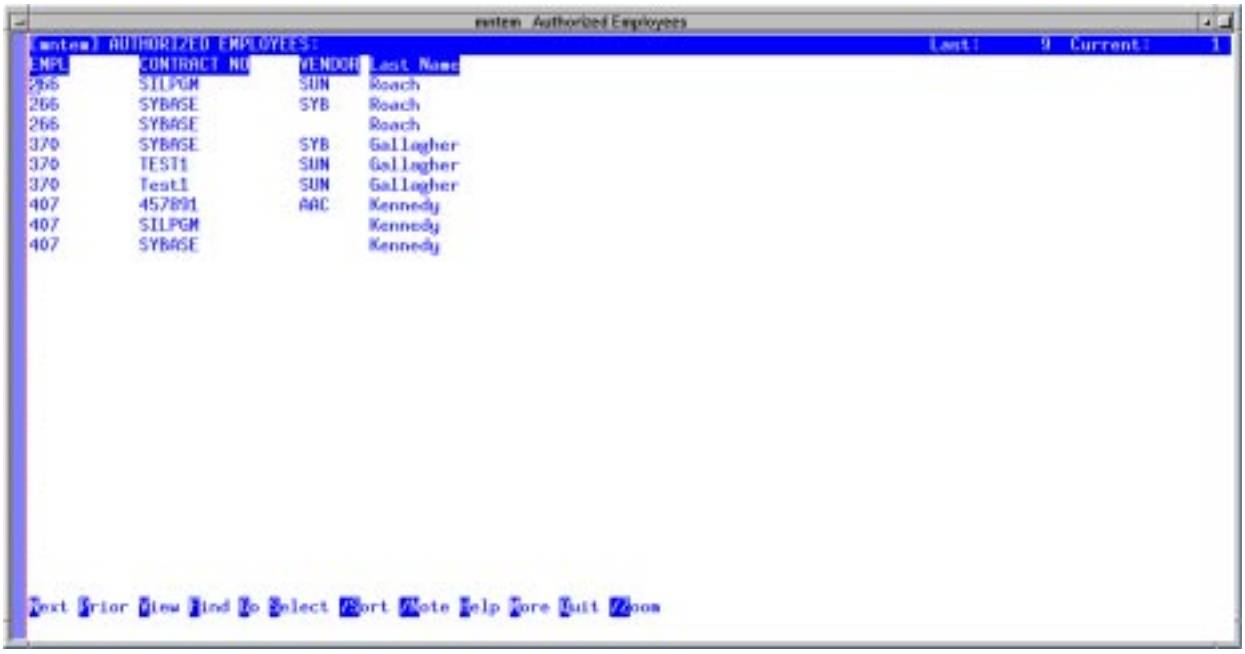

Figure 4.3.4-66. Authorized Employees CHUI

Table 4.3.4-56. Authorized Employees Field Descriptions

Field Name	Data Type	Size	Entry	Description
EMPL	String	10	required	Identifier for an employee. The operator may zoom to the Employee table and choose the code, if it had been entered there previously. (See the Employee Manager section.)
CONTRACT NO	String	10	required	Identifier for a maintenance contract. The operator may zoom to the Maintenance Contracts table and choose the identifier, if it had been entered there previously. (See the Maintenance Contracts Manager section.)
VENDOR	String	6	required	Code for the vendor with whom the contract is placed. The operator may zoom to the Vendor table and choose the code, if it had been entered there previously. (See the Vendor Master Maintenance section.
Last Name	String	30	system-supplied	Last name of the employee. The value is obtained from the Employee table.

4.3.4.2.7 ILM Master Menu

The ILM Master Menu provides access to ILM system administration capabilities typically reserved for the ILM Administrators. Figure 4.3.4-67 shows the ILM Master Menu.

Figure 4.3.4-67. ILM Master Menu CHUI

This menu helps operators navigate to the following screens:

- Employee Manager - for maintaining employee information.
- Assembly Manager - for creating parent/child relationship between components in an assembly.
- System Parameters Manager - for maintaining critical system values affecting both ILM and Baseline Manager functions.
- Inventory Location Manager - for maintaining standardized information about ECS inventory locations for all ILM processes.
- Buyer Manager - for maintaining standardized information about purchasing agents for inventory and logistics processes.
- Hardware/Software Codes - for maintaining a standard set of codes for classifying inventory items according to type.
- Status Code Manager - for maintaining a standard set of codes for classifying inventory items according to status.

- Report Number - for maintaining the Report Number conversions used to assign numbers to reports.
- Export Inventory Data - for exporting the SMC's inventory records and transferring them to other ILM systems.
- DAAC Export Inventory Data - for exporting a DAAC's inventory data and transferring them to the SMC's ILM system.
- Transaction Log - for reviewing events recorded in XRP-II's system transaction log.
- Transaction Archive - for archiving records from XRP-II's system transaction log.
- OEM Part Numbers - for maintaining a standard set of OEM part numbers.
- Shipment Number Manager - for maintaining shipment number conversions used to assign numbers to shipments.
- Carriers - for maintaining standardized information about shipment carriers.
- ILM Import Records - for uploading inventory data that had been exported at another site.
- Sales/Purchase Terms Maintenance - for maintaining a standard set of sales/purchase terms for the inventory and logistics processes.
- Reason Code Maintenance - for maintaining reason codes used to justify changes to ECS property records.
- Site Codes for Scanned Data – for maintaining a standard set of codes for uniquely identifying an ECS site and building.
- Scanned Data - for reviewing and editing bar code scanner data prior to updating property records.
- Process Scanned Data – for updating inventory records using bar code scanner data.

Each of these screens is discussed in the sections that follow.

4.3.4.2.7.1 Employee Manager Screen

The Employee Manager screen (Figure 4.3.4-68) is used to maintain helpful information about employees, primarily those to whom inventory items have been assigned or issued. Employees are listed by number; that is, the identifier by which they are known in other screens that refer to them. Table 4.3.4-57 describes the screen's fields.

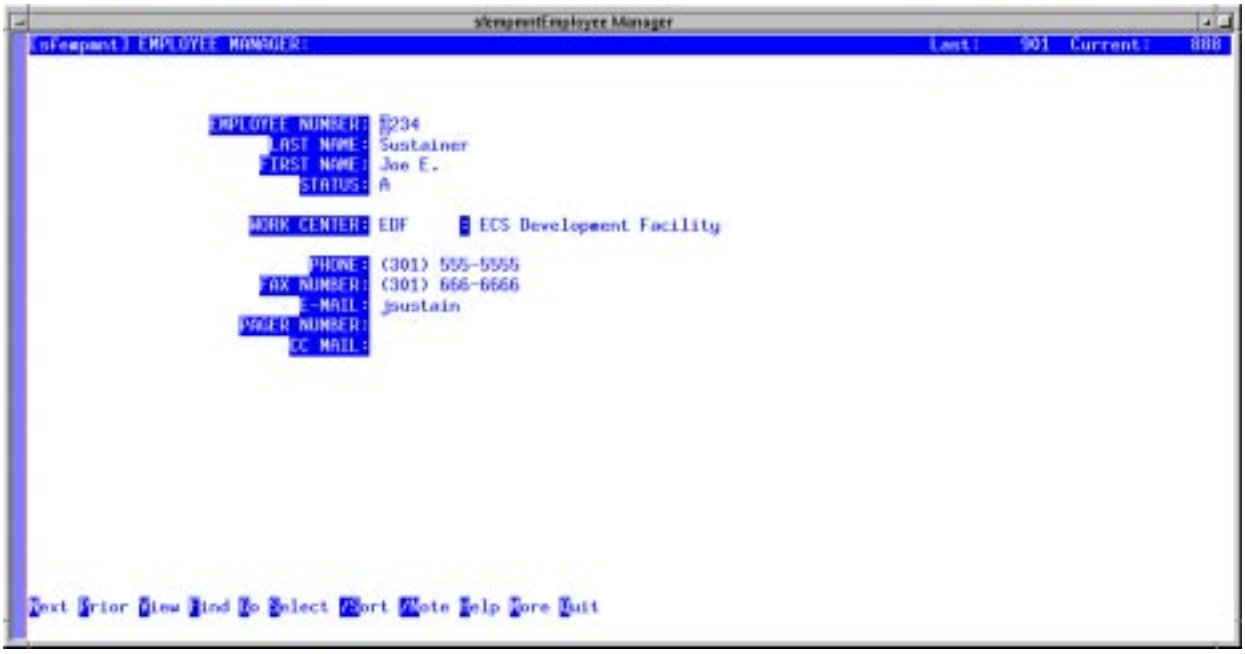

Figure 4.3.4-68. Employee Manager CHUI

Table 4.3.4-57. Employee Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
EMPLOYEE NUMBER	String	10	required	Unique identifier for an employee.
LAST NAME	String	30	optional	Last name of the employee.
FIRST NAME	String	30	optional	First name of the employee.
STATUS	String	1	optional	Status of the employee.
WORK CENTER	String	6	optional	Code for work center where the employee is normally assigned. The operator may zoom to the Inventory Locations file to choose the code for the work center-type location, if it had been entered there previously. (See the Inventory Location Manager section.)
PHONE	String	18	optional	Telephone number of the employee.
FAX NUMBER	String	13	optional	FAX number of the employee.
E-MAIL	String	30	optional	E-mail address for the employee.
PAGER NUMBER	String	13	optional	Pager number for the employee.
CC MAIL	String	30	optional	CC-mail address of the employee.

4.3.4.2.7.2 Assembly Manager Screen

The Assembly Manager screen (Figure 4.3.4-69) is used to define parent/child relationships between an assembly and its components. Unlike the EIN structure relationships discussed in Section 4.3.4.2.1.3, these define the product structure of an item as it is received rather than as it is installed or issued. This facilitates the receiving process. During receiving, listing the assembly as received causes each of the assembly's components to be received instead. In order to record the assembly itself as received, it must be included as its own first component. Table 4.3.4-58 describes this screen's fields.

Figure 4.3.4-69. Assembly Manager CHUI

Table 4.3.4-58. Assembly Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
ASSEMBLY ID	String	35	required	Identifier for an assembly. All components of the assembly can be referenced through this parent id or code.
COMPONENT ID	String	35	required	Identifier for a component of the assembly. The first component of an assembly must have the same id/code as the assembly id.
QUANTITY PER	Floating	10.3	optional	Quantity of the component in the assembly.
COST	Floating	9.2	optional	Purchase cost of the component.

4.3.4.2.7.3 System Parameters Manager Screen

The System Parameters Manager screen (Figure 4.3.4-70) is for maintaining system-wide XRP-II parameters and is principally used when first installing the system. Since ILM uses only a subset of the full XRP-II capabilities, this is a scaled down version of the screen described in the Section 6 of the *XRP-II System Reference Manual*. It contain only the fields needed to tailor the system to the site at which it operates.

Several fields have particular significance for ILM. The Site ID field contains the code for the ECS site where the operator's copy of XRP-II is installed. The field is interrogated by ILM processes that have to determine which assets belong to the local site. The Last EIN field is used by XRP-II to keep track of the most recently used, automatically-assigned EIN. It updates the field whenever an operator presses <RETURN> in the EIN field when creating records via EIN Entry. The NASA Contract Number and Default MFG Year fields contain values used as defaults when creating ILM records, and the Export Functioning field precludes more than one export process from running at a time because they would conflict.

Table 4.3.4-59 describes each of the screen's fields.

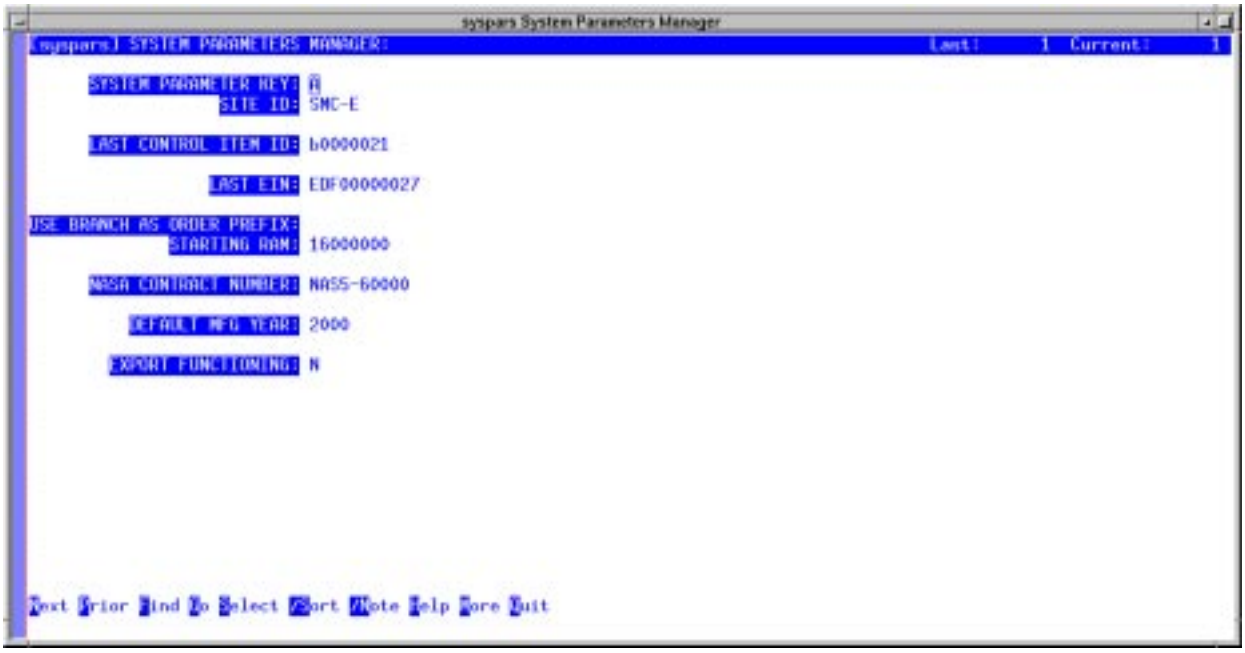

Figure 4.3.4-70. System Parameters Manager CHUI

Table 4.3.4-59. System Parameters Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
SYSTEM PARAMETER KEY	String	1	required	Code that designates the active record in XRP-II's system pareameter table. The active record must have the value "A".
SITE ID	String	6	optional	Code that identifies the ECS site where this XRP-II system is installed.
LAST CONTROL ITEM ID	String	20	system-supplied, but modifiable	Code used in determining the next sequentially-available identifier when assigning control item identifiers automatically.
LAST EIN	String	20	system-supplied, but modifiable	Code used in determining the next sequentially-available identifier when assigning ein numbers automatically
USE BRANCH AS ORDER PREFIX	String	1	optional	Code that, if "Y", causes all new purchase orders, work orders, and sale orders to be prefixed with the site code of the operator or, if null, the default site code.
STARTING RAM	Number	8	optional	Initial amount of memory XRP-II is to use
NASA CONTRACT NUMBER	String	11	optional	Code that is used by NASA to identify the ECS contract. It is attached to all property records
DEFAULT MFG YEAR	String	4	optional	Year used as default to identify when an item was built.
EXPORT FUNCTIONING	String	1	required	Code that indicates if an XRP-II data "export" function is in progress; used to prevent multiple export routines being run concurrently

4.3.4.2.7.4 Inventory Location Manager Screen

The screen shown in Figure 4.3.4-71 is used to maintain information about ECS inventory locations. This standardized information is available to other screens and reports, which can access it by reference to a location's ID. Table 4.3.4-60 describes the screen's fields.

Note: An important distinction is made in XRP-II between an ECS site and an inventory location. Sites are officially designated by NASA and generally include the SMC, DAACs, and other official support installations. ECS Property Administrators designate inventory locations for purposes of property management. They are typically facilities or locales where inventory items are stored or installed at a site. Inventory locations are sometimes assigned the same names and codes as a site, but XRP-II treats the two as different entities.

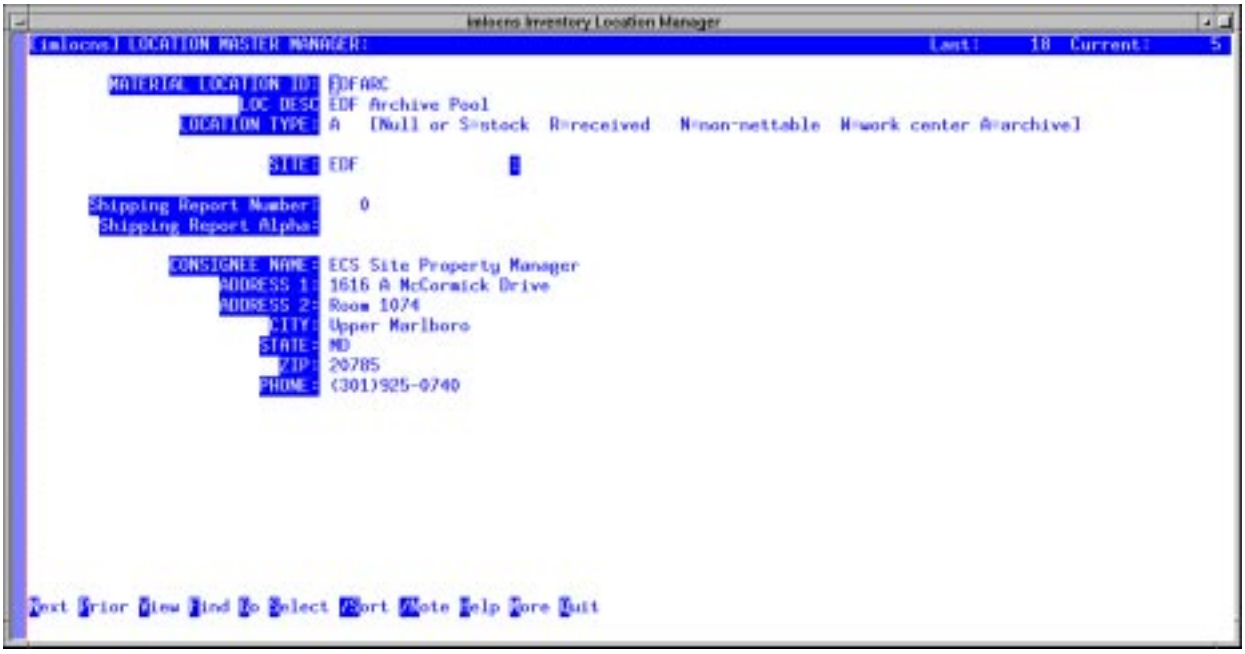

Figure 4.3.4-71. Inventory Location Manager CHUI

Table 4.3.4-60. Inventory Location Manager Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
MATERIAL LOCATION ID	String	6	required	Identifier for the inventory location where material can be found.
LOC DESC	String	30	optional	Description of the location.
LOCATION TYPE	String	1	optional; S, R, N, W, or A	Code that distinguishes among inventory locations according to purpose. Null or S = stock, R = received, N = non-nettable, W = work center, A = archive.
SITE	String	6	optional	Code for the ECS site hosting the inventory location. The operator may zoom to the Site Master screen and pick a code, if it had been entered there previously. (See the Site Master Manager section.)
SHIPPING REPORT NUMBER	Number	2	system-supplied	The installation report number used when an EIN was last installed at the location.
SHIPPING REPORT ALPHA	String	2	system-supplied	The alpha code used with the installation report when an EIN was last installed at the location.
CONSIGNEE NAME	String	30	optional	Name of individual/office responsible for material at the site.
ADDRESS 1	String	30	optional	First part of the inventory location's address.

Table 4.3.4-60. Inventory Location Manager Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
ADDRESS 2	String	30	optional	Second part of the inventory location's address.
CITY	String	20	optional	City part of the inventory location's address
STATE	String	2	optional	State 2 character abbreviation of the address.
ZIP	String	10	optional	Zip code of the inventory location's address.
PHONE	String	18	optional	Telephone number for a point of contact at the inventory location.

4.3.4.2.7.5 Buyer Manager Screen

The Buyer Manager screen (Figure 4.3.4-72) is used to maintain a list of purchasing agents for ILM. This information is used primarily by Purchasing Management screens and processes to ensure only authorized persons create, edit, and release purchase orders. Table 4.3.4-61 describes the screen's fields.

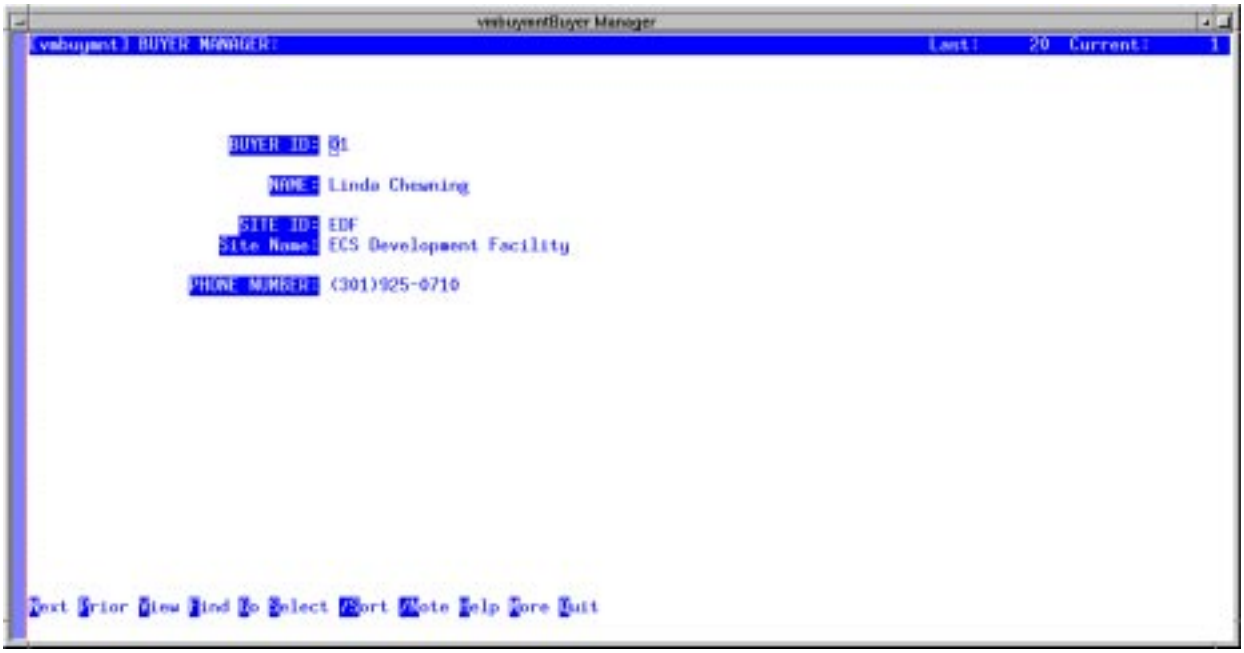

Figure 4.3.4-72. Buyer Manager CHUI

Table 4.3.4-61. Buyer Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
BUYER ID	String	6	required	Identifier for the person authorized to purchase an item.
Name	String	30	optional	Name of the buyer.
SITE ID	String	6	optional	Code for the ECS site where the buyer works. The operator may zoom to the Site Master file and choose the code, if it had been enered there previously. (See the Site Manager section in the Baseline Manager part of this book.)
Site Name	String	46	optional	Name of the site whose code is displayed.
PHONE NUMBER	String	18	optional	Telephone number of the Buyer whose identifier is displayed.

4.3.4.2.7.6 Hardware/Software Codes Screen

Operators use the Hardware/Software Codes screen (Figure 4.3.4-73) to maintain a standard set of codes for distinguishing among items according to source of maintenance costs. These codes are associated with EIN items and are essential for grouping the items for reporting and browsing. Table 4.3.4-62 describes the screen's fields.

Figure 4.3.4-73. Hardware/Software Codes CHUI

Table 4.3.4-62. Hardware/Software Codes Field Descriptions

Field Name	Data Type	Size	Entry	Description
CODE	String	10	required	Code for classifying items according to source of maintenance costs.
DESCRIPTION	String	30	optional	Description for the Hardware/Software code.

4.3.4.2.7.7 Status Code Manager Screen

The Status Code Manager screen (Figure 4.3.4-74) maintainsa set of standardized status codes for tracking property and events in the inventory and logistics processes. Table 4.3.4-63 describes the screen's fields.

Figure 4.3.4-74. Status Code Manager CHUI

Table 4.3.4-63. Status Code Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
CODE	String	4	required	Code for an inventory status for an item.
DESCRIPTION	String	30	optional	Description for the code.

4.3.4.2.7.8 Report Number Screen

The screen shown in Figure 4.3.4-75 helps operators maintain the sequence in which report alpha characters are to be assigned. This information is used by the EIN shipping and installation processes. Referring the first record in the figure for an example, if the most recent alpha character used in the shipping report for an EIN was "BY", then its next shipping report will use "BZ" and this value will be stored in the EIN's record at that time.

ILM is deployed with 78 report number records to accommodate alpha characters A thru BZ. Should reports exceed 78 iterations, use this screen to add records for characters CA and beyond. Table 4.3.4-64 describes the screen's fields.

Figure 4.3.4-75. Report Number CHUI

Table 4.3.4-64. Report Number Field Descriptions

Field Name	Data Type	Size	Entry	Description
OLD	String	4	required	Alpha character used to identify the most recent iteration of a report.
NEW	String	4	required	Alpha character to use in the next iteration of the report.

4.3.4.2.7.9 Export Inventory Data Screen

The Export Inventory Data screen (Figure 4.3.4-76) supports the transfer of SMC inventory data to other locations. It extracts, and distributes to remote sites, copies of centrally-managed ILM records changed since the last time this function was used. XRP-II can ftp the files to up to nine remote hosts specified by the operator.

XRP-II analyzes the transaction log to determine what data changed and which records were affected. EIN, EIN structure, purchase order, work order, inventory, and transaction history records that changed are copied and stored in files compatible with XRP-II's ILM Import Records utility. These files are, in turn, archived as tar files, one per destination host the operator specifies. Each tar file is given a name that identifies the date and time the export was done, the origination site, the file's type, and the machine to which the file is to be sent. If the SEND NOW feature is used, XRP-II attempts to transfer the files via ftp then moves them from the export directory to an archive directory. Otherwise, the files remain in the export directory to be transferred manually.

Note: Export files that are transferred manually to a destination machine must also be moved manually to the archive directory.

Note: The export directory and its corresponding export archive directory are configuration parameters named via program environment variables set in the XRP-II configuration files during installation.

Enter the name of one or more hosts to receive the data (using either domain names or IP addresses), and choose whether or not to ftp the data files immediately after they are created. Names can be selected from a list of servers (see Section 4.3.3.2.11.5) by using the **/Z**oom command. Use **E**xecute to begin data extraction and, if prompted, provide a login account and a password for the ftp. As processing progresses, XRP-II will display informational messages; including some that contain the names of the tar files that are created. Messages that terminate with the symbol ">" require an operator response. Hit any key and processing will continue. XRP-II returns to the System Utilities menu when done..

Table 4.3.4-65 describes the screen's fields.

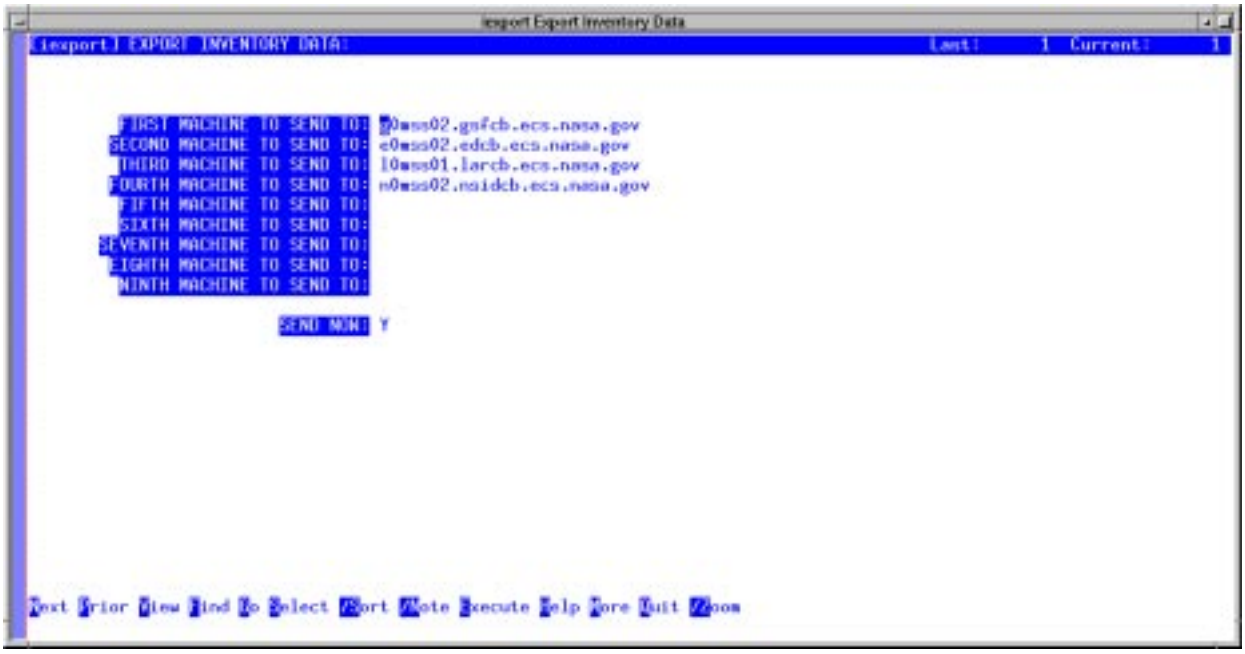

Figure 4.3.4-76. Export Inventory Data CHUI

Table 4.3.4-65. Export Inventory Data Field Descriptions

Field Name	Data Type	Size	Entry	Description
MACHINE TO SEND TO	String	40	required	Full domain name or IP address of the machine to receive the exported inventory data.
SEND NOW	String	1	optional; Y or N	Flag to indicate if the export tar file is to be sent now.

4.3.4.2.7.10 DAAC Export Inventory Data Screen

ILM at the SMC can maintain consolidated records about inventory, logistics, and maintenance activities system-wide. Records created at local sites can be exported and shipped to the SMC where they can be added to records that were centrally created. For ECS, only records about items at the site are to be exported.

The DAAC Export Inventory Data utility supports this customized export process. It generates a formatted data file containing site records changed but not previously exported, and optionally transfers the file via ftp to a machine at the SMC. Operators at the SMC use the ILM Import Records utility (see Section 4.3.4.7.16) to load the data into the system there.

The screen in Figure 4.3.4-77 initiates the export process. XRP-II analyzes the transaction log to determine what data changed since the last time the function was used and which site items were affected. EIN, EIN structure, purchase order, work order, inventory and transaction history records are copied and stored in files compatible with XRP-II's ILM Import Records utility. These files are, in turn, archived in a tar file. The tar file is given a name that identifies the date and time the export was done, the origination site, the file's type, and the machine to which the file is to be sent. If the SEND NOW feature is used, XRP-II transfers the files via ftp then moves them from the export directory to an archive directory. Otherwise, the files remain in the export directory to be transferred manually.

Note: Export files that are transferred manually to a destination machine must also be moved manually to the export archive directory.

Note: The export directory and its corresponding export archive directory are configuration parameters named via program environment variables set in the XRP-II configuration files during installation.

Enter the name of the machine to receive the data (using its domain name or IP address), and choose whether or not to ftp the tar file immediately after it is created. The name can be selected from a managed list by using XRP-II's **/Z**oom command. Use **E**xecute to begin data extraction and, if prompted, provide a login account and a password for the ftp. As processing progresses, XRP-II will display informational messages, including some that contain the name of the tar file that are created. Messages that terminate with the symbol ">" require an operator response. Hit any key and processing will continue. XRP-II returns to the System Utilities menu when done.

Table 4.3.4-66 describes the screen's fields.

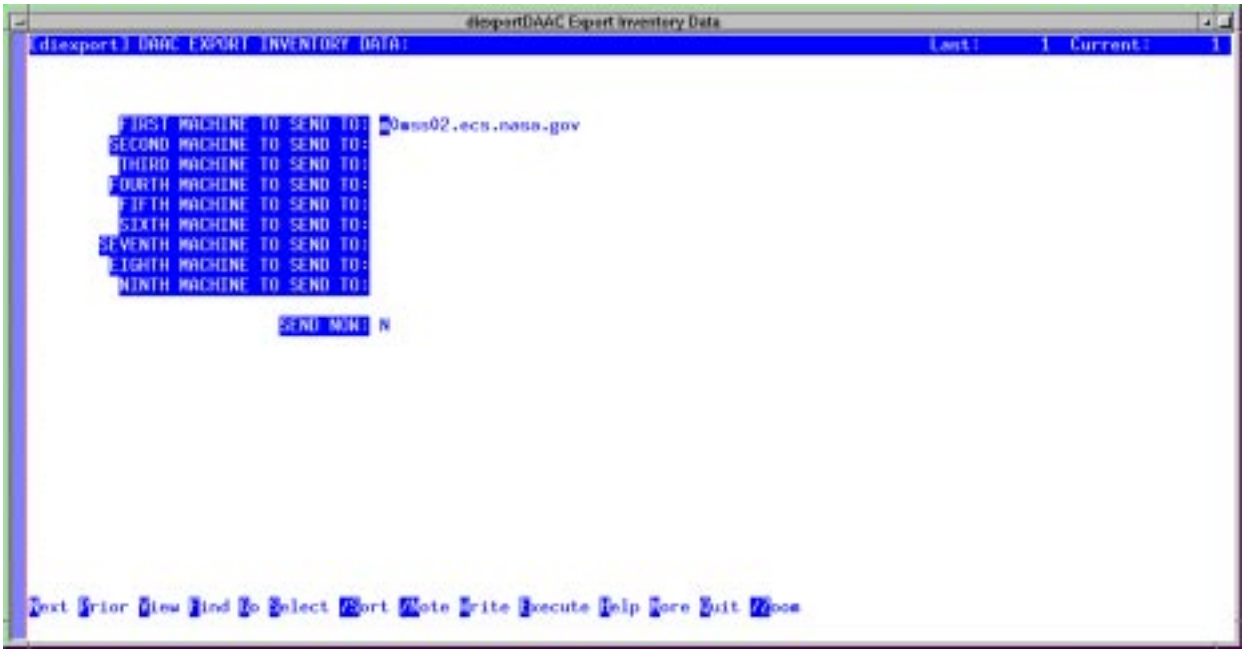

Figure 4.3.4-77. DAAC Export Inventory CHUI

Table 4.3.4-66. DAAC Export Inventory Data Field Descriptions

Field Name	Data Type	Size	Entry	Description
MACHINE TO SEND TO	String	40	required	Full domain name or IP address of the machine to receive the exported inventory data.
SEND NOW	String	1	optional; Y or N	Flag to indicate if the export tar file is to be sent now.

