




FAD ONLINE RETRIEVAL AND TRACKING SYSTEM (FORTS)
VERSION 1.0

SYSTEM DESIGN DOCUMENT

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CHANGE HISTORY LOG

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0.1	5/2/01	Wallace	Initial draft.
1.0	5/7/01	Wallace	Updated entire document to reflect functionality available in release 1.0.

TABLE OF CONTENTS

1. INTRODUCTION	3
1.1 PURPOSE.....	3
1.2 SYSTEM OVERVIEW	3
1.2.1 Design Constraints.....	4
1.2.2 Future Contingencies.....	4
1.3 POINTS OF CONTACT.....	5
1.4 PROJECT REFERENCES	5
1.5 GLOSSARY.....	5
2. SYSTEM ARCHITECTURE.....	7
2.1 SYSTEM HARDWARE ARCHITECTURE.....	7
2.1.1 FORTS Development Environment Architecture	8
2.1.2 FORTS Production Environment Architecture.....	9
2.2 SYSTEM SOFTWARE ARCHITECTURE.....	9
2.2.1 FORTS Log on	12
2.2.2 Searching FORTS	13
2.2.3 Editing FORTS Details.....	14
2.2.4 Viewing FORTS Reports.....	15
2.2.5 Creating User Accounts	16
2.2.6 Editing User Accounts.....	17
2.2.7 Viewing the User History Report.....	18
3. FILE AND DATABASE DESIGN.....	19
3.1 DATABASE MANAGEMENT SYSTEM FILES.....	19
3.2 NON-DATABASE MANAGEMENT SYSTEM FILES.....	19
4. HUMAN-MACHINE INTERFACE.....	20
4.1 INPUTS	20
4.1.1 FORTS Log on Procedure Inputs	21
4.1.2 Searching FORTS Inputs.....	22
4.1.3 Editing FORTS Details Inputs	24
4.1.4 Viewing FORTS Reports Inputs	26
4.1.5 Creating User Accounts Inputs	27
4.1.6 Editing User Accounts Inputs.....	29
4.1.7 Viewing the User History Report Inputs	30
4.2 OUTPUTS.....	31
4.2.1 FORTS Log on Procedure Outputs.....	31
4.2.2 Searching FORTS Outputs	32
4.2.3 Editing FORTS Details Outputs.....	33
4.2.4 Viewing FORTS Reports Outputs.....	36
4.2.5 Creating User Accounts Outputs.....	36
4.2.6 Editing User Accounts Outputs	39
4.2.7 Viewing the User History Report Outputs.....	41

1. Introduction

1.1 Purpose

This design document describes the system design for FORTS. The document pays particular attention to system architecture, database design, and integrity controls.

This document contains the following information:

- System Overview – Provides a brief background of FORTS in order to provide the reader with a foundation for understanding the system and the JCS's rationale for developing it.
- System Architecture – Describes the overall system hardware and organization. This section includes a list of hardware components (with a brief description of each item) and diagrams showing the connectivity between the components.
- File and Database Design – Explains the design of all database management system (DBMS) files and the non-DBMS files associated with the system under development. This section references a comprehensive data dictionary showing data element name, type, length, source, validation rules, maintenance (CRUD capability), data stores, outputs, aliases, and descriptions.
- Human-Machine Interface – Provides the detailed design of the system and subsystem inputs and outputs relative to the user/operator.
- Detailed Design – The hardware detailed design provides information about individual component requirements necessary to correctly build and/or procure all of the hardware for the system, or integrate COTS items. The software detailed design provides information about logic and data necessary to completely write source code for all modules in the system, or integrate COTS software programs.
- External Interfaces – External systems are any systems that are not within the scope of the system under development, regardless whether the other systems are managed by the JCS or another agency. This section describes the electronic interface(s) between this system and each of the other systems or subsystem(s).
- System Integrity Controls – Outlines all system integrity controls included in the system under development.

