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ACR/Detail

User Guide

For IBM i



Notices



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Contents

Chapter 1 Introduction

About the User Guide	7
About ACR/Detail.....	8
Processing Flow	9
Major Components	9
Contacting Customer Support	11

Chapter 2 Preparing to Use ACR/Detail

Implementing ACR/Detail	13
Starting ACR/Detail.....	13
Using the User Interface.....	14
Maintaining ACR/Detail Definitions.....	18
Setting the User Options	22
Analyzing Your Reconciliation Needs.....	28

Chapter 3 Entering Basic Job Information

What is a Reconciliation Job?	31
What Is a Reconciliation Key?.....	31
Types of Job Definitions	33
Navigating the Basic Job Information List	34
Entering Basic Job Information.....	35
Setting Up Report Distribution	51
Setting the Print Options.....	51
Constraints for Single- and Double-Precision Numbers	55
Adding Job or File Comments	55
Sort Reconciliation Keys.....	57

Chapter 4 Creating Job Definitions

Understanding Internal Items and Extended Internal Items	59
Defining Internal Items.....	61

	Defining Extended Internal Items	65
	Defining Extraction Variables.....	68
	Defining History Items	76
	Defining Calculated Items.....	84
	Defining Rules	92
	Defining Messages	108
Chapter 5	Multi-Level Reconciliation and Suspense Processing	
	Setting Up Multi-level Reconciliation Jobs.....	113
	Using Suspense Processing.....	116
Chapter 6	Creating File Definitions	
	Specifying Input Source Files for Your Job.....	122
	Defining Basic File Information.....	126
	Understanding Selection Groups.....	134
	Selecting an Access Mode	136
	Understanding Access Modes	137
	Creating File Definitions	143
	Date and Cycle Number Extraction and Processing	181
	Time Extraction and Processing.....	184
	Extracting Directly from a Delimited Data File	186
	Using Extraction Programs.....	187
	Understanding Field Formats	189
Chapter 7	Setting Up Report Options	
	Reports Main Menu	191
	Defining Output Files	203
	Running a Reconciliation Job	203
	Interpreting the Reconciliation Reports	205
Chapter 8	Creating Free-Form Reports	
	What is a Free-Form Report?.....	217
	Planning a Free-Form Report.....	217

Creating a Free-Form Report	218
Completing the Free-Form Report Screens	219
Setting the Justification Options	241
Editing the Report.....	242
Setting the Print Option	246
Setting the XML Option.....	247
Viewing and Printing the Report	248
Chapter 9 Creating User Reports	
Setting Up a User Report	249
User Report List Screen	250
Basic User Report Information Screen	251
User Report Screen.....	253
Creating a User Report Function.....	254
Chapter 10 Using Translation Tables	
Translation Table Processing.....	263
Internal Vs. External Translation Tables	264
Creating External Translation Tables.....	268
External Translation Table Trace Report	302
Creating Internal Translation Tables	309
Incorporating an Internal or External Translation Table into a Reconciliation Job	312
Maintaining Translation Table Definitions	315
Chapter 11 Creating Output Files	
Information You Can Include in an Output File	317
Completing the Basic Output File Information Screen.....	318
Specifying Column Information.....	320
Creating and Running the Output File Program	323
Sample Output File Layout.....	325
Example of an Output File	325

Chapter 12 Using the Extraction Program Interface

How EPI Works 327
EPI Processing Diagram 329
Information Related to EPI Call Statements 331
Sample CL for EPI 335
Steps for Using EPI 335
Sample Program for EPI Training 339

Chapter 13 Using the Utilities

Accessing and Running the Utilities 343
Database Report Utilities (URPT)..... 345
Database Update Utilities (UUPD) 365
Date Conversion (UDAT)..... 381
Time Conversion (UTIM) 381

Appendix A Batch Definition Transactions

What Is a Batch Definition Transaction?..... 383
Format of Batch Definition Transaction Records 384
Updating the Definition Database 387
Purging Definitions 388

Glossary 389

Index 399

Introduction

This chapter provides an introduction to ACR/Detail. It contains the following sections:

- “About the User Guide” on page 7
- “About ACR/Detail” on page 8
- “Processing Flow” on page 9
- “Major Components” on page 9
- “Contacting Customer Support” on page 11

About the User Guide

This guide provides instructions for ACR/Detail for IBM i. Following is a description of the components of this guide:

- Remainder of this chapter—An overview of ACR/Detail including a description of the processing flow, major components, and information for contacting customer support.
- Chapter 2, “Preparing to Use ACR/Detail” shows you how to start the product and explains the user interface, how to maintain definitions for jobs and files, how to set the user options, and how to analyze your reconciliation needs.
- Chapter 3, “Entering Basic Job Information” explains reconciliation jobs and keys, types of job definitions, entering basic job information, setting up report distribution, setting print options, and adding job or file comments.
- Chapter 4, “Creating Job Definitions” describes defining internal and extended internal items, extraction variables, history items, calculated items, rules, and messages.
- Chapter 5, “Multi-Level Reconciliation and Suspense Processing” shows how to reconcile extracted data at multiple reconciliation key levels, and how to use the history database to track ongoing out-of-balance conditions.
- Chapter 6, “Creating File Definitions” shows you how to define the input source files for your job.

- Chapter 7, “Setting Up Report Options” explains the different report options, how to define output files, run a reconciliation job, and interpret reports.
- Chapter 8, “Creating Free-Form Reports” shows you how to set up and print a custom report on the results of a reconciliation job.
- Chapter 9, “Creating User Reports” explains how to create a user-defined column report.
- Chapter 10, “Using Translation Tables” explains the kinds of translation tables you can use to change the content and format of extracted data before using it in reconciliation.
- Chapter 11, “Creating Output Files” explains a feature that can write results from a reconciliation job to a DB2/400 file to be used as input to ACR/Detail or other applications.
- Chapter 12, “Using the Extraction Program Interface” describes the Extraction Program Interface (EPI), which is typically used by programmers to quickly reconcile data files containing millions of records.
- Chapter 13, “Using the Utilities” shows you how to use the utilities for reporting on your databases, extracting history records, and other purposes.
- Appendix A, “Batch Definition Transactions” describes the format and use of the batch definition transactions.

An glossary and index are also included.

Other Documentation

Installation and implementation information can be found in the *ACR/Detail and ACR/Detail Installation Guide for IBM i*.

About ACR/Detail

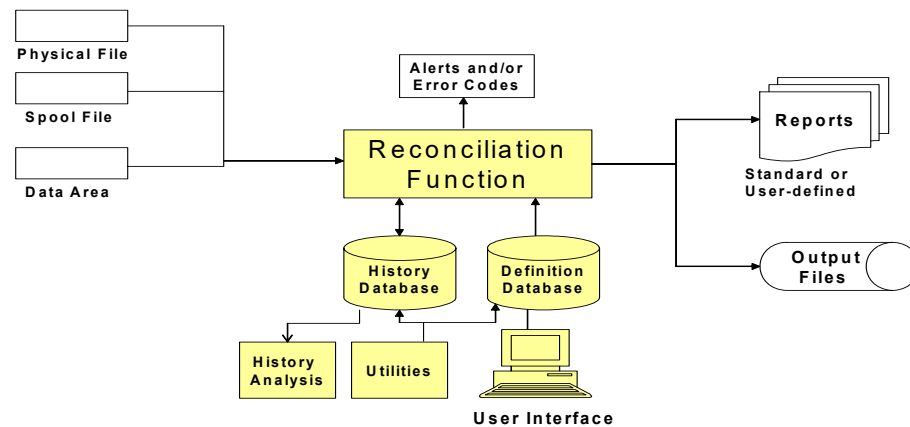
ACR/Detail is an information reconciliation solution that automatically compares data values across files, databases, applications, and reports. It compares detail-level information such as field values and transactions to identify errors before they affect downstream applications. Its features include the following:

- Detail-level reconciliation to validate records and field values across business applications and processes.

- Multi-level reconciliation to compare information at multiple levels of detail to detect errors at the appropriate level of granularity

Processing Flow

The following figure shows an overview of processing. The yellow shapes in the center represent the major system components, which are described in the next section.



Major Components

User Interface

The user interface consists of menus, data entry screens, selection lists, and help screens. The menus present a list of options that provide access to the appropriate screen. Data entry screens display a number of labeled fields in which definitions, control values, and other kinds of information may be entered. Selection lists, which display lines of similar items, permit you to select individual items for viewing, modifying, or copying. Help is available from any screen to clarify messages you receive or to assist you.

Definition Database

The definition database is a key-sequenced physical file containing various types of ACR/Detail definitions, including job definitions, file definitions, and table definitions. The definitions are created through the user interface and contain the parameters specifying the reconciliation requirements.

History Database

The history database is a physical file containing the actual values and reconciliation results from having applied those parameters. If you specify that a job stores history, each time the reconciliation job is completed, the results are stored in the history database as a history record. Each history record contains a job ID, cycle ID, and the control value extracted for each internal or extended internal item. Data from history records can be used in a later run of the same reconciliation job or in another job.

Maintaining the Databases

Use the [“Using the Utilities” on page 343](#) to maintain your databases.

Reconciliation Function

Reconciliation is the process of verifying user-identified data according to user-defined rules. The reconciliation function is the program that is executed from within your application job stream that extracts the data to be reconciled from your input source files and performs the reconciliation.

In a typical batch processing job stream, an application consists of one or more jobs, and each of these job is made up of one or more job steps. At any point along this job stream you can insert a reconciliation step that will execute ACR/Detail, which invokes the reconciliation function.

Utilities

The utilities of ACR/Detail (illustrated below) perform many important functions. For example, various utilities can be used to selectively list or update the contents of either the definition database or the history database, cross-reference the definitions, print management summaries of history records, or expand and reorganize the file.

To find out more about the ACR/Detail Utilities, see [“Using the Utilities” on page 343](#).

Contacting Customer Support

If you need assistance, contact Infogix Customer Support.

Support Phone: +1.630.505.1890

Support Email: support@infogix.com

Support Website: <http://support.infogix.com>

Fax Number: +1.630.505.1883

Visit our Website: www.infogix.com

1 ■ Introduction

Contacting Customer Support

Preparing to Use ACR/Detail

This chapter provides the procedures and interface information you will need to get ready to use ACR/Detail. It contains the following sections:

- “Implementing ACR/Detail” on page 13
- “Starting ACR/Detail” on page 13
- “Using the User Interface” on page 14
- “Maintaining ACR/Detail Definitions” on page 18
- “Setting the User Options” on page 22
- “Analyzing Your Reconciliation Needs” on page 28

Implementing ACR/Detail

Instructions for setting up the ACR/Detail environment are provided in the *ACR/Detail Installation Guide*. These include instructions for the following procedures:

- Creating the user and production environments.
- Setting up user library lists.
- Assigning privileges to users.
- Test and production databases.

Starting ACR/Detail

1. Log on to the IBM i.
2. Set your library list. It should be similar to the following:

```
QGPL
QTEMP
*****
User or Production Library
*****
DETAILPC
DETAIL
```

2 ■ Preparing to Use ACR/Detail

Using the User Interface

Notice the following:

- QTEMP should be above DETAILPC and DETAIL.
- The user or production library should be anywhere above DETAILPC.
- DETAIL should be last.

For site-specific information, see your IBM i administrator.

3. On the IBM i command line, Enter ACRD and press Enter to display the Main Menu.

Using the User Interface

The user interface screens consists of menus, data entry screens, selection lists, and help screens.

Screen Components

Most screens share the common components described below.

```
mm/dd/yy 12:00:00          Job Definitions          ACR/D releasnumber
JINT                      Internal Items          Create

Job/Step: SAMPLE      STEP1      Qualifier:          F4 for list

Item Characteristics
Name:                  _____
Description:           _____

Print Format:          _      1=Amount, 2=Count, 3=Date, 4=Text
Print Decimals:       0      0-9
Print Commas:         1      1=Default, 2=Print, 3=Do not print
Print Location:       2      1=Right, 2=Left
Calculated Item Name: _____
Required Items:       1      1=Not Required, 2=Required, 3=May Skip

Next Screen _____

F3=Save/Exit  F5=Menu  F12=Cancel
```

- **Screen Title.** In the example above, the title is Internal Items.
- **Release/Version Number.** The release/version number in the right corner identifies the specific release and version you are using. You need to know the release and version number of your software when calling Customer Support. For example, R35V1M00 indicates that you are using software Release 3, Version 1, Modification 0, Patch 0. Screens in this manual use *releasnumber* to represent the release number.

- **Fields.** Input fields (underlined) are used to enter information. Protected fields display information.
- **Screen Mode.** This information in the upper right corner is the active mode for the current screen. Modes include update, delete, copy, and add.
- **Next Screen.** At the bottom of the screen, you can enter the acronym of the next screen you want to use. You can move around using the menus or by completing this field.
- **Screen Footer.** The last line of the screen shows the function keys available on that screen. On the Selection list screen, this information appears on the fourth line under the instruction line.

Screen Types

The user interface consists of the types of screens described below.

Menus

Menus present a list of options. To make a selection, enter either an option number or a screen acronym and press Enter.

Data Entry Screens

Data entry screens display labeled fields in which information is displayed or may be entered. Pressing Enter will process the information you enter. The database will be updated immediately.

The Internal Items screen shown in [“Screen Components” on page 14](#) is a data entry screen.

Some data entry screens may prompt you for the job information necessary to run the job. After you have entered the requested information and pressed Enter, ACR/Detail will place the job in the job queue. If F20 is pressed, the job will run online.

2 ■ Preparing to Use ACR/Detail

Using the User Interface

List Screens

List screens display a list of similar items, permitting you to select individual items for viewing, modifying, or copying. For example, the Internal Items Selection list screen shown below shows all the Internal Items currently defined by a Job ID. List screens allow copy, delete, rename or update functions. Enter the desired function and a detail screen will be displayed allowing you to update data.

```
mm/dd/yy 12:00:00          Job Definitions          ACR/D releasenumbr
JINT                        Internal Items

Options:  2=Update  3=Copy  4=Delete  7=Rename

Opt   Job           Step   Qual Item Name  Item Description
___  ACCESS6        NEWTEST  I001  DETAIL AMTS.
___  ACCESS6        NEWTEST  I002  TOTAL
___  ACCESS7        NEWTEST  I001  DETAIL AMTS.
___  ACCESS7        NEWTEST  I002  TOTAL
___  AMODE7         EXTVARII I001  ENDB-SUM-SUM VALUES
___  AMODE7         EXTVARII I002  EV1-ENDB-SUM-SUM VALUES
___  AMODE7         EXTVARII I003  ENDB-SUM-RETAIN F NONZERO
___  AMODE7         EXTVARII I004  EV1-ENDB-SUM-RETAIN F NONZERO
___  AMODE7         EXTVARII I005  ENDB-SUM-RETAIN THE LAST
___  AMODE7         EXTVARII I006  EV1-ENDB-SUM-RETAIN THE LAST
___  AMODE7         EXTVARII I007  ENDB-SUM-SUM VALUES;REPLACE HX
___  AMODE7         EXTVARII I008  EV1-ENDB-SUM-SUM VALUES; REPLACE HX
___  AMODE7         EXTVARII I009  ENDB-SUM-VALUE NE HX          +

Job/Step _____
Next Screen _____

F3=Exit  F6=Create  F12=Cancel
```

Entering data on the entry line at the bottom and pressing F11 allows repositioning of the screen to show the desired job.

Help Screens

Press the Help key for help in using the product. Help screens contain useful information concerning the use of that particular interface screen and the valid values for the screen's fields. By pressing the Help key after a screen message appears, more information about that message is displayed.

Authorizing Use of Command Line and Online Processing

If you are not authorized for the command line feature, if you try to enter an IBM i command, the message SCREEN NAME ENTERED DOES NOT EXIST will be displayed. If you are not authorized to run online, F20=Run Online is not displayed on the screens from which you could otherwise execute online processing.

If this is the case, providing you have authority to authorize yourself for these functions, you can do the following (otherwise you need to see your system administrator):

1. From the Main Menu, select **Environment Setup > Authorize Optional User Functions**. The Optional User Functions Screen (EAUT) screen displays. This screen lists active users along with their current authorization for the two features being controlled.

mm/dd/yy 12:00:00	Authorize	ACR/D releasenumbr
EAUT	Optional User Functions	
<u>User ID</u>	<u>Activate Commands</u>	<u>Run Online</u>
USERA	<u>Y</u>	<u>Y</u>
Position to _____		New Screen _____
F3=Exit		

2. To change authority, simply enter the valid value (Y—authorized, N—not authorized).
3. Press Enter, then press F3 to exit.
4. Exit the product.
5. Re-enter the product. The new authority will be active.

Navigation Conventions

To avoid unnecessary detail, the > symbol will be used to abbreviate navigational information. For example:

From the Main Menu, select **Definitions > Rules** to display the Reconciliation Rules list Screen.

Maintaining ACR/Detail Definitions

Types of Definitions You Can Maintain

File definitions you can maintain:

- Basic file information
- Selection groups
- Individual file definitions (select, key, reformat, and detail value definitions)

Job definitions you can maintain:

- Basic job information
- Internal items
- Extended internal items
- Extraction variables
- History items
- Calculated items
- Rules
- Messages
- Output files

Report definitions you can maintain:

- User Report information
- Free-Form Report information

Basic Instructions for Maintaining Job or File Definitions

The basic process for maintaining job or file definitions or basic (job or file) information is described below.

1. Display the list screen for the job, file, user report, or basic (job or file) information.

2. Enter a function number, such as 2 (Update), 3 (Copy), 4 (Delete), or 7 (Renumber).

Note:

- Before you delete an internal, history, or calculated item, you should delete the item from any other definitions that use it (such as rules, calculated items, or detail value definitions). Definitions that reference deleted items cannot be accessed for updating and will not work in a reconciliation job.
- To rename a rule or item, you must use the Rename function, not the Update function.

3. A screen will appear for the function you specified for the job, file, user report, or individual definition you selected.
4. Complete or cancel the function.

Maintaining a Set of Job Definitions or Basic Job Information

1. On the Basic (Job) Information list screen, enter a function number next to a Job ID. Based on the function you specified, the Move Job Definitions screen or the Basic Job Information update, copy, or delete screen appears.
2. Do one of the following:
 - If you selected 2 (Update), update the basic job information on the screen. Press Enter and then F3 to edit check, save, and exit.
 - If you selected 3 (Copy), enter a new Job ID that will be automatically substituted in the Job ID fields of the copied definitions. Press Enter and then F3 to edit check, save, and exit.
 - If you selected 4=Delete, press F23 to delete all of the job definitions for the Job ID shown on the screen.
 - If you selected 11=Move, complete the information on the move screen (see "[Completing the Move Job Definitions Screen](#)" below.) Press Enter and then F3 to edit check, save, and exit.

2 ■ Preparing to Use ACR/Detail

Maintaining ACR/Detail Definitions

Completing the Move Job Definitions Screen

mm/dd/yy	12:00:00	Job Definitions	ACR/D	releasenumbr
JBAS		Move Job Definitions		Move
Job/Step:	STATEMENT	STATEMENT		
FROM Library:	SAMPLELIB			
TO Library:	_____			
Should attached File IDs be moved:	<u>1</u>	1=Yes, 2=No		
Remove definitions from FROM Library:	<u>1</u>	1=Yes, 2=No		
F3=Save/Exit F12=Cancel				

Job/Step. The job and step whose definitions will be moved.

FROM Library. The current location of the definitions.

TO Library. Enter the name of the library to which the definitions will be moved. It must already exist.

Should attached File IDs be moved. Enter 1 to move the associated file definitions. If you choose to move the file definitions, any associated translation table definitions are also moved.

Remove definitions from FROM Library. Enter Y to delete the original definitions except for the translation tables. If you enter N, you will be doing a copy.

Maintaining File Definitions

Changing Only the Basic File Information

If you would like to change the basic information for a file, use the Update function on the Basic File Information list screen. Note, however, that you cannot change the file's type—that is, spooled, physical file, or data area.

Copying or Deleting a Set of File Definitions

From the Basic File Information list screen, you can copy or delete all of the file definitions.

If you copy file definitions, the Basic File Information copy screen will appear. Enter a new File ID that will automatically be substituted in the File ID fields of the copied definitions.

When you copy all of the file definitions for a file, the copied definitions will be of the same file type: spooled, physical file, or data area.

Copying, Deleting, or Renumbering Selection Groups

When you copy or delete a selection group, all of its select, reformat, key, and detail definitions are copied or deleted. You can copy selection groups within a file, but not from one file to another.

Procedure for copying, deleting, or renumbering a selection group:

1. On the Basic File Information list screen, enter 12= Work with next to a File ID. The Selection Group Processing list for the file appears.
2. Enter a function number next to a selection group number. The copy, delete, or renumber window will appear.
3. Do one of the following:
 - If you selected copy, or renumber, accept the group number suggested on the window or change it. (When you copy or renumber a selection group, the window suggests a New Group Number. You can accept this number or change it, providing a selection group with that number does not already exist for the current file.)
 - If you selected delete, press F23 to delete the selection group number shown on the window.

Maintaining Individual File Definitions

Procedure:

1. From the Basic File Information list screen, enter 12 (Work with) next to the appropriate file ID.
2. From the Selection Group Processing list screen, enter 12 (Work with) next to the selection group that contains the definitions you want to modify. The Individual Selection Group Processing list will appear.

You can copy individual file definitions within the current file, but not from one file to another.

Copying within a Selection Group

To copy a definition and place the copy in the current selection group, change the select, reformat, key, or detail number of the copy to a number that does not already exist within the current selection group.

2 ■ Preparing to Use ACR/Detail

Setting the User Options

Copying to a Different Selection Group

To assign a copy to a different selection group, change the copy's selection group number to the number of a selection group that already exists. If necessary, also change its (select, reformat, key, or detail) item number. You cannot delete the only select definition within a selection group. If you delete a detail value, you should delete the corresponding internal item, if one exists.

Maintaining Translation Table Definitions

To update, copy, and delete translation table items, from the Translation Table list, choose a translation table item or items and the function you want to perform.

Updating Translation Tables

The update function enables you to change the input and output values for a translation table item.

Copying Translation Tables

The copy function duplicates translation table items and allows you to change Table IDs, input, and output values on the copies. You can use the copy function to avoid retyping the Table ID. You can also use the copy function to create a new table with entries similar to those of an existing table. Mark all of the translation table items you want to copy, and press Enter. The translation table items will be copied one by one.

Setting the User Options

User options enable you to control how currency amounts, negative numbers, and dates appear on reports, and which output and job queues are listed as defaults on job submission screens.

Because user options are applied globally throughout the environment, you should discuss and agree on any changes with other users of the environment before making them.

User Options Entry Screen

User options are modified using the User Options Entry screen. To display the screen, select **Environment Setup > User Option Entry**.

yyyy/mmd/dd 13:24:33	User Options	ACR/D releasenumbr	
UOPT	Entry Screen		
Currency Options:			
Currency Info Provided	N	Date Options:	
Thousands Place Marker	_	Date Info Provided	Y
Decimal Marker	_	Date Output Format	YMD
Currency Symbol	_____	Date Separator	/
Second Currency Symbol	_____	Date Zero Suppress	N
Currency Symbol Loc	___	Century Indicator	Y
Currency Symbol Length	___	Time Separator	:
Currency Padding Length	___	Other Options:	
Negative Sign Options:		AS400 Options	_
Negative Sign	_____	Global Processing Options	_
Second Negative Sign	_____	XML Options	_
Negative Sign Location	4	Commas in count fields	_
Negative Sign Length	1	Commas in amount field	_
Negative Sign Pad Length	___	22-char numeric format	_
		Init Text items to spaces	_
F3=Save/Exit F12=Cancel			

See the following sections for information on each option:

Currency Options

Currency Information Provided. Enter Y unless you want to use the defaults for all currency options.

Thousands Place Marker. A symbol to serve as the thousands place indicator. This character will separate every set of 3 digits to the left of the decimal point. Any character is allowed. The default is a comma.

Decimal Marker. A character to serve as the decimal place marker. The default is a period.

Currency Symbol. Any string of up to 6 characters to indicate the type of currency. The default is a dollar sign (\$).

Second Currency Symbol. Any string of up to 6 characters to indicate a second currency symbol. Prints to the right of the amount when Currency Symbol Loc = Both before and after amount.

2 ■ Preparing to Use ACR/Detail

Setting the User Options

Currency Symbol Loc. Specifies the location of the currency symbol. The default location is in front of the amount. Options:

2. Before amount - The symbol indicated in the Currency Symbol field will appear before the currency amount.
4. After amount - The symbol indicated in the Currency Symbol field will appear after the currency amount.
6. Both before and after amount - The symbol indicated in the Currency Symbol field will appear before the amount. The symbol indicated in the Second Currency Symbol field will appear after the amount.

Currency Symbol Length. Specifies the length (1-6) of the currency symbol.

Currency Padding Length. Number of spaces (0-8) to appear between the currency symbol and the amount.

Negative Sign Options

Negative Sign. The symbol used as a negative sign. Any character string is permitted. A maximum of six characters is allowed. The default is the conventional negative sign (-).

Second Negative Sign. The symbol to be used as a second negative sign. If both before and after are specified under the Negative Sign Location option, this symbol is used after the value. A maximum of six characters is allowed.

Negative Sign Location. Specifies the location of the negative sign. The default location is in front of the value. Options:

2. Before number - The symbol indicated in the Negative Sign field will appear before the value.
4. After number - The symbol indicated in the Negative Sign field will appear after the value.
6. Both before and after number - The symbol indicated in the Negative Sign field will appear before the value. The symbol indicated in the Second Negative Sign field will appear after the value.

Negative Sign Length. Specifies the length (1-6) of the negative sign.

Negative Sign Pad Length. The number of spaces (1-8) that will appear between the negative sign and the value.

Date Format Options

Date Info Provided. Enter Y unless you want to use the defaults for all date options.

Date Output Format. The sequence in which the month, day, and year will be formatted. Any combination of Y, M, and D is permitted. The system default is YMD. This denotes that the date output format is year, followed by month followed by day, as in 08/02/28.

Date Separator. Indicates how the month, day, and year will be separated. Any character can be used. The default is a forward slash (/). An example of the date using a forward slash is 08/02/28.

Date Zero Suppress Indicator. Enter Y to suppress leading zeros in days and months.

Century Indicator. Enter Y to print the century before the year. An example of the century printing with the year is 2008/02/28.

Time Separator. Indicates how the hour, minutes, and seconds will be separated. Any character can be used. The default is a colon (:). An example of the time using a colon is 10:23:34.

Other User Options

AS400 Options

Enter any character and press F3 to view the following options.

Output Queue. (This applies in batch processing only) Specify the default queue where the job's spooled output should be sent.

Job Queue. (This applies in batch processing only) Specify the default job queue where jobs should be sent.

Hold Job. (This applies in batch processing only) Specify Y or N to indicate whether jobs should be held in the job queue.

Global Processing Options

Enter any character and press F3 to view the following options.

Shut off processing and set zero return code. Specify Y to globally shut off balancing processing and have all jobs set a zero return code. Use this option in emergency situations where you need to temporarily turn off reconciliation. When you are ready to reactivate ACR/Detail, specify N.

If no keys are selected, set return code. Specify Y to set a return code and stop processing when no keys are selected for the job. Otherwise, specify N.

2 ■ Preparing to Use ACR/Detail

Setting the User Options

The return code will print on the Control Report with the following message: NO RECONCILIATION KEYS SELECTED FOR PRINTING. The message will also print on the User and Freeform reports if the option to always print report headings is set to Yes in the report print options.

Return code. Specify the return code you want to set when no keys are selected for the job.

XML Options

Enter a character and press F3 to view the options for creating Control Reports, User Reports and/or Free-Form Reports in XML format and for error handling when using these features. See “[XML Options Screen](#)” on [page 26](#) for more information.

Commas in count fields. Enter Y to print the thousands place indicator (the default character is a comma) in count fields on the Control Report, User Report, and Free-form Report.

Commas in amount fields. Enter Y to print the thousands place indicator (the default character is a comma) in amount fields on the Control Report, User Report, and Free-form Report.

22-character numeric format. Enter Y to use 22-character numeric formatting on the Control Report, User Report, and Free-form Report. This enables proper alignment of longer numbers, including a currency symbol, commas, decimal point, sign, and up to 15 digits. Otherwise the default 18-character formatting will be used.

Init text items to spaces. Enter Y to initialize empty internal or extended internal items and history items, which are formatted as text, to spaces. This option enables you to control how empty internal or extended internal items and history items, which are formatted as text, will be initialized.

Values:

N. (or blank). Initialize to low-values

Y. Initialize to spaces.

XML Options Screen

XML options enable you to specify system-level options for generating the Control Report, User Report and/or Freeform Report in XML format.

The options you select here for the **Control report**, **User report**, and **Freeform report** fields can be overridden at the job level. Also, the corresponding job-level options for these fields can be overridden at run-time.

To display the XML Options screen, select **Environment Setup > User Option Entry** and enter Y for **XML Options**.

```
mm/dd/yy 13:24:33          XML Options          ACR/D releasnumber
UOPT                      userid

Control report:
__  1. Do not generate
    2. Generate, write to file
    3. Generate, autoload to database

User report:              Freeform report:
__  1. Do not generate    __  1. Do not generate
    2. Generate, write to file  2. Generate, write to file
    3. Generate, autoload to database  3. Generate, autoload to databas

Action to take when write to database fails:
__  1. Issue warning and continue processing
    2. Issue warning, write XML to file and continue processing
    3. Issue error and stop processing

Maximum number of characters(in 10,000s) to write to database: _____
Pass alternate job ID: Y (Y/N)

F3=Save/Exit   F12=Cancel
```

Field Options

Control report. Options are as follows:

1. **Do not generate.** Do not generate the report in XML format.
2. **Generate, write to file.** Create a copy of the control report in XML format and write to the file specified.
3. **Generate, autoload to database.** Create a copy of the control report in XML format and write to the associated database. The maximum size specified on this screen will apply.

User report. Options are as follows:

1. **Do not generate.** Do not generate the report in XML format.
2. **Generate, write to file.** Create a copy of the report in XML format and write to the file specified.
3. **Generate, autoload to database.** Create a copy of the report in XML format and write to the associated database. The maximum size specified on this screen will apply.

Freeform report. Options are as follows:

1. **Do not generate.** Do not generate the report in XML format.

2 ■ Preparing to Use ACR/Detail

Analyzing Your Reconciliation Needs

2. **Generate, write to file.** Create a copy of the report in XML format and write to the file specified.
3. **Generate, autoload to database.** Create a copy of the report in XML format and write to the associated database. The maximum size specified on this screen will apply.

Action to take when write to database fails. Options are as follows:

1. **Issue warning and continue processing.** The job will complete but the report will not be generated in XML format. This is the default and does not set an error code.
2. **Issue warning, write XML to file, and continue processing.** The report will be written to a file in XML format. This does not set an error code.
3. **Issue error and stop processing.** The job sets an error-level step completion code.

Maximum number of characters (in 10,000s) to write to database.

Specify the maximum number of characters of XML formatted data that should be written to the XML database for each report. This field applies only if you are writing the XML to a database. XML formatted reports that exceed this limit will follow the error handling option specified in the **Action to take when write to database fails** field on this screen.

The maximum number is specified in increments of 10,000 characters. Valid values are 0000 through 1677 (16,770,000 characters). If this field is not specified or equals zero, and the Generate, write to XML database option is used, a value of 50 is assumed (500,000 characters).

Pass alternate job id. It is an option to pass the alternate job ID to the XML if the running job is an alternate job.

Y. Yes, to pass the alternate job ID.

N. No, to not pass the standard job ID.

Analyzing Your Reconciliation Needs

Before you can set up a reconciliation job, you need to plan exactly what the job will do. The analysis you need to perform is outlined below.

Determining the Input Source Information

An input source is an application report or file that contains values you want to extract for use in reconciliation. Before you can define input sources for a job, you need to know the following:

- The file and library name of each input source file.
- The file organization type of each input source. Valid types include:
 - Physical files
 - Data areas
 - Spool files
- The values you want to reconcile from each input source. For example: Total charge for each telephone number from a Detail Charges Report and the sum of the charges for each telephone number from a Summary Charges Report.
- The key segments that will make up the reconciliation key (see [“What Is a Reconciliation Key?”](#) on page 31). The reconciliation key can consist of 40 positions: a maximum of 5 key segments, each of which can be up to 8 positions long. For example, Key 1 could be the area code 708 (3 positions). Key 2 could be the telephone number 8200252 (7 positions).

Planning for Internal or Extended Internal Items

You need to determine the internal or extended internal items that should be defined. Internal or extended internal items serve as storage places for the following types of data:

- Values extracted from the input source.
- Values derived from calculated items (see below).

Determining Calculated Items and History Items Needed

You may need to define calculated items and history items.

- A calculated item specifies mathematical manipulation of values that can include internal or extended internal items, history items, other calculated items, or literals (numeric constants or text literals). When a calculated item is used in a reconciliation rule, the calculation is performed when the rule is evaluated (that is, when the job runs).
- A history item is a value that was extracted as an internal or extended internal item in a previous run (of the job you are currently working with or a different job) and stored in the history database.

Planning the Reconciliation Rules and Messages

Rules

Reconciliation rules specify the criteria to be applied to the values of internal or extended internal items, calculated items, and/or history items to determine if an input source is in or out-of-balance.

Return Codes

A 4-digit return code can be assigned to a rule to indicate that the rule is out-of-balance on the Control Report. Codes between 0050 and 3999 are recommended because they do not duplicate system-generated codes.

(Messages) Special Instructions

Each return code can be associated with a message (special instruction) that will appear in the Control Report to give information about the problem or to provide instructions for actions to be taken.

Planning for Reports

A Control Report will automatically be generated for every job run to report on the results of the job unless you specify otherwise. The Control Report shows whether the results of the reconciliation are in or out-of-balance.

When you set up the job, you will be able select whether you want to print the detail for all reconciliation key segments (see [“What Is a Reconciliation Key?” on page 31](#) regardless of the reconciliation results or print the detail information for only the key segments that are out-of-balance.

In addition to the Control Report, you can set up the reports described in the following sections:

- [“Recap Report” on page 196](#)
- [“Creating Free-Form Reports” on page 217](#)
- [“Creating User Reports” on page 249](#)
- [“Creating Output Files” on page 317](#)

Entering Basic Job Information

This chapter describes the types of definitions used in reconciliation and provides a procedure for creating a basic reconciliation job. It shows you how to set up the basic job information and report options and refers you to other sections to complete your job definitions.

This chapter contains the following sections:

- “What is a Reconciliation Job?” on page 31
- “What Is a Reconciliation Key?” on page 31
- “Types of Job Definitions” on page 33
- “Entering Basic Job Information” on page 35
- “Setting Up Report Distribution” on page 51
- “Setting the Print Options” on page 51
- “Constraints for Single- and Double-Precision Numbers” on page 55
- “Adding Job or File Comments” on page 55
- “Sort Reconciliation Keys” on page 57

After completing the basic job information, you will need to refer to the following chapters, at a minimum, to finish defining the job:

- Chapter 4, “Creating Job Definitions”
- Chapter 6, “Creating File Definitions”

What is a Reconciliation Job?

A reconciliation job defines the rules and processing options required for reconciliation. Each job uses a reconciliation key to extract data for reconciliation.

What Is a Reconciliation Key?

In ACR/Detail, the extraction and accumulation you specify in your file definitions are based on the job’s reconciliation key. So it is important to understand what makes up a reconciliation key and how it is used.

A job’s reconciliation key is a hierarchical structure composed of key segments (the job's "keys"). The key segments, which are defined using key fields, set the criteria that will be used to locate and extract data from the

3 ■ Entering Basic Job Information

What Is a Reconciliation Key?

input source. Key 1, the first key segment defined, determines the highest level of the job's sort criteria. Key 2, the second key segment defined, determines the next level, and so forth.

The reconciliation key can consist of up to 5 key segments, each of which can contain up to 8 positions. This results in a maximum length for the reconciliation key of 40 bytes.

Because of its hierarchical structure, the reconciliation key provides ACR/Detail with its ability to extract, accumulate, reconcile, and report on data at multiple levels of detail. (See [“Setting Up Multi-level Reconciliation Jobs” on page 113](#)).

Processing of a Reconciliation Key

When your reconciliation job runs, ACR/Detail scans the input source files for each occurrence of the reconciliation key and, based on the detail fields you define, extracts and optionally accumulates the values for that occurrence of the key. The results are stored in an internal or extended internal item (see [“Defining Internal Items” on page 61](#) and [“Defining Extended Internal Items” on page 65](#)) or may be stored for later use in an extraction variable (see [“Defining Extraction Variables” on page 68](#)).

Example

Suppose you want to reconcile amounts for all checks written in a certain month against the checks that cleared the bank that month.

For input to your reconciliation job, you have 1) Report A, which shows individual check numbers and amounts for each check, and 2) Report B, which shows the cleared items.

Using key fields, you could define a reconciliation key composed of 4 key segments to identify each separate check:

Date (month)
Routing number
Account number
Check number

You could define a detail field to extract the amount from all unique instances of this reconciliation key (all checks).

You could then create a reconciliation rule to compare the amount written from Report A with the amount cleared from Report B.

When you run the job, each report would be scanned to identify unique instances of the reconciliation key (individual checks) and, for each, the detail field would extract and accumulate the amount. The reconciliation rule would compare the amounts from Report A with the amount from Report B for each check.

Types of Job Definitions

A set of job definitions consists of the following types of information:

- Basic Job Information and reconciliation report options.
- Job definitions. Job definitions are described in [“Creating Job Definitions” on page 59](#).
- One or more file IDs identifying input source files. Each file ID points to a set of file definitions. These are the specifications for extracting data from the file for use in the job. File definitions are described in [“Creating File Definitions” on page 121](#).

A job may also use definitions for external translation tables, internal translation tables, dynamic translation tables, hash translation for key values, and cycle tables.

What is a Job ID?

A reconciliation job is identified by a job ID made up of 3 parts:

Job name. A descriptive name that meets your site’s standards for naming jobs.

Step name. Required. Used to distinguish the steps in a multi-step job.

Qualifier. This also called the RLQ. See [“Reconciliation Level Qualifier \(RLQ\)”](#) below.

For information on specifying a job ID when starting a job, see [“Entering Basic Job Information” on page 35](#).

Reconciliation Level Qualifier (RLQ)

The RLQ feature enables multi-level reconciliation (multiple invocations of the reconciliation function with the same job name/step name). For more information, see [“What is Multi-level Reconciliation?” on page 113](#).

3 ■ Entering Basic Job Information

Navigating the Basic Job Information List

Navigating the Basic Job Information List

To view a list of job definitions, select **Definitions > Basic Job Information** to display the Basic Job Information List screen. This is a list of the jobs that have been created. From this screen, you can create a new job, update, copy, move, or delete a job, or run a job.

<i>mm/dd/yy</i>	12:00:00	Job Definitions		<i>ACR/D</i>	<i>releasenumbr</i>
JBAS		Basic Job Information List			
Options: 2=Update 3=Copy 4=Delete 8=DLST 9=Run 10=HLST 11=Move					
Opt	Job	Step	Qual	Job Title	
___	TESTA	STEPA		test dynamic translation	
___	TESTB	STEPB		testing job and file comments	
___	TESTC	STEPB		test hash translation	
Job/Step _____			Next Screen _____		
F3=Exit F6=Create F12=Cancel					

Entering Basic Job Information

To create a new job, from the Main Menu, select **Definitions > Basic Job Information** to display the Basic Job Information List screen. Press **F6** to display the Basic Job Information screen.

mm/dd/yy 12:00:00	Job Definitions	ACR/D releasenumbr
JBAS	Basic Job Information	UPDATE
Job/Step: AATEST NEWOUTF5 Qualifier:		
Job Title: UNIDAT2 rules and messages		
Job Characteristics		
Number of Histories:	005	1-999
Store New History:	1	1=Yes, 2=No, 3=Insert
Set Return Code:	2	1=Yes, 2=No, 3=Abend
Produce Control Report:	1	1=Yes, 2=No, 3=Out-Of-Balance, 4=In-Balance
Set Return Code for No Keys:	1	1=Default, 2=Do not set, 3=Set return code
Specify Return Code:	0	If Set return code (3) is used
Produce Recap Report:	2	1=Yes, 2=No, 3=Out-Of-Balance, 4=In-Balance
Multilevel Information:		F10=Add'l
Comments Exist: N	Edit:	
Sort Reconciliation Keys:	1	1=Ascending, 2=Descending, 3=Do not sort
Display Processing Status	2	1=Yes, 2=No
Out-of-balance Key Tolerance		F10=Add'l
Alternate Job ID		F10=Add'l
Write output file		F10=Add'l
Generate XML messages:	1	1=Yes, 2=No Next Screen
F3=Save/Exit F5=Menu F12=Cancel F13=Reports F14=Files		

Job/Step and Qualifier. Identifies the job for which this item will be used. See [“What is a Job ID?” on page 33](#).

Job Title. A descriptive title for your reconciliation job that will appear on the reconciliation reports.

Job Characteristics

Number of Histories. If Store New History is set to Yes or Insert, indicates the maximum number of history records that can be stored in the history database for this job (when the maximum is reached, the oldest record is replaced). Each history record contains a job ID, cycle ID, and the control value extracted for each internal or extended internal item (that is, the results of that job run). Data from history records can be used in a later run of the same reconciliation job or in another job.

3 ■ Entering Basic Job Information

Entering Basic Job Information

Store New History. Set an option for storing history records in the history database for this job:

1. Yes. Store history records for this job in the history database in ascending order and do not insert history with a lower cycle number than the current history record. The cycle number is an 8-digit date or other ascending sequence number used to uniquely identify the set of data you are reconciling.
2. No. Do not store history records for this job.
3. Insert. Store history. This option will allow insertion of a history record with a lower cycle number than the current history record. This option is appropriate when you are using history items that are dependent on a previous night's run or in rerun situations. If the system is already storing the maximum number of histories indicated, it will only insert a more recent cycle number than the oldest cycle number stored. For example, if the system is storing a maximum of three histories with the following cycle numbers: 20081005, 20081010, and 20081015, the system only allows you to insert and store history with a cycle number higher than 20081005.

Set Return Code. The return code is a 4-digit code that you can define when you create a rule, as discussed later in this chapter. Codes between 0050 and 3999 are recommended because they do not duplicate system-generated codes. The code will be generated when the rule detects an out-of-balance condition. If more than one rule detects an out-of-balance condition, the highest return code generated will be used as the return code for the job and will print on the Control Report. Options:

1. Yes. Sets the highest return code generated for the job.
2. No. The return code will always be 0000.
3. Abend. Abend the job and set the user abend code equal to the highest return code.

Produce Control Report. Set your preferences for printing the Control Report, which is the primary output of a reconciliation job. Options:

1. Yes. Print the report.
2. No. Do not print the report.
3. Out of Balance. Print only the keys that are out of balance.
4. In Balance. Print only the keys that are in balance.

Set Return Code for No Keys. Specify the processing to take place if no keys are selected for extraction.

1. Default. The system uses the setting for the corresponding field in “Global Processing Options” on page 25.
2. Do not set. No return code will be set.
3. Set return code. Stop processing and print the return code on the Control Report with the following message: NO RECONCILIATION KEYS SELECTED FOR PRINTING. The message will also print on the User and Freeform reports if the reports are set up to always print report headings.

Specify Return Code. Specify the return code to print if you chose option 3, Set return code, in the **Set Return Code for No Keys** field.

Produce Recap Report. This option enables you to set your preferences for printing the Recap Report. If you set up this report (see “Recap Report” on page 196), it prints a summary of reconciliation results for the specified reconciliation keys. Options:

1. Yes. Print the report for all specified reconciliation keys.
2. No. Do not print the report.
3. Out of Balance. Print the report only for out-of-balance reconciliation keys.
4. In Balance. Print the report only for in-balance reconciliation keys.

Multilevel Information. Position the cursor in the press F10 to use multi-level reconciliation, which is explained in “Setting Up Multi-level Reconciliation Jobs” on page 113.

Comments Exist. If the indicator is Y, user-defined comments exist regarding this input source file.

Edit. Enter Y if you want to add or change user comments regarding this input source file. The screen for comments will display. For more information, see “Adding Job or File Comments” on page 55.

Sort Reconciliation Keys. This option controls the sort order of several reconciliation reports.

1. Ascending. Print reconciliation key information in ascending order, beginning with the lowest key.
2. Descending. Print the reconciliation key information in descending order, beginning with the highest key.

3 ■ Entering Basic Job Information

Entering Basic Job Information

3. Do not sort. Print the reconciliation key information in the order in which they appear in the input source.

Display Processing Status. This option enables you to print job progress messages on the Job Log.

1. Yes. Print job progress messages in the Job Log.
2. No. Do not print job progress messages in the Job Log.

Out-of-balance Key Tolerance. This option enables you to specify out-of-balance tally and accumulation information at the job level. Place the cursor in the input field and press F10 to access the Out-of-Balance Key Tolerance screen.

Alternate Job ID. It is an option to pass the alternate job ID to the XML if the running job is an alternate job.

Y. Yes, to pass the alternate job ID.

N. No, to not pass the standard job ID.

Press F13 before exiting if you want to set up report distribution, as described in the next section. Otherwise press F3 to save and exit.

Press F14 to specify input source files for the job. For more information, see [“Specifying Input Source Files for Your Job” on page 122](#).

Write output file. It is an option to write entries to the Freeform output file. Press F10 to access the Write Output File screen. For more information, see [“Write Output File screen” on page 40](#).

Generate XML messages. It is an option to determine the generation of XML messages.

Y. Yes, to always generate start-of-job and end-of-job messages. Report message is generated if the corresponding XML export option is turned on. This is the default option.

N. No, to not generate the messages. The start-of-job, end-of-job and all report messages will not be generated.

Out-of-Balance Key Tolerance Screen

If you pressed F10 in the Out-of-balance Key Tolerance field on the Basic Job Information screen, the system displays the Out-of-Balance Key Tolerance screen.

```

Out-of-Balance Key Tolerance

Tally out-of-balance keys? Y (Y/N)
Return code: 2223 Tolerance value: 123.456
Set tolerance: 1 1. Do not set
                  2. Absolute tolerance
                  3. Percentage tolerance

Accumulate out-of-balance value? Y (Y/N) Item type: I Item Name: 001
Return code: 3334 Tolerance value: 678.89
Set tolerance: 1 1. Do not set
                  2. Absolute tolerance
                  3. Percentage tolerance

Tally out-of-balance rules? N (Y/N)

F3=Exit      F12=Cancel
    
```

Tally out-of-balance keys? Specify Y to report the number of keys that are out of balance. Otherwise, specify N.

Return code. Optionally, specify the return code to display if one or more keys are out of balance, or if the specified tolerance is exceeded.

Tolerance value. If you allow a tolerance, indicate the value to use as the tolerance. The value will be an absolute number or a percentage, depending on the tolerance type specified.

Set tolerance. Specify whether to allow a tolerance and the tolerance type for tallied out-of-balance keys. Choose from the following options:

1. Do not set. Do not allow a tolerance.
2. Absolute tolerance. Allow a tolerance within a specific absolute value.
3. Percentage tolerance. Allow a tolerance within a specific percentage.

Accumulate out-of-balance value? Specify Y to sum the specified item value for keys that are out of balance. Otherwise, specify N.

Item type. Specify the item type for which to accumulate the out-of-balance value.

Item name. Specify the name of the item for which to accumulate the out-of-balance value.

3 ■ Entering Basic Job Information

Entering Basic Job Information

Return code. Optionally, specify the return code to display if the accumulated out-of-balance total exceeds zero or exceeds the specified tolerance.

Tolerance value. If you allow a tolerance, indicate the value to use as the tolerance. The value will be an absolute number or a percentage, depending on the tolerance type specified.

Set tolerance. Specify whether to allow a tolerance and the tolerance type for accumulated out-of-balance total. Choose from the following options:

1. Do not set. Do not allow a tolerance.
2. Absolute tolerance. Allow a tolerance within a specific absolute value.
3. Percentage tolerance. Allow a tolerance within a specific percentage.

Tally out-of-balance rules? Specify Y to report the number of rules that are out of balance. Otherwise, specify N.

Write Output File screen

If you pressed F10 in the Write output file field on the Basic Job Information screen, the system displays the Write Output File screen.

```
Write Output File

Select an output file option:
2 1. Do not produce the output file
   2. Write all reconciliation keys
   3. Write only out-of-balance reconciliation keys
   4. Write only in-balance reconciliation keys

Select an output file format:
2 1. Original output file
   2. Freeform output file

F3=Exit F12=Cancel
```

Select an output file option. Select the output file option. Choose from the following options:

1. Do not produce the output file.
2. Write all reconciliation keys.
3. Write only out-of balance reconciliation keys.
4. Write only in-balance reconciliation keys.

Select an output file format. Select the format of the output file.

1. Original output file.

2. Freeform output file.

Freeform Output File screen

If you selected Freeform output file as the output file format in the Write Output File screen, the system displays the Freeform Output File screen. Freeform output file provides the flexibility to modify the rules of the output file. The following data modification commands are now supported for the Freeform output file: DD - Block Delete, CC - Block Copy, MM - Block Move, I - Insert, C - Copy, M - Move, D - Delete, R - Repeat, A - After, and B - Before.

```

Freeform Output File

Options: 2/S=Change 3/C=Copy 4/D=Delete I=Insert

__ A. Freeform output file basic information:
__   Generate Header:                YES
__   Generate Delimiter:            YES
__ B. Freeform output file items:
__   001 J-DTE                      LEN010 RUN DATE W/SEPARATOR
__   002 J-DTE                      LEN008 RUN DATE NO SEPARATOR
__   003 J-TME                      LEN008 RUN TIME NO DELIM
__   004 J-TME                      LEN006 RUN TIME WITH DELIMITER
__   005 K-CYC                      LEN011 CYCLE ID
__   006 K-CYC                      LEN011 CYCLE ID NO DELIM
__   007 J-ID                       LEN018 JOB ID
__   008 J-ID                       LEN018 JOB ID NO DELIM
__   009 J-DTE                      LEN010 RUN DATE W/SEPARATOR
__   010 J-DTE                      LEN008 RUN DATE NO SEPARATOR      +

F3=Exit  F12=Cancel
    
```

A. Freeform output file basic information.

Generate Header. Specify YES to generate a header in the Freeform output file. Otherwise, specify No.

Generate Delimiter. Specify YES to generate a delimiter in the Freeform output file. Otherwise, specify No.

B. Freeform output file items.

The list of items that are included in the Freeform output file are listed in this section.

3 ■ Entering Basic Job Information

Entering Basic Job Information

Freeform Output File Header

If you specified YES to generate the header in the Freeform Output File screen, the system displays the Freeform Output File Header screen.

```
Freeform Output File Header

Generate header?  Y  (Y/N)

Heading Width:
1  1. Standard item size
   2. Custom heading size

F3=Save/Exit    F12=Cancel
```

Generate Header. Specify Y to generate the header in the Freeform output file. Otherwise, specify N.

Heading Width. This option enables you to specify the width of the header. Choose from the following options:

1. **Standard item size.** The header width will be set to a predefined standard size.
2. **Custom item size.** The header width will be set to the size specified.

Freeform Output File Delimiter

If you specified YES to generate the delimiter in the Freeform Output File screen, the system displays the Freeform Output File Delimiter screen.

```
Freeform Output File Delimiter

Use delimiter?                Y  (Y/N)

Use tab as delimiter value?    N  (Y/N)

If tab is not used, delimiter value:  @

F3=Save/Exit    F12=Cancel
```

Use delimiter. Specify Y to use a delimiter in the Freeform output file. Otherwise, specify N.

Use tab as delimiter value. Specify Y to use tab as the delimiter in the Freeform output file. Otherwise, specify N.

If tab is not used, delimiter value. Specify a delimiter value of your choice.

Freeform Output File Numeric Item Value (Item Value is Regular Numeric)
 When you specify a regular numeric item value, the Freeform Output File Numeric Item Value screen for a regular numeric is displayed.

```

Freeform Output File Numeric Item Value

Item number: I 003

Heading:

Suppress delimiter?           N (Y/N)
Unpack field?                 Y (Y/N)
Include decimal?              N (Y/N)
Reverse sign?                  N (Y/N)

Suppress positive sign?       N (Y/N)
Suppress leading zeros?       N (Y/N)
Replace leading zeros with blanks? Y (Y/N)

If not using the default, specify the length to output this 000

F3=Save/Exit F12=Cancel
    
```

Item number. Enter the item number.

Heading. Enter a suitable heading for the numeric item.

Suppress delimiter. Specify Y to suppress the numeric item delimiter in the Freeform output file. Otherwise, specify N.

Unpack field. Specify Y to use the unpacked filed type for the numeric item in the Freeform output file. Otherwise, specify N.

Include the decimal. Specify Y to include the decimal value of the numeric item in the Freeform output file. Otherwise, specify N.

Reverse sign. Specify Y to reverse the numeric item sign. Otherwise, specify N.

Suppress positive sign. Enter Y to suppress generating the positive sign. The default value is N. The Unpack field must be Y to suppress the positive sign.

Suppress leading zeros. Enter Y to suppress generating the leading zeros. The default value is N. The Unpack field must be Y to suppress the leading zeros.

Replace leading zeros with blanks. Enter Y to replace the leading zeros with blanks. The default value is N. The Unpack field must be Y, and the Suppress leading zeros must be N.

3 ■ Entering Basic Job Information

Entering Basic Job Information

If not using the default, specify the length to output this. Specify the length of the numeric item value, if you are not using the default settings.

Press F3 to save and exit.

Freeform Output File Numeric Item Value (Item Type is Date)

When you specify a Date item value, the Freeform Output File Numeric Item Value screen for date is displayed.

```
Freeform Output File Numeric Item Value

Item number: I  004

Heading: I4 DATE

Suppress delimiter?  N  (Y/N)

Use a date separator? N  (Y/N)

F3=Save/Exit F12=Cancel
```

Item number. Enter the item number.

Heading. Enter a suitable heading for the date item.

Suppress delimiter. Specify Y to suppress the delimiter of the date item in the Freeform output file. Otherwise, specify N.

Use a date separator. Specify Y to use a separator for the date item. Otherwise, specify N.

Press F3 to save and exit.

Freeform Output File Numeric Item Value (Item Value is Time)

When you specify a Time item value, the Freeform Output File Numeric Item Value screen for time is displayed.

```
Freeform Output File Numeric Item Value

Item number: I 005

Heading: I5 TIME

Suppress delimiter?  N (Y/N)

Use a time separator? N (Y/N)

F3=Save/Exit F12=Cancel
```

Item number. Enter the item number.

Heading. Enter a suitable heading for the time item.

Suppress delimiter. Specify Y to suppress the delimiter of the time item in the Freeform output file. Otherwise, specify N.

Use a time separator. Specify Y to use a separator for the time item. Otherwise, specify N.

Press F3 to save and exit.

3 ■ Entering Basic Job Information

Entering Basic Job Information

Freeform Output File Text Item Value

When you specify a Text item value, the Freeform Output File Text Item Value screen is displayed.

```
Freeform Output File Text Item Value

Item number: I 002

Heading:

Suppress delimiter?  N (Y/N)

From position: 01 Length: 008

How should it be justified?
4 1. Left
   2. Right
   3. Center
   4. As-is

F3=Save/Exit F12=Cancel
```

Item number. Enter the item number.

Heading. Enter a suitable heading for the text item.

Suppress delimiter. Specify Y to suppress the delimiter of the text item in the Freeform output file. Otherwise, specify N.

From position. Enter the starting position of the text item.

Length. Enter the length up to which the text item must be included.

How should it be justified. This option enables you to set the justification for the text value. Choose from the following options:

1. Left
2. Right
3. Center
4. As-is

Press F3 to save and exit.

Item List Window

The list of items that are included in the Freeform output file are listed in the Item List Window.

Item List Window	
-	K-001 KEY FIELD
-	K-002 KEY FIELD
-	I-001 COLOR regular text item color
-	I-002 ITEM regular text item item
-	I-003 REGCOUNT regular count item
-	I-004 REGAMOUNT regular amount item
-	I-005 DATE regular date item
-	X-001 CITY extended text item city
-	X-002 STATE extended text item state
-	X-003 EXTCOUNT extended count item
-	X-004 EXTAMOUNT extended amount item
-	JINFO JOB INFORMATION
-	KINFO KEY INFORMATION

F3=Exit F12=Cancel

Freeform Output File Job Information

If you selected JOB INFORMATION in the Item List Window, the system displays the Freeform Output File Job Information screen.

Freeform Output File Job Information	
Choose the type of field to be included:	
3	1. Job ID
	2. Start run date
	3. Start run time

F3=Save/Exit F12=Cancel

Choose the type of field to be included. Select the type of job information that must be included in the Freeform output file. Choose from the following options:

1. **Job ID.** Select to include the Job ID details.
2. **Start run date.** Select to include the start date of the job run.
3. **Start run time.** Select to include the start time of the job run.

Press F3 to save and exit.

3 ■ Entering Basic Job Information

Entering Basic Job Information

Freeform Output File Key Information

If you selected KEY INFORMATION in the Item List Window, the system displays the Freeform Output File Key Information screen.

```
Freeform Output File Key Information

Choose the type of field to be included:
1  1.  Return code
    2.  Message
    3.  Cycle number

F3=Save/Exit F12=Cancel
```

Choose the type of field to be included. Select the type of key information that must be included in the Freeform output file. Choose from the following options:

1. **Return code.** Select to include the return code associated with the key.
2. **Message.** Select to include the message associated with the key.
3. **Cycle number.** Select to include the cycle number of the key.

Press F3 to save and exit.

Freeform Output File Rule Information

If you selected RULE INFORMATION in the Item List Window, the system displays the Freeform Output File Rule Information screen.

```
Freeform Output File Rule Information

Choose the type of field to be included:
1  1.  Return code
    2.  Variance
    3.  Message

F3=Save/Exit F12=Cancel
```

Choose the type of field to be included. Select the type of rule information that must be included in the Freeform output file. Choose from the following options:

1. **Return code.** Select to include the return code of the rule.
2. **Variance.** Select to include the rule variance.
3. **Message.** Select to include the message associated with the rule.

Press F3 to save and exit.

Freeform Output File Job ID

If you selected Job ID in the Freeform Output File Job Information screen, the system displays the Freeform Output File Job ID screen.

```

Freeform Output File Job ID

Heading:

Suppress delimiter?  N  (Y/N)

F3=Save/Exit F12=Cancel
    
```

Heading. Enter a suitable heading for the Job ID.

Suppress delimiter. Specify Y to suppress the delimiter of the job ID. Otherwise, specify N.

Press F3 to save and exit.

Freeform Output File Job Start Run Date

If you selected Start run date in the Freeform Output File Job Information screen, the system displays the Freeform Output File Job Start Run Date screen.

```

Freeform Output File Job Start Run Date

Heading: RUN DATE W/SEPARATOR

Suppress delimiter?  N  (Y/N)

Use date separator?  Y  (Y/N)

F3=Save/Exit F12=Cancel
    
```

Heading. Enter a suitable heading.

Suppress delimiter. Specify Y to suppress the delimiter of the job start date. Otherwise, specify N.

Use date separator. Specify Y to use a separator for the date. Otherwise, specify N.

Press F3 to save and exit.

3 ■ Entering Basic Job Information

Entering Basic Job Information

Freeform Output File Job Start Run Time

If you selected Start run time in the Freeform Output File Job Information screen, the system displays the Freeform Output File Job Start Time screen.

```
Freeform Output File Job Start Run Time

Heading:

Suppress delimiter?  N  (Y/N)

Use time separator?  N  (Y/N)

F3=Save/Exit F12=Cancel
```

Heading. Enter a suitable heading.

Suppress delimiter. Specify Y to suppress the delimiter of the job start time. Otherwise, specify N.

Use time separator. Specify Y to use a separator for the time. Otherwise, specify N.

Press F3 to save and exit.

Freeform Output File Rule Return Code

If you selected Return code in the Freeform Output File Rule Information screen, the system displays the Freeform Output File Rule Return Code screen.

```
Freeform Output File Rule Return Code

Rule Number: 005

Heading:

Suppress delimiter?  N  (Y/N)

F3=Save/Exit F12=Cancel
```

Rule Number. Enter the rule number.

Heading. Enter a suitable heading.

Suppress delimiter. Specify Y to suppress the delimiter in the return code. Otherwise, specify N.

Press F3 to save and exit.

Setting Up Report Distribution

This feature enables you to distribute selected reports generated by this job to up to 50 IBM i users. To access the screen, from the Basic Job Information screen, press F13 (Reports).

Report Distribution				
Report Options: 1=Select				
User ID	Address	Control Rpt	Recap Rpt	User Rpt
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-
_____	_____	-	-	-

F3=Exit F12=Cancel

User ID. The IBM i user ID of the recipient.

Address. If the ID is on a different IBM i machine from the one where the job will be run, enter the IBM i address (routing information).

Control Rpt, Recap Rpt, User Rpt. Enter 1 for each report you want the user to receive.

Press F3 to save and exit.

Setting the Print Options

In screens for internal items, extended internal items, history items, calculated items, and standard rules, you can specify the following options for printing on reports:

Note: For maximum lengths, see [Maximum Lengths for Regular and Extended Data](#) on page 61.

3 ■ Entering Basic Job Information

Setting the Print Options

Print format. Options:

1. **Count.** Print the item as a number with embedded commas and decimals as determined by the **Print Decimals** field. If the value is negative, a trailing minus sign (-) will print. Default formatting for negative values and thousands markers can be overridden in the user options.
2. **Amount.** Print the item as a currency amount with a leading currency indicator (the default is a dollar sign [\$]), embedded commas, a decimal point, and decimals as determined in the **Print Decimals** field. If the value is negative, a trailing minus sign (-) will print. Default formatting for negative values, currency symbols, thousands markers, and decimal markers can be overridden in the user options. For more information, see “[Setting the User Options](#)” on page 22.
3. **Date.** Print the item as a Gregorian date printed in the format YY/MM/DD, unless this default is overridden in the user options.
4. **Text.** Print the item as a character string enclosed in single quotation marks.
5. **Time.** Print the item in the '-99999999TTTTTTTTTTTTTT' format, where -99999999 is the relative day and TTTTTTTTTTTTTTTT is the formatted time.
6. **Date & Time.** Print the item in the 'DDDDDDDDTTTTTTTTTTTTTT' format, where DDDDDDDD is the formatted date and TTTTTTTTTTTTTTTT is the formatted time.