4.3.4.2.7.11 Transaction Log Screen

The screen shown in Figure 4.3.4-78 allows operators to browse, and maintain if necessary, the database transaction log file. Values for all fields on this screen are system-supplied. When a database record is modified via a data entry screen, the system provides the next available transaction number and records information about what field was modified when and by whom.

The transaction log facilitates synchronizing database changes among sites. For example, the DAAC Export Inventory Data utility (Section 4.3.4.2.7.10) analyzes the log's entries to identify database records that have been modified, setting each Transferred field so it bypasses the entry next time the utility is run.

The screen displays numbers to identify XRP-II database fields because field names are not stored in the database. Field names that correspond to the numbers can be found in file $MSPATH/mms/def/file.h, where MSPATH is an environment variable identifying XRP-II's installation directory.

Similarly, the screen uses numbers to identify locations of altered database records. The current contents of a referenced record can be displayed as follows, but only if the record at that location was neither deleted nor replaced by another since the log entry was made. At a Unix command line prompt, type:

SYS920	Invokes UNIFY's database test driver
setloc <table> <location>	Displays a record's data
end	Exits program SYS920

Note: Use Transaction Archive (Section 4.3.4.2.7.12) to remove obsolete transaction records. Transaction Archive preserves records that export utilities still need, and it saves a historical copy of the records it deletes.

Table 4.3.4-67 describes this screen's fields.

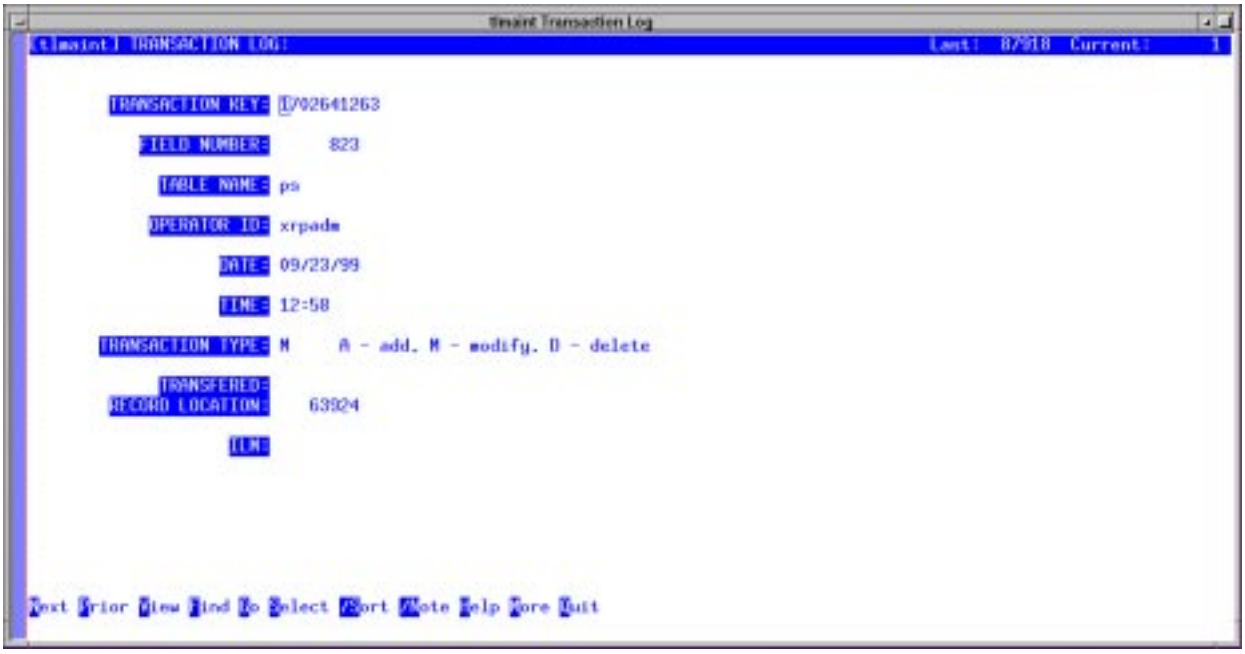

Figure 4.3.4-78. Transaction Log CHUI

Table 4.3.4-67. Transaction Log Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
TRANSACTION KEY	Numeric	5	system supplied	Number that uniquely identifies each update transaction
FIELD NUMBER	Numeric	8	system supplied	Numerical identifier for the XRP-II field affected by the transaction.
TABLE NAME	String	10	system supplied	Name of the XRP-II table affected by the update transaction
OPERATOR ID	String	8	system supplied	Userid of the operator making the update transaction
DATE	Date	N/A	system supplied	Date of the update transaction
TIME	Time	N/A	system supplied	Time of the update transaction
TRANSACTION TYPE	Numeric	1	system supplied	Code for the type of transaction: A (add), M (modify), or D (delete)
TRANSFERRED	String	1	system supplied	Code that indicates that the transaction has been analyzed by an export utility. “T” means the corresponding control item record has been exported, while “X” means it did not need to be exported.

Table 4.3.4-67. Transaction Log Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
RECORD LOCATION	String	8	system supplied	Identifier for the relative record within the XRP-II table affected by the update transaction
ILM	String	1	system supplied; Y, <NULL>	Code that distinguishes between ILM-and BLM-related log entries; "Y" signifies ILM

4.3.4.2.7.12 Transaction Archive Screen

ILM data update transactions should periodically be deleted from the database after changed records have been exported. This makes room to log new transactions.

The Transaction Archive screen, shown in Figure 4.3.4-79, copies to a named file the records of transactions that occurred on or prior to a specified cutoff date. It then deletes the records from the database. Table 4.3.4-68 describes the screen's fields.

Specify the date of the last transaction to archive and the name of a file in which to store the data.

Note: XRP-II will only archive a transaction log record if its Transferred field contains the value "T" or "X". The presence of a "T" or "X" means a program for exporting records about changes to other sites has analyzed the record. Deleting unanalyzed transaction log records can cause incomplete data exchanges.

Figure 4.3.4-79. Transaction Archive CHUI

Table 4.3.4-68. Transaction Archive Field Descriptions

Field Name	Data Type	Size	Entry	Description
ENTER FILENAME TO USE	String	20	required	Name of the file in which to store transaction records being archived
CUTOFF DATE (Transaction archive)	String	8	optional	Date of the most recent transaction to be archived

4.3.4.2.7.13 OEM Part Numbers Screen

Operators use the OEM Part Numbers screen (Figure 4.3.4-80) to maintain standardized information about manufacturer's or developer's parts. Part numbers must be recorded before they can be added to a purchase order via purchase order screens and, consequently, before items (especially consumables) can be processed as received.

Parts are listed in part number order, and much of the data is used by other screens and processes. Table 4.3.4-69 describes the screen's fields.

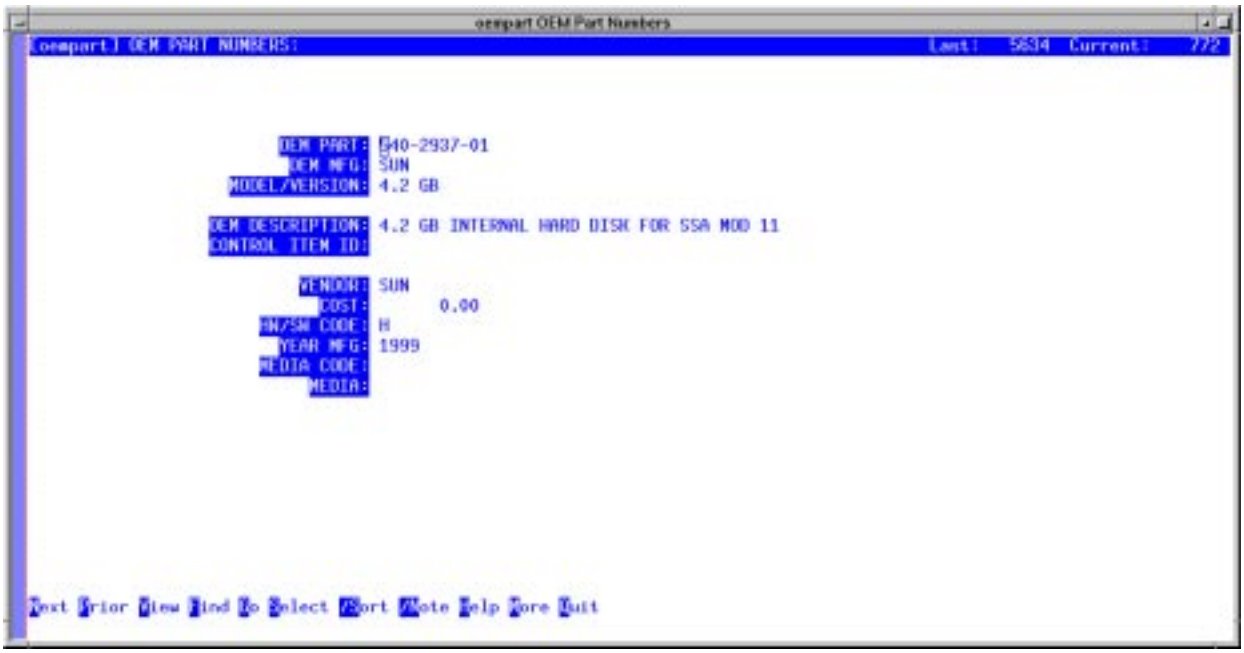

Figure 4.3.4-80. OEM Part Numbers Screen

Table 4.3.4-69. OEM Part Numbers Field Descriptions

Field Name	Data Type	Size	Entry	Description
OEM PART (Part numbers)	String	34	required	Manufacturer's or vendor's part number for an item.
OEM MFG (Part numbers)	String	40	optional	Code for the manufacturer of the item.
MODEL/ VERSION (Part numbers)	String	24	optional	Model or version of the item.
OEM DESCRIPTION (Part numbers)	String	40	optional	Manufacturer's or vendor's description of the item.
VENDOR (Part numbers)	String	6	optional	Code for the vendor from whom the item is purchased. The operator may zoom to the Vendor file and choose the code, if it had been entered there previously. (See the Vendor Master section.)
COST	Floating	9.2	optional	Purchase cost of the item.
HD/SW CODE	String	10	optional	Code for classifying items according to source of maintenance costs.
YEAR MFG	String	4	optional	Year (4-digit) the item was manufactured. This field defaults to the year specified in the system parameters data file.
MEDIA CODE	String	4	optional	Code for Media identification
MEDIA	String	10	optional	Media material

4.3.4.2.7.14 Shipment Number Manager Screen

Operators use the Shipment Number Manager screen (Figure 4.3.4-81) to browse – and update if necessary – the numbers and alpha characters used for reporting and tracking shipments of material. Inventory locations are each be assigned a unique shipping number. Alpha characters reflect individual shipments, and are incremented during Ship EIN processing using the conversion data maintained via the Report Number screen. Table 4.3.4-70 describes the screen's fields.

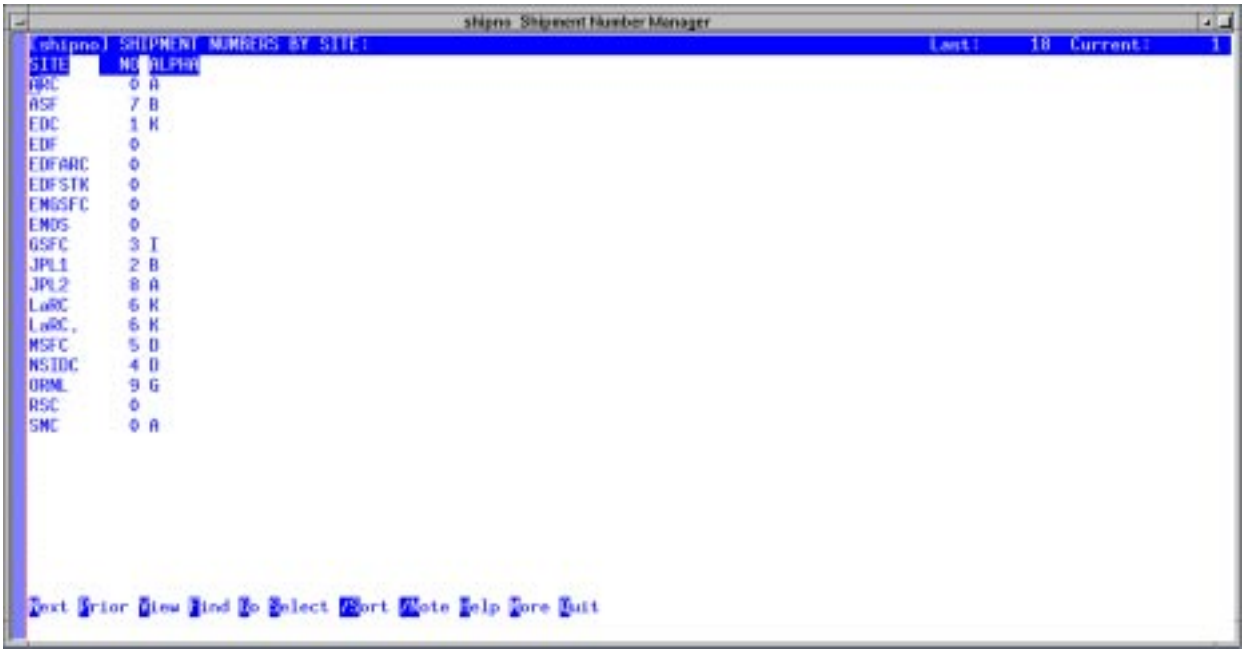

Figure 4.3.4-81. Shipment Number Manager CHUI

Table 4.3.4-70. Shipment Number Manager Field Descriptions

Field Name	Data Type	Size	Entry	Description
SITE	String	6	required	Code for a “site” listed in the Inventory Location file.
NO	Numeric	4	optional; default is 0	Number assigned to all shipments for the site.
ALPHA	String	4	optional	Alpha character used to identify the most recent iteration of a report.

4.3.4.2.7.15 Carriers Screen

Operators use the Carriers screen (Figure 4.3.4-82) to maintainstandardized information about carriers used for shipments. Screen Ship EIN uses this data. Table 4.3.4-71 describes this screen's fields.

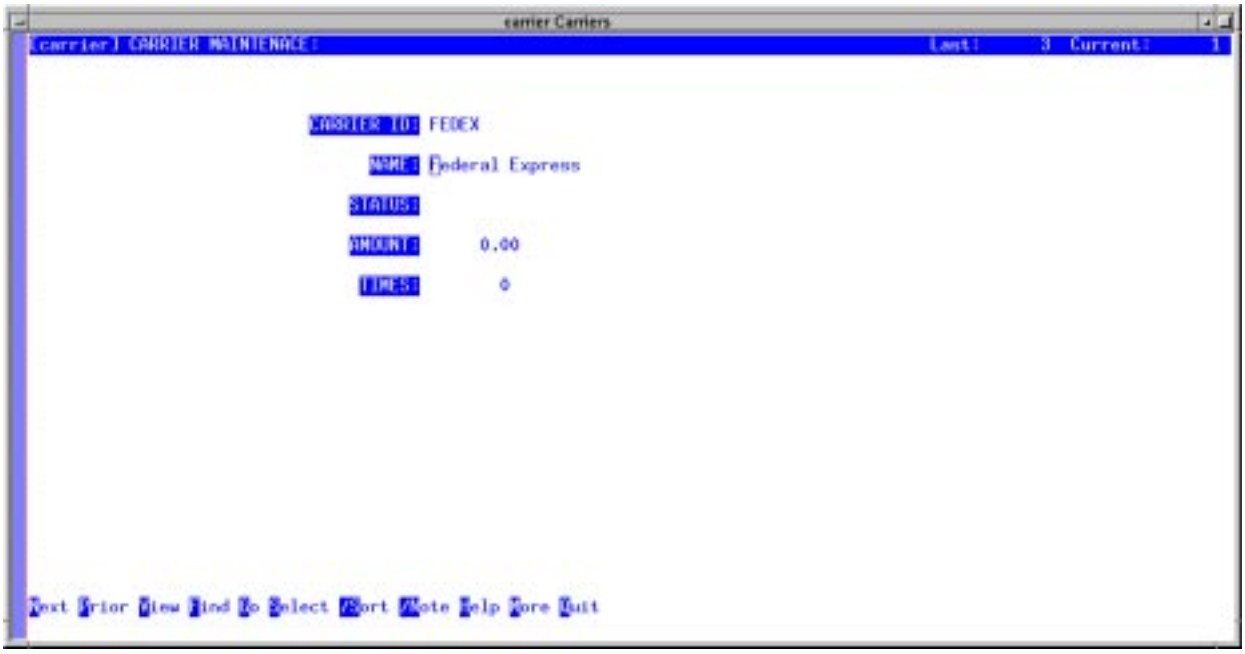

Figure 4.3.4-82. Carriers CHUI

Table 4.3.4-71. Carriers Field Descriptions

Field Name	Data Type	Size	Entry	Description
CARRIER ID	String	6	required	Enter the code to be used for the carrier
NAME (Carrier)	String	30	optional	Enter the name of the carrier corresponding to the displayed code.
STATUS (Carrier)	String	10	optinal	Status of the carrier.
AMOUNT (Carrier)	A	7	optional	Amount of carrier services used.
TIMES (Carrier)	String	8	optional	Number of times carrier has been used.

4.3.4.2.7.16 ILM Import Records Screen

ILM data will be exchanged among ECS sites on a routine basis. The ILM Import Records utility is designed to load data from tar files that had been created and forwarded using either of XRP-II's two ILM data export utilities (see Sections 4.3.4.2.7.9 and 4.3.4.2.7.10).

The screen shown in Figure 4.3.4-83 initiates the import process. Entering "**Y**" at the prompt causes XRP-II to process all files in the directory named in the IMPORTPATH environment variable. Import tar files -- whose names indicate the date and time they were made -- are processed in chronological order as determined from their file names. Upon completion, the original files are moved to an archive directory named in the IMPORTARC environment variable.

Figure 4.3.4-83. ILM Import Records CHUI

4.3.4.2.7.17 Sales/Purchase Terms Maintenance Screen

The Sales/Purchase Terms Maintenance screen (Figure 4.3.4-84) maintains codes and descriptions for standard terms under which purchases are made. The data supports purchase order processing. Table 4.3.4-72 describes the screen's fields.

Figure 4.3.4-84. Sales/Purchase Terms Maintenance CHUI

Table 4.3.4-72. Sales/Purchase Terms Maintenance Field Descriptions

Field Name	Data Type	Size	Entry	Description
TERMS CODE	String	2	required	Code for the default payment terms for invoices for a vendor.
TERMS DESCRIPTION	String	20	optional	Description of th terms.
DISCOUNT PERCENT	String	3	optional	Discount percent if available.
DISCOUNT DAYS	String	3	optional	Days to pay invoice to get discount.
DAYS FOR NET	Numeric	3	optional	Days to pay before getting penalized for late payment.
STATUS	String	1	optional	Code the status of the code. Codes can be designates as inactive.

4.3.4.2.7.18 Reason Code Maintenance Screen

Operators use the Reason Code screen (Figure 4.3.4-85) to maintainstandard codes and descriptions of reasons for inventory and maintenance management transactions. Table 4.3.4-73 describes the screen's fields.

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Figure 4.3.4-85. Reason Code Maintenance CHUI

Table 4.3.4-73. Reason Code Maintenance Field Descriptions

Field Name	Data Type	Size	Entry	Description
REASON CODE	String	2	required	Code for a "reason".
DESCRIPTION	String	20	optional	Description of the reason.

4.3.4.2.7.19 Site Codes for Scanned Data Screen

This screen (Figure 4.3.4-86) allows operators to maintain a set of standard codes and descriptions for identifying ECS sites and buidlings. Each code represents one site/building pair. They are used to decipher location codes used in bar code scanner data imported into ILM. Table 4.3.4-74 describes the screen's fields.

Figure 4.3.4-86. Site Codes for Scanned Data CHUI

Table 4.3.4-74. Site Codes for Scanned Data Field Descriptions

Field Name	Data Type	Size	Entry	Description
CODE	Numeric	4	required	Code assigned to a Site and Building
SITE	String	6	optional	Code for an ECS site. The operator may zoom to the Site Master file to choose the code, if it had been entered there previously. (See the Site Master Manager section.)
BUILDING	String	6	optional	Identifier for the building where an item can be found.
DESC	String	40	optional	Description of the Site/Bldg combination.

4.3.4.2.7.20 Scanned Data Screen

The Scanned Data screen (Figure 4.3.4-87) presents a set of bar code scanner data that had been loaded into ILM but not yet processed. It allows operators to review and edit scanned data that has been pre-processed and to create additional data if desired. Records are typically imported using ILM's scan data processing function, which also deletes them after they have been processed successfully. Table 4.3.4-75 describes the screen's fields.

Figure 4.3.4-87. Scanned Data CHUI

Table 4.3.4-75. Scanned Data Field Descriptions

Field Name	Data Type	Size	Entry	Description
CODE	Numeric	4	required	Code assigned to a Site and Building
ROOM	String	4	optional	Scanned room number
PARENT	String	20	optional	Scanned Parent EIN
CHILD	String	20	optional	Scanned Child EIN

4.3.4.2.7.21 Process Scanned Data Screen

The Process Scanned Data screen (Figure 4.3.4-88) controls the updating of ECS property records using information about EINs derived from bar code readers. The bar code data is typically obtained during a physical inventory or audit and is stored in a file specially formatted for processing by XRP-II.

Operators can load data from the file and pre-process it to identify conflicts between it and information already stored in the ILM database. Among others, discrepancies can include:

- EINs that were found by the audit but are not known to ILM;
- EINs designated in ILM as a child of a parent but found associated with a different parent in the bar code data; and,
- parent EINs shown in ILM as being at the site but missing in the data. The Preprocess Data Report itemizes the findings.

Operators process the data after the discrepancies are resolved, at which time the system updates the property records to reflect the location, building, and room for for the EINs in the file. However, the database remains unchanged for EINs that still have product structure discrepancies and for those that have not yet been added to ILM.

Table 4.3.4-76 describes this screen's fields.

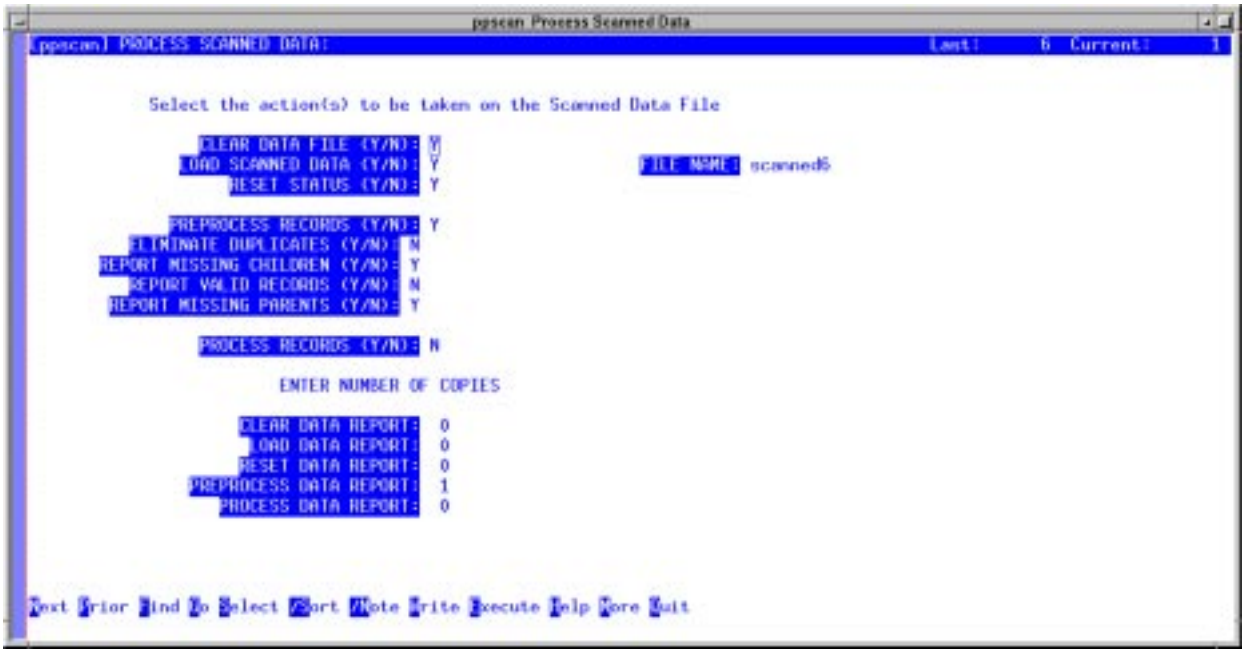


Figure 4.3.4-88. Process Scanned Data CHUI

Table 4.3.4-76. Process Scanned Data Field Descriptions

Field Name	Data Type	Size	Entry	Description
CLEAR DATA FILE (Y/N)	String	1	optional; Y or N	Flag designating whether or not to clear previously loaded scanned data records before starting the pre-processing or processing activity.
LOAD SCANNED DATA (Y/N)	String	1	optional; Y or N	Flag designating if scanned data should be (re)loaded from the named file before starting the pre-processing or processing activity.
FILE NAME	String	40		Name of the file containing the bar code scan data to be imported
RESET STATUS (Y/N)	String	1	optional; Y or N	Flag designating if processing status flags that may have been previously set in loaded data records should be reset before starting the pre-processing or processing activity. Set to Y before preprocessing
PREPROCESS RECORDS (Y/N)	String	1	optional; Y or N	Flag designating whether or not to compare scanned data to existing inventory records before updating the databbase.
ELIMINATE DUPLICATES (Y/N)	String	1	optional; Y or N	Flag designating if duplicate records are to be eliminated from scanned data. Applies to pre-processing only.
REPORT MISSING CHILDREN (Y/N)	String	1	optional; Y or N	Flag designating whether or not to report child EINs not found in the scanned data. Applies to pre-processing only.
REPORT VALID RECORDS (Y/N)	String	1	optional; Y or N	Flag designating whether or not to report records found to be valid in the scanned data file. Applies to pre-processing only.
REPORT MISSING PARENTS (Y/N)	String	1	optional; Y or N	Flag designating whether or not to report “top-level” EINs not found in the scanned data. Applies to pre-processing only.
PROCESS RECORDS (Y/N)	String	1	optional; Y or N	Flag designating whether or not to update location information in the database based on the scanned data.
CLEAR DATA REPORT	Numeric	2	required	Number of copies of “CLEAR DATA FILE” report desired.
LOAD DATA REPORT	Numeric	2	required	Number of copies of “LOAD DATA FILE” report desired.
RESET DATA REPORT FILE	Numeric	2	required	Number of copies of “RESET DATA FILE” report desired.
PREPROCESS DATA REPORT	Numeric	2	required	Number of copies of “PREPROCESS RECORDS” report desired.
PROCESS DATA REPORT	Numeric	2	required	Number of copies of “PROCESS RECORDS” report desired.

4.3.4.3 Required Operating Environment

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

4.3.4.3.1 Interfaces and Data Types

Not applicable.

4.3.4.4 Databases

The XRP-II application uses the COTS product UNIFY for database functions. Refer to the UNIFY documentation listed in Section 4.3.4.

4.3.4.5 Special Constraints

NONE.

4.3.4.6 Outputs

Outputs from the XRP-II application for ILM are generated in several ways as listed in Table 4.3.4-77.

Table 4.3.4-77. Outputs

Output	Description and Format
CHUI displays	Menus and functions described in Section 4.3.4.2
ILM Reports	Reports generated from Report selections on the ILM menu CHUIs
ILM ad hoc reports	Reports generated using the /Report option on ILM CHUIs
Prints of CHUI displays	Screen prints of the displayed information.
File output	Files generated with the Write option on ILM CHUIs
Data base updates	ILM Add, Insert, Copy, Delete, and Modify actions

4.3.4.7 Event and Error Messages

Error messages from ILM that originate from data storage access conflicts are documented inAppendix E of the *UNIFY Direct HLI Programmer's Manual.*

4.3.4.8 Reports

Table 4.3.4-78 identifies the pre-defined reports available in ILM. The figures that follow present a sample of each.

Table 4.3.4-78. Reports (1 of 3)

Report Type	Report Description	When and Why Used
Logistics Management		
Open Purchase Order by PO (Figure 4.3.4-89)	A list of the items on open purchase orders, sorted by purchase order and line item sequence number	Whenever the status of purchase orders in work must be reported.
Open Purchase Orders by Part (Figure 4.3.4-90)	A list of the items on open purchase orders, sorted by part number, purchase order, and line item sequence number	Whenever the status of part purchases must be reported.
Open Purchase Orders by Due Date (Figure 4.3.4-91)	A list of the items on open purchase orders, sorted by date due, part number, purchase order, and line item sequence number	Whenever the schedule of pending deliveries must be reported.
Open Purchase Orders by Vendor and Date Due (Figure 4.3.4-92)	A list of the items on open purchase orders, sorted by vendor, date due, purchase order, and line item sequence number	Whenever vendor performance must be reported.
Purchase Order (Figure 4.3.4-93)	Details about one or more operator-specified purchase orders having “firm planned” or, optionally, “released” status intended for use with pre-printed forms	Whenever a purchase is required.
Receiving		
Receiving Report (Figure 4.3.4-94)	A list of the items in operator-selected receipts, grouped by receipt and sorted by purchase order line item number	Whenever a history of receiving activity must be reported.
Receipts by Part (Figure 4.3.4-95)	A list of the receipts for parts during an operator-specified timeframe, grouped by part number then sorted by date	Whenever a history of having received certain parts is required.
Receipts by Vendor (Figure 4.3.4-96)	A list of the receipts for parts during an operator-specified timeframe, grouped by vendor then sorted by receipt number	Whenever a history of having received parts from a certain vendor is required.
Receipt List by Part (Figure 4.3.4-97)	A list of items received sorted by part number, purchase order, and receive date	Whenever a history of receiving activity is required.
Inventory/Property Management		
ILM Inventory – By Location (Figure 4.3.4-98)	A list of EINs by inventory location.	This report would be used to assist in performing an Inventory Audit.
ILM Costed Inventory Report – By Location (Figure 4.3.4-99)	A list of EINs by inventory location with unit costs.	Whenever a financial audit is required.

Table 4.3.4-78. Reports (2 of 3)

Report Type	Report Description	When and Why Used
EIN Structure (Figure 4.3.4-100)	This report provides a listing of equipment with parent and child (parts) of equipment to assemble.	Whenever equipment with parts are provided to a site to determine and track parts of equipment and for maintenance.
EOSDIS Equipment Installation/Receipt Report by ECN Number (Figure 4.3.4-101)	A receipt describing a operator-specified EIN-controlled item together with all its associated components	Whenever an audit of site property is required.
EOSDIS Equipment Installation Report by ECN Number (Figure 4.3.4-102)	A receipt describing an operator-specified EIN-controlled item together with its components having status “I” (for installed)	Whenever equipment is installed at a site to keep track of equipment available and warranties and licenses.
Installation Summary Report (Figure 4.3.4-103)	A list containing the identity and location of parent EIN items and their associated components installed during an operator-specified timeframe	Whenever a history of installation activity is required.
Relocation Report (Figure 4.3.4-104)	This report provides a record of any equipment relocations within or outside of a site.	Whenever equipment is relocated from one place to another within the ECS.
ECS Shipping Report (Figure 4.3.4-105)	A description of the cartons and the items in an operator-specified shipment	Whenever a shipment occurs.
Equipment Transfer / Receipt Report (Figure 4.3.4-106)	This report provides a list of equipment that has been targeted for transfer and a status of the receipt of the equipment at the transfer site.	Whenever equipment is moved from one place to another in the ECS for tracking and inventory purposes.
Receipts by Receipt Number (Figure 4.3.4-107)	A list of OEM parts received-- sorted by receipt number -- derived from the inventory transaction log	Whenever a history of the activity against a receipt is required.
Receipts by EIN/Part (Figure 4.3.4-108)	A list of operator-specified items received during an operator-specified timeframe, sorted by OEM part number and “from” location	Whenever a history of the receiving activity against certain EINs is required.
Transaction History by EIN (Figure 4.3.4-109)	A list of the number and type of transactions processed for operator-specified items during an operator-specified timeframe, sorted by EIN number and “from” location	Whenever a history of all transactins against certain EINs is required.
Transaction History for Spares (Figure 4.3.4-110)	A list of the transactions (e.g., receipts and transfers) processed for spare items during an operator-specified timeframe, sorted by OEM part number	Whenever a history of all transactions against certain spare parts is required.
Transaction History for Consumables (Figure 4.3.4-111)	A list of the transactions (e.g., receipts and transfers) processed for consumable items during an operator-specified timeframe, sorted by OEM part number	Whenever a history of all transactions against certain consumable parts is required.