1.2 System Overview

Currently, the Joint Staff and the Joint Materiel, Priorities, and Allocation Board (JMPAB) use up to four different service databases, spreadsheets, or other manual methods to conduct Force Activity Designator (FAD) I – V and foreign country FAD assignment reviews. Consequently, the Joint Staff

has recognized a need for a consolidated database that will facilitate FAD review. The required database will allow the Joint Staff, Services, and the JMPAB working group to conduct FAD reviews and comparisons of all FAD assignments.

In addition to the database, the Joint Staff has identified a need for a simple graphical user interface (GUI) that will allow users to conduct searches for specific Department of Defense Automated Address Codes (DoDAAC), Unit Identification Codes (UIC), Stock Record Accounting Numbers (SRAN), Requisition Activity Codes (RAC), and FADs, validate FAD assignments, and generate reports detailing DoDAAC and FAD activity.

This project will require the creation of a centralized, Internet-enabled FAD data warehouse that will be accessible to and useable by all DoD logistics customers as well as Defense and Service logistics oversight agencies. This data warehouse must provide ready accessibility to all FAD-related data by authorized users and allow any combination of data correlation among individual data elements. These correlations include, but are not limited to:

- ✓ data characterized by unit
- ✓ current FAD
- ✓ date current FAD was awarded
- ✓ expected FAD upgrade date
- ✓ expected FAD downgrade date
- ✓ location by Commander in Chief (CINC)
- ✓ location by geographic location
- ✓ location by FORTS number

Once created and implemented, users must have the capability to update and/or validate FAD-related information stored in the data warehouse on a daily basis.

1.2.1 Design Constraints

This section describes any constraints in the system design (i.e., trade-off analyses conducted, such as resource utilization versus productivity, or conflicts with other systems) and includes any assumptions made by the project team in developing the system design.

1.2.2 Future Contingencies

This section describes any contingencies that might arise in the design of the system, which may change the development direction. Possibilities include the lack of interface agreements with outside agencies or unstable architectures at the time that this document is produced. Address any possible workarounds or alternative plans.

DLMS – Defense Logistics Management System: The group responsible for administering the DoD's Defense Logistics Standard System (DLSS) [formerly known as the Military Standard Logistics Systems (MILS)], Physical Inventory Control Program, Interfund Billing System (IBS), Customer Wait Time (CWT), and other designated standard logistics systems.

DLSS – Defense Logistics Standard System: Formerly Military Standards Logistics Systems (MILS), this system provides procedures for communicating requirements, moving material, and performing the other tasks that ensure the continuing operation of the DoD's logistics system.

DoDAAC – Department of Defense Automated Address Code: A unique code assigned to each of the DoD's logistics customers. These customers include the Army, Air Force, Navy, Marine Corps, Coast Guard, Defense Security Cooperation Agency, and other Federal agencies. Currently, there are 33,000 assigned DoDAACs.

DASD – Direct Access Storage Device: A machine/device that reads data from and writes data onto a disk. A disk drive rotates the disk and consists of one or more heads that read and write data.

FAD – Force Activity Designator: A designator, which can be assigned down to the unit level, that identifies a unit's priority. Groups or units with higher priority receive higher priority treatment in fulfillment of their requisitions in the supply and transportation communities. DoD logistics customers (i.e., those customers assigned a DoDAAC) will have multiple FADs since they will have multiple units under their purview. FAD levels are identified by I, II, III, IV, or V; I being the highest priority and V being the lowest. (**NOTE**: FADs are reviewed on a regular basis and can be upgraded or downgraded as necessary.)

FPI – Force Package Indicator: – TBD

OLTP – On-Line Transaction Processing: A type of computer processing in which the computer responds immediately to user requests. Each request is considered to be a *transaction*. Automatic teller machines for banks are an example of transaction processing.

RAC – Requisition Activity Code: A unique code used by the United States Coast Guard to track transportation and materiel requisitions.

SBSS – Standard Base Supply System: A standardized system for ordering and receiving supplies.

SIPRNET – Secret Internet Protocol Routing Network: Replaces the DDN DSNET1 as the SECRET portion of DISN.

SOCOM – Special Operations Command: Identifies forces designated as or assigned to the Special Operations Command.

