JD Edwards World

Advanced Programming Concepts and Skills Guide

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Preface

Welcome to the JD Edwards World Advanced Programming Concepts and Skills Guide.

Audience

This guide is intended for implementers and end users of JD Edwards World Advanced Programming Concepts and Skills.

Documentation Accessibility

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Related Documents

You can access related documents from the JD Edwards World Release Documentation Overview pages on My Oracle Support. Access the main documentation overview page by searching for the document ID, which is 1362397.1, or by using this link:

- https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=1362397.1

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Part I

Overview

This part contains these chapters

1

Overview to JD Edwards World Software

This chapter contains these topics:

- Section 1.1, "Application Development Cycle"
- Section 1.2, "Universal Building Blocks of JD Edwards World Software"

1.1 Application Development Cycle

World Computer Aided Software Engineering (CASE) covers the entire spectrum of the application development life cycle, including design tools, code generation, automatic documentation generation, prototyping, repositories and other productivity improvement tools for the development, operation and maintenance of flexible, business application software.

You can describe the Application Development Cycle (A/D Cycle) in three levels, as follows:

1.1.1 Level 1

- The Application Platform, which is described in the Technical Foundation document.

1.1.2 Level 2

- The Design Platform, which is described in the Advanced Programming Concepts and Skills (APCS) document.

1.1.3 Level 3

- The Development Platform, which is described in the CASE document.

1.2 Universal Building Blocks of JD Edwards World Software

World CASE covers the entire spectrum of the application development life cycle, including:

- Design tools
- Code generation
- Automatic documentation generation
- Prototyping
- Repositories

■ Other productivity improvement tools

The following figure shows the separate modules that contribute to the functioning of a JD Edwards World program.

Figure 1–1   JD Edwards World Program Modules
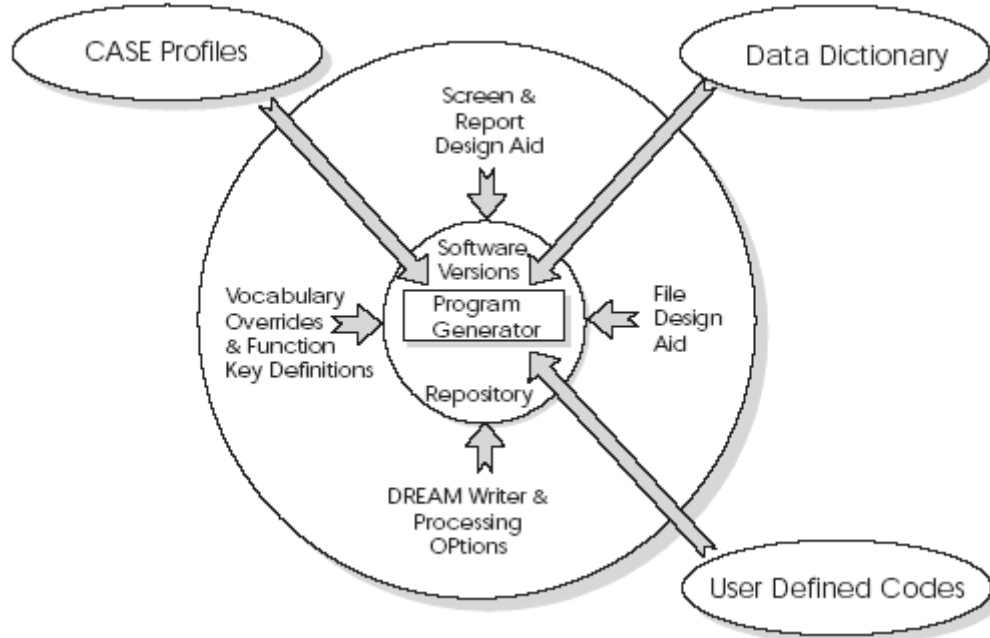
the separate modules that contribute to the functioning of a JD Edwards World program.

****

2

Overview to APCS System

This chapter contains this topic:

-

2.1 Features

Advanced Programming Concepts and Skills (APCS) focuses on the following World CASE features:

- Data Dictionary Repository
- Project Management (Software Action Request System)
- CASE Profiles
- SAR Log Inquiry
- Creating a Development Environment
- Software Versions Repository
- Data Modeling
- File Design Aid
- Screen Design Aid
- Report Design Aid
- JD Edwards World Programming Standards
- File Servers and Functional Servers
- User Spaces and User Indexes
- Group Jobs
- Programming Modifications
- Source Debugger
- Programming Impacts from Software Upgrades

> **Note:** Because this is a programming guide, and the majority of programmers do not use the Java interface, we are using non-Java (green screen) captures in this guide.

Part II

Version Control

This part contains these chapters:

3

Overview to Version Control

This chapter contains these topics:

3.1 About Version Control

Use the JD Edwards World Version Control system to manage the movement of software between various environments, such as ones you have set up for software development, testing, and production.

Figure 3–1 Various Software Environments
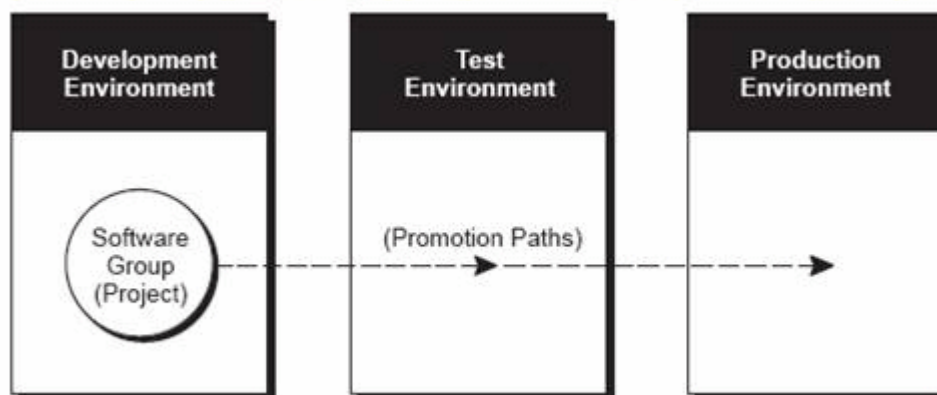
The Version Control system works with the Software Action Request (SAR) system and the SAR logging system. It performs three general functions:

- Groups source code members (such as RPG and CL programs, and physical and logical files) and control file data (such as Data Dictionary and menus) together as a project.

- Defines a promotion path, which specifies library information about the project's current environment and the environment to which it will be moved.

- Promotes the project from the current environment to the target environment as defined by the promotion path.

The following diagram shows how the version control process divides the tasks.

Figure 3–2   Version Control Process
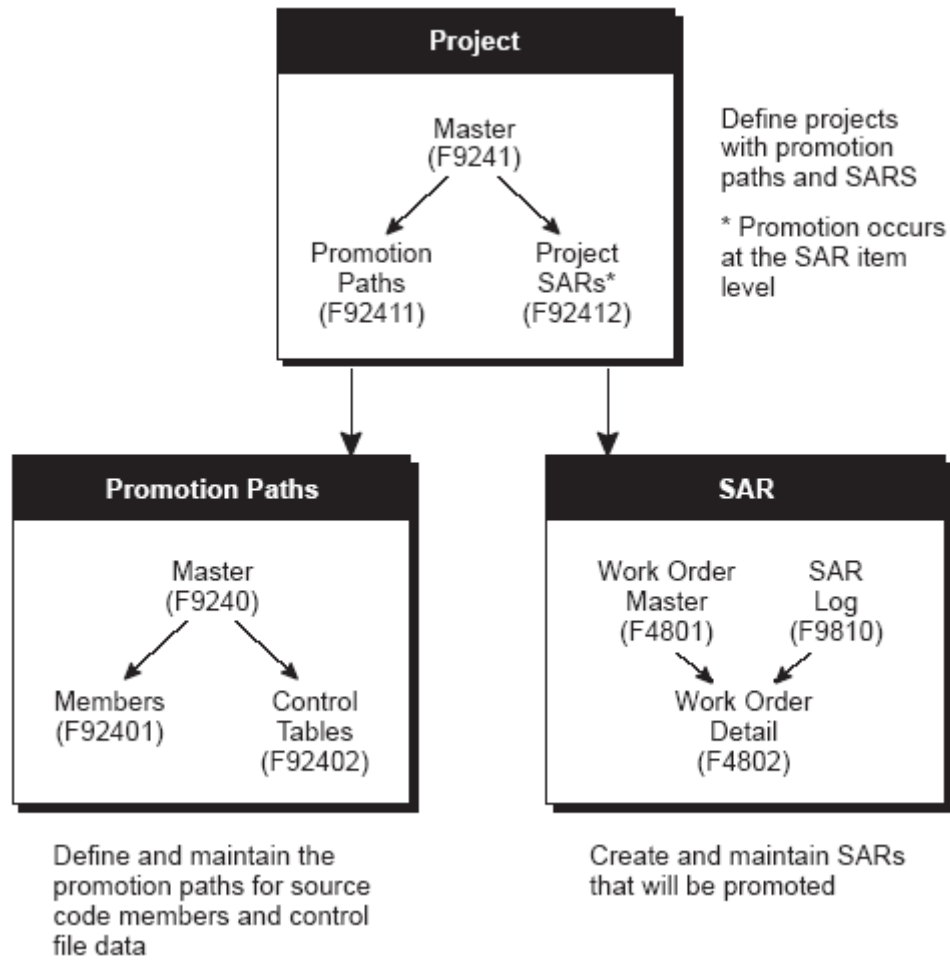
the version control process divides the tasks.

****

To set up a software development project for development and promotion, you must:

- Create the SARs that you want to promote, and define promotion paths.
- Link the project to the SARs that are associated with it, and assign a promotion path to it.

All additions or changes you make to programs and control file data are logged in the SAR Log (F9810). Use this log to update the SARs, which are in the Work Order Detail table (F4802).

After you finish developing the software, you promote the software from the Project Elements form to the next environment.

You will work with the following areas:

- Development Environment
- Project Management
- Work with Software Action Request
- Work with Software Versions Repository
- CASE Profiles

- Work with SAR Log
- Work with Promotion Paths and Projects
- Promote a Project
- Promote Project Updates

3.2 Version Control Process Flow

Figure 3–3   Version Control Process Flow
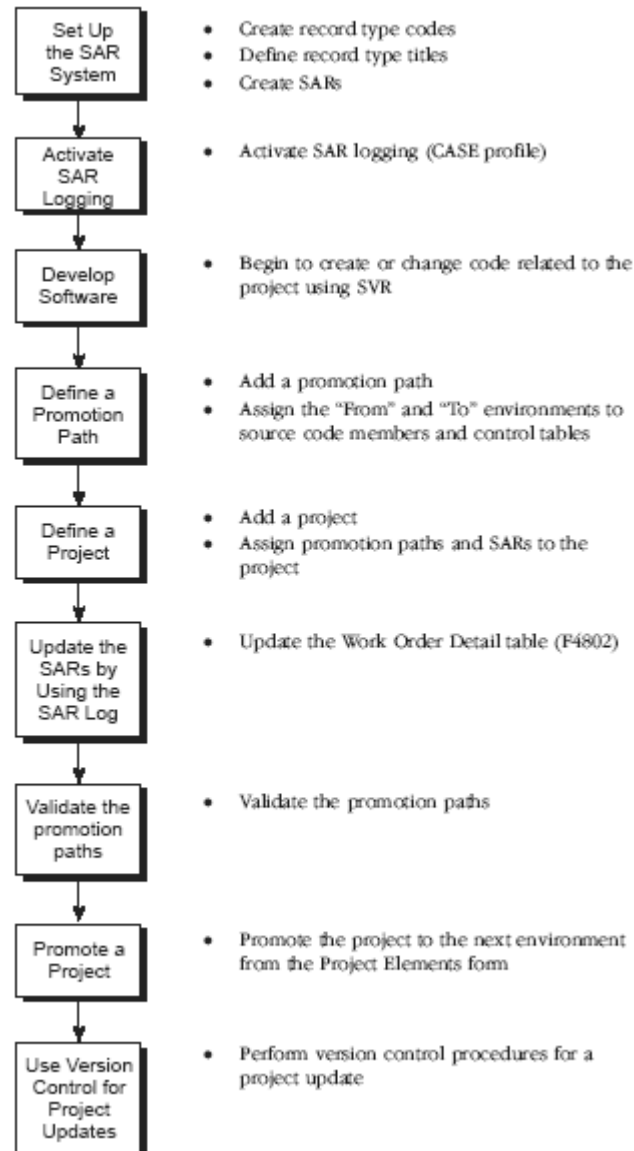
3.3 Version Control Menu Overview

The figure below is the Version Control Menu. From this form, you will access the different features of the software development and promotion process.

Figure 3–4   Version Controll Menu screen

```
G9261                     J.D. Edwards & Company               JDED
Daily Operation              Version Control

   ... BASIC OPERATIONS               ... SETUP
    2.  Software Versions Repository   14.  Record Type Codes
    3.  Manage Promotion Paths         15.  Record Type Titles
    4.  Manage Projects                16.  CASE Profiles

   ... Double Byte Mandatory Options  ... INQUIRIES
    7.  Analysis Process               19.  SAR Inquiry by Reference
    8.  C9822 Conversion               20.  Inquiry by SAR, Proj and Path

   ... QA FUNCTIONS                   ... PURGE DATA FILES
   11.  Edit and Promote               23.  Purge SAR Log File
   12.  Super SAR


Selection or command
===>


Thur, Apr 18, 1996            A7.3 Development            LA5595234
 8:55:51am            (C) J.D.Edwards & Co 1985,1996       QPADEV0014
```

4

Development Environment

This chapter contains these topics:

4.1 About a Development Environment

A development environment contains objects and data being tested and edited. It is different from your production environment because it should not contain any live data files.

4.1.1 Rules for Creating Development Environments

You should be aware of the following rules when you create development libraries:

- Do not begin library names with Q, JDF, or JD Edwards World because of IBM standards and the upgrade process.
- Create custom libraries for custom modifications.
- Library names should be a maximum of 9 characters in length because of the upgrade process.
- Do not use JDFDATA for your own test data or live data because of the upgrade process.
- Do not include JDFDATA in a live user's library list.

To create a Development Environment complete the following tasks:

- Create Libraries
- Define Access for a User Profile using J98INITA
- Define Access for a User Profile using J98INIT
- Copy Data to Your Development Environment

4.2 JD Edwards World Libraries

The following libraries are delivered with JD Edwards World software:

- Source Library (JDFSRC)
- Object Library (JDFOBJ)
- Data Library (JDFDATA)
- Install Library (JDEINSTAL)
- Plans Library (JDFINS)
- Security Library (CLTSEC) (Optional)

Source Library (JDFSRC)

This is the library that contains source code. Within the JDFSRC library, JD Edwards World has three multi-member source files. The source files and their contents are described below.

The file JDESRC contains the following source code:

- RPG Programs
- Printer files
- Display files
- CL Programs
- DDS for physical files
- DDS for logical files

The file JDECPY contains the source code for copy members.

The file F98CRTCMD contains pre-compiler commands.

- This is used to compile selected JD Edwards World programs.

Object Library (JDFOBJ) Libraries:source

The object library contains objects for your JD Edwards World software.

- RPG programs
- CL programs
- Display files
- Report files

Data Library (JDFDATA)

The data library contains data files for your JD Edwards World software (files in this library contain test data provided by JD Edwards World).

Install Library (JDEINSTAL)

The install library is used to install programs and software that upgrade JD Edwards World software.

Plans Library (JDFINS)

The library is used to plan how to upgrade JD Edwards World software.

Security Library (CLTSEC)

You can create a security library which is shared across all environments. The benefit of having a security library is that you enter a user profile only once to have access to any environment. The following files may exist in the security library:

- User library list (F0092)

- Library list control (F0093)

- Library list master (F0094)

- User Preference (F00921)

In addition, all logical files associated with the above files must also exist in the security library.

The World Technical Foundation manual states that a security library containing the F0092, F00921, F0093, F0094, and F0095 files can be used to minimize profile maintenance between JD Edwards World environments.

> **Note:** There are many different security scenarios. For that reason, there is little documentation on the security library concept. This is just a discussion of how to use the Security library concept and is NOT a recommendation.

A security library makes most sense when J98INITA is the Initial Program on the IBM user profile. IBM object security may be necessary in addition to the JD Edwards World security options to complete the user security requirements.

1. The benefits of a security library are minimized if there is more than one. The maintenance and security tasks will have to be duplicated for each environment. If each environment has a different security scenario, a single security library should not be used. However, if separate security libraries are necessary, there will have to be a matching object library with the QJDF data area naming the security library in the User Profile Library field.

2. If the environments are not all at the same release (A73, A81, etc), the sign-on programs, the menu program, and the control files will all have to be at the highest release level.

3. If all the environments are at the same release level, other files besides the security files may be placed in the Security library for maintenance or control purposes (for example SVR, Function Key Security, Action code security). Any files in the Security library should apply to all environments and should not be found in any other user data library. The pristine JDFDATA library should still contain all the JD Edwards World files.

4. On an Upgrade Plan, the Security library should be specified as SEC type. The file duplication issues of paragraph 3 above must be emphasized. The Control File Sets in the Control File Dependencies appendix of the PTF Install Workbook should be maintained.

4.3 Production and Development Examples

There are many ways to set up a production and development environment. The following are some examples.

4.3.1 Basic Production Environment

Library	Description
QTEMP	IBM Temporary data files
CLTOBJ	Client's objects
JDFOBJ	JD Edwards World objects
CLTCOM	Client's common files
CLTDTA	Client's data files
CLTSEC	Client's security files
QGPL	IBM general public library

4.3.2 Basic Development Environment

Library	Explanation
QTEMP	IBM Temporary data files
DEVOBJ	Development objects
CLTOBJ	Client's objects
JDFOBJ	JD Edwards World objects
DEVCOM	Development common files
DEVDTA	Development data files
CLTSEC	Client's security files
DEVSRC	Development source files
CLTSRC	Client's source files
JDFSRC	JD Edwards World source files
QGPL	IBM general public library

All modifications and tests are performed in the development environment with the program's object and source residing in DEVOBJ and DEVSRC. After you complete the testing, the program's object is moved from DEVOBJ to CLTOBJ and the source is moved from DEVSRC to CLTSRC. You must create a separate data and common library (DEVDTA and DEVCOM) to ensure that any data changes during testing in the development environment do not affect live data in the production environment.

4.3.3 No Source in Production Environment and a Common Shared Library

Library	Explanation
QTEMP	IBM Temporary data files
CLTOBJ	Client's objects
JDFOBJ	JD Edwards World objects
CLTCOM	Client's common files
COMMON	Common (shared) files
CLTDTA	Client's data files

Library	Explanation
CLTSEC	Client's security files
QGPL	IBM general public library

4.3.4 Basic Development Environment with a Shared Common

Library	Explanation
QTEMP	IBM Temporary data files
DEVOBJ	Development objects
CLTOBJ	Client's objects
JDFOBJ	JD Edwards World objects
DEVCOM	Development common files
COMMON	Common (shared) files
DEVDTA	Development data files
CLTSEC	Client's security files
DEVSRC	Development source files
CLTSRC	Client's source files
JDFSRC	JD Edwards World source files
QGPL	IBM general public library

No source libraries exist in the production environment because source code is not necessary to run JD Edwards World programs. This makes the production environment easier to maintain. The only restriction is that users in the production environment cannot view source code. Another difference is that a third shared common library (COMMON) has been added to the environments. This library contains common files whose data may be changed during the testing process. For example, F98HELP may not be changed but the Vocabulary Overrides, Data Dictionary, User Defined Codes or other Control Files may be changed. By having this type of common library not only are the environments easy to maintain, but you save considerable machine resources.

4.3.5 One Development Source and Object Library

Library	Explanation
QTEMP	IBM Temporary data files
CLTMOD	Client's source and objects under modification
CLTOBJ	Client's objects
JDFOBJ	JD Edwards World objects
DEVCOM	Development common files
COMMON	Common unchanged files
DEVDTA	Development data files
CLTSEC	Client's security files

Library	Explanation
CLTSRC	Client's source files
JDFSRC	JD Edwards World source files
QGPL	IBM general public library

DEVOBJ and DEVSRC have been combined into one library called CLTMOD. This library contains both source code and compiled objects for programs while they are being modified and tested. After testing, the program objects are copied to CLTOBJ and source code is moved to CLTSRC. The purpose of having one object and source code library like CLTMOD is to aid in change management and simplify the development library list by having one place where all modifications and testing take place.

4.4 Creating Libraries

Create the following libraries:

- Common and data libraries
- Development object library
- Development source library

If you create a common library (DEVCOM), be sure to specify it each time you create another development environment. If you do not specify the common library each time, the files will be created in your development data library.

Your common library should contain control files holding data that is used in several environments that is not application data. These control files may be changed during the development process.

See Appendix A, "Common & Production Library Files"r a list of common and production files. Common files will be marked with a "Y" in the Common File field on the SVR screen. Files marked with an "N" in this field are Production files. If the data is to be copied from JDFDATA into either of these files, the SVR Copy Data Y/N field will be marked 'Y'.

4.4.1 Creating Common and Data Libraries

You will create the libraries that contain common data files (DEVCOM) and test data files (DEVDTA).

To create common and data libraries

Navigation
From Computer Operations (G96), choose Data Base Management

From Data Base Management (G9645), choose Data Libraries

On Create Production Environment

Figure 4–1   Create User Data Libraries screen

```
 98312              Create User Data Libraries    Form ID . . . . P98102
                                                  Version. . . . . ZJDE0001
Create Production Environment
This job has various options described  below. Enter the desired values and
press ENTER to continue.
Enter the "FROM" Library where data is
 to be copied from (e.g JDFDATA).                       JDFDATA
Enter the "TO" Production Library where
 you are creating files (e.g. PRODLIB).                 DEVDTA
Enter the "TO" Common Library where you
are creating common files (e.g. COMMON)                 DEVCOM
If you do not enter a Common library
all common files will be created in the
Production Library.




                       F5=Printer Overrides
```

1. Complete the Create User Data Libraries form.

   ■ Once you correctly complete the form and press Enter, the job (J98102) is submitted to batch.

2. Repeat the above step for each of the development data libraries you have.

   The program automatically:

   ■ Creates your libraries

   ■ Creates the physical and logical files that should be maintained in your common library

   ■ Creates the physical and logical files necessary for operations control in your development library

   ■ Creates the physical and logical files for various applications in your development library

   ■ Generates reports to identify all the physical, logical, and join files created and to identify where they were created

   ■ Generates a report to identify all the optional files. The report explains why the files are optional so that you can determine if they should be deleted.

4.4.2 Creating a Development Object Library

To create a development object library

Type the IBM command Create Library (CRTLIB) and press F4.

Figure 4–2   Create Library screen

```
                     Create Library (CRTLIB)
Type choices, press Enter.
Library  . . . . . . . . . . . .    DEVOBJ        Name
Library type . . . . . . . . . .    *TEST         *PROD, *TEST
Text 'description' . . . . . . .    *BLANK




                                                            Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display       F24=More keys
```
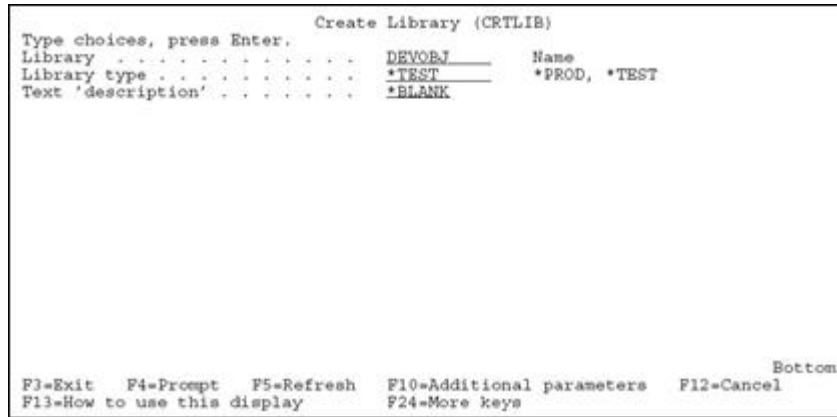
Field	Explanation
Library	Your development object library name.
Library Type	*PROD or *TEST
Text 'description'	The description of your library

4.5 Creating a Development Source Library

To create the development source library (DEVSRC), you create a source environment and a source physical file. The source physical file is the Program Source File (JDESRC). All JD Edwards World source members are located in the JDESRC file.

There are two possible methods to create the JDESRC file. You must determine if you have the JD Edwards World Program Generator (CASE) and then choose the appropriate method.

To create a development source library

Type the IBM command Create Library (CRTLIB) and press F4.

Figure 4–3   Create Library screen

```
                     Create Library (CRTLIB)
Type choices, press Enter.
Library  . . . . . . . . . . . .    DEVSRC        Name
Library type . . . . . . . . . .    *TEST         *PROD, *TEST
Text 'description' . . . . . . .    *BLANK




                                                            Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display       F24=More keys
```
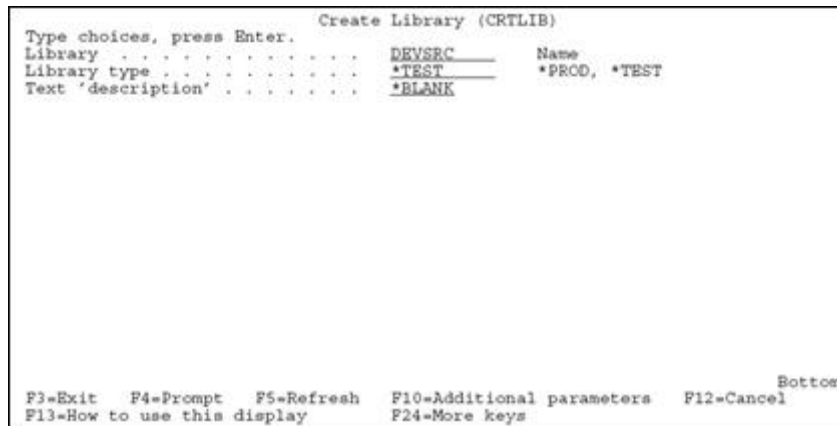
Field	Explanation
Library	Your development object library name.

Field	Explanation
Library Type	*PROD or *TEST
Text 'description'	The description of your library

4.5.1 Creating JDESRC for JD Edwards World Program Generator

When an RPGIII or RPGIV program is moved into production at JD Edwards World, the record length is 92 bytes. If you have J.D. Edward's Program Generator product, the program source file format must be 142 bytes to allow for the Program Generator Serial Number and additional required data.

To create JDESRC for JD Edwards World Program Generator

1.   To copy an existing file with the correct format (F93002), type the IBM Copy File command (CPYF) and press F4.

Figure 4–4   Copy File screen

```
                              Copy File (CPYF)
 Type choices, press Enter.
 From file . . . . . . . . . . .      F93002       Name
   Library . . . . . . . . . . .        *LIBL      Name, *LIBL, *CURLIB
 To file . . . . . . . . . . . .      JDESRC       Name, *PRINT
   Library . . . . . . . . . . .        DEVSRC     Name, *LIBL, *CURLIB
 From member . . . . . . . . . .      *FIRST       Name, generic*, *FIRST, *ALL
 To member or label . . . . . . .     *FIRST       Name, *FIRST, *FROMMBR
 Replace or add records . . . . .     *NONE        *NONE, *ADD, *REPLACE
 Create file . . . . . . . . . .      *YES         *NO, *YES
 Print format . . . . . . . . . .     *CHAR        *CHAR, *HEX




                                                                    Bottom
 F3=Exit    F4=Prompt    F5=Refresh    F10=Additional parameters    F12=Cancel
 F13=How to use this display          F24=More keys
```

Field	Explanation
From file	The file and library containing the data to be copied. The file is F93002 and the library can default to *LIBL.
To file	The name of the source file and your development source library. Generally, the file is JDESRC and the library is DEVSRC.
From member	The member name that will be the beginning of the copy process. Generally, this value is *FIRST.
To member or label	The member name that will be the beginning of the receiving process. Generally, this value is *FIRST.
Replace or add records	Specifies whether the records copied should replace or be added to the records in the To file. In this case since the To file does not exist, this value is *NONE.
Create file	Specifies whether the To file does not exist and needs to be created. This value is *YES.
Print format	Specifies whether the characters are printed in character or character and hexadecimal format. This option only applies if the To file is *PRINT.

2. To remove the empty member copied from JDESRC, type the IBM Remove Member command (RMVM) and press F4.

Figure 4–5   Remove Member screen

```
                        Remove Member  (RMVM)
Type choices, press Enter.
Data base file . . . . . . . . .      JDESRC        Name
  Library  . . . . . . . . . . .        DEVSRC      Name, *LIBL, *CURLIB
Member . . . . . . . . . . . . .      F93002        Name, generic*, *ALL




                                                                Bottom
F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
F24=More keys
```
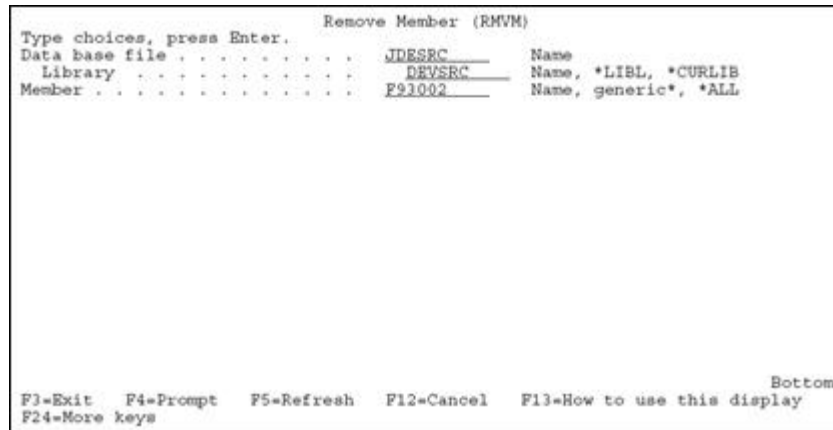
Field	Explanation
Database file	Type the source file and your development source library that contains the record to be removed. Generally, this file is JDESRC and the library is DEVSRC.
Member	Type the name of the member that is to be removed. This is F93002.

4.5.2 Creating JDESRC Without the Program Generator

If you do not have JD Edwards World World Program Generator product, the program source file format can remain at 92 bytes, as it is when a program is moved into production at JD Edwards World. To create the JDESRC file with a 92 byte record format, you can execute the IBM Create Source Physical File command (CRTSRCPF).

To create JDESRC without the Program Generator

Type the Create Source Physical File command (CRTSRCPF) and press F4.

Figure 4–6   Create Source Physical File screen

```
                Create Source Physical File (CRTSRCPF)
Type choices, press Enter.
File . . . . . . . . . . . . . .      JDESRC        Name
  Library  . . . . . . . . . . .        DEVSRC      Name, *CURLIB
Record length  . . . . . . . . .      92            Number
Member, if desired . . . . . . .      *NONE         Name, *NONE, *FILE
Text 'description' . . . . . . .      *BLANK




                                                                Bottom
F3=Exit    F4=Prompt    F5=Refresh    F10=Additional parameters    F12=Cancel
F13=How to use this display        F24=More keys
```
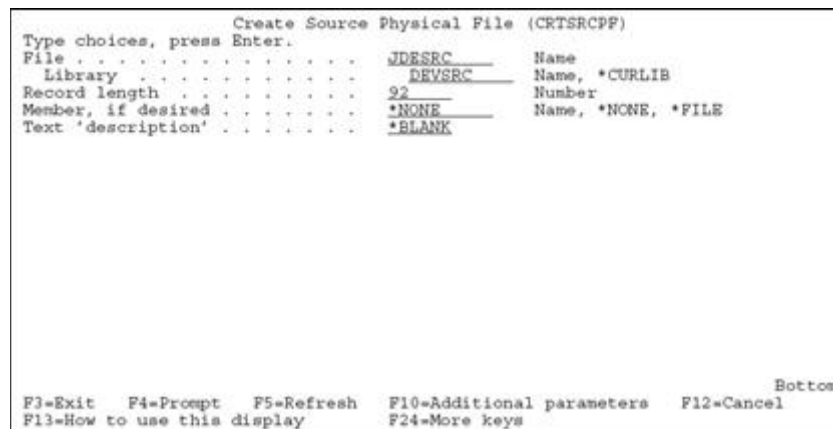
Field	Explanation
File	The source file and your development source library that contains the record to be removed. Generally, this file is JDESRC and the library is DEVSRC.
Record Length	The number of bytes in the length of the records to be stored in the source file. This value is 92.
Member, if desired	The member to be added to the source file. Generally, this member is left to *NONE.
Text Description	The description of your source file.

4.6 About User Profiles

You must create profiles that allow users to have access to new environments.

There are two separate methods to define access to an environment. The method you choose depends upon whether the User Profile accesses JD Edwards World software using J98INITA or J98INIT.

4.7 Defining Access for a User Profile using J98INITA

Navigation

From Security Office (G94), choose Library List Control

From Library List Control (G944), choose Library List Revisions

If you are allowing access to your development environment for a user profile that is using J98INITA, you must define a development environment library list name. In addition, the User Signon List must contain the Development Environment Library List name.

To define access for a user profile using J98INITA

1. On Library List Revisions define the libraries that comprise the list.

Figure 4–7   Library List Revisions screen

```
0094                      Library List Revisions
Action Code. . . . . . I
Library List Name. . TEST
Description. . . . . . Technical Training Example
Menu Program ID. . . P00MENU
Library List . . . .   QTEMP DEVOBJ CLTOBJ JDFOBJ DEVDTA DEVCOM DEVSRC CLTSRC
JDFSRC QGPL




                F21=Print Library List        F9=Library Search
```

2. To assign the library list to each user, select User Signon List Revisions from the Library List Control menu (G944).

Figure 4–8   User Signon List Revisions screen

```
  0093                   User Signon List Revisions
Action Code. .   I
User ID. . . .   FRAZZINI
  Seq      Library  Sign-on
Number     List     Menu          Description
  5.00    PRISTINE  A92         MASTER PRISTINE DATA LIBL
 10.00    A52DEV    A92         A5.2 Case Cert & G Development
 11.00    PGMGEN    A92         Testing A52 Program Generator
 20.00    TECPROG   A92         * List Name Not in Master File
 30.00    TECOV     A92         Testing A52 Tech Foundations
 55.00    KRGCASE   A92         * List Name Not in Master File

 _____    _____
 _____    _____
 _____    _____
 _____    _____
 _____    _____
 _____    _____
 _____    _____  _____
```

4.7.1 Defining Access for a User Profile Using J98INIT

If you are allowing access to your development environment for a user profile that is using J98INIT, you must define a new library list.

To define access for a User Profile using J98INIT

Select User Information from the Security Officer menu (G9401).

Figure 4–9   User Information screen

```
  0092                 User Information              Action Code. . . . . I
  User ID. . . . . . . . . . . . . .  TEACH
  Library List . . . . . . . . . . .  QTEMP DEVOBJ CLTOBJ JDFOBJ DEVDTA DEVCOM
DEVSRC CLTSRC JDFSRC SECURITY QGPL
  _
  _

  User Security:                        A J K DP F
      User Key . . . . . . . . . . .  _ _ _ _ _   Allow Command Entry (Y/N).
      Initial Menu to Execute. . . .  A           Allow Menu Traveling (Y/N)
      Initial Program to Execute . .  _____  Allow Fast Path (Y/N). . .
  Menu Level . . . . . . . . . . . .
  User Type. . . . . . . . . . . . .
  User Class/Group . . . . . . . . .
  Batch Job Queue. . . . . . . . . .  QBATCH
  Job Scheduling Priority. . . . . .  5 5
  Logging(level/severity/messages) .  4  00   *NOLIST
  Output Queue . . . . . . . . . . .  QPRINT
  Optional Printer File Library. . .
  Current Library. . . . . . . . . .
  Employee Address Number (PPAT) . .
  Set Attention Program. . . . . . .
  F6=Display/Lang Pref    F9=Library Inquiry    F21=Print Lib List    F24=More
```

> **Note:**   Each user profile for the JD Edwards World software must
> have an IBM profile. To define an IBM profile, use the command,
> Create User Profile (CRTUSRPRF). When a JD Edwards World user
> profile is created or changed, the IBM JOBD is created or changed in
> the library specified in the Processing Option for J00JOBD. The default
> library is QGPL. If J98INITA is used as the initial program to execute,
> the JOBD is copied into QTEMP and modified.

4.8 Copy Data to Your Development Environment

You can use several methods to copy data to your development environment. The method you choose should depend upon how much data you need to copy to your development environment. You may copy the following:

- Libraries

- Files

- Records

- JD Edwards World Record Types

4.8.1 Copying a Library

If you need to duplicate several files into your development environment you can copy one or more libraries.

To copy a library

To display the parameters, type the IBM Copy Library command (CPYLIB) and press F4.

Figure 4–10   Copy Library screen

```
                          Copy Library (CPYLIB)

 Type choices, press Enter.

 Existing library . . . . . . . .    _____    Name
 New library  . . . . . . . . . :    _____    Name
 Create library . . . . . . . . :    *YES          *NO, *YES
```

> **Caution:**   If you use CPYLIB, any files that are in use are not copied.

Field	Explanation
Existing Library	The library to be copied in your Production Environment.
New Library	The new library that will be used in your Development Environment
Create Library	Specifies whether the New Library does not exist and needs to be created.

4.8.2 Copying a File

Navigation

From Computer Operations (G96), choose Data Base Management

From Data Base Management (G9645), choose Data Files

If you need to copy specific files from a library in your production environment to a library in your development environment, you use the JD Edwards World copy file utility.

To copy a file

1. On Data File Creation enter the following fields:

    - System Code

    - Create in Library

    - FROM Library

2. Do the following:

- Enter a 1 next to the files you wish to create from source.

- Enter a 2 next to the files to be duplicated without data. This is mainly Logical files but could be a Physical file also. Logical files will only be created if the based-on physical file is in the destination library.

- Enter a 3 next to the files to be duplicated with data. This applies only to Physical files.

3. Each selection will be submitted to batch.

Figure 4–11 Copy Data Files screen


```
  98101                         Copy Data Files

 Enter System Code. . . 01___   Address Book

 Library Name: From . . JDFDATA_____        To . . PROD

 Sel File Name  File Type Description
  1  F0070      PHYSICAL  Country Constants Master File
  1  F009101    PHYSICAL  Word Search Occurrence Master
  1  F0101      PHYSICAL  Address Book Master
  1  F0101A     PHYSICAL  Address Book Master File Audit Log
  1  F0101XX    PHYSICAL  Address Book Master
  1  F0101Z1    PHYSICAL  Address Book - Batch File
  _  F01090     PHYSICAL  Supplemental Data Base - CORE
  _  F01092     PHYSICAL  Supplemental Data Base - Code
  _  F01093     PHYSICAL  Supplemental Data Base - Narrative
  _  F01094     PHYSICAL  User Sequence Preference
  _  F0111      PHYSICAL  Address Book - Who's Who
  _  F0114      PHYSICAL  Address Book Memo/Text Information
  _  F0114W     PHYSICAL  WF - Memo Information Work File
  _  F0116      PHYSICAL  Address Book Locations
  _  F01800     PHYSICAL  Address Book  Word Search Master

                      Opt:  1=Copy Data File
```

Note: When using this utility, be sure to copy all related files. All the physical files are listed first, followed by the logical files.

4.8.3 Copying a Record

If you wish to copy a file with only selected records, use the IBM Copy File command (CPYF).

To copy a record

1. Type the Copy File command (CPYF) and press F4.

Figure 4–12 Copy File screen


```
                         Copy File (CPYF)

 Type choices, press Enter.

 From file  . . . . . . . . . . .   F0101_____   Name
   Library  . . . . . . . . . . .     CLTDTA_____  Name, *LIBL, *CURLIB
 To file  . . . . . . . . . . . .   F0101_____   Name, *PRINT
   Library  . . . . . . . . . . .     DEVDTA_____  Name, *LIBL, *CURLIB
 From member  . . . . . . . . . .   *FIRST____   Name, generic*, *FIRST, *ALL
 To member or label . . . . . . .   *FROMMBR     Name, *FIRST, *FROMMBR
 Replace or add records . . . . .   *ADD_____    *NONE, *ADD, *REPLACE
 Create file  . . . . . . . . . .   *NO__        *NO, *YES
 Print format . . . . . . . . . .   *CHAR        *CHAR, *HEX
                     Additional Parameters

 Which records to print . . . . .   *NONE        *NONE, *EXCLD, *COPIED

 Record format of logical file  .   *ONLY        Name, *ONLY, *ALL
 Copy from record number  . . . .   365___       Number, *START
                                                              More...
 F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
 F13=How to use this display       F24=More keys
```

2. Press F10 to display additional parameters.

Field	Explanation
From file	The file and library containing the data to be copied.
To file	The name of the file and your development library the data will be copied to.
From member	The member name that will be the beginning of the copy process.
Replace or add records	Specifies whether the records copied should replace or be added to the records in the To file.
Create file	Specifies whether the To file does not exist and needs to be created.
Print format	Specifies whether the characters are printed in character or character and hexadecimal format. This option only applies if the To file is *PRINT.
Copy from record number	Specifies the record number from which to start the copy.

3. Page down and enter the record number of the record to which you wish to copy.

The Copy to record number is the field in which you specify the record number of the last record to be copied.

Figure 4–13 Copy File screen

Field	Explanation
Copy to Record Number	Specifies the record number of the last record to be copied.
Copy from Record Key	Only applies when copying a file with keyed fields.

4.8.4 Copying JD Edwards World Control Records

You can copy any of the following control records:

- Vocabulary Overrides
- Data Dictionary
- Software Inventory Revisions
- User Defined Code

- DREAM Writer

- Menu

- Generic Rate/Msg

To copy a JD Edwards World record type

Navigation

From Computer Assisted Programming (CAP) (G93), choose Developer's Workbench

From Developer's Workbench(G9362), choose Copy DD,VO,DW,UDC,SVR,Menus

On Copy DD,VO,DW,UDC,SVR,Menus.

Figure 4–14   DD, VO, DW, UDC, SVR, Menus screen

```
99630                       Copy DD,VO,DW,UDC,SVR,Menus


From Library . . . . . CLTCOM        To Library . . . . . . DEVCOM


Dictionary Item. . . . AN8           Language . __    Appl Ovr. _____
                                                      Scrn/Rpt. _____
Vocabulary Overrides . _____    Language . __

DREAM Writer Form. . . _____    Language . __

User Def Codes Sys . . ____          Language . __
            Type. . __

Software Versions Rep. _____

Menu Identification. . _____    Language . __

Generic Rate/Msg Sys   ____
            Type       __

                    F24=More
```

Field	Explanation
From Library	The library containing the data to be copied.
To Library	The library in your Development Environment to receive the data.
Dictionary Item	The RPG data name. This data field has been set up as a 10-byte field for future use. Currently, it is restricted to 4 bytes so that, when preceded by a 2-byte file prefix, the RPG data name does not exceed 6 bytes.
	Within the Data Dictionary, all data items are referenced by this 4-byte data name. As they are used in database tables, a 2-character prefix is added to create unique data names in each table specification (DDS). Special characters are not allowed as part of the data item name, with the exception of #, @, $.
	You can create protected data names by using $xxx and @xxx, where you define xxx.
	Messages can contain up to 10 characters. Types of messages are further defined by glossary group.
Vocabulary Overrides	The name of the screen or report record to be copied. All records for soft coding will be copied.
DREAM Writer Form	The name of the DREAM Writer Form ID to be copied. All versions of the specified form will be copied.

Field	Explanation
User Def Codes Sys	The system code and type of the table to be copied. All values for the specified table will be copied.
Software Versions Rep	The record of the Software Versions Repository member to be copied.
Menu Identification	The menu ID and the display language of the record to be copied.

Note: You can enter and copy only one item at a time. If the item exists in the To Library, it is replaced.

5

Project Management

This chapter contains these topics:

5.1 Understanding Work Order Processing

The Software Action Request System (SAR) is shipped to clients under the name of Work Order Processing.

The Work Order Processing system allows you to:

- Create and classify work orders with simple budgets or estimates
- Schedule and expedite work orders.
- Perform cost accounting by specific work orders or family of work orders.

Unlike jobs that are often preplanned and thoroughly budgeted, software work orders are often completed without the prior knowledge of the accounting department. Work orders are frequently spontaneous and of short duration.

> **Note:** If you purchased system 48 (Work Order Processing), you have all of the programs associated with Work Orders (SARs). If you have not purchased the Work Order Processing system, you have only the programs from the Work Order Processing system that are defined as being part of the General Back Office System (00).

5.2 Creating Work Orders

There are only three required fields when creating a new work order:

- Work Order Number (If you do not provide a work order number, the system assigns one automatically.)
- Description (short)
- Charge to Business Unit

To create work orders

From the Simple Project Management menu (G4812), select Single Task Details.

Figure 5–1   Single Task Details screen

```
 48014                 Single Task Details
                                            Parent W.O. No
 Action Code. . . I                         W.O.Number . .        289
 Description. . . APCS Class
 Status Comment . Student SAR                Charge to BU .           1001
 Search X-Ref . .                           Cost Code. . .
 Est. Hours . . .        40                  Start Date . . 01/03/94
 Est. Amount. . .     1,500                  Planned Comp . 12/31/94
 Phase. . . . . .  55      Reserved for Clients   Completed. . .
 Type . . . . . . 2        Priority . . . H       Status . . . . 10
 Tax Expl Code. .    1001 Tax Rate/Area. .        Transaction. . 11/12/93
 Subledger Inact.    6001 Active Subledger        Date Assigned.
 Customer No. . .  __      Edwards, J.D.
 Manager. . . . . _        Allen, Ray
              Description                        Option
 SAR setup for work to be performed during the Advanced
 Programming Concepts and Skills class
 Engine RBQ125-796



  Opt:  1=Insert  9=Del  F5=More Desc  F8=Cat Codes  F21=Print  F24=More Keys
```

5.2.1 What You Should Know About

Topic	Description
Accessing the W.O. Detail form	To access the W.O. Detail form, choose More Description (F5).
Searching for address numbers	To search for address numbers for the Customer Number and Manager fields, use F1 on the field, or choose More Keys (F24), then Exit to Name Search.

Field	Explanation
Parent W.O. No	This is the parent work order number. You can use this number to:
	1. Enter default values for newly added work orders, for example, Type, Priority, Status, or Manager.
	2. Group work orders for project setup and reporting
	Form-specific information
	For Work Orders
	When you create a new work order using a parent work order, the system uses information from the parent work order as default values for the new work order. If you leave any of these information fields blank when you create the new work order, the system uses the values from the parent work order. The only information that the system does not use as default values from the parent work order includes:
	■ Description
	■ Extended description
	■ Tax code
	■ Tax rate and area
	■ Date completed

Field	Explanation
Action Code	A code that indicates the activity you want to perform. Valid codes are: A – Add new record C – Change existing record D – Delete existing record I – Inquire on existing record . – End of program or function space – Clear the form If you enter a code that is not active, the system highlights the code and no action occurs. **Note:** Depending on how your company has set up action code security, you might not be authorized to use all action codes.
W.O. Number	The number that identifies an original document. This can be a voucher, an order number, an invoice, unapplied cash, a journal entry number, and so on.
Description	A brief description of an item, a remark, or an explanation.
Status Comment	A brief description to explain the status of the work order.
Charge to BU	An alphanumeric field that identifies a separate entity within a business for which you want to track costs. For example, a business unit might be a warehouse location, job, project, work center, or branch/plant. You can assign a business unit to a voucher, invoice, fixed asset, and so on, for purposes of responsibility reporting. For example, the system provides reports of open accounts payable and accounts receivable by business units to track equipment by responsible department. Security for this field can prevent you from locating business units for which you have no authority. **Note:** The system uses this value for Journal Entries if you do not enter a value in the AAI table.
Search X-Ref	An alphanumeric value used as a cross-reference or secondary reference number. Typically, this is the customer number, supplier number, or job number.
Cost Code	A subdivision of an object account. Subsidiary accounts include more detailed records of the accounting activity for an object account.
Est. Hours	The estimated hours that are budgeted for this work order.
Est. Amount	The estimated dollar amount that is budgeted for this work order.
Start Date	This is a start date that you can enter, or an automatic start date which the planning system calculates using a backscheduling routine. The routine starts with the required date and offsets the total leadtime to calculate the appropriate start date. Will default from system date or you can enter a date.
Planned Comp	The date the work order is planned to be completed.

Field	Explanation
Phase	A user defined code (00/W1) that indicates the current stage or phase of development for a work order. You can assign a work order to only one phase code at a time.
	Note: Certain forms contain a processing option that allows you to enter a default value for this field. If you enter a default value on a form for which you have set this processing option, the system displays the value in the appropriate fields on any work orders that you create. The system also displays the value on the Project Setup form. You can either accept or override the default value.
Completed	The date the work order or engineering change order is completed or canceled.
Type	A user defined code (00/TY) that indicates the type classification of a work order or engineering change order.
	You can use work order type as a selection criteria for work order approvals.
Priority	A user defined code (system 00, type PR) that indicates the relative priority of a work order or engineering change order in relation to other orders.
	A processing option for some forms lets you enter a default value for this field. The value then displays automatically in the appropriate fields on any work order you create on those forms and on the Project Setup form. You can either accept or override the default value.
Status	A user defined code (00/SS) that describes the status of a work order or engineering change order. Any status change from 90 thru 99 automatically updates the date completed.
Customer No	A number that identifies an entry in the Address Book system. Use this number to identify employees, applicants, participants, customers, suppliers, tenants, and any other Address Book members.
Manager	The address book number of a manager or planner.
	Note: A processing option for some forms lets you enter a default value for this field based on values for Category Codes 1 (Phase), 2, and 3. Set up the default values on the Default Managers and Supervisors form. After you set up the default values and the processing option, the information displays automatically on any work orders you create if the category code criterion is met. (You can either accept or override the default value.)
Transaction	The date that an order was entered into the system. This date determines which effective level that the system uses for inventory pricing.
Date Assigned	The date the person responsible for the work order receives the work order.
Tax Expl Code	A user defined code (00/EX) that controls how a tax is assessed and distributed to the general ledger revenue and expense accounts. You assign this code to a customer or supplier to set up a default code for their transactions.
	Do not confuse this with the taxable, non-taxable code. A single invoice can have both taxable and non-taxable items. The entire invoice, however, must have one tax explanation code.

Field	Explanation
Tax Rate/Area	A code that identifies a tax or geographic area that has common tax rates and tax distribution. The tax rate/area must be defined to include the tax authorities (for example, state, county, city, rapid transit district, or province), and their rates. To be valid, a code must be set up in the Tax Rate/Area table (F4008).
	Typically, U.S. sales and use taxes require multiple tax authorities per tax rate/area, whereas VAT requires only one simple rate.
	The system uses this code to properly calculate the tax amount.
Subledger Inact	A code that indicates whether a specific subledger is active or inactive. Any value other than blank indicates that a subledger is inactive. Examples are jobs that are closed, employees that have been terminated, or assets that have been disposed. If a subledger becomes active again, set this field back to blank.
	If you want to use subledger information in the tables for reports but want to prevent transactions from posting to the master record, enter a value other than blank in this field.

5.2.2 Processing Options

Processing options associated with the Single Task Details program allow you to default the value for the Type, Priority, Status, Phase, Category Code 2, Category Code 3, and Manager fields. To see the processing options, type the selection number for Single Task Details and press F18.

5.2.3 Function Keys from Single Task Details

F5 - Detailed Specifications

F5 - Allows you to enter additional detailed information about your work order. Each detail screen is based on Record Type. Record Type A provides room for you to enter more description. You can customize other Record Types to fit your requirements. The steps to add and change Record Types are described later in this chapter.

Figure 5–2   W.O. Detail Entry screen, Full Description of Request
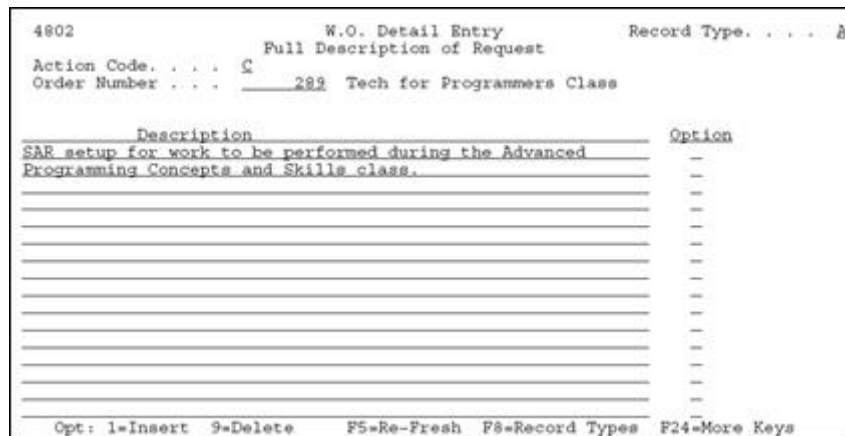
Option	Description
1 - Insert	Insert a blank line for additional text.

Option	Description
9 - Delete	Delete a line of text

F8 - Category Codes

F8 - Allows you to update other work order values.

Figure 5–3   Work Order - Category Codes screen

Field	Explanation
W.O. Number	The work order identification number. This value defaults from the Single Task Details.
W.O. Flash Message	A highlighted message that will be attached to the work order.
	Form-specific information
	The flash message displays as a highlighted message on Backlog Management, replacing the work order description.
Phase	A user defined code describing a stage or category in the development of a project. This value defaults from the Single Task Details.
Category 02	Category Codes that are user defined values associated with the work order.
Originator	The address number of the person who entered the work order.
	Must be a valid number in the Address Book Master file (F0101).
Supervisor	The address number of the work order supervisor.
	Must be a valid number in the Address Book Master table (F0101).
Std. Desc	A user defined code describing instructional information.
	Must be a valid number in the Address Book Master file (F0101).
	Form-specific information
	For Equipment/Plant Maintenance users:
	You can use this code to assign narrative text for a standard procedure. The information displays on the Item PM schedule and the work order routing.

Field	Explanation
Search X-Ref	Any number or characters that will be used to cross-reference work orders. This value will default from the Single Task Defaults screen.

F9 - Name Search

F9 - Allows you to search for a specific address book number.

F15 - Work Order Search Window

F15 - Allows you to search for work order descriptions. It will only return the description.

Figure 5–4   Single Task Details screen
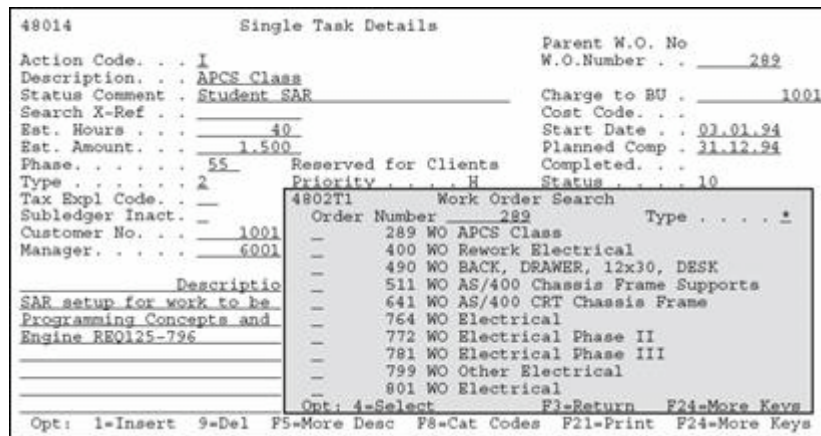
F21 - Print Work Order

F21 - Allows you to print the work order, including all of the associated record types.

5.3 Accessing the Scheduling Workbench

The Scheduling Workbench program allows you to review and update work orders. You can retrieve information about work orders in multiple ways. After retrieving the work orders that meet your search criteria, you can update selected fields in those work orders directly from the Scheduling Workbench form.

To access the Scheduling Workbench

From the Simple Project Management menu, select Scheduling Workbench

Figure 5–5   Scheduling Workbench screen

```
48201                        Scheduling Workbench            Plr Rem Cat T P M
                                                             ___ ___ ___ _ _ _ Y

   Action Code. . . . I
   Job or BU. . . . . _____ 1001 Work Orders in Progress
   Originator . . . : _____
   Customer Number. : _____
   Manager. . . . . : _____
   Supervisor . . . : _____     Parent W.O. No . . _____ Type . _ Model. _
   Search X-Ref . . . _____ Cost Code. . . . . _____ Prior. _
   Category Codes . . Phs. ___  CC2. ___  CC3. ___  CC4. ____CC5. ___
                      Sta. ___  Srv. ___  Ski. ___  Exp. ___ CC0. ___

 O  Number     Description                   X-Ref No.  St   Status Comment    T P
 _     1347 Subcontractors                              10
 _      289 APCS Class                       _____ 10 Student SAR         2 H




  Opt: 1=W.O Entry 4=Return w/#  F4=Detail  F10=Eq. Workbench  F24=More Keys
```

Field	Explanation
Category Codes	Any number or characters that will be used to cross-reference work orders. This value will default from the Single Task Defaults screen.
Job or BU	The business unit that is responsible for charges incurred.
	Must be a valid business unit setup in the Business Unit Master File (F0006).
Originator	The address number of the person who entered the work order.
	Must be a valid number in the Address Book Master file (F0101).
Customer	The Address Number of the customer.
	Must be a valid number in the Address Book Master file (F0101).
Manager	The Address Number of the manager in charge of the work order.
	Must be a valid number in the Address Book Master File (F0101).
Supervisor	The address number of the work order supervisor.
	Must be a valid number in the Address Book Master table (F0101).
Parent W.O. No	Through parent work order number, you can group work orders together based on one parent work order, such as the installation of a computer and its associated electrical wiring, which may involve more than one customer or manager.
	Form-specific information
	The parent work order number which groups work orders together in a "family".
Model	Determines whether model work orders will be displayed on the screen.
M	Determines whether model work orders will be displayed on the screen.
Search X-Ref	Any number or characters that will be used to cross-reference work orders. This value will default from the Single Task Defaults screen.

Field	Explanation
Cost Code	The subsidiary account responsible for incurred charges.
Number	The work order identification number. This value defaults from the Single Task Details.
Description	Describes the function or option exit.
	Cannot exceed 40 characters.
	Form-specific information
	The name or a brief description of the work order.
X-Ref No	Any number or characters that will be used to cross-reference work orders. This value will default from the Single Task Defaults screen.
Status	A user defined code used to describe the current status of the work order; for example, planned, started, or completed.
Status Comment	This line allows status comments or further description of the work.
Type	User defined code describing the work order type.
Priority P	A user defined code used to assign the priority of the work order; for example, high, medium, or low.

F4 - More Detail

F4 - Displays additional information concerning each work order that is hidden in the Detail Area.

Figure 5–6   Scheduling Workbench screen
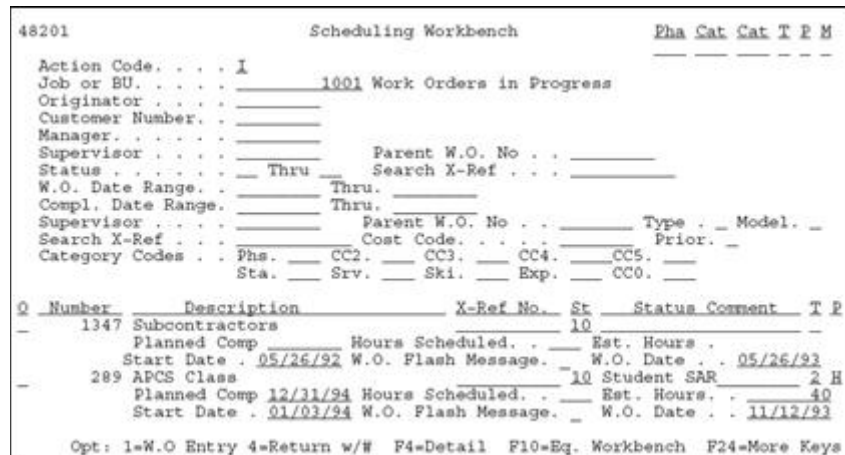
Field	Explanation
Planned Comp	The date the work is scheduled to be completed.
Hours Scheduled	The hours of work that has been scheduled.
Est. Hours	Total number of hours estimated for the work order.
Start Date Range	The initial date the work is scheduled to begin.
W.O. Flash Message	A highlighted message that will be attached to the work order.

Field	Explanation
W.O. Date	The date the work order was entered.
	Must be a valid number in the Address Book Master File (F0101).

5.3.1 Selection Exits from the Scheduling Workbench

Selection 1 - Work Order Entry

Takes you to the Work Order Entry screen and automatically inquires on the selected work order.

5.3.2 Processing Options

There are processing options associated with the Scheduling Workbench program that allow you to default a Work Order Status Range and a Work Order Type. In addition, you can call either Project Task Details (P48014) or the Equipment Work Orders (P48011) when the W.O. Entry option is selected. Be aware that Equipment Work Orders (P48011) is part of the Work Order Processing system (48). To see the processing options, type the selection number for Scheduling Workbench and press F18.

5.4 Adding Record Types

To add record types

1. From the Misc Additional Features menu (G4841), select Detail Spec. Types.

Figure 5–7   Detail Spec. Types screen
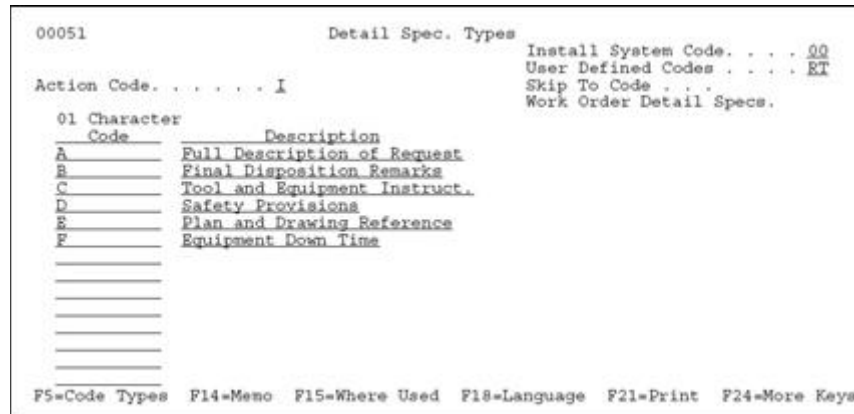
2. Add your specified record type and description to the table.

5.5 Changing Record Types

You can change the format of your record type.

To change record types

1. From the Misc Additional Features menu (G4841), select Detail Spec. Over Titles.

Figure 5–8   Detail Spec. Over Titles screen

```
48002                    Detail Spec. Over Titles

Action Code. . . I
Record Type. . . F


Sub-Title 1          Sub-Title 2          Sub-Title 3
Equipment            Production           Production
 Number               Time Out             Time In




                         F24-More Keys
```

2.   Enter the heading text of each column you wish to add to the format of your
     Record Type.

     ■   Work Order (SAR) file is F4801

     ■   Detail Record Type file is F4802

     ■   Method of tracking programming projects

          See Also:

          ■   For more information, consult the *JD Edwards World Work Orders
               Guide*

6

Work with Software Action Requests

This chapter contains these topics:

- Section 6.1, "About SAR System Setup"
- Section 6.2, "Creating Record Type Codes"
- Section 6.3, "Defining Record Type Titles"

6.1 About SAR System Setup

To set up a project, you must assign SARs and promotion paths to it. You create the SARs and define promotion paths first because the version control process uses the definitions.

After you set up your SAR system, you can develop the software. The SAR logging program keeps track of your changes as you have specified. While you develop the software, you can also define promotion paths and projects, and attach SARs to projects.

After you finish developing the software, you must update the SARs by using the SAR log before you promote the SAR.

Complete the following tasks:

- Section 6.2, "Creating Record Type Codes"
- Section 6.3, "Defining Record Type Titles"

6.1.1 Before You Begin

- The SAR system uses the Work Order files (F4801 and F4802). If your production environment uses these files, and if the F4802 file has different record types than what version control needs, define a separate library that contains these files for version control purposes only.

  See Also:

  - Section 10.3, "Defining a Promotion Path"

6.2 Creating Record Type Codes

The Work Order Instructions table (F4802) has an essential role in the version control process. It identifies and captures, for promotion purposes, all the source code members and control table data associated with a SAR. The Version Control system assigns a record type code to each source code member or control table data item,

which classifies it for promotion. You must create record type codes that your Work Order Instructions table does not have currently.

To create record type codes

1. From the Version Control menu (G9261), choose Record Type Codes.

2. On User Defined Code Revisions enter the following character codes and descriptions:

Figure 6–1   User Defined Code Revisions screen
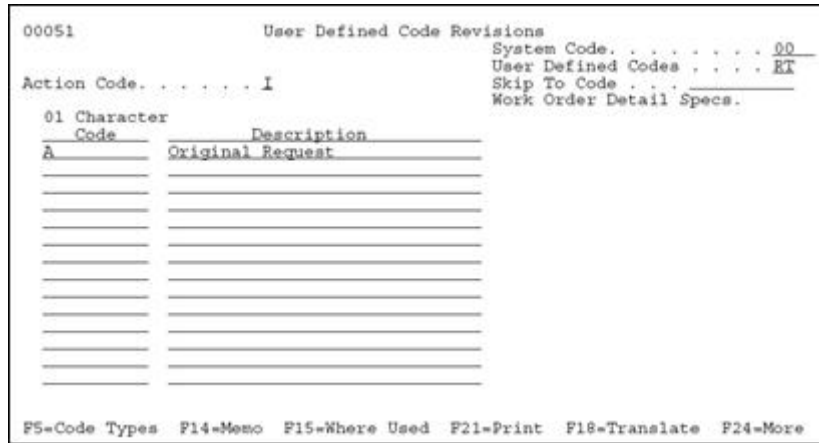
Character Code	Description
A	Original Request
C	Members Affected
D	Menu Modifications
E	Automatic Accounting Instructions
F	Software Inventory Record Updates
G	Processing Options/DREAM Writer
H	Vocabulary Override Changes
I	Database Changes
J	Constants Data File Changes
K	User Defined Code Changes
M	Connected SAR Numbers
N	Generic Rate/Message Type Changes
O	Connected SAR Numbers
Q	Generic Rate/Message Type Changes
S	Status History
U	Post-Installation Instructions
W	Pre-Compiler Commands
Z	First Included in PTF
3	Next Number Changes

6.3 Defining Record Type Titles

For each record type code you create, you must also define record type titles, which appear as column headings on the W.O. Detail Entry form.

6.3.1 Before You Begin

Create record type codes before you define record type titles. See Section 6.2, "Creating Record Type Codes".

To define record type titles

1. From the Version Control menu (G9261), choose Record Type Titles.

    On Record Type Titles

Figure 6–2   User Defined Code Revisions screen


```
00051                    User Defined Code Revisions
                                           System Code. . . . . . . . 00
                                           User Defined Codes . . . . RT
Action Code. . . . . . I                   Skip To Code . . . _____
                                           Work Order Detail Specs.
    01 Character
      Code              Description
    A_____          Original Request
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____
    _____          _____

F5=Code Types  F14=Memo  F15=Where Used  F21=Print  F18=Translate  F24=More
```
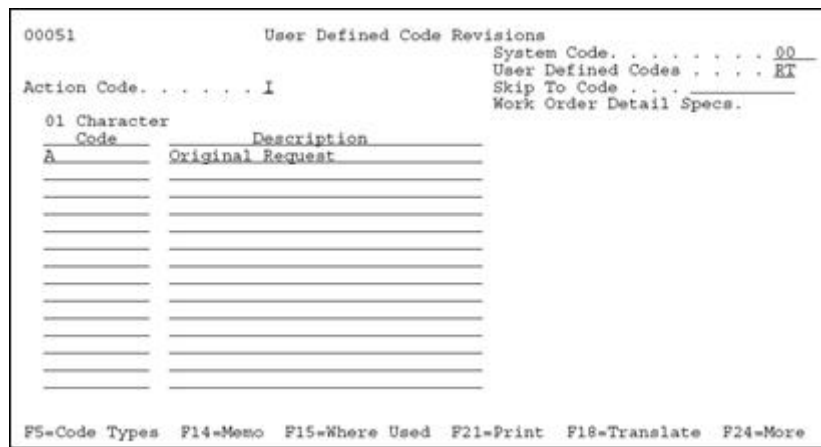
2. For each record type you created, complete the following fields with the information in the chart that follows:

Record Type	SUB-TITLE 1	SUB-TITLE 2	SUB-TITLE 3
A	_____ _____ _	_____ _____ _	_____ _____ _
C	__Member__ ___ Name___	__Source__ __ Library_	__Object__ __Library_
D	___Menu___ ___ Name___	__Option__ __ Number__	__Job_To__ __ Execute_
E	_____ ___AAI__ __	__Company_ ____No_ ___	_____ _____ _
F	_____ CL_ Program	_____ _ Program__	_____ Video/Rpt_
G	___Form___ ____ID__ __	_Version__ ___No___ __	_____ _____ _
H	__Scr/Rpt_ ___Name_ __	_____ _____ _	_____ _____ _
I	_____ _____ _	_____ _____ _	_____ _____ _

Record Type	SUB-TITLE 1	SUB-TITLE 2	SUB-TITLE 3
J	_____ _____ _	_____ _____ _	_____ _____ _
K	__Help____ __Start__ _	__Help____ __Stop___ _	_____ _____ _
M	___Sys____ ___Code_ __	__DTAI____ __Name_ __	_____ _____ _
N	___Sys____ ___Code_ __	___Rec____ ___Type_ __	_____ _____ _
O	___SAR____ ____No_ ___	___SAR____ ____No_ __	___SAR____ ____No_ __
Q	___Sys____ ___Code_ __	___Rec____ ___Type_ __	_____ _____ _
S	_____ _____ _	_____ _____ _	_____ _____ _
U	Reference_ ID/Code_ __	Attachment Needed-Y/N	_____ _____ _
W	__Program_ ___ Name___	_____ _____ _	_____ _____ _
Z	__Release_ ____ID___ _	___PTF____ __ Number__	___Date___ _ Included_
3	System____ Code____ __	Line_____ Number__ __	Action____ Code____ __

6.3.2 What You Should Know About

Topic	Description
Verifying the record type titles	After you define the record type titles, you can view them to verify their accuracy. On Single Task Details, choose More Description. On W.O. Detail Entry, locate a record type you want to view by using the Record Type field.
	To access Single Task Details, see Section 5.2, "Creating Work Orders".

7

Work with Software Versions Repository

This chapter contains these sections:

The Software Versions Repository (SVR) consists of the following master directories.

Figure 7–1   Master Directories in the SVR

F9801
Software Versions
Repository Master
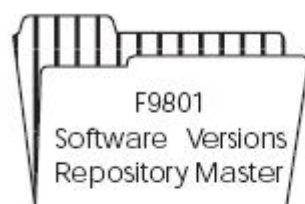
A master directory of all files, programs, screens, reports, and copy modules.

F9802
Software Versions
Repository Master
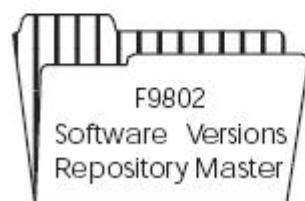
Stores the member locations for each member master record.

7.1 Working with Software Versions Repository (SVR)

The Software Versions Repository indicates in what environments a requested member is located and whether the environment is a production or development

environment. The data is used extensively for documentation and plays an important role in JD Edwards World Design and Development tools.

The Software Versions Repository is the natural starting point for all programming and software inquiry functions. It provides exits to the following features:

- Source Entry Utility (SEU)
- SAR Detail Entry
- Screen Design Aid (SDA)
- Report Design Aid (RDA)
- File Design Aid (FDA)
- The Program Generator
- Precompiler Commands
- Repository Services
    - Data Dictionary
    - Menus
    - Vocabulary Overrides
    - Function Key Definitions
    - Processing Options
    - User Defined Codes
    - CASE Profiles
    - SAR Log Inquiry
    - Copy DD,VO,DW,UDC,SVR, Menus
- Optional Files Feature
- Programmer Checklists
- Where Used Facility
- Flowchart Programs/Illustrate File Models
- Source Modifications Editor
- Edit Helps

In addition, it provides access to the following functions:

- Copy Source
- Print Source
- Submit Creation of Object
- Generate Program Source and Help
- Edit Help Instructions
- Delete Source
- Print Help Instructions

7.2 Accessing the Software Versions Repository

The Software Versions Repository serves as the front-end for all JD Edwards World design aids and programming utilities. You can also utilize this form as your own inventory file.

To access the Software Versions Repository

From the Computer Assisted Design menu (G92), choose Software Versions Repository.

Figure 7–2 Software Versions Repository screen

The top portion of the form identifies the member and its attributes. This information is stored in the Software Versions Repository master file (F9801).

7.3 Member Identifiers

The first two fields identify the member.

Field	Explanation
Member ID	The name of the Software Versions Repository member.
	Form-specific information
	The source file contains the source member. In JD Edwards World, three source files reside in the JDFSRC library.
	They are:
	■ JDECPY for copy modules
	■ JDESRC for RPG, DDS, and CL source code
	■ F98CRTCMD for precompiler commands

Field	Explanation
Description	Identifying information of the member, such as Trial Balance by Business Unit. Associated programs, screens, and reports should share the same description.
	The description associated with each member is used to further identify the purpose of the member.
	■ Physical files should have a description that explains the purpose of the file.
	■ Screens, reports, and CL programs should have the same description as the associated RPG program.
	■ Logical files should be designated as follows: LF - fldname, fldname, fldname: where fldname is a key field.
	■ Join files should be designated as follows: JF - filename/filename/filename - fldname,fldname,fldname; where the filename is a file over which the join is built and fldname is the key field joining the files.
	■ Work files should be designated as follows: WF - filename; where filename is the file that the work file accesses.
	■ Copy modules carry their own unique descriptions.
	■ File Server programs should be designated as follows: File Server - filename; where filename is the file being served.

7.3.1 Type, Use, and Associated Systems

The following fields identify the associated systems, along with their type and use.

Field	Explanation
Function Code	Designates the object type such as display file, physical and logical files. Use F1 in the field to view the available types. RPG IV programs will use RPGL. RPG IV copy members will use CPYL. UDC 98/F is used to control Member ID and Function Code combinations.
Function Use	Displays how the object is used in the system.
System Code/Product Code	The system code the object is assigned to and delivered under.
	Form-specific information
	Designates the system number associated with the member. The configuration of installation media and the install process itself are driven by this install system code. Use F1 in the field to view valid codes.
Reporting System	Designates the system number for the using system. This may differ from the System/Product code. Exceptions occur for data files used by more than one system.

7.3.2 Member Relationship and Compiling Information

The following fields identify the logical grouping of members and information used in the compile process.

Field	Explanation
Base Member Name	This field allows for the logical grouping of members.
	Form-specific information
	This field simply allows for logical grouping of members.
	For screens, reports, RPG programs and CL jobs, this name is usually the RPG program name associated with a particular member.
	For logical files, this name is the physical file upon which it is based and is required.
Omit Option	Designates items in the Software Versions Repository file that would be bypassed for a new release. These codes are as follows:
	H – Held from all releases
	X – Omit from all releases
	S – Omit Source from all releases
	O – Omit Execution Object from all releases
Generation Sev	Allows the user to designate a severity level when compiling a member.
	Because some JD Edwards World programs contain messages that appear in the compile listing as a severity level 10 error, it is suggested that you override the IBM default of a severity level 9 to a level 20 for all programs. To do this, enter the following on any command line:
	CHGCMDDFT CMD(CRTRPGPGM) NEWDFT('GENLVL(20)')
	RPG IV programs use CRTBNDRPG so the command to change that default is
	CHGCMDDFT CMD(CRTBNDRPG) NEWDFT('GENLVL(20)')
	For those specific programs that must override the new default severity level of 20, you can enter the override value in the Generation Severity field.
Maint/RSTDSP	Designates the type of maintenance on a logical file, how a screen will be processed, or if the program contains embedded SQL statements.

7.3.3 Maintenance on a Logical File

Value	Description
0	No maintenance; or the logical is created dynamically.
1	Logical will be immediately updated when physical is updated.
2	Logical update will be delayed until the next time it is opened. - USE WITH CAUTION!

7.3.4 Processing a Screen

Value	Field Values	Description
1	RSTDSP = *NO (Restore Display)	Use with OVERLAY. Do not use with PUTOVR/OVRDTA.
	DFRWRT = *YES (Defer Write)	All writes to the form field or file formats will be collected and written at one time.
A	RSTDSP = *NO	Overlay
	DFRWRT = *NO	Each write statement is written to the screen.
B	RSTDST = *YES DFRWRT = *NO	Use with PUTOVER to clear and write screen at field level.
S		Used when compiling SQL, RPG, RPGL and PL1 programs. For example, if SQL statements exist within an RPG program, the compiler:
		1) Executes a create SQL program statement
		2) Executes the SQL statements (converts them to calls)
		3) Comments them out
		4) Executes a CRTSQLRPG program statement and continues as normal

7.3.5 File Information

The following fields identify the file information.