Table 4.3.4-78. Reports (3 of 3)

Report Type	Report Description	When and Why Used
Maintenance Management		
Maintenance Work Order Report (Figure 4.3.4-112)	A full description of operator-selected work orders and the items undergoing maintenance action that they cover	Whenever full details about certain work orders must be reported.
Work Order History Report (Figure 4.3.4-113)	A list of repaired, replaced, and replacement items, grouped by work order and sorted by EIN number	Whenever a summary of the parts replaced is required for one or more work orders.
Work Order Status Report (Figure 4.3.4-114)	A list of operator-specified work orders that identifies the status of each and the items undergoing maintenance action that each covers	Whenever a summary of selected work orders is required.

4.3.4.8.1 Sample Reports

(vmporeps2) DATE: 01/05/00 TIME: 13:40
ECS Development Facility OPEN PURCHASE ORDERS BY PO PAGE: 1
Order Types: S All Purchase Orders Entry Dates: 09/01/99-12/31/99
All Vendors All Due Dates

PO	VENDOR	SEQ	PART	DESCRIPTION	DUE DATE	PUOM	QUANTITY ORDERED (puom)	TOTAL DUE (puom)	ITEM PRICE	BAL DUE EXT COST
CCW0011436	Storag	1	RW/MED-50	TAPE CLEANING CART	11/28/99		220	220.0		0.00
CCW0011436	Storag	2	RW/MED-CLN	REDWOOD CLEANING C	11/28/99		20	20.0		0.00
CCW0012600	Storag	1	MED9840-CLN	CLEANING TAPE,9840	11/29/99		150	150.0		0.00
H28508	APCON	1	ACI-6515	Cable - 15FT 68PT	12/03/99		32	32.0		0.00
H28508	APCON	2	ACI-6550	CABLE - 50 FT 68 P	12/03/99		16	16.0		0.00

Figure 4.3.4-89. Open Purchase Orders by PO Report

(vmporeps3) DATE: 01/05/00 TIME: 13:40

ECS Development Facility — OPEN PURCHASE ORDERS BY PART — PAGE: 1

Order Types: S — All Purchase Orders — Entry Dates: 09/01/99-12/31/99

All Vendors — All Due Dates

PART	DESCRIPTION	PUOM	QUANTITY ORDERED (puom)	TOTAL DUE (puom)	ITEM PRICE	BAL DUE EXT COST	DUE DATE	PO	SEQ	VENDOR
THXHC-02	TAPE CLEANING CART		25	25.0		0.00	11/28/99	310516-011	1	
RW/MED-50	TAPE CLEANING CART		220	220.0		0.00	11/28/99	CCW0011436	1	Storag
RW/MED-CLN	REDWOOD CLEANING C		20	20.0		0.00	11/28/99	CCW0011436	2	Storag
MED9840-CLN	CLEANING TAPE,9840		150	150.0		0.00	11/29/99	CCW0012600	1	Storag
ACI-6515	Cable - 15FT 68PT		32	32.0		0.00	12/03/99	H28508	1	APCON
ACI-6550	CABLE - 50 FT 68 P		16	16.0		0.00	12/03/99	H28508	2	APCON

Figure 4.3.4-90. Open Purchase Orders by Part Report

(vmporeps4) DATE: 01/05/00 TIME: 13:40
ECS Development Facility OPEN PURCHASE ORDERS BY DATE DUE PAGE: 1
Order Types: S All Purchase Orders Entry Dates: 09/01/99-12/31/99
All Vendors All Due Dates

PART	DESCRIPTION	PUOM	QUANTITY ORDERED (puom)	TOTAL DUE (puom)	ITEM PRICE	EXT COST	DUE DATE	PO	SEQ	VENDOR
THXHC-02	TAPE CLEANING CART		25	25.0		0.00	11/28/99	310516-011	1	
RW/MED-50	TAPE CLEANING CART		220	220.0		0.00	11/28/99	CCW0011436	1	Storag
RW/MED-CLN	REDWOOD CLEANING C		20	20.0		0.00	11/28/99	CCW0011436	2	Storag
MED9840-CLN	CLEANING TAPE,9840		150	150.0		0.00	11/29/99	CCW0012600	1	Storag
ACI-6515	Cable - 15FT 68PT		32	32.0		0.00	12/03/99	H28508	1	APCON
ACI-6550	CABLE - 50 FT 68 P		16	16.0		0.00	12/03/99	H28508	2	APCON

Figure 4.3.4-91. Open Purchase Orders by Date Due Report

(vmporeps6) DATE: 01/05/00 TIME: 13:40
ECS Development Facility OPEN PURCHASE ORDERS BY VENDOR AND DUE DATE PAGE: 1
Order Types: S All Purchase Orders Entry Dates: 09/01/99-12/31/99
All Vendors All Due Dates

VENDOR ID	PO	SEQ	PART	DESCRIPTION	PUOM	DUE DATE	QUANTITY ORDERED (puom)	TOTAL DUE (puom)	ITEM PRICE	EXT COST
ALL	310516-011	1		THXHC-02		11/28/99	25	25.0		0.00
ALL	H27369	1		LABELS		11/28/99	10	10.0		0.00
						Vendor ALL total				0.00
APCON	H28508	1		ACI-6515		12/03/99	32	32.0		0.00
APCON	H28508	2		ACI-6550		12/03/99	16	16.0		0.00
						Vendor APCON total				0.00
STK	CCW0011436	0				**/**/**	1	1.0		0.00
STK	CCW0011436	1		RW/MED-50		11/28/99	220	220.0		0.00
STK	CCW0011436	2		RW/MED-CLN		11/28/99	20	20.0		0.00
STK	CCW0012600	1		MED9840-CLN		11/29/99	150	150.0		0.00
STK	CCW0012600	2		RWMED-CLN		11/29/99	50	50.0		0.00
						Vendor STK total				0.00
						Grand total				0.00

Figure 4.3.4-92. Open Purchase Orders by Vendor and Due Date Report

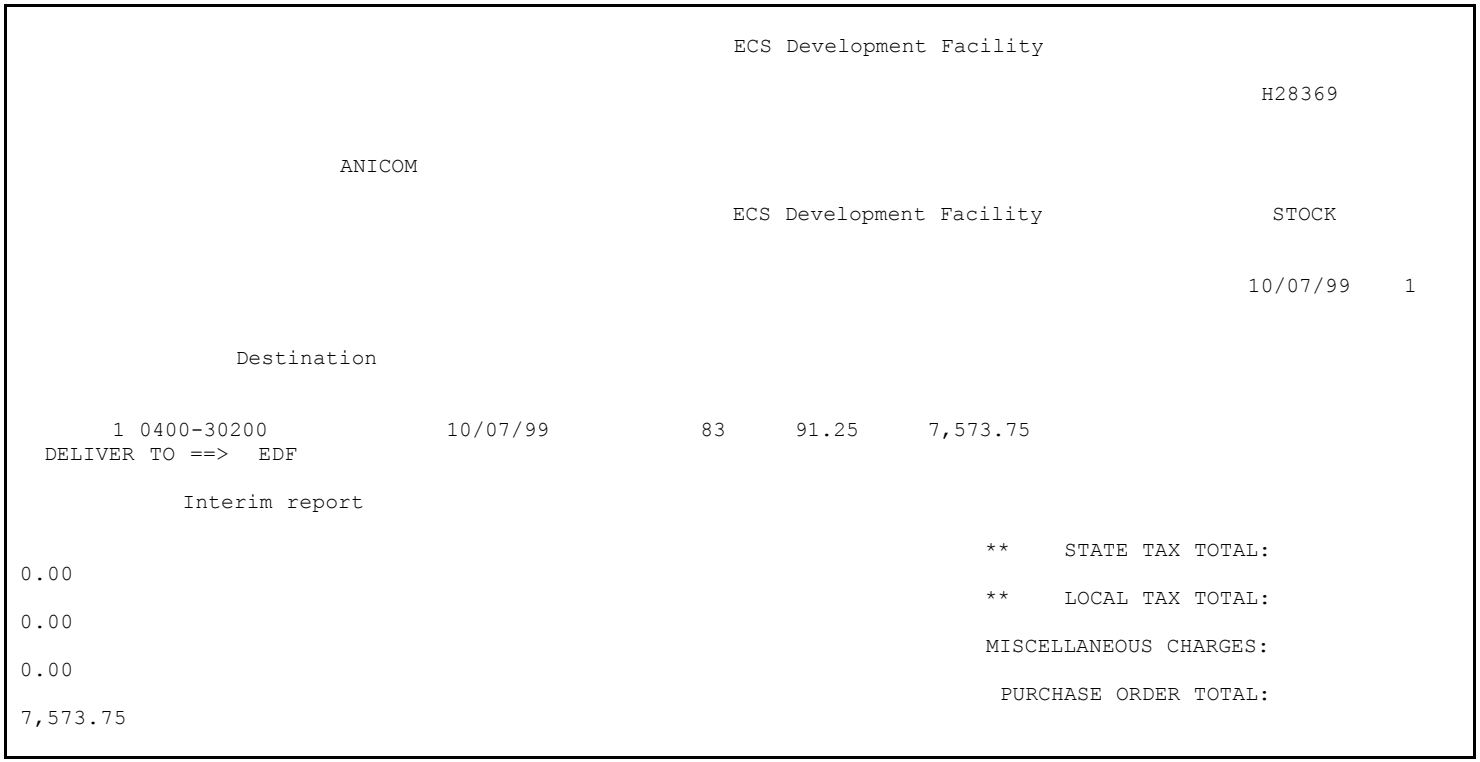


Figure 4.3.4-93. Purchase Order

```
  SITE:  ECS Development Facility                                                                                  PAGE:
1
                                                         RECEIVING REPORT

  PURCHASE ORDER:               0000000016                                          DATE:     01/28/00



                                                                 QUANTITY                                                           DATE
   OEM PART                    OEM DESCRIPTION                 RXD (suom)                                MODEL/VERSION
RECEIVED
   ====================       ============================================                                 ================
========
   SCM001414-00                128VOICE PCI WAVETABLE ONBOARD SOU        2.0
**/**/**
                                                              .
                                                              .
                                                              .
```

Figure 4.3.4-94. Receiving Report

```
  (vmrecvr)                                                    DATE:  01/05/00   TIME:
13:39
  ECS Development Facility              RECEIPTS BY PART                              PAGE:
1
                                  Receipt Dates:  05/02/99-04/01/02

  ********************************************************************************************
**
  Part:  0400-30200                           SC TO SC FIBER CABLE, MULTIMODE, 200 FT

                                                        DATE
  TYPE ID     NAME                           RECEIPT ENTERED  ORDER NUMBER   ITEM PRICE
  ==== ====== ============================== ======= ======== ============== ==========
  PO   ANICOM ANICOM                              60 01/04/00 H28369
  ********************************************************************************************
**
  Part:  66729                                LABELS, ATTENTION (5/8X2) 500 PER ROLL

                                                        DATE
  TYPE ID     NAME                           RECEIPT ENTERED  ORDER NUMBER   ITEM PRICE
  ==== ====== ============================== ======= ======== ============== ==========
  PO   MRS    MARSHALL INDUSTRIES                 67 01/14/98 H28235
  ********************************************************************************************
**
  Part:  81801                                TAPE, FLOOR MARKING, ESD 3" X 108"

                                                        DATE
  TYPE ID     NAME                           RECEIPT ENTERED  ORDER NUMBER   ITEM PRICE
  ==== ====== ============================== ======= ======== ============== ==========
  PO   MRS    MARSHALL INDUSTRIES                 67 01/14/98 H28235
  ********************************************************************************************
**
  Part:  AHA2944UWKIT

                                                        DATE
  TYPE ID     NAME                           RECEIPT ENTERED  ORDER NUMBER   ITEM PRICE
  ==== ====== ============================== ======= ======== ============== ==========
  PO   ALA    Alantec                            332 01/04/00 317665
```

Figure 4.3.4-95. Receipts bv Part Report

(vmrecvr1) DATE: 01/05/00 TIME: 13:39
ECS Development Facility RECEIPTS BY VENDOR PAGE: 1
Receipt Dates: 05/02/99-04/01/02

****

Vendor: ALA Alantec

RECEIPT	DATE ENTERED	PURCHASE ORDER	VENDOR REFERENCE	OEM PART	ITEM PRICE
332	01/04/00	317665		AHA2944UWKIT	

****

Vendor: ANICOM ANICOM

RECEIPT	DATE ENTERED	PURCHASE ORDER	VENDOR REFERENCE	OEM PART	ITEM PRICE
60	01/04/00	H28369		0400-30200	

****

Vendor: ARCADE ARCADE

RECEIPT	DATE ENTERED	PURCHASE ORDER	VENDOR REFERENCE	OEM PART	ITEM PRICE
70	01/15/98	H28286		PLS16071	

****

Vendor: MRS MARSHALL INDUSTRIES

RECEIPT	DATE ENTERED	PURCHASE ORDER	VENDOR REFERENCE	OEM PART	ITEM PRICE
67	01/14/98	H28235		66729	
67	01/14/98	H28235		81801	
67	01/14/98	H28235		CHA06742	
67	01/14/98	H28235		CHA06745	
67	01/14/98	H28235		CHA06850	
67	01/14/98	H28235		CHA07780	

Figure 4.3.4-96. Receipts by Vendor Report

(vmrecvr2) DATE: 01/05/00 TIME: 13:39

ECS Development Facility RECEIPT LIST BY PART PAGE: 1

All part numbers All part descriptions All vendor IDs

All vendor names Receipt Dates: 05/02/99-04/01/02

OEM PART	OEM DESCRIPTION	DATE RECEIPT	ENTERED	ORDER TYPE	NUMBER	ID NUMBER	QUANTITY RXD (suom)	ITEM PRICE	EXTENDED AMOUNT
0400-30200	SC TO SC FIBER CABLE, MULTIMODE, 200 FT	60 01/04/00	PO	H28369		ANICOM	84.0		0.00
66729	LABELS, ATTENTION (5/8X2) 500 PER ROLL	67 01/14/98	PO	H28235		MRS	2.0		0.00
81801	TAPE, FLOOR MARKING, ESD 3" X 108"	67 01/14/98	PO	H28235		MRS	2.0		0.00
AHA2944UWKIT		332 01/04/00	PO	317665		ALA	1.0		0.00
CHA06742	SIGN AREA WARNING	67 01/14/98	PO	H28235		MRS	2.0		0.00
CHA06745	SIGN, ATTENTION	67 01/14/98	PO	H28235		MRS	14.0		0.00
CHA06850	PADDLES, ESD TRAINING	67 01/14/98	PO	H28235		MRS	1.0		0.00
CHA07780	MAT, PORTABLE W/WRIST STRAP	67 01/14/98	PO	H28235		MRS	2.0		0.00
CHA50070	KIT/TEST/RESISTANCE/DIGITAL 120VAC	67 01/14/98	PO	H28235		MRS	1.0		0.00
CHA50259	TESTER/POCKET/SURFACE RESISTANCE	67 01/14/98	PO	H28235		MRS	7.0		0.00
CHA73720	SMOCK, BLUE LARGE	67 01/14/98	PO	H28235		MRS	14.0		0.00
CHA73730	SMOCK, BLUE X-LARGE	67 01/14/98	PO	H28235		MRS	5.0		0.00
CHA77145	MATTOP RUBBER, BLUE	67 01/14/98	PO	H28235		MRS	11.0		0.00
CHA98207	MONITOR, DUAL OPERATOR	67 01/14/98	PO	H28235		MRS	1.0		0.00
CHA98210	MONITOR, WRIST STRAP W/WORKSTATION	67 01/14/98	PO	H28235		MRS	5.0		0.00
PLS16071	TAPE FLOOR MARKING, ESD 3INCH X 108 INCH	70 01/15/98	PO	H28286		ARCADE	2.0		0.00
RW/MED-50	REDWOOD D-3 50GB CARTRIDGE	54 01/12/99	PO	CCW0011598		STK	100.0		0.00
RW/MED-50	REDWOOD D-3 50GB CARTRIDGE	54 01/12/99	PO	CCW0011598		STK	50.0		0.00
RW/MED-CLN	REDWOOD CLEANING CARTRIDGE	52 01/12/99	PO	CCW0011523		STK	5.0		0.00
RW/MED-CLN	REDWOOD CLEANING CARTRIDGE	52 01/12/99	PO	CCW0011523		STK	10.0		0.00
RW/MED-CLN	REDWOOD CLEANING CARTRIDGE	52 01/12/99	PO	CCW0011523		STK	20.0		0.00
RW/MED-CLN	REDWOOD CLEANING CARTRIDGE	54 01/12/99	PO	CCW0011598		STK	10.0		0.00
	Grand Total:						349.0		0.00

Figure 4.3.4-97. Receipt List by Part Report

(ilminv1) DATE: 01/07/00 TIME: 12:36

ILM INVENTORY REPORT - BY LOCATION PAGE: 1

LOCATION: EDF : ECS Development Facility

EIN	OEM PART NO	OEM DESC	MODEL	SERIAL NO	BUILDING	ROOM
00000000	PARENTREC	PARENT FOR NON INSTALLED ITEMS RM 1073			1616	1073
00000004	PE301-CD	3000-300 Workstation	300X AXP	AB3500171X	1616	1073
00000006	7012-340	RISC 6000 Workstation	6000	MS70122663304	1616	1073
00000007	A2094A	Color Monitor - 19 IN		JP01000992	1616	1100D3
00000008	VRT19-HA	Color Monitor - 19 IN		IS33984574	1616	1073
00000009	7208-001	4 Milimeter Tape Unit	Model 7208	MS72062626430	1616	1073
00000010	6091-191	19 Inch Color Monitor		23-K0146	1616	1073
00000011	A2627A	715-50 PA RISC Workstation	715-50	6342A30521	1616	1100D3
00000013	S10TX-44-032-P46	SPARCStation 10	10	403F1014	1616	3039
00000014	A2094A	Color Monitor - 19 IN		JP04050797	1616	1100D3
00000015	X557A	CD ROM - 644 MB		405G1578	1616	1100D7
00000016	TLZ06-VA	Tape Drive - 4 MM		CX35103575	1616	1073
00000018	X814A	Tape Drive - 5 GB - 8 MM		407G3165	1616	1100D4
00000019	C1521B	Tape Drive - 2.0 GB - 4 MM		3314E62862	1616	1052C
00000022	PE301-CD	3000-300 Workstation	300X AXP	AB333001N2	1616	1105B1
00000023	PE301-CD	3000-300 Workstation	300X AXP	AB33300I04	1616	1073
00000025	VRT19-HA	Color Monitor - 19 IN		IS31773470	1616	1073
00000027	VRT19-HA	Color Monitor - 19 IN		IS31162480	1616	1105B1
00000028	VRT19-HA	Color Monitor - 19 IN		IS31162482	1616	1073
00000030	X545A	1.05 GB HD - Desktop		410G0301	1616	1100F4
00000031	BA353-AF	CD ROM - in Storage Expansion Unit		KB34203698	1616	1073
00000033	X545A	1.05 GB HD - Desktop		412G2197	1616	1073
00000034	PE301-CD	3000-300 Workstation	300X AXP	AB3500305S	1616	1073
00000035	X557A	CD ROM - 644 MB		408G0598	1616	1100D4
00000038	4-30-GX-32 P46	SPARCSystem LX Workstation	LX	411E0158	1616	1073
00000040	A2627A	715-50 PA RISC Workstation	715-50	6342A30520	1616	1105A2
00000041	A2608A	735 CRX Performance Workstation-Server 3	735-CRX	6342A00425	1616	1100D3
00000042	A2627A	715-50 PA RISC Workstation	715-50	6342A30034	1616	1073
00000043	A2627A	715-50 PA RISC Workstation	715-50	6340A30125	1616	1073

Figure 4.3.4-98. ILM Inventory Report – by Location

(ilminv) DATE: 01/07/00 TIME: 12:37

ILM COSTED INVENTORY REPORT - BY LOCATION PAGE: 1

LOCATION: EDF : ECS Development Facility

EIN	OEM PART NO	OEM DESC	MODEL	SERIAL NO	UNIT COST
00000000	PARENTREC	PARENT FOR NON INSTALLED ITEMS RM 1073			
00000004	PE301-CD	3000-300 Workstation	300X AXP	AB3500171X	
00000006	7012-340	RISC 6000 Workstation	6000	MS70122663304	
00000007	A2094A	Color Monitor - 19 IN		JP01000992	
00000008	VRT19-HA	Color Monitor - 19 IN		IS33984574	
00000009	7208-001	4 Milimeter Tape Unit	Model 7208	MS72062626430	
00000010	6091-191	19 Inch Color Monitor		23-K0146	
00000011	A2627A	715-50 PA RISC Workstation	715-50	6342A30521	
00000013	S10TX-44-032-P46	SPARCStation 10	10	403F1014	
00000014	A2094A	Color Monitor - 19 IN		JP04050797	
00000015	X557A	CD ROM - 644 MB		405G1578	
00000016	TLZ06-VA	Tape Drive - 4 MM		CX35103575	
00000018	X814A	Tape Drive - 5 GB - 8 MM		407G3165	
00000019	C1521B	Tape Drive - 2.0 GB - 4 MM		3314E62862	
00000022	PE301-CD	3000-300 Workstation	300X AXP	AB333001N2	
00000023	PE301-CD	3000-300 Workstation	300X AXP	AB33300I04	
00000025	VRT19-HA	Color Monitor - 19 IN		IS31773470	
00000027	VRT19-HA	Color Monitor - 19 IN		IS31162480	
00000028	VRT19-HA	Color Monitor - 19 IN		IS31162482	
00000030	X545A	1.05 GB HD - Desktop		410G0301	
00000031	BA353-AF	CD ROM - in Storage Expansion Unit		KB34203698	
00000033	X545A	1.05 GB HD - Desktop		412G2197	
00000034	PE301-CD	3000-300 Workstation	300X AXP	AB3500305S	
00000035	X557A	CD ROM - 644 MB		408G0598	
00000038	4-30-GX-32 P46	SPARCSystem LX Workstation	LX	411E0158	
00000040	A2627A	715-50 PA RISC Workstation	715-50	6342A30520	
00000041	A2608A	735 CRX Performance Workstation-Server 3	735-CRX	6342A00425	
00000042	A2627A	715-50 PA RISC Workstation	715-50	6342A30034	
00000043	A2627A	715-50 PA RISC Workstation	715-50	6340A30125	

Grand Total:

Figure 4.3.4-99. ILM Costed Inventory Report – by Location

(einstrep) DATE: 01/05/00 TIME: 15:20
ECS Development Facility EIN STRUCTURE REPORT PAGE: 1
EINs: 00001029 Number of levels: 99
Explosion quantity: 1 Date of bill: **/**/**

Parent EIN: 00001029 Desc: SPARCStation 20-50 SX
MFG Part: S20SX-50-32-P46 Desc: SPARCStation 20-50 SX
Active date: **/**/** Inactive date: **/**/**

LEVEL	EIN	MFG PART	CONTROL ITEM ID	MODEL/VERSION	QUANTITY PER	ACTIVE DATE	INACTIVE DATE
1	00000751	EXB-210TW		210	0.0000	04/12/99	**/**/**
		Tape Stacker - 8 MM					
.2	C0003845	315570-001			0.0000	04/12/99	**/**/**
		BAR CODE READER/EXB-210 & 218					
.2	C0003846	872013-025			0.0000	04/12/99	**/**/**
		8MM Tape Drive					
.2	C0003847	EXB-303220			0.0000	04/12/99	**/**/**
		Terminator					
.2	C0003848	EXB-30726			0.0000	04/12/99	**/**/**
		Tape Cartridge - 8 MM					
.2	C0003849	EXB-307627			0.0000	04/12/99	**/**/**
		Cable - SCSI					
.2	C0003850	TDKP6-1200Q			0.0000	04/12/99	**/**/**
		Tapes - 5 GB - 8 MM					
.2	C0162102	872013-025			0.0000	09/01/99	**/**/**
		8 MM Tape Drive - w/ Carrige Instal					
1	00001086	365-1324-01			0.0000	04/12/99	**/**/**
		20 Inch Color Monitor					
1	00003089	CDE-100		4X	0.0000	04/12/99	**/**/**
		Yamaha External 4X Write/4X Read CD-Rom					
1	00004692	X5511A			0.0000	04/12/99	**/**/**
		2.1 GB HD MultiPack (1 of 2 X 2.1=4.2GB)					
.2	C0021164	540-2730-03			0.0000	04/12/99	**/**/**
		2.1 GB HD Internal					
1	C0147699	SOL		2.4	0.0000	04/22/99	**/**/**
		Solaris					

There are 38 components in this bill.

Figure 4.3.4-100. EIN Structure Report

RUN DATE: 01/05/00 Page No: 1

EOSDIS
EQUIMENT INSTALLATION/RECEIPT REPORT
BY ECN NUMBER

ECN NUMBER: 00002534
DATE ON-SITE WARRANTY EXPIRES: 12/31/98
WARRANTY END DATE: 12/31/98
HTSC HELP CENTER PHONE: 1-800-ECS-DATA
HTSC HELP CENTER HOURS ARE: 08:00 - 17:00 EST
DATE RECEIVED: 05/09/97

USER CONTACT
USER PHONE
LOCATION: Goddard
BUILDING # GSFC
ROOM #: C101
HOST NAME: g0acs03

I certify that I have received the equipment only for work associated with NASA Contract NAS5 - 60000.

Signature: _____ Date:___/___/___

MFR	PRODUCT DESCRIPTION	MODEL/VERSION	PART NUMBER	SERIAL NUMBER	PART ECN	INSTALL DATE
SUN	Enterprize 3000 Enc, 4 Slot, CD 4, PWR/C		E3001	715V006C	00002534	05/27/97
WYE	Terminal		900983-07	0ICD6800046	00003256	03/13/98
WYE	Keyboard		901867-01	97030769	00006417	05/27/97
SUN	2.1 GB Internal HD		X5153A	9644628234	C0009199	08/12/99
SUN	250mhz Ultrasparc Modual		2530A	92F30203138	C0014226	05/27/97
SUN	250mhz Ultrasparc Modual		2530A	92F30202448	C0014227	05/27/97
SUN	CPU/Memory Board		2600A	5012976058254	C0014228	05/27/97
SUN	SBUS I/O Board - Enterprise Family		2610A	5014287011120	C0014229	05/27/97
SUN	CD ROM - Internal		370-2203-01	9715003781	C0014230	05/27/97
SUN	9.1 GB HD - 7200 RPM-3.5 Inch-F/W SCSI-2		540-2951-01	9707363003	C0014231	05/27/97
SUN	9.1 GB HD - 7200 RPM-3.5 Inch-F/W SCSI-2		540-2951-01	9707363312	C0014232	05/27/97
SUN	9.1 GB HD - 7200 RPM-3.5 Inch-F/W SCSI-2		540-2951-01	9715742422	C0014233	05/27/97
SUN	32 MB RAM Expansion (1 of 8X32MB=256 MB)		7022A	501265378299929	C0014234	05/27/97
SUN	32 MB RAM Expansion (1 of 8X32MB=256 MB)		7022A	501265378299923	C0014235	05/27/97
SUN	32 MB RAM Expansion (1 of 8X32MB=256 MB)		7022A	501265378299891	C0014236	05/27/97
			.			
			.			
			.			
SUN	Solaris Media for Servers	2.5.1	SOLS-C		C0150689	05/27/97

Figure 4.3.4-101. Equipment Installation/Receipt Report by ECN Number

RUN DATE: 01/05/00 Page No: 1

EOSDIS
EQUIMENT INSTALLATION REPORT
BY ECN NUMBER

ECN NUMBER: 00002534
DATE ON-SITE WARRANTY EXPIRES: 12/31/98
WARRANTY END DATE: 12/31/98
HTSC HELP CENTER PHONE: 1-800-ECS-DATA
HTSC HELP CENTER HOURS ARE: 08:00 - 17:00 EST
DATE RECEIVED: 05/09/97

USER CONTACT
USER PHONE
LOCATION: Goddard
BUILDING # GSFC
ROOM #: C101
HOST NAME: g0acs03

I certify that I have received the equipment only for work associated with NASA Contract NAS5 - 60000.

Signature: _____ Date:___/___/___

MFR	PRODUCT DESCRIPTION	MODEL/VERSION	PART NUMBER	SERIAL NUMBER	PART ECN	INSTALL DATE
SUN	Enterprize 3000 Enc, 4 Slot, CD 4, PWR/C		E3001	715V006C	00002534	05/27/97
WYE	Terminal		900983-07	0ICD6800046	00003256	03/13/98
WYE	Keyboard		901867-01	97030769	00006417	05/27/97
SUN	250mhz Ultrasparc Modual		2530A	92F30203138	C0014226	05/27/97
SUN	250mhz Ultrasparc Modual		2530A	92F30202448	C0014227	05/27/97
SUN	CPU/Memory Board		2600A	5012976058254	C0014228	05/27/97
SUN	SBUS I/O Board - Enterprise Family		2610A	5014287011120	C0014229	05/27/97
SUN	CD ROM - Internal		370-2203-01	9715003781	C0014230	05/27/97
SUN	9.1 GB HD - 7200 RPM-3.5 Inch-F/W SCSI-2		540-2951-01	9707363003	C0014231	05/27/97
SUN	9.1 GB HD - 7200 RPM-3.5 Inch-F/W SCSI-2		540-2951-01	9707363312	C0014232	05/27/97
SUN	9.1 GB HD - 7200 RPM-3.5 Inch-F/W SCSI-2		540-2951-01	9715742422	C0014233	05/27/97
SUN	32 MB RAM Expansion (1 of 8X32MB=256 MB)		7022A	501265378299929	C0014234	05/27/97
SUN	32 MB RAM Expansion (1 of 8X32MB=256 MB)		7022A	501265378299923	C0014235	05/27/97
SUN	32 MB RAM Expansion (1 of 8X32MB=256 MB)		7022A	501265378299891	C0014236	05/27/97
			.			
			.			
			.			
SUN	Solaris Media for Servers	2.5.1	SOLS-C		C0150689	05/27/97

Figure 4.3.4-102. Equipment Installation Report by ECN Number

```
  (installr)                                                                                    DATE:  01/05/00   TIME:
13:42
  ECS Development Facility                          INSTALLATION SUMMARY REPORT
PAGE:  1
                                                     Dates:  09/01/99-12/31/99
  PARENT EIN:  00000343              NAME:  judge
  OEM PART:  S20SX-50                                OEM DESC:  SPARCStation 20-50 SX
  INSTALL DATE:  03/10/95
  SITE:  EDF     ;  ECS Development Facility
  BUILDING:  1616    ROOM:  1100A4

  CHILDREN INCLUDED:

                                                                 INSTALL
  EIN                   OEM PART                                 DATE      LOC     BLDG    ROOM    USER
  ====================  ===================================  ========  ======  ======  ======
================================
  00000343              S20SX-50                                 03/10/95  EDF     1616    1100A4  Geistfeld
```

Figure 4.3.4-103. Installation Summary Report

RUN DATE: 01/28/00 Page No: 1

EOSDIS
EQUIMENT RELOCATION REPORT
BY ECN NUMBER

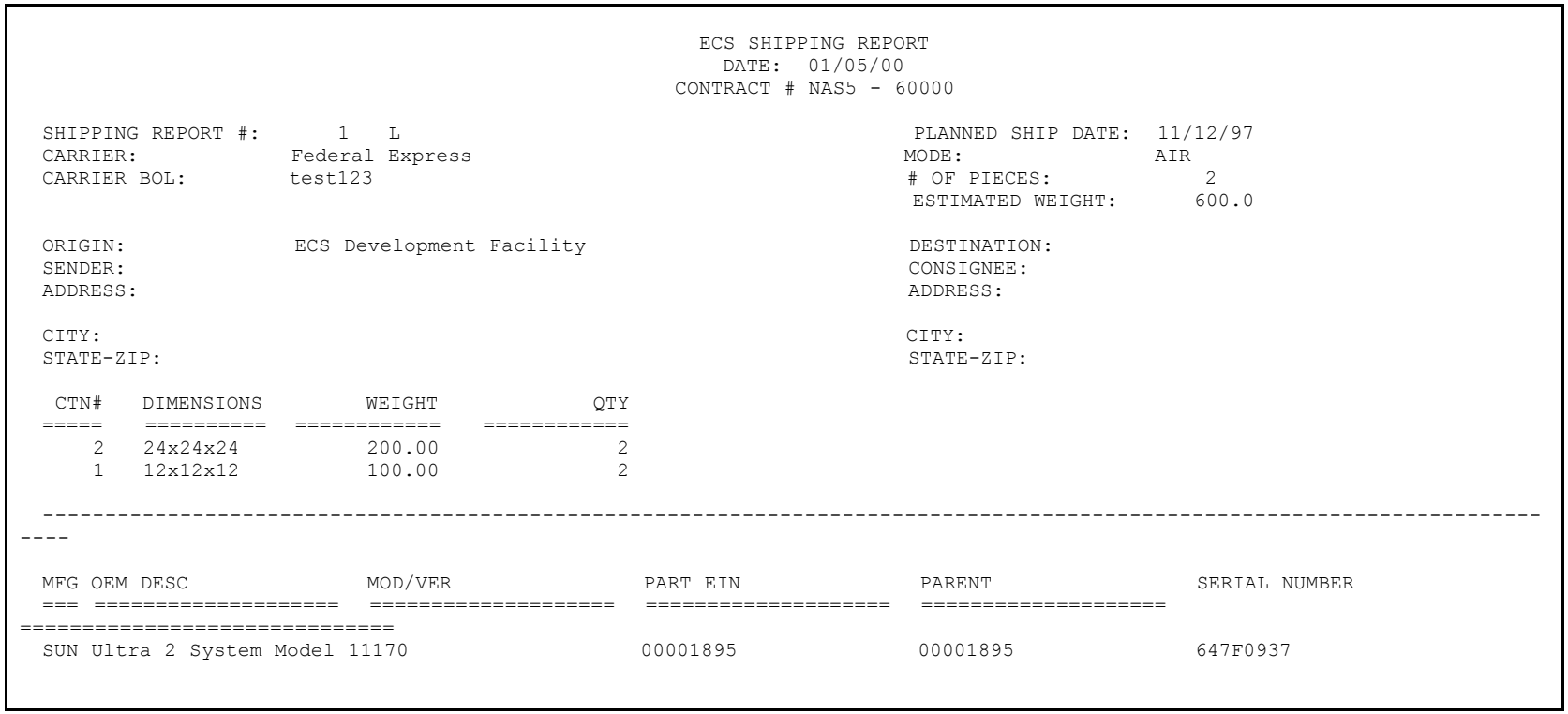
NEW PARENT EIN: 00000006

ECN NUMBER: 00000006
DATE ON-SITE WARRANTY EXPIRES: 12/31/97
WARRANTY END DATE: 12/31/97
HTSC HELP CENTER PHONE: 1-800-ECS-DATA
HTSC HELP CENTER HOURS ARE: 08:00 - 17:00 EST
DATE RECEIVED: 08/23/93
CCR #:

