



**Enhanced
Automated
Graphical
Logistics
Environment**

**EAGLE GENERAL INFORMATION
VERSION 5**

1 July 2001

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The EAGLE Software Package has become the best of its kind thanks, in large part, to its clients. We would like to take this opportunity to thank all of you for your suggestions, insights and support. In addition, we want to renew our commitment to you, our valued clients.



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SECTION 1



INTRODUCTION

SECTION 1 INTRODUCTION

1.0 INTRODUCTION

The Enhanced Automated Graphical Logistics Environment (EAGLE) software is an integrated database system that provides traditional and innovative real-time solutions for automating logistics, provisioning, and technical publication tasks. EAGLE consists of software tools, both Raytheon commercial off the shelf (COTS) and third party COTS, that provide users with the means to maintain a logistics database and automatically produce a variety of logistic products using the Windows environment.

Based on a validated MIL-STD-1388-2B database, EAGLE is the only commercially available system that automatically produces technical manuals from a logistics database (U.S. Patents 5,457,792 and 5,493,679) and links logistics tasks to full motion video (U.S. Patent 5,737,532). EAGLE also produces Interactive Electronic Technical Manual (IETM) and HyperText Markup Language (HTML) output for the World Wide Web.

1.1 REFERENCES

A variety of references are available to provide the logistics, provisioning, and technical publication background needed to create an EAGLE database and reports. These references provide additional information and detailed data element descriptions.

MIL-STD-1388-2B	DOD Requirements for Logistic Support Analysis Record (LSAR)
MIL-M-87268	Manuals, Interactive Electronic Technical: General Content, Style, Format, and User-Interaction Requirements
MIL-D-87269	Data Base, Revisable: Interactive Electronic Technical Manuals, For the Support of
MIL-Q-87270	Quality Assurance Program: Interactive Electronic Technical Manuals and Associated Technical Information; Requirements for
MIL-STD-2073-1	DOD Material, Procedures for Development and Application of Packaging Requirements
MIL-STD-2073-2	DOD Material, Procedures for Development and Application of Packaging Requirements
MIL-PRF-49506	DOD Performance Specification, Logistics Management Information
MIL-STD-1519	Test Requirements Document, Preparation of
DEF STAN 00-60	Integrated Logistic Support

AECMA Specification 1000D	International Specification for Technical Publications Utilising a Common Source Data Base
AECMA Specification 2000M	International Specification for Materiel Management

1.2 TECHNICAL SUPPORT

Technical support is provided by the EAGLE Team of Raytheon Company. Phone support is available Monday through Friday from 8:00 a.m. to 4:30 p.m. Mountain Standard Time. EAGLE technical support personnel can be reached at (520) 663-6673.

In addition to phone support, EAGLE provides a method to Email the EAGLE Technical Support Team from within the application. This Email capability allows users to request specific information related to EAGLE as they exercise the application and encounter unfamiliar capabilities.

1.3 EAGLE WEB SITE

The EAGLE Application provides a direct link to the EAGLE Web Site. The EAGLE Web Site provides helpful information about EAGLE that includes up to date information regarding new releases and updates. In addition, the Web Site provides a method to send Email to the EAGLE Technical Support Team.

SECTION 2



OVERVIEW

SECTION 2 OVERVIEW

2.0 INTRODUCTION

The following paragraphs provide a brief overview of the EAGLE books and of the EAGLE product. EAGLE documentation has been divided into seven books. The titles of the seven books are:

- EAGLE General Information
- EAGLE Quickstart Guide
- EAGLE Workbook
- EAGLE Graphics and Publications
- EAGLE DEF STAN 00-60 Workbook
- EAGLE Additional Disciplines
- EAGLE Security (Oracle systems only)

These books provide a complete coverage of the EAGLE Material in both reference and workbook formats.

2.1 OBJECTIVES

The following paragraphs outline the basic objectives of each EAGLE book. The EAGLE Workbook, the EAGLE DEFSTAN 00-60 Workbook, the EAGLE Graphics and Publications book, and the EAGLE Additional Disciplines book are written in a workbook type format whereas the EAGLE General Information and EAGLE Security books are written in reference format.

The EAGLE Workbooks, the EAGLE Additional Disciplines book, and the EAGLE Graphics and Publications book define processes which can be used for training by an instructor or individual self study. They will walk step by step from creation of logistics data in the EAGLE database through generation of outputs. Although these books are intended to be used for training, after a user has become familiar with the EAGLE software, they may be used as a reference manual.

2.1.1 EAGLE General Information

The EAGLE General Information book contains the general information pertaining to EAGLE and the EAGLE books.

Section 1.0 is an introduction to EAGLE providing references, technical support data, and EAGLE web site information. Section 2.0 describes the objective of the EAGLE books, the background of EAGLE and the client/server requirements for EAGLE. Section 3.0 provides an overview of features used in all the EAGLE disciplines, and then provides a brief description of each discipline.

This book also contains an acronym list and a glossary of terms for all of the EAGLE books. The last section of this book is the Student Notes (a.k.a. user notes) Section. This area should be used by the student or user to write helpful notes or tips on using the EAGLE Application.

2.1.2 EAGLE Quickstart Guide

The EAGLE Quickstart Guide is intended as a "How to" manual for installation and setup of the EAGLE client software.

2.1.3 EAGLE Workbook

The EAGLE Workbook is available in two versions: MIL-STD-1388-2B and DEF STAN 00-60. These books are intended to be used as "hands on" workbooks for use during EAGLE training. They have also been designed to be "how to" manuals on using EAGLE for performing provisioning and logistic tasks. Although each user will develop their own unique methods of gathering and entering data, the workbooks will provide a sample methodology that works.

2.1.4 EAGLE Graphics and Publications

The EAGLE Graphics and Publications book is intended to be used as advanced training material for production of technical publications from the EAGLE database and also covers the graphical functions of EAGLE. It provides hands on exercises on importing and exporting graphics, linking graphics to LSAR data, and the creation of various types of publications. This book can be viewed as a continuation of the EAGLE Workbook.

2.1.5 EAGLE Additional Disciplines

EAGLE Additional Disciplines should be viewed as a "hands on" workbook. It is intended to be used as a workbook for advanced EAGLE training on the additional disciplines of EAGLE not covered in the EAGLE workbooks or Graphics and Publications book. Like the Graphics and Publications book, this book can be viewed as a continuation of the EAGLE Workbook.

2.2 BACKGROUND

During the late 1980s, the current Integrated Logistics Support (ILS) processes were outdated and unworkable. These processes, which were industry-wide and not limited to Raytheon, were unable to keep pace with increasing technological sophistication, and a rapidly changing environment. In response to these recognized problems, Raytheon began project development of the Automated Logistics Process (ALP). ALP was established to create a new logistics process that far exceeded customer expectations and competitor performance by delivering superior quality ILS products on time and at a low cost.

ALP provided major cost savings which were achieved by automating the production of technical manuals, Test Requirement Documents (TRDs), training materials, provisioning data and other logistics products directly from the LSAR database. The automation process also resulted in improvements in quality, consistency, and timeliness of delivery.

Some of the salient features of ALP included:

- Automatic generation of technical publications (Patent 5,457,792)
- Automatic generation of Test Requirement Documents (TRDs)
- Automatic extraction and inclusion of engineering drawings and publications artwork in to the technical publications and TRDs (Patent 5,493,679)
- Links to video and digitized still images for training and publications (Patent 5,737,532)
- Designed as an integral part of the corporate Concurrent Engineering
- Ensures that logistic support analysis is performed concurrent with engineering development
- On-line access by customers

February 1996 marked the evolution of ALP into EAGLE. EAGLE extended the ALP design through an enhanced graphical user environment, extensive use of object oriented programming, standardized functionality, and additional logistics capabilities and output products.

September 1997 marked the release of EAGLE 2.0. An inventory control and shop order creating and tracking system was added to the Depot Management System for this release. In addition, the AdHoc Discipline was enhanced to allow multi-cell cut, copy, and past functionality in an Microsoft Excel type editor. A maintenance cost analysis functionality was added to the Operations and Maintenance Discipline, and the ability to turn of triggers was added to the Administration application.

March 1998 marked the release of EAGLE 3.0. Some of the major enhancements included an interface to the LinkOne Australian Interactive Parts Breakdown product, an interface to the Interactive Computer Aided Provisioning System (ICAPS), the Breakdown Discipline, and a document storage system used to store documents, spreadsheets, and other files in a configuration control storage system. In addition, the drawing viewer was enhanced to support the major raster and vector file formats, to extract artwork in GIF format for the World Wide Web, and to allow markup functionality.

June 1999 marked the release of EAGLE 4.0. Prior versions of EAGLE were designed for a Sybase database; however, EAGLE 4.0 interfaces with either a Sybase or Oracle data base giving customers the flexibility of using the database of their choice. EAGLE 4.0 included a security system which limits users from updating or deleting another user's data. The intent of the security system is to protect data entered by multiple vendors and to avoid accidental updates to someone else's data. In addition, EAGLE 4.0 provided a third party interface to produce AECMA 1000D compliant data modules, and an interface that allows the user to create AECMA 2000M compliant reports using MIL-STD-1388-2B data.

This release also marked the introduction of a new product called ILOG. ILOG integrates the EAGLE DEF STAN 00-60 product and the Logistics Business Systems (LBS) ASPECT.cs (AECMA 2000M) and AcquirED.3 (AECMA 1000D) products. The EAGLE DEF STAN 00-60 element of ILOG provides a vehicle for LSAR documentation, while the ASPECT.CS element produces Initial Provisioning data from the LSAR, and the AcquirED.3 element provides a Common Source Database. This integrated product provides a complete solution to the United Kingdom DEF STAN 00-60 concept. EAGLE DEF STAN 00-60 can also be used as a standalone solution for DEF STAN 00-60 LSAR requirements.

April 2001 marked the release of EAGLE 5.0. EAGLE 5.0 included a Contract System, Depot Workflow Tracking System, Inventory Tracking System, and an As Built/As Maintained System. This release also enhanced the Spares Ordering System, Warranty Tracking, and FRACAS.

2.2.1 Capabilities

EAGLE uses a relational database based on MIL-STD-1388-2B or DEF STAN 00-60 as the single repository for all data required to produce logistics reports, technical manuals and other documentation. Logistics products are developed directly from the relational database automatically under computer software control, thus ensuring consistency and accuracy across products. Costs are greatly reduced via automation and the elimination of manual processes. Processes are developed in full compliance with contemporary DoD initiatives including Continuous Acquisition and Life-cycle Support (CALS), Concurrent Engineering (CE), Contractor Integrated Technical Information Service (CITIS), IETM, ILS, Integrated Weapon System Data Base (IWSDB), and Product Data Management (PDM).

2.2.2 Future

An ever evolving system, EAGLE is being constantly improved and upgraded. Future plans include increased data analysis capabilities such as web based LSAR review and Failure Modes/Effects/Criticality Analysis (FMECA) functionality. Also in work are plans for Configuration Management tools, a web based depot application based on LSAR data, and automatic LSAR creation from legacy data. EAGLE has recognized the impact of Acquisition Reform and is working to incorporate ISO-9000 requirements for ILS.

2.3 STRUCTURE/REQUIREMENTS

EAGLE System Requirements:

- 1.) A Pentium-based PC
- 2.) SVGA or higher resolution video adapter compatible with Microsoft Windows (a resolution of 800x600 pixels at 256 colors minimum is recommended)
- 3.) Minimum 64 MB of random access memory. Minimum of 64 MB is recommended for producing documents containing complex graphics, or for network installation
- 4.) Hard disk with at least 250 MB of free disk space
- 5.) Ethernet Card 802.3 (Not required for standalone)
- 6.) Pointing device (e.g. mouse) compatible with Microsoft Windows
- 7.) Microsoft Windows 95, Windows NT, Windows 98, Windows ME, or Windows 2000
- 8.) Microsoft Word 7.0 or later
- 9.) For Sybase:
 Sybase Open Client version 11.1 or later
 For Oracle:
 Oracle Client version 8.0.5 or later
- 10.) Version of Transmission Control Protocol/Internet Protocol (TCP/IP) protocol

The EAGLE System Requirements describe what is needed to run EAGLE; however, the minimum system requirements must meet those of the specific operating system used. Although a minimum system is acceptable, the recommendation for the EAGLE client PC's ideal hardware is described in Paragraph 2.3.1.1.

2.3.1 Client/Server Environment

EAGLE utilizes a client/server environment. Operations and functions are performed by a PC user (client) attached to a database server connected by a TCP/IP protocol through Ethernet. Sybase or Oracle can be the database “engine” used to manage the data.

2.3.1.1 Client Setup/Recommendations

A typical client setup includes a PC meeting the system requirements recommended in Paragraph 2.3 above, and an Ethernet connection routed to the database server; however, the ideal client PC hardware is listed below. The associated network configuration file may need to be changed for Link Support (buffers) and Protocol SPX (sockets) to best accommodate EAGLE operation.

EAGLE Client PC Recommendations:

- 1.) Pentium III with 62 MB RAM and a 6 GB hard drive
- 2.) Ethernet Card 802.3
- 3.) Video Board, 2 MB SVGA 600 X 800 (minimum), MPEG is suggested
- 4.) 17” Monitor
- 5.) CD ROM

2.3.1.2 File Server (Optional)

File servers are central computers holding shared data available to network users. File servers provide for peripheral data sharing among users but not multiple user updating. Application processing occurs at PC workstations or at the database server. Most file servers act as a data repository that make data available for use at a workstation or for upload to a database server.

EAGLE can be loaded to a file server, rather than to each client’s hard drive, using the applications as shared resources. In a Local Area Network (LAN), or Wide Area Network (WAN) environment, EAGLE resources could be shared by users through an Applications Server.