Field	Explanation
File Prefix	This field indicates the prefix associated with a file. Use F1 to display all file prefixes in use. Each physical file should have a unique file prefix.
Copy Data (Y/N)	Used to indicate if a database file must be copied with or without data.
	The Create User Data Libraries (option 2 from menu G9645) utility accesses this field to determine if the file copied will be copied with data.
Optional File	Indicates the file may be optional in your production environment. F8 provides a list of optional files.
	Form-specific information
	Designates if the file may not be needed at a client installation. The explanation of these situations can be found in the Generic Rate/Message information for that file for Generic Rate/Message Type 96/OF (F8 above). All of these files that exist in a specified library can be listed in the Optional File Report on menu G9645.
Common File	Indicates when a file should exist in the common library or user production library. The Create User Data Libraries (option 2 from menu G9645) utility accesses this field to determine if the file should be placed in a common library if specified, or the production library.

7.3.6 Where Are Members Maintained?

The bottom half of the Software Versions Repository form lists the libraries in which the member is maintained. This information is stored in the Software Versions Repository Detail file (F9802).

Figure 7–3   Bottom Half of the Software Versions Repository form

Field	Explanation
Source Library	The library containing the data to be accessed.
	Form-specific information
	The source library where the source file for the object is maintained.
	This library is usually JDFSRC (for JD Edwards World) or CLTSRC (for the client) for production and DEVSRC for development.
Object Library	The library in your Development Environment to receive the compiled object.
	Form-specific information
	The destination library for the compiled object. This is for compile purposes only and no check is made to ensure that the object is in that library.
	Leave the object library name blank for copy modules since they are not compiled objects.
Source File	The source file containing the source member.
	Form-specific information
	At JD Edwards World, three source files reside inside of the JDFSRC library.
	They are
	■ JDECPY for copy modules,
	■ JDESRC for all other source code, and
	■ F98CRTCMD for precompiler commands.

Field	Explanation
SAR Number	An abbreviation for software action request (SAR).
	■ If the CASE profile has *NONE for SAR Number, the SAR number will not be validated in any of the CAD/CAP programs and can be left blank.
	■ If a SAR number is entered, it will be validated against the Work Order file, F4801.
	Form-specific information
	The JD Edwards World Development process uses the most recent Software Action Request (SAR)/Work Order number associated with the member. This number must be valid, and if the status of the SAR number is 'complete', you should enter a new SAR to perform additional work on the member. A basic version of the Work Order system is sent to clients who have purchased the Computer Assisted Design (CAD) system and serves as a means for the client to keep track of their projects.
	If an Employee Address Number is specified on the User Information screen (F0092 file), that number will be used to list SARs currently assigned to that person when F1 is pressed on this field.
	The edit for this field is controlled by the SAR information entered in CASE Profiles.
Version ID	The software version number to be defaulted in the Software Versions Repository file.
	Form-specific information
	Identifies the JD Edwards World release level of the member in the designated environment.
	Validated against User Defined Codes 98/RL.
S C (Status Code)	Determines the status of the software in the development process.
Development	Development Progress Code.
	Indicates the progress of modifications made to the member.
User ID	The IBM-defined user profile.
	Form-specific information
	User ID that last modified the member (automatically updated).
Date Modified	The date the member was last updated (automatically updated).

> **Note:** Each subfile line represents a record in the Software Versions Repository detail file (F9802). The information can be entered manually or through the upgrade process. There is no presence check for the object so if the object was deleted or the information was entered in error, there may be invalid entries.

Typing "D" in the Action Code deletes all the members and control data from the following:

■ Software Versions Repository Master file (F9801)

■ Software Versions Repository Detail file (F9802)

- Source and Object, if applicable

- Data Dictionary (F9200, F9203, F9816, F98163)

- Vocabulary Overrides (F9220)

- Function Key Definition (F9601,F9611)

- DREAM Writer forms (F98301, F9831, F98311, F98312)

- Cursor Sensitive Helps (F9620, F9621)

- Processing Options (F98302)

- Program Generator, if applicable

7.4 Naming Conventions

The following forms show how the report and CL program share the same description and base member as the program name. The same convention is true for the CL program and the special form.

Figure 7–4   Software Versions Repository screen

Figure 7–5   Software Versions Repository screen

Figure 7–6   Software Versions Repository screen

```
9801                    Software Versions Repository

Action Code. . .  I
Member ID. . . .  J42565
Description. . .  Sales Order Invoices Print
Function Code. .  CLP   CL Programs
Function Use . .  164     Special Forms
System Code. . .  42    Sales Order Processing
Reporting System  42    Sales Order Processing
Base Member Name  P42550              File Prefix. . .
Maint/RSTDSP . .  _   Omit Option. . .  _  Generation Sev .
Copy Data (Y/N).  N   Optional File. .  N  Common File. . .  N

O  Source    Object    Source    SAR    Version  S D   User      Date
P  Library   Library   File     Number   ID     C P    ID      Modified
__ JDFSRC    JDFOBJ    JDESRC   644471  A73      1 _    JDE     08/09/93
```

The JD Edwards World naming structure identifies and describes major software components. The first character of the name indicates the type of component, such as program or data file. The second and third characters denote the system and are referred to extensively throughout the software. The fourth, fifth, and sixth characters represent the component group type, such as the function to be performed by the indicated component. The seventh through the tenth characters identify component versions. File names vary from four to eight characters in length, while all other component names are at least six characters long.

Use the following chart as your guide when naming objects.

Figure 7–7   Naming Structure Chart

```
                                               X    XX    XXX
        First digit — Component
            C —    Common subroutine
            I  —    Data structure; record formats
            J —    CL program
            P —    RPG program
            R —    Report
            S —    Special form
            T —    Temporary work files
            V —    Video screen display file
            X —    Scrub and Edit Server
            XF —    Input/Output File Server
            XS —    Input only/Caching Server

For a       Second and third digits — System Code
complete list
of system      00 —    World Foundation Environment
codes, see     01 —    Address Book
User Defined   03 —    Accounts Receivable
Codes,         55 —    Reserved for clients
system 98,
record type Fourth, Fifth, and Sixth Digits — Group Type
SY
               000 to 099 —   File maintenance
               100 to 199 —   Transaction processing
               200 to 299 —   Inquiry only
               300 to 399 —   Input registers and journals
               400 to 499 —   Operating reports
               500 to 599 —   Special purpose reports
               600 to 799 —   Standard management reports
               800 to 999 —   Housekeeping
               DS         —   Data structure
               Other      —   Window designations
```

A CL program, RPG program and a Report file may have identical names with different prefixes.

For example: J01051, P01051, R01051 (Address Book Revisions).

Use the following as a guide when naming files.

Figure 7–8   File Naming Guide
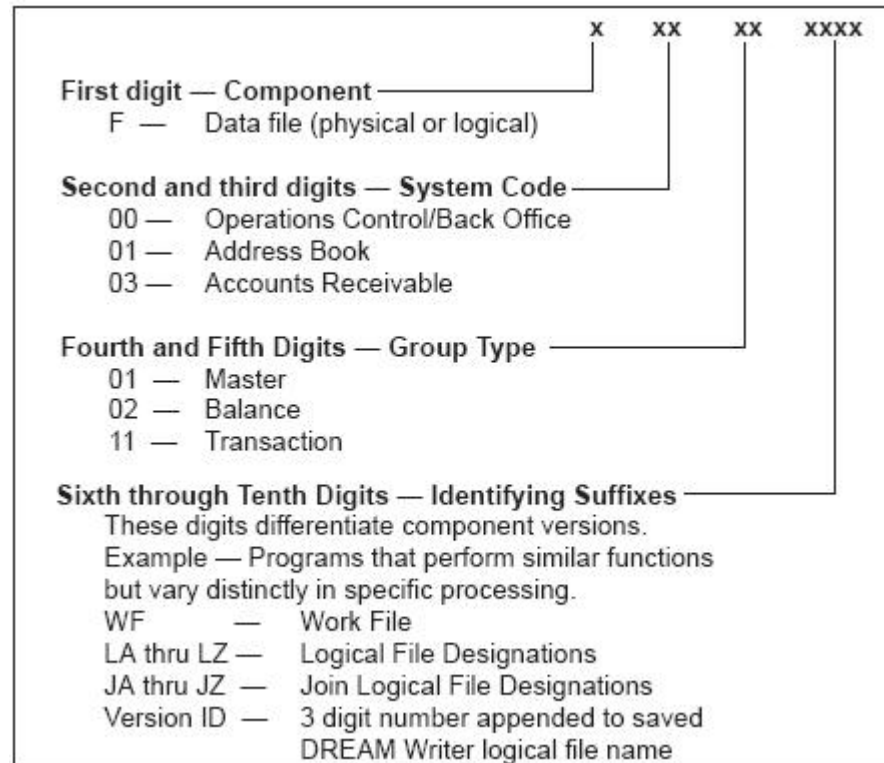
The following shows the names for different types of programs and files.

Item	Description
Maintenance program	The maintenance program for a file has the same name with a different prefix.
	For example, F9220 and P9220 or F9601 and P9601.
Logical files	For logical files over one physical, the logical file has the same name as the physical followed by an L, followed by A thru Z.
	For example, F0101 has logicals F0101LA, F0101LB, F0101LC, and F0101LD.
Join logical files	Join Logical files have the same name as the principal based-on file, a suffix of J followed by A thru Z.
	For example, the system names the join of F0006 and F0911 as F0006JA
Temporary files	Batch jobs use T files doing a CRTDUPOBJ. The job then removes the object after completion.
	■ Usually Physical Files
	■ Begin with T
	■ Found in JDFOBJ

Item	Description
Dynamic work files	Dynamic work files are usually FASTR processing requirements. Dynamic work files create and delete after the job is complete.
	■ Usually logical files
	■ Have same name as program

7.5 The JD Edwards World System Codes

When used in menus, the system code follows the letter in the menu name. Shown below are the system codes for the standard AS/400 systems:

General System Codes

System Number	System
00	General Back Office
01	Address Book
02	Electronic Mail
03	Accounts Receivable
03B	Enhanced Accounts Receivable
03C	Customer Issue Tracking
04	Accounts Payable
05	Standalone Time Accounting
06	Old Payroll
07	New Payroll
08	Human Resources
08A	Application Tracking
08B	Benefits Administration
08C	Canadian Specific HR Functions
08H	Health and Safety
08P	Position Control
08R	Requisitions
08U	US Specific HR Functions
08W	Wage and Salary
09	General Accounting
09E	Expense Reimbursement Reporting System Only
10	Financial Reporting
10C	Multi-Site Consolidations
11	Foreign Currency/Cash Basis
11C	Cash Basis Accounting
12	Fixed Assets
13	Equipment/Plant Management

System Number	System
14	Modeling, Planning, and Budgeting
15	Commercial Property Management
16	Residential Property Management
17	Customer Service Management
17A	Ariba Integration Reporting Purposes Only
17C	Call Management Reporting Purposes Only
18	Resource Scheduling Reporting Purposes Only
19	Utility CIS
20	Energy Data Base
21	Lease Management
22	Production System
23	Revenue Distribution
24	Contracts
25	Joint Interest Billing
26	Gas Balancing
27	Investor Services
28	Projects on Hold - Energy
29	AFE Accounting
30	Product Data Management
30A	Product Costing Reporting Only
31	Shop Floor Control
31A	Manufacturing Accounting
3110	Process Control
32	Configuration Processing
32C	Custom Works
33	Capacity Requirements Planning
34	DRP/MPS/MRP
34A	Advanced Planning & Scheduling
35	Enterprise Facility Planning
36	Forecasting
37	Quality Management
38	Distribution Contracts
39	Bulk Stock Control
40	Inventory/OP Base
4010	Advanced Price Adjustments
41	Inventory Management
41B	Bulk Stock Control
42	Sales Order Processing

System Number	System
42A	Sales Force Automation Reporting Purposes Only
42B	Enterprise One Sales Order Entry
42E	ECS Sales Order Processing
43	Purchase Order Processing
44	Contract Administration
44H	Homebuilder Management
4401	Homebuilder Management
45	Advanced Price Analysis
46	Warehouse Management
47	Electronic Data Interchange
48	Work Order Processing
48S	Service Billing
49	Transportation
50	Job Cost Accounting
51	Job Cost Accounting
52	Job Cost Billing
53	Change Management
55-59	Reserved for Clients
60-69	Reserved for JD Edwards World Custom
70	Multi-National Products
71	Client Server Applications
73	M&D Complimentary Products
74	EMEA Localizations
74G	Greece
74H	Hungary
74I	Ireland
74L	Portugal
74N	Nordics
74P	Poland
74R	CIBS
74S	Spain
74T	Turkey
74Z	Czech Republic
75	Asia Pacific Localizations
75H	Thailand
75I	India
75K	South Korea
7T	Taiwan

System Number	System
76	Latin American Localization
76A	Argentinean Localization
76C	Columbia
76H	Chile
77	Canadian Payroll
77Y	Canadian Payroll Year End Programs Reporting System Only
78	OBSOLETE CS Travel Expense Management
79	OBSOLETE Foreign Translation

Technical Foundation Systems

System Number	System
00	General Back Office
80	Business Intelligence
81	DREAM Writer
82	World Writer
83	Finance Report Writer-FASTR
84	Distributed Data Processing
85	Custom Programming
86	Foreign Language Translation
87	JD Edwards World Internal
88	Cautious Purge System
89	Conversion Programs
91	Documentation
92	Computer Assisted Design
93	Computer Assisted Programming
94	Security Officer
95	Unattended Night Operations
96	Computer Operations
97	Software Load & Install
98	Technical Aids
98e	Electronic Burst & Bind
98FT	Form Type
98SA	Sample Application
99	Technical Aids - Internal
99D	Technical Tools - DASD Sizer Reporting Purposes Only
99M	Technical Tools - Masters/Update Reporting Purposes Only

7.6 Examples of Program and File Names

The following is a detailed breakdown of program and file names. All of the file types have the same system code and component group.
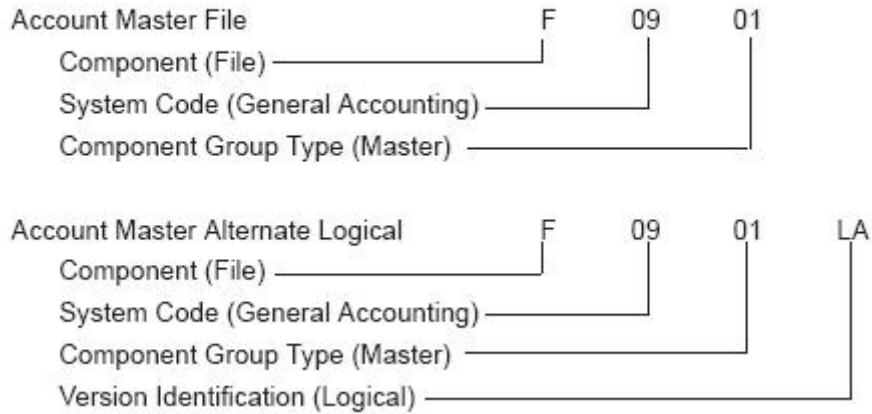
Figure 7–9   File Name Breakdown

Data Files

```
Account Master File                          F      09      01
    Component (File) ───────────────────────┘       │       │
    System Code (General Accounting) ───────────────┘       │
    Component Group Type (Master) ─────────────────────────┘


Account Master Alternate Logical             F      09      01      LA
    Component (File) ───────────────────────┘       │       │       │
    System Code (General Accounting) ───────────────┘       │       │
    Component Group Type (Master) ─────────────────────────┘        │
    Version Identification (Logical) ──────────────────────────────┘
```

Figure 7–10   Video Screen Name Breakdown

Videos (Screens)

```
                                             V      09      01
    Component (Video) ──────────────────────┘       │       │
    System Code (General Accounting) ───────────────┘       │
    Component Group Type (File Maintenance) ───────────────┘
```
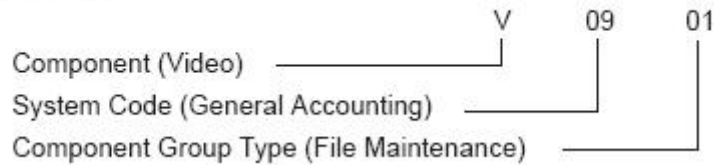
Figure 7–11   RPG Program Name Breakdown

RPG Programs

```
                                             P      09      01
    Component (RPG Program) ────────────────┘       │       │
    System Code (General Accounting) ───────────────┘       │
    Component Group Type (File Maintenance) ───────────────┘
```
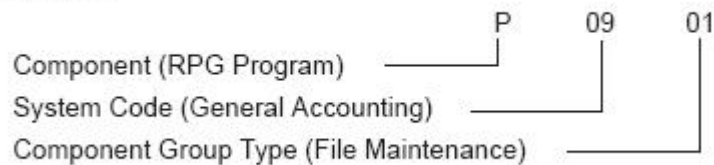
Figure 7–12   CL Program Name Breakdown

CL Programs

```
                                             J      09      01
    Component (CL Program) ─────────────────┘       │       │
    System Code (General Accounting) ───────────────┘       │
    Component Group Type (File Maintenance) ───────────────┘
```
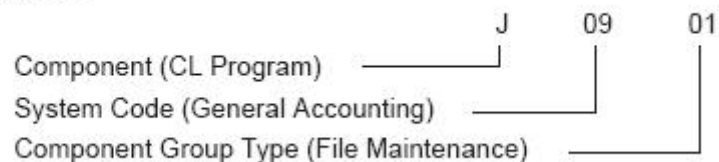
7.7 Optional Files Workbench

The Optional Files Workbench provides better access to optional files. When you delete optional files, they are logged. If you reinstall, those files are not put back into the system. Each file has an explanation about the circumstances that makes it optional. The Option Files Workbench is accessed via option 18 from menu G9645.

> **Note:** If you need the deleted files, you can remove them from the logged optional files and copy them from JDFDATA.

Figure 7–13   Optional Files Workbench screen

```
98290                     Optional Files Workbench    System Code. .  ____
                                                      Reporting Sys.  ____
Library. . . . . PGFDTA73___
Skip To File . .  _____

O    File
P    ID           Description_____
_   F00021     Next Numbers by Company/FY - Automatic
_   F00021LA   Next Numbers by Company/FY - Automatic - Logical Key Co,Seq
_   F0006JA    JF - BILLING ONLY - F0006/F0911 - Cost Center
_   F0006JE    JF - Profit Recognition F0006/F5144 (Cost Center)
_   F0006LC    LF - JOB COST ONLY - Level of Detail, Cost Center
_   F0006LG    Business Unit Master
_   F0006LH    LF - JOB COST ONLY - Company, Desc Compressed, Cost Center
_   F0013      Currency Codes
_   F0018LD    LF - OneWorld - Document Typ, Document No, Key Co,
_   F0030LF    LF - OneWorld - Decending Unique ID
_   F0030LG    LF - OneWorld - Type, Account ID, Cost Center
_   F0031      Cross Over Rules
_   F0031LA    LF - domestic file, foreign file, foreign field
_   F0031LB    LF - domestic file, foreign file, dom reference field
_   F0040      PC Batch Entry - Error File

  Opt: 1=Explanation  2=SVR  4=Delete    F2=Cmd Entry  F5=View Log  F24=More
```

7.7.1 Logical Files

- The Member ID for logical files ends with Lx, where x is the next available letter in alpha sequence.

- The Object Library is usually JDFDATA.

- The Description should list the key fields for the view.

- The Maint/RSTDSP is 1 for permanent system logicals.

- The Base Member Name is the physical file the logical view is over.

- If you are adding a custom logical, start at the bottom of the sequence for example L99. If JD Edwards World add a logical, it will be sequenced after the previous one they created.

Figure 7–14 Software Versions Repository screen

```
9801                    Software Versions Repository

Action Code. . .  I
Member ID. . . .  F0911LA
Description. . .  LF - Doc Type, Doc, Key Co, G/L Date(##YYMMDD), Line #, Ext
Function Code. .  LF    Logical Files
Function Use . .  230    Transaction Files
System Code. . .  00    Technical Foundation
Reporting System  09    General Accounting
Base Member Name  F0911              File Prefix. . .  GL
Maint/RSTDSP . .  1  Omit Option. . .  _  Generation Sev .
Copy Data (Y/N).  N  Optional File. .  N  Common File. . .  N

O  Source    Object    Source    SAR    Version    S D   User    Date
P  Library   Library   File     Number   ID        C P    ID    Modified
__ JDFSRC    JDFDTA    JDESRC    591710  A61        1 _    JDE   03/22/93
```

7.7.2 Join Logical Files

■ The Description lists the files over which the join is built.

■ The Base Member Name is the primary file in the join.

■ If the Physical files exist in separate libraries, the CRTLF command must be used since the SVR process can only create a logical if the joined files are in the same library.

Figure 7–15 Software Versions Repository screen

```
9801                    Software Versions Repository

Action Code. . .  I
Member ID. . . .  F0006JA
Description. . .  JF - BILLING ONLY - F0006/F0911 - Business Unit
Function Code. .  LF    Logical Files
Function Use . .  210    Master Files
System Code. . .  00    Technical Foundation
Reporting System  00    Technical Foundation
Base Member Name  F0006              File Prefix. . .  MC
Maint/RSTDSP . .  2  Omit Option. . .  _  Generation Sev .
Copy Data (Y/N).  N  Optional File. .  N  Common File. . .  N

O  Source    Object    Source    SAR    Version    S D   User    Date
P  Library   Library   File     Number   ID        C P    ID    Modified
__ JDFSRC    JDFDTA    JDESRC    493167  A61        1 _    JDE   03/05/93
```

7.7.3 Copy Modules

■ The Member ID begins with C, D, E, or I.

■ The Source File is JDECPY.

■ The Description describes the function of the module.

■ The Function Code is COPY or CPYL (RPG IV code).

Figure 7–16   Software Versions Repository screen

```
9801                    Software Versions Repository
                                          Release. . A61
Action Code. . . I
Member ID. . . .  C00SC
Description. . .  Copy Module - Retrieve Soft Coding
Function Code. .  COPY   RPG Copy Module
Function Use . .  194      Common Subroutine
System Code. . .  98     Technical Tools
Reporting System  98     Technical Tools
Base Member Name  C00SC           File Prefix. . .
Maint/RSTDSP . .  _    Omit Option. . .  _   Generation Sev .
Copy Data (Y/N).  N    Optional File. .  N   Common File. . .  N

O  Source      Object      Source      SAR     Version   S D   User      Date
P  Library     Library     File        Number    ID      C P    ID     Modified
__ JDFSRC      JDFOBJ      JDECPY      603784  A61        1 _    JDE    06/10/93
```

7.7.4 Windows

- The Member ID begins with V, the system number, then an alphabetic identifier as shown in the example below.

- The Description describes the function of the form.

- Maint/RSTDSP is left blank to allow the form to appear in front of text from the calling form.

Figure 7–17   Software Versions Repository screen

```
9801                    Software Versions Repository

Action Code. . . I
Member ID. . . .  V09ACCT
Description. . .  Account Master Additions Window
Function Code. .  DSPF   Video Display Files
Function Use . .  111      File Maintenance
System Code. . .  09     General Accounting
Reporting System  09     General Accounting
Base Member Name  P09ACCT          File Prefix. . .
Maint/RSTDSP . .  _    Omit Option. . .  _   Generation Sev .
Copy Data (Y/N).  N    Optional File. .  N   Common File. . .  N

O  Source      Object      Source      SAR     Version   S D   User      Date
P  Library     Library     File        Number    ID      C P    ID     Modified
__ JDFSRC      JDFOBJ      JDESRC      552868  A61        1 _    JDE    12/08/92
```

7.8 Navigation Functions

The following Function keys facilitate navigation within the Software Versions Repository.

Function	Description
F6	Access Repository Services
	You can access the Repository Services form using F6. This form provides access to the other repository services within JD Edwards World.

Sample F6 - Repository Services

Figure 7–18   Software Versions Repository screen

Use selection 1 to select the available services.

Function	Description
F9	Automatic Reinquiry
	Once the system has accepted the changes you made to a member and cleared the screen, you can automatically inquire on that member by pressing F9.
F17	Position Cursor to Action Code
	When you inquire on a member, the system positions the cursor in the subfile for the screen. To reposition your cursor in the Action Code field, press F17.
F19	Previous Member
	When you inquire on a member, the system positions the cursor in the subfile for the screen. To reposition your cursor in the Action Code field, press F17.
F20	Next Member
	To access the member stored after the currently displayed member, press F20.

7.9 Other Function Keys

Function	Description
F2	Automatic Reinquiry
	■ To access a command line to enter a JD Edwards World or IBM command without having to exit to Command Entry or a menu.
	■ Calls a JD Edwards World program and not the IBM Command Entry.
	If you are secured out of Command Entry or Menu Traveling, you still receive this command line but you cannot execute commands or menu travel.
F8	Optional Files
	The system displays the optional files.

Function	Description
F10	Checklists
	Displays a user defined checklist. Opt 1 displays additional job information.
F13	Displays additional category code information for each member. You can cross-reference category code values to the Software Versions Search program (23/G91).
F14	Member Parameter/Key List
	Identifies the access path for keyed files.
F15	You can access the Where Used facility using Function key 15 on Software Versions Repository. Use this facility to determine every location that a particular member is used.

Below is an example form displaying every program that uses the Business Unit Master screen:

Use an * in Type on the Cross Reference screen to see the possible combinations.

Figure 7–19   Cross Reference screen

Note: To use this facility, you must run the Cross Reference Rebuild. (6/G9642)

F23 - Flow Programs / Illustrate File Models

F23 - To display a flowchart if the member is a program or a Data Model if the member is a file.

This is only functional for programs and files.

7.10 Selection Exits from the Software Versions Repository

The following is a list of the options available from the Software Versions Repository. By referring to the form pictured in the beginning of the chapter, you can see that there are more options than can be displayed on the form.

Option	Description
1	Browse
	Displays the source member in SEU browse mode.
2	Edit
	Displays the source member in SEU update mode.
3	Copy the source member
	Copies the source member to another source file member or copies the member to a new member name in the same file.
	Adds SVR master and detail records if needed. Copies pre-compiler commands and Vocabulary Overrides. Copies program generator specifications if requested.
5	Work with SAR detail
	Displays the SAR/Work Order Detail Entry screen, defaulting to the members affected portion of the SAR/Work Order.
8	Print source
	Prints the member.
9	Delete/ remove source
	Deletes the detail record and removes the source member from the source file.
	The same IBM authority that applies to the command RMVM applies to this function.
	Will delete the object if requested by the user. If you do not remove the source member, you will not be allowed to delete the object.
10	Exit to design aid
	Determines what type of member you are accessing and then exits to the correct JD Edwards World design tool; that is, SDA/RDA/FDA/Program Generator.
11	Precompiler commands for JD Edwards World compiler.
	Accesses the source code for the precompiler commands associated with a program.
	A highlighted message, Precompiler Commands Exist, indicates there is a member with the same name in the F98CRTCMD file.
	Contains information the compiler will use when compiling the program.
	Note: Only one person can view the same pre-compiler commands.
14	Submit object creation
	Compiles the member and generates an object. The type of object determines what library the compiled object will be placed into.
15	Generate program source and help
	Submits the member to the program generator in order to generate source and related helps.
	Only applicable to CASE users.

Option	Description
17	Edit help instructions
	Accesses the help instructions for a particular program in update mode utilizing SEU.
18	Generate & rebuild help instructions
	Submits the helps for generation and rebuilds them into their final form once they have been entered.
20	Browse SDA/RDA
	Accesses SDA or RDA in browse mode with Vocabulary Overrides.
21	Print help
	Prints the help instructions for the member.
25	Print illustration
	Prints an illustration of printer files, display files, or data base files.
30	Source modifications editor
	Allows you to view the source modifications made to the member through SEU after source was generated. Stored in the F93002 file.
	Only applicable to CASE users.

8

CASE Profiles

This chapter contains these topics:

8.1 About CASE Profiles

CASE profiles are user defined values that can pertain to individual users or to one *PUBLIC user profile. The profiles are stored in F98009. Parameters in these profiles are used when copying source members or when designing or compiling programs and files.

The following processing control parameters are defined by the user:

- Default development libraries

- Compile job queue

- Program Generator source generation job queue

- Compile print options

- SAR logging options

> **Note:** You should immediately update the record for User ID *PUBLIC to reflect JOBQs, OUTQa and Libraries on your machine.

When entering information for *PUBLIC, all fields are required.

Default CASE Profile values are maintained in a record with the User ID *PUBLIC. You should enter CASE Profile values for individual users only if you need overrides to the *PUBLIC values.

When entering values for individual users, you can leave all fields blank except for the specific values being overridden.

8.2 Accessing CASE Profiles

To access CASE Profiles

To access CASE Profiles, choose one of the following methods:

1. From Computer Assisted Design (CAD) (G92), choose CASE Profiles.

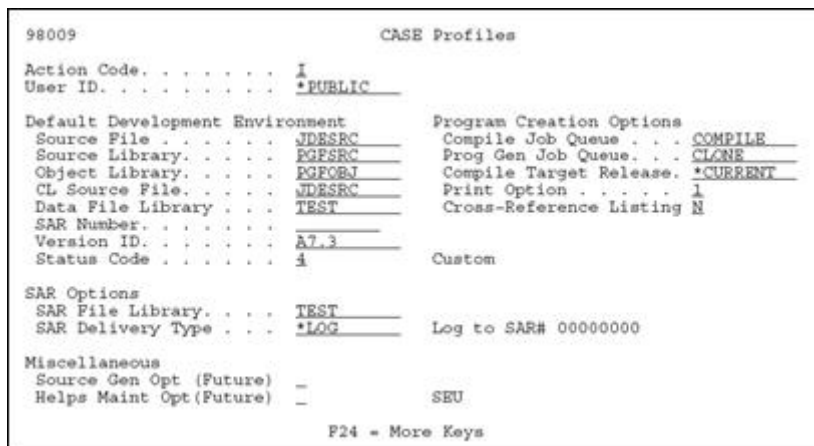*Figure 8–1   Computer Assisted Design (CAD) screen*
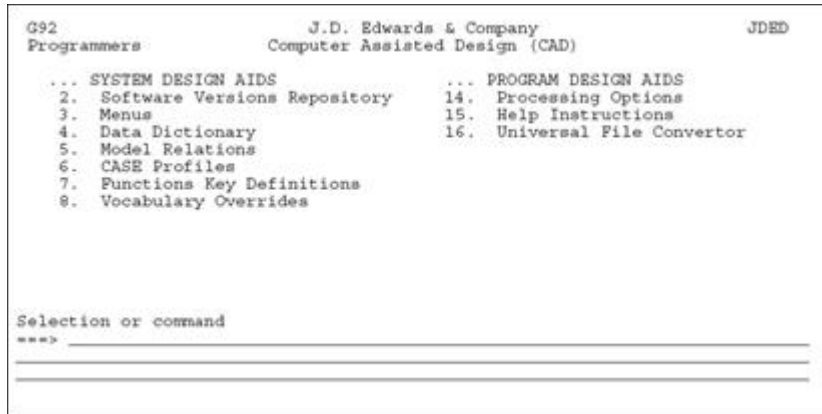
2. From Run Time Setup (G90), choose Software Version Repository, press F6 to open up the Repository Services form, select CASE Profiles.

Figure 8–2   Software Versions Repository screen
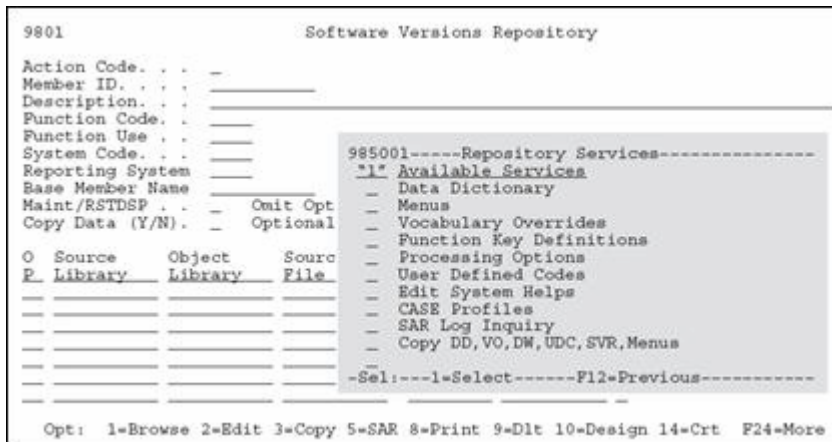
The CASE Profile form displays. The program attempts to automatically inquire on your User ID. If your ID is not set up, an error occurs. You can inquire on *PUBLIC.

Figure 8–3   CASE Profiles screen


```
98009                        CASE Profiles

Action Code. . . . . . .   I
User ID. . . . . . . . .   *PUBLIC

Default Development Environment      Program Creation Options
  Source File . . . . . .   JDESRC       Compile Job Queue . . .  COMPILE
  Source Library. . . . .   PGPSRC       Prog Gen Job Queue. . .  CLONE
  Object Library. . . . .   PGPOBJ       Compile Target Release.  *CURRENT
  CL Source File. . . . .   JDESRC       Print Option . . . . .   1
  Data File Library . . .   TEST         Cross-Reference Listing  N
  SAR Number. . . . . . .
  Version ID. . . . . . .   A7.3
  Status Code . . . . . .   4            Custom

SAR Options
  SAR File Library. . . .   TEST
  SAR Delivery Type . . .   *LOG         Log to SAR# 00000000

Miscellaneous
  Source Gen Opt (Future)  _
  Helps Maint Opt(Future)  _             SEU

                    F24 = More Keys
```

Default Development Environment

Field	Explanation
Source File Name	The default source file name where source is to be stored within the source library.
	Must reside within the source library specified.
Source Library	The default library where source will be stored.
	The source file specified must reside within this library.
Object Library	The default library where compiled objects will be stored.
CL Source File	The default library where source for CL programs will be stored.
	The value specified must reside within the source library specified.
Data File Library	Used to specify the test (or development) library for physical and logical files.
	Used as the default object library for the Software Versions Repository when copying source code for physical or logical files.
SAR Number	An abbreviation for software action request (SAR).
	■ *NONE = the SAR number will not be validated in any of the CAD/CAP programs and can be left blank.
	■ If a SAR number is entered, it is used in conjunction with the SAR Delivery Type of *DFT (default).
Version ID	The software version number to be defaulted in the Software Versions Repository file.
Status Code	Determines the status of the software as well as where it resides in production.
	It will specify that the software is in production, in development, or in release.

> **Caution:** If you create a custom environment, put 2, 3, or 4 in user defined codes. If you have a '1' (production), the system will think it is a JD Edwards World file and write over it during the Software Version Repository Merge in an upgrade.

Program Creation Options

You have the following options when you create a program.

Field	Explanation
Compile Job Queue	Specifies which job queue will be used when submitting programs to compile.
	This job queue is used for programs with function code of RPG, RPGL, CBL, PLI, C and SYSC.
Prog Gen Job Queue	Specifies which job queue will be used when submitting jobs from the Program Generator.
	These jobs include the source code generation and the source code monitor from SEU.
Compile Target Release	Used by various AS/400 compilers (RPG, RPGL, CLP, COBOL, C) to compile an object compatible with a specified target release.
	■ A value of *CURRENT compiles an object compatible to the release of the machine at compile time.
	■ A value of *PRV compiles an object compatible with both one release back and the current release.
Print Option	Used to designate whether or not a report will be generated when an object is compiled.
	0 – no print
	1 – print
	2 – print and hold spool file
	3 – print only, does not generate execution object (applies to COBOL and RPG only)
	4 – print when compile or creation fails
Cross-Reference Listing	Specifies whether a cross-reference listing will be generated for variables and fields in a program's compile listing.

> **Note:** The default job queue for compiles is called COMPILE. If you do not have a COMPILE JOBQ, enter the JOBQ name for compiles on the *PUBLIC CASE profile.

SAR Options

The following fields provide you with options for the location of your SAR file and SAR logging.

Field	Explanation
SAR File Library	Specifies the library where the Software Action Request (SAR) file for software development exists. ■ If left blank, the user's library list will be used. ■ You can specify *NONE in the SAR number field if you do not want any SAR number editing.
SAR Delivery Type	Associated with SAR logging. SAR logging is a feature which tracks all activities related to modifying JD Edwards World' software. ■ *NONE = no logging. ■ *LOG = log to SAR number 00000000 (no SAR number is used for logging). ■ *DFT = log to a default SAR number (specified in the SAR Number field). ■ *PROMPT = log and prompt the user for the SAR number to be used and allow the user to enter the revision notes.

Miscellaneous

The following fields are reserved for future use.

Field	Explanation
Source Gen Opt (Future)	For future use.
Helps Maint Opt(Future)	For future use.

8.3 Function Key Exits from the CASE Profiles Program

Function Key	Description
F6	Access Repository Services This key will display a form that provides access to the other repository services including CASE profiles.
F9	Previous Member Allows you to re-inquire on the last record viewed.

8.4 Summary of CASE Profiles

■ The CASE Profiles file is F98009.

■ You need to update the *PUBLIC record as well as add any additional individual records desired.

■ You cannot delete the *PUBLIC record.

■ When entering information for the *PUBLIC record, all fields are required.

■ The record for User ID *PUBLIC contains the values that are used as the defaults for all users unless individual user profiles have been set up.

■ When entering values for individual profiles, all fields are left blank EXCEPT for the specific values being overridden on the *PUBLIC profile.

■ SAR Number and SAR Delivery type work together to determine what type of SAR logging should occur.

- *NONE = no SAR logging at all.

- *LOG = no SAR number is included as part of the SAR logging.

- *DFT = the SAR number specified is used for the SAR logging.

- *PROMPT = you are prompted for a SAR number and revision notes when an entry is about to be made to the SAR log.

9

Working with SAR Log

This chapter contains these topics:

9.1 About SAR Log

After you create the SARs, you must activate SAR logging, which automatically tracks the SARs as you develop the software.

The SAR Log Inquiry program allows you to review information in the SAR Log file (F9810).

You can also change the SAR Number and Revision Notes for individual log records.

9.1.1 Before You Begin

- Create SARs before you activate SAR logging.

From the Version Control menu (G9261), choose CASE Profiles.

9.2 Setting Up User Input Options for SAR Logging

To set up user input options for SAR logging
On CASE Profiles

Figure 9–1   CASE Profiles screen

```
98009                         CASE Profiles

Action Code. . . . . . .   I
User ID. . . . . . . . .   MORRIS____

Default Development Environment      Program Creation Options
  Source File . . . . . .  JDESRC____     Compile Job Queue . . .  COMPILE___
  Source Library. . . . .  PGFSRC61__     Prog Gen Job Queue. . .  CLONE_____
  Object Library. . . . .  PGFOBJ61__     Compile Target Release.  *CURRENT__
  CL Source File. . . . .  JDECLSRC__     Print Option . . . . .  1
  Data File Library . . .  PGFDTA61__     Cross-Reference Listing  N
  SAR Number. . . . . . .  774487____
  Version ID. . . . . . .  A61_____     A6.1 Base
  Status Code . . . . . .  2              Development

SAR Options
  SAR File Library. . . .  DDPDATA___
  SAR Delivery Type . . .  *DFT_____     Default SAR Number

Miscellaneous
  Source Gen Opt (Future)  _
  Helps Maint Opt(Future)  _             SEU

                         F24=More Keys
```

1. Complete the following fields:

   ■ SAR File Library

   ■ SAR Delivery Type

   Caution: The SAR file library contains the Work Order system files (F4801 and F4802). If you use the Work Order application, or if the F4802 file has different record types than what version control needs, you must create a library that contains new F4801 and F4802 files for version control purposes only. Specify this new library name in the SAR File Library field.

   Note: If you set the SAR Delivery Type field to *PROMPT, the Maintain User Default SAR Information form displays whenever you change a source code member or control table.

Figure 9–2   Maintain User Default SAR Info screen

```
9812   Maintain User Default SAR Info
  Action. . . . . C
Repository Rec. P9242
SAR Number. . . _____     Transfer. . . 0
Revision Note . _____
          Enter=Continue    F24=More
```

If you provided a SAR number on CASE Profiles, it displays on this form. If you did not provide a SAR number, provide one on this form.

If the Transfer field on Maintain User Default SAR Information is set to 1, a record will be created for the Version Control system. If it is set to 0, there will not be a record for the Version Control System.

****

2. Complete the following optional field:

   ■ SAR Number

9.2.1 What You Should Know About

Topic	Description
SAR number and delivery type combinations	The information you provide for the SAR Number and SAR Delivery Type fields affects how the system handles SAR logging.
	If you do not provide a SAR number, and set the SAR Delivery Type field to *PROMPT, the Maintain User Default SAR Information form prompts you for the SAR number whenever you change a source code member or control table.
	If you provide a SAR number, and set the SAR Delivery Type field to *DFT, the system creates SAR log entries automatically without your input.
	If you provide a SAR number, and set the SAR Delivery Type field to *PROMPT, the Maintain User Default SAR Information form prompts you to change the SAR number, if necessary, whenever you change a source code member or control table.
Invalid SAR delivery types	*LOG and *NONE are not valid for the SAR Delivery Type field when you use the Version Control system.

If you set the SAR Delivery Type field to *PROMPT, the Maintain User Default SAR Information form displays whenever you change a source code member or control table.

9.3 Selecting Types of SAR Information to Log

To select types of SAR information to log

In addition to setting up user input options for SAR logging, select the types of SAR information you want to log.

1. From the Version Control menu (G9261), access the processing options for Edit and Promote.

2. Make the following changes:

Item	Description
SAR Logging (1)	Specify Y if you want to track SARs that are associated with JD Edwards World source code and control file development only. Specify N if you want to track SARs that are associated with all software development. Leave this processing option blank to disable SAR logging and, therefore, version control.
	If you specify Y, the SAR log keeps track of development automatically. It tracks changes to menus that start with "A" or "G" only. For DREAM Writer, it tracks changes to XJDE or ZJDE versions only. When you transfer these versions, the user ID associated with them changes to DEMO.
	In addition, the SAR logging program runs a double-byte analysis against your RPG programs if you set this processing option to Y.
	If you specify Y, you also must indicate the name of the library that contains your SAR files. The default library name is JDCOMDATA.

Item	Description
DREAM Writer Copy (2)	Specify Y to track changes to DREAM Writer versions (XJDE and ZJDE versions only). Specify N to not track these changes. If you track changes, the user ID changes to DEMO automatically when you transfer the versions.

9.4 Accessing SAR Log Inquiry

The SAR Log Inquiry includes several functions:

- Inquiry by user ID or SAR number with date range

- Exit to a maintenance program for the record type

- Exit to SAR detail

- Print option that allows for DREAM Writer selection

There are two ways to access the SAR Log Inquiry.

To access the SAR Log Inquiry

1. To access the SAR Log Inquiry, select one of the following methods:

   - Choose SAR Inquiry from Menu G9362

   - Choose SAR Log Inquiry from the Repository Services form (F6 in SVR)

Figure 9–3   Developer's Workbench screen


```
G9362                      J.D. Edwards & Company                JDED
Sr Programmers                  Developer's Workbench
    1.  Generic Record Copy            13.   Pre-compiler Commands
    2.  Software Scan & Replace        14.   Compile Multiple Objects
    3.  Single JDE Message Update      15.   Optimize Programs (CL & RPG)
    4.  Global Update of File Text     16.   Print Source
    5.  Message Tester                 17.   Copy ADW Files to Production
    6.  Copy DD,VO,DW,UDC,SVR,Menus    18    Generate Pgm Specs from ADW
    7.  File Field Description
    8.  SAR Log Inquiry

Selection or command
===>  _____
      _____
      _____
```

Figure 9–4   Software Versions Repository screen
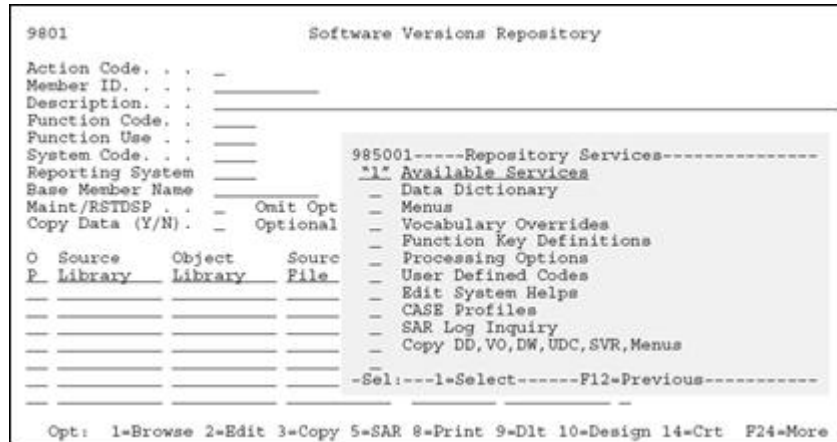
2. The new SAR Log Inquiry form displays.

Figure 9–5   SAR Log Inquiry screen
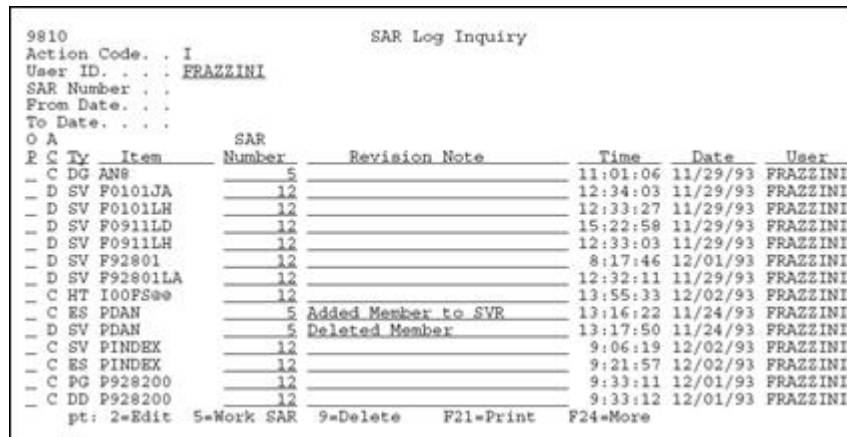
3. Complete one or more of the following fields:

- User ID

- SAR number

- Date range

Records matching the search criteria are displayed.

Field	Explanation
AC (Action)	The action that was taken on this record.
	The standard action code values apply.
Ty (Record Type)	The type of record that was updated.
	Use F1 to display all valid record types stored in User Defined Code 98/RT.
Item	The identification number (program number, file number, report number) assigned to any element of the software. These items are the members that reside in the Software Versions Repository or other repositories such as the Data Dictionary, Vocabulary Overrides, and the like.

Field	Explanation
SAR Number	The SAR number under which this change was made. This field can be updated on this video.
Revision Note	A user defined description field to further clarify the change made. This field can be updated on this video.
Time	The time at which the change was made.
Date	The date on which the change was made.
User	The user who made the change.

9.4.1 Selection Exits from the SAR Log Inquiry

The following is a list of selection exits from the SAR Log Inquiry form and an explanation of the effects of each selection.

Exit	Explanation
2 - Edit	Allows for maintenance of the record type. What program is accessed is based on the record type. For example, if the record type is 'DD', this exit will take the user to the Data Dictionary program.
5 - Work SAR	Exits to the SAR associated with the SAR log entry.
9 - Delete	Allows the user to delete entries from the SAR log.

Note: If you entered this program from the Repository Services form from the Software Versions Repository program, selection exit 2 does not function with record types "SV" or "PG" as these record types attempt to call the Software Versions Repository, which causes a recursive call error.

9.4.2 Function Key Exits from the SAR Log Inquiry

Function Key	Description
F5	ASI Entry Exits to Application Specific Instructions form for use during a software upgrade. You need the F0098 file to do this.
F6	Access Repository Services Pressing this key displays a form that provides access to the other repository services, except for SAR Log Inquiry.
F21	Print Allows you to print a SAR log report. Exits to a DREAM Writer versions list.

9.5 Summary of the SAR Log Inquiry

The SAR Log Inquiry has the following features and restrictions:

- Uses the file F9810.

- If you so not want to use the SAR Logging feature at all, specify *NONE in the SAR Delivery Type field for all CASE Profile records.

- To use the SAR Logging feature, you must specify a value of *LOG, *DFT, or *PROMPT in the SAR Delivery Type field for all CASE Profile records.

- The SAR Logging feature records any changes that you make to the Data Dictionary, Vocabulary Overrides, User Defined Codes, and so forth.

- The SAR Log Inquiry program allows you to see what changes you make to any of the above.

- The SAR Log Inquiry program has Function Keys and Selection Exits which allow you to change the SAR Log records in the SAR Log file (F9810) or to exit to the maintenance program for the change you made.

  For example, exit to the Data Dictionary program if the record indicates a Data Dictionary item was added or updated.

10

Work with Promotion Paths and Projects

This chapter contains these topics:

10.1 Working with Promotion Paths and Projects

A promotion path defines how a project's source code members and control file data will move from one environment to another. An environment consists of source code members and control file data. For source code members, the environment consists of:

- A source file
- A source library
- An object library

For control file data, the environment consists of a data library.

10.2 Understanding Promotion Paths

A promotion path specifies the current locations of source code members and control file data and where they will be moved. For example, promoting a project's source code members and control file data from a development environment to a test environment could look similar to the following illustrations.

Figure 10–1   Promoting a Project's Source Code Members and Control File Data from Development to Test
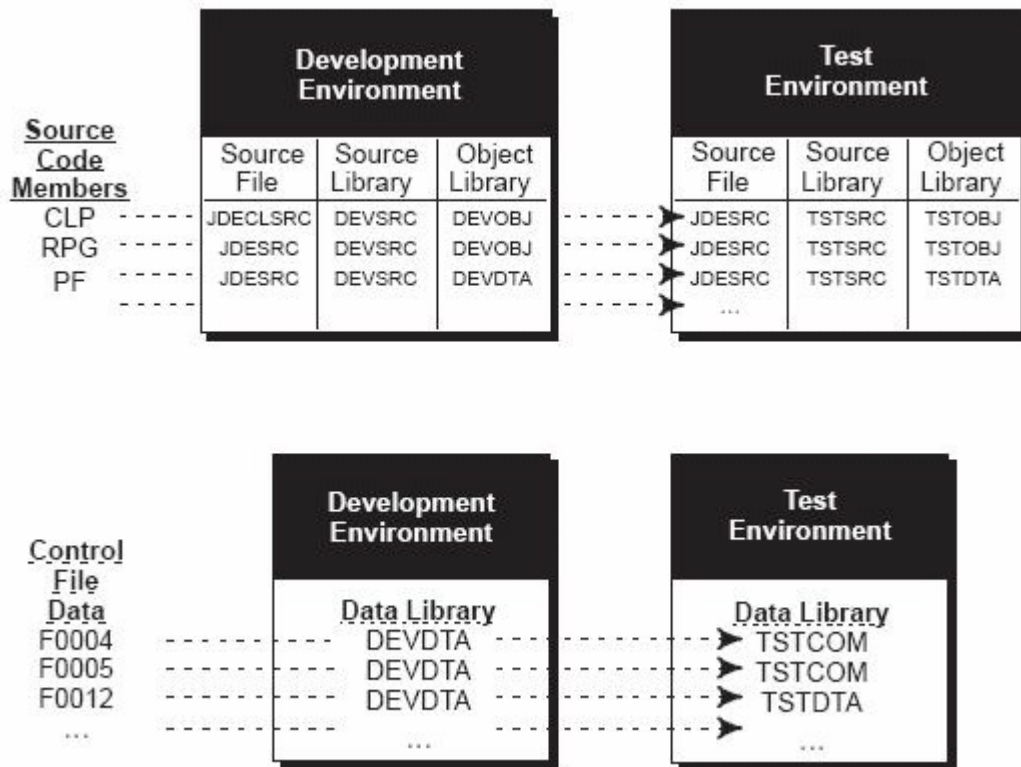
Each move between two environments requires that you define a unique promotion path.

A project is a collection of software and data you want to group together for promotion. A project is defined by the following characteristics:

- SARs that are associated with the project

- Promotion paths that determine the movement of the project software and data between environments

- Other projects that are attached to the project

Figure 10–2   Project Attributes
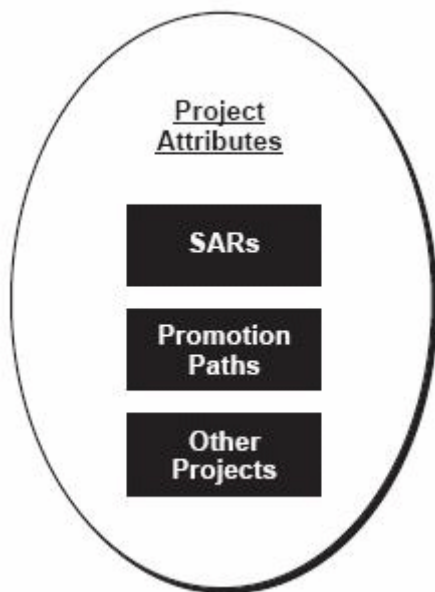
10.2.1 Before You Begin Defining a Promotion Path

■   Verify that the SARs and promotion paths you want to associate with a project have been set up.

■   The SAR system uses the Work Order files (F4801 and F4802). If your production environment uses these files, and if the F4802 file has different record types than what version control needs, define a separate library that contains these files for version control purposes only.

10.3 Defining a Promotion Path

Several steps are involved in defining promotion paths. Complete the following tasks:

■   Locate a promotion path

■   Add a promotion path

■   Define a promotion path for source code members

■   Define a promotion path for control tables

From the Version Control menu (G9261), select Manage Promotion Paths.

Figure 10–3   Manage Promotion Paths screen (part 1)

```
92403                      Manage Promotion Paths      Code 1 . . . . . . ___
                                                       Code 2 . . . . . . ___
Promotion Path . JDF73_____                           Code 3 . . . . . ___
                                                       Code 4 . . . . . ___
O Promotion      Description                Release    Code 5 . . . . . ___
P   Path_____                               _Number_
_ JDF73      Transfer to JDF73              A73
_ JDF73T     'T' file transfer to JDF73     A73
_ JDF73TEC   Transfer to JDF73 SECURE       A73
_ JDU71      Transfer to JDU71              A71X
_ JDX71      Transfer to JDX71              A71X
  T130892PC2 Utility CIS - PCCPY            A71X
  T130892PC3 Utility CIS - PCCPY            A71X
  T130892PC4 Utility CIS - PCCPY            A71X
  T130892PC5 Utility CIS - PCCPY            A71X
  T130892PC6 Utility CIS - PCCPY            A71X
  T130892PC7 Utility CIS - PCCPY            A71X
  T130892PC8 Utility CIS - PCCPY            A71X
  T130892PC9 Utility CIS - PCCPY            A71X
  UQF62      UQF build for A6.2             A62
  UQP71      UQF build                      A71
  VCT        Version control training       A71

  Opt: 1=Change   2=Members   3=Ctl Files   F5=Add Path   F24=More Keys
```

Figure 10–4   Manage Promotion Paths screen (part 2)

```
92403                      Manage Promotion Paths      Code 1 . . . . . . __
                                                       Code 2 . . . . . . __
Promotion Path . JDF73_____                            Code 3 . . . . . __
                                                       Code 4 . . . . . __
O Promotion      Description                Release    Code 5 . . . . . . __
P   Path                                    _Number_
_ JDF73      Transfer to JDF73              A73
  Code 1 . ___   Code 2 . ___   Code 3 . ___   Code 4 . CUR  Code 5 . JDF
```

To locate a promotion path

Select one of the following methods to locate a promotion path:

1. On a blank Manage Promotion Paths form, press Enter.

The screen displays a complete list of promotion paths.

2. On Manage Promotion Paths, enter the path name in the Promotion Path field.

The screen displays the path name. If the promotion path does not exist, the screen displays the path name that is closest alphabetically.

To add a promotion path

1. On the Manage Promotion Paths form, press F5 (Add Path).

Figure 10–5   Promotion Path screen

```
9240                          Promotion Path

Action Code. . . I

Promotion Path . _____
Description. . . _____
Release. . . . . _____

Code 1 . . . . . ___
Code 2 . . . . . ___
Code 3 . . . . . ___
Code 4 . . . . . ___
Code 5 . . . . . ___




    F9=Redisplay   F10=Members   F11=Ctl Files   F24=More Keys
```

2. Complete the Promotion Path form:

    ■   Add a new path name, a path description, and a release level.

    ■   Use the Code 1 through 5 fields for additional classifications.

    ■   Code 1 through 5 fields are user defined in system 92, types E1, E2, E3, E4, and E5.

    ■   Specify the status of the promotion path in the Code 4 field.

    ■   Field-sensitive help (function key F1) provides valid values for the Code 4 and 5 fields.

    ■   Specify the type of promotion environment in the Code 5 field.

To define a promotion path for source code members

1. Locate Promotion Path Members using one of the following methods:

    ■   On the Manage Promotion Paths form, locate the promotion path you want to define.

        –   Enter 2 (Members) in the OP (Option) field next to the promotion path name.

    ■   On the Promotion Path form, press F10 (Members).

Figure 10–6   Promotion Path Members screen

```
92401                      Promotion Path Members

Action Code. . . I
Promotion Path . JDF73_____  Transfer to JDF73

O  Mbr  |        From Environment           |        To Environment
P  Type | _Src File_ _Src Libr_ _Obj Libr_  | _Src File_ _Src Libr_ _Obj Libr_
_  ASM  | SECURE    JDPSRC71   JDPOBJ71      | JDESRC    JDPSRC73   JDPOBJ73
_  CLP  | JDBCLSRC  PGPSRC73   PGPOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_  CMD  | JDESRC    PGPSRC73   PGPOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_  COPY | JDBCPY    PGPSRC73                 | JDBCPY    JDPSRC73
_  DSPF | JDESRC    PGPSRC73   PGFOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_  LF   | JDESRC    PGPSRC73   PGFDTA73      | JDESRC    JDPSRC73   JDPDTA73
_  LFS  | SECURE    PGPSRC73   PGFDTA73      | SECURE    JDPSRC73   JDPDTA73
_  PF   | JDESRC    PGPSRC73   PGFDTA73      | JDESRC    JDPSRC73   JDPDTA73
_  PFS  | SECURE    PGPSRC73   PGFDTA73      | SECURE    JDPSRC73   JDPDTA73
_  PLI  | SECURE    PGPSRC73   PGFOBJ73      | SECURE    JDPSRC73   JDPOBJ73
_  PRTF | JDESRC    PGPSRC73   PGFOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_  PRTS | JDESRC    PGPSRC73   PGFOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_  RPG  | JDESRC    PGPSRC73   PGFOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_  RPGS | JDESRC    PGPSRC73   PGFOBJ73      | JDESRC    JDPSRC73   JDPOBJ73
_       |                                   |

    Opt: 1=Copy   2=Target   F11=Ctrl Files   F13=CASE Profile      F24=More Keys
```

The From Environment area on the Promotion Path Members form shows the current locations of the source and object code. The To Environment area shows the locations to which the code will be moved.

2. Specify source files and library names for each member type you list on this screen.

   ■ To display valid member types and their descriptions, press F1 while your cursor is in a Mbr Type field. The member types are defined in the Function Codes user defined code table (98/FN).

   ■ To copy source file and library names from one member type to another, type 1 (Copy) in the OP (Option) field next to the member type you want to copy. Type 2 (Target) in the OP fields next to the member types you want the information copied to, and press Enter. You can specify multiple targets.

   The following chart shows some of the function keys available on this screen.

Key	Description
F9	Redisplays the record for the previously-changed path.
F11	Displays the Promotion Path Control Files form.
F13	Displays the CASE Profiles form.
F14	Retrieves the source file, source library, and object library from your CASE profile and fills in the From environment. This overwrites any information currently in the fields.
F15	Duplicates the source file and library names from the first member type to the remaining member types.

10.3.1 What You Should Know About

Topic	Description
Copying an existing promotion path	If you copy an existing promotion path to create a new path, be sure that the source files and library names for the members are correct for the new path.
Changing library names	To change library names, enter the new library names over the current ones.

To define a promotion path for control files

1. Locate the Promotion Path Control Files using one of the following methods:

   ■ On Manage Promotion Paths (P92403), locate the promotion path you want to define and enter 3 (Ctl Files) in the OP (Option) field next to the promotion path name.

   ■ On the Promotion Path (F5 from P92403) form, press F11 (Ctl Files).

   ■ On the Promotion Path Members form (Opt 2 from P92403), press F11 (Ctrl Files).

Figure 10–7   Promotion Path Control Files screen

```
92402                    Promotion Path Control Files

Action Code. . . I
Promotion Path . JDF73       Transfer to JDF73

O Rec     From         To                                    Control
P Typ  Data Libr   Control Lib  Record Type Description         File
_  C   JDFCTL73    JDFTEM71     Members Affected             F9801
_  D   PGFDTA73    JDFCTL73     Menu Modifications           F0090
_  F   JDFCTL73    JDFTEM71     Software Inventory Records   F9801
_  G   PGFDTA73    JDFCTL73     DREAM Writer/Processing Option F98301
_  H   PGFDTA73    JDFCTL73     Vocabulary Overrides         F9220
_  M   JDFCTL73    JDFTEM71     Data Dictionary              F9200
_  N   PGFDTA73    JDFCTL73     User Defined Codes           F0005
_  W   JDFCTL73    JDFTEM71     Pre-Compiler Commands        F98CRTCMD
_  _   _____   _____
_  _   _____   _____
_  _   _____   _____
_  _   _____   _____
_  _   _____   _____
_  _   _____   _____

 Opt: 1=Copy  2=Target    F10=Members  F13=CASE Profile       F24=More Keys
```

The From Data Libr column on the Promotion Path Control Files form shows the current location of the data records. The To Control Lib column shows the location to which the data records will be moved.

2. Specify library names for each record type listed on this form.

Function keys available on this form include:

Key	Description
F9	Redisplays the record for the previously changed project.
F10	Displays the Promotion Path Members Files form.
F13	Displays the CASE Profiles form.
F14	Retrieves the data library from your CASE profile and fills in the first From Data Libr field. This overwrites any information currently in the field.
F15	Duplicates the library names from the first record type to the remaining record types.

3. To copy library names from one record type to another, type 1 (Copy) in the OP (Option) field next to the record type you want to copy.

4. Type 2 (Target) in the OP fields next to the record types you want the information copied to, and press Enter. You can specify multiple targets.

10.3.2 Guidelines

■ If you copy an existing promotion path to create a new path, be sure the library names for the control files are correct for the new path.

■ To change library names, enter the new library names over the current ones.

10.4 Defining a Project

To define a project, complete the following tasks:

■ Locate a project

■ Add a project

■ Assign promotion paths

■ Assign project SARs

From the Version Control menu (G9261), choose Manage Projects.

Figure 10–8 Manage Projects screen (part 1)

Figure 10–9 Manage Projects screen (part 2)

To locate a project

Locate a project using one of the following methods:

1. On a blank Manage Projects form, press Enter.

   ■ A complete list of projects displays.

2. On the Manage Projects form, enter the project name in the Project field.

   ■ The project name displays on the form. If the project does not exist, the project name that is closest alphabetically displays on the form.

To add a project

1. On Manage Projects, choose Add Project.

Figure 10–10 Software Development Project screen

```
9241                        Software Development Project

Action Code. . . I

Project. . . . .  _____
Description. . .  _____
Parent Project .  _____
Edit File. . . .  _

Client . . . . .  _____         Requested. . . .  _____
Originator . . .  _____         Planned Comp . .  _____
Assigned To. . .  _____         Date Assigned. .  _____
Auth List. . . .  _____
Design Doc . . .  _____

Code 1 . . . . . .  ___
Code 2 . . . . . .  ___
Code 3 . . . . . .  ___
Code 4 . . . . . .  ___
Code 5 . . . . . .  ___



  F9=Redisplay   F10=Promotion Paths   F11=Project SARs   F24=More Keys
```

2. On the Software Development Project form, do the following:

   ■ Enter a new project name.

   ■ Enter a project description.

   ■ Enter any other information you want to associate with the project.

   ■ Complete the Code 1 through 5 fields for additional classifications.

     – The Code 1 through 5 fields are user defined in system 92, types P1, P2, P3, P4, and P5.

3. If you want to attach this project to a parent project, specify the parent project name in the Parent Project field.

   The following chart shows some of the function keys available on this form.

Key	Description
F9	Redisplays the record for the previously-changed project.
F10	Displays the Project Promotion Path form.
F11	Displays the Project Elements form.
F14	Displays the generic text associated with this project, and gives you access to text model selections.

You must assign promotion paths and SARs to the project you set up here. The following sections explain how to assign them.

To assign promotion paths

1. Locate the project to which you want to assign promotion paths using one of the following methods.

   ■ On Manage Projects selection (Option 4 on menu G9261), locate the project to which you want to assign promotion paths.

     – In the OP (Option) field next to the project name, enter 2 (Paths)

   ■ On Software Development Project (Manage projects, F5), press F10 (Promotion Paths).

Figure 10–11   Project Promotion Paths screen

```
92411                       Project Promotion Paths

Action Code. . . I
Project. . . . . TEC_____ Tech Foundation Corrections

O Promotion                                     Release
P    Path        Description_____         Number_
_  A62CUM_____  Transfer to current A62 Cum      A62
_  A62PC000TI  User based pricing                A62
_  A62PREV____  Transfer to previous A62 Cum     A62
_  A72CUM_____  Transfer to current A71 Cum      A71
_  A71PREV____  Transfer to previous A71 Cum     A71
_  A72CUM_____  Transfer to current A72 Cum      A72
_  JDP62_____  Transfer to JDP62                A62
_  JDP62TEC___  Transfer to JDP62-SECURE         A62
_  JDP71_____  Transfer to JDP71                A71
_  JDP71TEC___  Transfer to JDP71-SECURE         A71
_  JDP73_____  Transfer to JDP73                A73
_  JDP73TEC___  Transfer to JDP73 SECURE         A73
_  VCTL_____  Version control Update           A73

_  _____
_  _____
_  _____

  Opt: 1-Details   2-Members   3-Ctrl Files   F11-Project SARs   F24-More Keys
```

2. Specify the promotion paths you want to assign to this project.

   To display the available promotion paths, press F1 (Help) while the cursor is in a Promotion Path field.

   Some of the function keys available on this form include:

   ■   F9 - Redisplays the record for the previously-changed project.

   ■   F11 - Displays the Project Elements form.

   Options available on this form include:

   ■   1 - Edit the promotion path details.

   ■   2 - Edit the promotion path members.

   ■   3 - Edit the promotion path control files.

   To assign project SARs

   SARs are one element of a project; other projects can also be elements of a project.

1. Access the Project Elements form using one of the following methods:

   ■   On the Version Control menu (G9261), choose Edit and Promote.

   ■   On the Manage Projects form, locate the project to which you want to assign elements.

       –   Enter 3 (SARs) in the OP (Option) field next to the project name.

   ■   On the Software Development Project form, press F11 (Project SARs).

   ■   On the Project Promotion Paths form, press F11 (Project SARs).

Figure 10–12   Project Elements screen

```
92412                      Project Elements

Action Code. . . . I                           SAR #. . _____
Project. . . . . TEC_____ Tech Foundation Corrections   Project. _____
Promotion Path . _____                     Status . __   S/P _
O  Project   T
P  Element   Y    Description         St     Status_____
_  _00718047 S % Menu Job Stream Int/Bth Mix 01 Complete - in next release.
_  _00731073 S JDEDBG - V2R3 Misc. Fixes   26 Test in Demo
_  _00735672 S Can't Chg Value--DD Item Array 01 Complete - in next release.
_  _00736245 S User Defined Code Security  26 Test in Demo
_  _00863261 S User Based Pricing        23 Manager Review
_  _00907489 S ASI Rpt and Screen 4 Digits 26 Test in Demo
_  _00910451 S DDP RJE Code Correction CL 7.1 01 Complete - in next release.
_  _00913176 S Version Control - Build PTF  23 Manager Review
_  _00915577 S Quick Start - Vocab Overrides 01 Complete - in next release.
_  _00917732 S Auto Build of JDE Msg File/JLF 25 Rework
_  _00939827 S Menu Integrity rpt/sys 55-59 01 Complete - in next release.
_  _00945565 S ASI Rpt Confusing When No ASIs 26 Test in Demo
_  _00953602 S F6 Copy from ASI -Prt Override 01 Complete - in next release.
_  _00955229 S Next Number Description-00 Sys 01 Complete - in next release.
_  _00958278 S Validation rpt-prt file names 01 Complete - in next release.
_  _00966438 S Action Code Security     01 Complete - in next release.
 Opt: 1=SAR   2=SAR Log   3=Edit   4=Promote   F10=Project Paths  F24=More
```

The Project Elements form displays the elements (usually SARs) assigned to the project.

2. Specify the elements (usually SARs) you want to assign to this project. You can also assign projects, which have SARs associated with them, as elements on this screen.

In the TY (Type) fields, specify the corresponding element types (S for SARs, and P for projects). Some of the function keys available on this screen include:

Key	Description
F9	Redisplays the record for the previously-changed project.
F10	Displays the Project Promotion Paths screen.

Options available on this screen include:

■   1 - Displays or edits the SAR detail.

2 - Displays or edits the SAR log. The SAR Log Transfer screen displays, which lets you edit the SAR log and update the project SARs. For more information about updating the SARs by using this log, see Section 11.2, "Update the SARs" in this publication. For information about the SAR log, refer to the Computer Assisted Design Reference Guide.

3 - Displays the Pre-Promotion Edit History form. For information about this function, see Section 11.2, "Update the SARs" in this publication.

4 - Promotes a project. For information about this function, see Section 11.1, "About Promoting a Project"in this publication.

5 - Displays the promotion history of a SAR ('Z' record).

6 - Displays or edits notes associated with a SAR (for JD Edwards World environments only; '*' record).

11

Promote a Project

This chapter contains these topics:

11.1 About Promoting a Project

After you create a project, link promotion paths and SARs to it, and complete project development, you are ready to begin the promotion process.

The SAR system uses the Work Order files (F4801 and F4802). If your production environment uses these files, or if the F4802 file has different record types than is needed by version control, define a separate library that contains these files for version control purposes only.

> **See Also:**
>
> - Section 10.3, "Defining a Promotion Path"

11.2 Update the SARs

The SARs, which are contained in the Work Order Header file (F4801), have detailed information in the Work Order Detail file (F4802). You must update the information in the SARs to reflect software developments that are recorded in the SAR log.

Figure 11–1   Process to Update SARs
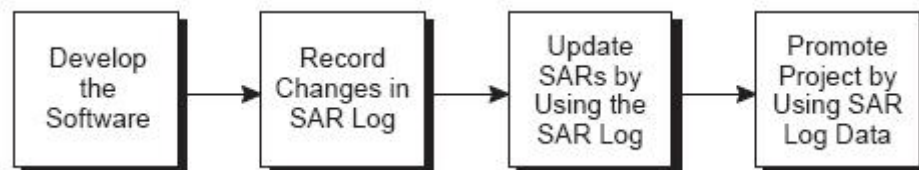
When you developed the software, the changes were recorded in the SAR log automatically. You now must update the F4802 file.

From the Version Control menu (G9261), choose Edit and Promote.

Figure 11–2   Edit and Promote screen

```
92412                          Edit and Promote

Action Code. . . I                                  SAR #. . 1079777
Project. . . . . TEC        Tech Foundation Corrections    Project. _____
Promotion Path . JDF73      Transfer to JDP73             Status . __    S/P _
O  Project    T
P  Element    Y    Description              St    Status
_  01079777  S Multiple Jobs Submitted     23 Manager Review
_  01081666  S Release Specific Transfers   23 Manager Review
_  01083573  S Help Window Mods A73         26 Test in Demo
_  01086299  S Unable to use A Action Code  06 Returned - Already reported
_  01087558  S Data Selection - HMCU        23 Manager Review
_  01088104  S V3R1 CRTCPGM/CRTBNDC         28 A test complete
_  01088163  S Handle special char for DBCS 01 Complete - in next release.
_  01089414  S Localization Issues in A/B   01 Complete - in next release.
_  01093536  S No previous item displayed  23 Manager Review
_  01099807  S Finalize Version Control     23 Manager Review
_  01101364  S Video Illustration           23 Manager Review
_  01102615  S J97UPGRADE Command Validation 23 Manager Review
_  01104004  S DW Merge Database-No Merge Opt 26 Test in Demo
_  01105226  S WW-Reads all versions at once 28 A test complete
_  01107601  S Don't delete SAR Log if Trf er 23 Manager Review
_  01113921  S Variable Length Field Support 26 Test in Demo
   Opt: 1=SAR  2=SAR Log  3=Edit  4=Promote  5='Z'  F10=Proj Paths  F24=More
```

To update the SARs

1. On the Edit and Promote form, inquire on the project you want to promote.

2. In the OP (Option) field next to the project SAR you want to update, enter 2 (SAR Log).

The SAR Log Transfer form displays, which lists all added or changed records logged in the SAR log (F9810) according to record type. The SAR Detail Status field shows whether the record has been updated in the F4802 file.

Figure 11–3   SAR Log Transfer screen

```
9242                          SAR Log Transfer

SAR Number . . . 1079777 Multiple Jobs Submitted
Record Type. . . __
and/or Member. . _____
O                    Primary   Secondary  Data File  T A
P Record Type        Log Item  Log Item   Library    R C SAR Detail Sts
_ M - Data Dictionary 4888                 JDFCTL73   1 A Updated
_ M - Data Dictionary 4889                 JDFCTL73   1 A Updated
_ C - Modified Source J9242S               JDFSRC73   1 A Updated
_ C - Modified Source J98901B              JDFSRC73   1 A Updated
_ C - Modified Source J98901T              JDFSRC73   1 A Updated
_ C - Modified Source P924124              JDFSRC73   1 A Updated
_ C - Modified Source P9242                JDFSRC73   1 A Updated
_ C - Modified Source P9242D               JDFSRC73   1 A Updated
_ C - Modified Source P924210              JDFSRC73   1 A Updated
_ C - Modified Source P98905               JDFSRC73   1 A Updated
_ C - Modified Source P98907               JDFSRC73   1 A Updated
_ F - Software Reposit J9242S              JDFCTL73   1 A Updated
_ F - Software Reposit P9242D              JDFCTL73   1 A Updated


   Opt: 1=Details   9=Delete   F5=Add   F10=Update SAR   F24=More Keys
```

If this screen lists many SAR log records, you can narrow your search by entering information in the Record Type and the and/or Member fields.

To view the details of a SAR log item, enter 1 (Details) in the OP (Option) field next to the item. On the form that displays, you can edit the SAR details. If the SAR logging system does not log an item that you want to include, press F5 (Add) from the SAR Log Transfer form to add it.

3. To update the F4802 file, press F10 (Update SAR).

Before you update a SAR, verify that each SAR log record should be transferred with the SAR. Change or delete those that are associated incorrectly with the SAR. To display all records with data that can be transferred (TR field value is 1) or with test data (TR field value is 0), press F16 (Display Update Capable/All Items). Update only those records that should be transferred with this SAR.

The system creates or updates the records in the SAR file that is located in the SAR library you indicated in the Edit and Promote processing options (not the SAR library appearing in your library list).

11.3 Validating a Promotion Path

Before you promote a SAR, you must perform a pre-promotion edit, or validation, against the promotion path that will be used for this SAR.

To validate a promotion path

1. From the Edit and Promote form, inquire on the project you want to promote.

2. In the Promotion Path field, type the name of the promotion path you want to use for your project.

3. In the OP (Option) field next to the project SAR you want to update, enter 3 (Edit).

   If you did not choose a promotion path for the project, the Project Promotion Paths form lists all promotion paths defined for the project.

Figure 11–4   Project Promotion Paths screen

```
92411W              Project Promotion Paths

Project. . TEC_____  Tech Foundation Corre

O Path Name  Description_____
_ A62CUM       Transfer to current A62 Cum
_ A62PC000TI User based pricing
_ A71CUM       Transfer to current A71 Cum
_ A72CUM       Transfer to current A72 Cum
_ JDP62        Transfer to JDP62
_ JDP62TEC     Transfer to JDP62-SECURE
_ JDP71        Transfer to JDP71
_ JDP71TEC     Transfer to JDP71-SECURE

  Opt: 4=Select   F24=More Keys
```

4. In the O (Option) field next to the promotion path you use to promote the project, enter 4 (Select). If you have run pre-promotion edits previously for this SAR, the Pre-Promotion Edit History form lists them. Otherwise, this form is blank.