USER CONTACT
USER PHONE
LOCATION: Langely Research
BUILDING # 1268C
ROOM #: 1321
HOST NAME: l0moi01
TT:

INSTALL MFR	PRODUCT DESCRIPTION	MODEL/VERSION	PART NUMBER	SERIAL NUMBER	PART ECN	DATE
IBM	RISC 6000 Workstation	6000	7012-340	MS70122663304	00000006	10/21/93
HPC	19 Inch Color Monitor		A2094A	JP01000992	00000007	01/28/00

Figure 4.3.4-104. EOSDIS Equipment Relocation Report



ECS SHIPPING REPORT
DATE: 01/05/00
CONTRACT # NAS5 - 60000

SHIPPING REPORT #: 1 L
CARRIER: Federal Express
CARRIER BOL: test123

PLANNED SHIP DATE: 11/12/97
MODE: AIR
OF PIECES: 2
ESTIMATED WEIGHT: 600.0

ORIGIN: ECS Development Facility
SENDER:
ADDRESS:

CITY:
STATE-ZIP:

DESTINATION:
CONSIGNEE:
ADDRESS:

CITY:
STATE-ZIP:

CTN#	DIMENSIONS	WEIGHT	QTY
2	24x24x24	200.00	2
1	12x12x12	100.00	2

MFG	OEM DESC	MOD/VER	PART EIN	PARENT	SERIAL NUMBER
SUN	Ultra 2 System Model 11170		00001895	00001895	647F0937

Figure 4.3.4-105. ECS Shipping Report

RUN DATE: 01/28/00 Page No: 1

EOSDIS
EQUIMENT TRANSFER/RECEIPT REPORT
BY ECN NUMBER

ECN NUMBER: 00000004
DATE ON-SITE WARRANTY EXPIRES: 12/31/97
WARRANTY END DATE: 12/31/97
HTSC HELP CENTER PHONE: 1-800-ECS-DATA
HTSC HELP CENTER HOURS ARE: 08:00 - 17:00 EST
DATE RECEIVED: 12/17/93
CCR #:

USER CONTACT: Merritt
USER PHONE: (818)306-6061
LOCATION: ECS Development F
BUILDING #: 1616
ROOM #: 1072
HOST NAME: ETHER
TT:

MFR	PRODUCT DESCRIPTION	MODEL/VERSION	PART NUMBER	SERIAL NUMBER	PART ECN	INSTALL DATE
DEC	3000-300 Workstation	300X AXP	PE301-CD	AB3500171X	00000004	01/28/00
DEC	19 Inch Color Monitor		VRT19-HA	IS33984574	00000008	01/28/00
DEC	Tape Drive - 4 MM		TLZ06	CX35103575	00000016	01/28/00
DEC	CD ROM - in Storage Expansion Unit		BA353-AF	KB34203698	00000031	01/28/00
DEC	Mouse - 3 Button		VSXXX-GA	7A323H4085	00007719	01/28/00
DEC	Keyboard		LK401-AA	HJ342U8927	00007720	01/28/00
DEC	10 Based T Ethernet Port		10BT-ETHNET			01/28/00
DEC	Cable - SCSI cable 2 meter 2 male		BN21H-01			01/28/00
DEC	FDDI - Card		DEFTA-FA	AS42305487		01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	8 MB RAM (1 x 8 MB SIMM)		ME534-HE			01/28/00
DEC	1.05 GB HD		RZ26-EP	CX34594749		01/28/00
DEC	1.05 GB HD		RZ26-EP	CX34891643		01/28/00

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Figure 4.3.4-106. EOSDIS Equipment Transfer/Receipt Report

(imtransr4) DATE: 01/05/00 TIME: 15:16

ECS Development Facility RECEIPTS BY RECEIPT NUMBER

PAGE: 1

RECEIPT NUMBER	SITE	TRANS NUMB	DATE	TIME	ORDER	LINE NO	EIN / OEM PART NUMB	VENDOR ID	QUANTITY
3	EDF	3	02/21/97	13:38	000001	1	34565666002	SUN	1.0
3	EDF	2	02/21/97	13:36	000001	1	34565666002	SUN	1.0
5	EDF	15	03/12/97	13:02	000029	1	HARVCD1	SUN	1.0
5	EDF	14	03/12/97	11:04	000029	1	HARVCD1	SUN	1.0
5	EDF	13	03/12/97	11:02	000029	1	HARVCD1	SUN	1.0
5	EDF	12	03/12/97	10:57	000029	1	HARVCD1	SUN	1.0
5	EDF	11	03/12/97	10:53	000029	1	HARVCD1	SUN	1.0
5	EDF	10	03/12/97	10:49	000029	1	HARVCD1	SUN	1.0
5	EDF	9	03/12/97	10:45	000029	1	HARVCD1	SUN	1.0
5	EDF	8	03/12/97	10:41	000029	1	HARVCD1	SUN	1.0
5	EDF	7	03/12/97	10:39	000029	1	HARVCD1	SUN	1.0
5	EDF	6	03/12/97	10:36	000029	1	HARVCD1	SUN	1.0
5	EDF	5	03/12/97	10:35	000029	1	HARVCD1	SUN	1.0
6	EDF	630	03/21/97	08:02	577HP	1	J200 BASE SYSTEM	HPC	1.0
6	EDF	4	03/11/97	09:50	577HP	1	J200 BASE SYSTEM	HPC	1.0
8	EDF	632	03/21/97	08:42	000029	1	HARVCD1	SUN	1.0
8	EDF	631	03/21/97	08:41	000029	1	HARVCD1	SUN	1.0
8	EDF	16	03/12/97	15:06	000029	1	HARVCD1	SUN	1.0
9	EDF	129	03/14/97	13:06	CCW000	8	X3500A	SUN	1.0
10	EDF	634	03/21/97	08:53	000001	1	HARVsunMEM8	SUN	1.0
10	EDF	633	03/21/97	08:44	000001	1	HARVsunMEM8	SUN	1.0
10	EDF	135	03/17/97	08:15	000001	1	HARVsunMEM8	SUN	1.0
11	EDF	635	03/22/97	08:28	000001	2	X3500A	SUN	1.0
12	EDF	636	03/22/97	08:31	000001	2	X3500A	SUN	1.0
13	EDF	637	03/22/97	08:37	000001	2	X3500A	SUN	1.0
14	EDF	638	03/22/97	08:47	000001	2	X3500A	SUN	1.0
15	EDF	639	03/22/97	09:02	000001	2	X3500A	SUN	1.0
16	EDF	865	04/18/97	07:21	ZZK000	1	00000001	MBA	1,000.0
26	EDF	1,241	05/18/97	12:14	000027	1	004024		1.0
38	EDF	1,242	05/19/97	06:21	000027	1	004024		10.0
39	EDF	1,243	05/25/97	19:51	000001	1	SK-540		1.0
.									
.									
.									
9,991	SMC-E	11,102	09/17/99	10:13	257104	27	7738280-7-DE		3.0

Figure 4.3.4-107. Receipts by Receipt Number Report

(imtransr8) DATE: 01/05/00 TIME: 15:16
ECS Development Facility RECEIPTS BY EIN / PART PAGE: 1

SITE	TRAN NUMB	EIN	NAME	DATE	QUANTITY
EDF	4,168			01/17/98	1.0
EDF	4,167			01/17/98	1.0
EDF	4,166			01/17/98	1.0
EDF	4,165			01/17/98	1.0
EDF	4,164			01/17/98	1.0
EDF	4,163			01/17/98	1.0
EDF	4,162			01/17/98	1.0
EDF	4,161			01/17/98	1.0
EDF	4,160			01/17/98	1.0
EDF	4,159			01/16/98	1.0
EDF	4,131			01/15/98	1.0
EDF	4,130			01/15/98	1.0
EDF	4,129			01/15/98	1.0
EDF	4,128			01/15/98	1.0
EDF	4,127			01/15/98	1.0
EDF	4,126			01/15/98	1.0
EDF	4,125			01/15/98	1.0
EDF	4,124			01/15/98	1.0
EDF	4,119			01/14/98	1.0
EDF	4,118			01/14/98	1.0
EDF	4,117			01/14/98	1.0
EDF	4,116			01/14/98	1.0
EDF	4,115			01/14/98	1.0
EDF	4,114			01/14/98	1.0
EDF	4,113			01/14/98	1.0
EDF	4,112			01/13/98	2.0
EDF	4,096			01/08/98	1.0
			.		
			.		
			.		
SMC-E	11,131	120-238		09/17/99	11.0

Figure 4.3.4-108. Receipts by EIN / Part Report

(imtransr8) DATE: 01/05/00 TIME: 15:16

ECS Development Facility TRANSACTION HISTORY BY EIN PAGE: 1

EIN	DESCRIPTION	ARCHIVE	RELOCATE	SHIP	RECVD	TRANS
00000000	EOSDIS Parent Record DO N	0.00	0.00	0.00	0.00	2.00
00000001	INDGO XS Graphics Worksta	0.00	7.00	11.00	0.00	2.00
00000002	19 Inch Color Monitor	0.00	1.00	8.00	0.00	2.00
00000003	Tape Drive - 1.3 GB - 4 M	4.00	1.00	10.00	0.00	4.00
00000004	3000-300 Workstation	0.00	1.00	8.00	0.00	2.00
00000006	RISC 6000 Workstation	0.00	1.00	8.00	0.00	2.00
00000007	19 Inch Color Monitor	0.00	1.00	8.00	0.00	2.00
00000008	19 Inch Color Monitor	0.00	2.00	16.00	0.00	4.00
00000010	19 Inch Color Monitor	0.00	1.00	8.00	0.00	2.00
00000013	SPARCStation 10	0.00	1.00	0.00	0.00	1.00
00000016	Tape Drive - 4 MM	0.00	1.00	8.00	0.00	2.00
00000020		1.00	0.00	0.00	0.00	0.00
00000023	3000-300 Workstation	0.00	0.00	0.00	0.00	1.00

. . .

Figure 4.3.4-109. Transaction History by EIN Report

```
  (imtransr5)                                                                                             DATE:  01/05/00   TIME:
15:17
  ECS Development Facility                     TRANSACTIONS FOR SPARES                                                       PAGE:
1

               TRAN                                                                                          FROM   VENDOR
  SITE         NUMB  DATE      TIME  EIN                     NAME                                            LOCN   ID
QUANTITY
  ====== ==========  ======== ===== ==================== ============================== ====== ======
============
  EDF            832  03/29/97 17:29 00000008              ETHER                                           GSFC   DEC
1.0
  EDF            829  03/29/97 08:07 00000008              IN STOCK                                        GSFC   DEC
1.0
  EDF          5,532  04/22/98 17:43 00000495              ETHER                                           EDF    DEC
1.0
  EDF          3,506  04/22/98 16:54 00000495              IN STOCK                                        EDF    TDI
1.0
  EDF          5,632  05/20/98 14:13 C0002501              l0mos17                                         LaR    SUN
1.0
  EDF          4,659  05/20/98 14:11 C0002501              l0mos17                                         LaR    SUN
1.0
  EDF          4,659  05/20/98 14:11 C0002501              IN STOCK                                        EDF    SUN
1.0
                                                           .
                                                           .
                                                           .
```

Figure 4.3.4-110. Transaction History for Spares Report

```
 (imtransr6)                                                                                                    DATE:  01/05/00   TIME:
15:17
 ECS Development Facility                                TRANSACTIONS FOR CONSUMABLES
PAGE:  1

              TRAN                                                                                  FROM   VENDOR
EXTENDED
 SITE          NUMB  DATE      TIME  OEM PART              NAME                                   LOCN   ID          QUANTITY
VALUE
 ====== ==========  ======== ===== ==================== ================================ ====== ====== ============
=============
 SMC-E      10,787  08/23/99 15:50 0400-30200                                                     ANICOM         83.0
0.00
 SMC-E      11,011  09/13/99 13:26 CHA07780                                                       MRS             2.0
0.00
 SMC-E      10,061  07/07/99 09:33 CHA07780                                                       MRS             5.0
0.00
 SMC-E      11,010  09/13/99 13:26 CHA73730                                                       MRS             5.0
0.00
 SMC-E      11,028  09/15/99 10:13 RW/MED-50                                                  EDF                 50.0
0.00
 SMC-E      11,029  09/15/99 14:56 RW/MED-50                                                  GSFC                50.0
0.00
 SMC         5,375  05/13/99 15:06 RW/MED-50                                                      STK            50.0
0.00
 SMC         5,374  05/13/99 15:04 RW/MED-50                                                      STK            50.0
0.00
 SMC-E      12,319  10/14/99 14:30 RW/MED-50                                                      STK           220.0
0.00
 SMC         5,377  05/13/99 15:08 RW/MED-CLN                                                     STK            10.0
0.00
 SMC         5,337  05/11/99 10:03 RW/MED-CLN                                                     STK            20.0
0.00
 SMC         5,336  05/11/99 10:02 RW/MED-CLN                                                     STK            10.0
0.00
 SMC         5,334  05/11/99 10:01 RW/MED-CLN                                                     STK             5.0
0.00
 SMC-E      12,320  10/14/99 14:30 RW/MED-CLN                                                     STK            20.0
0.00
                                                                .
                                                                .
                                                                .
```

Figure 4.3.4-111. Transaction History for Consumables Report

```
(mwo)                                                                                    DATE:  01/05/00   TIME:  14:02
ECS Development Facility                          MAINTENANCE WORK ORDER REPORT                                  PAGE:  1

   WORK ORDER:  NSI0000029                                                    DATE:  09/02/99
   PARENT EIN:  00002343                                                      NAME:  n0mss02
     OEM PART:  A14-UCB1-9S-128EB                                        OEM DESC:  Ultra Server 2 Model 1200 200 MHZ
       SER NO:  709F116C                                                  MOD/VER:  1200
       VENDOR:  SUN     :  SUN Microsystems Inc
       FAILED:  07/26/99  -  18:00                                       NOTIFIED:  07/26/99  -  18:00
VENDOR CALLED:  07/27/99  -  10:00                                        ARRIVED:  07/27/99  -  13:30
    COMPLETED:  07/28/99  -  13:30

         Three RAID disks failed in close order.  Home
         directories will not load.  This is a repeat of
         NSI0000028, due to error.  Disregard the first,
         if seen, since the disks appear on this parent, and the items,
         consequently.  See items for details. Suggest that the spares
         inventory should contain a spare for the 9GB disks, and that SUN
         shoulds keep spares locally, too.

                                                                                                                 REPLACED
COMPONENT EIN         SERIAL NO                     OEM PART                          MOD/VER                   OR NEW    DATE
====================  ============================  ================================  ========================  ========  ========
C0011996              9710025901                    X6516A                            9.1GB                     REPLACED  07/28/99
         RAID disk failed. No spares available locally.
         Replaced by s/n: 9749C07744.
C0011997              9710028380                    X6516A                            9.1GB                     REPLACED  07/28/99
         RAID disk failed.  No spares available locally.
         Replaced by s/n: 9809010353
C0012005              9703698917                    X796A                                                       REPLACED  07/28/99
         RAID disk failed. No spares available locally.
         Replaced by s/n: 9733269313.
                                                                                .
                                                                                .
                                                                                .
```

Figure 4.3.4-112. Maintenance Work Order Report

```
(wohistr)                                                          WORK ORDER HISTORY
Date:   01/05/00

WORK ORDER:                  NSI0000029
PARENT EIN:                  00002343
OEM PART:                      A14-UCB1-9S-128EB      OEM DESC; Ultra Server 2 Model 1200 200 MHZ

REPLACED
COMPONENT PART       OEM PART                          OEM DESC                                SERIAL #                        MOD/VER
ACTION       DATE
====================   =================================   =======================================   ==============================   ========================
==========   ========
C0011996               X6516A                               9.1 GB HD - Internal                    9710025901                      9.1GB
REPLACED     07/28/99
C0011997               X6516A                               9.1 GB HD - Internal                    9710028380                      9.1GB
REPLACED     07/28/99
C0012005                X796A                                4.3 GB HD (1 of 6 trays of 3x4.3=75 GB)   9703698917
REPLACED     07/28/99
                                                                                 .
                                                                                 .
                                                                                 .
```

Figure 4.3.4-113. Work Order History Report

```
(screen wostatr)                                                                       DATE:  01/05/00   TIME:  14:06
ECS Development Facility                              WORK ORDER STATUS                                       PAGE:  1
Work Order:  EDC*                                        All Statuses                                 All Parent EINs


--------------------------------------------------------------------------------------------------------------------
Work Order:                  EDC0000002                                    Status:       A
Parent EIN:                  00000888
OEM Part:                    9101445
OEM Desc:  X Terminal
Location:                    EDC                                           Building:     EROS D
Room:                        1511
User:                        205                                           Name:


Components Replaced:
                      REPLACE
COMPONENT EIN         DATE      SERIAL NUMBER                 OEM PART                            OEM DESCRIPTION
====================  ========  ============================== ==================================  ========================================
00000903              06/29/99  410187-42                     9101298                             21 Inch Color Monitor
                                                                                  .
                                                                                  .
                                                                                  .
```

Figure 4.3.4-114. Work Order Status Report

4.3.5 Tivoli/Courier

Tivoli/Courier (T/Courier), a COTS product, is based on the Tivoli Management Platform (TMP), an architecture and a set of tools for managing client/server systems. More information can be found on Tivoli in Section 4.2.2 and Tivoli Enterprise Console and Tivoli Administration in Section 4.4.6. T/Courier adds software distribution capability to the Tivoli management environment and thus enables the operations staffs at the SMC and the DAAC sites to distribute ECS software, database information, and software documentation as well as commercial software across a multi-platform ECS network. T/Courier provides a centralized software distribution capability to add new software, update existing software with newer versions, and synchronize software on distributed systems.

Tivoli and T/Courier must be installed on all host platforms that will be involved in the distribution. Once installed, T/Courier enables the creation and distribution of profiles (file packages) from one UNIX host to another host or hosts. The file package defines the source path of the files and/or directories to be distributed, defines the destination path of the files and/or directories being distributed, and contains specific instructions on how to set up the files on the receiving platform. T/Courier can distribute a file package to a single host platform or to multiple host platforms concurrently. The distribution can be set up to occur immediately or at some scheduled time.

T/Courier has a graphical user interface (GUI) and a command line interface (CLI). The GUI provides basic software distribution capability through a set of screens. The CLI provides basic distribution capability and other capability (for more advanced users) through a set of T/Courier commands. The GUI capability is described in this section. Refer to the T/Courier User's Guide and Reference manuals for information on the CLI capability.

The most frequently used software distribution functions are listed in Table 4.3.5-1.

Table 4.3.5-1. Common ECS Operator Functions Performed with T/Courier

Operating Function	Command/ Script or GUI	Description	When and Why to Use
Create file package	Series of GUIs	Create a definition of a package that points to specific files for distribution	Use when there is a new set of files to be distributed or when updates needs to be distributed.
Preview file package	GUI	Preview the contents of a file package	Use to check the listing of files and/or directories that are about to be distributed.
Distribute file package	GUI	Distribute software files.	Use to distribute software to specified hosts.
Schedule distribution	GUI	Schedule distribution of files.	Use to initiate distribution activity and cause it to occur at some predetermined date and time.
Remove file package	GUI	Remove file package from hosts.	Use to remove distributed file packages from the hosts that received them.

4.3.5.1 Quick Start Using Tivoli/Courier

The underlying assumptions are that:

- Tivoli and T/Courier have been installed on all of the platforms that will be involved in the distribution
- The user has been granted administrator privileges for T/Courier activity.
- Location of the files to be distributed should be known in advance of executing Courier.
- The files' location will be entered into one of the Courier screens.
- Tivoli/Courier can only be accessed through Tivoli.

The documentation of Tivoli Courier used as a basis and referenced in this section is for version/release 3.0.1, contained in ECS Release 4.

To initiate T/Courier via Tivoli, log into a Unix platform that has T/Courier installed and enter the following commands:

source /etc/Tivoli/setup_env.csh (in c shell)

. /etc/Tivoli/setup_env.sh (in Bourne or bash shell)

tivoli -font fixed

4.3.5.2 Tivoli/Courier Main Screen

Upon execution, Tivoli will splash its logo screen and then display its Main Screen as shown in Figure 4.3.5-1. This screen provides access to software distribution functions through a series of icons and dialogs. The top part of the screen holds the icons needed to get things started and the bottom part displays the type of process and results of the process that is initiated.

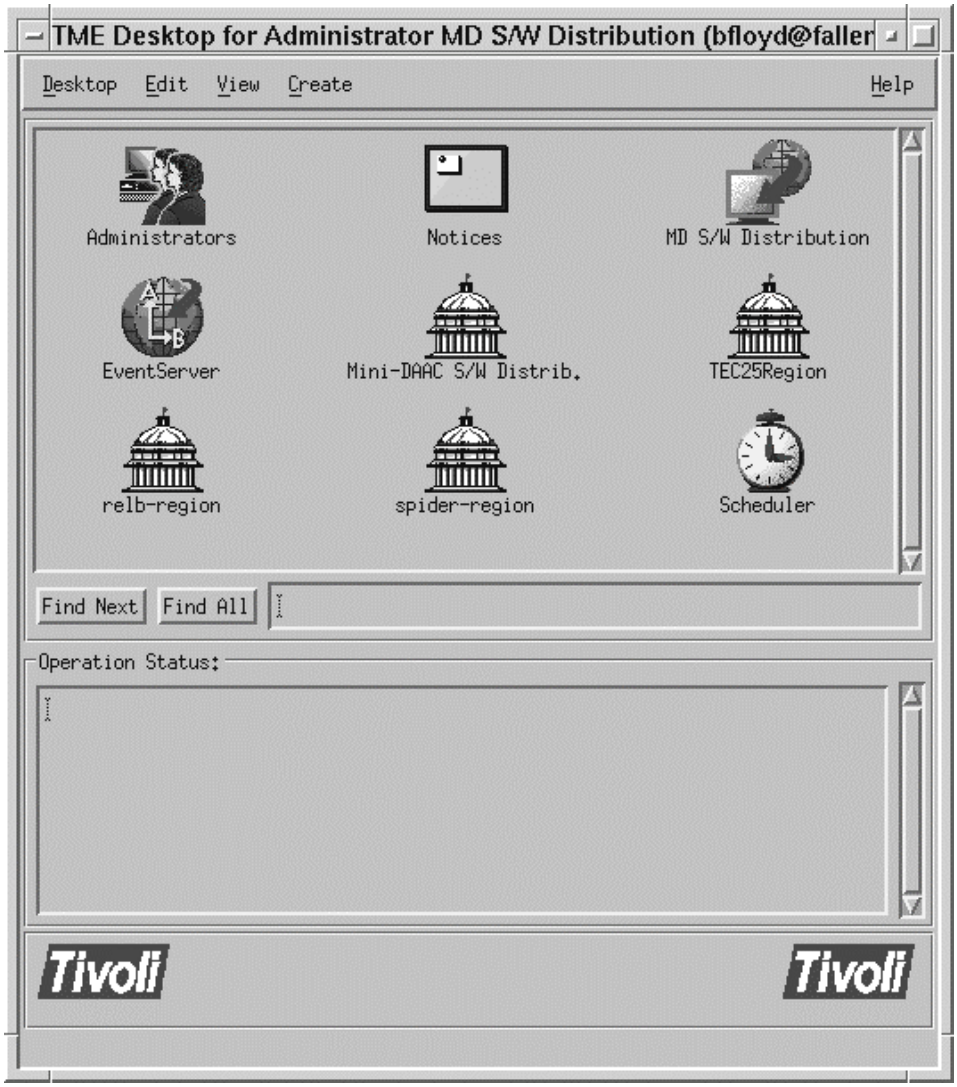

Figure 4.3.5-1. T/Courier Main Screen

4.3.5.2.1 Establish Policy Region

Before using T/Courier to distribute software, system resources must be identified and organized for distribution activity. T/Courier uses policy regions to enable organization of software distribution activity. A policy region is a collection of resources that share one or more common policies and it must be created before any distribution can occur.

Create a policy region by clicking the "Create " menu on the T/Courier Create Events Pop-up (see Figure 4.3.5-2) and select "Region." Upon selection of the "Region" option, a Create Policy Region pop-up will appear as shown in Figure 4.3.5-3. Enter a descriptive name for the region that you're about to create and then click the "**Create and Close**" button.

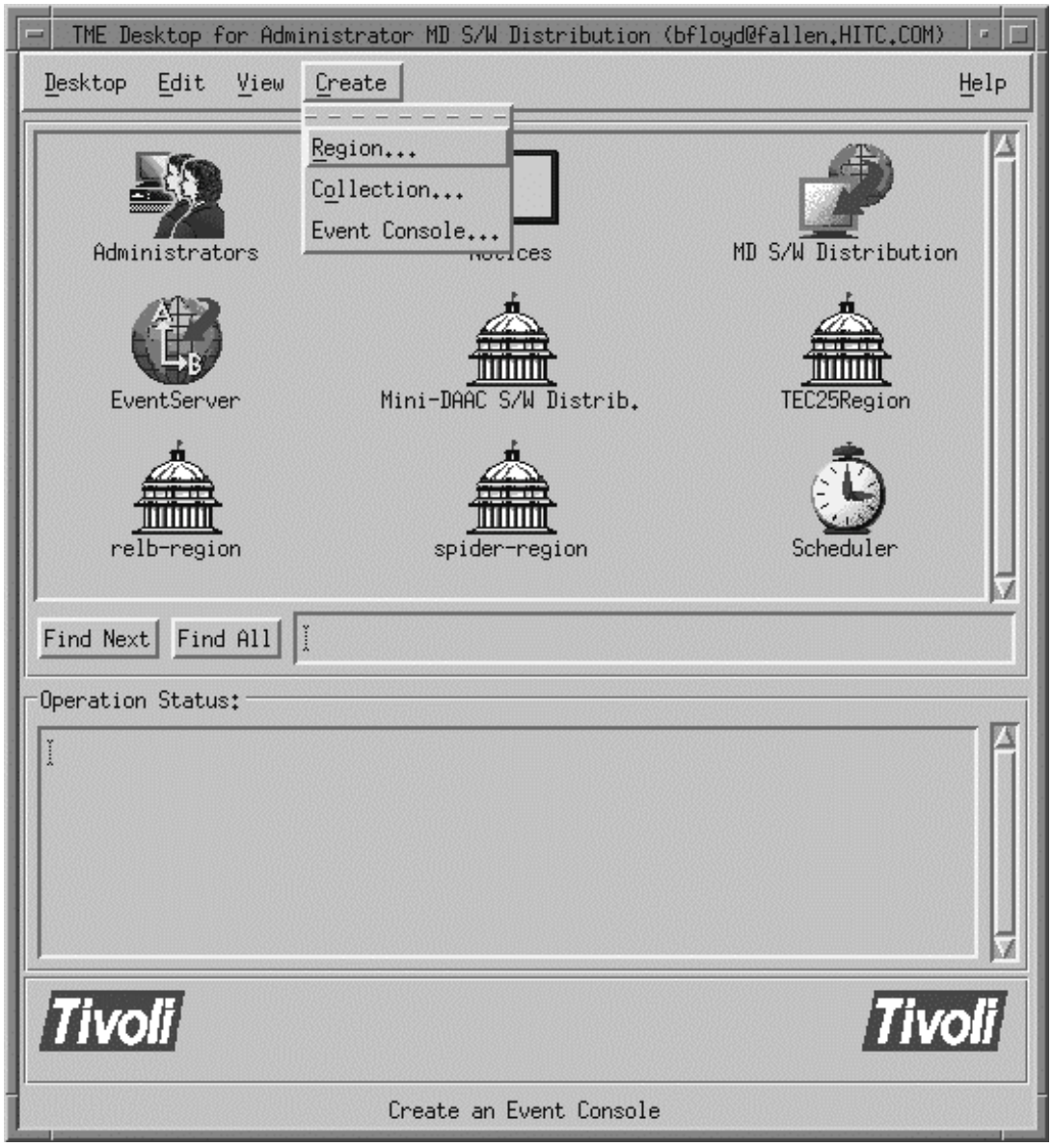

Figure 4.3.5-2. T/Courier Create Events Pop-up

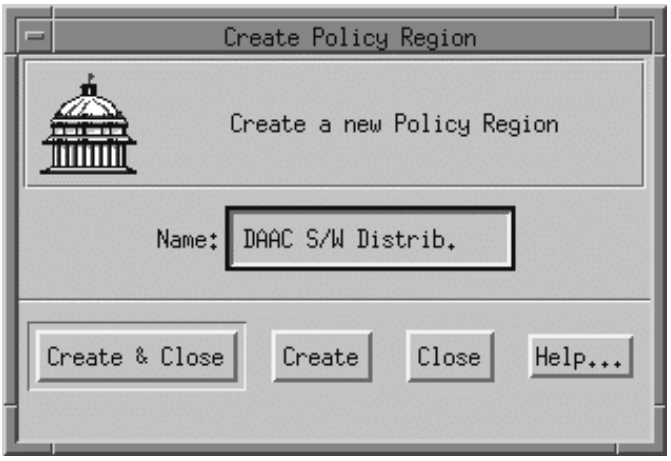

Figure 4.3.5-3. T/Courier Create Policy Region Pop-up

At this point a new policy region (for example, DAAC S/W Distrib.) has been created. This new icon appears on the T/Courier Main Screen, and the status part of the T/Courier main screen reflects the status of the “Create Policy Region” action as shown in Figure 4.3.5-4

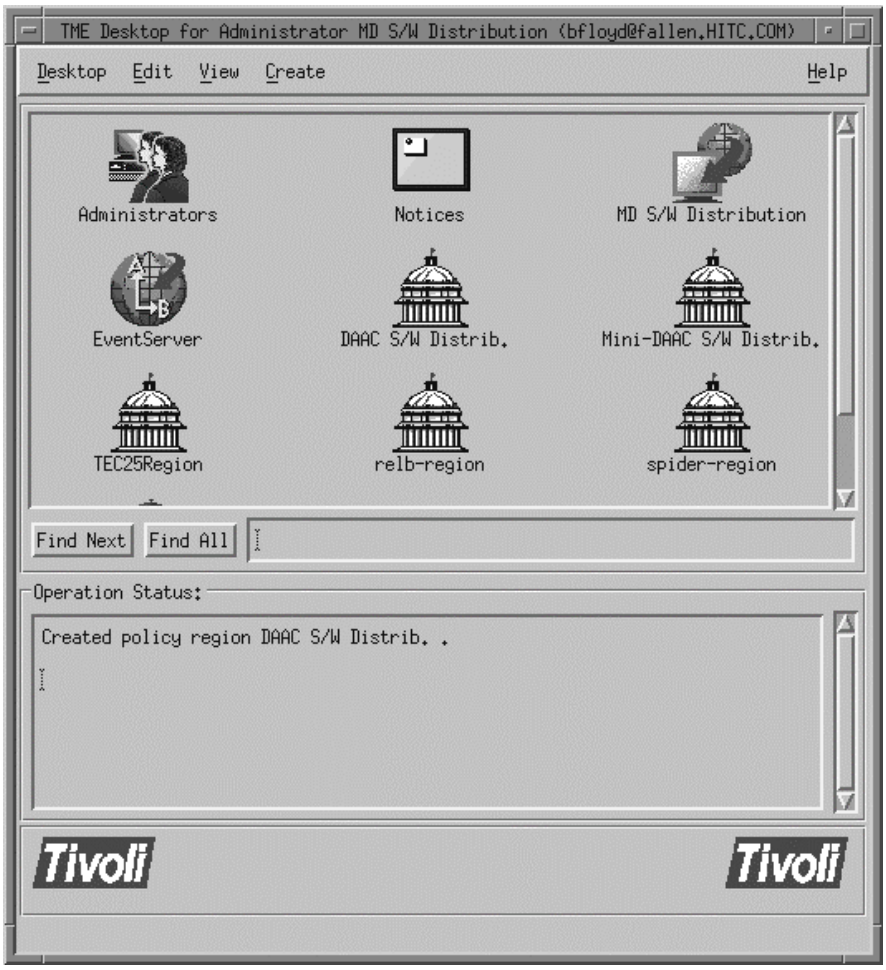

Figure 4.3.5-4. T/Courier Operation Status display, Main Screen

4.3.5.2.2 Select Managed Resources

Once established, a policy region has to be defined in terms of the resources that it will manage. Double click the new policy region's icon to bring up the first of several screens that has to be completed. The Policy Region pop-up is displayed as shown in Figure 4.3.5-5. Click the "Properties" menu and then select the "Managed Resources " option. This causes

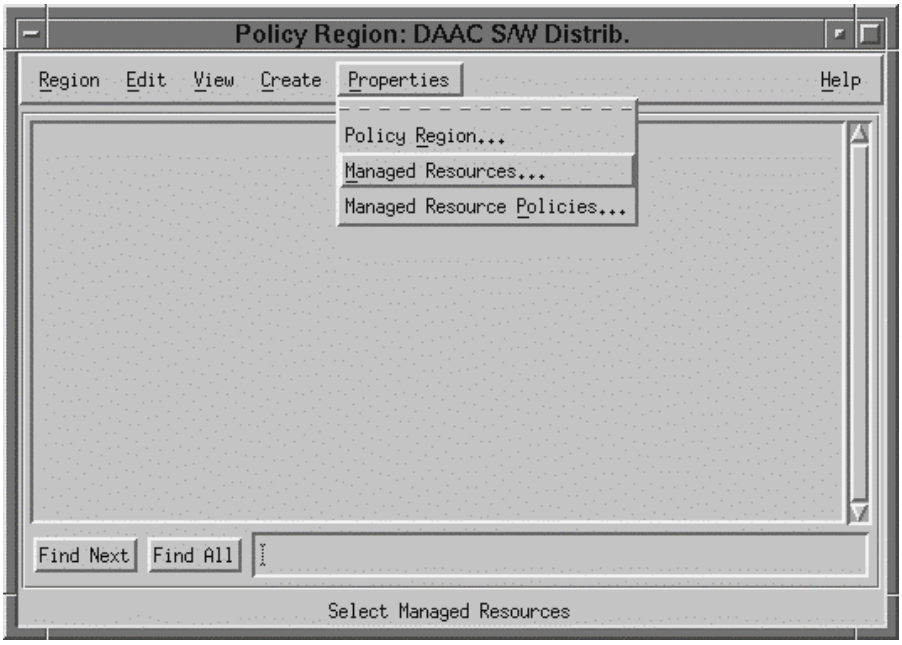

Figure 4.3.5-5. T/Courier Properties Menu of Policy Region Pop-up

the "Set Managed Resources" Pop-up to appear as shown in Figure 4.3.5-6. The Set Managed Resources" pop-up enables the selection of resources to be managed. For software distribution activity, FilePackage and ProfileManager are the resources to select and move from the Available Resources side to the Current Resources side of the "Set Managed Resources" Pop-up. Click the "**Set and Close**" button to save the selections.