The following examples briefly illustrate the ‘Time’ and ‘Date & Time’ print options.

Assume the date and time formatting options in the User Options File are set as shown below:

Time Format: HH:MM:SS

Time Notation: 12-hour Time Separator

Date Format: CCYY/MM/DD

Example 1 – Time Item / Result - Same Day:

C-001 = I-001 + 12 hours, where I-001 stores 09:00:00.00.

C-001 = 21 hours 00 minutes 00 seconds 00 centiseconds (< 24 hours).

If Print Format is Count, C-001 is printed as 7560000 (centiseconds).

If Print Format is Time, C-001 is printed as 09:00:00PM.

If Print Format is Date & Time, C-001 is printed as 0000/00/00
09:00:00PM.

Example 2 – Time Item / Result - Day Forward:

C-001 = I-001 + 20 hours, where I-001 stores 09:00:00.00.

C-001 = 29 hours 00 minutes 00 seconds 00 centiseconds (> 24
hours).

If Print Format is Count, C-001 is printed as 10440000 (centiseconds).

If Print Format is Time, C-001 is printed as +00000001 05:00:00AM,
where +00000001 is the relative day.

If Print Format is Date & Time, C-001 is printed as 1601/01/01
05:00:00:00AM.

Example 3 – Time Item / Result - Day Backward:

C-001 = I-001 - 12 hours, where I-001 stores 09:00:00.00.

C-001 = - (03 hours 00 minutes 00 seconds 00 centiseconds)
(negative).

If Print Format is Count, C-001 is printed as – 1080000
(centiseconds).

If Print Format is Time, C-001 is printed as -00000001 09:00:00PM,
where -00000001 is the relative day.

If Print Format is Date & Time, C-001 is printed as 0000/00/00
09:00:00PM.

Example 4 – Date & Time Item / Result - Same Day:

C-001 = X-001 & I-001 + 12 hours, where X-001 stores 2014/04/14
and I-001 stores 09:00:00.00 (2014/04/14 has date count 150950,
which is 3622800 hours).

C-001 = 3622800 hours + 09 hours 00 minutes 00 seconds 00
centiseconds + 12 hours.

C-001 = 3622821 hours 00 minutes 00 seconds 00 centiseconds.

If Print Format is count, C-001 is printed as 1304215560000
(centiseconds).

If Print Format is Time, C-001 is printed as +150950 09:00:00PM,
where +150950 is the relative day.

If Print Format is Date & Time, C-001 is printed as 2014/04/15
09:00:00PM.

Example 5 – Date & Time Item / Result - Day Forward:

C-001 = X-001 & I-001 + 20 hours, where X-001 stores 2014/04/14
and I-001 stores 09:00:00.00 (2014/04/14 has date count 150950,
which is 3622800 hours).

3 ■ Entering Basic Job Information

Setting the Print Options

C-001 = 3622800 hours + 09 hours 00 minutes 00 seconds 00 centiseconds + 20 hours.

C-001 = 3622829 hours 00 minutes 00 seconds 00 centiseconds.

If Print Format is Count, C-001 is printed as 1304218440000 (centiseconds).

If Print Format is Time, C-001 is printed as +150951 05:00:00AM, where +150951 is the relative day.

If Print Format is Date & Time, C-001 is printed as 2014/04/16 05:00:00AM.

Example 6 – Date & Time Item / Result - Day Backward:

C-001 = X-001 & I-001 - 12 hours, where X-001 stores 2014/04/14 and I-001 stores 09:00:00.00 (2014/04/14 has date count 150950, which is 3622800 hours).

C-001 = 3622800 hours + 09 hours 00 minutes 00 seconds 00 centiseconds – 12 hours.

C-001 = 3622797 hours 00 minutes 00 seconds 00 centiseconds.

If Print Format is Count, C-001 is printed as 1304206920000 (centiseconds).

If Print Format is Time, C-001 is printed as +150949 09:00:00PM, where +150949 is the relative day.

If Print Format is Date & Time, C-001 is printed as 2014/04/14 09:00:00PM.

Print decimals. This field specifies the number of decimal places that will be assigned by the system and printed on reports for counts or amounts (0-9). For more information, see “[Constraints for Single- and Double-Precision Numbers](#)” on page 55.

Print commas. Indicate whether to include the thousands place indicator when printing counts and amounts. The default thousands place indicator is a comma. Options:

1. Default. In batch processing, use the user options settings for Print Commas for Counts and Print Commas for Amounts fields when running the job in batch. In online processing, the thousands place indicators will always be printed.
2. Print. Print the thousands place indicator whether the job is run online or in batch.
3. Do not print. Suppress printing of the thousands place indicator whether the job is run online or in batch.

Constraints for Single- and Double-Precision Numbers

When the **Print Decimals** field appears on a job definition screen, you can specify the number of decimals for amounts. If you use single-precision or double-precision numbers, you need to be aware of the following constraints:

- Accuracy is not guaranteed for single-precision numbers.
- When using double-precision numbers, accuracy can be guaranteed provided that the user-defined scale is less than the actual number of decimals stored in the database.

For example, the number 9987654.4321987654 could be stored as +9.98765443219876E+06. In this example, 8 decimals are stored instead of the 10 in the original number. Thus, a user-defined scale of 7 or less will be accurate.

Adding Job or File Comments

This feature allows you to fill up to 58 screens of 17 lines with your own comments regarding a job or input source file. All of the comments will print when you generate a Definition Database Listing Report (see [“Definition File List Utility \(DLST\)” on page 346](#)), which includes detailed job and/or detailed file information.

3 ■ Entering Basic Job Information

Adding Job or File Comments

Adding Job Comments

To type in or paste in comments about a job, use the **Comments Exist** and **Edit** fields on the Basic Information screen (see [“Entering Basic Job Information” on page 35.](#)) Enter Y in the Edit field to see the Job Comments screen shown below.

mm/dd/yy	04:08:46	JOB COMMENTS	ACR/D releasenumber
CMNT			USER1
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>			
F3-Save/Exit F5-Refresh F10-Delete F12-Cancel			

Adding File Comments

To type in or paste in comments about an input source file, use the **Comments Exist** and **Edit** fields on the Basic Information screen (see [“Defining Basic File Information” on page 126.](#)) Enter Y in the Edit field to see the File Comments screen. It is exactly like the Job Comments screen above except that the title is File Comments.

Deleting a Line of Comments

To delete a line of comments, go to the line and press F10. The line will be marked for deletion, but not physically deleted until the job or file is saved.

Sort Reconciliation Keys

This option controls the sort order of several reconciliation reports. The reports include the Control Report, User Report, and Free-Form Report. Customers who may want to use this option include those who use dollar amounts as reconciliation keys and want the reports to show the highest dollar amount first.

The options for sorting reconciliation keys are as follows:

1. **Ascending.** Print the reconciliation key information in ascending order, beginning with the lowest key.
2. **Descending.** Print the reconciliation key information in descending order, beginning with the highest key. This setting is not valid for qualifier jobs (see note below). This feature is not recommended if you store history.
3. **Do not sort.** Print the keys in the order in which they appear in the input source.

3 ■ Entering Basic Job Information

Sort Reconciliation Keys

Creating Job Definitions

Job definitions specify how values extracted from input sources are processed during reconciliation. This chapter provides information on creating job definitions and related topics.

This chapter contains the following sections:

- “Understanding Internal Items and Extended Internal Items” on page 59
- “Defining Internal Items” on page 61
- “Defining Extended Internal Items” on page 65
- “Defining Extraction Variables” on page 68
- “Defining History Items” on page 76
- “Defining Calculated Items” on page 84
- “Defining Rules” on page 92
- “Defining Messages” on page 108

Understanding Internal Items and Extended Internal Items

This section explains two job definition types: internal items and extended internal items.

Characteristics Shared by Regular and Extended Internal Items

Internal items (regular and extended) are used to store control values obtained when your file definitions are processed.

A control value can be either of the following:

- A value obtained during extraction (a count, amount, text item, or date).
- The result of a calculated item. Calculated item results are values obtained by adding, subtracting, multiplying, or dividing the values of other items.

4 ■ Creating Job Definitions

Understanding Internal Items and Extended Internal Items

Both regular and extended internal items can be used in calculated items and rules. If the job stores history, these item types will be stored in the history database. You can define history items to retrieve them from the database for use in a later run of the same reconciliation key or of another key.

Differences Between Regular and Extended Internal Items

Internal Items

- You can use up to 999 internal items per reconciliation job.
- Internal items are identified with an I. For example, I-001, I-002, etc.
- Internal items cannot be used to store lengthy extracted values. For example, only 15 bytes of numeric data or 8 bytes of text can be stored in an internal item.

Extended Internal Items

- You can use up to 100 extended internal items per reconciliation job.
- Extended internal items are identified with an X. For example, X-001, X-002, etc.
- Extended internal items enable you to store significantly longer control values than regular internal items. These longer values are called extended data. Extended data simplifies job creation when working with lengthy values by reducing the number and complexity of the definitions required. This is because extended data can be used just like regular data in calculated items, history items, and rules.
- See the restrictions below.

Restrictions for Extended Data

- Literals, selection fields, and keys do not support extended data.
- Storage of extended internal items in the history database may impact performance.

Maximum Lengths for Regular and Extended Data

The following table shows the maximum lengths for regular vs. extended data in each supported format. The data formats listed in column 1 are described in “Understanding Field Formats” on page 189.

Format of Extracted Data	Maximum Length	
	Regular Data	Extended Data
Numeric ¹	A maximum of 15 digits can exist within the specified length.	A maximum of 30 digits can exist within the specified length.
Alphanumeric ²	8	80
Packed decimal ²	8	16
Zoned decimal (Overpunch) ¹	A maximum of 15 digits can exist within the specified length.	A maximum of 30 digits can exist within the specified length.
Binary	8	8
Unsigned packed	8	16

1 For numeric values, 80 positions can be identified for extraction, but only 15 or 30 digits can exist within these positions. Additional digits will not be evaluated.
 2 Packed decimal and alphanumeric are the only valid formats for values stored in extraction variables.

Defining Internal Items

Internal items and extended internal items were described in the preceding sections.

Internal Items Screen

Internal items are created through the Internal Items screen. You can access this screen in the following ways:

- When you create your file definitions, you will use a detail field to extract and store data from the input source. If you choose to store the data to an internal item, the Internal Items Selection List screen will be displayed automatically. Press F6 to create a new internal item.

4 ■ Creating Job Definitions

Defining Internal Items

- You can create one or more internal items before creating the file definitions. From the Definitions Main Menu, select **Internal Items**. When the Internal Items List screen displays, press F6 to create a new internal item.

mm/dd/yy 12:00:00	Job Definitions	ACR/D	releasenumbr
JINT	Internal Items		Create
Job/Step: SAMPLE	STEP1	Qualifier:	F4 for list
Item Characteristics			
Name:	_____		
Description:	_____		
Print Format:	5	1=Cnt 2=Amt 3=Dat 4=Txt 5=Tim 6=Dat & Tim	
Print Decimals:	0	0-9	
Print Commas:	1	1=Default, 2=Print, 3=Do not print	
Print Location:	2	1=Right, 2=Left	
Print Leading Zeros	1	1=Yes, 2=No	
Calculated Item Name:		F4 for list	
Required Items:	1	1=Not Required, 2=Required, 3=May Skip	
			Next Screen _____
F3=Save/Exit F4=F5=Menu F12=Cancel			

Job/Step/Qualifier. Identifies the job for which this item will be used. To change the job, press F4 and select a different job.

Item Characteristics

Name. A descriptive name for the item.

Description. Description of the item that will print on a variety of reports.

Print format. Format for printing the item on reports. See “[Setting the Print Options](#)” on page 51 for more information.

Print Decimals. If you selected Count or Amount in the Print Format field, specify a value. Regarding constraints related to single- or double-precision numbers, see “[Constraints for Single- and Double-Precision Numbers](#)” on page 55.

Print Commas. If you are not using 22-character format and you specified Count or Amount as the Format for the item, specifies whether to print the thousands place indicator (the default character is a comma) in counts and amounts related to the job reports. Options:

1. Default. Use the setting in your user options.
2. Print. Prints the thousands place indicator.
3. Do not print. Suppresses printing of the thousands place indicator.

Print Location. If you are not using 22-character numeric format, specifies whether to place the internal item in the right or left column of the Control Report.

1. Right. Prints the internal item in the right column of the Control Report. By default, this column heading has the word RIGHT as its heading.
2. Left. Prints the internal item in the left column of the Control Report. By default, this column heading has the word LEFT as its heading.

Print Leading Zeros. Indicate whether to print the leading zeros on the reports. The supported Print Format is 'Count'.

The "Print commas" indicator must be disabled when "Print Leading Zeros" is enabled.

Calculated Item Name. Name of the calculated item whose value is to be stored in this internal item (or None if this item is being extracted). Calculated items are stored as internal items if you want to store the item in the history database.

Press F4 to select a different calculated item from the Calc Item Selection screen.

For more information, see "Defining Calculated Items" on page 84.

Required Items. Indicate the processing that should take place if the item is not found.

1. The item is not required for an in-balance condition. If the item is not found, set internal item to zero or spaces and continue processing. If the missing item is numeric, the rule will be evaluated with the value of the item initialized to zero. If the missing item is text, the rule will be evaluated with the value of the item initialized to spaces or low-values (depending on your user options setting). In either case, the result may be in- or out-of-balance.

Note: The value of an item initialized to low-values will appear as spaces on the Control Report

2. The item is required for an in-balance condition. Rules involving this item are not evaluated. They are set to out-of-balance and marked MISSING ITEM on the Control Report.
3. Skip all balancing rules involving the internal item. (Conditional rules that evaluate or process rules that involve this item will also be skipped.) Skipped rules will be set to in-balance and marked MISSING ITEM on the Control Report.

4 ■ Creating Job Definitions

Defining Internal Items

For more information, see [“Rule Processing When Items Are Not Found”](#) on page 107.

Press F3 to save and exit.

Defining Extended Internal Items

Extended internal items were explained in “Understanding Internal Items and Extended Internal Items” on page 59.

Extended Internal Items Screen

Extended internal items are created through the Extended Internal Items screen. You can access this screen in the following ways:

- When you create your file definitions, you will use a detail field to extract and store data from the input source. If you choose to store the data to an extended internal item, the Extended Internal Item Selection List screen will be displayed automatically. Press F6 to create a new internal item.
- You can create one or more internal items before creating the file definitions. From the Definitions Main Menu, select Extended Internal Items. When the Extended Internal Items List screen displays, press F6 to create a new item.

```

mm/dd/yy 12:00:00      Job Definitions      ACR/D releasenumbr
JEXT                  Extended Internal Items      userID
                                     CREATE
Job/Step: SAMPLE      STEP1      Qualifier:      F4 for list

Item Characteristics
Name:      _____
Description:      _____

Print Format:      5      1=Cnt 2=Amt 3=Dat 4=Txt 5=Tim 6=Dat & Tim
Print Decimals:      0      0-9
Print Commas:      1      1=Default, 2=Print, 3=Do not print
Print Leading Zeros      2      1=Yes, 2=No
Calculated Item Name:      EXTDIV      F4 for list
Required Items:      1      1=Not Required, 2=Required, 3=May Skip

                                     Next Screen _____

F3=Exit   F5=Menu   F12=Cancel
    
```

Job/Step/Qualifier. Identifies the job for which this item will be used. To change the job, press F4 and select a different job.

Item Characteristics

Name. A descriptive name for the item.

Description. Description of the item that will print on a variety of reports.

Print format. Format for printing the item on reports. See “Setting the Print Options” on page 51 for more information.

4 ■ Creating Job Definitions

Defining Extended Internal Items

Print Decimals. If you selected Count or Amount in the Print Format field, specify a value. Regarding constraints related to single- or double-precision numbers, see [“Constraints for Single- and Double-Precision Numbers” on page 55](#).

Print Commas. If you are not using 22-character format and you specified Count or Amount as the Format for the item, specifies whether to print the thousands place indicator (the default character is a comma) in counts and amounts related to the job reports. Options:

1. Default. Use the setting in your user options.
2. Print. Prints the thousands place indicator.
3. Do not print. Suppresses printing of the thousands place indicator.

Print Leading Zeros. Indicate whether to print the leading zeros on the reports. The supported Print Format is ‘Count’.

The “Print commas” indicator must be disabled when “Print Leading Zeros” is enabled.

Calculated Item Name. Name of the calculated item whose value is to be stored in this item (or None if this item is being extracted). Calculated items are stored as extended internal items if you want to store the item in the history database. Press F4 to select a different calculated item from the Calc Item Selection screen.

For more information, see [“Defining Calculated Items” on page 84](#).

Required Items. Indicate the processing that should take place if the item is not found.

1. The item is not required for an in-balance condition. If the item is not found, set extended internal item to zero or spaces and continue processing. If the missing item is numeric, the rule will be evaluated with the value of the item initialized to zero. If the missing item is text, the rule will be evaluated with the value of the item initialized to spaces or low-values (depending on your user options setting). In either case, the result may be in- or out-of-balance.

Note: The value of an item initialized to low-values will appear as spaces on the Control Report

2. The item is required for an in-balance condition. Rules involving this item are not evaluated. They are set to out-of-balance and marked MISSING ITEM on the Control Report.

3. Skip all balancing rules involving the extended internal item.
(Conditional rules that evaluate or process rules that involve this item will also be skipped.) Skipped rules will be set to in-balance and marked MISSING ITEM on the Control Report.

For more information, see [“Rule Processing When Items Are Not Found”](#) on page 107.

Press F3 to save and exit.

Defining Extraction Variables

Extraction variables are items you define to store regular or extended data from file definitions or external translation table definitions for further processing.

You can specify up to 999 extraction variables per job.

In Release 4.3, the ability to create and name extraction variables was added to the job definitions. When you open an IBM i job that has extraction variables created before Release 4.3, if you want the extraction variables to appear in the job definitions, you will need to manually add them. For instructions, see [“Extraction Variables Screen” on page 75](#).

Specifying Extended Formatting for an Extraction Variable

You should use an extended extraction variable if you plan to store a packed decimal number that is 9 to 16 bytes long (16 to 30 digits) or text that is 9 to 80 characters long.

To indicate an extended extraction variable, set the Extended field to Y on every file definition that references it, as detailed below.

Consistency in Specifying Extended Format for an Extraction Variable

When setting the Extended indicator for an extraction variable, you must be consistent. For example, for extraction variable 001, you should not set the Extended field to Y in one file definition and, when you reference extraction variable 001 in another definition, set the Extended field to N.

Warning: If you are not consistent in setting the Extended field when referencing the same extraction variable multiple times, when you run the job, a run-time (#U) error will be generated, and the value of the extraction variable will be set to spaces (if the format is text) or zeroes (if the format is packed decimal).

For more information about extended data, see [“Understanding Internal Items and Extended Internal Items” on page 59](#)

Extraction Variable Definitions

An extraction variable definition consists of its number and description. The number and the first 41 characters of the description of each extraction variable you have defined will appear in the Extraction Variables section of

the Definitions Main Menu. The description can be updated by selecting the variable from the Definitions Main Menu and making the change on the Extraction Variables screen.

Formats for Extraction Variables

The format of the stored variable depends on the field type you specify for the detail field. You need to be sure to use the correct format when you are referencing an extraction variable as the source of a definition. Field types correspond to data formats as follows:

Field Type	Data Format
Count	Packed
Amount	Packed
Date	Packed
Text	Text

Sources and Targets for Extraction Variables

The following table summarizes extraction variable sources and targets.

Definition	Source (Extract from field)	Target (Target Area or Destination Area field)	Example
Detail Field	Input Source	Extraction Variable	See step 2 of Compare an Extraction Variable to a Literal on page 71.
Detail Field	Extraction Variable	internal or extended internal item	See Set a Detail Field from a Saved Extraction Variable on page 74.
Detail Field	Extraction Variable	Extraction Variable	See Set an Extraction Variable From Another Extraction Variable on page 75.
Reformat Field (text only)	Extraction Variable	Input Record	See Reformat to Combine Fields on page 73.
Key Field	Extraction Variable	Reconciliation Key	See Passing Values from One Input Source to Another on page 74.

4 ■ Creating Job Definitions

Defining Extraction Variables

- Note:**
- A value from an extraction variable can also be used as input or output by an external translation table.
 - In a selection field, an extraction variable can be used to evaluate the current record in the following ways:
 - The input type can be set to Extraction Variable. The value from the extraction variable can then be tested against specified values or ranges. For an example, see [Use An Extraction Variable in a Selection Field on page 70](#).
 - The input type can be set to Input Area. The value from the input area can then be tested against value of a specified extraction variable.
-

Examples of Extraction Variables

Following are some examples of how extraction variables can be used.

Use An Extraction Variable in a Selection Field

Suppose you are looking for the Starting Value and Ending Value for only your department, Dept 0002, and only for the Chicago and New York offices.

You have a report (see below) that shows the values you are trying to extract, but it shows a Starting Value and Ending Value for Boston, which you don't want, and for departments 0001 and 0003, which you are not interested in.

Chicago Totals	
Starting Value	123
Dept 0001 Ending Value	118
Starting Value	234
Dept 0002 Ending Value	213
Starting Value	234
Dept 0003 Ending Value	213
Boston Totals	
Starting Value	56
Dept 0001 Ending Value	47
Starting Value	95
Dept 0002 Ending Value	90
New York Totals	
Starting Value	123
Dept 0001 Ending Value	118
Starting Value	312
Dept 0002 Ending Value	335
Starting Value	234
Dept 0003 Ending Value	213

Without using extraction variables, you could select the records that begins with the word Starting and select the records where department is equal to 0002, but you would pick up starting values for Chicago, Boston, and New York.

Instead, you could store the city name in an extraction variable. Then you could select records where the extraction variable value is not equal to Boston, and select records where the department is equal to 0002. You could then pick up the city, department, and starting and ending values you want.

Propagate Values for Key or Detail Fields to Multiple Reconciliation Keys or File Definitions.

Suppose a particular value occurs once near the top of an input report page, but you need to store that value as an internal or extended internal item on every reconciliation key that occurs on the page. Without extraction variables, only the first reconciliation key on the page would actually get the correct value for the internal or extended internal item, since internal or extended internal items are reinitialized whenever a new reconciliation key is encountered. If you store the value in an extraction variable, it stays there until you put something else in that variable.

You can then store the contents of the extraction variable in an internal or extended internal item when you are extracting the other detail data for a key.

Compare an Extraction Variable to a Literal

In selection fields you can compare an extraction variable to a literal value using any of the available comparison types.

You might have a report with three sections, each formatted identically. Without extraction variables, you would be unable to extract items from the second section only and not the first or the third. Notice on the following report that the only difference between the three sections is the section header. This header defines the department number. Extraction variables allow you to store the department number and compare the value in the extraction variable to a literal.

4 ■ Creating Job Definitions

Defining Extraction Variables

The following sample report contains 3 sections that are identical except for the department numbers at the top of each section. The reconciliation key is composed of 2 key segments (key fields), Store # and Employee #.

STORE 001	
DEPT 001	
EMPLOYEE #	SALARY
-----	-----
111-22	\$28,000.00
222-33	\$36,000.00
444-55	\$24,000.00
555-66	\$50,000.00
DEPT 002	
EMPLOYEE #	SALARY
-----	-----
123-45	\$45,000.00
234-56	\$39,000.00
345-67	\$44,000.00
456-78	\$62,000.00
DEPT 003	
EMPLOYEE #	SALARY

To reconcile information only for department 002, you can store the department number in an extraction variable and compare the extraction variable to a literal as follows:

1. Set up definitions to retrieve the first key segment: store #:

Select if Position 01 for a Length of 05 is equal to STORE
Retrieve key 1 (STORE#) in position 0007 for a length of 03

2. Select the lines that begin with the word DEPT.

Select if Position 01 for a Length of 04 is equal to DEPT
Get value from position 0006 for a length of 03, store in
extraction variable 001

Once the system finds the line with the word DEPT, it will pick up the 3-digit number and store it in the extraction variable. It picks up the number regardless of its value (001, 002, or 003).

3. Set up definitions to retrieve the second segment of the reconciliation key (employee #), but only if the department number is 002:

Select if Position 0001 for a Length of 03 is numeric
Select if Position 0001 for a Length of 03 in Extraction
Variable 1 is equal to 002

Retrieve key 2 (EMPL#) in position 0001 for a length of 06

The reconciliation job will retrieve only values for department 002.

Reformat to Combine Fields

Reformatting of an extraction variable can be specified in the **Select the source of data that is being reformatted** field on the Reformat Field screen. This will enable you to combine data and retrieve it using one key field.

Suppose you want to retrieve only data for store 001 and all of its departments from the report shown below. To do this, you could extract store 001 from line 1 and store it in an extraction variable. When you select line 2, you can reformat the saved extraction variable into the line adjacent to the department number. You could then pick up each combination of store 001 and each of its department numbers using one key field.

STORE 001		
DEPT 001	TOTAL INVENTORY	\$445,000.89
	TOTAL SALES	\$101,345.23
	TOTAL FIXED OVERHEAD	\$ 20,087.34
DEPT 002	TOTAL INVENTORY	\$324,000.89
	TOTAL SALES	\$ 94,125.26
	TOTAL FIXED OVERHEAD	\$ 19,083.58
DEPT 003	TOTAL INVENTORY	\$440,000.89
	TOTAL SALES	\$123,917.23
	TOTAL FIXED OVERHEAD	\$ 25,912.34
STORE 002		
DEPT 001	TOTAL INVENTORY	\$301,000.89
	TOTAL SALES	\$145,836.92
	TOTAL FIXED OVERHEAD	\$ 16,923.23
DEPT 002	TOTAL INVENTORY	\$445,000.89

4 ■ Creating Job Definitions

Defining Extraction Variables

Passing Values from One Input Source to Another

Extraction makes an assumption about which items belong with which keys based on the order in which they are defined in your file definitions. By using extraction variables to hold data for keys temporarily, you can control key specification with more precision.

Example

Suppose you need to reconcile data in an input file and you need to retain an identifier as part of the reconciliation key. The identifier is located in a different input file.

1. In the first input file, set the identifier as an extraction variable.
2. In the second input file, the Physical Sequential File Information screen (assuming that this is your input source file type), verify that extraction variables are not reset.
3. Set the key equal to the extraction variable.

Set a Detail Field from a Saved Extraction Variable

You can define a detail field to store the value of an extraction variable in an internal or extended internal item.

Example

A date displays at the top of a report page that contains several keys. You want to store the date as an internal or extended internal item on each key for use in reconciliation.

You will need to use an extraction variable, because if you store the extracted date directly in an internal or extended internal item, the item's value would be reinitialized after each key break.

Procedure:

1. At the top of the report, select and save the date into an extraction variable.
2. For each selected record, set the internal or extended internal item to the saved extraction variable. Be sure to select Extraction Variable as the source of data for the detail field and make the target an internal or extended internal item.

Set an Extraction Variable From Another Extraction Variable

This refers to defining a detail field and specifying an extraction variable in the **Select the source of data from which the key is being defined** field and another extraction variable in the **Select the destination of the extracted value** field. This allows you to split a value into multiple parts if needed.

Using Extraction Variables in Translation Tables

Extraction variable values can be passed to an external translation table to be translated and passed back to the extraction variable. Or they can be used to evaluate a value from an input record for translation.

Extraction Variables Screen

To define an extraction variable, from the Main Menu, select **Definitions > Extraction Variables**. The Extraction Variables list screen will be displayed. This screen lists the extraction variables defined for each job. To create an extraction variable, press F6. The Extraction Variables screen will be displayed.

mm/dd/yy 12:00:00	Job Definitions	ACR/D releasenumbr
JVAR	Extraction Variables	USER1
		ADD
Job Name: _____	Step Name: _____	Qualifier: __
Title:		
Item Number	----- Description -----	
1	_____	

Number of Decimals: _		Next Screen _____
F3=Save/Exit	F12=Previous	

Job Name/Step Name/Qualifier. Identifies the job for which this item will be used. See [“What is a Job ID?” on page 33](#).

Title. A descriptive title for the extraction variable.

Item Number. This field defaults to the next available number. We recommend that you let this field increment automatically.

Description. Enter a meaningful description. We recommend that you indicate in the description whether the extraction variable is in extended format. This will make it easy to keep an individual extraction variable consistently regular or extended when you reference it in file or table definitions throughout the job. See [“Consistency in Specifying Extended Format for an Extraction Variable” on page 68](#).

4 ■ Creating Job Definitions

Defining History Items

Number of decimals. This field is useful when extracting mixed decimal numeric values.

Optionally specify the number of decimal places to use when storing the value. Leave the field blank if you want the system to use the default (original) processing, which is as follows: The decimal places from the source will be ignored and the number of decimals stored will be 0 for counts and 2 for amounts.

Defining History Items

A history item specifies retrieval from the history database of a value that was stored in a previous run of the same reconciliation key or another specified key. This allows the value to be used in calculated items or rules that you define for the current job run. The retrieved value can be an internal or extended internal item, job run date, job run time, or cycle number.

To create a history item, from the Definitions Main Menu, select **History Items**. When the History Items List screen displays, press F6 to create a new item.

History Items Screen

```

mm/dd/yy 12:00:00      Job Definitions      ACR/D releasenumbr
JHST                  History Items          Create

Job/Step: XYZ         STEP1      Qualifier: _____ F4 for list

Item Characteristics
Name:                _____
Description:         _____

History Access:      1      1=Default, 2=Modify
Print Commas:       1      1=Default, 2=Yes, 3=Do not print
Print Decimals:     5      0 to 9, or Blank
Print Format:        5      1=Cnt 2=Amt 3=Dat 4=Txt 5=Tim 6=Dat & Tim
Print Location:     1      1=Left, 2=Right
Print Leading Zeros 1      1=Yes, 2=No

Retrieval Characteristics
Job/Step/Qual/Name: _____ F4 for list
Relative Cycle:     -01      Generate thru:  _ _ _      +00 to -99
If Cycle# specify format:  _
ACR/CN Indicator:   2      1=Yes, 2=No
ACR/CN Domain:     00000000 F4 to List
ACR/CN Item Number: 1      1-999

F3=Save/Exit  F5=Menu  F12=Cancel
    
```

Job/Step and **Qualifier**. Press F4 to select the job for which this item will be used.

Item Characteristics

Name. This uniquely identifies the history item. It defaults to the next available number. We recommend that you let this field increment automatically.

Description. Description of the item that will print on a variety of reports. For more details, see “Rule Processing When Items Are Not Found” on page 107.

History Access. Change the default to 2 (Modify) to display the “History Access Screen” described on page 80. This screen provides additional options, including history key masking, the Required item indicator, and the variable cycle options.

Print Commas. If you are not using 22-character format and you specified Count or Amount as the Format for the item, specifies whether to print the thousands place indicator (the default character is a comma) in counts and amounts related to the job reports. Options:

1. Default. Use the setting in your user options.
2. Yes. Prints the thousands place indicator.

4 ■ Creating Job Definitions

Defining History Items

3. Do not print. Suppresses printing of the thousands place indicator.

Print decimals. This field specifies the number of decimal places that will be assigned by the system and printed on reports for counts or amounts (0-9).

Print format. Format for printing the item on reports. For more information, see “[Setting the Print Options](#)” on page 51.

Print location. Specify where the item will print. This is not used for extended internal items.

1. In the left column of the control report. This column heading has the word INPUT as its heading.
2. In the right column of the control report. This column heading has the word OUTPUT as its heading.

Print Leading Zeros. Indicate whether to print the leading zeros on the reports. The supported Print Format is ‘Count’.

The “Print commas” indicator must be disabled when “Print Leading Zeros” is enabled.

Retrieval Characteristics

Job/Step/Qual/Name. This field identifies the history key and value to be retrieved. The first three fields (Job/Step/Qual) are the Job ID of the history key referenced by the history item.

The last two fields (Name) identify the value to be retrieved, as follows:

- Item type (unlabeled). Enter the item type to retrieve in this 1-character field. Valid values:
 - I. Internal item.
 - X. Extended internal item.
 - D. Job run date. The print format will be Date.
 - T. Job run time. The print format will be Count.
 - C. Cycle number. If the cycle format (see [If Cycle# specify format below](#)) is **As is**, the print format will be Count. If the cycle format is not **As is**, the print format will be Date.

Note: For more on print formats, see [Setting the Print Options on page 51](#).

For more on the date formats, see [Date Format Options on page 182](#)

- Item name (unlabeled). If the item type is I or X, enter the item name or press F4 from the Item Type field to select it from a list of items.

Relative Cycle. Identifies the occurrence of the internal or extended internal item to retrieve. The current cycle is +00, -01 is the preceding cycle, -02 is the cycle before that, and so on.

Generate thru. This field is optional. Valid values are -99 to +00, and identify the highest cycle to use to generate the history item. If the field is not blank, a set of consecutive history items are generated. One history item is generated for each relative cycle specified in the range. The item number defined in the panel is used to generate the first history item.

If Cycle# specify format. If the item type is C, complete this field. The As is format can only be used when the print format is Count. Options:

1. YYMMDD
2. MMDDYY
3. MMDDCCYY
4. DDMMYY
5. YYJJJ
6. DDMMCCYY
7. As is
8. CYYMMDD
9. CCYYMMDD
10. CCYYJJJ

ACR/CN Indicator. Enter 1 (Yes) if you are using ACR/Connector and the history item should be retrieved from a history database associated with another ACR/Connector server node (not from the environment library you specified on your library list. For more information on ACR/Connector, see the ACR/Connector Installation Guide.ACR/CN Domain

ACR/CN Domain. If **ACR/CN Indicator** is Yes, position your cursor on the field and enter F4 to display the ACR/Connector Domain Selection list screen. Select the Logical Platform ID (LPID) and for the server node associated with the history database where the history item resides. The History Items screen will redisplay showing the LPID you selected.

ACR/CN Item Number. If **ACR/CN Indicator** is Yes, specify the number of the internal or extended internal item you want to retrieve. When using ACR/Connector, you can retrieve a maximum of 970 internal or extended internal items per history record.

Press F3 to save and exit.

If you selected the **Modify** option for the History Access field, the following screen will display.

4 ■ Creating Job Definitions

Defining History Items

History Access Screen

```
History Access
----- History Key/Mask -----
--Key1-- --Key2-- --Key3-- --Key4-- --Key5--
*****  *****  *****  *****  *****

Required Item:           3  1=Req, 2=Not Req, 3=Req/Skip
Variable Cycle Indicator: 3  1=No, 2=Equals time, 3=equals cycle
Var Cyc Most Recent Ind: 2  1=Yes, 2=No

--- Variable Cycle History Key/Mask ---
--Key1-- --Key2-- --Key3-- --Key4-- --Key5--
-----
F3=Exit  F12=Cancel
```

History Key/Mask. This field defaults to all asterisks (*). This entry will take the key you are processing and get the specified cycle for that key from the database.

Complete the 8-digit fields (Key1, Key2, and so on, totaling 40 characters) as appropriate if a different reconciliation key contains the item you want to use for this history item.

You can use key masking to mask out any or all of the characters to look for a reconciliation key with literal characters in specific positions.

If you leave an asterisk (*), which is a wildcard, in any position, the system overlays it with the character from the current key.

This field defaults to all asterisks (*). This entry will take the key you are processing and get the specified cycle for that key from the database.

For an example, see [“Example of Using History Key Masks”](#) on page 82.

Required Item. Allows you to indicate whether the history item is required for reconciliation. A history item is considered missing if the history record of the history job ID or variable cycle job ID for the requested relative cycle is not in the history database.

1. Required. The item is required for an in-balance condition. Rules containing this missing item will be set to out-of-balance.
2. Not Required. The rule will be evaluated with the missing item equal to zero if it is a numeric item and spaces if it is a text value.
3. Req/Skip. Any rule using this item will be ignored if this item is missing.

For more information on this field, see [“Rule Processing When Items Are Not Found”](#) on page 107.

Variable Cycle Indicator. Indicate whether the use of this history item for reconciliation depends on the cycle number and run time of another history key.

1. No. Variable cycle processing not in effect. Do not use variable cycle processing.
2. Equals time. Use the history item for reconciliation if the run date and run time of the current history key are greater than the run date and run time of the most recent run of the variable cycle history key determined in step 5 below.
3. Equals cycle. Use the history item only if the cycle number of the current history key is greater than the most recent cycle number of the variable cycle history key specified below.

Variable Cycle Most Recent Indicator

Options are:

1. Yes, history cycle is current. This option will make the most recent cycle (+00) equal to the first cycle you find in history for the specified key.
2. No, key cycle is current. This option will make the most recent cycle (+00) equal to the cycle of the current key.

For example, suppose you have four cycle numbers: the current cycle is 20060616 and three cycle numbers stored in history 20060613, 20060614, and 20060615.

If you choose option 1 (History cycle is current), the most recent cycle (+00) is 20060615. That is the highest cycle number in history.

If you choose option 2 (Key cycle is current), the most recent cycle (+00) is 20060616. This current cycle number is not stored in history.

Therefore, if you choose the key cycle to be current, you must request relative cycle of -01 in order to get the first history cycle.

Variable Cycle History Key/Mask. The history key whose cycle number and run time determine whether this history item is used for reconciliation

Similar to a history key mask, the variable cycle history key can be masked to tell the system exactly what you are looking for within the history key. You can mask out any or all of the those 40 characters to look for a specific key or portion of a key. You can use the wildcard (*) just as you can in the History Key/Mask field.

Press F5 to accept.

4 ■ Creating Job Definitions

Defining History Items

Example of Using History Key Masks

By default the history key mask contains all asterisks(*). This means the history item will use the current reconciliation key.

If you want to use a different reconciliation key to determine your history item, you will need to set up a history key mask. Consider the following reconciliation jobs.

Job 1: Reconcile Human Resources information. HR uses the employee ID as the reconciliation key. This job consists of validating HR information on a weekly basis between two processes, an edit process and an update process called “Employees Terminated”.

Job 2: Reconcile Payroll information. Payroll also uses the employee ID as the reconciliation key. However, their job consists of validating that year-to-date accumulations are working correctly.

Your task now is to make sure that the Payroll run does not send checks to terminated employees as defined on the HR system.

Currently, HR jobs and Payroll jobs are kept on different history databases. Job 1 (HR) has internal or extended internal items 1-15 defined. Job 2 (Payroll) has internal or extended internal items 1-10 defined.

To solve this situation you can store the HR and Payroll information on the same history database. Set up a reconciliation key mask to keep them separate. Then set up a history key mask to retrieve the HR information in the Payroll run.

To do this you will modify each job:

Job 1

1. **Modify the Basic Job Information to include a reconciliation key mask:**
***** HUMANR.

This is the same as saying store the extracted keys on the history database with the literal HUMANR in the last key field. This is necessary to store HR histories separately from payroll histories, because these will both be stored in the same database.

2. **Set up internal or extended internal item I-16 with the description DATE TERMINATED so that it will be available for Payroll to use later.**

Job 2

1. **Modify the Basic Job Information to include a reconciliation key mask:**
***** PAYROLL.

2. Add a history item definition E-001 using the following history key mask:

***** ***** ***** ***** HUMANR

using internal or extended internal item I-16 as current. The history items that have been previously set up do not need to be changed.

3. Add a reconciliation rule to test that E-001 (DATE TERMINATED from the HUMANR history) does not indicate that you are paying terminated employee.
4. Modify the execution JCL to use a history database that will now contain both HR and payroll histories for every employee in the company.

Defining Calculated Items

A calculated item specifies mathematical manipulation of values from internal (or extended internal) items, history items, other calculated items, literals (numeric constants, or functions. Calculated items can be used in reconciliation rules in the same way as internal or extended internal items, extended internal or extended internal items, and history items. Up to 999 calculated items can be specified per job ID.

The values of calculated items are not stored in history. If you want to store the value of a calculated item in the history database, you must assign it to an internal (or extended internal) item.

Formula

The formula for computing the value of a calculated item is defined in the Equation section of the Calculated Items Screen as the following arithmetic expression:

LHS (Left-hand side) Calculation Operator RHS (Right-hand side)

Conditional Calculated Items

A calculated item can be conditional. To make it conditional, set the **Will this be a conditional calculated item?** field to Y on the Calculated Items Screen. This means it will be processed only if one of the following is true:

- The standard rule that references it in the Standard Rules Screen's **Calculated item to process** field is processed and is in balance.
- The conditional rule that references it in the Conditional Rules Screen's **Calculated item to process** field is processed and the condition is met.

The messages that may be generated are described in the section below.

Messages Generated When a Calculated Item is Not Processed

When a conditional calculated item is not processed, one of the following messages will appear in the Control Report:

- **BYPASSED**. This indicates that 1) the standard rule that referenced the calculation was not in balance, or 2) the conditional rule that referenced the calculation was processed but the condition was not met.

- **NOT PROCESSED.** This indicates that the **Calculated item to process** field on the Calculated Items Screen was set to Y but the item was not referenced in a rule.
- **INACTIVE.** This indicates that the standard or conditional rule in which the item was referenced remained inactive.

Setting Up Calculated Items

To create a calculated item, from the Definitions Main Menu, select **Calculated Items**. When the Calculated Items List screen displays, press F6 to create a new item.

Job/Step/Qualifier. Identifies the job for which this item will be used. To change the job, press F4 and select a different job.

Item Characteristics

Name. A descriptive name for the item.

Conditional Calc. Enter Y if you are going to reference this item in the Calculated Item to Process field of a standard or conditional rule. This makes the calculated item conditional. For more information, see [“Conditional Calculated Items” on page 84](#).

Description. Description of the item that will print on a variety of reports.

Print Format. Indicates how the item will print on reports.

1. **Amount.** A dollar amount of up to 15 digits, with the currency symbol and thousands marker symbol as specified in the user options, a decimal point, and 2 decimal places. If the value is negative, the negative sign symbols as specified in the user options will be printed.
2. **Count.** A number of up to 15 digits, printed with the thousands marker symbol as specified in the user options and no decimal point. If the value is negative, a trailing minus sign will print.
3. **Date.** A date represented in the format specified in the user options.
4. **Time.** Print the item in the '-99999999TTTTTTTTTTTTTT' format, where -99999999 is the relative day and TTTTTTTTTTTTTT is the formatted time.
5. **Date & Time.** Print the item in the 'DDDDDDDDTTTTTTTTTTTTTT' format, where DDDDDDDD is the formatted date and TTTTTTTTTTTTTT is the formatted time. See [“Setting the Print Options” on page 51](#) for more information

4 ■ Creating Job Definitions

Defining Calculated Items

Print Decimals. If you selected Count or Amount in the Print Format field, specify a value. Regarding constraints related to single- or double-precision numbers, see “Constraints for Single- and Double-Precision Numbers” on page 55.

Half-Adjustment. Enter 1 if you want counts and amounts to be rounded.

Print Commas. If you are not using 22-character format and you specified **Count** or **Amount** as the Format for the item, specifies whether to print the thousands place indicator (the default character is a comma) in counts and amounts related to the job reports. Options:

1. Default. Use the setting in your user options.
2. Print. Prints the thousands place indicator.
3. Do not print. Suppresses printing of the thousands place indicator.

Print Leading Zeros. Indicate whether to print the leading zeros on the reports. The supported Print Format is ‘Count’.

The “Print commas” indicator must be disabled when “Print Leading Zeros” is enabled.

Required Item. Indicate the processing that should take place if the calculated item is incomplete. The item will be incomplete if it contains any of the following: 1) missing internal items, extended internal items, or history items, or 2) incomplete calculated items.

1. Required. If any components of the calculated item are not found, rules involving this item are not evaluated. They are set to out-of-balance and marked MISSING ITEM on the Control Report.
2. Not Required. If any components of the calculated item are not found, the missing components will be initialized as follows:
 - Any missing internal items, extended internal items, or history items that are components of the calculated item will be initialized to zero.
 - Any incomplete calculated items that are components of the calculated item will have their missing components initialized to zero as explained in the previous bullet.

The calculation will then be completed and its result will be used in the rule. The rule result may be in- or out-of-balance.

Example of processing a calculated item that is Not required.

Suppose your definition includes calculated item C-1, which you set to Not required. The calculation is as follows:

I-1 + I-2.

Assume that the value of I-1 is +5 and that the value of I-2 is missing (so I-2 is initialized to 0).

The calculation will be completed as follows:

$$+5 + 0 = +5$$

If your job contains the rule C-1 = +10, the rule result will be out-of-balance.

If your job contains the rule C-1 = +5, the rule result will be in-balance.

Note: The value of an item initialized to low-values will appear as spaces on the Control Report

3. **May Skip.** Skip all rules involving this item, including conditional rules that evaluate or process rules that involve this item. Skipped rules will be set to in-balance and marked MISSING ITEM on the Control Report.

For more information, see [“Rule Processing When Items Are Not Found” on page 107](#).

If @CYCLE, specify format. If the function @CYCLE is used, specify the cycle number format.

Note: If @CYCLE is used, the print format must be Count or Date.

If the print format is Date, the cycle number format “As is” is not allowed.

4 ■ Creating Job Definitions

Defining Calculated Items

Equation

Note: The formula for computing the value of a calculated item is defined as the arithmetic expression:

Left-hand side Operator Right-hand side

Each side of the formula defines one of the following:

- The sum of up to 10 internal or extended internal items, history items, and previously-defined calculated items.
- A literal.
- A numeric constant.
- A function (right-hand side only).

The operator specifies how the left-hand side relates to the right-hand side. It will be a mathematical operator or will indicate that a date function will be used.

LHS/RHS. Left-hand side or right-hand side of the expression. On either side of the expression, you can enter a literal (numeric constant) or any combination of up to 10 internal, extended internal, history and/or calculated item results. On the right hand side only, you can enter a function as detailed below.

- A numeric constant is a positive or negative number (if the number is positive, the sign in the first position is optional) consisting of up to 30 digits, up to 9 of which can be decimal places. Only one numeric constant is allowed per side, and it must be the only entry on that side.
- “Date & Time” item is allowed in the LHS and RHS of a Calculated Item. Date & Time item is a combination of a date item and a time item. Date & Time item must be entered in the following format: ITEM1 & ITEM2 (e g I-001 & I-002).
Where, ITEM1 stores the date count value, and ITEM2 stores the centisecond count.
- If you want to enter a time value in centisecond, press F10 to convert time in the HHMMSSNN format to a centisecond value.
- Enter the item number or press F4 to select it from a list of the items you have defined for this job.
- You can use a function only on the right-hand side. The operator must be > (input to). You specify a function to which the left-hand side is input. The functions are as follows:

- **@DATE.** The left-hand side value is a literal, an internal item, or an extended internal item defined as a count containing a numeric Gregorian date in the format CCYYMMDD. The entire date, including century, year, month, and day, is converted into a date count value. Use this feature for date comparisons or other calculations. For example, you can determine aging by subtracting the original date from the current date. The literal +99999999 can be used to obtain the date count value for the current date. Century positions will print only if you specify this in the user options.
- **@DAY.** The left-hand side contains a date count value from which the DD Gregorian value should be extracted. The two-digit day is converted into a value that can be used mathematically. Use this function to find the day of the month in order to set a range in a comparison.
- **@MONTH.** The left-hand side contains a date count value from which the MM Gregorian value should be extracted. The result is multiplied by 100 (for example, a date in May would result in a value of 500). This function converts the month into a value that can be used mathematically. Use this function to find the month of processing. It can be added to the @DAY value to create a date.
- **@YEAR.** The left-hand side contains a date count value from which the CCYY Gregorian value should be extracted. The result is multiplied by 10,000 (for example, a date in 2007 would result in a value of 20070000). This function converts the year into a value that can be used mathematically. Use this function to extract a year for comparisons. Can be added to month and day to form a date. This function can be used to indicate a range.
- **@TIME.** The left-hand side requires a literal, but is not used. Enter +99999999. The function returns the current time. Use this function with another calculation to determine the time since the last run.
- **@DAYOFWK.** The left-hand side value is a literal, an internal item, or an extended internal item defined as a count containing a numeric Gregorian date in the format CCYYMMDD. The literal +99999999 can be used as the current date (today). The value returned will be a number representing the day of the week: 1=Monday, 2=Tuesday, 3=Wednesday, 4=Thursday, 5=Friday, 6=Saturday, 7=Sunday. Use this function to determine the day of the week for checking the proper processing date.

4 ■ Creating Job Definitions

Defining Calculated Items

- **@TIMECSEC.** The left hand side contains a time value in the HHMMSSNN format. Use this function to convert the time value to a centisecond value. If the literal is not a valid time, zero is substituted during reconciliation. The allowed Print Formats for the function are Count, Time, Date & Time.
- **@DTTMCSEC.** The left hand side requires a literal +99999999. This function returns the centisecond value of the current date and time of the job.
The allowed Print Formats for the function are Count, Time, Date & Time.
- **@CYCLERUN.** The left hand side contains a count or an item. This value will be added to the cycle ID. Cycle ID is a combination of cycle number and run number.
- The allowed Print Format for the function is Count.
- **@CYCLE.** The left-hand side contains a positive or negative count (a number of days), which can be either 1) a literal, or 2) an item value. This value will be added to the cycle number. To use the cycle number with no addition, enter +0 on the left hand side.
 - If the print format is Date, the cycle format “As is” is not allowed, because the result is stored as a date count value.
 - If the print format is Count and the cycle format is not As is, the result is printed in the cycle format you specify.
 - If the print format is Count and the cycle format is As is, the result is stored as a count value. The following table shows that, when you use the @CYCLE function, different print formats will yield different results. Here, the cycle number is 07312010 and the date format in user options is MM/DD/CCYY.

Calculation Formula	Cycle Number Format	Print Format	Calculation Result (Internally Stored As)	Report Display with User Option MMDDYY
+1 > @CYCLE	MMDDCCYY	Date	The cycle number value will be converted to the date count value 149596 before the calculation (149596 + 1). The resulting date count, 149597, will be converted to a date in MMDDCCYY format.	08/01/10
+1 > @CYCLE	MMDDCCYY	Count	The cycle number value will be converted to the date count value 149596 before the calculation (149596 + 1). The resulting date count, 149597, will be converted to MMDDCCYY format. The leading zero is suppressed for a count.	8012010
+1 > @CYCLE	Accept as is	Count	The cycle value will be used without conversion. After the computation 07312010 + 1, the resulting value (7312011) will be stored in the calculated item. The leading zero is suppressed for a count.	7312011

Operator. The operator to be used in calculations. Options:

- + Add the LHS to the RHS. (This option is the default.)
- Subtract the RHS from the LHS.
- * Multiply the LHS by the RHS.
- / Divide the LHS by the RHS.
- > The LHS value is input to the function specified on the RHS.
- A+ Add the LHS to the RHS and compute the positive absolute value of the result.
- A- Add the LHS to the RHS and compute the negative absolute value of the result.

Press F3 to save and exit.

Defining Rules

This section contains the following subsections:

- “Understanding Standard Rules” on page 92
- “Setting Up Standard Rules” on page 93
- “Understanding Conditional Rules” on page 99
- “Setting Up Conditional Rules” on page 104
- “Rule Processing When Items Are Not Found” on page 107

Rules define the criteria to be applied to the values of internal items, extended internal items, calculated items, and/or history items to determine if values extracted from an input source are in or out of balance.

A job may have up to 999 rules defined to determine if a variety of values are in balance. If one or more rules are out of balance, the entire job is considered out of balance.

Typically, you will want to have a rule set a return code for an out-of-balance condition and create a text message associated with the return code. Return codes and the messages you associate with them appear on the Control Report.

Understanding Standard Rules

To go directly to the Standard Reconciliation Rule screen, see “[Setting Up Standard Rules](#)” on page 93.

Active Standard Rules

An active standard rule defines criteria for a comparison (using items, literals, and constants as described above) that is evaluated when reconciliation is performed. The status of an active standard rule can also be evaluated by conditional rules.

If the result of the rule is in-balance, a standard rule can activate a conditional calculated item.

If the result is out-of-balance, the rule can perform one of the following actions:

- Set the return code as specified in the **Set Return Code** option on the Basic Information screen.
- Set the 4-digit code of your choice as the completion code for the job. If more than one rule is out-of-balance, the highest code will be set.
- Trigger an abend of the job.

Following are examples of active standard rules:

I-001 = X-002, set an abend code

I-001 > +100, set a return code of 3075

I-001 + C-001 < E-003, set a return code of 3200

Inactive Standard Rules

Inactive standard rules are not evaluated each time a job is run. They are used when control items must be compared under specific circumstances.

An inactive standard rule will only be evaluated in one of the following situations: 1) it is included in the Evaluate field of a conditional rule, or 2) it is included in the Process rules field of an active conditional rule and made active when the conditional rule's result is CONDITION MET.

Inactive standard rules can:

- Evaluate control items in a reconciliation job. Using an inactive standard rule in the left side of a conditional rule equation will evaluate the criteria defined by the inactive standard rule.
- Perform an action in a reconciliation job. Using an inactive standard rule in the process rules section of a conditional rule equation activates the rule, causing it to perform as an active standard rule.

Additional capabilities can be accessed from the [“Optional Rule Specifications Screen”](#) on page 96.

Following are examples of inactive standard rules:

R001: I-002 > \$50,000

R002: I-011 > +90

Setting Up Standard Rules

Standard Reconciliation Rule Screen

To define a standard rule, from the Definitions Main Menu, select **Rules**. The Reconciliation Rules list screen will be displayed. This screen lists the rules defined for each job. Press F6 to display the Create Rule screen and select Standard Rule to display the Standard Reconciliation Rule screen..

Job Name/Step Name/Qualifier. Press F4 and select the job ID.

Rule Characteristics

Name. Name of the rule.

Description. Description of the rule.

4 ■ Creating Job Definitions

Defining Rules

Print Format. Indicates how the item will print on reports.

1. **Amount.** A dollar amount of up to 15 digits, with the currency symbol and thousands marker symbol as specified in the user options, a decimal point, and 2 decimal places. If the value is negative, the negative sign symbols as specified in the user options will be printed.
2. **Count.** A number of up to 15 digits, printed with the thousands marker symbol as specified in the user options and no decimal point. If the value is negative, a trailing minus sign will print.
3. **Date.** A date represented in the format specified in the user options.
4. **Text.** A character string up to eight characters long enclosed in single quotation marks.
5. **Time.** Print the item in the '-99999999TTTTTTTTTTTTTT' format, where -99999999 is the relative day and TTTTTTTTTTTTTT is the formatted time.
6. **Date & Time.** Print the item in the 'DDDDDDDDTTTTTTTTTTTTTT' format, where DDDDDDDD is the formatted date and TTTTTTTTTTTTTT is the formatted time. See “[Setting the Print Options](#)” on page 51 for more information.

Print Decimals. If you selected Count or Amount in the Print Format field, specify a value. Regarding constraints related to single- or double-precision numbers, see “[Constraints for Single- and Double-Precision Numbers](#)” on page 55.

Rule Status. Type of rule, as follows:

1. **Active.** See “[Active Standard Rules](#)” on page 92.
2. **Inactive.** See “[Inactive Standard Rules](#)” on page 93.

Return Code. Optionally enter a code that can be set if the rule is not satisfied. Codes between 0050 and 3999 are recommended because they do not duplicate system-generated codes.

Print commas. Indicate whether to include the thousands place indicator (the default character is a comma) in counts and amounts related to this rule in the Control Report, User Report, and Free-form Report. Valid values:

1. **Default.** Use the user options settings for the Print Commas for Counts and Print Commas for Amounts fields.
2. **Print.** Print the thousands place indicator.
3. **Do not print.** Suppress printing of the thousands place indicator.

Print leading zeros. Indicate whether to print the leading zeros on the reports. The supported Print Format is 'Count'.

The "Print commas" indicator must be disabled when "Print Leading Zeros" is enabled.

Truncate/Round. Indicate whether to override the default Job level truncate/round options for this Calculated Item. Use Default, to use the truncate/round settings specified at the Job level. Select Round, to round the number to the nearest decimal. Select Truncate to truncate the value to the specified number of decimals.

Calculated Item to Process. Optionally enter the number of a calculated item that will be processed if this rule is in balance. This type of calculated item is called a conditional calculated item. For more information, see ["Conditional Calculated Items" on page 84](#).

Accumulate out-of-bal value. Specify Y to sum the specified item value for the rule that is out of balance. Otherwise, specify N.

Item type. Specify the item type for which to accumulate the out-of-balance value.

Item name. Specify the name of the item for which to accumulate the out-of-balance value.

LHS and RHS. Left-hand side/Right-hand side (of the comparison). The following information applies to both the LHS and RHS:

Enter a literal, numeric constant, or any combination of up to 15 internal, extended internal, history, or calculated items.

- A text literal is a text string of up to 80 characters prefaced by a single quotation mark (for example, '05/05/09'). No ending quotation mark is used. Only one literal is allowed per side, and it must be the only entry on that side.
- A numeric constant is a positive or negative number (the sign is required) consisting of up to 30 digits, up to 9 of which can be decimal places. Only one numeric constant is allowed per side, and it must be the only entry on that side.
- "Date & Time" item is allowed in the LHS and RHS of a balancing rule. Date & Time item is a combination of a date item and a time item. Date & Time item must be entered in the following format: ITEM1 & ITEM2 (e g I-001 & I-002).
- If you want to enter a time value in centisecond, press F10 to convert time in the HHMMSSNN format to a centisecond value.

4 ■ Creating Job Definitions

Defining Rules

- To select internal items, extended internal items, history items, or calculated items, enter the item directly or press F4 to select from a list of the items defined for the job. Acceptable formats for item numbers include I-001 and I-1 but not I1. If your operand contains more than one item, the items must be linked with plus (+) or minus signs (-). For example, a valid entry would be:

LHS: I-001 + E-1 + X-003

Balancing Operator: EQ

RHS: I-6.

Operator. Indicates how the left-hand side (LHS) will be compared to the right-hand side (RHS):

= LHS is equal to RHS.

≠ LHS is not equal to RHS.

> LHS is greater than RHS.

< LHS is less than RHS.

>= LHS is greater than or equal to RHS.

<= LHS is less than or equal to RHS.

When you are finished with your entries, press Enter, then press F10 to view the Optional Rule Specifications screen.

Optional Rule Specifications Screen

To reach this screen, press F10 either from the Standard Reconciliation Rule screen or the Conditional Reconciliation Rule screen, which is documented later in this chapter on [page 104](#).

The Rule Action, Tolerance/Skip, and Tolerance/Skip Value fields do not appear on the Optional Rule Specifications screen for a Conditional Reconciliation Rule.

Optional Rule Specifications		
Store History:	<u>5</u>	1=No, 2=Add, 3=Insert, 4=Delete, 5=Default
Print Control Report:	<u>3</u>	1=Do not print, 2=Print, 3=Default
Print Recap Report:	<u>3</u>	1=Do not print, 2=Print, 3=Default
Print User Report:	<u>3</u>	1=Do not print, 2=Print, 3=Default
Rule Action:	<u>1</u>	1=Default, 2=Set completion code, 3=Setabend code
Tolerance/Skip:	<u>1</u>	1=Neither, 2=Absolute, 3=Percentage, 4=Skip
Tolerance/Skip Value:	<u>0</u>	
F3=Exit F12=Cancel		

Store History. Set an option for storing history records in the history database for this job if you want to override the setting for this option on the Basic Job Information screen (JBAS).

1. No. Do not store history records for this job.
2. Add. Add or update the history key. Do not insert history with a lower cycle number than the current history record.
3. Insert. Add, update or insert a history key. This allows you to add a key to history even if the cycle number is less than the highest stored cycle number.
4. Delete. Delete the history key from the database. For this value, the reconciliation key's cycle ID must match the current history key. For example, suppose key 1 cycle 5 is stored on the database and the current job also has key 1 cycle 5. If the rule is satisfied, it is removed from the database.
5. Default. Use the setting for this option in the basic job information.

Print Control Report. Set an option if you want to override the setting for this option on the Basic Job Information screen (JBAS).

1. Do not print. Do not print the report.
2. Print. Print the report.
3. Default. Use the setting for this option in the basic job information.

Print Recap Report. Set an option if you want to override the setting for this option on the Basic Job Information screen (JBAS).

1. Do not print. Do not print the report.
2. Print. Print the report.
3. Default. Use the setting for this option in the basic job information.

Print User Report. Set an option if you want to override the setting for this option on the Basic Job Information screen (JBAS).

1. Do not print. Do not print the report.
2. Print. Print the report.
3. Default. Use the setting for this option in the basic job information.

4 ■ Creating Job Definitions

Defining Rules

Rule Action. Set an option if you want to override the setting for the **Set Return Code** option on the Basic Job Information screen (JBAS). This setting controls processing when the rule is not satisfied. Applicable only for file interface mode.

1. Default. Use the default setting for the job that you specified for the Set Return Code option in the basic job information.
2. Set completion code. Set the return code shown in the Return Code field on the Standard Reconciliation Rule screen.
3. Set abend code. Set a user abend code equal to the return code.

Tolerance/Skip. When using the = operator for a rule, you can use a tolerance that will allow you to have an in-balance condition even when the left- and right-hand sides of the rule are not exactly equal. When you choose to use a tolerance or skip processing, you must enter the tolerance value or skip value.

1. Neither. Neither tolerance nor skip processing is in effect (default).
2. Absolute. In the **Tolerance/Skip Value** field, enter the maximum allowable absolute value of the difference between the two sides of the comparison formula. Up to nine decimal places can be entered.
3. Percentage. In the **Tolerance/Skip Value** field, enter a percentage of the value of the LHS of the rule. For example, if you enter a five, that represents 5%.
4. Skip. Skip the rule if the value of the left-hand-side is equal to the number you enter in the **Tolerance/Skip Value** field.

Tolerance/Skip Value. Complete if your choice for the **Tolerance/Skip** field is anything other than 1. See the **Tolerance/Skip** field for instructions.