Figure 11–5   Pre Promotion Edit History screen

```
9243                     Pre Promotion Edit History

Project. . . . . TEC       Tech Foundation Corrections
SAR. . . . . . . 1079777   Multiple Jobs Submitted
Promotion Path . JDP73     Transfer to JDP73

O                          Hrd No.
P   Date      Time     User ID    Err Err
_ 01/22/96 13:18:24 TFRCTL6
_ 01/22/96  9:17:28 CHAN             8
  01/16/96 12:39:59 CHAN             4












  Opt: 1=Details   F5=Perform Edit   F24=More Keys
```

5. To view the errors associated with a pre-promotion edit, enter 1 (Details) in the OP (Option) field next to the desired history record.

Figure 11–6   Pre Promotion Edit Details screen

```
92431                      Pre Promotion Edit Details

Project. . . . . TEC        Tech Foundation Corrections
SAR Number . . .  1079777   Multiple Jobs Submitted
Promotion Path . JDP73      Transfer to JDP73
Date of Edit . .  01/22/96
Time of Edit . .   9:17:28

O R                    Member              Err                          E
P T    Description     Name    2nd Item    Key      Description         T
_ C Members Affe J92425                    1946 Object Not Found        W
_ C Members Affe J98901B                   1946 Object Not Found        W
_ C Members Affe J98901T                   1946 Object Not Found        W
_ C Members Affe P924124                   1946 Object Not Found        W
_ C Members Affe P9242                     1946 Object Not Found        W
_ C Members Affe P9242D                    1946 Object Not Found        W
_ C Members Affe P98905                    1946 Object Not Found        W
_ C Members Affe P98907                    1946 Object Not Found        W




  Opt: 1=Error Details          F24=More Keys
```

6. From the Pre-Promotion Edit History form, press F5 (Perform Edit) to perform the pre-promotion edit.

7. Correct any errors and perform the edit until no errors occur. You do not need to resolve warnings that can occur.

Error Codes

The following table shows a partial list of errors and how to resolve them.

Error Code	Cause and Resolution
0020	Cause: You entered a "From" library that does not exist or you are not authorized to use.
	Resolution: Correct the library name, create the library, or get authorization to use it.
0092	Cause: A database table or member could not be opened because it did not exist, a conflicting lock state held by another job exists, or you are not authorized to open it.
	Resolution: Check your job log messages.
1046	Cause: An XJDE or ZJDE version was expected but not found.
	Resolution: If an XJDE or ZJDE version should exist, create it. If not, then change the processing option for form ID P926304.
1370	Cause: You entered a "From" table that does not exist or you are not authorized to use.
	Resolution: Review the "From" library for the promotion path control table. Either correct the library name or create the table.
1371	Cause: You entered a "To" table that does not exist or you are not authorized to use.
	Resolution: Review the "To" library for the promotion path control table. Either correct the library name or create the table.
1372	Cause: A key you wanted to copy from the "From" library does not exist.
	Resolution: Review the "From" library for the promotion path control table. Either correct the library name or re-enter the data record.

Error Code	Cause and Resolution
2892	Cause: A "From" library name is the same as the corresponding "To" library name.
	Resolution: Review the "From" and "To" libraries for the promotion path control table. Make the appropriate changes.
4395	Cause: No records exist in the Promotion Path Members file (F92401) for the promotion path you specified.
	Resolution: Complete the Promotion Path Members form for the promotion path.
4396	Cause: No records exist in the Promotion Path Control file Members file (F92402) for the promotion path you specified.
	Resolution: Complete the Promotion Path Control Files form for the promotion path.
4397	Cause: No records exist in the SAR Log table (F9810) for the project you specified.
	Resolution: In the project master record, change the based-on file for the Pre-Promotion Edit to the SAR Detail table (F4802), then manually update the SAR Detail records for the members and control file records updated by this project.
4400	Cause: No record exists in the Promotion Path Members file (F92401) for the function code of the member you want to promote.
	Resolution: For the specified promotion path, enter the environment for the function code of the member.
4402	Cause: No record exists in the Promotion Path Control Files file (F92402) for the control table you want to promote.
	Resolution: For the specified promotion path, enter the environment for the control file of the record.
4439	Cause: An error occurred while you attempted to copy a source code member.
	Resolution: Check for valid library, table, and member names, as well as options in the CPYF command. Check the job log for the error message ID.

11.4 Promoting a Project

The promotion process involves transferring members and copying control file data.

11.4.1 Before You Begin

- Before you promote the project, be sure you have edited all items that appear on the SAR Log Transfer screen. Otherwise, the SAR Log Transfer screen displays when you attempt to promote the project.

- You must update all SAR log records associated with the SAR before you promote it.

- You also must resolve all errors (not warnings) before you promote the SAR.

To promote a project

1. On the Promote a Project form, inquire on the project you want to promote.

2. In the OP (Option) fields next to the project elements you want to promote, enter 4 (Promote).

To select all project elements automatically for promotion, press F14.

3. On the Project Promotion Paths form, enter 4 (Select) in the O (Option) field.

Figure 11–7   Software Transfer screen

4. In the OP (Option) fields next to the member IDs, specify whether to transfer:

   ■   Both source and object code (option 1)

   ■   Source code only (option 2)

   ■   Object code only (option 3)

   To override the From Environment and To Environment object libraries before you transfer the members, press F6 before you enter options 1, 2, or 3. Enter the names of the object libraries to which you want the members transferred.

   The system transfers the members you selected to the target environment.

   You can review the batch job that was submitted by this transfer program from the JD Edwards World command line. To display the command line, press F2.

   If your promotion is successful, the system deletes all SAR log records for transferred items. It also creates a new SAR log record for each transferred item and associates it with the target library.

5. To copy control file data, press F5 (Control Files) from the Software Transfer form.

Figure 11–8   Control Files Copy screen

6. In the OP (Option) fields next to the items you want to copy, enter 1 (Copy to target library).

> **Note:** Press F13 to select all items automatically for copying. The system copies the items you selected to the target environment.

12

Promote Project Updates

This chapter contains these topics:

-

12.1 Promoting Project Updates

The version control process for project updates includes the following steps:

- "To create the transfer library"

- "To prepare the SAR system"

- "To define promotion paths"

- "To define a project"

- "To update the SARs"

- "To validate the promotion path"

- "To promote the project"

- "To save the transfer library to tape"

- "To restore the transfer library from tape"

- "To print the transfer library report"

- "To load the transfer library"

- "To transfer individual control table records"

To create the transfer library

1. From the Software Install menu (G9262), choose Build Transfer Library.

Figure 12–1   Warning Message screen
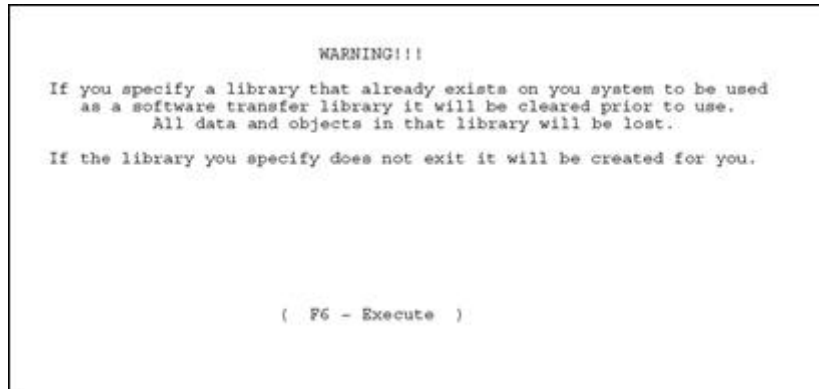
2. After you read the warning message, press F6 (Execute).

Figure 12–2   Build Transfer Library screen
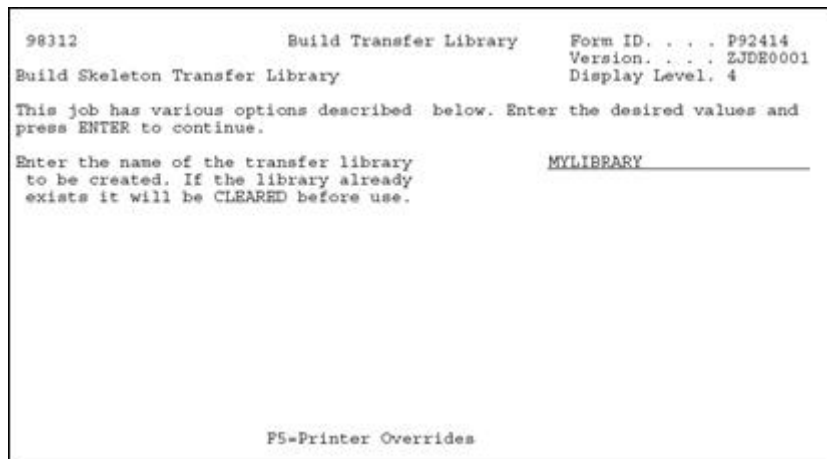
3. In the processing option field, enter a name for the transfer library you want to create.

To prepare the SAR system

To prepare your SAR system, see Chapter 6, "Work with Software Action Requests"in this guide.

To define promotion paths

From the Version Control menu (G9261), choose Manage Promotion Paths. Use the project update library name as your promotion path name. For information about defining a promotion path, see Section 10.3, "Defining a Promotion Path" in this guide.

To define a project

To define a project, see Section 10.4, "Defining a Project" in this guide.

To update the SARs

From the Software Install menu (G9262), choose Edit and Promote. For information about updating a SAR, see Section 6.1, "About SAR System Setup" in this guide.

To validate the promotion path

From the Software Install menu (G9262), choose Edit and Promote. For information about validating a promotion path, see Section 11.3, "Validating a Promotion Path" in this guide.

To promote the project

From the Software Install menu (G9262), choose Edit and Promote. For information about promoting a SAR, see Chapter 11, "Promote a Project" in this guide.

To save the transfer library to tape

1. From the Software Install menu (G9262), choose Save Library to Tape.

Figure 12–3 Save Library screen

2. In the Library field, type the name of your transfer library.

3. In the Device field, enter the name of your tape device.

To restore the transfer library from tape

1. From the Software Install menu (G9262), choose Restore Library from Tape.

Figure 12–4 Restore Library screen

2. In the Saved Library field, type the name of your transfer library.

3. In the Device field, enter the name of your tape device.

To print the transfer library report

1. From the Software Install menu (G9262), choose Print Transfer Report.

    A processing options form displays. Use the cursor keys to display additional processing options.

Figure 12–5   Print Transfer Report screen

2. In the first processing option field, type the name of your transfer library.

Figure 12–6   Print Transfer Report screen

3. In the remaining processing option fields, select the types of control files for which you want to print information.

4. To print the report, press Enter.

An example of the Print Install Records report (P924143) follows. It provides the total number of records for each type of control file. It also shows whether the transfer record already exists in your control file.

Figure 12–7   Print Install Records report

To load the transfer library

Before you load the transfer library, you must create new target libraries for the objects, source code, and data files you will transfer. In your target source library, you must create the following multi-member source files:

- JDESRC

- JDECPY

- F98CRTCMD

Load the contents of your transfer library into your target libraries. The process merges control file records into your library files. You also can transfer control file records individually. For more information, see Transfer Individual Control File Records following this procedure.

1. From the Software Install menu (G9262), choose Load Transferred Library.

Figure 12–8   Warning Message screen

2. After you read the warning message, press F6 (Execute).

   A processing options form displays. Use the cursor keys to display additional processing options.

Figure 12–9   Load Transferred Library screen

```
 98312                 Load Transferred Library      Form ID. . . . P924147
                                                     Version. . . . ZJDE0001
 Load Transfer Software                              Display Level. 4

 This job has various options described  below. Enter the desired values and
 press ENTER to continue.

 Enter name of Transfer Library or              MYLIBRARY_____
   blank for no transfer.

 Enter name of Target Object Library or         MYOBJ_____
   blank for no transfer.

 Enter Name of Target Source Library or         MYSRC_____
   blank for no transfer.

 EnterName of Target New Files Library or       MYDATA_____
   blank for no transfer.


                            More...                                        +

                     F5=Printer Overrides
```

3. In the first processing option field, specify the name of your transfer library.

4. In the next three fields, specify the libraries you created for the source code, objects, and data files you will transfer.

Figure 12–10   Load Transferred Library screen (part 1)

```
 98312                 Load Transferred Library      Form ID. . . . P924147
                                                     Version. . . . ZJDE0001
 Load Transfer Software                              Display Level. 4

 This job has various options described  below. Enter the desired values and
 press ENTER to continue.

 Transfer UDCs           1=Yes, 0=No.        0_____  -

 Transfer AAIs           1=Yes, 0=No.        0_____

 Transfer Menus          1=Yes, 0=No.        0_____

 Transfer Data Dictionary 1=Yes, 0=No.       1_____

 Transfer Vocabulary/Exits 1=Yes, 0=No.      0_____

 Transfer CASE specs     1=Yes, 0=No.        0_____

 Transfer Helps          1=Yes, 0=No.        0_____

                          More...                                        +

                    F5=Printer Overrides
```

Figure 12–11   Load Transferred Library screen (part 2)

```
 98312                 Load Transferred Library      Form ID. . . . P924147
                                                     Version. . . . ZJDE0001
 Load Transfer Software                              Display Level. 4

 This job has various options described  below. Enter the desired values and
 press ENTER to continue.

 Transfer SVR            1=Yes, 0=No          0_____  -

 Transfer DREAMWriter    1=Yes, 0=No          0_____

                          Bottom.







                    F5=Printer Overrides
```

5. In the remaining fields, select the control files you want the system to transfer.

6. To begin the transfer, press Enter.

The system merges the control files into the target data library. For non-control files, the system adds the file if it currently does not exist in the target data library. If the file does exist in the target data library, the system does not transfer the file or any data. After the transfer process completes, you must change these files manually based on information in the Print Install Records report (P924143).

Even though you can include next numbers in the transfer library and display information about them in the Print Install Records report, the system will not transfer them automatically. This protects your next number tables. After the transfer process completes, you must change them manually based on information in the report.

To transfer individual control table records

1. From the Software Install menu (G9262), choose Copy DD,VO,DW,UDC,SVR,Menus.

Figure 12–12   Copy DD, VO, DW, UDC, SVR, Menus screen

2. In the From Library, type the name of your transfer library.

3. In the To Library, type the name of the target data file library.

4. In the appropriate fields, enter information that is specific to the control file record you want to transfer.

Part III

Programming Tools

This part contains these chapters:

13

Overview to Programming Tools

This chapter contains these topics:

- Section 13.1, "About Programming Tools"

13.1 About Programming Tools

Programming tools consist of:

- Data Modeling
- Object Cross Reference Repository
- Data Dictionary
- Data File Design Aid
- Screen Design Aid
- Report Design Aid

14

Work with Data Modeling

This chapter contains these topics:

14.1 Working with Data Modeling

The Data Modeling feature provides graphic representation of the relationships of different files. The important aspects of the JD Edwards World Data Modeling feature are:

- It is graphical in its presentation.

- It allows you to narrow the amount of information you view so you can better analyze the file and data relationships.

- It is integrated back to the Data Dictionary and other cross reference tools.

> **Note:** To create a data model, you must run the Data Model rebuild, P9804DM from the DREAM Writer version list.

14.2 Accessing Data Modeling

To access data modeling

1. Use one of the following methods to access Data Modeling.

   - Inquire on the file through Software Versions Repository (SVR) and press F23.

   - Type the menu selection on the command line and press F23.

   - From the Model Relations form (G9241), select Data Modeling.

Figure 14–1   Data Model Diagrammer Message screen.

```
The Data Model Diagrammer displays models from Base Files stored
in the Entity Relationship Tracking file (P9804).  When using the
Data Model Diagrammer for the first time, rebuild the Cross
Reference Index of the menu G9642.  This rebuild will create data
in the Entity Relationship Tracking file and allow file
relationships to be built.




              ( F6 - Execute )
```
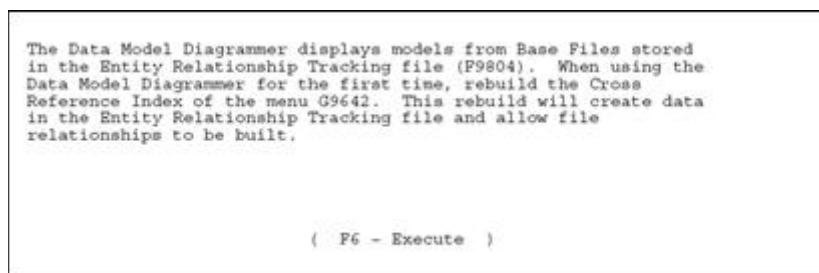
2. Press F6 to continue.

The Data Modeling form displays with the cursor positioned in the field where you enter a file name.

Figure 14–2 Data Modeling screen (part 1)

3. To view the Data Model, enter a file name and press Enter.

Field	Explanation
Max Levels	Determines what level of detail you want to view in terms of file relationships. Level 1 represents the highest level and level 10 represents the lowest level. The default value is level 08. Level 01 shows only those files that are directly related to the data model file.
Function Use	Displays the files that either match or have a function use less than the function use you specify.
Display Duplicate Relationships	Determines whether you want to display duplicate relationships or not. The valid values are: 1 – No duplicates (default value) 2 – First logical only 3 – All files
In Sys	Limits your model to only those files from the specified install or reporting system codes. To toggle to reporting system codes, you press F11, Install/Reporting.

4. To narrow the amount of file information displayed, specify values in the four fields appearing in the upper right of the form.

Figure 14–3 Data Modeling screen (part 2)

```
98042                          Data Modeling           Max Levels .  08
                                                        Function Use  230
  Base File                                             Display Dupl  1
  F0006      Business Unit Master                          In Sys  00 09 03 04

_  <M:1> F0010   F0010    Company Constants

_        <1:M> F0901   F0901LE   Account Master

_             -M:M> F4801   F4801LB   Work Order Master File
                   |
_             -M:1> F0902   F0902LA   Account Balances
                   |
_                  |-M:M> F0311    F0311LG   Accounts Receivable Ledger
                   |
_                  |-M:M> F0411    F0411LK   Accounts Payable Ledger
                   |
_                  |-M:M> F0911    F0911LD   Account Ledger
                   |

   Opt:  1=Move Top 5=Display 7=Where Used  8=Fields  F11=Install/Reporting
```

14.2.1 Detailed Explanation of a Line

The following figure shows a portion of the Data Modeling form.

Figure 14–4   A Portion of the Data Modeling screen

```
  Base File
     F0006      Business Unit Master
    |<M:1> F0010   F0010    Company Constants
```

Below is an explanation of the components displayed on the form.

■ Business Unit Master is the primary file (F0006)

■ Company Constants is the secondary file (F0010)

■ <m:1> - There is a many to one, bi-directional relation between the files

Field	Explanation
Quantifier	The quantifier notation indicates the following:
	M:1 – many to one
	1:M – one to many
	M:M – many to many
	M:N – many to zero or many
	N:M – zero or many to many
	1:N – one to zero or many
	1:1 – one to one
Direction	The three direction notations are as follows:
	-> – refers to
	<- – referred to
	<-> – way relation
Type	Used to distinguish between prototype and permanent files.
Subfile portion of screen	Displays the key fields that relate these two files together.

14.2.2 Function Key Exits from Data Modeling

Function Key	Description
F11	Install/Reporting
	Allows you to toggle between displaying install or reporting system codes.
F16	Rebuild A File Relationship
	Exits to a DREAM Writer versions list.
	The rebuild is fundamentally based upon the program finding a connection between data items.
	For example, if you create new data items in the Data Dictionary and use those data items when creating a new file, you do not get a graphic representation for that file because the data items do not exist in any other file. To create and present file relationships, there must be at least one data item in the primary file that also resides in some other file as well.
	Print the Data Model
F21	Print the Data Model
	Prints the current data model

14.2.3 Selection Exits from Data Modeling

Option	Description
1	Move Top To select a file in the current data model and move it to the top to view its data model.
5	Display To view the file relationships. The Define a File Relationship form displays the relationship detail for the two files.
7	Where Used Exits to the Object Cross Reference Repository and displays all the programs that access the particular file.
8	Fields To access the File Field Description form for any file displayed in the Data Model. The File Field Description form presents all the fields in a file, the field type, their size and their position in the file.

Example Selection 7 - Where Used

Figure 14–5   Cross Reference screen

```
980014                          Cross Reference

Object: Name . . .  F0006        Business Unit Master
        Type . . .  F            All programs using file
        To Display  P
        Funct Cd .  ____

O    Name         Description                        Field Attr T Start Upd
P    _____     _____ Len  Dec  Y  Loc  Y/N
_  PJON          Jon Nugent Test                                        N
_  P0006         Business Unit Master Revisions - Single                Y
_  P0006A        Business Unit Structure Revisions                      Y
_  P0006ISS      File Conversion - Plug the default value               Y
_  P0006P        Business Unit Master Print                             N
_  P0006QD       Update Bill Code If Business Unit Type = C             N
_  P00061        Job Master Revisions                                   Y
_  P00062        Property/Building Revisions                            Y
_  P00071        Work Day Calendar                                      N
_  P0012         Automatic Accounting Instructions Revisi               N
_  P0013QD       Convert Amounts to Domestic Decimal                    N
_  P0018         Tax File Revisions                                     N
_  P0018P3       Tax Detail Report by Tax Authority                     N

Opt: 1=SVR   2=Create Object   3=Field Explanation  F21=Print  F16=Regenerate
```

Example Selection 8 - Fields

Figure 14–6   Data Modeling screen

```
98042                         Data Modeling          Max Levels .  08
                                                     Function Use  230
  Base File                                          Display Dupl  1
  P0010_____  Company Constants                      In Sys  00 09 03 04

8  <1:M> F0006   F0006LB   Business Unit Master

_        -M:1> F0901   F0901LB   Account Master

_              -M:M> F4801   F4801LB   Work Order Master File
                            |98PFD--------File-Field-Descriptions----------S/FMT|
_              -M:1>        | File and Libr:  P0006_____   TEST_____   PF      |
                            |_  I0006       - Business Unit Master File        |
_                           |_  MCMCU  K01 Business Unit. . . . A    12     1  |
                            |_  MCDL01     Description. . . . . A    30    13  |
_                           |_  MCDC       Description - Compre A    25    43  |
                            |_  MCLDM      Level of Detail. . . A     1    68  |
_                           |_  MCAN8      Address Number . . . S   8 0    69  |
                            |_  MCCO       Company. . . . . . . A     3    77  |
_                           |_  MCSTYL     Type Business Unit . A     2    80  |
                            |_  MCRP01     Division x . . . . . A     3    82  |
                            |_  MCRP02     Region . . . . . . . A     3    85  |
                            |Opt:-2=Dictionary--4=Sel--F15=Resequence--F3=Return|
     Opt:   1=Move Top 5=Display 7=Where Used  8=Fields  F11=Install/Reporting
```

15

Work with the Object Cross Reference Repository

This chapter contains these topics:

-

15.1 Working with the Object Cross Reference Repository

The Object Cross Reference Repository locates all the objects associated with a particular member or object. The cross reference files are shipped empty. You must first run the Cross-Ref Index rebuild on menu G9642. If you add a new member to the Software Versions Repository, the Rebuild Cross Reference job must be run to ensure the new member is included in the display. You must have source code on your machine to run this rebuild.

15.1.1 Accessing the Object Cross Reference Repository

To access the Object Cross Reference Repository

Select one of the following methods:

- From the Master Directory (G), choose Hidden Selection 27. From Advanced and Technical Operations (G9), choose Documentation Services. From Documentation Services (G91), choose Object Cross Reference Repository.

- From Software Version Repository, press F15 to access the Object Cross Reference Repository.

- The Fast Path 'XREF' may also have been set up.

15.1.2 Example

The following form displays all programs using the file F0006.

The first four fields on this form relate to the object being cross referenced. The remainder of the form lists the members found during the cross reference search.

Figure 15–1   Object Cross Ref. Repository screen

```
980014                    Object Cross Ref. Repository

Object: Name . . .   P0006          Business Unit Master
        Type . . .   F              All programs using file
        To Display   P
        Funct Cd .   ____

O   Name        Description                          Field Attr T Start Upd
P                                                     _Len_ Dec_ Y _Loc_ Y/N_
_   P000661     Business Unit Master Conversion                        Y
_   P06238      Report - Payroll Check Register                        N
_   P06371      Report - Certified Payroll Register                    N
_   P06611I     Tip Credit Generation with Interim Check               N
_   P06638      Sales Allocation Report                                N
_   P126410     STAR - Columnar Spreadsheet                            N
_   P200        Submit Network Job                                     N
_   P23250      Texas 250 Report                                       N
_   P26011      Gas Balancing - Entitlement Extract                    N
_   P26112      Gas Balancing - Entitlement Explosion to               N
_   P26115      Gas Balancing Statement by Sales Point                 N
_   P26116      Gas Balancing Statement by Owner                       N
_   P26119      Gas Balancing Master Subfile Display                   N

Opt:  1=SVR   2=Create Object   3=Field Expl   F21=Print   F16=Regenerate
```

15.1.3 Conducting an Object Cross Reference Repository Search

All members of the Software Versions Repository are cross referenced, and you can search for these relationships in different ways.

To conduct an Object Cross Reference Repository search

1. From the Documentation Services menu (G91), choose Object Cross Ref. Repository.

    The following form displays the statistics for program P0006.

Figure 15–2   Object Cross Ref. Repository screen

```
980014                    Object Cross Ref. Repository

Object: Name . . .   P0006          Business Unit Master Revisions - Single
        Type . . .   P              Statistics for program
        To Display   S
        Funct Cd .   ____

O   Name        Description                          Field Attr T Start Upd
P                                                     _Len_ Dec_ Y _Loc_ Y/N_
_               Total Statements in RPG II
_       1,259   Total Statements as Comments
_       1,313   Total Statements in RPG III
_       3,993   Total Statements in Program
```

2. To conduct an object cross reference repository search, enter an object Name, Type code and To Display code. To narrow the search, enter a Funct Cd.

> **Note:**   If you are unfamiliar with the Cross Reference Relationships codes, type an asterisk (*) in the Type field, as shown below.

The Cross Reference Relationships codes appear in a new form.

Figure 15–3   Cross Reference Relationships Codes screen

```
Object: Name . . .   F0006        Business Unit Master
        Type . . .   *
        To Display   _
        Funct Cd .   ____

O   Name        Description                              Field Attr T Start Upd
P   _____    _____     Len  Dec  Y _Loc_ Y/N
```

3. Press Enter.

Figure 15–4   User Defined Codes Window

```
    81QM    User Defined Codes Window
    98   XR    Cross-Reference Relationships
Skip To Code . . . .  _____
  _ /D        All data fields in  /COPY
  _ /F        All files in /COPY
  _ /I        Program invocations from /COPY
  _ /P        Programs containing /COPY
  _ CP        All Programs using command
  _ DF        All files using data field
  _ DP        All programs using data field
  _ EP        Error messages in a program
  _ F/        All /COPY members using file
  4 FD        All data fields in file
Opt:  4=Select  F9=Glossary  F14=Memo
```

4. Enter a 4 to select the desired code. The Object Cross Ref. Repository form
displays with the selected codes. The F/D combination shown is very valuable to
document the fields in a file.

Figure 15–5   Object Cross Reference Repository screen

```
980014                    Object Cross Ref. Repository

Object: Name . . .   F0006       Business Unit Master

        Type . . .   F           All data fields in file
        To Display   D
        Funct Cd .   ____

O   Name        Description                              Field Attr T Start Upd
P   _____    _____     Len  Dec  Y _Loc_ Y/N
_   MCMCU       Business Unit. . . . . . . . . .           12        A     1
_   MCSTYL      Type Business Unit . . . . . . .            2        A    13
_   MCDC        Description - Compressed . . . .           40        A    15
_   MCLDM       Level of Detail. . . . . . . .              1        A    55
_   MCCO        Company. . . . . . . . . . . .              5        A    56
_   MCAN8       Address Number . . . . . . . .              8    0   S    61
_   MCAN8O      Owner/Receivable Address . . .              8    0   S    69
_   MCCNTY      County . . . . . . . . . . . .              3        A    77
_   MCADDS      State. . . . . . . . . . . . .              3        A    80
_   MCDL01      Description. . . . . . . . . .             30        A    83
_   MCDL02      Description 02 . . . . . . . .             30        A   113
_   MCDL03      Description 03 . . . . . . . .             30        A   143
_   MCDL04      Description 04 . . . . . . . .             30        A   173

Opt:  1=SVR  2=Create Object  3=Field Expl  F21=Print  F16=Regenerate
```

16

Work with Data Dictionary

This chapter contains these topics:

16.1 About the Data Dictionary Repository

The Data Dictionary is the most powerful element in the JD Edwards World software offerings. We define all data items used by JD Edwards World files and programs in the Data Dictionary. By requiring this up-front definition, the Data Dictionary enforces uniformity, consistency, and accuracy across all JD Edwards World applications.

The Data Dictionary represents a centralized repository of all:

- Field definitions
- Program error messages, both interactive and batch
- Menu messages
- Work fields
- User defined help instructions,
- Program and field descriptions accessed by the Help facility

16.2 Understanding the Data Dictionary Structure

The following files comprise the Data Dictionary Repository.

The following diagram illustrates the relationships between these files.

Figure 16–1   Data Dictionary Repository Files
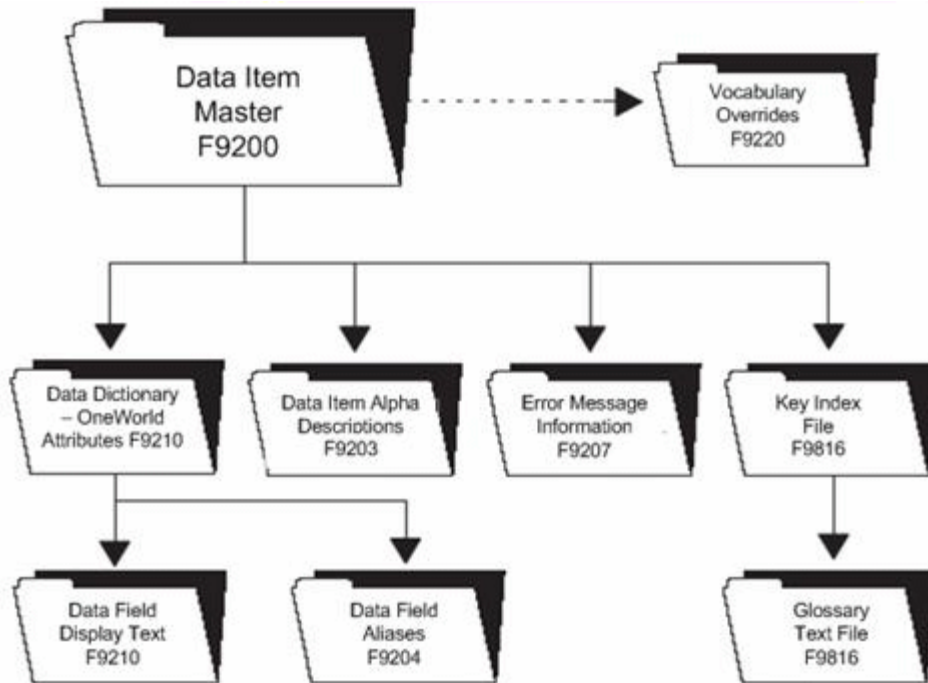
Data Item Master (F9200)

This is the master file for the Data Dictionary. Every data item has a record in this file.

Data Dictionary - OneWorld Attributes (F9210)

This file contains the base display and validation rules for all file and data items. It is also used in Enterprise 1 environments.

It also contains database fields (glossary group of D or S), categories (glossary group C), and work fields (glossary group U). In addition, the C alias for each data item is stored in this file.

Data Field Display Text (F9202)

This file lets you define multiple row descriptions and column titles for each data item, based upon language or reporting system (application override). You can add a language value for each language translation required for the row description and column title. The reporting system code allows the entry of jargon or company terminology that overrides the generic text supplied with the application.

Data Item Alpha Descriptions (F9203)

This file contains the alpha and compressed descriptions for all data items. This allows you to perform a Data Dictionary search by description. You can also specify separate alpha descriptions by language preference and reporting system. Every data item has a record in this file.

Data Item Aliases (F9204)

This file contains database fields (glossary group of D or S). It also contains COBOL aliases for each data item.

Error Message Information (F9207)

This file contains error messages that have a program, form, or report ID attached to them. You exit to this program, form, or report when you receive the error. For example, if you receive a user defined code error, you could exit to the User Defined Code Revisions program to modify a value.

Glossary Text File (F9816)

This file contains the glossary text for every data item. Each line of text in the glossary is one record.

Key Index File (F98163)

This file contains key information to link the data items to their glossary and to specific items.

16.3 Locating A Data Item Name

The system uses data items to define the parameters of a field or message. For example, AT1 defines the field Search Type. The system maintains each data item used in a file or retrieved for a form or report based on a data item name, such as AT1. To work with the Data Dictionary functions you need to know this name.

To locate a data item name

The JD Edwards World field-level help displays data item names.

Position the cursor on any field and press F1. For example, position the cursor in the Search Type field on the Address Book Revisions form (option 3 from menu G01) and press F1. The User Defined Codes form displays for the Search Type field. In the upper right corner of this form is the data item name for the Search Type field, which is AT1.

Figure 16–2   Address Book Revisions screen

The data item name is often in the upper right corner of the help screen or the User Defined Codes screen. It can also be seen by using F9 for the Glossary on other Help screens.

16.4 Working with the Data Dictionary

The Data Dictionary provides many useful features. You can create data item aliases for other programming languages, work with the glossary, add or change user defined help instructions, and locate data field descriptions.

To work with the Data Dictionary

From menu G92, choose Data Dictionary. The Data Dictionary form is displayed.

Figure 16–3   Data Dictionary screen


```
9201                        Data Dictionary           Rls Last Chg _____
 Action Code. . . . _                                 Item Parent.
 Data Item. . . . : _____
 Glossary Group . . _
 - - - - - - - - - - - -        General Information     - - - - - - - - - - - -
 Alpha Desc . . . . _____
 Reporting System . _____
 System Code. . . . _____       Type . _  Size . _____   Data File Decimals __
 Data Item Class. . _____  Item Occurrences ___      Display Decimals . _

 - - - - - - - - - - - -           Descriptions          - - - - - - - - - - - -
 Row Description. . _____
 Column Title . . . _____
                    _____

 - - - - - - - - - -  Default and Display/Edit Rules    - - - - - - - - - -
 Default Value. . . _____
 Data Display Rules _____ _____  Justify. _
 Data Edit Rules. . _____ _____
                                _____
 Search Program . . _____
 Next Nbr System. . _____    Next Number Index . . __

  F4=Search  F8=UDC  F9=Prev  F10=Glossary   F11=Descriptions   F15=Where Used
```

You find the Data Dictionary selection on several JD Edwards World menus and repository services.

You can also display the Data Dictionary form by entering the mnemonic DD in the Selection line of any JD Edwards World menu.

Use the following fields where applicable:

Field	Explanation
Rls Last Chg	The software version number to be defaulted in the Software Versions Repository file.
Item Parent	Display only. A data item which becomes the template from which other data items are created. For example, AC (Category Codes) is the parent to AC01.
Data Item	The RPG data name. This data field has been set up as a 10-byte field for future use. Currently, it is restricted to 4 bytes so that, when preceded by a 2-byte file prefix, the RPG data name does not exceed 6 bytes.
	Within the Data Dictionary, all data items are referenced by this 4-byte data name. As they are used in database tables, a 2-character prefix is added to create unique data names in each table specification (DDS). Special characters are not allowed as part of the data item name, with the exception of #, @, $.
	You can create protected data names by using $xxx and @xxx, where you define xxx.
	Messages can contain up to 10 characters. Types of messages are further defined by glossary group.
	Form-specific information
	Messages can contain up to 10 characters. Types of messages are further defined by glossary group.
Glossary Group	Differentiates data items into types. These types include primary and secondary types, error messages, and help text. See UDC 98/GG for a complete listing of Glossary Groups.
	See also Section 16.6.1, "What are the Data Dictionary Glossary Groups?" within this chapter.

Field	Explanation
Alpha Desc	Database text string that names the data item. Enter text in upper and lower case. The system uses this field to search for similar data items (F4). To enter an alpha description, follow these conventions:
	Dates - Begin all Date fields with Date
	Amounts - Begin all Amount fields with Amount
	Units - Begin all Unit, Quantity, and Volume fields with Units
	Name - Begin all 30-byte description fields with Name
	Prompt - Begin any Y/N prompting field with Prompt
	Address Number - Begin all address numbers (employee, customer, owner) with Address Number
Reporting System Code	Designates the system number for reporting purposes. This rarely differs from the Install System. Exceptions occur for data items used by more than one system.
Product Code	The application system code where the item is used.
Type	The RPG data type. Refer to UDC 98/DT.
	Form-specific information
	Note: When using the 'O' type, create the field as large as possible. This allows the use of ideographic (Double byte) languages such as Japanese.
Size	■ The length of the data item.
Data File Decimals	The number of positions to the right of the decimal of the data item. This is usually zero. See Section 37.2, "Displaying Field Descriptions".
Data Item Class	Defines the essential attributes and characteristics of a data item. There will be a data item for each of the Data Item Class entries. Data items are grouped into these Classes and the Data Item attributes are the same as the Class. F1 on this field will show all the defined Classes.
Item Occurrences	In setting up a data item in the data dictionary, you may specify a number of array elements. This will cause the automatic creation of one additional data item for each array element.
	The array data item names are restricted to certain lengths depending on the number of array elements:
	3 bytes - 1 to 9 elements
	2 bytes - 10 to 99 elements
	1 byte - 100 to 999 elements
Display Decimals	Use this parameter to designate the number of decimals in the currency, amount, or quantity fields the system displays. For example, U.S. Dollars would be 2 decimals, Japanese Yen would be no decimals, and Cameroon Francs would be 3 decimals. Data Item Class groups will have the same display decimals as the Class definition. Most decimal data fields are stored in the data files as whole numbers and the Display Decimals value is used to display or print the data correctly.

Field	Explanation
Row Description	Stores the title on text and reports. It is used in a manner similar to the column description in the query facility. It should be less than 35 characters. Use abbreviations whenever possible. For example: U/M – Units of measure YTD – Year-to-date MTD – Month-to-date PYE – Prior year end QTY – Quantity G/L – General ledger A/P – Accounts payable DEPR – Depreciation
Column Title	The first line of description that will be used in column headings on a report or screen. This description should be no larger than the data item size, if possible. If the column heading is only one line, it should be placed in this column. Use the second line of the Column Title when two are needed.
Default Value	Used as the default value on the data entry screen for the associated data item. This value will be entered into the field upon exit from the screen if no other value is entered. The value entered must be the exact same length as the data item size. Place single quotes around the value if it contains any embedded blanks. The keywords *BLANKS and *ZEROS can be used as the default value. When entering a numeric data item with default values, the redisplay of the data item suppresses all leading zeros. **Caution:** If a blank entry is allowed, default values should not be used.
Data Display Rules	Keywords which describe an editing technique applied when data is displayed. Validation is applied to the data after Enter is pressed. The rules will be incorporated into the source code at program generation time. This is usually numeric editing or masking. The developer can override these rules at the time of program creation. The current list of these rules is kept in the User Defined Codes at SYSTEM = 98 and RECORD TYPE = DR.
Data Edit Rules	Keywords which control allowed values when data is entered. Validation is applied to the data after Enter is pressed. These controls will be incorporated into the program at generation time. The data may be required to be in a range, in a UDC table, or in a file. The developer can override these rules at the time of program creation. The current list of these rules is kept in the User Defined Codes at SYSTEM = 98 and RECORD TYPE = ER.

Field	Explanation
Search Program	The Help Text Program is used to call a program when the function key - F1 is pressed on its Data Item. When F1 is pressed, the program entered in this field will be executed. There are some fields where the Help Program is hard coded in the Help system such as AN8 in the Name Search program (P01200). If this field is left blank, the glossary will be used. If you wish the User Defined Code window to appear when F1 is pressed, enter '*UDC' in this field (this is the default when 'UDC' is entered in the Data Edit Rules field). If you do not want the UDC window to appear and you have 'UDC' in the Data Edit Rules field, change this field to be blank. Program Requirements: For your text program to work correctly, you must allow it to accept three standard parameters: ■ PARM 1 - Field Name, size 10, type alpha ■ PARM 2 - Return Value, size 30, type alpha ■ PARM 3 - Return Description, size 30, type alpha
Next Nbr System	Designates the system number for the Next Number retrieval. See User Defined Codes, system code '98', record type 'SY'.
Next Number Index	The array element number retrieved in the Next Number Revisions program. There are ten NN array elements for each System Code. For example, the next Address Book number (AN8) is array element '01' of system '01'.

16.4.1 What You Should Know About

Topic	Description
Data Dictionary Security	Once a system is operational, you must be particularly careful to secure the integrity of the Data Dictionary. Two facilities are provided to aid you with the security: ■ Operational systems coding - System numbers and names are defined in User Defined Codes, system code 98, record type SY. If you place an X in the second line of description for a particular system, it will be designated as operational. Once a system has been set up as operational, all data fields coded to this system are protected from modifications. This control, however, can be violated by removing the X in User Defined Codes. ■ Action Code Security - A more prudent form of control is to assign add/change/delete authority to only one individual, the database administrator. If you choose to use this control, you should restrict access to the Data Dictionary program (P9201) in Action Code Security. See Working with Action Code Security. All users should be set up with Inquiry authority only. The database administrator would be set up with add/change/delete authority.

16.4.2 The Function Keys for the Data Dictionary

The following function keys are available from the Data Dictionary form.

Function Key	Description
F4	A data item search facility. Enter the search text in the Alpha Name field on the Data Item Search screen. If you are a double-byte user, you must provide a search description for each data item you create or change in order for the search facility to function properly.
F6	Repository Services
F8	User Defined Code Tables
F9	Automatic Reinquiry
F10	Glossary
F15	A data item cross reference

16.5 Working with Data Item Alias Revisions

Use the Data Item Alias form to assign alias names to a data item that other programming languages use. When adding a data item of glossary group "D" or "S", you must enter an alias for that field. This form automatically displays on an Add function when the alias is not unique. The alias defaults from the alpha description.

To work with data item alias revisions

On Data Dictionary screen

1. Press F5. The Data Field Alias form displays.

Figure 16–4   Data Field Alias screen

2. Enter an alias type and name.

   An alias name must be unique to the system or the system does not let you exit from the Data Field Alias form.

   Current alias types required:

   - 1 = PL1 or COBOL

   - 2 = C language

   An alias must adhere to JD Edwards World' syntax rules of the "C" language.

16.6 Working with the Data Dictionary Glossary

16.6.1 What are the Data Dictionary Glossary Groups?

The Data Dictionary consists of several glossary groupings that define the data item in the JD Edwards World software. All glossary groups typically have associated text. The glossary stores this text. The major glossary groups follow:

Group	Explanation
E	JD Edwards World Interactive error messages
	■ JD Edwards World defines interactive error messages with numbers less than 5000 and with numbers from 000A to 999Z. For example, 0001
	■ Client defines interactive error messages with numbers from 5001 to 9999
M	Menu Messages
	■ JD Edwards World defines menu message data items as MENUMSGxxx, where xxx represents a number. For example, MENUMSG044
	■ Client defines menu message data items as MENUCLTxxx, where xxx represents a number
J	JD Edwards World Batch error messages
	■ JD Edwards World defines batch error messages with JDExxxx, where xxxx represents a number less than 7000. For example, JDE0001
	■ Client defines batch error messages with JDExxxx, where xxxx represents a number greater than 7000 and less than 9000
	■ The QJDEMSG message file contains batch error messages
	■ The JD Edwards World program found on Rebuilds and Global Updates (G9642) builds the batch error messages file QJDEMSG.
C	Data Field Function Categories (Data Item Class)
	■ Groups common data elements
	■ For example, CURRENCY, QTYINV.
D or S	Primary or Secondary Data Items
	■ Used for validations
	■ Text on Videos
	■ Text on Reports
	■ Field Reference Files - F98FRFA-Z $ and @
	■ For example, AC for a D data item; AC01 for an S data item
F	Files
G	General Narrative. Used to add information about a specific data item

Group	Explanation
H	User Defined program Helps ■ Client use only for adding custom helps for JD Edwards World programs ■ For example, U00MENU, U01051. ■ When HELP is keyed on command line, 'F5' on the help window indicates that there are customer helps available. Use F5 to view.
L	Report Messages. Messages or warnings for certain procedures, or letters written and produced through DREAM Writer
N	Program Notes ■ Used by programmers to type notes about a program in the system ■ Add the notes to the glossary in the Data Dictionary ■ Create notes for a program, add a data item with an "N' as a prefix in front of the program name, for example N00HELP.
P	Program Purposes ■ Used in the general summary help instructions ■ Used for the Program Generator Product ■ For example, P01051
R	Report Data Elements - the majority of these data items are letters produced through DREAM Writer.
T	Terms ■ These data items are definitions of commonly used terms ■ The prefix of the data item name is "TERM." For example, the AAI definition is in the glossary under the data item TERMAAI.
U	For work fields that a program utilizes ■ Begin with # ■ For example, #AA

To work with the glossary

1. From the Data Dictionary screen, press F10. The Data Item Glossary Revisions screen displays.

   If your glossary group is E, H, J, or M, this screen automatically displays when you press Enter on the main Data Dictionary form.

Figure 16–5   Data Item Glossary Revisions screen

```
92001                    Data Item Glossary Revisions   Language . . . . . __
                                                        Applic Override  ____
                                                        Scrn/Rpt . _____

Action Code. . . . . I
Data Item. . . . . : AT1_____   Desc Search Type_____
System Code. . . . . 01__        Reporting System Code. 01__
Glossary Group . . . D__   Search Desc _____

A user defined code (system 01, type ST) that identifies the kind of Address
Book record you want the system to select when you do name or message
searches. Examples:
                     E - Employees
                     X - Ex-Employees
                     V - Vendors
                     C - Customers
                     P - Prospects
                     M - Mail Distribution Lists




   F4=Search    F9=Redisplay Prev    F19/F20=Prev/Next Item    F24=More
```

2.   Do the following that applies:

   ■   Use the Language, Applic Override, and Scrn/Rpt fields for jargon. See About Language and Jargon in the *JD Edwards World Technical Foundation Guide* for details.

   ■   Use cursor keys to see additional text lines.

   ■   When entering an "E" glossary group item, which is an interactive error message, use F5 to define a program, form, or report to reference when the system displays the error message.

   ■   On double-byte machines, this form displays the Search Desc field. To ensure the data item search facility functions properly, you must enter a search description for each data item you create or change. You can enter it on this form or on the Data Dictionary form.

   Note: Always leave the last two character positions of each text line blank.

Field	Explanation
Data Item	The RPG data name. This data field has been set up as a 10-byte field for future use. Currently, it is restricted to 4 bytes so that, when preceded by a 2-byte file prefix, the RPG data name does not exceed 6 bytes.
	Within the Data Dictionary, all data items are referenced by this 4-byte data name. As they are used in database tables, a 2-character prefix is added to create unique data names in each table specification (DDS). Special characters are not allowed as part of the data item name, with the exception of #, @, $.
	You can create protected data names by using $xxx and @xxx, where you define xxx.
	Messages can contain up to 10 characters. Types of messages are further defined by glossary group.
	Form-specific information
	If you are adding an error message, this field must be left blank. The system assigns the error message number using next numbers. The name displays on a successful add. You should assign interactive error message numbers greater than 5000.

Field	Explanation
Glossary Group	Differentiates data items into types. These types include primary and secondary types, error messages, and help text. See UDC 98/GG for a complete listing of Glossary Groups.
	Form-specific information
	Note: If you need to assign your own error message numbers, use 4 digit numbers greater than '5000'.
	For help text (glossary group H), the data dictionary "Inquiry/Revision Program" field may be used to specify the name of a follow-on item.
	To create your own messages for the IBM message file (glossary group J), begin the data item name with your own three characters, for example CLT0001.

16.7 Working with User Defined Help Instructions

The easiest way to modify help instructions is to utilize the User Defined Instructions in Data Dictionary.

To work with user defined help instructions

On the Data Item Glossary Revisions screen

Figure 16–6   Data Item Glossary Revisions screen
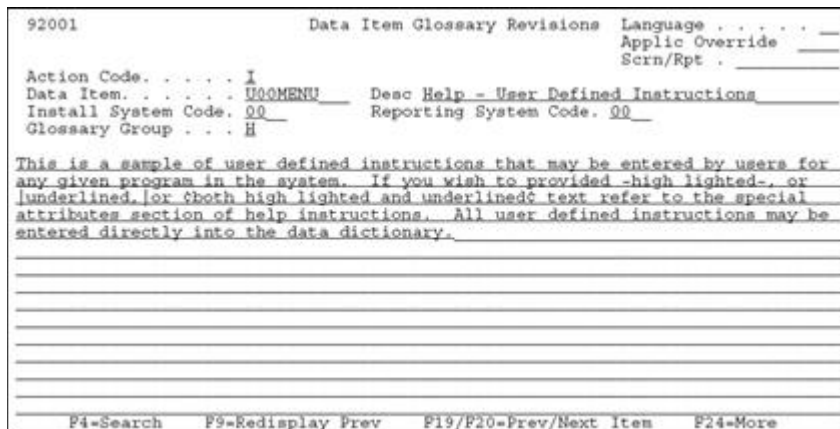
JD Edwards World provides an example record (U00MENU) in your system.

1. Enter a program name in the Data Item field, replacing the "P" with "U". For example, for program P01051, create a data item U01051.

2. Enter H in the Glossary Group field. The H Glossary Group defines user defined help. JD Edwards World does not replace H Glossary Group data items during an upgrade.

3. Perform an add or change.

On the Help Task List form, "F5=User Inst" is displayed if you wrote your own User Defined Help instructions.

16.8 Working with Data Field Descriptions

To work with data field descriptions

1. From the Data Dictionary screen, press F11.

Figure 16–7   Data Field Descriptions screen

2. On the Data Field Descriptions screen, enter specific jargon or language descriptions for each data item. See About Language and Jargon in *JD Edwards World Technical Foundation Guide* for details.

16.9 Working with the Next Numbers Facility

The Next Number facility controls the automatic numbering for such items as new G/L account numbers, voucher numbers, address numbers. It allows you to specify what numbering system you want to use and gives you a method of incrementing numbers to reduce transpositions and keying errors.

Complete the following tasks:

■   Locate the Next Numbers facility

■   Work with Next Numbers by company and fiscal year

To locate the Next Numbers facility

From menu G00, choose Next Numbers.

Figure 16–8   Next Numbers screen

```
  0002                        Next Numbers

Action Code. . . . . . I
System Code. . . . . . 09    General Accounting


             Use          Next Number   Check Digit
     Next Account ID         21831          _
     Journal Entries          1946          _
     Consol Accounts       90000214         _
     _____          _____         _
     _____          _____         _
     _____          _____         _
     _____          _____         _
     _____          _____         _
     _____          _____         _

CAUTION:
  Changing the data on this screen may make it impossible to retrieve
  previously added addresses and may result in attempts to assign
  duplicate numbers.

          F8=Next Numbers by Co/FY        F24=More Keys
```

16.9.1 What You Should Know About

Topic	Description
Next Numbers	The next numbers file is F0002
	■ 10 element array
	■ 1 record per system
	■ Modulus 11 check digit optional
	Once set, do not change
	■ Has an impact on system performance
	■ Will not duplicate numbers. When it reaches max, starts over
	■ Cannot change position of user or add new entry without programming modifications
	Ties with the Data Dictionary
	■ Data Item in Data Dictionary points to the Next Number System. For example, Data Item AID has System Code 09/01.

To work with Next Numbers by company and fiscal year

Use Next Number by Company for these original documents:

■   Journal Entries

■   Accounts Payable Vouchers

■   Accounts Receivable Invoices

■   Sales Orders

■   Purchase Orders

1.   From Next Numbers, press F8.

Figure 16–9 Next Numbers by Company/Fiscal screen


```
00021                    Next Numbers by Company/Fiscal

Action Code. . . _                          Next Number Constant . _

Skip to Company / Sequence . . . . . . .  _____ _____
Skip to Fiscal Year. . . . . . . . . . .  _____


  Doc   Seq   Do Sm      Description              Fisc I  Next   C  Auto
  Co   Number Ty As _____       Year D Number  D  Reset

 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____
 _____ _____  __ __                              _____ _ _____ _ _____

                        F24=More
```

2. Set the Next Number constant field to maintain next numbers by:

   - Company

   - Company and Fiscal Year

16.10 About the Field Reference File

The Field Reference File contains the specifications for each data item in the JD Edwards World Data Dictionary. Because the JD Edwards World Data Dictionary is different from the standard IBM Data Dictionary, each data item record needs to be translated from the JD Edwards World standard to the IBM standard.

When building the Field Reference File, JD Edwards World groups the data items. Items that begin with "A" are translated into the IBM-readable format and accessed through file F98FRFA. Data items that begin with "B" are accessed through F98FRFB. Each letter of the alphabet has a corresponding F98FRF file. Client data items are stored in F98FRF$ and F98FRF@. You can rebuild one file at a time. You can also build the message file in alternative languages. Due to the IBM limitation on the number of fields allowed in a file, it may be necessary to have more than one "FRF" file. The field information from the World Data Dictionary is stored in are physical files (F98FRFA1, F98FRFA2, and so on). F98FRFA is a logical which joins the physical files.

16.10.1 What Happens with the Rebuild?

The system does the following:

- Rebuilds F98FRFA-Z, $, and @ using Data Dictionary data item glossary groups D and S

- Rebuilds the message file (QJDEMSG) in QGPL

- Uses a processing option located on Form ID J98DDMSGF, to determine which library to build the QJDEMSG file. The default is QGPL

- Does not rebuild the JD Edwards World message file if entering a single field reference file to be built

- Builds a separate message file for each language installed. Enter '**' for all languages installed on the system.

Always rebuild the files in the same library as previously built.

16.11 About the JD Edwards World Message File

The JD Edwards World Message (QJDEMSG) file contains all the messages that are coded Glossary Group J. The programs access the messages from this file. If a client adds messages with Glossary Group J, a rebuild is necessary to correctly add the new messages to the JD Edwards World Message (QJDEMSG) file.

16.11.1 Rebuilding only the JD Edwards World Message File?

The system does the following:

- Rebuilds the message file (QJDEMSG) in QGPL. Uses a processing option, Form ID J98DDMSGF, to determine which library to build the QJDEMSG file. The default is QGPL

- Picks up Data Dictionary data item glossary group J

Enter a value from UDC table 01/LP to generate a message file for a single language. Only those translated error messages which can be seen on the Glossary screen with a language code will be included. Enter '*' for all languages installed on the system.

16.12 Locating the Rebuild FRF and JD Edwards World Msg File Form

To locate the Rebuild FRF and JD Edwards World Msg File form

From menu G9642, choose FRF & JD Edwards World Msg File. The first and third fields are self-explanatory. The source referred to on the second parameter is not useful so enter QTEMP in that field.

Figure 16–10   Rebuild FRF and JDE Msg File screen

```
98FRF                    Rebuild FRF & JDE Msg File

The Field Reference Files are facsimiles of the J. D. Edwards Data Dictionary
and are vital for the creation of all data base files. The version of the Data
Dictionary upon which they are based determines the type and characteristics
of all application data elements. This procedure will recreate these files
based upon the Data Dictionary files found in the library specified, placing
the DDS source in the JDESRC source file the Source Library selected, with
the Field Reference Files being created in the Data Library selected.

          Base Field Ref Files on Data Dictionary in Library _____

          Create Field Ref source in Source Library      _____

          Create Field Ref Files in Data Library         _____

          Single field ref($, @, A-Z or blank=all)    _

          Language for message file (** for all) . __

     NOTE:  Generation of Field Reference and Message File is
            submitted to batch.  No data files may be
            created during this generation process.

 Press Enter to Rebuild Field Reference Files    F3=Exit without Rebuild
```

17

Work with Data File Design Aid

This chapter contains these topics:

17.1 About the Data File Design Aid

JD Edwards World Data File Design Aid provides a simple mechanism for creating Data Description Specifications (DDS) for physical and logical files.

To enforce standards, JD Edwards World recommends against file changes made through the Source Entry Utility (SEU). Changes should be done through File Design Aid. Non-JD Edwards World changes to a JD Edwards World file make support difficult if not impossible.

17.1.1 What You Should Know About

Topic	Description
Enforced Prefixes	Data items are defined in the JD Edwards World Data Dictionary. Within files, these data item names are qualified with a prefix to make them unique. Every data file in JD Edwards World software is assigned a two-character prefix. For example:
	■ Business Unit Master file is MC
	■ Address Book Master is AB
	■ The data name MCU in the Business Unit Master file is MCMCU
	■ The data name in the Address Book file is ABMCU
	■ Use of prefixes ensures that data item names are both consistent and unique.
Enforced naming conventions	JD Edwards World file names begin with an F prefix and the format within that file begins with an I prefix.

Topic	Description
Data Dictionary validation	▪ All data fields defined in files are verified against the Data Dictionary.
	▪ Programmers cannot enter data names without first creating and documenting them in the Data Dictionary.
	▪ Prefixes of $ and @ are reserved for client use.
Automatic reference to Field Reference Files	▪ JD Edwards World uses IBM's Field Reference File (FRF) facility when creating files. When creating the DDS for a file, you need only enter the Data Dictionary data item name. The Data File Design Aid automatically enters the correct keywords for referring to the FRFs.
	▪ If data items are added to the Data Dictionary, the user needs to run the rebuild for the Field Reference Files before using Data File Design Aid.
Resequencing	▪ A sequence number allows you to rearrange data items within a file while you are designing.

17.2 About Assigning the File Prefix

File prefixes are assigned through the Software Versions Repository. The information in this form comes from a logical file built over the Software Versions Repository file, F9801. The information in this form is updated automatically whenever the user adds, updates, or deletes software version repository records for files.

> **Caution:** Programmers are responsible for not assigning the same prefix to two different files used in the same program.

Figure 17–1 Software Versions Repository screen

1. To view all file prefixes currently in use:

Press F1 on the File Prefix field.

> **Note:** A file prefix can display in this list more than once if it is attached to more than one file.

Field	Explanation
Prefix	One or two character prefix for each field in a file
File Name	Member ID from SVR
File Description	The description of a file in the Software Versions Repository. The member description is consistent with the base member description.

> **Note:** If creating a new logical file, the prefix defaults from the based-on physical file.
>
> Pressing F10 from this form displays all file prefixes that you should not use.

17.3 Entering Data File Design Aid

To enter Data File Design Aid

1. Inquire on a physical file.

2. Copy the production source down to a development environment.

3. Choose Option 10 to take you to the appropriate Design Aid form based on the members Function Code value.

   - A PF or LF value takes you to File Design Aid.

Figure 17–2 Data File Design Aid screen

Field	Explanation
File Description	SVR member description for the file.

Field	Explanation
Unique Keys(Y/N)	Specifies if the data file contains unique keys. ■ If you say yes, Data File Design Aid puts the UNIQUE keyword in the DDS. As a result, no two records may have duplicate keys. ■ If you say no, Data File Design Aid leaves the UNIQUE keyword out of the file DDS. *Form-specific information* If a file can be organized so the key will uniquely identify only one specific record, define the Unique Keys field. Uniqueness can be specified for physical and logical files. Most JD Edwards World physical files in the past have been defined as sequential and logicals were used for creating keyed sequences. More recently, however, physical files have been keyed.
Member ID	The name assigned to the file. Defaults in from the Software Versions Repository.
File Prefix	This is the SVR field which indicates the prefix associated with a file.
Src Library	The library where the source for the data file resides. Defaults in from the Software Versions Repository.
Source File Name	The name of the file within the source library that contains the source member. Defaults in form the Software Versions Repository.
Based on File	Designates the physical file on which a logical file is based. ■ Defaults in from the Software Versions Repository and only displays for logical files. *Form-specific information* For physical and logical files, the Based On File is the same as the physical file. For join files, the Based On File is the name of the first physical file that the join is built over.
Data Item	The Data Dictionary name of the field or the record format name. ■ The file prefix is added to create a unique data name for each field specified in this field. ■ The record format line is automatically defaulted in.
K/S	Identifies the DDS Type indicating whether the field is a format name (R), key field (K), select logic field (S) or omit logic field (O). It may be used in conjunction with information that displays in the Function Specifications field.

Field	Explanation
Function Specifications	Used with the DDS Type specified in the K/S column. ■ If it is a record format name this field will be blank. ■ Contains the PFILE (Filename) statement for a logical file and you enter: JFILE (Filename Filename) statement for join files listing all the files involved in the join. Right below the JFILE statement, you use the JFLD (Field Field) statement to list the fields that are used to construct the join. ■ If you are defining a normal data item and you want the FRF field designation pulled in, you leave it blank. ■ If you are defining Select/Omit logic on a field, you enter the logic itself. ■ If you are defining a key data item, you may leave the Function Specifications field blank, or you may enter any valid DDS function keyword (DESCEND, RENAME, SIGNED, ZONE, and so forth).
Seq No	Determines the order of the fields in the file. *Form-specific information* When designing a physical, list the component fields in descending order of their importance to the file. The K entries for keyed fields must always be last in sequence number within the Data File Design Aid program itself.
Data Item Type	A is for Alpha, S is for simple numeric, P is for Packed numeric, and O is for Open (any character can be entered).
Item Size	Length of field taken from the Data Dictionary.
Display Decimals	Usually Packed fields, the number of decimal places on a display. The data will actually be stored in the field in the file as a whole number.

Note: The detail area includes additional information: data item type, data item size, and number of display decimals. This information will be available after the enter key is pressed, at which time the information will be retrieved from the Data Dictionary along with the REFFLD keyword which indicates which F98FRF file was used to retrieve the field information.

17.3.1 Sample - Logical File

JD Edwards World logical files contain all fields from the PF, only keys are specified.

Figure 17–3   Data File Design Aid screen

```
   92102                    Data File Design Aid

   File Description . . . LF - Business Unit, Item ID
   Unique Keys(Y/N) . . . Y                   Member ID. . . . . . . F92801LA
   File Prefix. . . . . . QX                  Src Library. . . . . . PGFSRC
   Based on File. . . . . F92801              Source File Name . . . JDESRC

   Data Item. Data Field Desc.    K/S Function Specifications          Seq No
   I92801                         R   PFILE(F92801)                      1.00
   XCC        Business Unit       K                                      2.00
   XIT        Item ID             K                                      3.00
   _____                       _   _____   4.00
   _____                       _   _____   5.00
   _____                       _   _____   6.00
   _____                       _   _____   7.00
   _____                       _   _____   8.00
   _____                       _   _____   9.00
   _____                       _   _____  10.00
   _____                       _   _____  11.00
   _____                       _   _____  12.00
   _____                       _   _____  13.00
   _____                       _   _____  14.00

   F3=Exit/Save    F16=Search by File    F1=Search by Name   F4=Field Attributes
```

17.3.2 Sample - Logical File with Selects

This example represents an AND condition for the selects.

Figure 17–4   Data File Design Aid screen (AND condition for selects)

```
   92102                    Data File Design Aid

   File Description . . . LF - Acct ID, LT, DOI, Sub LT, Serv Date, Doc TyN#
   Unique Keys(Y/N) . . . _                   Member ID. . . . . . . F0911LH
   File Prefix. . . . . . GL                  Src Library. . . . . . PGFSRC
   Based on File. . . . . F0911               Source File Name . . . JDESRC

   Data Item. Data Field Desc.    K/S Function Specifications          Seq No
   I0911                          R   PFILE(F0911    )                   1.00
   AID        Account ID          K                                      2.00
   LT         Ledger Type         K                                      3.00
   DOI        DOI Sub             K                                      4.00
   SBL        Subledger           K                                      5.00
   DSV        Date - Service/Tax  K                                      6.00
   DSVY       Date - Service/Tax  K                                      7.00
   DSVM       Date - Service/Tax  K                                      8.00
   DSVD       Date - Service/Tax  K                                      9.00
   DCT        Document Type       K                                     10.00
   DOC        Document (Voucher,  K                                     11.00
   KCO        Document Company    K                                     12.00
   POST       G/L Posted Code     S   CMP(EQ 'P')                       13.00
   BC         Bill Code           _   CMP(NE 'H')                       14.00

   F3=Exit/Save    F16=Search by File    F1=Search by Name   F4=Field Attributes
```

17.3.3 Sample - Logical File with Omits

This example represents an AND condition for the omits.

Figure 17–5   Data File Design Aid screen (AND condition for omits)

Creating Join Files and Work Files

To create a join file or a work file, you should use the Source Entry Utility.

17.4 Function Keys From File Design Aid

Function Key	Definition
F1	Using F1 in the Data Item field takes you to the Data Item Search form.
F2	Access the command line to enter a JD Edwards World or IBM command without having to exit to Command Entry or a menu. If you are secured out of Command Entry or Menu Traveling, you can still get to this command line but you cannot execute commands or menu travel.
F3	Press to exit Data File Design Aid, the following form displays.

Example F3 - Data File Design Aid

Figure 17–6   Example F3 - Data File Design Aid screen

On this form, you can choose to:

- Exit without saving the changes made.
- Exit and save the changes made.

■ Save the changes made and return to the Design Aid form.

Function Key	Definition
F6	This form provides access to other repository services within JD Edwards World.
F16	Accesses the File Field Description form to view file formats and field descriptions for any file on the system

17.5 What are the Data File Design Aid Standards?

Field	Explanation
Unique Keys	Specifies if the data file contains unique keys. If Yes, FDA puts the UNIQUE keyword in the DDS. No two records in the data file can have duplicate data in the key fields. If No, FDA leaves the UNIQUE keyword out of the file DDS. Records with duplicate keys will be allowed in the data file.
	Form-specific information
	If a file can be organized so the key will uniquely identify only one specific record, define the Unique Keys field. Uniqueness can be specified for physical and logical files.
	Most JD Edwards World physical files in the past have been defined as arrival sequence and logicals were used for creating keyed sequences. More recently, however, physical files have been keyed.
File Description	The description of a record in the Software Versions Repository file. The member description is often consistent with the base member description.
	Form-specific information
	The description associated with each file is used to further identify the relation of the file and its purpose.
	■ Physical files should have a description that explains the purpose of the file.
	■ Logical files should be designated as follows: LF - fldname, fldname, fldname: where fldname is a key field.
	■ Join files should be designated as follows: JF - filename/filename/filename - fldname,fldname,fldname; where the filename is a file over which the join is built and fldname is the key field joining the files.
	■ Work files should be designated as follows: WF - filename; where filename is the file that the work file accesses.
Based On File	Designates the physical file on which a logical file is based.
	■ Defaults in from the Software Versions Repository and only displays for logical files.
	Form-specific information
	For physical and logical files, the Based On File is the same as the physical file.
	For join files, the Based On File is the name of the first physical file that the join is built over.

Field	Explanation
Ordering of Fields	Determines the order of the fields in the file. *Form-specific information* When designing a physical, list the component fields in descending order of their importance to the file. Keyed items must always be last in sequence number within the Data File Design Aid program itself.
Logical Files	Logical files may include all fields; we do not define specific fields.
Recompiling	When recompiling a physical, you need to delete any logicals or joins from the data file library and then recompile them after the physical has been recompiled.
Record Format	It is a JD Edwards World standard that only one record format is defined for each physical and logical file. Joins may contain more. Record format names begin with I followed by the physical file number.
Field Reference Files	Used in all file creations to retrieve field descriptions.

17.5.1 Merge Functions for Program Temporary Fix (PTF) Installations and Reinstallations

The PTF installation or reinstallation does the following:

- A PTF installation prints a report that identifies all files that are in the PTF library but were not installed in the client's production libraries. You must add the new files manually into the appropriate libraries.

- A reinstallation prints a report to add new files into appropriate libraries.

- Updates JDFDATA in a PTF installation; replaces JDFDATA in a reinstallation.

- May add new keys to both logical and physical files.

- May change the file format of logical or physical files.

> **Note:** The Data Model displays relational models of the major files within the JD Edwards World environment.

17.6 Data File Design Aid Summary

In summary, the Data File Design Aid has the following features or restrictions:

- It has direct ties to the Data Dictionary and the Field Reference Files.

- It attaches a two-character prefix to each data item to create a unique field within the file.

- A record format must be defined for all files with a K/S value of R. This is the default record format.

- The PFILE keyword is automatically pulled in for logical files.

- Logical files must have a Based on File designated in the Software Versions Repository, which carries over to the design form.

- You must enter the data item names from the Data Dictionary.

- Perform these steps for creating a new file:

- Data items must reside in the Data Dictionary.

- You must rebuild the FRF files if new data items were added (from the Rebuilds menu, G9642).

- A new file must have a file prefix specified on the Software Versions Repository record.

- Field Reference Files are characterized by the following:

    - They contain all the definitions for creating fields.

    - There are 28 in all (F98FRFA-F98FRFZ, F98FRF$, and F98FRF@).

    - Each field reference file points to all the data items beginning with the same character as the field reference file.

        For example: F98FRFA is a logical file which connects the F98FRFA1, F98FRFA2, and so on. physical files which contain all the Data Dictionary data items beginning with the letter A.

18

Work with Screen Design Aid

This chapter contains these topics:

18.1 About Screen Design Aid

Screen Design Aid (SDA) is an interactive feature you use to design and maintain screens. This full-screen editor validates your work against the Data Dictionary and

adds records to vocabulary overrides. You can work with multiple record formats simultaneously and you can move fields from one format to another.

Below is a list of some features of SDA:

- Design is conducted in a safe work environment. If you make a mistake you can exit without changing a screen's Data Description Specifications (DDS).

- Screen specifications are stored in data structures in the QRECOVERY library. This is similar to the IBM recovery of SEU.

- You can create a screen in normal mode (80 columns by 24 rows) or wide mode (132 columns by 27 rows). You can also design wide screens on 80 column devices using a windowing facility.

- Answering initial yes/no options allows you to create a basic screen skeleton for a subfile, non-subfile or window-style screen.

- SDA is fully integrated with the Data Dictionary and vocabulary override files. You can place fields on the screen by referring to a Data Dictionary name and override default attributes, if necessary. You can place vocabulary override fields on the screen and, if desired, modify their contents through the full screen.

- SDA is fully integrated with the system database. You can select fields from the system database, create a pick list and then reorder fields in the pick list. You can place fields on the screen individually or all at once by pinpointing locations on the full screen with an ampersand (&) or asterisk (*).

- SDA has full screen capability. You can add, change, move, or delete fields by entering control characters directly on the screen.

- Unlike the IBM SDA, JD Edwards World SDA allows you to work with multiple record formats at one time. You can display and change any combination of formats simultaneously (as long as they do not overlap). You can also move fields from one format to another.

- SDA allows you to simulate a screen at program execution time. You can run the simulation for any set of conditioning indicators to represent a particular error condition or other program functions.

18.2 Editing Commands

Standard editing commands available in SDA include:

Command	Description
*DEL	Delete fields (used in Field Definition window)
d (cannot be uppercase D)	Delete fields (used in Field Definition window)
<<, >>	Shift fields to the left or right
(xx...xx) 'xx...xx'	Literals (use apostrophes)
-	Move from position.
=	Move to position.
- -	Move block from position
=	Move block to position.
F7	Restore the screen if you accidentally press Field Exit or a power failure knocks you off.

Precautions and automatic features of the SDA include:

- Do not use the INSERT or DELETE keys while in the actual design portion of SDA.

- SDA automatically assigns editing indicators.

  - Indicators 40 to 79 are reserved for editing.

  - Indicator 40 is reserved for the Action Code field.

  - Indicator 41 is reserved for the key fields.

  - If you use all available indicators, you will get an error message.

- Indicator 37 is used in subfile screens to highlight all fields on the last line of the subfile to indicate that no more records exist.

18.3 Prefix Standards

Prefix standards for use in the SDA include:

Prefix	Description
VD	Screen display fields.
	■ VD fields display database information from the file being used for the screen and you can use them to enter database information.
	■ Default size is the size specified in the Data Dictionary for the data item being displayed.
	■ Reside in the based on file and can be input/output.
SF	Subfile fields.
	■ Same as VD fields, but they are in a subfile.
	■ Default size is the size specified in the Data Dictionary for the data item being displayed plus editing characters.
SH	Subfile Hidden fields.
	SH fields store data that is not displayed on a screen.

18.4 Field Name Standards

Field name standards for use in SDA include:

Field	Standard
VC0 - Screen constants	VC0 (zero) fields display definitions or descriptions for a single piece of data or for a group of data.
	VC0 fields are always output fields and the description that is loaded into the VC0 field is obtained from a separate file
	■ For example, if creating a screen using the Item Master file (F92801), you need to take the Item Master Business Unit field and chain out to the Business Unit Master file (F0006) to get the description for that Business Unit.
	■ You enter *VC0 for the Field Name field in the Field Definition window when adding a new constant or description field.
	■ The default size for VC0 fields is 30.

Field	Standard
VTX - Screen text	These fields display the row description or column headings from the Data Dictionary.
	■ The text that displays in the VTX fields is stored in the Vocabulary Overrides file (F9220).
	■ You can type directly over Vocabulary Override fields in SDA.
	You enter *VTX in the Field Name field in the Field Definition window for the next sequential text field name.
	■ The default size for VTX fields is 16.
Line 24 is always VDL24	You cannot change the text for Line 24 by using the Field Definition window because it is too large.
	Type over the text in Line 24 to change it.
TTL@	Uses the default title from Vocabulary Overrides if the screen program is called from another program.
	Uses the menu selection text if the screen is called from a menu.
ACTION	Action Code field.
	■ The name assigned by SDA.
	■ The default cursor keyword is assigned to the action code field.
*LITER - Literal fields	Literals are added by placing apostrophes around the text on the screen and pressing Enter. (For example, 'V928011').

18.5 Updating or Adding Fields through SDA

Field	Explanation
* - Field Definition Window	Allows you to update existing fields and add new fields without using the Pick List feature. Place the * one space to the left of the first character of the requested field to display the Field Definition window.
	■ To add a field, place an asterisk (*) on the SDA design area where you want to add the field.
	■ To update a field, place an asterisk in the attribute character (first position to the left) of the field you want to update.
	You can pull in the screen field, the Row Description/ Column Headings (VTX), and a 30 character description field (VC0) all at the same time by making special entries in the Field Name field on the window (*BOTH or *ALL).
& - Field Selection Window	Allows you to add new fields using the Pick List feature
	Causes the Field Selection window to display.
	To place a field on the screen from your Pick List, place an ampersand (&) on the SDA design area where you want to place the first character of the field.
	Allows you to pull in one or all of the following at the same time:
	■ The Row Description/Column Headings (VTX)
	■ The screen field
	■ A description field (VC0)

18.6 Working with Screen Design Aid

To work with Screen Design Aid you must have access to the source file.

To work with Screen Design Aid

1. Inquire on a screen in SVR.

2. Copy the production source code down to a development environment using selection 3.

3. Choose option 10 to access the appropriate Design Aid screen based on the member's Function Code value.

Figure 18–1   Item Search screen
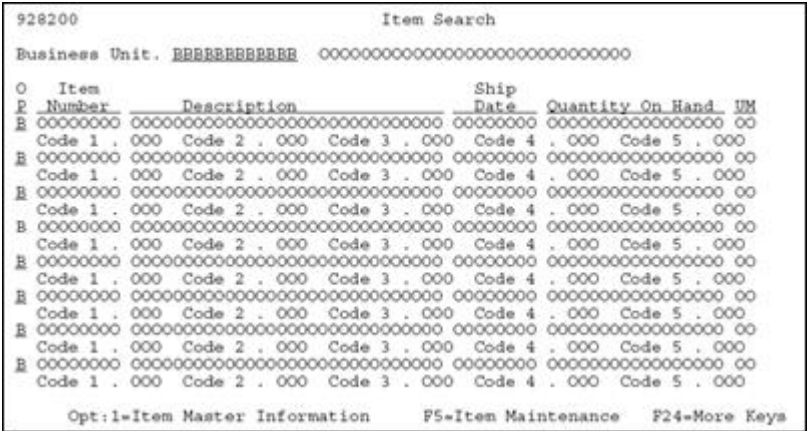
18.7 Function Key Exits

F12 - Return to Previous Panel

F12 - Exits you out of the current screen or utility and returns to the screen you were on previously.

Use F12 instead of F3; however, if you are calling another program outside of SDA (for example: F13, F24), you must use F3 to return to SDA.

18.8 Updating an Existing Field

To update an existing field

Place an asterisk (*) in front of the field (in the attribute character). This will bring up the Field Definition window.