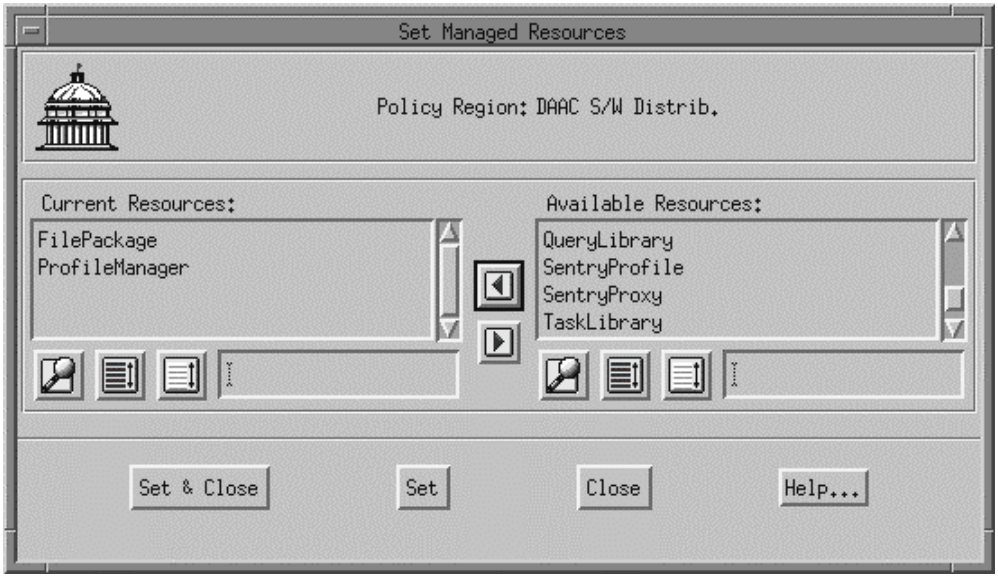

Figure 4.3.5-6. T/Courier Set Managed Resources Pop-up

4.3.5.2.3 Create Profile Manager

A policy region is made up of profile managers. A profile manager contains one or more profiles. A profile is also called a file package and it describes the location, path and other characteristics of the files to be distributed. To set up a profile manager, click the "Create" menu on the Policy Region pop-up as shown in Figure 4.3.5-7. Then select the ProfileManager option.

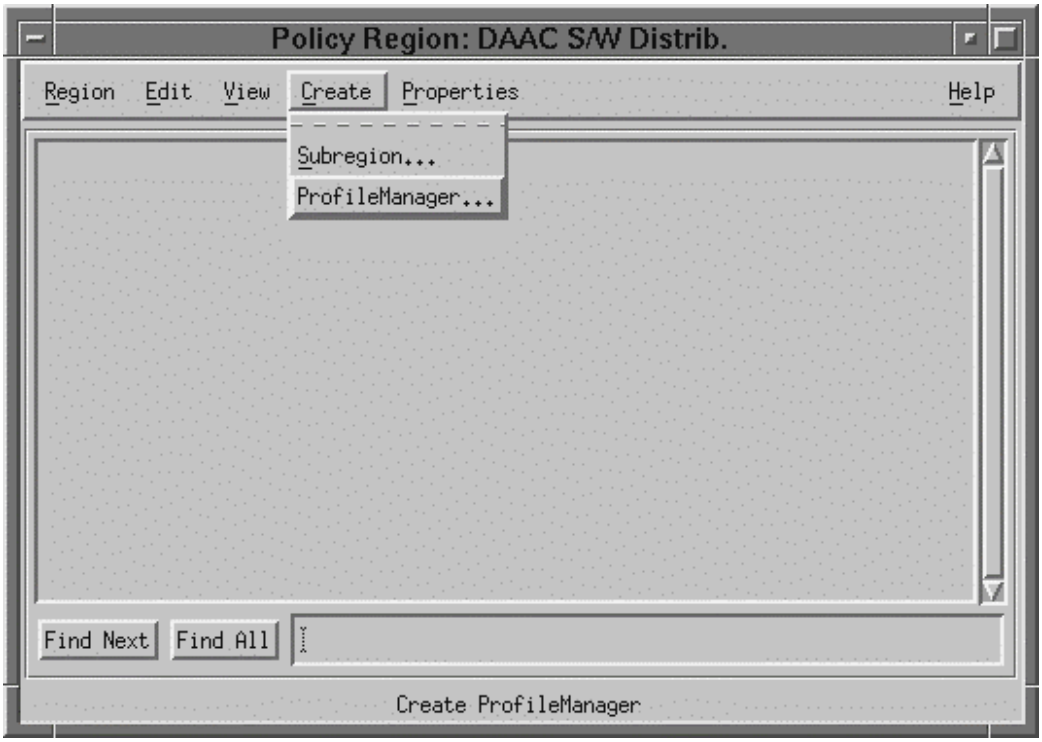

Figure 4.3.5-7. T/Courier Create Menu of Policy Region Pop-up

Selection of the ProfileManager option causes the "Create Profile Manager" Pop-up to appear. See Figure 4.3.5-8. Enter a descriptive name for the profile manager being created. Suggest that the profile manager's name be indicative of the type of profiles that it will contain. A discernible profile manager name will enable one to ascertain the type of profiles the manager holds. This will be particularly useful when other profile managers are added to the region as it will preclude your having to go into a profile manager to determine what profiles (file packages) it controls. Click the "**Create & Close**" button to save your entry.

Figure 4.3.5-8. T/Courier Create Profile Manager Pop-up

The Policy Region pop-up will now display an icon for the newly created profile manager as shown in Figure 4.3.5-9 below.

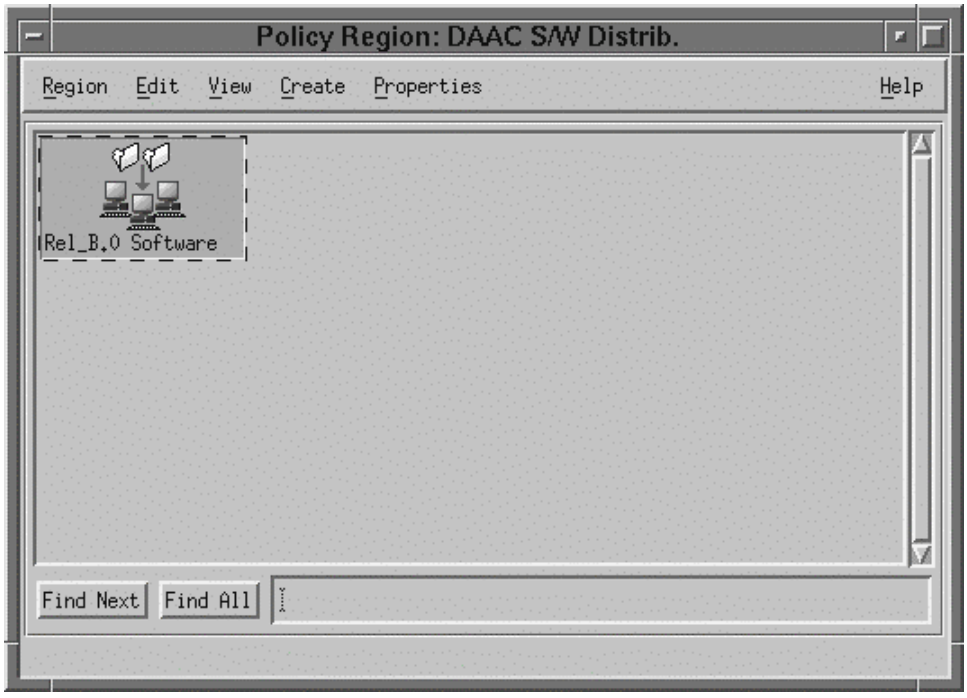

Figure 4.3.5-9. T/Courier Create Profile Manager Pop-up (showing new icon)

4.3.5.2.4 Create Profile

A profile or file package must be created for the Profile Manager to manage. A profile is a description of a set of files that will be distributed to the subscribing platforms. Double click the newly created profile manager's icon to bring up the Profile Manager (Rel_B0_Software) pop-up. Click the "Create" menu on the Profile Manager Screen and then select the "Profile" option as shown in Figure 4.3.5-10.

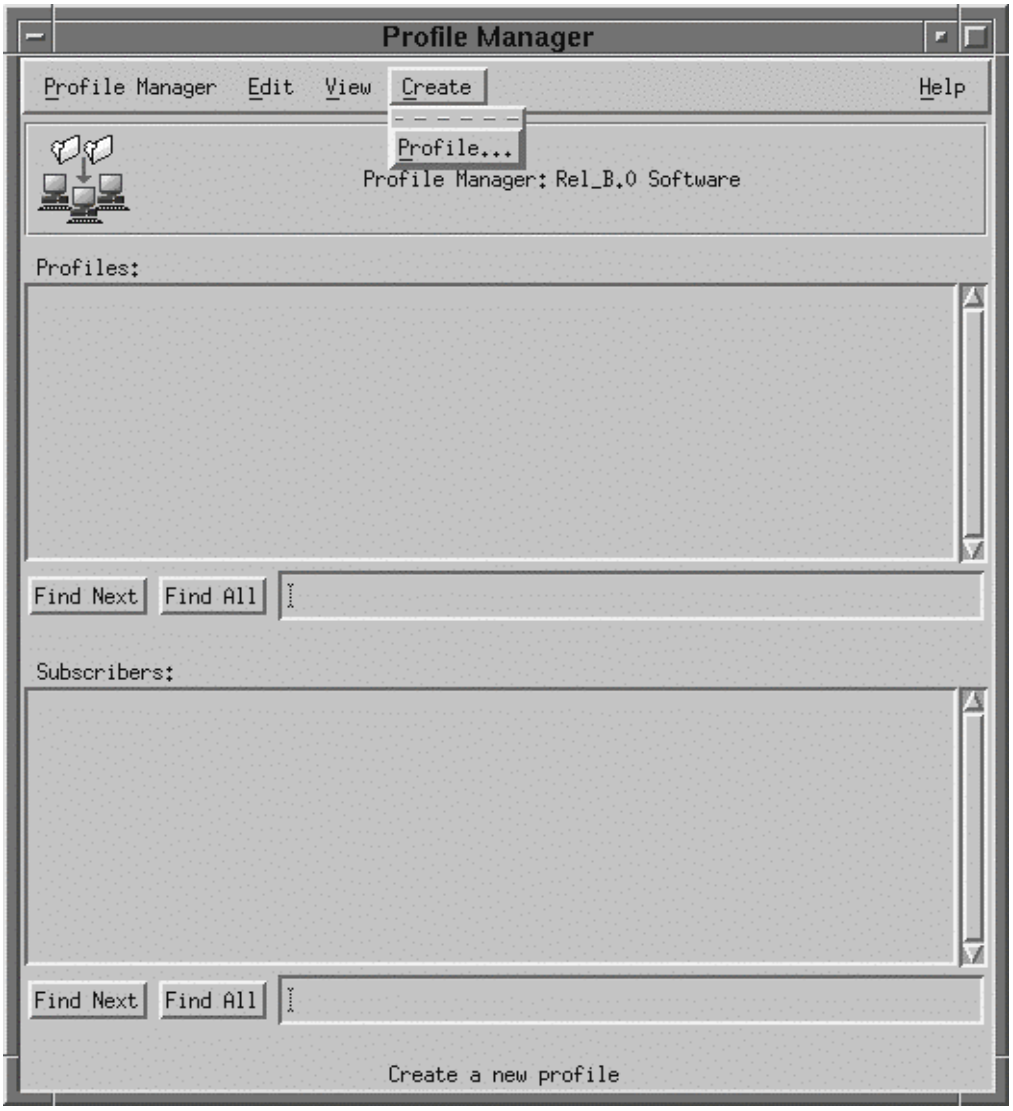

Figure 4.3.5-10. T/Courier Create Menu of Profile Manager Pop-up

A "Create Profile" Pop-up is displayed as shown in Figure 4.3.5-11. Enter a descriptive name in the "Name/Icon Label" text box.

Figure 4.3.5-11. T/Courier Create Profile Pop-up

Recommend that the chosen name be indicative of the type or category of software files that will be in the profile (file package). Click the "**Create & Close**" button to store your entry and then go back to the Profile Manager pop-up. The Profile Manager now has one profile as shown in Figure 4.3.5-12.

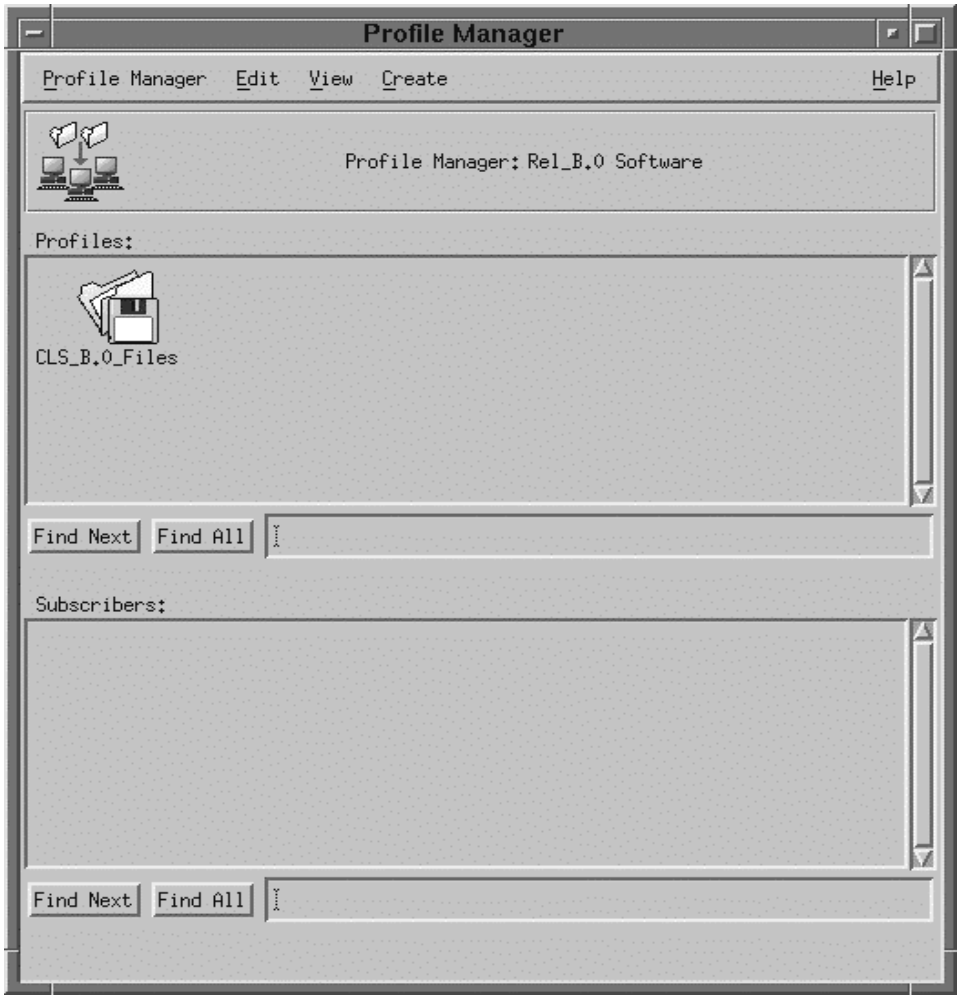

Figure 4.3.5-12. T/Courier Profile display of Profile Manager Pop-up

4.3.5.2.5 Define Profile

The newly created profile (file package) has to be defined. Double click the newly created profile's icon to initiate the definition process. The File Package Properties pop-up is then displayed as shown in Figure 4.3.5-13. Enter the name of the source host, host where a copy of the files to be distributed will reside, in the Source Host box. Enter the path (s) to the source files in the Directories & Files box.

For General Options, select "Stop distribution on error" option and the "Descend into directories" option (Note, selection of the "Descend into directories" option will caused the sub-directories of the listed directories to be distributed as well. If the "Descend" option is not selected, only the top level of the specified directory will be distributed; its sub-directories (if any) will not be distributed).

For File Mode at Destinations Option, select Preserve mode of source files. However, if you need to change the mode of the files at the destination, select the "Change mode of" line and then enter the new mode.

For Log Information Options, select "Send to Courier notice group" and "Send to log file on" option. Enter the name of the host that will hold the log file and the path to the log file.

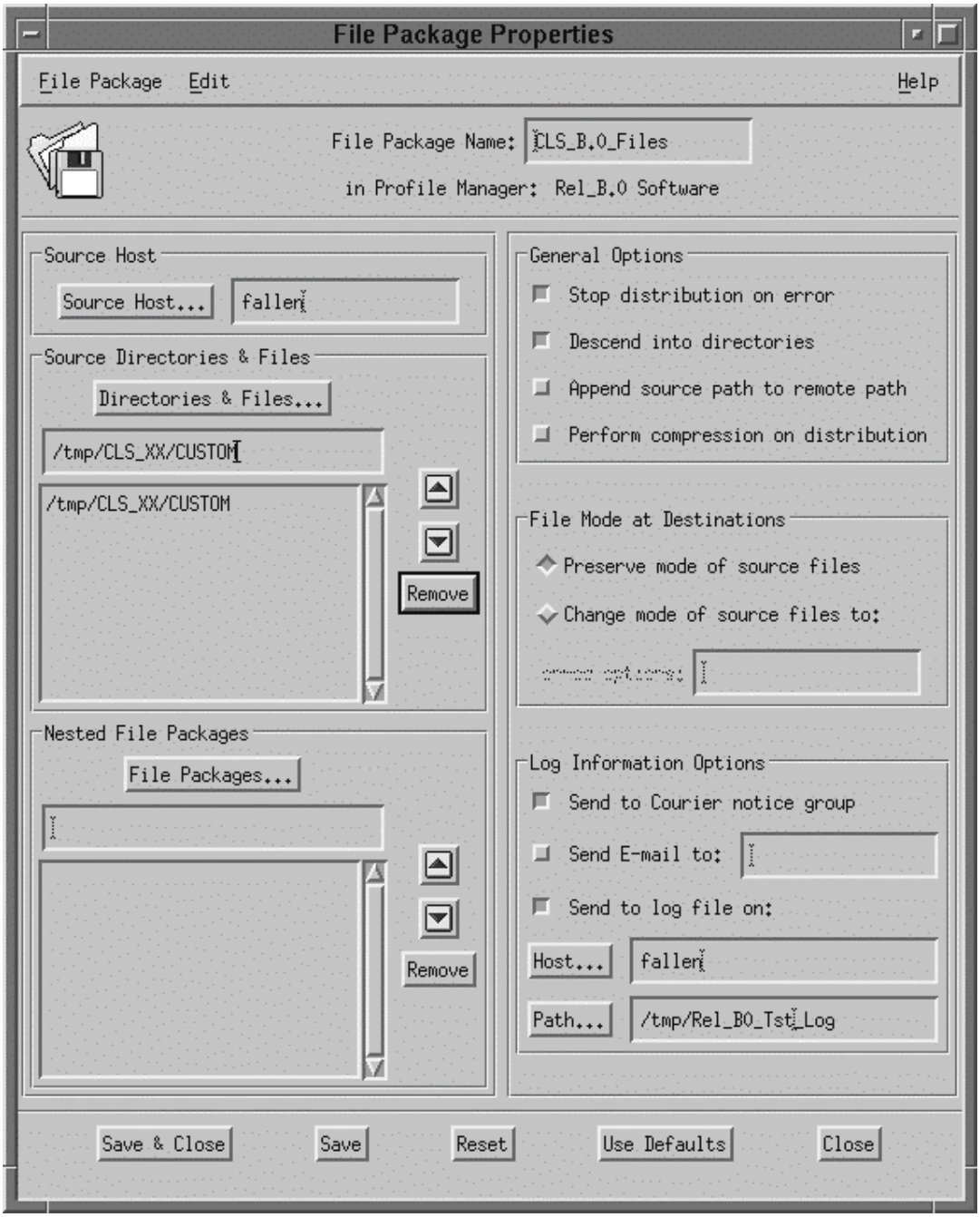

Figure 4.3.5-13. T/Courier File Package Properties Pop-up

[Note, always establish a log file. T/Courier will send a detailed status message to an identified log file. Otherwise, only a brief error message and the brief message sent to the Operation Status box on the main screen are provided and there is usually insufficient information to determine the cause of a problem in the Operations Status Box. Note also that the T/Courier default for writing messages to a log file is to overwrite the contents of the log file each time an entry is made to the log. This default can be changed so that messages are appended to the log file each time an entry is made. The Tivoli Courier User's Manual explains how to change the log file default and also provides a detailed description of the other settings and options.]

This completes the necessary entries for the File Package Properties pop-up.

4.3.5.2.6 Establish UNIX Options

T/Courier can distribute software files to platforms having different operating systems. Therefore, certain T/Courier options are operating system specific. Since ECS platforms are Unix platforms, this section will cover the use of the File Package Unix Option Screen. Refer to the T/Courier User's Manual for the use of other operating systems options screens. To set up the File Package Unix Options Screen, first click the Edit menu on the File Package Properties pop-up. Select the Platform-Specific Options and then the UNIX Options as shown in Figure 4.3.5-14. The File Package UNIX Options pop-up is then displayed as shown in Figure 4.3.5-15.

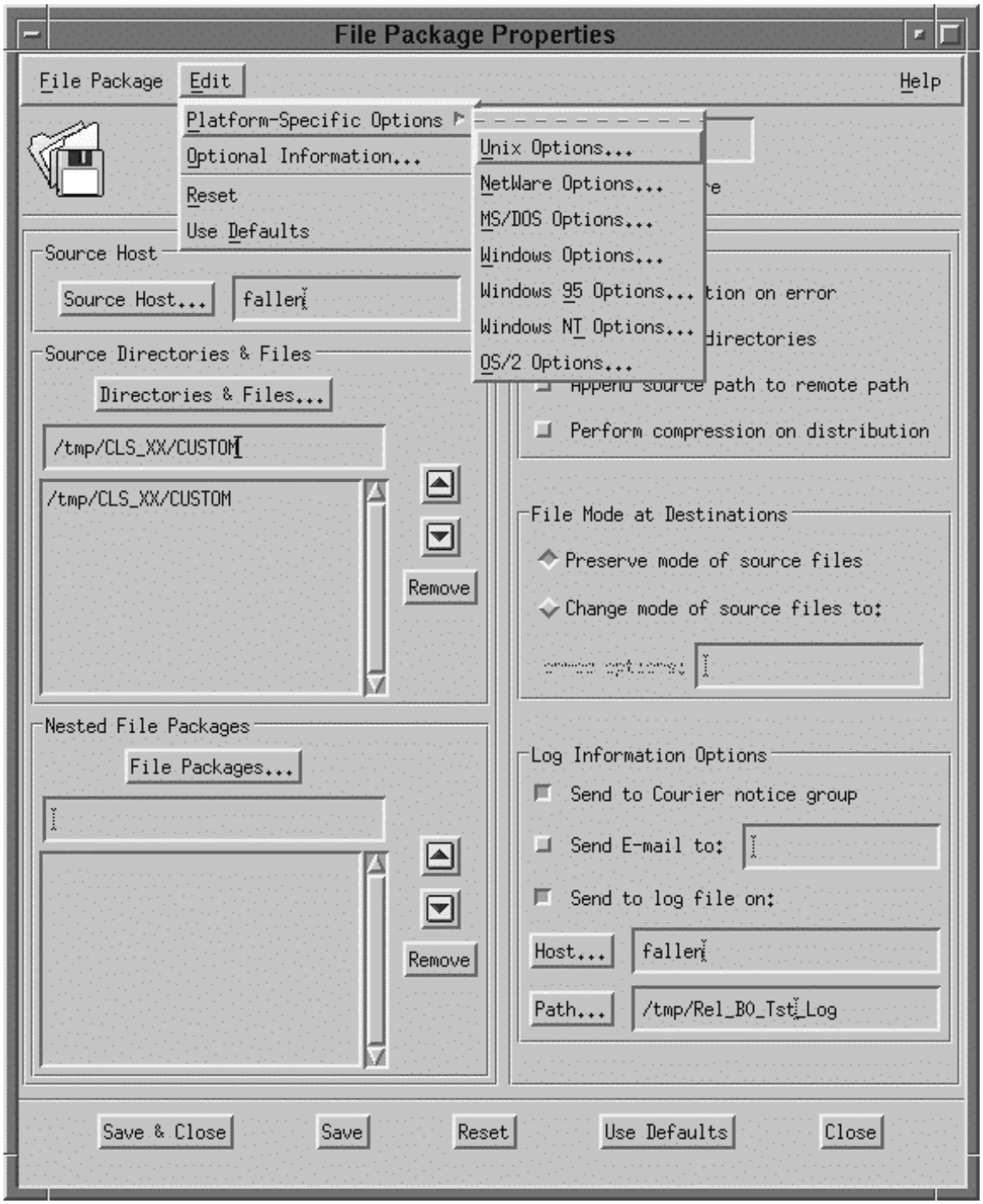

Figure 4.3.5-14. T/Courier Edit Menu of File Package Properties Pop-up

On the File Package UNIX Options pop-up, enter the path in the Destination Directory Path box where the files are to be placed on the destination (receiving) host.

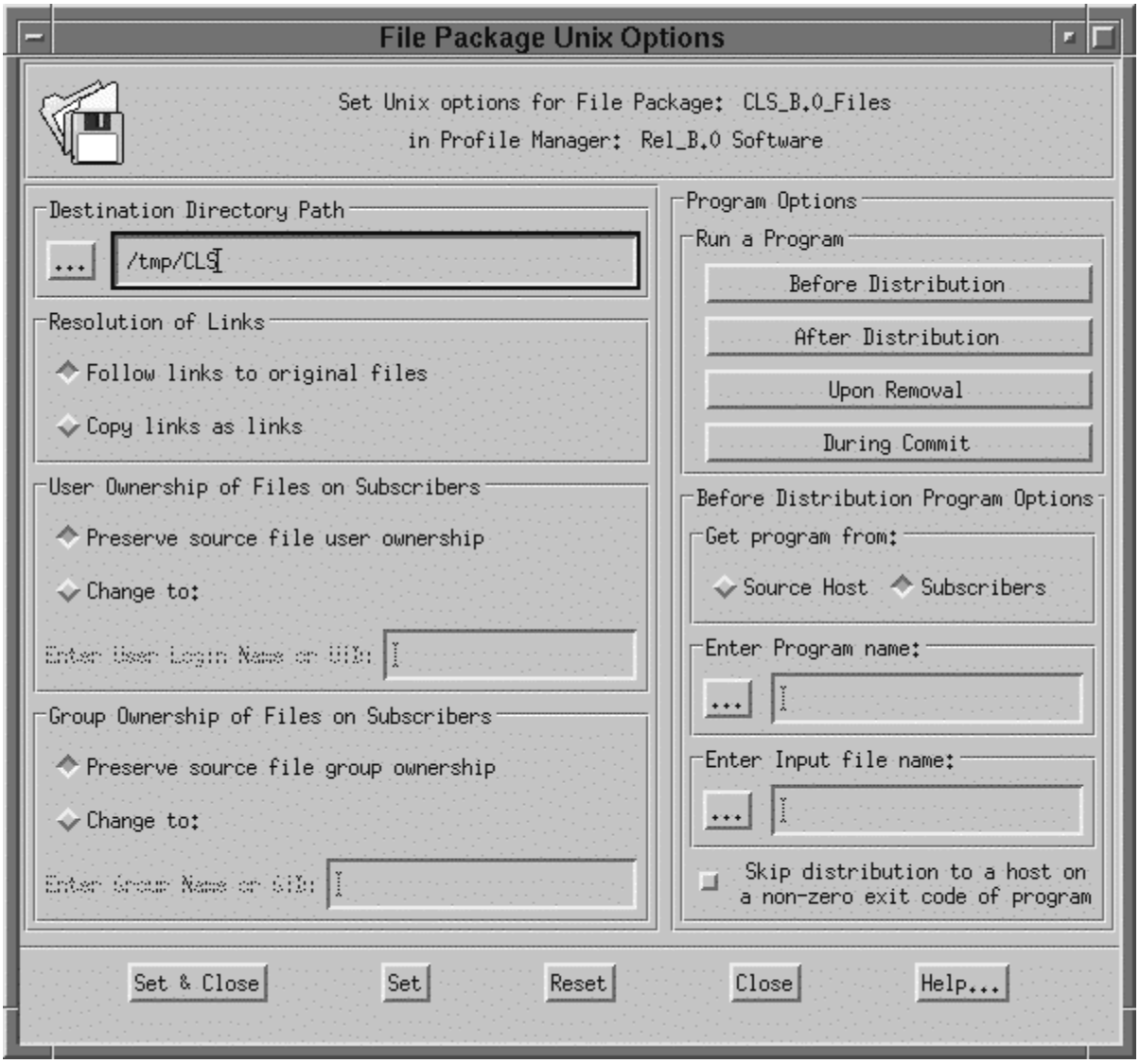

Figure 4.3.5-15. T/Courier File Package UNIX Options Pop-up

Note of caution: Make sure that the Destination Directory Path being entered is correct. T/Courier operates at the root level. If the specified directory/files names already exist on the destination platform, T/Courier will overwrite them. If the destination directory path does not exist on the destination platform, T/Courier will create the path and then install the files.

Allow the default selections (Follow links to original files; Preserve source file user ownership; and "Preserve source file group ownership) to stand or select options desired.

The "Program Options" enables an advanced T/Courier user to execute programs or UNIX scripts at some point during the distribution process. Refer to the T/Courier User's Manual for use of the

“Program Options.” Click the “Set & Close” button to store your entries and selections. On the File Package Properties pop-up, click the “Save and Close” button.

This concludes the definition of the file package.

4.3.5.2.7 Preview Profile

To preview an existing profile (file package) double click the desired profile’s icon on the Profile Manager Screen (see Figure 4.3.5-12). The File Package Properties pop-up (see Figure 4.3.5-13) is then displayed. This screen describes the software distribution rules at the source (e.g. the name of the source host, the path (s) to the source files, the General Options, the File Mode at Destinations option, and Log Information Options). If you change any of these options, click the "Save" button to store the change.

The software distribution rules for the destination (receiving) sites are described on the File Package Unix Options Screen. First click the Edit menu on the File Package Properties pop-up (see Figure 4.3.5-14). Select the Platform-Specific Options and then the UNIX Options. The File Package Unix Options screen (see Figure 4.3.5-15) is displayed and shows the file package options for the receiving site. If you change any of the options, click the "Set and Close" button to store the change. T/Courier brings you back to the File Package Properties screen. Click the "Save and Close" button to store all changes. If no changes were made, just click the "Close" button. T/Courier brings you back to the Profile Manager Screen.