2.3.1.3 Database Server

Database servers, unlike file servers, are programmed to be self aware of the data structure within, such as columns, rows and tables. Multiple users can access the same data simultaneously. The database server can perform high-level operations and manage user traffic, making programming for specific tasks more efficient. The EAGLE database is centrally located on a database server for shared network access.

2.3.1.3.1 Case Sensitivity

Database servers operating on a UNIX or NT platform may be case sensitive, most noticeably for login ID names, passwords and server names. EAGLE Disciplines allow for mixed case data entry, avoiding the problems inherent in case sensitive databases which require exact syntax, as opposed to data value matching, with respect to case.

2.3.1.3.2 Operating Systems Supported

EAGLE runs on Sybase 11 or Oracle 8. The Sybase Open Client and Oracle Client are flexible interfaces that can access data from various types of database servers. The following paragraphs will describe the Sybase and Oracle recommendations separately.

2.3.1.3.2.1 Sybase Setup

Sybase Hardware recommendations:

As a recommendation, a server equivalent to an HP 9000 (“D” Series or better) with 256 MB of RAM and at least two 4 GB hard drives should be used. The following database setup recommendations are based on a system supporting 2 - 11 concurrent users.

Sybase Database setup recommendations:

- Procedure cache = minimum of 40%
- Stack Size = 36864 (minimum)
- Sort order = nocase preference (ID 22)
- Character Set = roman8
- Database options = “select into/bulkcopy” turned on

Sybase Client setup considerations:

- Modify C:\‘SYBASE’\LOCALES (where ‘SYBASE’ is your client install directory) edit locales.dat and change ccccc to your Database character set (locale = xxxxx,us_english,ccccc), ccccc=default character set and xxxxx=locale type.
- For Windows NT, ensure that a Sybase variable is established with its corresponding path variable in the Environment tab of the System Properties and that the System Variable Path value includes the Sybase directory.
- Ensure you do not have multiple copies of your PowerBuilder DLL’s in your ‘path’.

Other Sybase notes:

- Need to modify install scripts if you use database segments.
- Install grants all permissions to “public”.
- Views will need to be added to the “master” database.

2.3.1.3.2.2 Oracle Setup

Oracle Hardware recommendations:

[Unix]

The following recommendations are offered if running EAGLE utilizing an ORACLE database engine. EAGLE is designed specifically for an 8.0.5 or greater version of Oracle. The hardware should have a minimum of dual processors with 2 GB of RAM and 6 GB of disk storage (free space).

The minimum number of disk drives recommended is as follows: 1 disk drive for the operating system, 1 drive for the operating system swap file, 1 drive for the roll back segments, 1 drive for the redo logs, 1 drive for temporary table space, 1 drive for the user table space, 2 drives for table data, and 2 drives for index data.

[Windows NT/2000]

The following recommendations are offered if running EAGLE utilizing an ORACLE database engine. EAGLE is designed specifically for an 8.0.5 or greater version of Oracle. The hardware should have a minimum of one 600 MHz processor or two 400 Mhz processors with 512 MB of RAM and 6 GB of disk storage (free space).

Oracle Database setup recommendations (Windows NT/2000 or Unix):

- InitOra parameters. Oracle provides three different generic value settings for use in customizing Oracle. For EAGLE a good place to start is using the settings for a LARGE database size. Other parameters to set are:
 - open_cursors = 4000
 - db_files = 80
 - enqueue_resources = 900
- Rollback Segments. Build a minimum of 4 rollback segments each having a minimum size of 1M per extend and a minimum of 50 extents.

- REDO Logs. Build three redo logs with a minimum of 100 MB each. Watch the Oracle alert.log for switching between redo logs. The switching depends on the site's database volatility. Add another member (100 MB in size) to each redo log if switching occurs more than once every 30 minutes.
- Temporary Table Space. EAGLE and Oracle use a lot of temporary space, it is recommended that the temporary table space be established at 500 MB and monitored from that point. The name of this space should be TEMP.
- User Table Space. Start with 500 MB of user table space and monitor its usage. The name of this space should be USERS.
- Data Table Space. EAGLE requires two table spaces for data. Name one "104DATA" and the other "ZDATA". Make both of these a minimum of 1 GB.
- Index Table Space. EAGLE requires two index table spaces for data. Name one "104IDX" and the other "ZIDX". Make both of these a minimum of 1 GB.

Oracle Client setup considerations:

- Ensure you do not have multiple copies of your PowerBuilder DLL's in your 'path'.

Other Oracle notes:

- HP-UX kernel parameters will need to be set. It is recommended the following kernel parameters be evaluated: SHMMAX 1 GB, SHMMIN 200, MAXUSERS 512, SEMMMNJ 280, SEMMNS 2048, SHMSEG 120

2.3.1.3.3 Logistics Tables

Relational database systems organize information in tables. Columns define categories or fields while the individual sets of data are listed in rows. Tables are matrices of relational data made up of columns and rows. Data in each table is defined as either Foreign, Mandatory, Key, or Non-Key. Key fields must be present when a new row is created; in which the key data is uniquely identified. Relational tables are established in regard to hierarchical data rules that dictate the formation of certain key data (parent) before lower level data can exist (child). Common data element keys and data values form the relationship between tables.

The EAGLE database uses MIL-STD-1388-2B naming standards for table and column names. Table requirements used in EAGLE error messages are defined by the letter code preceding the table name:

<u>Table Codes</u>	<u>Table Name</u>
X	Cross Functional Requirements
A	Operations and Maintenance Requirements
B	Reliability, Availability and Maintainability Requirements
C	Task Requirements
E	Support Equipment Requirements
U	Unit Under Test Requirements
F	Facilities Considerations
G	Personnel Skill Considerations
H	Packaging and Provisioning Requirements
J	Transportability Requirements
Z or T	Enhanced Tables

2.3.1.3.4 Enhanced Tables

Enhanced tables have been customized for expanded use within the context of conventional table requirements. Tables in EAGLE preceded by the letter 'Z' or 'T' are enhanced tables. 'Z' or 'T' tables can be used to isolate specific types of data, such as the ZIPBDATA table, that contains data applicable to the Tech Manual IPB Discipline.

SECTION 3



DISCIPLINE OVERVIEW

SECTION 3 DISCIPLINE OVERVIEW

3.0 INTRODUCTION

This section briefly describes the processes within the EAGLE application. The EAGLE Navigator, Data Finders, Reports/Process Menu, and the Toolbar are key EAGLE elements. The Navigator is the starting point for all EAGLE processes while Data Finders are the basic retrieval mechanism. The Toolbar and the Reports/Process Menu are used to perform actions on the retrieved data and are found in most of the EAGLE Disciplines.

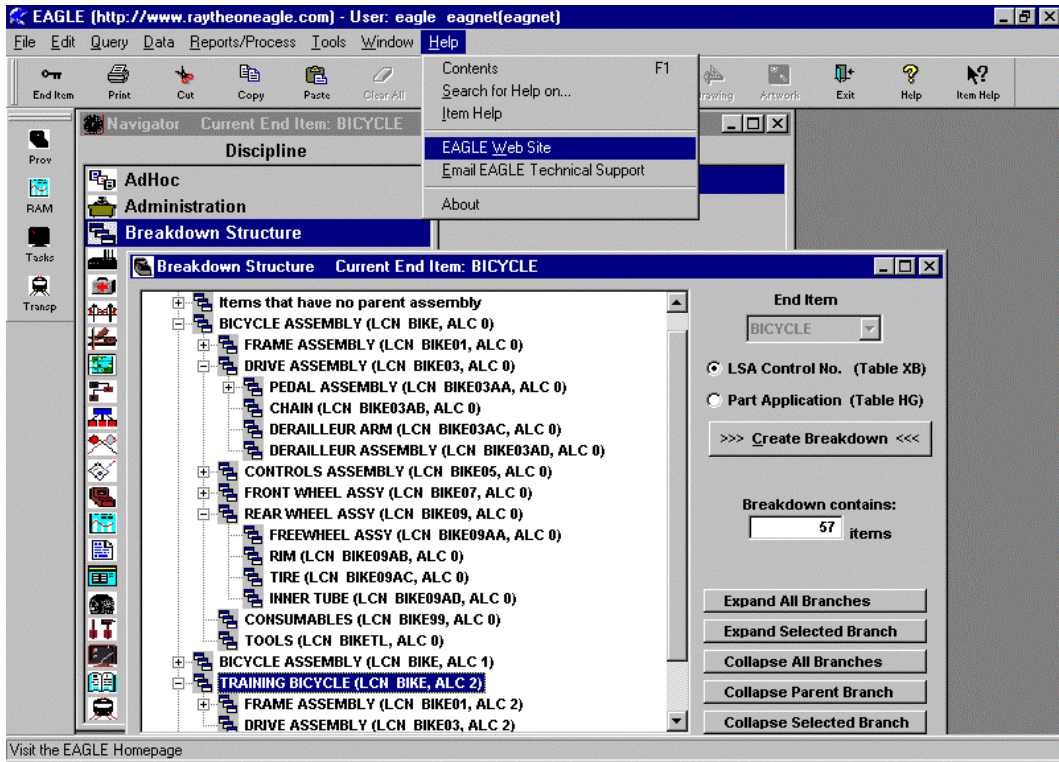


Figure 1 EAGLE Application Environment

Figure 1 illustrates the appearance of the EAGLE Application environment. The EAGLE Web Site and current user information are displayed at the top of the window. A menu bar is provided below the window title to control overall operation on all windows displayed. The Help menu item allows the user to access the EAGLE Web Site and send Email to the EAGLE Technical Support Team. The main EAGLE toolbar is initially placed below the menu bar and the application specific toolbar is provided on the left hand side of the window. These toolbars can be moved and altered using the Customize Toolbars Window as described in Paragraph 3.1.3. The

application toolbar is generally duplicated under the Reports/Process Menu item so the user has options invoking related windows. Microhelp information is located at the bottom left hand corner of the EAGLE Application environment to provide the user with helpful information concerning the object that is currently active.

3.1 COMMON FEATURES

The following paragraphs describe the common features of the EAGLE disciplines. These features are available from all disciplines.

3.1.1 NAVIGATOR

The Navigator is the main application for accessing the different disciplines and functions in the EAGLE Software. It is the navigational tool used by EAGLE, thus earning the name “Navigator”.

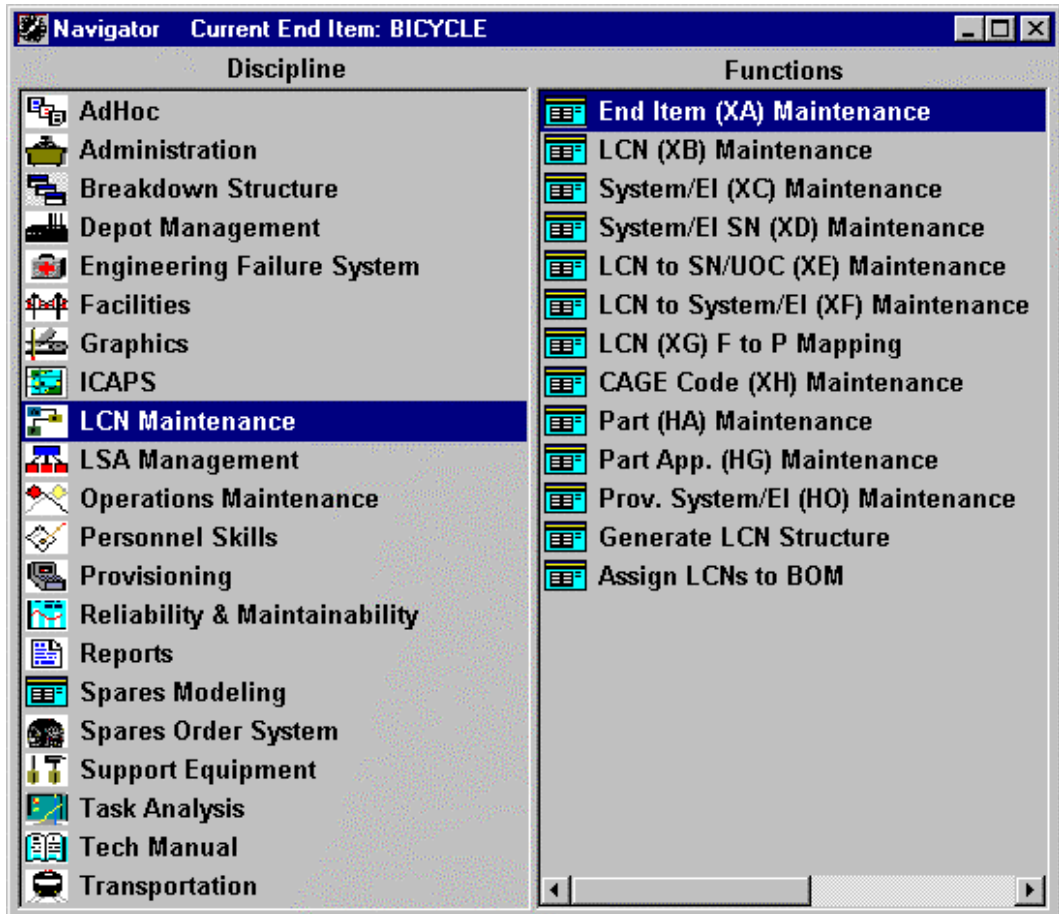


Figure 2 Sample Navigator Window

The Navigator Window displayed in Figure 2 will appear after the user has connected to EAGLE using the Login Screen. A dialog box will be displayed on the Navigator Window which is subdivided into two sections; the Discipline Section on the left and the Functions Section on the right. The left half of the dialog box will list major disciplines that correspond to a list of functions on the right half of the dialog box. Only the items to which the user has access are displayed on the user's client Navigator Window.