SRAN – Stock Record Accounting Number: TBD

2.1.1 FORTS Development Environment Architecture

Figure 2.1.1-1 illustrates the FORTS development environment architecture. Table 2.1.1-1 describes all hardware components comprising the architecture.

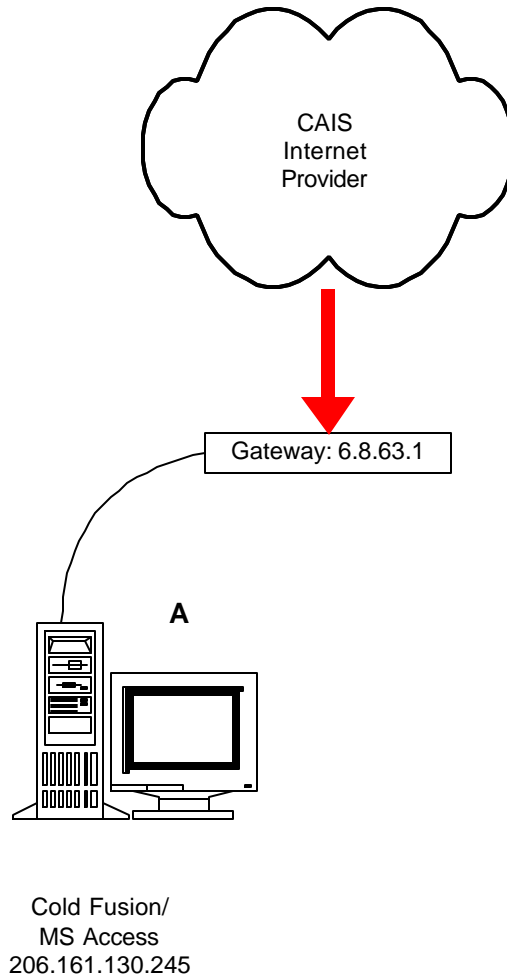


Figure 2.1.1- FORTS Development Architecture

Table 2.1.1-1 – FORTS Development Hardware

FORTS Development Hardware								
	Description	Configuration	E4500	Ultra10	D1000	A3500	A5100	TCP/IP
A								

2.1.2 FORTS Production Environment Architecture

The detailed FORTS production environment architecture diagram and hardware descriptions are available from JITC.

2.2 System Software Architecture


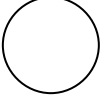

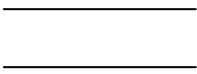
FORTS is designed to allow users to search for FORTS information, edit FORTS details, and produce detailed FORTS reports as well as administer user accounts.

FORTS is comprised of the following functions:

- Logging on to FORTS,
- Searching FORTS,
- Editing FORTS Details,
- Viewing FORTS Reports,
- Creating User Accounts,
- Editing User Accounts, and
- Viewing the User History Report.

The processes associated with each function available to FORTS users are described in Sections 2.2.1 through 2.2.7. Table 2.2-1 explains the symbols used in the data flow diagrams. Table 2.2-2 lists all software modules that control the FORTS Web application.

Table 2.2-1 – Data Flow Diagram Conventions

Symbol	Description
	Designates an external data source or destination that is outside the system's scope.
	Designates a process (data transformation) used to convert the input data to output data; a parent process can be recomposed into two or more subprocesses (child processes).
	Designates a data flow (movement of data between processes or data stores); arrowhead indicates direction.
	Designates a data store (information being stored until it is needed by another process).