4.3.5.2.8 Select Subscribers

Subscribers (hosts) that will receive the profile, must be identified for the profile manager. On the Profile Manager pop-up, click the Profile Manager menu and select the “Subscriber” option (as shown in Figure 4.3.5-16) to identify subscribers for the profile manager, “Rel_B.0 Software.”

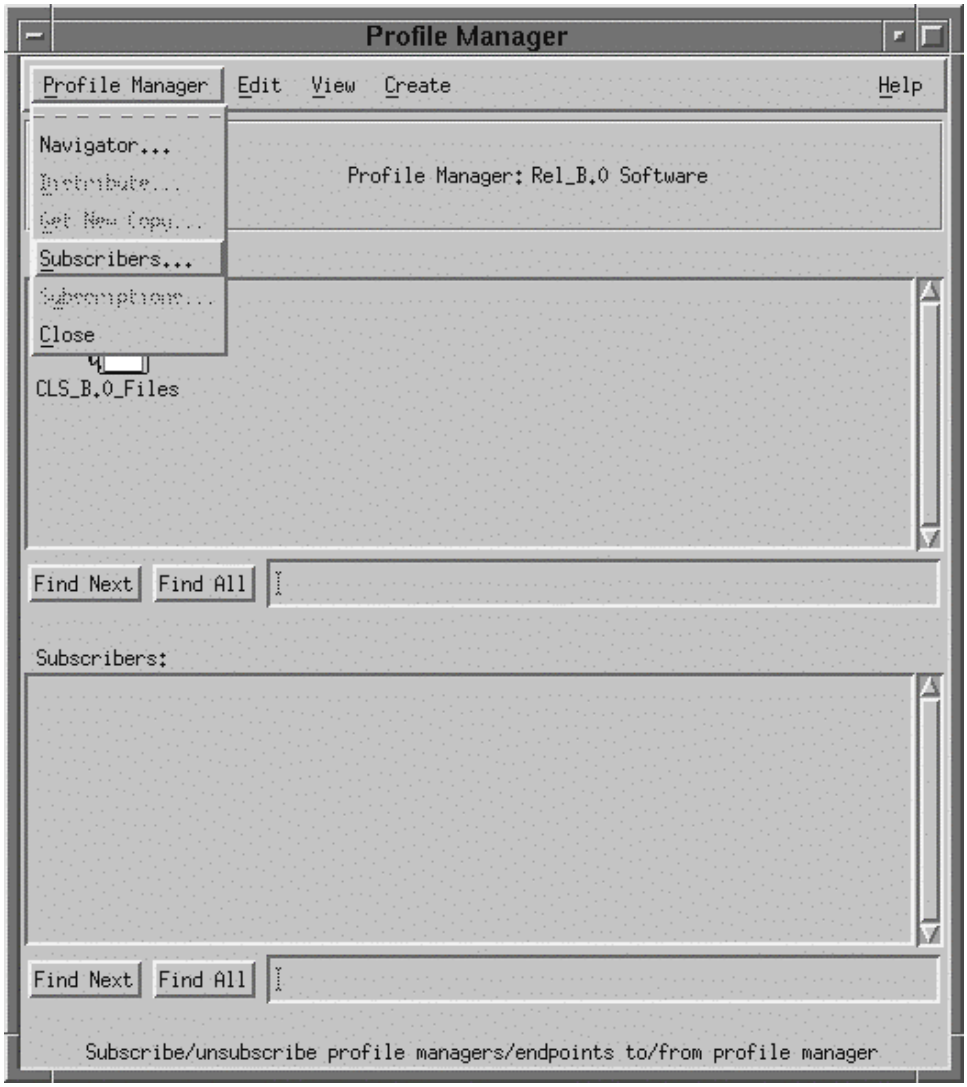

Figure 4.3.5-16. T/Courier Profile Manager Menu of Profile Manager Pop-up

Upon selection of the Subscribers option, the Subscribers pop-up is displayed. Select and move appropriate subscribers from the "Available to become Subscribers" side to the "Current Subscribers" side of the Subscribers pop-up. For software distribution purposes, the appropriate "Managed_Node" should be moved to the Current Subscribers side. [Note, the "Current Subscribers" side is always initially blank. Figure 4.3.5-17 shows subscribers that have already been moved to the "Current Subscribers" side.] Click the "**Set Subscription & Close**" button to save your selections.

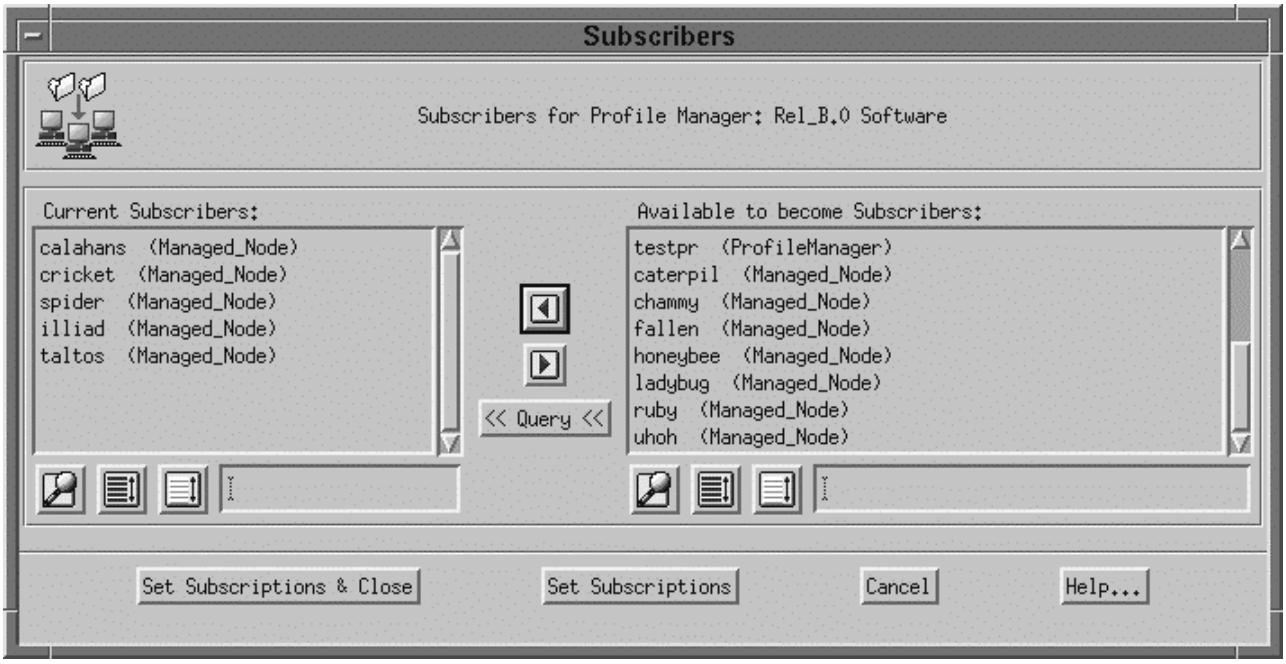

Figure 4.3.5-17. T/Courier Set Subscribers Pop-up

The Profile Manager, Rel_B.0 Software, now consists of a profile and a set of subscribers as shown in Figure 4.3.5-18.

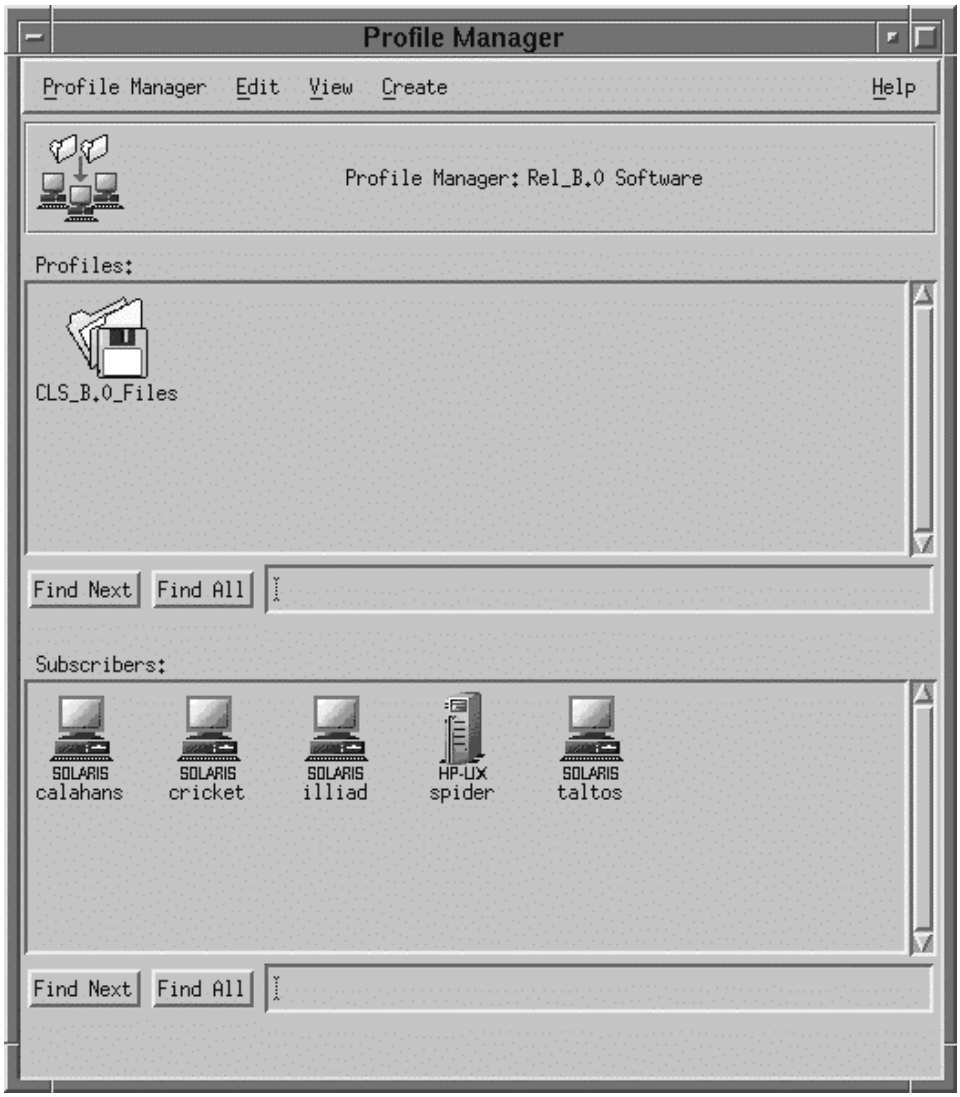

Figure 4.3.5-18. T/Courier Complete Profile Manager Pop-up

4.3.5.2.9 Distribute Software

Once a profile has been defined, software distribution can take place. On the Profile Manager Screen, First click the profile's icon and then click the appropriate subscriber(s) icon. See Figure 4.3.5-19. Next, click Profile Manager menu and select the Distribute option. In Figure 4.3.5-19 the profile, CLS_B.0_Files, and a subscriber, calahans, have been selected.

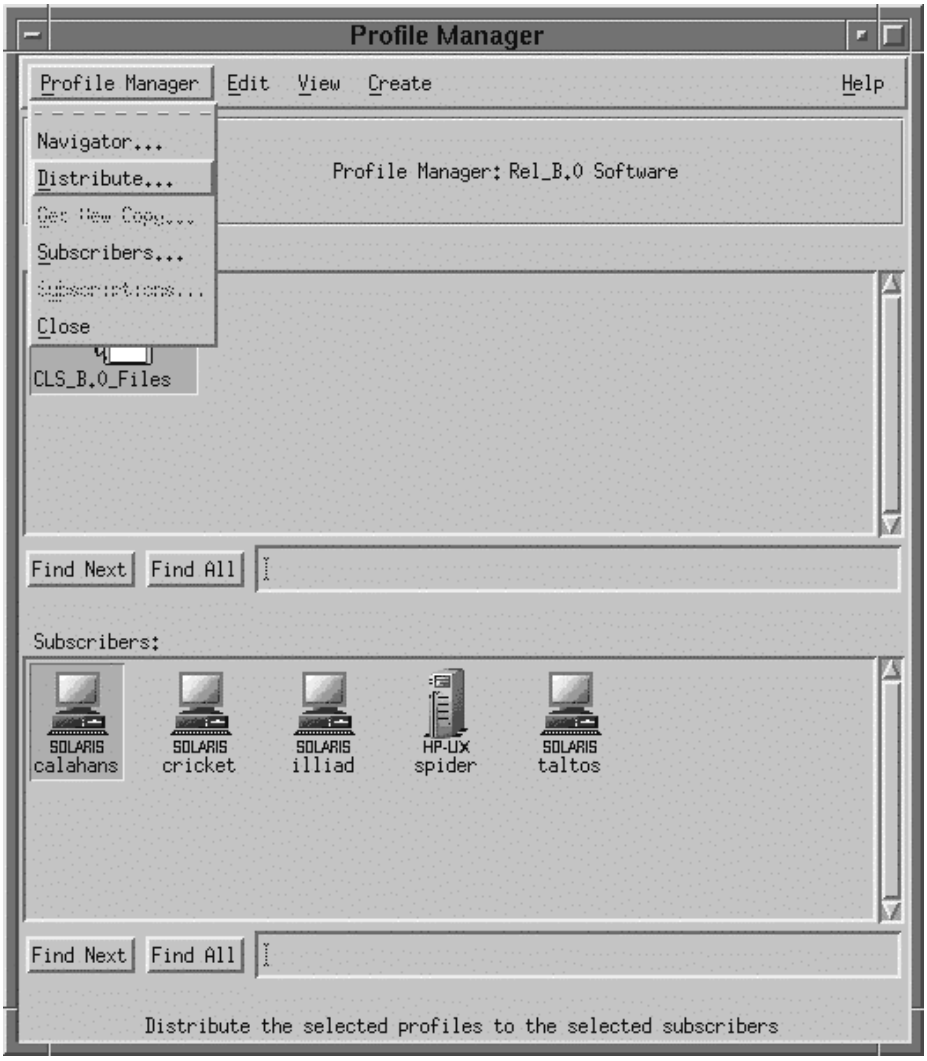

Figure 4.3.5-19. T/Courier Distribution Option of Profile Manager Pop-up

The “Distribute Profiles” pop-up is displayed as shown in Figure 4.3.5-20. Click the “**Distribute Now**” button to initiate distribution activity immediately.

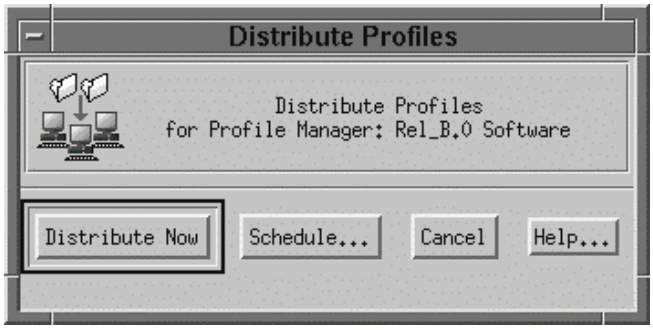

Figure 4.3.5-20. T/Courier Distribution Profiles Pop-up

When the “Distribute Profiles” pop-up disappears, the distribution activity is completed.

4.3.5.2.10 Schedule Distribution

Note, that there is also a “**Schedule**” button in Figure 4.3.5-20. This button enables the scheduling of distribution to occur at some other time. Click the "Schedule…" button if you want the software distribution to occur at some future time, e.g. during off hours. When you click the "Schedule…" button, the Add Scheduled Job screen shown in Figure 4.3.5-21 is displayed. Enter a descriptive name in the Job Label: box, set the date and time in the Schedule Job For: box, select the "Log to File:" option in the When Job Completes: box and enter the Host name and the File name. Then click the "Schedule Job & Close" button. The Add Scheduled Job screen is removed and the Profile Manager Screen is brought to the foreground. The distribution is now scheduled to occur at the specified time and the results will be posted in the specified Log. Refer to the T/Courier User's Manual for information about the other capabilities that can be initiated through use of the Add Scheduled Job screen.

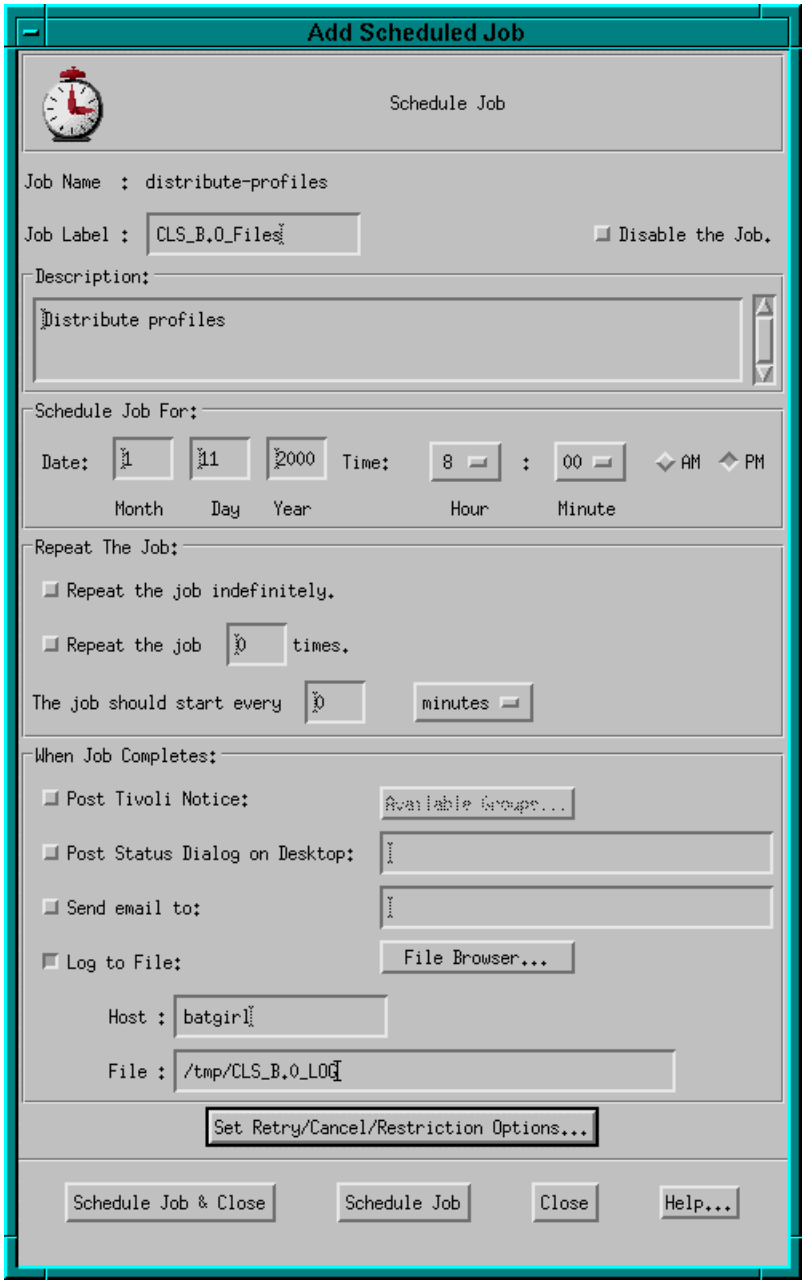

Figure 4.3.5-21. T/Courier's Add Scheduled Job Screen

4.3.5.2.11 Check Status of Software Distribution

Go back to the T/Courier main pop-up and check the Operation Status box for results of the distribution. See Figure 4.3.5-22 for an example of the Operation Status display. For a detailed description of the distribution process, check the log file.

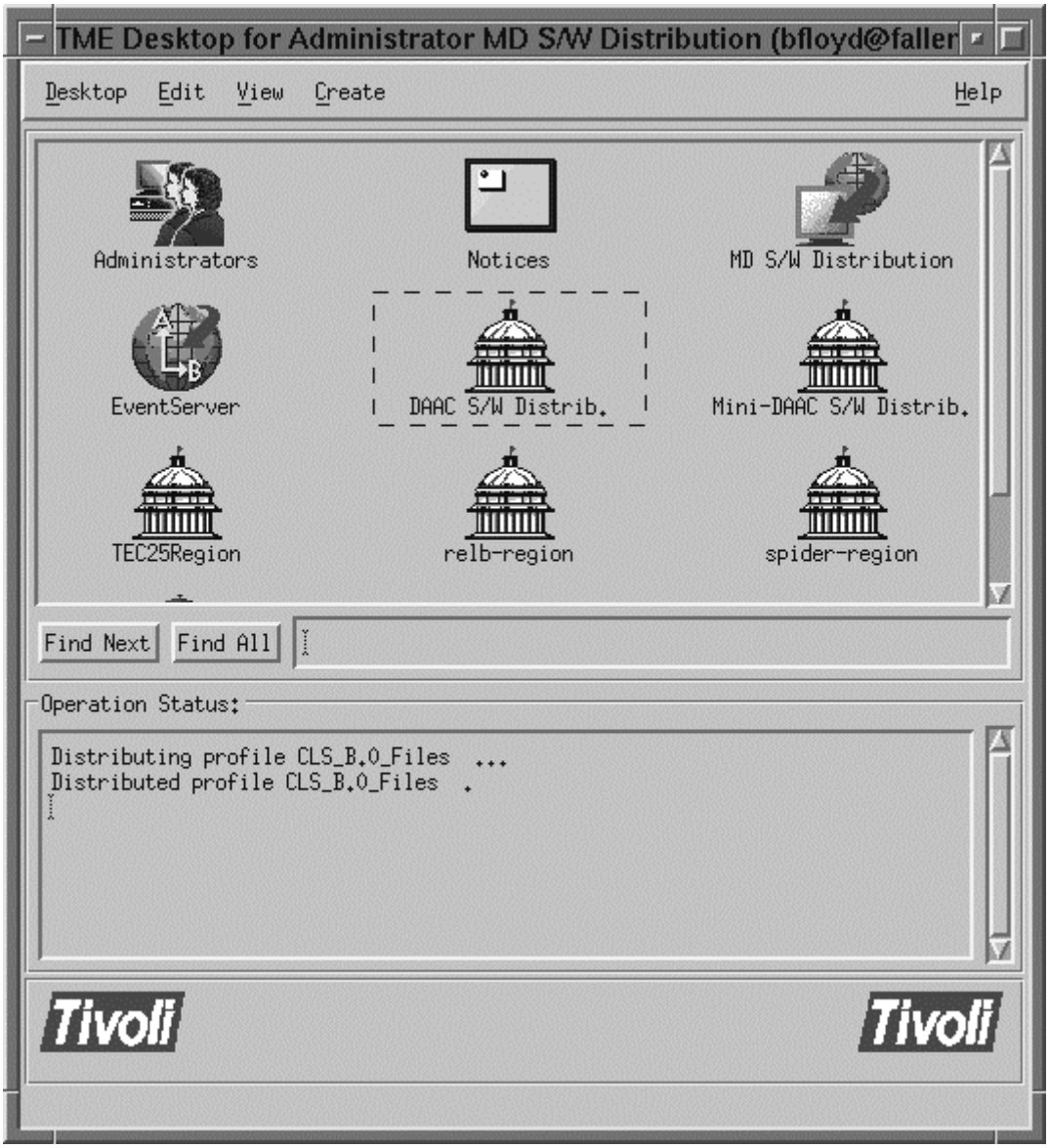

Figure 4.3.5-22. T/Courier Distribution Status of Main Screen

The Log file (if set up on the File Package Option pop-up as in Figure 4.3.5-13) will always provide a more definitive description of the distribution process. For example, contents of the logfile, Rel_B0_Tst_Log, for the above distribution are shown in Figure 4.3.5-23:

```
File Package:  "CLS_B.0_Files  "

Operation:     install  (m=5)

Finished:      Fri Jun 13 10:39:28 1997

--------

Source messages:

<none>

--------

calahans:SUCCESS

/tmp/CLS   : creating path

================
```

Figure 4.3.5-23. Contents of the logfile, Rel_B0_Tst_Log

This log file's content indicates that the software distribution to the subscribing host, calahans, was successful. If an error occurs during distribution and/or the distribution is not successful, the log file will contain a detailed message concerning the problem and it will indicate that the software distribution to the listed platform failed.

4.3.5.2.12 Creating Additional Profiles

Additional profiles for a profile manager can be created by repeating the aforementioned procedure or by making clones of the profile created previously. Cloning a profile produces a duplicate of the profile being cloned in terms of its definition. If there are a large number of profiles that have to be created with the same settings but different source directory and files and/or destination directory, cloning will save time a lot of profile preparation time and insure settings consistency among the profiles.

To clone a previously created profile, click and highlight the profile to be cloned as shown on the Profile Manager's pop-up (Figure 4.3.5-24). Then click the "Edit" menu on that pop-up.

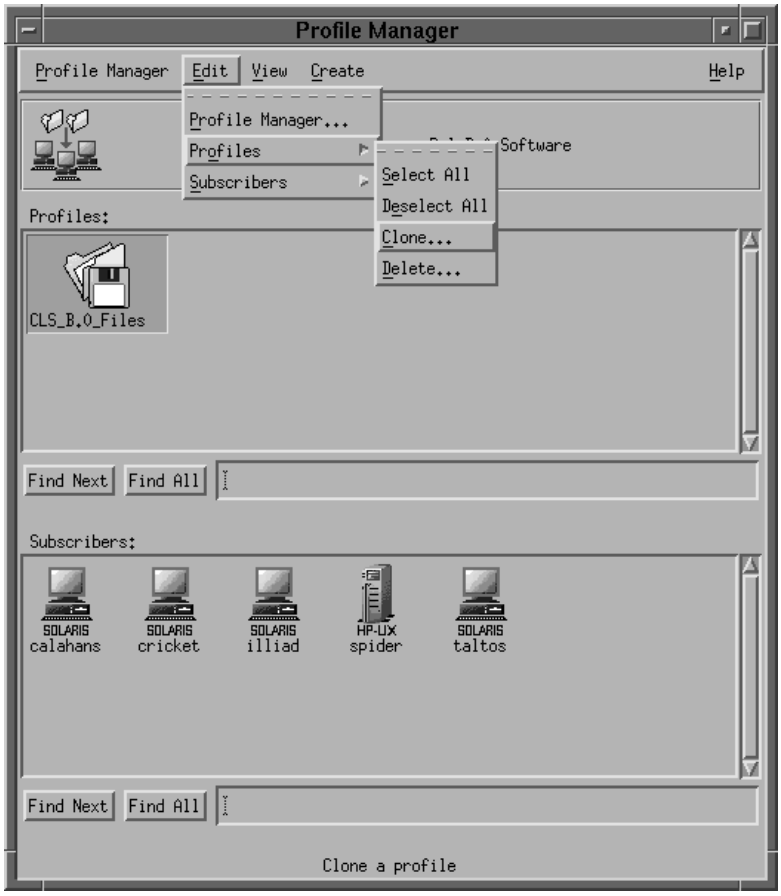

Figure 4.3.5-24. T/Courier Clone Option of Profile Manager Pop-up

On the drop down menu, click the “Profiles” option and then click the “Clone” option on the next drop down menu. The “Clone Profile” pop-up will appear as shown in Figure 4.3.5-25. The “Clone Profile” pop-up enables one to create one clone and then close the screen or one can create many clones before closing the screen. If there are more than one clone to be created, enter the name of the new profile into the “Name” box and click the clone button. The newly created profile will appear on the “Profile Manager” pop-up (see Figure 4.3.5-26) and the “Clone Profile” pop-up’s Name/Icon Label box will be cleared so that another new profile’s name can be entered. Repeat this process until all of the profiles have been created.

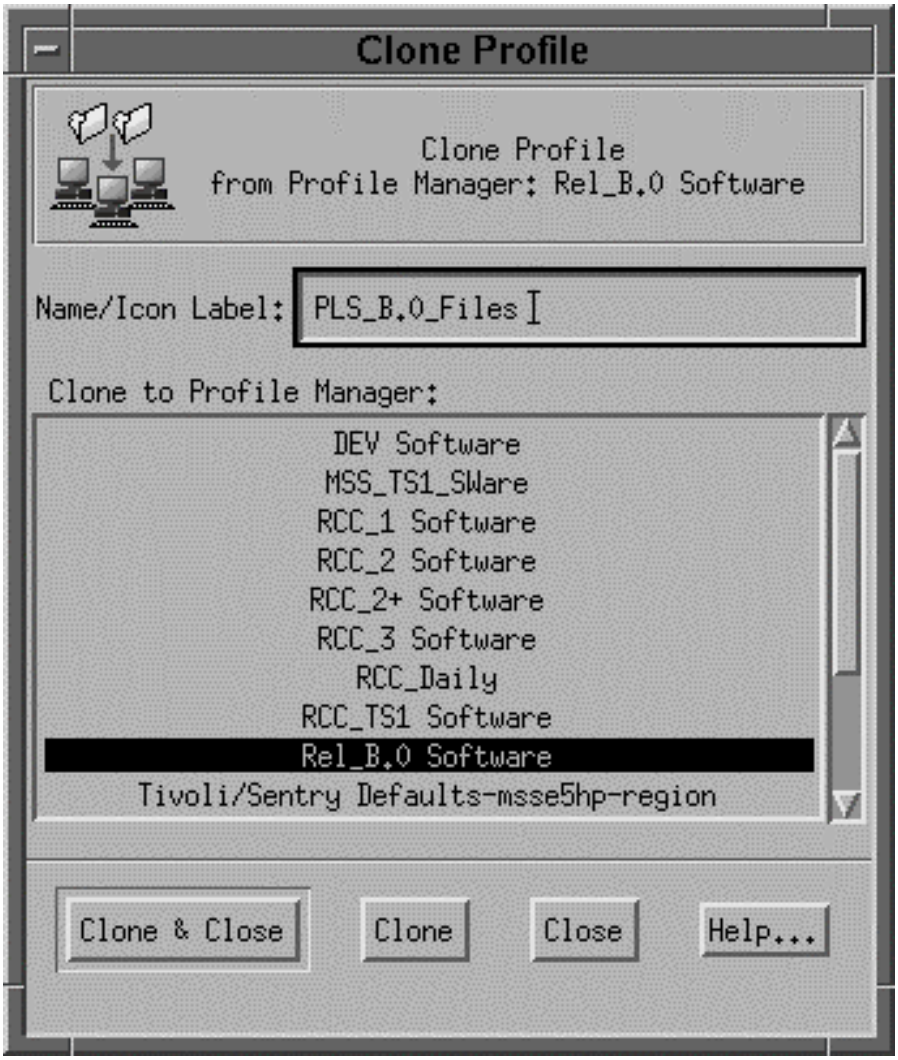

Figure 4.3.5-25. T/Courier Clone Profile Pop-up

When the name of the last profile has been entered, click the "**Clone and Close**" button. If there is only one clone to be created, enter the name of the new profile into the "Name/Icon Label" box and then click the "**Clone and Close**" button. The newly created profiles will be displayed on the Profile Manager pop-up and this completes the creation process.

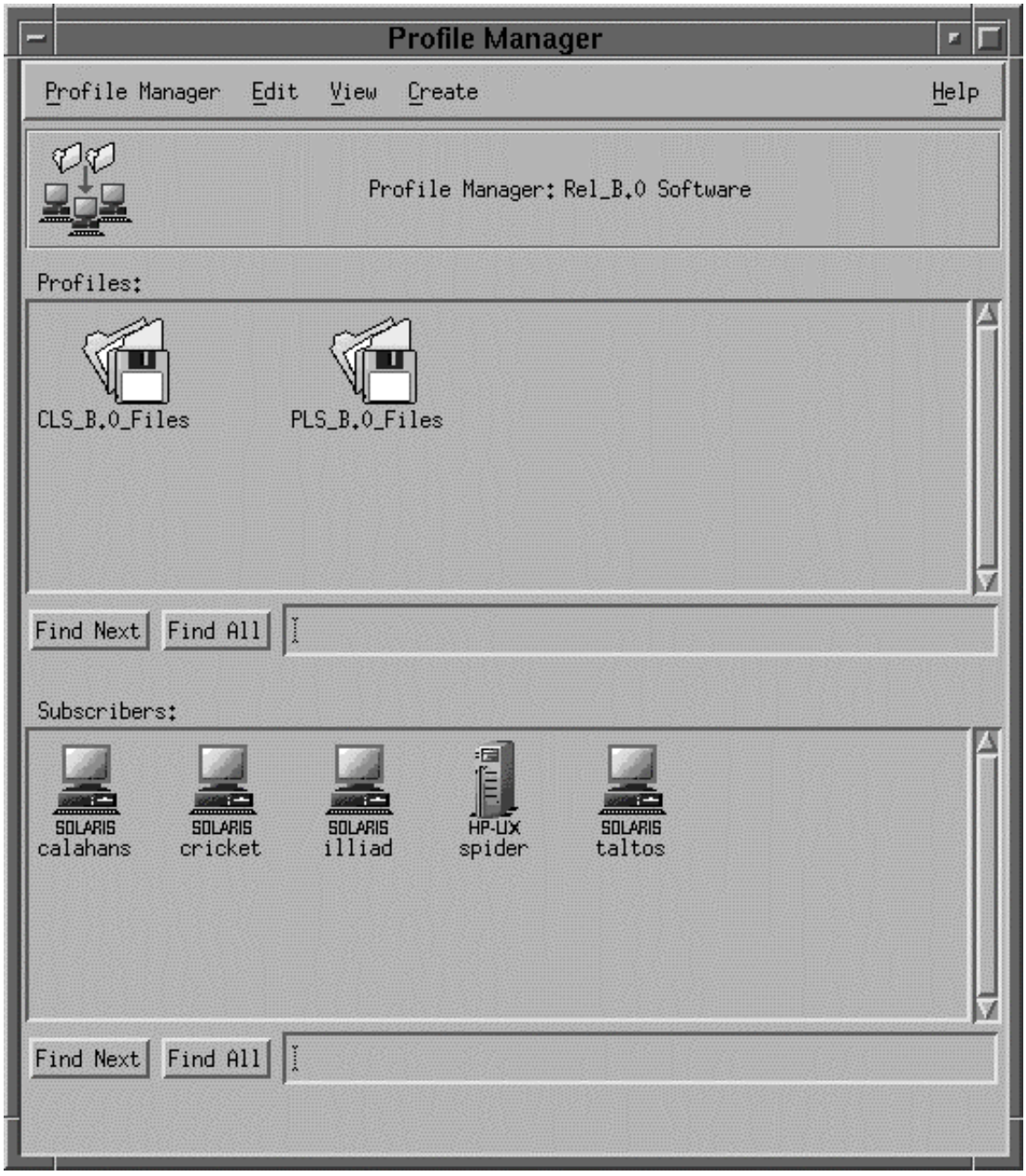

Figure 4.3.5-26. T/Courier Profile Clone display of the Main Screen

Now, the definition of the clone profile has to be revised before it can be used in software distribution activity. For each clone profile, click the profile's icon and bring up its File Package Properties pop-up (as described in Section 4.3.5.2.5) revise the source directory/files section. Then bring up the File Package Unix Options pop-up (as described in Section 4.3.5.2.6) and revise the destination directory path if necessary. Once the source directory/files and the

destination path has been appropriately revised, the profile is ready to be used in software distribution activity.