The various disciplines within EAGLE may be launched using the Navigator Window. In addition, the user may use the Navigator to switch between active disciplines. Within the Discipline Section of the Navigator, the user can choose between different disciplines. Once the discipline is selected, the Functions Section of the Navigator will be updated with the available functions for the discipline. An EAGLE application will be launched when the user selects the icon in the Function Section of the Navigator.

To use the Navigator:

- 1.) Select the Discipline from the Navigator by clicking on the appropriate icon with the left mouse button.
- 2.) Select the Function to launch from the Navigator by double-clicking the left mouse button on the appropriate icon.

3.1.2 DATA FINDERS

Data Finders are the basic retrieval philosophy used in EAGLE. Most of the EAGLE processes begin with a Data Finder Window. This window is used to retrieve data that is to be used in the given process. Once the Finder query is executed, the resulting data may be used by the EAGLE software for data manipulation or reports.

The menu and toolbar are the primary means of performing the different processes within the Data Finders. Typically most processes that can be performed in a Data Finder are listed under the **Reports/Process** menu item and have a corresponding toolbar button that can be used.

The Data Finders simplify database searches. Data Finders are available using the Navigator (see Paragraph 3.1.2) and selecting the appropriate topic from the Discipline Window. The Finders for that topic will be displayed in the Function window. Individual Finders are available to search for a group of related data through the use of key fields; for example, the Operation and Maintenance Finder searches tables related to Operations and Maintenance. Searches may be constructed by entering data into one or more of the key fields. Once the data has been entered, all records can be retrieved that match the search criteria. The more key fields that are entered, the smaller the result set will be. For example, if all the key fields are entered, it is possible to end up with one unique record being returned.

The Data Finder is composed of two sections, key field entry and data records retrieved. The search inputs for the key fields can be entered in the appropriately labeled input boxes at the top of the Data Finder Window. The data records retrieved section displays the retrieved records which can be selected for further viewing and manipulating. See Figure 3 for an example of a Data Finder.

The screenshot shows a software window titled "LSA Control Number Data Maintenance" with a subtitle "Current End Item: BICYCLE". At the top, there are input fields for "End Item" (set to "BICYCLE"), "LSA Control Number (LCN)", "ALC", "Type", and "LCN Name". Below these is a table of retrieved records. The table has columns for "End Item", "LSA Control Number (LCN)", "ALC", "Type", "LCN Name", and "Indenture". The first record is highlighted in blue. At the bottom left, it says "Records: 59".

End Item	LSA Control Number (LCN)	ALC	Type	LCN Name	Indenture
BICYCLE	BIKE	00	P	BICYCLE ASSEMBLY	A
BICYCLE	BIKE	01	P	BICYCLE ASSEMBLY	A
BICYCLE	BIKE	02	P	TRAINING BICYCLE	A
BICYCLE	BIKE	03	P	CLONE BICYCLE	
BICYCLE	BIKE	04	P	CLONE BICYCLE 2	
BICYCLE	BIKE01	00	P	FRAME ASSEMBLY	B
BICYCLE	BIKE01	02	P	FRAME ASSEMBLY	B
BICYCLE	BIKE01AA	00	P	FRAME	C
BICYCLE	BIKE01AB	00	P	HANDLE BAR	C
BICYCLE	BIKE01AB	02	P	HANDLE BAR	

Figure 3 Sample Data Finder Window

To use a Data Finder:

- 1.) Enter the key fields to be searched in the appropriately labeled input box
or
Use a Wildcard Search
or
Select a listed category or ALL from a drop box (If available)

- 2.) Once the desired search is entered, choose **Query>>Execute** from the menu (**ALT+Q,E**)
or
Choose the **Execute** button from the toolbar
or
Choose the **Enter** key to perform a search

While accessing the database an hourglass (or equivalent) will be displayed. When a query is finished, all related records will be displayed in the data records retrieved section of the Data Finder. This data may now be accessed using the Reports/Process Menu (**ALT+R**).

Once the data is returned in the data finder, the Oracle Version of EAGLE allows the ownership id to be displayed for a record. The ownership id designates the team ownership or group who can perform updates to the data. In order to display the ownership id, click on the record using the right mouse button. Figure 4 will be displayed showing the row owner.

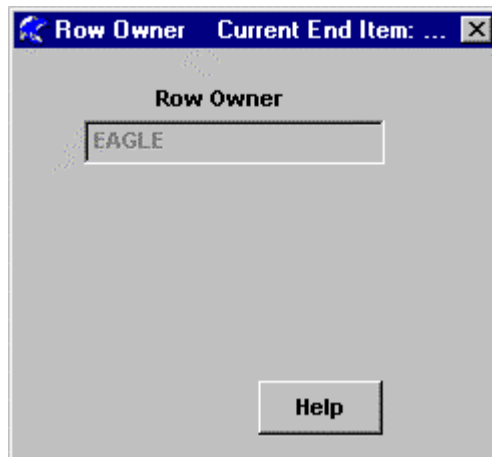


Figure 4 Ownership Identification Window

3.1.3 TOOLBAR

The EAGLE toolbars provide various functions related to the discipline. There are generally two toolbars for each discipline. One of the toolbars is the main toolbar, and the other toolbar is the application specific toolbar. In addition, if a discipline allows formatted narrative or text to be entered, an additional toolbar will exist when the narrative window is displayed.

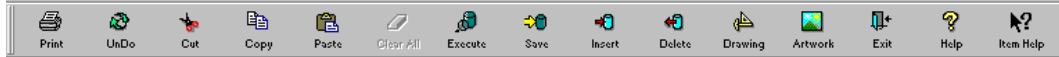


Figure 5 Main Toolbar

As the default, the main toolbar, illustrated in Figure 5, is at the top of the EAGLE Window. It remains the same for all disciplines. It is a general toolbar that allows commonly used functions such as Print, Undo, Cut, Copy, Paste, Clear, Execute, Save, Insert, Delete, Drawing, Artwork, Exit, Help and Item Help. These buttons are enabled and disabled depending on what applies to the discipline being used. The Print, Undo, Cut, Copy, Paste, Clear, Save, Exit, and Help buttons on the toolbar perform the same way as other Windows applications. The Save, Insert, and Delete buttons are used for inserting, deleting and saving database table information using the discipline. The Item Help button is used for context sensitive help and is described in Paragraph 3.1.6.



Figure 6 Application Specific Toolbar

The application specific toolbar changes depending on which discipline is activated. As a default the application specific toolbar is placed on the left hand side of the window. The buttons illustrate types of actions that can be performed on data found by the Data Finder. Figure 6 illustrates a sample application toolbar. Most of the buttons reflect the choices under the Reports/Process Menu so as to provide a short cut to using the menu. For more information on the Reports/Process Menu refer to Paragraph 3.1.4.



Figure 7 Narrative Toolbar

The narrative toolbar shown in Figure 7 is present whenever a narrative window allows formatting to text. As a default the narrative toolbar is placed on the right hand side of the window. The buttons provide a method for bold facing, underlining, and italicizing text. They are used by highlighting text in the narrative window and then choosing the appropriate button.

The toolbars can be moved and altered using the **Tools>>** menu item. Figure 8 displays the Customize Toolbars Window that is activated when the **Tools>>Toolbar** menu item is chosen. The active toolbar can be hidden by selecting the Hide button or moved to any position on the window by selecting the appropriate Move radio button. When the Show Text checkbox is marked it shows the short text wording on the toolbar buttons. If the Show Power Tips checkbox is checked, tips on what the button does are shown when the mouse is dragged over the top of the button.

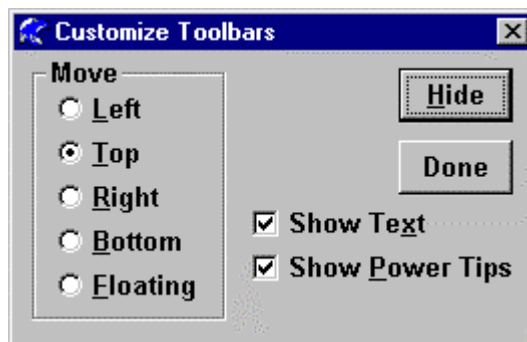


Figure 8 Customize Toolbars Window

3.1.4 REPORTS/PROCESS MENU

The Reports/Process menu displays a list of topics for which more information is available or summarized data reports can be displayed. The information displayed in this menu will vary depending on which Discipline is currently active. Once a topic is selected from the list, the data relating to that topic will be displayed in a window for further manipulation. In addition, the Reports/Process menu provides access to all standard LSA reports applicable to the active discipline.

To use the Reports/Process Menu:

- 1.) From the appropriate Data Finder, highlight the desired record from the records retrieved section. Click on a record to select it.
- 2.) Select the **Reports/Process** Menu (**ALT+R**) and click on the topic category of interest. In general, the topic category of interest represents the various tables covered by the discipline.
- 3.) All data relating to the topic will be displayed in a window with the Data Finder's key fields displayed in gray at the top. From here the data for the retrieved record may be changed, deleted or inserted in the provided data window.
- 4.) Adding and deleting data in editable fields is done by selecting the information in the data window and choosing **Insert** or **Delete** buttons from the toolbar or the **Data** Menu (**ALT+D**). Data modifications may be made by typing the data into the data window directly or by cutting and pasting like most Window applications.
- 5.) Once data entry is complete, the record must be saved to have it posted to the database by pressing the Save button from the toolbar or **ALT+D,S**.

3.1.5 EAGLE SETUP

The EAGLE setup is defined by parameters for users, server locations and paths to executables. It is a writeable initialization file that logs the last saved user setup and makes it possible to use EAGLE from any EAGLE-ready workstation. This file must exist in the WIN95 or WINNT directory.

To access the EAGLE setup, highlight the Tools menu in the main Navigator screen and then click on Options. The Set Options Tool contains pointers and switches for controlling execution of applications and functions. Note: The Set Options Tool can also be activated by choosing the Change INI Settings Function of the Administration Discipline using the Navigator screen.

There are four profile sections in the Set options Tool:

- 1.) The **[SQLCA]** profile contains data related to database connectivity, passwords and IDs, file names and locations, and process options.
- 2.) The **[ALP]** profile contains data related to how EAGLE functions, including art/drawing database locations.
- 3.) The **[AUTODOC]** profile contains pointers and process options related to automated production of technical documentation (Tech Manual Discipline).
- 4.) The **[LINKONE]** profile contains data related to directory locations for use with the EAGLE/LinkOne interface.

Figure 9 shows an example of the EAGLE setup Set Options Window. Following Figure 9 is a definition for each of the individual data elements within the SQLCA, ALP, AUTODOC, and LINKONE profiles.

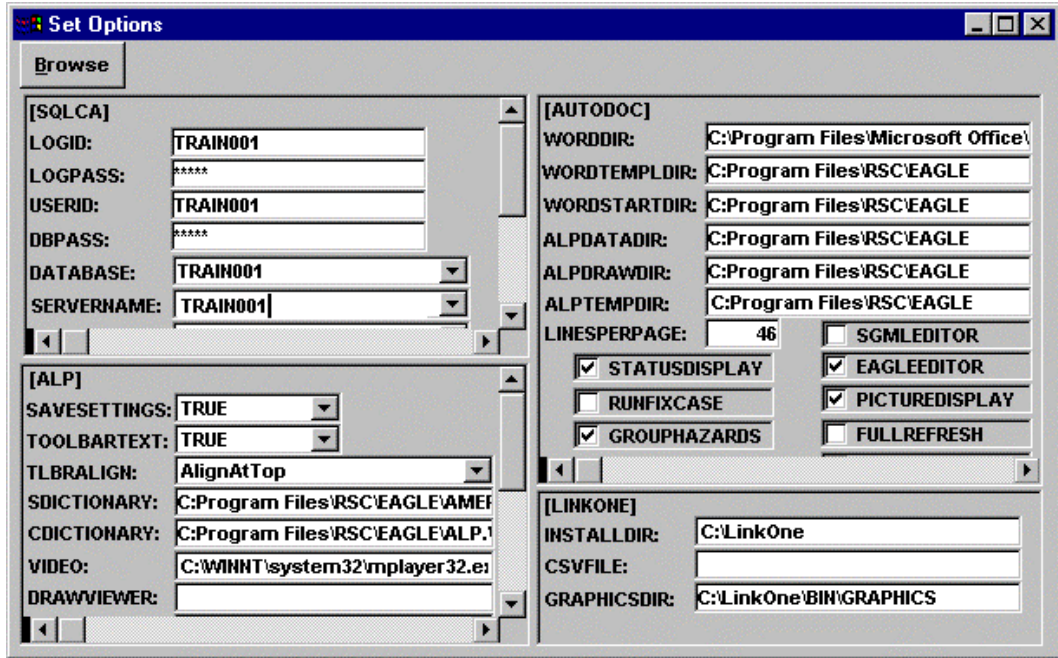


Figure 9 EAGLE Setup Options

The following provides a basic definition for each of the profile sections provided in the EAGLE Setup Options.