2.2.1 FORTS Log on

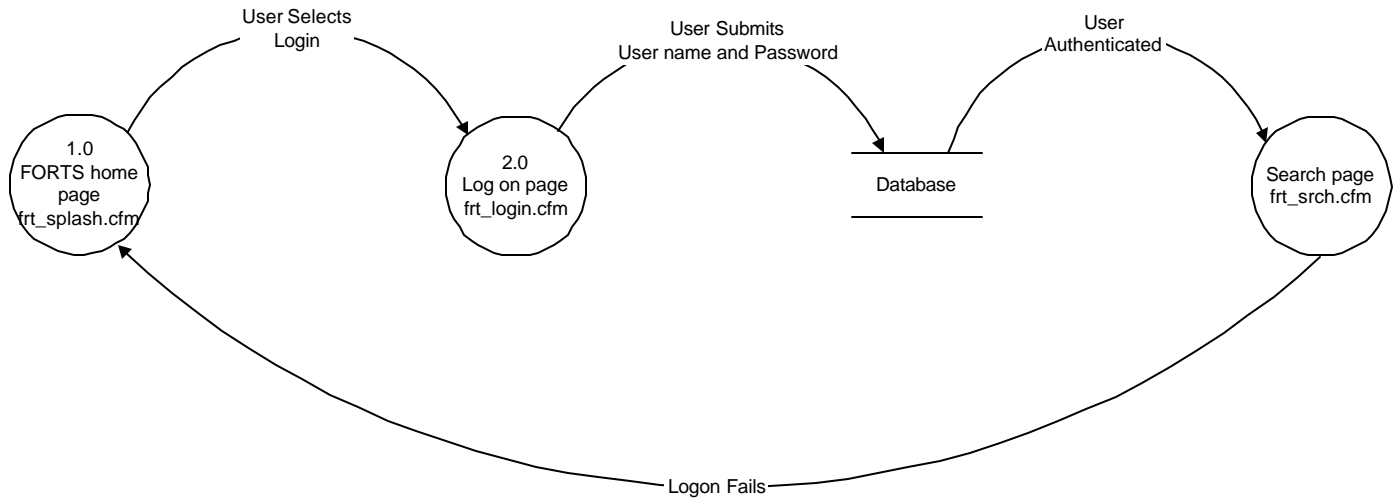


Figure 2.2.1-1 – FORTS Log on Function Data Flow Diagram

The FORTS log on function is comprised of the following processes:

- Process 1.0 – User selects **Login** from the menu bar. Maps to Section 5.2.1.
- Process 2.0 – User submits user name and password. Maps to Section 5.2.1.

2.2.2 Searching FORTS

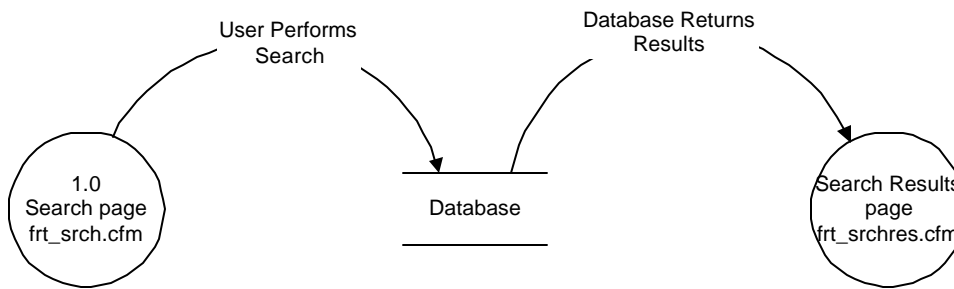


Figure 2.2.2-1 – Searching FORTS Function Data Flow Diagram

The FORTS search function is comprised of the following processes:

- Process 1.0 – User submits search criteria. Maps to Section 5.2.2.