Figure 18–2   Field Definition portion of the Item Search screen

```
 928200                         Item Search

*Business Unit . BBBBBBBBBBBB   OOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 O   Item                              Ship
 P  Number       Description           Date   Quantity On Hand  UM
 B  00000000 OOOOOOOOOOOOOOOOOOOOOOOOOO 00000000 0000000000000000 00
    Code 1 . 000  Code 2 . 000  Code 3 . 000  Code 4 . 000  Code 5 . 000
 B  00000000 OOOOOOOOOOOOOOOOOOOOOOOOOO 00000000 0000000000000000 00
    Code 1 . 000  Code 2 . 000  Code 3 . 000  Code 4 . 000  Code 5 . 000
 B  00000000 OOOOOOOOOOOOOOOOOOOOOOOOOO 00000000 0000000000000000 00
    Code 1 . 000  Code 2 . 000  Code 3 . 000  Code 4 . 000  Code 5 . 000
 B  00000000 OOOOOOOOOOOOOOOOOOOOOOOOOO 00000000 0000000000000000 00
    Screen: V928200---------------Field-Definition-------------Format:-V928200C-
    Dict Name   XCC      Text      Business Unit. . . . . . . . . . . . .
    Data Type   A        Field Name  VTX004                    Cond Ind
    Row/Column   3    2  Field Use   O              RI  _ ___ ___ ___
    Size        14  __   Text Form  R               HI  _ ___ ___ ___
    Dft Cursor  _        Edited      _              UL  _ ___ ___ ___
    Lower Case  _        Change      _ __           ND  _ ___ ___ ___
    OVRDTA      _        Duplicate   _ __           BL  _ ___ ___ ___
    OVRATR      _        Field Cond  _ ___  ___ ___ PR  _ ___ ___ ___
                                                    PC  _ ___ ___ ___
    --F3=Exit--F12=Prev-Screen--F17=Dictionary-------------------------------
```

Field	Explanation
Dict Name	Identifies the four-byte data item name from the Data Dictionary.
	This is the only required field for most data items, the rest will default.
Text	Describes the Dictionary Name.
	VTX fields contain the soft coded description from the Data Dictionary that updates F9220 (Vocabulary Overrides).
Data Type	S – Numeric data items.
	A – Alphanumeric.
	Blank – (w/decimal position blank in Size field)defaults to A.
	Blank– (w/decimal position defined in Size field) defaults to an S.
	All – JD Edwards World fields are defined as A.
Field Name	Identifies a screen field name.
	■ *VTX (VTX001-VTX200) automatically assigns next available.
	■ *VC0 (VC0001-VC0200) automatically assigns next available.
	■ *LITER literal fields.
	■ *BOTH or *ALL to bring in screen (VD), VC0, and/or VTX fields.
Row/Column	Two 3-digit fields that define the row and column location of field.
Field Use	How the data is to be used on the screen.
	I – Input only
	O – Output only
	B – Both input and output
	H – Hidden field
	M – IBM Message field

Field	Explanation
Size	Two fields identify the length of the data item and for numeric fields, the decimal places. ■ If left blank, automatically fills.
Text Form	For VTX fields, identifies the field from the Data Dictionary that is used for headings. R – Row Description. C – Column Heading 1. D – Column Heading 2.
Dft Cursor	Starting cursor position on a data entry screen, Y or N.
Edited	Should the field be checked for error conditions, Y or N. ■ Will assign an indicator for error handling and default Condition Indicator information. ■ Assigns error indicators 40-79. ■ Key fields, K. Assigns indicator 41.
Lower Case	To allow lowercase, Y or N.
Change	CHANGE keyword is in effect, Y or N. The indicator will be set on whenever the value in this field is changed.
OVERDTA	OVRDTA keyword is in effect, Y or N. Used with PUTOVR to override data that is in a field already on the screen.

Note: You should edit all input capable fields. (There will be a "Y" or "K" in the "Edited" field).

Field	Explanation
Duplicate	Duplicate the data. Only valid for a SFL format. Puts the DUP keyword in the screen/report DDS but the Program Generator does not generate any code to enable this.
OVRATR	OVRATR keyword is in effect, Y or N. Used with PUTOVR to override display attributes of a field on the screen.
Field Cond	Field Conditioning Indicators. Determines if the user can see the field or not.
Condition Indicators	To set a condition indicator on a field, enter a Y in the first blank to the right of the desired condition. You have the option of entering up to 3 indicators to be associated with the condition. Three spaces are provided to allow an N prior to the two digit indicator to create a negative condition. The allowed conditions are: RI – Reverse Image HI – Highlight UL – Underline ND – Nondisplay BL – Blink PR – Protect PC – Place Cursor A blank or N will deactivate the condition.

Field	Explanation
Color	F8 toggles to display the color attributes for the field. The first blank to the right of each color controls the order that multiple colors will appear in the DDS (1-7). If multiple colors are defined, the first enabled color displays and the remaining colors are ignored. A blank or N disables the color. The color values default based on whether you selected JD Edwards World or SAA colors in QJDF.

18.9 Accessing Fast Path Create for a New Screen

When you design the format for a new screen, you have the option to use Fast Path Create.

To access Fast Path Create for a new screen

1. Locate your screen and enter selection 10.

If SDA cannot find the existing DDS for your screen, the Create New Screen displays:

Figure 18–3   Create New Screen

Field	Explanation
Screen and Text Description	Taken from the SVR entry for this member.
Fast Path Create	Automatically create record formats, fields, file, and record level parameters.
Action Code	Automatically create an Action Code field.
Window	Screen is a window.
Wide Screen	Screen is in wide format (132 columns by 27 rows) or normal format (80 columns by 24 rows).
Subfile	Create subfile format.
Subfile Fold	Create a fold area in the subfile using SFLDROP and SFLFOLD keywords.
Subfile Clear	Use SFLCLR (Y) OR SFLINZ (N).
Selection Exits	Create selection exits to allow the user to exit the program using selection codes.

Field	Explanation
PUTOVR	The screen record format uses the PUTOVR keyword. Causes the screen to be erased and redisplayed when a window is displayed.
OVERLAY	The screen record format uses the OVERLAY keyword. Will not erase and redisplay screen when a window is displayed. Most JD Edwards World screens use OVERLAY.

2. Press Enter and SDA begins the creation of your screen based on what you specified.

Figure 18–4   Example - Screen with Action Code and No Subfile
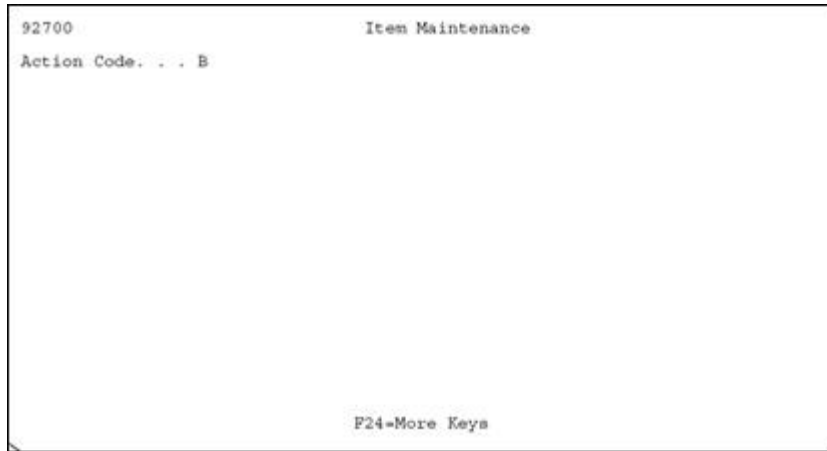
Example - Screen with Action Code and Subfile

Figure 18–5   Item Maintenance screen
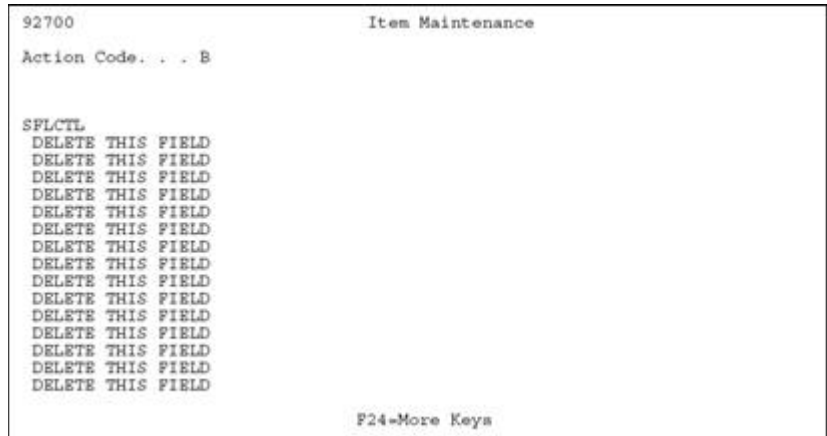
Figure 18–6   Example - Screen with Action Code, Subfile, and Selection Exits

18.10 Adding Fields without Using a Pick List

To add a Screen Text Field (VTX)

1. Place an asterisk (*) on the SDA design area where you want to place the screen text field.

Figure 18–7   Item Master Information screen
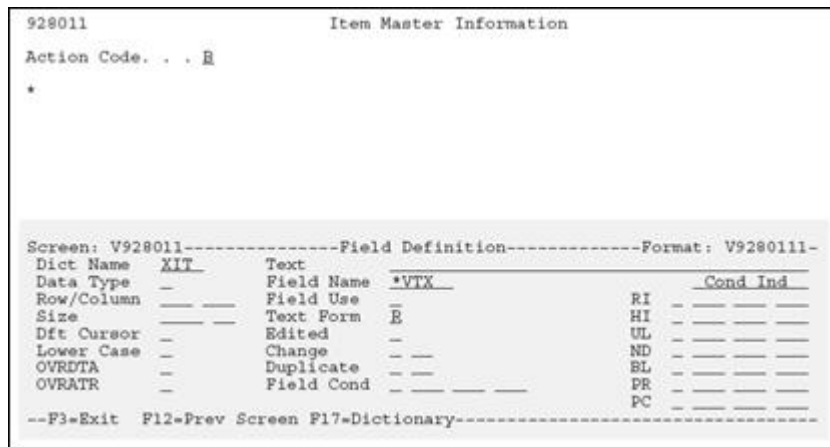
2. When the Field Definition window displays, do the following:

    ■   In the Dict Name field, enter the Data Dictionary item name.

    ■   In the Field Name field, specify *VTX.

    The system assigns the next available VTX number.

3. Enter a value in the Text Form field to indicate whether the row description or a column heading from the Data Dictionary should be used as the text.

    ■   R - Row Description.

    ■   C - Column Heading 1.

    ■   D - Column Heading 2.

> **Note:** Text defaults from the Data Dictionary based upon the Text Form value. The default value is R for non-subfile formats.

---

4. Enter a value in the Size field only if you want to override the default length of 16 for the Row Description that will be brought in.

> **Note:** You should start your fields in column two (unless selection exits exist). This allows you to place an asterisk to the left of the first field in column one.

To add a Database Screen Field (VD)

1. Place an * on the SDA design area where you want the field to be placed.

Figure 18–8   Item Master Information screen
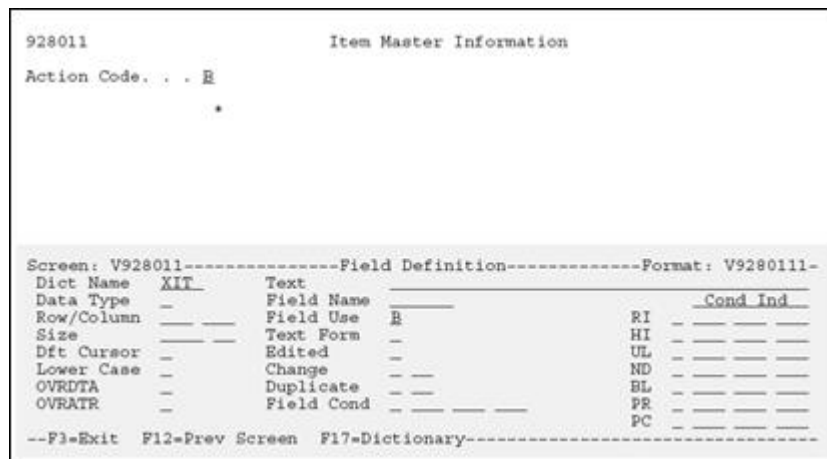
2. On the Field Definition window, enter the Data Dictionary item name in the Dict Name field.

3. Specify a field use:

   ■ The default for field use is O for output.

   ■ Editing indicators are not assigned for output fields.

4. The Data Type, Size, and Text default from the Data Dictionary.

To add a Screen Constant Field (VC0)

1. Place an * on the SDA design area where you want to place the description or constant field.

Figure 18–9   Item Master Information screen
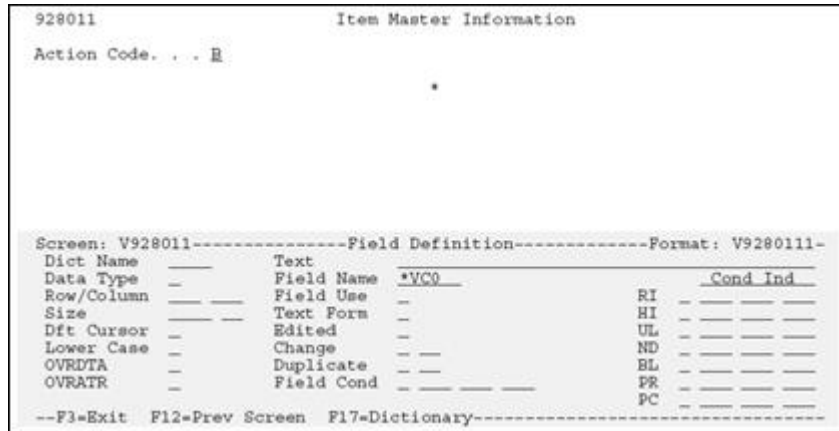
The Field Definition window displays .

2. On the Field Definition window, specify *VCO in the Field Name field.

   The system assigns the next available VC0 number.

3. To override the default length of 30, enter a value in the size field.

18.11 Adding a Literal Field

JD Edwards World standard is that the only literal on a screen is the program ID in the top left corner.

To add a literal field

Figure 18–10   Blank Item Master Information screen

1. Enter the literal text in the SDA Design area.

2. Enclose the text within single quotes.

3. Press Enter.

18.12 Using the *BOTH and *ALL Features

The Field Definition window allows you to enter some special keywords in the Field Name field. Two of these special keywords are *BOTH and *ALL.

This feature provides for placement of multiple fields with a single entry.

18.12.1 Using *BOTH

If you use the keyword *BOTH with a valid data dictionary item, screen design will place a VTX field and a screen (VD) field on the screen.

To use *BOTH

On Field Definition

Figure 18–11   Item Master Information screen

Type "*BOTH" in the Field Name

When you enter *BOTH, the following screen displays in the SDA design area for the Unit of Measure field:

Figure 18–12   Item Master Information screen

18.12.2 Using *ALL

If you use the keyword *ALL with a valid Data Dictionary item, screen design places a VTX field, a screen (VD) field, and a VC0 field on the screen.

To use *ALL

On the Field Definition window

Figure 18–13   Field Definition portion of the Item Master Information screen

Type "*ALL" in the Field Name.

When you enter *ALL, the following screen displays in the SDA design area for the Unit of Measure field:

Figure 18–14   Unit of Measure Field on the Item Master Information screen

Field Default Values

The following are field defaults in SDA:

Field	Explanation
VD - Screen Display field	■ Output only
	You can enter a B in the Field Use field to override the default and change it to both input and output.
	■ No Editing
	If you enter B in the Field Use field, the Edited field defaults to Y. The Condition Indicators default to Y and the next available editing indicator is assigned to that field.
VTX - Screen Text field	■ 16 bytes long
	■ Defaults to Row description rather than column description
VC0 - Screen Constant field	■ 30 bytes long

18.12.3 Understanding the SDA Exit/Save Function Key

F3 - Design Aid Exit/Save

F3 - Saves, exits, or does both from Screen Design Aid.

Figure 18–15   Design Aid Exit/Save screen


```
92590                    Design Aid Exit/Save


   Save DDS (Y/N) . . .  N

   Member ID. . . . . .  V928200
   File ID. . . . . . .  JDESRC
   Src Library. . . . .  STB301SRC

   Description. . . . .  Item Search
   Function Code. . . .  DSPF

   Return to Edit (Y/N)  N





                          F12=Previous
```

Field	Explanation
Save DDS (Y/N)	Saves the DDS and updates or creates Vocabulary Overrides and Function Key definitions.
Member ID	The record of the Software Versions Repository member to be copied.
	Screen-specific information
	Name of the screen.
File ID	Identifies the file that will contain the source code.
Src Library	Identifies the library where the source code resides.
Description	The description of a record in the Software Versions Repository file. The member description is consistent with the base member description.
Function Code	Should be DSPF for a Screen.

Field	Explanation
Return to Edit (Y/N)	EOJ or allows return to SDA.

18.13 Compiling Your Screen

To compile your screen

From the Software Versions Repository screen

Figure 18–16 Software Versions Repository screen

Enter 14 next to the member in the subfile to create.

18.14 Screen Design Standards and Tips

18.14.1 Title

A screen title is limited to 30 characters and should match the Software Versions Repository (F9801). The title you enter in SDA updates the vocabulary overrides record for the screen. If you access the screen using a menu selection, the menu selection name overrides the screen title. If you access the screen using a selection option or function key, the vocabulary overrides title is used.

18.14.2 Line 24

You should document function keys on the right side of line 24 and you should document options on the left side. The following guidelines should also be followed:

- List both the options and function keys in numeric order.

- F24 should always appear and should say MORE KEYS or MORE.

- F4 should always read MORE DETAIL or DETAIL.

- Do not include standard exits of F3, F7, F22, Help, Rollup, Rolldown.

- Line 24 should be in reverse image during an error condition. Line 24 is conditioned to appear in reverse image on screens based on indicator 93.

- If you specify *SAME for the field "Error Text" for Line 24 in vocabulary overrides, then the text displayed is the same as the text specified for the normal Line 24.

18.14.3 Windows

Within a window, line 24 should include F3 and F24 when the window is initially displayed. When designing windows in SDA, fill in unused line space with literal fields to prevent data on the calling screen from showing through on the window. You can add the literal fields on the SDA screen as blanks with a single quote on each end or through the Field Definition window.

Figure 18–17   Unused Line Space

18.14.4 Default Cursor

You set the default cursor attribute to Action Code for the input field closest to the upper-left corner of the screen.

18.14.5 Fold Area

Keep the number of Fold Area lines to no more than two lines to avoid excessive use of the cursor keys when the Fold Area is open.

18.14.6 Description Fields

Define all description input fields to allow for uppercase and lowercase letters DDS keyword CHECK(LC). Use VC0 descriptions when a field's value has no obvious meaning and you can retrieve a description from a master file or user defined codes.

18.14.7 Alpha Fields

Because of the dynamic nature of international currency, you must define every field as alpha. The only exception is that you can define hidden fields as numeric. JD Edwards World scrubbing routines handle the two-way conversion between numeric data in the file and formatted alpha screen fields.

18.14.8 General Aesthetics

The following are things you might want to consider when designing screens. They are guidelines that will give your screens a more professional look.

Alignment

Line up fields vertically. This includes row descriptions, input fields, and description fields. Fields on the left side of the screen should be in column space 2 (column 1 is needed for the attribute byte).

Figure 18–18   Lining Up Fields Vertically

Grouping Fields

When entering a descriptive heading to group related fields, use up to 40 characters for the description (or as long as space permits). Highlight the heading and end it with a colon. Underneath the heading, indent the group of fields one space to the right.

Figure 18–19   An Example of Grouped Fields

Spacing

Use the following as your standards when spacing different screen elements:

Figure 18–20   Standards for Spacing Screen Elements

- Separate column headings with one space.

Figure 18–21   An Example of Separating Columns

```
Dependent or Beneficiary . _
Relationship . . . . . . . _
Dep/Ben Type . . . . . . . __
Percent Allocated. . . . . _____
```

- End row descriptions with at least one period followed by a single space before you begin associated input fields.

Figure 18–22   Ending Row Descriptions

```
08335                    Benefits  by Employee        Year . . . . 90
                                                       Type of Year C
                                                       Dates:
Employee . .      6001      Allen, Raymond             Birth. . . . 10/20/58
Soc Sec No . 798-52-5841                               Orig. Hire . 12/15/88
Benefit Grp.                                           Started. . . 12/15/88
Business Unit              9 An Energy Deleted Interes Terminated .

O                                          . . Effective. .    . Contributions .
P            Plan Name                     From    Through    Employee   Employer
_  Dependent Care Reimb. Account
     Plan ID: DEPCARE    Provider/Trustee: Edwards, J. D.
_  Life Insurance                          01/01/90  12/31/90
     Plan ID: LIFE       Provider/Trustee: State Mutual Insurance Company
```

- Indent Fold Area fields one or more spaces to offset them from regular subfile.

Figure 18–23   Indenting Fold Areas

```
O                                          . . Effective. .    . Contributions .
P            Plan Name                     From    Through    Employee   Employer
_  Dependent Care Reimb. Account
     Plan ID: DEPCARE    Provider/Trustee: Edwards, J. D.
_  Life Insurance                          01/01/90  12/31/90
     Plan ID: LIFE       Provider/Trustee: State Mutual Insurance Company
```

- Use two or more spaces to separate Fold Area data fields from row descriptions that follow on the same line. End Fold Area row descriptions with a colon instead of periods to aid legibility.

Figure 18–24   Ending Fold Area Row Descriptions

```
Benefit Grp.                               Started. . .
Business Unit                              Terminated .

O                                          . . Effective. .    . Contributions .
P             Plan Name                    From    Through    Employee   Employer
```

- Insert a blank line between header and subfile information.

Figure 18–25   Separating the Header and Subfile Rows

```
069116                    Pay Type Specifications

Action Code. . . . . _
```
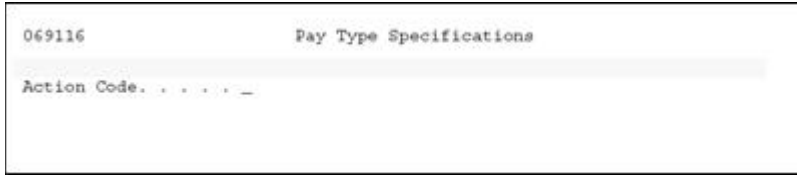
- When possible, insert a blank line between the title and first field. Begin fields on line 3 unless you need to use the upper right corner of line 1 and 2.

18.15 Adding Screen Fields Using Pick List

To add screen fields

From the SDA screen:

1. Access the Records Formats List using the F10 key.

2. Complete the Record Formats List screen.

3. Press F10 to display the Record Formats List.

Figure 18–26   Record Formats List screen

```
92520                     Record Formats List
Screen: V928200

                              Start
                   Fast Path  / End    Related     # Fields   Fld
Opt  Format Name   Type  File  Lines   Record      Selected   Pfx

 1   V928200C   SFLCTL  F92801  001 006  V928200S      000     VD
 _   V928200S   SFL            007 022                 000     SF
 _   V9282001   RECORD         024 024                 000     VD
 _
 _
 _
 _
 _
 _
 _
 _
 _
 _
 _
 _

Opt: 1-DB Field Selection  3-Field List  4-Delete  5-Format Keywords
```
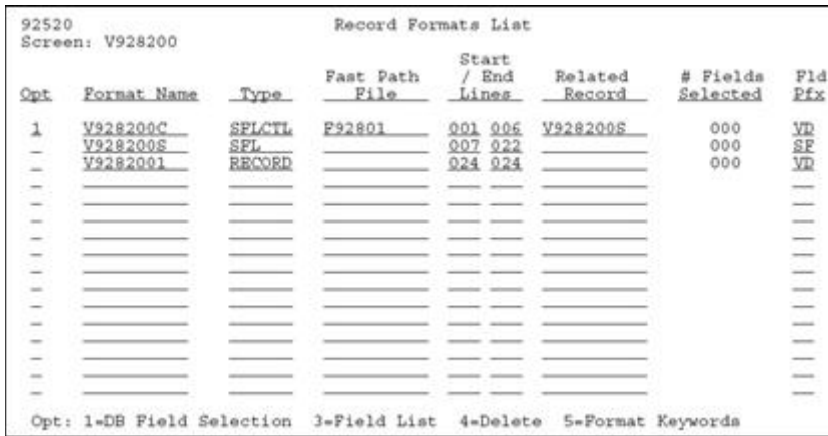
Use this screen to select database fields and maintain record formats, record types, fast path files, and record format keywords.

Field	Explanation
Opt	Enter the appropriate number to indicate you want to select one of the following values:
	- File/field pick list for ampersand functions.
	- File/field pick list for fast path functions.
	- List of defined fields in the format.
	- Delete format.
	- Record format keywords.

Field	Explanation
Format Name	Screen record format.
	The format name will be the screen ID followed by a specific suffix value. Typically, the suffix values are:
	■ subfile control format
	■ subfile format
	■ record format
	If additional formats are required, each format name must be unique so new format suffix values must be assigned.
Type	Record format type. See types listed below.
Fast Path File	The database file you want to select fields from.
Start/End Lines	Specifies the line number range of the format.
Related Record	Field that ties a subfile to a control record format. Required in all SFLCTL record formats.
# Fields Selected	The number of database fields that have been selected for use on the format.
Fld Pfx	Screen field prefix to be used for the screen fields: VD, SF.

18.15.1 About Record Formats

Several Record Format Types are valid for screens. Currently, they include:

■ SFLCTL - Subfile control

Figure 18–27   Subfile Control Record Type
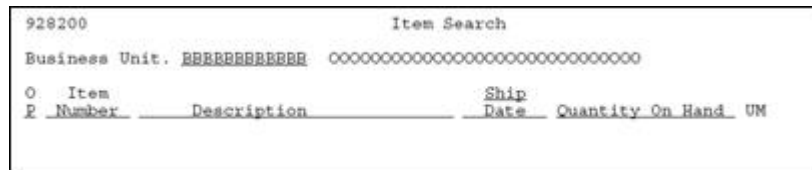
Present in all subfile screens. Contains all of the fields in the header or top portion of the screen, including the subfile column headings.

■ SFL - Subfile

Figure 18–28   Subfile Record Type
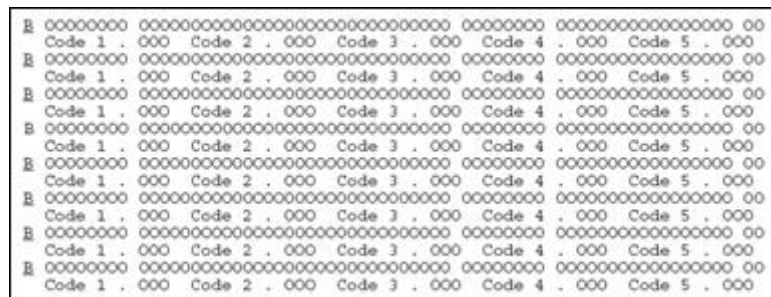
Contains all the fields in the subfile portion of the screen, including the fold area (if applicable).

■ RECORD

Present in all screens. In subfile screens, contains VDL24 (line 24 text). In non-subfile screens, can contain all fields on the screen, including VDL24.

- SFLMSG - Subfile Message

  Displays error message text. JD Edwards World does not use this format because errors are handled through RPG programs.

18.16 Selecting Database Fields

There are two methods of selecting database fields for placement on the screen:

- With Fast Path
- With the File Selection List

Method	Description
Fast Path	Type 1 next to the format on which you want to place the fields and enter a file name under the Fast Path File column.
File Selection List	Type 1 next to the format on which you want to place the fields but do not enter a file name.
	Accesses a file selection screen where you can specify multiple files and libraries from which to select database fields.

To select a database field using Fast Path

1. On the Record Formats List screen, enter a Fast Path File for the specified format.

2. For database field selection, choose option 1.

Figure 18–29   Record Formats List screen

The Field Selection List displays.

Figure 18–30   Field Selection List screen

```
92524                        Field Selection List
Report: V928200                                  Format: V928200C

Seq
No   Field Name            Description            DT   Size  HDG  D  Use
____  QXXIT  K01  Item ID. . . . . . . . . . . . . S    8   0   _   _  _
____  QXXDS       Description  . . . . . . . . . . A   30       _   _  _
____  QXXTY       Item Type. . . . . . . . . . . . A    2       _   _  _
____  QXXDT       Date Last Ship . . . . . . . . . S    6   0   _   _  _
____  QXXCC       Business Unit. . . . . . . . . . A   12       _   _  _
____  QXXQT       Quantity On Hand . . . . . . . . S   15   0   _   _  _
____  QXXUM       Unit of Measure. . . . . . . . . A    2       _   _  _
____  QXX001      Item Code 001. . . . . . . . . . A    3       _   _  _
____  QXX002      Item Code 002. . . . . . . . . . A    3       _   _  _
____  QXX003      Item Code 003. . . . . . . . . . A    3       _   _  _
____  QXX004      Item Code 004. . . . . . . . . . A    3       _   _  _
____  QXX005      Item Code 005. . . . . . . . . . A    3       _   _  _




        F3=Exit    F12=Prev Screen    F21=Select All
```

3. Press F21 to select all the fields for the file instead of selecting them individually.

Based on the record format for which you are using the Field Selection List, the following information is the default:

- For a subfile control record format, the HDG field will default to R for the type of heading and the Use field will default to B for input/output.

- For a subfile record format, the HDG field will default to D for the type of heading and the Use field will default to B for input/output.

- For a non-subfile screen, the HDG field will default to R for the type of heading and the Use field will default to B for input/output.

- For a report, the HDG field will default to D for the type of heading and the Use field will default to O for output.

Field	Explanation
Seq No	Sequence Number to indicate which data items you want on the screen you are creating and what order you want them to be displayed in the Pick List window accessed from SDA.
Field Name	The name given to a field for a screen, report, or database table. If the field is a key field in the file, K01, K02, etc will be displayed.
Description	The Data Dictionary row description.
Data Item Type	The type of data. The data item types are defined in User Defined Codes, system code '98', record type 'DT'.
Data Item Size	The field size of the data item. **Note:** All amount fields should be entered as 15 bytes, 0 decimals, and the data item type should be P (packed).
HDG	Which heading to use from the Data Dictionary. ■ Row Description (R) ■ Column 1 heading (C) ■ Column 1 and 2 heading (D)
D	Used to indicate whether a 30 character VC field should be included for constant information.

Field	Explanation
Use	Specifies how the data field is to be used on the screen:

- Input only (I).
- Output only (O) (default).
- Both input and output (B).
- IBM Message field (M).
- Subfile Hidden (H).

To select database fields using the File Selection List

From the Record Formats List screen:

1. Choose option "1" but do not specify a file.

Figure 18–31 Record Formats List screen

The File Selection List displays.

Figure 18–32 Field Selection List screen

2. Enter the files from which you want to select fields.

Fields for files requested will be displayed through the Field Selection List screen.

Figure 18–33   Field Selection List screen

3. Select fields using the same techniques as in the Fast Path method.

Note: If you select a key field, that field is edited as the key of the
screen. An edit indicator of 41 is assigned.

18.17 Placing Fields on a Screen Using a Pick List

To place fields on a screen using a Pick List

On the Item Master Information screen

Figure 18–34   Item Master Information screen

1. Type either one or more ampersands (&) on the SDA screen where you want to
    place the fields from the pick list you created.

    If you place more than one &, make sure that you allow room for all of the fields
    that are returned to the screen, so that you do not overlap fields.

2. On the Field Selection screen, verify the information that is on the screen (VTX
    field - HDG, 30-character description - D, and field Use - USE), as well as the order
    that they will be brought back (the sequence number), and row description length.

3. To add a Fold Area to a subfile, place an asterisk (*) or ampersand (&) on the
    second line in the subfile format of your screen. If you need a second line in the

Fold Area, you can place an asterisk (*) or ampersand (&) on the third line of the subfile format. HDG should be "R" when adding fields to the fold.

18.18 Function Key Exits from Screen Design Aid

Function	Description
F2	Access a command line to enter a JD Edwards World or IBM command without having to exit to Command Entry or a menu.
	If you are secured out of Command Entry or Menu Traveling, you still get this command line, but you cannot execute commands or menu travel.
F5	Shows the Format Display Control window.

Example F5 - Format Display Control window.

Figure 18–35   Format Display Control portion of the Item Search screen

The following table provides an explanation of the fields in the Format Display Control window.

Field	Explanation
Selection	Controls the display of record formats.
	1 – Format is displayed.
	Blank – Format is not to be displayed.
Format	Lists the DDS format names for the screen screen.
	All names begin with Screen name
	■ Subfile control formats end with C.
	■ Subfile formats end with S.
	■ Record (non-subfile) formats end with 1.
Type	Describes the format type.
Boundaries	Two 3-digit numbers that define the range (rows) for the DDS.
Window	Allows access to fields outside the boundaries.

Field	Explanation
Browse (Y/N)	Allows user to enable/disable the browse mode and view the screen as it would appear when executed. ■ Cannot change or access any item while in browse mode.

Function	Description
F4	Provides the following: ■ Toggle between displaying the Fold Area or not for a subfile screen. ■ Must set Browse (Y) in Format Display Control Window (F5).
F6	This screen provides access to other repository services within JD Edwards World.
F8	Provides the following: ■ Will display your screen in monochrome or color. ■ If accessing the Field Definition window, will toggle between Condition Indicators and Color Attributes.
F10	Displays the Format Keyword Maintenance screen.

Example F10 - Format Keyword Maintenance screen

Figure 18–36   Format Keyword Maintenance screen

Field	Explanation
PUTOVR (Y/N)	The screen record format uses the PUTOVR keyword. Causes the screen to be erased and redisplayed when a window is displayed.
OVERLAY (Y/N)	The screen record format uses the OVERLAY keyword. Will not erase and redisplay screen when a window is displayed. Most JD Edwards World screens use OVERLAY.
Subfile Fold	Create a fold area in the subfile using SFLDROP and SFLFOLD keywords.

Field	Explanation
Type (A/F)	Further identifies subfile fold area:
	A – Will lose modified data in the subfile when you press F4.
	F – Data is retained.
Subfile Clear	This option specifies if you want to use SFLCLR or SFLINZ. The default is SFLCLR. This option is ignored when designing non-subfile screens.
	Y – means you want SFLCLR
	N – will give you SFLINZ
Subfile Next Change	Whether or not to use SFLNXTCHG (Y/N). Will require the user to correct any errors in the subfile before further execution of the program.
Subfile Page	Identifies the number of records on one subfile page, with the fold area open, if applicable.
	■ 1 to 27 inclusive (Number of lines in SFL area divided by number of lines in fold.)
Subfile Size	Identifies the total number of records in the subfile that will be loaded in one program cycle.
	■ 1 to 9999 inclusive

Function	Description
F13	Displays the Function Key/Opt Definition screen.
	■ Used to define the function keys for the screen.
	■ Function Key Definition files (F9601 and F9611.

Example F13 Function Key/Opt Definition screen

Figure 18–37   Function Key/Opt Definition screen

Field	Explanation
Action Code	One character field used to indicate the action that the user wants to take on the record requested.
	Inquire on a record before you attempt to change it.

Field	Explanation
Screen Screen	The name of the screen or report record to be copied. All records for soft coding will be displayed.
Screen Title	The vocabulary overrides title used on screens and reports. On screens, the title is retrieved from the Menu file. If a record is not found, then the title is retrieved from the Vocabulary Overrides file. Report titles are retrieved from the DREAM Writer Version ID (F98301).
Include	Whether or not to include the function or option key on the screen.
Description	Describes the function or option exit.
	Cannot exceed 40 characters.
Key/Opt	Identifies the function key number or option.
	Special values:
	■ Helps.
	■ Roll Up.
	■ Roll Down.
Field	Identifies the name of the function or option exit.
	Values always begin with a # (pound sign).

Function	Description
F14	Displays the Indicator Control portion of a simulated program execution screen.
	■ Used with the Browse mode to simulate a screen at program execution.
	■ Desired indicators can be set on/off to test field conditioning.

Figure 18–38   Example F14 - Indicator Control Portion of a Simulated Program Execution screen

Function	Description
F16	Displays the List of Defined Fields screen.
	■ Used to maintain the defined fields and add hidden fields.
	■ Only shows fields for the formats that are active.

Figure 18–39   Example F16 - List of Defined Fields screen

```
 92540                  List of Defined Fields
  Screen: V92801


Opt  Fmt/Field           Description            Row/Col Typ   Size    Use
 _   VTX007               Item                   006 013  A     30      O
 _   VTX009            Quantity                  006 044  A     21      O
 _   VTX011        Ship                          006 066  A      8      O
 _   VTX003      P                               007 002  A      1      O
 _   VTX006      Number                          007 004  A      8      O
 _   VTX008              Description             007 013  A     30      O
 _   VTX010         On Hand                       007 044  A     21      O
 _   VTX012        Date                          007 066  A      8      O
     V92801S    Record Format          SFL
 _   SHXIT      Item ID - Hidden Field            000 000  A      8      H
 _   SPSELC     Selection Exits                   008 002  A      1      B
 _   SPXIT      Item ID. . . . . . . . . . . .    008 004  A      8      B
 _   SPXDS      Description  . . . . . . . . . .   008 013  A     30      B
 _   SPXQT      Quantity On Hand . . . . . . .     008 044  A     21      B


  Opt: 4=Delete    5=Display/Update    F3=Exit    F12=Prev Screen
```

18.18.1 Hidden Fields

Used to store hidden field information.

To add a hidden field to a screen

1. Roll to the bottom blank line of the format that contains the field.

2. Choose option 5, Display/Update.

3. Enter the field with a prefix of SH, description, type, size, and press Enter.

    This information should be the same as the associated database field.

Option 5 - Select Field Definition

Figure 18–40   Option 5 - Select Field Definition screen

```
 928200                   Item Search

*Business Unit. BBBBBBBBBBBB   OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 O   Item                                Ship
 P  Number      Description              Date  Quantity On Hand  UM
 B  OOOOOOOO  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO  OOOOOOOO  OOOOOOOOOOOOOOOOOO OO
     Code 1 . OOO  Code 2 . OOO   Code 3 . OOO   Code 4 . OOO   Code 5 . OOO
 B  OOOOOOOO  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO  OOOOOOOO  OOOOOOOOOOOOOOOOOO OO
     Code 1 . OOO  Code 2 . OOO   Code 3 . OOO   Code 4 . OOO   Code 5 . OOO
 B  OOOOOOOO  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO  OOOOOOOO  OOOOOOOOOOOOOOOOOO OO
     Code 1 . OOO  Code 2 . OOO   Code 3 . OOO   Code 4 . OOO   Code 5 . OOO
 B  OOOOOOOO  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO  OOOOOOOO  OOOOOOOOOOOOOOOOOO OO
  Screen:V928200---------------Field-Definition------------Format:-V928200C-
   Dict Name  XCC      Text       Business Unit . . . . . . . . . . . .
   Data Type  A        Field Name VTX004                    Cond Ind
   Row/Column  3   2   Field Use  O                  RI  _ __ __ __
   Size       14  _    Text Form  R                  HI  _ __ __ __
   Dft Cursor  _       Edited     _                  UL  _ __ __ __
   Lower Case  _       Change     _ __               ND  _ __ __ __
   OVRDTA      _       Duplicate  _                  BL  _ __ __ __
   OVRATR      _       Field Cond _ __  __  __       PR  _ __ __ __
                                                     PC  _ __ __ __
   F3=Exit  F12=Prev-Screen  F17=Dictionary
```

Accesses the Field Definition screen, just as if you had entered an asterisk (*) for the field.

Function	Description
F17	Used to define soft coding (Vocabulary Override) fields.
	■ To define VTX fields other than row and column headings on the screen. This is used to create a VTX field which stores a message which the application program uses for display purposes on a screen or report.
	■ You can specify the literal text that will be loaded into a *VC0 field.
	■ You must save your screen at least once in order to be able to update vocabulary overrides and/or function key definitions by this method. This is because when you are first defining a screen, the vocabulary override record and function key definition record are not created until you save the screen.
	Note: After changing the size of a VTX field, you should execute the Rebuild Vocabulary Override Field Lengths program (11/G9642). This displays the correct VTX field lengths in the Field Size field in Vocabulary Overrides.

Figure 18–41   Example F17 - Define Soft Coding Fields screen
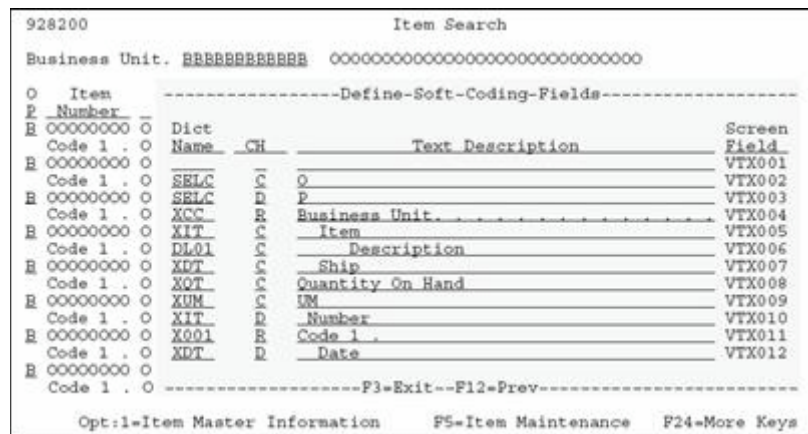
Function	Description
F19	Used to window left.
	Note: This function key is applicable only when designing wide screens (132 by 27 rows) on 80 column terminal.
F20	Used to window right.
	Note: This function key is applicable only when designing wide screens (132 by 27 rows) on 80 column terminal.

18.19 Changing Subfile Boundaries

Be careful when changing the size of a subfile through SDA. Consider using these processes to make such changes easier and less confusing.

To make a subfile smaller

1. To access the Record Formats List screen, press F10.

2. Change the starting line number for the subfile form at (VxxxxxS).

3. To return to SDA, press Enter.

4. To access the Record Formats List screen again, press F10.

5. Change the ending line number for the control format (VxxxxxC).

6. To return to SDA, press Enter.

7. Move or add headings.

To make a subfile larger

You can reverse the above steps if you want to make the subfile larger. You must move the control format fields up before changing the starting line number for the subfile format.

1. Move headings.

2. To access the Record Formats List screen, press F10.

3. Change the ending line number for the control format (VxxxxxC).

4. To return to SDA, press Enter.

5. To access the Record Formats List screen again, press F10.

6. Change the starting line number for the subfile format (VxxxxxS).

7. To return to SDA, press Enter.

8. In SDA, press F10 to alter the format.

9. Enter 5 on the control format field.

10. Change subfile page size, as needed.

> **Note:** When you change the subfile, you must change the subfile page and subfile size to correctly reflect the size of the new subfile.

18.20 Process Overview - Placing Selected Fields

Once you have established your field pick list, use the ampersand (&) to specify where you want to locate the field.

Figure 18–42   Ampersand in the Item Master Information screen

```
928011                    Item Master Information

Action Code. . . B

&
&
```
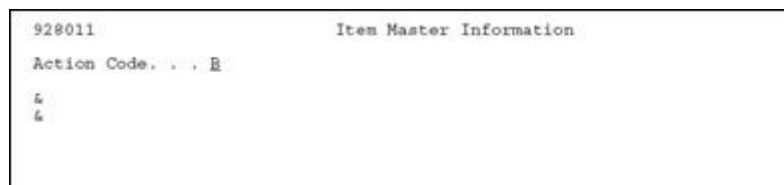
The ampersand (&) calls up the pick list in the Field Selection screen where you can order the fields and further define their specifications.

Figure 18–43   Field Selection List screen

18.20.1 Options

The following options are available:

■   Override Row Description length

■   Resequence fields in list

■   Select headings (Row, Column headings) *VTX

■   Description Field (*VC0)

■   Usage (O=Output, B=Both Input and Output)

After you have sequenced the fields, they are retrieved from the file and placed on the design area.

Figure 18–44   Design Area Showing Field Selection List

18.21 Process Overview - Revising the Field Definition

Figure 18–45   Process Flow to Revise the Field Definition
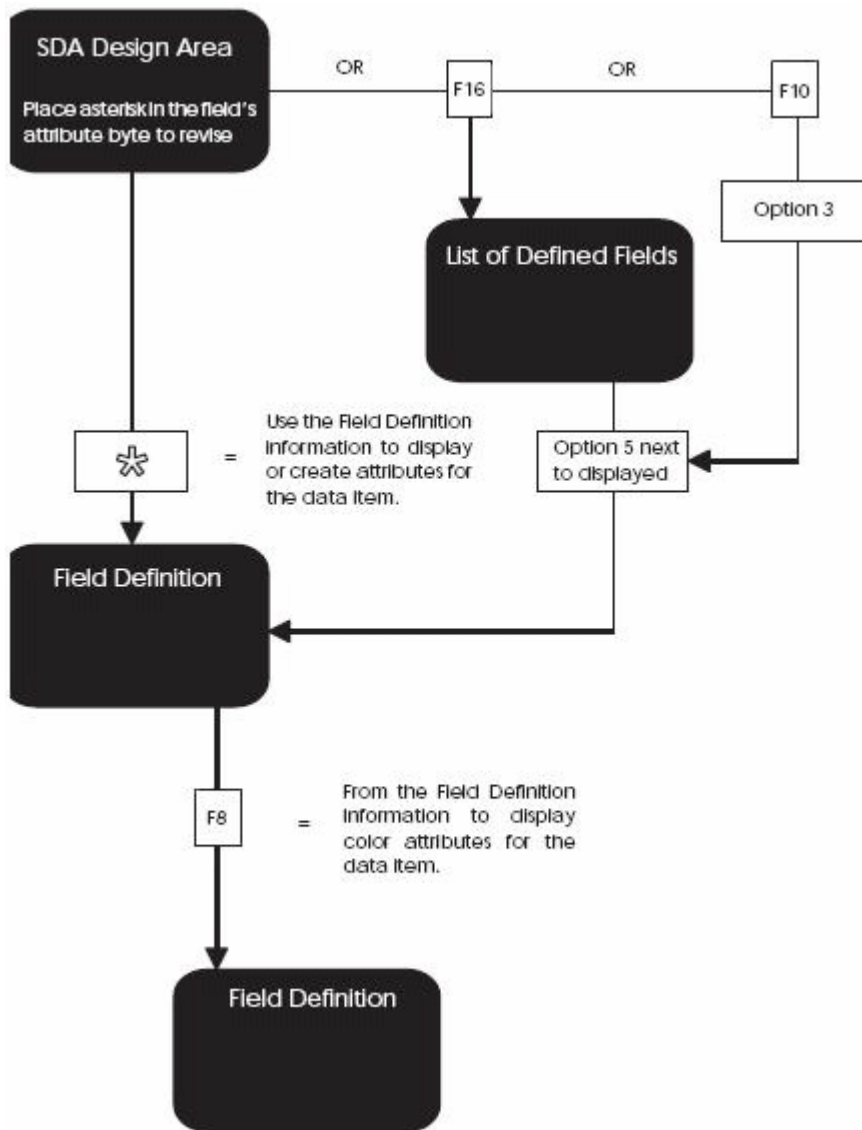
18.22 Process Overview - Revising Vocabulary and Function Keys

Figure 18–46   Process Flow to Revise the Vocabulary and Function Keys
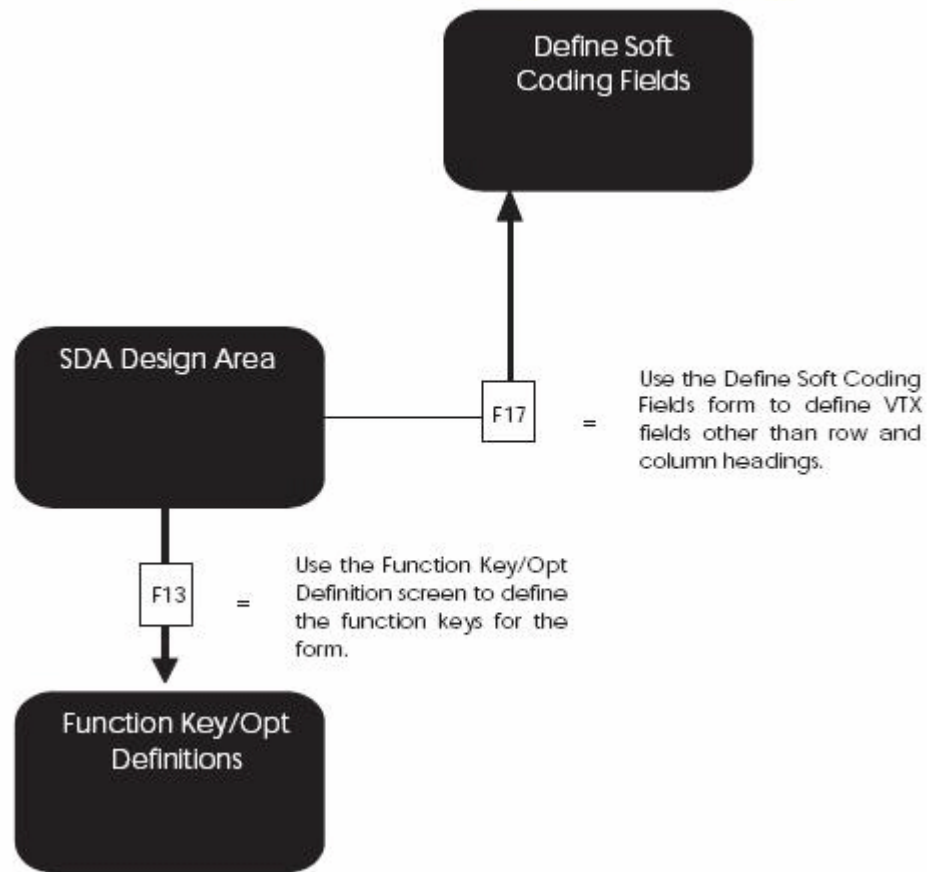
18.23 Function Keys for Screen and Display Format Control

Figure 18–47   Function Keys for Screen and Display Format Control
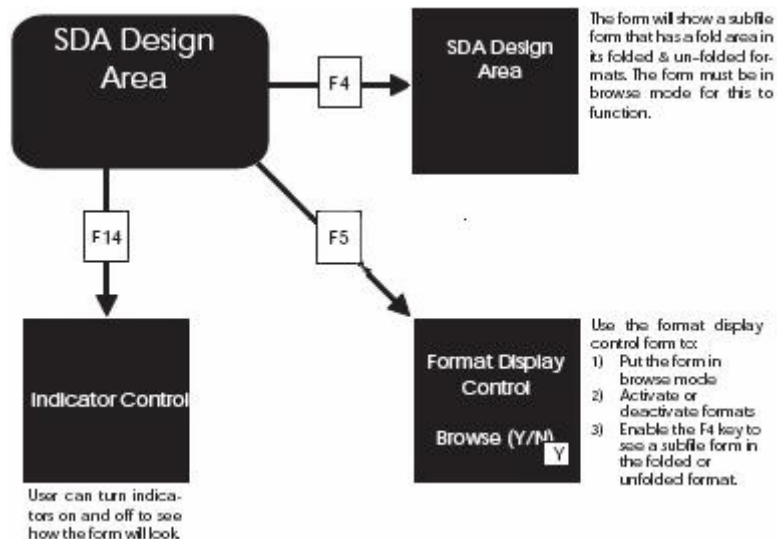
18.24 Summary of Screen Design Aid

Editing options:

- d, *DEL
- <<, >>
- 'xx...xx'
- -, =
- - -, =
- * and &

You should not use the INSERT and DELETE keys while in SDA.

F7 restores a screen if you accidentally press Field Exit.

Standard prefixes:

- VD, SF, SH

Special Fields:

- *VTX, *VC0, *LITER, *DATE, *TIME
- ACTION
- VDL24
- TTL@

Error indicators 40 to 79 are automatically assigned to VD and SF fields that are defined as input or input/output.

Update fields by using *.

You have two methods of adding fields to a screen:

- * (non-pick list method)
- & (pick list method)

You can pull in VTX, VC, and the screen database fields all at the same time for one database field.

You have two methods of selecting database fields:

- Fast Path
- Non-Fast Path - Accesses File Selection screen

If you are changing subfile boundaries, you should use the outlined processes to make this process easier.

You must save a screen at least once before updating vocabulary overrides or Function Key Definitions because the exit from SDA creates these records.

You add hidden fields from the List of Defined Fields screen, which you access by pressing F16 from SDA:

- You add hidden fields one at a time.
- You must enter a selection exit 5 to actually add the field.

19

Work with Report Design Aid

This chapter contains these topics:

19.1 About Report Design Aid

Report Design Aid (RDA) is a powerful and versatile tool for designing reports.

It uses the same process as the Screen Design Aid (SDA), except:

- It extends to column 227
- It has windowing capability

You need to identify only field names, field lengths, and field positions on the report.

JD Edwards World reports are externally defined, which means that all the Data Description Specifications are created and compiled as a printer file, separate from the program object. RDA automatically generates the DDS. It also incorporates the report information into the documentation and adds it to the cross reference facilities. You can print illustrations of each report.

RDA differs from SDA in that its parameters are targeted for print-based output, which includes page skipping, line skipping, and relative positioning.

19.1.1 Example - RDA and DREAM Writer

Figure 19–1 RDA and DREAM Writer Process Flows
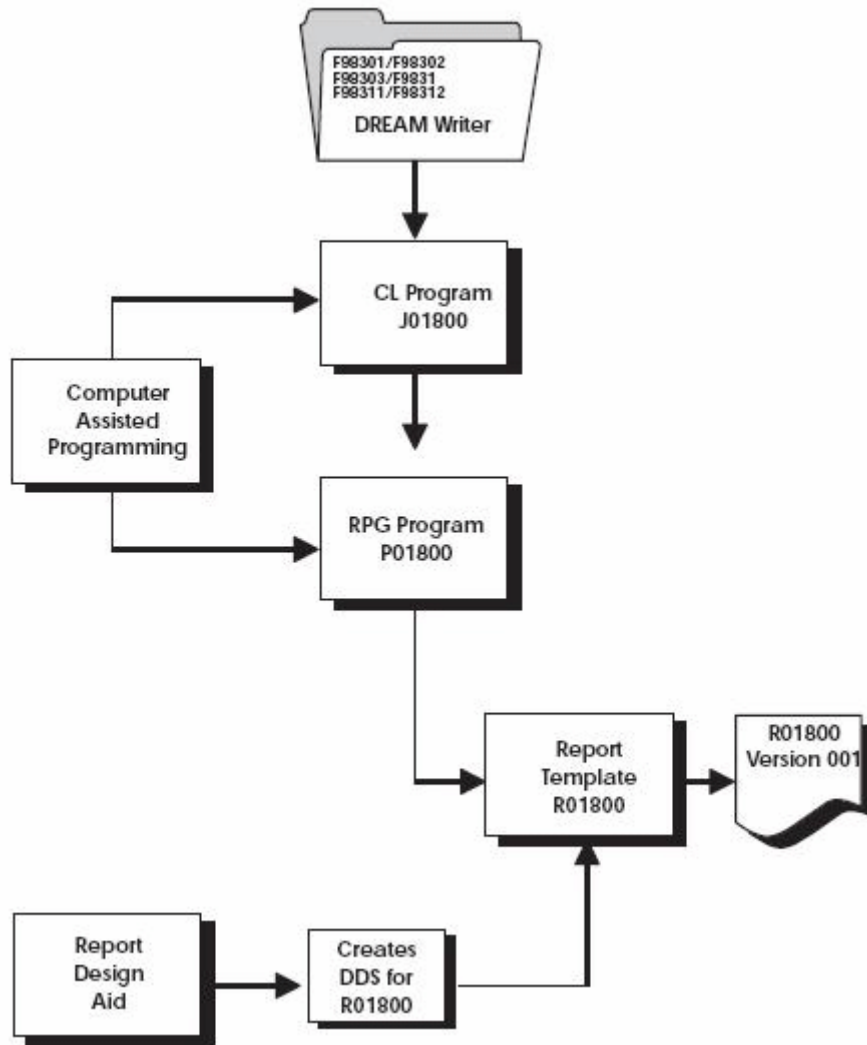
19.1.2 Comparing RDA and SDA - Field Definition Form

Figure 19–2 SDA Field Definition Form

Figure 19–3 RDA Field Definition Form

Item	FIELD POSITIONING	FIELD CONDITIONING
RDA	Row positions are relative to the other rows, not fixed. The location on the report is determined by Space and Skip designations. Column positions are fixed.	A field can optionally appear bold, underlined, and so forth. JD Edwards World does not typically use these features because they impact printer performance.
SDA	Both row and column positions are fixed. A field displays on the screen exactly where the Row and Column indicators specify.	A field can appear highlighted, underlined, in reverse image, and so forth JD Edwards World makes use of these attributes for marking fields in error.

19.1.3 Cover Page Fields

The figure below shows the fields used on the cover page of a report. These fields would indicate your company in a production environment.

Figure 19–4 Cover Page Fields
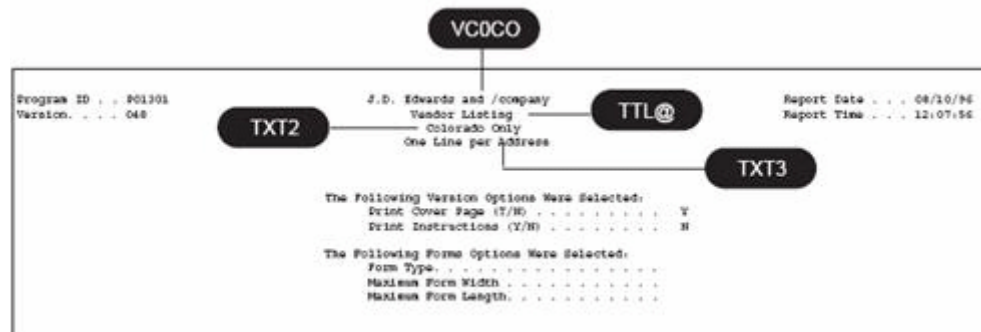
The following table provides the field names and a description of each.

Field	Explanation
VC0CO	Name of company 00000
TTL@	Line 1 of DREAM Writer Version ID if it exists, otherwise it is blank
TXT2	Line 2 of DREAM Writer Version ID, or blank
TXT3	Line 3 of DREAM Writer Version ID, or blank

19.1.4 Report Header Fields

The figure below shows the fields used on the report header. These fields would indicate your company in a production environment.

Figure 19–5   Report Header Fields
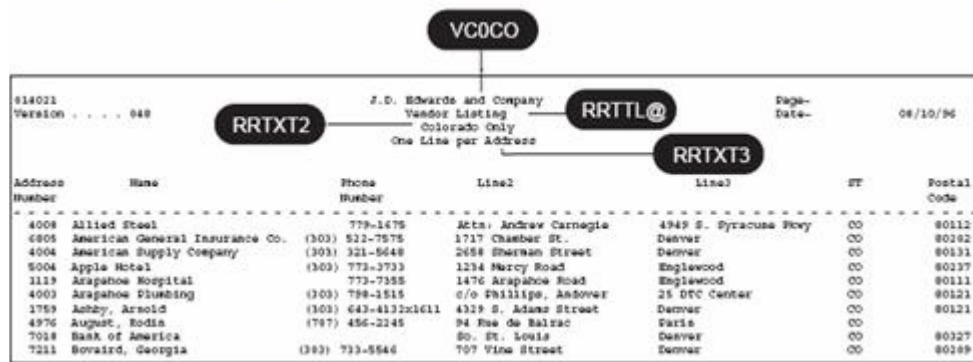
The following table provides the field names and a description of each.

Field	Explanation
VC0CO	Name of company 00000
RRTTL@	Default Title from Vocabulary Override
RRTXT2	Line 2 of DREAM Writer Version ID, or blank
RRTXT3	Line 3 of DREAM Writer Version ID, or blank

19.1.5 What Are the Report Formats?

The first step in designing a new report is determining the format of the report. You should account for all lines of information on the report to correctly define the formats needed and their size.

FORMAT	FIELD	DESCRIPTION
Any format	*VTX *VC0	Assigns the first available VTX name to the field and gets a description from the Data Dictionary that you can change. Assigns the first available VC0 field and assigns a default size of thirty.
HEADING1 - contains the standard fields to be printed on the top of every page	VTX001 *PAGE VTX002 *DATE VC0CO RRTTL@ RRTXT2 & RRTXT3	The default VTX field which prints the row description, "Page -." The default special field that inserts the DDS keyword PAGNBR in the source and retrieves the current page number on the report. The default VTX field which prints the row description, "Date -". Special field that retrieves today's date. The name of the default company 000, it displays on the first line of each page. Default Title from Vocabulary Overrides. DREAM Writer overrides that correspond to the second and third header lines of the report.

FORMAT	FIELD	DESCRIPTION
HEADING2 - contains the subheading fields used to describe the level break detail that is to follow	VC0ROW	Data Dictionary row description of the level break field.
	VC0KEY	The value of the level break field.
	VC0DSC	The description of the value of the level break field.
DETAIL1 - contains the data line fields	RRxxxx	The value of the data for these fields
TOTAL1 - contains the total line fields	VC1ROW	Data Dictionary row description of the level break field.
	VC1KEY	The value of the level break field
	VC1DSC	The description of the level break field
	$$XXX	Value on total line.

Note: You can have as many formats as you can fit on one RDA form. Just remember to increment the suffix number for each format added as well as any VC fields you may be using.

Certain fields are used in RDA when generating reports that contain subheadings or dynamic (hierarchical) totaling. The following illustrates how these fields are used within a report.

Figure 19–6   How Fields are Used Within a Report

19.1.6 What Are the Report Design Standards?

The following is a list of report design standards. Using these standards will give your reports a uniform appearance.

19.1.7 RDA Features

Some features of RDA are:

- Normal design range of 132 - 198 character reports

- Validates against the Data Dictionary

- Automatically adds records to the Vocabulary Overrides file

19.1.8 JD Edwards World Standards for Record Formats

Prefix standards:

- RR for output fields

- $$ for total fields
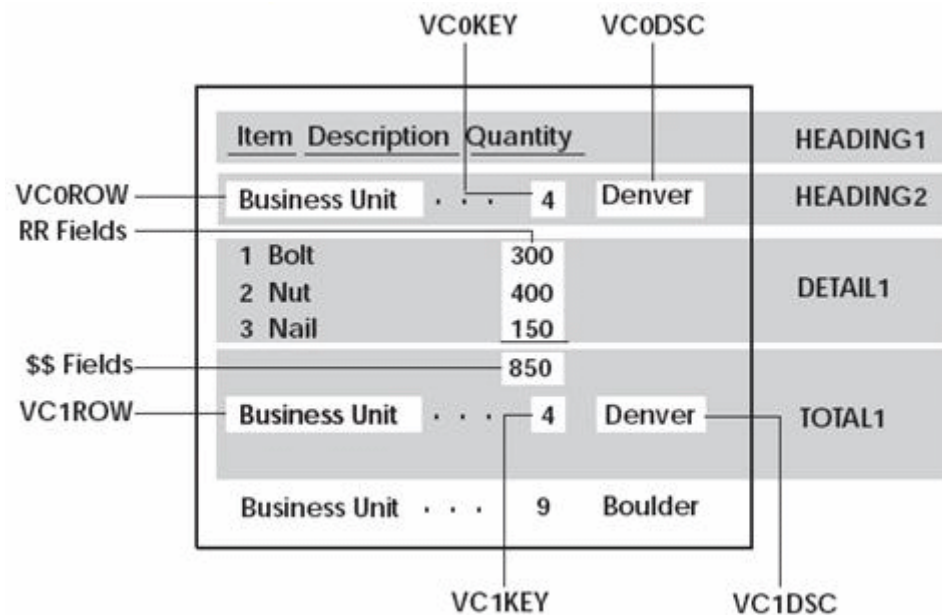
19.1.9 General Aesthetics

When possible, design your reports using the following set of rules:

Column Headings

Column headings should not be wider than the length of the data that appear below them.

Alignment

Begin fields in column space 2 and do not extend fields beyond column 132 unless necessary.

Spacing

Use the following as your guides when spacing different report elements:

- Separate column headings by one space

- Use both column headings when one heading is not clear enough

Special Effects

Some of the following recommendations can be ignored since most printers in use are not impact printers.

You should always use dashes below column headings instead of underlines. Underlines can impact the performance of printers. You enter dashes as literal fields.

Do not use highlight as it prints a line three times to achieve the highlighted (or boldface) effect, again impacting performance.

Format

To avoid overflow, limit the number of lines in any detail or total format to six or less.

Line and Page Skipping

To be consistent with other report programs, use SPACEB and SKIPB instead of SPACEA and SKIPA.

19.1.10 About Designing the Report

DDS statements are being created as you design the report.

- SPACEB and SPACEA are entered and removed as you add and move fields around.

- Multiple formats are relative to each other.

Function	What to use
Changing the Report Title	TTL@
Adding a New Field	*, &
Updating Existing Fields	*
Deleting an Existing Field	*DEL on field definition form
Format Name	Displayed in upper right hand corner of form.
Field positions	Represent starting positions.

19.2 Accessing Report Design Aid

You must have access to the source file to enter RDA.

To access Report Design Aid

From Software Versions Repository

Figure 19–7   Software Versions Repository screen

1. Inquire on a report.

2. Copy the production source code down to a development environment.

3. Choose option 10 on the Software Versions Repository form to go to the appropriate Design Aid form based on the members Function Code value.

   - To go to Report Design Aid, enter "PRTF" or "PRTS" in the Function Code field.

19.3 Updating a Field in RDA

The field definition form in RDA is slightly different from SDA.

To update a field in RDA

From Software Versions Repository, choose the design option.

1. Enter "*" in the field you wish to update.

Figure 19–8   Asterisk in the Field to be Updated
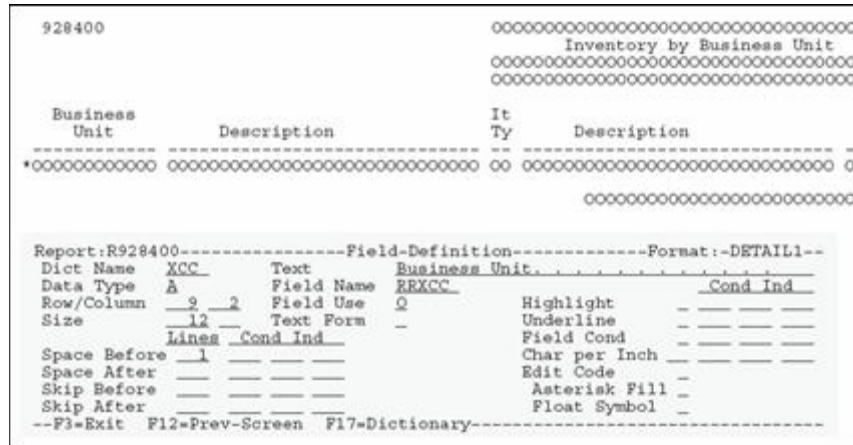
Field	Explanation
Space Before	Specifies the number of lines a printer device is to space before printing the next lines.
Space After	Specifies the number of lines a printer device is to space after printing the next lines.
Skip Before	Specifies that the printer device is to skip to a specific line number before it prints the next lines.
Skip After	Specifies that the printer device is to skip to a specific line after it prints the next lines.
Field Cond	Indicates whether the field conditioning (to print this field or not) is in effect.
Char per Inch	Specifies the horizontal printing density. JD Edwards World specifies this at the report level and this field is not used.
Edit Code	Used to specify output formatting of numeric data. Used in conjunction with *DATE, *TIME, *PAGE.
Asterisk Fill	Optionally specify asterisk fill for edit codes 1-4, A-D, and J-M. An asterisk will print for each zero suppressed in the edited field.
Float Symbol	Specify a currency symbol (corresponding to the system value QCURSYM) that will be printed immediately to the left of the left-most digit of an edited field. Valid for a numeric field that has an edit code of 1-4, A-D, or J-M.

19.3.1 Understanding the Report Design Aid Function Keys

Function Key	Description
F5	Shows the Format Display Control portion of a form.

Figure 19–9   Example F5 - Format Display Control

Field	Explanation
Sel	Selection. Controls the display of record formats.
Format	Lists the DDS format names. Valid format names are: - HEADINGn - HEADINGn+1 - DETAILn - TOTAL1
Type	Describes the DDS format type. Always REPORT or SFORMS in RDA.
Boundaries	Two 3-digit numbers that define the range (rows) for the DDS. - HEADING1 is usually rows 1 to 8 - DETAIL1 is row 9 (Only one detail line is defined.) - TOTAL1 is rows 10 to 11 (Leave one line for the dashes above the Total field.)
Window	Allows you to access fields outside the boundaries.
Browse (Y/N)	Indicator that allows you to enable/disable the browse mode.
Form Width	Width of the form in print positions.

> **Caution:**   RDA might automatically adjust displayed formats with those formats that are not displayed.

Function Key	Description
F6	Shows the Repository Services portion of a form.

Figure 19–10   Example F6 - the Repository Services portion

Function Key	Description
F10	Displays the Record Formats List form.

Figure 19–11   Example F10 - the Record Formats List screen

The Record Formats establish the arrangement of fields on your report and in what segment of the page they are to print.

Field	Explanation
Opt	Enter the appropriate number to indicate you want to select one of the following values:
	File/field pick list of ampersand functions.
	File/field pick list for fast path functions.
	List of defined fields in the format.
	Delete format.
	Record format keywords.
Format Name	Report record format.
	The format name will be the Heading, Detail, or Total. If additional formats are required, add 1 to the previous format with the same name.
Type	Record format type, usually REPORT.

Field	Explanation
Fast Path File	The data base file you want to select fields from.
Start/End Lines	Specifies the line number range of the format.
Related Record	Field that ties a subfile to a control record format. Required in all SFLCTL record formats.
Fld Pfx	Screen field prefix to be used for the video fields: RR, $$.

> **Note:** There should be no gaps between the end line of one format and the start line of the next format. If you make changes to the positioning of a format and leave a gap between formats, RDA will automatically adjust the end lines for you.

Function Key	Description
F14	Displays the Indicator Control form.

Example F14 - the Indicator Control form

Figure 19–12   Example F14 - the Indicator Control screen

Use this form to turn on/off selected or all indicators to see the resulting print image.

Function Key	Description
F16	Displays the List of Defined Fields form.

Figure 19–13   Example F16 - the List of Defined Fields screen

Function Key	Description
F17	Used to maintain vocabulary override fields.

Figure 19–14   Example F17

You must save your report at least once to update vocabulary overrides by this method. This is because when you are first defining a report, the vocabulary override record is not created until you save the report.

Function Key	Description
F19	Window Left.
F20	Window Right.

19.4 Compiling A Report

To compile a report

From Software Versions Repository

Figure 19–15   Software Versions Repository screen

1. Enter 14 next to the member in the subfile that you want to create and press Enter.

    A form of printer file parameters displays.

Figure 19–16   Printer File Parameters screen

2. Do one of the following:

    ■ Accept the defaults.

    ■ Change the defaults, as necessary.

    Note: Make sure Copies is non-zero.

19.5 Changing the Compile Option Defaults for Reports

You must compile reports through the JD Edwards World compiler by this method so that R98COVER and R98RPTH are pulled in for the cover page and help instructions when the Function Code is PRTF. Only one PRTF can be included in an RPG program. Second print files or Special form print files must have a Function Code of PRTS in SVR. Compiling PRTF items through the Production Development Manager (PDM) or some other method will not bring the additional formats in automatically.

To change compile option defaults for reports

The Data Dictionary default values were set for 8 ½ by 14 printer paper.

Change the Data Dictionary defaults for the following data items for your purposes:

Item	Description
#FLN	Forms Length
WDTH	Forms Width
LPI	Lines Per Inch
#CPI	Characters Per Inch
#OVF	Overflow Line Number (Usually forms length minus one inch.)
#ALN	Alignment (Y/N)
#FTY	Form Type
#CPY	Number of Copies
#SPG	Number of Separator Pages

Note: Some severity level 10 errors can occur when your report compiles because of R98COVER (DREAM Writer cover page) and R98RPTH (DREAM Writer help instructions). These are only warning errors.

Part IV

Programming Standards

This part contains these chapters:

20

Overview to Programming Standards

This chapter contains these topics:

- Section 20.1, "Programming Standards"

20.1 Programming Standards

The Program Generator serves as the primary enforcer of JD Edwards World programming standards. These standards include subroutines and consistent formats that ease the maintenance process. The following areas are covered in the programming standards.

- Program Specifications
- Program Overview
- Program Structure
- Performance Issues
- User Spaces
- User Indices
- File Servers
- Functional Servers
- Group Jobs
- JD Edwards World Source Debugger

21

Program Specifications

This chapter contains these topics:

- Section 21.1, "About Program Specifications"
- Section 21.2, "What Are Header (Control) Specifications?"
- Section 21.3, "What Are File Description Specifications?"
- Section 21.4, "What Are Extension Specifications?"
- Section 21.5, "What Are Input Specifications?"
- Section 21.6, "What Are Calculation Specifications?"
- Section 21.7, "What Are Output Specifications?"

21.1 About Program Specifications

There are several kinds of RPG/400 specifications as described in IBM's Languages: RPG/400 User's Guide. When your source program is compiled, these specifications are arranged in the following sequence:

- Section 21.2, "What Are Header (Control) Specifications?"
- Section 21.3, "What Are File Description Specifications?"
- Section 21.4, "What Are Extension Specifications?"
- Section 21.5, "What Are Input Specifications?"
- Section 21.6, "What Are Calculation Specifications?"
- Section 21.7, "What Are Output Specifications?"

An RPG/400 program does not have to use all specifications. A typical JD Edwards World program contains Header, File Description, Extension, Input, and Calculation specifications. Few programs have Output specifications.

> **Note:** There are a few programs which have been converted to, or written in, RPGIV (ILE). RPGIV has been available since 1994. RPGIV programs have Data specification entries and no Extension specification entries. Consult IBM reference manuals for details.

21.2 What Are Header (Control) Specifications?

The Header (control) specifications (H specs) include the name of the program.

- The first line identifies the program, P55011X, including its description, Item Information Update.

- The next fourteen lines are comments that are included in JD Edwards World programs for copyright purposes and reproduction restrictions.

Figure 21–1 Header (Control) Specifications

21.3 What Are File Description Specifications?

File description specifications (F Specs) describe all the files that your program uses. The information for each file includes:

- The name of the file

- How the file is used (for example, input)

- The size of records in the file for internal files or if the file has an external definition

- Whether or not the file is keyed

- Input or output device used for the file

- If the file will have records added to it

Figure 21–2 File Description Specifications

When the Program Generator generates a program, it arranges the included files in alphabetical order within the F Specs.

When a program runs, it opens the files in bottom-to-top order. Some general rules, in regard to files, are the following:

- Place the files that have the most I/Os at the bottom of the F specs.

- Place any small usage files or files that are closed after first use at the top of the F specs.

- Place the display or print files at the bottom of the list.

Line 35 shows a request for the compiler to copy in F specs from JDECPY. All F spec copy names begin with D.

21.4 What Are Extension Specifications?

Extension specifications describe all tables and arrays used in the program. The information includes:

- Name of the file, table, or array

- Number of entries in a table or array input record

- Length of the table or array entry

- Optional comment text

Figure 21–3   Extension Specifications

Lines 44 through 47 are used in this program to facilitate error handling and field editing.

- The first line defines an array called EMK which has a maximum of 64 entries, each with a length of 4 characters.

Line 52 requests that the compiler program copy in a specific set of E Specs.

- The E Specs, E0001, are used in any program that executes the common subroutine, C0001.

21.5 What Are Input Specifications?

Input specifications describe the records, fields, data structures, and named constants used by the program. The information in the input specifications includes:

- The name of the file

- The sequence of record types

- Whether record-identifying indicators, control-level indicators, field-record relation indicators, or field indicators are used

- Whether data structures, look-ahead fields, record identification codes, or match fields are used

- The type of each file (alphanumeric or numeric; packed-decimal, zoned decimal, or binary format)

- The location of each field in the record

- The name of each field in the record

- All named constants

Figure 21–4   Input Specifications

Lines 73 through 83 are used to define some of the vocabulary overrides that appear on this screen.

- The ending lengths change from program to program, and the program retrieves the values for each field at the time it executes the housekeeping subroutine, S999.

- In JD Edwards World RPGIV (RPGL) programs, there may be D specs and no I or E specs.