[SQLCA]

LOGID	Database login
LOGPASS	Database password
USERID	Database userid
DBPASS	Database password
DATABASE	Name of database
SERVERNAME	Server name for LSAR database
DRAWINGS	Name of drawing database
DRAWSERVER	Server name for drawings database
ARTWORK	Name of artwork database
ARTSERVER	Server name for artwork database
DBMS	Type of database (SYC for Sybase, ORA8 for Oracle)
DBPARM	Sybase connect parm

[ALP]

SAVESETTINGS	Change ALP.INI on exit of EAGLE
TOOLBARTEXT	Turns button bar text on or off
TLBRALIGN	Placement of Tool Bar when application starts
CDICTIONARY	Custom dictionary
SDICTIONARY	Standard dictionary
VIDEO	Video player to use
DRAWVIEWER	Viewer/Application to use for viewing drawings
ARTVIEWER	Viewer/Application to use for viewing artwork
EXELOCATION	Location of reports and extractors
WINDOW1	Last window opened
WINDOW2	Second to last window opened
WINDOW3	Third to last window opened
WINDOW4	Fourth to last window opened
WINDOW5	Fifth to last window opened
ZEROPAD	When enabled, forces leading zeroes in numeric fixed length fields

[AUTODOC]

WORDDIR	Location of Word executable
WORDTEMPLDIR	Location of template directory
WORDSTARTDIR	Word startup directory (Location of EAGLELIB.DOT)
ALPDATADIR	Location of Icons and boilerplate docs
ALPDRAWDIR	Location of extracted artwork files
ALPTMPDIR	Location to store temporary files
LINESPERPAGE	Lines per page for reports (default minimum is 25)
SGMLEEDITOR	Use FrameMaker SGML editor for narrative
EAGLEEDITOR	Use EAGLE tag editor
STATUSDISPLAY	Update Word status bar when formatting
RUNFIXCASE	Change Tech Manual to upper case
GROUPHAZARDS	Group hazards in Tech Manual
PICTUREDISPLAY	Bring up pictures in word while formatting
FULLREFRESH	Update Word screen when formatting
CAPTIONSUPPER	Make Captions upper case in word macros

[LINKONE]

INSTALLDIR	Location of where LinkOne is installed
CSVFILE	Location of LinkOne's CSV files
GRAPHICSDIR	Location of LinkOne's graphic directory

3.1.6 ON-LINE HELP

EAGLE On-Line Help features two types of Help (see Figure 10):

- 1.) A Help button which retrieves a menu with indexed contents that can be searched on keywords or strings. Topics are logically linked and structured to answer frequently asked questions. Bookmarks can be defined for quick reference to often visited topics and a History button logs the path of activity for easy retrieval of an earlier topic. In addition to EAGLE help information, the Help button provides access to the on-line manual for the MIL-STD-1388-2B specification.
- 2.) A context sensitive Item Help button in the toolbar. Clicking on this button enables the user to select any displayed object for specific Help on that subject. An object that has been designated as an Item Help topic is defined by a “?” shadowing the cursor in the screen display after the Item Help button has been clicked. Click again on the button to disable the Item Help.



Figure 10 Help buttons in Toolbar

In addition to the two types of Help, EAGLE provides access to the EAGLE Web Site and a method for sending Email to the EAGLE Technical Support Team. The Web Site and Email features are accessed using the Help menu item as illustrated in Figure 1 in Paragraph 3.0.

3.1.7 AUTOMATIC CALCULATIONS

Automatic calculations are performed by the database on various fields. The calculations are initiated when a record is inserted, modified, or deleted. EAGLE has provided the user with a method to turn automatic calculations on or off using the System Default Function in the Administration Discipline. On Oracle versions of EAGLE, changes to data that effect automatically calculated fields will cause the calculated value to be updated, even if the USERID of the person making the change does not have permissions on the record containing the calculated field. In EAGLE, the following Data Element Definitions (DEDs) are selected for automatic calculation:

Table 1 Automatically Calculated Fields

Auto-Calculation Description	2B Spec Rule	Auto-Calculation Table and Field
Achieved Availability	BD.l	BD.AHAVABD
Engineering Failure Mode Mean Time Between Failure	BF.b	BF.EFMTBFBF
Engineering Failure Mode MTBF Measurement Base	BF.b	BF.EFMMBBF
Failure Mode Criticality Number	BI.d	BI.FACRNUBI
Inherent Availability	BD.m	BD.INHAVABD
Maintenance Replacement Rate I	HG.p	HG.MRRONEHG
Mean Time Between Maintenance Actions	DED 230	BD.OMTBMABD and BD.TMTBMABD
Mean Time To Repair	DED 236	BD.MTTROPBD and BD.MTTRTHBD
Measured Mean Elapsed Time	CA.k	CA.MSDMETCA
Measured Mean Man-Hours	CA.j	CA.MSDMMHCA
RAM Item Criticality Number	BK.a	BK.RICRITBK
Task Frequency	CA.l	CA.TSKFRQCA
Failure Rate		BD.FAILRTBD

The following paragraphs will cover each of the calculated fields.

3.1.8 Achieved Availability

The Achieved Availability Field (BD.ACHAVABD) is automatically calculated when a change is made to one of the following fields

Table BD

Mean Time Between Failures Technical (BD.TEMTBFBD)

Mean Time Between Maintenance - No Defect (BD.NOMTBMBD)

Mean Time Between Preventative Maintenance (BD.MTBMPVBD)

Table CA

Predicted Mean Elapsed Time (CA.PRDMETCA) - for BD.RAMINDBD = P

Measured Mean Elapsed Time (CA.MSDMETCA) - for BD.RAMINDBD <> P

Task Frequency (CA.TSKFRQCA)

Note: The calculation includes elapsed time which can either be predicted or measured. If the RAM Indicator Code BD.RAMINDBD is P, then the Predicted Mean Elapsed Time is used in the calculation, otherwise the Measured Mean Elapsed Time is used.

The fields listed above are required to calculate the Achieved Availability. If any of the above fields are empty or NULL, the results of the Achieved Availability will be empty.

Achieved Availability (A_a) Formula:

$$A_a = \frac{MTBM}{MTBM + M}$$

$$\text{where } MTBM = \left(\frac{1}{MTBF} + \frac{1}{MTBM - ND} + \frac{1}{MTBPM} \right)^{-1}$$

$$M = \frac{\sum_{i=1}^N (ET_i)(TF_i)}{\sum_{i=1}^N TF_i}$$

M = Mean active maintenance downtime (where corrective and preventive actions are considered)

ET_i = Elapsed time for task i

TF_i = Task frequency for task i

N = Total number of tasks performed

3.1.9 Engineering Failure Mode Mean Time Between Failures

The Engineering Failure Mode Mean Time Between Failure field (BF.EFMTBFBF) is automatically calculated when a change is made to one of the following fields:

Table BF

Failure Mode Ratio (BF.FMRATOBF)

Table BD

Part Failure Rate (BD.FAILRTBD)

The calculation is dependent upon the RAM Indicator Code (RAMINDBD) from Table BD. Since there can be more than one RAM Indicator Code assigned to an LCN, the calculation uses the best failure rate based on the RAM Indicator Code. The ranking order for the RAM Indicator Code starting with the best value is: Measured (M), Predicted (P), Allocated (A), and Comparative Analysis (C). For example, if a Measured value is available, it should be used for the failure rate before a Predicted or Allocated value is used.

Engineering Failure Mode Mean Time Between Failure (EFM-MTBF) Formula:

$$\text{EFM-MTBF} = \frac{1}{FMR \times FR}$$

where

FMR = Failure Mode Ratio for the particular failure mode under analysis.

FR = Failure Rate for the LCN/ALC item under analysis.

3.1.10 Engineering Failure Mode MTBF Measurement Base

The Engineering Failure Mode Mean Time Between Failures Measurement Base (BF.EFMMMBBF) is automatically updated to match the Failure Rate Measurement Base (BD.FARAMBBD). Since the Failure Rate is assigned a corresponding measurement base, any calculation using the Failure Rate should be assigned the same measurement base. Therefore, since the Failure Rate is used in the calculation for the Engineering Failure Mode Mean Time Between Failure value, the Engineering Failure Mode Mean Time Between Failure Measurement Base must be updated accordingly.

3.1.11 Failure Mode Criticality Number

The Failure Mode Criticality Number (BI.FACRNUBI) is automatically calculated when a change is made to any of the following fields:

Table BD

Part Failure Rate (BD.FAILRTBD)

Table BI

Failure Effect Probability (BI.FEPROBBI)

Operating Time (BI.FMOPTIBI)

Table BF

Failure Mode Ratio (BF.FMRATOFB)

Since the Part Failure Rate is used in the calculation, it is dependent upon the RAM Indicator Code (RAMINDBD) from Table BD. Since there can be more than one RAM Indicator Code assigned to an LCN, the calculation uses the best failure rate based on the RAM Indicator Code. The ranking order for the RAM Indicator Code starting with the best value is: Measured (M), Predicted (P), Allocated (A), and Comparative Analysis (C). For example, if a Measured value is available, it should be used for the failure rate before a Predicted or Allocated value is used.

Failure Mode Criticality Number (C_m) Formula:

$$C_m = (BaFt)(1,000,000)$$

where

C_m = Criticality Number for Failure Mode

B = Failure Effect Probability

a = Failure Mode Ratio

F = Part Failure Rate

t = Operating Time

3.1.12 Inherent Availability

The Inherent Availability field (BD.INHAVABD) is automatically calculated when a change is made to one of the following fields:

Table BD

Mean Time Between Failures Technical (BD.TEMTBFBD)

Mean Time to Repair (BD.MTTRTHBD)

The fields listed above are required to calculate the Inherent Availability. If any of the above fields are empty or NULL, the results of the Inherent Availability will be empty.

Inherent Availability (A_i) Formula:

$$A_i = \frac{MTBF}{MTBF + MTTR}$$

where

MTBF = Mean Time Between Failures

MTTR = Mean Time To Repair

3.1.13 Maintenance Replacement Rate I and Maintenance Replacement Rate II (MRR I / MRR II)

The Maintenance Replacement Rate field (HG.MRRONEHG) is automatically calculated when the task frequency (CA.TSKFRQCA) or the provision quantity per task (CI.PQTYTKCI) is updated for a task. This update can be in the form of deleting, inserting, or changing the task. The determination of whether MRR I or MRR II is updated in the database depends on the reliability operational requirements indicator (AG.OPRQINAG) field. If the reliability operational requirements indicator specifies wartime, the MRR II field is updated, otherwise the MRR I field is updated.

Maintenance Replacement Rate I Formula:

$$\text{MRR (assembly)} = \sum_{i=1}^N Tfi \times QPTi$$

where

- i = H function tasks
- N = Number of H function tasks for a given LCN/ALC combination (except D O/M Levels)
- Tfi = Task Frequency
- $QPTi$ = Quantity per task

$$\text{MRR (repair part)} = \sum_{i=1}^N Tfi \times QPTi$$

where

- i = J function tasks
- N = Number of J function tasks performed against the next higher assembly of the repair part
- Tfi = Task Frequency
- $QPTi$ = Quantity per task

3.1.14 Mean Time Between Maintenance Actions (MTBMA)

The Mean Time Between Maintenance Actions Operational (BD.OMTBMABD) and the Mean Time Between Maintenance Actions Technical (BD.TMTBMABD) fields are automatically calculated when a change is made to any of the following fields:

Table BD

Mean Time Between Failures Operational (BD.OPMTBFBD)

Mean Time Between Failures Technical (BD.TEMTBFBD)

Mean Time Between Maintenance Induced (BD.INMTBMBD)

Mean Time Between Maintenance No Defect (BD.NOMTBMND)

Mean Time Between Preventative Maintenance (BD.MTBMPVBD)

If BD.OMTBMABD or BD.TMTBMABD is assigned, the corresponding measurement bases for the values of BD.OMTBMND and BD.TMTBMND are set to BD.OMTBFMBD and BD.TMTBFMBD respectively.

Mean Time Between Maintenance Actions Formula:

$$MTBMA = \left(\frac{1}{MTBF} + \frac{1}{MTBMI} + \frac{1}{MTBMND} + \frac{1}{MTBPM} \right)^{-1}$$

where

MTBF = Mean Time Between Failures

MTBMI = Mean Time Between Maintenance Induced

MTBMND = Mean Time Between Maintenance No Defect

MTBPM = Mean Time Between Preventative Maintenance

3.1.15 Mean Time To Repair (MTTR)

The Mean Time To Repair Operational (BD.MTTROPBD) and Mean Time To Repair Technical (BD.MTTRTHBD) fields are calculated when a change is made to one of the following fields:

Table BD

RAM Indicator Code (BD.RAMINDBD)

Table CA

Task Frequency (CA.TSKFRQCA)

Predicted Mean Elapsed Time (CA.PRDMETCA)

Measured Mean Elapsed Time (CA.MSDMETCA)

The Mean Time To Repair calculation is performed for on equipment tasks. On equipment tasks are identified by the following positions of the task code:

Task Code Position 1 contains a B, D, E, G, R, J, H, L, K, N, S, or W -AND-

Task Code Position 2 contains a J, F, or G -AND-

Task Code Position 5 contains an A, B, C, D, or E

The Mean Time To Repair calculation will use the Predicted Mean Elapsed Time value if the RAM Indicator Code is 'P', otherwise it uses the Measured Mean Elapsed Time value. The final result of the calculation is the same for the Operations MTTR and the Technical MTTR.

Mean Time To Repair Formula:

$$MTTR = \frac{\sum_{i=1}^N (TF_i) \times (ET_i)}{\sum_{i=1}^N TF_i}$$

where

i = On equipment corrective maintenance actions

TF_i = Task Frequency for on equipment maintenance

N = Total number of on equipment corrective maintenance actions charged against the LCN/ALC item under analysis

ET_i = Mean elapsed time for on equipment corrective maintenance

3.1.16 Measured Mean Elapsed Time

The Measured Mean Elapsed Time field (CA.MSDMETCA) is automatically calculated when the mean minute elapsed times (CB.SBMMETCB) are updated for a subtask. This update can be in the form of deleting, inserting, or changing the subtask record which contains the (CB.SBMMETCB).