2.2.3 Editing FORTS Details

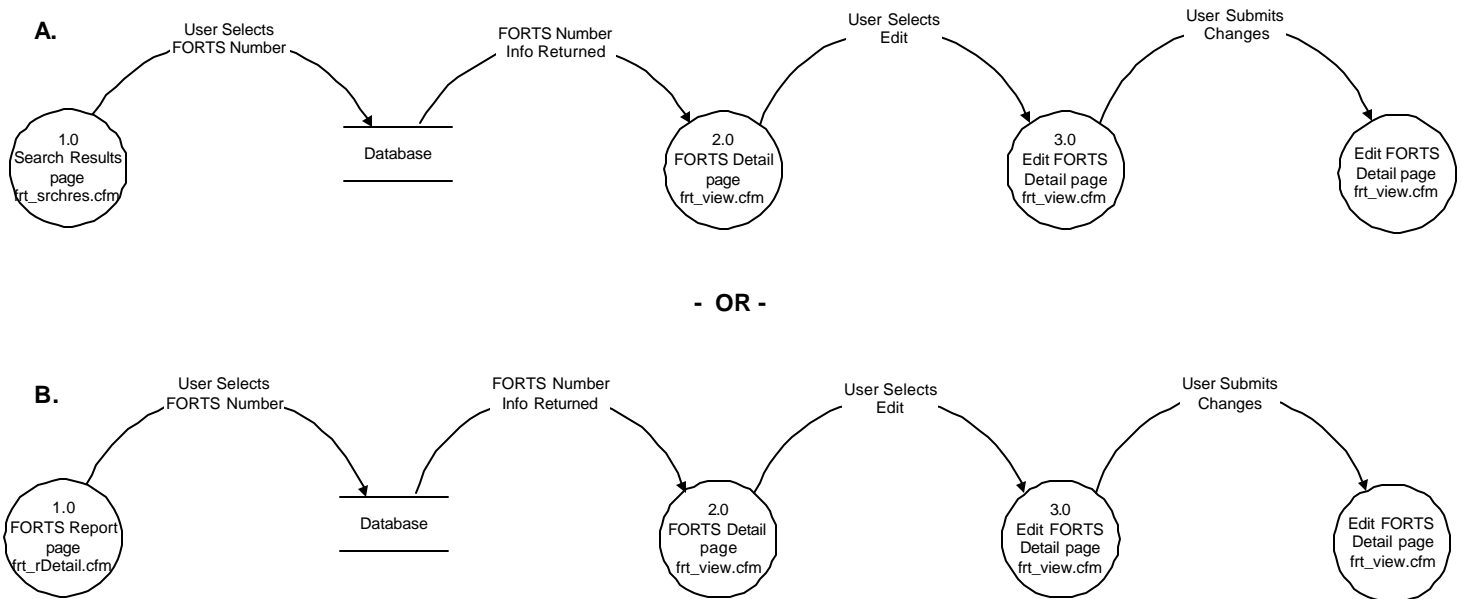


Figure 2.2.3-1 – Editing FORTS Details Function Data Flow Diagram

The editing FORTS details function is comprised of the following processes:

- Process 1.0 A – User selects a FORTS Number from the Search Results page. Maps to Section 5.2.3.
- Process 1.0 B – User selects a FORTS Number from a Report page. Maps to Section 5.2.3.
- Process 2.0 A and B – User chooses to edit the FORTS details. Maps to Section 5.2.3.
- Process 3.0 A and B – User submits updated information. Maps to Section 5.2.3.

4.1.1 FORTS Log on Procedure Inputs

The user interface for logging on to FORTS is shown in Figure 4.1.1-1. Table 4.1.1-1 lists all data elements associated with the interface. Table 4.1.1-2 defines the input attributes for all fields.