21.6 What Are Calculation Specifications?

Calculation specifications describe the calculations to be done on the data and the order of the calculations. Calculation specifications can also be used to control certain input and output operations. The information includes:

- Control-level and conditioning indicators for the operation specified (generally not used in JD Edwards World software)

- Fields or constants to be used in the operation

- The operation to be processed

- Whether resulting indicators are set after the operation is processed

Figure 21–5 Calculation Specifications

```
Columns . . . :   1  71           Browse              DEVSRC/JDESRC
SEU==>>                                                        P55011X
FMT **  ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
0098.00    C*    MAINLINE PROGRAM
0099.00    C*    ----------------
0100.00    C*
0101.00    C*    Process housekeeping.
0102.00    C*
0103.00    C              EXSR £999
0104.00    C*             ---- ----
0105.00    C*
0106.00    C*    If LR on, end program.
0107.00    C*
0108.00    C      *INLR   CABEQ'1'      EOJ
0109.00    C*             =====         ===
0110.00    C*
0111.00    C*    If automatic inquiry set, process inquiry.
0112.00    C*
0113.00    C      $AUTO   CASEQ'1'      £003          24
0114.00    C*             =====         ====

 F3=Exit   F5=Refresh   F9=Retrieve   F10=Cursor   F12=Cancel
 F16=Repeat find        F24=More keys
```

The C Specs are the heart of the processing of a program. JD Edwards World programs are designed with a MAINLINE portion which is a select set of C Specs that call other subroutines.

21.7 What Are Output Specifications?

Output specifications describe the records and fields in the output files and the conditions under which output operations are processed. They include information such as:

- Name of the file

- Type of record to be written

- Spacing and skipping instructions of printer files

- Output indicators that condition when the record is to be written

- Name of each field in the output record

- Location of each field in the output record

- Edit codes and edit words

- Constants to be written

- Format name for a workstation file

Figure 21–6 Output Specifications

```
Columns . . . :   1  71           Browse              DEVSRC/JDESRC
SEU==>>                                                        P55011X
FMT **  ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
2334.00    CSR            MOVE '0026'   EMK,08        Inv MCU
2335.00    CSR            MOVE '0027'   EMK,09        Inv Desc Tt1
2336.00    C*-------------------------------------------------------
2337.00    C*
2338.00    C*    Load invalid action code array.
2339.00    C*
2340.00    CSR            MOVEA'    '    @NAC
2341.00    C*-------------------------------------------------------
2342.00    C*
2343.00    C*    Load system date.
2344.00    C*
2345.00    CSR            TIME          $WRK12 120
2346.00    CSR            MOVE $WRK12    $$EDT   60
2347.00    C*-------------------------------------------------------
2348.00    CSR    END999  ENDSR
2349.00    C*******************************************************
2350.00    OI5501X E             UNLOCK

 F3=Exit   F5=Refresh   F9=Retrieve   F10=Cursor   F12=Cancel
 F16=Repeat find        F24=More keys
```

JD Edwards World uses the RPG EXCPT operation to release locks on data records. The O Specs inform the program which record format is to be released when the

EXCPT UNLOCK calculation is performed. Additional formats can be identified with a name such as UNLCKA or UNLCKB.

> **Note:** Typically, JD Edwards World does not perform reporting functions using O Specs.

You can use the Opcode "UNLCK" instead of EXCPT/O-SPECS.

22

Program Overview

This chapter contains these topics:

22.1 About the Program Overview

The program overview provides a basic overview of the standards used in a program. It includes the following:

22.2 Subroutines

The Program Generator uses two categories of subroutines:

- Standard Subroutines
- Common Subroutines

22.2.1 Standard Subroutines

The Program Generator includes the required standard routines in the Calculation Specifications at the time it generates a program. It arranges them in alphanumeric order.

If you must enter your own standard subroutine, name it in such a way that it will be executed in the necessary order. For example, if you need your subroutine to be executed after the scrub and edit subroutine (S005) but before the update files subroutine (S010), begin the name with an S and then use a three to four character suffix that fits in logically, such as S005A or S006.

Standard subroutine code lines are identified in positions 7 and 8 with SR. Their names always begin with an S. Subroutines are separated by a single line of asterisks. Major blocks of code within a subroutine are separated by a single line of dashes.

Figure 22–1   Standard Subroutine Code Lines

```
1870.00     CSR                    MOVE *BLANK     HRJBCD
1871.00     CSR                    MOVE *BLANK     HRJBST
1872.00     CSR                    MOVE *BLANK     HRRVW
1873.00     CSR                    END
1874.00     C*------------------------------------------------------------
1875.00     CSR         END001     ENDSR
1876.00     C**********************************************************************
1877.00     C*
1878.00     C*     SUBROUTINE S003 - Edit Key
1879.00     C*     ------------------------------
1880.00     C*
```

Place an END tag on the ENDSR statement. The TAG name should start with END. The subroutine name is added as a suffix. For example, END001 would be used for subroutine S001. Do not use the end tag for anything else. Use a T tag if the code needs to be executed prior to the ENDSR statement. For example, T001 would be used for subroutine S001 if the tag is used in the middle of the subroutine.

Figure 22–2   Subroutine End Statement

```
1874.00     C*------------------------------------------------------------
1875.00     CSR         END001     ENDSR
1876.00     C**********************************************************************
```

22.2.2 Common Subroutines

Common subroutines are maintained outside the program and are included at the appropriate times using the COPY statement. Common subroutines are also referred to as copy modules for that reason. JD Edwards World stores all common subroutines in the file JDECPY.

At compile time, the compiler copies in source code for all instances of the COPY statement. The included code displays only once and can be called from anywhere within the program.

The statement that instructs the compiler to copy in the source code is shown below. Single lines of asterisks separate common subroutines.

Figure 22–3   Compiler Instruction Statement to Copy Source Code

```
0731.00     C**********************************************************************
0732.00     C*
0733.00     C*     Copy Common Subroutine - Right Justify Numeric Fields
0734.00     C*
0735.00     C/COPY JDECPY,C0012
0736.00     C**********************************************************************
```

This example shows how the COPY statement in the source (above) brings in additional code to the compiled source.

Figure 22–4 Results from Copy Statement Above

The following user defined code contains an online listing and specifications:

- Install System Code: 93
- User Defined Code: /C

22.3 Error Handling

JD Edwards World has devised an efficient means of handling errors by way of arrays.

Figure 22–5 Error Handling Arrays

The EMK array holds the four byte data dictionary name of every error that could occur in this program. The array is loaded in Housekeeping (S999).

- The @MK array maintains a flag setting for each error identified in EMK. If one of the errors occurs, the flag is set on.

- The @ER array loads the related error messages when the user presses F7 to view the errors that actually occurred.

- A program may have up to 64 errors.

The call to the error message handling program is shown below.

Figure 22–6   Call to the Error Message Handling Program

If any error flag is set to one, then the program moves the corresponding data item from the array of all possible errors (EMK) into the array of the errors that have actually occurred (@ER). P0000E is called to display the errors when the function key is pressed.

The next example of code shows how a flag is set in the @MK array.

Figure 22–7   A Flag Set in the @MK Array

22.4 Indicator Usage

There are 99 indicators available for use. They are grouped by purpose. The chart on the next page lists the available indicators and their description.

Indicator	Explanation
01	Causes the Invalid Function Key Pressed message to appear
02	Dictates the color palette to be used
15	Indicates a function key was pressed
20	Handles the clear screen action code
21	Handles the add action code
22	Handles the change action code
23	Handles the delete action code

Indicator	Explanation
24	Handles the inquire action code
25	Handles the inquire action code 'P' for print (payroll)
31	Used in conjunction with subfile processing to initiate the INVITE or SFLCLR keyword. Using INVITE will slow processing
32	Used in conjunction with subfile processing initiating the keyword SFLNXTCHG
37	Used in conjunction with subfile processing to avoid display of an empty subfile (used only with inquiry subfiles)
38	Used in conjunction with subfile processing to highlight the last record in the display (keyword SFLDSP) and avoid display of an empty subfile
40-79	Used for error processing to indicate which fields are in error and need to be highlighted
40	Reserved for errors in the Action Code field
41	Reserved for errors in the key fields
80-89	General reusable one-time indicators. Use them as needed
93	Global error indicator that highlights line 24
98	Indicates a chain or read failure
99	Indicates a record is in use or file error
OF	Indicates overflow for report processing
LR	Indicates that the last record has been read and the program should end normally
RT	Indicates that a temporary or final halt in the program should take place. Returns to calling program leaving files open

22.5 Documentation

In the F specifications the program contains several comment lines that are to serve as the program revisions log. The log should list all programmers who have revised the program, the date the revisions were made, and the SAR outlining the change that was made.

Figure 22–8   Program Revision Log

When entering comment lines, use the following conventions:

■   An asterisk in column seven specifies that the line is a comment line only.

■   The asterisk should be followed by four blank spaces before the comment begins.

■   Precede and follow the comment lines with a blank line.

The example below shows how these conventions are observed.

Figure 22–9   How the Conventions Are Used

```
0034.00      P*****************************************************************
0035.00      P*
0036.00      P*    Copy Member for Composite Common Subroutine - C0001
0037.00      P*
```

22.5.1 Guidelines

Common sense should be your guide when documenting your programs. Be thorough and descriptive. Put yourself in the place of the next programmer who will inherit your work. Use English and not "programmerese" to specify the action occurring. For example, for the code shown below:

Figure 22–10   Example of Code to be Documented

```
0130.00      C*
0131.00      C              $998      CASEQ' '      S998
0132.00      C*                        -----         ----
0133.00      C                         END
```

DON'T WRITE: If $998 is blank, execute S998.

INSTEAD WRITE: Load data field dictionary parameters (one cycle only).

Include a line of dashes beneath any line of code that branches to another line of code (CASxx, CABxx, GOTO, EXSR, CALL, BEGSR). The receiving tag statement should also be followed by a line of dashes as shown in the example below.

Figure 22–11   How to Branch Code

```
0275.00      C*
0276.00      C                         EXSR S999
0277.00      C*                         ---- ----
```

22.6 Miscellaneous Items

The following represent miscellaneous items that you should keep in mind when writing your own code.

Naming Conventions

Use the following first character to distinguish different item names:

- @ Array names
- $ Program created field names (flags and work fields)
- # Fields defined in common subroutines

Key List (KLIST)

Key lists should all be defined in the housekeeping subroutine.

Begin the key list name with the data file prefix. For example, the Address Book Master file prefix is AB, so the key list would be ABKY01.

The Program Generator creates key lists using the following naming conventions:

- XXKY01 for physical files where XX = the file prefix. For example, ABKY01.

- When a physical file needs to have more than one key list in a program, the successive files are noted in the last character space. For example, for three key lists for the physical file F0101, the key lists would be: ABKY01, ABKY02, and ABKY03.

- XXKY0x for logical files where XX is equal to the file prefix and x is equal to the last letter of the logical file name. For example: ABKY0A for F0101LA, ABKY0B for F0101LB.

- When a logical file needs to have more than one key list in a program, the successive files are noted in the second to last character space. For example for three key lists for the logical file F0101LA, the key lists would be: ABKY0A, ABKY1A, and ABKY2A.

22.6.1 Work Fields

Define work fields only once within a program. The use of the *LIKE DEFN command is highly recommended for defining work fields when their attributes are directly tied to those of database fields.

If the work field needs to have the same attributes as a field that exists in a file, for example:

MOVE ABANS $$ANS

Then define $$ANS:

*LIKE DEFN ABANS $$ANS

The advantage of this method is that the work field and database field will retain the same attributes even if the database field changes.

When using work fields as a flag, you should assign them the prefix $ and have the remainder of the name be descriptive. In the example below, the work field name is $GLOBL. This name is more descriptive than a field name such as $G.

Figure 22–12   Example of a Work Field Name

Optional Files

If a program uses files which are dependent upon your particular setup, you should designate those files as user control open (UC) in the file specifications and then write the program such that they are opened, if needed, in the Housekeeping subroutine. This eliminates the need to open files unnecessarily and conserves resources.

The lines that perform the open are shown below.

Figure 22–13   Lines that Open Files

```
Columns . . . :   1  71          Browse              JDFSRC/JDESRC
SEU==>>                                                    P08320
3825.00    C*
3826.00    C*    Check for existence of pension files.
3827.00    C*
3828.00    CSR              OPEN F085201              99
3829.00    CSR        *IN99 IFEQ '0'
3830.00    CSR              MOVE '1'      $PENS  1
3831.00    CSR              END
3832.00    C*
3833.00    CSR              OPEN F08501LA             99
3834.00    CSR        *IN99 IFEQ '0'
3835.00    CSR              MOVE '1'      $PENS2 1
3836.00    CSR              END
```

If your program performs a user-controlled open for a file that is part of another system, you will also need to provide pre-compiler commands in the event the user has not purchased that system. The example below illustrates the necessary pre-compiler commands designed to address this situation.

In the example, if a Payroll client has not purchased Human Resources, the code specifies a file override and then substitutes an empty file (identified with the suffix E) which all Payroll clients receive.

Figure 22–14   Pre-compiler Commands that Perform a User-controlled Open If a File Is Part of Another System Not Purchased by the User

```
*************** Beginning of data ***************************************
0001.00          OVRRDBF   FILE(F082001B) TOFILE(F082001E)
0002.00          OVRRDBF   FILE(F08001)  TOFILE(F08001E)
0003.00          OVRRDBF   FILE(F08005B) TOFILE(F08005E)
*************** End of data ***************************************
```

The user-controlled opens in the program allow the program to run in the absence of certain files, whereas the precompiler commands allow the program to be compiled in the absence of those files.

23

Program Structure

This chapter contains these topics:

- Section 23.1, "About Program Structure"

23.1 About Program Structure

The JD Edwards World program generator produces several types of programs:

- "Subfile Program with Selection Exits"
- "Interactive Non-Subfile Program"
- "Report Program without Subheadings"
- "Report Program with Subheadings"
- "Review an RPG Program's Source"

23.1.1 Internal RPG Subroutines within JD Edwards World Programs

Standard subfile names make program maintenance easier. The system calls these subfles primarily from the Mainline.

JD Edwards World program structure uses several types of subroutines, including:

Name	Description
S00EX	Processes all function key exits.
	■ Calls J96012 if F24 was pressed
	■ Calls X96CCX if F1 was pressed
	■ Calls subroutine S00VL if F1 was pressed after X96CCX was called
	■ Calls P0000E if F7 was pressed
	■ Calls P00HELP if the HELP key was pressed
	■ Calls subroutine S001 if F22 was pressed
	■ Calls all programs to process all user defined function keys
S00VL	Values returned with Cursor Sensitive Help.
	Is called from the subroutine S00EX after the program X96CCX is called
S00OP	Subfile Selection Exits (Options)

Name	Description
S001	Clears all database and form fields. ■ Usually only clears key fields and VC0 fields if F22 (Clear) is pressed
S002	Checks for level breaks for reports. ■ Turns on level break flags. ■ Retrieves total line description
S003	Validates the key fields. Calls S998 subroutine if auto inquire was invoked Sets the file pointer. ■ Performs a SETLL or CHAIN if a single record maintenance program ■ Performs a SETLL for subfile programs Calls a subroutine S004 to load form or report fields Monitors for no subfile records loaded if a subfile Loads unused subfile records with blanks
S004	Display or load form or report fields.
S005	Scrubs and edits form fields. ■ Moves screen data to database fields ■ Turns on error indicators if a field is in error ■ Updates or writes records to the database file if a subfile ■ Updates the subfile
S010	For reports with level breaks it: ■ Prints the total ■ Clears the level break totals ■ Prints the grand total (if it has reached the end of the file) ■ Prints the detail ■ Adds to the new level break totals ■ Calls subroutine S020 if it is a report with subheadings If it is not a report, it updates, adds, or deletes records from the database file ■ Turns on F22 (Clear) to force S001 to be executed to clear the buffer before reading another record.
S020	Print Report Subheadings.
S998	Loads Data Dictionary values. (One time only) Retrieves row description for level breaks and subheadings, if applicable

Name	Description
S999	Housekeeping. (One time only)
	■ Sets auto inquiry
	■ Defines key lists
	■ Retrieves processing options and level breaks, if applicable
	■ Retrieves vocabulary overrides
	■ Loads error messages
	■ Performs file opens
	■ Current date retrieval
	■ Work fields defined using *LIKE
	■ Prints cover page and Helps in a report

Interactive Non-Subfile Program

Figure 23–1   Interactive Non-Subfile Program

Subfile Program with Selection Exits

Figure 23–2   Subfile Program with Selection Exits

Report Program without Subheadings

Figure 23–3   Report Program without Subheadings

Report Program with Subheadings

Figure 23–4   Report Program with Subheadings

23.1.2 Review an RPG Program's Source

The following pages illustrate a maintenance program without a subfile.

Some of the more important areas and commonly used fields are highlighted and explained.

Figure 23–5   Maintenance Program without a Subfile (part 1)

```
  1.00     H/TITLE P928011     Item Master Information
  2.00     H* ---------------------------------------------------------------
  3.00     H*
  4.00     H*       Copyright  (c) 1993
  5.00     H*       J. D. Edwards & Company
  6.00     H*
  7.00     H*       This unpublished material is proprietary to          Copyright statement
  8.00     H*       J. D. Edwards & Company.  All rights reserved.        can be changed through
  9.00     H*       The methods and techniques described herein are       the Program Generator
 10.00     H*       considered trade secrets and/or confidential.
 11.00     H*       Reproduction or distribution, in whole or in part,
 12.00     H*       is forbidden except by express written permission
 13.00     H*       of J. D. Edwards & Company.
 14.00     H*
 15.00     H* ------- --------------------------------------------------
 16.00     F*
 17.00     F*       PROGRAM REVISION LOG
 18.00     F*       --------------------
 19.00     F*
 20.00     F*          Date     Programmer        Nature of Revision       Shows all SARs
 21.00     F*        --------   ----------   -------------------------------  used to make
 22.00AUTHRF*        12/07/93   QUARLES      SAR #    241883    (AS/400  A/G) changes to the
 23.00     F*                                                                program
 24.00     F*       B0010     - Standard Maintenace Program Type
 25.00     F*                   This program provides the standard single cycle
 26.00     F*                   processing for adding, changing, deleting and
 27.00     F*                   inquiring into data records as requested.      The Program
 28.00     F*                                                                  Generator puts in
 29.00     F***********************************************************         numeric order. RPG
 30.00     F*                                                                  opens from bottom
 31.00     FF0001    IF  E           K        DISK                            to top so JDE puts
 32.00     FF92801   UF  E           K        DISK                     A       more heavily used
 33.00     FV928011  CF  E                    WORKSTN    KINFDS  SRVFDS        files at the bottom.
 34.00     F***********************************************************
 35.00     F*
 36.00     F*       Copy Member for Composite Common Subroutine - C0001
 37.00     F
 38.00     F/COPY JDECPY,D0001
 39.00     F***********************************************************         Informational
 40.00     E***********************************************************         data structure
 41.00     E*       PROGRAM TABLES AND ARRAYS                                   for the video
 42.00     E*       -------------------------
 43.00     E*
 44.00     E        EMK        64   4               Error Msg          Arrays that handle
 45.00     E        @MK        64   1               Error Msg          error messages
 46.00     E        @ER        64   4               Error Msg
 47.00     E        @DV        40   1               Dflt Wrk
 48.00     E        @C        256   1               Literal Work
 49.00     E*
 50.00     E*                                                           Will copy in additional
 51.00     E*       Copy Member for Composite Common Subroutine - C0001  specifications for copy
 52.00     E*                                                            module C0001
 53.00     E/COPY JDECPY,E0001
 54.00     E***********************************************************
 55.00     E*
 56.00     E*       Copy Member for Composite Common Subroutine C0012
 57.00     E*
 58.00     E/COPY JDECPY,E0012
 59.00     E***********************************************************
 60.00     E*
 61.00     E*       Copy Member for Composite Common Subroutine - C997
 62.00     E*
 63.00     E/COPY JDECPY,E997
 64.00     E***********************************************************
 65.00     I***********************************************************
 66.00     I*       PROGRAM INPUT SPECIFICATIONS AND DATA STRUCTURES
 67.00     I*       ------------------------------------------------
 68.00     I*
```

Figure 23–6 Maintenance Program without a Subfile (part 2)

Figure 23–7   Maintenance Program without a Subfile (part 3)

Figure 23–8   Maintenance Program without a Subfile (part 4)

Figure 23–9   Maintenance Program without a Subfile (part 5)

Figure 23–10   Maintenance Program without a Subfile (part 6)

Figure 23–11   Maintenance Program without a Subfile (part 7)

Figure 23–12   Maintenance Program without a Subfile (part 8)

Figure 23–13   Maintenance Program without a Subfile (part 9)

```
624.00    C*************************************************************************
625.00    C*
626.00    C*    ┌─────────────────────────┐ ──── Sets the file pointer and edits the key
          C*    │ SUBROUTINE S003 - Edit Key │
627.00    C*    └─────────────────────────┘
628.00    C*
629.00    C*    Processing:   1.  Clear error indicators and arrays.
630.00    C*                  2.  Load input keys.
631.00    C*                  3.  Validate master file key.
632.00    C*                  4.  Release master file record lock.
633.00    C*                  5.  Load video screen output on inquiry.
634.00    C*
635.00    CSR      S003        BEGSR
636.00    C*       ----        -----
637.00    C*
638.00    C*    Load data field dictionary parameters (one cycle only).
639.00    C*
640.00    CSR      $999        CASEQ' '        S999
641.00    C*                   ------          ----
642.00    CSR                  END
643.00    C*
644.00    C*    Reset error indicators and arrays.
645.00    C*
646.00    CSR                  MOVE *ALL'0'    $RESET 39
647.00    CSR                  MOVE *BLANK     $REST1 63
648.00    CSR                  MOVEA$RESET     *IN,41
649.00    CSR                  MOVEA$REST1     @MK,2
650.00    CSR                  CLEAR@SR
651.00    C*-------------------------------------------------------------------------
652.00    C*
653.00    C*    Load video input field for - Item ID
654.00    C*
655.00    CSR                  MOVEAVDXIT      @NM
656.00    CSR                  EXSR C0012
657.00    C*                   ---- -----
658.00    CSR                  z-ADD#NUMR      $NBR08  30
659.00    CSR                  MOVE $NBR08     QXXIT
660.00    C*
661.00    C*    Automatic Next Number for - Item ID
662.00    C*
663.00    CSR      *IN21       IFEQ '1'
664.00    CSR      VDXIT       ANDEQ*BLANK
665.00    CSR                  SETON                           91
666.00    CSR      *IN91       DOWEQ'1'
667.00    CSR                  MOVE N@XIT      PGIDX   2
668.00    CSR                  CALL 'X0010'                    92
669.00    C*                   ---- -------
670.00    CSR                  PARM @@XIT      HNKV    4
671.00    CSR                  PARM            PGIDX
672.00    CSR                  PARM *ZERO      #NXTNO  30
673.00    CSR                  MOVE #NXTNO     QXXIT
674.00    CSR                  MOVE #NXTNO     VDXIT
675.00    CSR      QXXIT       SETLLF92801                     9291
676.00    CSR                  END
677.00    CSR                  END
678.00    C*-------------------------------------------------------------------------
679.00    CSR      QXXY01      CHAINF92801                     9999
680.00    C*
681.00    C*    Cost Center security edit.
682.00    C*
683.00    CSR                  MOVEL'F92801    '#FILE
684.00    CSR                  MOVELQXXCC      @MCU
685.00    CSR      #AUT        IFNE '1'
686.00    CSR      #FAUT       ANDNE'1'
687.00    CSR                  ┌─────────┐ ──── Checks cost center security
          CSR                  │ EXSR C0000 │
          C*                   └─────────┘
688.00    C*                   ---- ------
689.00    CSR                  END
690.00    CSR      #AUT        IFNE '1'
691.00    CSR      #FAUT       ANDNE'1'
692.00    CSR      #MAUT       ANDNE'1'
693.00    CSR                  MOVE '1'        $$SECR  1
694.00    CSR                  END
695.00    C*
696.00    C*    If security violation, set error condition.
697.00    C*
698.00    CSR      $$SECR      IFEQ '1'
699.00    CSR                  MOVE '1'        @MK,9
700.00    CSR                  SETON                           9241
```

Figure 23–14   Maintenance Program without a Subfile (part 10)

Figure 23–15   Maintenance Program without a Subfile (part 11)

Figure 23–16   Maintenance Program without a Subfile (part 12)

Figure 23–17   Maintenance Program without a Subfile (part 13)

```
922.00    CSR              MOVE QXXDT        #SIDAT  4
923.00    CSR              MOVE *BLANK       #EDAT   8
924.00    CSR              MOVEL' JUL        '#FPMT  7
925.00    CSR              MOVEL'*SYSVAL     '#TPMT  7       External program
926.00    CSR              MOVEL'*SYSVAL     '#SEP   7       used to edit dates
927.00    CSR              MOVE ' '          SSRTST  1
938.00    CSR              CALL 'X0028   '   91
939.00    C*               ---- ------
940.00    CSR              PARM              #SIDAT
941.00    CSR              PARM              #EDAT
942.00    CSR              PARM              #FPMT
943.00    CSR              PARM              #TPMT
944.00    CSR              PARM              #SEP
945.00    CSR              PARM              SSRTST
946.00    CSR              MOVEL#EDAT        VDXDT
947.00    C*------------------------------------------------------
948.00    C*
949.00    C*      Move to output - Item ID
950.00    C*
951.00    CSR              MOVE *BLANK       #SINBR
952.00    CSR              MOVEL QXXIT       #SINBR
953.00    CSR              MOVE TXXIT        #DTYP
954.00    CSR              MOVE WXXIT        #SWRD
955.00    CSR              MOVE SXXIT        #SC
956.00    CSR              MOVE FXXIT        #DSPD
957.00    CSR              MOVE GXXIT        #DATD
958.00    CSR              MOVE JXXIT        #ALR
959.00    CSR              MOVE ' '          #SCOR
960.00    CSR              MOVE ' '          #DCOR
961.00    CSR              EXSR C00161
962.00    C*               ---- ------
963.00    CSR      #ALR    IFEQ 'L'
964.00    CSR              MOVEL#SINBR       VDXIT
965.00    CSR              ELSE
966.00    CSR              MOVE #SINBR       VDXIT
967.00    CSR              END
968.00    C*------------------------------------------------------
969.00    C*
970.00    C*      Move to output - Quantity - On Hand
971.00    C*
972.00    CSR              MOVE *BLANK       #SINBR
973.00    CSR              MOVEL QXXQT       #SINBR
974.00    CSR              MOVE TXXQT        #DTYP
975.00    CSR              MOVE WXXQT        #SWRD
976.00    CSR              MOVE SXXQT        #SC
977.00    CSR              MOVE FXXQT        #DSPD
978.00    CSR              MOVE GXXQT        #DATD
979.00    CSR              MOVE JXXQT        #ALR
980.00    CSR              MOVE ' '          #SCOR
981.00    CSR              MOVE ' '          #DCOR
982.00    CSR              EXSR C00161
983.00    C*               ---- ------
984.00    CSR      #ALR    IFEQ 'L'
985.00    CSR              MOVEL#SINBR       VDXQT
986.00    CSR              ELSE
987.00    CSR              MOVE #SINBR       VDXQT
988.00    CSR              END
989.00    C*------------------------------------------------------
990.00    C*
991.00    C*      Move to output - Item type
992.00    C*
993.00    CSR              MOVEL QXXTY       VDXTY
994.00    C*------------------------------------------------------
995.00    C*
996.00    C*      Move to output - Item Unit of Measure
997.00    C*
998.00    CSR              MOVEL QXXUM       VDXUM
999.00    C*------------------------------------------------------
1000.00   C*
1001.00   C*      Move to output - Item Category Code 001
1002.00   C*
1003.00   C*               MOVE *BLANK       #SINBR
1004.00   C*               MOVEL QXX001      #SINBR
1005.00   C*               MOVE TXX001       #DTYP
1006.00   C*               MOVE WXX001       #SWRD
1007.00   C*               MOVE SXX001       #SC
1008.00   C*               MOVE GXX001       #DATD
```

Figure 23–18   Maintenance Program without a Subfile (part 14)

```
1010.00   CSR                       MOVE J@X001       #ALR
1011.00   CSR                       MOVE ' '          #ECOR
1012.00   CSR                       MOVE ' '          #DCOR
1013.00   CSR             EXSR C00161
1014.00   C*                        ---- ------
1015.00   CSR         #ALR  IFEQ 'L'
1016.00   CSR                       MOVEL#SINER       VDX001
1017.00   CSR                       ELSE
1018.00   CSR                       MOVE #SINER       VDX001
1019.00   CSR                       END
1020.00   C*-----------------------------------------------------------------
1021.00   C*
1022.00   C*      Move to output - Item Category Code 002
1023.00   C*
1024.00   CSR                       MOVE *BLANK       #SINER
1025.00   CSR                       MOVELQXX002       #SINER
1026.00   CSR                       MOVE T@X002       #DTYP
1027.00   CSR                       MOVE M@X002       #EWND
1028.00   CSR                       MOVE R@X002       #EC
1029.00   CSR                       MOVE P@X002       #DSPD
1030.00   CSR                       MOVE G@X002       #DATD
1031.00   CSR                       MOVE J@X002       #ALR
1032.00   CSR                       MOVE ' '          #ECOR
1033.00   CSR                       MOVE ' '          #DCOR
1034.00   CSR             EXSR C00161
1035.00   C*                        ---- ------
1036.00   CSR         #AIR  IFEQ 'L'
1037.00   CSR                       MOVEL#SINER       VDX002
1038.00   CSR                       ELSE
1039.00   CSR                       MOVE #SINER       VDX002
1040.00   CSR                       END
1041.00   C*-----------------------------------------------------------------
1042.00   C*
1043.00   C*      Move to output - Item Category Code 003
1044.00   C*
1045.00   CSR                       MOVE *BLANK       #SINER
1046.00   CSR                       MOVELQXX003       #SINER
1047.00   CSR                       MOVE T@X003       #DTYP
1048.00   CSR                       MOVE M@X003       #EWND
1049.00   CSR                       MOVE R@X003       #EC
1050.00   CSR                       MOVE P@X003       #DSPD
1051.00   CSR                       MOVe G@X003       #DATD
1052.00   CSR                       MOVE J@X003       #ALR
1053.00   CSR                       MOVE ' '          #ECOR
1054.00   CSR                       MOVE ' '          #DCOR
1055.00   CSR             EXSR C00161
1056.00   C*-----------------------------------------------------------------
1057.00   CSR         #ALR  IFEQ 'L'
1058.00   CSR                       MOVEL#SINER       VDX003
1059.00   CSR                       ELSE
1060.00   CSR                       MOVE #SINER       VDX003
1061.00   CSR                       END
1062.00   C*-----------------------------------------------------------------
1063.00   C*
1064.00   C*      Move to output - Item Category Code 004
1065.00   C*
1066.00   CSR                       MOVE *BLANK       #SINER
1067.00   CSR                       MOVELQXX004       #SINER
1068.00   CSR                       MOVE T@X004       #DTYP
1069.00   CSR                       MOVE M@X004       #EWND
1070.00   CSR                       MOVE R@X004       #EC
1071.00   CSR                       MOVE P@X004       #DSPD
1072.00   CSR                       MOVE G@X004       #DATD
1073.00   CSR                       MOVE J@X004       #ALR
1074.00   CSR                       MOVE ' '          #ECOR
1075.00   CSR                       MOVE ' '          #DCOR
1076.00   CSR             EXSR C00161
1077.00   C*                        ---- ------
1078.00   CSR         #ALR  IFEQ 'L'
1079.00   CSR                       MOVEL#SINER       vDX004
1080.00   CSR                       ELSE
1081.00   CSR                       MOVE #SINER       VDX004
1082.00   CSR                       END
1083.00   C*-----------------------------------------------------------------
1084.00   C*
1085.00   C*      Move to output - Item Category Code 005
1086.00   C*
```

Figure 23–19   Maintenance Program without a Subfile (part 15)

```
1087.00   CSR              MOVE *BLANK      #SINER
1088.00   CSR              MOVELQXX005      #SINER
1089.00   CSR              MOVE T@X005      #DTYP
1090.00   CSR              MOVE M@X005      #IWRD
1091.00   CSR              MOVE R@X005      #SC
1092.00   CSR              MOVE P@X005      #DSPD
1093.00   CSR              MOVE G@X005      #DATD
1094.00   CSR              MOVE J@X005      #ALR
1095.00   CSR              MOVE ' '         #SCOR
1096.00   CSR              MOVE ' '         #DCOR
1097.00   CSR              EXSR C00161
1098.00   C*               ----- -------
1099.00   CSR      #ALR    IFEQ 'L'
1100.00   CSR              MOVEL#SINER      VOX005
1101.00   CSR              ELSE
1102.00   CSR              MOVE #SINER      VDX005
1103.00   CSR              END
1104.00   C*--------------------------------------------------------
1105.00   CSR      END004  ENDSR
1106.00   C****************************************************
1107.00   C*
1108.00   C*       Copy Common Subroutine - Format Numeric Fields for Output with Override
1109.00   C*
1110.00   C/COPY JDECOPY,C00161
1111.00   C****************************************************
1112.00   C*
1113.00   C*       SUBROUTINE S005 - Scrub Input          Validates and edits data
1114.00   C*       -------------------------------        entered by the user
1115.00   C*
1116.00   C*       Processing:  1.   Validate all video input.
1117.00   C*                         All numeric fields must be processed
1118.00   C*                         thru subroutines C0012 and C0015 in order
1119.00   C*                         to scrub the alpha input field and convert
1121.00   C*                         15 digits and 0 decimals.
1122.00   C*
1123.00   C*                         Date fields must be converted from system
1124.00   C*                         format to their internal format of month,
1125.00   C*                         day and year or julian using program X0020.
1126.00   C*                    2.   Update data record fields from video.
1127.00   C*
1128.00   CSR      S005    BEGSR
1129.00   C*               ----    -----
1130.00   C*
1131.00   C*       If not addition or change, bypass subroutine.
1132.00   C*
1133.00   CSR      *IN21   IFEQ '0'                       Only performs this
1134.00   CSR      *IN22   ANDEQ'0'                       subroutine if action code is
1135.00   CSR              GOTO END005                    add or change
1136.00   C*               ----- ------
1137.00   CSR              END
1138.00   C*
1139.00   C*
1140.00   C*
1141.00   C*       Scrub and edit - Cost Center
1142.00   C*
1143.00   CSR              CALL 'X0006'               99
1144.00   C*               ----- --------
1145.00   CSR              PARM '1'         PROMOD    1
1146.00   CSR              PARM ' '         PRIMOD    1
1147.00   CSR              PARM VDXCC       P@MCU     12
1148.00   CSR              PARM *BLANKS     P@ERRM    4
1149.00   CSR              PARM             I0006
1150.00   C*
1151.00   CSR      P@ERRM  IFNE *BLANK
1152.00   CSR              SETON                             4393
1153.00   CSR              MOVELP@ERRM      @MK,10
1154.00   CSR              MOVE '1'         @MK,10
1155.00   CSR              END
1156.00   CSR              MOVE P@MCU       QXXCC
1157.00   C*-----------------------------------------------------------
1158.00   C*
1159.00   C*       Scrub and edit - Description
1160.00   C*
1161.00   CSR              MOVELVDXDS       QXXDS
1162.00   C*
1163.00   C*       Set default value - Description
1164.00   C*
```

Figure 23–20   Maintenance Program without a Subfile (part 16)

Figure 23–21   Maintenance Program without a Subfile (part 17)

Figure 23–22 Maintenance Program without a Subfile (part 18)

```
1319.00    CSR         @40,1       IFEQ ''''
1320.00    CSR                     MOVE ' '            @40,1
1321.00    CSR                     Z-ADD2              #M
1322.00    CSR         #M          DOMLE40
1323.00    CSR         @40,#M      IFEQ ''''
1324.00    CSR                     MOVE ' '            @40,#M
1325.00    CSR                     END
1326.00    CSR                     ADD  1              #M
1327.00    CSR                     END
1328.00    CSR                     MOVEA@40,2          QXXTY
1329.00    CSR                     END
1330.00    CSR                     END
1331.00    CSR                     END
1332.00    C*
1333.00    C*      Edit allowed values - Item Type
1334.00    C*
1335.00    CSR         A@XTY       IFNE *BLANK
1336.00    CSR         A@XTY       IFEQ '*NB'
1337.00    CSR         QxxTY       ANDEQ*BLANK
1338.00    CSP                     MOVE '1'            @MK,03
1339.00    CSR                     SETON                           4493
1340.00    CSR                     ELSE
1341.00    CSR                     MOVEAA@XTY          @40
1342.00    CSR                     MOVE *NIVAL         @AV
1343.00    CSR                     EXSR C997
1344.00    C*                      ---- ----
1345.00    CSR                     MOVE ' '            $ERTST  1
1346.00    CSR                     MOVE *BLANK         $WRK10 10
1347.00    CSR                     MOVELQXXTY          $WRK10
1348.00    CSR         @AV,1       IFNE *NIVAL
1349.00    CSR         $WRK10      LOKUP@AV                        91
1350.00    CSR         *IN91       IFEQ '0'
1351.00    CSR                     MOVE '1'            $ERTST
1352.00    CSR                     END
1353.00    CSR         $ERTST      IFEQ '1'
1354.00    CSR                     MOVE '1'            @MK,07
1355.00    CSR                     SETON                           4493
1356.00    CSR                     END
1357.00    CSR                     END
1358.00    CSR                     END
1359.00    CSR                     END
1360.00    C*
1361.00    C*      Edit upper and lower range - Item Type
1362.00    C*
1363.00    CSR         L@XTY       IFNE *BLANK
1364.00    CSR                     MOVE '1'            $ERTST
1365.00    CSR         QXXTY       IPGE L@XTY
1366.00    CSR         QXXTY       ANDLEU@XTY
1367.00    CSR                     MOVE ' '            $ERTST
1368.00    CSR                     END
1369.00    CSR         $ERTST      IFEQ '1'
1370.00    CSR                     MOVE '1'            @MK,07
1371.00    CSR                     SETON                           4493
1372.00    CSR                     END
1373.00    CSR                     END
1374.00    C*
1375.00    C*      Edit from User Defined Codes - Item Type
1376.00    C*
1377.00    CSR         R@XTY       IFNE *BLANK
1378.00    CSR                     CLEARI0005U
1379.00    CSR                     MOVELS@XTY          #USY
1380.00    CSR                     MOVE R@XTY          #URT
1381.00    CSR                     MOVE QXXTY          #UKY
1382.00    CSR                     CALL 'X0005'                    91
1383.00    C*                      ---- --------
1384.00    CSR                     PARM                I0005U
1385.00    CSR         #UERR       IFEQ '1'
1386.00    CSR                     MOVE '1'            @MK,09
1387.00    CSR                     SETON                           4493
1388.00    CSR                     END
1389.00    CSR                     END
1390.00    C*-------------------------------------------------------------------------------
1391.00    C*
1392.00    C*      Scrub and edit - Item Unit of Measure
1393.00    C*
1394.00    CSR                     MOVELVDXUM          QXXUM
1395.00    C*
```

Figure 23–23   Maintenance Program without a Subfile (part 19)

```
1396.00    C*    Set default value - Item Unit of Measure
1397.00    C*
1398.00    CSR          QXXUM    IFEQ *BLANK
1399.00    CSR          D@XUM    IFNE *BLANK
1400.00    CSR                   MOVED@XUM          @40
1401.00    CSR                   MOVEA@40           QXXUM
1402.00    CSR          @40,1    IFEQ''''
1403.00    CSR                   MOVE ' '           @40,1
1404.00    CSR                   Z-ADD2             #M
1405.00    CSR          #M       DOWLE#40
1406.00    CSR          @40,#M   IFEQ ''''
1407.00    CSR                   MOVE ' '           @40,#M
1408.00    CSR                   END
1409.00    CSR                   ADD  1             #M
1410.00    CSR                   END
1411.00    CSR                   MOVEA@40,2         QXXUM
1412.00    CSR                   END
1413.00    CSR                   END
1414.00    CSR                   END
1415.00    C*
1416.00    C*    Edit allowed values - Item Unit of Measure
1417.00    C*
1418.00    CSR          A@XUM    IFNE *BLANK
1419.00    CSR          A@XUM    IFEQ '*NB'
1420.00    CSR          QXXUM    ANDEQ*BLANK
1421.00    CSR                   MOVE '1'           @MX,03
1422.00    CSR                   SETON                        4793
1423.00    CSR                   ELSE
1424.00    CSR                   MOVEAA@XUM         @40
1425.00    CSR                   MOVE *HIVAL        @AV
1426.00    CSR                   EXSR C997
1427.00    C*                    ---- ----
1428.00    CSR                   MOVE ' '           $SRTST  1
1429.00    CSR                   MOVE *BLANK        $WRK10 10
1430.00    CSR                   MOVELQXXUM         $WRK10
1431.00    CSR          @AV,1    IFNE *HIVAL
1432.00    CSR          $WRK10   LOKUP@AV                         @1
1433.00    CSR          *IN91    IFEQ '0'
1434.00    CSR                   MOVE '1'           $SrTST
1435.00    CSR                   END
1436.00    CSR          $SRTST   IFEQ '1'
1437.00    CSR                   MOVE '1'           @MX,07
1438.00    CSR                   SETON                        4793
1439.00    CSR                   END
1440.00    CSR                   END
1441.00    CSR                   END
1442.00    CSR                   END
1443.00    C*
1444.00    C*    Edit upper and lower range - Item Unit of Measure
1445.00    C*
1446.00    CSR          L@XUM    IFNE *BLANK
1447.00    CSR                   MOVE '1'           $SRTST
1448.00    CSR          QXXUM    IFGE L@XUM
1449.00    CSR          QXXUM    ANDLEU@XUM
1450.00    CSR                   MOVE ' '           $SRTST
1451.00    CSR                   END
1452.00    CSR          $SRTST   IFEQ '1'
1453.00    CSR                   MOVE '1'           @MX,07
1454.00    CSR                   SETON                        4793
1455.00    CSR                   END
1456.00    CSR                   END
1457.00    C*
1458.00    C*    Edit from User Defined Codes - Item Unit of Measure
1459.00    C*
1460.00    CSR          R@XUM    IFNE *BLANK
1461.00    CSR                   CLEARI0005U
1462.00    CSR                   MOVELG@XUM         #UEY
1463.00    CSR                   MOVE R@XUM         #UNT
1464.00    CSR                   MOVE QXXUM         #UKY
1465.00    CSR                   CALL 'X0005'                     @1
1466.00    C*                    ---- --------
1467.00    CSR                   PARM               I0005U
1468.00    CSR          #UERR    IFEQ '1'
1469.00    CSR                   MOVE '1'           @MX,09
1470.00    CSR                   SETON                        4793
1471.00    CSR                   END
1472.00    CSR                   END
```

Figure 23–24   Maintenance Program without a Subfile (part 20)

```
1473.00     C*--------------------------------------------------------------------------------
1474.00     C*
1475.00     C*     Scrub and edit - Item Category Code 001
1476.00     C*
1477.00     CSR               MOVELVDX001           QXX001
1478.00     C*
1479.00     C*     Get default value - Item Category Code 001
1480.00     C*
1481.00     CSR          QXX001   IFEQ *BLANK
1482.00     CSR          D@X001   IFNE *BLANK
1483.00     CSR                   MOVEAD@X001           @40
1484.00     CSR                   MOVAA@40             QXX001
1485.00     CSR          @40,1    IFEQ ''''
1486.00     CSR                   MOVE ' '             @40,1
1487.00     CSR                   Z-ADD2               #M
1488.00     CSR          #M       DOMLE@40
1489.00     CSR          @40,#M   IFEQ ''''
1490.00     CSR                   MOVE ' '             @40,#M
1491.00     CSR                   END
1492.00     CSR                   ADD  1               #M
1493.00     CSR                   END
1494.00     CSR                   MOVEA@40,2           QXX001
1495.00     CSR                   END
1496.00     CSR                   END
1497.00     CSR                   END
1498.00     C*
1499.00     C*     Edit allowed values - Item Category Code 001
1500.00     C*
1501.00     CSR          A@X001   IFNE *BLANK
1502.00     CSR          A@X001   IFEQ '*NB'
1503.00     CSR          QXX001   ANDEQ*BLANK
1504.00     CSR                   MOVE '1'             @MK,03
1505.00     CSR                   SETON                          4993
1506.00     CSR                   ELSE
1507.00     CSR                   MOVEAA@X001           @40
1508.00     CSR                   MOVE *HIVAL          @AV
1509.00     CSR                   EXSR C997
1510.00     C*                    ---- ----
1511.00     CSR                   MOVE ' '             $ERTST  1
1512.00     CSR                   MOVE *BLANK          $WRK10 10
1513.00     CSR                   MOVELQXX001          $WRK10
1514.00     CSR          @AV,1    IFNE *HIVAL
1515.00     CSR          $WRK10   LOKUP@AV                        91
1516.00     CSR          *IN91    IFEQ '0'
1517.00     CSR                   MOVE '1'             $ERTST
1518.00     CSR                   END
1519.00     CSR          $ERTST   IFEQ '1'
1520.00     CSR                   MOVE '1'             @MK,07
1521.00     CSR                   SETON                          4993
1522.00     CSR                   END
1523.00     CSR                   END
1524.00     CSR                   END
1525.00     CSR                   END
1526.00     C*
1527.00     C*     Edit upper and lower range - Item Category Code 001
1528.00     C*
1529.00     CSR          L@X001   IFNE *BLANK
1530.00     CSR                   MOVE '1'             $ERTST
1531.00     CSR          QXX001   IFGE L@X001
1532.00     CSR          QXX001   ANDLEU@X001
1533.00     CSR                   MOVE ' '             $ERTST
1534.00     CSR                   END
1535.00     CSR          $ERTST   IFEQ '1'
1536.00     CSR                   MOVE '1'             @MK,07
1537.00     CSR                   SETON                          4993
1538.00     CSR                   END
1539.00     CSR                   END
1540.00     C*
1541.00     C*     Edit from User Defined Codes - Item Category Code 001
1542.00     C*
1543.00     CSR          R@X001   IFNE *BLANK
1544.00     CSR                   CLEARI0005U
1545.00     CSR                   MOVELS@X001          #UGY
1546.00     CSR                   MOVE P@X001          #URT
154-.00     CSR                   MOVE QXX001          #UKY
1548.00     CSR                   CALL 'X0005'                    91
1549.00     C*                    ---- --------
```

Figure 23–25   Maintenance Program without a Subfile (part 21)

```
1550.00   CSR                        PARM              I0005U
1551.00   CSR         #USRX    IFEQ '1'
1552.00   CSR                  MOVE '1'            @MK,09
1553.00   CSR                  SETON                          4993
1554.00   CSR                  END
1555.00   CSR                  END
1556.00   C*-------------------------------------------------------------------------
1557.00   C*
1558.00   C*     Scrub and edit - Item Category Code 002
1559.00   C*
1560.00   CSR                  MOVELVDX002         QXX002
1561.00   C*
1562.00   C*     Get default value - Item Category Code 002
1563.00   C*
1564.00   CSR         QXX002   IFEQ *BLANK
1565.00   CSR         DSX002   IFNE *BLANK
1566.00   CSR                  MOVEADSX002         @40
1567.00   CSR                  MOVEA@40            QXX002
1568.00   CSR         @40,1    IFEQ ''''
1569.00   CSR                  MOVE ' '            @40,1
1570.00   CSR                  Z-ADD2              #M
1571.00   CSR         #M       DOWLE#40
1572.00   CSR         @40,#M   IFEQ ''''
1573.00   CSR                  MOVE ' '            @40,#M
1574.00   CSR                  END
1575.00   CSR                  ADD  1              #M
1576.00   CSR                  END
1577.00   CSR                  MOVEA@40,2          QXX002
1578.00   CSR                  END
1579.00   CSR                  END
1580.00   CSR                  END
1581.00   C*
1582.00   C*     Edit allowed values - Item Category Code 002
1583.00   C*
1584.00   CSR         ASX002   IFNE *BLANK
1585.00   CSR         ASX002   IFEQ '*ND'
1586.00   CSR         QXX002   ANDEQ*BLANK
1587.00   CSR                  MOVE '1'            @MK,03
1588.00   CSR                  SETON                          4993
1589.00   CSR                  ELSE
1590.00   CSR                  MOVEAASX002         @40
1591.00   CSR                  MOVE *HIVAL         @AV
1592.00   CSR                  EXSR C997
1593.00   C*                   ---- ----
1594.00   CSR                  MOVE ' '            $ERTST
1595.00   CSR                  MOVE *BLANK         $WRX10 10
1596.00   CSR                  MOVELQXX002         $WRX10
1597.00   CSR         @AV,I    IFNE *HIVAL
1598.00   CSR         $WRX10   LOKUP@AV                        91
1599.00   CSR         *IN91    IFEQ '0'
1600.00   CSR                  MOVE '1'            $ERTST
1601.00   CSR                  END
1602.00   CSR         $ERTST   IFEQ '1'
1603.00   CSR                  MOVE '1'            @MK,07
1604.00   CSR                  SETON                          4993
1605.00   CSR                  END
1606.00   CSR                  END
1607.00   CSR                  END
1608.00   CSR                  END
1609.00   C*
1610.00   C*     Edit upper and lower range - Item Category Code 002
1611.00   C*
1612.00   CSR         LSX002   IFNE *BLANK
1613.00   CSR                  MOVE '1'            $ERTST
1614.00   CSR         QXX002   IFGE LSX002
1615.00   CSR         QXX002   ANDLEUSX002
1616.00   CSR                  MOVE ' '            $ERTST
1617.00   CSR                  END
1618.00   CSR         $ERTST   IFEQ '1'
1619.00   CSR                  MOVE '1'            @MK,07
1620.00   CSR                  SETON                          4993
1621.00   CSR                  END
1622.00   CSR                  END
1623.00   C*
1624.00   C*     Edit from User Defined Codes - Item Category Code 002
1625.00   C*
1626.00   CSR         RSX002   IFNE *BLANK
```

Figure 23–26   Maintenance Program without a Subfile (part 22)

Figure 23–27   Maintenance Program without a Subfile (part 23)

```
1704.00   CSR               END
1705.00   CSR               END
1706.00   C*
1707.00   C*      Edit from User Defined Codes - Item Category Code 003
1708.00   C*
1709.00   CSR       N@X003   IFNE *BLANK
1710.00   CSR                CLEARI0005U
1711.00   CSR                MOVEL@@X003           #USV
1712.00   CSR                MOVE P@X003           #UST
1713.00   CSR                MOVE Q@X003           #UXY
1714.00   CSR                CALL 'X0005'                    91
1715.00   C*                 ---- -------
1716.00   CSR                PARM                  I0005U
1717.00   CSR       #UERR    IFEQ '1'
1718.00   CSR                MOVE '1'              @MK,09
1719.00   CSR                SETON                           5093
1720.00   CSR                END
1721.00   CSR                END
1722.00   C*--------------------------------------------------------------------------------
1723.00   Ct
1724.00   C*      Scrub and edit - Item Category Code 004
1725.00   C*
1726.00   CSR                MOVELVDX004           QXX004
1727.00   C*
1728.00   Ct      Set default value - Item Category Code 004
1729.00   C*
1730.00   CSR       QXX004   IFEQ *BLANK
1731.00   CSR       D@X004   IFNE *BLANK
1732.00   CSR                MOVEAD@X004           @40
1733.00   CSR                MOVEA@40              QXX004
1734.00   CSR       @40,1    IFEQ ''''
1735.00   CSR                MOVE ' '              @40,1
1736.00   CSR                Z-ADD2                #M
1737.00   CSR       #M       D0WLE@40
1738.00   CSR       @40,#M   IFEQ ''''
1739.00   CSR                MOVE ' '              @40,#M
1740.00   CSR                END
1741.00   CSR                ADD  1                #M
1742.00   CSR                END
1743.00   CSR                MOVEA@40,2            QXX004
1744.00   CSR                END
1745.00   CSR                END
1746.00   CSR                END
1747.00   C*
1748.00   C*      Edit allowed values - Item Category Code 004
1749.00   C*
1750.00   CSR       A@X004   IFNE *BLANK
1751.00   CSR       A@X004   IFEQ '*NE'
1752.00   CSR       QXX004   ANDEQ*BLANK
1753.00   CSR                MOVE '1'              @MK,03
1754.00   CSR                SETON                           5193
1755.00   CSR                ELSE
1756.00   CSR                MOVEAA@X004           @40
1757.00   CSR                MOVE *HIVAL           @AV
1758.00   CSR                EXSR C997
1759.00   C*                 ---- ----
1760.00   CSR                MOVE ' '              $ERTST 1
1761.00   CSR                MOVE *BLANK           $WRK10 10
1762.00   CSR                MOVELQXX004           $WRK10
1763.00   CSR       @AV,1    IFNE *HIVAL
1764.00   CSR       $WRK10   LOKUP@AV                        91
1765.00   CSR       *IN91    IFEQ '0'
1766.00   CSR                MOVE '1'              $ERTST
1767.00   CSR                END
1768.00   CSR       $ERTST   IFEQ '1'
1769.00   CSR                MOVE '1'              @MK,07
1770.00   CSR                SETON                           5193
1771.00   CSR                END
1772.00   CSR                END
1773.00   CSR                END
1774.00   CSR                END
1775.00   C*
1776.00   C*      Edit upper and lower range - Item Category Code 004
1777.00   C*
1778.00   CSR       L@004    IFNE *BLANK
1779.00   CSR                MOVE '1'              $ERTST
1780.00   CSR       QXX004   IFGE L@X004
```

Figure 23–28   Maintenance Program without a Subfile (part 24)

```
1781.00    CSR         QXX004      ANDLEUSX004
1782.00    CSR                     MOVE ' '           SERTST
1783.00    CSR                     END
1784.00    CSR         SERTST      IFEQ '1'
1785.00    CSR                     MOVE '1'           @MX,07
1786.00    CSR                     SETON                            5193
1787.00    CSR                     END
1788.00    CSR                     END
1789.00    C*
1790.00    C*     Edit from User Defined Codes - Item Category Code 004
1791.00    C*
1792.00    CSR         R@X004      IFNE *BLANK
1793.00    CSR                     CLEARI0005U
1794.00    CSR                     MOVELS@X004        #USY
1795.00    CSR                     MOVE R@X004        #URT
1796.00    CSR                     MOVE QXX004        #UXY
1797.00    CSR                     CALL 'X0005'                     @1
1798.00    C*                      ----- --------
1799.00    CSR                     PARM               I0005U
1800.00    CSR         #VERR       IFEQ '1'
1801.00    CSR                     MOVE '1'           @MX,09
1802.00    CSR                     SETON                            5193
1803.00    CSR                     END
1804.00    CSR                     END
1805.00    C*--------------------------------------------------------------------
1806.00    C*
1807.00    C*     Scrub and edit - Item Category Code 005
1808.00    C*
1809.00    CSR                     MOVELVDX005        QXX005
1810.00    C*
1811.00    C*     Set default value - Item Category Code 005
1812.00    C*
1813.00    CSR         QXX005      IFEQ *BLANK
1814.00    CSR         D@X005      IFNE *BLANK
1815.00    CSR                     MOVEAD@X005        @40
1816.00    CSR                     MOVEA@40           QXX005
1817.00    CSR         @40,1       IFEQ''''
1818.00    CSR                     MOVE ' '           @40,1
1819.00    CSR                     Z-ADD2             #M
1820.00    CSR         #M          DOWLE#40
1821.00    CSR         @40,#M      IFEQ
1822.00    CSR                     MOVE ' '           @40,#M
1823.00    CSR                     END
1824.00    CSR                     ADD  1             #M
1825.00    CSR                     END
1826.00    CSR                     MOVEA@40,2         QXX005
1827.00    CSR                     END
1828.00    CSR                     END
1829.00    CSR                     END
1830.00    C*
1831.00    C*     Edit allowed values - Item Category Code 005
1832.00    C*
1833.00    CSR         A@X005      IFNE *BLANK
1834.00    CSR         A@X005      IFEQ '*NB'
1835.00    CSR         QXX005      ANDEQ*BLANK
1836.00    CSR                     MOVE '1'           @MX,03
1837.00    CSR                     SETON                            5293
1838.00    CSR                     ELSE
1839.00    CSR                     MOVEAA@X005        @40
1840.00    CSR                     MOVE *NIVAL        @AV
1841.00    CSR                     EXGR C997
1842.00    C*                      ----- ----
1843.00    CSR                     MOVE ' '           SERTST
1844.00    CSR                     MOVE *BLANK        $WRK10 10
1845.00    CSR                     MOVELQXX005        $WRK10
1846.00    CSR         @AV,1       IFNE *NIVAL
1847.00    CSR         $WRK10      LOKUP@AV                         @1
1848.00    CSR         *IN91       IFEQ '0'
1849.00    CSR                     MOVE '1'           SERTST
1850.00    CSR                     END
1851.00    CSR         SERTST      IFEQ '1'
1852.00    CSR                     MOVE '1'           @MX,07
1853.00    CSR                     SETON                            5293
1854.00    CSR                     END
1855.00    CSR                     END
1856.00    CSR                     END
1857.00    CSR                     END
```

Figure 23–29   Maintenance Program without a Subfile (part 25)

```
1958.00  C*
1959.00  C*      Edit upper and lower range - Item Category Code 005
1960.00  C*
1961.00  CSR       L@X005    IFNE *BLANK
1962.00  CSR                 MOVE '1'            $SRTST
1963.00  CSR       QXX005    IFGE L@X005
1964.00  CSR       QXX005    ANDLEU@X005
1965.00  CSR                 MOVE ' '            $SRTST
1966.00  CSR                 END
1967.00  CSR       $SRTST    IFEQ '1'
1968.00  CSR                 MOVE '1'            @MX,07
1969.00  CSR                 SETON                    5293
1970.00  CSR                 END
1971.00  CSR                 END
1972.00  C*
1973.00  C*      Edit from User Defined Codes - Item Category Code 005
1974.00  C*
1975.00  CSR       R@X005    IFNE *BLANK
1976.00  CSR                 CLEARI0005U
1977.00  CSR                 MOVEL@@X005         #UKY
1978.00  CSR                 MOVE R@X005         #UKT
1979.00  CSR                 MOVE QXX005         #UKY
1980.00  CSR                 CALL 'X0005'             91
1981.00  C*
1982.00  CSR                 PARM                I0005U
1983.00  CSR       #UERR     IFEQ '1'
1984.00  CSR                 MOVE '1'            @MX,09
1985.00  CSR                 SETON                    5293
1986.00  CSR                 END
1987.00  CSR                 END
1988.00  C*----------------------------------------------------------------------
1989.00  CSR       END005    ENDSR
1990.00  C******************************************************************
1991.00  C*
1992.00  C*      Copy Common Subroutine - Currency - Translate Video Fields to Data Base
1993.00  C*
1994.00  C/COPY JDSCPY,C00151
1995.00  C******************************************************************
1996.00  C*
1997.00  C*      Copy Common Subroutine - Build Allowed Values Work Array
1998.00  C******************************************************************
1999.00  C/COPY JDSCPY,C997
1900.00  C******************************************************************
1901.00  C*
1902.00  C*      SUBROUTINE 2010 - Update Data Base
1903.00  C*      --------------------------------------
1904.00  C*
1905.00  C*      Processing:  1.   Update data base file based upon valid
1906.00  C*                        action codes.
1907.00  C*
1908.00  CSR       2010      BEGSR
1909.00  C*      ----      -----
1910.00  C*
1911.00  C*      If add action, add record.
1912.00  C*
1913.00  CSR       *IN21     IFEQ '1'
1914.00  CSR                 WRITEI92001              99
1915.00  CSR                 END
1916.00  C*
1917.00  C*      If change action, update record.
1918.00  C*
1919.00  CSR       *IN22     IFEQ '1'
1920.00  CSR                 UDATI92001               99
1921.00  CSR                 END
1922.00  C*
1923.00  C*      If delete action, delete record.
1924.00  C*
1925.00  CSR       *IN23     IFEQ '1'
1926.00  CSR                 DELETI92001              99
1927.00  CSR                 END
1928.00  C*
```

Indicator value for action code is
assigned in copy module C0001.

Figure 23–30   Maintenance Program without a Subfile (part 26)

Figure 23–31   Maintenance Program without a Subfile (part 27)

```
2006.00    C*      Dictionary parameters for - Date Last Ship
2007.00    C*
2008.00    CSR               MOVE *BLANK      PRDTAI
2009.00    CSR               MOVEL' XDT'      PRDTAI
2010.00    CSR               CALL 'X9900E'                 91
2011.00    C*                ---- ---------
2012.00    CSR               PARM             I9900E
2013.00    CSR      PRERR    IFEQ '0'
2015.00    CSR               MOVE PRDTAT      T@XDT        1
2016.00    CSR               MOVE PREC        B@XDT        1
2017.00    CSR               MOVE PRDTAS      C@SDT        50
2018.00    CSR               MOVE PRDTAD      G@XDT        20
2019.00    CSR               MOVE PRCDEC      P@XDT        1
2020.00    CSR               MOVELPRSY        S@XDT        4
2021.00    CSR               MOVE PRRT        R@XDT        2
2022.00    CSR               MOVE PRDVAL      D@XDT        40
2023. Co   CSR               MOVE PRVAL       A@XDT        40
2024.00    CSR               MOVE PRLVAL      L@XDT        40
2025.00    CSR               MOVE PRUVAL      U@XDT        40
2026.00    CSR               MOVE PREDWR      W@XDT        30
2027.00    CSR               MOVE PRLR        J@xDT        1
2028.00    CSR               MOVE PRSSIX      H@XDT        20
2029.00    CSR               Z-ADD1           @@XDT        110
2030.00    CSR               MOVE P@XDT       #A
2031.00    CSR               DO   #A
2032.00    CSR               MULT 10          #@XDT
2033.00    CSR               END
2034.00    CSR               END
2035.00    C*--------------------------------------------------------------------
2036.00    C*
2037.00    C*      Dictionary parameters for - Item ID
2038.00    C*
2039.00    CSR               MOVE *BLANK      PRDTAI
2040.00    CSR               MOVEL'XIT'       PRDTAI
2041.00    CSR               CALL 'X9900E'                 91
2042.00    C*                ---- ---------
2043.00    CSR               PARM             I9900E
2044.00    CSR      PRERR    IFEQ '0'
2046.00    CSR               MOVE PRDTAT      T@XIT        1
2047.00    CSR               MOVE PREC        B@XIT        1
2048.00    CSR               MOVE PRDTAS      C@XIT        50
2049.00    CSR               MOVE PRDTAD      G@XIT        20
2050.00    CSR               MOVE PRCDEC      P@XIT        1
2051.00    CSR               MOVELPRSY        S@XIT        4
2052.00    CSR               MOVE PRRT        R@XIT        2
2053.00    CSR               MOVE PRDVAL      D@XIT        40
2054.00    CSR               MOVE PRVAL       A@XIT        40
2055.00    CSR               MOVE PRLVAL      L@XIT        40
2056.00    CSR               MOVE PRUVAL      U@XIT        40
2057.00    CSR               MOVE PREDWR      W@XIT        30
2058.00    CSR               MOVE PRLR        J@XIT        1
2059.00    CSR               MOVE PRSSIX      H@XIT        20
2060.00    CSR               Z-ADD1           @@XIT        110
2061.00    CSR               MOVE P@XIT       #A
2062.00    CSR               DO   #A
2063.00    CSR               MULT 10          #@XIT
2064.00    CSR               END
2065.00    CSR               END
2066.00    C* --------------------------------------------------------------------
2067.00    C*
2068.00    C*      Dictionary parameters for - Quantity - On Hand
2069.00    C*
2070.00    CSR               MOVE *BLANK      PRDTAI
2071.00    CSR               MOVEL'XQT'       PRDTAI
2072.00    CSR               CALL 'X9900E'                 91
2073.00    C*                ---- ---------
2074.00    CSR               PARM             I9900E
2075.00    CSR      PRERR    IFEQ '0'
2077.00    CSR               MOVE PRDTAT      T@XQT        1
2078.00    CSR               MOVE PREC        B@XQT        1
2079.00    CSR               MOVE PRDTAS      C@XQT        50
2080.00    CSR               MOVE PRDTAD      G@XQT        20
2081.00    CSR               MOVE PRCDEC      P@QXT        1
2082.00    CSR               MOVELPRSY        S@XQT        4
```

Figure 23–32   Maintenance Program without a Subfile (part 28)

Figure 23–33   Maintenance Program without a Subfile (part 29)

```
2160.00    C*
2161.00    C*        Dictionary parameters for - Item Category Code 001
2162.00    C*
2163-CO    CSR                     MOVE 'BLANK       PRDTAI
2164.00    CSR                     MOVEL'X001'       PRDTAI
2165.00    CSR                     CALL 'X9900B'                        91
2166.00    C*                      ---- ---------
2167.00    CSR                     PARM              I9900B
2168.00    CSR         PRERR       IFEQ '0'
2170.00    CSR                     MOVE PRDTAT       T8X001         1
2171.00    CSR                     MOVE PREC         B8X001         1
2172.00    CSR                     MOVE PRDTAS       C8X001         50
2173.00    CSR                     MOVE PRDTAD       G8X001         20
2174.00    CSR                     MOVE PRCDEC       F8X001         1
2175.00    CSR                     MOVELPRSV         R8X001         4
2176.00    CSR                     MOVE PRRT         R8X001         2
2177.00    CSR                     MOVE PRDVAL       D8X001         40
2178.00    CSR                     MOVE PRVAL        A8X001         40
2179.00    CSR                     MOVE PRLVAL       L8X001         40
2180.00    CSR                     MOVE PRUVAL       U8X001         40
2181.00    CSR                     MOVE PREDWR       W8X001         30
2182.00    CSR                     MOVE PRLR         J8X001         1
2183.00    CSR                     MOVE PRRRIX       H8X001         20
2184.00    CSR                     Z-ADD1            H8X001         110
2185.00    CSR                     MOVE P8X001       RA
2186.00    CSR                     DO   RA
2187.00    CSR                     MULT 10           H8X001
2188.00    CSR                     END
2189.00    CSR                     END
2190.00    C*----------------------------------------------------------------------
2191.00    C*
2192.00    C*        Dictionary parameters for - Item Category Code 002
2193.00    C*
2194.00    CSR                     MOVE 'BLANK       PRDTAI
2195.00    CSR                     MOVEL'X002'       PRDTAI
2196.00    CSR                     CALL 'X9900B'                        91
2197.00    C*                      ---- ---------
2198.00    CSR                     PARM              I9900B
2199.00    CSR         PRERR       IFEQ '0'
2201.00    CSR                     MOVE PRDTAT       T8X002         1
2202.00    CSR                     MOVE PREC         B8X002         1
2203.00    CSR                     MOVE PRDTAS       C8X002         50
2204.00    CSR                     MOVE PRDTAD       G8X002         20
2205.00    CSR                     MOVE PRCDEC       F8X002         1
2206.00    CSR                     MOVELPRSV         R8X002         4
2207.00    CSR                     MOVE PRRT         R8X002         2
2208.00    CSR                     MOVE PRDVAL       D8X002         40
2209.00    CSR                     MOVE PRVAL        A8X002         40
2210.00    CSR                     MOVE PRLVAL       L8X002         40
2211.00    CSR                     MOVE PRUVAL       U8X002         40
2212.00    CSR                     MOVE PREDWR       W8X002         30
2213.00    CSR                     MOVE PRLR         J8X002         1
2214.00    CSR                     MOVE PRRRIX       H8X002         20
2215.00    CSR                     Z-ADD1            H8X002         110
2216.00    CSR                     MOVE P8X002       RA
2217.00    A-                      DO   RA
2218.00    CSR                     MULT 10           H8X002
2219.00    CSR                     END
2220.00    CSR                     END
2221.00    Ct
2222.00    C*
2223.00    C*        Dictionary parameters for - Item Category Code 003
2224.00    C*
2225.00    CSR                     MOVE 'BLANK       PRDTAI
2226.00    CSR                     MOVEL'X003'       PRDTAI
2227.00    CSR                     CALL 'X9900B'                        91
2228.00    C*                      ---- ---------
2229.00    CSR                     PARM              I9900B
2230.00    CSR         PRERR       IFEQ '0'
2232.00    CSR                     MOVE PRDTAT       T8X003         1
2233.00    CSR                     MOVE PREC         B8X003         1
2234.00    CSR                     MOVE PRDTAS       C8X003         50
2235.00    CSR                     MOVE PRDTAD       G8X003         20
2236.00    CSR                     MOVE PRCDEC       F8X003         1
```

Figure 23–34   Maintenance Program without a Subfile (part 30)

Figure 23–35   Maintenance Program without a Subfile (part 31)

Figure 23–36   Maintenance Program without a Subfile (part 32)

24

User Spaces

This chapter contains these topics:

- Section 24.1, "About User Spaces"

- Section 24.2, "What Is a User Space?"

- Section 24.3, "What Are the Advantages of Using a User Space?"

- Section 24.4, "How Does a User Space Function?"

- Section 24.5, "Creating a User Space"

- Section 24.6, "Writing to a User Space"

- Section 24.7, "Reading from a User Space"

24.1 About User Spaces

User spaces are IBM Operating System objects managed by Application Program Interfaces (APIs) to store data. User Object APIs create, manipulate, and delete user spaces and indexes. An API provides you with:

- A faster method of retrieving information

- A means of dynamically modifying sizes

- A means of manipulating user objects

You should place your user spaces in library QTEMP so that it is deleted automatically when the user signs off.

24.2 What Is a User Space?

A user space is an object made up of a collection of bytes that are used for storing any user defined information.

When you use a user space, there is no key to retrieve the information placed in the space. Therefore, the information in the user space is in the order that it was entered. A user space can store up to 16 megabytes of information.

Note: To see the contents of a user space, enter the command DMPOBJ (Dump Object) from any command line after the space has been loaded.

24.3 What Are the Advantages of Using a User Space?

The main advantage of using a user space is its speed. Because a user space consists of a string of bytes instead of elements like an array, you can write and retrieve records faster using a user space than an array.

In addition to speed, a user space provides you with more flexibility. A user space does not have a fixed record length. When you write a record to a user space, you define the length of that record. Therefore, each record you write to your user space can be a different size. In addition, it is possible to dynamically increase the size of your user space by calling the Enter User Space program (X00SPC) after creating the user space.

For example: @EX 999 30

The array @EX has a fixed record length of 30, therefore no record smaller or larger than 30 bytes can be written to this array.

User spaces are also used when communicating between two programs. The space can carry information loaded in one program to another program for retrieval.

For example: Program A creates the user space and loads information into a user space. Then Program A calls Program B and passes the name of the user space to it. Program B can retrieve information from the user space that was loaded by Program A.

24.4 How Does a User Space Function?

Remember that a user space is nothing more than a collection of bytes used to store information.

You write information to a user space, as well as retrieve information from it. Since there is no key associated with a user space, the information contained in a user space is in a user-defined order. The order is based on program controlled offset and length values.

24.5 Creating a User Space

To create a User Space

1. Determine if a user space already exists by using the JD Edwards World program J98CKOBJ.

Figure 24–1   Program J98CKOBJ

```
For example:    CALL        'J98CKOBJ'        81

                - - - -      - - - - - -

                PARM                PSOBJ

                PARM                PSLIB

                PARM                PSTYPE

                PARM                PSMID

                PARM                PSAUT

                PARM                PSERR
```

PARM (Length)	Description
PSOBJ (10)	The name of your user space.
PSLIB (10)	The name of the library in which you wish to check for the existence of the user space. Generally, this is *LIBL to check all of the libraries in the library list.
PSTYPE (8)	The type of object you are checking for. Generally, this is *USRSPC for a user space.
PSMID (10)	The member ID if you are checking for a database file. Generally, this is *NONE.
PSAUT (10)	The authority or authorization list to be checked for the user. Generally, this is *NONE.
PSERR (1)	The error parameter that will indicate an error while checking your object. Generally, this is initialized with *BLANK. 0 – No authority 1 – Not found 3 – No library 4 – Member not found 5 – No authority to library 6 – Cannot assign library

2. Do one of the following:

    ■   If a user space does exist you should clear it and write your new information over the old.

    ■   If the user space does not exist and no errors occurred, you can create your user space. To create a user space, use the QUSCRTUS (Create User Space) command.

Figure 24–2   Create User Space

```
For example:    CALL        'QUSCRTUS'      81

                ----        -------

                PARM        #SPNAM

                PARM        #SPATT

                PARM        #SPSIZ

                PARM        #SPVAL

                PARM        #SPAUT

                PARM        #SPTXT
```

PARM (Length))	Description
#SPNAM (20)	The first 10 characters contain your user space name, and the second 10 characters contain the name of the library where your user space is located. Remember; place your user space in library QTEMP to automatically delete your space when you sign off.
#SPATT (10)	The extended attribute of your user space. You may use this field to classify your user space. For example, JD Edwards World uses this field to label all of the user spaces with JD Edwards World.
#SPSIZ (4 binary)	The initial size of your user space. Any value from 1 byte to 16 megabytes.
#SPVAL (1)	The initial value of all bytes in the user space. Generally, this is *BLANK.
#SPAUT (10)	The authority you give users to your user space. Generally, this is *ALL.
#SPTXT (50)	The text description of your user space.

To dynamically increase the size of your user space when maximum allocation is reached, call the Enlarge User Space program (X00SPC).

Figure 24–3   Enlarge User Space Program

```
For example:    CALL        'X00SPC'        81

                ----        -----

                PARM        #XSPCN

                PARM        #XRQSZ

                PARM        #XERR
```

PARM (Length))	Description
#XSPCN (20)	The first 10 characters contain your user space name, and the second 10 characters contain the name of the library where your user space is located.
#XRQSZ (15,0)	The requested size to increase your space.
#XERR (1)	An error flag: 1 – Space not found 2 – Not authorized 3 – Error

24.6 Writing to a User Space

To write to a User Space
Use either the QUSCHGUS or the X98CHGUS (Change User Space) command.

Figure 24–4   Change User Space Command

PARM (Length))	Description
#SPNAM (20)	The first 10 characters contain your user space name, and the second 10 characters contain the name of the library where your user space is located.
#SPPOS (4 binary)	The starting position in your user space where the information will begin. It must be the first byte and must have a value greater than 0.
#SPLGH (4 binary)	The length of the information that is being written to your user space. This field is user-defined, but it must be greater than 0.
#SPVAL (* user defined)	The actual information to be written to your user space. The field must be at least as long as the length parameter.
#SPAUX (1)	Used to force changes made to your user space to auxiliary storage, such as a disk. The valid values are: 0 – do not force changes 1 – write changes 2 – write changes immediately

> **Note:** The X98CHGUS program, JD Edwards World's version of the IBM command QUSCHGUS, will perform a transfer control to QUSCHGUS.

24.6.1 Tracking Information if Writing Variable Length Records

Method 1

During the process of writing information to your user space, you should keep track of a pointer. This will ensure that you will not overwrite information or retrieve incorrect information.

One way to keep track of the pointer is to initialize it to 1. After you write information to your user space, add the length of the information to your pointer. The pointer is now set at the next starting point and ready for you to enter new information.

If the information you are writing to your user space contains various lengths, you should maintain the length of each piece of information in save fields. You can use the save fields when you wish to retrieve the information from your user space.

Figure 24–5 Keeping Track of a Pointer

Method 2

You can also reserve the first 2 or 3 bytes of every record for the size of that record. Then you would only have to load that part of the record with its length. When you read the record from the user space, the first 2 or 3 bytes will tell you how long the record is.

24.7 Reading from a User Space

Once you have loaded information into your user space, you are ready to retrieve it. Do not forget that your pointer must be set to the proper starting position to ensure the correct information is retrieved.

To read from a User Space

Use the QUSRTVUS (Retrieve User Space) command.

Figure 24–6   Retrieve User Space Command

```
For example:    CALL        'QUSRTVUS'      81

                - - - -      - - - - - - -

                PARM        #SPNAM

                PARM        #SPPOS

                PARM        #SPLGH

                PARM        #SPREC
```

PARM (Length))	Description
#SPNAM (20)	The first 10 characters contain your user space name, and the second 10 characters contain the name of the library where your user space is located.
#SPPOS (4 binary)	The starting position in your user space where the information will begin. It must be the first byte and must have a value greater than 0.
#SPLGH (4 binary)	The length of the information that is being retrieved to your user space. This field is user-defined, it must not be larger than the variable that will receive the information, and it must be greater than 0.
#SPREC (* user defined)	The variable that will receive the information from your user space.

25

User Indices

This chapter contains these topics:

25.1 About User Indices

A user index is an object that will:

- Store data

- Allow search functions

- Automatically sort data based on its value

When you use a user index you must have a key to retrieve the information placed in the index. The key must be unique and you can only retrieve data using the key in ascending or descending order.

When you enter data into a user index, it is placed in order according to its key value.

A user index can store up to 4 gigabytes of information. Each key and record within a user index can be 1 to 999 bytes long.

> **Note:**   To see the contents of a user index, enter the command DMPOBJ (Dump Object) from any command line after the index has been loaded. You should place your user indices in library QTEMP so that it will be deleted automatically when you sign off.