When the (CB.SBMMETCB) field is updated, any task that contains the subtask or references the subtask will be affected by the (CA.MSDMETCA) automatic calculation.

For tasks that reference another task, the accurate (CA.MSDMETCA) field is the value stored in the referenced task, not the task itself.

Measured Mean Elapsed Time Formula:

$$\text{Measured Mean Elapsed Time} = \sum_{i=1}^N \frac{MMET_i}{60}$$

where

N = Total number of subtasks per task

$MMET_i$ = Mean minute elapsed time

3.1.17 Measured Mean Man-Hours

The Measured Mean Man Hours field (CA.MSDMMHCA) is automatically calculated when the mean man-minutes (CD.SUBMMMCD) are updated for a subtask. This update can be in the form of deleting, inserting, or changing the subtask record which contains the (CD.SUBMMMCD).

When the (CD.SUBMMMCD) field is updated, any task that contains the subtask or references the subtask will be affected by the (CA.MSDMMHCA) automatic calculation.

For tasks that reference another task, the accurate (CA.MSDMMHCA) field is the value stored in the referenced task, not the task itself.

Measured Mean Man-Hours (MMM_H) Formula:

$$\text{MMM}_H = \sum_{i=1}^N \frac{\text{MMM}_i}{60}$$

where

N = Total number of person ID

MMM_i = Mean man-minutes

3.1.18 RAM Item Criticality Number

The RAM Item Criticality Number (BK.RICRITBK) is automatically calculated when a change is made to any of the corresponding Failure Mode Criticality Numbers (BI.FACRNUBI). The calculation is performed by summing all Failure Mode Criticality Numbers for the corresponding keys.

RAM Item Criticality Number (C_r) Formula:

$$C_r = \sum_{n=1}^j (C_m)n \quad n = 1, 2, 3 \dots j$$

where

C_r = Criticality number for the item

C_m = Failure mode criticality number

n = The failure modes in the items that fall under a particular severity classification/mission phase combination

j = Last failure mode in the item under the severity classification/mission phase combination

3.1.19 Task Frequency

The Task Frequency field (CA.TSKFRQCA) has six ways of being calculated depending on the task interval code (2nd position of the task code). The cases are summarized as follows:

Task Interval Code	Perform Calculation
G or Y	Case 1
K or B	Case 2
Q, C, P, M, N, or L	Case 3
F or E	Case 4 (Oracle Only)
R	Case 5
J or D	Case 6

The following paragraphs will briefly describe how each calculation is performed based on the above cases.

Case 1:

If the task interval code is 'G' or 'Y', the task frequency is calculated for failure corrective tasks as follows:

$$TF = Anopr * \left(\sum_{i=1}^n Fmrato * Convac * (Failrt + Inmtbm + Nomtbn) \right)$$

where

<i>Anopr</i>	=	Annual Operating Requirement from AG.ANOPREAG
<i>Fmrato</i>	=	Failure Mode from BF.FMRATOFB
<i>Convac</i>	=	Conversion Factor from BA.CONFACBA
<i>Failrt</i>	=	Failure Rate from BD.FAILRTBD
<i>Inmtbn</i>	=	Mean Time Between Maintenance Induced from BD.INMTBMBD
<i>Nomtbn</i>	=	Mean Time Between Maintenance no Defect from BD.NOMTBMBD
<i>n</i>	=	The number of BH records for the Task

Case 2:

If the task interval code is 'K' or 'B', the task frequency is calculated for failure preventative tasks as follows:

$$TF = Anopr * (Convac / Manin)$$

where

Anopr = Annual Operating Requirement from AG.ANOPREAG
Convac = Conversion Factor from BA.CONVFAC
Manin = Average Maintenance Interval from BH.MAININBH

Case 3:

If the task interval code is 'Q', 'C', 'P', 'M', 'N', or 'L', the task frequency is calculated by using the following table.

Table 2 Task Frequency Values

Task Interval Description	Task Interval Code	Task Frequency Value
Calendar	Q	1
Daily	C	365
Monthly	P	12
Quarterly	M	4
Semiannually	N	2
Weekly	L	52

For example, if the Task Interval Code is C, the Task Frequency is automatically assigned 365.

Case 4 (Oracle only):

If the task interval code is 'F', or 'E', the task frequency is calculated for tasks as follows:

$$TF = Anopr / Freq$$

where

Anopr = Annual Operating Requirement from AG.ANOPREAG
Freq = Frequency 1 from TCA.FREQ1TCA

Case 5:

If the task interval code is 'R', the task frequency is calculated for tasks as follows:

$$TF = Anopr/Weo$$

where

$$\begin{aligned} Anopr &= \text{Annual Operating Requirement from AG.ANOPREAG} \\ Weo &= \text{Wearout Life from BA.WEOULIBA} \end{aligned}$$

Case 6:

If the task interval code is a 'J' or a 'D', the task frequency is set to 0.0.

3.1.20 Failure Rate

The Failure Rate in table BD (BD.FAILRTBD) is automatically calculated when a change is made to the Mean Time Between Failures Technical (BD.TEMBTfBD). The calculation is performed by taking the inverse of TEMBTfBD. The Failure Rate Measurement Base (BD.FARAMBBD) is set equal to the Mean Time Between Failures Technical Measurement Base (BD.TMTBFMBD).

$$FR = \frac{1}{MTBF_{TECHNICAL}}$$

where

$$\begin{aligned} FR &= \text{Failure Rate} \\ MTBF_{TECHNICAL} &= \text{Mean Time Between Failures Technical} \end{aligned}$$

3.2 USER COMMENTS

EAGLE provides a User Comments tool which allows a user to enter comments anytime EAGLE is running. These comments can be used to document additional information for a record or save any comments about the current application. The User Comments tool is a menu option under the EAGLE Tools menu item. In order to invoke the User Comments tool access **Tools>>View/Edit Comments** or **ALT-C**. Figure 11 illustrates the Add/Edit User Comments Window. Notice that the window title name reflects the application that was running while the User Comments tool was invoked.

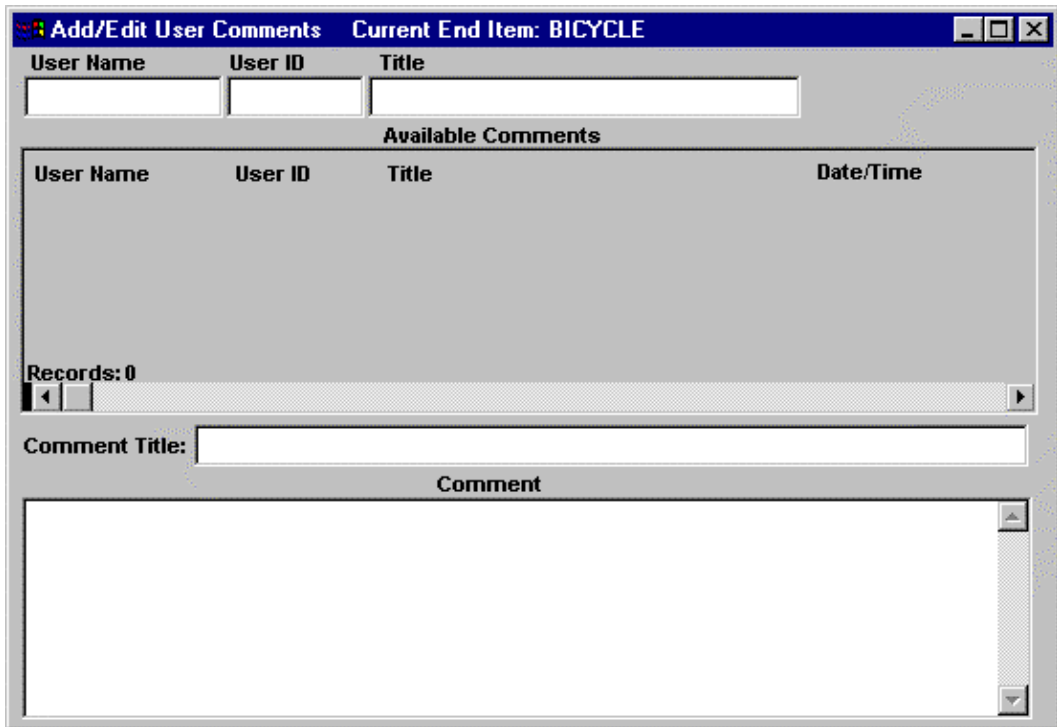


Figure 11 Add/Edit User Comments Window

Whenever a discipline is activated, the user comments are checked to see if there are any recent comments to display. If there are comments made within the last week, the window title of the discipline will display a ‘** NEW COMMENTS EXIST **’ message to notify the user.

If the user wishes to view these comments, **ALT-C** will activate the User Comments Window. This window lists the current available comments for the discipline. The arrow keys and mouse can be used to select the various comments.

3.2.1 TOOLS

EAGLE provides the user with a variety of tools that can be used virtually in any of the discipline functions. Some of these tools have been covered previously, so the applicable section will be referenced. The tools are accessed by using the menu and choosing the **Tools>>** option. The following paragraphs describe some of the tools available.

3.2.1.1 Spell Check

The Spell Check feature can be used to check the spelling in narrative fields in any window. It is a typical windows spell checker that identifies misspelled words and provides suggestions for correction. It is accessed by choosing **Tools>>Spell Check** from the menu.

3.2.1.2 Toolbar

The Toolbar feature allows the toolbar characteristics to be manipulated. It is accessed by choosing **Tools>>Toolbar** from the menu. Refer to Toolbar, Paragraph 3.1.3, for more information.

3.2.1.3 Options

The Options feature allows the database and client setup to be altered. It is accessed by choosing **Tools>>Options** from the menu. Refer to EAGLE Setup, Paragraph 3.1.5, for more information.

3.2.1.4 Change DB Password

The Change DB Password feature allows the user to change their database password. This is the password that is used when logging into EAGLE. It is accessed by choosing **Tools>>Change DB Password** from the menu. The passwords can be up to eight characters in length.

3.2.1.5 Current Database Users

The Current Database Users feature displays the current users that are logged onto the server. The database that the user is logged into is displayed under the Database Name and the user's login is displayed under Login Name. The Current Database Users feature is accessed by choosing the **Tools>>Current Database Users** from the menu. Figure 12 displays a sample result window that is displayed when this feature is chosen.

The screenshot shows a window titled "Current Database Users" with a subtitle "Current End Item: BICYCLE". The window contains a table with the following columns: Status, Session ID, OS Session ID, Serial #, Type, Database User, and Client. The table lists 11 records, with the first 6 being ACTIVE (BACKGROUND) and the last 5 being INACTIVE (USER). The Database User column shows "ESH9374_" for the active sessions and "EAGLE" or "SU" for the inactive sessions. A status bar at the bottom indicates "Records: 11".

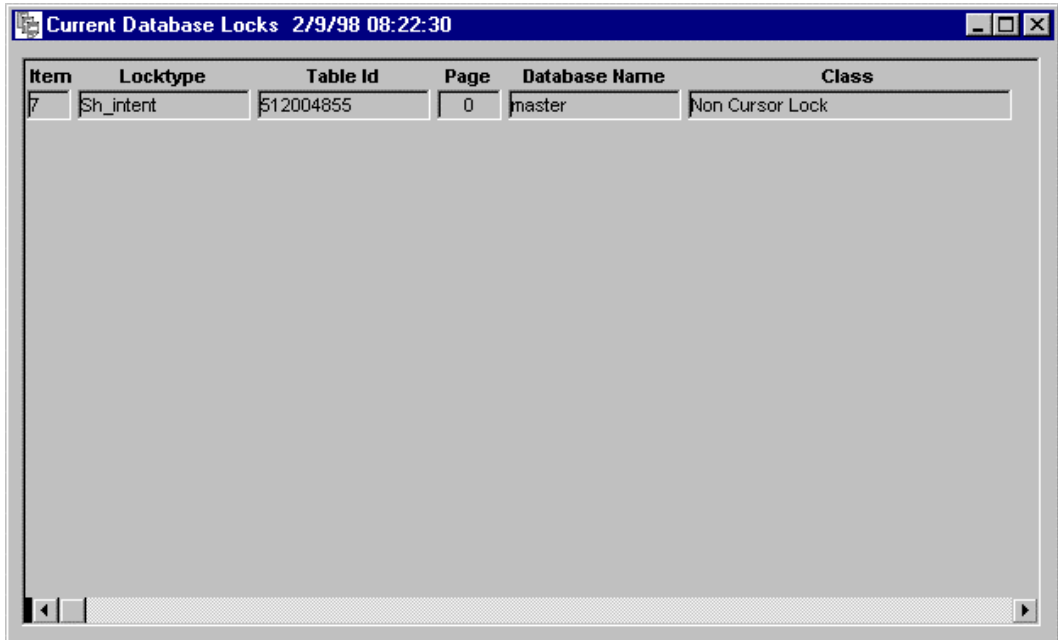
Status	Session ID	OS Session ID	Serial #	Type	Database User	Client
ACTIVE	1		1	BACKGROUND		
ACTIVE	2	15088	1	BACKGROUND		
ACTIVE	3	15090	1	BACKGROUND		
ACTIVE	4	15095	1	BACKGROUND		
ACTIVE	5	15097	1	BACKGROUND		
ACTIVE	6	15099	1	BACKGROUND		
ACTIVE	38		5476	USER	ESH9374_	T:
INACTIVE	10	17250	18188	USER	EAGLE	ts
INACTIVE	13	16816	14293	USER	EAGLE	ts
INACTIVE	23		22380	USER	EAGLE	ts
INACTIVE	43		40324	USER	SU	ts

Records: 11

Figure 12 Current Database Users Window

3.2.1.6 Current Database Locks

The Current Database Locks feature displays any locks on the database (Sybase only). The Current Database Locks feature is accessed by choosing the **Tools>>Current Database Locks** from the menu. Figure 13 displays a sample result window that is displayed when this feature is chosen.