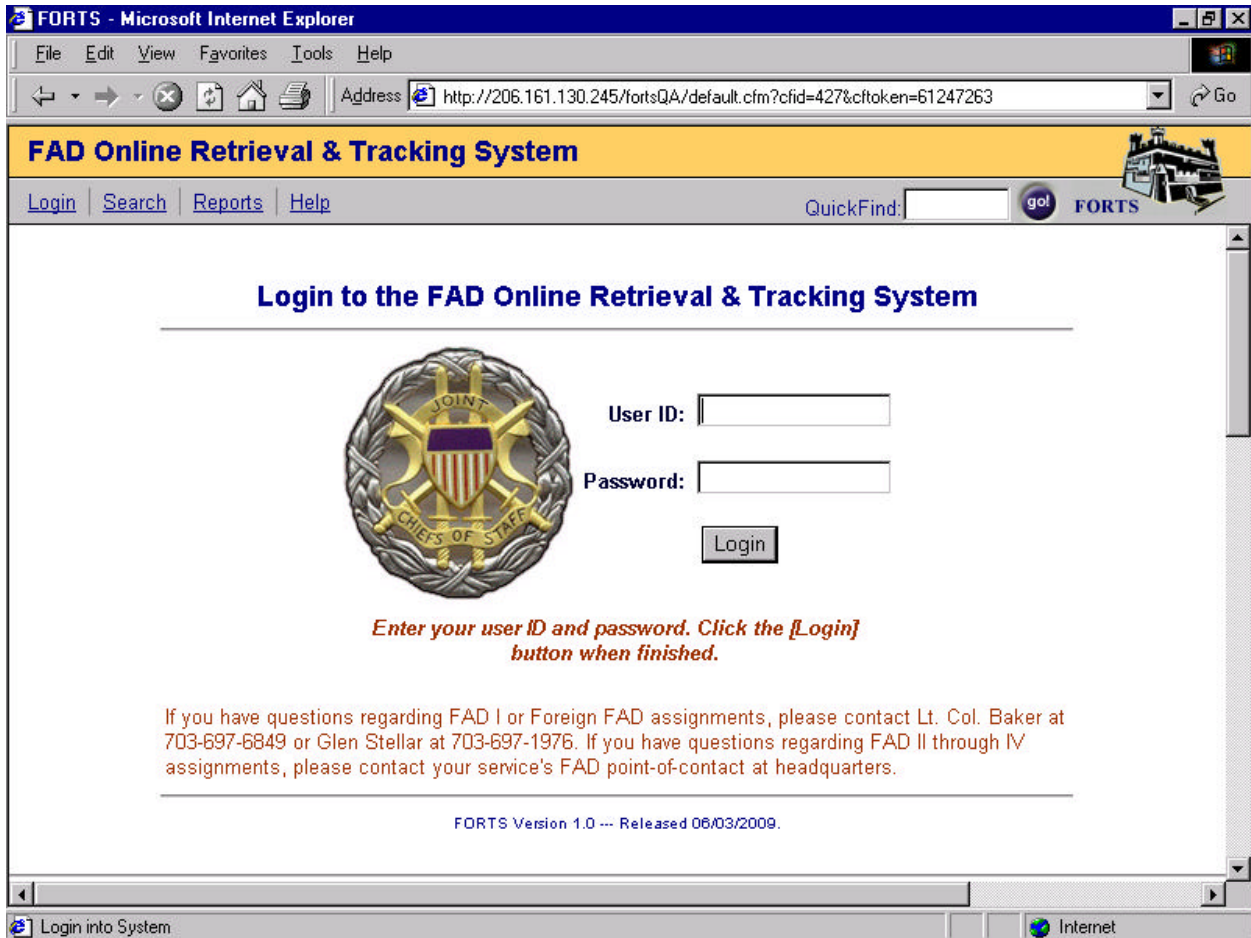


Figure 4.1.1-1 - FORTS Log on Page

Table 4.1.1-1 – FORTS Log on Form Data Elements Definitions

Data Element	Definition
TBD	See Attachment A, <i>FORTS Data Elements Dictionary</i>
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	

4.1.3 Editing FORTS Details Inputs

The user interface for editing FORTS details is shown in Figure 4.1.3-1.

Table 4.1.3-1 lists all data elements associated with the interface.

Table 4.1.3-2 defines the input attributes for all fields.

The screenshot shows a web browser window titled "FORTS - Microsoft Internet Explorer". The address bar contains the URL: "45/fortsQA/default.cfm?mode=GoodLogin&goGood=fit_srch.cfm&clid=427&cftoken=61247263". The page header is "FAD Online Retrieval & Tracking System" with the user logged in as "M. Wallace, Joint Staff". Navigation links include "Logout", "Search", "Reports", "Admin", and "Help". A "QuickFind" search box is also present.

The main content area is titled "Edit FORTS Detail" and includes a "BACK" button. The form is titled "Current Profile:" and contains the following fields:

FORTS Number:	AFON11378	Proj Code:		Status:	Active
POC:		POC Phone:			
Service:	USAF				
Major Command:	AFE				
Home Station:					
Unit:	32 ACCT & FINANCE SQ				
Sub Unit:					
CINC:					
FAD:	1				
Projected Change Date:					
JCS Review Date:					
Remarks:					

An "Update" button is located at the bottom of the form. The page footer includes the text "(CLASSIFICATION of SYSTEM HERE)" and "FORTS Ver 1.0 - Released 06/03/2001".