4.3.5.2.13 Remove a File Package

A distributed File Package can also be removed from the destination platform through use of T/Courier. To remove a file package go to the Profile Manager screen and place the mouse arrow on the icon of the file package to be remove. Click the right mouse button and a drop down menu will appear. Select the "Remove From Hosts…" option as shown in Figure 4.3.5-27. The Remove File Package screen is then displayed as shown in Figure 4.3.5-28.

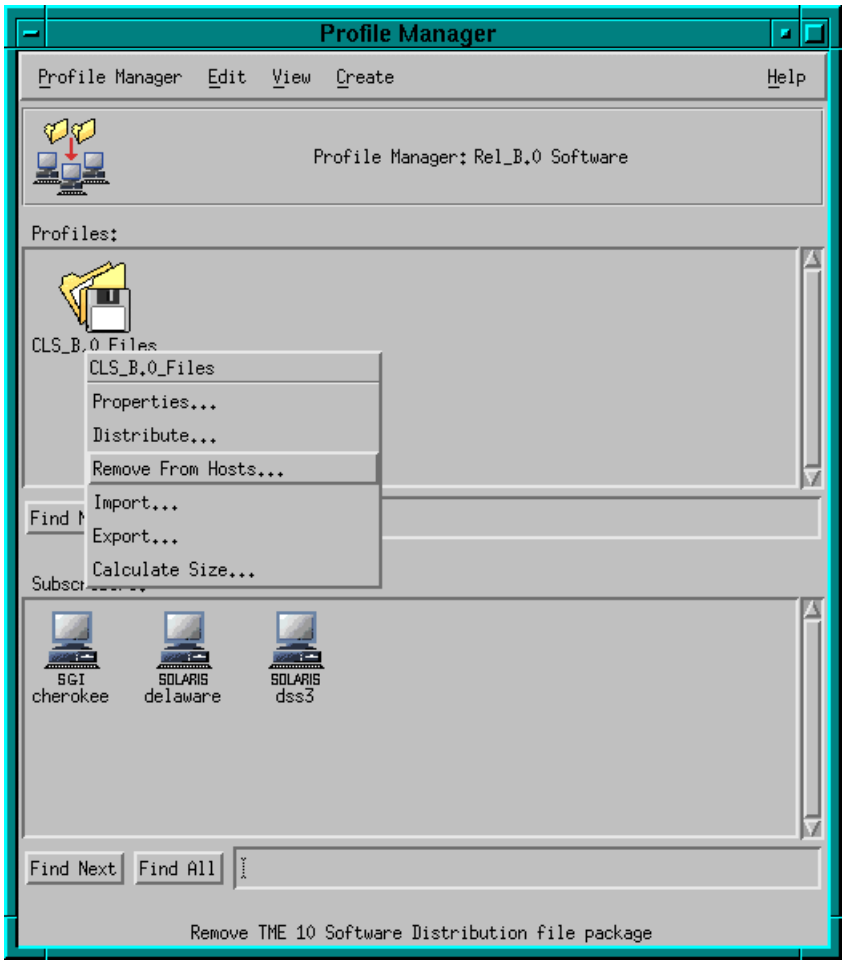

Figure 4.3.5-27. Profile Manager (Remove from Hosts option) Screen

On the Remove File Package screen, move the name of the target platform (s) from the "Available Subscribers" box to the "Remove File Package From:" box. Click the "Remove and Close" button.

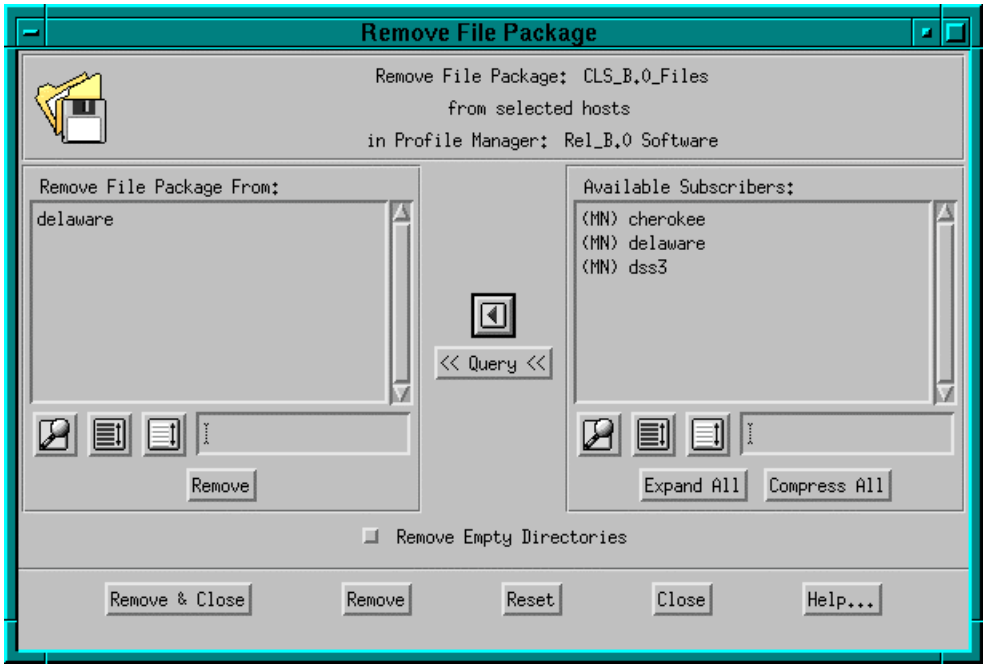

Figure 4.3.5-28 Remove File Package Screen

T/Courier will then remove all directories and files (previously distributed via the subject file package) from the platform (s) listed in the Remove File Package From: box on the Remove File Package screen. Check the Log file (set up on the File Package Properties screen, Figure 4.3.5-13) for the results of the file package removal activity.4.3.5.3 Required Operating Environment

T/Courier requires a UNIX platform as the source files' host. The target or destination platforms can be UNIX platforms or PC's. ECS T/Courier is used on Sun hosts (Solaris 2.5 OS), Hewlett Packard hosts (HP 10.0.1 OS), and SGI (SGI Irix 6.2) hosts.

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

4.3.5.4 Databases

Tivoli maintains a proprietary data store. Tivoli data is only accessible through the GUI described in Section 4.3.5.2.

4.3.5.5 Special Constraints

The operator must have Tivoli Administrator privileges to create the regions and associated components.

4.3.5.6 Outputs

Outputs consist of T/Courier information displayed on the GUIs discussed in Section 4.3.5.2, updates the Tivoli data store, and event and error messages discussed in Section 4.3.5.7.

4.3.5.7 Event and Error Messages

All event and summary error messages are displayed in the Operation Status box, main screen. Detailed messages would be placed in the log file, if one is established as described in Section 4.3.5.2.5.

4.3.5.8 Reports

None.

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4.3.6 FLEXlm

FLEXlm is a commercially available network license management product that helps the ECS M&O staffs at the DAACs, EOC, and SMC administer licenses and enforce licensing provisions for FLEXlm-enabled COTS software at the site. 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. FLEXlm handles floating (concurrent use) licenses, node locked licenses, and combinations of the two.

FLEXlm processing elements include license manager daemons, vendor daemons, license files, and FLEXlm-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 FLEXlm client software to request licenses in order to run.

FLEXlm 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 4.3.6-1 summarizes the operating functions that FLEXlm supports.

Table 4.3.6-1. Common ECS Operating Functions Performed with FLEXlm (1 of 2)

Operating Function	Function Name	Description	When and Why to Use
Start license manager	lmgrd	Starts FLEXlm'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 4.3.6-1. Common ECS Operating Functions Performed with FLEXlm (2 of 2)

Operating Function	Function Name	Description	When and Why to Use
Install decimal format licenses	lminstall	Converts licenses between decimal and readable formats and between different versions of FLEXlm 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.
Switch to new report log	lmswitchr	Causes the license servers to use a new or different file as the report log.	Not used. Report logs can be read only by the FLEX*admin* product. FLEX*admin* is not provided in ECS due to security constraints (i.e., use of remote shell utilities).
Verify accuracy of license file	lmcksum	Performs a checksum of a license file	Used anytime to verify data entry errors in a license file
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 FLEXlm version of a library of binary files.	Used anytime to determine what version of FLEXlm a FLEXlm-enabled product uses

4.3.6.1 Quick Start Using FLEXlm

Operators interact with FLEXlm via the license manager daemons and license files. FLEXlm'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.

4.3.6.1.1 Command Line Interface

To start FLEXlm license server daemons in a consistent, predictable manner, execute the following startup script:

```
/etc/init.d/lmgrd  start
```

Before it invokes FLEXlm's "lmgrd" program, the script adds the extension ".old" to the current FLEXlm 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., "/usr/local/flexlm/licenses/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 /etc/opt/licenses/lmgrd.ste  -c license_file  -l logfile  -2  -p  &  (SUNs only)

su  flexlm  -c /etc/opt/licenses/lmgrd      -c license_file  -l logfile  -2  -p  &  (SGIs only)
```

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

```
lmdown
```

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

```
/etc/init.d/lmgrd  stop
```

Table 4.3.6-2 summarizes commands available with FLEXlm. See Chapter 6 of the *FLEXlm End User Manual* for the complete description of each command and its arguments.

Table 4.3.6-2. Command Line Interfaces (1 of 2)

Command Line Interface	Description and Format	When and Why Used
lmcksum	lmcksum [-c *license_file*]	To verify license file data
lmdiag	lmdiag [-c *license_file*] \ [-n] [*feature*]	To diagnose problems when a license cannot be checked out
lmdown	lmdown [-c *license_file*] [-q]	To shutdown all license daemons (both lmgrd and all vendor daemons) on all nodes.
lmgrd	lmgrd [-app] [-c *license_file*] \ [-t *timeout_interval*] [-l *logfile*] \ [-s *timestamp_interval*] [-2 -p] [-v] \ [-x lmdown] [-x lmremove]	To run the main daemon program for FLEXlm
lmhostid	lmhostid [-n]	To determine the hostid of a system
lminstall	lminstall [-i {*infile* | -}] [-o *outfile*] \ [-overfmt {2 | 3 | 4 | 5 | 5.1 | 6}] \ [-odecimal]	To convert licenses between decimal and readable formats and between different versions of FLEXlm formats.
lmremove	lmremove [-c *file*] *feature user host* \ *display* or lmremove [-c *file*] -h *feature host* \ *port handle*	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 checkouts the license again after it is freed by lmremove.)
lmreread	lmreread [-c *license_file*] \ [–vendor *name*]	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.
lmswitchr	lmswitchr [-c *license file*] *feature* \ *new-file* or lmswitchr [-c license file] *vendor* \ *new-file* *(v5.0+ onl)*	To start recording license events in a new or different log file for the FLEX*admin* tool

Table 4.3.6-2. Command Line Interfaces (2 of 2)

Command Line Interface	Description and Format	When and Why Used
lmstat	lmstat [-a] [-A] [-c *license_file*] \ [-f *feature*] [-i [*feature*]] \ [-S *vendor*] [-s *hostname*] \ [-t *value*]	To report the status of all network licensing activities
lmver	lmver *filename*	To identify the FLEXlm version of a library or binary file.

4.3.6.2 FLEXlm Main Screen

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

4.3.6.3 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 FLEXlm, refer to the ECS Baseline Information System web page, URL http://cmdm.east.hitc.com/.

4.3.6.3.1 Interfaces and Data Types

The ECS fault management tool, Tivoli, monitors FLEXlm's event logs, error logs, and debug file in order to notify operators when activity of interest has occurred. Tivoli interrogates the log file frequently, searching new messages for text strings that match pre-determined criteria. When one is found, the operator is notified via the Tivoli Enterprise Console (TEC). TEC is explained in section 4.2.2. Table 4.3.6-3 lists FLEXlm's interfaces for Version 2.0.

Table 4.3.6-3. Interface Protocols

Interface	Type of Primary Interface Protocols	Comments
Tivoli	ASCII Log file	Tivoli's log file adapter monitors the FLEXlm debug file in order to notify operators when interesting licensing events occur.

4.3.6.4 Databases

FLEXlm 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 FLEXlm 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 chapter 2 of the *FLEXlm End User Manual* for information about the format of a license file, and refer to chapter 3 about 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. FLEXlm 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 chapter 5 of the *FLEXlm End User Manual* for details.

4.3.6.5 Special Constraints

FLEXlm cannot be run without one or more license files, and most FLEXlm 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, FLEXlm 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 */usr/local/flexlm/licenses/license.dat* is assumed.

The *FLEXlm End User Manual* 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 Section 1.1.1 of the FLEXlm *End User* Manual.

- Run lmgrd as a non-privileged user (not *root)* to avoid security risks. Refer to Section 6.4 of the FLEXlm *End User* Manual

Also, re-use the old pathname when creating a new debug file, if possible. Tivoli monitors the file in order to notify operators when significant licensing events occur. Changing the pathname requires a corresponding change in the configuration of Tivoli's log file adapter. See section 4.2.2.3.1 for more information.

4.3.6.6 Outputs

FLEXlm's principal outputs are inter-process communications with COTS applications attempting to check out and check in FLEXlm 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.

4.3.6.7 Event and Error Messages

FLEXlm 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 FLEXlm log at the site.

Appendix D of the *FLEXlm End User Manual* lists what causes the more common messages an operator may encounter, but primarily those written by the FLEXlm programs. Event and error messages logged by FLEXlm-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.

4.3.6.8 Reports

FLEXlm's *lmstat* utility can generate the status reports listed in Table 4.3.6-4. 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 4.3.6-4. Reports

Report Type	Report Description	Example
lmstat -s	Lists status of clients running on a named host	Figure 4.3.6-1
lmstat -i	Lists license information about all or a named feature	Figure 4.3.6-2
lmstat -a	Lists all information about current network licensing activities	Figure 4.3.6-3
lmstat -A	Lists all currently active licenses	Figure 4.3.6-4
lmstat -f	Lists users of all or a named feature	Figure 4.3.6-5
lmstat -S	Lists users of all or a named vendor's features	Figure 4.3.6-6

Note: FLEXlm documentation refers to a report log and a set of license administration reports associated with a companion product, FLEX*admin*. FLEX*admin* is not part of the ECS deployment. *lmstat* does not use the "report log" and does not produce FLEX*admin* reports.

4.3.6.8.1 Sample Reports

The figures that follow contain sample FLEXlm status reports. One sample is provided for each report listed in Table 4.3.6-4.

```
lmstat - Copyright (C) 1989-1998 Globetrotter Software, Inc.
Flexible License Manager status on Fri 4/9/1999 10:54

License server status: 1744@jupi,1744@intrepid,1744@enterprise
    License file(s) on jupi: /usr/local/flexlm/licenses/license.dat:

      jupi: license server UP v6.1
  intrepid: license server UP (MASTER) v6.1
enterprise: license server UP v6.1

Vendor daemon status (on intrepid):

   xnidaem: UP v6.0
       IDE: UP v4.1
  rational: UP v6.0
   setechd: UP v6.1
 idl_lmgrd: UP v6.1
     ICSBX: UP v3.0
    ncdlmd: UP v4.1
   dmccabe: UP v5.11
  suntechd: UP v4.1
   cayenne: UP v5.12
```

Figure 4.3.6-1. All Clients (lmstat -s) Report

```
lmstat - Copyright (C) 1989-1998 Globetrotter Software, Inc.
Flexible License Manager status on Fri 4/9/1999 10:55

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
_______               _______  __________    _______             ______
xni                       1.0          6       1-jan-0xnidaem
stpcore                 2.000         56       31-dec-00      IDE
omt                     3.000         50       31-dec-00      IDE
bach                    2.000          3       31-dec-00      IDE
imtbl                   2.000          3       31-dec-00      IDE
crud                    2.000          3       31-dec-00      IDE
sqlgen                  2.000          3       31-dec-00      IDE
se                      6.000          3       31-dec-00      IDE
se_reveng               6.000          1       31-dec-00      IDE
se_cbrowse              6.000          1       31-dec-00      IDE
rose.ada.unix           5.000         10       01-jan-00      rational
rose.c++.unix           5.000         10       01-jan-00      rational
rose.java.unix          5.000         10       01-jan-00      rational
rose.modeler.unix       5.000         10       01-jan-00      rational
ada.sun4                2.000         30       01-jan-00      rational
apex.sun4.self_target.c 2.000         30       01-jan-00      rational
asis                    2.000         30       01-jan-00      rational
env_base.sun4           2.000         30       01-jan-00      rational
rose.cpp.sun4           4.000         50       01-jan-00      rational
soda                    2.000         50       01-jan-00      rational
summit_base.sun4        2.000         30       01-jan-00      rational
summit_cm.sun4          2.000         30       01-jan-00      rational
summit_tm.sun4          2.000         30       01-jan-00      rational
ddts                    4.1          10000   31-oct-2002    rational
APEX_CPPT.sun4          2.000         30       01-jan-00      rational
Admin                   7.000          6       1-jan-0setechd
Modularity              7.000         30       1-jan-0setechd
                                       .
                                       .
                                       .
Extract                 7.000          2       1-jan-0setechd
DISCOVER                7.000         30       1-jan-0setechd
idl                     5.200        200       1-jan-0000     idl_lmgrd
insight                 2.000         20       1-jan-0000     idl_lmgrd
BuilderXcessory         3.000         17       01-jan-00      ICSBX
BuilderXcessory         5.000          4       01-jan-00      ICSBX
DatabaseXcessory        1.000          5       01-jan-00      ICSBX
Adobe-DPS-Extension     1.000        100       1-jan-0ncdlmd
mwm                     1.000        100       1-jan-0ncdlmd
GLX                     1.000         20       1-jan-0ncdlmd
X3D-PEX                 1.000         20       1-jan-0ncdlmd
XIE                     1.000         20       1-jan-0ncdlmd
mvt                     6.000          6       31-dec-2008    dmccabe
procompiler.c           3.000          1       01-jan-0       suntechd
procompiler.c           4.200          1       01-jan-0       suntechd
                    .
```

Figure 4.3.6-2. License Information (lmstat -i) Report

```
lmstat - Copyright (C) 1989-1998 Globetrotter Software, Inc.
Flexible License Manager status on Fri 4/9/1999 10:57

License server status: 1744@jupi,1744@intrepid,1744@enterprise
     License file(s) on jupi: /usr/local/flexlm/licenses/license.dat:

       jupi: license server UP v6.1
  intrepid: license server UP (MASTER) v6.1
enterprise: license server UP v6.1

Vendor daemon status (on intrepid):

   xnidaem: UP v6.0
       IDE: UP v4.1
  rational: UP v6.0
   setechd: UP v6.1
 idl_lmgrd: UP v6.1
     ICSBX: UP v3.0
    ncdlmd: UP v4.1
   dmccabe: UP v5.11
  suntechd: UP v4.1
   cayenne: UP v5.12

Feature usage info:

Users of xni:  (Total of 6 licenses available)

Users of stpcore:  (Total of 56 licenses available)

Users of omt:  (Total of 50 licenses available)

Users of bach:  (Total of 3 licenses available)
                                                .
                                                .
                                                .
Users of ddts:  (Total of 10000 licenses available)

  "ddts" v4.1, vendor: rational
  floating license

    dwashing yakusaka /dev/pts/8 (v4.1) (jupi/1744 4001), start Mon 3/29 10:18 (linger: 1800)
    chunter borg /dev/pts/12 (v4.1) (jupi/1744 4606), start Tue 3/30 8:55 (linger: 1800)
    michelle stargazer /dev/pts/25 (v4.1) (jupi/1744 2013), start Mon 4/5 11:19 (linger:
1800)
    twicker pongo.hitc.com /dev/tty (v4.1) (jupi/1744 6231), start Mon 4/5 14:55 (linger:
1800)
                                                .
                                                .
                                                .
```

Figure 4.3.6-3. All Activities (lmstat -a) Report

```
lmstat - Copyright (C) 1989-1998 Globetrotter Software, Inc.
Flexible License Manager status on Fri 4/9/1999 10:57

License server status: 1744@jupi,1744@intrepid,1744@enterprise
  License file(s) on jupi: /usr/local/flexlm/licenses/license.dat:

   jupi: license server UP v6.1
 intrepid: license server UP (MASTER) v6.1
enterprise: license server UP v6.1

Vendor daemon status (on intrepid):

 xnidaem: UP v6.0
   IDE: UP v4.1
 rational: UP v6.0
 setechd: UP v6.1
idl_lmgrd: UP v6.1
  ICSBX: UP v3.0
  ncdlmd: UP v4.1
 dmccabe: UP v5.11
 suntechd: UP v4.1
 cayenne: UP v5.12

Feature usage info:

Users of xni:  (Total of 6 licenses available)

Users of stpcore:  (Total of 56 licenses available)
                                                    .
                                                    .
                                                    .
Users of rose.modeler.unix:  (Total of 10 licenses available)

 "rose.modeler.unix" v5.000, vendor: rational
 floating license

  perabell sydney ncdso23:0.0 (v5.0) (jupi/1744 1419), start Fri 4/9 10:12
  nchan sydney ncdp102:0.0 (v5.0) (jupi/1744 5838), start Fri 4/9 10:38

Users of ada.sun4:  (Total of 30 licenses available)

Users of apex.sun4.self_target.c++:  (Total of 30 licenses available)
                                                    .
                                                    .
                                                    .
Users of ddts:  (Total of 10000 licenses available)

 "ddts" v4.1, vendor: rational
 floating license

  dwashing yakusaka /dev/pts/8 (v4.1) (jupi/1744 4001), start Mon 3/29 10:18 (linger: 1800)
  chunter borg /dev/pts/12 (v4.1) (jupi/1744 4606), start Tue 3/30 8:55 (linger: 1800)
  michelle stargazer /dev/pts/25 (v4.1) (jupi/1744 2013), start Mon 4/5 11:19 (linger: 1800)
  twicker pongo.hitc.com /dev/tty (v4.1) (jupi/1744 6231), start Mon 4/5 14:55 (linger: 1800)
                                                    .
                                                    .
                                                    .
Users of Y2K:  (Total of 30 licenses available)

 "Y2K" v7.000, vendor: setechd
 floating license

  bhough deimos /dev/pts/3 (v7.0) (jupi/1744 429), start Fri 4/9 9:53
  yyang deimos /dev/pts/4 (v7.0) (jupi/1744 104), start Fri 4/9 10:17

Users of Metrics:  (Total of 30 licenses available)                                  .
                                      .
```

Figure 4.3.6-4. All Active Licenses (lmstat -A) Report

```
lmstat - Copyright (C) 1989-1998 Globetrotter Software, Inc.
Flexible License Manager status on Fri 4/9/1999 11:02

Users of ddts:  (Total of 10000 licenses available)

  "ddts" v4.1, vendor: rational
  floating license

    dwashing yakusaka /dev/pts/8 (v4.1) (jupi/1744 4001), start Mon 3/29 10:18 (linger: 1800)
    chunter borg /dev/pts/12 (v4.1) (jupi/1744 4606), start Tue 3/30 8:55 (linger: 1800)
    michelle stargazer /dev/pts/25 (v4.1) (jupi/1744 2013), start Mon 4/5 11:19 (linger:
1800)
    twicker pongo.hitc.com /dev/tty (v4.1) (jupi/1744 6231), start Mon 4/5 14:55 (linger:
1800)
                                          .
                                          .
                                          .
```

Figure 4.3.6-5. Users of Named Feature (lmstat -f) Report

```
lmstat - Copyright (C) 1989-1997 Globetrotter Software, Inc.□
Flexible License Manager status on Fri 4/9/1999 11:49□

DAEMONs in configuration file: xnidaem IDE rational setechd idl_lmgrd ICSBX ncdlmd dmccabe□
suntechd cayenne□
Users of features served by setechd:□
Users of Admin:  (Total of 6 licenses available)□

Users of Modularity:  (Total of 30 licenses available)□

Users of Delta:  (Total of 30 licenses available)□

Users of Package:  (Total of 30 licenses available)□

Users of AutoDoc:  (Total of 2 licenses available)□

Users of Dormant:  (Total of 1 licenses available)□

Users of Y2K:  (Total of 30 licenses available)□

 "Y2K" v7.000, vendor: setechd
 floating license

bhough deimos /dev/pts/3 (v7.0) (jupi/1744 429), start Fri 4/9 9:53
yyang deimos /dev/pts/4 (v7.0) (jupi/1744 104), start Fri 4/9 10:17

Users of Metrics:  (Total of 30 licenses available)

Users of C_CPP:  (Total of 30 licenses available)
                                          .
                                          .
Users of DISCOVER:  (Total of 30 licenses available)