To work with user indices, perform the following tasks:

- Create a User Index

- Write to a User Index

- Retrieve from a User Index

25.2 What Are the Advantages of Using a User Index?

When you load data into your user index, it is automatically sorted for you. Based on your key for the index, the information is arranged according to its value. This will help streamline table searches, cross referencing, and the ordering of data.

The size flexibility of a user index is much better than an array because arrays have a fixed size. A user index is only as big as the information it contains at one time. User indices expand as you add data to them.

For example: @EX 999 30

The array @EX has a fixed size of approximately 3 kilobytes. Each record must be 30 bytes long and up to 999 records can be loaded. If you have 300 records loaded into @EX, you will waste approximately 2 kilobytes. On the other hand, if you have 1500 records to load, the program will error when record number 1000 is loaded. A user index would be able to accommodate both situations.

- A user index is able to retrieve records faster than an array.

- Although a user index may expand to hold more records, it will not contract when records are removed. If you load 100 records into a user index and then remove 50 of them, the user index will remain at the 100 record level size.

You may retrieve data from a user index in ascending order or descending order. When data is loaded into a user index, it is loaded in ascending order. This does not restrict you to retrieving it in this order.

25.3 How Does a User Index Function?

A user index stores data and allows you to retrieve it by a key, which must be unique. The data it stores is made up of a data structure that consists of several fields that you wish to store. A user index is capable of expanding when you add data to it.

JD Edwards World leaves the first byte in the user index blank for clearing purposes.

Figure 25–1   User Index Data Structure
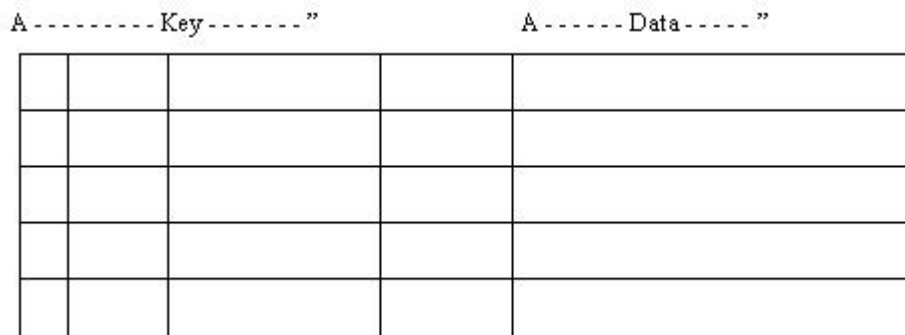
When using a user index you can create it, add data to it, remove data from it, and delete it.

User indices, like user spaces, should be created in your QTEMP library so you do not have to worry about deleting them.

25.4 Creating a User Index

To check for user index

Before you actually create a user index, check to see if one already exists using the JD Edwards World program J98CKOBJ.

Figure 25–2   J98CKOBJ Program

```
For example:    CALL      'J98CKOBJ'      81

                ----      ------

                PARM      PSOBJ

                PARM      PSLIB

                PARM      PSTYPE

                PARM      PSMID

                PARM      PSAUT

                PARM      PSERR
```

PARM (Length)	Description
PSOBJ (10)	The name of your user index.
PSLIB (10)	The name of the library in which you wish to check for the existence of the user index. Generally, this is *LIBL to check all of the libraries in the library list.
PSTYPE (8)	The type of object you are checking for. Generally, this is *USRIDX for a user index.
PSMID (10)	The member if you are checking for a database file. Generally, this is *NONE.
PSAUT (10)	The authority or authorization list to be checked for the user. Generally, this is *NONE.

If a user index exists, clear it and write your new information over the old.

Figure 25–3   Clearing All Records with a Blank Key

```
For example:    CALL      'X00IDX'                     81

                ----      -----

                PARM                      #0XNAM

                PARM      'D'             #0XACT

                PARM      'EQ'            #0XRUL

                PARM      '1'             #0XKLN

                PARM      *BLANK          #0XKEY

                PARM                      #0XRLN

                PARM                      #0XREC

                PARM                      #0XSTA
```

> **Note:**   The above code deletes (clears) every record with a key of
> *Blank in position one.

If the user index did not exist, you can now create your user index.

To create a User Index
Use the QUSCRTUI (Create User Index) command.

Figure 25–4   QUSCRTUI Commane

```
For example:    CALL      'QUSCRTUI'                   81

                ----      -------

                PARM                      #IDNAM

                PARM                      #IDATT

                PARM                      #IDENT

                PARM                      #IDLEN

                PARM                      #IDINS

                PARM                      #IDKEY

                PARM                      #IDUPD

                PARM                      #IDOPT

                PARM                      #IDAUT

                PARM                      #IDTXT
```

PARM (Length)	Description
#IDNAM (20)	The first 10 characters contain your user index name, and the second 10 characters contain the name of the library where your user index is located. Remember to place your user index in library QTEMP to automatically delete your index when you sign off.
#IDATT (10)	The extended attribute of your user index. You may use this field to classify your user index. For example, JD Edwards World uses this field to label all of the user indexes with JD Edwards World.
#IDENT (1)	Whether the records you are loading into your user index are Fixed-length (F) or Variable-length (V). Generally, this is set to 'F'.
#IDLEN (4 binary)	The length of the records to be entered into your user index. For fixed-length records valid values are 1 to 999. For variable-length records, enter 0 for a key length of 1 to 120, or 1 for a key length of 1 to 999.
#IDINS (1)	Whether you are loading your user index by a key or not. Generally, this is set to 1 to load your index by a key. A value of 0 means you are not loading your index by a key.
#IDKEY (4 binary)	The length of your key. The first byte in your record must be the beginning of your key. The values are 1 to 999 or 0 for no key.
#IDUPD (1)	Whether or not the data in your user index will be immediately updated. Each data change to your index is written to auxiliary storage. The values are 0 for no immediate update or 1 for immediate update. Generally, this is 0.
#IDOPT (1)	The type of access in which to optimize your index. The values are 0 to optimize for random references or 1 to optimize for sequential references. Generally, this is 1.
#SPAUT (10)	The authority you give users to your user index. Generally, this is *ALL.
#SPTXT (50)	The text description of your user index.

> **Note:** You may want to define data structures containing some of the information required for the parameters to avoid having to enter values. The user index name, record length, key length, and user index text are good examples.

25.5 Writing to a User Index

To write to a User Index

JD Edwards World provides an external program called User Index Server (X00IDX) to manipulate data for user index entries.

Figure 25–5 User Index Server program

```
For example:    CALL    'X00IDX'    81

                ----    -----

                PARM    #0XNAM

                PARM    #0XACT

                PARM    #0XRUL

                PARM    #0XKLN

                PARM    #0XKEY

                PARM    #0XRLN

                PARM    #0XREC

                PARM    #0XSTA
```

PARM (Length)	Description
#0XNAM (20)	The first 10 characters contain your user index name, and the second 10 characters contain the name of the library where your user index is located. Remember to place your user index in library QTEMP to automatically delete you index when you sign off.
#0XACT (1)	The action you want to perform on your user index. The valid values are: I – Inquire A – Add C – Change D – Delete
#0XRUL (2)	The rule used to search your user index depending on the action to be performed. The valid values are: EQ – Equal to GT – Greater than LT – Less than GE – Greater than or Equal to LE – Less than or Equal to
#0XKLN (3,0)	The length of your key. The first byte in your record must be the beginning of your key. The values are 1 to 999 or 0 for no key.
#0XKEY (120)	The fields that make up the key to your user index. *FIRST (first record) and *LAST (last record) are allowed.
#0XRLN (3,0)	The length of your record. The values are 1 to 999.
#0XREC (120)	The record you are entering or deleting from your user index. This parameter will also receive the record when you inquire on your user index.

PARM (Length)	Description
#0XSTA (1)	The error status of the manipulation. The possible values are:
	0 – Record found
	1 – Record not found, not authorized
	8 – Rule invalid
	9 – Error on action

25.6 Appearance of Records

The records added to your user index will appear in ascending order.

For example: You created a user index to keep track of your ice cream sales. Each record within your user index contains the total sales amount, item, item description, and cost center. The key for your user index consists of total sales amount and item (remember the key must be unique).

The following records are to be loaded into your user index:

Total	Sales Item	Description	Cost Center
$ 500.00	CHO	Chocolate	Denver
$ 250.00	STR	Strawberry	Denver
$ 750.00	C&C	Cookies & Cream	Denver
$1200.00	VAN	Vanilla	Denver
$ 400.00	ROC	Rocky Road	Denver

Because the key to your user index is total sales amount and item, the records will be entered into your index in ascending order by total sales amount first, then item. So your user index will look like this:

Ice Cream Sales Index

Total	Sales Item	Description	Cost Center
$ 250.00	STR	Strawberry	Denver
$ 400.00	ROC	Rocky Road	Denver
$ 500.00	CHO	Chocolate	Denver
$ 750.00	C&C	Cookies & Cream	Denver
$1200.00	VAN	Vanilla	Denver

25.7 Retrieving Data from a User Index

You can retrieve data in ascending or descending order.

To retrieve data in Ascending Order

1. Use the User Index Server (X00IDX).

2. Set the Action parm to inquire (I).

3. Set Rule to Equal to (EQ).

4. Set the Key to the first record (*FIRST).

Figure 25–6   User Index Server Set to Retrieve Data in Ascending Order

```
For example:   CALL      'X00IDX'

               - - - -    - - - - -

               PARM                   #0XNAM 20

               PARM      'I'          #0XACT  1

               PARM      'EQ'         #0XRUL  2

               PARM                   #0XKLN 30

               PARM      '*FIRST'     #0XKEY120

               PARM                   #0XRLN 30

               PARM                   #0XREC120

               PARM                   #0XSTA  1
```

5. To retrieve the next record, load the key with the current record's values and change your rule to "GT".

Figure 25–7   User Index Server Set to Retrieve the Next Record

```
For example:   CALL      'X00IDX'

               - - - -    - - - - -

               PARM                   #0XNAM 20

               PARM      'I'          #0XACT  1

               PARM      'GT'         #0XRUL  2

               PARM                   #0XKLN 30

               PARM                   #0XKEY120

               PARM                   #0XRLN 30

               PARM                   #0XREC120

               PARM                   #0XSTA  1
```

To retrieve data in descending order
1. Use the User Index Server (X00IDX).

2. Set the Action parm to inquire (I).

3. Set Rule to Equal to (EQ).

4. Set the Key to the first record (*LAST).

Figure 25–8   User Index Server Set to Retrieve Data in Descending Order

```
For example:    CALL     'X00IDX'

                ----     -----

                PARM                   #0XNAM 20

                PARM     'I'           #0XACT  1

                PARM     'GT'          #0XRUL  2

                PARM                   #0XKLN  30

                PARM                   #0XKEY120

                PARM                   #0XRLN  30

                PARM                   #0XREC120

                PARM                   #0XSTA  1
```

5. To retrieve the next record, load the key with the current record's values and change your rule to "LT".

Figure 25–9   User Index Server Set to Retrieve the Next Record

```
For example:    CALL     'X00IDX'

                ----     -----

                PARM                   #0XNAM 20

                PARM     'I'           #0XACT  1

                PARM     'LT'          #0XRUL  2

                PARM                   #0XKLN  30

                PARM                   #0XKEY120

                PARM                   #0XRLN  30

                PARM                   #0XREC120

                PARM                   #0XSTA  1
```

Figure 25–10   User Index Server report (part 1)

```
1.00     H/TITLE PINDEX     - User Index Demonstration
2.00     H* --------------------------------------------------------------------
3.00     H*
4.00     H*       copyright  (C) 1993
5.00     H*       J. D. Edwards & company
6.00     H*       this unpublished material is proprietary to
7.00     H*       J. D. Edwards & company.  All rights reserved.
8.00     H*       The methods and techniques described herein are
9.00     H*       considered trade secrets and/or confidential.
10.00    H*       reproduction or distribution, in whole or in part,
11.00    H*       is forbidden except by express written permission
12.00    H*       of J. D. Edwards & company.
13.00    H*
14.00    H*
15.00    H* --------------------------------------------------------------------
16.00    F*
17.00    F*       PROGRAM REVISION LOG
18.00    F*       --------------------
19.00    F*
20.00    F*           Date      Programmer        Nature of Revision
21.00    F*           --------  ----------  -------------------------------------
22.00AUTHRF*          12/02/93  FRAZZINI    SAR #   289    (AS/400 A/G)
23.00    F*
24.00    F*****************************************************************
25.00    F*
27.00    FVINDX  CF  E                    WORKSTN     KINFDS  SRVFDS
28.00    F                                            I1      MSFILE  VINDEXE
29.00    F*****************************************************************
30.00    F*
31.00    F*       copy member for composite common subroutine - c0001
32.00    F*
33.00    F/COPY JDECPY,D0001
34.00    F*****************************************************************
35.00    E*****************************************************************
36.00    E*       PROGRAM TABLES AND ARRAYS
37.00    E*       -------------------------
38.00    E*
39.00    E              BMK      64   4              Error Msg
40.00    E              @MK      64   1              Error Msg
41.00    E              @EK      64   4              Error Msg
42.00    E              @DV      40   1              Dflt wrk
43.00    E              @I#      99   1              save indicator
44.00    E              @C      256   1              Literal work
45.00    E*
46.00    E*
47.00    E*       copy composite member for common subroutine c0001
48.00    E*
49.00    E/COPY JDECPY,E0001
50.00    E*****************************************************************
51.00    E*
52.00    E*       copy member for composite common subroutine c0012
53.00    E*
54.00    E/COPY JDECPY,E0012
55.00    E*****************************************************************
56.00    E*
57.00    E*       copy member for composite common subroutine c0042
58.00    E*
59.00    E/COPY JDECPY,E0042
60.00    E*****************************************************************
61.00    E*
62.00    E*       copy member for composite common subroutine c997
63.00    E*
64.00    E/COPY JDECPY,E997
65.00    E*****************************************************************
66.00    I*****************************************************************
67.00    I*       PROGRAM INPUT SPECIFICATIONS AND DATA STRUCTURES
68.00    I*       -----------------------------------------------
69.00    I*
70.00    I*            Data structure to Load video screen text
71.00    I*
72.00    IDSTXT     DS                        240
73.00    I                                      1   16 VTX001
74.00    I                                     41   56 VTX002
75.00    I                                     81   92 VTX003
76.00    I                                    121  150 VTX004
77.00    I                                    161  163 VTX005
78.00    I                                    201  203 VTX006
79.00    I*
80.00    I/COPY JDECPY,IOODSINX
81.00    I/COPY JDECPY,IOODSS@@
82.00    I/COPY JDECPY,IOODSPROG
```

Figure 25–11   User Index Server report (part 2)

```
83.00    I*
84.00    I*
85.00    I*       Copy member for composite common subroutine - COOSC
86.00    I*
87.00    I/COPY JDECPY, IOOSC
88.00    I*----------------------------------------------------------------
89.00    I*
90.00    I*       Data structures for user index.
91.00    I*       ================================
92.00    I*
93.00    I*       *   Entry record
94.00    I*
95.00    IDSIDX1       DS
96.00    I                                         1     1 $IRLK           Record format to
97.00    I                                         2     6 $1CO            be used with User
98.00    I                                         7    18 $1MCU           Index defined as
99.00    I                                        19    48 $1DLO1          a Data Structure
100.00   I                                        49    51 $1RP01
101.00   I                                        52    54 $1RP02
102.00   I*
103.00   I*       *   Entry length, name/library, text
104.00   I*
105.00   I             DS                                                  Data Structure
106.00   I I           54               B   1    40$1RECL                 containing the
107.00   I I          'PINDEX    QTEMP        5    24 $1IDX                record length, User
108.00   I I          'Demonstration Index   25    44 $1TEXT               Index name, and
109.00   I*                                                               Index description text
110.00   I*       *   Partial keys 1 & 2, full unique key KEYL.
111.00   I*
112.00   I             DS
113.00   I I           1                B   1    40$1KEY1
114.00   I I           6                B   5    80$1KEY2
115.00   I I          18                B   9   120$1KEYL
115.01   I*                                                    Data structure defining three possible key
115.02   I*       Data structure for file servers             lengths. $1KEYL is the full key length. Refer to
115.03   I*                                                    DSIDX1 to see which fields are key fields when
115.04   IDS0010       E DSF0010                               $1KEY1 (1 bye,), $1KEY2 (1-6 bytes), or
115.05   I*                                                    $$1KEYL (1-18 bytes) are being used.
116.00   I/COPY JDECPY,I9800E
117.00   I/COPY JDECPY,IOOOSU
117.01   I/COPY JDECPY,IOOKFSRV
118.00   I*
119.00   I****************************************************************
120.00   C****************************************************************
121.00   C*       MAINLINE PROGRAM
122.00   C*       ----------------
123.00   C*
124.00   C*       Process housekeeping.
125.00   C*
126.00   C                     EXSR S999
127.00   C*                    ---- ----
128.00   C*
129.00   C*       If LR on, end program.
130.00   C*
131.00   C          *INLR     CASEQ'1'         EOJ
132.00   C*                   --------         ---
133.00   C*
134.00   C*       If automatic inquiry set, process inquiry.
135.00   C*
136.00   C          $AUTO     CASEQ'1'         S003         24
137.00   C*                   --------         ----
138.00   C                    END
139.00   C*
140.00   C*       Begin normal program processing.
141.00   C*       -------------------------------
142.00   C*
143.00   C          *INLR     DOWEQ'0'
144.00   C*
145.00   C*       If subfile page display not set, set subfile page display.
146.00   C*
147.00   C          #GFRNO    IFEQ 0
148.00   C                    Z-ADD1           #GFRNO
149.00   C                    END
150.00   C*
151.00   C*       If subfile page empty, don't display sfl page.
152.00   C*
153.00   C          I1        IFLE 0
154.00   C                    SETOF                         38
155.00   C                    ELSE
156.00   C                    SETON                         38
157.00   C                    END
158.00   C*
159.00   C*       Write video screen.
```

Figure 25–12   User Index Server report (part 3)

```
160.00    C*
161.00    C                     WRITEVINDEX1
162.00    C                     WRITEVINDEXC
163.00    C                     MOVE '1'            @@AID
164.00    C                     EXSR S001
165.00    C*    ---- ----
166.00    C*
167.00    C*    Load data field dictionary parameters (one cycle only).
168.00    C*
169.00    C         $998        CASEQ' '            S998
170.00    C*                    --------            ----
171.00    C                     END
172.00    C*
173.00    C*    Begin video screen read processing
174.00    C*
175.00    C                     SETOF               999301
176.00    C                     READ VINDEX              9998
177.00    C                     Z-ADDO          ##RROW
178.00    C                     Z-ADDO          ##RCOL
179.00    C*
180.00    C*    If video read timed out, end program.
181.00    C*
182.00    C         *IN99       CASEQ'1'            EOJ        LR
183.00    C*                    -----               ---
184.00    C         @@AID       CASEQ#FEOJ          EOJ        LR
185.00    C*                    -----               ---
186.00    C*
187.00    C*    If valid function key pressed, process and return.
188.00    C*
189.00    C         *IN15       IFEQ '1'
190.00    C                     EXSR S00EX
191.00    C*                    ---- -----
192.00    C         *INLR       CASEQ'1'            EOJ
193.00    C*                    -----               ---
194.00    C         *IN15       CASEQ'1'            END
195.00    C*                    -----               ---
196.00    C                     END
197.00    C*
198.00    C*    Edit the action code.
199.00    C*
200.00    C                     EXSR CO001
201.00    C*                    ---- -----
202.00    C*
203.00    C*    If end of job requested, end program.
204.00    C*
205.00    C         @@AID       CASEQ#FEOJ          EOJ
206.00    C*                    -----               ---
207.00    C*
208.00    C*    If clear screen requested, process and return.
209.00    C*
210.00    C         @@AID       IFEQ #FCLR
211.00    C                     EXSR S001
212.00    C*                    ---- ----
213.00    C                     GOTO END
214.00    C*                    ---- ---
215.00    C                     END
216.00    C*
217.00    C*    Load subfile records.
218.00    C*
219.00    C                     EXSR S003
220.00    C*
221.00    C*    If add or change, validate all video input.
222.00    C*
223.00    C*
224.00    C*
225.00    C         *IN93       CASEQ'0'            S005
226.00    C*                    -----               ---
227.00    C                     END
228.00    C*
229.00    C*
230.00    C*    If no errors and not inquiry, update file.
231.00    C*
232.00    C         *IN93       IFEQ '0'
233.00    C*        *IN24       CASEQ'0'            S010
234.00    C                     ---                 ----
235.00    C                     END
236.00    C                     END
237.00    C*    Return for next input.
238.00    C*
239.00    C         END         TAG
240.00    C*        ---         ---
241.00    C*
242.00    C*    Set correct message in line 24.
```

Figure 25–13   User Index Server report (part 4)

```
244.00
245.00      C                          MOVELGVL24E          VDL24
246.00      C                          ELSE
247.00      C                          MOVELGVL24M          VDL24
248.00      C                          END
249.00      C*
250.00      C                          END
251.00      C*
252.00      C          EOJ       TAG
253.00      C*         ---       ---
254.00      C*
255.00      C*        END MAINLINE PROGRAM
256.00      C*        --------------------
257.00      C******************************************************
258.00      C*
259.00      C*        copy common subroutine - Edit Action code
260.00      C*
261.00      C/COPY JDECPY,C0001
262.00      C******************************************************
263.00      C*
264.00      C*        SUBROUTINE SOOEX - Process Function Keys
265.00      C*        ----------------------------------------
266.00      C*
267.00      C*        Processing:   1.  Process standard function keys.
268.00      C*                      2.  Process special function key exits.
269.00      C*
270.00      CSR        SOOEX     BEGSR
271.00      C*         -----     -----
272.00      C*
273.00      C*        Retain current page of subfile.
274.00      C*
275.00      C                          Z-ADD@@SRCN          #SFRNO
276.00      C*
277.00      CSR        TOOEXA    TAG
278.00      C*         ------    ---
279.00      C*
280.00      C*        If EOJ requested, exit subroutine.
281.00      C*
282.00      CSR        @@AID     CABEQ#FEOJ           ENDEXE       LR
283.00      C*         -----                          ------
284.00      C*
285.00      C*        If Display keys pressed, exit to help facility and return.
286.00      C*        --------------------------------------------------------
287.00      C*
288.00      CSR        @@AID     IFEQ #FKEYS
289.00      CSR                  CALL 'P9601H'                     98
290.00      C*                   ---- -------
291.00      CSR                  PARM                 I00SC
292.00      CSR                  PARM                 SRVFDG
293.00      CSR                  PARM                 I00CSR
294.00      C*
295.00      CSR        @@AID     CABNE#FKEYS          TOOEXA
296.00      C*         -----                          ------
297.00      CSR                  GOTO ENDEXE
298.00      C*                   ---- ------
299.00      CSR                  END
300.00      C*
301.00      C*        If cursor sensitive help pressed, exit to CS help.
302.00      C*        -------------------------------------------------
303.00      C*
304.00      CSR        @@AID     IFEQ #FCMTK
305.00      CSR                  MOVEA*IN             @@IN
306.00      CSR                  CALL 'X96CCF'                     98
307.00      C*                   ---- -------
308.00      CSR                  PARM                 I00SC
309.00      CSR                  PARM                 SRVFDG
310.00      CSR                  PARM                 I00CSR
311.00      CSR                  PARM ' '             @@CCFF  2
312.00      C*
313.00      CSR        @@FLDN    IFNE *BLANKS
314.00      CSR                  EXSR SOOVL
315.00      C*                   ---- -----
316.00      CSR                  MOVEA@@IN            *IN,1
317.00      CSR                  END
318.00      CSR                  MOVEL*BLANKS         @@DTAI
319.00      CSR                  GOTO ENDEXE
320.00      C*                   ---- ------
321.00      CSR                  END
322.00      C*
323.00      C*        If Display errors pressed, exit to error messages.
324.00      C*        ------------------------------------------------
325.00      C*
326.00      CSR        @@AID     IFEQ #FERRD
327.00      CSR                  Z-ADD1               #G
```

Figure 25–14   User Index Server report (part 5)

Figure 25–15   User Index Server report (part 6)

```
412.00    C*        SUBROUTINE SOOVL - cursor control return values
413.00    C*        ------------------------------------------------
414.00    C*
415.00    C*        my format, find the field to update and move in the
416.00    C*        returned value.  if the format is a subfile, the record
417.00    C*        to change is found in @@REN.
418.00    C*
419.00    CSR       SOOVL     BEGSR
420.00    C*        -----     -----
421.00    C*
422.00    CSR       ##EVAL    IFEQ '*BLANK'
423.00    CSR                 MOVE *BLANK          ##EVAL
424.00    CSR                 END
425.00    C*
426.00    C*        return values for fields in format VINDEXC
427.00    C*
428.00    CSR       ##RFMT    IFEQ 'VINDEXC '
429.00    C*
430.00    CSR       ##FLDN    IFEQ 'ACTION  '
431.00    CSR                 MOVEL##EVAL          ACTION
432.00    CSR                 GOTO ENDOVL
433.00    C*                  ---- ------
434.00    C*                  END
435.00    C*
436.00    CSR       ##FLDN    IFEQ 'VDCO   '
437.00    CSR                 MOVEL##EVAL          VDCO
438.00    CSR                 MOVEL##RDSC          VC0001
439.00    CSR                 GOTO ENDOVL
440.00    C*                  ---- ------
441.00    CSR                 END
442.00    CSR                 END
443.00    C*
444.00    C*        return values for fields in format VINDEXS
445.00    C*
446.00    CSR       ##RFMT    IFEQ 'VINDEXS '
447.00    CSR       @@REN     ANDGTO
448.00    C*
449.00    CSR                 MOVEL##IN            SHIN
450.00    CSR       @@REN     CHAINVINDEXS                    81
451.00    CSR       *IN81     IFEQ '0'
452.00    CSR                 MOVEASHIN            *IN,1
453.00    C*
454.00    C*
455.00    CSR       ##FLDN    IFEQ 'SFMCU  '
456.00    CSR                 MOVEL##EVAL          SFMCU
457.00    CSR                 GOTO TOOVLA
458.00    C*                  ---- ------
459.00    CSR                 END
460.00    C*
461.00    CSR       ##FLDN    IFEQ 'SFDLO1  '
462.00    CSR                 MOVEL##EVAL          SFDLO1
463.00    CSR                 GOTO TOOVLA
464.00    C*                  ---- ------
465.00    CSR                 END
466.00    C*
467.00    CSR       ##FLDN    IFEQ 'SFRPO1  '
468.00    CSR                 MOVEL##EVAL          SFRPO1
469.00    CSR                 GOTO TOOVLA
470.00    C*                  ---- ------
471.00    CSR                 END
472.00    C*
473.00    CSR       ##FLDN    IFEQ 'SFRPO2  '
474.00    CSR                 MOVEL##EVAL          SFRPO2
475.00    CSR                 GOTO TOOVLA
476.00    C*                  ---- ------
477.00    CSR                 END
478.00    CSR       TOOVLA    TAG
479.00    C*        ------    ---
480.00    CSR                 SETON                           32
481.00    CSR                 MOVEA*IN             SHIN
482.00    CSR                 UPDATVINDEXS                    81
483.00    CSR                 END
484.00    CSR                 END
485.00    C*
486.00    C*        return values for fields in format VINDEX1
487.00    C*
488.00    CSR       ##RFMT    IFEQ 'VINDEX1 '
489.00    CSR                 END
490.00    C*
491.00    CSR       ENDOVL    ENDS
492.00    C*******************************************************************
493.00    C*
494.00    C*        SUBROUTINE SOO1 - clear fields
```

Figure 25–16   User Index Server report (part 7)

Figure 25–17   User Index Server report (part 8)

```
578.00    C*
579.00    C*          Determine if any entries exist for that company.
580.00    C*
581.00    CSR              Z-ADD$1KEY2         PSKEYL      |   Load key length, record
582.00    CSR              Z-ADD$1RECL         PSRECL      |   length, and key with values
583.00    CSR              MOVELDSIDX1         PSKY
584.00    C*
585.00    CSR              CALL 'X00IDX'
586.00    C*
587.00    CSR              PARM                $1IDX       Idx name Lib
588.00    CSR              PARM 'I'            PSACTN      Action code     |   Call to User
589.00    CSR              PARM 'EQ'           PSRULE      Action rule     |   Index to inquire
590.00    CSR              PARM                PSKEYL      Key Length      |   on an existing
591.00    CSR              PARM                PSKY        Key fields      |   record
592.00    CSR              PARM                PSRECL      Entry Length
593.00    CSR              PARM                PSREC       Entry
594.00    CSR              PARM                PSSTS       Error status
595.00    C*
596.00    C*          Error of trying to delete but not found.
597.00    C*
598.00    CSR    PSSTS     IFNE '0'                        Not Found
599.00    CSR    *IN23     COMP '1'                        41 *ERROR*
600.00    CSR              END                                             |   Check error status
601.00    C*                                                               |   parameter to see if
602.00    C*          If indicator 41 on, invalid key for action code.     |   a record was found
603.00    C*
604.00    CSR    *IN41     IFEQ '1'
605.00    CSR              MOVE '1'            @MK,2
606.00    CSR              SETON                           93
607.00    CSR              END
608.00    C*
609.00    C*          If indicator 99 on, record in use.
610.00    C*
611.00    CSR    *IN99     IFEQ '1'
612.00    CSR              MOVE '1'            @MK,6
613.00    CSR              SETON                           4193
614.00    CSR              END
615.00    C*
616.00    C*          If not inquiry, skip remainder of subroutine.
617.00    C*
618.00    CSR    *IN24     CABEQ'0'            END003
619.00    C*               -----              ------
620.00    C*
621.00    C*          If errors, skip remainder of subroutine.
622.00    C*
623.00    CSR    *IN93     CABEQ'1'            END003
624.00    C*               -----              ------
625.00    C*
626.00    C*          Initialize subfile indexes.
627.00    C*
628.00    CSR              Z-ADD0             I1          50
629.00    CSR              Z-ADD0             $SVI1       50
630.00    CSR              Z-ADD0             #SFRNO
631.00    CSR              MOVE '0'           $SEND       1
632.00    C*
633.00    C*          Reinitialize subfile display
634.00    C*
635.00    CSR              SETON                          31
636.00    CSR              WRITEWINDEXC                      99
637.00    CSR              SETOF                          31
638.00    C*
639.00    C*          Load subfile records.
640.00    C*
641.00    CSR              EXSR S004
642.00    C*               ---- ----
643.00    C*------------------------------------------------------------------
644.00    CSR    I1        IFLT $PGSZ
645.00    CSR    $PGSZ     SUB I1             #G
646.00    C*
647.00    CSR              MOVE *BLANK         SFDLO1
648.00    CSR              MOVE *BLANK         SFMCU
649.00    CSR              MOVE *BLANK         SFRPO1
650.00    CSR              MOVE *BLANK         SFRPO2
651.00    CSR              MOVE *BLANK         SBMCU
652.00    CSR              DO   #G
653.00    CSR              ADD  1             I1
654.00    CSR              MOVEA*IN           SWIN
655.00    CSR              WRITEWINDEXS
656.00    CSR              END
657.00    CSR              Z-ADDI1            $SVI1
658.00    CSR              END
659.00    CSR    END003    ENDSR
```

Figure 25–18   User Index Server report (part 9)

Figure 25–19   User Index Server report (part 10)

Figure 25–20   User Index Server report (part 11)

Figure 25–21   User Index Server report (part 12)

```
898.00    CSR                    Z-ADDI1           $SVI1
899.00    C*
900.00    C*        if subfile page loaded, drop out of subroutine.
901.00    C*
902.00    CSR        $PG         CABEQ$PGSZ        END004
903.00    C*                     -----             ------
904.00    CSR                    END
905.00    CSR                    END
906.00    C*----------------------------------------------------------------
907.00    CSR        END004      ENDSR
908.00    C*****************************************************************
909.00    C*
910.00    C*        copy common subroutine - format numeric fields for output with override
911.00    C*
912.00    C/COPY JDECPY,C00161
913.00    C*****************************************************************
914.00    C*
915.00    C*        SUBROUTINE S005 - validate and update input data.
916.00    C*        --------------------------------------------------
917.00    C*
918.00    C*        processing:  1.  validate all video input.  numeric data
919.00    C*                         must be processed thru subroutines C0012 &
920.00    C*                         C0015 to be converted to internal numeric
921.00    C*                         representation (15 digits 0 decimals).
922.00    C*                         Date fields must be converted from system
923.00    C*                         format to their internal format of month,
924.00    C*                         day and year or julian using program X0028.
925.00    C*                     2.  update data fields from input and process
926.00    C*                         subfile transaction.
927.00    C*
928.00    CSR        S005        BEGSR
929.00    C*                     -----
930.00    C*
931.00    C*        if not addition or change, bypass subroutine
932.00    C*
933.00    CSR        *IN21       IFEQ '0'
934.00    CSR        *IN22       ANDEQ'0'
935.00    CSR                    GOTO END005
936.00    C*                     ---- ------
937.00    CSR                    END
938.00    C*
939.00    C*        process all subfile transactions.
940.00    C*
941.00    CSR                    MOVE ' '          $WRT    1
942.00    CSR                    Z-ADD1            $$IX    70
943.00    CSR                    SETOF                     9699
944.00    CSR        *IN96       DOWEQ'0'
945.00    CSR        *IN99       ANDEQ'0'
946.00    CSR        $$IX        ANDLE$SVI1
947.00    CSR                    MOVEA$RESET        *IN,41
948.00    CSR        $$IX        CHAINVINDEXS              9699
949.00    CSR        *IN96       IFEQ '0'
950.00    CSR        *IN99       ANDEQ'0'
951.00    C*
952.00    C*        Load video input field for - cost center
953.00    C*
954.00    CSR                    MOVEASHMCU         @FI
955.00    CSR                    EXSR C0042
956.00    C*                     ---- -----
957.00    CSR                    MOVE #RADJ         $1MCU
958.00    C*
959.00    C*        Determine if prior record existed in user index.
960.00    C*        ===============================================
961.00    C*
962.00    CSR                    Z-ADD$1KEYL        PGKEYL
963.00    CSR                    Z-ADD$1RECL        PGRECL
964.00    CSR                    MOVELDSIDX1        PGKY
965.00    C*
966.00    CSR                    CALL 'X00IDX'
967.00    C*
968.00    CSR                    PARM               $1IDX      idx Name/Lib
969.00    CSR                    PARM '1'           PGACTN     Action code
970.00    CSR                    PARM 'EQ'          PGRULE     Action rule
971.00    CSR                    PARM               PGKEYL     Key length
972.00    CSR                    PARM               PGKY       key fields
973.00    CSR                    PARM               PGRECL     entry length
974.00    CSR                    PARM               PGREC      entry
975.00    CSR                    PARM               PGSTS      error status
976.00    C*
977.00    C*        if no data and prior record existed, delete old record.
978.00    C*        =====================================================
979.00    C*
```

Loading of parameters and call to User Index to see if a record exists

Figure 25–22   User Index Server report (part 13)

Figure 25–23   User Index Server report (part 14)

Figure 25–24   User Index Server report (part 15)

Figure 25–25   User Index Server report (part 16)

```
1314.00    C*****************************************************************
1315.00    C*
1316.00    C*      SUBROUTINE S998 - Load dictionary parameters.
1317.00    C*      ------------------------------------------------
1318.00    C*
1319.00    CSR           S998      BEGSR
1320.00    C*            ----      -----
1321.00    C*
1322.00    C*
1323.00    C*     Dictionary parameters for - Description 01
1324.00    C*
1325.00    CSR                     MOVE *BLANK     FRDTRI
1326.00    CSR                     MOVEL'DL01'     FRDTRI
1327.00    CSR                     CALL 'X9800E'               S1
1328.00    C*                      ---- --------
1329.00    CSR                     PARM            I9800E
1330.00    CSR           FRERR     IFEQ 'O'
1331.00    CSR                     MOVE FRDSCR     B@DL01      40
1332.00    CSR                     MOVE FRDTRT     T@DL01       1
1333.00    CSR                     MOVE FREC       E@DL01       1
1334.00    CSR                     MOVE ERDTRG     C@DL01      40
1335.00    CSR                     MOVE FRDTRD     G@DL01      10
1336.00    CSR                     MOVE FRCDSC     F@DL01       1
1337.00    CSR                     MOVELFRSY       S@DL01       4
1338.00    CSR                     MOVE FRRT       R@DL01       2
1339.00    CSR                     MOVE FRDVAL     D@DL01      40
1340.00    CSR                     MOVE FRVAL      A@DL01      40
1341.00    CSR                     MOVE FRLVAL     L@DL01      40
1342.00    CSR                     MOVE FRUVAL     U@DL01      40
1343.00    CSR                     MOVE FREDWR     W@DL01      30
1344.00    CSR                     MOVE FRLR       J@DL01       1
1345.00    CSR                     MOVE FRNNIX     N@DL01      20
1346.00    CSR                     Z-ADD1          #@DL01     110
1347.00    CSR                     MOVE F@DL01     #1
1348.00    CSR                     DO   #A
1349.00    CSR                     MULT 10         #@DL01
1350.00    CSR                     END
1351.00    CSR                     END
1352.00    C*-------------------------------------------------------------------------
1353.00    C*
1354.00    C*     Dictionary parameters for - cost center
1355.00    C*
1356.00    CSR                     MOVE *BLANK     FRDTRI
1357.00    CSR                     MOVEL'NCU'      FRDTRI
1358.00    CSR                     CALL 'X9800E'               S1
1359.00    C*                      ---- --------
1360.00    CSR                     PARM            I9800E
1361.00    CSR           FRERR     IFEQ 'O'
1362.00    CSR                     MOVE FRDSCR     B@NCU       40
1363.00    CSR                     MOVE FRDTRT     T@NCU        1
1364.00    CSR                     MOVE FREC       E@NCU        1
1365.00    CSR                     MOVE FRDTRG     C@NCU       40
1366.00    CSR                     MOVE FRDTRD     G@NCU       10
1367.00    CSR                     MOVE FRCDSC     F@NCU        1
1368.00    CSR                     MOVELFRSY       S@NCU        4
1369.00    CSR                     MOVE FRRT       R@NCU        2
1370.00    CSR                     MOVE FRDVAL     D@NCU       40
1371.00    CSR                     MOVE FRVAL      A@NCU       40
1372.00    CSR                     MOVE FRLVAL     L@NCU       40
1373.00    CSR                     MOVE FRUVAL     U@NCU       40
1374.00    CSR                     MOVE FREDWR     W@NCU       30
1375.00    CSR                     MOVE FRLR       J@NCU        1
1376.00    CSR                     MOVE FRNNIX     N@NCU       20
1377.00    CSR                     Z-ADD1          #@NCU      110
1378.00    CSR                     MOVE F@NCU      #A
1379.00    CSR                     DO   #A
1380.00    CSR                     MULT 10         #@NCU
1381.00    CSR                     END
1382.00    CSR                     END
1383.00    C**-------------------------------------------------------------------------
1384.00    C*
1385.00    C*     Dictionary parameters for - category code - cost center 01
1386.00    C*
1387.00    CSR                     MOVE *BLANK     FRDTRI
1388.00    CSR                     MOVEL'RP01'     FRDTRI
1389.00    CSR                     CALL 'X9800E'               S1
1390.00    C*                      ---- --------
1391.00    CSR                     PARM            I9800E
1392.00    CSR           FRERR     IFEQ 'O'
1393.00    CSR                     MOVE FRDSCR     B@RP01      40
1394.00    CSR                     MOVE FRDTRT     T@RP01       1
1395.00    CSR                     MOVE FREC       E@RP01       1
```

Figure 25–26   User Index Server report (part 17)

Figure 25–27   User Index Server report (part 18)


```
1475.00   CSR                    END
1476.00   C*
1477.00   C*
1478.00   C*      create or clear the Demonstration User Index
1479.00   C*      ====================================
1480.00   C*
1481.00   CSR              MOVE *BLANKS        PSERR
1482.00   CSR              CALL 'J98CKOBJ'                  99       Check to see if
1483.00   C*               ----- ----------                         User Index
1484.00   CSR              PARM 'PINDEX'       'PSOBJT 10            already exists
1485.00   CSR              PARM 'QTEMP'        'PSLIB  10
1486.00   CSR              PARM '*USRIDX'      PSTYPE  7
1487.00   CSR              PARM '*NONE'        'PSMBR  10
1488.00   CSR              PARM '*NONE'        'PSAUT  10
1489.00   CSR              PARM                PSERR   1
1490.00   C*
1491.00   C*      if it doesn't exist, create it.
1492.00   C*                                         Check error status parameter to
1493.00   CSR      PSERR    IFEQ '1'                  see if User Index exists
1494.00   C*
1495.00   CSR  Create User   CALL 'QUSCRTUI'                 99
1496.00   CSR  Index if User  ----- ----------
1497.00   CSR  Index did not PARM               $1IDX         Idx Name/Lib
1498.00   CSR  already exist PARM *BLANKS       PSATR   10    Extnd Attb
1499.00   CSR              PARM 'F'             PSFXLN  1     Length Atrb
1500.00   CSR              PARM                 $1RECL        Entry Length
1501.00   CSR              PARM '1'             PSKIND  1     Key Insrtn
1502.00   CSR              PARM                 $1KEYL        Key Length
1503.00   CSR              PARM 'O'             PSIMUP  1     Delay Update
1504.00   CSR              PARM 'O'             PSOPTM  1     Optr = Randm
1505.00   CSR              PARM '*ALL'          PSIDAU  10    Public Auth
1506.00   CSR              PARM $1TEXT          PSTEXT  50    Index Descr
1507.00   C*
1508.00   C*      if it does exist, clear it.
1509.00   C*
1510.00   CSR              ELSE
1511.00   C*                                         Load key length, record
1512.00   CSR              Z-ADD$1KEY1         PSKEYL      length, and key to clear
1513.00   CSR              Z-ADD$1RECL         PSRECL      User Index if it already
1514.00   CSR              MOVE *BLANK         PSKY        exists
1515.00   C*
1516.00   CSR              CALL 'XOOIDX'
1517.00   C*               ----- -------
1518.00   CSR              PARM                $1IDX        Idx Name/Lib
1519.00   CSR              PARM 'D'            PSACTN   1   Action
1520.00   CSR  Delete all   PARM 'EQ'          PSRULE   2   Action Rule
1521.00   CSR  records from  PARM               PSKEYL  30   Key Length
1522.00   CSR  User Index    PARM               PSKY   120   Key Fields
1523.00   CSR              PARM                PSRECL  30   Entry Length
1524.00   CSR              PARM                PSREC  120   Entry
1525.00   CSR              PARM                PSSTS    1   Error status
1526.00   C*
1527.00   CSR                    END
1528.00   C*-------------------------------------------------------------------
1529.00   C*
1530.00   C*      set subroutine execution flag.
1531.00   C*
1532.00   CSR              MOVE '1'            $998     1
1533.00   C*
1534.00   CSR      END998    ENDSR
1535.00   C********************************************************************
1536.00   C*
1537.00   C*      SUBROUTINE S999 - Housekeeping
1538.00   C*      -------------------------------
1539.00   C*
1540.00   C*          Processing:  1.  Load video screen text.
1541.00   C*                       2.  Retrieve screen title data area, test
1542.00   C*                           for unauthorized access, center video
1543.00   C*                           title and move to video screen.
1544.00   C*                       3.  Initialize key list.
1545.00   C*                       4.  Load roll keys.
1546.00   C*                       5.  Passed parameters.
1547.00   C*                       6.  Load error message array.
1548.00   C*                       7.  Initialize subfile display.
1549.00   C*
1550.00   CSR      S999      BEGSR
1551.00   C*               ----      -----
1552.00   C*
1553.00   C*      Required program parameters.
1554.00   C*
1555.00   C*      . . . No parameters passed
1556.00   C*
```

Figure 25–28   User Index Server report (part 19)

```
1557.00   C*      Test for auto inquiry function.
1558.00   C*
1559.00   CSR        $AUTO      IFNE *BLANK
1560.00   CSR                   MOVE '1'           $AUTO        1
1561.00   CSR                   END
1562.00   C*------------------------------------------------------------
1563.00   C*
1564.00   C*      Load video screen text.
1565.00   C*
1566.00   CSR                   MOVEL@@FILE        PSKEY        10
1567.00   CSR                   Z-ADD006           PSVTX#       30
1568.00   C/COPY JDECPY,COOSC
1569.00   C*------------------------------------------------------------
1570.00   C*
1571.00   C*      Load error messages array.
1572.00   C*
1573.00   CSR                   MOVE '0001'        EMK,01       INV Action
1574.00   CSR                   MOVE '0002'        EMK,02       INV Key
1575.00   CSR                   MOVE '0003'        EMK,03       INV Blanks
1576.00   CSR                   MOVE '0004'        EMK,04       INV Date
1577.00   CSR                   MOVE '0005'        EMK,05       INV Next Nbr
1578.00   CSR                   MOVE '0007'        EMK,06       In use
1579.00   CSR                   MOVE '0025'        EMK,07       INV Values
1580.00   CSR                   MOVE '0026'        EMK,08       INV MCU
1581.00   CSR                   MOVE '0027'        EMK,09       INV Desc rtl
1582.00   C*------------------------------------------------------------
1583.00   C*
1584.00   C*      Load invalid action code array.
1585.00   C*
1586.00   CSR                   MOVEA'        '    @NAC
1587.00   C*------------------------------------------------------------
1588.00   C*
1589.00   C*      Initialize subfile display.
1590.00   C*
1591.00   CSR                   Z-ADD0             I1
1592.00   CSR                   Z-ADD15            $PGSZ        30
1593.00   CSR                   DO   $PGSZ
1594.00   CSR                   ADD  1             I1
1595.00   CSR                   MOVEA*IN           SWIN
1596.00   CSR                   WRITEINDEXS                         99
1597.00   CSR                   END
1598.00   CSR                   Z-ADDI1            $GVI1
1599.00   C*------------------------------------------------------------
1600.00   C*
1601.00   C*      Load system date.
1602.00   C*
1603.00   CSR                   TIME               $WRK12       120
1604.00   CSR                   MOVE $WRK12        $@EDT        60
1605.00   C*------------------------------------------------------------
1606.00   CSR        END999     ENDSR
```

26

File Servers

This chapter contains these topics:

26.1 About File Servers

- Sometimes called I/O servers.

- Allow you to enhance the processing time of your program.

- Ease the maintenance of your programs by making your system more modular.

Eventually, every program should perform database functions using either a file server or a functional server.

> **Note:** All logical files are accessed through servers by their based-on file. Embedded in one server, there may be many access paths available.

26.2 What is a File Server?

A file server, or I/O server, is a server that performs RPG database operations.

This type of server has no effect on program logic, but it isolates the actual database from the application program. Once you implement a file server into a program, the file specification is no longer required.

26.2.1 Types of File Servers

There are three types of file servers you can use:

File Server	Description
XS	Input-Only/Caching Servers
	They can be used in place of a simple CHAIN operation for input only. You may request descriptions only, or the entire record. They provide caching logic to decrease physical I/O for duplicate requests.
XF	Input/Output File Servers
	They allow you to replace all RPG database operation codes for a given file with program calls. They can perform such functions as READ, CHAIN, and SETLL to a file.
X	Special Scrub & Edit Servers
	They can accept cost center, account numbers, numeric fields, or a data string in any valid data entry or file format, convert them to any format, validate the existence of the master record, and optionally pass the master record or the scrubbed data back to the calling program.

26.3 What are the Advantages of Using a File Server?

The advantages of using a file server are

- Minimized maintenance of your software

- Ability to change a physical file without having to make changes to application programs that use the file, or even having to recompile them

- Use of versions in future releases to allow programs from a previous release to run against a changed database

- Smoother transition from an old database to a new database. Instead of applying all new programs, you will only have to apply a new set of file servers

- Ability to implement one file server at a time without affecting the rest of your system

26.4 What are the Disadvantages of Using a File Server?

The disadvantages are:

- A file server is minutely slower because you are performing an external call to the server from your program

- File server programs tend to be large

File servers are designed to perform all database functions that can be performed directly.

26.5 How Does a File Server Function?

A file server performs all the interfaces between a program and file. After you load the control parameters, which contain information about the record you are retrieving, the file server converts the control parameters and returns a record to the program.

If you plan to use any of the file server programs and you are asking them to return the database record, you must use the record image /COPY member that the corresponding I/O server uses. The /COPY member has the following naming convention:

I(file name) (release level).

For example: The copy member for the F0101 record image should appear as:

I/COPY JDECPY, I010171

> **Note:** Some technical file servers (X9800E, X0005) have a /COPY member with the naming convention:
>
> I(file name)(special character)
>
> I/COPY JDECPY, I0005U

A file server may be called with two parameters:

Figure 26–1   Two Parameters for Calling a File Server

```
For example:    CALL      'XF0101'      81

                - - - -   - - - - -

                PARM      PS@@1

                PARM      I0101
```

PARM	Description
PS@@1	Contains all of the control parameters. It is contained in copy module I00XFSRV, and it is common to all file servers.
I(file name)	Contains the record image for updates and writes specific for each I/O server. It is an exact duplicate of the record image. It is contained in the copy module I(file name) (release level).

26.6 What Are Control Parameters?

The parameter PS@@1 is a Data Structure which contains all the control parameters for the file server. All control parameters, except the format name, are cleared every time the server returns control to the calling program. You must set the parameter values every time the server is called unless you are satisfied with the default values.

PARM (Length)	Description
@@ACCS (1)	The type of access to the file. The valid values are K for Keyed access (default), R for relative record number access and S for sequential access (DREAM Writer).

PARM (Length)	Description
@@OPER (10)	The operation to be performed to the file. The valid values are presented below:
	CHAIN Chain by key list or RRN
	CLOSE Close the access path
	DELET Delete current record or by key or RRN
	EXIST Test existence of record by key
	OPEN Open access path (optional)
	READ Read next record
	READE Read next equal key
	READP Read previous record
	REDPE Read previous equal key
	SETGT Set greater than key
	SETHV Set greater than with *HIVAL
	SETLL Set lower limit by key
	SETLV Set lower limit with *LOVAL
	UPDAT Update locked record
	UPDATC Update current record
	WRITE Write new record
	UNLCK Unlock current record
@@LOCK (1)	Whether you do or do not want to lock the record. The valid values are Y to lock the record (default) or N to not lock the record.
	Note: This parameter is only valid for chain and read operations, and is ignored for all other operations. You should set it to N when reading records not to be updated.
@@CHGR (1)	Servers allow records to be read without lock and then be updated (UPDATC). In this situation, the record will be re-read before it is updated and if it has changed since it was last read, action will have to be taken. This parameter determines what that action will be. The valid values are:
	N – Do not update the record. A return code (RC) is returned and it comes up to the program to determine what action to take. (default)
	O – Overlay the changed record with the values you are currently updating. This will cause the changes made by the other user to be lost.
	W – Call the Changed Record Window (P0000U) that will prompt you for what action to take. Use this option with interactive programs only.
@@KLST (10)	The key list that will be used for access. The calling program does not specify a logical file so that the application program is isolated from any database changes. A value must be specified unless you are accessing the file by relative record number or sequentially (@@ACCS = R or S).
	Note: The server maintains status information for each access path, so multiple paths can be accessed through the server in one program. The @@KLST parameter determines which access path is affected by the current call to the server.

PARM (Length)	Description
@@KNUM (5,0)	Specifies how many key fields in the list will be used for the current operation. This allows you to perform a read equal by a partial key. The valid values are 1 through the number of fields in the key, and blank for operations not requiring a key.
@@FMT (10)	Specifies the release level the program is expecting. This field does not get cleared upon returning from the server, so it can be set once in S999.
@@#RRN (9,0)	The relative record number for RRN access.
I (file name)	Record image for updates and writes. This parameter is optional for OPEN, CLOSE, DELET, SETHV, SETLV, and UNLCK operations.

Access paths are opened automatically when the first operation is performed. Therefore, it is not necessary to call the server with the OPEN operation.

A server normally remains active as long as the calling program is active. If you know you will need a server for only a limited period of time and do not want it taking up space in the PAG, you can call the server the @@OPER parameter blank, this causes the server to return and end.

26.7 What Are Returned Parameters?

When the file server returns the record to the program, there are several parameters associated with it.

PARM (Length)	Description
@@IOR(3)	The I/O return code.
	The possible values are:
	blank – No errors
	NF – Record not found
	NE – Not equal for a READE operation
	EOF – End of file
	EQ – Equal for a SETLL operation
	BOF – Beginning of file
	RL – Record Locked, could not read
	RC – Record changed
	YES – Record found
	NO – Record not found
	ERR – Error, check error fields for explanation
@@ERR (10)	Short description of the cause of the problem (invalid, reclock, error, required, deleted, chgrec).
@@ERRS (10)	The subject causing the error. The value could be a parameter (KLST), an operation (OPEN), or a file name (Fxxxx). Used in combination with @ERR gives a good idea of what happened. The application program will generally only use @@IOR. @@ERR and @@ERRS are most useful for debugging purposes.
@@#RRN (9,0)	Returns the relative record number of the record just read (both input and output).

PARM (Length)	Description
I (filename)	Returns an exact duplicate of the record image (both input and output).

26.8 Implementing a File Server

To implement a file server

The following are generally the steps needed to set up a file server in a program. Some programs may differ.

1. Remove F-spec line for file being accessed through the server, and replace it with a comment mentioning access through the server.

2. Add clear statement in S999 (CLEAR PS@@1). You can optionally set @@FMT to the JD Edwards base release value ("A73" or "A81") so it does not have to be set on every call.

3. Copy in I-spec copy module I00XFSRV.

4. Copy in I-spec copy module for the required server, following the naming convention: I(file name) (release level). For example, I010171.

5. Code call to server for each database access. Naming convention for server is X(file name). For example, XF0101 for F0101 and any of its logicals.

   - Load control parameters

   - Load record image if a write or update

   - Call the server

   - Check the return code

6. Remove any open statements and key lists for this file from S999 in the calling program.

7. Remove any output specifications dealing with EXCPT unlock statements at the bottom of the program. The server will handle all of the unlock and lock operations.

   > **Note:** When reading sequentially (@@ACCS = S) through the physical file or through a DREAM Writer based-on file that is overridden to the physical, some operations are not available. Do not use: CHAIN, EXIST, READE, REDPE, UPDATC, SETLL, SETGT, SETHV, SETLV. Since UPDATC is not available and you are going to update a record, you need to read with lock.

   If the file you are accessing though the server is the DREAM Writer based on file, the Open Query Options on the DREAM Writer Additional Parameters screen need to be changed. Change all of the "Open for xxxxx" parameters to "Y" on the DW Additional Parameters screen.

26.9 Searching for Key Lists

When converting programs to use the file servers, make note of what logical files are being accessed, and what mode (update or input) and what each of the defined key lists for those access paths represent. There are some servers with information in the

F93201 which is accessed by the following process. Otherwise, using the Where Used function on a file entry in SVR may show which "X" (server) programs access a particular file.

To search for Key Lists

1. Look up the corresponding server key list name using P93KL (fast path, KL).

2. Search for the format name for files that are accessed in the program.

3. Replace each instance of file access code with a call to the server with the correct parameters.

Figure 26–2   File Server Key List window
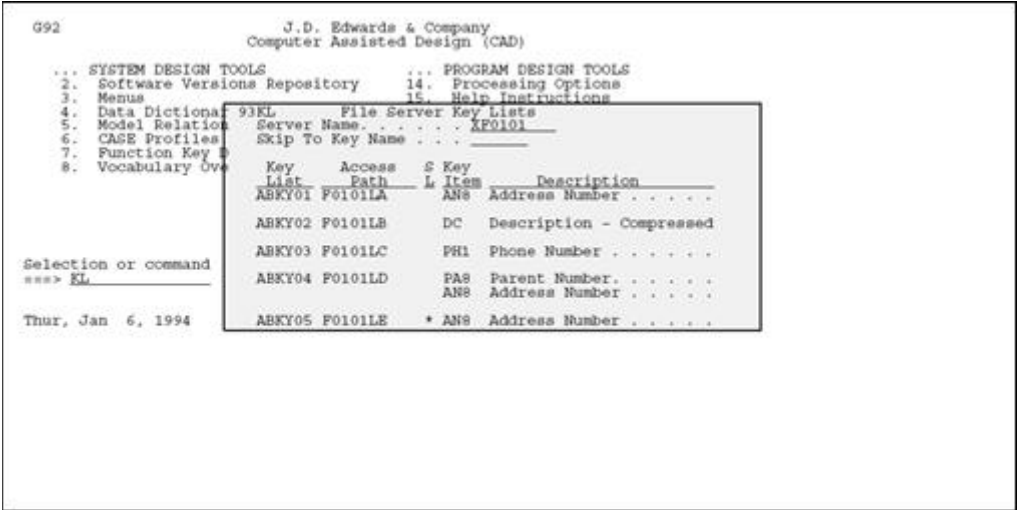
26.10 Tips when Using File Servers

The following tips can help when using file servers:

- When converting a program to use the file servers, always set the @@LOCK parameter to "N" when reading records through an access path that the program uses to open for input only.

The reason for this is that all access paths are open for update in the server. This can cause record lock problems when a program opens multiple paths into the same file. Correct use of the @@LOCK parameter solves these problems.

- Some programs may be doing a CHAIN or EXCPT to unlock a record. Instead of replacing it with a CHAIN through the server, take advantage of the UNLCK operation. Performing an UNLCK on a file that does not have a record locked does not produce an error.

- Some programs perform a SETLL to validate that a record exists. The new operation EXIST is provided to handle this function. It returns a YES or NO in return code (@@IOR).

- There is only one instance in which a particular file server is active in your job, so if one program calls another program that accesses the file through the same access path, they are actually sharing the same open data path. If it is possible that a call to another program could relocate a file pointer that could error out the program, it would be a good idea to save the keys and reset the pointer (CHAIN or SETLL) upon returning.

26.10.1 File Server Examples

Figure 26–3   File Server Example (part 1)

```
Seq No.U    C*------------------------------------------------------------------    Mod DC's
   1.00    C*                                                                        09.11.92
   2.00    C*                                                                        10.11.92
   3.00    C*Index of Examples:                                                      10.11.92
   4.00    C*    ------------------                                                  10.11.92
   5.00    C*                                                                        10.11.92
   6.00    C*                    Scan For:    To Find:                               10.11.92
   7.00    C*                    ---------    ------------------------------------   10.11.92
   8.00    C*                    1.1          File Server Calls                      10.11.92
   9.00    C*                    1.1.1          Chain                                10.11.92
  10.00    C*                    1.1.2          Close                                10.11.92
  11.00    C*                    1.1.3          Delete                               10.11.92
  12.00    C*                    1.1.4          Existence Test                       10.11.92
  13.00    C*                    1.1.5          Open                                 10.11.92
  14.00    C*                    1.1.6          Read                                 10.11.92
  15.00    C*                    1.1.7          Read Equal                           10.11.92
  16.00    C*                    1.1.8          Read Previous                        10.11.92
  1-.00    C*                    1.1.9          Read Previous Equal                  10.11.92
  13.00    C*                    1.1.10         Set Greater Than                     10.11.92
  19.00    C*                    1.1.11         Set Lower Level                      10.11.92
  20.00    C*                    1.1.12         Update                               10.11.92
  21.00    C*                    1.1.13         Write                                10.11.92
  22.00    C*                    1.1.14         Unlock                               10.11.92
  23.00    C*------------------------------------------------------------------     19.01.93
  24.00    C*                    2.1.1          X09031                               10.11.92
  25.00    C*                                                                        10.11.92
  26.00    C*1.1  File Server Calls:                                                 10.11.92
  27.00    C*                                                                        09.11.92
  23.00    C*Determine from P93KL what the key list name is for the                  09.11.92
  29.00    C*access path being used; this name is moved to the @@KLST.               09.11.92
  30.00    C*If the operation uses a key list, determine how many keys               09.11.92
  31.00    C*the key list represents; this number is Z-ADDed to @@NNUM.              09.11.92
  32.00    C*The format is the release level (A61) and can be moved to               10.11.92
  33.00    C*@@FMT in S999 once for the rest of the calls.                           10.11.92
  24.00    C*------------------------------------------------------------------     09.11.92
  25.00    C*                                                                        09.11.92
  26.00    C*    1.1.1  Chain:                                                       10.11.92
  3-.00    C*                                                                        10.11.92
  23.00    C*        Old Code:                                                       10.11.92
  39.00    CSR            ARKY02    CHAINIO101C                8199                   10.11.92
  40.00    C*                                                                        10.11.92
  41.00    C*        New Code:                                                       10.11.92
  42.00    CSR            MOVEL'A61'      @@FMT                                       10.11.92
  43.00    CSR            MOVEL'ARKY04'   @@KLST                                      10.11.92
  44.00    CSR            MOVEL'CHAIN'    @@OPER                                      10.11.92
  45.00    CSR            MOVE 'N'        @@LOCK                                      05.12.92
  46.00    CSR            Z-ADD2          @@NNUM                                      10.11.92
  47.00    CSR            CALL 'XF0101'                                              10.11.92
  48.00    C*             ---- ------                                                10.11.92
  49.00    CSR            PARM            PS@@1                                       10.11.92
  50.00    CSR            PARM            I0101                                       10.11.92
  51.00    CSR    @@IOR   COMP 'EL'                       99                          10.11.92
  52.00    CSR    @@IOR   COMP 'NF'                       81                          10.11.92
  53.00    C*------------------------------------------------------------------     10.11.92
  54.00    C*                                                                        10.11.92
  55.00    C*    1.1.2  Close:                                                       10.11.92
  56.00    C*                                                                        10.11.92
  57.00    C*        Old Code:                                                       10.11.92
  58.00    CSR            CLOSEF09021D                    99                          10.11.92
  59.00    C*                                                                        10.11.92
  60.00    C*        New Code:                                                       10.11.92
  61.00    CSR            MOVEL'A61'      @@FMT                                       10.11.92
  62.00    CSR            MOVEL'GLKY04'   @@KLST                                      10.11.92
  63.00    CSR            MOVEL'CLOSE'    @OPER                                       10.11.92
  64.00    CSR            CALL 'XF0902'                                              10.11.92
  65.00    C*             ---- ------                                                10.11.92
  66.00    CSR                            PARM            PS@@1                       10.11.92
  67.00    CSR                            PARM            I0902                       10.11.92
  68.00    CSR            @@OR    COMP 'ERR'                       99                 10.11.92
  69.00    C*------------------------------------------------------------------     10.11.92
  70.00    C*                                                                        10.11.92
  71.00    C*    1.1.2  Delete:                                                      10.11.92
  72.00    C*                                                                        10.11.92
  73.00    C*        Old Code:                                                       10.11.92
  74.00    CSR                            DELETI0101B                    99           10.11.92
  75.00    C*                                                                        10.11.92
  76.00    C*        New Code:                                                       10.11.92
  77.00    CSR            MOVEL'A61'      @@FMT                                       10.11.92
  73.00    CSR            MOVEL'ARKY02'   @@KLST                                      10.11.92
  79.00    CSR            MOVEL'DELET'    @@OPER                                      10.11.92
```

Figure 26–4   File Server Example (part 2)

```
80.00    CSR                   CALL 'XF0101'                        1-0o:1-1-:-2-
81.00    C*
82.00    CSR                   PARM          PS001                  10.11.92
83.00    CSR                   PARM          I0101                  10.11.92
84.00            88IOR         COMP 'RL'                    99       10.11.92
85.00    C*                                                          10.11.92
86.00    C*      Old Code:                                           10.11.92
87.00    CSR      ARKYOR       DELETI0101R                  6199     10.11.92
88.00    C*                                                          10.11.92
89.00    C*      New Code:                                           10.11.92
90.00    CSR                   MOVEL'A61'    88PMT                   10.11.92
91.00    CSR                   MOVEL'ABY02'  88KLGT                  10.11.92
92.00    CSR                   MOVEL'DELET'  88OPER                  10.11.92
93.00    CSR                   Z-ADD3        88NRRM                  10.11.92
94.00    CSR                   CALL 'XF0101'                         10.11.92
95.00    C*                                                          10.11.92
96.00    CSR                   PARM          PS001                  10.11.92
97.00    CSR                   PARM          I0101                  10.11.92
98.00            88IOR         COMP 'RL'                    99       10.11.92
99.00            88IOR         COMP 'NF'                    63       10.11.92
100.00   C*-----------------------------------------------------------------   10.11.92
101.00   C*                                                          10.11.92
102.00   C*      1.1.4  Existence Test:                              10.11.92
103.00   C*                                                          09.11.92
104.00   C*      Old Code:                                           09.11.92
105.00   CSR      ARKYO2       SETLLI0101D                  9982     10.11.92
106.00   C*                                                          09.11.92
107.00   C*      New Code:                                           09.11.92
108.00   CSR                   MOVEL'A61'    88PMT                   10.11.92
109.00   CSR                   MOVEL'RPKY01' 88KLGT                  10.11.92
110.00   CSR                   MOVEL'EXIST'  88OPER                  10.11.92
111.00   CSR                   Z-ADD3        88NRRM                  09.11.92
112.00   CSR                   CALL 'XF0101'                         10.11.92
113.00   C*                                                          09.11.92
114.00   CSR                   PARM          PS001                  09.11.92
115.00   CSR                                 I0101                  10.11.92
116.00   CSR      88IOR        COMP 'YES'                   82       10.11.92
117.00   CSR      88IOR        COMP 'ERR'                   99       11.12.92
118.00   C*-----------------------------------------------------------------   09.11.92
119.00   C*                                                          10.11.92
120.00   C*      1.1.5  Open:                                        10.11.92
121.00   C*                                                          10.11.92
122.00   C*      Old Code:                                           10.11.92
123.00   CSR                   OPEN F0006                            10.11.92
124.00   C*                                                          10.11.92
125.00   C*      New Code:                                           10.11.92
126.00   CSR                   MOVEL'A61'    88PMT                   10.11.92
127.00   CSR                   MOVEL'NCKY01' 88KLGT                  10.11.92
128.00   CaR                   MOVEL,'OPEN ' 88OPER                  10.11.92
129.00   CSR                   CALL 'YF0006'                         10.11.92
130.00   C*                                                          10.11.92
131.00   CSR                   PARM          PS001                  10.11.92
132.00   CSR                   PARM          I0006                  10.11.92
133.00   C*-----------------------------------------------------------------   10.11.92
134.00   C*                                                          10.11.92
135.00   C*      1.1.6  Read:                                        10.11.92
136.00   C*                                                          10.11.92
137.00   C*      Old Code:                                           10.11.92
138.00   CSR                   READ I0901A                  9982     10.11.92
139.00   C*                                                          10.11.92
140.00   C*      New Code:                                           10.11.92
141.00   CSR                   MOVEL'A61'    88PMT                   10.11.92
142.00   CSR                   MOVEL'GMKY01' 88KLGT                  10.11.92
143.00   CSR                   MOVEL'READ '  88OPER                  10.11.92
144.00   CSR                   MOVE 'N'      88LOCK                  05.12.92
145.00   CSR                   CALL 'XF0901'                         10.11.92
146.00   C*                    ----- -------                         10.11.92
147.00   CSR                   PARM          PS001                  10.11.92
148.00   CSR                   PARM          I0901                  10.11.92
149.00   CSR      88IOR        COMP 'EOP'                   82       10.11.92
150.00   CSR      88IOR        COMP 'RL'                    99       10.11.92
151.00   C*-----------------------------------------------------------------   10.11.92
152.00   C*                                                          10.11.92
153.00   C*      1.1.7  Read Equal:                                  17.11.92
154.00   C*                                                          10.11.92
155.00   C*      Old Code:                                           10.11.92
156.00   CSR      ARKYO2       READEI0101C                  9987     10.11.92
157.00   C*                                                          10.11.92
158.00   C*      New Code:                                           10.11.92
159.00   CSR                   MOVEL'A61'    88PMT                   10.11.92
160.00   CSR                   MOVEL'ARKYO3' 88KLGT                  10.11.92
161.00   CSR                   MOVEL'READE'  88OPER                  10.11.92
162.00   CSR                   MOVE 'N'      88LOCK                  05.12.92
```

Figure 26–5   File Server Example (part 3)

```
163.00   CSR                CALL 'XP0101'                          10.11.92
164.00   C*                 ---- --------                          10.11.92
165.00   CSR                PARM          PG@@1                    10.11.92
166.00   CSR                PARM          IO101                    10.11.92
167.00   CSR      @@IOR     COMP 'NE'                      87       10.11.92
168.00   CSR      @@IOR     COMP 'EL'                      99       10.11.92
169.00   C*------------------------------------------------------------  10.11.92
170.00   C*                                                        17.11.92
171.00   C*       1.1.8  Read Previous:                            17.11.92
172.00   C*                                                        17.11.92
173.00   C*       Old Code:                                        17.11.92
174.00   CSR                READPI0901B                   9982      17.11.92
175.00   C*                                                        17.11.92
176.00   C*       New Code:                                        17.11.92
177.00   CSR                MOVEL'A61'        @@FMT                 17.11.92
178.00   CSR                MOVEL'GMKY02'     @@KLST                17.11.92
179.00   CSR                MOVEL'READP'      @@OPER                17.11.92
180.00   CSR                MOVE 'N'          @@LOCK                05.12.92
181.00   CSR                CALL 'XF0901'                          17.11.92
182.00   C*                 ---- --------                          17.11.92
183.00   CSR                PARM          PG@@1                    17.11.92
184.00   CSR                PARM          IO901                    17.11.92
185.00   CSR      @@IOR     COMP 'BOF'                     82       17.11.92
186.00   CSR      @@IOR     COMP 'EL'                      99       17.11.92
187.00   C*------------------------------------------------------------  17.11.92
188.00   C*                                                        10.11.92
189.00   C*       1.1.9  Read Previous Equal:                      10.11.92
190.00   C*                                                        10.11.92
191.00   C*       Old Code:                                        10.11.92
192.00   CSR      ABKY04    REDPEI0101C                   9987      10.11.92
193.00   C*                                                        10.11.92
194.00   C*       New Code:                                        10.11.92
195.00   CSR                MOVEL'A61'        @@FMT                 10.11.92
196.00   CSR                MOVEL'ABKY03'     @@KLST                10.11.92
197.00   CSR                MOVEL'REDPE'      @@OPER                10.11.92
198.00   CSR                MOVE 'N'          @@LOCK                05.12.92
199.00   CSR                CALL 'XF0101'                          10.11.92
200.00   C*                 ---- --------                          10.11.92
201.00   CSR                PARM          PG@@1                    10.11.92
202.00   CSR                PARM          IO101                    10.11.92
203.00   CSR      @@IOR     COMP 'NE'                      87       10.11.92
204.00   CSR      @@IOR     COMP 'EI'                      99       10.11.92
205.00   C*------------------------------------------------------------  10.11.92
206.00   C*                                                        10.11.92
207.00   C*       1.1.10  Set Greater Than:                        10.11.92
208.00   C*                                                        10.11.92
209.00   C*       Old Code:                                        10.11.92
210.00   CSR      GBKEY     SETGTI0902A                   8498      10.11.92
211.00   C*                                                        10.11.92
212.00   C*       New Code:                                        10.11.92
213.00   CSR                MOVEL'A61'        @@FMT                 10.11.92
214.00   CSR                MOVEL'GBKY01'     @@KLST                10.11.92
215.00   CSR                MOVEL'SETGT'      @@OPER                10.11.92
216.00   CSR                2-ADD3            @@KNUM                10.11.92
217.00   CSR                CALL 'XF0902'                          10.11.92
218.00   C*                 ---- --------                          10.11.92
219.00   CSR                PARM          PG@@1                    10.11.92
220.00   CSR                PARM          IO902                    10.11.92
221.00   CSR      @@IOR     COMP 'NF'                      84       10.11.92
222.00   CSR      @@IOR     COMP 'ERR'                     98       10.11.92
223.00   C*                                                        10.11.92
224.00   C*       Old Code:                                        10.11.92
225.00   CSR      *HIVAL    SETGTI0902A                    99       10.11.92
226.00   C*                                                        10.11.92
227.00   C*       New Code:                                        10.11.92
228.00   CSR                MOVEL'A61'        @@FMT                 10.11.92
229.00   CSR                MOVEL'GBKY01'     @@KLST                10.11.92
230.00   CSR                MOVEL'SETKE'      @@OPER                10.11.92
231.00   CSR                CALL 'XF0902'                          10.11.92
232.00   C*                 ---- --------                          10.11.92
233.00   CSR                PARM          PG@@1                    10.11.92
234.00   CSR                PARM          IO902                    10.11.92
235.00   CSR      @@IOR     COMP 'ERR'                     99       10.11.92
236.00   C*------------------------------------------------------------  10.11.92
237.00   C*                                                        10.11.92
238.00   C*       1.1.11  Set Lower Limit:                         10.11.92
239.00   C*                                                        10.11.92
240.00   C*       Old Code:                                        10.11.92
241.00   CSR      ABK01     SETLLI0101C                   849985    10.11.92
242.00   C*                                                        10.11.92
243.00   C*       New Code:                                        10.11.92
244.00   CSR                MOVEL'A61'        @@FMT                 10.11.92
245.00   CSR                MOVEL'ABKY03'     @@KLST                10.11.92
```

Figure 26–6   File Server Example (part 4)

```
246.00  CSR           MOVEL'GETILL'   @@OPER              10.11.92
247.00  CSR           Z-ADD1          @@NUM               10.11.92
248.00  CSR           CALL 'XF0101'                       10.11.92
249.00  C*            ----  -------                       10.11.92
250.00  CSR           PARM            PS@@1               10.11.92
251.00  CSR           PARM            I0101               10.11.92
252.00  CSR   @@IOR   COMP 'EOF'                    84    10.11.92
253.00  CSR   @@IOR   COMP 'EQ'                     85    10.11.92
254.00  CSR   @@IOR   COMP 'ERR'                    99    10.11.92
255.00  C*                                                10.11.92
256.00  C*    Old Code:                                   10.11.92
257.00  CSR   *LOVAL  GETLLI0101C                   99    10.11.92
258.00  a*                                                10.11.92
259.00  C*    New Code:                                   10.11.92
260.00  CSR           MOVIL'AS1'      @@PMT               10.11.92
261.00  CSR           MOVEl'ABKY03'   @@KLST              10.11.92
262.00  CSR           MOVEL'GETLV'    @@OPER              10.11.92
263.00  CSR           CALL'XF0101'                        10.11.92
264.00  C*            ----  ------                        10.11.92
265.00  CSR           PARM            PS@@1               10.11.92
266.00  CSR           PARM            I0101               10.11.92
267.00  CSR   @@IOR   COMP 'ERR'                    99    10.11.92
268.00  C*----------------------------------------------  10.11.92
269.00  C*                                                10.11.92
270.00  C*    1.1.12  Update:                             10.11.92
271.00  C*                                                10.11.92
272.00  C*    Old Code:                                   10.11.92
273.00  CSR           UPDATI0902A                   99    10.11.92
274.00  C*                                                10.11.92
275.00  C*    New Code:                                   10.11.92
276.00  CSR           MOVEL'AS1'      @@PMT               10.11.92
277.00  CSR           MOVEL'BBKY01'   @@KLST              10.11.92
278.00  CSR           MOVEL'UPDAT'    @@OPER              10.11.92
279.00  CSR           CALL 'XF0902'                       10.11.92
280.00  C*            ----  -------                       10.11.92
281.00  CSR           PARM            PS@@1               10.11.92
282.00  CSR           PARM            I0902               10.11.92
283.00  CSR   @@IOR   COMP 'ERR'                    99    10.11.92
284.00  C*                                                10.11.92
285.00  C*    Old Code:                                   10.11.92
286.00  C*            Read...                             10.11.92
287.00  C*            Unlock...                           10.11.92
288.00  C*            Chain...                      82    10.11.92
289.00  C*                                                10.11.92
290.00  CSR           UPDATI0902A                   99    10.11.92
291.00  C*                                                10.11.92
292.00  C*    New Code:                                   10.11.92
293.00  C*            Read with no lock...                10.11.92
294.00  C*                                                10.11.92
295.00  CSR           MOVEL'AS1'      @@PMT               10.11.92
296.00  CSR           MOVEL'GBKY01'   @@KLST              10.11.92
297.00  CSR           MOVEL'UPDTC'    @@OPER              10.11.92
298.00  CSR           Z-ADD4          @@NUM               10.11.92
299.00  CSR           CALL 'XF0902'                       10.11.92
300.00  C*            ----  -------                       10.11.92
301.00  CSR           PARM            PS@@1               10.11.92
302.00  CSR           PARM            I0902               10.11.92
303.00  CSR   @@IOR   COMP 'NF'                     82    10.11.92
304.00  CSR   @@IOR   COMP 'ERR'                    99    10.11.92
305.00  C*----------------------------------------------  10.11.92
306.00  C*                                                09.11.92
307.00  C*    1.1.11  Write:                              10.11.92
308.00  C*                                                09.11.92
309.00  C*    Old Code:                                   09.11.92
310.00  CSR           WRITEI0101K                   99    10.11.92
311.00  C*                                                09.11.92
312.00  C*    New Code:                                   09.11.92
313.00  CSR           MOVEL'AS1'      @@PMT               10.11.92
314.00  CSR           MOVIL'ABKY11'   @@KLST              10.11.92
315.00  CSR           MOVEL'WRITE'    @@OPER              10.11.92
316.00  CSR           CALL 'XF0101'                       10.11.92
317.00  C*            ----  --------                      09.11.92
318.00  CSR           PARM            PS@@1               09.11.92
319.00  CSR           PARM            I0101               10.11.92
320.00  CSR   @@IOR   COMP 'ERR'                    99    10.11.92
321.00  C*----------------------------------------------  09.11.92
322.00  C*                                                09.11.92
323.00  C*    1.1.14  Unlock:                             10.11.92
324.00  C*                                                09.11.92
325.00  C*    Old Code:                                   09.11.92
326.00  CSR           EXCPTUNLOCK                         10.11.92
327.00  C*            :                                   10.11.92
328.00  OI0101A   E             UNLOCK                    10.11.92
```

Figure 26–7   File Server Example (part 5)

26.11 Commonly Used File Servers

The following is a list of commonly used file servers:

File Server	Description	Notes
X0005	User Defined Codes Server	Retrieve Only
X0006	Retrieve Cost Center Master	Retrieve & Scrub
XF0006	Cost Center I/O	Add/Change/Delete
X0010	Automatic Next Numbering	Retrieve & Increment
X9203	DD Alpha Description	Retrieve Only
X9800E	Data Dictionary Info	Editing Info
XF0101	Address Book I/O	Add/Change/Delete
XS0101LA	Address Book	Retrieve Only
X0901	Account Master	Retrieve & Formats
XF0901	Account Master I/O	Add/Change/Delete
X41LOCN	Location Format	
X41LOT	Lot Number Assignment	
X41DUP	Lot Master Duplicate	Edits
X4101	Item Master	Retrieve & Edit

File Server	Description	Notes
X4108	Lot Master Update	Creates & Updates
X4111	Write to Item Ledger	Writes Only
XF4111	CARDEX I/O	Retrieve Only
XF42119	Sales History I/O	Add/Change/Delete
XF42199	Sales Detail Ledger I/O	Add/Change/Delete
XF43199	Purchasing History I/O	Add/Change/Delete

27

Functional Servers

This chapter contains these topics:

27.1 About Functional Servers

A functional server allows you to enhance the processing and maintenance of your application programs. Functional servers provide a central location for standard business rules about entering documents, such as vouchers, invoices, and journal entries. These business rules establish the following:

- Data Dictionary default values

- Field edits and valid values

- Error processing

- Relationships between fields or applications

27.2 What Are Functional Servers?

A functional server is a program that performs all transaction validation and database updates.