Press F3 to save the rule and exit to the Standard Reconciliation Rule screen or the Conditional Reconciliation Rule screen.

Standard Rules Example

Most of your rules will probably be simple comparisons of control items. These rules are standard rules. For example, you may compare the sum or difference of some totals from one report to a previously captured control total, as follows:

Item	LHS	Operator	RHS
R-001	(I-1 + I-2 - I-3)	EQ	(E-1)

The rule can be evaluated with a tolerance value, or it can use rule skip processing. Usually, your rules will be specified as active. That is, if the rule is out-of-balance, set a return code for this rule (which, in turn, initiates printing of the associated messages).

Understanding Conditional Rules

A conditional rule uses IF/THEN logic to evaluate the status of up to 10 other rules to determine if a condition is met. You can specify whether the condition should be true or false.

To learn more about conditional rules, see the following sections:

- “IF/THEN Logic” on page 99
- “Active Conditional Rules” on page 100
- “Inactive Conditional Rules” on page 100
- “How Conditional Rules Are Evaluated” on page 101
- “If True and If False Logic in Conditional Rules” on page 101
- “AND Logical Expressions” on page 102
- “OR Logical Expressions” on page 103

To go directly to the Conditional Rules screen, see “Conditional Reconciliation Rule Screen” on page 104.

IF/THEN Logic

Valid Conditions

When evaluating a conditional rule:

- The valid condition for a standard rule is assumed to be **in-balance**.
- The valid condition for a conditional rule is assumed to be **condition met**.

The negate \neg [NOT] symbol (see "NOT" below) can be used to change the valid conditions.

AND and OR

The rules to be evaluated in the IF portion of the rule are specified on the Conditional Rule screen. Rules are linked by + [AND] and | [OR] symbols.

Each rule on the IF side is evaluated to determine whether the condition is met. For example, here is Rule 4 (R4), an active conditional rule:

Left-hand side	Right-hand side
IF R1 + R2 True	THEN process R3

The above rule is interpreted as:

4 ■ Creating Job Definitions

Defining Rules

If (Rule 1 is in balance) and (Rule 2 is in balance) are true, then process Rule 3.

NOT

The negate \neg [NOT] symbol can be used before a rule to change the valid conditions. If the negate symbol is used:

- The valid condition for a standard rule is assumed to be **out-of-balance**.
- The valid condition for a conditional rule is assumed to be **condition not met**.

Following is an example where the \neg [NOT] symbol is used with R2:

Left-hand side	Right-hand side
IF R1 + \neg R2 True	THEN process R3

Assuming that R2 is a standard rule, the above rule can be interpreted as:

If (Rule 1 is in balance) and (Rule 2 is out-of-balance) are true, then process Rule 3.

Active Conditional Rules

Description

Active conditional rules are evaluated every time the job is run.

The THEN (right-hand side) portion of the rule defines the action to be taken if the condition is met, which can be either of the following:

- Execute Process Rules. This activates up to 10 inactive standard rules.
- Set Return Code. This sets the 4-digit return code shown in the **Return Code** field on the Conditional Rule screen.

The Rule Action field on the “[Conditional Reconciliation Rule Screen](#)” on [page 104](#) provides additional capabilities.

Also, if the rule references a conditional calculated item, the conditional calculated item will be processed if the condition is met.

Inactive Conditional Rules

Description

Inactive conditional rules are intended for use within active conditional rules as a means to associate subsets of rules within a rule. They take the place of the logical expressions (parentheses). That is, the rule number of the inactive conditional rule is used in place of the logical expression.

Inactive conditional rules are used when you need to:

- Use both AND and OR logical expressions to describe a condition.

- Evaluate more than 10 rules in an active conditional rule.

In an inactive conditional rule, the status of a rule is evaluated to determine if a condition (which can be true or false) is met. The THEN (right-hand side) portion of the rule does not trigger an action. The THEN portion simply sets the status of the evaluation to condition met or condition not met.

How Conditional Rules Are Evaluated

This section provides a detailed explanation of how conditional rules are processed.

If True and If False Logic in Conditional Rules

The following tables show active conditional rules and what they mean depending on whether you specify that the condition described in the Evaluate field on the Conditional Rule screen must be true or false.

The rules used in the sample If statements in the tables are standard rules, so their status is described as in or out of balance. If these were inactive conditional rules, their status would be described as condition met or not met. If they were active conditional rules, their status would be action taken or action bypassed.

This table shows what will happen when the TRUE logic is applied:

If False	Then	Description	What Will Happen
R1	Process R3	If “rule 1 is in balance” is true, then process rule 3.	If Rule 1 is in balance, Rule 3 will be processed.
¬R1	Process R3	If “rule 1 is not in balance” is true, then process rule 3.	If Rule 1 is out-of-balance, Rule 3 will be processed.
R1 + R2	Process R3	If “rule 1 is in balance and rule 2 is in balance” is true, then process rule 3.	If Rule 1 AND Rule 2 are in balance, Rule 3 will be processed.
R1 + ¬R2	Process R3	If “rule 1 is in balance and rule 2 is not in balance” is true, then process rule 3.	If Rule 1 is in balance AND Rule 2 is out-of-balance, Rule 3 will be processed
R1 | R2	Process R3	If “rule 1 is in balance or rule 2 is in balance” is true, then process rule 3.	If Rule 1 OR Rule 2 are in balance, Rule 3 will be processed.
R1 | ¬R2	Set return code 3010	If “rule 1 is in balance or rule 2 is not in balance” is true, then set return code 3010.	If Rule 1 is in balance OR Rule 2 is out-of-balance, return code 3010 will be set.

4 ■ Creating Job Definitions

Defining Rules

This table shows what will happen when the FALSE logic is applied:

If False	Then	Description	What Will Happen
R1	Process R3	If “rule 1 is in balance” is false, process rule 3.	If rule 1 is out of balance, rule 3 will be processed.
$\neg R1$	Process R3	If “rule 1 is not in balance” is false, process rule 3.	If rule 1 is in balance, rule 3 will be processed.
$R1 + R2$	Process R3	If “rule 1 is in balance and rule 2 is in balance” is false, process rule 3.	If rule 1 OR rule 2 is out of balance, rule 3 will be processed.
$R1 + \neg R2$	Process R3	If “rule 1 is in balance and rule 2 is not in balance” is false, process rule 3.	If rule 1 is out of balance OR rule 2 is in balance, rule 3 will be processed.
$R1 | R2$	Process R3	If “rule 1 is in balance or rule 2 is in balance” is false, process rule 3.	If rule 1 AND rule 2 are out of balance, rule 3 will be processed.
$R1 | \neg R2$	Set return code 3010	If “rule 1 is in balance or rule 2 is not in balance” is false, set return code 3010.	If rule 1 is out of balance AND rule 2 is in balance, return code 3010 will be set.

If you look at the “What Will Happen” column in the table above, you will notice that AND and OR logical expressions are evaluated differently in these If False statements than in the If True statements shown in the previous table.

AND Logical Expressions

When an AND logical expression is evaluated within an If True statement, the expression will be true if every condition connected by the AND is true. But an If False statement will be false (and the actions you have specified for the rule will be performed) if any condition connected by the AND is false.

The following If True statement has the same effect as the “If $\neg R1 | \neg R2$ is false” statement:

If $R1 + R2$ is true, then set return code 3010.

It is easy to see in the above statement that if BOTH rules are IN BALANCE, the rule will set return code 3010.

Avoiding AND and OR Connectors in the Same IF Statement

IF statements that combine AND and OR connectors can be difficult to read and maintain. Here is an example of a potentially confusing AND/OR combination:

IF R1 | ¬R2 + R4 is false, then set return code 3010.

This rule will take action IF

(“Rule 1 is in balance” is false OR “Rule 2 is out of balance” is false)
AND “Rule 4 is in balance” is false.

Notice that the statement is evaluated from left to right. ACR/Detail automatically evaluates the first logical expression first: R1 | ¬ R2. Then, it evaluates the entire IF statement as an AND logical expression consisting of the true or false result of evaluating the first logical expression, AND R4. To keep your rules as clear and simple as possible, you can use an inactive conditional rule to replace either the AND condition or the OR condition if they are in the same IF statement.

OR Logical Expressions

Within an If True statement, an OR logical expression will be true if any condition connected by the OR is true. For example, the following rule contains an OR logical expression that connects two conditions:

If (R1 + R2) | R3 is true, then set return code 3010.

In the rule above, “Rule 1 is in balance AND Rule 2 is in balance” is one condition and/or “Rule 3 is in balance” is the other. If either or both of these conditions are true, the rule will take action and set return code 3010.

In contrast, when you use an OR logical expression within an If False statement, *every* condition connected by the OR must be false for the rule to take action. For example, the following rule will take action if Rule 1 is out of balance AND Rule 2 is in balance:

If R1 | ¬R2 is false, then set return code 3010.

Here is another true versus false example:

If ¬R1 | ¬R2 is true, then set return code 3010.

In the rule above, if EITHER or both Rule 1 and Rule 2 are OUT OF BALANCE, the rule will set return code 3010. But what will happen if we change true to false?

If ¬R1 | ¬R2 is false, then set return code 3010.

4 ■ Creating Job Definitions

Defining Rules

The rule will set return code 3010 only if BOTH rules are IN BALANCE.

Note: To avoid confusion as to how a lengthy IF statement will be evaluated, it is best to define an inactive conditional rule for each logical expression that you would normally enclose in parentheses. Then, combine these inactive rules together in a single, active conditional rule.

Additional Options

Additional options for both standard and conditional rules can be accessed from the “Optional Rule Specifications Screen” on page 96.

Setting Up Conditional Rules

Conditional Reconciliation Rule Screen

To define a standard rule, from the Definitions Main Menu, select **Rules**. The Reconciliation Rules list screen will be displayed. This screen lists the rules defined for each job. Press F6 to display the Create Rule screen and select Conditional Rule to display the Conditional Reconciliation Rule screen.

mm/dd/yy	12:00:00	Job Definitions	ACR/D	releasnumber
JRUL		Conditional Reconciliation Rule		Create
Job/Step:	<u>SAMPLE</u>	<u>STEP1</u>	Qualifier: <u> </u>	F4 for list
Rule Characteristics				
Name:	_____	Is rule active?	<u>Y</u> (Y/N)	
Description:	_____			
Conditional Equation:				
	_____			F4 for list
If Rule is:	<u> </u> 1=True, 2=False	Action:	<u> </u> 1=Execute Rule, 2=Set RC	
			3. N/A(Inact cond rule only)	
Return Code:	<u>0002</u>	Calculated Item to Process	_____	
			Next Screen	_____
F3=Save/Exit	F5=Menu	F10=Additional Parameters	F12=Cancel	

Job Name/Step Name/Qualifier. Press F4 and select the Job ID.

Rule Characteristics

Name. Name of the rule.

Is rule active? Specifies whether the rule is active or inactive:

1. Y. Active. Rule is evaluated and, if the condition is met, the rule will take the action defined by the **If Rule is** and **Action** fields.
2. N. Inactive. The rule will be part of the condition of another conditional rule. It is will be evaluated and the status will be condition met or condition not met. It will not perform any actions.

Description. Optional description of the rule that will print on a variety of reports.

Conditional Equation. Do the following:

1. Press F4 to display the Build Equation screen.
2. Press F4 again to display the Rule Selection screen, listing the standard rules defined for this job.
3. Enter 1 next to up to 10 rules you would like to select for the conditional equation and press Enter to display the Build Equation screen. The rules you selected will be listed.
4. Enter + (AND), | (OR), or \neg (NOT) between rules on the Build Equation screen to logically join them. For example:
 $A + B | C$ will be true if A and B are true, or if C is true.
 $A + \neg B | \neg C$ will be true if A is true and B is not true, or if C is not true.

Note: Conditional rules are evaluated from left to right. You cannot use parentheses in conditional rules. If you need to create nested logic, create several conditional rules.

If Rule is. The meaning depends on the whether the rule is active or inactive:

- If the rule is active, specifies whether the condition should be true or false in order for an action to be taken.
- If the rule is inactive, specifies whether the condition should be true or false in order for the condition to be met.

Action. Action the system should take when the true or false condition specified by the rule is met:

1. Execute Rule. Up to 10 standard rules will be activated.
2. Set RC. Displays the Return Code field and sets the return code you enter, as explained in the Return Code field.

4 ■ Creating Job Definitions

Defining Rules

3. N/A (Inact cond rule only). No action will be taken because the rule is conditional.

Calculated Item to Process. Optionally enter the number of a calculated item that will be processed if this rule is in balance. This type of calculated item is called a conditional calculated item. For more information, see “[Conditional Calculated Items](#)” on page 84.

Return Code. This field displays only if Action is Set RC. Enter the return code to be printed on the Control Report when the condition is met. Codes between 0050 and 3999 are recommended because they do not duplicate system-generated codes. The return codes for all of the out-of-balance rules for a job are prioritized based upon their associated action codes. Within like rule action codes, the highest return code value has priority.

When you are finished with your entries, press Enter, then press F10 to view the Optional Rule Specifications screen. See “[Optional Rule Specifications Screen](#)” on page 96.

Reporting Rule Status

The Control Report indicates the status of rules as follows (the types of rules will be explained later):

- Active standard rules. These are reported as in balance or out-of-balance.
- Inactive standard rules. These are reported as in balance or out-of-balance only if the rule was made active and therefore evaluated. (Otherwise the status of an inactive standard rule will not affect the in- or out-of-balance result of a job step. However, you can set up the User Report and Free-form Report to display the status of inactive standard rules if they were not made active.)
- Active conditional rules. Reported as Action Taken (if the condition is met or Action Bypassed (if the condition is not met).
- Inactive conditional rules. Reported as Condition Met or Condition Not Met.

Rule Processing When Items Are Not Found

Each internal, history, and calculated item contains an indicator that determines how the rule will be processed if the item is missing (not found) when the rule is processed.

A rule processes all items from left to right. If no items used in the rule are missing, the rule uses the value of each item to determine whether the rule is in- or out-of-balance. If items are missing, the rule will store the indicator for each missing item. After all items are processed, the indicator with the highest order of precedence will be used to determine further processing.

Order of precedence

An order of precedence is used to determine what a rule does with missing internal, history, and calculated items. This order is determined by the combination of required item indicators for all missing items within the rule. The order of precedence is as follows:

1. Required. Set all rules involving this item to out-of-balance.
2. Req/Skip. Skip all rules involving this item.
3. Not Required. Set the missing item to zero/spaces and continue processing.

The rule will be out-of-balance if at least one missing item is set to Set all rules involving this item out-of-balance.

The rule will be ignored if at least one missing item is set to Skip all rules involving this item and no missing item is set to Set all rules involving this item out-of-balance.

The only time that the rule will be evaluated with missing items is if all the missing items are set to Set this item to zero/spaces and continue.

A standard rule compares values from any combination of internal, calculated, and history items to determine if they are in- or out-of-balance.

The comparison for a standard rule has the following format:

Left-hand side Operator Right-hand side

On one side or the other (but not both) of the comparison, you can optionally use a literal or a numeric constant. Standard rules can be either active or inactive, as described below.

4 ■ Creating Job Definitions

Defining Messages

Defining Messages

Messages, previously called special instructions, are lines of instructional text up to 80 characters long, that are associated with a return code. When you set up a rule, you specify a return code to indicate an out of balance condition. If the rule issues the return code, or if the return code is 0000, the system prints the associated messages.

Messages serve the following purposes:

- Identify an out of balance condition and outline correction procedures.
- Provide reminders or explanations, and include specific information, such as a contact name and phone number or an exact item value and description.

Message Processing

All messages print on the Control Report, and if specified, on the Free-Form and User Reports. Messages associated with a 0000 return code print whether the rule is in or out of balance. If the system cannot find any messages associated with the return code, the message NONE prints in the Messages section of the Control Report, and processing continues.

Up to 999 messages are allowed per Job ID.

Return codes and their associated messages can be sent as IBM i messages to specific user IDs.

If you included an item value or description within the message, the printed text is expanded to 112 characters.

To define a message, from the Definitions Main Menu, select **Messages**. The Messages list screen will be displayed. This screen lists the messages defined for each job. Press F6 to display the Messages screen.

mm/dd/yy	12:00:00	Job Definitions	ACR/D releasenumbr
JSPE		Messages	CREATE
Job/Step:	_____	Qualifier: ___	F4 for list
Instruction Characteristics			
Return Code:	_____	0000 to 3999	
Text:	_____		
		Next Screen	_____
F3=Save/Exit	F4=User ID/Address	F5=Menu	F6=Items F12=Cancel

Job Name/Step Name/Qualifier. Press F4 and select the Job ID.

Instruction Characteristics

Return Code. Specify the return code associated with this message.

Text. Specify the text of the message. You can include the value for internal, extended internal, history or calculated items, or the description for internal, extended internal, history, and calculated items. This option expands the printed text to 112 characters. To add an item value or description, within the text, see "Item List Window", below.

Press F4 if you want to send the message to other users on the same or different IBM i machines. The following screen displays:

```

-----Addressees-----
User ID      Address
-----
-----
-----
-----
-----
F3=Exit    F12=Cancel
    
```

For each recipient, enter the IBM i User ID and, if the ID is on a different IBM i machine from the one where the job will be run, the IBM i address (routing information). Press F3 to save and exit. The new message will be listed.

Item List Window

From the Messages screen, press F6 to see a list of available items.

```

                                Item List Window
D=Description V=Value
Opt Item      Description
-  I-001  Item 001
-  I-002  Item 002
-  I-003  Item 003
-  X-001  Extended Item 001
-  X-002  Extended Item 001
-  E-001  History Item 001
-  E-002  History Item 002
F3=Exit F12=Cancel
    
```

To display the item value in the message text, specify V next to the desired item. To display the description, specify D.

The system inserts a symbolic within curly brackets at the end of the message to retrieve the value or description for the specified item.

Optionally, you can type the symbolic in brackets within the message text.

4 ■ Creating Job Definitions

Defining Messages

Below is a list of symbolics:

Innn ¹	Internal item value
DInnn ¹	Description of the internal item
Xnnn ¹	Extended internal item value
DXnnn ¹	Description of the extended internal item
Ennn ¹	History item value
DEnnn ¹	Description of history item
Cnnn ¹	Calculated item value
DCnnn ¹	Description of the calculated item

¹ nnn represents the item number, for example, 001.

Value Position and Length Window

If you chose to display the value for an item, the system displays the Value Position and Length window.

```
Value Position and Length

Item type, number: I-001

Starting position of value to display?  __

Length of value to display?           __

F3=Save/Exit F12=Cancel
```

Starting position of value to display? For a text item, specify the start position to include a portion of the value. The system displays this field only for text items.

Length of value to display? For a text or numeric item, specify the length to include a portion of the value.

Description Position and Length Window

If you chose to display the description for an item, the system displays the Description Position and Length panel.

Description Position and Length

Item type, number X 2

Starting position of description to display? —

Length of description to display? —

F3=Save/Exit F12=Cancel

Starting position of description to display? Specify the start position to include a portion of the description.

Length of description to display? Specify the length to include a portion of the description.

Message Examples

The following message provides notification:

NOTE: NO INPUT FROM PAB20311 TODAY

The following message includes contact information for an out of balance condition:

OUT OF BALANCE BY OVER \$100 -- PROCESSING HALTED. CALL BRENDA JONES, 527-8990

The following message includes the exact item value, which allows the user to determine the severity of an out of balance condition:

THE INVENTORY BUDGET IS \$300K. CURRENT VALUE IS \$377,102.00. WE ARE OVER BUDGET!

4 ■ Creating Job Definitions

Defining Messages

Multi-Level Reconciliation and Suspense Processing

This chapter describes two special types of reconciliation.

Multi-level reconciliation enables you to reconcile data at the least detailed reconciliation key level and then reconcile the data at increasingly detailed reconciliation key levels.

Suspense processing provides you with the ability to use the history database as a way of tracking ongoing out-of-balance conditions.

This chapter includes the following sections:

- [“Setting Up Multi-level Reconciliation Jobs” on page 113](#)
- [“Using Suspense Processing” on page 116](#)

Setting Up Multi-level Reconciliation Jobs

What is Multi-level Reconciliation?

Multi-level reconciliation enables you to do the following:

- Create a base-level job (the job that will run first) with a blank **Qualifier** field (the RLQ would be 00). For example, the Job Name/Step Name/Qualifier could be MYJOB MYSTEP with no qualifier. The base job will reconcile data at the least detailed level you need.
- Create one or more qualifier (RLQ) jobs with sequentially higher qualifier numbers (MYJOB MYSTEP 01, MYJOB MYSTEP 02, and so on). The incrementing qualifiers indicate 1) the sequence in which the jobs run after the base job and 2) that each qualifier job will extract and reconcile data at an increasingly greater level of detail. These jobs can optionally use the same job definitions as the base-level job. Within any RLQ job, the internal items from other RLQs can optionally be referenced as history items.

For example, suppose you want to reconcile data for a chain of department stores. If any store was out-of-balance, you want to run the same definitions against that store's data at the department level to determine where the error originated.

5 ■ Multi-Level Reconciliation and Suspense Processing

Setting Up Multi-level Reconciliation Jobs

The job that reconciled data for all stores would be the base job with a blank qualifier. The job that would be run against the out-of-balance keys from the base job would be the qualifier (RLQ) job, with a qualifier of 01.

Procedure

Creating the Base-Level Job

On the Basic Job Information screen, leave the Qualifier field blank.

- Position the cursor in the Multilevel Information field and press F10 to display the Reconciliation Level Information screen.

Reconciliation Level Information		
All RLQ Level		
Reconciliation Key Length:	16	1-40 or 0=Full
Create Data Filter:	N	(Y)es, (N)o
Non Base RLQ Levels		
Return Code From:	0000	1-9999 or 0=N/A
Return Code To:	9999	1-9999 or 0=N/A
Use key return code:	N	(Y/N)
Use Base Job Definitions:	Y	(Y)es, (N)o
Use Data Filter:	N	(Y)es, (N)o
F3=Exit F12=Cancel		

All RLQ Level

Only the first two fields are applicable to a base-level job.

Reconciliation Key Length.

- To process the full reconciliation key, leave the field blank or enter 40.
- To limit the portion of the reconciliation key processed, enter a number from 1 to 39. For example, if your full reconciliation key were 1234567890123 (a length of 13) and you wanted to use only the first 8 positions of the reconciliation key in the base job you would enter 8.

Create Data Filter. Enter Y (Yes) if you want to create a filter file that stores out-of-balance keys from this job for use in the subsequent qualifier job.

After completing these fields only, press F3. Set up your file definitions to reconcile data at the least detailed level you need.

Creating Qualifier Jobs

Create each qualifier job as follows:

1. On the Basic Job Information screen, do the following:

- Complete the **Qualifier** field. The first qualifier job (should be 01, the next 02, and so on).
- Position the cursor in the Multilevel Information field and press F10 to display the Reconciliation Level Information screen.

Reconciliation Level Information		
All RLQ Level		
Reconciliation Key Length:	16	1-40 or 0=Full
Create Data Filter:	N	(Y)es, (N)o
Non Base RLQ Levels		
Return Code From:	0000	1-9999 or 0=N/A
Return Code To:	9999	1-9999 or 0=N/A
Use key return code:	Y	(Y/N)
Use Base Job Definitions:	Y	(Y)es, (N)o
Use Data Filter	N	(Y)es, (N)o
F3=Exit F12=Cancel		

All RLQ Level

Reconciliation Key Length and **Create Data Filter** fields. Use the field definitions, in “Creating the Base-Level Job” on page 114.

Non Base RLQ Levels

Return Code From and **Return Code To**. These fields specify the beginning and end of the range of return codes from the last RLQ which will initiate the current RLQ. For example, if you wanted the current RLQ to be executed when a rule in the base job is out-of-balance with a return code between 1000 and 3000, you would set the **Return Code From** field to 1000 and the **Return Code To** field to 3000.

Use key return code. Specify the return code that will be used to determine whether the reconciliation level should be performed. Options:

Y. Use the key return code.

N. Use highest return code of the base job.

Use Base Job Definitions. Enter N if you do not want this RLQ job to use the job definitions from the base job.

Use Data Filter. Change to Y if you want to reconcile the out-of-balance keys stored in the data filter created in the previously running base or qualifier job.

Complete all other job definitions as appropriate. Remember that within any RLQ job, the internal items from other RLQs can optionally be referenced as history items.

5 ■ Multi-Level Reconciliation and Suspense Processing

Using Suspense Processing

Create file definitions as necessary to achieve the level of detail you want for this RLQ job.

Using Suspense Processing

Suspense processing is a form of reconciliation that uses the history database to track ongoing out-of-balance conditions. You may need to do this when all of the data that needs to be reconciled is not yet available, or when the data needs to be held for a certain length of time.

Following are two examples of suspense processing.

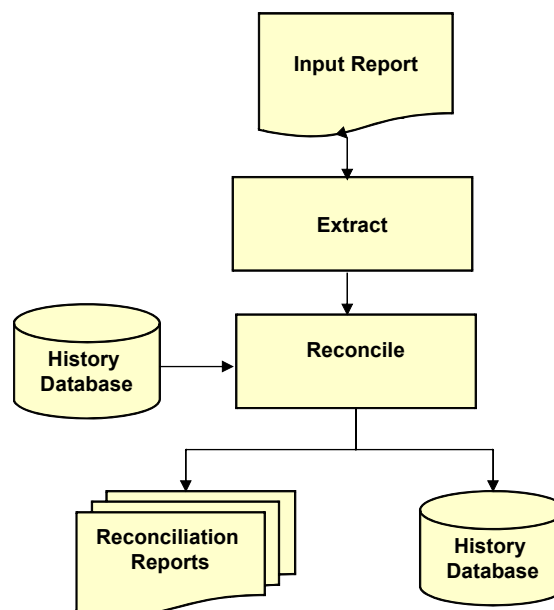
Example 1

Example 1 extracts data for reconciliation as follows: 1) Internal item 1 (I-001) is extracted from a report that is in physical sequential format, and 2) internal item 2 (I-002) is extracted from the existing history database.

The internal item values from both input sources are accumulated so that matching transactions can be shown on one key. The accumulation option is “Sum the values with the same key; replace history” described on page 172.

Unmatched items are written to the history database. Matched items are deleted from the history database.

Following is a high-level diagram of the job:



Rules and Rule Actions

Instead of relying on standard rules, we will use an inactive standard rule and two active conditional rules to make the evaluation and rule actions easy to understand and maintain:

Inactive Standard Rule

The inactive standard rule (R-001) determines whether both sides of the suspense item are in balance (for example, whether I-001 EQ I-002). This rule is inactive because we will use active conditional rules to take actions based on the standard rule result (true or false).

Active Conditional Rules

The active conditional rules are as follows:

- R-002 specifies that if the standard rule is false, (that is, if the items are out-of-balance) the reconciliation key will be stored in history.
- R-003 specifies that if the standard rule is true (that is, if the items are in-balance), the reconciliation key will be deleted from history.

The rules can be summarized as follows:

Rule	Rule Type	LHS	Operator	RHS	T/F Ind.	Rule Action
R-001	Inactive Standard Rule	I-001*	EQ	I-002*		
R-002	Active Conditional Rule	R1	Evaluates the return code from R-001		False	Add Key to History database
R-003	Active Conditional Rule	R1	Evaluates the return code from R-001		True	Delete Key from History database

*I-001 represents a data value from the report file, I-002 represents a data value from the history database.

5 ■ Multi-Level Reconciliation and Suspense Processing

Using Suspense Processing

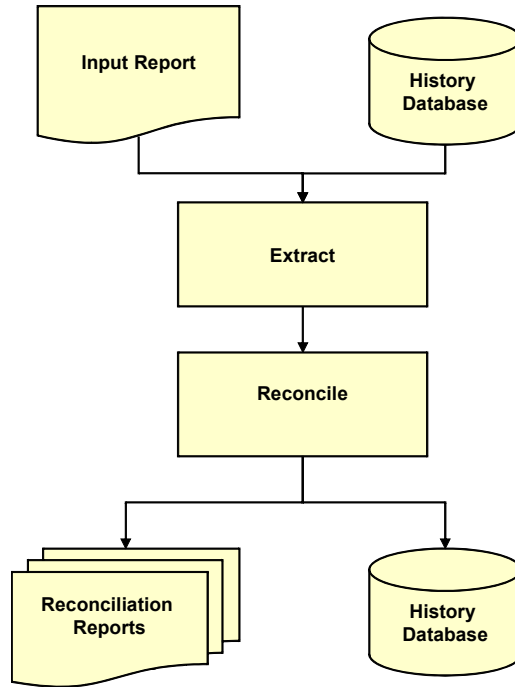
-
- Notes:**
- Cycle numbers should not be specified for the history database. Suspense processing does not support multiple cycles. When the cycle number is not defined, it will default to 00000001.
 - On the Basic Job Information screen, set the Print Report options and Store History Option to No, and then override the settings as applicable on the Rules screen. This allows you to control, through Rule Action, which keys are written to history, or to output. If No is specified for the Store History option and you do not override it on the Rules screen, no keys will be output. You want the unmatched suspense items to be written, so be sure to have an override on these items.
-

Example 2

Example 2 extracts an internal item (I-001) from one input source, a current report. Extraction from the history database is not required because the value from history is processed as a history item (E-001) rather than internal item.

The internal item value and the history item value are accumulated so that matching transactions can be shown on one key. The accumulation option is **“Sum the values with the same key; replace history”** described on [page 172](#). As in example 1, out-of-balance items are written to the history database. In-balance items are deleted from the history database.

Following is a high-level diagram of the job:



The rules are the same as in example 1, except that the right-hand side of the inactive standard rule is Conditional rules are used to perform rule action information after evaluating true and false conditions. The conditional rules for Example 2 are:

Rule	Type	LHS	Operator	RHS	T/F Ind.	Rule Action
R-001	Inactive Standard Rule	I-001*	EQ	E-001*		
R-002	Active Conditional Rule	R1	Evaluates the return code from R-001		False	Add Key to History database
R-003	Active Conditional Rule	R1	Evaluates the return code from R-001		True	Delete Key from History database

*I-001 represents a data value from the report file, E-001 represents a history item value from the history database.

5 ■ Multi-Level Reconciliation and Suspense Processing

Using Suspense Processing

Suspense Aging Report

To use suspense aging, you need to extract an item containing the date that will be the original data for the purpose of aging the key.

For information on generating the Suspense Aging Report, see “[Print Suspense Aging Report Utility \(RAGE\)](#)” on page 358.

Creating File Definitions

This chapter explains how to create file definitions for an input source. The file definitions specify the records to be scanned for extractable data, the values to be extracted, and how the values will be processed and stored. The values are ultimately stored in internal items or extended internal items to be used in the reconciliation rules for your job.

This chapter includes the following sections:

- “Specifying Input Source Files for Your Job” on page 122
- “Defining Basic File Information” on page 126
- “Understanding Selection Groups” on page 134
- “Selecting an Access Mode” on page 136
- “Understanding Access Modes” on page 137
- “Creating File Definitions” on page 143
- “Date and Cycle Number Extraction and Processing” on page 181
- “Extracting Directly from a Delimited Data File” on page 186
- “Using Extraction Programs” on page 187
- “Understanding Field Formats” on page 189

6 ■ Creating File Definitions

Specifying Input Source Files for Your Job

Specifying Input Source Files for Your Job

To define one or more input source files for a job, enter 2 (Update) next to the job on the Basic Job Information list screen to display the Basic Job Information screen. Then press F14 (Files) to display the Job Files window.

Job Files				
File ID	Qual	Driver File	Partial Driver Key Length	
AEPI	—	1	5	
ABC	—	2	10	
DEF	—	3	20	
—	—	—	—	
—	—	—	—	
—	—	—	—	
—	—	—	—	
—	—	—	—	
—	—	—	—	+
F3=Exit F4=Prompt F12=Cancel				

The next steps depend on whether your job will use one file or multiple files.

If your job uses only one input source file, see the instructions in [“Defining Basic File Information” on page 126](#). If you are already on the Job Files window, you can start with [step 3 on page 126](#).

If your job will use multiple input files, do the following:

1. Enter names for all of the files in the **File ID** column. You can use any descriptive name, because the actual file name will be specified later. You must list file names in the sequence in which they need to be processed if either of the following situations are true:
 - You want to limit the scope of keys processed on the files processed after this file by completing the Keys Required field below.
 - Your job includes conditional rules or standard rules with actions, such as terminating the job, to be taken by the system if a rule is out-of-balance.
2. Specify the qualifier in the **Qual** field, if one exists.
3. Complete the **Driver File** field. You can limit the scope of keys processed on the files processed after this file. See [“Using the Driver File Option” on page 123](#).

Options:

1. This file is not a driver file.
2. Keys must be found on this input source file in order to be processed on subsequent input source files processed for this job.
3. Keys must not be found on this input source file in order to be processed on subsequent input source files processed for this job.

You can do either of the following:

- If you want to finish your job definitions now and create the basic file information later, exit to the Basic Job Information screen. When you are ready to create the basic file information, see [“Defining Basic File Information” on page 126](#).
- If you want to create the basic file information for the input source files now, from the Job Files window, go to [step 3 on page 126](#).

Note: If your job processes multiple files, keys and cycle numbers must match across all files.

To avoid or resolve key matching problems, do the following:

- Define key and cycle number formats similarly for files that will be processed together.
- Use the translation table or reformat field features to make the keys match.

For more information, see the next section.

4. If you specified option 2 or 3 for a driver file, you can choose to match data based on a partial key. Specify the number of bytes to use for matching in the **Partial Driver Key Length** field. Valid values are 1-40. A value of blank or 40 processes the whole key. For an example, see [“Matching Based on Partial Key” on page 124](#). , To avoid unnecessary processing, do not enter a value in this field if the partial key length is equal to the extracted key length.

Using the Driver File Option

Assume that you have the two input files below, FILE A and FILE B, with different area codes as the keys as defined below.

File A	File B
312	
708	708
	773

6 ■ Creating File Definitions

Specifying Input Source Files for Your Job

Below is a table showing the results of different combinations of the driver file option for FILE A and FILE B.

If you specify the following option for FILE A	If you specify the following option for FILE B	The system will extract the following keys.
1, not a driver file	1, not a driver file	All keys - 312, 708, 773
1, not a driver file	2, matching keys	708, 773
2, matching keys	2, matching keys	708
2, matching keys	1, not a driver file	312, 708
3, different keys	1, not a driver file	773
3, different keys	3, different keys	no report
1, not a driver file	3, different keys	312

Matching Based on Partial Key

The following example shows the processing for a driver file with a partial key length of 8 specified. The extracted keys are matched against the driver file during stage 2 accumulation.

The table below shows the extracted keys from the transaction file after stage 1 accumulation.

State (Key 1)	City (Key 2)	Internal Items
FLORIDA	MIAMI	I-001, I-002
FLORIDA	TAMPA	I-001, I-002
ILLINOIS	CHICAGO	I-001, I-002
ILLINOIS	LISLE	I-001, I-002
ILLINOIS	OAK BROOK	I-001, I-002

The table below shows the extracted keys from the driver file after stage 1 accumulation.

State (Key 1)	City (Key 2)	Internal Items
FLORIDA	MIAMI	I-003, I-004
FLORIDA	ORLANDO	I-004, I-004

The table below shows the extracted key after stage 2 accumulation. Only the first eight bytes of the extracted key (State) are matched against the driver key during stage 2 accumulation.

State (Key 1)	City (Key 2)	Internal Items
FLORIDA	MIAMI	I-001, I-002, I-003, I-004
FLORIDA	ORLANDO	I-003, I-004
FLORIDA	TAMPA	I-001, I-002

Identifying Key Matching Problems

Keys and cycle numbers must match when you are processing multiple files. If you process multiple files and the Control Report lists a key (which should be unique) twice, a likely cause is a key or cycle number matching problem.

Some examples of common key-matching problems and their solutions are listed below:

File 1 Key	File 2 Key	Problem/Solution
DeptAO	DeptA0	Problem. The letter O and the numeral zero do not match. Solution. Consider using the translation table feature to change the O's to 0's, or vice-versa.
123	00000123	Problem. The three-digit key may be specified as alphanumeric in the first file and numeric in the second file. Solution. Specify the same format (numeric or alphanumeric) for both keys on the Build Key Value Information screen.
00011395	00950113	Problem. The cycle number format is MMDDYY for File 1 and YYMMDD for File 2. (The date is right-justified, and the leftmost positions of the cycle number are zero-filled.) Solution. Consider reformatting one of the dates before storing it as a cycle number.
Admin	ADMIN	Problem. The File 1 key is in upper- and lowercase letters, while the File 2 key is in all capital letters. Solution. Consider using the translation table feature to change one of the keys to match the other.

Defining Basic File Information

To define basic file information for an input source, do the following:

1. On the Basic Job Information list screen, enter 2 (Update) next to the job that will use the input source file. The Basic Job Information screen will be displayed.
2. Press F14 to display the Job Files window.
3. Press F4 to display the File Selection Window.
4. Press F6 to display the Basic File Information list screen.
5. Press F6 again to display the Create Basic File Information screen.

```
                Create Basic File Information

File Organization:  1      1=Physical Sequential
                   2      2=Spool File
                   3      3=Data Area

F12=Cancel
```

File Organization. Enter the file organization type to display the appropriate screen:

1. Physical Sequential (an IBM i physical file). See the next section.
2. Spool File (report from a spool file). See “[Defining Basic File Information Screen for Spool Files](#)” on page 130
3. Data Area. See “[Defining Basic File Information Screen for Data Areas](#)” on page 132.

Defining Basic File Information Screen for Physical Sequential Files

```

mm/dd/yy 12:00:00      File Definitions      ACR/D releasenumbr
FBAS                  Basic File Information      CREATE

File ID: _____ Qualifier: _
File Title:
File Organization: PS PHYSICAL SEQUENTIAL      Comments Exist: Edit: _

File Characteristics
Access Mode:          1      1=Single record, 2=Multiple records
Extraction Variables: 1      1=Reset, 2=Do not reset
Global Translation Table:
Set return code for no recs: 2 0      1=Yes, 2=No

Actual File:
Library:              *LIBL
Member:               *FIRST
Query File:           2      1=Yes, 2=No
Use Extraction Program: 2      1=Yes, 2=No
Extraction Program Name: _____

Use delimited data fields: _      1=Yes, 2=No

F3=Save/Exit          F5=Display  F12=Cancel
    
```

File ID. Name of the file. If you already assigned a File ID on the Job Files window, use that name.

Qualifier. Complete this only if the file is to be processed more than once during the job. Typically the qualifier is set to blanks. If the file is to be processed multiple times, it is set to blanks for the first invocation and to values from 01 to 99 for each subsequent invocation.

File Title. Descriptive title that will appear on the Basic File Information list screen and the Definition list screen.

File Organization. Displays PS if you specified that the input source is a physical file.

Comments exist. If the indicator is Y, user-defined comments exist regarding this input source file.

Edit. Enter Y if you want to add or change user comments regarding this input source file. The screen for comments will display after you specify the file organization information. For more information, see [“Adding Job or File Comments”](#) on page 55.

6 ■ Creating File Definitions

Defining Basic File Information

File Characteristics

Access Mode. Select the correct option for your input source. Options:

1. Single record (also called Keys Precede Detail Values). Key values appear before or are the same as their corresponding detail values in the input source.
2. Multiple records (also called Keys Follow Detail Values). Key values appear after their corresponding detail values in the input source.

Extraction Variables. Select the correct option for your job:

1. Reset. Reset the extraction variables between input sources.
2. Do not reset. Do not reset the extraction variables between input sources. Use this if you want to extract a value from one input source and use it when reconciling values from another input source.

See “[Defining Extraction Variables](#)” on page 68 for more information on the use of extraction variables.

Global Translation Table. The specified internal translation table will be loaded into memory for fastest translation. This increases the efficiency of translation table processing. For information on internal translation tables, see “[Internal Vs. External Translation Tables](#)” on page 264.

Set return code for no recs. Specify 1 for Yes or 2 for No to set a return code and stop processing when no records are selected for the input source. If you specify 1 to set a return code, in the adjacent field enter the return code you want to set when no records are selected for the input source.

Actual File. Actual file name of the input source.

Library. Accept the default value of *LIBL to search the current library list for the file each time the reconciliation job runs, or enter the name of the library where the physical file is located.

Member. Individual member name that resides in the actual file. *FIRST causes ACR/Detail to process the first member in the file.

Query File. Change to 2 if this is a query file.

Use Extraction Program. Change to Y if you are using an extraction program. Before running the job, the program must be created and compiled. See “[Using Extraction Programs](#)” on page 187 for more information.

Extraction Program Name. If you are using an extraction program, enter the name.

Use delimited data fields. If the input source file is in delimited format and you will use the field number to directly extract delimited fields, enter 1 (Yes). If you will specify the position and length in the record to extract data from the fixed area, specify 2 (No). For more information about direct extraction from a delimited data file, see “[Extracting Directly from a Delimited Data File](#)” on page 186.

Press F3 to save and exit. Your input file will be added to the list.

If you specified 1 (Yes) in the **Use delimited data fields** field, the system displays the Delimited Data File Information screen, below.

Delimited Data File Information Screen

Delimited Data File Information

Specify the length of fixed data area: 0 (1-1000)

Delimiter character: _ _ _ _ _

Enclosure character: _

F12-Cancel

Specify the length of fixed data area. Enter the length of the fixed area of the data file. This is the area in the file with static information.

Delimiter character. Enter one to five characters to use to delimit the fields in each record. Use t or T to indicate a tab.

Enclosure character. Specify the character to use to indicate the start and end of the text field. The system ignores the delimited character between the enclosure characters.

6 ■ Creating File Definitions

Defining Basic File Information

Defining Basic File Information Screen for Spool Files

```
mm/dd/yy 12:00:00      File Definitions      ACR/D releasenumbr
FBAS                   Basic File Information      CREATE

File ID: _____ Qualifier  __
File Title: _____
File Organization: SP SPOOL FILE      Comments Exist:  Edit:  __
File Characteristics
Access Mode:          1      1=Single record, 2=Multiple records
Extraction Variables: 1      1=Reset, 2=Do not reset
Global Translation Table: _____
Set return code to no recs: 2 0      1=Yes, 2=No

Actual File: _____
Spool Job Name: _____
Spool Output Queue: _____
Output Queue Library: *LIBL _____
Spool User Data: _____
Spool Program Occurrence: 999      1-999
Use Extraction Program: 2      1=Yes, 2=No
Extraction Program Name: _____

Next Screen _____

F3=Save/Exit  F4=View Outq  F5=Display  F12=Cancel
```

File ID. Assign a name to the file. If you already assigned a File ID on the Job Files window, use that name.

Qualifier. Complete this only if the file is to be processed more than once during the job. Typically the qualifier is set to blanks. If the file is to be processed multiple times, it is set to blanks for the first invocation and to values from 01 to 99 for each subsequent invocation.

File Title. Descriptive title that will appear on the Basic File Information list screen and the Definition list screen.

File Organization. Displays SP if you specified that the input source is a spool file.

Comments exist. If the indicator is Y, user-defined comments exist regarding this input source file.

Edit. Enter Y if you want to add or change user comments regarding this input source file. The screen for comments will display after you specify the file organization information. For more information, see [“Adding Job or File Comments” on page 55](#).

File Characteristics

Access Mode. Select the correct option for your input source. Options:

1. Single record (also called Keys Precede Detail Values). Key values appear before or are the same as their corresponding detail values in the input source.
2. Multiple records (also called Keys Follow Detail Values). Key values appear after their corresponding detail values in the input source.

For basic information on selecting an access mode, see “[Selecting an Access Mode](#)” on page 136.

Extraction Variables. Select the correct option for your job:

1. Reset. Reset the extraction variables between input sources.
2. Do not reset. Do not reset the extraction variables between input sources. Use this if you want to extract a value from one input source and use it when reconciling values from another input source.

See “[Defining Extraction Variables](#)” on page 68 for more information on the use of extraction variables.

Global Translation Table. The specified internal translation table will be loaded into memory for fastest translation. This increases the efficiency of translation table processing. For information on internal translation tables, see “[Internal Vs. External Translation Tables](#)” on page 264.

Set return code for no recs. Specify 1 for Yes or 2 for No to set a return code and stop processing when no records are selected for the input source. If you specify Y to set a return code, in the adjacent field enter the return code you want to set when no records are selected for the input source.

Actual File. Actual file name of the input source. This can be completed automatically. See **Spool User Data** below.

Spool Job Name. Name of the job that produced the spooled output. This can be completed automatically. See **Spool User Data** below.

Spool Output Queue. Output queue where the spool job resides. Press F4 to display a list. If you have entered a library in the **Output Queue Library** field, this displays output queues for this library. If the **Output Queue Library** is *LIBL, this displays a list of all output queues for all libraries for which you are authorized. Select a queue with 1. This field and the **Output Queue Library** field will be populated.

6 ■ Creating File Definitions

Defining Basic File Information

Output Queue Library. Accept the default value of *LIBL to search the current library list for the spool job each time the reconciliation job runs, or enter the name of the library where the spool job is located.

Spool User Data. The spooled report file to be used as the input source data. You can press F4 after completing the previous 2 fields to see the spooled report files in the specified queue along with the jobs that use them. Select the file you want with a 1 (if you are not sure which report you want, enter 5 to view a file) and exit. The **Actual File**, **Spool Job Name**, and **Spool User Data** fields will be filled in.

Spool Program Occurrence. If the report program file appears more than once in the a job, specify the occurrence to retrieve. 999 retrieves the last occurrence.

Use Extraction Program. Change to 1 for Yes if you are using an extraction program. Before running the job, the program must be created and compiled. See “Using Extraction Programs” on page 187 for more information.

Extraction Program Name. If you are using an extraction program, enter the name.

When you exit the screen, your input file will be added to the list.

Defining Basic File Information Screen for Data Areas

```
mm/dd/yy 12:00:00      File Definitions      ACR/D releasenumbr
FBAS                  Basic File Information      Create

File ID: _____ Qualifier  __
File Title: _____
File Organization: DA DATA AREA      Comments Exist:  Edit: __
File Characteristics
  Access Mode:          1          1=Single record, 2=Multiple records
  Extraction Variables: 1          1=Reset, 2=Do not reset
  Global Translation Table: _____
  Set return code for no recs: 2    0          1=Yes, 2=No

  Actual File: _____
  Library:              *LIBL_____

Next Screen _____

F3=Exit/Save          F5=Display  F12=Cancel
```

File ID. Assign a name to the data area. If you already assigned a File ID on the Job Files window, use that name.

Qualifier. Complete this only if the file is to be processed more than once during the job. Typically the qualifier is set to blanks. If the file is to be processed multiple times, it is set to blanks for the first invocation and to values from 01 to 99 for each subsequent invocation.

File Title. Descriptive title that will appear on the Basic File Information list screen and the File Definition list screen.

File Organization. Displays DA if you specified that the input source is a data area.

Comments exist. If the indicator is Y, user-defined comments exist regarding this input source file.

Edit. Enter Y if you want to add or change user comments regarding this input source file. The screen for comments will display after you specify the file organization information. For more information, see [“Adding Job or File Comments” on page 55](#).

File Characteristics

Access Mode. Select the correct option for your input source. Options:

1. Single record (also called Keys Precede Detail Values). Key values appear before or are the same as their corresponding detail values in the input source.
2. Multiple records (also called Keys Follow Detail Values). Key values appear after their corresponding detail values in the input source.

For basic information on selecting an access mode, see [“Selecting an Access Mode” on page 136](#).

Extraction Variables. Select the correct option for your job:

1. Reset. Reset the extraction variables between input sources.
2. Do not reset. Do not reset the extraction variables between input sources. Use this if you want to extract a value from one input source and use it when reconciling values from another input source.

See [“Defining Extraction Variables” on page 68](#) for more information on the use of extraction variables.

Global Translation Table. The specified internal translation table will be loaded into memory to speed up translation. For information on internal translation tables, see [“Internal Vs. External Translation Tables” on page 264](#).

6 ■ Creating File Definitions

Understanding Selection Groups

Set return code for no recs. Specify 1 for Yes or 2 for No to set a return code and stop processing when no records are selected for the input source. If you specify Y to set a return code, in the adjacent field enter the return code you want to set when no records are selected for the input source.

Actual File. Actual file name of the input source.

Library. Do either of the following: 1) Accept the default value of *LIBL to search the current library list for the file each time the reconciliation job runs, or 2) enter the name of the library where the data area is located.

Press F3 to save and exit. Your input file will be added to the list.

Understanding Selection Groups

This section will help you understand the two access modes available in ACR/Detail. After reading this section, you will be ready for “[Selecting an Access Mode](#)” on page 136.

This section contains the following subsections:

- “[Selection Groups](#)” on page 134
- “[Demoting and Promoting Between Group Level and Subgroup Level](#)” on page 135
- “[Using AND/OR Logical Operators \(Keys Precede Detail Values Access Mode Only\)](#)” on page 136

Selection Groups

A selection group consists of the following file definition types.

- One selection field or a set of consecutive selection fields at the group level. A selection field is a feature for determining whether the current record will be selected for further processing or bypassed.

Note: For more information on selection fields, including field definitions and an example, see [Defining Selection Fields](#) on page 147

- Group-level selection fields are not indented in the display. Consecutive selection fields are joined by AND or OR , You can define one or

Note: Joining of selection fields using the logical operator OR is supported only in Keys Precede Detail Values access mode.

multiple selection groups at the group level.

- Optionally, one nested selection field or a set of consecutive nested selection fields. , Nested selection fields are indented in the display and

Note: Nested selection fields are supported only in Keys Precede Detail Values access mode.

will be processed only if the record has passed the group-level evaluation directly above it. Only one level of nesting is supported. You can define one or multiple nested selection groups under the same selection group.

- Any of the file definition types listed below. In the Keys Precede Detail Values access mode, these can be defined at the selection group level, the nested subgroup level, or both, and will be processed if the record passes the preceding group or nested subgroup evaluation.
 - A detail field extracts data from the selected record, from a literal, or from an extraction variable (or counts the number of records selected), processes extracted values according to the options specified, and stores the result in an internal or extended internal item or in an extraction variable. For more information, see [“Understanding Detail Field Processing” on page 167](#) and [“Defining Detail Fields” on page 175](#).
 - A reformat record can be used to change the positions and/or format of data from 1) the input file, 2) a literal, or 3) an extraction variable for reconciliation purposes. For more information, see [“Defining Reformat Fields” on page 159](#).
 - A key field specifies a unique identifier for one part (segment) of the reconciliation key. The key identifiers for all key fields together make up the reconciliation key for the job. For more information, see [“Defining Key Fields” on page 162](#),

Demoting and Promoting Between Group Level and Subgroup Level

To demote (indent) a single selection field definition from the selection group level to the selection subgroup level, from the Extraction Definition Processing screen, enter the right parenthesis symbol) next to the definition that you want to demote. The definition will be moved to the right two positions, so that is indented under the preceding group-level selection field.

6 ■ Creating File Definitions

Selecting an Access Mode

To promote a single selection field definition from the selection subgroup level to the selection group level, enter the left parenthesis symbol (next to the definition that you want to promote. The definition will be moved to the left two positions, so that is no longer indented.

Using AND/OR Logical Operators (Keys Precede Detail Values Access Mode Only)

How AND and OR Are Processed

In the Keys Precede Detail Values access mode only, consecutive selection fields at the same level (group or subgroup) can be joined for evaluation using the logical operator AND (the default) or OR. (In the Keys Follow Detail Values access mode, OR is not supported.)

The AND and OR operators work as follows:

- When AND is used, the criteria of all consecutive selection fields at the same level must be satisfied before the record will be selected for processing against the remaining file definitions in the same selection group or subgroup.
- If OR is used, if the criteria of any one of the consecutive selection fields at the same level are satisfied, the record will be selected for processing against any remaining file definitions in the selection group or subgroup.

The logical operator that is currently being used is displayed to the right of the first selection field in the group or subgroup.

Toggling Between AND and OR

To toggle between AND and OR, on the Selection Fields list screen, enter 5 (And/OR) next to the first selection field in the group or subgroup.

Selecting an Access Mode

For all input source file types, when you complete the Basic File Information screen specific to the file type (physical file, data area, or spool file) of your input source, you must complete the **Access mode** field. This field determines the access mode, which controls how the file definitions will be processed. This section provides only basic information for selecting an access mode. For more information, read [“Understanding Access Modes” on page 137](#).

When to Use Single Record Access Mode (Keys Precede Detail Values)

This access mode is appropriate for the way the data is organized in most input sources, and it offers enhanced features to make it easy to set up your file definitions. It can be used when either of the following is true:

- The values to be defined as keys and the values to be extracted as detail fields reside on the same record.
- The records containing keys precede the records containing the values to be extracted as detail fields.

(Otherwise, use the access mode *Keys Follow Detail Values*.)

In this access mode, every record in the input source will be evaluated by each selection group in turn, always starting with the first group.

Note: In both access modes, you can use the following features to bypass records:

- Relative (advance) records.
 - The Begin equal to and/or End equal to selection types (available in the Selection Field screen).
-

Records that pass the selection group evaluation can be processed by the other file definition types.

When to Use Multiple Record Access Mode (Keys Follow Detail Values)

This access mode is preferable when, in your input source file, both of the following are true:

- Values to be defined as keys and values to be extracted as detail fields do not reside on the same records
- The records containing keys follow the records containing values to be extracted as detail fields.

Otherwise, use the access mode *Keys Precede Detail Values*.

Understanding Access Modes

This section is composed of the following subsections:

- [“Comparing Access Modes” on page 138](#)
- [“Single Record \(Keys Precede Detail Values\) Processing” on page 139](#)
- [“Multiple Record \(Keys Follow Detail Values\) Processing” on page 140](#)

6 ■ Creating File Definitions

Understanding Access Modes

Comparing Access Modes

Similarities Between Access Modes

The similarities are as follows:

- Both access modes select or bypass records using selection fields grouped into selection groups, as described in “[Understanding Selection Groups](#)” on page 134.
- In addition to selection fields, both access modes can use the same file definition types.

Differences Between Access Modes

The following table shows the differences between the two access modes:

Factor	Single Record (Keys Precede Detail Values)	Multiple Record (Keys Follow Detail Values)
Key processing ¹	<ol style="list-style-type: none">1. When the second reconciliation key value is read, the first key value is written out along with any detail values extracted since the top of the file.2. When the next key is read, the previous key is written out along with any detail values extracted since the previous key.3. Remaining keys are processed as in step 2.	<ol style="list-style-type: none">1. When the first reconciliation key is read, it is written out along with any detail values extracted since the top of the file.2. When the next key is read, it is written out along with any detail values extracted since the previous key.3. Remaining keys are processed as in step 2.
Support for OR and subgroups	Yes.	No.
Selection group processing	Every record in the input source will typically be evaluated by each selection group in turn, always starting with the first group.	This is not always the case. See Multiple Record (Keys Follow Detail Values) Processing Steps on page 140.

¹ - If keys and detail fields reside on the same records, use access mode for Keys Precede Detail Values.

Single Record (Keys Precede Detail Values) Processing

In this access mode, every record in the input source will be evaluated by each selection group in turn, always starting with the first group.

Note: In both access modes, you can use the following features to bypass records:

- Relative (advance) records.
- The Begin equal to and/or End equal to selection types (available in the Selection Field screen).

Records that pass the selection group evaluation can be processed by the other file definition types available for both access modes to obtain data for use in reconciliation rules.

Single Record (Keys Precede Detail Values) File Definitions Example

DEPT	CHICAGO	00001
AMT	125.00	
DATE	05/02/2008	
DEPT	NEW YORK	00002
AMT	155.00	
DATE	05/03/2008	

This example focuses on processing of file definitions. For information on creating file definitions, see [“Creating File Definitions” on page 143](#).

Suppose your input source is the one shown above, and you want to extract the city for each key. The key will be the department code (00001 and 00002). The key resides on the same record as the detail field to be extracted, making this data appropriate for the Keys Precede Detail Values access mode.

You could set up your definitions like the example below.

```

mm/dd/yy 12:00:00          File Definitions          ACR/D releasenumbr
FDEF                               Extraction Definition Processing

File ID:  CASHEX6

Options: 2/S=Change 3/C=Copy 4/D=Delete 5=And/Or )=Indent (=Outdent ...

Opt Function  Pos/Len  Description                               /Or
---
  Select      0001/04  Input = DEPT
  Key         0022/05  Key Source: Input record
  Detail      0011/08  Input record into Item 001

Next Screen  _____

F3=Exit  F6=Create  F12=Cancel
    
```

6 ■ Creating File Definitions

Understanding Access Modes

This example shows a simple selection group with one selection field (Select 0001/04 Input = DEPT). The specified positions of the input area are evaluated using the = selection type against one constant (DEPT). Only records that meet this criterion will be scanned for extraction. Data will be picked up based on the key field (Key 0022/05 Key Source: Input record). The key occupies the 5 positions beginning at position 22. The data to be extracted for each key is defined using the detail field (Detail 0011/08 Input record into Item 001). As specified, the data extracted will be assigned to the internal item I-001.

When all file definitions have been processed, the next record will be read and evaluated against all of the same file definitions in sequence, starting at the top.

Multiple Record (Keys Follow Detail Values) Processing

Multiple Record (Keys Follow Detail Values) Processing Steps

Using this access mode, processing of selection groups is as follows:

Note: During the processing described below, keys and extracted values will be written out as described in [Differences Between Access Modes on page 138](#)

1. The first record in the file (we will call it Record 1) will be evaluated against all selection groups. The last selection group that passes will be noted.
2. The system then reads the next record (Record 2). This record will be evaluated starting with the next selection group after the one noted when the previous record was read. Evaluation of Record 2 will be as follows:
 - a. If the record passes all remaining groups through the last group defined, evaluation of the record will stop. The system will read the next record and evaluate it just as Record 1 was evaluated.
 - b. If the record fails any of the remaining selection groups through the last group defined, it will be evaluated by all selection groups.
 1. If the record passes at least one group, the last group that passes will be noted.
 2. If the record fails all groups, the last record that fails will be noted.

The system will then move to the next record and evaluate it just as Record 2 was evaluated.

Multiple Record (Keys Follow Detail Values) Processing Example

This example shows how selection groups would be processed using the Keys Follow Detail Values mode with various pass/fail scenarios.

Assume you have an input source consisting of 5 records. You have defined 4 selection groups. For each record, the following table shows which selection group will be processed first, and when the next record will be read.

Record	Selection Group Evaluated	Result	Selection Group Noted	Next Record is Read	Notes
1	1	Pass			
	2	Pass			
	3	Fail			
	4	Fail	2	Y	See step 1 in *
2	3	Fail			
	4	Fail			
	1	Fail			
	2	Fail	2	Y	See step 2b2.*
3	3	Pass			
	4	Pass		Y	See step 2a.*
4	1	Pass			
	2	Fail			
	3	Pass			
	4	Fail	3	Y	See step 1.*
5	4	Pass			See step 2a.* Evaluation of all records in the input source is now complete.

*All steps are described in [Multiple Record \(Keys Follow Detail Values\) Processing Steps](#) on page 140.

6 ■ Creating File Definitions

Understanding Access Modes

Multiple Record (Keys Follow Detail Values) File Definitions Example

DATE	05/02/2008
AMT	125.00
CITY	CHICAGO
DATE	05/03/2008
AMT	155.00
CITY	NEW YORK

This example focuses on processing of file definitions. For information on creating file definitions, see “[Creating File Definitions](#)” on page 143.

Suppose your input source is the one shown above, and you want to extract the city, date, and amount for each city.

The key (CITY) resides on a separate record from the records where two of the detail fields (DATE and AMT) reside. In addition, the records containing the key follow the records containing the detail fields. This data is appropriate for the Keys Follow Detail Values access mode.

You could set up your input source definitions like this:

```
mm/dd/yy 13:20:56 File Definitions ACR/D releasenumbr
FDEF Extraction Definition Processing

File ID: SAMPLEAC7

Options: 2/S=Change 3/C=Copy 4/D=Delete 5=And/Or )=Indent (=Outdent ...

Opt Function Pos/Len Description /Or
___ Select 0001/04 Input = DATE AND
___ Detail 0011/10 Input record into Item 001
___ Select 0000/00 Increment by record count of 001 AND
___ Detail 0011/06 Input record into Item 002
___ Select 0000/00 Increment by record count of 001 AND
___ Detail 0011/07 Input record into Item 003
___ Key 0011/07 Key Source: Input record

Next Screen _____

F3=Exit F6=Create F12=Cancel
```

The first select field (SELECT 0001/04 Input = DATE etc.) will use the selection type Equal to. The specified positions of the input area will be evaluated against the constant DATE. The first record will pass the evaluation, and the following detail field (Detail 0011/10 Input record into Item 001) will extract the date and store it in internal item 1.

The next definition (Select 0000/00 Increment by record count of 001) is a relative record that causes the system to move down one record. The following detail field (Detail 0011/06 Input record into Item 002) will extract the amount.

The next definition (Select 0000/00 Increment by record count of 001) is also a relative record that causes the system to move down one record. The following detail field (Detail 0011/07 Input record into Item I003) will extract the city.

When the system reads the key field (Key 0011/07 Key Source: Input record), the key value CHICAGO will be retrieved and written out along with the detail fields extracted since the top of the file: the date 05/02/2008, the amount \$125.00, and city name CHICAGO.

The last three records will be processed in the same way. The key value NEW YORK will be retrieved and written out along with the detail fields extracted since the top of the file: the date 05/03/2008, the amount \$155.00, and city name NEW YORK).

Creating File Definitions

After you have completed the basic job information and defined basic file information for an input source file, you can begin entering file definitions. These define the records that will be selected to be scanned for extractable data, the data to be extracted, and how the data will be processed and stored.

This section contains the following subsections:

- “Viewing Your Input Source File” on page 144
- “Extracting Data from Spool Files and Data Areas” on page 144
- “Extracting Data from Physical Files” on page 144
- “Procedure for Creating File Definitions” on page 146
- “Defining Selection Fields” on page 147
- “Defining Reformat Fields” on page 159
- “Defining Key Fields” on page 162
- “Using Dynamic Translation Tables” on page 163
- “Using Hash Translation for a Key Value” on page 164
- “Understanding Detail Field Processing” on page 167
- “Defining Detail Fields” on page 175

Viewing Your Input Source File

When you create file definitions, you need to know the position and length of the data you want to specify from the input source. You can view the input source by pressing F5=Display from any screen where this function listed at the bottom of the screen. This includes the Basic File Information screen and any of the file definition (Build) screens.