The screenshot shows a window titled "Current Database Locks 2/9/98 08:22:30". The window contains a table with the following columns: Item, Locktype, Table Id, Page, Database Name, and Class. The table has one row of data.

Item	Locktype	Table Id	Page	Database Name	Class
7	Sh_intent	512004855	0	master	Non Cursor Lock

Figure 13 Current Database Locks Window

3.2.1.7 View Drawing

The View Drawing feature allows the user to view drawings that are stored in the database. This feature is applicable to discipline functions pertaining to reference numbers or drawing information. It is accessed by choosing **Tools>>View Drawing...** from the menu or **ALT+D**.

3.2.1.8 View Artwork

The View Artwork feature allows the user to view artwork that is stored in the database. This feature is applicable to discipline functions pertaining to reference numbers or artwork information. It is accessed by choosing **Tools>>View Artwork...** from the menu or **ALT+A**.

3.2.1.9 View/Edit Comments

The View/Edit Comments feature allows the user to append a comment to any discipline function. It is accessed by choosing **Tools>>View/Edit Comments** from the menu or **ALT-C**. Refer to User Comments, Paragraph 3.2, for more information.

3.2.1.10 Select End Item

The Select End Item feature is provided in the Oracle Version of EAGLE. It is accessed by choosing **Tools>>Change DB Password** from the menu. The Select End Item feature allows the user to select which end item to use while running the various disciplines in EAGLE. The end item that is selected is used by the security system to control access to data. If the user has the correct level of security, 'All' will be one of the choices. If 'ALL' is the chosen end item, the user may see all end items in the database; however, if a specific end item is chosen, the user will view only the specified end item information.

3.3 SECURITY

The Oracle Version of EAGLE contains an optional security system. The main reason for the security system in EAGLE is to stop non authorized users from inadvertently modifying other user's data. The EAGLE Security System consists of standard Oracle objects (i.e., tables, views, triggers, and synonyms) combined with a specially designed application called the EAGLE Security Manager. It controls access at the row level of tables by comparing the end item and an ownership identification code on each table to a user profile in an authorization table.

In order to secure data at the row level, it was determined that a common denominator was needed across all of the tables. To accomplish this two modifications to the MIL-STD-1388-2B standard were made. First, the column EIACODXA was added to each table that did not have end item as defined by the MIL-STD-1388-2B specification. This gave EAGLE the flexibility to allow users access to specific end item related data. Secondly, a column was added to each table in the database to show ownership. This column, USERIDZU, represents support groups of users working in teams or organizations. It is referred to as the teaming ownership identification code. This allows users in a common group to access and update the same data while limiting access to users outside the user group. Through the use of views and a table that holds valid end items and teaming ids for access, the security is enforced per row of data in a table.

3.4 DISCIPLINES

The following paragraphs briefly describe the EAGLE Disciplines.

3.4.1 ADHOC

The AdHoc Discipline provides the ability to define and generate unique or one-shot reports based on a particular instance or ad hoc need rather than the generation of standard reports. User-friendly screens are provided to assist the user in constructing the transaction statements necessary to produce the desired report or query. These screens generate the actual SQL statements that operate on the relational database to create the query. For more information on SQL, refer to Appendix A.

Once a query is created and executed, the resulting data is displayed. These results can be saved, printed or updated. Updates performed on the AdHoc results data are posted back to the database when the data is saved. Editing permissions on tables are set by the database administrator.

The AdHoc Discipline provides the ability to perform global changes on any table in the database using the Global Change Procedures Function. This function allows any table to be copied or deleted and handles all child tables accordingly.

For more detailed information, see ADHOC REPORTING AND UPDATING in the EAGLE Workbook and GLOBAL CHANGE PROCEDURES in the EAGLE Additional Disciplines book.

3.4.2 ADMINISTRATION

The EAGLE Administration Discipline provides the ability to change system settings for each EAGLE database, set any unique user requirements, and perform importing and exporting of data from the database. There are various Functions available in the Administration Discipline. They are the System Defaults Function, User Defaults Function, Program Required Fields Function, Create Change Only File Function, Create Fullfile Function, Import Change Only File Function, Import Fullfile Function, Change INI Settings Function, Comment Finder Function, Database Audit Trail, and User Security Maintenance.

The System Defaults Window allows defaults to be set for the EAGLE System. The defaults include whether or not automatic calculations and system transaction logging is turned on as well as the definition of colors to be used for special fields. The system defaults are valid for an entire database not just an end item.

The User Defaults Window allows defaults to be set for individual users of the EAGLE System. The defaults include the maximum number of rows returned in queries and whether to display initial warnings, cautions, and notes in the Depot Management System (DMS) Discipline. The user defaults are set at the user level for each database and they do not take affect until the next time the user logs into EAGLE.

To access the Administration Discipline:

- 1.) Using the Navigator, Select Administration from the Discipline Dialog box
- 2.) Using the Navigator, Select one of the Functions from the Dialog box by double-clicking on it

3.4.3 BREAKDOWN STRUCTURE

The Breakdown Structure Discipline allows the user to view an end item graphically in an indented list format. The breakdown can be based on either LCN or part application information. If the breakdown is based on LCN, the LCN Name and ALC are displayed. If the breakdown is based on part application, the Item Name and Reference Number are displayed.

The Breakdown Structure Discipline provides the capability to access various types of information for a single record. For example, once a record is selected in the Breakdown Structure Window, task information or provisioning information can be instantly accessed from the menu.

3.4.4 DEPOT MANAGEMENT SYSTEM (DMS)

The Depot Management Discipline consists of various functions. In general the functions can be broken up as follows:

- Depot Operation and Routing Tracking
- Warranty Configuration Tracking
- Failure and Repair Tracking
- Inventory Tracking
- Shop Order Tracking

The Operation and Routing function tracks Depot operations and repairs. Depot operations are stored in the database collectively as routes and are tied to processes or work instructions. This function allows LSAR and tech manual data to be used within Depot planning.

The Warranty Configuration function tracks configuration breakdown of delivered equipment and the warranty status of individual parts. All delivery information about an end item and its components is stored in the database as well as all applicable warranties for each part.

The Failure and Repair function tracks failures and repairs for delivered equipment. This function interfaces with the Warranty Configuration function to determine which failures and repairs are warranted. Overall, this function provides data for failure analysis and warranty determination. The Inventory function tracks parts that are in stock and provides a method for determining what items need to be re-ordered. Inventory is tracked by contract and inventory location.

The Shop Order function provides database tracking of shop orders. It allows different locations to reserve parts and provides a method to issue parts and update inventory quantities.

The AFDS (Automatic Failure Diagnostics System) incorporated in the EAGLE Depot Management Discipline is a patented (U.S. Patent 4,847,795) fuzzy learning/classification system. It provides high quality diagnostic predictions based upon test failure classification. Fault tree systems require analysis and updating with every ECP (Engineering Change Proposal). AFDS learns to predict failure causes based upon three data elements: test failure data, repair actions and subsequent test results. Like a human tester, AFDS begins to notice that certain test failure patterns are usually associated with a particular failure cause and can begin to predict the cause based simply on the failure pattern. Pattern matching need not be exact for the system to work. Unlike a human, AFDS can handle a large amount of pattern data and can remember rarely seen patterns with perfect clarity. Therefore, it is much more efficient than humans are at this type of diagnostic activity. If a given set of test failure data is ambiguous (more than one failure causes results in the same test failure pattern), AFDS will identify the ambiguity group and report its findings to system operators. The Test Definition, Rework Definition, and Test Results Finders of the Depot Management Discipline comprise AFDS.

3.4.5 ENGINEERING FAILURE SYSTEM

The Engineering Failure System Discipline provides the ability to track engineering failures and their replaced part information. This discipline is used to track failures and defects on equipment as it is being built. In addition, the Engineering Failure System Discipline allows failures to be tied back to processes stored in the database.

3.4.6 FACILITIES

The Facilities Discipline tracks all information that justifies and describes all proposed and additional facilities requirements, which are indicated as a result of the operational/maintenance task analysis.

3.4.7 FRACAS

The FRACAS Discipline is a failure reporting, analysis, and corrective action system based on MIL-STD-2155. The system is a closed loop FRACAS system. A failure is tracked through its life cycle until a root cause is determined. This system links the failure data to the LSAR for reporting of Mean Time Between Failures. The system uses the LSAR as a starting point for failure analysis.

3.4.8 GRAPHICS

The Graphics Discipline connects users to a database where graphic image files are stored. Graphics can be imported, exported, deleted, viewed, printed, plotted, marked up, and named for indexing/filing. Most graphic files are illustrations or engineering diagrams. In addition to viewing, importing, and exporting data into the database, the Graphics Discipline Viewer can be used as a converter. It allows files to be converted to any raster image listed in Appendix A of the Graphics and Publications book.

Drawings and Artwork may be accessed from any discipline that allows graphics. The Drawing and Artwork buttons are on the toolbar and will be activated if graphics data is available.

3.4.9 ICAPS

The ICAPS Discipline provides a unique user interface to provisioning information. The user interface is based on the Interactive Computer Aided Provisioning System Personal Computer Version (ICAPS-PC) Program written by the Naval Computer and Telecommunications Station in Jacksonville, Florida. The ICAPS Discipline user interface in EAGLE can be used to enter all provisioning information required for ICAPS-PC data files. Once the data is entered, it can be extracted and used to import into the ICAPS-PC delivery system. The ICAPS Discipline is designed so the user can enter all provisioning data without having to populate key LSAR tables.

3.4.10 LCN MAINTENANCE

The LCN Maintenance Discipline is the starting point for establishing a logistics database by creating the foundation tables. Understanding data dependencies is essential in this subject area, the basic establishment of relational data. Key data elements are created here, including EIAC, LCN and CAGE Code.

This discipline creates tables for:

<u>Table</u>	<u>Navigator Function Interface</u>	<u>Definition</u>
XA	End Item (XA) Maintenance	Maintains EIAC data and LCN structure
XB	LCN (XB) Maintenance	Maintains LCN data
XC	System/EI (XC) Maintenance	Maintains system/end item data
XD	System/EI SN (XD) Maintenance	Maintains system/end item serial number data
XE	System/EI SN/UOC (XE) Maintenance	Maintains system/end item serial number and UOC data
XF	LCN System/EI (XF) Maintenance	Maintains system/end item UOC cross reference
XG	LCN (XG) F to P Mapping	LCN Functional to Physical Mapping
XH	CAGE (XH) Maintenance	Maintains CAGE code and associated data
HA	Part (HA) Maintenance	Maintains part number data
HG	Part App. (HG) Maintenance	Maintains part application Provisioning data
HO	Prov. System/EI (HO) Maintenance	Maintain system/end item UOC cross reference

In addition, the LCN Maintenance Discipline provides a method to automatically generate LCNs using the Generate LCN Structure Function.

3.4.11 LSA MANAGEMENT

The LSA Management Discipline tracks data related to the following functions:

- tracking engineering changes in the logistic database and providing a level of configuration control for LSAR information
- housing additional information for packaging, item identification, part application, and reliability information,
- storing life expectancy information in the database,
- providing a repository for task analysis source documentation and validation information,

- housing additional information for customer specific support equipment, and
- providing a repository for customer comments and responses.

3.4.12 OPERATIONS MAINTENANCE

The Operations Maintenance Discipline tracks data relating to the anticipated operation of the system, the environment in which the system is to be maintained, and the maintenance requirements of the system which must be met.

3.4.13 PERSONNEL SKILLS

The Personnel Skills Discipline tracks descriptions and justifications of any new or modified personnel skills required to support the system/equipment.

3.4.14 PROVISIONING

The Provisioning Discipline allows for maintenance of provisioning data. Provisioning data refers to the compilation of information derived from engineering documents used for requisitioning for the government supply support system. Provisioning data also describes part reparability, disposition and purchase information through key data elements like UOC and SMR Codes.

Provisioning Discipline Data Finders:

<u>Navigator Function Interface</u>	<u>Definition</u>
Provisioning Finder	Allows maintenance of all provisioning data
Enter New Part	Allows adding new part data
UOC Maintenance	Allows useable on code maintenance

3.4.15 RELIABILITY & MAINTAINABILITY

The Reliability, Availability, and Maintainability (RAM) Discipline tracks item reliability, maintainability, and related availability characteristics of the item resulting from the failure modes and effects, criticality, and maintainability analysis. It accommodates a narrative description of any analysis related to the potential redesign of an item. This discipline provides a description of the function of each item of the end item; outlines the maintenance concept to be utilized for design and support planning purposes; and identifies any design conditions as fail safe requirements/environmental or nuclear hardness considerations imposed upon the system.

3.4.16 REPORTS

The Reports Discipline in EAGLE will generate all of the required LSA reports in accordance with the requirements of Appendix B of MIL-STD-1388-2B.

To run a report:

- 1.) Using the Navigator, Select Reports from the Discipline Dialog Box.
- 2.) Highlight the desired report from the Functions portion of the Navigator Window and double-click on it. The selection screen for the report will appear.
- 3.) Two types of selection parameters tabs are available: **Standard Parameters** and **Specific Parameters**. Both tabs provide report selection criteria including optional information like report destination name and path. All mandatory fields are displayed in red and **must** be entered before the report can be run. Report parameters are saved by session, retaining the most recently initialized values.
- 4.) Once the parameter tabs are complete, click on **Execute** in the tool bar to run the report.