Figure 4.1.3-1 - Edit FORTS Details Page

Table 4.1.3-1 – Editing FORTS Details Form Data Elements Definitions

Data Element	Definition
TBD	See Attachment A, <i>FORTS Data Elements Dictionary</i>
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	

Table 4.1.3-2 – Input Attributes

Input	Type	Characters	Mandatory? Y/N	Can edit? Y/N
FORTS Number	Static text	N/A	N	N
Status	Drop-down	N/A	Y	Y
POC	Text box	alphanumeric	N	Y
POC Phone	Text box	alphanumeric	N	Y
Service	Static text	alphanumeric	N	N
Major Command	Text box	alphanumeric	Y	Y
Home Station	Text box	alphanumeric	N	Y
Unit	Text box	alphanumeric	Y	Y
Subunit	Text box	alphanumeric	N	Y
CINC	Text box	alphanumeric	N	Y
FAD	Drop-down	N/A	Y	Y
Projected Change Date	Text box	alphanumeric	N	Y
JCS Review Date	Text box	alphanumeric	N	Y
Remarks	Text box	alphanumeric	Y	Y

When viewing user history reports, users are simply retrieving stored data. Therefore, there are no outputs associated with this function.

5. Detailed Design

This section provides the information needed for the FORTS development team to integrate the hardware components and the software segments into a functional product. Additionally, this section addresses the detailed procedures to combine separate commercial off-the-shelf (COTS) packages into a single system. The detailed design for the FORTS Web application is described in terms of its hardware, software, and internal communications.

5.1 Hardware Detailed Design

Hardware detailed design specifications are available from JITC.

5.2 Module Detailed Design

The FORTS Web application is a ColdFusion and HTML program that provides end user functionality. This application is the client application that provides the graphical user interface (GUI) for input and output data exchange with a centralized MS Access database. The ColdFusion/HTML client application uses SQL queries to the Access database to initiate database searches.

Sections 5.2.1 through 5.2.7 illustrate the relationships between functions available to FORTS users. All functions are numbered in each logic flow diagram. Refer to the key below for a description of the numbered functions.

Number	Procedure Description
1	Log on procedure.
2A	Searching FORTS procedure (before log on).
2B	Searching FORTS procedure (after log on).
3	Editing FORTS Details procedure.
4A	Viewing FORTS Reports procedure (before log on).
4B	Viewing FORTS Reports procedure (after log on).
5	Creating user accounts procedure.
6	Editing user accounts procedure.
7	Viewing the user history report procedure.

5.2.1 FORTS Log on

The FORTS home page provides the interface to the functions described in Section 2. To gain access to these functions, users must provide a user name and password. The log on page has three controls. The first two controls are single-line text boxes provided for user name and password inputs from users. The third control is a command button: **Login**. The **Login** button is used to log users in to the system after they enter a valid user name and password. If the user name and password combination is valid, users proceed to the Search page. If the combination is invalid, users are prompted to re-enter the values. If users fail to logon three consecutive times, their account is disabled.

For security purposes, asterisks are displayed for each password character when users enter the password.

Figure 5.2.1-1 depicts the FORTS Log on logical flow.