The functional server removes from the application program the burden of performing edit and update operations. Rather, this functionality is placed within the server.

A functional server is a called program. The application program calling the server must tell the server what action to perform for every transaction. In turn, the

functional server will record error flags and update flags and return error messages to the application program for use when determining the result of a call to a server.

Functional servers have the following naming convention:

XT (file name) (server version)

For example: The functional server for file F0411 would appear as XT0411Z1.

The following diagram depicts the flow of a typical program using a functional server:

Figure 27–1   Program Flow Using a Functional Server
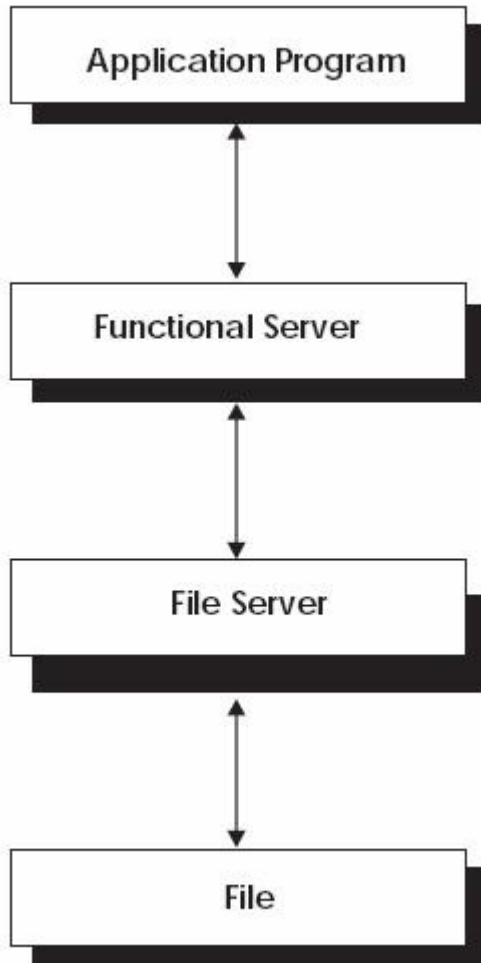
the flow of a typical program using a functional server.

****

27.3 What Are the Advantages of Using a Functional Server?

Advantages of using a functional server include:

- Minimized maintenance and versioning of your software.
- Ability to isolate data editing routines and file updates.
- Increased flexibility because multiple programs can use the same functional server.

- Smoother transition from an old database to a new database. Instead of modifying all programs, you will only have to apply a new set of functional servers.

- Ability to implement one functional server at a time without affecting your entire system.

27.4 What Are the Disadvantages of Using a Functional Server?

Disadvantages of functional servers include:

- A functional server is minutely slower because you are performing an external call to the server from your program.

- Functional server programs tend to be large.

27.5 Setting Up Business Rules for an Entry Program

To set up business rules for an entry program

You can have all your entry programs use the same DREAM Writer version (and thus, use the same rules) or you can set up different DREAM Writer versions. JD Edwards World provides DREAM Writer version ZJDE0001 as the default functional server version for your entry programs.

1. Create a DREAM Writer version for a specific functional server program (for example, XT0411Z1 for voucher entry).

2. Set the processing options within the version according to your company requirements.

3. Specify the version you want the entry program to use in the processing options for that entry program.

> **Caution:** Only the person responsible for system-wide setup should make changes to the functional server version. For more information about how to set up DREAM Writer versions, see the *JD Edwards World Technical Foundation Guide*.

27.6 How Does a Functional Server Function?

When a functional server is called, an entire transaction is processed.

- Generally, once a functional server is called, it receives the data that the user entered and loads it into a user space.

- It performs its functionality on the data.

- Finally, it returns the requested data back to the calling program using the user space. If any errors occur, the system loads them into a user index.

The system uses the following interfaces to communicate with the functional server:

- The call parameters

- The control fields within each user space line

- The error index

27.7 Functional Server Highlights

Functional servers are usefully for many things, highlights include:

- Provides all editing for a transaction
- Provides field default values
- Provides all database updates
- Performs inquiry for an entire transaction
- Runs interactively or in batch
- Supports a multitude of user interfaces

27.7.1 Basic Accounting Transactions

In the Financial System there are five basic transactions:

- Journal Entries
- A/P Voucher Entry
- A/P Checks
- A/R Invoice Entry
- A/R Cash Receipts

Figure 27–2   Basic Accounting Transactions
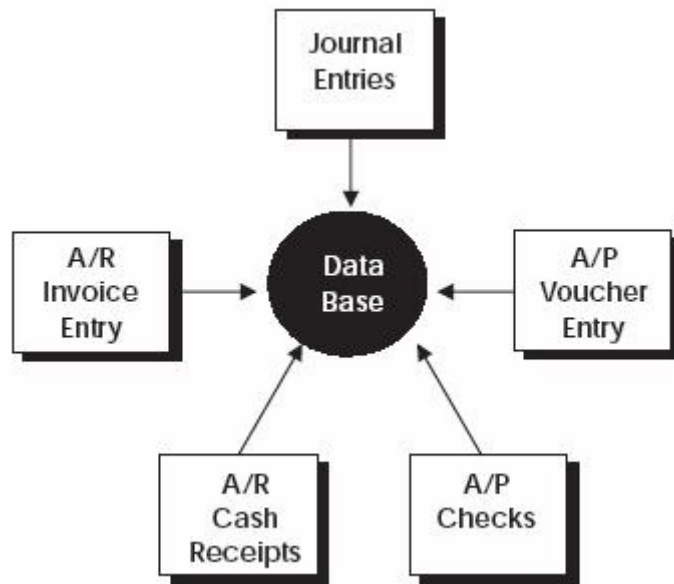
JD Edwards World uses one program for each part or transaction of the system.

27.7.2 Example: Voucher Processing Functional Server

The following graphic shows the programs that use the voucher processing functional server. JD Edwards World provides two demo versions of the functional server, ZJDE0001 and ZJDE0002.

Figure 27–3   Programs That Use the Voucher Processing Functional Server
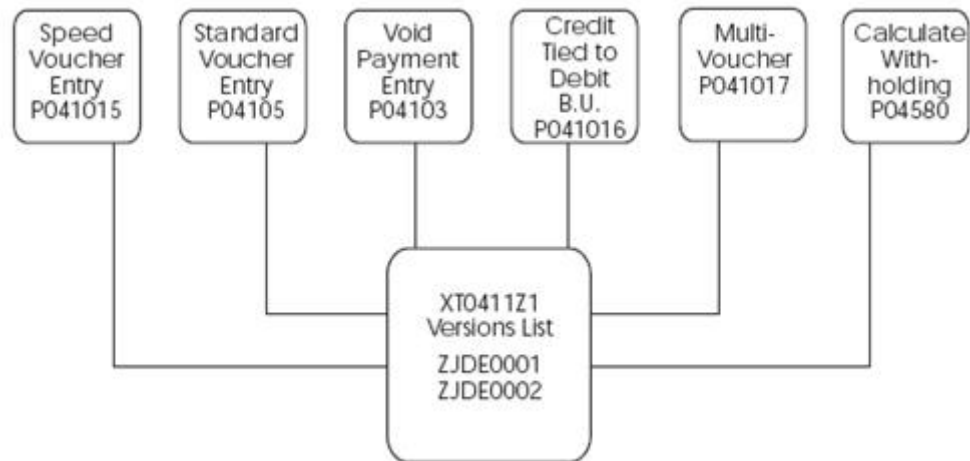
27.7.3 Program Example - Traditional Architecture

Figure 27–4   Program Example - Traditional Architecture
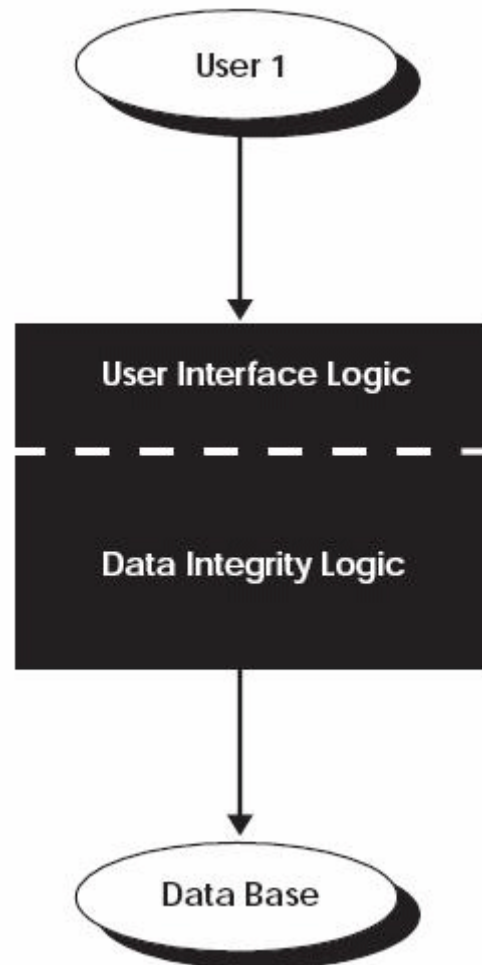
Each program contains both the User Interface Logic and the Data Integrity Logic. You would access this one program to interface with the database.

27.7.4 User Interface Logic

Aspects of the user interface logic include:

- Screen format
- Field formatting
- Help functions
- Error message display
- Touch and feel

27.7.5 Data Integrity Logic

Aspects of the data integrity logic include:

- Field editing
- Multi-field editing
- Transaction editing
- Default logic
- Error message selection
- Tax processing
- Currency processing
- Database update

27.7.6 Example - Traditional Architecture - Alternative Method of Entry

Figure 27–5 Traditional Architecture - Alternative Method of Entry
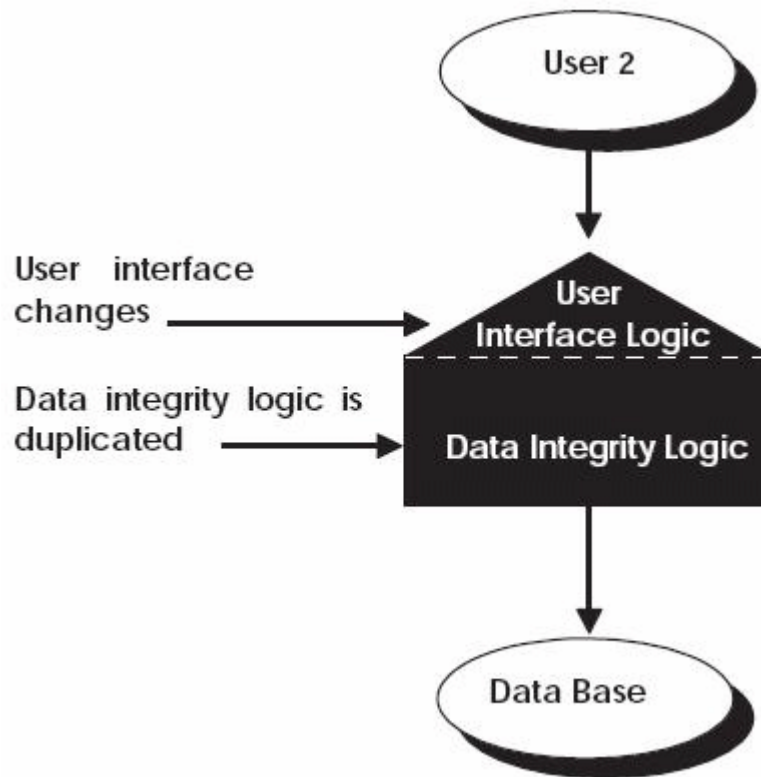
If a user wanted the screen to look different, the User Interface Logic would have to change. The Data Integrity Logic would be duplicated.

27.7.7 Example - Traditional Architecture - Various Entry Methods

Figure 27–6 Traditional Architecture - Various Entry Methods
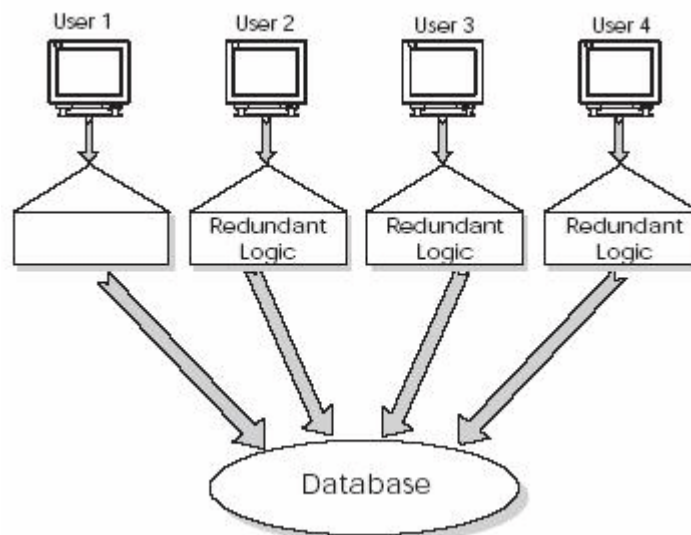
Several users each wanted their own User Integrity logic. The Data Integrity Logic remained the same and was duplicated numerous times.

27.7.8 Example - JD Edwards World Open Application Architecture - Various Entry Methods

Figure 27–7   Open Application Architecture Concept
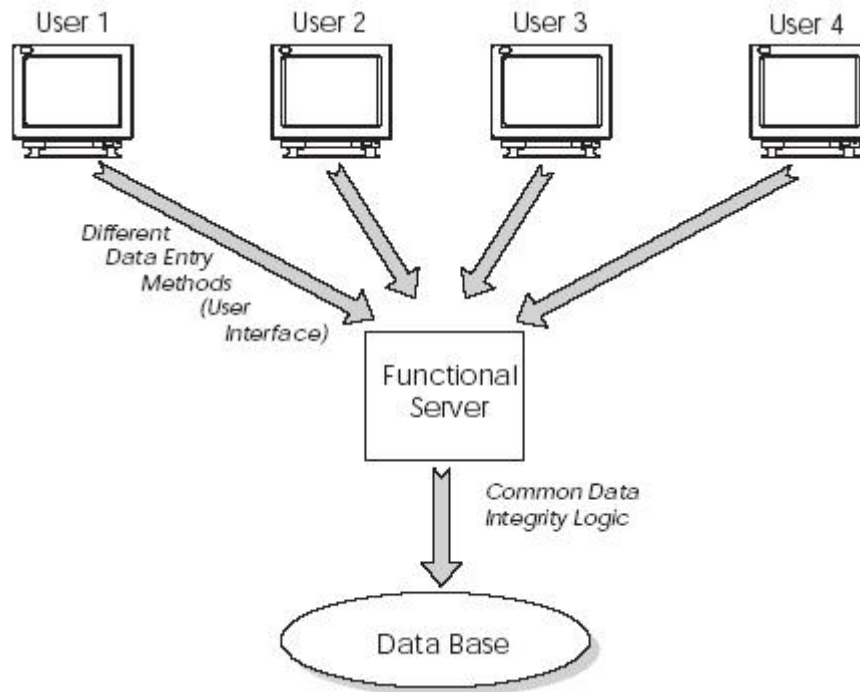
The creation of a Functional Server allows you to maintain the Data Integrity Logic in one common program. The Functional Server becomes separated from each User Integrity Logic program. All of the User Integrity Logic programs access one Functional Server to interface with the database. This concept is called an Open Application Architecture.

27.7.9 Open Application Architecture

In the Open Application Architecture, the database is separated from each User Integrity Logic program by the Functional Server. Advantages of the Open Application Architecture include:

- Automatic consistency
- Reduced maintenance burden
- Stability of custom code
- Separation of development efforts
- Performance enhancements

Figure 27–8   Open Application Architecture
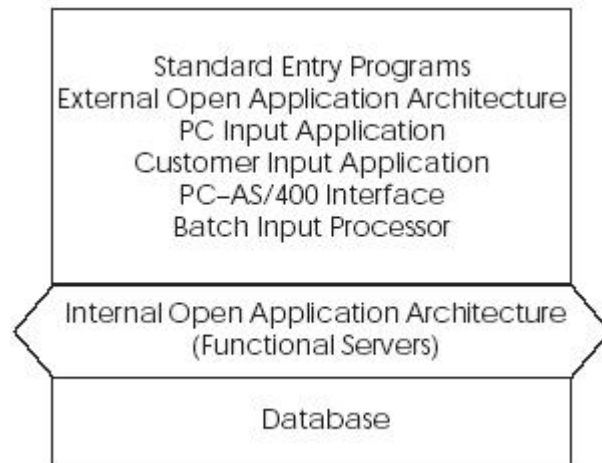
27.7.10 Functional Server Interface

A functional server must handle two basic components:

- Data
- Error messages

Figure 27–9   Functional Server Components
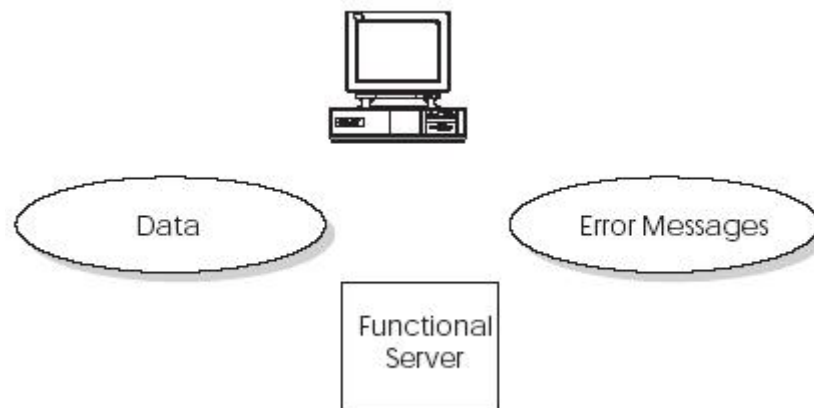
27.7.11 Functional Server Transaction Data

Arithmetic:

1. Full transaction passed to server at one time.

2. A single transaction can have more than 1,000 lines.

3. Each line from 500 to 1,000 characters long.

= A lot of space

Story Problem:

How can program A pass program B a one-thousand line transaction without using a 1-meg parameter?

27.7.12 Functional Server Error Messages

Arithmetic:

1. Each field can have an error.

2. Each line can have 150 or more fields.

3. Each transaction can have hundreds of lines.

= A lot of space

Story Problem:

How can program A pass program B a one-thousand line transaction without using a 1-meg parameter?

27.7.13 Answers

#1. User Space

#2. User Index

27.7.14 Functional Server Interface

A Functional Server can interact with a User Space and a User Index by passing and receiving parameters.

27.7.15 Functional Server Parameters

Single data structure defined in /COPY module.

Parameters that are fixed and application specific.

- Fixed parameters
  - Action code (edit, update, inquire)
  - Number of lines in transactions
  - DREAM Writer version of Functional Server
- Application specific parameters
  - Contains header information for a transaction
  - Document number of transaction
  - Total amount of transaction
  - Batch number of transaction

27.7.16 Functional Server User Space

Single data structure defined in /COPY module.

- One big data area
- Maximum of 16 meg
- Beginning 100 bytes of user space reserved
- Data portion of user space contains formatted lines
  - User space lines defined by /COPY module
  - Each line contains three sections

1) Control section

2) Application specific section

3) Record format section

27.7.17 Functional Server User Index

Single data structure defined in /COPY module.

- One big keyed data area

- Used to pass error messages back to application

- User index entry defined using a /COPY module

- Each user index entry contains two sections

    - 1) Key

        Application ID

        Line number (assigned by application program)

        Data item in error

        Error code

    - 2) Data - value of erroneous data

27.7.18 Functional Server /COPY Modules

Repository for all user space and user index formats.

- All User Space and User Index formats contained in /COPY modules

- All database record formats contained in /COPY modules

- /COPY module I00FS@@ contains generic data structures and constants

- Each Functional Server has its own I00FSxx /COPY module to define application specific data structures

27.7.19 Creating User Space and User Index

When you create user space and user index formats, use the following tools:

- OS/400 APIs

- X00991

    - Called once for each Functional Server the application program intends to use

    - Creates user space and user index for each Functional Server

    - Returns name and library where user space exists

    - Returns the length each user space line should be

27.7.20 Accessing the User Space

- Writing to the user space X98CHGUS.

    - .JD Edwards World version of QUSCHGUS API

    - Updates a user space beginning at offset x for length

    - Similar to CHGDTAARA command

- Reading from the user space QUSRTVUS.

  - API

  - Retrieves data from a user space beginning at offset x for length

  - Similar to RTVDTAARA command

- Application responsibilities

  - Remember number of lines written to user space

  - Increment user space offset

27.7.21 Accessing the User Index

- User Index written to by Functional Server.

- Reading from the User Index.

  - C00RIX/COPY module reads the User Index

  - C00RIX returns formatted error message defined by /COPY module

  - First execution of C00RIX reads first entry in User Index

  - Subsequent executions of C00RIX do read nexts

  – Uses X00IDX under the covers

- Application responsibilities.

  - Remember the value of your Application ID (typically program name)

  - Set flag for initial read of User Index by C00RIX

  - Use the data item name and line number in error to set ON screen indicators

27.7.22 Interactive Program Cycle Using a Functional Server

- Mainline - no change

- S001 - no change

- S003

  - No change for add, change, or delete

  - Call Functional Server to perform an inquiry

- S004 - Retrieve records from User Space for display on screen

- S005

  - Application program performs "scrubs" only

  - Write data records to User Space

  - Call Functional Server to perform edits

  - Read each line from User Space to redisplay defaulted information

  - Execute C00RIX to determine each data item in error so that screen error indicators may be set ON

- S010 - call Functional Server to perform an update

27.8 The Call Parameters for the Functional Server

The call parameters provide commands to the functional server which applies to all transaction lines in the input user space.

The first parameter is a Data Structure. The following fields are from the #PPARM Data Structure defined in the I00FS@@ copy module.

PARM (Length)	Description
#PFUNC (1)	Specifies a function code. The valid values are: 0 – Edit and Update 1 – Edit only 2 – Update only I – Inquire
#PVERS (10) (3 before A6)	The DREAM Writer version number you are executing. This parameter uses the version number to retrieve processing options for the server. The default version number will be ZJDE0001. This allows global processing options to be set at the server level, instead of for each program.
#PSPCN (20)	The name of the user space which the program has used. The user space contains the modified database records. Characters 1-10 contain the space name, and characters 11-20 contain the library name.
#PSPCB (9,0)	The byte position within the user space where the application data begins. Characters in the space prior to this position contain header information used by the functional server.
#PNBRL (5,0)	The number of lines in the input user space which the application program has loaded. When inquiring, this contains the number of lines output to the user space.
#PWARN (1)	This parameter contains a code explaining how you want warnings to be handled. The valid values are: 0 – Normal warning processing 1 – Treat warnings as errors 2 – Ignore warnings
#PCYCL (1)	This parameter is only used if the #PWARN parameter specifies normal warning processing. The valid values are: 0 – No cycle, all cycle processing ignored 1 – First cycle, all warning messages are sent to the program 2 – Second cycle, only warning messages not previously sent are sent to the program
#PDFTC (1)	Specifies how you want field values to be defaulted. 0 will default field values for add lines only and 1 will default field values for change or add lines.
#PXATP (3)	The application specific transaction type.
#PLVL (1)	The transaction level. 0 implies that each detail record to be updated or added has been sent in the input user space. 1 applies only to changes or deletions because only one record is sent in the input user space and the server will change or delete all other records for that transaction.
#PPROG (10)	The name of the calling program. This is used by the server to update the program name field in the updated database records.

PARM (Length)	Description
#PAPPL (10)	The application ID value used for writing entries to the error index. Generally, this may be the same value as the calling program.
#PFLDS (4,0)	The number of fields which have been loaded to the Field Names Array parameter.
#PFMT (10)	The record format identifier the application program has used. This is used for versioning, allowing the database to change without the need for recompiling the application program.
#PEDIT (1)	Indicates the overall result of edits performed against all transaction lines. 0 implies that the edits went OK, 1 means there were some warnings, 2 is errors occurred.
#PUPDT (5,0)	The number of database updates which occurred. This will allow the program to know whether any updates actually occurred.
#PERR (4)	Specifies any errors that occurred within the server. A non-blank value indicates a fatal error occurred.
#PFERR (4)	Contains the first error message found during editing.
#PFDTA (4)	Contains the data item of the first field which had an error during editing.
#P#MDE (1)	For currency translations, this contains the mode of entry. If this value is passed as blank, the server will output the default mode of entry.
#PCRCD (3)	For currency translations, this contains the currency code of entry. If this value is passed as blank, the server will output the default currency code.
#PCRR (15,7)	For currency translations, this contains the currency exchange rate of entry. If this value is passed as zero, the server will output the default currency rate.
#PIDXN (20)	The name of the user index which the functional server will use to return error messages to the program. Characters 1-10 contain the index name, and characters 11-20 contain the library name.
#PSPCL (5,0)	The total length of each user space record. This includes both the user space control fields and the database record format.
#PSPEC (250)	This is a data structure which is redefined by each server. Generally, this will contain the application key fields which a specific server uses.

The second parameter will be an array.

PARM (Length)	Description
Variable Array	An array of field names which the program has used. Only fields in this array will be updated in the database. If the first element contains *ALL, then all fields will be used. The number of field names parameter should contain the number of entries loaded into this array.

27.9 Control Fields within the User Space

The input user space can contain multiple lines for each control field. The following fields are defined in the #SSPCR Data Structure in the I00FS@@ copy module.

PARM (Length)	Description
#SPCAC (1)	The line action code. The valid values are:
	A – Add the record
	D – Delete the record
	C – Change the record
	U – Change the record if it already exists, otherwise add the record
	V – Void the record
#SPCID (15,0)	Used by the program to uniquely identify each line in the user space. (optional)
#SPCER (1)	The line error code.
	X = the line is OK
	1 = some warnings
	2 = errors.
#SPCUP (1)	The line update code.
	0 = the line was not updated
	1 = updated
#SPCRR (9,0)	Contains the database relative record number which corresponds to this user space record. For adds, this is only loaded following an update operation. For changes and deletes, this is updated following an edit operation.
#SPCMN (2,0)	Contains the database physical file member number which corresponds to this user space record. For adds, this is only loaded following an update operation. For changes and deletes, this is updated following an edit operation.
#SPCPG (12)	Allows the program to store up to 12 bytes of information with each user space record.
#SPCAP (200)	Any application specific information which must be passed to the server for each transaction line, but is not contained within the transaction record format.
Application fields	Externally described record format for the transaction record.

27.10 Error Message Index Line (C00RIX)

The output error message index contains warning and error messages issued for each line in the user space. The following fields are from the #IIDXR Data Structure defined in the I00FS@@ copy module. The structure of the message index line is as follows:

Field (Length)	Explanation
#IDXAP (10)	The application identifier from the input parameter. Allows a program to access only its error messages.
#IDXID (15,0)	The line identifier from the input user space.
#IDXFN (10)	The data item portion of the field name.
#IDXER (4)	Contains the data dictionary error message code.
#IDXWN(1)	Line warning code 1 = Warning, 2 = Error.
#IDXMD (87)	Not used.

27.11 Example - Functional Server Program Sections

Figure 27–10   Functional Server Program Sections (part 1)

```
E*************************************************
E*      Copy Composite Member for Functional Server
E*
E/COPY JDECPY,E00FS@@
E*************************************************
```
Copy module containing generic data structures for functional server.

Figure 27–11   Functional Server Program Sections (part 2)

```
I/COPY JDECPY,I00XFSRV
```
Contains control parameter list for file servers

Figure 27–12   Functional Server Program Sections (part 3)

```
I/COPY JDECPY,I010161
```
Contains record image of F0101 version A6.1 for file servers.

Figure 27–13   Functional Server Program Sections (part 4)

```
CLEARPS@@
MOVEL$SVCO     KY@@
CALL 'XS0010'           @1
---- --------
PARM           PS@@
PARM           DS0010
```
Call to file server XS0010 to retrieve company currency code.

Figure 27–14   Functional Server Program Sections (part 5)

```
*IN@1    IFEQ '0'
RT@@     ANDEQ' '
         MOVE *BLANKS   PS@@
         MOVELCCCRCD    KY@@
         CALL 'XS0013'           @1
         ---- --------
         PARM           PS@@
DS0013   PARM DS0013    PS0013
RT@@     IFNE 'N'
CVCDEC   ANDNE*BLANK
         MOVE CVCDEC    $CDO
         ENDIF
         ENDIF
```
Call to file server XS0013 to retrieve display decimals.

Figure 27–15   Functional Server Program Sections (part 6)

```
         MOVEL'A61'     @@FMT
         MOVEL'ABKY01'  @@KLST
         MOVEL'CHAIN'   @@OPER
         MOVE 'Y'       @@LOCK
         Z-ADD1         @@KNUM
         CALL 'XF0101'
         ---- --------
         PARM           PS@@1
         PARM           I0101
@@IOR    COMP 'NF'               @1
```
Call to file server XF0101 to retrieve record

Figure 27–16   Functional Server Program Sections (part 7)

```
*IN81     IFEQ '0'
          ADD   $#FC      ABAFCY
          MOVEL'A61'       @@FMT
          MOVEL'ABKY01'    @@KLST
          MOVEL'UPDAT'     @@OPER
          CALL  'XF0101'
          ----  --------
          PARM             PS001
          PARM             I0101
@@IOR     COMP 'ERR'                    98
```

Call to file server XF0101 to update record

Figure 27–17   Functional Server Program Sections (part 8)

```
Load AR Specific Parameters

          MOVE &GLDCT      #ARDCT
          MOVE $SVKCO      #ARKCO
          Z-ADD&GLDOC      #ARDOC
          Z-ADD&GLICU      #ARICU
          MOVE &GLICT      #ARICT
          MOVE *BLANK      #ARSPL

Load functional server parms for edit/update.

          MOVEL&XIDXN      #PIDXN      index name
          MOVEL&SPAR       #PSPEC      applicatio
          MOVE &#EDUP      #PFUNC      function
          MOVEL$#311       #PVERS      DW version
          Z-ADD1           #PNBRL      number of lines
          Z-ADD$#ARBG      #PSPCB      space offset
          MOVE &#IGNW      #PWARN      warning handler
          MOVE &#OFF       #PLVL       detail level
          MOVE &#OFF       #PDFTC      default on chg
          MOVE &#PROG      #PPROG      program name
          MOVE 'INV'       #FXATP      type
          MOVE &ARSN       #PSPCN      space name
          Z-ADD&ARSL       #PSPCL      space length
          Z-ADD$@AR        #PPLDS      number of field
          MOVE *BLANKS     #PFMT
          MOVE &#AR1       #PFMT       format name


          CALL 'XT0311Z1'              81
          ----  --------
          PARM             #PPARM
          PARM             @ARN
```

Call functional server XT0311Z1

Figure 27–18   Functional Server Program Sections (part 9)

```
User space description

                MOVEL#SUGL     #SSPCD
Current user space offset

                Z-ADD$#GLBG    #SPCOF
Set update flag

                MOVE ##OFF     #SPCUP
General Ledger record

                MOVEAGL01      ##SSPC
Application specific line data

                MOVEL#SSGL     #SPCAP
Write record to user space

                CALL 'X98CHGUS'#PCHUS       91
                ---- ----------
                ENDIF                         ##edit
```

Write records to user space for functional server.

Figure 27–19   Functional Server Program Sections (part 10)

```
Load G/L Functional Server Specific Parameters

              MOVE *ZERO      #GLDOC        One-to-One Rel
              MOVE 'RP'       #GLDCT        Document Type
              MOVE $SVKCO     #GLKCO        Document Co.
              Z-ADD$GLDG      #GLDG         G/L Date
              Z-ADD$GLDG#     #GLDG#        G/L Date
    $PICU     IFEQ ' '
              Z-ADD*ZERO      #GLICU        Batch Number
              ELSE
              Z-ADD$ICU       #GLICU        Batch Number
              ENDIF
              MOVE 'I'        #GLICT        Batch Type
              MOVE $SVCO      #GLCO         Company
              MOVE *BLANKS    #GLMOD        Add a Model
              MOVE *BLANKS    #GLIMD        Change a Model
              MOVE *BLANKS    #GLRDI        Redistribute JE
              MOVE AARSN      #GLCSN        A/R Spc Name
              MOVE A#AR1      #GLCFM        A/R Spc Fmt
              MOVE #ARSL      #GLCLN        A/R Spc Length
              MOVE A#OFF      #GLCDG
              MOVE *ZERO      #GLCD
              MOVE A#ON       #GLONE        One-to-One Rel


---------------------------------------------------------------

Call functional server - XT0911Z1 -  Edit and Update
-------------------------------------

Load functional server parms for edit and update

              MOVE $GACTN     #PFUNC        Action Code
              MOVEL$#911      #PVERS        DW version
              MOVE AGLSN      #PSPCN        space name
              Z-ADD$#GLBG     #PSPCB        space offset
              Z-ADD1          #PNBRL        number of lines
              MOVE #AIGNW     #PWARN        warning handler
              Z-ADD*ZERO      #PCRR         Exchange Rate
              MOVE #AOFF      #PCYCL        cycle      nes
              MOVE #AOFF      #PDPTC        default on chg
              MOVE 'INV'      #PXATP        type
              MOVE A#OFF      #PLVL         detail level
              MOVE #APROG     #PPROG        program name
              Z-ADD$#GL       #PFLDS        number of field
              MOVE *BLANKS    #PFMT
              MOVELA#GL1      #PFMT         format name
              MOVE *BLANKS    #PAMDE        mode of entry
              MOVE *BLANKS    #PCRCD        currency code
              MOVE *BLANKS    #PCRR         exchange rate
              MOVELAXIDXN     #PIDXN        index name
              Z-ADD#GLSL      #PSPCL        space length
              MOVEL#SPGL      #PSPEC        application par


              CALL 'XT0911Z1'           91
              ---- --------
              PARM            #PPARM
              PARM            @GLN
```

Call functional server XT0911Z1

Figure 27–20   Functional Server Program Sections (part 11)

```
User space description

              MOVEL#SUAR    #SSPCD

Current user space offset

              Z-ADD$AARBG   #SPCOF

Read record from user space

              CALL 'QUSRTVUS'#PRTUS   91
              ---- ----------
```

Retrieve record from user space.

Figure 27–21   Functional Server Program Sections (part 12)

Figure 27–22   Functional Server Program Sections (part 13)

27.12 Available Functional Servers

Functional Server	Description	Notes
XT0101Z1	Address Book	
XT0311Z1	Accounts Receivable	
XT0311Z1E	Accounts Receivable	User Exit
XT0411Z1	Accounts Payable	
XT0411Z1E	Accounts Payable	User Exit
XT06116Z1	Payroll Time Entry	
XT0901Z1	Account Master	
XT0911Z1	Journal Entry	
XT0911Z1E	Journal Entry	User Exit
XT4102Z1	Item Balance	

28

Source Debugger

This chapter contains these topics:

- Section 28.1, "About Source Debugger"
- Section 28.2, "Using Debugger with an Interactive Program"
- Section 28.3, "Using Debugger with a Batch Program"
- Section 28.4, "Features of the JD Edwards World Source Debugger"

28.1 About Source Debugger

There are two types of programs that can be executed under the JD Edwards World Source Debugger - interactive and batch. The only difference when running the Source Debugger on an interactive program compared to a batch program is the initial execution statements. Once the Source Debugger has begun, all of the features are the same for both interactive and batch programs.

The JD Edwards World Source Debugger is a tool designed to help you determine where an error exists in your program. You can apply the Source Debugger to any program, whether it is in production or development. Since the Source Debugger displays source code, you must have the source code installed on your machine.

The source code you see while running the Source Debugger is displayed in SEU Browse mode, so you cannot change a line within the program. However, you may display or change the value of any field, variable, or indicator within the program. In addition, you can add or remove a breakpoint anywhere in the program.

28.1.1 Before You Begin

- The JD Edwards debug tool is based on IBM debug objects. You must have authority to the IBM commands STRDBG, ADDPGM, ADDBKP at a minimum. IBM has a STRISDB command which interacts with the program source. As of V5R1, the STRDBG command allows use of F10 to step through the program statements once the initial breakpoint is set.

> **Note:** In order for the program to be debugged to be visible, it must have been compiled on the current machine.

28.2 Using Debugger with an Interactive Program

The program can exist in your production environment, your development environment, or both. To use Debugger complete the following tasks:

- Determine the program environment

- Initiate the JD Edwards World Source Debugger

- Execute the program being debugged

To determine the program environment

1. From the Computer Assisted Design menu (G92), select Software Versions Repository.

Figure 28–1   Software Versions Repository screen

2. Locate the program on which you want to run the Source Debugger, to determine in what environments the program exists.

> **Note:**   If the program exists in several environments (production and development), you must determine against which program environment to run the Source Debugger. While in the debug environment, use WRKOBJ to see which library the program is attached to.

To initiate the JD Edwards World Source Debugger

1. Type the JD Edwards World debug command (JDEDBG) and press F4.

Figure 28–2   Debugger screen

Field	Description
Program Name	Type your program name.
Source File	Type the file name that contains the source code of your program. If *OBJECT is entered, the source file name and library will be taken from the program object.
	If *SPLF is entered, the compile listing will be used for the source statements. This will include the statements included from COPY members which allows them to be debugged as well.
Library	Type the name of the library that contains the source file. Generally, this is JDFSRC for your production environment or DEVSRC for your development environment.

2. Enter the correct values in the proper fields and press Enter to start the Source Debugger.

   ■ Any time the program being debugged is executed, the source code will display in debug mode, until you end the Source Debugger. (ENDDBG in all cases.)

To execute the program being debugged

If it is an interactive program, you can either call the program from a command line or select the menu option that will execute the program.

■ Call program name and include the required parameters

■ Selection/Menu

After you have executed the program, the first thing you will see is the program source code.

Figure 28–3   JDE Visual Debug screen

Note: The source code is displayed in browse mode, so you cannot edit or change any code.

28.3 Using Debugger with a Batch Program

To use Debugger with a batch program you should complete the following tasks:

- Sign on to the program environment

- Initiate the JD Edwards World Source Debugger

- Execute the program

- Set the break point

- Continue execution

To initiate the JD Edwards World Source Debugger

This step is similar to debugging an interactive program. The difference is that you must enter the debug command twice.

The first time you initiate JD Edwards World Source Debugger (JDEDBG - F4), the Program Name will be the CL Program.

1. Enter the correct values in the proper fields on the Debug Program form and press Enter.

Figure 28–4   Debug Program screen
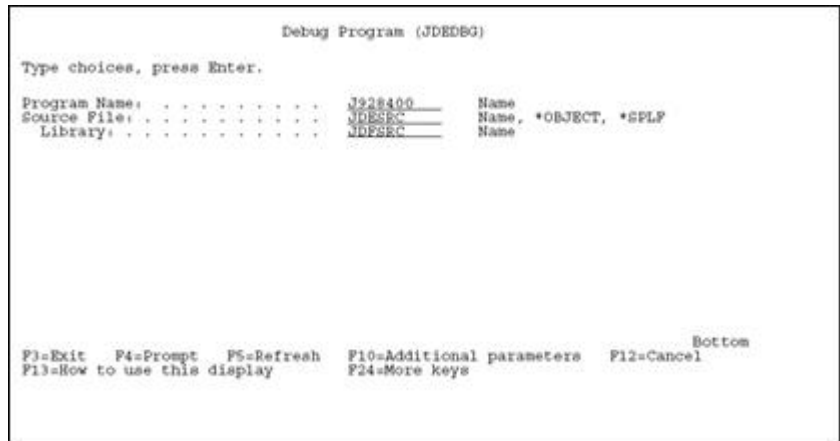
2. Enter the JD Edwards World Source Debugger command (JDEDBG - F4) again, but this time change the Program Name to the RPG Program Name.

   The reason for this is you cannot run the Source Debugger on a program that is submitted and executed in a subsystem. You must "trick" the Source Debugger into thinking that your batch program is actually an interactive program.

Figure 28–5   Debug Program screen
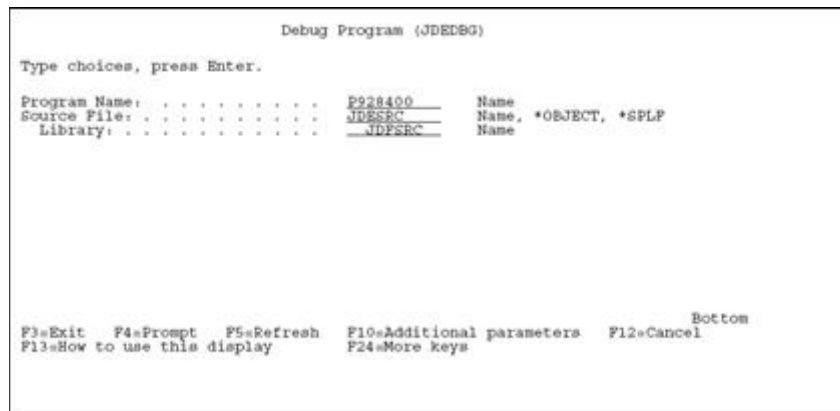
To execute the program

Since you are executing a batch program interactively, you must call the CL Program from a command line.

1. CALL CL program (The parameters are usually "program name" and "version").

2. The CL Program source code displays.

Figure 28–6   JDE Visual Debug screen

> **Note:**   The source code is displayed in browse mode, so you cannot edit or change any code.

To set the break point

Set a break point on the line testing the job type in order to change a variable in the CL. The variable &JOBTYPE normally edits against a batch program being executed by calling it from a command line.

1. Find the line of code that contains the variable &JOBTYPE.

Figure 28–7   JDE Visual Debug screen

2. Press F5 anywhere on the line containing &JOBTYPE to set the breakpoint.

   ■ The line is highlighted, indicating that a breakpoint has been set on that line.

To continue execution

1. Allow your program to continue executing. Press F3 to continue to a breakpoint.

- The line on which you set the breakpoint will display in reverse image. This indicates that the program has reached this point in the CL program and is ready to execute this line.

- You must change the value of the &JOBTYPE variable to something other than 1 so that the compare to '1' fails.

2. To change the value of &JOBTYPE, press F8 to access the Change Program Variable form.

Figure 28–8   Change Program Variable screen


```
                       Change Program Variable (CHGPGMVAR)

Type choices, press Enter.

Program variables:
  Program variable . . . . . . . .     '&JOBTYPE'
_
_ Basing pointer variable  . . .
_
              + for more values
_
New value . . . . . . . . . . . .   '2'
Program . . . . . . . . . . . . > J928401      Name, *DFTPGM
```
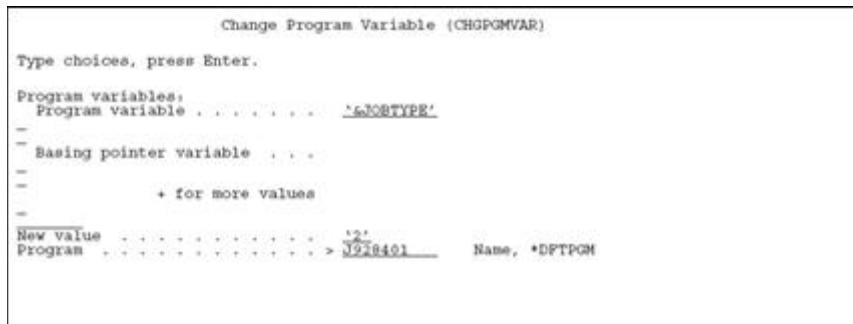
3. Complete the Change Program Variable form and press enter.

   The value of &JOBTYPE is now changed to your specified value.

4. Press F3 to allow the CL program to continue processing.

   The RPG program source is displayed next.

28.4 Features of the JD Edwards World Source Debugger

Function	Description
F2	To display a JD Edwards World command line window, press F2.
F3	Once the program hits a breakpoint or when you first enter the source, F3 will allow the program to continue processing.
F5	Position the cursor on an executable line and press F5 to add a breakpoint. You cannot add breakpoints to a comment line, only to executable lines. Once the breakpoint is set, the line will be highlighted. If the program executes a line with a breakpoint set on it, the line will appear in reverse image and the program will pause before executing the line.

Example F5

Figure 28–9   Example F5

Figure 28–10   Example F6

Function	Description
F6	Position the cursor on an executable line and press F6 to add a breakpoint with a prompt. You cannot add breakpoints to a comment line, only to executable lines. Once the breakpoint is set, the line will highlight. If the program executes a line with a breakpoint set on it, the line will reverse image and the program will pause before executing the line.

Use the prompt, after pressing F10, to assign a skip value or breakpoint conditions.

Function	Description
F7	Position the cursor on an executable line and press F7 to display the values of all of the variables on that line. Breakpoints within copy modules will stop at the correct source sequence number.

Figure 28–11 Example F7

```
                     Display Program Variables

Program . . . . . . . . . . . . . . . : P01051
Recursion level . . . . . . . . . . . : 1
Start position . . . . . . . . . . . : 1
Format . . . . . . . . . . . . . . . : *CHAR
Length . . . . . . . . . . . . . . . : *DCL

Variable . . . . . . . . . . . . . . : *IN99
  Type . . . . . . . . . . . . . . . :   CHARACTER
  Length . . . . . . . . . . . . . . :   1
  *...+....1....+....2....+....3....+....4....+....5
  '0'

Variable . . . . . . . . . . . . . . : *IN93
  Type . . . . . . . . . . . . . . . :   CHARACTER
  Length . . . . . . . . . . . . . . :   1
  *...+....1....+....2....+....3....+....4....+....5
  '0'

Press Enter to continue.

F3=Exit   F12=Cancel
```

Function	Description
F8	To change the value of a variable, press F8 and type the correct values in the prompt screen.

Figure 28–12 Example F8

```
                  Change Program Variable (CHGPGMVAR)

Type choices, press Enter.

Program variables:
  Program variable . . . . . . . .
  _
  _ Basing pointer variable  . . .
  _
  _            + for more values
  _
New value  . . . . . . . . . . .
Program  . . . . . . . . . . . . > P01051      Name, *DFTPGM




                                                      Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display        F24=More keys
```

Function	Description
F10	Move Line to Top of Page.
F12	From anywhere on the screen, press F12 to remove the current breakpoint. The line is no longer highlighted, indicating the line is no longer set as a breakpoint. The program will immediately continue processing.
F13	To display the current values of all indicators, press F13.

Figure 28–13   Example F13


```
                    Display Program Variables

Program . . . . . . . . . . . . . . . : PO1051
Recursion level . . . . . . . . . . . : 1
Start position  . . . . . . . . . . . : 1
Format  . . . . . . . . . . . . . . . : *CHAR
Length  . . . . . . . . . . . . . . . : *DCL

Variable  . . . . . . . . . . . . . . : *IN
   Lower/upper bounds  . . . . . . . . :    (1:99)
   Type  . . . . . . . . . . . . . . . :    CHARACTER
   Length  . . . . . . . . . . . . . . :    1
   Element  ------------------Values---------------------
         1  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'
        11  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'
        21  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'
        31  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'
        41  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'
        51  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'  '0'

Press Enter to continue.

F3=Exit   F12=Cancel
```

Function	Description
F15	Type in a value on the Scan Line at the top of the screen and press F15 to scan backward from the point you are at to the end of the source code. If a match is found, the line containing the matching value will be displayed. To continue scanning backward, press F15 again.
F16	Type in a value on the Scan Line at the top of the screen and press F16 to scan forward from the point you are at to the beginning of the source code. If a match is found, the line containing the matching value will be displayed. To continue scanning forward, press F16 again.
F21	To display a command line, press F21.

28.4.1 ENDDBG End Debug

To stop the JD Edwards World Source Debugger, enter ENDDBG from a command line. You can not enter ENDDBG while displaying the source code of a program in debug. This command will end debug mode for all programs in the Debugger at that point.

> **Note:**   You can remove a single program from debug mode by using the RMVPGM (remove program) command.

29

Software Scan and Replace

This chapter contains these topics:

-

29.1 About Software Scan and Replace

The Software Scan and Replace feature lets you scan source members to accomplish the following:About software scan and replace

- Scan for a particular item and replace it with a new item

- Produce a list of all members that meet the search criteria

- Scan for a particular item and insert a source file after each occurrence

Because you can potentially replace source code across all systems, this job is submitted to batch and held in the job queue until you release it.

To Work with Software Scan and Replace

1. From the Computer Assisted Programming menu (G93), choose Developer's Workbench. From the Developer's Workbench menu (G9362), choose Software Scan and Replace.

Figure 29–1   Software Scan and Replace screen

```
98810                   Software Scan & Replace

  System code. . . . . 55                          (Blank = all)
  Function code. . . . RPG                          (Blank = all)
  Specific object. . . _____  (Generic = *)    (Blank = all)
  File ID. . . . . . . JDESRC
  Source library . . . DEVSRC      (Defaults to source libr in member master)
  Scan argument:

    I00SC
    (If search argument contains imbedded blanks enclose argument with >.)

  Replacement argument:

    I00RSC
    (If argument contains imbedded blanks enclose argument with >.)

  Column replacement: Beginning column - ___      Ending column - ___

  Replacement Overflow Code . . . . _

  Insert Source From: File. . _____  Libr. . _____  Member. _____
```

The previous screen illustrates how you replace the copy module I00SC with the copy module I00RSC for all RPG members coded to install system code 55.

2. Complete the form and press Enter.

The job submits to batch and a message displays. The job is held on the job queue.

3. When you are ready to process the job, go to the Work with Submitted Jobs form (hidden selection 33) and release the job.

29.2 Report

When the job completes, it produces a report that indicates those objects where the scan and replace occurred.

Figure 29–2   Scan Software Source screen

29.2.1 Guidelines

If you leave the Replacement argument field blank, the utility produces a listing of all source members that meet the search criteria.

Because this job could be used to update all code across systems and could severely impact processing, it is automatically held on the job queue.

Use this job to replace a copy module across systems or determine a listing of members that meet certain criteria. Use with caution.

30

Performance Issues

This chapter contains these topics:

- Section 30.1, "General Performance Issues"
- Section 30.2, "DREAM Writer"

30.1 General Performance Issues

Following are some performance issues you should consider when executing JD Edwards World software, changing current JD Edwards World programs, or writing new programs:

- Purge your files on a regular basis to avoid excess, unnecessary records existing in files. The REUSEDLT *YES parameter on a Physical file can be used on files where records are deleted to minimize file expansion and contraction. G9645/14 will present a list of P98999 versions which can be used to RGZPFM the named files. The RGZPFM command, in general, removes deleted records and rewrites the remaining records in a file.

- Minimize the number of open files in a program. If a file may not be used, define it as a User Controlled Open file.

- Use User Spaces and User Indexes wherever possible.

- Use File Servers and Functional Servers wherever possible.

- Minimize the number of subroutine calls within your program.

- Weigh the advantages of inter-program calls. Although this method is very modular in design, you should consider the effect on performance.

- Substitute the comparison of a literal with the comparison of a variable.

For example: Use *ON and *OFF to set an indicator on and off rather that a 1 and 0.

- Consider flexibility versus performance when using User Defined Codes, Vocabulary Overrides, and loading Data Dictionary values extensively.

30.2 DREAM Writer

One definition of "Performance Problem" is that some Dream Writers take a long time. The usual symptom is that the user does a Work with Submitted Jobs and sees the job spending a long time "indexing". Programs which have a very large based-on file are the prime suspects. P09800 is not a suspect!

The problem in these cases often involves the IBM Query File Optimizer. Simply stated, the optimizer tries to find an existing access path (logical file) that it can use to

select records. If it can't find one or finds one that will return more than 20% of the file, it builds a whole new access path which takes a long time for large files.

30.2.1 Possible solutions:

Solution 1

The first assumption is that the applicable IBM PTFs have been applied.

1. On the DW Additional Parameters screen, there is a File Output Type field. An F1 on this field shows that values 2 and 4 use a logical file. If an existing logical should be used, enter a 2 in the File Output Type and the file name in the Override Logical File field. This setup often makes the DW run faster since the IBM Query File Optimizer is bypassed by using an LF rather than the OPNQRYF.

2. To have DW create the Logical File for you, enter a 4 in the File Output Type and blanks in the Override Logical file field. This option will use the DW Data Selection and Sequencing parameters to create a Logical File over the based-on physical, and will name it by replacing the P in the program name with an F and adding a 00n suffix.

3. IMPORTANT: You must then run the DW so the LF will be created. Then, before going back into the DW with a 2 to change, (which will cause the LF to be deleted) you must find the file using a DSPDBR on the based-on file. Do RNMOBJ so DW will not find this new file. Then, go back to the Versions list and enter a 2 to change the DW version. DW will automatically have changed the File Output Type to a 2 and have entered the name of the logical file it created. Enter the file name from the above RNMOBJ command.

4. When the File Output Type is a 2, the options for Data Selection Values and Data Sequencing Values will not show up on the change window. This is because the values in the LF will be used. If the values need to be changed, go to Step 3C.

5. On the DW version list, if you use option 7, you will see either the OPNQRYF statement or the DDS for the logical file.

Solution 2

The based-on file can be changed to a logical file attached to the Physical file, but then the File Output Type must be set to 1. This reintroduces the OPNQRYF command into the process using the Query File Optimizer. The Data Selection and Sequencing options are now available.

Part V

Group Jobs

This part contains these chapters:

31

Overview to Group Jobs

This chapter contains these topics:

- Section 31.1, "About Group Jobs"

31.1 About Group Jobs

Group Jobs is an IBM concept which allows the user to switch between sessions on the Series i. This involves communication with the Series i. Most users now use IBM Client Access which can have several sessions active. Switching between these sessions does not require Series i communication. The following is a description of JD Edwards's implementation of IBM Group Jobs.

The Group Jobs form allows you to perform a number of tasks from a single form, saving you both time and effort. You can perform the following functions from this form:

- Run up to 16 jobs under a single sign on
- Execute (or run) CL and fast path commands from a single command line
- Execute (or run) JD Edwards World Hidden Selections

In addition to the added convenience, the Group Jobs function keeps the files for each of the jobs selected opened, whether they are currently active or not.

This section covers the following tasks:

- Access the .JD Edwards World Group Job Form
- Create New Group Jobs
- Activate Suspended Group Jobs
- Terminate Job Groups
- Change to Non-Group Mode
- Sign Off with Suspended Group Jobs

32

Access the JD Edwards World Group Job window

This chapter contains these topics:

32.1 About the JD Edwards World Group Job Window

32.1.1 Before You Begin

For a user to access the JD Edwards World Group Job window at any time, the Esc (ATTN) key program should be set to call the JD Edwards World Group Job window program (P98GRP).

To set the ATTN key program

1. From the Security Officer Menu (G9401) choose User Information.

Figure 32–1   User Information screen
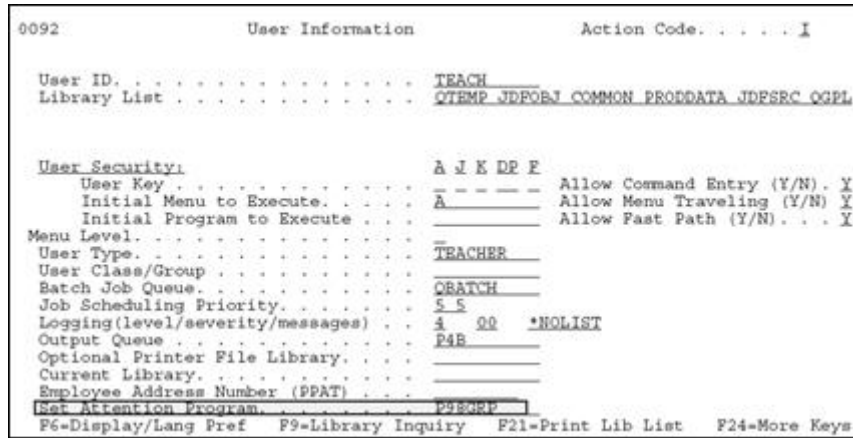
2. Enter the JD Edwards World Group Job window program ID (P98GRP) in the Set Attention Program field.

32.2 Accessing the JD Edwards World Group Job Window

After the Attention Key program has been set up in the JD Edwards World environment, you can access the Group Job window.

To access the JD Edwards World Group Job window

1. Sign off and sign back on to reset the Attention key program within the JD Edwards World Menu Driver.

2. Press the Esc (ATTN) key and the following is displayed.

3. Whenever the Group Job window is displayed, an entry can be made in the Description field <Enter> to describe the session associated with that job.

Figure 32–2   General Business Systems screen
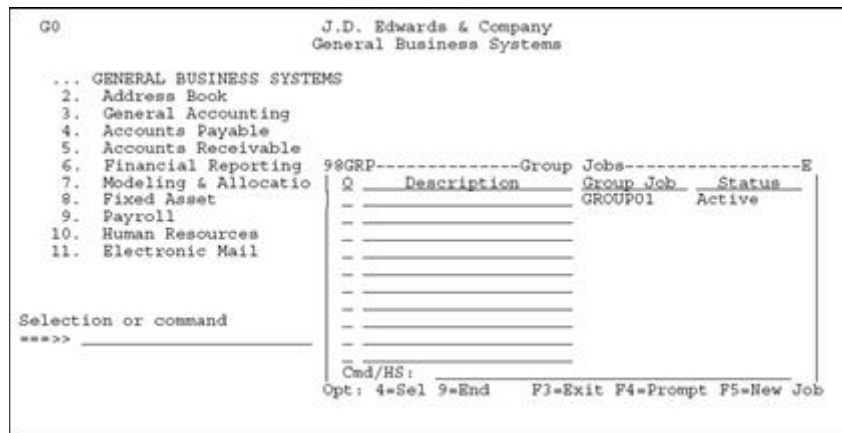
32.3 Creating New Group Jobs

To create new group jobs

1. Press F5 on the Group Jobs window for New Job.

2. When the JD Edwards World Menu Driver is displayed, (J98INIT is the initial program) press the Esc (ATTN) key and the following is displayed.

Figure 32–3   General Business Systems screen


```
GO                      J.D. Edwards & Company
                        General Business Systems

   ... GENERAL BUSINESS SYSTEMS
    2.  Address Book
    3.  General Accounting
    4.  Accounts Payable
    5.  Accounts Receivable
    6.  Financial Reporting  98GRP--------------Group Jobs--------------E-
    7.  Modeling & Allocatio | O ___ Description ___ Group Job __ Status __
    8.  Fixed Asset          | _ _____ GROUP02   Active
    9.  Payroll              | _ _____ GROUP01   Suspended
   10.  Human Resources      | _ _____
   11.  Electronic Mail      | _ _____
                             | _ _____
                             | _ _____
  Selection or command       | _ _____
  ===>> _____       | _ _____
                             | Cmd/HS: _____
                             | Opt: 4=Sel 9=End    F3=Exit F4=Prompt F5=New Job
```

The new group job GROUP02 is now in process. The group job GROUP01 was suspended when the function key F5 was pressed.

> **Note:** If you are set up to access JD Edwards World software by J98INITA, your library list selection list will appear when F5 is used. Select an environment and then you will be able to display the JD Edwards World Group Job window.

32.4 Activating Suspended Group Jobs

To activate suspended group jobs

Press the Esc (ATTN) key to display the JD Edwards World Group Job window and enter option 4 next the job you want to activate.

- All suspended group jobs are displayed in the window.
- Any suspended group job can be activated, as illustrated below.

Figure 32–4   Group Jobs window


```
GO                      J.D. Edwards & Company
                        General Business Systems

   ... GENERAL BUSINESS SYSTEMS
    2.  Address Book
    3.  General Accounting
    4.  Accounts Payable
    5.  Accounts Receivable
    6.  Financial Reporting  |98GRP-------------Group Jobs--------------E-
    7.  Modeling & Allocatio | O ___ Description ___ Group Job __ Status __
    8.  Fixed Asset          | _ _____ GROUP02   Active
    9.  Payroll              | 4 _____ GROUP01   Suspended
   10.  Human Resources      | _ _____
   11.  Electronic Mail      | _ _____
                             | _ _____
                             | _ _____
  Selection or command       | _ _____
  ===>> _____       | _ _____
                             | Cmd/HS: _____
                             | Opt: 4=Sel 9=End    F3=Exit F4=Prompt F5=New Job
```

32.5 Terminating Group Jobs

Any group job, active or suspended, may be terminated from the JD Edwards World Group Job window.

To terminate group jobs

Enter option 9 next to the group job you want to terminate.

Figure 32–5 Group Jobs window

32.6 Changing to Non-Group Mode

To change to non-group mode

Enter option 9 beside all active and suspended group jobs.

Figure 32–6 Group Jobs window

32.7 Signing Off with Suspended Group Jobs

You can use two different methods to sign off with suspended group jobs.

To sign off with suspended group jobs

Select one of the following methods:

1. Press F18 within the JD Edwards World Group Job window.

2. Enter SIGNOFF, 90, or ".." on the JD Edwards World Group Job Cmd/HS command line.

> **Note:** Because group jobs are created under one sign on, all group jobs are terminated when the signoff command is executed.

32.8 Work with Non-JD Edwards World Group Jobs

To work with non-JD Edwards World group jobs

To create group jobs that call a program outside the JD Edwards World software, the JD Edwards World Group Job window allows an external program to be executed. In addition, the Esc (ATTN) key can be pressed within the external program and still allow access to the JD Edwards World group jobs.

1. To call an external program, press F11 within the JD Edwards World Group Job window.

The following illustrates what will be displayed when F11 is pressed.

Figure 32–7   Change Library List screen

2. Complete the Change Library List screen.

You can add libraries related to the external program. Libraries currently in the library list can be removed if desired. However, the following libraries must be left in the library list to retain the link to the JD Edwards World group jobs:

- QTEMP
- Library containing F9220 (JD Edwards World Vocabulary Overrides)
- Library containing F0082 (JD Edwards World Menu Master)
- Library containing F0092 (JD Edwards World User Information)
- Library containing JD Edwards World Objects (For example, RPG, CL, DSPF)

After the CHGLIBL command has been executed, the CALL command prompt is displayed.

3. Enter the external program.

The following illustrates the CALL command prompt.

Figure 32–8   Call Program screen

```
                        Call Program (CALL)

    Type choices, press Enter.

    Program  . . . . . . . . . . . .                  Name
      Library  . . . . . . . . . . .    *LIBL         Name, *LIBL, *CURLIB
    Parameters . . . . . . . . . .    _____

                    + for more values    _____




                                                              Bottom
    F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
      F24=More keys
```
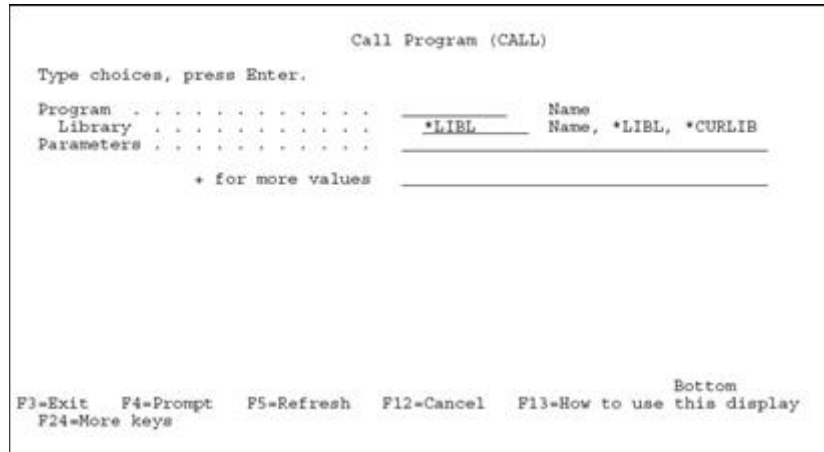
When the CALL command is executed, the external program will be executed.

■   To work with a JD Edwards World group job, the Esc (ATTN) key can be pressed to display the JD Edwards World Group Job window.

■   Any suspended group job can be activated from the JD Edwards World Group Job window.

32.9 Advanced Functions of the JD Edwards World Group Job Window

32.9.1 JD Edwards World Hidden Selections

Hidden Selections are commands and features of the JD Edwards World products that are not available through a menu selection.

■   Most JD Edwards World Hidden Selections (31+) can be executed from the command line at the bottom of the JD Edwards World Group Job window.

■   The JD Edwards World Hidden Selection window (HS) can be used to display and execute hidden selections.

■   JD Edwards World Hidden Selection (Menu) Security is used when users execute hidden selections.

■   No JD Edwards World Menus or JD Edwards World Hidden Selections related to menus are allowed, (for example 27 or 29).

32.9.2 Entering Commands

You can enter any command on the command line at the bottom of the JD Edwards World Group Job window.

■   Press F4 to prompt for a command.

■   Place a "?" in front of a command to prompt.

■   Press F9 to retrieve previous commands.

■   Any parameters you enter while in prompt mode are not retrieved.

   ■   The last 10 previous commands are saved.

- ■ Only successfully executed commands are saved.

  - ■ When you exit by pressing F3, previous commands are lost.

- ■ JD Edwards World Fast Path Commands from User Defined Code 00/FP can be executed. F13 to display all Fast Path Commands.

  - ■ To retain all commands entered and retrieve parameters entered in prompt mode, access the IBM Command Entry screen from the JD Edwards World Group Job window (For example, JD Edwards World Hidden Selection 36) and enter commands.

  - ■ Commands can only be executed if there is a value of "Y" or " " in the Allow Command Entry (Y/N) field defined in the JD Edwards World User Information option found on A94.

32.9.3 Securing the CHGJOB Command (HS33)

HS 33 uses the IBM command WRKSBMJOB. On this command screen, a user can access the CHGJOB command to move jobs to a different queue or change priorities.

> **Caution:**   Securing the CHGJOB command is problematic since JD Edwards World uses this command during the sign on process.

As of JD Edwards World release A81CU5 or A73CU15, the following workaround is available.

1. Objects J00WSJ, P00WSJ, V00WSJ and X00WSJ should be in the JD Edwards World object library.

2. Change the ZHIDDEN menu selection with SELECTION33 on it so the Option Key has J00WSJ rather than J00SBMJOB.

3. Sign out of the environment and back in. HS33 will present the information on a JD Edwards World menu which enables Function key and Option key security.

> **Note:**   Use Knowledge Document WST-00-0023 for IBM releases below V4R5.

32.10 JD Edwards World Group Job Window Summary

The program allows you to:

- ■ Create up to 16 jobs per sign on

- ■ Execute commands, JD Edwards World hidden selections, JD Edwards World Fast Path Command, and JD Edwards World Fast Path Menu Execution

Function Key	Description
F3	Exit the JD Edwards World Group Job window
F4	Prompt a command
F5	Create a new JD Edwards World group job
F6	Submit job to batch
F8	JD Edwards World Menu Word Search

Function Key	Description
F9	Retrieve previous command
F11	Create a new Non-JD Edwards World group job
F13	Display all fast path commands
F18	SIGNOFF all group jobs

Selection Exits	Description
4	Activate a suspended group job
9	End a group job

The JD Edwards World Group Job window is not accessible when using:

- SysReq (Source Machine Only)
- A program that has reset the ATTN Key program (For example, OFFICE/400)

33

Work with the Attention Menu window

This chapter contains these topics:

33.1 About the Attention Menu Window

The JD Edwards World Attention Menu window program is a generic program that allows you to access up to 15 predefined programs via the Esc (ATTN) Key. The 15 predefined programs are associated with options on a JD Edwards World Menu.

> **Note:** Each user can be assigned a different JD Edwards World Menu

33.1.1 Before You Begin

To access the JD Edwards World Attention Menu window at any time, the Set Attention Program field on the JD Edwards User Information video should be set to a JD Edwards World Menu, for example *G92.

The following illustrates how the Esc (ATTN) key program is set in the JD Edwards World software. The User Information screen can be accessed from the Security Officers Menu (G9401).

Figure 33–1   User Information screen

Note: An * (asterisk) must precede the menu name.

33.2 Accessing the JD Edwards World Attention Menu Window

After the Esc (ATTN) key program has been set up for the JD Edwards World software you can access the JD Edwards World attention menu window.

To access the JD Edwards World attention menu window

1.   Sign off and sign back on to reset the Esc (ATTN) key program within the JD Edwards World Menu Driver.

2.   Press the Esc (ATTN) key and the menu options for the menu will be displayed as follows.

Figure 33–2   Group Jobs window

Note: Original Job refers to the current job that has been converted to a group job. The remaining jobs refer to the first 15 interactive programs on the menu which the user is authorized to.

33.3 Summary of JD Edwards World Attention Menu Window Functions

The program allows you to:

- Access 15 predefined programs via the Esc (ATTN) Key
- Execute commands, JD Edwards World Hidden Selections, JD Edwards World Fast Path Commands, and JD Edwards World Fast Path Menu Executions

Function Key	Description
F3	Exit the JD Edwards World Attention Menu window
F4	Prompt a command
F6	Submit a job to batch
F8	JD Edwards World Menu Word Search
F9	Retrieve previous command
F13	Display all fast path commands
F18	SIGNOFF all group jobs

Selection Exits	Description
4	Activate a menu selection
9	End a group job(Ignored on a Menu window)

The JD Edwards World Attention Menu window is not accessible while using

- SysReq (Source Machine Only)
- a program that has reset the Esc (ATTN) Key program (for example OFFICE/400)

34

Work with IBM Pass-Through

This chapters contains these topics:

- Section 34.1, "About Working with IBM Pass-Through"
- Section 34.2, "Setting Up Access to Remote Locations"
- Section 34.3, "Using IBM Pass-Through with Group Jobs"

34.1 About Working with IBM Pass-Through

> **Note:** This section is predicated on Series i network setup enabling use of the IBM command STRPASTHR. The steps for that implementation will not be covered in this manual.

To create group jobs on remote locations and still retain a link to the group jobs created on the source machine, use IBM Pass-Through.

34.2 Setting Up Access to Remote Locations

To set up access to remote locations

To set up access to remote locations, go to the DREAM Writer versions list for Form ID P98GRP5.

Figure 34–1   Versions List screen

The processing options for each version provide setup parameters for the STRPASTHR command allowing access to a remote location. The following illustrates the processing options.

Figure 34–2   Processing Options Revisions screen

```
   98312              Processing Options Revisions   Form ID. . . . P98GRP5
                                                     Version. . . . 0002
Denver C

This job has various options described  below. Enter the desired values and
press ENTER to continue.

Destination Virtual Control Unit                     V5251

Enter ONE of the following:

   1)   Destination Location:                        JDBC
        (If APPN routing can be used.)

   2)   APPC Device(s):
             Communication Device 1:
             Communication Device 2:

        (If S/38's are involved, an APPN
         cannot be used.)

                              Bottom                           +

                     F5=Printer Overrides
```

Option	Description
Destination Virtual Control Unit	This is the control unit that the user will connect to at the remote location.
	The first available device on the control unit will be selected.
Destination Location (Used in AS/400 Environment)	This is the APPN network name for the remote location.
APPC Device(s) (Used in S/38 Environment)	These are the APPC devices that identify the route to the remote location.
	■ Only one intermediate node is supported.

34.3 Using IBM Pass-Through with Group Jobs

To use IBM Pass-Through with Group Jobs

1. Use the JD Edwards World menu B98P to start an IBM Pass-Through session to a remote machine.

2. Use the JD Edwards World Menu Revisions (1/G901)) to attach your user defined DREAM Writer Form ID P98GRP5 versions to a menu (B98P).

When an option is selected on the menu, the IBM Start Pass-Through command will be executed to the remote machine, and still retain a link to the source machine group jobs.

Figure 34–3   JDE Passthru Network screen

The mechanism used to attach remote locations to the JD Edwards World Group Job window on the source machine is a parameter on the STRPASTHR (Start Pass-Through) command. The following illustrates the link to the source machine.

Figure 34–4   Start Pass-Through screen

The SRQ10PGM (SysReq 10) parameter allows a program to be called on the source machine from the remote location. By entering the JD Edwards World Group Job window program (P98GRP) in this parameter, the JD Edwards World Group Job window can be displayed on the remote location by pressing SysReq 10, NOT the ATTN Key. This allows access to all suspended group jobs on the source machine and other remote locations.

Part VI

Universal File Converter

This part contains these chapter:s

35

Overview to Universal File Converter

This chapter contains these topics:

- Section 35.1, "About Universal File Converter"

35.1 About Universal File Converter

JD Edwards World Universal File Converter maps data from one data file resident on the Series i to another file on the same Series i using crossover rules. A DREAM Writer version can be set up so that the conversion can be repeated many times for a standing process or just once for a conversion process.

Figure 35–1   Path to the Universal File Converter
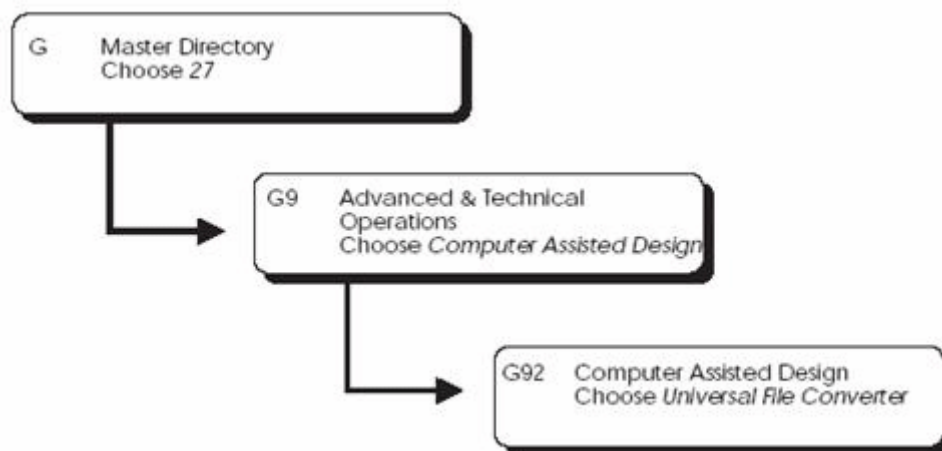
JD Edwards World Universal File Converter uses Crossover rules to map data:

- From one file to another file
- From one file to multiple files
- From multiple files to a single file

> **Caution:**   Do not attempt to use UFC on a file that contains double byte data. The converter program may corrupt the integrity of the bracketing shift in and shift out characters that are automatically inserted by double byte terminals.