3.4.17 SPARES MODELING

The Spares Modeling Discipline provides a model for calculating resource requirements recommendations. This discipline identifies what spares and support equipment is needed for customer support as well as potential costs.

3.4.18 SUPPORT EQUIPMENT

The Support Equipment Discipline tracks data related to existing or new support/test equipment or training equipment. This information serves as administrative type data for the Support Equipment Recommendation Data (SERD) report. This information also identifies hardware and software elements required to conduct off-line tests.

3.4.19 TASK ANALYSIS

The Task Analysis Discipline allows editing of task analysis data elements within the database. This information includes task details such as support equipment and personnel requirements to complete a task.

The Oracle and DEF STAN 00-60 versions of EAGLE allows Subtask SGML data and AECMA 1000D data module information to be stored into the database.

3.4.20 TECH MANUAL

The Tech Manual Discipline is a series of linked and interconnected software modules. The basic process for automated production of technical documentation is:

Extract

Extract required data from the database; extraction is guided by task stack, MIL-STD-1388 structure, and user-requested output type.

Parse

Create parsed ASCII file for input to Microsoft Word; add process and data codes as required.

Format

Create fully formatted Word document IAW requested milspec or other requirements. TMs can be formatted using the following options:

Pseudo Pub

Work Package Format Pub (MIL-M-87929A)

Work Package Format Pub (MIL-PRF-87929)

World Wide Web File (HTML)

General Format Pub (MIL-M-38784B) for both the U.S. Air Force and Navy

General Format Pub (MIL-M-38784B) for U.S. Army

Standard Markup File (SGML, MIL-M-38784C)

Standard Markup File (SGML, MIL-M-38784B)

Standard Markup File (SGML, MIL-M-87929A)

IETM SGML (AIMSS Import File)

AIMSS Hierarchical Task Export

TM/IPB Pub

TM Discipline Data Finders:

Navigator Window Interface

TM Finder

TRD Finder

IPB/RPSTL Finder

TCTO Finder

Definition

Tech Manual (entire book)

Test Requirements Document

Illustrated Parts Breakdown Data

Time Compliance Technical Order

3.4.21 TRANSPORTATION

The Transportation Discipline tracks transportability engineering analysis data. This data pertains to the transportability shipping modes and to the transported end item.

SECTION 4



EXTERNAL INTERFACES

SECTION 4 EXTERNAL INTERFACES

4.0 INTRODUCTION

This section briefly describes the external interfaces that have been added to the EAGLE application. These interfaces are accessed various ways within EAGLE and are often established to provide an electronic means of transferring data.

4.1 AECMA 1000D

An AECMA 1000D interface has been established within EAGLE using the FrameMaker product. EAGLE uses FrameMaker to produce SGML tagged AECMA 1000D data modules and other manuals.

FrameMaker is an Adobe product. FrameMaker is not included as part of EAGLE and is not required to run EAGLE. However, in order to use the FrameMaker interface to produce SGML tagged AECMA 1000D data modules or manuals, Adobe FrameMaker + SGML Version 5.5 or greater must be available.

4.2 AECMA 2000M

An AECMA 2000M interface has been established within EAGLE using the Logistics Business Systems (LBS) APACR 2000M product. The interface between the LBS APACR product and EAGLE is a seamless interface that allows the user to create AECMA 2000M compliant reports using the MIL-STD-1388-2B data stored in EAGLE.

The LBS APACR product is not included as part of EAGLE and is not required to run EAGLE. However, in order to use the interface to APACR for the AECMA 2000M compliant reports, the LBS APACR 2000M product must be available. In addition, it is assumed that both the APACR database and EAGLE database exist on the same server.

The EAGLE side of the APACR and EAGLE interface is implemented at the database level. Fields that are common to both APACR and EAGLE are programmatically updated to be the same. Control of the database fields is predetermined as follows:

EAGLE has control of changing the SMR Code which is called SMR in the APACR system and SMRCODHG in the EAGLE System. Whenever the SMRCODHG field is changed in the EAGLE database, the APACR database is updated.

APACR has control over the list of common data fields as shown in Table 3. Once a part exists in APACR, the common fields cannot be edited in EAGLE and the part cannot be deleted from

EAGLE. Whenever the corresponding field is updated in APACR, the EAGLE database is automatically updated.

Table 3 EAGLE / APACR Common Data Fields

EAGLE Field	APACR Field	Controlling System
EIACODXA	EAIC	APACR
CAGECDXH	MFC	APACR
REFNUMHA	PNR	APACR
NIINSNHA	NIN	APACR
SHLIFEHA	SLC	APACR
FSCNSNHA	NSC	APACR
ITNAMEHA	DFP	APACR
UNITISHA	UOI	APACR
UNITMSHA	UOM	APACR
UICONVHA	QUI	APACR
PRDLDTHA	PLT	APACR
HAZCODHA	HAZ	APACR
QTYASYHG	QNA	APACR
SMRCODHG	SMR	EAGLE
FIGNUMHK	CSN (7-9)	APACR
ITEMNOHK	CSN (10-13)	APACR
PROVNOHL	DFL	APACR
CANUMBHP	CAN	APACR
REFNCCHA	RNC	APACR
REFNVCHA	RNV	APACR
UIPRICHD	UPR	APACR

4.3 AIMSS

An AIMSS interface has been established within EAGLE using the Tech Manual Discipline. When extracting a tech manual from the database, various formats may be created. One of the formats is the IETM SGML (AIMSS Import) format. The document produced by the IETM SGML formatter may be exported to the AIMSS Interactive Electronic Technical Manual product.

4.4 LINKONE

LinkOne is a Mincom Pty Ltd product used by the EAGLE software to view and maintain electronic IPBs. EAGLE provides the capability to extract LSAR data into a file that is readable by LinkOne. Therefore, after using the EAGLE LSAR toolset to create data, a file can be extracted electronically and transmitted to the field where maintenance personnel have the LinkOne viewer available to view the IPB.

LinkOne is provided for demonstration purposes only, and can be purchased through Mincom Pty Ltd. There are various Mincom Offices throughout Australia, Asia, North America, South America, Europe, and South Africa. For convenience four phone numbers have been listed below for Mincom Offices.

Table 4 Mincom Office Phone Numbers

Company Name	Location	Phone Number
Mincom Pty Ltd	Brisbane, Queensland, Australia	+61 7 3364 9999
Mincom USA Inc.	Houston, Texas, North America	+1 713 497 4600
Mincom USA Inc.	Toronto, Canada, North America	+1 905 897 2479
Mincom Services Pty Ltd	United Kingdom, Europe	+44 1225 318 888

SECTION 5



ACRONYM LIST

SECTION 5 ACRONYM LIST

AECMA	The European Association of Aerospace Industries
AFDS	Automatic Failure Diagnostics System
AIMSS	Advanced Integrated Maintenance Support System
ALC	Alternate LCN Code
AOR	Annual Operating Requirements
BOM	Bill of Materials
ARS	Articles Requiring Support
CAGE	Commercial and Government Entity
CSV	Comma Separated Value
COTS	Commercial off the Shelf
DED	Data Element Definitions
DMS	Depot Management System
DTD	Document Type Definition
EAGLE	Enhanced Automated Graphical Logistics Environment
ECAR	Engineering Change Authority for Release
ECP	Engineering Change Proposal
EFS	Engineering Failure System
EI	End Item
EIAC	End Item Acronym Code
FRACAS	Failure Reporting Analysis and Corrective Action
FSCN	Federal Supply Classification Number

ACRONYM LIST

GAPL	Group Assembly Parts List
HTML	HyperText Markup Language
ICAPS	Interactive Computer Aided Provisioning System
ICC	Item Category Codes
IETM	Interactive Electronic Technical Manual
ILS	Integrated Logistics Support
IPB	Illustrated Parts Breakdown
LAN	Local Area Network
LBS	Logistics Business Systems
LCN	Logistics Control Number
LRU	Lowest Replaceable Unit
LSA	Logistic Support Analysis
LSAR	Logistic Support Analysis Record
MPL	Material Parts List
MRR1	Maintenance Replacement Rate I
MTBMA	Mean Time Between Maintenance Actions
MTTR	Mean Time to Repair
NIIN	National Item Identification Number
NPL	Numerical Parts List
PCCN	Provisioning Contract Control Number
RAM	Reliability and Maintainability

ACRONYM LIST

RPL	Reference Designator Parts List
RPSTL	Repair Parts Special Tool Listing
SE	Support Equipment
SERD	Support Equipment Recommendation Data
SGML	Standard Generalized Markup Language
SMR	Source, Maintenance and Recoverability Code
SQL	Structured Query Language
SSC	Skill Specialty Code
SWP	Subordinate Work Package (Sub Chapter)
TCP/IP	Transmission Control Protocol / Internet Protocol
TCTO	Time Compliance Technical Orders
TM	Technical Manual
TO	Technical Order
TRD	Test Requirement Documents
UOC	Useable on Code
URL	Uniform Resource Locator
UUT	Unit Under Test
WAN	Wide Area Network
WP	Work Package (Chapter)



GLOSSARY

GLOSSARY

AdHoc

The AdHoc Application provides the ability to define and generate unique or one-shot reports based on a particular instance

Administration Function

The Administration Function allows the user to select any of the ALP System Defaults or the ALP User Defaults. In addition, it provides access to importing and exporting files to the database as well as adding comments to the database.

AECMA

Association Europeenne des Constructeurs de Materiel Aerospacial. The European Association of Aerospace Industries.

AECMA Specification 1000D

Establishes standards for documentation agreed by the participating nations. These standards may be applied to the documentation for any air vehicle or equipment project. Provides a definition of an information data base. The data base is intended to provide source information for compilation of publications and for use in an electronic logistics information system to deliver modules of information direct to the user.

AECMA 1000D Interface

An EAGLE interface to FrameMaker has been created to produce AECMA 1000D compliant data modules. These data modules are intended for use in an electronic logistics information system to deliver modules of information direct to the user.

AECMA Specification 2000M

Defines the Materiel Management processes and procedures to be used in support of aircraft and other aerospace airborne and ground equipment supplied to Military Customers. Although AECMA 2000M is designed for aerospace support, it may be used for the support of any type of equipment.

AECMA 2000M Interface

An EAGLE interface to the Logistics Business Systems (LBS) APACR 2000M product has been created. This will be a seamless interface that allows the user to create AECMA 2000M compliant reports using MIL-STD-1388-2B data.

ALP

Automated Logistics Process. An application developed by Raytheon in the late 1980s to create an automated logistics process to deliver superior quality ILS products on time and at a low cost.

ALPDATADIR

The location of the ALP data directory. All temporary files created by EAGLE will be saved in this directory. The full directory path should be specified.

ALPDRAWDIR

The directory where EAGLE drawings are stored.

ALPTEMPLDIR

The location where the temporary files will be created. The full directory path must be specified.

Application

A customized program that performs tasks required by a specific situation.

Artwork Finder

The Artwork Finder is used to view and edit additional artwork for technical manuals. Images are stored in the database from TIFF and BMP files and may be extracted as TIFF, BMP, CGM and GIF.

Artwork ID

The ID of the artwork selected in the database.

Artwork Loader

The Artwork Loader scans a local file and inserts it into the database. TIFF, Targa, BMP and CGM currently can be loaded into the database.

Artwork Viewer

The Artwork Viewer allows viewing artwork graphics that have been inserted into the database.

ASC

ASC stands for an ascending sort order. A sort order is a set of rules that determines what order data is presented in response to queries from the database. Ascending sort goes from the beginning of the sort order to the end of the sort order.

Autodoc Parameters

These parameters are used by the technical manual process to create and format technical manuals.

Automatic Calculations

Calculations that are automatically performed when data is entered into the database. Automatic calculations can be turned on or off using the Administration Discipline.

Automatic Logging

Each transaction performed on the database can be written to an ASCII file. The default setting for change logging is disabled. The Administration Discipline is used to turn logging on or off.

Browse

Browse buttons are used to find a PC input file either on the local hard disk, or any of the attached network servers.

Cancel Button

The Cancel Button closes the current window without accepting any changes or updates.

Cascading Deletes or Copies

A cascading delete or copy affects the appropriate table and all its children tables. For example, when an EIAC is deleted, all LCNs under the EIAC are deleted, all tasks under the LCNs are deleted, and so on.

Case Sensitive

A database is case sensitive if a lower case letter is treated differently than an uppercase letter. For example, the EIAC of 'TEST' is different than 'test'.

CDICTIONARY

The location and file name of the spelling dictionary.

Checkboxes

Checkboxes are square boxes used to set independent options. When they are selected, they contain an X; when they are not selected they are empty.

Children Tables

See Dependent.

Clause

Part of a statement that begins with a keyword naming the basic operations to be performed.

Client

See Workstation.

Column

The logical equivalent of a field. A column contains an individual data item within a row or record.

Constraints

Constraints are assigned to tables to enforce referential integrity. Referential integrity controls connections between tables allowing them to be linked together successfully and completely.

CSV File

A database file where entries are separated by commas.

Current DB Locks

Database locks are caused by one or more users trying to perform the same operation or similar operations to a database. A lock is data that is secured for write access so that no other process can write to the data. Whenever a table is used, the server automatically applies locks to tables as necessary. Therefore, database locking conflicts should rarely happen.

Data Element

A set of data items in the database. A data element relates to a column of data in a table.

Data Integrity

Accuracy and reliability of data provided through transaction logging, stored procedures, and triggers.

Data Item

A specific data element. A data item relates to a cell in a table

Data Record

A set of related data element selected by a query. Relates to a row of data in a table.

Data Window

A window that is used to retrieve, present, and manipulate data from a relational database.