 "DISCOVER" v7.000, vendor: setechd
 floating license

bhough deimos /dev/pts/3 (v7.0) (jupi/1744 1349), start Fri 4/9 9:53
yyang deimos /dev/pts/4 (v7.0) (jupi/1744 1236), start Fri 4/9 10:17
```

Figure 4.3.6-6. Users of Named Vendor's Features (lmstat-S) Report

4.3.7 iFOR/LS

iFOR/LS is a commercially available network license management product that helps the ECS M&O staff at the DAACs, EOC, and SMC administer licenses and enforce licensing provisions for iFOR/LS-enabled COTS software at the site. It enforces licensing provisions based on information from vendor-provided license keys and lets license administrators control and distribute licenses and permissions across multiple license servers. iFOR/LS handles numerous types of licenses, including floating (concurrent use), nodelocked, site, and metered licenses.

iFOR/LS consists of one or more license servers and the client software embedded in iFOR/LS-enabled applications. Each license server is a daemon (netlsd) that manages data about licenses belonging to that server. It grants licenses to applications that request them, if one is available and the requester is authorized. It also maintains records of network licensing events, some of which are copied, by an ECS-developed script, to a log monitored by the COTS product Tivoli so that operators can be notified when interesting events occur.

The license servers manage only "server-based" licenses. Server-based licenses allow products to be run on multiple nodes. Licenses for products run solely on a single node are called "nodelocked" and are maintained manually in an iFOR/LS file on the node. iFOR/LS license servers do not maintain or report information about nodelocked licenses or license activity.

iFOR/LS uses location broker services of the Network Computing System (NCS), which must be installed for iFOR/LS to work. Location brokers employ two types of daemons, global (glbd) and local (llbd), to manage replicatable databases about distributed services available on the network. iFOR/LS clients use the location broker to identify supporting license server(s), then request from the servers the licenses they need in order to run.

iFOR/LS license servers can be configured to run on multiple hosts, but licenses must be divided amongst the servers. While this achieves a measure of redundancy, licenses registered with a failed server are not available for use.

Table 4.3.7-1 summarizes the operator functions that iFOR/LS supports.

Table 4.3.7-1. Common ECS Operator Functions Performed with iFOR/LS (1 of 2)

Operating Function	User Interface	Description	When and Why to Use
Start license manager (section 4.3.7.1.1.1)	i4lmd	Starts the iFOR/LS license server daemon program.	Used to initiate license management server processes
Stop license manager (section 4.3.7.1.1.1)	n/a[1]		
Installing new licenses (section 4.3.7..2	i4admin	Displays and edits the license server database	Used anytime to put add or alter provisions for a license.
Deleting installed licenses (section 4.3.7..2)	i4admin	Displays and edits the license server database	Used anytime to remove a license from the system.
Audit installed licenses (section 4.3.7..2)	i4stat	Displays currently installed licenses	Used anytime to check details about iFOR/LS licenses installed on network servers.
Monitor network licensing activities (section 4.3.7..2)	i4stat	Provides various status information about licenses (other than nodelocked) and servers	Used anytime to check on licenses installed, licenses in use, and current users of licenses.
Review history of network licensing activities (section 4.3.7.1.1.1)	i4rpt	Generates various reports about license server events, and includes a facility for scrubbing the event log	Used anytime to review logged licensing events.
Troubleshoot problems serving licenses (section 4.3.7.1.1.1)	i4tv	Verifies that network license servers are functioning correctly	Used anytime on nodes containing a licensed product or license server to verify what IFOR/LS servers are active and that each can serve a license

[1] iFOR/LS does not provide operators a mechanism for shutting down a license server directly. However, HP OpenView provides a command, OVLNetLSDown, which stops the local iFOR/LS license server user to manage HP OpenView licenses. See the HP OpenView, Network Node Manager Products, Installation Guide (1995) for details.

Table 4.3.7-1. Common ECS Operator Functions Performed with iFOR/LS (2 of 2)

Operating Function	User Interface	Description	When and Why to Use
Obtain license password from vendor	i4target	Reports the unique identifier of a system	Used anytime to determine the target identifier that must be provided to vendors when obtaining a software license
Keep location broker databases synchronized	lb_admin	Registers NCS-based servers in location broker databases	Used anytime to inspect the contents of location broker databases and to correct database errors
	drm_admin	Checks and maintains the network-wide location broker database.	Used anytime to administer the replication of NCS location broker databases
Maintain "user" files	Unix edit program "vi"	Edits "user" files on license server hosts	Used anytime to update the "user" file to record individual user privileges and priorities for licensed product

4.3.7.1 Quick Start Using iFOR/LS

iFor/LS consists of several independent programs and a collection of daemons. The tool is not integrated and each of the programs must be started independently, as required. The collection of daemons is normally started at system boot-time, but the **i4ldm** program provides the ability to initiate the daemons, if necessary, during normal operations.

Certain activities such as removing or recovering an iFOR/LS database, changing the server license, or replacing a LAN card require shutting down the license manager. iFOR/LS does not provide a special command for doing this, but certain iFOR/LS applications such as HP OpenView do[2]. In the absence or failure of a shutdown command, send SIGTERM (kill -15) to the i4lmd process that is executing.

2 The HP OpenView command to stop the iFOR/LS license server is *OVLNetLSDown.* See the HP OpenView Network Node Manager Products Installation Guide.

iFOR/LS provides a command line interface for all functions and includes two screens, **i4admin** and **i4stat**[3], for real-time and historical reporting, license creation, and administration. The **i4admin** screen facilitates adding, editing, and removing vendor products and their license provisions from a license server database. The **i4stat** screen presents status information on product licenses. Table 4.3.7-2 in Section 4.3.7-3 below summarize iFOR/LS commands available to an operator.

The following documents describe how to use iFOR/LS:

- *iFOR/LS Quick Start Guide*[4]
- *iFOR/LS Quick Start Guide, Hewlett-Packard Version*[5]
- *iFOR/LS Administrator's Guide*[6]
- *iFOR/LS Installation Notes*
- *HP OpenView, Network Node Manager Products, Installation Guide, 1995*
- *Network License System Administration Guide (Silicon Graphics Computer Systems)*
- *AIX Version 4.1 iFOR/LS System Management Guide*
- *AIX Version 4.1 iFOR/LS Tips and Techniques*

Consult the iFOR/LS Administrator's Guide in particular. Its command reference section describes the format and use of iFOR/LS commands and configuration files as well as relevant NCS commands and files.

4.3.7.1.1 Invoking iFOR/LS From the Command Line Interface

Note: The license server for a node[7] starts automatically at boot time if the startup file contains the line, **START_I4LMD=1.** On HP-UX 10.x systems, the startup file is at /etc/rc.config.d/i4lmd. If it is necessary to restart the daemons, execute the iFOR/LS program from the command line prompt using:

i4lmd

The i4lmd program has no user interface. The operator may verify the server has started either by running the **i4tv** utility (see below) or by typing at a Unix prompt:

---

3 Names for iFOR/LS programs for the HP-UX 10.x operating system have an "i4" prefix. Functionally equivalent versions of the same programs built for other operating systems have an "ls_" prefix. Most iFOR/LS documents use the "ls_" names, but ECS runs iFOR/LS under HP-UX 10.x.

4 Version 2 and 3 of the Guide is available via the Gradient Technologies home page on the World Wide Web.

5 This version is distributed with the iFOR/LS software and is usually found at /opt/ifor/ls/conf/i4qsguide on nodes on which iFOR/LS software has been installed.

6 Version 2 and 3 of the Guide is available via the Gradient Technologies home page on the World Wide Web.

7 Thoughout their documentation, Gradient uses the term "node" to refer to a network-attached computer or machine.

ps -ed | grep i4lmd

Refer to the Command Reference section of the iFOR/LS Administrator's Guide for details on the **i4lmd** utility.

The iFOR/LS command line interface performs all license management functions supported by the **i4admin** and **i4stat** screens plus other functions that support iFOR/LS operation. Tables 4.3.7-2 and 4.3.7-3 present the iFOR/LS and NCS commands operators are likely to use, summarizing information contained in the iFOR/LS Quick Start Guide and the command reference section of the iFOR/LS Administrator's Guide. Certain NCS commands that operate interactively (i.e., process subcommands entered at the command line in response to a prompt) are noted in the appropriate table. See the Guide for the complete description of each command and its arguments.

Operator interaction with iFOR/LS to install or delete licenses is carried out with the **i4admin** screen. To execute this program from the command line use:

i4admin

Note: Vendors often distribute license passwords electronically and in a form ready for use as an argument with the i4admin command. Use the command line interface in such cases. The license can be installed with a single command, and electronically copying information reduces the chances of error.

Operator interaction with iFOR/LS to check detailson licenses is carried out with the i4stat screen. To execute this program from the command line use:

i4stat

Operator interaction with iFOR/LS to report on licenses is carried out with the i4rpt screen. To execute this program from the command line use:

i4rpt

Operator interaction with iFOR/LS to verify network license servers are functioning is carried out with the i4tv screen. To execute this program from the command line use:

i4tv

Table 4.3.7-2. Command Line Interfaces – iFOR/LS

Command Line Interface	Description and Format	When and Why Used
i4admin	i4admin [-n *node_name*] [-r] [-l | -z | -h | -usage | -version] {-a | -s | -d | -f } {-v | -p} *argument1 argument2*...	To verify license file data
i4stat	i4stat {-t | -i | -a | -u *user_name*} [[-n *server*] [-v *vendor*][-p *product* [-r *version*]] [-z]] | [-h | -usage | -version]	To diagnose problems when a license cannot be checked out
i4report	i4report [[-n *node_name*][-c][-z] [*event_type_list*][*information_filter_list*] | [-h | -usage | -version]]	To shutdown all license daemons (both lmgrd and all vendor daemons) on all nodes.
i4lmd	i4lmd [[-no *event_list* | -o | -v | -z]]	To run the main daemon program for iFOR/LS
i4target	i4target [-O | -v | -h]	To determine the hostid of a system
i4tv	i4tv [-n *hostname*] [-v] [-z] [-h | -usage | -version]	To verify the license servers are running properly
i4config	i4config	To verify that NCS is properly set up and ensure iFOR/LS runs
i4first	i4first	To start the location brokers and license server. This script, created by *i4config,* is run at most once each time *i4config* is run

Table 4.3.7-3. Command Line Interfaces – NCS

Command Line Interface	Description and Format	When and Why Used
drm_admin	drm_admin [-version]	Used xxxx to manage replication of NCS location broker databases. Subcommands issued via standard input specify actions such as add, delete, merge, and list replicas of the global location broker
lb_admin	lb_admin [-nq] [-version]	Used any time to register NCS-based servers with location brokers. Subcommands issued via standard input specify actions associated with adding, correcting, and removing information in local and global location broker databases
lb_find	lb_find [-q] [-v] [-dl]	Used to identify the location, port, and type of global location brokers running on a network
glbd	glbd [-create { -first *family_name* | -from *host_name* }] glbd [-change_family *family_name*] [-listen *family_list*] [-version]	Used to start a replicatable global location broker daemon on a node
llbd	llbd [-listen *family_list*] [-version]	Used to start a local location broker daemon on a node
nrglbd	nrglbd [-version]	Used to start a non-replicatable version of a global location broker daemon on a node

4.3.7.2 iFOR/LS Main Screen

The iFOR/LS GUI consists of two independent screens. There isn't a single "Main screen" to select other functions on. These two screens, **i4admin,** shown in Figure 4.3.7-1, and **i4stat**, shown in Figure 4.3.7-2, are described below.

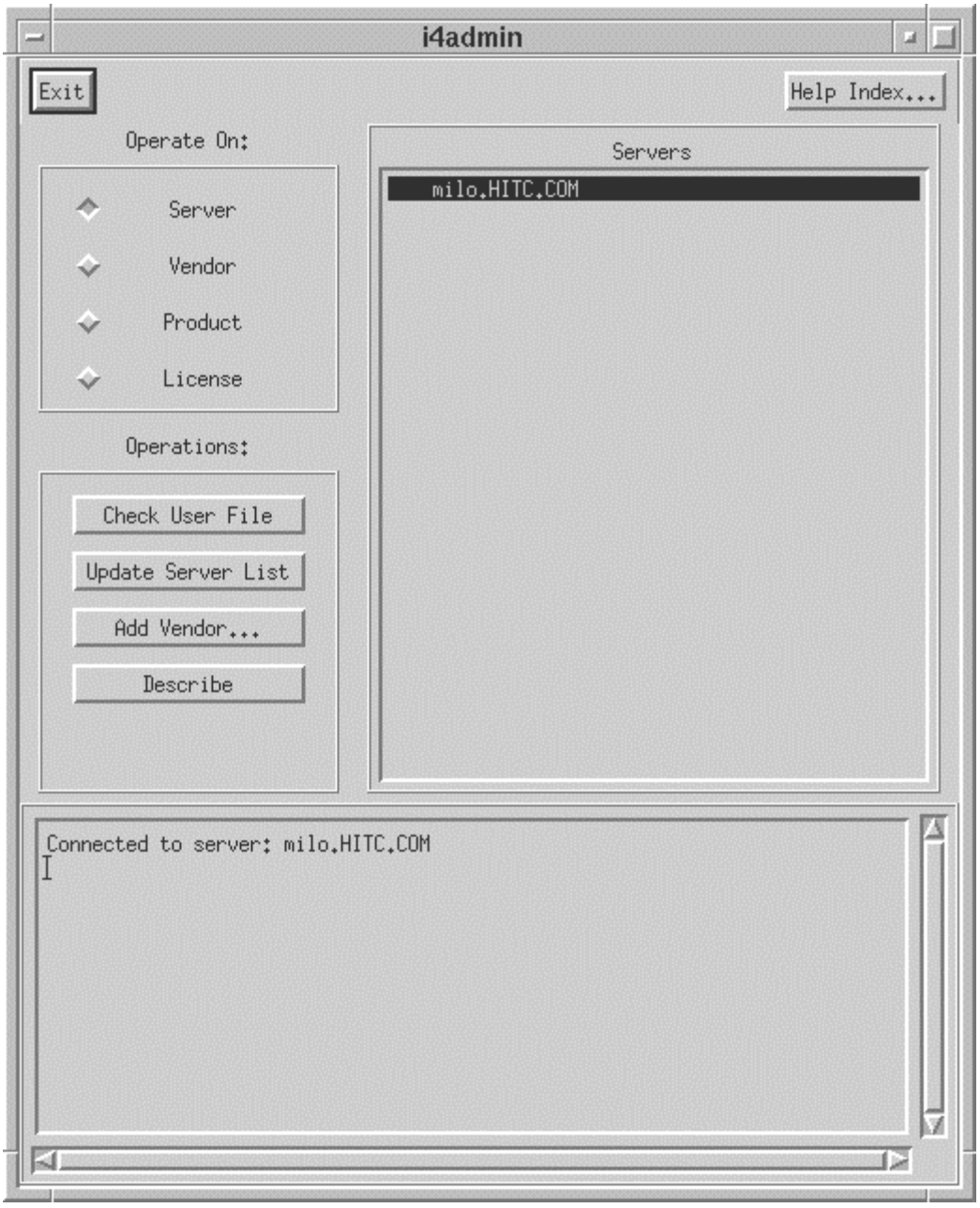

Figure 4.3.7-1. i4admin screen

Controls on the **i4admin** screen are:

Exit to quit **i4admin**

Help Index provides a list of Help subjects for the screen.

Other controls on the screen are grouped by purpose:

Operate On: allows the operator to select from a list of the selected objects located to the right of the group.

Server generates a list of the registered servers.

Vendor generates a list of registered vendors.

Product generates a list of registered products.

License generates a list of registered licenses.

Operations: allows the operator to choose the action to perform with the selection from the Operate On: group.

The choices available in this group depend on the Operate On selection. If more data than is currently displayed on the screen is required a pop-up will be invoked to solicit the additional data or provide for input.

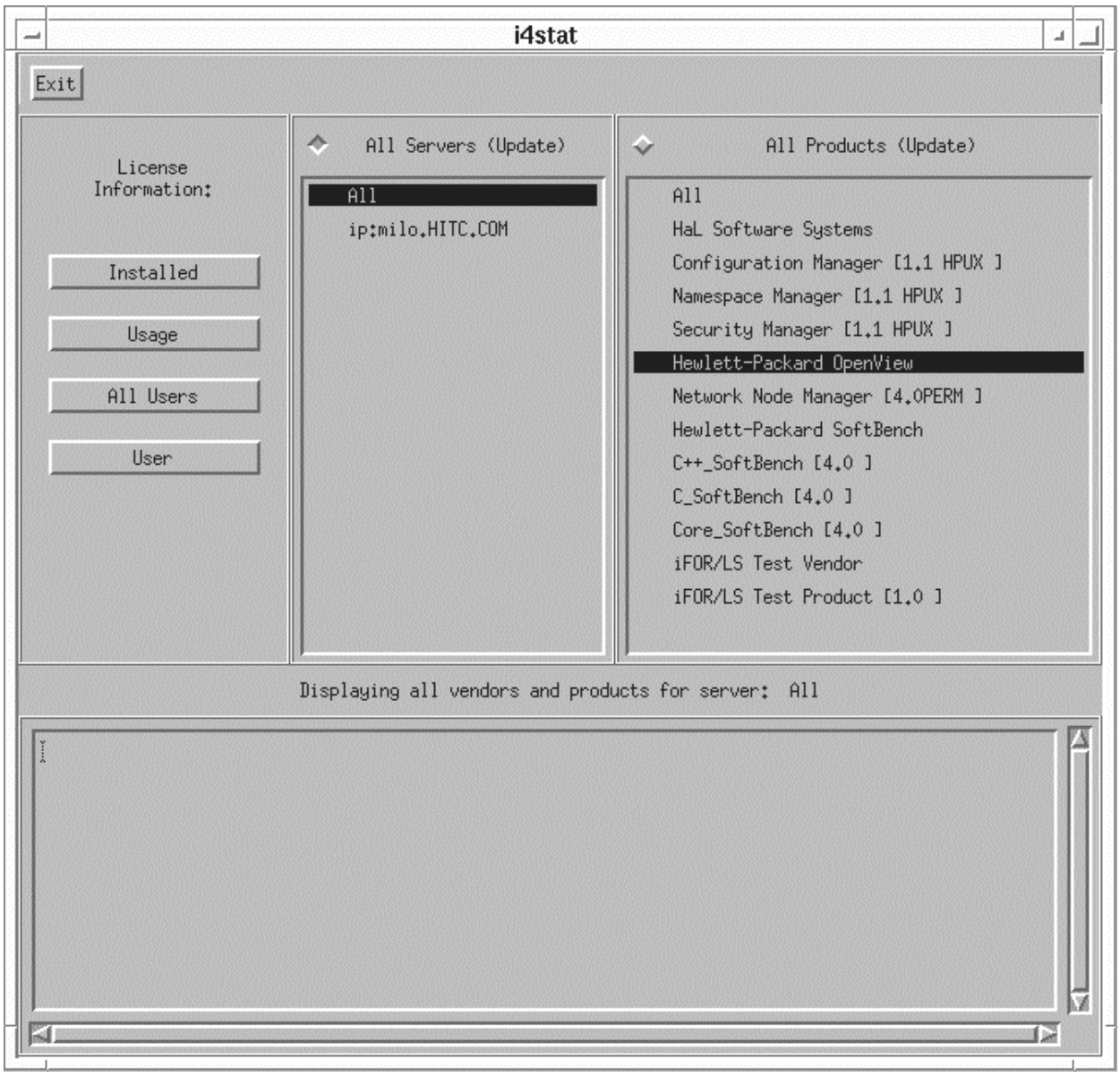

Figure 4.3.7-2. i4stat screen

Controls on the **i4stat** screen are:

Exit to quit **i4stat**

License Information: allows the operator to filter from the lists of the selected objects located to the right of the group.

Installed generates a list of the installed licenses for the listed servers and products.

Usage generates a list of the license usage for the listed servers and products

All Users generates a list of the users for the listed servers and products.

User generates a list of licenses used by the selected user.

The output available in this group depend on the License Information selection. If more data than is currently displayed on the screen is required a pop-up will be invoked to solicit the additional data or provide for input. The list generated appears at the bottom of the screen.

All Servers: displays all the registered servers - used to select servers for the lists to be generated.

All Products: displays all the registered products - used to select products for the lists to be generated.

See Chapter 3 ("*Displaying Information and Generating Reports*") and the Command Reference sections of the iFOR/LS Administrator's Guide for more details about the **i4stat** display, where it is discussed under its alternate name "**ls_stat**".

4.3.7.3 Required Operating Environment

iFOR/LS is a UNIX-based application that operates under many environments, including HP-UX, Sun Solaris, and IRIX. It relies on the naming or locating services of the Network Computing System in order for clients to find and use the license servers. At least one node in the network must run a global location broker, and any node that runs either a license server daemon or local location broker must run a local location broker as well. The DCE daemon, **rpcd**, serves as the local location broker for ECS.

The target ECS operating environment for iFOR/LS license servers is HP-UX 10.x. Table 4.3.7-4 lists the system directories in which key iFOR/LS-related programs and data files can be found on HP-UX 10.x platforms.

Table 4.3.7-4. iFOR/LS Directories

Directory	Contents
/opt/ifor/ls/bin	iFOR/LS executables
/opt/ifor/ls/conf	iFOR/LS configuration files
/var/opt/ifor	iFOR/LS database, log, user, and nodelock files
/opt/ifor/conf	configuration and startup/shutdown scripts
/usr/sbin/ncs	NCS executables
/etc/ncs	NCS configuration files
/var/ncs	NCS global location broker databases and log file

iFOR/LS-enabled applications using server-based licenses cannot run unless a license manager is active on some network node accessible to the application. A license manager can be started only if iFOR/LS software has been installed on the node and a location broker configured for iFOR/LS exists and is running. (The NCS /**lb_admin** and **lb_find** commands can be used to determine if local and global location broker daemons are running, respectively. See the iFOR/LS Administrator's Guide for details).

4.3.7.3.1 Interfaces and Data Types

Table 4.3.7-5 summarizes iFOR/LS interface protocols. The ECS fault management tool, Tivoli, monitors iFOR/LS' licensing and error events in order to notify operators when activity of interest has occurred. The ECS script **MsLiiFORLSMkDayLog** periodically extracts information about the day's events from the iFOR/LS database and stores it in a log file. Tivoli interrogates the log file frequently, searching for text strings that match pre-determined criteria. When one is found, the operator is notified via Tivoli's operator event console.

Table 4.3.7-6 lists the iFOR/LS messages that trigger operator notifications by the initially deployed Tivoli configuration. See section 4.2.3 for details about Tivoli's configuration.

Table 4.3.7-5. Interface Protocols

Interface	Type of Primary Interface Protocols	Comments
MsLiiFORLSMkDayLog	iFOR/LS command line utility, *i4report*	MsLiiFORLSMkDayLog is an ECS customization script that extracts data about licensing events from the iFOR/LS event database for storage in an ASCII event log. Tivoli's log file adapter monitors the log in order to notify operators when interesting licensing events occur.

Table 4.3.7-6. iFOR/LS Messages That Trigger Operator Notifications via Tivoli (1 of 2)

iFOR/LS Message
License not found in database (network license server/server)
iFOR/LS license not found (network license server/server)
Past expiration date on license (network license server/server)
Before start date on iFOR/LS license (network license server/server)
Version not found in database (network license server/server)
iFOR/LS license version not found in database (network license server/server)
Not enough licenses (network license server/server)
Not enough iFOR/LS licenses (network license server/server)
Bad I/O (network license server/server)
No licenses available (network license server/server)

Table 4.3.7-6. iFOR/LS Messages That Trigger Operator Notifications via Tivoli (2 of 2)

iFOR/LS Message
No iFOR/LS licenses available (network license server/server)
Time disparity too large (network license server/server)
Database not valid for this server (network license server/server)
Database corrupt (network license server/server)
Fatal error-check error log (network license server/server)
Vendor key is incorrect (network license server
iFOR/LS server not found (network license server/server)
Wrong version of iFOR/LS Server (network license server/server)
iFOR/LS log file contains invalid data (network license server/server)
No matching socket families found (network license server/library)
No valid server handle exists, cannot log message (network license server/library)
Internal error (network license server/tools)
license will expire
communications failure (network computing system/RPC runtime)

4.3.7.4 Databases

iFOR/LS maintains an internal database containing all information about vendors, products, and licenses. The database is stored in a file named lic_db in the /var/opt/ifor directory. Operators have no interaction with its schema, parameters, or macros.

4.3.7.5 Special Constraints

iFOR/LS manuals recommend the following operating constraints :

- The Network Computing System must be installed in order to run iFOR/LS.
- System clocks on license server and location broker nodes must be synchronized to within two minutes of each other.
- The interactive iFOR/LS shell script *i4config* and the *i4first* companion it creates must be run to configure and start the location brokers and license manager whenever setting up a license server node. They should be rerun when an iFOR/LS server is not working and NCS communications errors are received. See the iFOR/LS Quick Start Guide and the iFOR/LS Administrator's Guide for details.

4.3.7.6 Outputs

iFOR/LS' principal outputs are inter-process communications with COTS applications attempting to check out and check in licenses, but these are generally transparent to the operator. Other

outputs visible to the operator include reports discussed in section 4.3.7.7 below and messages constituting responses to operator-entered commands.

4.3.7.7 Event and Error Messages

iFOR/LS writes all event and error messages to an internal database stored in file "log_file" in directory /var/opt/ifor on the license server node. Retrieve information about license management events and errors via the **i4report** utility.

The iFOR/LS System Management Guide lists some of the more common messages an operator may encounter. Messages are typically self-explanatory, identifying the date/time of the event, the license server host, the product or feature involved, and the name of the user.

4.3.7.8 Reports

iFOR/LS' **i4report** utility can generate the log reports listed in Table 4.3.7-8. Each is written to standard output and may be redirected to a named file or a printer using standard Unix conventions. Most reports have the same format, but vary in the events they include.

4.3.7.8.1 Sample Reports

The figures that follow show sample iFOR/LS reports. One sample is provided for each report listed in Table 4.3.7-7.

Table 4.3.7-7. Reports

Report Type	Report Description	When and Why Used
i4report -a	Lists all logged events and messages	As required
i4report -d	Lists all license database modifications	As required
i4report -e	Lists all error events	As required
i4report -f	Lists any fatal error events	As required
i4report -l	Lists all events related to handling or processing of licenses	As required
i4report -m	Lists all messages that were logged by a software product or a license server	As required
i4report -r1	Lists the number of requests for licenses, the number of licenses granted, and the percent of rejected requests for each vendor product	As required
i4report -r2	Lists, by user, the number of requests for licenses, the number of licenses granted, and the percent of rejected license requests	As required
i4report -s	Lists all server start/stop events	As required

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor   Product           Vrsn     User     Node              Group    Amt Time
Event
-----       ------   -------           ----     ----     ----              -----    --- ----
-----
1           Hewlett-Packard OpenView (700) Network No 4.0PERM  root      et3sv3.HITC.COM  root
1   11/26/96 18:43:20  C H E C K E D
2           Hewlett-Packard OpenView (700) Network No 4.0PERM  root      relbhpms.HITC.COM root
1   11/26/96 18:44:29  C H E C K E D
11483       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      relbhpms.HITC.COM
root     1   12/16/96 16:16:58  C H E C K E D
11484       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      et3sv3.HITC.COM  root
1   12/16/96 16:19:25  C H E C K E D
11485       iFOR/LS Test Vendor     *** message: 12/16/96 16:21:19 user file not found
(/var/opt/ifor/user_file) - anyone can use product: iFOR/LS Test Product
11486       iFOR/LS Test Vendor (4) iFOR/LS Test 1.0       root      relbhpms.HITC.COM sys
1   12/16/96 16:21:19  G R A N T E D on mach type HP
11487->11486 iFOR/LS Test Vendor (4) iFOR/LS Test 1.0       root      relbhpms.HITC.COM sys
1   12/16/96 16:21:19  R E L E A S E D. time of use = 00:00
11488       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      relbhpms.HITC.COM
root     1   12/16/96 16:21:58  C H E C K E D
33879       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      relbhpms.HITC.COM
root     1   01/20/97 08:13:35  C H E C K E D
33904       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      et3sv3.HITC.COM  root
1   01/20/97 08:54:32  C H E C K E D
33905       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      slimer.HITC.COM  root
1   01/20/97 08:57:13  C H E C K E D
33906       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      relbhpms.HITC.COM
root     1   01/20/97 08:58:35  C H E C K E D
33907       Hewlett-Packard OpenView    *** message: 01/20/97 08:59:11 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Network Node Manager
33908->31636 Hewlett-Packard OpenView (700) Network No 4.0PERM  root      rush.gsfc.nasa.gov
root     1   01/20/97 08:59:11  license timed out. time of use = 2 days, 14:04:28
33909       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      rush.gsfc.nasa.gov
root     1   01/20/97 08:59:11  G R A N T E D on mach type HP
33910       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      et3sv3.HITC.COM  root
1   01/20/97 08:59:32  C H E C K E D
33911       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      slimer.HITC.COM  root
1   01/20/97 09:02:13  C H E C K E D
34105       Hewlett-Packard OpenView    *** message: 01/20/97 13:11:12 NetLS: License not
found in database (network license server/server) [1d010001]
34106       Hewlett-Packard OpenView (1400)            V4.60TEMP root      rush.gsfc.nasa.gov
root     1   01/20/97 13:11:12  License not found in database (network license
server/server).
98929       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      ****              ****
1   04/19/97 07:48:56  C H E C K E D
98930       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      ****              ****
1   04/19/97 07:48:57  C H E C K E D
100435       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      ****
****     1   04/21/97 01:39:27  C H E C K E D
100842       Hewlett-Packard OpenView (700) Network No 4.0PERM  root      ****
****     1   04/21/97 12:57:16  C H E C K E D


finished.
```

Figure 4.3.7-3. Events and Messages (i4report -a) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor    Product           Vrsn      User      Node              Group     Amt Time
Event
-----       ------    -------           ----      ----      ----              -----     --- ----
-----
1           Hewlett-Packard SoftBench
12/03/97 10:08:47  vendor added to license data base
2           Hewlett-Packard SoftBench (2600) Core_Soft 4.0
1   12/03/97 10:08:48  P R O D U C T  A D D E D ConcurrentAccess (start date: 11/19/96, exp
date 12/31/93)
3           Hewlett-Packard SoftBench (3560) C_SoftBen 4.0
1   12/03/97 10:08:48  P R O D U C T  A D D E D ConcurrentAccess (start date: 11/19/96, exp
date 12/31/93)
4           Hewlett-Packard OpenView
12/03/97 10:24:58  vendor added to license data base
5           Hewlett-Packard OpenView (700) Network No 4.0TEMP
64000 12/03/97 10:25:16  P R O D U C T  A D D E D ConcurrentAccess (start date: 06/13/97, exp
date 10/11/97)
6           Hewlett-Packard SoftBench (2600) Core_Soft 4.0
1   12/03/97 10:30:40  P R O D U C T  A D D E D ConcurrentAccess (start date: 11/19/96, exp
date 12/31/93)
7           Hewlett-Packard SoftBench (3560) C_SoftBen 4.0
1   12/03/97 10:31:00  P R O D U C T  A D D E D ConcurrentAccess (start date: 11/19/96, exp
date 12/31/93)
8           Hewlett-Packard SoftBench (2617) C++_SoftB 4.0
1   12/03/97 10:31:10  P R O D U C T  A D D E D ConcurrentAccess (start date: 11/19/96, exp
date 12/31/93)
9           Hewlett-Packard OpenView (700) Network No 4.0TEMP
64000 12/03/97 16:00:00  P R O D U C T  A D D E D ConcurrentAccess (start date: 11/18/97, exp
date 03/18/98)


finished.
```

Figure 4.3.7-4. License Database Modifications (i4report -d) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor    Product           Vrsn     User     Node              Group     Amt Time
Event
-----       ------    -------           ----     ----     ----              -----     --- ----
-----
1            Hewlett-Packard OpenView (700)             4.0PERM  root     mohawk.HITC.COM  sys
1    12/04/97 18:09:46  Version not found in database (network license server/server).
2            Hewlett-Packard OpenView (700)             4.0PERM  root     mohawk.HITC.COM  sys
1    12/04/97 18:09:47  Version not found in database (network license server/server).
3            Hewlett-Packard OpenView (700)             4.0PERM  root     mohawk.HITC.COM  sys
1    12/04/97 18:09:47  License not found in database (network license server/server).
4            Hewlett-Packard OpenView (700)             4.0PERM  root     mohawk.HITC.COM  sys
1    12/05/97 10:06:42  Version not found in database (network license server/server).
5            Hewlett-Packard OpenView (700)             4.0PERM  root     mohawk.HITC.COM  sys
1    12/05/97 10:06:42  Version not found in database (network license server/server).
6            Hewlett-Packard OpenView (700)             4.0PERM  root     mohawk.HITC.COM  sys
1    12/05/97 10:06:42  License not found in database (network license server/server).
7            Hewlett-Packard OpenView (700)             4.0PERM  root     relbhpms.HITC.COM sys
1    12/05/97 10:51:16  Version not found in database (network license server/server).
8            Hewlett-Packard OpenView (700)             4.0PERM  root     relbhpms.HITC.COM sys
1    12/05/97 10:51:16  Version not found in database (network license server/server).
9            Hewlett-Packard OpenView (700)             4.0PERM  root     relbhpms.HITC.COM sys
1    12/05/97 10:51:16  License not found in database (network license server/server).


finished.
```

Figure 4.3.7-5. Error Events (i4report -e) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor    Product           Vrsn      User      Node              Group     Amt Time
Event
-----       ------    -------           ----      ----      ----              -----     --- ----
-----


finished.
```

Figure 4.3.7-6. Fatal Error Events (i4report -f) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor   Product           Vrsn     User     Node              Group    Amt Time
Event
-----       ------   -------           ----     ----     ----              -----    --- ----
-----
1           iFOR/LS Test Vendor (4) iFOR/LS Test 1.0       root     milo.HITC.COM    sys       1
12/03/97 10:05:30  G R A N T E D on mach type HP
2    ->1    iFOR/LS Test Vendor (4) iFOR/LS Test 1.0       root     milo.HITC.COM    sys       1
12/03/97 10:05:30  R E L E A S E D. time of use = 00:00
3           Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/04/97 18:09:47  G R A N T E D on mach type HP
4           Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/04/97 18:14:47  C H E C K E D
 (700) Network No 4.0TEMP  root     ****              ****     1   12/05/97 08:04:57  C H E C
K E D


194         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:04:59  C H E C K E D
195 ->3     Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:06:17  R E L E A S E D. time of use = 15:56:30
196         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:06:42  G R A N T E D on mach type HP
197         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:11:42  C H E C K E D


204         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:46:42  C H E C K E D
205         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:51:16  M U L T I P L E   G R A N T on mach type HP
206         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:51:42  C H E C K E D
207         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:56:17  C H E C K E D
208         Hewlett-Packard OpenView (700) Network No 4.0TEMP  root     ****              ****
1   12/05/97 10:56:42  C H E C K E D
209         Hewlett-Packard SoftBench (2600) Core_Soft 4.0      rwagle   ****               ****
1   12/05/97 10:56:46  G R A N T E D on mach type HP
210         Hewlett-Packard SoftBench (3560) C_SoftBen 4.0      rwagle   ****               ****
1   12/05/97 10:56:46  G R A N T E D on mach type HP
211 ->209   Hewlett-Packard SoftBench (2600) Core_Soft 4.0      rwagle   ****               ****
1   12/05/97 10:58:18  R E L E A S E D. time of use = 01:32
212 ->210   Hewlett-Packard SoftBench (3560) C_SoftBen 4.0      rwagle   ****               ****
1   12/05/97 10:58:18  R E L E A S E D. time of use = 01:32


finished.
```

Figure 4.3.7-7. License-related Events (i4report-l) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved


N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor    Product           Vrsn      User      Node              Group     Amt Time
Event
-----       ------    -------           ----      ----      ----              -----     --- ----
-----
1           iFOR/LS Test Vendor     *** message: 12/03/97 10:05:30 user file not found
(/var/opt/ifor/user_file) - anyone can use product: iFOR/LS Test Product
2           Hewlett-Packard OpenView     *** message: 12/04/97 18:09:47 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Network Node Manager
3           Hewlett-Packard OpenView     *** message: 12/04/97 18:09:47 NetLS: Version not
found in database (network license server/server) [1d010007]
4           Hewlett-Packard OpenView     *** message: 12/05/97 10:06:42 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Network Node Manager
5           Hewlett-Packard OpenView     *** message: 12/05/97 10:06:42 NetLS: Version not
found in database (network license server/server) [1d010007]
6           Hewlett-Packard OpenView     *** message: 12/05/97 10:51:16 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Network Node Manager
7           Hewlett-Packard OpenView     *** message: 12/05/97 10:51:16 NetLS: Version not
found in database (network license server/server) [1d010007]
8           Hewlett-Packard SoftBench     *** message: 12/05/97 10:56:46 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Core_SoftBench
9           Hewlett-Packard SoftBench     *** message: 12/05/97 10:59:02 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Core_SoftBench
10          Hewlett-Packard SoftBench     *** message: 12/05/97 11:05:37 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Core_SoftBench
11          Hewlett-Packard SoftBench     *** message: 12/05/97 11:09:28 user file not found
(/var/opt/ifor/user_file) - anyone can use product: Core_SoftBench
12          Hewlett-Packard SoftBench     *** message: 12/05/97 11:09:54              ...adding
reference
13          Hewlett-Packard SoftBench     *** message: 12/05/97 11:10:57              ...adding
reference
14          Hewlett-Packard SoftBench     *** message: 12/05/97 11:11:31
...removing reference
15          Hewlett-Packard SoftBench     *** message: 12/05/97 11:12:00              ...adding
reference
16          Hewlett-Packard SoftBench     *** message: 12/05/97 11:12:00 user file not found
(/var/opt/ifor/user_file) - anyone can use product: C_SoftBench
17          Hewlett-Packard SoftBench     *** message: 12/05/97 11:12:47
...removing reference
18          Hewlett-Packard SoftBench     *** message: 12/05/97 11:13:36              ...adding
reference
19          Hewlett-Packard SoftBench     *** message: 12/05/97 11:13:36 user file not found
(/var/opt/ifor/user_file) - anyone can use product: C_SoftBench
20          Hewlett-Packard SoftBench     *** message: 12/05/97 11:14:07
...removing reference
21          Hewlett-Packard SoftBench     *** message: 12/05/97 11:32:35              ...adding
reference
22          Hewlett-Packard SoftBench     *** message: 12/05/97 11:32:44
...removing reference
23          Hewlett-Packard SoftBench     *** message: 12/05/97 11:33:22              ...adding
reference


finished.
```

Figure 4.3.7-8. Messages (i4report -m) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   U s a g e   R e p o r t (3.0.0 HP-UX)
For: milo.HITC.COM

Vendor        Product       Vrsn          Num of Req    Num Granted  % Rejections
------        -------       ----          ----------    -----------  ------------
Hewlett-Pack C++_SoftBenc 4.0           1             1            0%
Hewlett-Pack C_SoftBench  4.0           7             7            0%
Hewlett-Pack Core_SoftBen 4.0           5             5            0%
Hewlett-Pack Network Node 4.0TEMP       2             2            0%
iFOR/LS Test iFOR/LS Test 1.0           1             1            0%


finished.
```

Figure 4.3.7-9. Product Requests (i4report -r1) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   U s e r   U s a g e   R e p o r t (3.0.0 HP-UX)
For: milo.HITC.COM

User          Vendor        Product       Vrsn          Num of Req    Num Granted  % Rejections
----          ------        -------       ----          ----------    -----------  ------------
rwagle        Hewlett-Pack C++_SoftBenc 4.0           1             1            0%
rwagle        Hewlett-Pack C_SoftBench  4.0           7             7            0%
rwagle        Hewlett-Pack Core_SoftBen 4.0           5             5            0%
root          Hewlett-Pack Network Node 4.0TEMP       2             2            0%
root          iFOR/LS Test iFOR/LS Test 1.0           1             1            0%

Total Users : 2


finished.
```

Figure 4.3.7-10. User Requests (i4report -r2) Report

```
i4report  Version 3.0.0 HP-UX
(c) Copyright 1991,1992,1993, Hewlett-Packard Company, All Rights Reserved
(c) Copyright 1991,1992,1993,1994,1995 Gradient Technologies Inc., All Rights Reserved



N e t w o r k   L i c e n s e   S e r v e r   L o g   R e p o r t  (3.0.0 HP-UX)
For: milo.HITC.COM

Index       Vendor    Product           Vrsn      User      Node              Group     Amt Time
Event
-----       ------    -------           ----      ----      ----              -----     --- ----
-----
1           *** svr started                                                             12/03/97
10:04:49


finished.
```

Figure 4.3.7-11. Server Stop/Start (i4report -s) Report