Extracting Data from Spool Files and Data Areas

For spool files and data areas, you will need to view the source file as described in the previous section and enter the position, length, and format information manually.

Extracting Data from Physical Files

On the file definition (Build) screens, if your input source is a physical file, you can specify the data to be extracted using a more automated method (DDS information) or a manual method, as described below.

Extracting Data From Physical Files Using DDS Information

Because of the way physical files are created on IBM i, the product is able to provide an easy method of choosing data to extract from files. Physical files on IBM i are created using the data description specification (DDS). The DDS describes the format of the records within the file, as well as the fields within the records. The field-level specification describes, in order, the fields that make up an individual record within the file. The field-level specification consists of:

- Field name
- Field (beginning) position
- Field length
- Field format
- Decimal positions (if numeric)

When defining a selection field, key field, or detail field in a physical file, the system allows you use DDS information to automatically fill in a portion of the file definition screen that you must complete in order to specify data to be extracted. You will know that this feature is available because the Field Name field with the wording F4 for List will be the first field in the Source Area section of the screen. To use this feature:

1. From anywhere on the screen, press F4 (View Fields) to display the File Field Selection screen (SFFD).

2. Select the field you want to extract. The file definition screen will be displayed with the field name, position, length, and format filled in for you.

When you use this method to extract a field, the field's description in the input source file (position, length, type, etc.) is always attached to your file definition. Even if you change the location and length of the field (within the input file), the system recognizes and interprets the change to the DDS so that it still extracts the same data. It is, therefore, not necessary to change the file definitions that uses that particular data.

Note: Although the system references items by the field name in the DDS and will therefore make any necessary adjustments if any corresponding data has changed, the original position and length information continues to appear in the file definition screens. You can reselect the field name so that the new data appears, but this is not necessary.

Extracting Data From Physical Files Manually

When extracting data from physical files, you do not have to use the DDS method. You can manually enter all or part of the information that can be entered by using the DDS method. Completing the field name is optional. When entered, it takes precedence over the position, length, and type fields. If the field name you enter is an exact match to the field name in the DDS, the system behaves in the same way as when you use the DDS method.

If you do not enter a field name, the system uses the position, length, and type data that you entered to locate a field in the DDS that matches exactly or fits within the parameters you set. The system then uses the decimal placement for the field match and extracts the data according to the position and length specified. Depending on whether the position and length information is an exact match with a field in the DDS or not, the results will vary.

For numeric or packed fields, your position and length entries must include the last position of the actual field and they cannot straddle two different fields. Text fields do not have to contain the last position but they cannot straddle two fields unless they are both text fields.

6 ■ Creating File Definitions

Creating File Definitions

Procedure for Creating File Definitions

1. Define the Basic File Information for the input source. See “[Defining Basic File Information](#)” on page 126.
2. Define one or more selection groups, which can consist of selection fields, reformat fields, and detail fields. To do this, select Basic File Information to display the Basic Information List (FBAS). Enter 12 (Work with) next to the file ID for the input source.
3. When the Extraction Definition Processing screen appears, enter F6 (Create) to display the Create File Definition screen, which shows the file definition types.
4. Select and define the file definition type you want. See “[Create File Definition Screen](#)”, below.
5. Save the job with the new input source and its file definitions.

Create File Definition Screen

```
                Create File Definition

Function:  1  1=Select Definition
           2  2=Reformat Definition
           3  3=Key Definition
           4  4=Detail Definition

For a selection field,enter comparison
values in extended format  N  (Y/N)

F12=Cancel
```

Function. Select the file definition type you want:

- “[Defining Selection Fields](#)” on page 147.
- “[Defining Reformat Fields](#)” on page 159
- “[Defining Key Fields](#)” on page 162
- “[Understanding Detail Field Processing](#)” on page 167
- “[Defining Detail Fields](#)” on page 175.

For a selection field, enter comparison values in extended format. Enter Y if your comparison value or values will be a number with 16 to 30 digits or a text value with 9 to 80 characters.

Defining Selection Fields

Before you define selection fields, read “Understanding Selection Groups” on page 134 and “Understanding Access Modes” on page 137.

This section contains the following subsections:

- “Build Selection Criteria Screen” on page 147
- “Criteria Type Choices Screen” on page 150
- “Additional Comparison Values Screen” on page 153
- “Additional Comparison Ranges Screen” on page 154
- “Comparison Values Screen (Extended Format - Alphanumeric)” on page 155
- “Comparison Values Screen (Extended Format - Numeric)” on page 156
- “Comparison Ranges Screen (Extended Format - Alphanumeric)” on page 157
- “Comparison Ranges Screen (Extended Format - Numeric)” on page 158

Build Selection Criteria Screen

A selection field is defined from the Build Selection Criteria screen. This screen displays when you choose Select Definition from the Create File Definition screen as described in the previous section.

Use this screen to set the criteria for determining whether the current record will be selected for further processing or bypassed. The determination is made by evaluating a field extracted either 1) from the current record (this is called the input area) or 2) from a saved extraction variable against the selection criteria defined in the lower section of the screen.

File ID. The File ID from the basic file information.

Selection Criteria Type. Press F4 to display the Criteria Type Choices screen to specify the Input Type and Criteria (Selection) Type. See “Criteria Type Choices Screen” on page 150

Note: Position, Length, and Format: Press F5=Display if you want to view the file before completing these fields. These fields will not display if you select Criteria (Selection) Type 16 - Advance.

Field Name. Name of the field to be retrieved. For physical files only, you can press F4 to select from a list of valid fields for this database file. Your selection will populate the Position, Length, and Format fields.

6 ■ Creating File Definitions

Creating File Definitions

Delimited data field #. If you entered 1 (Yes) for **Use delimited data fields** on the Physical Sequential File Information screen, the system displays this field in place of **Field Name**. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Position** and **Length** fields.

Position. Position of the first character of the field value.

Length. The number of positions to be evaluated. The maximum length depends on the data format of the input and on whether the input area or extraction variable you are using as input is in regular or extended format. See “[Maximum Lengths for Regular and Extended Data](#)” on page 61. To evaluate the entire value of an extraction variable (up to the maximum length), use zeroes for position and length.

Format. Format of the field value.

Selection Value 1. Leave blank if you are comparing against an extraction variable or if selection type is 3 - Numeric, 4 - Alphabetic, 7 - Blank, or 8 - Nonblank. Otherwise enter the value (or, for range comparisons, the first value of the range) to be compared to the selection field. The maximum number of characters you can enter varies based on the Format:

Alphanumeric. Up to 8 characters.

Any numeric format. Up to 16 bytes (a sign and 15 digits).

Note: The length of the selection value must match the field position length. If it does not, the system will not find a match.

The system displays this field if you entered N in the **For a selection field, enter comparison values in extended format** field on the Create File Definition screen, on [page 146](#).

Additional. Depending on your Input Type and Criteria (Selection) Type, you can specify evaluation against multiple constants or ranges. To do this, enter Y in this field. When you complete this screen and press F3, the appropriate screen, “[Additional Comparison Values Screen](#)” on [page 153](#) or “[Additional Comparison Ranges Screen](#)” on [page 154](#) will be displayed.

Extraction Variable. If the selection field itself is from an extraction variable (Input Type = Extraction Variable), or if the input area is being compared against an extraction variable, specify the number of the extraction variable.

Edit comments. Add/Edit your comments or description. A maximum of 195 characters are allowed. The default value is N.

Depending on your entries, after you press Enter, additional screens may be displayed.

- If your entry in the the **For a selection field, enter comparison values in extended format** field on the Create File Definition screen, on page 146 was N, one of the following screens will be displayed:
 - If you entered Y in the **Additional** values field, and you are comparing against one or more individual values in addition to the constant defined by Value 1, the system displays the “[Additional Comparison Values Screen](#)” on page 153.
 - If you entered Y in the **Additional** values field, and you are comparing against one or more ranges in addition to the range defined by Value 1 and Value 2, the system displays the “[Additional Comparison Ranges Screen](#)” on page 154.
- If your entry in the **For a selection field, enter comparison values in extended format** field on the Create File Definition screen, on page 146 was Y, one of the following screens will be displayed:
 - If you are comparing against one or more individual alphanumeric values, the system displays the “[Comparison Values Screen \(Extended Format - Alphanumeric\)](#)” on page 155.
 - If you are comparing against one or more individual numeric values, the system displays the “[Comparison Values Screen \(Extended Format - Numeric\)](#)” on page 156.
 - If you are comparing against one or more alphanumeric ranges, the system displays the “[Comparison Ranges Screen \(Extended Format - Alphanumeric\)](#)” on page 157.
 - If you are comparing against one or more numeric ranges, the system displays the “[Comparison Ranges Screen \(Extended Format - Numeric\)](#)” on page 158.
- If your entered Y in the **Edit comments** field, the system displays the “[Edit Comments Screen](#)” on page 158.

6 ■ Creating File Definitions

Creating File Definitions

Criteria Type Choices Screen

```
Criteria Type Choices

Input type:  1      Criteria Type: 01
1. Input area      1. Input type = value 1
2. Extraction variable  2. Input type not = value 1
                   3. Input type is numeric
                   4. Input type is alphabetic
                   5. Input type greater than value 1
                   6. Input type less than value 1
                   7. Input type is blanks
                   8. Input type is non-blank
                   9. Input type is between value 1 and 2
                  10. Begin if input type = value 1
                  11. End if input type = value 1
                  12. Locate where Input type = value 1
                  13. Input type not between value 1 and 2
                  14. Input type >= to value 1
                  15. Input type <= to value 1
                  16. Advance to rrn = value 1

F12=Cancel
```

Input type. The source of the data to be evaluated:

1. **Input Area.** The source will be data from specific positions of the current record.
2. **Extraction Variable.** The source will data from specific positions in a saved extraction variable.

Criteria (Selection) Type. Type used to evaluate the value from the input record or extraction variable (or, in the case of option 16, to cause the system to advance a specified number of records from the current location).
Valid values:

Number	Description
1. Input type = value 1	If Input type is Input Area, select the record if the data is equal to Value 1 or to the value of the specified extraction variable. If Input Type is Extraction Variable, select the record if the extracted data is equal to Value 1.
2. Input type not = value 1	If Input type is Input Area, select the record if the data is not equal to Value 1 or it is not equal to the value of the specified extraction variable. If Input Type is Extraction Variable, select the record if the extracted data is not equal to Value 1.
3. Input type is numeric	Select the record if the data extracted from the input area or extraction variable is numeric. Numeric characters are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

Number	Description
4. Input type is alphabetic	Select the record if the data extracted from the input area or extraction variable is alphabetic. Alphabetic characters are a letter or a space character.
5. Input type greater than value 1	If Input Type is Input Area, select the record if the extracted data is greater than Value 1 or greater than the value of the specified extraction variable. If Input Type is Extraction Variable, select the record if the extracted data is greater than Value 1.
6. Input type less than value 1	If Input Type is Input Area, select the record if the extracted data is less than Value 1 or less than the value of the specified extraction variable. If Input Type is Extraction Variable, select if the extracted data is less than Value 1.
7. Input type is blanks	Select the record if the data extracted from the input area or extraction variable is blank. A blank is a space.
8. Input type is non-blank	Select the record if the data extracted from the input area or extraction variable is not blank. A blank is a space.
9. Input type is between value 1 and 2	Select the record if the data extracted from the input area or extraction variable is within the range of Value 1 through Value 2. Data matching Value 1 or Value 2 is considered within range and would be selected.
10. Begin if input type = value 1	Bypass all other records and begin processing with the first record where the data extracted from the input area or extraction variable is equal to Value 1. Do not process any other file definitions until this record is found.
11. End if input type = value 1	End after processing the first record where the extracted data is equal to Value 1 or equal to the value of the specified extraction variable.
12. Locate where Input type = value 1	Bypass all other records and locate the next record where the data extracted from the input area or extraction variable is equal to Value 1.
13. Input type not between value 1 and 2	Select the record if the data extracted from the input area or extraction variable is outside the range of Value 1 through Value 2. Data matching Value 1 or Value 2 is considered within range, and would not be selected.

6 ■ Creating File Definitions

Creating File Definitions

Number	Description
14. Input type >= to value 1	If Input Type is Input Area, select the record if the extracted data is greater than or equal to value 1 or greater than or equal to the value of the specified extraction variable. If Input Type is Extraction Variable, select the record if the extracted data is greater than or equal to Value 1.
15. Input type <= to value 1	If Input Type is Input Area, select the record if the extracted data is less than or equal to Value 1 or less than or equal to the value of the specified extraction variable. If the Input Type is Extraction Variable, select the record if the extracted data is less than or equal to Value 1.
16. Advance to rrn = value 1	<p>From the current record (or from the beginning of the file), move forward the number of records that you will indicate on the next screen. When this record is found, process the remaining file definitions.</p> <p>If this record request follows Criteria (Selection) Type number 10 (Begin if input type = value 1), the system processes this relative record only one time, when the begin reference is found.</p> <p>If this record request follows other Criteria (Selection) Types, the record is processed whenever the selection criteria is met.</p>

Press Enter to save and exit.

6 ■ Creating File Definitions

Creating File Definitions

Additional Comparison Ranges Screen

Use this screen to evaluate a value extracted from the current record or from an extraction variable against one or more ranges in addition to the range defined by Value 1 and Value 2 on the Selection Field screen. A maximum of 28 ranges can be defined.

Additional Comparison Ranges			
From Value	To Value	From Value	To Value
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

F3=Save/Exit F5=Show File F12=Cancel

Press F3 to save and exit.

Comparison Values Screen (Extended Format - Alphanumeric)

Use this screen to evaluate a value extracted from the current record or from an extraction variable against up to 8 extended alphanumeric values. To include blanks in the comparison, leave **Value 1** blank. Any other blank fields will be ignored. This field is case sensitive.

```

          Comparison Values (Extended Format - Alphanumeric)
    If blank is one of the comparison values, leave Value 1 blank.
      -----1-----2-----3-----4
Value 1: _____
Value 2: _____
Value 3: _____
Value 4: _____
Value 5: _____
Value 6: _____
Value 7: _____
Value 8: _____
F3=Save/Exit  F5=Show File  F12=Cancel
    
```

Press F3 to save and exit.

6 ■ Creating File Definitions

Creating File Definitions

Comparison Values Screen (Extended Format - Numeric)

Use this screen to evaluate a value extracted from the current record or from an extraction variable against up to 28 numeric values of up to 30 digits plus a sign. To include zero in the comparison, leave the first numbered value field blank, and it will be processed as a zero. Any other blank fields will be ignored.

Comparison Values (Extended Format - Numeric)	
If blank is one of the comparison values, leave Value 1 blank.	
Comparison Value	Comparison Value
1: _____	2: _____
3: _____	4: _____
5: _____	6: _____
7: _____	8: _____
9: _____	10: _____
11: _____	12: _____
13: _____	14: _____
15: _____	16: _____
17: _____	18: _____
19: _____	20: _____
21: _____	22: _____
23: _____	24: _____
25: _____	26: _____
27: _____	28: _____

F3=Save/Exit F5=Show File F12=Cancel

Press F3 to save and exit.

Comparison Ranges Screen (Extended Format - Alphanumeric)

Use this screen to evaluate a value extracted from the current record or from an extraction variable against up to 4 alphanumeric ranges made up of values up to 80 characters in length. To include blanks in the comparison, leave **Value 1 From** blank. Any other blank fields will be ignored. This field is case sensitive.

```

          Comparison Ranges (Extended Format - Alphanumeric)
    If blank is one of the comparison values, leave Value 1 blank.
          -----1-----2-----3-----4
Value 1 From: _____
To:           _____
Value 2 From: _____
To:           _____
Value 3 From: _____
To:           _____
Value 4 From: _____
To:           _____
F3=Save/Exit  F5=Show File  F12=Cancel
    
```

Press F3 to save and exit.

6 ■ Creating File Definitions

Creating File Definitions

Comparison Ranges Screen (Extended Format - Numeric)

Use this screen to evaluate a value extracted from the current record or from an extraction variable against up to 14 numeric ranges made up of values of up to 30 digits plus a sign. To include zero in the comparison, leave **Value 1 From** blank and it will be processed as a zero. Any other blank fields will be ignored.

```
Comparison Ranges (Extended Format - Numeric)

If blank is one of the comparison values, leave Value 1 blank.

      From                               To
Value 1: _____
Value 2: _____
Value 3: _____
Value 4: _____
Value 5: _____
Value 6: _____
Value 7: _____
Value 8: _____
Value 9: _____
Value 10: _____
Value 11: _____
Value 12: _____
Value 13: _____
Value 14: _____
F3=Save/Save  F5=Show File  F12=Cancel
```

Press F3 to save and exit.

Edit Comments Screen

Use this screen to edit or add your comments to the file definition. A maximum Of 195 characters are allowed for the comment.

```
FSEL                               Comments
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+---
_____
_____
_____
F3=Save/Exit  F12=Cancel
```

Press F3 to save and exit.

Defining Reformat Fields

A reformat record can be used to change the positions and/or format of data from 1) the input file, 2) a literal, or 3) an extraction variable for reconciliation purposes.

For example, there may be characters in your input file that you want to use as a key, but the characters do not appear together on the file. You can use reformat fields to specify the location from which the characters should be extracted and to output the characters so that they are next to each other to be extracted as the key.

When reformat field definitions are used, a copy of the data to be reformatted is made in memory (called the reformat work area) and the reformatting is done to this copy. The data in the input source, literal, or extraction variable is not changed.

You can then overlay the copied data with data from an extraction definition, a literal, or an extraction variable. Any combination of data, literals, and extraction definitions can be used.

The reformatted data can then be placed in the output area.

If you change the positions of the data, after reformatting, field positions specified in subsequent selection fields, key fields, or detail fields will refer to the positions in the output area.

Reformat Data Types

Generally, you reformat data to the same type. For example, text to text or numeric to numeric. If you reformat text to numeric, be aware that after the data is copied to the new location, each position of the output area is checked, and non-numeric characters are replaced with a zero. For example, if you reformat 12/01/29 from text to numeric, you will get 12001029.

You may need to reformat a packed field to numeric because you cannot pick up part of a packed field. In this case you would use reformatting to unpack the data. After the data has been reformatted from packed to numeric, you can use a detail field to extract just the portion you need. Keep in mind that the sign of the packed field (positive or negative) will be removed after the reformat.

Reformat Fields within Extraction Definitions

Reformat fields defined within or between selection groups are processed only against input records that satisfy the selection group's criteria. This applies even though reformats between selection groups are given their own distinct selection group number.

Reformatting Example

Assume you want to extract a social security number from your input source to use as the reconciliation key. In the input source, the number is formatted with hyphens as follows:

111-22-3333

This would require 2 reformat records:

- One record to move the 22 to the left 1 position.
- One record to move the 3333 to the left 2 positions.

If you do this, the output area will contain the value 11122333333 because the last 2 3's from the original field were not overlaid.

You follow these reformat records with two key fields to pick up the first 9 digits. Because the key field definitions are preceded with at least one reformat field definition, ACR/Detail loads the key fields from output area.

Build Reformat Value Information Screen

To display the screen, after creating selection fields to locate the record containing the value you want to reformat, press F6 from the Extraction Definition Processing screen for this selection group and choose Reformat Definition.

File ID. The File ID from the basic file information.

Extraction Source Area. Press F4 to specify the source of data to be reformatted:

1. **Input Record.** The data is from the currently selected input record.
2. **Literal Area.** The data is from a literal area. A field will be displayed for specifying the literal area.
3. **Extraction Variable.** The data is from a previously stored extraction variable. Specify the number in the Extraction Variable field.

Delimited data field #. If you entered 1 (Yes) for **Use delimited data fields** on the Physical Sequential File Information screen, the system displays this field. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Position** and **Length** fields.

Position. Current position of the first character of the field value to be reformatted relative to the beginning of the specified extraction source area.

Length. Length of the input field. Extended data lengths are supported. See “[Maximum Lengths for Regular and Extended Data](#)” on page 61 for the supported lengths.

Format. Format of the value to be reformatted.

Destination

Delimited data field #. If you entered 1 (Yes) for **Use delimited data fields** on the Physical Sequential File Information screen, the system displays this field. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Position** and **Length** fields.

The following fields indicate the location and/or format of the reformatted values.

Position. Position of the first character of the reformatted value relative to the beginning of the specified extraction source area.

Length. Length of the reformatted value. Extended data lengths are supported. See “[Maximum Lengths for Regular and Extended Data](#)” on page 61 for the supported lengths.

Format. Format of the reformatted value.

Edit comments. Add/Edit your comments or description. A maximum of 195 characters are allowed. The default value is N. For more information, see “[Edit Comments Screen](#)” on page 158.

6 ■ Creating File Definitions

Creating File Definitions

Press F3 to save and exit.

Defining Key Fields

The reconciliation key for the job can consist of up to 5 key segments, each of which can contain up to 8 positions. This results in a maximum length for the reconciliation key of 40 bytes. A key field specifies a unique identifier for one part (segment) of the reconciliation key.

For example, if you want to extract and reconcile data for each unique combination of area code and telephone number, you would define two key fields, one to identify each area code and the other to identify each telephone phone number for each area code.

If you need only one key segment to identify the records you want to scan in order to extract data for the job, one key field can define the entire reconciliation key.

A key field can be populated with data extracted from an input file, with text supplied in a literal, with data from a reformatted combination of the two, with a value from a date function, or with a value from an extraction variable.

If the key field is larger than 40 bytes, you can use a dynamic translation table or a hash translation for a key value. For more information, see [“Using Dynamic Translation Tables”](#) on page 163, and [“Using Hash Translation for a Key Value”](#) on page 164.

Key Fields Example

This example will extract a social security number to use as the reconciliation key, similar to the [“Reformatting Example”](#) on page 160. However, here, assume you want to extract the entire 11-character employee number (including the hyphens) as the reconciliation key.

Here is the social security number as it appears in the input source file:

```
COLS---> 0-----+-----1-----+-----2-----+-----3-----+-----4
          SS Number:           111-22-3333
          Employee Name:       John Q. Smith
          Hours Worked:        46.80
          Hourly Earnings:     $638.92
```

Because you want to include the hyphens, you will not need to reformat the number. But each key field can contain only 8 characters. So you need to use 2 key fields: one for the first 8 characters, and the other for the last 3 characters.

As always, the key field definitions are part of a selection group. The first definition in the group is a selection field used to select any records that have the character string Number in columns 11 through 16 (position 11 for a length of 6).

After the selection field, the two key field definitions should be as follows:

- The first will pick up key number 1 in position 22 for a length of 8 from the selected record.
- The second will pick up key number 2 in position 30 for a length of 3 from the record.

Following these definitions will be other selection groups to select and extract the hours worked and the hourly earnings as detail fields.

Each time a new employee is encountered, a key break occurs. The detail fields picked up to that point for the current key are saved to a work file, and the new key is used to start collecting the next set of information. The process would continue until the ending point or the end of file is reached.

Using Dynamic Translation Tables

The reconciliation function allows you to store a maximum of 5 key segments (defined using key fields). Each key segment is composed of a maximum of 8 characters. As a result, the reconciliation key length is limited to 40 bytes: $5 \times 8 = 40$

A dynamic translation table (also called a dynamic translation database) can be used if you need to exceed this 40-byte limit. Using such a table, you can have a reconciliation key up to 400 bytes.

If you use a dynamic translation database, you can specify as many as 5 key segments of up to 80 bytes: $5 \times 80 = 400$

When you run reconciliation using the dynamic translation database, each of the long key segments will be written to the dynamic translation database and associated with an 8-byte identifier, which will be used to write to the key field area of the history database.

The Control Report and Free-Form Report will show the 80-byte key segment. Listings of the history database and all other report will show the 8-byte identifier.

Note: Refer to “[Initialize Dynamic Translation DB \(DINT\)](#)” on [page 379](#) for information about utility to initialize the dynamic translation table.

6 ■ Creating File Definitions

Creating File Definitions

The option to use a dynamic translation table is set on the Build Key Value Information screen. See “[Build Key Value Information Screen](#)” on page 164.

Using Hash Translation for a Key Value

Key fields for a reconciliation job can consist of up to 5 key segments, each of which can contain up to 8 positions. This results in a maximum length for a key field of 40 bytes. When a key field value exceeds the maximum 40 bytes allowed, hash translation for a key value can be used. Instead of storing the original key value in the key field, the hash value for the key is stored.

The hashing routine returns a hash value in a 4 byte binary format. Bytes 1-4 store the first 4 bytes of the original key and bytes 5-8 store the hash value returned from the hashing routine. For reporting purposes, the original key can be saved as an extended internal item.

It is important to note that spaces are a valid value for hashing. For example, a value of CHICAGO with three trailing spaces does not equal a value of CHICAGO with no spaces.

The option to use hash translation for a key value is set on the Build Key Value Information screen. For hash translation, the Format must be alphanumeric and the Translation Table name must be blank. For more information, see the “[Build Key Value Information Screen](#)” section below.

When browsing a history key with a hash value online, specify a range of keys which includes the hash key. For online Extraction Reports, the last 4 bytes of each 8 byte key, which is the hash value, is replaced by dots.

Using hash translation for a key field may decrease performance, thus increasing CPU time slightly. However, using hash translation rather than dynamic translation tables may improve performance (CPU time) significantly.

Build Key Value Information Screen

To access the screen, display the Extraction Definition Processing screen for the selection group for which you want to use the key. Press F6 from this screen and select Key Definition.

File ID. The File ID from the basic file information.

Key Order. Identifies which part of the reconciliation key you are defining as the key field. You can define up to five key fields of up to eight characters each to specify the complete reconciliation key. Key 1 will be positions 1-8, Key 2 will be positions 9-16, and so on. You can define the key fields in any order.

Key Source Area. Press F4 to specify the source of the data to be used as the key. Options:

1. Input Record. The data is from the currently selected input record.
2. Literal Area. The data is from a literal area.
3. Extraction Variable. The data is from a previously stored extraction variable.
4. Function. The data will be from a function. See “[Key Field \(Function\) Screen](#)” on page 166.

Field Name. Name of the field to be retrieved. For physical files only, you can press F4 to select from a list of valid fields for this database file. Your selection will populate the Position, Length, and Format fields.

Delimited data field #. If you entered 1 (Yes) for **Use delimited data fields** on the Physical Sequential File Information screen, the system displays this field in place of **Field Name**. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Position** and **Length** fields.

Position. Position of the first character of the value to be used as the key relative to the beginning of the record.

Length. Length of the key value.

Format. Format of the key value.

Store Key Type. Enter 2 if the key is a cycle number.

Translation Table. Displays if Key Source Area is input area. Optionally specify a translation table to translate the key data.

Translation Option. Indicate the processing you want to take place if the value to be translated is not found in the table.

1. Print warning message (processing for key is suppressed). Process as if key was not defined.
2. Print error message (processing terminates).
3. Print warning message (processing continues).
4. Do not print warning message (processing continues).
5. Use dynamic translation.
6. Use hash translation. Do not specify a translation table.

Edit comments. Add/Edit your comments or description. A maximum of 195 characters are allowed. The default value is N. For more information, see “[Edit Comments Screen](#)” on page 158.

6 ■ Creating File Definitions

Creating File Definitions

Press F3 to save and exit.

Key Field (Function) Screen

```
Key Field (Function)

Function: 01
  1. Date in CCYYMMDD format
  2. Day portion of the date
  3. Month portion of the date
  4. Year portion of the date
  5. Time in HHMMSS format
  6. Weekday (MON, TUE, WED ...
Key Number: 00 (1-5)

Is the key field a cycle number? N (Y/N)
```

Function. The date function you want to use to determine the value of the key.

1. Date in CCYYMMDD format. Obtains today's date in CCYYMMDD format, i.e. 20081130.
2. Day portion of the date. The DD portion of the date, i.e. 30.
3. Month portion of the date. The MM portion of the date., i.e. 11.
4. Year portion of the date. The CCYY portion of the date, i.e. 2008.
5. Time in HHMMSS format. The time of day in HHMMSS format, i.e. 121025.
6. Weekday. The day of the week in 3-character format.

Key Number. Identifies which part of the reconciliation key you are defining as the key field. You can define up to five key fields of up to eight characters each to specify the complete reconciliation key. Key 1 will be positions 1-8, Key 2 will be positions 9-16, and so on. You can define the key fields in any order.

Is the key field a cycle number? Enter Y if the key field is the cycle number and the Key Cycle screen will be displayed.

If you are obtaining a cycle from an input source, that input must be the first input defined in your application. If this file is not the first input source, your cycle number will default to 00000001.

Press F3 to save and exit.

Understanding Detail Field Processing

This section explains the different processing stages for detail fields. In the instructions for “Defining Detail Fields” on page 175, we will assume that you understand this processing and therefore will be able to select the appropriate processing options.

This section consists of the following subsections:

- “Sample Input Source for Detail Field Processing” on page 167.
- “Stage 1 Processing” on page 167.
- “Stage 2 and Stage 3 Processing” on page 169.

Sample Input Source for Detail Field Processing

The following sections use an example to illustrate the three processing stages for a detailed field. Following is the report that will be used as the input source for this example:

Credit Card Charges			
Report Created September 1, 2008			
CC00001	HARDWARE STORE	0100.00	08/03/08
CC00001	GROCERY STORE	0110.00	08/05/08 Key Break 1
CC00002	DEPARTMENT STORE	0200.00	08/05/08 Key Break 2
CC00001	RESTAURANT	0080.00	08/06/08 Key Break 3
CC00002	RESTAURANT	0080.00	08/06/08
CC00002	THEATER	0070.00	08/09/08 Key Break 4

In our example, if we set the CC number as the key, there are two keys: CC00001 and CC00002.

Stage 1 Processing

All detail fields undergo stage 1 processing. Stage 1 processes values by key break based on the **What should the detail field contain** option you specify on the Detail Field Destination screen. One value for each key break will be stored in a temporary location. The sample input source above shows four key breaks, which means that there will be four temporary locations.

For detail fields stored in extraction variables, stage 1 is the only processing stage: the results of stage 1 are stored in the extraction variable. For detail fields stored in internal or extended internal items, the values from stage 1 will be fed into stage 2.

6 ■ Creating File Definitions

Creating File Definitions

Stage 1 Processing Options

The **What should the detail field contain** options are as follows:

- Last count value. The last count value extracted from the last detail record selected from the input file with the current key. This is the value associated with the last occurrence of the key within the consecutive list of keys, that is, the last value from stage 1 processing before the key break.
- Last amount value. The last amount value extracted from the last detail record selected from the input file with the current key.
- Last date-count value. The last date-count value for the date extracted from the last detail record selected from the input file with the current key. The Date field type is not valid if you chose Literal from the extract from field.
- Last time-count value. The last time-count value for the time extracted from the last detail record selected from the input file with the current key. The Time field type is not valid if you chose Literal from the extract from field.
- Last text value. The last text value extracted from the last detail record selected from the input file with the current key.
- Accumulation of all values. The sum of all count or amount values for each key break.

For detail fields being stored as extraction variables: Unlike internal or extended internal item values, extraction variable values do not reset with key breaks. So if the detail field will be stored in an extraction variable and you want to sum all count or amount values extracted, you need to initialize the value of the extraction variable by assigning a literal value of zeroes (00000000) to it before loading a new value into it.

Based on our example, the results for this option would be as follows:

Temp Location	Count/Amount Value
Key Break 1: CC00001	0210.00
Key Break 2: CC00002	0200.00
Key Break 3: CC00001	0080.00
Key Break 4: CC00002	0150.00

- Tally of all values. A count of the selected records for each key break.

- **First Count value.** The first count value extracted from the first detail record selected from the input file with the current key.
- **First Amount value.** The first amount value extracted from the first detail record selected from the input file with the current key.
- **First date-count value.** The first date-count value for the date extracted from the first detail record selected from the input file with the current key. (The Date field type is not valid if you chose Literal from the extract from field.)
- **First time-count value.** The first time-count value for the time extracted from the first detail record selected from the input file with the current key. (The Time field type is not valid if you chose Literal from the extract from field.)
- **First text value.** The first text value extracted from the first detail record selected from the input file with the current key.

If you specify First count value, then the value associated with the first occurrence of the key within the consecutive list of keys is used.

Temporary Locations	Last Count/ Amt Values	First Count/ Amt Values	Last Date Value*	First Date- count Value	Last Text Value	First Text Value
Key Break 1: CC00001	0110.00	100.00	144122	144122	GROCERY STORE	HARDWAR E STORE
Key Break 2: CC00002	0200.00	200.00	144122	144122	DEPART- MENT STORE	DEPART- MENT STORE
Key Break 3: CC0001	0080.00	80.00	144123	144123	RESTAU- RANT	RESTAU- RANT
Key Break 4: CC0002	0070.00	80.00	144126	144123	THEATER	RESTAU- RANT

* Remember that dates are converted to date-counts.

Stage 2 and Stage 3 Processing

Stage 2 and stage 3 processing are determined by the option selected for the **How will the extracted values be accumulated** field on the second Detail Field Destination screen, as follows:

- Stage 2 identifies like keys from stage 1 and accumulates them according to the option chosen for this field.

6 ■ Creating File Definitions

Creating File Definitions

- Stage 3 stores history based on the option chosen for this field (if the job stores history).

The options for this field are explained in the following sections. These sections include some examples of the results you would receive using each option based on the sample input data provided in “Sample Input Source for Detail Field Processing” on page 167.

Note: In our example from stage 1, key break 1 stored values for the key CC00001, key break 2 stored values for key CC00002, key break 3 stored values for CC00001, and key break 4 stored values for CC00002. Even though there were four key breaks, there were only two keys represented.

- “Add together values with the same key” on page 170
- “Retain the first non-zero value for each key” on page 171
- “Retain the last value for each key” on page 171
- “Sum the values with the same key; replace history” on page 172
- “Detail value must not equal history value.” on page 172
- “Detail value must be greater than history value” on page 172
- “Detail value must be less than history value” on page 173
- “Retain minimum value; replace history” on page 174
- “Retain maximum value; replace history” on page 174
- “Retain the first value for each key (including zero values)” on page 174

Add together values with the same key

Add together any count or amount values from stage 1 processing that have the same key and add the resulting value to the value stored in history.

Note: **Sum values with the same key, replace history** works the same except that history is replaced.

The results based on our example will be as follows:

Stage 1 Processing Option	CC00001	CC00002
Last Count/Amount Value	0190.00	0270.00
Last Date Count Value	Not applicable	Not applicable
Last Text Value	Not applicable	Not applicable
Accumulation	0290.00	0350.00

Stage 1 Processing Option	CC00001	CC00002
First Count/Amount Value	180.00	280.00
First Date Count Value	Not applicable	Not applicable
First Text Value	Not applicable	Not applicable

Retain the first non-zero value for each key

Retain the first non-zero value for each key and store it in history. The results based on our example will be as follows:

Stage 1 Processing Option	CC00001	CC00002
Last Count/Amount Value	0110.00	0200.00
Last Date Count Value	144122	144122
Last Text Value	GROCERY STORE	DEPARTMENT STORE
Accumulation	0210.00	0200.00
First Count/Amount Value	100.00	200.00
First Date Count Value	144120	144122
First Text Value	HARDWARE STORE	DEPARTMENT STORE

Retain the last value for each key

Retain the last value for each key and store it in history. The results based on our example will be as follows:.

Stage 1 Processing Option	CC00001	CC00002
Last Count/Amount Value	0080.00	0070.00
Last Date Count Value	144123	144126
Last Text Value	RESTAURANT	THEATER
Accumulation	0080.00	0150.00
First Count/Amount Value	80.00	80.00
First Date Count Value	144123	144123
First Text Value	RESTAURANT	RESTAURANT

6 ■ Creating File Definitions

Creating File Definitions

Sum the values with the same key; replace history

Add together count or amount values with the same key; replace history. This is similar to the first stage 2 option, Add together values with the same key, except that with this option history is replaced

Detail value must not equal history value.

If the **last** count, last amount, last value, or last date option is specified in stage 1, retain the last value for each key.

If the **first** count, first amount, first value, or first date option is specified in stage 1, retain the first value for each key.

If the Sum option is specified in Stage 1 processing, accumulate the values for each key.

Store the retained value in history as follows: If this value is not equal to the value currently stored in history, replace the value currently stored in history. If the values are equal, halt processing.

Note: On ACR/Detail for IBM i, any values for the current key that meet this option's criteria will be stored in history, even though other values for the current key that fail the criteria will not be stored in history because the processing is halted.

This differs from ACR/Detail processing on other platforms, where if any values for the current key fail the criteria, no values for the key are stored in history.

Detail value must be greater than history value

Retain the value from Stage 1 as follows:

If the **last** count, last amount, last value, or last date option is specified in stage 1, retain the last value for each key.

If the **first** count, first amount, first value, or first date option is specified in stage 1, retain the first value for each key.

If the Sum option is specified in Stage 1 processing, accumulate the values for each key.

Store the retained value in history as follows: If this value is greater than the value currently stored in history, replace the value currently stored in history. If the values are equal or if the history value is greater, halt processing.

Note: On ACR/Detail for IBM i, any values for the current key that meet this option's criteria will be stored in history, even though other values for the current key that fail the criteria will not be stored in history because the processing is halted.

This differs from ACR/Detail processing on other platforms, where if any values for the current key fail the criteria, no values for the key are stored in history.

Detail value must be less than history value

Retain the value from Stage 1 as follows:

If the **last** count, last amount, last value, or last date option is specified in Stage 1 (**Field type** field), retain the **last** value for each key.

If the **first** count, first amount, first value, or first date option is specified in Stage 1, retain the **first** value for each key.

If the Sum option is specified in Stage 1 processing, accumulate the values for each key.

Store the retained value in history as follows: If this value is less than the value currently stored in history, replace the value currently stored in history. If the values are equal or if the history value is less than the detail value, halt processing.

Note: On ACR/Detail for IBM i, any values for the current key that meet this option's criteria will be stored in history, even though other values for the current key that fail the criteria will not be stored in history because the processing is halted.

This differs from ACR/Detail processing on other platforms, where if any values for the current key fail the criteria, no values for the key are stored in history.

6 ■ Creating File Definitions

Creating File Definitions

Retain minimum value; replace history

Retains the minimum value for each key from Stage 1 processing and replaces the value currently stored in history. The results based on our example will be as follows:.

Stage 1 Processing Option	CC00001	CC00002
Last Count/Amount	80.00	70.00
Last Date	144120	144122
First Count/Amount	80.00	80.00
First Date	144120	144122

Retain maximum value; replace history

Retains the maximum value for each key from Stage 1 processing and replaces history. The results based on our example will be as follows:

Stage 1 Processing Option	CC00001	CC00002
Last Count/Amount	110.00	200.00
Last Date	144123	144126
First Count/Amount	100.00	200.00
First Date	144123	144123

Retain the first value for each key (including zero values)

Retains the first value for each key (including zero values) from Stage 1 processing and replaces history. The results based on our example will be as follows:

Stage 1 Processing Option	CC00001	CC00002
Last Count/Amount Value	0110.00	0200.00
Last Date Count Value	144122	144122
Last Text Value	GROCERY STORE	DEPARTMENT STORE
Accumulation	0210.00	0200.00
First Count/Amount Value	100.00	200.00
First Date Count Value	144120	144122
First Text Value	Hardware Store	Department Store

Defining Detail Fields

This section tells you how to define detail fields through the user interface. For information on detail field processing, see “Understanding Detail Field Processing” on page 167.

A detail field extracts data from the selected record, from a literal, or from an extraction variable (or counts the number of records selected), and processes extracted values according to the options specified on the Detail Field Destination screens.

The result can be stored in an internal or extended internal item or extraction variable, either of which can be regular or extended. Literals are still a maximum of 8 characters.

For example, if you want to add the cost of all phone calls made by the same telephone number, the cost of each individual call would be stored in the detail field. You can complete the screens so that each of the values for that detail field would be added together to produce the total.

Build Detail Value Information Screen

To display the screen, display the Extraction Definition Processing screen for the selection group for which you want to define the detail field. Press F6 from this screen and select Detail Definition.

File ID. The File ID from the basic file information.

Extraction Source Area. Press F4 to specify the source of the data to be used as the detail field value. Options:

1. Input Record. The data is from the currently selected input record.
2. Literal Area. The data is from a literal area.
3. Extraction Variable. The data is from a previously stored extraction variable.

Field Name. Name of the field to be retrieved. For physical files only, you can press F4 to select from a list of valid fields for this database file. Your selection will populate the Position, Length, and Format fields.

Delimited data field #. If you entered 1 (Yes) for **Use delimited data fields** on the Physical Sequential File Information screen, the system displays this field in place of **Field Name**. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Position** and **Length** fields.

Position. Position of the first character of the value to be used relative to the beginning of the record.

6 ■ Creating File Definitions

Creating File Definitions

Length. Length of the value.

Format. Format of the value.

Negative sign ind. Optionally enter up to two characters that will override the default negative sign indicators. Examples are a leading or trailing - or CR.

Extract decimal ind. This option is useful when extracting data with mixed decimal places. For data where the field format is 1 (numeric), indicate how you want decimals to be processed.

Y. When storing the extracted value in the destination field, the system will not change the location of the decimal point. Instead, the decimal places in the destination will be padded or truncated to match the number of decimals specified in the destination screen.

N or blank. The system will use the following default (original) processing: When storing the extracted value in the destination field, the location of the decimal point will be changed if necessary, so that the number of decimal places in the destination will match the number of decimal places specified in the destination screen. No truncation or padding of decimals will be performed.

Example:

The following table shows several source values along with the corresponding values that will be stored in the destination field depending on how you set the **Extract Decimal Indicator** field. In this example, the number of decimals specified on the destination screen is 2.

Source Value	Extract Decimal Indicator = Y	Extract Decimal Indicator = N
	Stored Value	Stored Value
123.0	123.00 (pad)	12.30
123	123.00 (pad)	1.23
123.00	123.00	123.00
123.00125	123.00 (truncate)	123001.25

Reverse sign ind. Enter Y in this indicator to reverse the sign of the field.

Store Extracted Value. If you want to store the value in an extraction variable instead of an internal or extended internal item, press F8 and select option 2.

Job/Step/Qual/Item Name. This displays if the **Store Extracted Value** field is set to Internal Item or Extended Internal Item. The first field defaults to I (internal item). Enter X if you are storing the value in an extended internal item. Position the cursor in the field and press F4 to display and complete the “[Internal Item Selection Screen](#)” on page 177 or the “[Extended Internal Item Selection Screen](#)” on page 178.

Store Value As. Press F1 in the field for an explanation of the options.

Translation Table. Optionally specify a translation table to translate the data.

Translation Option. Indicate processing you want to take place if the value to be translated is not found in the table:

1. Print warning message. Use spaces as translated value for further processing of this detail field.
2. Suppress warning message. Use spaces as translated value for further processing of this detail field.
3. Print warning message. Use extracted value for further processing of this detail field.
4. Do not print warning message. Use extracted value for further processing of this detail field.

Edit comments. Add/Edit your comments or description. A maximum of 195 characters are allowed. The default value is N. For more information, see “[Edit Comments Screen](#)” on page 158.

When you press F3 to save and exit, the following screens will be displayed.

- “[\(First\) Detail Field Destination Screen](#)” on page 180
- “[\(Second\) Detail Field Destination Screen](#)” on page 181

Internal Item Selection Screen

To display this screen, from the **Job/Step/Qual/Item Name** field on the Build Detail Value Information screen, make sure I is the entry in the first field and press F4.

6 ■ Creating File Definitions

Creating File Definitions

Use this screen to 1) create a new internal item to store the value of the detail field, or 2) select the job and associated internal item where the value will be stored.

```
Internal Item Selection

Options:  1=Select

Opt      Job          Step    Qual Item Nam
_  ACCESS6    NEWTEST    I001
_  ACCESS6    NEWTEST    I002
_  ACCESS6    NEWTEST1   I001
_  ACCESS6    NEWTEST1   I002
_  ACCESS7    NEWTEST    I001
_  ACCESS7    NEWTEST    I002
_  AMODE7     EXTVARII   I001
_  AMODE7     EXTVARII   I002
_  AMODE7     EXTVARII   I003
_  AMODE7     EXTVARII   I004

Job ID _____

F6=Create/Modify JINT  F12=Cancel
```

To create an internal item, do the following: 1) Press F6=Create from the Internal Item Selection screen. 2) Press F6=Create again. The Internal Items screen will display. For instructions on this screen, see [“Defining Internal Items” on page 61](#). After completing the screen, press F3 to save and exit. Press F3 again to return to the Internal Item Selection screen. Select the new item with a 1 and press Enter to save and return to the Build Detail Value Information screen.

Extended Internal Item Selection Screen

To display this screen, from the **Job/Step/Qual/Item Name** field on the Build Detail Value Information screen, make sure X is the entry in the first field and press F4.

Use this screen to 1) create a new extended internal item to store the value of the detail field, or 2) select the job and associated internal item where the value will be stored,

```

Extended Internal Item Selection

Options:  1=Select

Opt      Job          Step    Qual Item Nam
-  ACCESS6    NEWTEST    X001
-  ACCESS6    NEWTEST    X002
-  ACCESS6    NEWTEST1   X001
-  ACCESS6    NEWTEST1   X002
-  ACCESS7    NEWTEST    X001
-  ACCESS7    NEWTEST    X002
-  AMODE7     EXTVARII   X001
-  AMODE7     EXTVARII   X002
-  AMODE7     EXTVARII   X003
-  AMODE7     EXTVARII   X004

Job ID _____

F6=Create/Modify INT  F12=Cancel
    
```

To create an extended internal item, do the following: 1) Press F6=Create from the Extended Internal Item Selection screen. 2) Press F6=Create again. The Extended Internal Items screen will display. For instructions on this screen, see [“Defining Extended Internal Items” on page 65](#). After completing the screen, press F3 to save and exit. Press F3 again to return to the Extended Internal Item Selection screen. Select the new item with a 1 and press Enter to save and return to the Build Detail Value Information screen.

6 ■ Creating File Definitions

Creating File Definitions

(First) Detail Field Destination Screen

To display this screen, press F3 after completing the Build Detail Value Information screen.

```
Detail Field Destination

What should the detail field contain?
 1 1. Last count value
   2. Last amount value
   3. Last date-count value
   4. Last text value
   5. Accumulation of all values
   6. Tally of all values
   7. First count value
   8. First amount value
   9. First date-count value
  10. First text value
  11. Last time-count value
  12. First time-count value

F3=Save/Exit  F12=Cancel
```

What should the detail field contain? Determines how keys will be extracted and processed for stage 1 processing. For example, if you specify Last count value, the value used is the value associated with the last occurrence of the key within the consecutive list of keys. This is the last value from stage 1 processing before the key break. For more information, including option descriptions and examples, see [“Stage 1 Processing” on page 167](#).

Press F3 to save and display the next screen, shown below.

(Second) Detail Field Destination Screen

To display this screen, press F3 after completing the (First) Detail Field Destination screen.

```

                                Detail Field Destination

How will the extracted values be accumulated?
 3  1. Add together values with the same key
    2. Retain the first non-zero value for each key
    3. Retain the last value for each key
    4. Add together values with the same key; replace history
    5. Detail value must not equal history value
    6. Detail value must be greater than history value
    7. Detail value must be less than history value
    8. Retain minimum value; replace history
    9. Retain maximum value; replace history
   10. Retain the first value for each key (including
        zero values)

F3=Save/Exit  F12=Cancel

```

How will the extracted values be accumulated? The results from the previous screen, which controls stage 1 processing, will affect the results obtained from your selection for this field. For more information, including option descriptions and examples, see [“Stage 2 and Stage 3 Processing” on page 169](#).

Press F3 to save and exit.

Date and Cycle Number Extraction and Processing

Specifying the Length and Format of the Date to Extract

Length Should Include Date Separators

If the date uses separators such as spaces, commas, slashes, or periods, include the separators in the length. The date separators will be stripped out when the value is stored. For example:

01/15/2005 is a length of 10.

Jan. 01, 2000 is a length of 13.

Date or Cycle Format

A date or cycle specified for extraction should be formatted as numeric unless it includes a 3-character month (mmm). A date or cycle that includes a 3-character month should be formatted as alphanumeric.

6 ■ Creating File Definitions

Date and Cycle Number Extraction and Processing

Date Format Options

Accept Date (Cycle) Number As Is

This format is available only when extracting dates for use in assigning the cycle number.

This format indicates that, in general, the extracted value will be used as the cycle number with no changes. If you extract fewer than 8 digits, the system will fill the leftmost positions with zeros.

Note: This format cannot be used when extracting a value that includes a 3-character month.

Date Formats that Use DD, MM, C, CC, YY, JJ, and/or MMM

The formats listed below are available for extracting dates to be stored as an internal or extended internal item or as a cycle number. These formats identify the format of the date in the input source (date separators are not relevant because they will be stripped out):

Note: In the Key Cycle screens, the wording of the date format options will be “Convert number from x to CCYYMMDD”

where x is one of the formats shown below.

Note: Date formats use the following conventions:

dd represents the day number. Days less than 10 must have a leading 0. For example, Jan 1, 2006 cannot be extracted, but Jan 01, 2006 can be extracted.

mm represents the 2-digit month number.

c represents the 1-digit century, where 0 = 19 (as in 1999) and 1 = 20 as in 2010.

cc represents the 2-digit century (CC).

yy represents the 2-digit year.

jjj represents the 3-digit Julian day.

mmm represents the 3-character month (JAN, FEB, etc.).

YYMMDD
MMDDYY
MMDDCCYY
DDMMYY
YYJJJ

DDMMCCYY
 CYYMMDD
 CCYYMMDD
 CCYYJJJ
 DDMMYY
 DDMMMCCYY
 MMMDDYY
 MMMDDCCYY

If you want the system to pad leading zero for the month component or the day component of the input date, enter the date separator.

If the input date always has leading zero for its components, do not enter the date separator. The following date format/cycle formats allow extraction of dates without the leading zeros:

YYMMDD
 MMDDYY
 MMDDCCYY
 DDMMYY
 DDMMCCYY
 CYYMMDD
 CCYYMMDD
 DDMMYY
 DDMMMCCYY
 MMMDDYY
 MMMDDCCYY

Calculation of Century Values

When the century is not extracted as part of the date, (in this case, the date format contains DD, MM, YY, JJJ, and/or MMM but no C or CC), the century is calculated automatically. A century value of 20 is assigned for years less than or equal to 80. Otherwise a century value of 19 is assigned.

Storage of Extracted Dates and Cycle Numbers

Storage of Extracted Dates

After the century is calculated (if required), extracted dates that are not used as cycle numbers are stored internally as date count values.

6 ■ Creating File Definitions

Time Extraction and Processing

Storage of Extracted Cycles

After the century is calculated (if required), extracted dates that are used as cycle numbers are stored internally in CCYYMMDD format.

Display and Printing of Dates

The default format for display and printing of dates is MM/DD/YY.

Note: Even if you select one of the formats that contain the century, such as DDMMCCYY, to format dates on reports, only the last 2 digits of the year will print unless you specify Y for the **Print century before year** field on the Date Formats screen.

You can control the following defaults through your user options as described in “Date Format Options” on page 25:

- Order of the date elements.
- Character to use as the date separator (instead of the default slash mark).
- Display of leading zeros in days and months.
- Whether the century prints before the year. You may want to print the century to verify that the correct century was calculated.

Note: Another way to verify that the correct century was calculated is to run the List History utility for detail values of the job ID in question and examine the date count values stored in the internal or extended internal items. If a date count value is more than 145731 (December 31, 1999), the century value was assumed to be 20.

Time Extraction and Processing

Specifying the time format and AM/PM Indicator of the extracted Time

Time Format

Specify the time format of the input data. The following formats are supported for the extracted time:

- HHMM (hour minute).
- HHMMSS (hour minute second).
- HHMMSSNN (hour minute second centisecond).

If the time has a separator (:), the separator is removed when the value is stored.

For example, consider the time format HHMM. The valid time values for this format are listed below:

12-hour format	24-hour format
Midnight (Start of Day)	
12:00 a.m.	00:00
12:01 a.m.	00:01
12:59 a.m.	00:59
1:00 a.m.	01:00
...	...
11:00 a.m.	11:00
11:59 a.m.	11:59
12:00 p.m.	12:00
12:01 p.m.	12:01
12:59 p.m.	12:59
01:00 p.m.	13:00
...	...
11:00 p.m.	23:00
11:59 p.m.	23:59
Midnight (End of Day) <i>Shown as start of next day.</i>	

AM/PM

Specify whether the extracted time contains the abbreviation AM or PM.

Storage of Extracted Time

The extracted time fields are stored internally as centisecond.

Extracting Directly from a Delimited Data File

You can extract delimited values directly from input source records in delimited data files. This feature allows you to specify multiple delimiters, including the tab character, for keys, items, and translation tables.

Procedure for Extracting Delimited Fields Directly

1. When setting up your input source, on the File Definitions Basic Information screen, (or Sequential Input File panel for external translation tables), enter Y in the **Use delimited data fields** field and complete the Delimited Data File Information screen.
2. On the file definition screens, (or in the table build rules for external translation tables) complete the **Delimited data field number** field as follows: If you are extracting from the delimited area of the file, enter the field number. If you are extracting from the fixed area leave this field blank and specify position and length.

Limitations

When extracting directly from delimited data files, the following limitations apply:

- Direct delimited data extraction is supported only for physical sequential files.
- Direct delimited data extraction is allowed only if the data is extracted directly from the input record. It does not apply when extracting from extraction variables or literals.
- Maximums for a delimited data file:
 - The maximum length allowed for the fixed data area is 1000.
 - The maximum number of delimited data fields allowed per record is 372.
- Partial extraction is allowed for all field formats. To extract the whole field, leave the position and length fields set to zeros or spaces.
- For reformat fields, the delimited data cannot be put in the note area.
- The extraction program interface does not support delimited data files.

Using Extraction Programs

An extraction program is a dedicated RPG LE program that extracts values based on the file definitions you created for the input source file. Extraction programs increase efficiency and are appropriate in the following situations:

- You need to extract values from a lengthy file or one that resides in a database or data warehouse.
- The file definitions will rarely change. (Every time the file definitions change, a new extraction program must be created using the instructions provided here.)
- The file definitions do not include any of the unsupported features listed under "[Restrictions](#)" below.

If a job processes multiple files, you can use extraction programs just for the larger files, without changing how the smaller files are processed.

Restrictions

Extraction programs do not support the following features:

- Translation tables.
- Selection fields where any of the following are defined:
 - Input type = Extraction variable
 - Criteria type is 12 (Locate)
 - Criteria type is 16 (Advance [relative record])
- Extraction from data areas.
- Detail field definitions where a literal area or extraction variable is the source of the data.
- Reformat fields.

6 ■ Creating File Definitions

Using Extraction Programs

Procedure

To create and use an extraction program, do the following:

1. Complete the **Use Extraction Program** and **Extraction Program Name** fields on the Basic File Information screen for the physical file or spool file from which data is to be extracted.
2. Exit to the Basic File Information list screen and enter 14=Compile next to the file name to display the Compile Program Extraction screen.

mm/dd/yy 16:14:10	File Definitions	ACR/D releasenumbr
FCMP	Compile Program Extraction	
File ID:	CASHIER6JD	
RPG Source File:	<u>QRPGLESRC</u>	
RPG Source Library:	<u>DETAIL40</u>	
Job Queue	Output Queue	Hold Job
QBATCH _____	PRT01 _____	<u>1</u> 1=Yes, 2=No
F3=Exit	F20=Run Online	

Complete the fields:

File ID. Identifies the file for which the extraction program will be used.

RPG Source File. File where ACR/Detail should write the RPG source code for the extraction program. The file must already exist. Accept the default or change it.

RPG Source Library. Name of the library where the RPG source file resides. Accept the default or change it.

Job Queue. (This applies in batch processing only.) Job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only.) Output queue where the job's spooled output should be sent.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

3. Use your RPG LE compiler to generate and compile the program.

To generate and compile online, press F20.

To generate and compile in batch, press Enter and exit.

Once the extraction program is generated and compiled, it will automatically run each time an ACR/Detail job extracts values from the corresponding input source file.

Understanding Field Formats

Numeric. All of the characters are numeric. Blanks will be ignored, alphanumeric characters will be stripped out, and the field will be padded with preceding zeros. For example, suppose the value has a length of eight and you specify the format as numeric. The results would be as follows:

Value	This will be interpreted as:
1234 (4 blanks after value)	00000000001234
1A2B3C4D	00000000001234
1234ABCD	00000000001234
1 2 3 4 (spaces between numbers)	00000000001234
12341111	00000012341111
(all blanks)	00000000000000

Alphanumeric. Some or all of the characters are alphabetic. This format allows punctuation and numbers as well as alphabetic characters. The string below could be formatted as alphanumeric.

JOHN DOE'S PHONE# IS (630)555-1212

Packed. The value is stored in packed decimal format, i.e. there are two digits for each byte, except for the last byte, which consists of the last digit (0-9) and a sign. For example, with a hex display on the mainframe, 12345 in packed format would look like this:, 12345C

```

| | |
| | |
| | |--Byte 3 contains 5C. C indicates a positive number.
| |
| |--Byte 2 contains 34
|
|--Byte 1 contains 12

```

Zoned decimal. Each digit is represented by a single byte. The first four bits of each byte make up the sign (F), and the last byte, where the first four bits will contain a C for a positive number or a D for a negative number. The last four bits of each byte contain the value of the digit.

6 ■ Creating File Definitions

Understanding Field Formats

For example, with a hex display on the mainframe, 12345 in zoned decimal format would look like this:

```
F1F2F3F4C5
| | | |
| | | | --Byte 5 contains C5. C indicates a positive number.
| | | |
| | | | --Byte 4 contains F4
| | | |
| | | | --Byte 3 contains F3
| | | |
| | | | --Byte 2 contains F2
| | | |
| | | | --Byte 1 contains F1
```

Binary. Has a decimal equivalent consisting of the decimal digits 0 through 9 and a sign. Binary stores numbers in hexadecimal (base 16), represented by the characters 0-9 and A-E. For example, with a hex display on the mainframe, 12345 in binary format would look like this:

```
3039
| |
| | --Byte 2 contains 39
| |
| | --Byte 1 contains 30
```

Unsigned packed. Same as packed except that there is no sign in the last byte. Two digits are stored in every byte and the value is always positive. For example, with a hex display on the mainframe, 12345 in unsigned packed format would look like this:

```
012345
| | |
| | | --Byte 3 contains 45
| | |
| | | --Byte 2 contains 23
| | |
| | | --Byte 1 contains 01
```

For information on maximum lengths when extracting data in each format, see [“Maximum Lengths for Regular and Extended Data”](#) on page 61.

Setting Up Report Options

Report options allow you to customize settings for the Control Report and to create optional reports that will be generated along with the Control Report when the job runs.

This chapter contains the following sections:

- “Reports Main Menu” on page 191
- “Defining Output Files” on page 203
- “Running a Reconciliation Job” on page 203
- “Interpreting the Reconciliation Reports” on page 205

Reports Main Menu

From the Main Menu, select **Reports** to display the Reports Main Menu screen.

```

mm/dd/yy 12:08:11      Infogix Systems, Inc.      ACR/D releasenumbr
RMNU                ACR/Detail              USER1
                   Reports Main Menu

                   1. User Reports                (JREP)
                   2. Free Form Report            (RFFR)

                   9. Report options              (JHED)
  
```

1. **User Reports.** Select this to create a new User Report. For instructions, see “Creating User Reports” on page 249.
2. **Free Form Report.** Select this to create a new Free-form Report. For instructions, see “Creating Free-Form Reports” on page 217.
9. **Report options.** Select this to access the options described in “Report Options Screen” on page 192. When you select option 9, the “List of Jobs for Report Options Screen” in the following section will be displayed, so that you can specify the job for which you want to set report options.

7 ■ Setting Up Report Options

Reports Main Menu

List of Jobs for Report Options Screen

This screen displays all the jobs that have basic job information defined so that you can select the job for which you want to set report options.

```
mm/dd/yy 15:52:08          Job Definitions          ACR/D releasenumber
JHED                      List of Jobs for Report Option      USER1

Options:   2 - Update      3 - Copy      4 - Delete

O Job      Step          Line
P Name     Name          Qual Number  ----- ACR Title Text -----
- TESTJB   BASIC          00
- INDUST   STEP1            00

Job/Step/Qual _____ Next Screen _____

F3=Exit    F9=Retrieve JSQ    F11=Position
```

Enter **2 (Update)** to select a job and display its Report Options screen, described in the following section.

Report Options Screen

```
mm/dd/yy 10:58:20          Reports          ACR/D releasenumber
JHED                      Report Options          userid

JSQ: SAMPLE      STEP1

Specify a numeric format option:
  1 1. Default to user options
  2 Use 22-character numeric format
  3 Do not use 22-character numeric format
Initialize text items to spaces:
  1 1. Default to user options
  2 Initialize text items to spaces
  3 Do not initialize text items to spaces

Select options to modify:
- Control report...
- Control report XML option...
- Free-form report...
- User report...
- Recap report...
- Debugging reports...

F3-Save/Exit F5-Refresh
```

Specify a numeric format option. Specify whether you will use 22-character format (instead of typical 18-character format) for counts and amounts on the Control Report, User Report, and Free-Form Report for

this job. Using 22-character formatting enables proper alignment of longer numbers that may include a currency symbol, commas, a decimal point, a sign, and up to 15 digits.

1. Default to user options. Use the user options setting for the 22-character numeric field when running the job in batch. In online processing, typical 18-character formatting will be used.
2. Use 22-character numeric format. Use 22-character format whether the job is run online or in batch.
3. Do not use 22-character-numeric format. Use 18-character formatting.

Initialize text items to spaces. Specify how empty internal items and history items, which are formatted as text, will be initialized at the job level:

1. Default to use user options. Use the user options setting when running the job in batch. In online processing, the item will be initialized to low-values.
2. Initialize text items to spaces. Initialize to spaces whether the job is run online or in batch.
3. Do not initialize text items to spaces. Initialize to low-values whether the job is run online or in batch.