Database

A set of related data tables and other database objects that are organized and presented to serve a specific purpose.

Database Management System

A consistent method for storing, organizing, retrieving and calculating data in a database.

Datatype

Specifies what kind of information each column holds and how the data is stored.

Default

The option chosen by the system when no other option is specified.

Dependent

Data is logically dependent on other data when master data in one table must be kept synchronized with detail data in another table to protect the logical consistency of the database.

DESC

DESC stands for an descending sort order. A sort order is a set of rules that determines what order data is presented in response to queries from the database. Descending sort goes from the end of the sort order to the beginning of the sort order.

Discipline

An EAGLE application.

Display Plain Names Checkbox

The Display Plain Names Checkbox is available to help the user identify table and column names that will be used in the new query. If this checkbox is selected, all table and column names will be displayed in their 'plain name' format instead of the actual abbreviated column or table name.

DMS

Depot Management System that aids with operations, routing, and repair for parts in the depot.

Drive

The disk drive identifier. When used as part of a filename, the disk drive identifier must be followed by a colon.

Drop Down List Box

A box that drops down (opens) into a List Box when it is selected. See List Box.

EAGLE

Enhanced Automated Graphical Logistics Environment (EAGLE) software is an integrated database system that provides traditional and innovative real-time solutions for automating logistics, provisioning, and technical publication tasks Raytheon commercial off the shelf (COTS) and third party COTS that provide users with the means to maintain a logistics database and automatically produce a variety of logistic products using the Windows environment.

Execute

Executes the current report or activates the current query in the Data Finder window.

Exit

Exits the Interface.

Exporting

Exporting is when data is taken from the database tables and written to a file.

Field

A single item of information contained in a record. The logical equivalent of a column.

Field Colors

Colors for required fields, mandatory fields, and program required fields can be set using the Administration Discipline.

Foreign Key

A column (or combination of columns) whose values are required to match a primary key in some other table.

Freeform

When the Freeform radio button is selected the AdHoc Dialog Query Edit Window allows manual typing of table names and columns for data to be selected from the database.

Fullfile Imports/Exports

The Fullfile is an ASCII text file which contains table images all of the information in an LSAR database without a point-in-time reference. The content of the Fullfile can be controlled on a per-table basis in EAGLE by enabling or disabling a column in the ZFULLFILE table.

Function

A program contained or controlled by a discipline.

Function Toolbar

The Function Toolbar is normally displayed on the left hand side of the screen and mirrors the process options found in the Reports/Process menu.

Help (ALT+H,C) or (F1)

This function runs the on line help.

Help Button

The Help Button provides help on the current window.

ICAPS

Interactive Computer Aided Provisioning System Personal Computer Version (ICAPS-PC) Program written by the Naval Computer and Telecommunications Station in Jacksonville, Florida.

HTML Publication

The HTML formatter will produce a publication based on the MIL-M-38784B specification that can be viewable on a web browser that is HTML 3.0 compliant.

IETM Publication

The IETM formatter will produce a document that may be exported to the AIMSS Interactive Electrical Technical Manual product.

Importing

Importing is when data is taken from a file and written to the database.

Index

A set of pointers that are logically ordered by the values of a key. Indexes provide quick access to data and can enforce uniqueness on the rows in a table.

Insert (ALT+D,I)

Inserts a modified record into the database.

IPB Publication

An Illustrated Parts Breakdown (IPB) is a publication that references figures to a parts list.

Item Help (ALT+H,I)

Activates the Context Sensitive Help. The cursor will be displayed as an arrow with a question mark. Clicking on most screen elements will display their help topic.

Join

A basic operation in a relational system that links the rows in two or more tables by comparing the values in specified columns.

Key

A field used to identify a record, often used as the index field for a table.

Key Field

A field that designates a unique data record in the database.

Kickout File

The Kickout File is an output file that will contain any records that didn't get imported into the database. Records are written into the Kickout File when they violate a database rule or referential integrity. After the data errors are fixed in the Kickout File, it can be used as the new input file for importing the kicked records.

List Box

A list box displays available choices and may have a scrollbar if more choices exist that can be displayed in the List Box at one time.

Local Area Network (LAN)

A system that enables PCs to have access to common data and peripherals. LANs typically consist of PCs with adapter cards, file servers, a network operating system, printers, and gateways to departmental or corporate computers.

LRU

An LRU is the lowest replaceable unit of a piece of equipment. For example, a circuit card or power supply.

LSA

Logistics Support Analysis

LSAR

Logistics Support Analysis Record

Message File

The Message File is a Standard ASCII Text file which contains any status or error messages that have been generated by the report generator during processing of the report. The file can be viewed and/or printed from the Reports Business Process by selecting Display/Print Existing Report from under the Reports/Process menu.

MIL-M-38784B Publication

The MIL-M-38784B is a technical publication compliant with the Army 38784B General Publication formatting specification.

MIL-M-87829A Publication

The MIL-M-87829A is a technical publication compliant with the Navy 87829A Work Package specification. It breaks a task into functional work sections with procedural steps.

NULL

Having no explicitly assigned value. NULL is not equivalent to zero or blank. A value of NULL is not considered to be greater than, less than, or equivalent to any other value, including another value of NULL.

OK Button

The OK Button is pressed when everything on the screen is correct and the user is ready to continue.

Operating System

A group of programs that translate statements into computer language. The operating system is used to perform such tasks as creating files, running programs, and printing documents.

Operation

Steps performed by the Depot when doing repairs.

Option

An optional value supplied to a statement, program or procedure.

OR

OR statements join two conditions and return results when either of the conditions is true. When more than one logical operator is used in a statement, OR operators are normally evaluated after AND operators. However, you can change the order of execution with parentheses.

Order By Window

The Order By Window is activated by the Sort button. It allows selection of which columns to sort the data on and what order they should be sorted. Appropriate operators are inserted into the Order By Dialog Edit Window when multiple columns or fields are required. Once the order by clause is complete and the OK button is pressed, the Edit Query Dialog is updated to reflect the order by clause changes.

Orientation

Indicates whether the graphic will be displayed as Landscape or Portrait when extracted.

Output File

The Output File will contain the Results of the records that were exported from the database. Records are written in the standard LSAR table data image format. In other words, the Output File contains lines of information that resemble rows from the LSAR tables.

Parameter

A value supplied to a statement, program, or procedure.

Paste Spreadsheet (ALT+E,P,P)

A command that copies a spreadsheet in the clipboard into the active window or selected data cells.

Planning

Work instructions for the Depot or tech manual process.

Permissions

The authority to perform certain actions on certain database objects or to run certain statements.

Primary Key

The column or columns whose values uniquely identify a row in a table.

Process

Processes are defined as actual tasks and subtasks from the LSAR database

Pseudo Publications

A Pseudo Publication allows the viewing of the tagged document. With the exception of table and figure tags, the format tags will not be processed to facilitate viewing of the tagging structure. Figures and tables will be displayed in the extracted format.

Query

A request for the retrieval of data with a SELECT statement.

Radio Buttons

Radio Buttons are round buttons that represent mutually exclusive options. They always exist in groups. Exactly one Radio Button is selected in each group. When a Radio Button is selected, it has a dark center; when it is not selected, the center is blank.

Record

A group of related fields (columns) of information treated as a unit; the logical equivalent of a row.

Referential Integrity

The rules governing data consistency, specifically the relationships between the primary keys and foreign keys of different tables. SQL addresses referential integrity with user-defined triggers.

Relational Database Management System

Organizes data into rows and columns.

Report File

The Report File is a Standard ASCII Text file in the format specified for the given LSAR Report. The file can be viewed and/or printed from the Reports Business Process by selecting Display/Print Existing Report from under the Reports/Process menu.

Report Parts

Certain reports consist of multiple parts. The Report Parts field allows selection of which part of the report to generate. Since some parts of a report may be dependent on other parts of the report, the Report Parts field provides the combination of part options that can be generated in the report.

Repro Size

Indicates the desired screen size of the current graphic, i.e. full size, half size or quarter size. The graphic will be scaled to fit if it doesn't exceed the selected size. No scaling occurs if the graphic is larger.

Requester

The Requester is usually the person generating the report; therefore, Requester is defaulted to the user id for the session. However, the Requester can be changed to reflect a person's name, group, department, etc.

Route

A collection of Depot operations to complete a task or repair.

Row

A set of related columns that describe a specific entry; also called a record.

Rows Returned

Total number of records retrieved by the current query.

Rule

A specification that controls what data can be entered in a particular column or in a column of a particular user-defined datatype.

Save As (ALT+F,A)

This command saves the active data window information as either text, CSV, or Excel. The Save screen will appear. To save a document.

Save Setting On Exit (ALT+T,S,S)

This command keeps all current interface settings.

Save/Apply (ALT+E,S)

This command updates the database with current insertions and deletions. The user will be prompted to save changes when exiting a window where data was changed.

Select All (ALT+E,L)

This command highlights all text or selections in the active window.

Server

A computer on a local-area network that controls access to resources such as files, printers, and modems.

SGML Publication

The SGML formatter will produce an SGML compliant document formatter similar to the 38784B specifications. This document may be viewed through an SGML compliant viewer.

SQL

An acronym for Structured Query Language; a database query and programming sub-language.

Structured Query Language (SQL)

Structured Query Language (SQL) is a high-level language for relational database systems. With SQL you can query, insert, update and delete data in a database. SQL works on database systems like Sybase, Oracle, and Microsoft Access.

Statement

Part of the SQL Server language that begins with a keyword that names the basic operation to be performed.

Step

A list of actions that are performed by the user to complete tasks. Steps are denoted by the word STEP in the workbook.

Stored Procedure

A collection of SQL statements and optional control-of-flow statements stored under a name. Stored Procedures are used by applications to perform a given task. They are generally user defined process that are used over and over again.

Syntax

The rules governing the structure of a command.

System Administrator

The person responsible for the administrative and operational functions that are independent of any particular application.

System Tables

System tables store information about the database environment. Generally these tables are not accessible by the regular database user. They are used by Applications or System Administrators to get status on users or other database tables.

Table

A collection of rows (records) that have associated columns (fields). Tables are where the data is stored in the database.

Table Views

Table Views are pre-defined ways to look at the database tables. The views may consist of many tables combined to look as one table.

Tag Start Line

The Tag Start Line refers to the selected line in the text narrative display. This is the line that the corresponding tags operation will start on.

Tags

Text fields which indicate formatting for certain parts of text or narrative. Formatting tags can be added to text narrative. Tags are linked to individual lines of text. They provide style, organization, and arrangement information for manipulation and customization of the narrative text during the production development of the final tech manual.

Task Stack

A technical manual is made up of chapters and chapters are made of processes. The processes are defined as actual tasks and subtasks from the LSAR database. The task stack consists of a stack or list of these processes which is created by the user. The tech manual extraction feature uses the task stack to produce the manual.

TCTO Publication

Document is formatted per the Air Force Time Compliant Technical Order. The TCTO Provides instructions to activities for accomplishing or recording one time changes to systems, procedures or equipment.

Temporary Files

Tables or files that are used to store data temporarily. They are created at the time they are needed, and they are deleted when the application is done with them.

Transaction

A series of processing steps that results in a specific function or activity being completed. A mechanism for ensuring that a set of actions is treated as a single unit of work.

TRD Publication

The Test Requirements Document (TRD) is used to specify testing requirements for Units Under Test as defined in MIL-STD-1519.

Trigger

A special form of a stored procedure that goes into effect when a user issues a change statement such as INSERT, DELETE, or UPDATE to a specified table or column. Triggers are often used to enforce referential integrity and to control what data can be added to a table.

Under EI Warranty

A calculated field that reports whether or not a specific part, which has failed, is covered under the End Item Warranty.

Unique Index

An index in which no two rows are permitted to have the same index value.

URL

The Uniform Resource Locator (URL) is a convention used to locate files over the internet or world wide web.

User Name

Enter your database user ID assigned by the system administrator. This ID may be different than your network login ID.

User Password

Enter your database user password assigned by the system administrator. This password may be different than your network login password.

User Tables

User Tables store the database information used by the Application. Data that is saved to the database is kept in the User Tables.

View

An alternate way of looking at the data in one or more tables. A view is usually created as a subset of columns from one or more tables.

Where Functions

The Where Functions offer packaged functions to be used in where clauses or join clauses. They are used to perform functions on database fields while comparing values in the where clause or join clause.

Wildcard Characters

Special characters, the underscore (_) and the percent sign (%), used with the LIKE keyword to stand for one (_) or any number of (%) characters in pattern-matching.

Window

A portion of the display that appears as a separate viewing area outlined by a frame or border.

WORDDIR

Indicates the location of the MS WORD directory. The Microsoft Word in this directory is used for formatting technical manuals. The full directory path should be specified for the WORDDIR value.

WORDSTARTDIR

Indicates the location of the word template EAGLELIB.DOT. The full directory path should be specified for the WORDSTARTDIR value.

WORDTEMPLDIR

Indicates the location of the word template directory. Word templates must be placed in this directory. The full directory path should be specified for the WORDTEMLPDIR value.

Workstation

A computer used to work on a local-area network.



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***STUDENT
NOTES***

Enhanced Automated Graphical Logistics Environment

Technical support is provided by the EAGLE Team of Raytheon Company. Phone support is available Monday through Friday from 8:00 a.m. to 4:30 p.m. Mountain Standard Time. EAGLE technical support personnel can be reached at (520) 663-6673. Training on the EAGLE product is available.

Are you ready for EAGLE? Join Team EAGLE and find out what it's like to soar. Give your logistics software product the EAGLE advantage. For more information on becoming part of Team EAGLE, contact:

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