The UFC does a character at a time move of the data from the input file data location into the output file data location. For this reason it is not suited to large, repeated data transfers. It is suited to one time data file conversions or small scale frequent data import situations.

The Cross Over Rules file defines the association between two files and includes data field information.

Figure 35–2   How Crossover Rules Map Data
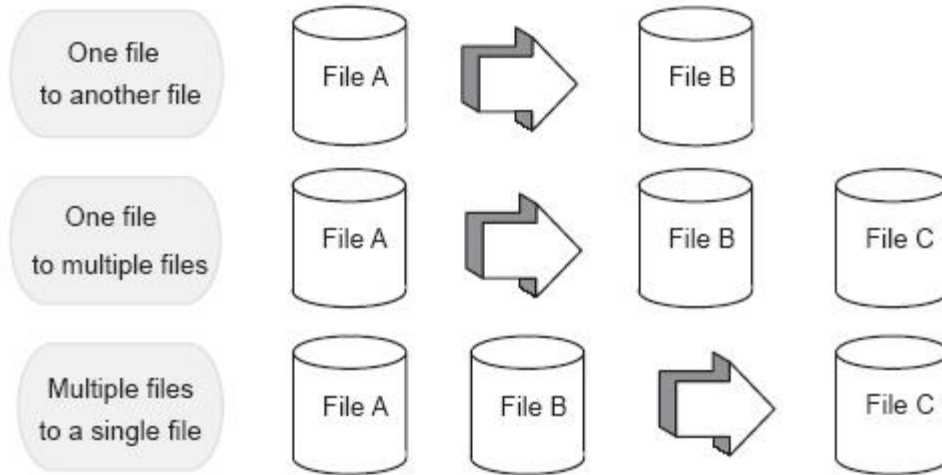
Figure 35–3   How the Cross Over Rules File Defines Associations between Files

Step 1

You specify *From* files and *To* files through DREAM Writer processing options. You can specify up to four To files. If you require multiple From files, specify a join logical as the From file in the DREAM Writer "based on" file. The system returns file field information and pre-loads the Cross-Over Rules file with field name, length, size, type and reference (data dictionary name). The system pre-loads information in the Cross-Over Rules file for all fields that have the same reference (data dictionary field name) as the From file.

Step 2

You must manually associate the fields that were not automatically loaded in the Cross-Over Rules file. If you need special calculations for a field, you can specify special processing key words in the Conversion Rule field. You can also add the calculations into an external program that can be called from the converter program. The external program needs several parameters that are sent and passed back to the converter program. These parameters are: data, error, From field name, To field name, and number of To file records. You must specify the external program in the Conversion Rule field in the Cross-Over Rules file.

Step 3

In this step you specify the form ID and the version you selected in the first step. The From and To files should be the same (or exact equivalent) as the files specified in Step 1. The converter program accesses the cross-over instructions for the "From/To" combination and loads the information to arrays. The system then processes the arrays for each field that has an association. Finally, the system transfers the value in the From file to the To file.
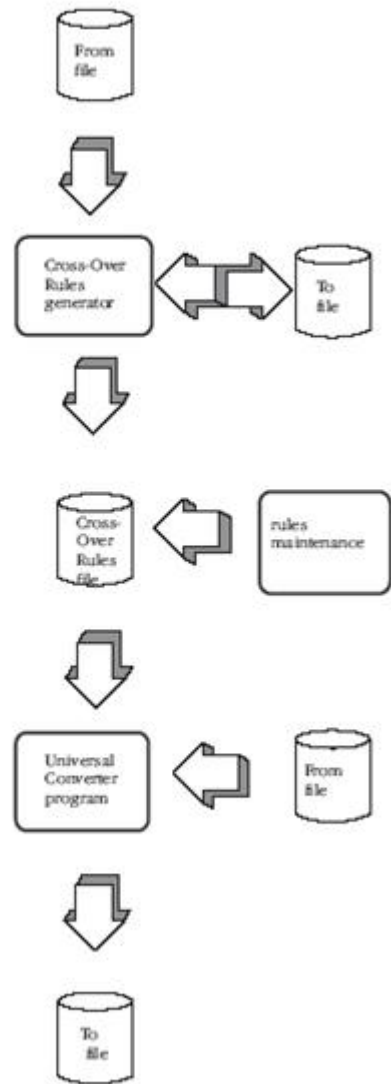
Special Processing

Special processing procedures are available to help you in the conversion of one field to another.

To execute any of the special processing procedures listed below, you must type the appropriate key word into the From or To Conversion Rule field. This is explained in Detail Cross Over Rules, later in this guide. There are special keywords for the following:

Field	Explanation
Dates	The converter uses a keyword to decide what date translation is necessary.

Field	Explanation
Numeric Fields	The converter translates non-packed numeric data to packed data or vice versa, depending on your need. It also maintains decimal alignment, performing rounding or zero padding if required. Alphanumeric representations of numeric fields can be translated to numeric fields. Numeric fields can be translated into alphanumeric fields.
Business Unit	The converter processes the field through the Business Unit scrub routine. This routine right adjusts and fills the field with blanks.
Data Dictionary Default	The converter uses the reference field in the To file to access the data dictionary and retrieve the default value for the field.
Initialization	Fields in the To file are initialized to blanks for alphanumerics and zeros for numerics if no fields are defined to map to them.
Next Number	You can specify to have a next number value assigned to a field.
Check Data Dictionary	You can specify to have the value of the field validated against the data dictionary values, ranges, and user defined codes.
User Defined Code Lookup	Use the fields in the From file to look up a user defined code (UDC) and return the associated value in the Description 1 field as the To field value.
Default Constant	Specify constant value, up to six characters, for the To field value.

35.1.1 Database Considerations

The system creates records in the Cross-Over Rules file for each version of cross-over rules you specify. This file contains information about the fields in the From file and the To file and how the two fields are associated.

If the field lengths or characteristics of the files that the cross-over rules have been built upon change, you must redefine the cross-over rules. Otherwise, the rules are based on the erroneous field descriptions.

The system handles extra calculations through called programs specified in the Cross-Over Rules file for each field.

35.1.2 User Responsibilities

You are responsible for developing and maintaining the cross-over instruction rules. If the From file or To file definition of the cross-over instructions changes, you must revise the Cross-Over Rules.

Perform the following tasks:

- Set Up Universal File Converter
- Work with Crossover Rules
- Work with File Conversion
- Print a Report
- Create Conversion Versions
- Work with the Data Dictionary Glossary by File

36

Set Up Universal File Converter

This chapter contains these topics:

36.1 About Universal File Converter (UFC)

The Universal File Converter is used to import data from one AS/400 physical file to another AS/400 physical file. If you have more than one file to convert, you can set up a separate version for each type of conversion required. The Universal File Conversion Setup program loads information to the Crossover Rules file (F0031) about the fields in the files you are converting.

A major benefit of using UFC is that once the process has been tested, it can be made into a production process using a Dream Writer version.

The system uses the information in the Crossover Rules file to transfer the data from a field in one file to a field in another file, or to a field in multiple files.

This program also has processing options that let you convert data from both JD Edwards World and non-JD Edwards World files.

36.1.1 Before You Begin

- Before you run the setup procedure make sure the To files exist.

> **Caution:** Do not attempt to use the Universal File Converter on a file that contains double byte data. The converter program may corrupt the integrity of the bracketing "shift in" and "shift out" characters that are automatically inserted by double byte terminals.

36.2 Understanding the Universal File Converter Setup

The setup program is the first part of a three-part conversion process. Specify a From file and a To file through the DREAM Writer processing options. You can specify up to four To files. If you require multiple From files, specify a join logical as the From file. This join logical is over all the files you select for the From file. Use the name of the join logical in the first processing option.

The program retrieves field information for all fields in the From file and loads this information to the Crossover Rules file, F0031.

The program then retrieves field information for the To files. If the Reference (data dictionary) field in the To file matches the From file Reference field, the program makes an association between the two fields. The system writes information for the To file to the record in the Crossover Rules file associated with the From file field.

**FILLER conversions are automatically generated for From file fields with no corresponding To file fields and for To file fields with no corresponding From file fields. **FILLER fields will be ignored during the conversion process. You can override a **FILLER entry with the appropriate field name, position, and characteristics if the field exists in the file but has a different field name.

If there are any other associations you need, do them manually using the Crossover Rules selection on the menu.

36.2.1 Considerations

UFC is written to map data character-by-character from any physical file resident on the iSeries (AS/400) to any other resident physical file. If the input file resides on a PC, it must be transferred to the iSeries via a data transfer utility.

If you are using UFC to populate Z1 files, Z1 batch processing is recommended for uploading data to the appropriate production files. Areas where these processes are available include:

Area	Menu
Address Book	G01313
General Accounting	G09311
Accounts Payable	G04311
Accounts Receivable	G03311
Time Card Entry	G07121
Budgeting	G1421
EDI	G47 menus
Batch Sales Order Entry	G4212

To protect your production data, create a test library and put a copy of the "from file" and "to file" with attached logical files in it. There may be a logical file attached to the to file with a unique key requirement. By having this file attached during the UFC process, all the key field requirements will be met. Now gather the following two pieces of information. Type command DSPFP on the from file in the test library. Page down to the last panel. Write down the Format name and the number of records in the file. The number of records should be 100 or less for the initial testing. During testing, the number of records can be used to make sure all records were read. When the conversion has been tested successfully a full-file test can be made. The record format name will be used in the last step.

36.3 Setting Up Universal File Converter

Figure 36–1   Universal File Converter screen

```
G9841                       J.D. Edwards & Company              JDEG
Programmers                 Universal File Converter
   ... DATA FILE CONVERSION
   2. Version Setup
   3. Crossover Rules
   4. File Conversion
   5. Report


Selection or command
===>
```

To create a new version

1. From the Universal File Converter menu (G9841), choose Versions Setup.

Figure 36–2   Versions Setup screen

```
98300                        Versions Setup              Form P00120

Skip to Version:_____


O  Version      Description                         User     Chg Date
_  XJDE0001    Generate Crossover  Instruction - Sample DEMO  07/23/93
_  XJDE0002    F0101 - Data Requirements - A7.1        DEMO   07/20/93
_
_
_
_
_
_
_
_
_

  Opt:  1=Run  2=Chg  3=Add  4=Rpt Dist  5=Cover  6=Prt Ovr  8=Repair  9=Dlt
```

The Versions Setup form displays. The examples shown are for illustrative purposes only.

This program loads information into the Crossover Rules File (F0031) about the fields in the files you are converting. The system uses the information in the Crossover Rules File to transfer the data from a field in one file to a field in another file or to a field in multiple files. Neither file has to be a JD Edwards world file. However, the from file cannot be a multi-member type file. To verify the number of members in a file do the DSPFD command on the from file. Look for the Number of members field. The value should be a one.

2. Make a copy of the XJDE0001 version.

Use your version name and title to tie it to the data you are converting, for example ABCONV and "Address book conversion."

> **Caution:**   Do NOT make any changes on the Additional Parameters screen. The based on file should be *NONE and the Format name should be INONE.

---

3. Display the processing options.

4. Specify a From file and a To file. You can specify up to four To files.

    If you require multiple From files, specify a join logical as the based on file for your version. The join logical will encompass all the files you wish to use for the From file.

    > **Note:** If either file is set to JD Edwards World file = Y, numeric field names will be looked up for decimal point information. If either file is not created with Data Dictionary data item name, make sure to set the JD Edwards World file = N. Page down to enter the test library name.

5. Return to the Versions List.

6. Execute the version.

    After entering the file names and the libraries in the processing options, you do need to submit the DREAM Writer version. P00120 will find the "from" and "to" files and create a record in F0031 for each field in these files. If there is no print file, the F0031 will have version records added for each field in the setup in field name sequence.

Figure 36–3   Processing Options Revisions screen


```
98312                Processing Options Revisions   Form ID. . . . P00120
                                                     Version. . . . APCS
Generate Cross Over Instructions
This job has various options described  below. Enter the desired values and
press ENTER to continue.
FILE SPECIFICATION:
 1. Enter the name of the file to              P92801
    convert the data from.
         JDE File?                             Y
 2. Enter the name of the file OR files
    to convert the data to.
    File 1                                     P92801U
         JDE File?
    File 2
         JDE File?
    File 3
         JDE File?
    File 4
         JDE File?

                    F5=Printer Overrides                                    *
```

Option	Description
Enter the name of the file	The name of the From file to convert the data from.
JD Edwards World File?	Y if the From file is a JD Edwards World file, or N if it is not. If Y, the first two characters of the field name will be stripped and the remaining field name will be looked up in the JD Edwards Data Dictionary.
Enter the name of the file OR files to convert the data to.	The names of the To files in the spaces provided.
JD Edwards World File?	Y if the To file is a JD Edwards World file, or N if it is not.

Figure 36–4   Processing Options Revisions screen

```
98312              Processing Options Revisions   Form ID. . . . P00120
                                                  Version. . . . APCS
Generate Cross Over Instructions
This job has various options described  below. Enter the desired values and
press ENTER to continue.
  3. Enter the library containing the              DEMO
     "from" file.  If left blank the
     library list will be searched for
     the "from" files.
  4. Enter the library containing the              DEMOS
     "To" file.  If left blank the
     library list will be searched for
     the "To" file.
                         F5=Printer Overrides
```

Option	Description
Enter the library containing the From file.	The name of the From file library, or leave blank to search your library list.
Enter the library containing the To file.	The name of the To file library, or leave blank to search your library list.

To set up crossover rules

This is where the mapping details are entered. There are many conversion rules in UFC to cover most situations, try them first before using custom Xxxxx programs. You need only map the fields that you are concerned with.

1. From menu G9841, take Selection 3 to go to the Crossover Rules.

2. Inquire on the version name you created and ran in Step 2.

    P00120 is pre-loaded in the Form ID field.

    > **Note:**   The program in Step 2 above attempts to match field names. Any field with no match will have **FILLER for a Field Name. If **FILLER is on either the "From" or "To" side, the data will not be mapped. If the "From" side has fewer **FILLER fields, press F8 to clear them. If the "To" side has fewer, press F9.

    The remaining fields will be in alphabetical order, not by position within the record. UFC is usually used to bring data into a JD Edwards World World file, so that assumption will be used in this exercise.

3. Pick a field on the "To" side that you want to map into.

    Start with the field name on the "From" side and key in a meaningful field name. Use F14 to enter additional documentation.

4. Set the "From" field "type" to A for Alpha.

    This is the most inclusive data type and will be used for numeric fields as well.

    You will need to know where the data to be mapped starts in the input record. UFC moves data character-by-character, so if the input data has leading spaces, increment the "Begin Pos" field to skip over them. Similarly, on the "To" side, manipulate the "Begin Pos" as necessary so the data will be mapped correctly. The field names are not important to the process. The type, position and length values are important.

5. On the "To" side, the type can be "A", "S", or "P" for Alpha, Signed or Packed. "A" fields will have the "Byte" field set to the length of the data and the "Dig" field

should be 0."S" fields should have the "Bytes" and "Dig" fields set to the same value. "P" fields should have the "Dig" set to (("Bytes" x 2) - 1). It takes 8 bytes to hold 15 packed digits. In most cases, the "Dec" field will be 00.

6. Press F4 to open the fold area. Press F1 on the "Conv Rule" field. The most used functions are the date formats, *DFT and *NN. Most file dates are stored in Julian format in JD Edwards World World. The incoming data should be 6 digits long and will probably be in a *MDY or *DMY format. On the "To" side, the field will also be 6 digits long but will have the *JUL format. The *DFT rule has room for 6 contiguous digits of data. *NN uses the first four digits for system code and the next 2 for the bucket number.

7. When all the incoming fields with data have been mapped, type C in the action code and press enter. All fields in the "To" file will be initialized to the proper empty format if not mapped.

> **See Also:**
>
> ■ Chapter 37, "Work with Crossover Rules"

To create a new version of P00111

1. On menu G9843, take Selection 4 to go to the Versions List for P00111.

2. Make a copy of the XJDE0001 version and give it the same name and title as in Step 2A for continuity purposes.

3. On the Additional Parameters screen:

   ■ Enter the input file name in the Based on file field.

   ■ Press Enter.

   ■ Press F12 to return to the Add'l Parameters screen.

   ■ Ensure the format name is the one from the DSPFD command in the preparation step.

   ■ Press Enter.

4. Display the Processing Options.

5. Set the Processing Options as follows:

   ■ Processing Option 1 needs the version of P00120 from Step 2 so it can find the right crossover rule records in the F0031.

   ■ Enter the appropriate file and library names for options 2, 3, and 4.

   ■ Option 5 is usually set to 1 to clear the file so just the records from the latest conversion will be there.

   ■ Option 6 is usually blank.

   > **Caution:** Do not change Data Selection and Data Sequencing. They are used for the OPNQRYF statement. Since we want to use the full file, they don't apply.

6. Return to the Versions List.

7. Submit your version.

To review your results

1. Go to Work with Spooled Files and look for R00111.

   At the bottom of this spooled file will be how many records were read and written.

2. Type command DSPPFM on the "to" file to see if the mapping is correct.

3. In order to see all the data, press F10, then F11 to see the hexadecimal representation of the data in an over/under presentation.

36.3.1 Trouble Shooting

- Sometimes P00111 will have problems with the input file.

  - On the Additional Parameters screen, if the file output type is 1, change it to 2 and vice versa.

- Make sure the P00111 based on file and format names are correct.

  - See "To create a new version of P00111".

- There may be just one record in the "to file" and a message in the Joblog about a duplicate record.

  - Type command DSPFD on the file and its logicals to see which one has the "unique" key requirement. You will need to map data to each of the key fields. If there is no matching data, maybe a *NN conversion rule will have to be attached to one of the key fields as a tie breaker.

36.3.2 Key Words

Valid conversion rules keywords include:

Function	Key Words
Date Conversion	*MDY, *DMY, *YMD, *JUL, *SYSVAL
Initialization	*BLANKS, *ZEROES
Business Unit	*RAB right adjust blank fill
Default from Dictionary:	*DEF User Defined Code Lookup, *UDCssssrr where ssss is the System Code and rr is the Code Type
Default Constant	*DFTcccccc where cccccc is the constant
Next Number	*NNssssxx where ssss is the System Code and xx is the Number

37

Work with Crossover Rules

This chapter contains these topics:

37.1 Working with the Crossover Rules Screen

The Crossover Rules screen lets you add, change, and delete crossover rules used in the Universal File Converter process. Use this form to set up or maintain associations between fields in the From file and the To file. You need only map the fields that you are concerned with.

> **Note:** There are many conversion rules in UFC to cover most situations, try them first before using custom Xxxxx programs.

Lines with **FILLER in either the from file or the to files are ignored enabling you to view From file fields with no corresponding To file fields or view To file fields with no corresponding From file fields.

To work with the Crossover Rules form

1. From the Universal File converter menu, choose Crossover Rules.

Figure 37–1   Crossover Rules screen

The form above displays illustrative data only. This is where the mapping details are entered. The From file fields appear on the left. The To file fields display on the right.

2. Complete the Crossover Rules form.

- F8 and F9 are toggles. Press them to suppress or activate the display of the **FILLER fields in the From and To files.

- Use F6 to pull up full information about both fields on the Crossover Rules screen. See Section 37.3, "Adding Fields"

- F14 is cursor-sensitive. If you are on a From file field, press F14 to enter text for that field. When the cursor is on a To file field name, press F14 and the Generic Text Form opens for that To file field name. You can also enter text for the From file and To file by placing the cursor on the appropriate field. The field name is highlighted on V0031 if generic text exists. For additional information refer to the *JD Edwards World Computer Aided Software Engineering Guide*.

- Press F4 to display detail information in the detail area.

Field	Explanation
Form Id	This will always be P00120, the Version Setup program.
From File Name	The file that data is being transferred "from" in the file conversion process.
Version	This is the version name you created and ran in the Setup step.
To File Name	The file that data is being transferred "to" in the file conversion process.
Skip to…	Enter either the FROM field name or the TO field name to skip to in the subfile.
From File ….	Heading for the fields that data is being transferred "from" in the file conversion process.
To File ….	Heading for the fields that data is being transferred "to" in the file conversion process.

Figure 37–2   Completed Crossover Rules screen

Field	Explanation
From File Field name	The name of the field in the FROM file for source data that is used in the conversion process.
From File Field Data Type	The type of data of the field in the "from" file. The data item types are defined in User Defined Codes, system code '98', record type 'DT'. (F1) Usually A for fields in a PC (ASCII) file.
From File Field Begin Pos	The beginning position of the field in the "from" file.
From File Field Size In Bytes	The number of bytes for the field in the "from" file.
From File Field Number of Digits	The actual number of digits in the "from" file field. In a non-packed field this is the same as the number of bytes. Numeric fields)
From File Field Decimal Positions	The number of decimal positions in the "from" file field. (Numeric fields)
From File Field Description	The description of the "from" file field. If the file is declared a JD Edwards World file, this will be the first part of the Data Dictionary description.
REF (Reference)	Use reference field for those conversion rule entries that refer to the Data Dictionary.

Figure 37–3   Completed Crossover Rules screen

The left side of the form contains information about the From file.

The right side of the form contains information about the To file fields. If the setup program made associations with the To file fields, they display in the right columns when you inquire on a Form ID. Otherwise, these columns contain **FILLER information.

37.1.1 What You Should Know About

You should be aware of the following rules when you work with crossover rules.

Topic	Description
To review a specific set of crossover rules	Enter the DREAM Writer version you used to create the rules.
To update information on Crossover Rules form	Enter the To file field, type, beginning position, number of bytes, and number of digits and decimals, if applicable. Required information is name, type, beginning position and number of bytes.
"Skip to" capabilities	Two "skip to" capabilities are available on this form. You can skip to a field in either the From file or the To file.
*DFT	When using *DFT if the literal is over 6 positions then part it out as if dealing with two fields.
Packed numeric	Packed numeric values use ½ their length plus one in a file. A numeric field defined as a length of 15 only uses 8 bytes.
	Negative, or signed fields, must have the 'sign' character in the FROM file.
	In the Crossover Rules, when using a User Defined Code Lookup keyword (*UDCsssrr) and the system code is only 2 numbers, such as 55, enter it as __55 (with leading blanks), not 0055 or 5500.
Negative, or signed fields	Negative, or signed fields, must have the 'sign' character in the FROM file.
Using lookup keyword *UDCssssrr	In the Crossover Rules, when using a User Defined Code Lookup keyword (*UDCsssrr) and the system code is only 2 numbers, such as 55, enter it as __55 (with leading blanks), not 0055 or 5500.

37.2 Displaying Field Descriptions

To display field descriptions

1. Press F13 in the Field Name column for the From or To file.

   The File Field Descriptions form displays, as shown below.

Figure 37–4   File Field Descriptions screen


```
98FFD          File Field Descriptions          S/FMT
File and Libr:__F4011Z      __PGFPDTA71__   PF
_ I4011Z        - Batch Receiver File - Order De
_ SZEDTY        Record Type. . . . . A     1        1
_ SZEDSQ        Record Sequence. . . P     2  0      2
_ SZEKCO        Document Key Company A     5        4
_ SZEDOC        Document Number. . . S     9  0      9
_ SZEDCT        Document Type. . . . A     2       18
_ SZEDLN        Line Number. . . . . P     7  0     20
_ SZEDST        Transaction Set. . . A     6       24
_ SZEDFT        Translation Format . A    10       30
_ SZEDDT        EDI - Transmission D S     6  0     40
Opt: 2=Dictionary  4=Sel  F15=Resequence  F3=Return
```

- When you use option 4 to select a field from the form, the program returns the name, type, number of bytes, number of decimals, number of digits, description, reference, and key position to the appropriate fields on the form. For Crossovers on the File Field Descriptions window, refer to the *JD Edwards World Computer Aided Software Engineering Guide*.

- For details on the Data Dictionary Repository form, the Glossary form, and the Cross Reference options on the File Field Description form, refer to the Technical Foundations Manual.

2. Enter 4 in the option field. The program returns the field description to the associated field as shown in this example.

Figure 37–5   Crossover Rules screen (with Field Description in Associated Field)

program returns the field description to the associated field .

****

37.3 Adding Fields

To add a field

1. Press F6 to open the Add Crossover Instructions form.

Figure 37–6   Add Crossover Instructions screen

This window presents most of the fields on the Crossover Rules screen.

2. With the cursor in the Field Name field on the Crossover Rules screen, press F13 to open the File Field Descriptions form.

3. Select a filed using the 4 option.

4. Press Enter.

   The program returns the field information to the Field Name when you exit the form.

The required fields for adding a field are:

- From field name, type, number of bytes, and beginning position

- To field name, type, number of bytes, and beginning position

The add function is available to associate a single field in the From file with multiple fields in the To file and to break apart a From field into multiple fields.

A field can exist in the To file and have nothing associated with it in the From file. In this case, the To file field is initialized as described in the section "Special Processing".

37.4 Deleting Records

To delete a record

Choose option 9 to delete records from the Crossover Rules file.

This cancels the From -To relationship so that no conversion takes place.

If you blank out the To file field name, the program does not delete the record from the Crossover Rules file, but only clears the To file field information. The converter program looks only at records that have both a From and To file field name.

> **Note:** You do not need to delete lines with blank (**FILLER) To file field names, they are automatically skipped in the conversion process.

37.5 Keywords

Keywords in the Conversion Rule field (in the fold area) trigger special processing for a field before the data is transferred. Following are the keywords that are available and a brief explanation of what processing they trigger.

> **Caution:** With the exception of the date keywords listed below, specify conversion rules for either From field or To field, never for both.

Keyword	Description
Dates - *MDY, *DMY, *YMD, *JUL, *SYSVAL	These keywords activate a date conversion between the From file field and the To file field. You must type keywords into both the From file Conversion Rule field and the To file Conversion Rule field. Each keyword on the From field specifies how the field is stored in the From file. The keyword on the To field conveys the output format on the To field.
	Note: This does not work on packed fields.
Business Unit - *RAB.	This keyword activates the business unit scrub of right adjust and blank fill to the From file field before moving it to the To field.
Initialize - *ZEROES, *BLANKS	These keywords move either zeroes or blanks to the From file field before it is transferred. With the initialization rules, these keywords are not required unless you want to initialize an alphanumeric field to zeroes.

Keyword	Description
Data Dictionary Default - *DEF	This keyword retrieves the Data Dictionary default for the To file field, using the Reference field in the Data Dictionary, and loads it to the From file field before it is transferred.
User Defined Code - *UDCsssrr	This keyword retrieves the definition of the user defined code used in a specific system and loads it to the To field. When typing your request, ssss is the system and rr is the user defined code.
Default Constant - *DFTccccc	This keyword loads a default constant to the To field. When typing your request, ccccc is the default constant.
Next Number - *NNsssxx.	This keyword computes a next number and loads it to the To field. When typing your request, ssss is the system and xx is the bucket number.
Check Data Dictionary - *CHK.	This keyword lets you edit a field against Data Dictionary values and ranges. The results of the edit print on the File Conversion report whenever any errors are detected.

37.6 About the Conversion Rule Program

Besides specifying the use of keywords in the conversion rule, you can specify an external program that runs before the data is transferred to the To file field. You must name the external program beginning with an X. For example, use an "X" program to determine a range of valid values in a From file field, excluding records based on a given field. Other examples include writing multiple To file records based on a single From file record, or manipulating the data before it is transferred.

The external program requires five parameters:

PARM	Description
First parameter	Must be 50 bytes and contains the value of the field being processed. Use it to send the value to the converter program and receive the value when the "X" program is done with it.
Second parameter	One-byte error flag. If the error flag returns blank, the data in parameter 1 from the "X" program is placed in the To file. ■ If the error flag returns with 2, the data in parameter 1 is not transferred to the To file. Use this error if you are writing multiple To file records and different From file fields are used for a single field in the To file. ■ If the error flag returns with 3, a record will not be written to the To file. Use this error if you do not want to write a record when the value of a certain field in parameter 1 is blank, zero, or not valid for your purposes.
Third parameter	Four-byte alphanumeric field for the number of the To file records. The field always has numeric characters and is zero-filled. This lets your "X" program know which record the converter program will write when you are writing multiple To file records.
Fourth parameter	Ten-byte field for the From file field name. This lets your "X" program know which field you are processing if multiple fields in the From file are updating a single To file field.
Fifth parameter	Ten-byte field for the To file field name. This lets your "X" program know which field you are processing if multiple fields in the From file are updating a single To file field.

37.7 Available Functions and Options

Function	Description
F6	Add Instructions
	To add fields to be converted, press F6 to access the Add Cross Over Instructions Form. The required fields for adding a field are Field Name, Field Data Type, Field Beginning Position, and Number of Bytes.

Figure 37–7   Crossover Rules screen

Function	Description
F8	Suppress From **FILLER Fields
	Will not display those lines with **FILLER values in the From field.
F9	Suppress To **FILLER Fields
	Will not display those lines with **FILLER values in the To field.
F13	File Field Description
	Place cursor on any Field Name field and press F13 to display the File Field Description form.
F14	User Defined Text
	Highlight to indicate that there is generic text associated with this field.
	■ Press F14 in the top area of the form to enter text about the conversion.
	■ Press F14 in the From Field area (left side of the form) to enter text describing the From Field.
	■ Press F14 in the To Field area (right side of the form) to obtain text describing the To Field.
	The field will highlight to indicate that there is generic text associated with this field.

Option 9 - Delete Records

To delete records so that no conversion takes place, enter Option 9. If you blank out the To File Field Name, the program does not delete the record from the Cross Over

Rules file (F0031), but only clears the To File Field information. The converter program will only look at records that have both a from and to file field name.

38

Work with File Conversion

This chapter contains these topics:

■   Section 38.1, "Working with File Conversion"

38.1 Working with File Conversion

The File Conversion program accesses the Crossover Rules file (F0031) and transfers data fields from one file to another, from one file to multiple files, or from multiple files to one file.

To run file conversion

1.   From the Universal File Converter menu (G9841), choose File Conversion.

Figure 38–1   Universal File Converter Menu screen

> **Note:**   When creating an execution form, be sure the Based on File and the Format Name fields on the Additional Parameters screen contain your Based-on filename and the correct Format name for that file. The Data selection and sequence records should be left as-is since the converter reads the entire from file.

2.   Add your own version from a Demo version and go to the processing options of your new version.

Figure 38–2   Processing Options Revision screen (file spec 1 and 2)
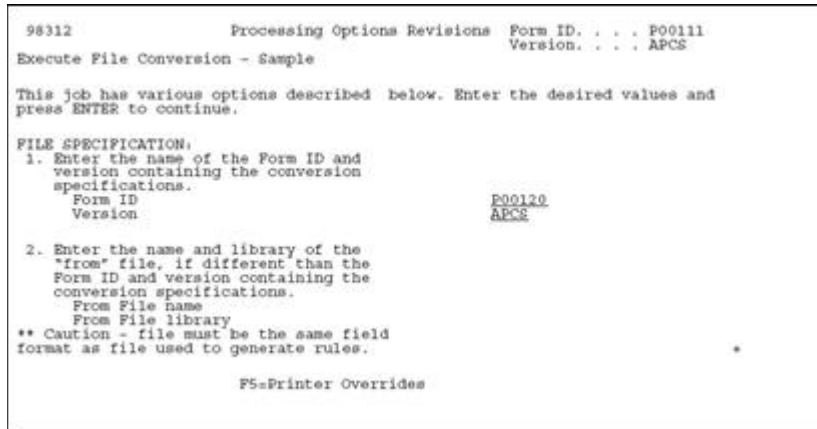
Option	Description
Enter the name of the Form ID and version containing the Initial Setup step.	The Form ID will be P00120. Enter your version from the conversion specifications.
Enter the name and library of "from" file, if different than the Form ID and version specified.	Type the name of the From file and library, if it is different than the From file and library in the Form ID and version specified above. This file must have the same organization as the file used in the crossover rules.

Figure 38–3   Processing Options Revisions screen (file spec 3 and 4)
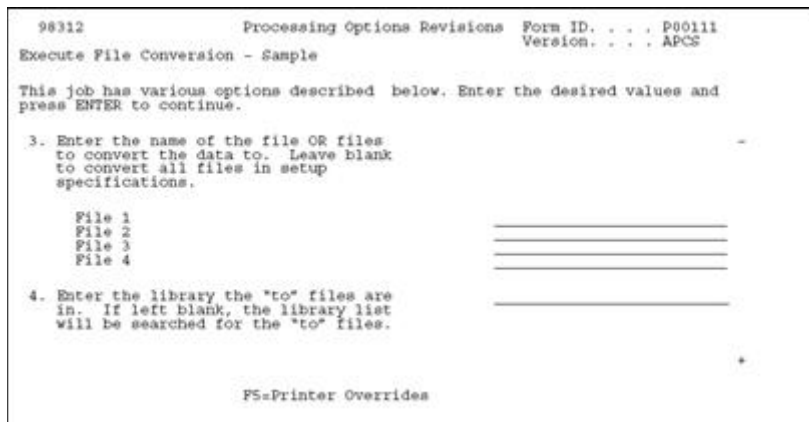
Option	Description
Enter the name of the file OR files to convert the data to.	Type the names of the To files. Up to four files can be specified. If these fields are left blank, all files entered in the setup version are converted. The files must have the same organization as the file used in the crossover rules.
Enter the library the to files are in.	Type the name of the library containing the To files, or leave blank to have the library list searched.

Figure 38–4   Processing Options Revisions screen (file spec 5 and 6)

```
  98312              Processing Options Revisions   Form ID. . . . P00111
                                                    Version. . . . APCS
Execute File Conversion - Sample

This job has various options described  below. Enter the desired values and
press ENTER to continue.

File Preparation:                                                        -
  5. Enter a '1' to clear the file data
     is being transferred to.            _____

TO FILE FORMAT:
  6. Enter the number of "to" file
     records to be created for each
     "from" file record.  If left blank,
     a single "to" file record will be
     created for each "from" file record.
        File 1
        File 2                           _____
        File 3                           _____
        File 4                           _____
                                                                         +
                             Bottom

              F5=Printer Overrides
```

Option	Description
Enter a "1" to clear the file data is being transferred to.	Enter "1" to clear the To file. The To file will be filled only with converted records. If this field is left blank, the converted data records are added to the To file.
Enter the number of to file records to be created for each from file record.	Enter the number of To file records you want to create for each From file record. If this field is left blank, only a single To file record will be created for each From file record.

3. Enter the correct values on Processing Options and submit your version to complete the conversion process.

38.1.1 What You Should Know About

Topic	Description
Multiple "From" files	If you are using multiple From files, remember to create a join logical over all the From files you want to use.
New versions	When adding a new version, check to see that the format name for the based-on file is correct for the file. The default is Ixxxx and may not be appropriate.
"From" file name and the "To" file formats	The From file name and the To file formats should be the same as used to set up the conversion rules in Step 1.
Error conditions	A printed report lists error conditions detected by *CHK keyword and lists the total number of records read and number of records converted. The report lists the description of the errors. Depending on the error condition, you may need to correct the values in the incoming data and rerun the conversion.

38.1.2 Troubleshooting

Problem	Explanation / Resolution
Incorrect Value in the Format Name field.	The most common UFC error is an incorrect value in the Format Name field on the Additional Parameters screen for P00111. The Format Name is for the Based On File (the from file).
	To verify the format name do a DSPFD on the from file. The file format is listed at the bottom of the display.
	Always exit the version and re-inquire on the Additional Parameters to verify that the Format Name change was accepted.
Not writing to the output file	Problems writing to output file (in P00111) may be because of duplicate keys.
	■ Check if the to file has a logical attached that has a unique key and verify the user is not populating that field with blanks.
	■ The File Output Type field on the Additional Parameters screen for P00111 DREAM Writer should be a 2 (logical). Use a file output type of a 1 (OPNQRYF) for files that contain DDS (JD Edwards World files). If one type does not work, try the other.
	■ Data Definition Specifications (DDS) means the file is formatted (the lengths of the fields in the record are defined). Files used in UFC do not have to be formatted (contain DDS) but they must be orderly (all fields in each record must be in the same place.) Use DSPPFM to see the data in each record. Use F10, F11 to see the hexadecimal value and the ASCII value.
	■ If all setup options look correct check for multiple F0031 files - you may be executing out of the wrong Crossover Rules file. The data in this file is created when running the first DREAM Writer, P00120 (2/G9841).
Job log "version for P00111 cannot be found"	If you receive a job log after running P00111 that states the version for P00111 cannot be found, check that only one set of DREAM Writer files exist in your library list. Otherwise unpredictable results may occur.

39

Print a Report

This chapter contains these topics:

-

39.1 Printing a Report

You can print a report that displays the Cross Over Rules and any associated generic text.

To print a report

1. From the Universal File Converter Menu (G9841), choose Report.

Figure 39–1 Report screen

```
98300                      Report                      Form P0031P1

Skip to Version:_____

O  Version      Description                            User      Chg Date
_  XJDE0001    File Converter Report                   DEMO      10/25/93
_
_
_
_
_
_
_
_
_
_
_
_
_
_

 Opt:  1=Run  2=Chg  3=Add  4=Rpt Dist  5=Cover  6=Prt Ovr  8=Repair  9=Dlt
```

The form can list different versions of the File Converter Report. The example shown is for illustrative purposes only.

2. On the Data Selection form, specify your Form ID and version.

Figure 39–2   Processing Options Revisions screen


```
 98312               Processing Options Revisions  Form ID. . . . P0031P1
                                                   Version. . . . 0001
 File Converter Report

 This job has various options described  below. Enter the desired values and
 press ENTER to continue.

 1) Enter a "1" to print Data Dictionary             1
    Glossary for each item.  Leave blank
    to not print the Data Dict. Glossary.
    (Prints for "TO" fields only)

 2) Enter a "1" to print File Specific               1
    Glossary for each data item.  Leave
    blank to not print.  (Prints for "TO"
    fields only)

 3) Enter a "1" to print the Generic                 1
    Text Instructions for each data item.
    Leave blank to not print the Generic
    Text.  (Prints for both "FROM" and
    "TO" fields)               Bottom                             *

                      F5=Printer Overrides
```

3. Select one of the following print options:

Field	Explanation
Enter a "1" to print Data Dictionary Glossary for each item.	Prints Data Dictionary Glossary for each To field.
Enter "1" to print File Specific Glossary for each item.	Prints file specific glossary from Generic Text file (F00163) for each To file.
Enter "1" to print generic text instructions for each item	Prints any generic text associated with either To fields or From fields.

40

Create Conversion Versions

This chapter contains these topics:

- Section 40.1, "Creating Conversion Versions"
- Section 40.2, "Creating Conversion Forms"

40.1 Creating Conversion Versions

Universal File Converter enables you to create conversion forms to use for planning purposes when you convert your non-JD Edwards World files into JD Edwards World files.

- Start by creating a form that specifies the major file in the "Convert to" file. The name of the file you convert from is intentionally left blank. This lets you create a blank set of conversion rules which you can print using the Report selection.

- JD Edwards World supplies a special Data Dictionary glossary relating to specific fields in specific files in your JD Edwards World Data Dictionary text. You can also create new field descriptions that better correspond to your system by pressing F14 for generic text in the crossover rules revisions.

- If you decide to use the blank version (described above) for actual file conversion, type the From file specifications corresponding to the appropriate To field using the Crossover Rules. Be sure to override the From file before you execute the conversion program.

40.2 Creating Conversion Forms

To create a conversion form

1. From Universal File Converter (G9841), choose either Versions Setup or Report.

Figure 40–1 Processing Options Revisions screen, Generate Cross Over Instructions area

2. Complete the Processing Options Revisions form.

- If you selected Versions Setup, be sure to leave the first processing option blank under File Conversion.

- In the second option, type the name of the files you want to convert, and then Y if they are JD Edwards World files or N if they are not.

Figure 40–2 Processing Options Revisions screen, File Converter Report area

If you select Report, type 1 next to all three options as shown above.

41

Work with the Data Dictionary Glossary by File

This chapter contains these topics:

-
-
-
-

41.1 About Working with the Data Dictionary Glossary by File

When using the Universal File Converter, small details often differ for each file. Keeping these details clear, especially when the conversion form might be used by another department, is a potential problem. To remedy this, JD Edwards World has made it possible to attach Data Dictionary glossary text to each data item that explains the details particular to that specific file.

To work with the Data Dictionary Glossary by file perform the following tasks:

-
-
-

41.2 Accessing the Data Dictionary Glossary by File

To access the Data Dictionary Glossary by file

1. From Universal File Converter (G9841), type DD on the command line and press Enter.

   The Data Dictionary Repository screen displays.

Figure 41–1 Data Dictionary screen


```
9201                     Data Dictionary        Rls Last Chg A61
Action Code. . . . I                            Item Parent.
Data Item. . . . . MCU
Glossary Group . . D
- - - - - - - - - -         General Information    - - - - - - - - - - - - -
Alpha Desc . . . . Business Unit
Reporting System . 09
System Code. . . . 09        Type . A  Size . 12    Data File Decimals __
Data Item Class. . COSTCTRSEC Item Occurrences ___   Display Decimals . _

- - - - - - - - - -         Descriptions       - - - - - - - - - - - -
Row Description. . Business Unit
Column Title . . .   Business
                     Unit

- - - - - - - - - - Default and Display/Edit Rules  - - - - - - - - - - -
Default Value. . .
Data Display Rules *RAB                              Justify. _
Data Edit Rules. . SERVER X0006

Search Program . .
Next Nbr System. . _____   Next Number Index . . __

  F4=Search  F8=UDC  F9=Prev  F10=Glossary   F11=Descriptions  F15=Where Used
```

2. Press F10 to display the glossary definition of the data item you selected.

Figure 41–2 Data Item Glossary Revisions screen


```
92001                 Data Item Glossary Revisions   Language       . ___
                                                      Applic Override   __
                                                      Scrn/Rpt . F4102

Action Code. . . . . . I
Data Item. . . . . . . MCU        Desc Business Unit
System Code. . . . . . 09         Reporting System Code. 09
Glossary Group . . . . D

Identifies a separate entity within a business for which you wish to track
costs, for example, a warehouse location, job, project, work center, or
branch/plant. The business unit field is alphanumeric.

You can assign a business unit to a voucher, invoice, fixed asset, and so forth,
for responsibility reporting. The system provides reports of open A/P and A/R
by business units, for example, to track equipment by responsible department.

Business Unit security can prevent you from inquiring on business units for which
you have no authority.

In the Inventory Management System, MCU represents a branch or plant


    F4=Search    F9=Redisplay Prev    F19/F20=Prev/Next Item    F24=More
```

3. Use the Data Item Glossary Revisions form to change the glossary text for a Data
   Dictionary item or to add a File-Specific glossary item, as needed.

41.3 Adding a File Specific Glossary Item

To add a File Specific Glossary item

From the Data Item Glossary Revisions form

1. Type A in the Action Code field.

2. Type the file name in the Scrn/Rpt field.

3. Type the new text and press Enter.

Figure 41–3   Processing Options Revisions screen

41.4 Printing the Data Dictionary Glossary Information

To print the Data Dictionary Glossary information

1. From Universal File Converter (G9841), choose Report.

2. Complete the Processing Options Revisions form.

3. Type 1 next to all three options to print the Data Dictionary glossary.

4. Use Option 2 to print the File-Specific glossary text.

A

Common & Production Library Files

This appendix lists the files that are automatically created in the common and production libraries during the installation process.

Common Library Files Automatically Created by JD Edwards World Build Programs

The following chart lists files automatically generated from the Data Dictionary as a result of a build program that JD Edwards World offers from a menu. It is recommended that these files be maintained in your common library along with the Data Dictionary.

File Name	File Description	System Code
F98FRF@	Field Reference - "@" Data Items	98
F98FRF$	Field Reference - "$" Data Items	98
F98FRFA thru	Field Reference - "A" Data Items through	98
F98FRFZ	Field Reference - "Z" Data Items	98

Physical and Logical Files Created in a Common Library

On the SVR screen, there are two fields which govern the location and content of data files in user libraries during an install.

- The first field is Common File. If a file has this field set to "Y", the file will be created in the user's Common library, if one is specified.

- The second field is Copy Data (Y/N). Most files to be located in the Common library will have Copy Data Y but there are some exceptions such as F0016. Most non-Common (User data) files will be Copy Data N but there are exceptions such as F0010 and F0009. No data will be copied for a logical file.

- Inquire on a file in SVR to see if it should be located in Common or not.

- Inquire on a file in SVR to see if data from the pristine environment should be copied into it.

B
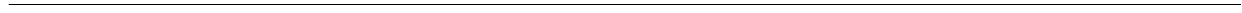
Upgrading Customized Source Code

This appendix contains these topics:

JD Edwards World provides access to several complementary products. If you have customized JD Edwards World source code, the following products will help you upgrade your source code.

B.1 S/Compare

Overall, S/Compare is a valuable aid used to:

- Identify differences between any two programs

- Simplify the task of documenting program changes

- Simplify the task of consolidating your custom changes into new releases of programs

- Identify differences between the names of the programs in two different files to quickly locate added or deleted programs in the new release

The S/Compare utility is specifically designed to compare two versions of source code. It will locate inserted, deleted, changed, or moved records in a source program. Processing options are provided to include or exclude comment lines, blank lines, and formatting differences. S/Compare's output clearly identifies differences between two source members on a composite list of both programs. An option allows the records that are the same in the programs to be omitted from the listing to produce a report of only the differences between the files. This option also allows a given number of matching records before and after a mismatch to be listed to help in identifying the section of source code.

B.1.1 Features of S/Compare

Some of the features and capabilities of S/Compare are:

- Flags are used in the composite listing to clearly mark statements or blocks of statements that have been inserted, deleted, or moved.

- Records that are moved from one location in the original file to another in the new program are indicated by source and target locations.

- Printing large blocks of identical code can be eliminated by a processing option. Only the differences will be printed and you can control the number of matching lines that are listed before and after each block of mismatched code.

- Differences between your program and the new program can be listed in an edit program.

- There is a processing option that can eliminate mismatches being printed because of spacing between words.

B.2 Harmonizer

Harmonizer adds to the capabilities of S/Compare by allowing the comparison of 3 to 16 program versions. Like S/Compare, the comparison results are written in a format that clearly depicts the differences between source members. In addition, Harmonizer has the capability of merging program versions to generate a composite source member. You can control what is written to the composite source member when potential conflicts are found.

B.2.1 Features and Capabilities of Harmonizer

Some of the features and capabilities of Harmonizer are:

- The comparison of 3 to 16 versions of a program.

- Two report formats are available. The MULTI-Compare report compares 3 to 16 programs. The TRI-Compare report is specifically designed for 3 programs.

- Statements from the original file that have been replaced, inserted, or deleted are noted on the comparison reports.

- All of the features of S/Compare are supported by Harmonizer when 3 programs are being compared, except the creation of an edit program which has been replaced by the creation a composite output program.

- The composite program may be compiled immediately or it may be edited. The ScmpEdit utility can be used to remove specified code in the composite program.

- The HARMONIZER command can be used to execute S/Compare and Harmonizer making the utilities easier to use.

B.2.2 Harmonizer Added to S/Compare

- You can incorporate your program changes into new releases easier. Harmonizer can compare the JD Edwards World original program, the JD Edwards World new release, and your customized program to produce a composite source file and a composite report. The composite report notifies you of discrepancies in the replacement, insertion, or deletion of code.

- The Source File Synopsis report produces a comparison of the program names in the JD Edwards World original source file, the JD Edwards World new source file, and your source file to determine any additions or deletions of programs.

- You can merge the development work of several programmers working on the same program.

B.3 About Harmonizer Plus

Harmonizer Plus adds to the capabilities of S/Compare and Harmonizer by helping you manage the ENTIRE process of building a new software release.

B.3.1 About the Project Manager Function

The Project Manager function will display an up-to-the-minute status of every program in your upgrade project. It shows:

- Which merged objects need a programmer review due to conflicts between local changes and vendor changes

- Modified objects that are already created and ones that need to be created

- Objects that are ready for production

- Unmodified objects that must be recreated because they are dependent on modified objects

- Objects that must be present before the object you are working with can be created

B.3.2 Additional Functions

Harmonizer Plus provides a workbench for programmers to perform a variety of functions. Given the proper authority, a programmer can:

- Directly access SEU for editing programs

- Mass compile entire groups of programs

- Selectively compile individual programs

- Selectively create all objects dependent on a modified object

- Add or delete programs from the new production version

Harmonizer Plus identifies unchanged modules that must be recompiled due to changes in prerequisite objects. For example, if you have modified DDS, Harmonizer Plus can identify programs that reference the related files. It can then recompile those programs. All you need to do is test and move the new libraries into production.

C
CL Models

This appendix contains these topics:

C.1 J98MODEL1 - Interactive Video

Figure C–1 Software Versions Repository screen (description: interactive video)

```
9801                    Software Versions Repository

Action Code. . .  I
Member ID. . . .  J98MODEL1
Description. . .  Model CL Program - Interactive Video
Function Code. .  CLP   CL Programs
Function Use . .  198     Model Source Member
System Code. . .  98    Technical Tools
Reporting System  98    Technical Tools
Base Member Name  J98MODEL1             File Prefix. . .  __
Maint/RSTDSP . .  _   Omit Option. . .  O  Generation Sev .  __
Copy Data (Y/N).  N   Optional File. .  N  Common File. . .  N

O  Source       Object      Source       SAR   Version    S D   User    Date
P  Library      Library     File         Number  ID       C P    ID     Modified
__ JDFSRC73     JDPOBJ73    JDESRC        981283 A73       1 _  BBCK     07/07/95




   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.2 J98MODEL2 - Batch DREAM Writer without Printer File

Figure C–2   Software Versions Repository screen (description: batch DREAM writer without printer file)

```
9801                    Software Versions Repository

Action Code. . .   I
Member ID. . . .   J98MODEL2
Description. . .   Model CL Program - Batch DREAM Writer without Printer File
Function Code. .   CLP   CL Programs
Function Use . .   198     Model Source Member
System Code. . .   98    Technical Tools
Reporting System   98    Technical Tools
Base Member Name   J98MODEL2            File Prefix. . .  __
Maint/RSTDSP . .   _    Omit Option. . .  O  Generation Sev . __
Copy Data (Y/N).   N    Optional File. .  N  Common File. . . N

O   Source      Object      Source      SAR     Version    S D    User      Date
P   Library     Library     File        Number   ID        C P     ID      Modified
__  JDFSRC73    JDFOBJ73    JDESRC      867923  A73         1 _   BECK      07/07/95




   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.3 J98MODEL3 - Interactive Video Prompt

Figure C–3   Software Versions Repository screen (description: interactive video prompt)

```
9801                    Software Versions Repository

Action Code. . .   I
Member ID. . . .   J98MODEL3
Description. . .   Model CL Program - Interactive Video Prompt
Function Code. .   CLP   CL Programs
Function Use . .   198     Model Source Member
System Code. . .   98    Technical Tools
Reporting System   98    Technical Tools
Base Member Name   J98MODEL3            File Prefix. . .  __
Maint/RSTDSP . .   _    Omit Option. . .  O  Generation Sev . __
Copy Data (Y/N).   N    Optional File. .  N  Common File. . . N

O   Source      Object      Source      SAR     Version    S D    User      Date
P   Library     Library     File        Number   ID        C P     ID      Modified
__  JDFSRC73    JDFOBJ73    JDESRC      867923  A73         1 _   BECK      07/07/95



   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.4 J98MODEL4 - Interactive/Batch with Processing Options

Figure C–4   Software Versions Repository screen (description: interactive/batch with processing options)

```
9801                    Software Versions Repository

Action Code. . .  I
Member ID. . . .  J98MODEL4_
Description. . .  Model CL Program - Interactive/Batch with Processing Options
Function Code. .  CLP_  CL Programs
Function Use . .  198     Model Source Member
System Code. . .  98__   Technical Tools
Reporting System  98__   Technical Tools
Base Member Name  J98MODEL4_          File Prefix. . . __
Maint/RSTDSP . .  _   Omit Option. . .  O  Generation Sev . __
Copy Data (Y/N).  N   Optional File. .  N  Common File. . . N

O  Source      Object      Source      SAR      Version   S D   User      Date
P  Library     Library     File        Number   ID        C P    ID       Modified
__ JDPSRC73__  JDPOBJ73__  JDESRC___   867923 A73_____  1 _  BECK      07/07/95




   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.5 J98MODEL5 - Batch Report Writer - No DDS File

Figure C–5   Software Versions Repository screen (description: batch report writer - no DDS file)

```
9801                    Software Versions Repository

Action Code. . .  I
Member ID. . . .  J98MODEL5_
Description. . .  Model CL Program - Batch Report Writer - No DDS File_____
Function Code. .  CLP_  CL Programs
Function Use . .  198     Model Source Member
System Code. . .  98__   Technical Tools
Reporting System  98__   Technical Tools
Base Member Name  J98MODEL5_          File Prefix. . . __
Maint/RSTDSP . .  _   Omit Option. . .  O  Generation Sev . __
Copy Data (Y/N).  N   Optional File. .  N  Common File. . . N

O  Source      Object      Source      SAR      Version   S D   User      Date
P  Library     Library     File        Number   ID        C P    ID       Modified
__ JDPSRC73__  JDPOBJ73__  JDESRC      867923 A73_____  1 _  BECK      07/07/95




   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.6 J98MODEL6 - Batch Report Writer OPNQRYF

Figure C–6   Software Versions Repository screen (description: batch report writer OPNQRYF)

```
9801                    Software Versions Repository

Action Code. . . .  I
Member ID. . . . .  J98MODEL6
Description. . . .  Model CL Program - Batch Report Writer OPNQRYF
Function Code. . .  CLP   CL Programs
Function Use . . .  198      Model Source Member
System Code. . . .  98    Technical Tools
Reporting System   98    Technical Tools
Base Member Name   J98MODEL6            File Prefix. . . .
Maint/RSTDSP . .   _    Omit Option. . . .  O  Generation Sev .
Copy Data (Y/N).   N    Optional File. .  N  Common File. . .  N

O  Source      Object      Source      SAR      Version   S D   User      Date
P  Library     Library     File        Number    ID       C P    ID      Modified
__ JDFSRC73    JDPOBJ73    JDESRC      867923 A73           1 _  BECK     07/07/95


   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.7 J98MODEL7 - Batch Report Writer OPNQRYF w/OQF Reset

Figure C–7   Software Versions Repository screen (description: batch report writer OPNQRYF with OQF reset)

```
9801                    Software Versions Repository

Action Code. . . .  I
Member ID. . . . .  J98MODEL7
Description. . . .  Model CL Program - Batch Report Writer OPNQRYF w/OQF Reset
Function Code. . .  CLP   CL Programs
Function Use . . .  198      Model Source Member
System Code. . . .  98    Technical Tools
Reporting System   98    Technical Tools
Base Member Name   J98MODEL7            File Prefix. . . .
Maint/RSTDSP . .   _    Omit Option. . . .  O  Generation Sev .
Copy Data (Y/N).   N    Optional File. .  N  Common File. . .  N

O  Source      Object      Source      SAR      Version   S D   User      Date
P  Library     Library     File        Number    ID       C P    ID      Modified
__ JDFSRC73    JDPOBJ73    JDESRC      867923 A73           1 _  BECK     07/07/95


   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

C.8 J98MODEL8 - Control File Driven Batch Process

Figure C–8   Software Versions Repository screen (description: control file driven batch process)

```
9801                    Software Versions Repository

Action Code. . .   I
Member ID. . . .   J98MODEL8
Description. . .   Model CL Program - Control File Driven Batch Process
Function Code. .   CLP   CL Programs
Function Use . .   198     Model Source Member
System Code. . .   98    Technical Tools
Reporting System   98    Technical Tools
Base Member Name   J98MODEL8             File Prefix. . .  __
Maint/RSTDSP . .   _   Omit Option. . .  O  Generation Sev .  __
Copy Data (Y/N).   N   Optional File. .  N  Common File. . .  N

O  Source      Object      Source      SAR     Version   S D   User       Date
P  Library     Library     File        Number   ID       C P    ID       Modified
__ JDFSRC73    JDFOBJ73    JDESRC       867923  A73       1 _  BECK       07/07/95




   Opt:  1=Browse  2=Edit  3=Copy  5=SAR  8=Print  9=Dlt  10=Design  14=Crt
```

D

Universal File Converter

This chapter contains these topics:

-
-

D.1 About Universal File Converter

This is a simple, single file to single file walk-through of the JD Edwards World World Universal File Converter (UFC). A major benefit of using UFC is that once the process has been tested, it can be made into a production process using a Dream Writer version.

The UFC is written to map data character-by-character from any physical file resident on the System I (iSeries / AS400) to any other resident physical file. If the input file is from a PC spreadsheet, that file will have to be ported (FTP or other process) to the iSeries.

> **Caution:** To protect your production data, create a test library and put a copy of the "from file" and the "to file" with its attached logicals into it. There may be a logical file attached to the "to file" with a "unique" key requirement. By having this file attached during the UFC process, all the key field requirements will be fulfilled.

D.2 Sample Conversion

There are 2 pieces of information to gather:

- The format name
- The number of records in the file

The record format name will be used in the last step. The number of records should be 100 or less for the initial testing. During testing, the number of records can be used to make sure all records were read. When the conversion has been tested successfully a full-file test can be made.

You will also:

- Identify from and to files
- Map data
- Convert data

To gather format names

1. Do a DSPFD on the "from file" in your test library.

2. Page down to the last panel.

3. Write down the Format name and the number of records in the file.

To identify from and to files

1. You will need to be signed on to JD Edwards World World. You must have an F0031 file in this environment. Go to menu G9841.

2. Selection 2 will take you to a versions list for P00120.

   ▪ Make a copy of the XJDE0001 version. Use your version name and title to tie it to the data you are converting, for example ABCONV and "Address book conversion."

   ▪ Do not make any changes on the Additional Parameters screen. The based on file should be *NONE and the Format name should be INONE.

   ▪ On the processing Options screen, enter the "from" and "to" file names. If either file is set to JD Edwards World file = "Y", numeric field names will be looked up for decimal point information. Page down to enter the test library name.

   Processing options three and four pertain to the library for test data.

   ▪ Upon returning to the Versions List, run your version. P00120 will find the "from" and "to" files and create a record in the F0031 for each field in these files. If P00120 has no print files after it runs, it was successful.

To map data

Selection 3 takes you into the crossover rules. This is where the mapping details are entered. P00120 is pre-loaded.

Inquire on the version name you created and ran in Step 2.

The program in Step 2 above attempts to match field names. Any field with no match will have **FILLER for a Field Name. If **FILLER is on either the "From" or "To" side, the data will not be mapped. If the "From" side has fewer **FILLER fields, do an F8 to remove them. If the "To" side has fewer, do an F9.

The remaining fields will be in alphabetical order, not by position within the record. UFC is usually used to bring data into a JD Edwards World file, so that assumption will be used in this exercise.

Pick a field on the "To" side that you want to map into. Start with the field name on the "From" side and key in a meaningful field name. Use F14 to enter additional documentation.

The system highlights Fields that have additional documentation.

Set the "From" field "type" to A for Alpha. This is the most inclusive data type and will be used for numeric fields as well.

You will need to know where the data to be mapped starts in the input record. UFC moves data character-by-character, so if the input data has leading spaces, increment the "Begin Pos" field to skip over them. Similarly, on the "To" side, manipulate the "Begin Pos" as necessary so the data will be mapped correctly. The field names are not important to the process. The type, position and length values are important.

On the "To" side, the type can be "A", "S", or "P" for Alpha, Signed or Packed. "A" fields will have the "Byte" field set to the length of the data and the "Dig" field should be 0. "S" fields should have the "Bytes" and "Dig" fields set to the same value. "P" fields should have the "Dig" set to (("Bytes" x 2) - 1). It takes 8 bytes to hold 15 packed digits. In most cases, the "Dec" field will be 00.

Open the fold with an F4. Do F1 on the "Conv Rule" field. The most used functions are the date formats, *DFT and *NN. Most file dates are stored in Julian format in JD Edwards World. The incoming data should be 6 digits long and will probably be in a *MDY or *DMY format. On the "To" side, the field will also be 6 digits long but will have the *JUL format. The *DFT rule has room for 6 contiguous digits of data. *NN uses the first four digits for system code and the next 2 for the bucket number.

When all the incoming fields with data have been mapped, put "C" in the action code and press enter. All fields in the "To" file will be initialized to the proper empty format if not mapped.

At the top of the screen, you can inquire with the name of an additional file that you're mapping data to. Go through the above steps to map the data.

F3 back to the menu.

To convert data

1. Selection 4 takes you to the versions list for P00111.

   - Copy version XJDE0001 and give it the same name and title as in Step 2a for continuity purposes.

   - On the Additional Parameters screen:
     - Enter the input file name in the Based on file field.
     - Press Enter.
     - Press F12 to return to the Additional Parameters screen and make sure the format name is the one from the DSPFD command in the preparation step.
     - Press Enter.

   - Processing option 1 needs the version of P00120 from step 2 so it can find the right crossover rule records in the F0031.

   - For options 2, 3, and 4, enter the appropriate file and library names.

   - Option 5 is usually set to 1 to clear the file so just the records from the latest conversion will be there.

   - Option 6 is usually blank.

   - Leave the data selection and sequencing screens alone. They are used for the OPNQRYF statement. Since we want to use the full file, they don't apply.

2. From the versions list, run your version.

   - There should be a R00111 in the spool files. At the bottom it will tell you how many records were read and written.

   - Do a DSPPFM on the "to" file to see if the mapping is correct. In order to see all the data, you may want to do F10 followed by F11 to see the hexadecimal representation of the data in an over/under presentation. There will be an "F" or "D" sign in the bottom row at the right hand end of a packed field. Read that data by reading backwards from the sign in an up and down manner.

D.2.1 Trouble Shooting

Steps to consider

Ensure that you did perform the following:

1. Set up and run step 2 on the menu 9841(P00120).

   ■ You should not change anything on the DW additional parameters.

   ■ You must enter the file and library names in the Proc Opt.

2. Map only the fields they want in the FROM and TO files on the crossover rules screen. **FILLER fields will be ignored and the fields will be created empty, either blanks or zeros.

3. Enter the correct format name for the based-on file(FROM) in the Additional parameters screen of the P00111 DW.

   ■ Check this with DSPFD of based-on file.

4. Try changing the file output type for P00111 from 1 to 2 or from 2 back to 1.

   > **Note:** Sometimes LF works, sometimes OPNQYF.

5. Check the output file with a DSPPFM to see if there are any records created.

Factors to consider

1. Current JD Edwards World release level

2. Additional factors for each step

   ■ If Step 1: Check the Additional Parameters for the Based On File to be *NONE and format INONE.

   ■ If Step 2: Check if the you ran the Dream Writer in Step 1 to ensure you are setting the action code to C when changing cross over rules.

   ■ If Step 3: Are you getting any records in the To file?

     – Yes: Check the cross over rules.

     – No: Use DSPFD on the from file to identify the format ID and verify the correct format is in the additional parameters of the conversion Dream Writer (P00111).

   > **Note:** If you are on release A7.1 or above and using *DFT in the cross over rules, you needs a paper fix.

   ■ After making any changes to steps 2 or 3, rerun the conversion.

Additional items to consider

■ The all time leader in UFC errors is an incorrect format name for the Based on (input) file on the Additional Parameters screen for P00111. Do a DSPFD on the From file and go to the bottom of the display to determine the format. Option 3 from G9841.

- Do not change anything in the additional parameters screen on the P00120 form. After entering the file names and libraries in the Processing options, you need to run the Dream Writer version. Option 1 from G9841.

- Problems writing to output file (in P00111) may be because of duplicate keys. Check if the To file has a logical attached that has a unique key and verify the user is not populating that field with blanks.

- File output type in P00111 Dream Writer additional parameters should be a 2 for logical: for some JD Edwards World file to JD Edwards World file conversions (DDS files), a 1 for OPNQRYF is necessary.

- There are many conversion rules in UFC to cover most situations, try them first before using custom Xxxxx programs.

- Use F6 to pull up full information about both fields on the Cross Over Rules screen.

- Use reference field in the fold area of cross over for those conversion rule entries that refer to the Data Dictionary.

- You need only map the fields that you are concerned with. If some fields are not being initialized correctly to *ZEROES or *BLANKS, you might have to find a one byte field of the right persuasion and move it into that field (longer length will be accommodated) or use *DFT.

- The UFC does a character at a time move of the data from the input file data location into the output file data location. For this reason it is not suited to large, repeated data transfers. It is suited to one time data file conversions or small scale frequent data import situations.

- When using *DFT if the literal is over 6 positions then part it out as if dealing with two fields.

- When having problems with going from zoned or signed to a packed field, call it alpha to packed forcing UFC to go through the C0012 to edit the data.

- When having problems with going from packed to alpha, try packed to signed.

- When having problems with alpha to signed, try alpha to alpha.

- *If all looks correct, check for multiple F0031 files, you may be executing out of the wrong cross over rules.

- If you get a duplicate key message in the joblog, it is because there is a unique key on the physical or logical. You may not be populating one of the fields in the key and this may create the problem.

- Set most of the FROM fields to type A for alpha.

  - Numeric TO fields can be P for packed or S for signed.

- Sometimes P00111 will have problems with the input file.

  - On the Add'l parameters screen, if the file output type is 1, change it to 2 and vice versa.

- Make sure the P00111 based-on file and format names are correct. See Step 4(b).

- There may be just one record in the "to file" and a message in the Joblog about a duplicate record.

  - Do a DSPFD on the file and its logicals to see which one has the "unique" key requirement. You will need to map data to each of the key fields. If there is no

matching data, maybe a *NN conversion rule will have to be attached to one of the key fields as a tie breaker.

E

Dates

This chapter contains these topics:

E.1 About Date Programs

JD Edwards World uses four key RPG programs to work with dates in the system.

- X0027 is used to calculate a new date from a reference date.

- X0028 is the primary date formatting program which converts dates from Julian to Gregorian or Gregorian to Julian.

- X0035 determines the difference in days between two dates or can calculate the second date given one date and the difference in days

- X98DAY determines the day of the week and the day and month names for a given date.

E.1.1 Date Formats

Julian Format

The JD Edwards World Julian (*JUL) format is CYYDDD where:

- C is the value added to 19 to create the century (0=>19, 1=>20).

- YY is the year within the century.

- DDD is the day in the year which can range from 001 to 731(next year).

For Example:

- 098185 is July 4, 1998

- 100001 is Jan 1, 2000

- 099666 is Oct 27, 2000

Gregorian Formats

The JD Edwards World Gregorian formats are *MDY, *DMY, and *YMD where:

- M represents the 2 character month

- D represents the 2 character day

- Y represents the 2 or 4 character year

> **Note:** Edited means punctuation such as: 12/31/98, 22.11.45, or 2000-01-01.

E.2 X0027

X0027 is an RPG program the system uses to calculate a new date from a reference date including *TODAY. The interval can be + or -, the unit can be *DAY, *WEEK, *MONTH, or *YEAR.

The information here is intended to cover the usual usage of this program. The source code has samples and more documentation. Specifically, *FORMULA is used to pass a string like "*TODAY + 1".

E.2.1 Using X0027

The reference date must be scrubbed (usually copy module C0012) before being passed to X0027. X0027 calls x0028 which uses the Data Dictionary item #CYR to establish the last year of the floating 100-year business window. See the X0028.

#CYR DD default	Digits entered = (*MDY)	Julian date = CYYDDD	IBM QRY = (no leading 0's)
10	01/01/10	110001 (2010)	110,001
10	12/31/11	011365 (1911)	11,365
30	07/29/55	055241 (1955)	55,241
60	07/29/55	155241 (2055)	155,241
98	09/14/98	198257 (2098)!	198,257
97	09/14/98	098257 (1998)	98,257

E.2.2 Parameters

The parameters to pass to X0027 are ALL type Alpha. If the calling program is written in CL, be sure the variables are *CHAR.

The first parameter will accept a 4 digit year, for example 01011999(MMDDCCYY).

You must pass the first 8 parameters. If you want the day of the week and that day name, pass 10 parameters.

Parameter	Description
$SIDAT	$SIDAT is a 25 character field which can be any format as long as it agrees with the From format. To fetch today's date use *TODAY (+/- optional) and use *FORMULA in $FFMT.
$CENT	$CENT is a 2 character field which should be sent blank.
$FFMT	$FFMT is an 8 character field describing the FROM format. The usual values will be *JUL, *MDY, *DMY, *YMD, *SYSVAL or *FORMULA. See the program code for other allowed values.

Parameter	Description
$OFSET	$OFSET is the 6 character number (+/-) of the units you have chosen in parameter 5.
$INTVL	$INTVL is the 8 character calendar unit used to calculate the number of days. The usual values are *DAY, *WEEK, *MONTH or *YEAR. See the program code for other allowed values.
$SODAT	$SODAT is a 6 character field which will contain the output date. This date will need to be passed to X0028 for any editing. It should be sent blank.
$TFMT	$TFMT is an 8 character field describing the TO format. The usual values will be *JUL, *MDY, *DMY, *YMD, or *SYSVAL. See the program code for other allowed values.
RTNCDE	RTNCDE is a single character error code. A '1' will be placed in this in this field if X0027 receives an invalid parameter. Your program should check this field right after the call to X0027.
$DAY# (Optional)	$DAY# is a one character field for the day name, 1 = Sunday, 2 = Monday, and so on.
DAY (Optional)	DAY is a ten character field which, if it is sent, will have the day name loaded.

E.3 X0028

X0028 is the primary JD Edwards World date formatting program. Briefly, it is an RPG program which converts dates from Julian to Gregorian or Gregorian to Julian. It will do some editing, but that is not its purpose. This program will NOT convert edited dates to unedited.

E.3.1 Using X0028

The edited date must be scrubbed (usually copy module C0012) before being passed to X0028. The Data Dictionary item that X0028 uses is #CYR. It establishes the last year of the floating 100-year business window.

#CYR DD default	Digits entered = (*MDY)	Julian date = CYYDDD	IBM QRY = (no leading 0's)
10	01/01/10	110001 (2010)	110,001
10	12/31/11	011365 (1911)	11,365
30	07/29/55	055241 (1955)	55,241
60	07/29/55	155241 (2055)	155,241
98	09/14/98	198257 (2098)!	198,257
97	09/14/98	098257 (1998)	98,257

If the 2 digits for the year are less than or equal to #CYR, a 1 will be placed in the Julian century field so that when it is added to 19, a century of 20 will result.

> **Caution:** Setting #CYR to 60 so that your business will go from 1961 to 2060 means entering a date of birth for 07/29/55 will be converted to 2055. Setting #CYR to 98 means you have a range from 1999 to 2098. Think about it!

In the prior paragraph, the stored Julian values were shown. Once the data has been stored in the file, no comparison or decision is necessary. The value of the century digit is added to 19 and the rest of the data will be used to compute the day and month. Remember, when displaying a file with QRY, the leading zero will not be displayed. DSPPFM will show you all the digits.

E.3.2 Parameters

The parameters to pass to X0028 are ALL type Alpha. If the calling program is written in CL, be sure the variables are *CHAR.

If you do not need 4 position years, pass the first 6 parameters. If you need a 4 position year, pass all 10 or 11 parameters.

Parameter	Description
$SIDAT	$SIDAT is a 6 character field which can be any format as long as it agrees with the From format field and has only digits from 0-9 or is all zeros. X0028 moves the converted unedited date back into this field.
#EDAT	#EDAT is the 8 character edited field. It has two extra positions to allow for the #SEP characters inserted by X0028. It will have the format specified by #TFMT. X0028 blanks this field upon receipt.
#FFMT	#FFMT is a 7 character field describing the FROM format. It can be *SYSVAL, *JUL, *MDY, *DMY, or *YMD.
#TFMT	#TFMT a 7 character field describing the TO format. It can be *SYSVAL, *JUL, *MDY, *DMY, or *YMD.
#SEP	#SEP is a 7 character field for the separator character to be used in editing the date. It can be *SYSVAL, *NONE, blank or a single editing character like '-', '/' or '.'.
$ERTST	$ERTST is a single character error code. A '1' will be placed in this in this field if X0028 receives an invalid date or invalid data. Your program should check this field right after the call to X0028.
$CTRY (Optional)	$CTRY is a two character field which will contain the century, 19 or 20. It should be sent with blanks.
#FJPN (Optional)	#FJPN is a one character field used for Japanese Era dates.
#TJPN (Optional)	#TJPN is a one character field used for Japanese Era dates.
#EDAT2	#EDAT2 is a 10 character field used for edited dates with 4 digits for the year. You MUST use this parameter if you want a 4 digit year date. It has two extra positions to allow for the #SEP characters inserted by X0028. It will have the format specified by #TFMT.

Parameter	Description
#SIDT2	#SIDT2 is an optional 8 character field intended for use with 4 digit year dates. It can be any format as long as it agrees with the From format field and has only digits from 0-9. If this parameter is used and the from format is Julian, the Julian date needs to be loaded here with 2 leading zeros and #SIDAT should be loaded with zeros. X0028 moves the converted unedited date back into this field as well as #SIDAT.

E.4 X0035

X0035 is an RPG program which determines the difference in days between two dates or can calculate the second date given one date and the difference in days. It uses X0028 for date conversion.

E.4.1 Using X0035

The Data Dictionary item that X0028 uses is #CYR. It establishes the last year of the floating 100-year business window. See X0028.

E.4.2 Parameters

The parameters to pass to X0035 are ALL type Alpha. If the calling program is written in CL, be sure the variables are *CHAR.

Parameter	Description
#SIDA1	#SIDA1 is a 6 character date field which can be any format as long as it agrees with the #SIFM1 format and has only digits from 0-9. It can be sent as blanks if a reverse date is to be calculated from #SIDA2.
#SIDA2	#SIDA2 is a 6 character date field which can be any format as long as it agrees with the #SIFM2 format and has only digits from 0-9. It can be sent as blanks if a forward date is to be calculated from #SIDA1.
#SIFM1	#SIFM1 is a 7 character field describing the #SIDA1 format. It can be *SYSVAL, *JUL, *MDY, *DMY, or *YMD.
#SIFM2	#SIFM2 is a 7 character field describing the #SIDA2 format. It can be *SYSVAL, *JUL, *MDY, *DMY, or *YMD.
#SITYE	#SITYE is a one-character field which is used when calculating the difference in days between two dates. It is usually sent blank. If the difference between two dates is to be calculated, a blank means one date is subtracted from the other. If this field is a 1, a 1 is added to the difference so that the beginning and ending date are included in the count. If this field is a 2, a 1 is subtracted from the difference which means neither date will be included in the count.
$ERTST	$ERTST is a one character field which should be sent blank. It will contain a 1 if two blank dates are sent, an invalid format is sent, or X0028 finds a problem with either date.
$#X	$#X is a 9 character field which contains the number of day difference to be calculated between #SIDA1 and #SIDA2. If #SIDA1 is blank, the reverse date will be placed in #SIDA1. If #SIDA2 is blank, the future date will be placed in #SIDA2.
#SICT1 (Optional)	#SICT1 is a 2 character century field for #SIDA1.

Parameter	Description
#SICT2 (Optional)	#SICT2 is a 2 character century field for #SIDA2.

E.5 X98DAY

X98DAY is an RPG program which determines the day of the week and the day and month names for a given date. It uses X0028 for date conversion.

E.5.1 Using X98DAY

The Data Dictionary item that X0028 uses is #CYR. It establishes the last year of the floating 100-year business window. See the User's Guide for X0028.

> **Note:** X98DAY only works inside this 100-year window.

E.5.2 Parameters

The parameters to pass to X0035 are ALL type Alpha. If the calling program is written in CL, be sure the variables are *CHAR.

Parameter	Description
#SIDAT	#SIDAT is a 6 character field which can be any format as long as it agrees with the From format field and has only digits from 0-9.
#SIFMT	#SIFMT is a 7 character field describing the FROM format. It can be *SYSVAL, *JUL, *MDY, *DMY, or *YMD.
#SIDAY	#SIDAY is a 29 character field which will contain the converted day name, month name, day and year. If an 'A' is sent in this field, the month and day abbreviations will be used for a maximum size of 17 characters.
#SNDAY	#SNDAY is a one character field which will contain the number for the day of the week, 1 = Sunday, 7 = Saturday.
#SOFMT	#SOFMT is a 16 character field which is used to send an override output format. The edit codes are MM, DD, YY, YYYY, AM and AD where AM and AD are the abbreviated month and day names. The entries can be separated by comma, :, ., /, or a blank.

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