Select options to modify. Select the report option you want to modify and press Enter. The corresponding screen will display. See the corresponding section below:

- “Control Report” on page 193
- “Control Report XML Option” on page 195
- “Free-Form Report” on page 195
- “User Report” on page 195
- “Recap Report” on page 196
- “Debugging Reports” on page 198

Control Report

From the Report Options menu, select **Control report** to display the Print Control Report screen.

7 ■ Setting Up Report Options

Reports Main Menu

The example below shows the Print Control Report screen.

<i>mm/dd/yy</i> 16:22:26	Job Definitions	<i>ACR/D releasenumbr</i>
JHED	Print Control Report	<i>userid</i>
Job Name: ABC	Step Name: STEP1	Qualifier:
Title: _____	SAMPLE JOB	_____
Specify a print option: <u>2</u>		Enter left column heading
1. Do not print report		_____
2. Print report for all reconciled keys		Enter right column heading
3. Print report for out-of-balance keys		_____
4. Print report for in-balance keys		
Print out-of-balance summary: <u>N</u> (Y/N)		
F3=Save/Exit F5=Refresh		

Job Name/Step Name/Qualifier. Uniquely identifies the job.

Title. Title of the Control Report from Basic (Job) Information. You can change it here.

Specify a print option. Select the option you want.

Enter left column heading. A descriptive heading for the left column of control values.

Enter right column heading. A descriptive heading for the right column of control values.

Print out-of-balance summary. The out-of-balance summary is a separate section at the end of the control report. You can print this section even if you choose not to print the control report. See “Control Report: Out-of-Balance Summary” on page 209.

Press F3 to save and exit.

Control Report XML Option

The Control Report XML Option screen enables you to set job-level options for generating the Control Report in XML format. Your settings here will override the corresponding (system-wide) XML options (see “XML Options Screen” on page 26).

```

Control Report XML Option

Control report:    1
1. Default to user options
2. Do not generate
3. Generate, write to file
4. Generate, autoload to database

F3-Exit F5-Refresh

```

Control report. Options:

1. **Default to user options.** Defaults to the option specified for the Control Report field described in “XML Options Screen” on page 26.
2. **Do not generate.** Do not generate the report in XML format.
3. **Generate, write to file.** Create a copy of the control report in XML format and write to the file specified.
4. **Generate, autoload to database.** Create a copy of the control report in XML format and write to the associated database. The fail option and maximum size specified in your user options will apply.

Select the option and press Enter.

Free-Form Report

The Free-Form Report is a custom report that can include any of the control values obtained when the job is run, along with their descriptions. See “Creating Free-Form Reports” on page 217 for complete instructions.

User Report

The User Report is a customized report limited to 4 columns that prints any of the data that can be included in the Control Report in the order that you specify. For more information, see “Creating User Reports” on page 249.

Press Enter to accept your entries. The report will be generated when the associated job runs.

Interpreting the Recap Report

The Recap Report provides a summary listing for all keys that were reconciled, showing the reconciliation results and any return codes. An example and explanation of the columns of the Reconciliation Recap Report (ACRDRCAP) is shown below

ACR/D Releasenumbr		UNIBANK Credit		
Page	1	Reconciliation Recap Report		
DATE: mm/dd/yy		Current Balance Reconciliation		Job ID=STATEMENT
TIME: 09.43.12				
Key No.	Key	Cycle #	Status	Code
1	9785874	00940831	IN BALANCE	0000
2	9785875	00940831	IN BALANCE	0000
3	9785876	00940831	**OUT OF BALANCE**	2000
4	9785877	00940831	IN BALANCE	0000
5	9785878	00940831	IN BALANCE	0000

Job ID. The job identifier for the reconciliation job. The Job ID for this job is STATEMENT.

Key No. The sequence in which keys were processed by ACR/Detail.

Key. Each key processed by ACR/Detail. The Statement job processed five keys.

Cycle #. An eight-digit date or other ascending sequence number that you extract from an input source or assign when you run a reconciliation job to uniquely identify the set of data you are reconciling. We extracted the statement dates for use as cycle numbers. The statements reconciled in this example were all dated August 31, 1994.

Status. Processing results for each key, such as "In Balance" and "Out of Balance." In this example, Account 9785876 was out of balance.

Code. The highest return code for the rules evaluated for each key. NEWBALANCE set a return code of 2000 for Account 9785876.

7 ■ Setting Up Report Options

Reports Main Menu

Debugging Reports

The Debugging Reports screen allows you to print reports that you can use to debug a job. The system generates the reports when you run the job.

```
Debugging Reports

Print extracted data detail report? Y (Y/N)

Print history data detail report?   Y (Y/N)

Choose a print option for the sorted/accumulated
data detail report:
2  1. Do not print a report
     2. Print a sorted report
     3. Print an accumulated report

F3=Exit F12=Cancel
```

Print extracted data detail report? Specify Y to print a report that shows which data values were extracted and written to the work records. The report shows the data values in the order that they appear in the input files. See [“Extracted Data Detail Report” on page 199](#).

Print history data detail report? Specify Y to print a report that shows the values in the work records after the extracted values have been accumulated with any detail history records that have identical accumulation keys. In other words, the report shows what the history database will contain if processing completes with no errors. See [“History Data Detail Report” on page 202](#).

Choose a print option for the sorted/accumulated data detail report.

1. Do not print a report. This option will not print the Sorted Data Detail Report or the Accumulated Data Detail Report. This option does not affect the printing of the Extracted Data Detail Report or the History Data Detail Report.
2. Print a sorted report. This option prints a report that shows the extracted values in the work records, displayed in the order that results from sorting the records by reconciliation key. See [“Sorted Data Detail Report” on page 200](#).
3. Print an accumulated report. This option prints a report that displays the values in the work records after the values have been accumulated for records with identical reconciliation keys. See [“Accumulated Data Detail Report” on page 201](#).

Press Enter to accept your entries. The selected reports will be generated when the associated job runs.

Extracted Data Detail Report

You can request this report on the Debugging Reports screen. The report shows the key and detail field values extracted from every input file record that meets one or more selection criteria. The values are listed in the order of extraction.

ACR/D Release number		INFOGIX, INCORPORATED				COPYRIGHT INFOGIX, INC. 2013			
DATE: yy/mm/dd		EXTRACTED DATA DETAIL				REPORT ID: DXR001 PAGE 1			
TIME: 13:31:57		DETAIL RECONCILIATION SYSTEM				DATA BASE VERSION: 0000047/*****			
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 101 101			12	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(12345) 2:(	10000)	3:(2345)	4:(10010)	5:(7665)				
	6:(10134) 7:(	) 8:(	) 9:(	) 10:()				
	1:(SPORTING GOODS								
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 101 002			19	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(55500) 2:(	23450)	3:(32050)	4:(60095)	5:(28045)				
	6:(19034) 7:(	) 8:(	) 9:(	) 10:()				
	1:(JEWELRY								
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 101 003			26	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(33345) 2:(	100)	3:(2345)	4:(90010)	5:(87665)				
	6:(20075) 7:(	) 8:(	) 9:(	) 10:()				
	1:(CLOTHING (errors)								
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 102 001			34	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(21338) 2:(	17921)	3:(3417)	4:(76520)	5:(73103)				
	6:(98963) 7:(	) 8:(	) 9:(	) 10:()				
	1:(SPORTING GOODS								
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 102 002			41	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(89051) 2:(	62493)	3:(26558)	4:(64268)	5:(37710)				
	6:(98800) 7:(	) 8:(	) 9:(	) 10:()				
	1:(JEWELRY								
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 103 001			49	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(78962) 2:(	10000)	3:(68962)	4:(110010)	5:(41048)				
	6:(20821) 7:(	) 8:(	) 9:(	) 10:()				
	1:(SPORTING GOODS								
<--- JOB ID --->	<--- CYCLE RUN --->	<----- KEYS ----->		FROM RECORD	<--- JOB/STEP --->	<--FILE ID-->			
MYJOB MYSTEP	00000001 000 103 002			56	MYJOB MYSTEP	TSTFL1			
VALUES:	1:(58702) 2:(	50843)	3:(7859)	4:(12595)	5:(4736)				
	6:(3423) 7:(	) 8:(	) 9:(	) 10:()				
	1:(JEWELRY								

7 ■ Setting Up Report Options

Reports Main Menu

Sorted Data Detail Report

This report is generated by reconciliation if you request the report on the Debugging Reports screen. The report shows the keys and detail field values extracted from every input file record that meets at least one selection criterion. Extracted data is shown after it has been sorted by reconciliation key.

ACR/D Release number		INFOGIX, INCORPORATED				COPYRIGHT INFOGIX, INC. 2013			
DATE: yy/mm/dd		SORTED DATA DETAIL				REPORT ID: DXR001 PAGE 1			
TIME: 13:29:38		DETAIL RECONCILIATION SYSTEM				DATA BASE VERSION: 0000046/*****			
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 101	002		19	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(55500)	2:(23450)	3:(32050)		4:(60095)	5:(28045)			
	6:(19034)	7:()	8:()		9:()	10:()			
	1:(JEWELRY								
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 101	003		26	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(33345)	2:(100)	3:(2345)		4:(90010)	5:(87665)			
	6:(20075)	7:()	8:()		9:()	10:()			
	1:(CLOTHING (errors)								
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 101	101		12	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(12345)	2:(10000)	3:(2345)		4:(10010)	5:(7665)			
	6:(10134)	7:()	8:()		9:()	10:()			
	1:(SPORTING GOODS								
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 102	001		34	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(21338)	2:(17921)	3:(3417)		4:(76520)	5:(73103)			
	6:(98963)	7:()	8:()		9:()	10:()			
	1:(SPORTING GOODS								
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 102	002		41	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(89051)	2:(62493)	3:(26558)		4:(64268)	5:(37710)			
	6:(98800)	7:()	8:()		9:()	10:()			
	1:(JEWELRY								
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 103	001		49	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(78962)	2:(10000)	3:(68962)		4:(110010)	5:(41048)			
	6:(20821)	7:()	8:()		9:()	10:()			
	1:(SPORTING GOODS								
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP --->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 103	002		56	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(58702)	2:(50843)	3:(7859)		4:(12595)	5:(4736)			
	6:(3423)	7:()	8:()		9:()	10:()			
	1:(JEWELRY								

Accumulated Data Detail Report

This report is generated by reconciliation if you request the report on the Debugging Reports screen. The report shows the extracted data shown on the Sorted Data Detail Report after the values have been accumulated by reconciliation key. This provides you with a picture of what the history database will contain if the history updates complete with no errors.

ACR/D Releasenumbr		INFOGIX, INCORPORATED				COPYRIGHT INFOGIX, INC. 2013			
DATE: yy/mm/dd		ACCUMULATED DATA DETAIL				REPORT ID: DXR001 PAGE 1			
TIME: 13:31:57		DETAIL RECONCILIATION SYSTEM				DATA BASE VERSION: 0000047/*****			
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP -->	<-FILE ID->		
MYJOB MYSTEP	00000001	000 101	002		19	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(55500)	2:(23450)	3:(32050)		4:(60095)	5:(28045)			
	6:(19034)	7:()	8:()		9:()	10:()			
	1:(JEWELRY								
MYJOB MYSTEP	00000001	000 101	003		26	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(33345)	2:(100)	3:(2345)		4:(90010)	5:(87665)			
	6:(20075)	7:()	8:()		9:()	10:()			
	1:(CLOTHING (errors)								
MYJOB MYSTEP	00000001	000 101	101		12	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(12345)	2:(10000)	3:(2345)		4:(10010)	5:(7665)			
	6:(10134)	7:()	8:()		9:()	10:()			
	1:(SPORTING GOODS								
MYJOB MYSTEP	00000001	000 102	001		34	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(21338)	2:(17921)	3:(3417)		4:(76520)	5:(73103)			
	6:(98963)	7:()	8:()		9:()	10:()			
	1:(SPORTING GOODS								
MYJOB MYSTEP	00000001	000 102	002		41	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(89051)	2:(62493)	3:(26558)		4:(64268)	5:(37710)			
	6:(98800)	7:()	8:()		9:()	10:()			
	1:(JEWELRY								
MYJOB MYSTEP	00000001	000 103	001		49	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(78962)	2:(10000)	3:(68962)		4:(110010)	5:(41048)			
	6:(20821)	7:()	8:()		9:()	10:()			
	1:(SPORTING GOODS								
MYJOB MYSTEP	00000001	000 103	002		56	MYJOB MYSTEP	TSTPL1		
VALUES:	1:(58702)	2:(50843)	3:(7859)		4:(12595)	5:(4736)			
	6:(3423)	7:()	8:()		9:()	10:()			
	1:(JEWELRY								

7 ■ Setting Up Report Options

Reports Main Menu

History Data Detail Report

This report is generated by reconciliation if you request the report on the Debugging Reports screen. The report shows the results of accumulating the extracted data with the source histories. This provides you with a picture of what the history database will contain if the history updates complete with no errors.

ACR/D Releasenumbr		INFOGIX, INCORPORATED				COPYRIGHT INFOGIX, INC. 2013				
DATE: yy/mm/dd		HISTORY DATA DETAIL				REPORT ID: DXR001 PAGE 1				
TIME: 13:33:50		DETAIL RECONCILIATION SYSTEM				DATA BASE VERSION: 0000048/*****				
<--- JOB ID --->	CYCLE	RUN	KEYS		FROM RECORD	<--- JOB/STEP -->	<--- FILE ID -->			
MYJOB MYSTEP	00000004	000 101	002			MYJOB MYSTEP				
VALUES:	1:(55500)	2:(23450)	3:(32050)	4:(60095)	5:(28045)	6:(19034)	7:()	8:()	9:()	10:()
	1:(JEWELRY									
MYJOB MYSTEP	00000004	000 101	003			MYJOB MYSTEP				
VALUES:	1:(33345)	2:(100)	3:(2345)	4:(90010)	5:(87665)	6:(20075)	7:()	8:()	9:()	10:()
	1:(CLOTHING (errors)									
MYJOB MYSTEP	00000004	000 101	101			MYJOB MYSTEP				
VALUES:	1:(12345)	2:(10000)	3:(2345)	4:(10010)	5:(7665)	6:(10134)	7:()	8:()	9:()	10:()
	1:(SPORTING GOODS									
MYJOB MYSTEP	00000004	000 102	001			MYJOB MYSTEP				
VALUES:	1:(21338)	2:(17921)	3:(3417)	4:(76520)	5:(73103)	6:(98963)	7:()	8:()	9:()	10:()
	1:(SPORTING GOODS									
MYJOB MYSTEP	00000004	000 102	002			MYJOB MYSTEP				
VALUES:	1:(89051)	2:(62493)	3:(26558)	4:(64268)	5:(37710)	6:(98800)	7:()	8:()	9:()	10:()
	1:(JEWELRY									
MYJOB MYSTEP	00000004	000 103	001			MYJOB MYSTEP				
VALUES:	1:(78962)	2:(10000)	3:(68962)	4:(110010)	5:(41048)	6:(20821)	7:()	8:()	9:()	10:()
	1:(SPORTING GOODS									
MYJOB MYSTEP	00000004	000 103	002			MYJOB MYSTEP				
VALUES:	1:(58702)	2:(50843)	3:(7859)	4:(12595)	5:(4736)	6:(3423)	7:()	8:()	9:()	10:()
	1:(JEWELRY									

Defining Output Files

An output file, if generated, contains results from a reconciliation job in a DB2/400 file. The file can then be used either as a smaller, more efficient input source to ACR/Detail, or as input to other applications. For more information, see “Creating Output Files” on page 317.

Running a Reconciliation Job

1. From the Main Menu, select **Definitions > Basic Job Information** to display the Basic Job Information list screen and page down until you find the job you want to run.
2. Enter 9 (Run Job) next to the job to display the Execute Reconciliation Job screen.

```

mm/dd/yy 12:00:00          Job Definitions          ACR/D releasenumbr
JRUN                      Execute Reconciliation Job

                               Job/Step:          SAMPLE_____ STEP1_____
                               Cycle Number:        _____

                               Produce Trace Report  N

                               Job Queue            Output Queue          Hold Job
                               QBATCH_____        QPRINT_____          N

F3=Exit  F20=Run Online

```

Job/Step. Shows the job you selected.

Cycle Number. Unless you set the cycle number in your definitions, enter a cycle number here. Otherwise the field defaults to 00000001.

Produce Trace Report. Enter Y and press Enter to display the Trace Report Selection screen. You can select the files and external translation tables to include in the trace report. The output is written to the file UNIETR. For more information, see “Testing File Definitions with the Trace Report” on page 210 and “External Translation Table Trace Report ” on page 302. Enter N if you do not want a trace report.

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

7 ■ Setting Up Report Options

Running a Reconciliation Job

Output Queue. (This applies in batch processing only) Specifies the queue where the job's spooled output should go. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify Y to hold the job in the job queue.

3. Do one of the following:

■ To run online:

- a. Press F20. #U (Infogix) errors may display on the screen. You can look them up in the *Messages and Codes* manual. The Job Control Error Report then displays whether there are errors or not. (See “[Job Control Error Report](#)” on page 205).

Note: If you want to run online and the screen does not have F20=Run Online at the bottom, you must either authorize yourself or have your systems administrator authorize you to run online. For instructions, see [Authorizing Use of Command Line and Online Processing](#) on page 16.

- b. Press F3. Unless you set Produce Control Report to 2 (No) in the basic job information, the Control Report will be displayed. (See “[\(Reconciliation\) Control Report](#)” on page 206)

- c. Press F3 to exit to the Basic Job Information List screen.

■ To run in batch, press Enter. Press F3 to exit to the Basic Job Information List screen.

Note: If, instead of using the interface, you are running jobs either online or in batch using the UDS2000 CALL command, you can optionally supply run-time parameters to override or control the processing.

4. Follow your organization's procedures for printing. Any reports you set up to run when the job runs will be in the output queue and will be named as follows:

Job Control Error Report: ACRDERROR

Control Report: ACRDCNTL

Recap Report: ACRDRCAP

User Report: ACRDUSER

■ Free-Form Report: ACRDFF

Note: To set up distribution of the Control Report, Recap Report, and User Report, see [Setting Up Report Distribution](#) on page 51.

File Interface Mode (UDS2000) Run-time Override Parameters

The file interface program is executed as a separate step in the application job stream by means of the following CALL statement:

```
CALL UDS2000 (Count, Parm, & Return)
```

This call is executed from the UDSRUN program, which passes any run-time override parameters you specify to UDS2000.

Suppose you want to use the following run-time overrides for all of the supported override parameters in your reconciliation job:

- Job name: Override JOBXYZ
- Step name: Override EDIT
- Cycle number: Override 00950201
- Return code: Override 3246

The CALL statement you would use is shown below.

```
CALL ACRDRUN ('JOBXYZ' 'EDIT' '00950201' '3246')
```

The parameters can be specified in any order. They must be enclosed in single quotes.

Interpreting the Reconciliation Reports

This section provides information on the Job Control Error Report and the (Reconciliation) Control Report. For information on other reconciliation reports, see “Reports Main Menu” on page 191.

Job Control Error Report

A sample of the Job Control Error Report (ACRDERROR) is shown below, followed by an explanation of the message information.

				Display Spooled File		Page/Line 2/1		
File				ACRDERROR		Columns 1 - 130		
Control								
Find								
*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...8...+...9...+...0...+...1...+...3								
ACR/D Releasenumbr				Infogix, Inc.		Page		
DATE: mm/dd/yy				Job Control Error Report				
TIME: 16.45.04				CURRENT BALANCE RECONCILIATION		Job ID=STATEMENT		
Message ID	Msg Sev	Msg Type	Message Text					

UFI993W	99	Information	FILE ID: TRANSCLEAR -SPOOL ACCESS ERROR, FOR SPOOL DATA FOR: STEP/OCC/DNAME: MAKERPT					/ 0
							Bottom	
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys								

7 ■ Setting Up Report Options

Interpreting the Reconciliation Reports

Message ID. An alphanumeric code that you can look up in the *Messages and Codes* manual.

Msg Sev. A numeric code representing the severity of the error.

Msg Type. A description of the severity of the error.

Message Text. A description of the error.

(Reconciliation) Control Report

The Control Report (ACRDCNTL) is the primary output of an ACR/Detail reconciliation run. It shows you all the components of the reconciliation job, along with the results. Unless you specify otherwise, this report is automatically generated when reconciliation is completed.

Customizing the Control Report to Your Needs

1. You can optionally set several system-wide options for report formatting. See “[User Options Entry Screen](#)” on page 23.
2. By default, the Control Report will be generated using default settings whenever you run reconciliation. To set the print options, see “[Control Report](#)” on page 193.
3. Generating in XML format: If you are not using user options or if you want to override the value in user options, you can optionally select the Control Report XML option on the Report Options screen to set a job-level option for the Control Report field.

Interpreting the Control Report

The Control Report is the primary output of ACR/Detail, displaying all the factors involved in a reconciliation step and showing you the results. Following is an example of each report page along with information about the contents.

Control Report Page 1 of 3

ACR/D releasenumbr	INFOGIX, INCORPORATED	PAGE	1
DATE: yy/mm/dd	RECONCILIATION CONTROL REPORT - 22 CHARACTER FORMAT	JOB ID=EXPAND3 /STEP1 /	
TIME: 16.01.15	FIELD EXPANSION TESTING	CYCLE#=20080301 RUN#=000	
ENTRY KEY= HOUSTON			
A. INTERNAL ITEMS:			
ITEM NO.	DESCRIPTION	VALUE	MSG

I-001.	REGULAR DATE (PICK FROM MMDDCCYY)		07/12/01
I-002.	REGULAR DATE (PICK FROM MMDDCCYY)		61/01/22
I-003.	= C-001	678,901,234,567,891	CALC'ED C-001
I-004.	= C-002	\$6,789,012,345,680.13	CALC'ED C-002
EXTENDED INTERNAL ITEMS:			
X-001.	EXTENDED COUNT		
		123,456,789,012,345,678,901,234,567,890	
X-002.	EXTENDED AMOUNT		
		\$1,234,567,890,123,456,789,012,345,678.90	
X-003.	EXTENDED DATE (PICK FROM MMDDCCYY)		07/12/01
X-004.	EXTENDED DATE (PICK FROM MMDDCCYY)		61/01/22
X-005.	EXTENDED TEXT		
	'TEXTABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMNOP00100002'		1
X-006.	EXTENDED COUNT (=1)		\$1.23
X-007.	EXTENDED AMOUNT (=1.23)		
X-008.	= C-001		
		123,456,789,012,345,678,901,234,567,891	
X-009.	= C-002		
		\$1,234,567,890,123,456,789,012,345,680.13	
B. HISTORY ITEMS:			
ITEM NO.	DESCRIPTION	VALUE	MSG

E-001.	REGULAR DATE (PICK FROM MMDDCCYY)		07/12/01
	HISTORY KEY ----- ITEM CYCLE -CYCLE#- RUN#		
	HOUSTON I-001 00 20080301 000		
	RUN DATE: 08/04/21 RUN TIME: 11.18.19		
E-002.	REGULAR DATE (PICK FROM MMDDCCYY)		61/01/22
	HISTORY KEY ----- ITEM CYCLE -CYCLE#- RUN#		
	HOUSTON I-002 00 20080301 000		
	RUN DATE: 08/04/21 RUN TIME: 11.18.19		
E-003.	EXTENDED COUNT		
		123,456,789,012,345,678,901,234,567,890	
	HISTORY KEY ----- ITEM CYCLE -CYCLE#- RUN#		
	HOUSTON X-001 00 20080301 000		
	RUN DATE: 08/04/21 RUN TIME: 11.18.19		
OUT OF BALANCE (RETURN CODE = 1003)			
INFOGIX DATABASE: R99UC47.DET.DEFN		(UNIHFP)	
PROGRAM= UDS2000 LOAD LIBRARY NAME=R99UC00.ACR.LOADLIB		(UNIDFP) / R99UC47.DET.HIST	
		JOB START DATE=08/05/15 JOB START TIME=16.01.15	

Report Header and Footer

The header displays the page number, date and time of the report, job information (job name, step name, and RLQ), and cycle ID (cycle number and run number) of the reconciliation step. The example shows 22-character format. For more information, see [“Other User Options” on page 25](#).

The footer displays the definition and history databases, the program that generated the report, and the job start date and time.

The remaining sections are identified by a letter and section name, as follows:

A. Internal Items and Extended Internal Items. For each regular or extended internal item, this section lists the item type (I for internal item, X for extended internal item) and item number, along with its description and value. If the value came from a calculated item, that is also noted.

7 ■ Setting Up Report Options

Interpreting the Reconciliation Reports

B. History Items. This section lists each history item description and value along with the corresponding history key, item type and item number, relative cycle number, actual cycle number, run number, run date and time, value extracted, and any messages.

Note: Control values that do not fit on the line will be printed on the next line.

Control Report Page 2 of 3

ACR/D releasenumbr		INFOGIX, INCORPORATED		PAGE 2	
DATE: yy/mm/dd		RECONCILIATION CONTROL REPORT - 22 CHARACTER FORMAT		JOB ID=EXPAND3 /STEP1 /	
TIME: 16.01.15		FIELD EXPANSION TESTING		CYCLE#=20080301 RUN#=000	
ENTRY KEY= HOUSTON					
B. HISTORY ITEMS:					
ITEM NO.	DESCRIPTION	VALUE	MSG		
E-004.	EXTENDED AMOUNT	\$1,234,567,890,123,456,789,012,345,678.90			
	----- HISTORY KEY -----				
	HOUSTON				
	----- HISTORY KEY -----				
	HOUSTON				
E-005.	EXTENDED DATE (PICK FROM MMDDCCYY)	07/12/01			
	----- HISTORY KEY -----				
	HOUSTON				
E-006.	EXTENDED DATE (PICK FROM MMDDCCYY)	61/01/22			
	----- HISTORY KEY -----				
	HOUSTON				
E-007.	EXTENDED TEXT				
	----- HISTORY KEY -----				
	HOUSTON				
E-008.	EXTENDED COUNT (=1)				
	----- HISTORY KEY -----				
	HOUSTON				
E-009.	EXTENDED AMOUNT (=1.23)	\$1.23			
	----- HISTORY KEY -----				
	HOUSTON				
C. CALCULATED ITEMS:					
ITEM NO.	CALCULATION FORMULA	RESULT	CALC MESSAGE		
C-001.	(X-006) + (123456789012345678901234567890)	123,456,789,012,345,678,901,234,567,891			
C-002.	(1234567890123456789012345678.90) + (X-007)	\$1,234,567,890,123,456,789,012,345,680.13			
C-003.	(I-003) * (1000000)		**BYPASSED**		
OUT OF BALANCE (RETURN CODE = 1003)					
INFOGIX DATABASE: R99UC47.DET.DEFN (UNIDF) / R99UC47.DET.HIST (UNIHF)					
PROGRAM= UDS2000 LOAD LIBRARY NAME=R99UC00.ACR.LOADDLIB JOB START DATE=08/05/15 JOB START TIME=16.01.15					

C. Calculated Items. This section lists each calculated item number, calculation formula and the result of the calculation.

Control Report Page 3 of 3

ACR/D releasenumbr	INFOGIX, INCORPORATED	PAGE	3
DATE: yy/mm/dd	RECONCILIATION CONTROL REPORT - 22 CHARACTER FORMAT	JOB ID=EXPAND3 /STEP1 /	
TIME: 16.01.15	FIELD EXPANSION TESTING	CYCLE#=20080301 RUN#=000	
ENTRY KEY= HOUSTON			
D. BALANCING RULES & RESULTS:			
RULE NO.	BALANCING RULE	RESULT	ERROR/TOLERANCE
1.	(X-001) EQ (123456789012345678901234567890)	IN BALANCE	
2.	(111111) EQ (I-001)	**OUT OF BAL**	37,512-
3.	(X-001) EQ (X-006)	**OUT OF BAL**	
		123,456,789,012,345,678,901,234,567,889	
4.	(X-005) EQ (TEXTABCDEFGHIJKLMNPNOPQRSTUVWXYZABCDEFGHIJKLMNPNOP0100002)	IN BALANCE	
5.	(X-001) EQ (1) IF IN-BALANCE CALCULATE C-003	**OUT OF BALANCE**	
	RETURN		
E. SPECIAL INSTRUCTIONS:			
RULE NO.	CODE	INSTRUCTIONS	
		OUT OF BALANCE (RETURN CODE = 1003)	
		INFOGIX DATABASE: "C:\Infogix\Summary32\unidf.da(UNIDF) / "C:\Infogix\Summary32\unihf.da(UNIHF)	
		PROGRAM= UAC2000 LOAD LIBRARY NAME=releasenum.ACRDWB.LOADLIB	JOB START DATE=yy/mm/dd5 JOB START TIME=12.55.38

D. Balancing Rules & Results. This section lists each rule number, the comparison formula, and the result. If a rule is out of balance or is using a tolerance, the error/tolerance column shows the amount the rule is out of balance or out of the tolerance range.

To understand the kinds of rule status information that the report will include, see [“Reporting Rule Status”](#) on page 106.

E. Special Instructions. If one or more rules are out of balance, this section shows the text of any messages. If all rules are in balance, it shows None unless a message has been defined for the return code 0000 (in balance).

Control Report: Out-of-Balance Summary

The Out-of-Balance Summary prints at the end of the Control Report. There are two sections: Out-of-Balance Key Tolerance and Out-of-Balance Rules.

ACR/D releasenumbr	INFOGIX, INCORPORATED	COPYRIGHT INFOGIX, INC. 2013		
DATE: yy/mm/dd	OUT-OF-BALANCE SUMMARY	PAGE 1		
TIME:16:01.15	OOB KEY TOLERANCE	DATA BASE VERSION 0000215/0000077:ENTRY		
		CYCLE#=20130122 RUN#=000		
		JOB ID=OOBKEY1 /ACCAMT /		
OUT-OF-BALANCE KEY TOLERANCE:				
	JOB TOTAL	OUT-OF-BALANCE TOTAL	TOLERANCE	ACTION TAKEN
KEYS	3	3	99.99%	
VALUE	\$13,703,580.36-	\$13,703,580.36-	60.00% SET RC 3999	
OUT-OF-BALANCE RULES:				
RULE NO.	# KEYS PASSED	# KEYS FAILED	OUT-OF-BALANCE VALUE	
0001	3	0	0	
0002	0	3	\$13,703.58036-	
0005	0	3	16,703.58-	
TOTAL NUMBER OF RULES:		3		
TOTAL NUMBER OF RULES PASSED:		1		
TOTAL NUMBER OF RULES FAILED:		2		

7 ■ Setting Up Report Options

Interpreting the Reconciliation Reports

Selection Field Formats

Source	Target (to compare against)	Format
Input record or Extraction Variable	Constant or Range (Non-extended)	(Format when source is input record) SELECT (AAA/BB/CCC) DDFNNNN TEST(DDDD) VAL1(EEEE) VAL2(FFFF) (Format when source is extraction variable) SELECT (VNNN/B1/BB) DDFNNNN TEST(DDDD) VAL1(EEEE) VAL2(FFFF)
Input record or Extraction Variable	Constant or Range (Extended)	(Format when source is input record) SELECT (AAA/BB/CCC) DDFNNNN TEST(DDDD) ***SEE EXTENDED SELECT VALUE BELOW*** SELECT FROM VALUE (EEEE) SELECT TO VALUE (FFFF) (Format when source is extraction variable) SELECT (VNNN/B1/BB) DDFNNNN TEST(DDDD) ***SEE EXTENDED SELECT VALUE BELOW*** SELECT FROM VALUE (EEEE) SELECT TO VALUE (FFFF)
Input record	Extraction Variable	SELECT (AAA/BB/CCC) DDFNNNN TEST(DDDD) V-NNN
Extraction Variable	Input Record	SELECT(VNNN/B1/BB) DDFNNNN TEST(DDDD) AAA/BB/CCC
<p>Where:</p> <p>AAA is the field position of the source data from an input source file.</p> <p>VNNN (with no hyphen) indicates that the source is an extraction variable. NNN is the extraction variable number.</p> <p>B1 is the starting position of the source data</p> <p>BB is the length of the source data. zz BB and CCC are now separated into 2 lineszz</p> <p>CCC is the format of the source data (not applicable to extraction variables) zzadded the bold information at the endzz</p> <p>DDFNNNN is the 4-digit delimited data field number. When the source is not a delimited file, NNNN is 0000.</p> <p>TEST is the hard coded literal 'TEST'.</p> <p>DDDD (up to 8 Ds) is the selection operator.</p> <p>EEEE is the constant or the start of the range to which the source value is being compared. If AAA is numeric, EEEE can be up to 16 bytes. If AAA is alphanumeric, EEEE can be up to 80 bytes.</p> <p>FFFF is the end of the range to which the source value is being compared. This will be blanks if a range comparison is not specified. If AAA is numeric, EEEE can be up to 16 bytes. If AAA is alphanumeric, EEEE can be up to 80 bytes.</p> <p>V-NNN (with a hyphen) indicates that the target value (to compare against) is an extraction variable. NNN is the extraction variable number.</p>		

Key Field Formats

Format Description	Format
Source is an input record, literal, or function	KEY (AAAA/BB/CCC) DDFNNNN KEY (K-DD) XLATE(FFFF/G)
Source is an extraction variable	KEY (VAAA/BB/CC) DDFNNNN KEY (K-DD) XLATE(FFFF/G)
Key is a cycle number	KEY (AAAA/BB/CCC) DDFNNNN CYC (DDDDDDDD) XLATE (FFFF/G)
<p>Where:</p> <p>AAAA is the field position of the source data from an input source file or literal.</p> <p>VAAA is the field position of the source data in an extraction variable.</p> <p>BB/CCC are the length/format of the source data.</p> <p>DDFNNNN is the delimited data field number. When the source is not a delimited file, NNNN is 0000.</p> <p>DD is the key number.</p> <p>DDDDDDDD is the cycle number.</p> <p>XLATE indicates that a translation table is defined for this field.</p> <p>FFFF (up to 16 Fs) is the literal when the source is a literal.</p> <p>G is blank if no translation is being used or Y if translation is being used.</p>	

7 ■ Setting Up Report Options

Interpreting the Reconciliation Reports

Detail Field Formats

Source	Target	Format
Input record	Internal item	DTL (AAAA/BB/CCC) DDFNNNN DDDDD INTO I-NNN XLATE(FFFF/G)
Literal	Internal item	DTL (AAAA/BB/CCC) DDFNNNN DDDDD INTO I-NNN LIT(FFFF/ G)
Extraction Variable	Internal item	DTL (VAAA/BB/CC) DDFNNNN DDDDD INTO I-NNN XLATE(FFFF/G)
Input record	Extraction variable	DTL (AAAA/BB/CCC) DDFNNNN DDDDD INTO V-NNN XLATE(FFFF/G)
Literal	Extraction variable	DTL (AAAA/BB/CCC) DDFNNNN DDDDD INTO V-NNN LIT(FFFF/G)
Extraction variable	Extraction variable	DTL (VAAA/BB/CC) DDFNNNN DDDDD INTO V-NNN XLATE(FFFF/G)
<p>Where:</p> <p>AAAA is the field position of the source data from an input record or literal.</p> <p>VAAA is the field position of the source data in an extraction variable</p> <p>BB/CCC are the length/format of the source data.</p> <p>DDFNNNN is the delimited data field number. When the source is not a delimited file, NNNN is 0000.</p> <p>NNN is the number of the internal item or extraction variable.</p> <p>DDDDD is the type of detail field.</p> <p>XLATE indicates that a translation table is being used.</p> <p>LIT indicates that the source is a literal.</p> <p>FFFF (up to 16 Fs) is the literal.</p> <p>G is blank if no translation is being used or Y if translation is being used.</p>		

Reformat Field Formats

Source	Reformatted Area is	Format
Input record or Literal	Output area	RFT (AAAA/BB/CCC) DDFNNNN TO (DDDD/EE/FFFF) DDFNNNN LIT(GGGG)
Extraction variable	Output area	RFT (VAAA/BB/CC) DDFNNNN TO (DDDD/EE/FFFF) DDFNNNN LIT(GGGG)
Input record or Literal	Note area	RFT (AAAA/BB/CCC) DDFNNNN TO (DDDD/EE/FFFF) DDF0000 NOTE LIT(GGGG)
Extraction variable	Note area	RFT (VAAA/BB/CC) DDFNNNN TO (DDDD/EE/FFFF) DDF0000 NOTE LIT(GGGG)
<p>Where:</p> <p>AAAA is the beginning field position of the source data from an input record or literal.</p> <p>VAAA is the beginning field position of the source data in an extraction variable.</p> <p>BB is one of the following: 1) the length of the source data from an input record or literal, or 2) the beginning position of the source data from an extraction variable.</p> <p>CCC is the format of the source data from an input record or the hard coded 'LIT' if the source is a literal.</p> <p>CC is the length when the source data is from an extraction variable.</p> <p>DDFNNNN is the delimited data field number. When the source is not a delimited file, NNNN is 0000.</p> <p>DDDD is the beginning field position of the reformatted data in the output area or the note area.</p> <p>EE/FFFF are the length and format of reformatted field in the output area or the note area.</p> <p>NOTE indicates that the output area is the note area.</p> <p>GGGG (up to 16 Gs) is the literal if the source is a literal. Otherwise it is blanks.</p>		

7 ■ Setting Up Report Options

Interpreting the Reconciliation Reports

Creating Free-Form Reports

This chapter explains the Free-Form Report feature. It contains the following sections:

- “What is a Free-Form Report?” on page 217
- “Planning a Free-Form Report” on page 217
- “Completing the Free-Form Report Screens” on page 219
- “Setting the Justification Options” on page 241
- “Editing the Report” on page 242
- “Setting the Print Option” on page 246
- “Setting the XML Option” on page 247
- “Viewing and Printing the Report” on page 248

What is a Free-Form Report?

The Free-Form Report is a custom report showing the results of a reconciliation job. Depending on your selections, the report can include the run date and time, user name, reconciliation key, job ID, cycle number, return codes, messages, Control Report title, internal or extended internal items, history items, calculated items, rules, descriptions of internal and history items, and free-form text. You determine where to place the information on the report.

If specified, this report is generated with the name ACRDFF when you run reconciliation.

Planning a Free-Form Report

Before you begin to create a free-form report, it is important to plan exactly what type of information you want to include, how you want to organize the information, and where you want to position it in the report. For example, you might want to break the information into sections according to state or region. You may want to print the information for some sections on a separate page. You might want to print a total for each section, for example the state total, followed by the region total, followed by the grand total for all regions.

8 ■ Creating Free-Form Reports

Creating a Free-Form Report

Consider making a free-hand drawing of your report on graph paper. This will help you plan for the length and position of the information on the actual report.

Although you can edit the Free-Form Report after you create it, it is difficult to do through the panels and may require you to edit the report codes. You can save time by planning the report layout before you start.

Creating a Free-Form Report

The following is a summary of the procedures for setting up a free-form report.

1. Plan the report after creating the other definitions for the job. See [“Planning a Free-Form Report” on page 217.](#)
2. From the Main Menu, select **Reports > Free Form Report** to display the Free Form Reports list screen. This screen lists the existing Free-Form Reports for your jobs. See [“Free Form List Screen” on page 219.](#)
3. To create a new report, complete the **Job/Step/Qual** fields at the bottom of the screen to identify the job for which you want to create the report. When you press Enter, the Report Parm screen will display. See [“Report Parm screen” on page 221.](#)
4. Complete the fields on the Report Parm screen and press Enter. The Free Form Report Window displays. This is where you define the type of information you want to include in the report and indicate its position. See [“Free Form Report Window” on page 223.](#)
You will place fields on this screen from left to right, top to bottom. You cannot insert fields on the screen. You can only add to the end of the report. Be sure to follow your report plan from left to right for each line of the report.

If you reserved lines for a report header and/or page header on the Report Width screen, be sure to specify the information that will appear in these headers.

5. On the Free Form Report Window, press F4 to display the Define Report Field screen. Select the type of field you want to include, and complete the corresponding screens. See [“Define Report Field Screen” on page 224.](#)

If you need to make changes after you have entered information in the free-form report, you can do one of the following:

- Exit without saving (you will lose all of your entries since the last time you saved the report).
 - Edit the report codes that represent your specifications. See “Editing the Report” on page 242.
6. When you have completed your entries, exit and save. The Free Form Reports list screen will be displayed with the report you created in the list.
 7. Specify the print option. See “Setting the Print Option” on page 246.
 8. Specify the XML option. See “Setting the XML Option” on page 247.
 9. The report will be generated when you run the job. See “Viewing and Printing the Report” on page 248.

Completing the Free-Form Report Screens

The section "Creating a Free-Form Report" provided a summary of the steps to create a free-form report. The following sections contain instructions for completing the free-form report screens.

- “Free Form List Screen” on page 219
- “Report Parms Screen” on page 221
- “Define Key Breaks Screen” on page 222
- “Free Form Report Window” on page 223
- “Define Report Field Screen” on page 224

Free Form List Screen

To view a list of Free Form Reports, from the Definitions Main Menu, select **Reports > Free Form Reports** to display the Free Form Report list screen.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

From the Free Form Report list screen, you can create a new Free Form Report. You can also update and delete any Free Form Report in the list.

mm/dd/yy	12:00:00	Reports Menu				ACR/D	releasenumbr
RFFR		Free Form Reports					userid
Options: 2 - Update		4 - Delete					
O Job	Step	Report	Print	XML	RLQ	Print	
P Name	Name	Qual	Width	Option	Restart	Report	
				Option	Report	Headings	
_ TEST1	STEP1		133	<u>1</u>	<u>1</u>	N	<u>N</u>
_ TEST1	STEP1	01	132	<u>1</u>	<u>1</u>	<u>Y</u>	<u>N</u>
_ TEST3	STEP3		080	<u>2</u>	<u>2</u>	N	<u>N</u>
Job/Step/QUAL _____				Next Screen _____			
F3=Exit				F11=Position			

Print Option. Options:

1. Do not print the report. This is the default.
2. Print the report.
3. Print the report for out-of-balance keys.
4. Print the report for in-balance keys.

XML Option. Options:

1. Default to the Free-Form Report XML option specified in the User Options File.
2. Do not create a copy of the Free-Form Report in XML format.
3. Create a copy of the Free-Form Report in XML format and copy it to the file specified.
4. Create a copy of the Free-Form Report in XML format and write the copy directly to the associated database. Size limits apply.

RLQ Restart Report. This field applies only if 1) this is an RLQ (Reconciliation Level Qualifier) job, and 2) the **Use base job definitions** field on the Reconciliation Level Qualifier Information screen (see [“What is Multi-level Reconciliation?”](#) on page 113) is set to Y. Options:

Y. Ignore the Free-Form Report definitions from the base job. This allows you to create a completely different report for this RLQ job. If you use headings and define a Free-Form Report for the RLQ, we recommend you use this option.

N. This is the default and will maintain the headings and page numbering from the base job's Free-Form Report.

Print Report Headings. Options:

Y. Print the report headings even if no keys have been selected to print. In this case, only the headings and the message NO RECONCILIATION KEYS SELECTED FOR PRINTING will print.

N. Print the report only when keys have been selected to print.

Report Params Screen

To create a new free-form report, complete the Job/Step/Qual fields on the Free Form Reports list screen and press Enter. The Report Params screen will be displayed.

```

mm/dd/yy 16:22:28          FREE FORM REPORT          ACR/D releasenumbr
RFFR                               userid

                                Report Params

Page Width?                    ____ (1-250)
Page Length?                   _____ (1-1000)
Insert a Key-based page break? _ (Y/N)
Number of report header lines? ____ (1-55)
Number of page header lines?   ____ (1-55)
If using dynamic translation, overrid line 1
with original key 1 value?     _ (Y/N)
Define key breaks?             _ (Y/N)

                                Report Painting Window

                                To paint control values, balancing
                                information, or text place the cursor where
                                you would like the field to begin and press F4

F3=Exit
ENTER IN REPORT WIDTH AND ENTER TO CONTINUE
    
```

Page Width? Enter the number of spaces for the report width.

Page Length? Enter the number of lines per page. The system adds a page break after the specified number of lines.

Insert a Key-based page break? Enter Y if you want a form feed (page break) to separate every key. Otherwise multiple keys will print on a page.

Number of report header lines? If you want to use some lines at the top of the report as a header that will print only once at the top of the report, indicate the number of lines to reserve in the report for this header.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Number of page header lines? If you want a header that will print on every page of the report, indicate the number of lines to reserve for this header.

If using dynamic translation, override line 1 with original key 1 value? By default, the report overrides the first line of the report with the original key 1 value if dynamic translation is used. Specify N to print the translated key value.

Define key breaks? To define key breaks for the report, specify Y.

Complete the fields and press Enter. The Free Form Report window displays. See “Free Form Report Window” on page 223. If you chose to define key breaks, the system first displays the Define Key Breaks screen to define general information for key breaks. See “Define Key Breaks Screen” below.

Define Key Breaks Screen

Use the Define Key Breaks screen to define key breaks in the report. Use key breaks to organize the information on the report and to enable an item total for a key or a partial key, for example, a department total. The key break details are defined later.

On this panel, you will decide the number of key breaks to allow in the report, the point in the key at which to define the break, and whether to print each new key break on its own page. The actual key break is inserted from the Key Break Detail Information panel.

Define Key Breaks			
Key break number: 001	Size: ___	Insert page break: _	(Y/N)
Key break number: 002	Size: ___	Insert page break: _	(Y/N)
Key break number: 003	Size: ___	Insert page break: _	(Y/N)
Key break number: 004	Size: ___	Insert page break: _	(Y/N)
Key break number: 005	Size: ___	Insert page break: _	(Y/N)
Key break number: 006	Size: ___	Insert page break: _	(Y/N)
Key break number: 007	Size: ___	Insert page break: _	(Y/N)
Key break number: 008	Size: ___	Insert page break: _	(Y/N)
Key break number: 009	Size: ___	Insert page break: _	(Y/N)
Key break number: 010	Size: ___	Insert page break: _	(Y/N)
F3=Exit			

Defining a Key Break Example

Your company would like to separate the contents of the report by department. In the reconciliation key, key 1 is an 8-byte company ID, key 2 includes a 5-byte department number and a 3-byte location ID. To break

the report into sections for each department, you will need to define a key break after the department number. Each section of the report will then contain information for a specific department.

In this example, you specify 13 for the key break length and specify Y to define a page break. To insert the actual key break, you must select this option on the Key Break Detail Information panel. See “[Entering Key Break Detail Information](#)” on page 238.

To get the grand total for all departments, define a second key break and specify 00 for the size. For each key break, choose the option to accumulate the values and select Key break total from the Key Break Detail Information panel. See “[Entering Key Break Detail Information](#)” on page 238.

Free Form Report Window

The Free Form Report Window enables you to specify the type and location of the information you want to include in the report. You can start at the top left, adding items to the right and below. After adding an item, you cannot add another item above it. To insert an item, see “[Editing the Report](#)” on page 242.

```
mm/dd/yy 15:32:04      FREE FORM REPORT WINDOW      ACR/D releasenumbr
RFFR                                     userid
Amount to Scroll . . 15                          Report Width . . . . 132
Shift to col . . . . 1

*---+---1---+---2---+---3---+---4---+---5---+---6---+---7--

-----
F3=Exit   F4=ADD   F5=Refresh F9=Cursor F19=Left  F20=Right  F22=Codes
```

Amount to Scroll. Enter the number of lines you would like the screen to roll up or down when the page up/page down keys are pressed.

Shift to Column. Enter the column where the screen should start.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Report Width. Displays the report width.

- Note:**
- On the Report Params screen you completed previously, if you reserved one or more lines for a report header, the items you enter on these lines of the Free Form Report Window will appear only on the first page of the report. For example, if you set the Number of report header lines? field to 2, the items you place on the first 2 lines of the Free Form Report Window will appear only on the first 2 lines of the first page of the report.
 - On the Report Params screen you completed previously, if you reserved one or more lines for a page header, the items you enter on these lines will appear on every page of the report. For example, if you set the Number of report header lines? field to 2, and you set the Number of page header lines? field to 2, the items you enter on the third and fourth lines of the Free Form Report Window will appear on the first page of the report below the report header. On all other pages, this information will be on the top 2 lines of the page.

Define Report Field Screen

Position the cursor where you want to place the first item of data and press F4 to display the Define Report Field screen.

```
Define Report Field

Choose the type of field to be defined:
_  1. Control values...
   2. Control values description...
   3. Reconciliation key information...
   4. Reconciliation job information...
   5. Free-form text...
   6. Key break detail information...

F3=Exit F12=Cancel
```

Enter the type of data you want to display beginning at the cursor location and the corresponding screen will be displayed. The choices and a reference to the page where the corresponding screen is explained are listed below:

1. **Control values** are the values of the internal or extended internal items, history items, calculated items, and rules you defined for the job. See [“Entering Control Values” on page 226](#).
2. **Control values description** is one of the descriptions you entered for internal or extended internal items, history items, or calculated items. See [“Entering Control Value Descriptions” on page 230](#).

3. **Reconciliation key information** includes reconciliation key values, cycle numbers, return codes, and messages for reconciliation keys. See “Entering Reconciliation Key Information” on page 232.
4. **Reconciliation job information** includes the Job ID, report title, user name, page number, run date, and run time for a specific job. See “Entering Reconciliation Job Information” on page 236.
5. **Free-form text** is text that you enter yourself. See “Entering Free-Form Text” on page 238.
6. **Key break detail information** includes the key break insertion, description, value, and total. See “Entering Key Break Detail Information” on page 238.

List Window Screen

When you choose to enter a control value or a control value description on the Define Report Field screen, the List Window screen displays. It lists all of the following types of items that you defined for your job:

Internal items (I-xxx)

Extended internal items (X-xxx)

History items (E-xxx)

Calculated items (C-xxx)

Rules, either standard or conditional (R-xxx)

where xxx is the item number.

List Window		
_	I-001 I001	manufacturer
_	I-002 I002	location in the warehouse
_	I-003 I003	quantity in cases
_	X-001 X001	brand name
_	X-002 X002	date of last purchase order
_	R-001 RULE1	

Select the item type whose value you want to include to display on the corresponding screen. The item types and the page numbers of the corresponding screens are listed below:

- Internal item, extended internal item, history item, or calculated item. See “Control Values Screen” on page 226.
- Standard rule. See “Standard Rule Values Screen” on page 227.
- Conditional rule. See “Conditional Rule Result Screen” on page 228.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Entering Control Values

If you select an internal or extended internal item, a calculated item, or a history item on the List Window screen, the Control Values screen will be displayed.

Control Values Screen

```
Control Values

Value number: 001

Number of positions over which to display?  ___

How should this field be justified?
1  1. Left
     2. Right
     3. Centered
     4. As-is

Accumulate item total?  N  (Y/N)

F3=Exit F12=Cancel
```

Value number. This field defaults to the number of the control value you chose.

Number of positions over which to display? Enter the number of positions to reserve for the value in the report. When calculating this number, add 2 to the length of the longest control value to be included in the report, because the last 2 positions of the field are reserved for a negative value indicator. For examples, see [“How Control Values Display in the Report Window” on page 228](#).

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Accumulate item total? Indicate whether to accumulate the control values for all internal, extended internal, history, or calculated items. If you want to include a total item value in a key break, specify Y for this field.

Standard Rule Values Screen

If you select a standard rule on the List Window screen, the Standard Rule Values screen will be displayed.

```

Standard Rule Values

Rule number: 001

If the rule is out of balance:
1 1. Display the return code
    2. Display the variance
    3. Display the return code message

Enter the portion of the return code message to print:
(Leave blank to print the entire return code message)
From position: ____ Length: ____
Number of positions over which to display this value? ____

How should this field be justified?
1 1. Left
    2. Right
    3. Centered
    4. As-is
Accumulate item total? N (Y/N)
F3=Exit F12=Cancel
    
```

Rule number. This field defaults to the number of the rule you chose.

If the rule is out of balance. Select an option to specify whether the report will show the rule's the return code, variance, or return code message.

Enter the portion of the return code message to print. You can print all or part of the return code message. To print only a part of the message, specify the start position in the From position field, and specify the number of characters to print in the Length field.

Number of positions over which to display this value? Enter the number of positions to reserve for the value in the report. When calculating this number, add 2 to the length of the longest variance value to be included in the report, because the last 2 positions of the field are reserved for a negative value indicator. For examples, see [“How Control Values Display in the Report Window” on page 228](#) below.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Accumulate item total? Indicate whether to accumulate all variances for this rule. If you want to include a total item value in a key break, specify Y for this field.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Conditional Rule Result Screen

If you select a conditional rule on the List Window screen, the Conditional Rule Result screen will be displayed.

```
Conditional Rule Result

Rule number: 001

If the rule is out of balance:
_  1. Display the return code
   2. Display the return code message

Enter the portion of the return code message to print:
(Leave blank to print the entire return code message)
From position: ____ Length: ____
Number of positions over which to display this value? ____

Number of positions over which to display this value? ____

How should this field be justified?
_  1. Left
   2. Right
   3. Centered
   4. As-is

F3=Exit F12=Cancel
```

Rule number. This field defaults to the number of the rule you chose.

If the rule is out of balance. Select an option to specify whether the report will show the rule's the return code or return code message.

Enter the portion of the return code message to print. You can print all or part of the return code message. To print only a part of the message, specify the start position in the From position field, and specify the number of characters to print in the Length field.

Number of positions over which to display this value? Enter the number of positions to reserve for the value in the report. When calculating this number, add 2 to the length of the longest variance value to be included in the report, because the last 2 positions of the field are reserved for a negative value indicator. For examples, see [“How Control Values Display in the Report Window”](#) on page 228 below.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options”](#) on page 241.

How Control Values Display in the Report Window

When you press Enter, you will see a display indicating the items you added. The values will be displayed using 9, X, 7, or K in place of the actual data because the extracted values will not be available until you run the job.

Displaying Amounts or Counts

If the value is an amount or count, the system will display 9s in place of the actual digits. If the value uses decimals, some of the 9s will be after the decimal point. After the 9s, 2 positions are reserved for a negative value indicator. Data from internal or extended internal items, history items, and calculated items is supported.

Example: Count Value from an Internal Item

Assume that you want to include internal item I-001 left-justified starting in position 1. This item stores the following value:

-3,189,274,578,623.00

You need to reserve a minimum of 22 positions to show the whole value: 15 positions for the digits, 5 for the commas and decimal point, and 2 for the sign. You decide that you want to leave blank space after the value, so you reserve 23 positions.

The value will appear as follows (a ruler has been added to show the positions of the displayed value). The next position available on the report will be position 24.

-----1-----2-----3-----4-----5-----6-----5-----6-- 9,999,999,999,999.99 -
--

Example: Amount Value from an Extended Internal Item

Assume that you want to include extended internal item X-001 left justified starting in position 1. This item stores the following value:

\$3,189,274,578,623,555,928,725,827,010.00

This value contains the maximum number of digits (30) supported for extended numeric data.

You need to reserve a minimum of 43 positions to show the whole value: 30 positions for the digits, 10 for the commas and decimal point, 2 for the sign, and 1 for the currency symbol. You decide that you want to leave blank space after the value, so you reserve 44 spaces.

The value will appear as follows (a ruler has been added to show the positions of the displayed value). The next position available on the report will be position 45.

-----1-----2-----3-----4-----5-----6-----5-----6-- \$9,999,999,999,999,999,999,999,999,999.99 -
--

Control Value Description Screen

```

Control Value Description

Description: NUMBER OF INVALID TRANSACTIONS

Enter the portion of the description to be painted:
(Leave blank to paint the entire description)

From position:  __ Length:  __

Number of positions over which to display?  ____

How should this field be justified?
1  1.  Left
     2.  Right
     3.  Centered
     4.  As-is

F3=Exit F12=Cancel
    
```

From position. First position of the description that you want to display in the report. In the example above, if you entered 11, the first character to display would be the first I in INVALID.

Length. Number of characters of the description that you want to display. In the example above, you could enter 20 to display INVALID TRANSACTIONS.

Number of positions over which to display? Number of spaces in which you want to place the description. If you enter a number larger than the length of the description, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see “[Setting the Justification Options](#)” on page 241.

Press Enter to see the description you specified.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Entering Reconciliation Key Information

Reconciliation Key Information

This screen displays when you choose to enter reconciliation key information (the reconciliation key value, cycle number, return code, or message for the reconciliation key) in the report.

```
Reconciliation Key Information

Choose type of field to be defined:
— 1. Reconciliation key value...
   2. Cycle number...
   3. Return code...
   4. Messages...

F3=Exit F12=Cancel
```

Select the type of information you want to add to the report. The options and corresponding screens are listed below:

1. **Reconciliation key value.** Use this to include the value of each instance of the reconciliation key. See [“List Window” on page 233](#) and [“Reconciliation Key Value Screen” on page 233](#).
2. **Cycle number.** Use this to include the cycle number for the current run. See [“Cycle Number Screen” on page 234](#).
3. **Return code.** Use this to include the highest return code generated by any rule for each instance of the reconciliation key. See [“Return Code Screen” on page 235](#).
4. **Messages.** Use this to include the message associated with the highest return code generated by any rule for each instance of the reconciliation key. See [“Messages Screen” on page 235](#) below.

List Window

When you choose to include the value of each instance of the reconciliation key, the List Window displays with a list of the keys (an entire key option plus up to 5 keys) that you specified in the job.

```

                                Item List Window

_   K-000 ENTIRE KEY
_   K-001 KEY FIELD
_   K-002 KEY FIELD
    
```

Select the key you want. See “[What Is a Reconciliation Key?](#)” on page 31 for an explanation of keys 1 through 5. The Reconciliation Key Value screen is displayed.

Reconciliation Key Value Screen

Use this screen to include the value of each instance of the reconciliation key.

```

                                Reconciliation Key Value - Entire Key

Key number: 001

Paint the entire key? Y (Y/N)

If no, specify the portion to be painted:
From position: ___ Length: ___

Number of positions over which to display the key? ___

How should this field be justified?
1  1. Left
     2. Right
     3. Centered
     4. As-is

F3=Exit F12=Cancel
    
```

Paint the entire key? If you answer N, complete the From position and Length fields. If you answer Y, skip those two fields.

If you previously chose to print the entire key, choosing N will enable you to print a portion of the entire key that extends over multiple keys. For example, you could print the last two positions of key 1, all of key 2, and the first three positions of key 3.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

From position. Starting point of the portion of this key that you want to print in the report. Each key consists of 8 positions. For example, if you specified Key 2 as in the screen above, and this key consists of the last 7 positions of a telephone number (that is, without an area code), but you want the report to show only the first 3 positions of the key, you would set Paint the entire key to N, set the From position to 1 and the Length to 3.

Length. Specify the total number of character to print in the report. See the field above.

Number of positions over which to display the key? Number of spaces to reserve for the data you are including in the report. If you enter a number larger than the length of the key value you are printing, the empty spaces will be placed according to the justification option you choose. In the example above (see From position), only 3 characters would print. You would need to reserve at least 3 positions. Any extra spaces you reserve would be left empty.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Press Enter to see a string (the length you indicated) of Ks display in the positions you reserved for the key. When you view or print the report, the actual key value will display.

Cycle Number Screen

When you choose to include the cycle number for the current run in the report, the Cycle Number screen is displayed.

```

                                Cycle Number

Number of positions over which to display? ____

How should this field be justified?
1  1. Left
     2. Right
     3. Centered
     4. As-is

F3=Exit F12=Cancel
```

Number of positions over which to display? Number of spaces to reserve for the cycle number in the report. If you enter a number larger than the length of the cycle number, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Press Enter. The cycle number is represented by the current system date.

Return Code Screen

When you choose to include the highest return code generated by any rule for each instance of the reconciliation key, the Return Code screen is displayed.

```

Return Code

Number of positions over which to display? ____

How should this field be justified?
1  1.  Left
    2.  Right
    3.  Centered
    4.  As-is

F3=Exit F12=Cancel
    
```

Number of positions over which to display? Number of spaces to reserve for the highest return code generated by the job. If you enter a number larger than the length of the return code, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Press Enter to display a string of 7s at the position you indicated for the return code. When you view or print the actual report, the actual return code will display.

Messages Screen

When you choose to include the message associated with the highest return code generated by any rule for each instance of the reconciliation key, the Messages screen is displayed.

```

Messages

Paint the entire message? Y (Y/N)

If no, specify the portion to be painted:

From position: ____ Length: ____

Number of positions over which to display the message?
Print the highest return code message? Y (Y/N)

How should this field be justified?
1  1.  Left
    2.  Right
    3.  Centered
    4.  As-is

F3=Exit F12=Cancel
    
```

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Paint the entire message? If you answer Y, skip the next two fields. If you answer N, complete the From position and Length fields.

From position. Starting point of the message that you want to include in the report. For example, if you have a message that is 20 characters long, but you do not want to include the first 4 characters, you would enter 05.

Length. Length of the message that you want to include in the report. For example, if you have a message that is 20 characters long but you do not want to include the last 5 characters, you would enter 15.

Number of positions over which to display the message? Number of spaces to reserve for the message in the report. If you enter a number larger than the length of the message, the extra spaces will be placed according to the justification option you choose.

Print the highest return code message. Enter Y to include the message associated with the highest return code generated by any rule for each instance of the reconciliation key.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Press Enter to see the words MESSAGE HERE in the positions you reserved for the message. When you view or print the report, the actual message will display.

Entering Reconciliation Job Information

This screen displays when you choose to enter reconciliation job information, which includes any of the options shown on the screen.

```
Reconciliation Job Information

Choose the type of field to be defined:
__  1. Job ID ...
    2. Report title ...
    3. User name...
    4. Page number...
    5. Run date...
    6. Run time...

F3=Exit F12=Cancel
```

Select the type of information you want to add to the report.

Options:

1. Job ID. The job name, step name, and qualifier, if any.
2. Report title. The title assigned to the Control Report.
3. User name. The user who ran the job.

4. Page number. The number of the current page.
5. Run date. The date the job ran.
6. Run time. The time the job ran.

All options will display the screen shown below. The screen title will differ depending on the option you selected.