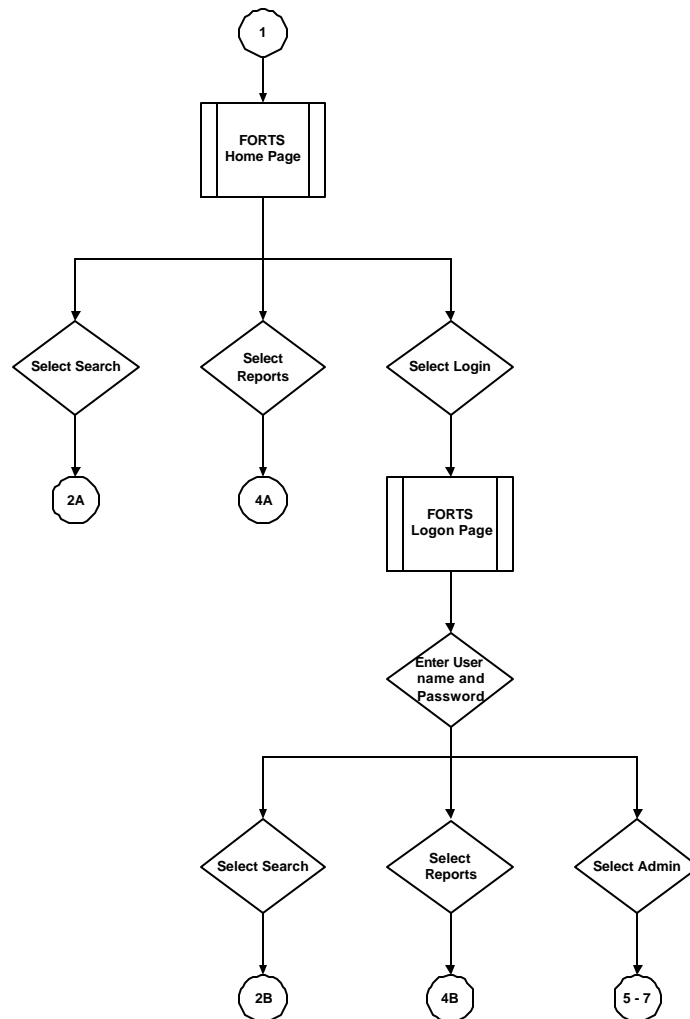


Figure 5.2.1-1 - FORTS Log on Logical Flow

5.2.7 Viewing the User History Report

FORTS user administrators edit FORTS accounts through the Web application. Upon logging on to the application, users are immediately presented with the Search page. To edit FORTS accounts, users must click **Admin** located in the menu bar. After clicking **Admin**, the User Administration page opens. On the User Administration page, administrators may search for users by Login ID, Service, Last Name, and/or First. Users must enter as much information as possible to narrow the search, then click **Search** to initiate the search. Once the search is complete, the User Administration Search Results page displays a list of all users meeting the search criteria. On the User Administration Search Results page, users must click a user name located in the User Name column to open the Edit User page. On the Edit User page, users must click **History** to open the User History For... page. On the User History For... page, a table listing the modification date, event, user details, and access details will appear.

Figure 5.2.7-1 depicts the Viewing the User History Report logical flow.

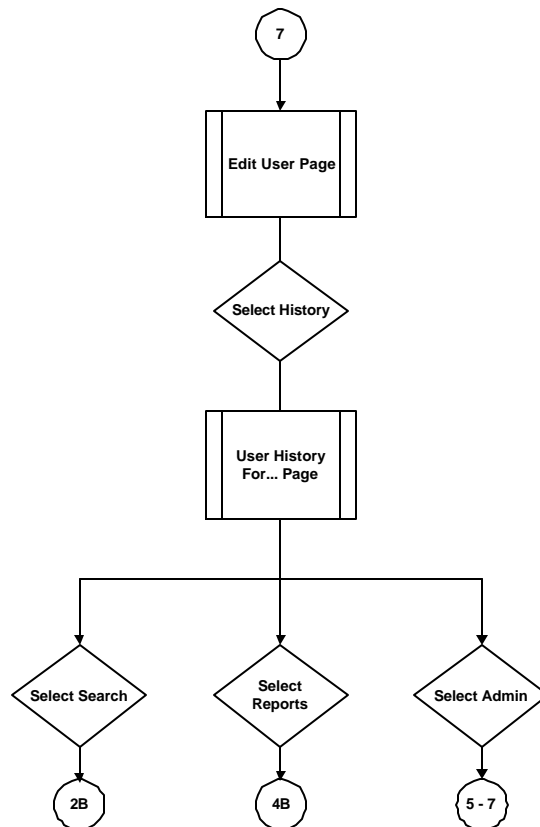


Figure 5.2.7 -1 - Viewing the User History Report Logical Flow