Screen for Specifying Job Information

```

XXXXXXXXXX

Number of positions over which to display? ____

How should this field be justified?
1_ 1. Left
    2. Right
    3. Centered
    4. As-is

F3=Exit F12=Cancel
    
```

XXXXXXXXXX. Screen title, which shows the type of job information to be included.

Number of positions over which to display? Does not display if the option Report title was selected on the Reconciliation Job Information screen. The number of spaces you want to reserve for the information in the report. If you enter a number larger than the length of the information, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241.](#)

Press Enter to see the information you chose to include.

You will see text indicating the information you specified, such as the following:

```

===== YOUR REPORT TITLE HERE =====
===== USER NAME HERE =====
    
```

999 <--**Indicates that the page number will appear here.**

For the Job ID, the actual job ID appears. For the date and time options, you will see the current system date and the current system time, respectively. When you run the job, the actual information will be displayed.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Entering Free-Form Text

When you choose to include text that you enter yourself, the Free-Form Text from the Define Report Field screen is displayed.

Free-Form Text

-----1-----2-----3-----4

Enter text: _____

Number of positions over which to justify the entered text? ____

How should this field be justified?

1 1. Left
2. Right
3. Centered
4. As-is

F3=Exit F12=Cancel

Enter text. Enter the text you want to include.

Number of positions over which to justify the entered text?

Number of spaces you want to reserve for the text in the report. If you enter a number larger than the length of the text, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241.](#)

Press Enter to see the text you chose to add.

Note: The tilde (~) will not display in the Free Form Report Window when you use them in free-form text, but will print properly in the actual report. The caret (^) should be avoided because it will not print properly.

Entering Key Break Detail Information

If you choose to enter key break detail information, the system displays the Key Break Detail Information screen. Use this screen to select the detail information to specify for the selected key break.

Complete the detail information options in the order that they display on the screen. The detail information is specified for the key that is selected for the key break (Option 1).

Key Break Detail Information Screen

```

Key Break Detail Information

Choose the type of field to define:
  1  1. Insert key break...
  2  2. Key break description...
  3  3. Key break value...
  4  4. Key break total...

F3=Exit F12=Cancel
    
```

Choose the type of field to define. Options:

1. **Insert key break.** Select this option to insert a key break in the report. A message indicates that a break has been inserted. The system inserts the break only if you chose to insert a page break on both the Report Information and Define Key Breaks screens.
2. **Key break description.** Provide a description for the key break and indicate the position for the description within the report. See “[Key Break Description Screen](#)” on page 240.
3. **Key break value.** Indicate the position for the key break value within the report. See “[Key Break Value Screen](#)” on page 240.
4. **Key break total.** Indicate the position for the key break total within the report. See “[Key Break Total Screen](#)” on page 241.

Insert Key Break

When you select the option Insert key break, the Key Break List Window will be displayed. This window lists all key breaks that have been defined for this Free-Form Report.

Key Break List Window

```

Key Break List Window

_  001 - KEY BREAK ONE
_  002 - KEY BREAK TWO

F3=Exit  F12=Cancel
    
```

Select the key break for which you want to specify detail information. The system displays the Free Form Report Window. Press F4 and select Key break detail information to complete the Key Break Detail Information.

8 ■ Creating Free-Form Reports

Completing the Free-Form Report Screens

Key Break Description Screen

If you select Key break description, the system displays the Key Break Description screen with the selected key break number.

```
Key Break Description
-----+-----1-----+-----2-----+-----3-----+-----4
Enter text: _____
Number of positions over which to justify the entered text? ____
How should this field be justified?
1 1. Left
    2. Right
    3. Centered
    4. As-is
F3=Exit   F12=Cancel
```

Enter text. Specify a description for the key break.

Number of positions over which to justify the entered text?

Specify the number of spaces in which to place the key break description. If you enter a number larger than the length of the description, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see [“Setting the Justification Options” on page 241](#).

Key Break Value Screen

If you select Key break value, the system displays the Key Break Value screen with the selected key break number.

```
Key Break Value
Value number: 001
Number of positions over which to display? ____
How should this field be justified?
1 1. Left
    2. Right
    3. Centered
    4. As-is
Accumulate item total? N (Y/N)
F3=Exit F12=Cancel
```

Number of positions over which to justify the entered text?

Specify the number of spaces in which to place the key break value. If you enter a number larger than the length of the value, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see “Setting the Justification Options” on page 241.

Accumulate item total?

Key Break Total Screen

If you select Key break total, the system displays the Item List Window. Select the item for which to print the key break total. The Key Break Total screen displays the selected key break and item.

Key Break Total	
Value number:	001
Number of positions over which to display?	___
How should this field be justified?	
<u>1</u>	1. Left
	2. Right
	3. Centered
	4. As-is
F3=Exit F12=Cancel	

Number of positions over which to justify the entered text?

Specify the number of spaces in which to place the key break total. If you enter a number larger than the length of the total, the extra spaces will be placed according to the justification option you choose.

How should this field be justified? Select a justification option. For more information, see “Setting the Justification Options” on page 241.

Setting the Justification Options

When placing text items containing leading or trailing spaces on the report, you will complete the **How should this field be justified?** field to select left, right, or center justification or the as-is option. Regardless of your choice, the value that will appear on the report will be limited by the number of positions specified for the field on the report.

8 ■ Creating Free-Form Reports

Editing the Report

The As-is option specifies that no justification will be applied and leading and trailing spaces will be retained. Because the number of positions specified for the field on the report does not change based on the size of the item value you are including, the placement and size you specify are important.

Example of As-is Versus Left/Right Justification

This example shows the results of as-is vs. left justification when the value is smaller than the number of positions specified

Assume that you are placing a text value on the report. The value consists of 2 leading spaces followed by 123 followed by 2 trailing spaces (7 characters). You enter 8 as the number of positions to reserve for the field on the report.

- If you use as-is justification, the value will print as 8 characters, consisting of 2 spaces followed by 123 followed by 3 spaces.
- If you use left justification, the value will print as 8 characters, consisting of 123 followed by 5 spaces.
- If you use right justification, the value will print as 8 characters, consisting of 5 spaces followed by 123.

Editing the Report

If you need to make changes after you have entered information in the free-form report, you can do one of the following:

- Exit without saving (you will lose all of your entries since the last time you saved the report).
- Edit the report codes that represent your specifications.

Assume your Free Form Report Window looks like the one shown below.

```
mm/dd/yy 23:57:29 FREE FORM REPORT WINDOW ACR/D releasenumber
RFFR user id
Amount to Scroll . . 15 Report Width . . . . . 132
Shift to col . . . . 1

*-----1-----2-----3-----4-----5-----6-----7--
1
2 ===== USER NAME HERE =
3 ===== YOUR REPORT TITLE HERE =====
4 FREEFM2 /REPORT 20080624
5
6 KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
7
8 sale price 999999999.99 -
9
10 C002 calculated sale price 99999999.99 -
11
12 amount sold 99999999999 -
13
14 C003 calculated amount sold 99999999999 -
15

-----
F3-Exit F4-ADD F5-Refresh F9-Cursor F19-Left F20-Right F22-Codes
```

Press F22 to display the Codes screen.

```
mm/dd/yy 01:57:13 FREE FORM REPORT WINDOW ACR/D releasenumber
RFFR

Opt Codes

- "\R" {L40}" {C31}$CUST {L10}" "\R" {L33}" {C44}$BJTITLE
- "\P" {L11}$DATE {L2}" {L10}$TIME {L30}" {L17}$JID {L9}" {R14}CY "\N
- " "\N" "\N" {L5}" {L25}K0 "\N" "\N" "\N" {L5}" {L18}DI1(41:20) {L17}
- "" {L14}I1 "\N" "\N" {L5}" {L27}"C002 calculated sale price" {L8}"
- {L13}C2 "\N" "\N" {L5}" {L18}DI2(41:20) {L17}" {L13}I2 "\N" "\N" {L5
-
```

Each entry you specified is represented by a string of codes that indicates the item and its position.

Carriage Control Codes

Carriage control codes are enclosed in double quotes (“ ”) and include the following:

- “\F” Form feed. Advances to a new page.
- “\N” New line. Advances to a new line after printing the fields.
- “\R” Report header. Processed like the new line (“\N”) code except that this row of data will be printed once at the top of the report. “\R” “\R” produces 2 blank lines at the top of the report.
- “\P” Page header. Processed like the new line (“\N”) code except that this row of data will be printed under the report header lines (if any) on the first page and at the top of every subsequent page of the report. “\P” “\P” produces 2 blank lines at the top of each page.

8 ■ Creating Free-Form Reports

Editing the Report

Note: You can change:
"N" to "R" or "P"
"R" to "N" or "P"
"P" to "N" or "P"
providing lines are formatted in the sequence 1) report header lines, if any, 2) page header lines, if any, and 3) new lines.

Constant String Codes

Constant strings are enclosed in double quotes (" "). Carriage controls and constant strings can be combined. For example, the following code would print the string JAMES at the top of the output page and then advance to the next line:

```
"\FJAMES\n"
```

Backslashes are used when you want a quote or backslash to print:

"\" prints a double quote character in the string. (Double quote followed by backslash followed by 2 double quotes.)

"'" prints a single quote character in the string. (Double quote followed by single quote followed by double quote.)

"\\\" prints one backslash character in the string.

Format Specifier Codes

Format specifiers are enclosed in curly brackets and contain the following:

- The letter C (center), R (right), L (left), or A (As-is).
- A number specifying the fixed width.

For example, the format specifier {C40} indicates that the item is center justified over the next 40 characters.

Symbolics

Symbolics represent the item type that you add to the Free-Form Report. They end with one of the following:

- A blank space
- " (a double quote symbol)
- { (an open curly bracket)

Symbolics referring to text may also contain code referring to the portion of the text you want to include in the following form (i:j), where i is the position and j is the length.

For example, the following symbolic represents the first three bytes of reconciliation key 1.

```
K001(1:3)
```

Below is a list of the symbolics.

Code	Represents
Knnn	Reconciliation key, where nnn is the key number. 000 indicates the entire key
CY	Reconciliation key cycle number
Innn ¹	Internal item value
DIinn ¹	Description of the internal item
Xnnn ¹	Extended internal item value
DXnnn ¹	Description of the extended internal item
Ennn ¹	History item value
DEnnn ¹	Description of history item
Cnnn ¹	Calculated item value
RCnnn ¹	Rule return code, where nnn is the rule number. 000 indicates the overall reconciliation key return code
RVnnn ¹	Rule variance value, where nnn is the rule number
S	Message (special instruction) string for the reconciliation keys return code
\$PAGE	The current page number in the user formatted report
\$DATE	The execution date for the current reconciliation key; the date is formatted according to the date criteria in the User Option file
\$TIME	The execution time for the current reconciliation key; the time is formatted as hh.mm.ss
\$CUST	The company name from the control file
\$BJTITLE	The report (title) from the basic job information
\$JID	The job ID in the JJJJJJJJ/SSSSSSSS/QQ format, where J is the Job Name, S is the Step Name, and Q is the reconciliation level qualifier

¹ nnn represents the item number, for example, 001.

8 ■ Creating Free-Form Reports

Setting the Print Option

Deleting a Row of Code

To delete a row of code, enter D to the left of the line of code that you want to delete, and press Enter when you get the confirmation message.

Inserting a Blank Line for a Row of Code

To insert a blank line and enter a row of code, follow this procedure:

1. Place the cursor in the space to the left of the report code after which you want to insert a line and enter I. For example, if you want to insert a row of code between the second and third rows of code, you would place the cursor in the space to the left of the second row.
2. When the system adds a blank line below the line where you entered the I, place the cursor at the first position of the blank line and enter the new codes.

Press Enter, press F3 to exit.

Modifying Part of a Row

To modify part of a row, do the following:

1. Place the cursor in the row of code you want to modify and make the changes. If you insert code, press the Insert key so the data you enter does not write over the existing data.
2. When you are finished press Enter, then press F3 to exit.

Setting the Print Option

When you complete the report, after exiting and saving, the report will be listed on the Free Form Reports list screen, as in the example below:

<i>mm/dd/yy</i> 03:30:44	Reports Menu	ACR/D <i>releasenumbr</i>			
RFFR	Free Form Reports	<i>userid</i>			
Options:	2 - Update	4 - Delete			
O Job	Step	Report	Print	XML	
P Name	Name	Qual	Width	Option	Option
_ FIDACBS2	CHECK2		132	1	1
Job/Step/Qual	_____	_____	_____	Next Screen	_____
F3=Exit				F11=Position	

The **Print Option** column enables you to set the print option you want. The options are as follows:

1. Do not print the Free Form Report.
2. Print the Free Form Report.
3. Print the Free Form Report only when out-of-balance.
4. Print the Free Form Report only when in balance.

Setting the XML Option

When you complete the report, after exiting and saving, the report will be listed on the Free Form Reports list screen, as in the example below:

mm/dd/yy	03:30:44	Reports Menu			ACR/D	releasenumbr
RFFR		Free Form Reports				userid
Options:	2 - Update	4 - Delete				
O Job	Step	Report	Print	XML		
P Name	Name	Qual	Width	Option	Option	
_ FIDACBS2	CHECK2		132	1	1	
Job/Step/Qual	_____	_____	_____		Next Screen	_____
	F3=Exit					F11=Position

The XML Option column enables you to set the job-level option for generating the report in XML format. Your setting here will override the corresponding XML option in your user options (see “XML Options Screen” on page 26). The options are as follows:

1. Default to user options. Defaults to the option specified for the **Free-form report** field on the XML Options screen in user options.
2. Do not generate. Do not generate the report in XML format.
3. Generate, write to file. Create a copy of the report in XML format and write to the file specified.
4. Generate, autoload to database. Create a copy of the report in XML format and write to the associated database. The fail option and maximum size specified in your user options will apply.

Viewing and Printing the Report

When the job runs, the report will be generated. Follow your organization's procedures for printing. The Free-Form Report and any other reports you set up to run when the job runs will be in the output queue. If you run the job online, the report can be printed from the spool file. The file name for the Free-Form Report will be ACRDFF.

Creating User Reports

A User Report is a customized report that enables you to format columns to show any of the data that can be included in the Control Report in the order that you specify. This report prints a key in a row and does not automatically put a page break between keys.

This chapter explains how to create a User Report. It contains the following sections:

- “Setting Up a User Report” on page 249
- “User Report List Screen” on page 250
- “Basic User Report Information Screen” on page 251
- “User Report Screen” on page 253
- “Creating a User Report Function” on page 254

Setting Up a User Report

The following is a summary procedure for setting up a user report.

1. Several system-wide options for report formatting can be set in your user options. See “User Options Entry Screen” on page 23.
2. After creating the other job definitions, from the Definitions Main Menu, select **Reports > User Reports** to display the User Report list screen. See “User Report List Screen” on page 250.
3. When the User Report list screen displays, press F6 to display the Basic User Report Information screen. See “Basic User Report Information Screen” on page 251. After you complete the basic information, press F3. The report will appear on the User Report list screen.
4. Enter 12 (Work with) in the option field for the report to display a blank User Report screen. See “User Report Screen” on page 253.
5. Press F6 to display the Create User Report Function screen. See “Creating a User Report Function” on page 254.
6. You can optionally define a one-line header containing a variety of information types that will appear on each page of the report. To create such a header, from the Create User Report Function screen, enter 1 (Page Header Information) and complete the “Setting Page Header Information” on page 254.

9 ■ Creating User Reports

User Report List Screen

7. When you return to User Report list screen, press F6 to display the Create User Report Function screen again.
8. Enter 2 (Column Information) to display the “[Setting Column Information](#)” on page 257. For each column you want to include in the report, complete the screen, then press F3 to save and exit.
9. When you return to User Report list screen, press F6 to display the Create User Report Function screen again.
10. Enter 3 (Key Break Information) to display the User Report Key Break Information screen, where you can define a key break. See “[Setting Column Information](#)” on page 257. For each key break you want to include in the report, complete the screen, then press F3 to save and exit.
11. When you have defined basic information, page headers, columns and key breaks, your report specifications are complete. The report will be generated when you run the associated reconciliation job and will be listed in the output queue as ACRDUSER.

User Report List Screen

To view a list of User Reports, from the Definitions Main Menu, select **Reports > User Reports** to display the User Report list screen.

mm/dd/yy	12:00:00	Job Definitions	ACR/D	releasenumbr
JREP		User Report	userid	
Options: 2=Update 3=Copy 4=Delete 12=Work with				
Opt	Job	Step	Qual	Report Title
___	TEST1	STEP1		test dynamic translation
___	TEST2	STEP2		testing job and file comments
___	TEST3	STEP3		test hash translation
Job/Step _____				Next Screen _____
F3=Exit	F6=Create	F12=Cancel		

From the User Report list screen, you can create a new User Report. You can also update, copy, delete, and work with any User Report in the list.

Basic User Report Information Screen

To view the Basic User Report Information screen, from the User Report list screen, press F6.

mm/dd/yy	12:00:00	Job Definitions	ACR/D	releasenumbr
JREP		Basic User Report Information		USER1
				CREATE
Job/Step:	_____	Qualifier:	01	F4 for list
Report Title:	_____			
Report Characteristics				
Page Width:	000	0 or 70 to 250		
Page Length:	000	0 or 10 to 999		
Use Base + RLQ Defs:	Y	(Y/N)		
Print Keys:	1	1=Print All, 2=Suppress All, 3=Only Out of Balance, 4=Only In Balance		
Accumulate Keys:	1	1=Print Keys 2=All Keys 3=All Keys/breaks		
Extra Columns:	1	1=Truncate, 2=Additional Rows		
Print only 1st occ key value	Y	(Y/N)		
Always print headings	Y	(Y/N)		
XML option:	-	1. Use user options, 2. Do not generate XML 3. Write XML to file, 4. Autoload XML to db		
Calc. columns automatically	Y	(Y/N/X)		
Space between columns	-	If fixed spacing (X) is used		
				Next Screen _____
F3=Save/Exit F5=Menu F12=Cancel				

Job/Step and Qualifier. Position the cursor in the field and press F4 to select the job you want.

Report Title. Enter the descriptive title that you want to appear as a page heading on the report.

Report Characteristics

Page Width. Enter width or skip the field to use the default of 132 characters.

Page Length. Enter a length or skip the field to use the page length specified in the Control File.

Use Base + RLQ Defs. This field applies only if 1) this is an RLQ (Reconciliation Level Qualifier) job, and 2) the **Use base job definitions** field on the Reconciliation Level Qualifier Information screen (see [“What is Multi-level Reconciliation?”](#) on page 113) is set to Y. Options:

Y. Use the User Report definitions from the base job merged with the User Report definitions you set up in this RLQ job. This makes it easier to make small modifications to the report at the RLQ level.

N. Ignore the User Report definitions from the base job. This allows you to create a completely different report for this RLQ job.

9 ■ Creating User Reports

Basic User Report Information Screen

Print Keys. Options:

1. Print All. Print all reconciliation keys.
2. Suppress All. Do not print any reconciliation keys.
3. Only Out of Balance. Print only the keys that are out of balance.
4. Only In Balance. Print only the keys that are in balance.

Accumulate Keys. Options:

1. Print Keys. Accumulate the reconciliation keys that print.
2. All Keys. Accumulate all reconciliation keys.
3. All Keys/Breaks. Accumulate all reconciliation keys and always print key breaks.

Extra Columns. When Auto Position Columns is 1, determines whether columns that do not fit on the first row will be truncated or printed on additional rows.

Print only 1st occ key value. Specify whether to print only the first occurrence of the key value. Options:

Y. Prints a key segment value only the first time it is displayed. For key segment values that repeat frequently, this improves readability. Reprints the key segment values at the page break and then suppresses again.

N. Prints every occurrence of the key segment value with the key break. To use this feature, each key segment needs to be defined as a column. If you have 3 key segments, three columns need to be devoted to defining the key. For each of these three columns, the source area is key field. The source values for columns 1-3 will be key segment 1, key segment 2, and key segment 3, respectively.

Always print headings. Options:

Y. Print the user report headings even if no keys have been selected to print.

N. Print the report only when keys have been selected to print.

XML option. The Job-level option for generating the User Report in XML format. This setting will override the corresponding system-wide XML option. Options:

1. Use user options. Use the option specified for the User Report field in the user options.
2. Do not generate XML. Do not generate the report in XML format.

3. Write XML to file. Create a copy of the report in XML format and write to the file specified.
4. Autoload XML to database. Create a copy of the report in XML format and write to the associated database. The fail option and maximum size specified at the system-wide (user options) level will apply.

Calculate columns automatically. Options:

Y. Position Columns. The system will automatically calculate column positions. The width value can be added with this option. If you enter Y here, in the User Report Column Information screen, leave the Column Position and Column Width fields as zero. If you enter a value there, it will be ignored.

N. User Specified. The user will define column positions. This allows you to specify the column position and width in the User Report Column Information screen.

X. Fixed Spacing. Print columns with the same number of spaces between each column.

Spaces between columns if fixed spacing (X) is used. Indicate the number of spaces to separate each column. Valid values are 0-99.

User Report Screen

To view the functions set up for the User Report, on User Report list screen enter 12 (Work with) for a report. For a new report, the User Report screen will be empty.

```

mm/dd/yy 15:52:08          Job Definitions          ACR/D releasenumbr
JRFD              User Report          userid

Job/Step: USERTEST  COMMENTS          Qualifier:      01

Options:      2=Update  3=Copy   4=Delete   7=Renumbr

Opt Number  Function          Description
___  001    PAGE HEAD      Cycle ID
___  002    PAGE HEAD      History Item
___  001    COLUMN         Run
___  002    COLUMN         Return

Next Panel _____

F3=Exit    F6=Create    F12=Cancel
    
```

9 ■ Creating User Reports

Creating a User Report Function

Creating a User Report Function

On the Create User Report Function window, you can set functions for the User Report.

```
Create User Report Function

Function:  1  1=Page Header Information
              2=Column Information
              3=Key Break Information

F12=Cancel
```

Function. Specify the function you want to create for the User Report.

1. Page Header Information—see [page 254](#)
2. Column Information—see [page 257](#)
3. Key Break Information—see [page 260](#)

Setting Page Header Information

Use this screen if you want to create a one-line header containing a variety of information types that will appear above the column headings on each page of the report. This information will pertain to the keys on the page. This screen enables you to specify one item to be included in the page header line. You can define additional page header items by accessing this screen again.

```
mm/dd/yy 16:45:18      Job Definitions      ACR/D releasenumbr
JPAG                  User Report Page Header Information  CREATE
Job/Step: SAMPLE     STEP1      Qualifier:

Header Number:      001      1 to 100

Header Type:
Key Field Order:    001      000 - 005
Header Name       :      _____ F4 for list
Header Position:    000      0 or 1 to 132
Header Width:      00       0 or 1 to 80

Literal Line 1:      _____

Heading Position:    1       1=Center, 2=Left, 3=Right

Next Screen _____

F3=Save/Exit F4=Prompt Header Type F12=Cancel
```

Header number. The system assigns the header number incrementally.

Header type. Position the cursor in the field and press F4 and select the type of information for this page header item from the Page Header Information screen, shown below. After you make your selection and press Enter, the **Header Type** field will be populated.

Page Header Information	
Source Area:	<u>01</u> 1. Key Field
	2. Cycle ID
	3. Internal Item
	4. History Item
	5. Calculated Item
	6. Return Code
	7. Rule
	8. Message
	9. Ext int Item
	10. Literal
	11. Original key
F12=Cancel	

If you choose Original key, the page heading will show the original key value, up to 80 bytes, before translation. Choose this option only for dynamic translation.

Key Field Order. This displays if you specified a key as the header type. Do one of the following: 1) leave the field zero to print the entire reconciliation key or 2) enter 1-5 to indicate which of the five possible key fields you want to use as the page heading item.

Header Name. This displays if you specified a specific item defined for the job (an internal or extended internal item, history item, calculated item, or rule) as the header type.

Note: Exception: Leave the field populated with zeros to do one of the following:

- If the header type is Message, an entry of 000 will cause the page header to show the message for the highest return code of the first key on the page.
 - If the header type is Return Code, an entry of 000 will cause the page header to print the highest return code set for the reconciliation key.
-

9 ■ Creating User Reports

Creating a User Report Function

Position the cursor in this field and press F4 to select a specific item from the Item Selection screen, shown below. After you make your selection and press Enter, the Header Name field will be populated.

```
Item Selection

Options:  1=Select

Opt  Item Name
-    I001
-    I002

Item Name _____

F12=Cancel
```

Header position. Specify the position where this page header item should begin.

Heading width. Specify the number of characters to reserve on the header line for this page header item.

Text values that do not fit within the specified width will be truncated.

Numeric values that do not fit within the specified width will also be truncated.

Literal Line 1. If the header item type is literal, enter the literal.

Heading position. This allows you to change the justification option.

Setting Column Information

Complete this screen once for each column that should appear on the report.

mm/dd/yy 16:45:18	Job Definitions	ACR/D releasenumbr
JCOL	User Report Column Information	CREATE
Job/Step: SAMPLE	STEP1	Qualifier:
Column Number:	<u>001</u>	1 to 100
Column Type:		
Key Field Order:	001	000 - 005
Column Name:		F4 for list Ext column format: N
Column Position:	<u>000</u>	0 or 1 to 250
Column Width:	<u>00</u>	0 or 1 to 80
Column Accumulation:		1=Yes, 2=No
Column Print Detail:	1	1=Yes, 2=No
Heading Line 1:	_____	
Heading Line 2:	_____	
Heading Position:	1	1=Center, 2=Left, 3=Right
		Next Screen _____
F3=Save/Exit	F4=Prompt Column Type	F12=Cancel

Column Number. Column numbers are assigned sequentially by the system and determine the sequence in which columns appear across the page (from 1 to 100). You can change the assigned number.

Column Type. Press F4 to display the Column Source Area Choices screen and select the type of information that will appear in the column. The fields that will display on the screen below will depend on your selection. Options:

1. **Key Field.** Select to include the entire reconciliation key in this column or an individual key segment (key field). Default column width is 40. See Key Order field below for more information.
2. **Cycle ID.** Cycle number and run number for the reconciliation run.
3. **Internal Item (value).**
4. **History Item (value).**
5. **Calculated Item (result).**
6. **Key Return Code.** If the key is associated with a return code, the highest return code for a key for all of the rules that evaluated the key.
7. **Rule Return Code/Action.** Prints the return code and action for the specified standard or conditional rule.

9 ■ Creating User Reports

Creating a User Report Function

8. **Rule Error/Tolerance.** The tolerance value for a specified standard rule.
9. **Messages.** The message associated with the named rule.
10. **Extended Internal Item.** Extended internal items and history items.
11. **Original key.** For dynamic translation, the original key, up to 80 bytes, before translation.

When you have made your **Column Type** selection, press **Enter** to save and return to the **User Report Column Information** screen.

Key Field Order. This displays if you specified a key as the column type. This field specifies that you want to include one of the following in this column: 1) the entire reconciliation key, or 2) a specified key segment (key field). Key 1 (the first segment) will be positions 1-8, Key 2 will be positions 9-16, and so on. You can define the key fields in any order. Valid values are as follows:

- 0.** Include the entire 40-character key.
- 1-5.** Specifies an individual key segment (key field): Key 1, Key 2, Key 3, Key 4, or Key 5. You can include additional segments of the key on the report by completing the **User Report Column Information** screen multiple times.

Column Name. If the column type is an internal or extended internal item, history item, or Rule/Error tolerance, the system displays this field. Enter the item or rule name.

-
- Note:**
- If, on the **User Report Basic Information** screen, for the **Auto Position Columns** field, you selected **User Specified**, you should complete the next two fields, **Column Position** and **Column Width**.
 - If, on the **User Report Basic Information** screen, for the **Auto Position Columns** field, you selected **Position Columns**, you can skip the next two fields. If you choose to complete them, the following will happen:
 - An entry in the **Column Position** field will be ignored.
 - An entry in the **Column Width** field will override the automatically calculated width for this column.
-

Ext column format. The system displays this field if a history or calculated item is selected. If you specify **Y**, and did not specify a column width, the extended column width of 43 will be used. If you specify **N**, and did not specify a column width, the system default of 18 or 22 will be used depending on your user option print format.

Column Position. If required (see note above), enter a number up to 250 specifying the position where this column should begin.

Column Width. If required (see note above), enter a number from 0 to 80 specifying the width of this column. Text values that do not fit within the specified width will be truncated. Numeric values that do not fit will not print. Asterisks (*) will be substituted.

If you enter 0 or leave the field blank, the column will default to the widths shown below.

Column Type	Default Width Regular Data	Default Width Extended Data
Key. This can be the job's reconciliation key or an individual key field, depending on the Column item number you specify.	Reconciliation key: 40, individual key field: 8	NA
Cycle ID	11	NA
Internal item ¹	18/22 ³	NA
History item ^{1, 5}	18/22 ³	43/82
Calculated item ²	18/22 ³	43
Return code (for the key)	4	NA
Rule ^{2, 4} For standard rules, prints the out-of-balance amount.	18/22 ³	43
Message	40	NA
Extended internal item ⁵	NA	43/82
Original key ⁶	400	NA

1 - The default width for an internal item or history item is determined by the internal item indicator (I=internal item, E=extended internal item) setting on the Internal Items screen or on the History Items screen.

2 - The default width for calculated items or rules is determined by how you set the Ext column format field on the this (User Report Column Information) screen. Extended items have a default width of 43. Regular items have a default width of 18 or 22 (see note 3 below)

3 - For regular (not extended) data, the default width will be 22 if 22-character formatting has been specified in the user options or job definitions.

4 - Inactive rules that have not been made active by a conditional rule will be evaluated but will not display on the Control Report. However, all rules for which user report columns have been defined will display on the User Report.

5 - For Extended internal items and history items, the default (extended) widths are 43 for numeric values and 80 for text.

6 - For an original key, you can specify up to 5 sections, with 80 bytes each.

9 ■ Creating User Reports

Creating a User Report Function

Column Accumulation. The system displays this field for multiple column types. Specify whether you want to accumulate the column value and print it on key breaks.

Column Print Detail. Options are:

1. **Yes.** Prints the column data in the user report. This is the default value.
2. **No.** Suppresses the column data in the user report.

Heading Line 1. Optionally enter a heading that will appear at the top of the column.

Heading Line 2. Optionally enter a heading that will appear at the top of the column under Heading Line 1.

Heading Position. Specify how the column will be justified in the positions over the column.

Press F3 to save and exit. You will see the column in the User Report list screen. To define additional columns, press F6 and select 1 again. When you have defined all of the columns you need to include, go to the next section.

Setting Key Break Information

Key breaks are used to specify the end of a series of identical keys in a report, which the system will then accumulate and total. For example, if you want to accumulate and total the cost of phone calls by area code, you would enter a Key Size of three so that any change in the first three digits of the key (i.e. a new area code) would cause a key break. You can specify key breaks at up to 10 levels. Use the Key Size field to define the number of positions of the reconciliation key to be evaluated to determine when each key break should occur.

mm/dd/yy	12:00:00	Job Definitions	ACR/D	releasenumbr
JKEY	User Report	Key Break Information		Create
Job/Step:	SAMPLE STEP1	Qualifier:		
Key Break Number:	01	1 to 10		
Key Break Characteristics				
Literal:	_____			
Size:	00	0 or 1 to 40		
Position:	000	0 or 1 to 132		
Space Before:	00	0=No Blank, 1-9=Blank Lines, 10=Page		
Space After:	00	0=No Blank, 1-9=Blank Lines, 10=Page		
Print Column Totals:	1	1=Yes, 2=No		
			Next Screen	_____
F3=Save/Exit F12=Cancel				

Key Break Number. This identifies the key break level.

Key Break Characteristics

Literal. A description of up to 40 characters that will be printed on the line containing the totals for the key break.

Size. Number of positions of the reconciliation key to be used in defining this key break.

Position. Starting position of the key break Literal within the report line. If 0, the literal will print at the beginning of the first column.

Space Before. Number of blank lines to print before the key break Literal is printed.

Space After. Number of blank lines to print after the key break.

Print Column Totals. Options are:

1. **Yes.** Prints the accumulated column value on the first key break in the user report.
2. **No.** Prints a blank line in the user report.

Press F3 to save and exit. You will see the key break in the User Report list screen. To define additional key breaks, press F6 and select 2 again.

When you have defined the basic information and all columns and key breaks, your report specifications are complete. The report will be generated when you run the associated reconciliation job and will be listed in the output queue as ACRDUSER.

User Report Sample

ACR/D		releasenumbr		RECONCILIATION USER REPORT				PAGE 1	
DATE: yy/mm/dd									
TIME: 11:58:10									
				INFOGIX, INCORPORATED				JOB ID: UGREPORT/SAMPLE /	
				TICKET REFUND REPORT					
		20150103							
ROUTE CODE	STAFF	TICKET\$	ISSUE	TICKET#	ROUTE DESCRIPTION		FLIGHT#	REC TOT	
PHL:LAX	12	\$2717.00	2003/01/21 17:23:32	000456234	PHILADELPHIA	LOS ANGELES	FF01527		
DTW:MSY	22	\$2804.50	2003/01/21 18:45:11	007624562	DETROIT	NEW ORLEANS	FF48379		
DCA:JFK	24	\$1578.50	2003/01/23 14:14:10	000366744	WASHINGTON, DCNEW YORK		FF91827		
TOTAL BY OFFICE		\$7100.00						3	
ORD:DTW	72	\$1250.00	2003/01/15 08:40:34	004534899	CHICAGO	DETROIT	FF48379		
JFK:DCA	13	\$1333.00	2003/01/23 13:07:22	089347839	NEW YORK	WASHINGTON, DC	FF91827		
TOTAL BY OFFICE		\$2583.00						2	
DEN:LAX	11	\$4736.00	2003/01/23 11:04:44	000875642	DENVER	LOS ANGELES	FF01527		
JFK:ORD	53	\$794.00	2003/01/14 12:17:45	000023445	NEW YORK	CHICAGO	FF48379		
TOTAL BY OFFICE		\$5530.00						3	

9 ■ Creating User Reports

Creating a User Report Function

Using Translation Tables

This chapter explains internal translation tables and external translation tables. It contains the following sections:

- “Translation Table Processing” on page 263
- “Internal Vs. External Translation Tables” on page 264
- “Creating External Translation Tables” on page 268
- “Creating Internal Translation Tables” on page 309
- “Incorporating an Internal or External Translation Table into a Reconciliation Job” on page 312
- “Maintaining Translation Table Definitions” on page 315

Note: In addition to the internal and external translation tables, you can create and use a dynamic translation table to translate key segments of up to 80 bytes to 8 byte identifiers. For more information, see “Using Dynamic Translation Tables” on page 163.

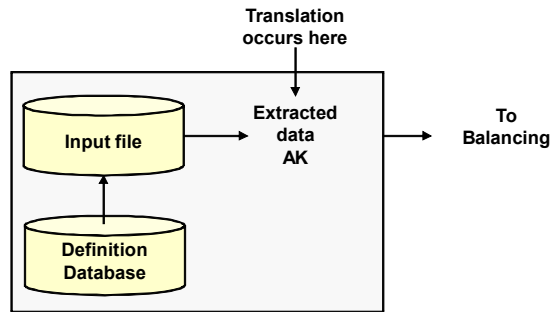
Translation Table Processing

Translation table processing allows you to change a value from an input source to a different, more understandable, or more usable value for processing and reporting. A translation table is a set of rules that indicate the values that should be changed, when to change them, and what the new values should be.

10 ■ Using Translation Tables

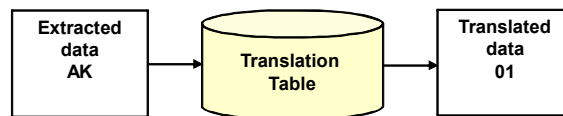
Internal Vs. External Translation Tables

Translation occurs after data to be translated is extracted from the input source and before the value is stored in an item. In the following graphic, a state abbreviation, AK, is extracted from a report file.



In the translation process, extracted data is compared to values in the translation table. If a match is found, the extracted value is translated. Then, the translated value either replaces the original value, or (for external tables only) is stored as an extraction variable. The translated value can then be used in reconciliation.

In the following graphic, the extracted state abbreviation AK is translated into the state code 01.



Internal Vs. External Translation Tables

External and internal translation tables are both used to translate detail fields, key fields, and extraction variables for reconciliation purposes.

Characteristics that are not shared by the two types of tables are described in the following sections.

What is an Internal Translation Table?

An internal translation table is a table consisting of two columns (input and output). You create it by defining up to 999 input/output entries. This type of table is suitable for performing simple one-to-one, text-to-text translations within an ACR/Detail job.

For example, suppose you are reconciling values from two reports, and you decide to use a region number (01, 02, etc.) as the field value. However, the region number does not show up on one of the reports. Only the region name (Dallas, New York, etc.) appears. To address this situation, you would set up an internal translation table with the region names that need to be translated as input and the corresponding region numbers as output.

For more complex translations, use an external translation table, which is described in the next section.

What is an External Translation Table?

An external translation table is a more powerful table that can be used when an internal translation table will not suffice.

An external translation table is suitable for translation of dynamic data such as an employee list. This is because it is built at run time, usually by referencing a data source external to ACR/Detail.

When there is no external data source, you can use constant translation data. See “[Defining Constant Table Data](#)” on page 300.

After the data source has been defined in ACR/Detail, the column values in the data source can change without the need to modify the translation table definitions.

In the translation process, the values to be translated are passed from detail fields, key fields, or extraction variables to input-output parameters and then compared against values in the external translation table. If a value finds a match in the external translation table, the translated output value is placed in an input-output parameter that is then sent back to the original detail field, key field, or extraction variable.

Following are some additional features of an external translation table:

- Data type translations from any format to any format are supported.
- Up to 999 columns can be used.
- Complex selection/reformatting/comparison rules can be used.
- A single external translation table can be used in multiple reconciliation jobs.

External Translation Table Example

Before you start to build an external translation table, it may be helpful to have a simple example. The table will translate the 2-character abbreviation into a two-position numeric code so that the data on two input reports can be balanced.

The Reports

Report 1 shows total quarterly sales figures by state, using the 2-position numeric code. Report 2 shows monthly sales figures by state, using a 2-character postal abbreviation.

Using the code as input, we can output the postal abbreviation and balance the quarterly figures on Report 1 to the monthly figures on Report 2.

XYZ COMPANY		QUARTERLY SALES FIGURES	
		Q3, 2009	
STATE		TOTAL	
01		175,000.00	
02		225,000.00	
03		120,000.00	
.	.		
.	.		

XYZ COMPANY		MONTHLY SALES FIGURES	
		Q3, 2009	
STATE		TOTAL	
AK		50,000.00	
AK		25,000.00	
AK		100,000.00	
AL		100,000.00	
AL		100,000.00	
AL		25,000.00.	
.	.		
.	.		

The Source Data

The source data contains the data needed to do the translation. The system will read this source data and build a translation table based on the definitions.

10 ■ Using Translation Tables

Creating External Translation Tables

In this example, the source data is as follows:

```
01000001AK
02000002AL
03000003AZ
04000004CA
05000005CO
06000006DE
07000007GA
```

For our translation we will use the first two characters and the last two characters. The middle characters will not be used in the translation process.

The Build Table

The table to be built will consist of two columns: one for the numeric state code and one for the alphanumeric state abbreviation. During extraction, if the system comes across a field value or detail field to be translated, it looks for the name of the translation table related to the value of the field and then looks for a match in that table. If it finds a match, it performs the translation and returns the result to the extraction process.

Code	Abbreviation
01	AK
02	AL
03	AZ
04	CA
05	CO
06	DE

Creating External Translation Tables

Adding a New External Translation Table

From the Main Menu, select **Table Definitions > External Translation Tables** to display the External Translation Tables Main Screen. This screen lists the external translation tables in your environment. Press F6 to view the Add New Table screen.

```

mm/dd/yy 13:41:17      External Translation Tables      ACR/D releasenumbr
TEXT                  Add New Table                          userid

Table Name: _____
Table Desc: _____

Select the Files organization:      File Name: _____
  1. Sequential input file          Library Name: _____
  2. Keyed File
  3. User Program
  4. Constant Translation data

                                Program Name: _____
                                Program Parm Area: _____

                                Use delimited data fields: Y (Y/N)

Build Option:
  1. First Time
  2. Each Lookup

F3=Save/Exit      F5=Refresh      F12=Cancel

```

Table Name. Assign a unique name to the table.

Table Desc. Description of the table.

Select the Files Organization. The file organization type of the external tabular data that will be used to build the translation table at run time.

Options:

1. Sequential input file. An IBM i physical file.

Note: For the current release, this is the only file organization type supported.

2. Keyed File. Keyed VSAM file.
3. User program. Enter your user program name.
4. Constant Translation data. Constant translation data provides the features of external translation tables (multiple lookup parameters and columns, complex lookup capabilities) with the simplicity and control of an internal translation table. You define all of the data for the translation table yourself.

10 ■ Using Translation Tables

Creating External Translation Tables

For more information see the following:

- See the Constant Table Data section of the Table Parameters screen shown in the next section.
- See “[Defining Constant Table Data](#)” on page 300.

File Name. File name of the external data source.

Library Name. Library containing the external data source.

Program Name. If you are using a user program to access the external data source, specify the name of the program.

Program Parm Area. Parameter area used to pass information to the user program.

Use delimited data fields. If the external data source is in delimited format and you will use the field number to directly extract delimited fields, enter Y (Yes). If you will specify the position and length in the record to extract data from the fixed area, specify N (No). For more information about direct extraction from a delimited data file, see “[Extracting Directly from a Delimited Data File](#)” on page 186.

Build Option. Options:

1. **First Time.** Load and use the translation data from the source data as it exists. The table will be built once for each job runs.
2. **Each Lookup.** Rebuild the table rows for each lookup based on the values of input-output parameters. For example, you could randomly access a VSAM file for each lookup, building a 1-row “table” of translation columns based on key information passed in via input-output parameters (extraction variables).

When you have completed your entries, press Enter to save and return to the External Translation Tables Main Screen. You may need to scroll to see the table you created in the list.

If you specified Y (Yes) in the **Use delimited data fields** field, the system displays the Delimited Data File Information screen, below.

Delimited Data File Information Screen

```
Delimited Data File Information

Specify the length of fixed data area:   ___0_ (1-1000)
Delimiter character:  _   _   _   _   _
Enclosure character:  _

F12-Cancel
```

Specify the length of fixed data area. Enter the length of the fixed area of the data file. This is the area in the file with static information.

Delimiter character. Enter one to five characters to use to delimit the fields in each record. Use t or T to indicate a tab.

Enclosure character. Specify the character to use to indicate the start and end of the text field. The system ignores the delimited character between the enclosure characters.

10 ■ Using Translation Tables

Creating External Translation Tables

Completing the Table Parameters Screen

From the External Translation Tables Main Screen, enter 12 (Work with) next to the new table to display the Table Parameters screen. You may need to scroll down to view all the parameters.

```
mm/dd/yy 13:41:17      External Translation Tables      ACR/D releasenumbr
TEXT                   Table parameters                          user id

2-Change 4-Delete

      Table Name:  EXTERNAL
      Table Desc:  TEST TABLE

Opt
—      INPUT-OUTPUT PARAMETERS:
      < NEW >
—      TABLE COLUMNS:
      < NEW >
—      TABLE LOOKUP RULES:
      < NEW >
—      BUILD PREPARATION RULES:
      < NEW >
—      EXTRACT TABLE INFO:
      < NEW >
—      CONSTANT TABLE DATA:
      < NEW >

Next Screen _____

F3=Exit F5=Refresh
```

Enter 2 to add or change a parameter. The screens corresponding to each type of parameter are explained in the following sections:

- “Defining Input-Output Parameters” on page 273
- “Defining Table Columns” on page 276
- “Defining Table Lookup Rules” on page 277
- “Defining Build Preparation Rules” on page 284
- “Defining Extract Table Info (Table Build Rules)” on page 286
- “Defining Constant Table Data” on page 300

Defining Input-Output Parameters

Input-output parameters define a name for the value to be translated, specify the format for the translated value on reports, and specify the source from which the value will be extracted (and to which it will be output after translation). The source can be extracted data (from a key or detail field) or an extraction variable.

mm/dd/yy 14:49:18	External Translation Tables	ACR/D releasenumbr
TEXT	Input/Output Parameters	userid
Table Name: EXTERNAL		
Table Desc: TEST TABLE		
Item Number: 1 (1-999)		
Name . . . : _____		
Description: _____		
Type:		
— 1. Count	Decimals: __	Length: ____
2. Amount		
3. Date:		
4. Text:		
Specify Parameter Source:		
— 1. Extracted Data	Extraction Variable Number:	(1-999)
2. Extraction Variable	Extended? <u>N</u>	(Y/N)
F3=Exit	F5=Refresh	

Item Number. Assigned automatically and referred to in the lookup rules.

Name. Enter a meaningful name that uniquely identifies the parameter and displays on the Translation Table window next to the item number.

Description. Enter a description of the parameter.

Type. Defines the format of the translated value on reports. See “[Formats for Extraction Variables](#)” on page 69 for an explanation of the formats.

Decimals. For amounts, specify the number of decimals to use.

Length. Specify the length of the parameter. For formats Count, Amount, and Date, partial extraction is not allowed, so do not enter a length. For text, see “[Maximum Lengths for Regular and Extended Data](#)” on page 61.

Specify the Parameter Source. Options:

1. Extracted Data. The value comes directly from the input source.

10 ■ Using Translation Tables

Creating External Translation Tables

2. **Extraction Variable.** The value comes from an extraction variable.

Note: At least one parameter should be Extracted Data. Even if your source is an extraction variable, choose Extracted Data for the first parameter.

Extraction Variable Number. If the parameter is an extraction variable value, enter the number of the variable.

Extended. Enter Y if this value is a number up to 16 bytes long (30 digits) or text that up to 80 characters long. If the item is an extraction variable, when setting this indicator, you must be consistent. See “Consistency in Specifying Extended Format for an Extraction Variable” on page 68.

Using Extraction Variables in External Translation Tables

The following table summarizes the possible uses of extraction variables in external translation table definitions:

Definition	Source	Target
Input-Output Parameter	Extraction Variable	Extraction Variable
Selection Record	Extraction Variable (LHS)	Extraction Variable (RHS)
Reformat Record	Extraction Variable	Extraction Variable
Column Assignment Record	Extraction Variable	Extraction Variable

10 ■ Using Translation Tables

Creating External Translation Tables

Defining Table Columns

Use this screen to define each of the columns for the translation process, both before and after translation.

```
mm/dd/yy 15:12:26      External Translation Tables      ACR/D releasenumbr
TEXT                  Table Columns                          userid

      Table Name:  TVNETWORKS
      Table Desc:  TEST TABLE

Item Number:  __ 1  (1-999)

Name . . . : _____
Description: _____

Type:
__ 1. Count          Decimals: __ Length:  __
  2. Amount
  3. Date:
  4. Text:

Is this column used to sort the table:  _ (Y/N)

Specify the sort key number:  __ (1-10)

F3=Exit F5=Refresh
```

Item Number. Verify or change the column number (1-999) for the value. You will reference this number during the table build process. This number will automatically increment.

Name. Enter a descriptive name for the column.

Description. Optionally, enter a more extensive description.

Type. Specify the data format in which the column should be displayed. See “[Formats for Extraction Variables](#)” on page 69 for an explanation of the formats.

Decimals. For amounts, enter the number of decimals.

Length. Specify the length (width) of the column.

Is this column used to sort the table. Enter Y if you want to use this column as a sort key for the table. You can use up to 10 sort keys (80 bytes total) to increase the table’s processing efficiency.

Specify the sort key number. If the column is used to sort the table, indicate the sort order of this column.

Defining Table Lookup Rules

Table lookup rules tell the system what to do when it encounters a value to translate. The three types of lookup rules work together. They are processed sequentially in the following order:

This rule type	Does this
Selection	Identifies the values to be evaluated and states the comparison operator.
Assign	Specifies the value to assign when the selection rule is satisfied. For example, when an input-output parameter is equal to a particular column from the table, assign it the value of another column from the table.
Flow	Specifies the processing that should occur when a selection rule and an assign rule are processed. By default, processing will terminate.

You can equate the rules with the following logical actions:

Action	Rule type
If...	Selection
Perform...	Assign
Until...	Flow

Selecting a Lookup Rule Type

To define a table lookup rule, from the Translation Table Window, select **New** under Table Lookup Rules to display the Select a lookup rule type screen. As explained above, the sequence for defining the lookup rules should be 1) Selection, 2) Assign, 3) Flow.

Select a lookup rule type:

— 1. Selection

 2. Assign

 3. Flow

F3=Exit F5=Refresh

Select a lookup rule type. Options:

1. Selection. Specifies a comparison between the untranslated values from input-output parameters with the values in the translation table.
2. Assign. Tells the system the value to assign when the selection rule is satisfied.
3. Flow. Tells the system what to do once a selection rule and an assign rule are processed.

Press Enter to view the Selection Rule screen.

Go to the appropriate section:

- [“Defining Selection Rules” on page 278](#)
- [“Defining Assign Rules” on page 281](#)
- [“Defining Flow Rules” on page 282](#)

Defining Selection Rules

This type of rule can compare input-output parameters to table columns or to other input-output parameters. For example:

IF INPUT-OUTPUT PARAMETER 1 EQ TABLE-COLUMN 1

The assign rule associated with this selection rule will be activated when the equation is true.

A selection rule also can specify that when the end of the table is encountered, additional processing should occur.

Selection Rule Screen

```

mm/dd/yy 17:12:03      External Translation Tables      ACR/D releasenumbr
TEXT                  Table Lookup Rules                          user1

Table Name:  EXTERNAL
Table Desc:  TEST TABLE

Specify the selection type:      Specify the left side of the comparison
1 1. Equal to                    Item type: __  Item number: ____
 2. Not Equal to
 3. Greater than
 4. Less than                    Specify the right side of the comparison
 5. Greater than or equal to     Item type: __  Item number: ____
 6. Less than or equal to       Or Literal: _____
_____
7. Not Blank
8. Blank                        Item type: __  Item number: ____
9. Character data
10. Numeric data               Item type choices are
11. At end                     1. input-output parameter
                               2. table column

F3=Exit F5=Refresh
    
```

Specify the selection type.

Options 1 through 6 are logical operators for comparing the left and right sides of the equation:

1. Equal to. Determine whether the left-hand side and the right-hand side of the selection rule are equal.
2. Not equal to. Determine whether the left-hand side and the right-hand side of the selection rule are not equal.
3. Greater than. Determine whether the left-hand side is greater than the right-hand side of the selection rule.
4. Less than. Determine whether the left-hand side is less than the right-hand side of the selection rule.
5. Greater than or equal to. Determine whether the left-hand side is greater than or equal to the right-hand side of the selection rule.
6. Less than or equal to. Determine whether the left-hand side is less than or equal to the right-hand side of the selection rule.

The following fields above the horizontal line apply only if you select from options 1 through 6, which are logical operators for comparing the left and right sides of the equation.

10 ■ Using Translation Tables

Creating External Translation Tables

Specify the left side of the comparison.

Item Type. Specify whether the left side will be an input-output parameter or a column from the external translation table.

Item number. Enter the number of this parameter or column.

Specify the right side of the comparison.

Item Type. Specify whether the right side will be an input-output parameter or a column from the external translation table. Skip if the right side is a literal.

Item number. Enter the number of this parameter or column. Skip if the right side is a literal.

Literal. To specify a literal value for the right side instead of using an item type and item number, enter the value to be used on the right-side of the comparison.

Options 7 through 10 apply only to the left side.

7. Not blank. Determine whether the left-hand side of the selection rule is not blank.
8. Blank. Determine whether the left-hand side of the selection rule is not blank.
9. Character data. Specify whether the left-hand side of the selection rule contains character data.
10. Numeric data. Specify whether the left-hand side of the selection rule contains numeric data.

The following fields below the horizontal line apply only if you select from options 7 through 10, which apply only to the left side:

Item Type. Specify whether the left side will be an input-output parameter or a column from the external translation table.

Item number. Enter the number of this parameter or column.

Option 11 indicates that when the end of the table is reached, additional processing should occur.

11. At end. Signal that when the end of the table is reached, additional processing should occur.

Press Enter, then press F3 to edit check and exit.

Defining Assign Rules

Use the Assign Rule screen to specify the value to assign when the selection rule is satisfied.

Assign Rule

Specify the input-output parameter to set: ____ (1-999)

Specify an item number or literal value to use:

Item number: ____ (1-999) Item type: ____

OR

1. Input-output parameter
2. Table column

Literal: _____

F3=Exit F5=Refresh

Specify the input-output parameter to set. Specify the number of the input-output parameter. This is the target that will be assigned a value from either another input-output parameter or from a table column. This is typically the value to be translated.

Specify an item number or literal value to use

This is typically the translated value you want to be returned to the reconciliation job. Do one of the following:

- Complete the Item number and Item type fields.

Item number. Specify the number of the source to use in the assignment.

Item type. Options:

1. Input-output parameter. Assign the value from the designated input-output parameter into the input-output parameter to be set.
2. Table column. Assign the value from the designated table column into the input-output parameter.

- Literal. Specify a literal value to use in the assignment.

Press Enter, then press F3.

10 ■ Using Translation Tables

Creating External Translation Tables

Defining Flow Rules

Use the Flow Rule screen to define a rule that controls the processing that will take place after each extracted value is compared to a value in the translation table (based on the selection rules), and then translated (based on the assignment rules).

A flow rule is not required. When a flow rule is not specified, after each value is extracted from the input file, it is compared to a value in the translation table, and then translated. This process is then terminated for the extracted value and a successful lookup is reported. The process is then repeated for each value extracted from the input file.

```
Flow Rule

Choose a lookup flow action:
- 1. Terminate
  2. Skip row
  3. Continue lookup

F3=Exit
```

Choose a lookup flow action. Options:

1. **Terminate.** Terminate processing and indicate success or failure. Use this option if the translation is complete and you want to skip further lookup rules. Continue with the “Terminate Option Screen” below.
2. **Skip row.** Skip the row in the translation table. This is used to eliminate rows in the table that do not apply in certain situations.
3. **Continue lookup.** Continue the lookup with the next group of selection rules. This is used when multiple types of selection can apply.

Terminate Option Screen

If you indicated terminate as the lookup flow action, the following screen is displayed.

```
Terminate Option

Specify terminate option:
__ 1. Report success
   2. Report failure

Next table: _____
```

Specify terminate option. Options:

1. **Report success.** Report the success of the selection and assign rules.

2. Report failure. Report the failure of the selection and assign rules.

Next table. If you want to continue translation processing using a different table, specify the table name.

Press Enter to accept.

10 ■ Using Translation Tables

Creating External Translation Tables

Defining Build Preparation Rules

If your external translation table will use a VSAM key sequenced file as the source, use this screen to specify the source to be used in building the VSAM key. Build preparation rules are used in conjunction with the Build Table Data option on each lookup to locate the entry on the VSAM file to process.

```
mm/dd/yy 11:12:31      External Translation Tables      ACR/D releasenumber
TEXT                  Build Preparation Rules      userid

      Table Name:  EXTERNAL
      Table Desc:  TEST TABLE

Item number:    1  

Specify the source of input:      Specify output information:
__  1. Literal area              Field position:  _____
__  2. Parameter number          Field length   :  _____
                                  Field format   :  _____

LITERAL AREA                    PARAMETER AREA

Literal:  _____            Parameter number:  ____
Field position:  _____      Field position   :  _____
Field length   :  _____      Field length     :  _____
Field format   :  _____      Field Format      :  _____
__  1. Numeric
__  2. Alphanumeric

F3=Exit F5=Refresh
```

Item Number. The three digit number indicating the Build Preparation Rule you are working with. Up to 999 Build Preparation Rules may be specified.

Specify the source of input. Specify where the data is coming from that will be compared to the VSAM key on the file to determine which record to process on each lookup.

1. Literal area. The input will be coming from a literal area.
2. Parameter number. The input will be coming from an input-output parameter.

Specify output information

Field position. Enter the first position of the value in the VSAM file.

Field length. Enter the length of the value in the VSAM file.

Field format. Format for both the input and output values. See “Understanding Field Formats” on page 189 for an explanation of the formats.

LITERAL AREA. If you selected Literal Area as the input source, complete these fields.

Literal. Enter the value of the literal.

Field position. Enter the input field position relative to the beginning of the literal area.

Field length. Enter the length of the literal.

Field format. Specify the format of the literal value. See “Understanding Field Formats” on page 189 for an explanation of the formats.

1. Numeric
2. Alphanumeric

PARAMETER AREA. If you selected Parameter number as the input source, complete these fields.

Parameter number. Enter the number of the input-output parameter to be used.

Field position. Enter the input field position relative to the beginning of the input-output parameter. The position and length together must not exceed the size of the input-output parameter. See “Maximum Lengths for Regular and Extended Data” on page 61.

Field length. Enter the length of the input-output parameter value that you want to include.

Field format. Indicate the format of the value. See “Understanding Field Formats” on page 189 for an explanation of the formats.

Defining Extract Table Info (Table Build Rules)

Table build rules define the criteria for selecting data from the external data source, a literal, or an extraction variable to build the translation table. Each value to be used in a table column must be specified and assigned to a column in the table being built.

Selecting a Table Build Rule Type

```
Select the table build rule type:

 1  1. Selection record
    2. Relative record
    3. Reformat record
    4. Column assignment record
    5. Process control record

For a selection record, enter comparison
values in extended format:  N  (Y/N)

F3=Exit F5=Refresh
```

Select the table build rule type. Options:

1. Selection record. See “[Defining Selection Records](#)” on page 287.
2. Relative record. See “[Defining Relative Records](#)” on page 291.
3. Reformat record. See “[Defining Reformat Records](#)” on page 291.
4. Column assignment record. See “[Defining Column Assignment Records](#)” on page 295.
5. Process control record. See “[Defining Process Control Rules](#)” on page 299.

For a selection record, enter comparison values in extended format. Enter Y if your table build rule type is a selection record and the comparison value or values will be a number with 16 to 30 digits or a text value with 9 to 80 characters.

Defining Selection Records

(First) Selection Record Screen

Use this screen to define criteria for selecting records from which data will be extracted to build the translation table. After completing this screen, additional screens will be displayed related to this record.

```

mm/dd/yy 16:20:20      External Translation Tables      ACR/D releasenumbr
TEXT                  Selection Record                  userid

      Table Name:  EXTERNAL
      Table Desc:  TEST TABLE

Specify the source of input:      Specify the selection type:
__  1. Input record              __  1. Equal to
   2. Extraction variable        2. Not equal to
                                3. Greater than
                                4. Less than
                                5. Greater than or equal to
                                6. Less than or equal to
                                7. Not blank
                                8. Blank
                                9. Character data
                               10. Numeric data

Process selection only one time? _ (Y/N)
Read input until selection found? _ (Y/N)

F1=Help F3=Exit F5=Refresh F10=Show File

```

Specify the source of input. Options:

1. Input record. The source is an input record.
2. Extraction variable. The source is an extraction variable.

Specify the selection type. This is the comparison operator. The first 6 options are self-explanatory and can be used on either side of the equation. For example, select Equal to if you want to select the record in the source if it is equal to the yet-to-be-specified literal or extraction variable.

The operators listed below can be used only on the left-hand side of the equation:

7. Not blank. Select the record if the left-hand side of the selection rule is not blank.
8. Blank. Select the record if the left-hand side of the selection rule is blank.
9. Character data. Select the record if the left-hand side of the selection rule contains character data.

10 ■ Using Translation Tables

Creating External Translation Tables

10. Numeric data. Select the record if the left-hand side of the selection rule contains numeric data.

Process selection only one time. Enter Y if you want to apply these selection criteria against the source data only once. Otherwise these criteria will be applied every time a record is read.

Read input until selection found. Enter Y if you want to bypass all other records and search the file until the value is found. Otherwise each record will be searched.

When you press Enter, one of the following will happen:

- If the source is the input record, the "(Second) Selection Record Screen" in the next section will be displayed.
- If the source is an extraction variable, the "Selection (Extraction Variable) Screen" on page 289 will be displayed.

(Second) Selection Record Screen

Use this screen to specify position, length, and format of the data for the table build rule type you are defining.

```
Selection Record

Delimited data field #: ____ (1-372)
Field Position: _____
Field Length : _____
Field format : ____  1. Numeric
                   2. Alphanumeric
                   3. Packed decimal
                   4. Zoned decimal
                   5. Binary
                   6. Unsigned packed

F3=Exit F5=Refresh F10=View File
```

Delimited data field #. If you entered Y for **Use delimited data fields** on the External Translation Tables Change Table or Add Table screen, the system displays this field. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Field Position** and **Field Length** fields.

Field Position. Enter the first position of the selection field. If the source data is an extraction variable, both position and length can be set to zero. Either both must be zero or neither can be zero.

Field Length. Enter the length of the selection field.

Field Format. Indicate the field format of the selection field. See “Understanding Field Formats” on page 189 for an explanation of the formats.

If you selected from options 1 through 6 on the (first) Selection Record screen, after you press Enter, the “Screen for the Right Side of the Comparison” on page 290 will display.

Selection (Extraction Variable) Screen

```

Selection (Extraction Variable)

Extraction variable number: _____ (1-999)
                          Extended: N (Y/N)

Field Position: _____
Field Length  : _____
Field Format   : _____  1. Packed decimal
                               2. Alphanumeric

F3=Exit F5=Refresh

```

Extraction Variable Number. Enter the number of the extraction variable that will be the source of input for the selection.

Extended. Enter Y if this extraction variable was formatted to store a packed decimal number up to 16 bytes long (30 digits) or text that up to 80 characters long. When setting this indicator, you must be consistent. See “Consistency in Specifying Extended Format for an Extraction Variable” on page 68.

Field Position. Enter the first position of the selection field.

Field Length. Enter the length of the selection field. See “Maximum Lengths for Regular and Extended Data” on page 61.

Field Format. Specify the format of the value stored in the extraction variable. For more about the options, see “Understanding Field Formats” on page 189.

1. Packed decimal
2. Alphanumeric

If you selected from options 1 through 6 on the (First) Selection Record screen, after you press Enter, the “Screen for the Right Side of the Comparison” on page 290 will display.

10 ■ Using Translation Tables

Creating External Translation Tables

Screen for the Right Side of the Comparison

```
Specify the right side of the selection
comparison:

Literal: _____
          Additional literals? N (Y/N)
OR
Extraction variable number: _____ (1-999)

F3=Exit F5=Refresh
```

Literal. To compare the selected value against a constant from the input source, enter the literal value to use for the comparison.

Additional literals? Enter Y if 1) your selection type is Equal to or Not equal to and 2) you want to evaluate against one or more literals in addition to the literal specified here.

Extraction variable number. To compare the selected value against the extraction variable, enter the number of the extraction variable.

Press Enter to return to the Table Parameters Screen. You can then optionally create another table build rule.

Depending on your entries, after you press Enter, an additional screen may be displayed:

- If 1) your entry in the **For a selection record, enter comparison values in extended format** field on the Select the table build rule type screen on [page 286](#) was N, and 2) you entered Y in the **Additional literals?** field above, the system will display the “[Additional Comparison Values Screen](#)” on [page 153](#).
- If your entry in the **For a selection record, enter comparison values in extended format** field on the Select the table build rule type screen on [page 286](#) was Y, the system will display one of the following screens:
 - If you are comparing against one or more alphanumeric values, the system will display the “[Comparison Values Screen \(Extended Format - Alphanumeric\)](#)” on [page 155](#).
 - If you are comparing against one or more numeric values, the system will display the “[Comparison Values Screen \(Extended Format - Numeric\)](#)” on [page 156](#).

Defining Relative Records

Complete this screen if you want to locate a record by specifying a number of records to advance from the last record selected. Use a relative record when the record you want to find does not have a unique character string that can be used to identify it, and the record always comes a specific number of records after another identifiable record.

Before using this screen, create a selection record that contains a unique character string. This will be used to select a record from which to advance. Then use this screen to define a relative record specifying the number of records you want to move from the selected record.

Relative Record
Specify the number of input records to advance from the currently selected record: ____ (1-999)
F3=Exit F5=Refresh F10=Show File

Specify the number of input records to advance from the currently selected record. Enter the number of input records to advance from the currently selected record in order to locate the relative record.

Defining Reformat Records

Use this screen if you want to reformat a value before using it in a column assignment. You can change the positions and/or format of data from 1) the input area, which is the external data source, 2) a literal, or 3) an extraction

10 ■ Using Translation Tables

Creating External Translation Tables

variable. Regardless of where the data to be formatted comes from, the reformatting/moving is done in memory only and does not change the input source, extraction variable, or literal.

```
mm/dd/yy 17:19:28      External Translation Tables
TEXT                  Reformat Record                userid

      Table Name:  EXTERNAL
      Table Desc:  TEST TABLE

Specify the input source to reformat:
  ___  1. Input record
       2. Literal area
       3. Extraction Variable

Specify output field information:
Field position:  _____
Field length   :  _____
Field format   :  ___  1. Numeric
                  2. Alphanumeric
                  3. Packed Decimal
                  4. Zoned decimal
                  5. Binary

      Extraction variable number:  ___  (1-999)  Extended:  N (Y/N)

F3=Exit F5=Refresh F10=Show File
```

Specify the input source to reformat. Options:

1. **Input record.** The data being reformatted is from the currently selected input record. If you select this option, the next panel to be displayed will be the “(Second) Reformat Record Screen (Input Record)” on page 293.
2. **Literal area.** The data being reformatted is from the literal area contained within the Reformat Field definition. If you select this option, the next panel to be displayed will be the “Reformat Field (Literal Area) Screen” on page 294.
3. **Extraction Variable.** The data being reformatted is stored in an extraction variable. If you select this option, the next panel to be displayed will be the “Reformat Field (Extraction Variable) Screen” on page 294.

Specify the output field information

Field Position. The entry should be the first position to be occupied by the reformatted data.

Field Length. Enter the length for the reformatted data.

Field Format. Indicate the field format you want for the reformatted data. See “Understanding Field Formats” on page 189 for an explanation of the formats. If you are reformatting a value from and/or to an extraction variable, the only valid format is alphanumeric.

Extraction variable number. If the reformatted output will be stored in an extraction variable, enter an extraction variable number. (Source and target can be the same extraction variable or different extraction variables.)

Extended. Enter Y if the reformatted output will be a packed decimal number up to 16 bytes long (30 digits) or text that up to 80 characters long. If the output will be stored in an extraction variable, when setting the Extended indicator, you must be consistent. See “Consistency in Specifying Extended Format for an Extraction Variable” on page 68.

Press Enter. The next screen that displays depends on the input source type you selected.

(Second) Reformat Record Screen (Input Record)

Use this screen to provide additional information about the source data from the input record.

```

Reformat Record

Delimited data field #: ____ (1-372)
Field position: _____
Field length : _____
Field format : ____
                1. Numeric
                2. Alphanumeric
                3. Packed decimal
                4. Zoned decimal
                5. Binary
                6. Unsigned packed

F3=Exit F5=Refresh F10=View File

```

Delimited data field #. If you entered Y for **Use delimited data fields** on the External Translation Tables Change Table or Add Table screen, the system displays this field. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Field Position** and **Field Length** fields.

Field Position. Enter the first position of the source data to be reformatted.

Field Length. Enter the length of the source data to be reformatted.

10 ■ Using Translation Tables

Creating External Translation Tables

Field Format. Enter the field format of the source data to be reformatted. See “[Understanding Field Formats](#)” on page 189 for an explanation of the formats.

Reformat Field (Literal Area) Screen

Use this screen to provide additional information about the source data from the literal area.

```
Reformat Field (Literal Area)

Literal area: _____

Field position: _____
Field length  : ____

F3=Exit F5=Refresh
```

Literal area. Specify the literal that will be reformatted.

Field Position. Enter the first position of this literal that is to be reformatted.

Field Length. Enter the number of positions of this literal that are to be reformatted.

Reformat Field (Extraction Variable) Screen

Use this screen to provide additional information about the source data from the extraction variable.

```
Reformat Field (Extraction Variable)

Extraction Variable number: ____ (1-999)
                          Extended: N (Y/N)

Field Position: _____
Field Length  : ____

F3=Exit F5=Refresh
```

Extraction Variable number. Enter the number of the extraction variable that will be the source for the data to be reformatted.

Extended. Enter Y if the source value from the extraction variable will be a packed decimal number up to 16 bytes long (30 digits) or text that up to 80 characters long. When setting the Extended indicator for an extraction variable, you must be consistent. See “[Consistency in Specifying Extended Format for an Extraction Variable](#)” on page 68.

Field Position. Enter the first position of this extraction variable that is to be reformatted.

Field Length. Enter the number of positions of this extraction variable that are to be reformatted.

Defining Column Assignment Records

Use this screen to define the data to be loaded into a column of the external translation table. Complete this screen for each column you want to use when the external translation table is built at run time.

```

mm/dd/yy 17:39:21      External Translation Tables
TEXT                  Column Assignment Record          userid

      Table Name:  EXTERNAL
      Table Desc:  TEST TABLE

Specify the input source:
  ___  1. Input record
       2. Literal area
       3. Extraction Variable

Specify the Target Assignment:
Item Type:  ___  1. Column      Item Number:  ___  Extended:  _ (Y/N)
              2. Variable
Field Type:  ___  1. Amount      4. Date
              2. Count          5. Tally
              3. Text           6. Total
Date Format  ___  1. YYMMDD      5. YYJJJ      9. CCYYJJJ    13. MMMDCCYY
              2. MMDDYY        6. DDMMCCYY   10. DDMMYY
              3. MMDDCCYY       7. CYYMMDD   11. DDMMCCYY
              4. DDMMYY         8. YYMMDDCC  12. MMDDYY

F3=Exit F5=Refresh F10=Show File

```

Specify the input source. Options:

1. Input record. The source is the currently selected input record.
2. Literal area. The source is a literal that you will specify on the next screen.
3. Extraction Variable. The source is an extraction variable.

Specify the target assignment

Item Type. Options:

1. Column. The target item is a column.
2. Variable. The target item is an extraction variable.

Item Number. Specify the number of the column or extraction variable that will store the value from the source.

10 ■ Using Translation Tables

Creating External Translation Tables

Extended. Enter Y if the value will be a packed decimal number up to 16 bytes long (30 digits) or text that up to 80 characters long. If the output will be stored in an extraction variable, when setting the Extended indicator, you must be consistent. See “[Consistency in Specifying Extended Format for an Extraction Variable](#)” on page 68.

Field Type. Specify the field type for the Target Column or Extraction Variable.

Date Format. For dates or cycle numbers, indicate the format. MMM formats do not work with cycle numbers.

Press Enter. Depending on your entries, one of the following screens will display:

- If your input source type is input record, the “[Column Selection Screen \(Input Record\)](#)” in the following section will display.
- If your input source type is literal area, the “[Column Assignment \(Literal Area\) Screen](#)” on page 297 will display.
- If your input source type is extraction variable, the “[Column Assignment \(Extraction Variable\) Screen](#)” on page 297 will display.

Column Selection Screen (Input Record)

Use this screen to provide additional information about the source data from the input record.

```
Column Selection

Delimited data field #: ____ (1-372)
Field Position: _____
Field Length : ____
Field Format : __  1. Numeric
                  2. Alphanumeric
                  3. Packed decimal
                  4. Zoned decimal
                  5. Binary
                  6. Unsigned packed

F3=Exit F5=Refresh F10=View File
```

Delimited data field #. If you entered Y for **Use delimited data fields** on the External Translation Tables Change Table or Add Table screen, the system displays this field. If you are extracting from the delimited area of the file, enter the field number. To extract from the fixed area of the delimited file, leave this field blank and enter values in the **Field Position** and **Field Length** fields.

Field Position. Enter the first position of the input record that is to be selected.

Field Length. Enter the length of the input record that is to be selected.

Field Format. Enter the field format of the input record that is to be selected. See “Understanding Field Formats” on page 189 for an explanation of the formats.

Column Assignment (Literal Area) Screen

Use this screen to provide additional information about the source data from the literal area.

```

Column Assignment (Literal Area)

Literal area: _____

Field Position: _____
Field Length  : _____
Field Format   : _____ 1. Numeric
                                   2. Alphanumeric

F3=Exit F5=Refresh

```

Literal area. Specify the literal that will be used as the source data.

Field Position. Enter the first position of this literal that is to be selected.

Field Length. Enter the number of positions of the literal that is to be selected.

Field Format. Enter the format of the literal that is to be selected. See “Understanding Field Formats” on page 189 for an explanation of the formats.

Column Assignment (Extraction Variable) Screen

Use this screen to provide additional information about the source data from the extraction variable.

```

Column Assignment (Extraction Variable)

Extraction Variable number: _____ (1-999)
                          Extended: N (Y/N)

Field Position: _____
Field Length  : _____
Field Format   : _____ 1. Packed decimal
                                   2. Alphanumeric

F3=Exit F5=Refresh

```

Extraction Variable number. Enter the number of the extraction variable that is to be used as the source.

10 ■ Using Translation Tables

Creating External Translation Tables

Extended. Enter Y if the source value will be a packed decimal number up to 16 bytes long (30 digits) or text that up to 80 characters long. When setting the Extended indicator for an extraction variable, you must be consistent. See [“Consistency in Specifying Extended Format for an Extraction Variable” on page 68](#).

Field Position. Enter the first position of the extraction variable that is to be selected.

Field Length. Enter the number of positions of the extraction variable that is to be selected.

Field Format. Enter the format of the extraction variable that is to be selected. See [“Understanding Field Formats” on page 189](#) for an explanation of the formats.

Defining Process Control Rules

This screen enables you to optionally specify the processing that should take place after a selection has been satisfied.

```
Process Control Rule

___ Specify the action to be taken:
    1. Stop the build process
    2. Write a row now

F3=Exit F5=Refresh F10=Show File
```

Specify the action to be taken. Options:

1. Stop the build process. Stop the build process after a selection group has been satisfied. Stopping the build process will prevent further IO on the file. Select this option to save processing time in the following situations:
 - When you are using the ONEROW feature for an external data source that has a VSAM file organization.
 - When you are processing a portion of a file and you know you have completed building the table before the end of the file is reached.
2. Write a row now. Writes a row when a selection has been satisfied.

Defining Constant Table Data

If you specified Constant Translation data as the file type of the external data source, use this screen to create each item for a translation table within ACR/Detail that will function as an external data source. This is similar to building an internal translation table. However, this approach frees you from the restrictions of an internal translation table, which uses only 2 columns and performs only simple 1 to 1 translations.

With constant table data you can define as many columns as you want, as long as you observe the maximums provided in “[Maximum Lengths for Regular and Extended Data](#)” on page 61

Constant translation does not need an exact match of the extracted data to the input column. Selection criteria can be used.

The left-hand side can contain character or numeric data. You can choose “At end” to signal that when the end of the table is reached, additional processing should occur.

You may have up to 999 of these records, although for easier maintenance you would probably switch to a physical file organization before you got to 999 data definitions.

```
mm/dd/yy 11:55:14      External Translation Tables      ACR/D releasenumbe
TEXT                  Constant Table                          userid

      Table Name:  EXTERNAL
      Table Desc:  TEST TABLE

Item number:  __1__

Specify table data information:

      _____
      _____

F3=Exit F5=Refresh
```

Item Number. The item number is assigned sequentially.

Specify table data information. Each definition item you create is a data record from which you will build the table’s columns. For example, suppose you want to create a table that converts cost center names (Dallas, Atlanta, etc.) into cost center numbers (100, 170, etc.). You would type Dallas 100 in the field. Leave spaces between the cost center name and the cost center number based on the number of characters in the longest cost center name.

The following example demonstrates how to enter the information.

Specify table data information: DALLAS _____100_____ _____
--

In the Table Build Rules section, you would set up two Column Assignment definitions to specify the column information for these columns.

Connecting an External Translation Table to a Job

See “[Incorporating an Internal or External Translation Table into a Reconciliation Job](#)” on page 312.

External Translation Table Trace Report

This report is available only when you run a job in batch. It provides the following information for a requested input file ID:

A formatted list of the table build rule definitions as they were loaded in preparation for building the external translation table.

For each input record processed, the following information is provided:

The record count plus the first 132 characters of the input record

The processing of each table build rules against the record to build the external table. This includes the following:

The table build rule definition.

LH Value: The value as extracted from the input source.

RH Value: The value from the external table column to which the LH Value is being compared.

Action Taken: Whether the comparison passed or failed.

For rules that passed the comparison, the value assigned to replace the original value from the input source.

Details about each translation attempt.

The information below is divided into the following sections: **Generating and Viewing the Report**

External Definition List Section

Table Build Rule Processing Per Record Section

Formatting of Table Build Rules

You can generate another type of Trace Report that shows the processing of the file definitions against each record in the input source. For information on that report, see [Testing File Definitions in Batch with the Extraction Trace Report](#) on page 326.

Generating and Viewing the Report

You can request a report by editing the reconciliation JCL for the optional DD UNITRACE. The control card layout is shown below.

Field	Description	Pos.	Length	Format	Value
1	File ID	1-10	10	X(10)	File DDName of the external translation table
2	Reserved	11-29	19	X(19)	Blank.
3	Extraction Flag	30	1	X(')	T

Like the Extraction Trace Report that can be generated when you run reconciliation in batch, the DDName for this report will be UNIETR, and the report can be viewed through your site's normal facility for viewing job output (e.g., IOF, SDSF).

External Definition List Section

The first section is a formatted list of the table build rule definitions. Following is an example. The first report section, a sample of which is shown below, is a formatted list of the table build rule definitions.

In the following report excerpts, extended values are printed as follows:

Extended LH values (from the input source) that will not fit on a line are indicated with SEE VALUE BELOW.

Extended RH values (from the external table column to which the LH Value is being compared) that will not fit on a line are indicated with SEE LITERAL.

The extended values are then printed on separate lines.

10 ■ Using Translation Tables

External Translation Table Trace Report

EXTERNAL DEFINITION LIST: LONG NUMBER

```
-----  
SELECT(0010/12/NUM/ NA ) INPUT (EQUAL ) LIT (000111222333444 )  
                                     (000222333444555 )  
                                     (000333444555666 )  
SELECT(0010/31/NUM/ NA ) INPUT (EQUAL ) LIT *SEE VALUE BELOW*  
SELECT LITERAL: (111222333444555666777888999000 )  
SELECT LITERAL: (222333444555666777888999000111 )  
SELECT LITERAL: (333444555666777888999000111222 )  
ASGN(0010/31/CNT/ NA ) INPUT (001/NUM/XVAR)  
ASGN(0010/31/CNT/ NA ) INPUT (002/NUM/XVAR)  
SELECT(0010/12/NUM/ NA ) INPUT (GT ) LIT (000111222333444 )  
SELECT(0010/31/NUM/ NA ) INPUT (GT ) LIT *SEE VALUE BELOW*  
SELECT LITERAL: (111222333444555666777888999000 )  
SELECT(0001/16/PAC/0001) XVAR (EQUAL ) XVAR(0002)  
SELECT(0001/16/PAC/0001) XVAR (GT ) LIT **SEE VALUE BELOW*  
SELECT LITERAL: (111222333444555666777888999000 )  
ASGN(0010/06/CNT/ NA ) INPUT (001/NUM/COL )  
ASGN(0010/31/CNT/ NA ) INPUT (002/NUM/COL )
```

Table Build Rule Processing Per Record Section

This section shows the processing of each table build rule against each record in the data source to build the external translation table.

EXTERNAL TABLE RECORD 00000001

-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
OMPE3112 111222333444555666777888999000+ONE MUSEUM PARK EAST

EXTERNAL DEFINITION LIST: LONG NUMBER

	LH VALUE	RH VALUE	ACTION TA
SELECT(0010/12/NUM/ NA) INPUT (EQUAL) LIT (000111222333444)	(000111222333444+)	***SEE LITERAL***	PASSED
(000222333444555)			
(000333444555666)			
SELECT(0010/31/NUM/ NA) INPUT (EQUAL) LIT *SEE VALUE BELOW*	*SEE VALUE BELOW*	***SEE LITERAL***	PASSED
LH VALUE: 111222333444555666777888999000			
SELECT LITERAL: (111222333444555666777888999000)			
SELECT LITERAL: (222333444555666777888999000111)			
SELECT LITERAL: (333444555666777888999000111222)			
ASGN(0010/31/CNT/ NA) INPUT (001/NUM/XVAR)	111222333444555666777888999000+		
ASGN(0010/31/CNT/ NA) INPUT (002/NUM/XVAR)	111222333444555666777888999000+		
SELECT(0010/12/NUM/ NA) INPUT (GT) LIT (000111222333444)	(000111222333444+)	***SEE LITERAL***	PASSED
SELECT(0010/31/NUM/ NA) INPUT (GT) LIT *SEE VALUE BELOW*	*SEE VALUE BELOW*	***SEE LITERAL***	FAILED
LH VALUE: 111222333444555666777888999000			
SELECT LITERAL: (111222333444555666777888999000)			

For each input record processed, the following information is provided:
The record count plus the first 132 characters of the input record

The processing of each table build rule against the record to build the external table. This includes the following:

The table build rule definition.

LH (Left-Hand) Value:

For selection criteria rules, the LH Value column shows the source value evaluated by the rule.

For column assignment rules, the LH Value column shows the value to be assigned to the external table column or extraction variable if the record passes the evaluation.

RH Value: This shows the value from the external table column to which the LH Value is being compared.

Action Taken: This shows whether the comparison passed or failed.

For rules that passed the comparison, the value assigned to replace the original value from the input source is shown.

Formatting of Table Build Rules

Delimited Data Extraction Formats

Selection Criteria Field Format: Delimited Data Field Extraction

Format

```
SELECT(AAAA/BB/CCC/DDFN) I/DDF (FFFFFF)
SELECT(AAAA/BB/CCC/DDFN) I/DDF (FFFFFF) LIT GGGGGGGGGGGGGGGG
```

Where:

AAAA/BB/CCC are the input field position/length.

DDFN is the delimited data field number.

I/DDF indicates that the input is from a delimited data field.

FFFFFF is the selection operator.

LIT indicates comparison to a literal.

GGGGGGGGGGGGGGGG is the literal. If non-extended, this can be up to 16 bytes long. If extended, this can be a number of up to 16 digits or a text value of up to 80 characters.

Column Assignment Field Format: Delimited Data Field Extraction

Format

```
ASGN(AAAA/BB/CCC/DDFN) I/DDF (FFFF/GG/HHH/DDFN) O/DDF
```

10 ■ Using Translation Tables

External Translation Table Trace Report

Where:

AAAA/BB/CCC/DDFN are the input field position/length/format. DDFN is the input delimited data field number.

I/DDF indicates that the input is from a delimited data field.

FFFF/GG/HHH/DDFN are the output field position/length/format. DDFN is the output delimited data field number.

O/DDF indicates that the output is assigned to a delimited data field.

Reformat Field Format: Delimited Data Field Extraction

Format

RFMT(AAAA/BB/CCC/DDFN) I/DDF (FFFF/GG/HHH/DDFN) O/DDF

Where:

AAAA/BB/CCC/DDFN are the input field position/length/format. DDFN is the input delimited data field number.

I/DDF indicates that the input is from a delimited data field.

FFFF/GG/HHH/DDFN are the output field position/length/format. DDFN is the output delimited data field number.

O/DDF indicates that the reformatted output is assigned to a delimited data field.

Non-delimited Extraction Formats

Selection Criteria Field Formats

Source Value is Compared to	Comparison Value is	Format
Input Record or Extraction Variable	Literal (Non-extended)	SELECT (AAAA/BB/CCC/NNNN) EEEEE (FFFFFF) LIT (GGGGGGGGGGGGGGGG)
Input Record or Extraction Variable	Literal (Extended)	SELECT (AAAA/BB/CCC/NNNN) EEEEE (FFFFFF) LIT *SEE VALUE BELOW* SELECT LITERAL: (GGGGGGGGGGGGGGGG)
Input Record	Extraction variable	(Extraction variable is non-extended) SELECT (AAAA/BB/CCC/NNNN) EEEEE (FFFFFF) EVAR(NNNN)
		(Extraction variable is extended) SELECT (AAAA/BB/CCC/NNNN) EEEEE (FFFFFF) XVAR(NNNN)

Where:

AAAA/BB/CCC/NNNN are the source field position/length/format/extraction variable number. NNNN will be NA when the source is not an extraction variable.

EEEE is the source of input, which can be one of the following: INPUT indicates the source is an input record. EVAR and XVAR indicate the source is a regular or extended extraction variable, respectively.

FFFFFF is the selection operator.

LIT indicates comparison to a literal.

EVAR or XVAR on the right side indicate comparison to a regular or extended extraction variable.

GGGGGGGGGGGGGGGG indicates that the comparison is against a literal. If non-extended, this can be up to 16 bytes long. If extended, *SEE VALUE BELOW* is printed and the literal, which can be a number of up to 30 digits or a text value of up to 80 characters, is printed on a separate line.

NNNN on the right side indicates that the comparison is against an extraction variable and provides the extraction variable number.

*Reformat Record Format***Format**

RFMT (AAAA/BB/CCC/DDDD) EEEEE (FFFF/GG/HHH) (JJJJ)

Where:

AAAA/BB/CCC/DDDD are the source field position/field length/field format.

DDDD is the source extraction variable number.

EEEE is the source of input, which can be one of the following: INPUT indicates the source is an input record. EVAR or XVAR indicate the source is a regular or extended extraction variable, respectively.

FFFF/GG/HHH are the target field position/field length/field format.

JJJJ is the target where the reformatted value is placed. If the target is an extraction variable, this will be the extraction variable number. If the target is the input field or a literal, NA will print.

*Column Assignment Field Format***Format**

ASGN(AAAA/BB/CCC/DDDD) EEEEE (FFF/GGG/HHHH) LIT JJJJJJJJJJJJJ

Where:

AAAA/BB/CCC/NNNN are the source field position/length/format/extraction variable number. NNNN will be NA when the source is not an extraction variable.

EEEE is the input source type.

FFF is a column or extraction variable number.

GGG is the format.

HHHH is the literal EVAL or COL.

JJJJJJJJJJJJJ is the literal value to assign. If numeric, it can be up to 16 bytes. If alphanumeric, it can be up to 80 bytes.

10 ■ Using Translation Tables

External Translation Table Trace Report

Process Control Field Format

Format

BLDTBL (AAAA) STOP/WRITE

Where AAAA is the process control flow, which will be either STOP ("at end" processing) or WRITE (write a control key break).

Table Lookup Rule Processing for Each Record

This section shows the processing of translation attempts. Each attempt shows the processing of the table lookup rules to a value for which translation has been specified.

Following is an example of two translation attempts, ET000001 and ET000002:

```
ET000001 LOOKUP SEL001 (101 EQ 101) PASSED
ET000001 LOOKUP SEL002 (001 EQ 001) PASSED
ET000001   ASGN COLM(003) VAL(John Smith) TO XVAR 003
ET000001   ASGN COLM(004) VAL(000000000006955+) TO EVAR 004
ET000002 LOOKUP SEL001 (102 EQ 101) FAILED
ET000002 LOOKUP SEL001 (102 EQ 102) PASSED
ET000002 LOOKUP SEL002 (001 EQ 001) PASSED
ET000002   ASGN COLM(003) VAL(Rebecca Taft) TO XVAR 003
ET000002   ASGN COLM(004) VAL(000000000007930+) TO EVAR 004
```

Selection lookup rules compare values to be translated that are passed from input-output parameters to the values from external table columns or from other extraction variables using the specified selection type.

If the value passes the selection lookup rules, the associated assignment lookup rules are processed. Assignment lookup rules assign a value from a specified translation table column, extraction variable, or literal to the input-output parameter. The parameter then passes the translated value to the reconciliation process.

In attempt 1 (ET000001), the value to be translated was processed by the first 2 selection lookup rules and in both cases it passed. As a result, 2 assignments were made:

John Smith was moved to extended extraction variable (XVAR) 003.

6955 was moved to extraction variable (EVAR) 004.

In attempt 2 (ET000002), the next value to be translated was processed by the first selection lookup rule and failed. The value is then processed against the next record from the external translation table.

The value passed the next 2 selection lookup rules, so the following assignments were made:

Rebecca Taft is moved to extended extraction variable (XVAR) 003.

7930 was moved to extraction variable (EVAR) 004.

Creating Internal Translation Tables

Completing the Translation Table Items Screen

1. To define an internal translation table, from the Main Menu select **Table Definitions > Internal Translation Table**. When the Translation Table list screen appears, press F6 to display the Translation Table Items screen. UEnter a name that uniquely identifies the translation table.
2. Select **Table Name** to display the Translation Table Name panel.
3. **Specify a table name.** Enter a name for the table.
Last update by/Date/Time. This displays the ID associated with the most recent update to this set of definitions, along with the date and time of the update.
4. Define the data format of the input value (**From Column**) and the data format of the output translated value (**To Column**).

For example: If you wish to convert an abbreviation of State Name to its actual name, select Field Format “Text” for both From and To Columns. If you wish to convert a Date value in DDMMYY format to a Date value in MMDDCCYY format, select Field Format and Date Format as Date and DDMMYY for From Column, and select Field and Date Format as Date and MMDDCCYY for To Column.

If the Field Format is “Date”, specify the appropriate **Date Format**
If the Field Format is “Time”, specify the Time Format. Select AM/PM if the value contains AM or PM specification.

The Field Format, Date Format, Time Format specifications for the “To Column” should match the field type of the destination field. If the formats do not match, the program displays error and stops further processing. You need to resolve those mismatches before resubmitting your job.

5. Select **New** under Translation Table Entries on the Internal Table Window to display the Translation Table Items panel.
Item number. This field automatically increments every time you add translation table items. You can have up to 999 translation table items.
String to be translated. Enter the value to be translated. This is the value that will be passed in from extraction processing from a field value or detail field.

Translate to. Enter what the translated value should be. This is the field that will be passed back to the field value or detail field. The field can hold up to 80 characters.

Define additional items for translation as needed.

Save the table

When you have completed your entries, press F3 to save and exit.

Create any additional table items you need to translate.

10 ■ Using Translation Tables

Incorporating an Internal or External Translation Table into a Reconciliation Job

Connecting an Internal Translation Table to a Job

See “[Incorporating an Internal or External Translation Table into a Reconciliation Job](#)” on page 312.

Incorporating an Internal or External Translation Table into a Reconciliation Job

This section explains how to incorporate a translation table into a reconciliation job. The connection is specified at the key field or detail field level, as explained below.

Connecting from the Build Key Value Information Screen

On the Build Key Value Information screen for the value to be translated, complete the **Translation Table** and **Translation Option** fields at the bottom of the screen. For more information on these fields, see [“Build Key Value Information Screen”](#) on page 164.

10 ■ Using Translation Tables

Incorporating an Internal or External Translation Table into a Reconciliation Job

Connecting from the Build Detail Value Information Screen

On the Build Detail Value Information screen for the field to be translated, complete the complete the **Translation Table** and **Translation Option** fields at the bottom of the screen. For more information on these fields, see “Build Detail Value Information Screen” on page 175.

Maintaining Translation Table Definitions

To update, copy, and delete translation table items, from the Translation Table list, choose a translation table item or items and the function you want to perform.

Updating Translation Tables

The update function enables you to change the input and output values for a translation table item.

Copying Translation Tables

The copy function duplicates translation table items and allows you to change Table IDs, input, and output values on the copies. You can use the copy function to avoid reentering the Table ID. You can also use the copy function to create a new table with entries similar to those of an existing table. Mark all of the translation table items you want to copy, and press Enter. The translation table items will be copied one by one.

Deleting Translation Tables

When you select Delete from the Translation Tables list, the Translation Table Items delete screen appears. Press F23 to confirm the deletion.

10 ■ Using Translation Tables

Maintaining Translation Table Definitions

Creating Output Files

This chapter explains how to use the Output File feature to write results from a reconciliation job to a DB2/400 file. This file can be used either as a smaller, more efficient input source to ACR/Detail, or as input to other applications. An output file contains a column for each item you want to include.

This chapter contains the following sections:

- "Information You Can Include in an Output File" below
- "Completing the Basic Output File Information Screen" on page 318
- "Specifying Column Information" on page 320
- "Creating and Running the Output File Program" on page 323
- "Sample Output File Layout" on page 325
- "Example of an Output File" on page 325

Information You Can Include in an Output File

The output file can contain all of the content sources you can specify for a User Report:

- Key field
- Cycle ID
- Internal item
- Extended Internal item
- History item
- Calculated item
- Key return code
- Rule return code/action
- Rule error/tolerance
- Message

You can also concatenate up to 10 internal items into a single text value to be written to the file.

Completing the Basic Output File Information Screen

From the Main Menu, select **Definitions > Output Files**. The Output Files list screen, which lists all of the existing output files, will be displayed.

To create a new output file, press F6. The Basic Output File Information screen displays.

```

mm/dd/yy 12:00:00          Job Definitions          ACR/D releasenumber
JOUT          Basic Output File Information          userid
                                                    CREATE
Job/Step:_____ Qualifier: _____ F4 for list
File Description: _____

File Characteristics
File Name:          _____ Name
Library Name:      _____ Name
Member Name:       *FILE      Name, *FILE

Record Length:     0000      0 or 1 to 9999
Maximum Records:  *NOMAX    Value, *NOMAX
Include Keys:      1        1=Include All, 2=Suppress All,
                          3=Only Out of Bal, 4=Only In Bal
File Type:         1        1=DB2/400
Clear File:        1        1=Yes, 2=No
Produce Output File: 1        1=Yes, 2=No

Next Screen _____
F3=Save/Exit  F5=Menu  F12=Cancel
    
```

Job/Step/Qualifier. Press F4 to display the Job ID Selection window and select the reconciliation job that will generate the output file.

File Description. Enter a meaningful description for the contents of the output file.

File Name. Enter the name of the physical file that will be generated.

Library Name. Enter the name of the library where the file will be created.

Member Name. Enter the member name of the output file. Accept *FILE to create a member name with the same name as the file name.

Record Length. Accept 0000 to have the system automatically calculate the record length based on column lengths you define.

Maximum Records. Accept *NOMAX to write records to the output file until there is no more disk space. Otherwise, specify the maximum number of records to write to the file.

Include Keys. Specify the keys and data to include in the output file.

Options:

1. Include All. By default, all keys will be written.
2. Suppress All. No keys will be written.
3. Only Out of Bal. Write out-of-balance keys only.
4. Only In Bal. Write in-balance keys only.

File Type. By default, the type of file that will be created is DB2/400.

Clear File. Options:

1. Yes. Clear out any existing data before writing to the file.
2. No. Append (add) new data after any existing data in the file.

Produce Output File. Options:

1. Yes. ACR/Detail will generate the output file each time the reconciliation job runs. This is the default setting.
2. No. You may want to use this option while you are setting up the output file definitions.

Press F3 to save and exit. The reconciliation Job ID and name of the output file you just defined appear on the Output Files list screen.

11 ■ Creating Output Files

Specifying Column Information

Specifying Column Information

From the Output Files list screen, enter 12 (Work with) next to your reconciliation job and output file. The Output File Column Listing screen displays.

```
mm/dd/yy 12:00:00          Job Definitions          ACR/D releasenumbr
JFIL                        Output File Column Listing  userid

Job/Step:  TESTABC        BASIC    Qualifier:
File Name:  BASEOUT

Options:  2=Update  3=Copy  4=Delete  7=ReNUMBER

Opt  Num Start Name      Function          Func Ref      Description
___  001  001  KEYPT1    KEYFIELD
___  002  009  KEYPT2    KEYFIELD
___  003  017  REGION   INTERNAL ITEM   I001         region
___  004  021  WHSEID   EXTENDED ITEM   X002         warehouse id number

Next Panel  _____

F3=Exit  F6=Create  F7=Insert  F12=Cancel
```

Press F6 to display the Output File Column Information screen. Use this screen to specify the information for each column in the output file.

```
mm/dd/yy 12:00:00          Job Definitions          ACR/D releasenumbr
JFLD                        Output File Column Information  userid
                                CREATE

Job/Step:  JOBMULTC    STEP1    Qualifier:
File Name:  TESTOUTPUT
Column Number:  001      1 to 100

Column Characteristics:
Column Name:  _____ Name
Column Description:  _____
Column Start Position:  001
Column Width:  01      1 to 80
Column Data Type:  2      1=Zoned, 2=Text, 3=Packed
Column Decimal Places:  00      0 to 31

Column Contents:
Function Type:
Key Field Order:  001      0 or 1 to 5
Function Reference:  _____ F4 for List

Next Screen  _____

F3=Exit  F4=Prompt Function Type  F12=Cancel
```

Job/Step/Qualifier. Defaults to the information you entered for the output file.

File Name. Defaults to the information you entered for the output file.

Column Number. Determines the sequence in which columns appear in the file, but you can change it here or by using the Renumber function on the Output File Column Listing screen.

Column Name. Meaningful name for the column.

Column Description. Description of the column.

Column Start Position. Leave blank to have ACR/Detail automatically determine the column position based on the column number and column width.

Column Width. Maximum width of the item you are placing in the column. To pad a text column with blanks, or a zoned or packed decimal column with zeros, specify a width larger than the widest item.

Column Data Type. The kind of data the column will contain:

1. **Zoned.** Zoned decimal (unpacked decimal) format. Each byte of a zoned decimal value stores a single digit, except the last byte, which contains the last digit and the sign.
2. **Text.**
3. **Packed.** Packed decimal format. This is numeric data stored two digits to a byte, except for the last byte, which contains the last digit and the sign.

Column Decimal Places. Leave blank for text fields. For Zoned and Packed fields, specify the number of decimal places the data in this column will have.

Column Contents

Function Type. Select the type of information that will appear in the column. Press F4 to display the Column Source Area Choices window and select the type.

Column Source Area Choices	
Source Area:	<u>01</u>
	1. Key Field
	2. Cycle ID
	3. Internal Item
	4. Extended Internal Item
	5. History Item
	6. Calculated Item
	7. Key Return Code
	8. Rule Return Code/Action
	9. Rule Error/Tolerance
	10. Message
	11. Concatenated Item
F12=Cancel	

Source Area. Options:

1. **Key Field.** All or part of the reconciliation key. A reconciliation key consists of up to five segments of eight characters each, for a maximum of 40 characters.
2. **Cycle ID.** Reconciliation job's cycle ID.
3. **Internal Item.** Internal item value.
4. **Extended Internal Item.** Extended internal item value.
5. **History Item.** History item value.
6. **Calculated Item.** Calculated item result.
7. **Key Return Code.** Return code produced by the reconciliation key, if any.
8. **Rule Return Code/Action.** The rule return code, action, or message text. The following will be reported:
 - If a standard rule name is selected and the rule is out-of-balance, the rule return code is reported. If a conditional rule name is selected, and the rule sets a return code and is out-of-balance, the rule return code is reported.
 - If a conditional rule name is selected, and the rule executes other standard rules, the result (ACTION TAKEN or ACTION BYPASSED) will be reported.
 - If you change the column width to 15 or greater, the entire message will be reported.
 - If none of the above conditions are met, the column will be blank.
9. **Rule Error/Tolerance.** The error or tolerance value for the specified standard rule, if any. If an error or tolerance value does not exist, the column will be blank.
10. **Message.** If the reconciliation key produced a return code, the message text assigned to the return code is reported. If the return code does not have a message attached to it, the word NONE will appear in the column.
11. **Concatenated Item.** Allows you to concatenate to 10 internal text items (each internal item has a maximum length of 8) to create a single text field of up to 80 characters to include in the output file. See the instructions for the Function Reference field below.

Complete any additional fields that appear as a result of the column type you selected.

Key Field Order. Appears when the Function Type is Key Field. A reconciliation key is composed of five segments of up to eight characters each, for a total of up to 40 characters.

- To place the entire key in the column, enter 000.
- To place just one segment of the key in the column, specify the segment number you want (001-005).

Function Reference. Appears for all Function Types except Key Field, Cycle ID, and Message. Place the cursor in this field and press F4 to display the Item Selection screen and select the item to put in the column. (For a concatenated item, you would select multiple internal items. The item names will appear on the Output File Column Information screen after you select the items and press Enter.)

When you have completed the Output File Column Information screen, press Enter and then F3 to edit check, save, and exit. The column you just defined appears on the list.

Create any additional columns you want to appear in the output file. From the Output Files Column Listing screen, press F3 to return to the Output File list screen.

Creating and Running the Output File Program

Generating and Compiling the Output File Program

After you define the columns for an output file, you must have ACR/Detail generate and compile an RPG program to populate the output file. This will create two files: one containing a DDS describing the file, and another containing RPG source code. Once these files are created, ACR/Detail will automatically compile the RPG source code into a program for populating the output file.

11 ■ Creating Output Files

Creating and Running the Output File Program

From the Output Files list screen, enter 14 (Create file) next to your output file on the list to display the Output File Creation screen.

<i>mm/dd/yy</i>	12:00:00	Job Definitions	ACR/D	<i>releasenumbr</i>
JDDS		Output File Creation		<i>userid</i>
		Job/Step/Qual:	JOBMULTC	LEVEL
		File Name:	TESTOUTPUT	
		DDS Source File:	<u>QDDSSRC</u>	
		DDS Source Library:	<u>*LIBL</u>	
		RPG Source File:	<u>QRPGLESRC</u>	
		RPG Source Library:	<u>*LIBL</u>	
		Job Queue	Output Queue	Hold Job
		<u>QBATCH</u>	<u>PRT01</u>	<u>N</u>
F3=Exit	F20=Run Online			

Job/Step/Qualifier. Defaults to the information you entered for the output file.

File Name. Defaults to the information you entered for the output file.

DDS Source File. File where the system should write the DDS source code. The file must already exist. QDDSSRC is the default file name.

DDS Source Library. Library where the DDS source file resides. Defaults to the Library Name you entered for the output file on the Basic Output File Information screen.

RPG Source File. File where the system should write the RPG source code. The file must already exist. QRPGLESRC is the default file name.

RPG Source Library. Specify the name of the library where the RPG source file, above, resides. This defaults to the Library Name you specified on the Basic Output File Information screen.

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify Y to hold the batch job in the job queue after it is submitted.

See the instructions below to run the job.

Running the Output File Creation Job

When you run the file creation job, the system creates the DDS and RPG source files and compiles the RPG program.

To run the job, do one of the following:

- To run the job online, press F20.
- To run the job in batch, press Enter, and then press F3 to exit.

After you create the program, each time the corresponding reconciliation job runs, it will automatically populate the output file.

If you add, delete, or change the columns to include in the file in the future, you must repeat this procedure.

Sample Output File Layout

Shown below is a sample of a layout generated by ACR/Detail for an output file.

0010.00	R RECFORMAT				041020
0020.00	KEY1	3A	TEXT('Area Code	')	041020
0030.00	KEY2	7A	TEXT('Phone Number	')	041020
0040.00	DESC	24A	TEXT('DESC3 - DESC5 columns	')	041020
0050.00	DETAMOUNT	10S 2	TEXT('Dollar amount	')	041020
0060.00	SDESC	24A	TEXT('Summary description	')	041020
0070.00	SUMAMOUNT	10S 2	TEXT('Dollar amount	')	041020

Example of an Output File

Shown below is a sample of a generated output file.

0000253725DETAIL	CHARGES FILE	0000000123SUMMARYCHARGESFILE	0000000123
0000362522DETAIL	CHARGES FILE	0000000025SUMMARYCHARGESFILE	0000000025
0000683464DETAIL	CHARGES FILE	0000002803SUMMARYCHARGESFILE	0000002803
0000820025DETAIL	CHARGES FILE	0000003651SUMMARYCHARGESFILE	0000003651

11 ■ Creating Output Files

Example of an Output File

Using the Extraction Program Interface

This chapter describes the Extraction Program Interface (EPI), which is typically used by programmers to quickly reconcile data files containing millions of records.

This chapter includes the following sections:

- “How EPI Works” on page 327
- “EPI Processing Diagram” on page 329
- “Information Related to EPI Call Statements” on page 331
- “Sample CL for EPI” on page 335
- “Steps for Using EPI” on page 335
- “Steps for Using EPI” on page 335
- “Sample Program for EPI Training” on page 339

How EPI Works

For EPI, you use an extraction program code generator to create an Enterprise COBOL extraction program corresponding to the file definitions for each input source. Each generated EPI program writes directly to the UNIWRK file.

A test utility is provided to test the generated EPI programs before you modify your application with EPI calls.

An application program interface (API) initializes the Extraction Program Interface and sends data to be extracted to it, and invokes reconciliation.

As your application reads or writes records to be reconciled, the records are passed to the API, which passes them on to the generated EPI programs for extraction.

After all of the data to be reconciled has been extracted, your application makes a single call to the API, which invokes ACR/Detail’s regular reconciliation function to reconcile all extracted data. The reconciliation result is then returned to your application.

Limitations

The following limitations apply:

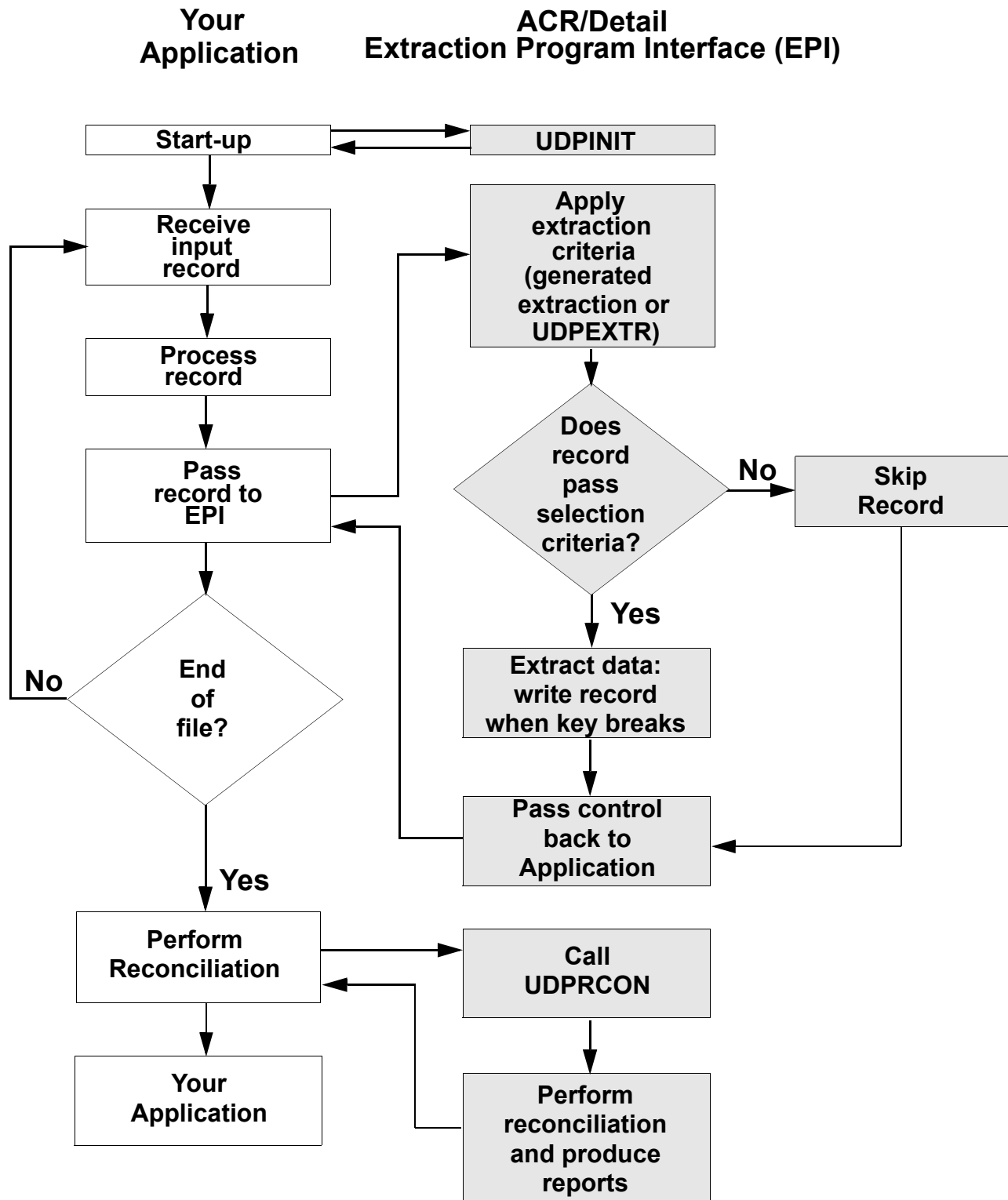
- Features unique to report style extraction are not supported. These features include:
 - Begin, locate, relative record selection criteria
 - Reformats
 - Extraction from the history database
- Dynamic translation of key fields is not supported.
- DB2 is not a valid input for the EPI.
- Delimited data files are not supported for the EPI.
- Because using the EPI includes COBOL code generation, certain features of file interface mode are not supported, as follows:
 - Numeric extraction variables are limited to field format 3 (packed), which is the typical format for this type of variable in file interface mode. You can only refer to an entire extraction variable when it is a number.
 - Reformat fields are not supported.
 - Generated programs cannot append reconciliation key mask information from a job ID. Your alternative is to set those parts of the key as literals within the file IDs.
- Internal translation table processing is limited as follows:
 - You cannot build a cycle number from text (field format 2).
 - Numeric literals (limited to text, but specified as 1) for key and detail fields must be specified as field format 1 (number). Packed, zoned decimal, and binary are not allowed.
 - Including blanks in the table ID for will result in an abend.
- EPI cannot process jobs with reconciliation-level qualifiers (RLQ jobs).
- Selection subgroups (nested selection statements) are not supported.
- Input files must be sequentially numbered starting with 001.
- Functions in keys are not supported.
- The option to set a return code if no records are extracted at the input source file level is not supported. If this option is set to Yes, when generating the extraction program for the file, the warning #UDP143W will be displayed.

EPI Processing Diagram

The next page shows a diagram of EPI processing.

12 ■ Using the Extraction Program Interface

EPI Processing Diagram



Information Related to EPI Call Statements

This section provides information related to the EPI call statements

CALL UDPINIT USING UDP-COMM-AREA

UDP-COMM-AREA contains the appropriate defaults and can generally be used without modification.

UDPAREA Copy Member

The following code shows how the UDPAREA copy member will be expanded. Fields in UDPAREA are explained after the code. The source code for this copybook is located in the UNI.COPYLIB system dataset shipped with ACR/Detail.

```

*****
* ACR/DETAIL EXTRACTION PROGRAM INTERFACE COMMUNICATIONS AREA *
*
* COPYRIGHT (c) 2003, INFOGIX, INC.
* ALL RIGHTS RESERVED.
*=====
* REVISION HISTORY
*
* BB   xx/xx/xx   CREATED.
*
*****

01  UDPINIT                PIC X(008) VALUE 'UDPINIT'.
01  UDPEXTR                PIC X(008) VALUE 'UDPEXTR'.
01  UDPRCON                PIC X(008) VALUE 'UDPRCON'.

01  UDP-COMM-AREA.
    05  FILLER                PIC X(008) VALUE 'UDPAREA:'.
    05  FILLER                PIC X(004) VALUE '0400'.

    05  UDP-RC                PIC X(004) VALUE '0000'.
        88  UDP-RC-OK          VALUE '0000'.
        88  UDP-RC-ERRORS     VALUE '0001' THRU '9999'.
    05  UDP-RC-NBR REDEFINES
        UDP-RC                PIC 9(004).

    05  UDP-JOB-STEP         PIC X(016) VALUE SPACES.
    05  FILLER REDEFINES
        UDP-JOB-STEP.
        10  UDP-JOB-NAME      PIC X(008).
        10  UDP-STEP-NAME    PIC X(008).

    05  UDP-CYCLE-NBR       PIC 9(008) VALUE ZERO.

    05  UDP-OUTPUT-OPTION   PIC X(001) VALUE '1'.
        88  UDP-OUTPUT-OPTION-STAGE1 VALUE '1'.
        88  UDP-OUTPUT-OPTION-STAGE2 VALUE '2'.

    05  UDP-ROPT-AREA       PIC X(008) VALUE '.....'.

```

12 ■ Using the Extraction Program Interface

Information Related to EPI Call Statements

```
05 FILLER REDEFINES UDP-ROPT-AREA.
  10 UDP-ROPT-STORE-HIST          PIC X(001).
     88 UDP-ROPT-STORE-HIST-YES   VALUE 'Y'.
     88 UDP-ROPT-STORE-HIST-NO    VALUE 'N'.
     88 UDP-ROPT-STORE-HIST-INSERT VALUE 'X'.
     88 UDP-ROPT-STORE-HIST-DEFAULT VALUE '..'.

  10 UDP-ROPT-PRT-CNTRL           PIC X(001).
     88 UDP-ROPT-PRT-CNTRL-ALL    VALUE 'Y'.
     88 UDP-ROPT-PRT-CNTRL-NONE   VALUE 'N'.
     88 UDP-ROPT-PRT-CNTRL-OOB    VALUE 'X'.
     88 UDP-ROPT-PRT-CNTRL-DEFAULT VALUE '..'.

  10 UDP-ROPT-PRT-RECAP           PIC X(001).
     88 UDP-ROPT-PRT-RECAP-ALL    VALUE 'Y'.
     88 UDP-ROPT-PRT-RECAP-NONE   VALUE 'N'.
     88 UDP-ROPT-PRT-RECAP-OOB    VALUE 'X'.
     88 UDP-ROPT-PRT-RECAP-DEFAULT VALUE '..'.

  10 UDP-ROPT-SET-RC              PIC X(001).
     88 UDP-ROPT-SET-RC-YES       VALUE 'Y'.
     88 UDP-ROPT-SET-RC-NO        VALUE 'N'.
     88 UDP-ROPT-SET-RC-ABEND     VALUE 'X'.
     88 UDP-ROPT-SET-RC-DEFAULT   VALUE '..'.

  10 FILLER                        PIC X(001).

  10 UDP-ROPT-REWRT-HIST          PIC X(001).
     88 UDP-ROPT-REWRT-HIST-YES   VALUE 'Y'.
     88 UDP-ROPT-REWRT-HIST-NO    VALUE 'N'.
     88 UDP-ROPT-REWRT-HIST-DEFAULT VALUE '..'.

  10 UDP-ROPT-PRT-SRTACC          PIC X(001).
     88 UDP-ROPT-PRT-SRTACC-SORTED VALUE 'S'.
     88 UDP-ROPT-PRT-SRTACC-ACCUMED VALUE 'A'.
     88 UDP-ROPT-PRT-SRTACC-NO    VALUE 'N'.
     88 UDP-ROPT-PRT-SRTACC-DEFAULT VALUE '..'.

  10 UDP-ROPT-PRT-HIST            PIC X(001).
     88 UDP-ROPT-PRT-HIST-YES     VALUE 'Y'.
     88 UDP-ROPT-PRT-HIST-NO      VALUE 'N'.
     88 UDP-ROPT-PRT-HIST-DEFAULT VALUE '..'.

05 UDP-ROPT2-AREA                PIC X(008) VALUE '.....'.
05 FILLER REDEFINES UDP-ROPT2-AREA.

  10 UDP-ROPT2-WRT-OUTPT          PIC X(001).
     88 UDP-ROPT2-WRT-OUTPT-YES   VALUE 'Y'.
     88 UDP-ROPT2-WRT-OUTPT-NO    VALUE 'N'.
     88 UDP-ROPT2-WRT-OUTPT-DEFAULT VALUE '..'.

10 FILLER                        PIC X(007).
05 UDP-ACR-JOB-STEP.
  10 UDP-EXEC-JOB-NAME            PIC X(008).
  10 UDP-EXEC-STEP-NAME           PIC X(008).
05 FILLER                        PIC X(8000).
```

Fields in UDP-COMM-AREA That Are Input to UDPINIT

The following fields in UDP-COMM-AREA are input to UDPINIT, and are the most likely to be modified by the application program prior to the call.

UDP-JOB-STEP

This is a structure of 2 fields: UDP-JOB-NAME and UDP-STEP-NAME. When left blank (the default), UDPINIT determines the job step from execution information just as the regular ACR/Detail reconciliation function would. If you do not want the execution time job and step to be your job ID, override this field. For example:

```
MOVE 'MYCONTROLID' TO UDP-JOB-STEP.
CALL UDPINIT USING UDP-COMM-AREA.
```

UDP-CYCLE-NBR

This field identifies the default cycle number for all extracted reconciliation keys. If left zero (the default), normal extraction applies. If your application program is already aware of a cycle and you want ACR/Detail to use it, override this field. For example:

```
MOVE MY-CONTROL-DATE TO UDP-CYCLE-NBR.
CALL UDPINIT USING UDP-COMM-AREA
```

Note: UDP-CYCLE-NBR is assumed to be a format 1 date (i.e., YYMMDD).

UDP-OUTPUT-OPTION

This field can speed up reconciliation by skipping the sort/accumulate phase when you know that the all of the data on your input file is in the same order as your reconciliation keys. For example:

```
SET UDP-OUTPUT-OPTION-STAGE2 TO TRUE.
CALL UDPINIT USING UDP-COMM-AREA.
```

Fields in UDP-COMM-AREA That Are Output by UDPINIT*UDP-RC*

This field indicates the success or failure of the UDPINIT call. Check for success before proceeding with the rest of the application process. For example:

```
CALL UDPINIT USING UDP-COMM-AREA.
IF NOT UDP-RC-OK
DISPLAY 'UDPINIT FAILED FOR REASON:' UDP-RC
STOP RUN
END-IF.
```

12 ■ Using the Extraction Program Interface

Information Related to EPI Call Statements

UDP-ACR-JOB-STEP

This structure contains the ACR/Detail job ID that will be used by the reconciliation function.

CALL UDPEXTR USING *PROGRAM-ID FILE-STATUS RECORD-STRUCTURE*

PROGRAM-ID is the name of the COBOL extraction program. This is an 8-character field (PIC X(8)).

FILE-STATUS is the standard COBOL file status variable type that indicates the success or failure of the I/O just attempted. This is a two-byte character field, either PIC X(2) or PIC 9(2).

RECORD-STRUCTURE is the record area your application program reads and passes to the extraction program.

The COBOL extraction program must be called when EOF is reached to indicate to the extraction program that it is complete.

When speed is critical, you can call the extraction program (Program-ID) directly. For example:

```
CALL PROGRAM-ID USING FILE-STATUS RECORD-STRUCTURE
```

Note: When calling the extraction program directly, the extraction program parameter list must change.

CALL UDPRCON

UDPRCON invokes the reconciliation function with the appropriate parameter information to complete the rest of the reconciliation function. The global register return code (RETURN-CODE) that is passed back to UDPRCON from the reconciliation function is returned to the application program.

Sample CL for EPI

The sample CL for EPI follows, with the information to change the run to EPI in bold.

```

/*****
/*          MAINTENANCE LOG
/*
/*      FIX #/BY/REL CHGD          DATE          DESCRIPTION
/*
/*****
      PGM
      DCL          VAR(&PLEN)  TYPE(*DEC) LEN(4 0) VALUE(41)
      DCL          VAR(&PARM)  TYPE(*CHAR) LEN(100) VALUE(' ')
      CHGVAR       VAR(%STS(PARM 1 5)) VALUE('JNAM=' )
/*change*/ CHGVAR       VAR(%SST(&PARM 6 08)) VALUE(JIRA1025)
      CHGVAR       VAR(%SST(PARM 14 6)) VALUE(',STEP=' )
/*change*/ CHGVAR       VAR(%SST(&PARM 20 08)) VALUE(EPI)
      CHGVAR       VAR(%SST(PARM 28 6)) VALUE(',CYC#=' )
/*change*/ CHGVAR       VAR(%SST(&PARM 34 08)) VALUE(00000001)
      CALL         PGM(UDPTEST) PARM(&PLEN &PARM)
ENDDPGM:
      ENDDPGM

```

DD Statements for XML Message Files

For information on DD statements for XML Message Files, see “[DD Statements for XML Message Files](#)” on page 335.

Steps for Using EPI

The following sections provide information on how to use the EPI:

Step 1 - Create a File ID for the Reconciliation Job

For information on creating a file definition, see [Chapter 6, “Creating File Definitions”](#).

Step 2 - Update the File ID for the Reconciliation Job

From the Main Menu, select File Definitions. On the Basic File Information List screen locate the file ID you created in Step 1. Enter 2 to Update the file and press Enter. The Basic File Information screen will be displayed.

12 ■ Using the Extraction Program Interface

Steps for Using EPI

Step 3 - Set the Extraction Program Options for the File

On the Basic File Information screen, change the following Extraction Program options.

Use Extraction Program. Enter 1 to use the Extraction Program.

Extraction Program Name. Enter a 10 character (or less) name to identify the extraction program. If left blank, the system will use the FILE ID as the program name.

```
mm/dd/yy 12:00:00      File Definitions      ACR/D releasenumbr
FBAS                  Basic File Information      CREATE

File ID: EPI3939 Qualifier:   
File Title: dailylex
File Organization: PS PHYSICAL SEQUENTIAL      Comments Exist: N Edit:   

File Characteristics
Access Mode:           1      1=Single record, 2=Multiple records
Extraction Variables:  1      1=Reset, 2=Do not reset
Global Translation Table:           
Set return code for no recs:  2  0      1=Yes, 2=No

Actual File:          DAILYLEX
Library:              *LIBL
Member:               *FIRST
Query File:            2      1=Yes, 2=No
Use Extraction Program:  1      1=Yes, 2=No
Extraction Program Name: EPITEST

Next Screen           

F3=Exit/Save      F5=Display F12=Cancel
```

Press F3 to save and exit the screen. The Basic File Information List screen will be displayed.

Step 4 - Compile the File

On the Basic File Information List screen, locate the file again, enter 14 to compile, and press Enter. The Compile Program Extraction screen will be displayed.

mm/dd/yy	12:00:00	File Definitions	ACR/D	releasenumbr
FCMP		Compile Program Extraction		userid
	File ID:	EPI3939		
	COBOL Source File:	<u>OCBLSRC</u>		
	COBOL Source Library:	<u>*LIBL</u>		
Code generation options:				
	Check for numeric integrity?	<u>N</u>		
	If yes, issue a warning message?	<u>N</u>		
	Specify how to process if the versions are not in sync:	<u>3</u>		
	1. Issue a warning message			
	2. Issue an error message, stop reconciliation			
	3. Do not issue a message			
	Job Queue	Output Queue		Hold Job
	<u>QBATCH</u>	<u>PRT01</u>		<u>N</u>
F3=Exit F20=Run Online				

Complete the following fields.

COBOL Source File. Enter the name of the source file where the COBOL Source File will be written. The source file must already exist in the library specified.

COBOL Source Library. Enter the name of the source library where the COBOL Source File will be written. The default library is the library name specified in the ACRLIB data area in the ACR/Detail-400 product library.

Code generation options

These options allow you to tailor the COBOL program to your site's standards.

Check for numeric integrity. Enter Y if all references to input fields that are packed or overpunch/numeric should be checked for numeric integrity before being used. Otherwise, enter N.

If yes, issue a warning message. If you entered Y to check for numeric integrity, enter Y to issue a warning message for non-numeric data.

12 ■ Using the Extraction Program Interface

Steps for Using EPI

Specify how to process if the version are not in sync. The generation process builds a version check structure that contains the definition update level of the file ID and all the table IDs referenced by that file ID. Specify how to proceed if the versions are not in sync while running reconciliation.

1. Issue a warning message
2. Issue a warning message, stop reconciliation
3. Do not issue a warning message

Job Queue. Enter the job queue where the batch job should reside after it is submitted.

Output Queue. Enter the output queue where the spooled output generated by the batch job will reside.

Hold Job. Enter Y if the batch job should be held on the job queue after it is submitted. Otherwise, enter N.

Press F20 to run online. If the compile runs successfully, a message screen displays with a message “Program Compiled Successfully”.

```
Display Program Messages

JOB 060855/USERID/QPADEV000C started on 02/15/13 at 08:41:33 in subsystem Q
Program Compiled Successfully
#UDS002I: 000000010 RECORDS SELECTED FROM 000000026 INPUT
TO PROGRAM EPI3939.
#UDS001I:                10 RECONCILIATION KEYS FOR JOB
JIRA3939/EPITEST /
ACR/Detail Processing Ended with Return Code of 3500.
ACR/Detail Processing Terminated Due to 000 Errors.
Program Compiled Successfully

Press Enter to continue.

F3=Exit  F12=Cancel
```

Press F3 to exit the screen. The Basic File Information List screen will be displayed.

Step 5 - Test EPI

If the program compiled successfully, you are ready to test EPI.

On the Basic File Information List screen, locate the file again, enter 15 to test, and press Enter. The Test Program Extraction screen will be displayed.

<i>mm/dd/yy</i>	12:00:00	File Definitions	ACR/D <i>releasenumbr</i>
FTST		Test Program Extraction	<i>userid</i>
File ID:		EPI3939	
Job name:	(JNAM=)	_____	
Step name:	(STEP=)	_____	
Cycle number:	(CYC#)	_____	
Job Queue	Output Queue	Hold Job	
<u>QBATCH</u>	<u>PRT01</u>	<u>N</u>	
F3=Exit F20=Run Online			

Job name. Enter the name of the job that will be used to test the extraction program.

Step name. Enter the name of the step that will be used to test the extraction program.

Cycle number. Enter the cycle to be used for testing the extraction program.

Job Queue. Enter the job queue where the batch job should reside after it is submitted.

Output Queue. Enter the output queue where the spooled output generated by the batch job will reside.

Hold Job. Enter Y if the batch job should be held on the job queue after it is submitted. Otherwise, enter N.

Step 6 - Run the Job

Run the job either online or in batch. The job should run and complete normally. The results should match the job run with EPI.

Sample Program for EPI Training

The source for the sample program for EPI training is shipped with ACR/Detail in the UNI.SRCELIB. The sample is shown below with the changes for EPI in bold.

12 ■ Using the Extraction Program Interface

Sample Program for EPI Training

```
IDENTIFICATION DIVISION.  
PROGRAM-ID. PHONEX00.  
*-----*  
* THIS IS A SAMPLE PROGRAM FOR DEMONSTRATING ACR/DETAIL EXTRACTION  
* PROGRAM INTERFACE.  
* THE PROGRAM READS TWO INPUT FILES AND "PROCESSES" THEM. THE  
* INPUT FILES ARE CALLED FILEDD1 AND FILEDD2.  
*-----*  
  
ENVIRONMENT DIVISION.  
  
INPUT-OUTPUT SECTION.  
FILE-CONTROL.  
    SELECT DD1-FILE  
        FILE STATUS IS DD1-STATUS  
        ASSIGN      TO FILEDD1.  
    SELECT DD2-FILE  
        FILE STATUS IS DD2-STATUS  
        ASSIGN      TO FILEDD2.  
  
DATA DIVISION.  
  
FILE SECTION.  
FD DD1-FILE.  
01 DD1-RCD          PIC X(133).  
  
FD DD2-FILE.  
01 DD2-RCD          PIC X(133).  
  
WORKING-STORAGE SECTION.  
  
01 DD1-STATUS      PIC X(002).  
01 DD2-STATUS      PIC X(002).  
  
01 DD1-FILE-STATE  PIC X(001)    VALUE 'C'.  
88 DD1-FILE-STATE-OPENED      VALUE 'O'.  
88 DD1-FILE-STATE-CLOSED      VALUE 'C'.  
01 DD2-FILE-STATE  PIC X(001)    VALUE 'C'.  
88 DD2-FILE-STATE-OPENED      VALUE 'O'.  
88 DD2-FILE-STATE-CLOSED      VALUE 'C'.  
  
COPY UDPAREA.  
01 FILEDD1-MODULE  PIC X(8)      VALUE 'FILEDD1'.  
01 FILEDD2-MODULE  PIC X(8)      VALUE 'FILEDD2'.  
  
PROCEDURE DIVISION.  
  
    PERFORM 1000-STARTUP-FUNC.  
    PERFORM 2000-PROCESS-FUNC.  
    PERFORM 3000-SHUTDOWN-FUNC.  
    STOP RUN.  
1000-STARTUP-FUNC.  
  
    OPEN INPUT DD1-FILE.  
    IF DD1-STATUS = '00'  
        SET DD1-FILE-STATE-OPENED TO TRUE  
    ELSE  
        SET DD1-FILE-STATE-CLOSED TO TRUE  
        DISPLAY 'COULDN'T OPEN FILEDD1 FOR REASON ' DD1-STATUS  
    END-IF.
```

```

OPEN INPUT DD2-FILE.
IF DD2-STATUS = '00'
  SET DD2-FILE-STATE-OPENED TO TRUE
ELSE
  SET DD2-FILE-STATE-CLOSED TO TRUE
  DISPLAY 'COULDN'T OPEN FILEDD2 FOR REASON ' DD2-STATUS
END-IF.

CALL UDPINIT USING UDP-COMM-AREA.

2000-PROCESS-FUNC.

  IF DD1-FILE-STATE-OPENED
    PERFORM 2100-PROCESS-FILEDD1
  END-IF.

  IF DD2-FILE-STATE-OPENED
    PERFORM 2200-PROCESS-FILEDD2
  END-IF.

2100-PROCESS-FILEDD1.

  PERFORM 2110-READ-FILEDD1.
  PERFORM UNTIL DD1-STATUS NOT = '00'

*     (USER PROCESS WOULD BE HERE)

    PERFORM 2110-READ-FILEDD1

  END-PERFORM.

2110-READ-FILEDD1.
  READ DD1-FILE.
  CALL UDPEXTR USING FILEDD1-MODULE DD1-STATUS DD1-RCD.

2200-PROCESS-FILEDD2.

  PERFORM 2210-READ-FILEDD2.
  PERFORM UNTIL DD2-STATUS NOT = '00'

*     (USER PROCESS WOULD BE HERE)

    PERFORM 2210-READ-FILEDD2

  END-PERFORM.

2210-READ-FILEDD2.
  READ DD2-FILE.
  CALL UDPEXTR USING FILEDD2-MODULE DD2-STATUS DD2-RCD.

3000-SHUTDOWN-FUNC.

  IF DD1-FILE-STATE-OPENED
    CLOSE DD1-FILE
    SET DD1-FILE-STATE-CLOSED TO TRUE
  END-IF.

  IF DD2-FILE-STATE-OPENED
    CLOSE DD2-FILE
    SET DD2-FILE-STATE-CLOSED TO TRUE
  END-IF.

CALL UDPRCON.

```

12 ■ Using the Extraction Program Interface

Sample Program for EPI Training

Using the Utilities

This chapter shows you how to use the ACR/Detail utilities. It contains the following sections:

- “Accessing and Running the Utilities” on page 343
- “Database Report Utilities (URPT)” on page 345
- “Database Update Utilities (UUPD)” on page 365
- “Date Conversion (UDAT)” on page 381
- “Time Conversion (UTIM)” on page 381

Accessing and Running the Utilities

Accessing the Utilities

To access a utility, from the Main Menu, select **Utilities**.

```
mm/dd/yy 14:16:33      Infogix Systems, Inc.   ACR/D releasenumber
UMNU                  ACR/Detail
                      Utilities Menu

      1. Database Report Utilities      (URPT)
      2. Database Update Utilities     (UUPD)
      3. Date Converison                (UDAT)
      4. Time Conversion                (UTIM)

      _____

F3=Exit  F12=Cancel
```

On the Utilities Menu, select a utility group.

1. Database Report Utilities (URPT). See “Database Report Utilities (URPT)” on page 345 for the utilities in the group.
2. Database Update Utilities (UUPD). See “Database Update Utilities (UUPD)” on page 365 for the utilities in the group.
3. Date Conversion (UDAT). See “Date Conversion (UDAT)” on page 381 for the utility.

13 ■ Using the Utilities

Accessing and Running the Utilities

4. Time Conversion (UTIM). See “Time Conversion (UTIM)” on page 381 for the utility

Running the Utilities

Running Utilities Online

All utilities can be run online.

1. Ensure that you are authorized to run online.
To be run online, most utility screens must have F20=Run Online at the bottom.

Note: The Create Batch Transactions utility is an exception. It can be run online only and F20 does not appear on the screen, even if you are authorized to run online. They will run when you press Enter after completing the screen.

With the exception of the Create Batch utility mentioned above, if you do not see F20 at the bottom of the utility screen, you are not authorized to run online. You must either authorize yourself or have your systems administrator authorize you to run online. For instructions, see “Authorizing Use of Command Line and Online Processing” on page 16.

2. When you have completed the entry fields for the utility screen, press F20=Run Online.
3. To print a report, exit from the product and follow your organization’s procedures for printing. The report files will be in the output queue. For file names, see the information for each utility below.

Running Utilities in Batch

All utilities can be run in batch.

1. When you have completed the entry fields for the utility screen, press Enter.
2. Check your OUTQ for the results.
3. To print a report, exit from the product and follow your organization’s procedures for printing.

Database Report Utilities (URPT)

To access the Database Report Utilities, from the Utilities menu, select **1..**

```
mm/dd/yy 14:16:33      Infogix Systems, Inc.      ACR/D releasenumbr
UMNU                    ACR/Detail
                        Utilities Report Menu

1.  Definition File List      (DLST)
2.  History File List        (HLST)
3.  Print Management Report   (PMGT)
4.  Print Suspense Aging Report (RAGE)
5.  Print Control Update Info Report (CUIR)
6.  Cross-reference File Definitions (XREF)

F3=Exit  F12=Cancel
```

On the Utilities Report Menu, you can access the following utilities:

- “Definition File List Utility (DLST)” on page 346
- “History File List Utility (HLST)” on page 355
- “Print Management Report Utility (PMGT)” on page 356
- “Print Suspense Aging Report Utility (RAGE)” on page 358
- “Print Control Update Info Report (CUIR)” on page 361
- “Cross-reference File Definitions Utility (XRFF)” on page 363

13 ■ Using the Utilities

Database Report Utilities (URPT)

Definition File List Utility (DLST)

This utility generates the Definition Database Listing Report (file name ACRDLST), which lists definitions from the definition database. The report is useful for establishing an audit trail or troubleshooting.

```
mm/dd/yy 12:00:00          Utilities          ACR/D releasenumber
DLST                      Definition File List

      Definition File:  UNIDF
      Library:         *LIBL

      Identifier:
      From:            _____
      To:              _____

      Report Type:    _

Job Queue      Output Queue      Hold Job
QBATCH        PRT01              Y

      F3=Exit          F20=Run Online
```

Definition File and Library. The file and library name of the definition database whose contents are to be printed.

Identifier

From. The first Job/Step/Qualifier to include in the Definition list.

To. The last Job/Step/Qualifier to include in the Definition list.

Report Type. A one-character field that indicates the type of definitions to be listed. Valid values are the following:

Blank. All definition types

F. File definitions

J. Job ID definitions

B. Job and associated files

R. Report definitions

T. (Internal) table definitions

X. External table definitions

P. Process definitions

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

Definition Database Listing Report (ACRDDLST)

The report sections generated depend the Report Type option you specified.

Definition Database Listing: Database History and Statistics

This section is generated if the **Report Type** option is blank (all types of definitions).

It provides detailed information about the database, including date and time of initialization, date and time of last update, and number of records by type.

ACR/D releasenumbr	INFOGIX, INCORPORATED	COPYRIGHT INFOGIX, INC.
DATE: mm/dd/yy	INFOGIX DATA BASE UTILITY	PAGE 001
TIME: 10.40.23	DEFINITION DATA BASE LISTING	
	FILE=TESTLIB/UNIDF	
	DATA BASE HISTORY AND STATISTICS	

DATE AND TIME OF INITIALIZATION:	mm/dd/yyyy	AT 15.36.06
DATE AND TIME OF LAST UPDATE:	mm/dd/yyyy	AT 10.11.15
NUMBER OF BASIC INFORMATION RECORDS:		6
NUMBER OF INTERNAL ITEM RECORDS:		6
NUMBER OF EXTENDED INTERNAL ITEM RECORDS:		1
NUMBER OF BALANCING RULE RECORDS:		2
NUMBER OF SPECIAL INSTRUCTION RECORDS:		2
NUMBER OF FILE ITEM RECORDS:		2
NUMBER OF JOB COMMENT RECORDS:		3
NUMBER OF FILE COMMENT RECORDS:		2
NUMBER OF DETAIL USER REPORT BASIC RECORDS:		1
NUMBER OF DETAIL USER REPORT COLUMN RECORDS:		4
NUMBER OF DETAIL USER REPORT KEY BREAK RECORDS:		1
NUMBER OF FILE INFORMATION RECORDS:		2
NUMBER OF SELECTION FIELD RECORDS:		1
NUMBER OF KEY FIELD RECORDS:		2
NUMBER OF DETAIL FIELD RECORDS:		4
AGGREGATE RUN HISTORIES:		2

Definition Database Listing: Index of Definition Keys

This section is generated if the **Report Type** option is blank (all types of definitions).

ACR/D releasenumbr	XYZ COMPANY	COPYRIGHT INFOGIX, INC.
DATE: YY/MM/DD	DEFINITION DATA BASE LISTING	
TIME: 13.36.15	FILE=TESTLIB/UNIDF	
	INDEX OF DEFINITION KEYS	

DEFINITION KEY	TYPE	COMMENTS
CHARGE1 000000	FILE-ID	
SAMPLE JOB	JOB ID	
SUSPENSEDATA	JOB ID	

13 ■ Using the Utilities

Database Report Utilities (URPT)

Detail Definition Listing

This section of the report provides a formatted list of definitions from the definition database based on the **Report Type** specified. Following are some examples.

Definition Database Listing: Detailed Job Definitions - Page1 of 4

A detailed job listing is generated if the **Report Type** option is J (job definitions).

ACR/D releasenumbr	XYZ COMPANY	COPYRIGHT INFOGIX, INC	2015
DATE: MM/DD/YY	INFOGIX DATA BASE UTILITY	DEFINITION DATA BASE LISTING	PAGE 001
TIME: 10.21.21	FILE=TESTLIB/UNIDF	DETAILED DEFINITIONS	
JOB ID: UGREPORTSAMPLE			
A. ALTERNATE JOB ID KEYS:			
NONE			
B. BASIC INFORMATION:			
PRODUCT:	ACR/D		
SYSTEM NAME:	PRINTING USER GUIDE SAMPLE REPORTS		
NUMBER OF HISTORIES RETAINED:	5		
LAST UPDATE BY:	R99UC47	DATE: 15/06/05	TIME: 13:35:10
RUN OPTIONS:			
STORE RUN HISTORY:	YES		
REWRITE HISTORY:	NO		
PRINT NEW HISTORY:	NO		
PRINT ACR:	YES		
PRINT DR5 RECAP:	NO		
PRINT EXTRACTED DATA:	NO		
SORTED OR ACCUMULATED DATA:	NO		
SET RETURN CODE:	NO		
SET RETURN CODE (NO EXTRACT):	DEFAULT TO USER OPTIONS	RETURN CODE:	
WRITE OUTPUT FILE:	ALL KEYS		
OUTPUT FILE FORMAT:	FREEFORM		
TRUNCATE/ROUND DECIMALS:	ROUND		
RECON KEYS SORT ORDER:	ASCENDING		
DISPLAY PROCESSING STATUS:	NO		
GENERATE XML MESSAGES:	YES		
TALLY OOB KEYS:	NO	RC:	TOLERANCE IND: NONE VALUE:
ACCUMULATE OOB VALUE:	NO	RC:	TOLERANCE IND: NONE VALUE: ITEM:
TALLY OOB RULES:	NO		
AUTO-CYCLE IND:	NONE		
REPORTING OPTIONS:			
PRINT 22 CHARACTER NUMERIC:	NONE		
INITIALIZE TEXT ITEM TO SPACE:	NONE		
CONTROL REPORT XML EXPORT OPT:	DEFAULT TO USER OPTIONS		
PRINT OUT-OF-BALANCE SUMMARY:	NO		
RECONCILIATION LEVEL KEY LENGTH:	40	RC RANGE FROM: TO	USE BASE DEFNS: USE FILTER: N CREATE FILTER: Y USE KEY RC:
RECONCILIATION KEY MASK:	N/A		
C. INTERNAL ITEMS:			
ITEM	DESCRIPTION	L/R/C	FMT DEC CI# REQD COM LZ
I-001	ROUTE CODE	LEFT	TEXT 0 NO N
I-002	STAFF NUMBER	LEFT	CNT 0 NO N
I-003	TOTAL TICKET PRICE	LEFT	AMT 2 NO N
I-004	ISSUE DATE	LEFT	DATE 0 NO N
I-005	ISSUE TIME	LEFT	TIME 0 NO N
I-006	ISSUE DATE AND TIME (FROM C-001)	CALCU	D&T 0 1 NO
EXTENDED INTERNAL ITEMS:			
ITEM	DESCRIPTION	FMT	DEC CI# REQD COM LZ
X-001	ROUTE DESCRIPTION	TEXT	0 NO N
X-002	CITY OF ORIGIN	TEXT	0 NO N
X-003	CITY OF DESTINATION	TEXT	0 NO N
X-004	NOTES EXTRACTED FROM EXTENDED LITERAL	TEXT	0 NO N
X-005	ROUTE & FLIGHT#	TEXT	0 NO N

Definition Database Listing: Detailed Job Definitions - Page 2 of 4

ACR/D releasenumbr		XYZ COMPANY		COPYRIGHT INFOGIX, INC 2015														
DATE: YY/MM/DD		INFOGIX DATA BASE UTILITY		PAGE 002														
TIME: 13.36.15		DEFINITION DATA BASE LISTING																
		FILE=TESTLIB/UNIDF																
		DETAILED DEFINITIONS																
D. EXTRACTION VARIABLES:																		
ITEM	DESCRIPTION				DEC													
V-001	ROUTE CODE																	
E. HISTORY ITEMS:																		
----- HISTORY KEY -----		ADD MOST		----- VARIABLE CYCLE -----														
ITEM	KEY1	KEY2	KEY3	KEY4	KEY5	ITEM	CYC	CYC	RECENT	REQD	IND	KEY1	KEY2	KEY3	KEY4	KEY5	CYC	RECENT
E-001	***** I-001					-01	NO		NO	YES	NO							
DESC: FROM I-001: ROUTE(AIRPORT CODE)											FMT:TXT DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: N CYC FMT: CENTISEC: NO							
E-002	***** I-002					-01	NO		NO	YES	NO							
DESC: FROM I-002: STAFF NUMBER											FMT:CNT DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: N CYC FMT: CENTISEC: NO							
E-003	***** I-003					-01	NO		NO	YES	NO							
DESC: FROM I-003: TOTAL TICKET RICE											FMT:AMT DEC: 2 I/O COL: CN: 0							
											LEAD ZEROS: N CYC FMT: CENTISEC: NO							
E-004	***** I-007					-01	NO		NO	YES	NO							
DESC: FROM I-007: TICKET NUMBER											FMT:CNT DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: Y CYC FMT: CENTISEC: NO							
E-005	***** I-006					-01	NO		NO	YES	NO							
DESC: FROM I-006: (ISSUE DATE AND TIME)											FMT:DTM DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: N CYC FMT: CENTISEC: NO							
E-006	***** C-000					-01	NO		NO	YES	NO							
DESC: CYCLE NUMBER AND RUN NUMER(REL CYC -01)											FMT:CNT DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: Y CYC FMT: ASIS CENTISEC: NO							
E. HISTORY ITEMS:						----- HISTORY KEY -----		ADD MOST		----- VARIABLE CYCLE -----								
ITEM	KEY1	KEY2	KEY3	KEY4	KEY5	ITEM	CYC	CYC	RECENT	REQD	IND	KEY1	KEY2	KEY3	KEY4	KEY5	CYC	RECENT
E-007	***** D-000					-01	NO		NO	YES	NO							
DESC: RUN DATE (REL CYC -01)											FMT:DATE DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: N CYC FMT: CENTISEC: NO							
E-008	***** T-000					-01	NO		NO	YES	NO							
DESC: RUN TIME (REL CYC -01)											FMT:TIME DEC: 0 I/O COL: CN: 0							
											LEAD ZEROS: N CYC FMT: CENTISEC: NO							
F. CALCULATED ITEMS:						CALCULATION FORMULA		FMT		DEC	REQD	COM	COND	CYC	FMT	LZ		
C-001	ITEMS I-004 & I-005 + 0										D&T	0	NO		N			
C-002	ITEMS I-003 * .15										AMT	2	NO		N			
C-003	ITEMS I-003 * .09										AMT	2	NO		N	N		
C-004	99999999 INTO @DAYOFWK										CNT	0	NO		N			
C-005	99999999 INTO @TIMECSEC										TIME	0	NO		N	N		
C-006	99999999 INTO @DTMCSEC										D&T	0	NO		N	N		
C-007	10 INTO @CYCLERUN										CNT	0	NO		N	Y		
G. BALANCING RULES:						BALANCING FORMULA		CODE		ACTION	FORMAT	TOL.	TOL.	VALUE				
R-001	ACT	ITEMS	I-003	LE	2000.00	ACC OOB VAL: NO ITEM:					1001	NONE	AMT	2	NONE			
											COMMA: LEAD ZEROS: N CALC ITEM:000							
R-002	ACT	ITEMS	I-007	LE	10000000	ACC OOB VAL: NO ITEM:					1002	NONE	CNT	0	NONE			
											COMMA:N LEAD ZEROS: N CALC ITEM:000							
H. MESSAGES:						INSTRUCTION TEXT/NOTIFY ADDRESS		CODE										
S-001	DIRECT	TICKET PRICE {I003} OUT OF RANGE!									1001							
S-002	DIRECT	TICKET NUMBER {I007} OUT OF RANGE!									1002							
I. WRITE TO FREEFORM OUTPUT FILE:																		
GENERATE HEADER:		YES																
GENERATE DELIMITER:		YES																
USE TAB AS DELIMITER:		NO																
DELIMITER CHARACTER:		@																
HEADING WIDTH:		STANDARD		ITEM SIZE														
FIELD	ITEM	OUTPUT	DATE	UNPACK	DECIMAL	SUPP	REV	SIGN	TIME	SUPP	SUPP	REPL						
NUMBER	ITEM	TYPE	NUMBER	POS	LEN	LENGTH	JUSTIFY	SEPARATOR	IND	IND	DELIM	IND	SEP	SIGN	LEAD0			
001	KEY		001	01	008	008	AS-IS	NO	NO	NO	NO	NO	NO	NO	NO			
HEADING: KEY 1																		
002	KEY		002	01	008	008	AS-IS	NO	NO	NO	NO	NO	NO	NO	NO			
HEADING: KEY 2																		
003	INTERNAL		002	01	008	015	AS-IS	NO	YES	NO	NO	NO	NO	YES	NO			
HEADING: STAFF NUMBER																		
004	INTERNAL		003	01	008	015	AS-IS	NO	YES	NO	NO	NO	NO	NO	NO			
HEADING: TICKET \$																		
005	INTERNAL		004	01	008	010	AS-IS	YES	NO	NO	NO	NO	NO	NO	NO			
HEADING: ISSUE DATE																		
006	INTERNAL		005	01	008	020	AS-IS	NO	NO	NO	NO	NO	YES	NO	NO			
HEADING: ISSUE TIME																		
007	INTERNAL		007	01	008	015	AS-IS	NO	YES	NO	NO	NO	NO	YES	YES			
HEADING: TICKET#																		

13 ■ Using the Utilities

Database Report Utilities (URPT)

```
J. FILE ITEMS:
  ITEM      DD NAME      NUMBER      KEYS REQUIRED/LEN
  -----
  1         UGRPTF1      N/A
K. FREEFORM REPORT BASIC INFORMATION:
  LOGICAL LINE WIDTH:      130
  PRINT RECONCILIATION KEYS:  ALL
  XML OPTION:              (9) DEFAULT TO USER OPT
  USE BASE AND RLQ DEFINITIONS:  USE BASE AND RLQ DEF
  ALWAYS PRINT REPORT HEADINGS:  NO
  PAGE LENGTH:             0055
  PRINT WITH ASA CHCARACTERS:  YES
  DYNAMIC TRANSLATION OVERRIDE:  OVERRIDE LINE 1 WITH ORIGINAL KEY 1 VALUE
  KEY BREAK      SIZE      PAGE BREAK      KEY BREAK      SIZE      PAGE BREAK
  -----
  01             08             N
L. FREEFORM REPORT FORMAT ITEMS:
  FORMAT DATA
  -----
  "\P"{L010} "JOB/STEP: " {L025} $JID"\R"{L010} "CYCLE: " {L010} CY
  "\P"{L010} "KEY: " {L010} X001 {L010} X002
  "\N"{L030} DI001{L005}" "{L020} I001"\N"{L030} DI002
  {L005}" "{L020} I002 "\N"{L030} DI003{L005}" "{L020} I+003
  "\N"{L030} DI006{L005}" "{L020} I006 "\N"{L030} DI007
  {L005}" "{L010} I007"\N"{L030} DX001{L005}" "{L020} X001
  $XB001 "\N"{L020} "OFFICE TOTAL---->" {L015} $KEV {L020} BI003"\N"
```

Definition Database Listing: Detailed Job Definitions - Page 3 of 4

Note: This sample job generates a User Report, so it contains a User Report section.

ACR/D Ex0Vsh0x		INFOGIX, INCORPORATED		PAGE 003							
DATE: YY/MM/DD		INFOGIX DATA BASE UTILITY									
TIME: 11.16.04		DEFINITION DATA BASE LISTING									
		DETAILED DEFINITIONS									
		DETAILED USER REPORT DEFINITIONS									
JOB ID: USRRPT4 KBLINES											
A. BASIC INFORMATION:											
REPORT TITLE:		REGION SALES REPORT									
PAGE WIDTH:	100										
PAGE LENGTH:	50										
LAST UPDATE BY:	R99UC47	DATE:	2015/04/08	TIME:	10:59:45						
REPORT OPTIONS:											
PRINT KEYS OPTION:	(Y) ALL										
ACCUM KEYS OPTION:	(N) NONE										
PRINT/TRUNCATE OPTION:	(P) PRINT										
AUTO POSITION OPTIONS:	(Y) YES	SPACING WIDTH:									
PAGE ITEM TYPE:	N/A										
PAGE ITEM NUMBER:	N/A										
CASCADE KEYS OPTION:	(Y) YES										
ALWAYS PRINT HEADINGS OPTION:	(N) NO										
XML OPTION:	(2) GEN TO FILE										
DEFINITIONS TO USE FOR RLQ:	(N) BASE AND RLQ										
C. COLUMNS / ROW 1:											
COLUMN	COLUMN	ITEM TYPE	ITEM#	WIDTH	POS.	(1/2)	HEADINGS	TOT	HEADING	PRINT	
								COL	OPTION	DETAIL	
1	(K)	KEY FIELD	1	8	1	(1)STATE (2)		NO	LEFT	YES	
2	(K)	KEY FIELD	2	8	10	(1)BRANCH (2)		NO	CENTER	YES	
3	(I)	INTRNL ITEM	2	12	20	(1)DEPT02 (2)		YES	RIGHT	YES	
4	(I)	INTRNL ITEM	3	12	35	(1)DEPT14 (2)		YES	RIGHT	YES	
5	(I)	INTRNL ITEM	1	8	50	(1)TALLY (2)		YES	RIGHT	NO	
C. KEY BREAK INFORMATION:											
KEY	KEY						LIT	LIT	SPACE	SPACE	PRINT
BREAK#	SIZE	KEY BREAK	LITERAL				POS	LEN	BEFORE	AFTER	TOTAL
1	8	STATE TOTAL					001	AUTO	1 LINE	1 LINE	NO
2	0	GRAND TOTAL					AUTO	AUTO	1 LINE	1 LINE	YES

13 ■ Using the Utilities

Database Report Utilities (URPT)

Definition Database Listing: Detailed File Definitions

A detailed file listing is generated if the **Report Type** option is F (file definitions).

```

ACR/D release number          INFOGLX, INCORPORATED          COPYRIGHT INFOGLX, INC. 2015
DATE: YYYY/MM/DD             INFOGLX DATA BASE UTILITY      PAGE 001
TIME: 16:46:43               DEFINITION DATA BASE LISTING  DATA BASE VERSION: 0001108/*****
                               DSN=R99UC47.DET45.DEFN
                               DETAILED FILE DEFINITIONS

FILE ID:                      UGRPTF1
FILE DESCRIPTION:             FLYER
A. FILE INFORMATION:

ACCESS MODE:                  ACCESS MODE 6
DATA SET ORGANIZATION:        SEQUENTIAL FILE/REPORT          RESET EXT VAR  DON'T DISPLAY SQL
DD NAME FOR HARD COPY:
FILE MODEL - FILE ID:         BASE MODEL: NO
SET RETURN CODE (NO EXTRACT): NO          RETURN CODE:
FILE TRANSLATION TABLE:
LAST UPDATE BY:               R99UC47          DATE: 15/06/05          TIME: 13.51.56
DDF INFORMATION:              USE DDF  FIXED DATA  DELIM 1  DELIM 2  DELIM 3  DELIM 4  DELIM 5  ENCLS

REFERENCES:
NO
JOB      STEP      QUAL
UGRREPORT SAMPLE

REC-ID: 001001  SELECTION TYPE  SEQ  POS  LEN  FORMAT  TYPE  EXT  TYP  NBR  OPR  NBR  KEY  SAME  VAR  VALUE  DDF
-----
SELECT:      = TO VALUE 1  001  1  2  ALPHA  NO  INP  1  AND  FF
COMMENT- Includes FF fights only
COMMENT-

KEY INFO:
001  81  3  ALPHA  1
COMMENT- Key 1 is office number
COMMENT-
002  1  8  ALPHA  2
COMMENT- Key 2 is flight number
COMMENT-

DETAILS:
001  97  8  ALPHA  TEXT  NO  I-001 L DTL
002  90  3  NUMERIC  COUN  NO  I-002 L DTL
003  42  8  NUMERIC  SUM  NO  I-003 REPLACE
004  52  8  NUMERIC  DATE  NO  I-004 L DTL
005  61  8  NUMERIC  TIME  NO  I-005 L DTL  TM FMT:HHMMSS
006  70  10  NUMERIC  COUN  NO  I-007 L DTL
007  97  8  ALPHA  TEXT  NO  EV  001 L DTL
008  1  3  ALPHA  TEXT  NO  EV  1  I-008 L DTL
009  5  3  ALPHA  TEXT  NO  EV  1  I-009 L DTL
010  81  3  ALPHA  TEXT  NO  I-010 L DTL
011  81  3  NUMERIC  TEXT  NO  I-011 L DTL  FLYEROFFICETABLE/NO
COMMENT- Get office city
COMMENT-
012  1  1  NUMERIC  SUM  NO  L  I-012 L DTL  1
COMMENT- Tally counter for records
COMMENT-
DEC IN EV# OUT ITEM# ACC OPT DDF SIGN TRAN TBL/LITERAL/OPT

```

Database Report Utilities (URPT)

```

ACR/D release number          INFOGIX, INCORPORATED          COPYRIGHT INFOGIX, INC. 2015
DATE: YYYY/MM/DD             INFOGIX DATA BASE UTILITY    PAGE 002
TIME: 16:46:43               DEFINITION DATA BASE LISTING DATA BASE VERSION: 0001108/*****
                                DSN=R99UC47.DET45.DEFN
                                DETAILED FILE DEFINITIONS
FILE ID:                      UGRPTF1
FILE DESCRIPTION:             FLYER

REC-ID: 001001                SELECTION TYPE  SEQ  POS  LEN  FORMAT  TYPE  EXT  INP  LVL  LOG  REL  SEL      EXT
                                VALUE                                DDF
                                DEC  IN  EV#  OUT  ITEM#  ACC  OPT  DDF  SIGN  TRAN  TBL/LITERAL/OPT
DETAILS:
                                013  11  30  ALPHA  TEXT   NO           X-001  L  DTL
                                014  11  14  ALPHA  TEXT   NO           X-002  L  DTL
                                015  25  15  ALPHA  TEXT   NO           X-003  L  DTL
                                DDF  TRN  OPT  OUTPUT AREA  EXT VAR  LITERAL
REFORMAT:  INPUT -           001  1  80  ALPHA  LIT      NO  INPUT AREA  &
           OUTPUT -          104  1  ALPHA
           COMMENT- Put '&' in position 104 to connect route code and flight number
           COMMENT-
           INPUT -           002  1  7  ALPHA  INP      NO  INPUT AREA
           OUTPUT -          105  7  ALPHA

REC-ID: 002001                SELECTION TYPE  SEQ  POS  LEN  FORMAT  TYPE  EXT  INP  LVL  LOG  REL  SEL      EXT
                                VALUE                                DDF
                                DEC  IN  EV#  OUT  ITEM#  ACC  OPT  DDF  SIGN  TRAN  TBL/LITERAL/OPT
DETAILS:
                                001  97  15  ALPHA  TEXT   NO           X-005  L  DTL

REC-ID: 003001                SELECTION TYPE  SEQ  POS  LEN  FORMAT  TYPE  EXT  INP  LVL  LOG  REL  SEL      EXT
                                VALUE                                DDF
SELECT:  NOT = VALUE 1      001  11  8  ALPHA            NO  INP  1  AND                                CHICAGO
                                DEC  IN  EV#  OUT  ITEM#  ACC  OPT  DDF  SIGN  TRAN  TBL/LITERAL/OPT
DETAILS:
                                001  1  80  ALPHA  TEXT   NO  L           X-004  L  DTL
                                REQUEST SUBMITTED; P
                                ENDING APPROVAL FROM
                                THE CHICAGO HEADQUA
                                RTER

COMMENT- Store status
COMMENT-
    
```

Detailed Table Definitions - Internal Translation Table

A detailed table listing is generated if the **Report Type** option is T (table definitions). This example shows information for an internal translation table.

```

ACR/D releasenumbr          XYZ COMPANY          COPYRIGHT INFOGIX, INC
DATE: YY/MM/DD             DEFINITION DATA BASE LISTING DATA BASE VERSION: 0000078/*****
TIME: 16.04.28             FILE=TESTLIB/UNIDF
                                DETAILED TABLE DEFINITIONS
TABLE-ID: FLYEROFFICETABLE
LAST UPDATE BY: R99UC47      DATE: 15/06/05      TIME: 13.00.58
ITEM                          TABLE INPUT / TABLE OUTPUT                                NUMERIC
001  INPUT                    00000000000000000000000000000002                       Y
           OUTPUT              NAPERVILLE                                                N
002  INPUT                    00000000000000000000000000000003                       Y
           OUTPUT              LISLE                                                        N
003  INPUT                    00000000000000000000000000000001                       Y
           OUTPUT              CHICAGO
    
```

Definition Database Listing: Detailed Table Definitions - Cycle Table

This example shows information for a cycle table.

```

ACR/D releasenumbr          XYZ COMPANY          COPYRIGHT INFOGIX, INC
DATE: YY/MM/DD             DEFINITION DATA BASE LISTING DATA BASE VERSION: 0000078/*****
TIME: 16.04.28             FILE=TESTLIB/UNIDF
                                DETAILED TABLE DEFINITIONS
TABLE-ID: MONTHEND
ENTRY #.                      1          2          3          4          5          6          7          8          9          0
001-010  19960131  19960229  19960331  19960430  19960531  19960630  19960731  19960831  19960930  19961031
011-020  19961131  19961231  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
    
```


History File List Utility (HLST)

This utility generates the History Data Base Listing Report (output file name QPQXPRTF). This report can be useful for viewing and analyzing the contents of your history database, keeping an audit trail, and debugging.

```

mm/dd/yy 12:00:00          Utilities          ACR/D releasenumber
HLST                      History File List

Library:                  *LIBL_____

Report Output:           1                  1=Display, 2=Printer

Start with:              Key1      Key2      Key3      Key4      Key5
End with  :              _____  _____  _____  _____  _____

Job Queue                Output Queue          Hold Job
QBATCH                   PRT01_____          1 1=Yes, 2=No

F3=Exit   F20=Run Online

```

Library. The name of the library that contains the history database. *LIBL searches the current library list.

Report Output. Indicates whether to display the history list on screen or print it. This option only applies when you run the history list online.

Start with. Enter up to 40 characters of the history key you want to use as the starting range for the list of history items. Leave this field blank if you want the range to begin with the first history in the database.

End with. Enter up to 40 characters of the key you want to use as the ending range of the history list.

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

13 ■ Using the Utilities

Database Report Utilities (URPT)

List History Report

KEYFIELD	JOBNAME	STEPNAME	QUAL
ALBANY	MNTHEND	STEP1	
NEW YORK	MNTHEND	STEP1	
CHICAGO	MNTHEND	STEP1	
MEMPHIS	MNTHEND	STEP1	

Print Management Report Utility (PMGT)

This utility creates a report that enables managers to analyze and print the contents of the history database based on user-defined selection criteria. For example, a manager can request a report showing all the return codes greater than 0 (all out-of-balance jobs) for a particular time period. The criteria are shown on the screen below.

```
mm/dd/yy 14:37:53      ACR/Detail Utilities      ACR/D releasenumbr
PMGT                  ACR Management Report      KALLEN

      Definition Lib/File: *LIBL      / UNIDF
      History    Lib/File: *LIBL      / UNIHFL4

Selection range for report:
Start with
History key: _____
End at:   . . _____
                From:           To:
Return code: . . . . . _____
Absolute time: . . . . . _____ (YYJJJHHMMSS)
Relative time: . . . . . _____ (DDHHMM)
Absolute cycle ID: . . _____
Relative cycle number: _____

      Job Queue      Output Queue      Hold Job
      QBATCH        PRT01              Y

                F3=Exit      F20=Online
```

Definition Lib/File. These fields identify the definition database to report on.

History Lib/File. These fields identify the history database to report on.

Selection range for report. Start with/End at History key. Indicate the range of keys to include.

Note: If you specify a partial key in the End at field, all keys beginning with that key will be included on that report.

All of the selection range criteria work in conjunction with one another. For example, print all keys starting with ABC to XYZ that ran in the last 24 hours with return codes greater than 0.

From/To Fields

Return code. Range of return codes to include.

Absolute time. Range of the absolute times to be included. Allows you to print ad hoc reports on past activity. For example, you can print the results for 05/01/08 to 06/01/08. Enter the date in Julian format. The format for the field is YYJJHHMMSS. 00000000000 is a valid entry for the From field, and 99999999999 is a valid entry for the To field.

Note: An entry in this field will cause the system to look for the latest run or rerun dates in the specified period. For example, suppose your history database has one job with an initial run date of 07/001 and a rerun date of 07/091, and another job with an initial run date of 07/091 and a rerun date of 07/121. Setting an Absolute time range of 07090000000 to 07100000000 will cause the system to include only the first job.

Relative time. Range of relative times to be included. Allows you to set up a job that can be run repeatedly. For example, you can set up a report to print every morning that lists the results for the past 24 hours. The From value 000000 represents the current time. The To value indicates how far to go back. 002400 is 24 hours.

Absolute Cycle ID. Range of the absolute cycle IDs to be included. Allows you to print the results for a particular cycle regardless of the real time it actually ran. To print the results for the cycle in the From field and all subsequent cycles, use 99999999 in the To field. To print the results for only one cycle, enter the same cycle number in both the From and To fields. Enter cycle numbers exactly as stored in the history database. Otherwise, the century value will be populated with zeros and the cycle range may be invalid.

Relative Cycle number. Range of relative cycle numbers to be included.

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

13 ■ Using the Utilities

Database Report Utilities (URPT)

Print Suspense Aging Report Utility (RAGE)

This utility prints the Suspense Aging Report. The purpose of the report is to summarize the contents of history (for all keys or for some level of the key) in the suspense database in terms of the age of specified items.

Note: (For information on setting up suspense processing, see [Using Suspense Processing](#) on page 116.)

In the suspense database, each record contains an internal (or extended internal) item that defines the date that the item went into suspense. The report produces information for up to two history items.

The default aging criteria (30 days, 60 days, 90 days, 120 days, and all older than 120 days) can be changed. Aging can be defined by days, months, or years in any combination. An aging category for greater than a specific aging period can also be specified.

6/25/12 11:50:34	ACR/Detail Reports	ACR/D R40V5M00			
RAGE	Print Suspense Aging Report	USER1			
	Definition Lib/File: *LIBL / UNIDF				
	History Lib/File: *LIBL / UNIHFL4				
Retrieve	Key1	Key2	Key3	Key4	Key5
From:	_____	_____	_____	_____	_____
To:	_____	_____	_____	_____	_____
Specify key length to be used in reporting and accumulating: <u>0</u>					
Specify parameters to use					
Title: _____					
Date to age from: <u>99999999</u>					
History item containing aging date: I <u>0</u>					
First history item: <u>I</u> 0 Description: _____					
Second history item: <u>I</u> 0 Description: _____					
Customize aging criteria: <u>N</u> (Y/N)					
Job Queue	Output Queue	Hold Job			
<u>QBATCH</u>	<u>PRT01</u>	<u>Y</u>			
F3=Exit		F20=Online			

Definition Lib/File. These fields identify the definition database to report on.

History Lib/File. These fields identify the history database to report on.

Retrieve From/To. The range of keys to apply the aging criteria against.

Note: If you specify a partial key in the To field, all keys beginning with that key will be included in the report.

Specify a key length to be used in reporting and accumulating.

Enter a length up to 40. Leave blank or enter 40 to report on all items in a suspense database. Any other entry will cause the matching item values to be accumulated in history. For example, if you have keys A100, A120, and A200 and specify a key length of 2, the item values from A100 and A120 will be accumulated into a common key of A1. If the key length is 1, the values of all three keys will be accumulated into a common key of A.

Specify parameters to use

Title. Enter the report title.

Date to age from. Enter the date (MMDDCCYY) from which the history items should be aged. 99999999 indicates the system date.

History item containing the aging date. Identify the history item containing the date when the suspense item was put into the history database. This date will be compared with the Date to age from field. This is a 2-part field with the following:

- 1-digit item type indicator (I for internal item or X for extended internal item).
- 3-digit item number. Number of the history item containing the date (001-999).

First history item. Identify the first history item to be reported. This is a 2-part field with the following:

- 1-digit item type indicator (I for internal item or X for extended internal item).
- 3-digit item number. Number of the first history item value to be reported (001-999).

Description. Describe the first history item.

Second history item. Number of the second history item to be reported. This is a 2-part field as described immediately above.

Description. Describe the second history item.

Customize aging criteria. Enter Y to display the Custom Aging Criteria screen.

When you have completed your entries, press F20 to run online or Enter to run in batch. If you entered Y in the last field, the Custom Aging Criteria window displays.

13 ■ Using the Utilities

Database Report Utilities (URPT)

Custom Aging Criteria

The Custom Aging Criteria window allows you to specify aging criteria for any or all of the five aging rows on the report. For example, you could use custom aging criteria to determine, for each office in suspense, how many claims are pending resolution for the last 4 weeks, week by week, and how much the suspended claims are for in each category.

If you specify less than 5 rows, report rows not specified will not be printed.

Custom Aging Criteria					
----- Aging Criteria -----					
	Row 1	Row 2	Row 3	Row 4	Row5

Period (D/M/Y)	-	-	-	-	-
From (000-999)	<u>000</u>	<u>000</u>	<u>000</u>	<u>000</u>	<u>000</u>
To (001-999):	<u>000</u>	<u>000</u>	<u>000</u>	<u>000</u>	<u>000</u>
F3=Run/Exit F12=Cancel					

Period. Specify whether to report the aging period in days, months, or years.

From/To. Specify the range of dates that will be printed in each row. For example, the default values would be from 1 To 30, in row 1, from 31 To 60 in row 2, and so on.

Print Control Update Info Report (CUIR)

This utility prints the most recent updates to definitions from the definition database, including the ID associated with the change and the date and time of the change in yy/mm/dd format. You can limit the listing based on definition type and date.

mm/dd/yy 12:00:00	Utilities	ACR/D releasenumbr
CUIR	Print Control Update Info Report	
Definition File:	<u>UNIDF</u>	
Library:	<u>*LIBL</u>	
Identifier:		
From:	_____	__
To:	_____	__
Report Type:	__	
Job Queue	Output Queue	Hold Job
<u>QBATCH</u>	<u>PRT01</u>	<u>Y</u>
F3=Exit	F20=Online	

Definition File and Library. The file and library name of the definition database whose contents are to be printed.

Identifier

From. The first Job/Step/Qualifier to include in the Definition list.

To. The last Job/Step/Qualifier to include in the Definition list.

Report Type. A one-character field that indicates the type of definitions to be listed. Valid values are the following:

- Blank. All definition types
- F. File definitions
- J. Job ID definitions
- B. Job and associated files
- R. Report definitions
- T. (Internal) Table definitions
- X. External table definitions
- B. Job and associated files
- P. Process definitions

The following listings can be created:

- For a complete listing, leave all selection fields blank.

13 ■ Using the Utilities

Database Report Utilities (URPT)

- For all the definitions of one type, specify the report type but leave the From and To Identifiers blank.
- For a range of definitions of one type, specify the report type, complete the To Identifier, and leave the From Identifier blank.
- For just one job, specify the report type, complete the From Identifier, and leave the To Identifier blank.

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

Print Control Update Info Report

A detailed file listing is generated if the **Report Type** option is B (job and associated files).

ACR/D releasenumber		INFOGIX DATA BASE UTILITY			COPYRIGHT INFOGIX, INC	
DATE: YY/MM/DD		DEFINITION DATA BASE LISTING				
TIME: 16.04.28		CONTROL UPDATE INFORMATION				
		FILE=TESTLIB/UNIDF				
FROM DATE:		TO DATE:				
ID	TYPE		LAST UPDATED BY	DATE	TIME	
-----	-----	-----	-----	-----	-----	-----
JIRA3939HXANLSIS	JOB		QPADEV00D	2012/11/13	15:42:52	
JIRA3939TASK16	JOB		QPADEV00D	2012/11/13	15:43:17	
JIRA3939TASK16	USER REPORT		QPADEV00D	2012/11/13	15:43:17	
JOB SUSPENSE	JOB		QPADEV00D	2012/07/13	15:35:04	
DEBCREDJ 000000	FILE		QPADEV00D	2012/09/10	11:58:44	
SCR1772 000000	FILE		QPADEV00D	2012/07/13	15:42:52	

Cross-reference File Definitions Utility (XRFF)

This utility generates the Definition Database Cross Reference Report (ACRDDXRFF) for file definitions, which shows where a particular file definition is used. You can allocate a second file definition to search against two databases.

```

mm/dd/yy 12:00:00          ACR/Detail Utilities          ACR/D releasenumbr
XRFF                      Cross-reference File Definitions          USER1

      Definition File:  UNIDF
      Library:         *LIBL

Definition File(2):
Library:

      File Definition:  DDName   Qualifier
      Start with:      _____
      End at:          _____

Job Queue              Output Queue              Hold Job
QBATCH                 PRT01                 Y

      F3=Exit          F20=Run Online
  
```

Definition File. The file name (usually UNIDF) of the definition database.

Library. The library that contains the definition database.

Definition File (2). Optionally, the file name (usually UNIDF) of the second definition database.

Library. The library that contains the second definition database.

File Definition:

Start with. Optionally, enter the File DDname and qualifier (if any) that will be the starting point of the range of files to be displayed.

If you leave the Start with and End at fields on the screen blank, all files in the database will be displayed. If you specified a second database, the report will include the files from both databases. The utility processes both databases in the same manner.

If you complete only the Start with fields, only the files that exactly match your entry will be displayed.

13 ■ Using the Utilities

Database Report Utilities (URPT)

End at. Optionally, enter the file name and qualifier (if any) that will be the ending point of the range to be displayed. If you complete only the End at fields, all files from the beginning of the database up to and including the last file within the range will be displayed. If you specified a second database, the report will include the files from both databases.

Job Queue. (This applies in batch processing only.) This is the job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only.) This is the queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

Cross-reference File Definitions Report

Following is an example and description of the report.

0 FILE ID	DESCRIPTION / REFERENCES	
OF1LE1A	DESCRIPTION: FILE 1 A JOB1 FILEREF JOB1R2 FILEREF /JOB1 FILEREF #	DATABASE: TESTLIB/UNIDF TYPE: PS
OF1LE1A	DESCRIPTION: FILE 1 A JOB1 FILEREF	DATABASE: PRODLIB/UNIDF TYPE: PS
OF1LE2A	DESCRIPTION: FILE 2 A JOB2 FILEREF	DATABASE: TESTLIB/UNIDF TYPE: PS
# - ALTERNATE JOB/PRIMARY JOB		
*****END OF REPORT*****		

The Definition Database Cross Reference Report lists all the file definitions used within the first database, and if specified, within the second database. The report allows you to find job definitions that use the same file definitions.

The report displays the following information:

- File ID
- File description
- Database name
- Job names that reference the file ID

The report uses an indicator (#) to show which file ID is referenced by an alternate job.

Database Update Utilities (UUPD)

To access the Database Update Utilities, from the Utilities menu, select **2**.

```

mm/dd/yy 14:16:33      Infogix Systems, Inc.      ACR/D releasenumbr
UMNU              ACR/Detail
                  Utilities Update Menu

          1.  Extract History              (HWVE)
          2.  Create Batch Transactions    (UDFB)
          3.  Build Batch Transactions     (UBBT)
          4.  Update from Batch Transactions (UPDT)
          5.  Initialize Dyamic Translation DB (DINT)
          6.  Create comma delimited text file (UCSV)

          _____
F3=Exit  F12=Cancel

```

On the Utilities Update Menu, you can access the following utilities:

- “Extract History Utility (HWVE)” on page 365
- “Create Batch Transactions Utility (UDFB)” on page 375
- “Build Batch Transactions Utility (UBBT)” on page 376
- “Update from Batch Transactions Utility (UPDT)” on page 378
- “Initialize Dynamic Translation DB (DINT)” on page 379
- “Create Comma Delimited Text File (UCSV)” on page 380

Extract History Utility (HWVE)

This utility enables you to enter a number of user-defined criteria and extract records from the history database to a physical file.

Formats and Extract File Names

You can choose from the following formats:

- Packed format. Use this option to extract history records for 1) auditing or historical purposes or 2) to transfer the data to an application that requires comma-delimited format. For 2), after the extraction, you must convert the extracted data to comma-delimited format. After you run the utility using this option, the extracted history will be in your product library under UNIDHFE.

13 ■ Using the Utilities

Database Update Utilities (UUPD)

- Unpacked (alternate) format. Use this option to create an extract file using unpacked data in order to easily move history data to another platform or product. You can optionally specify a platform identifier, a relative date indicator, and a cycle date format indicator. The file can be used with other Infogix, Inc. products to view the history records in a web browser. After you run the utility using this option, the extracted history will be in your product library under UNIDHFW.

Data Extracted

Regardless of the option you use, the data extracted includes, for each extracted record, the following information:

- The version of the history extract program used to create the extract file
- The full history key
- The history cycle ID
- The reconciliation return code for the history
- The job ID of the reconciliation step that created the history
- The note data for the history
- A count of the number of items present
- The item values for the history

Organization of Information

The information for this utility includes the following sections:

- "Extract History Screen" in the following section.
- "Optional Alternate Format Parameters Screen" on page 368
- "Extract History File (Packed) Layout" on page 369
- "Extract History File (Alternate) Layout" on page 370
- "Extract History (Packed) Parameters" on page 370
- "Extract History Alternate Parameters" on page 372

Extract History Screen

```

mm/dd/yy 12:00:00      Utilities      ACR/D releasenumbr
HWVE                  Extract History

      Library:          *LIBL_____

Selection range for report:
Start with key: _____
End at: . . . . _____

                        From:          To:

Return code: . . . . . _____
Absolute time: . . . . _____      (YYJJJHHMSS)
Relative time: . . . . _____      (DDHHMM)
Absolute cycle ID: . . _____
Relative cycle number: _____
Use alternate format (EXTWV): N (Y/N)

Job Queue             Output Queue             Hold Job
QBATCH_____      PRT01_____             1 1=Yes, 2=No

F3=Exit   F20=Run Online

```

Library. The name of the library that contains the history database. *LIBL searches the current library list.

Selection range for report

Start with/End at. 40-character fields specifying the beginning/ending range of keys to extract.

From/to Return code. Beginning/ending range of 4-digit return codes to extract.

From/to Absolute time. Beginning/ending range of absolute times to extract.

From/to Relative time. Beginning/ending range of relative times to extract. Entering 000000 in the **From** field represents the current day and time. Entering 240000 in the **To** field means go back 24 days before the From value.

The following fields allow you to print the results for a particular cycle regardless of the real time it actually ran. If you want to extract a cycle and all cycles subsequent to it, complete the **From** field but use the default (0) in the **To** field.

From/to Relative cycle number. Beginning/ending range of relative cycles (000 to 999) to extract.

Use Alternate Format (EXTWV). Enables you to specify whether you want to use the unpacked (alternate) option described in the introduction to “Extract History Utility (HWVE)” on page 365.

13 ■ Using the Utilities

Database Update Utilities (UUPD)

Job Queue. (This applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

If you used the default entry N in the **Use Alternate Format (EXTWV)** field, the utility will run now. Otherwise the "Optional Alternate Format Parameters Screen" (explained next) will be displayed.

Optional Alternate Format Parameters Screen

This screen displays if you have Y in the **Use Alternate Format (EXTWV)** field on the preceding screen.

```
Optional Alternate Format Parameters

Platform Identifier: _____
Relative date: . . . : _____ (-998 to +998)
Cycle Date Format   : _      1. YYMMDD
                               2. MMDDYY
                               3. MMDDCCYY
                               4. DDMMYY
                               5. YYJJJ
                               6. DDMMCCYY
                               7. CYMMDD
                               8. CCYYMMDD
                               9. CCYYJJJ

Multiple Job IDs containing Internal Item definitions
Job Name: _____ Step Name: _____ Qual: ___
Job Name: _____ Step Name: _____ Qual: ___
Job Name: _____ Step Name: _____ Qual: ___

F12-Cancel
```

Platform Identifier. Optionally enter a unique identifier for the platform from which the history record was extracted. For use when history data from various platforms will be combined.

Relative date. Complete if you want to begin the extraction based on a date relative to the current system date. An entry of +000 starts the extraction with the system date. To start with a different date, enter a relative number from -998 to +998.

Cycle Date Format. If you want to use this extract to do trending of other Infogix products, specify the format you use for your cycle numbers in the history database.

Multiple Job IDs containing Internal Item definitions. If you have more than 1 job posting or updating history, enter every job/step/qualifier that creates the history you are extracting. The internal or extended internal item formats from these jobs will be searched to determine if the values being extracted are counts, amounts, text fields, or dates. If you have more than three job/step/qualifiers posting or updating history, you need to specify the additional job/step/qualifiers in the batch cards.

Press Enter to run the utility. It will be run online or in batch depending on whether you pressed F20 or Enter on the Extract History screen.

Extract History File (Packed) Layout

Fld #	Description	Position	Length	Format	Value
1	Database Version	1-4	4	X(4)	
2	Key	5-44	40	X(40)	
3	Reserved	45-84	40	X(40)	
4	Cycle and Run No.	85-95	11	9(11)	
5	Reserved	96-103	8	X(8)	
6	Job Name	104-111	8	X(8)	
7	Step Name	112-119	8	X(8)	
8	Qualifier	120-121	2	X(2)	
9	Return Code	122-125	4	X(4)	
10	Note Area	126-205	80	X(80)	
11	Reserved	206-245	40	X(40)	
12	Value Count	246-247	2	S9(3)	Packed
13 ¹	Run Value-X	248-8239	7992	1-999 X(8)	
14 ¹	Run Value-N	248-8239	7992	1-999 S9(15)	Packed

1 - These positions can be populated by 1-999 8-byte alphanumeric fields or 1-999 15-byte packed fields.

13 ■ Using the Utilities

Database Update Utilities (UUPD)

Extract History File (Alternate) Layout

Fld #	Description	Position	Length	Format	Value
1	Job Name	1-8	8	X(8)	
2	Step Name	9-16	8	X(8)	
3	Qualifier	17-18	2	X(2)	
4	Key	19-58	40	X(40)	
5	Cycle Number	59-66	8	9(8)	
8	Run Date	67-74	8	9(8)	
7	Run Time	75-80	6	9(6)	
8	Return Code	81-84	4	X(4)	
9	Rerun Date	85-92	8	9(8)	
10	Rerun Time	93-98	6	9(6)	
11	Rerun Count	99-106	8	9(8)	
12	Run Value Count	107-109	3	9(3)	
13	Cycle Date	110-117	8	X(8)	
14	Run Value Data	118-18,099	17,982 (18 * 999)		
15	Format Indicator		1	X(1)	
16	Run Value		17	X(17)	

Extract History (Packed) Parameters

Field #	Description	Pos.	Length	Format	Value
Record 1					
1	Function Name	1-8	8	X(8)	EXTRACT
2	Reserved	9	1	X(1)	Blank
3	File/Report Name	10-17	8	X(8)	DHF
4	Sequence Number	18-20	3	9(3)	001
5	Selection Type	21-28	8	X(8)	RET CODE
6	Return Code-1	29-32	4	X(4)	0000-4096 or Blanks

Database Update Utilities (UUPD)

Field #	Description	Pos.	Length	Format	Value
7	Reserved	33-46	14	X(14)	Blanks
8	Return Code-2	47-50	4	X(4)	0000-4096 or Blanks
9	Reserved	51-80	30	X(30)	Blanks
Record 2					
1	Reserved	1-17	17	X(17)	Blanks
2	Sequence Number	18-20	3	9(3)	002
3	Selection Type	21-28	8	X(8)	HST KEY1
4	History Key-1	29-68	40	X(40)	
5	Reserved	69 -80	12	X(12)	Blanks
Record 3					
1	Reserved	1-17	17	X(17)	Blanks
2	Sequence Number	18-20	3	9(3)	003
3	Selection Type	21-28	8	X(8)	HST KEY2
4	History Key-2	29-68	40	X(40)	
5	Reserved	69-80	12	X(12)	Blanks
Record 4					
1	Reserved	1-17	17	X(17)	Blanks
2	Sequence Number	18-20	3	9(3)	004
3	Selection Type	21-28	8	X(8)	ABS TIME
4	Absolute Date/ Time-1	29-39	11	9(11)	Blanks or 00000000000- 99999999999
5	Reserved	40-46	7	X(7)	Blanks
6	Absolute Date/ Time-2	47-57	11	9(11)	Blanks or 00000000000- 99999999999
7	Reserved	58-80	23	X(23)	Blanks
Record 5					
1	Reserved	1-17	17	X(17)	Blanks
2	Sequence Number	18-20	3	9(3)	005
3	Selection Type	21-28	8	X(8)	REL TIME
4	Relative Time-1	29-34	6	9(6)	Blanks or 000000- 999999

13 ■ Using the Utilities

Database Update Utilities (UUPD)

Field #	Description	Pos.	Length	Format	Value
5	Reserved	35-46	12	X(12)	Blanks
6	Relative Time-2	47-52	6	9(6)	Blanks or 000000-999999
7	Reserved	53-80	28	X(28)	Blanks
Record 6					
1	Reserved	1-17	17	X(17)	Blanks
2	Sequence Number	18-20	3	9(3)	006
3	Selection Type	21-28	8	X(8)	ABS CYC
4	Absolute Cycle-1	29-39	11	9(11)	Blanks or 00000000001-99999999999
5	Reserved	40-46	7	X(7)	Blanks
6	Absolute Cycle-2	47-57	11	9(11)	Blanks or 00000000001-99999999999
7	Reserved	58-80	23	X(23)	Blanks
Record 7					
1	Reserved	1-17	17	X(17)	Blanks
2	Sequence Number	18-20	3	9(3)	007
3	Selection Type	21-28	8	X(8)	REL CYC
4	Relative Cycle-1	29-31	3	9(3)	Blanks or 001-999
5	Reserved	32-46	15	X(15)	Blanks
6	Relative Cycle-2	47-49	3	9(3)	Blanks or 001-999
7	Reserved	50-80	31	X(31)	Blanks

Extract History Alternate Parameters

Fld #	Description	Position	Length	Format	Value
Record 1					
1	Function Name	1-8	8	X(8)	EXTWV
2	Reserved	9	1	X(1)	Blank
3	File/Report Name	10-17	8	X(8)	DHF
4	Record Sequence	18-20	3	X(3)	001

Database Update Utilities (UUPD)

Fld #	Description	Position	Length	Format	Value
5	Selection Type	21-26	6	X(6)	RETCDE
6	Return Code-1	27-30	4	X(4)	0000-9999 or blanks
7	Reserved	31-44	14	X(14)	Blanks
8	Return Code-2	45-48	4	X(4)	0000-9999 or blanks
9	Reserved	49-80	32	X(32)	Blanks
Record 2					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	002
3	Selection Type	21-26	6	X(6)	HSTKY1
4	History Key-1	27-66	40	X(40)	
5	Reserved	67-80	14	X(14)	Blanks
Record 3					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	003
3	Selection Type	21-26	6	X(6)	HSTKY2
4	History Key-2	27-66	40	X(40)	
5	Reserved	67-80	14	X(14)	Blanks
Record 4					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	004
3	Selection Type	21-26	6	X(6)	ABSTME
4	From Absolute Time	21-37	11	9(11)	00000000000-99999999999 or blanks
5	Reserved	38-44	7	X(7)	Blank
6	To Absolute Time	45-55	11	9(11)	00000000000-99999999999 or blanks
7	Reserved	56-80	25	X(25)	Blanks

13 ■ Using the Utilities

Database Update Utilities (UUPD)

Fld #	Description	Position	Length	Format	Value
Record 5					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	005
3	Selection Type	21-26	6	X(6)	RELTME
4	From Relative Time	27-32	6	9(6)	000000- 999999 or blanks
5	Reserved	33-44	12	X(12)	Blank
6	To Relative Time	45-50	6	9(6)	000000- 999999 or blanks
7	Reserved	51-80	30	X(30)	Blanks
Record 6					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	006
3	Selection Type	21-26	6	X(6)	ABSCYC
4	From Absolute Cycle	21-37	11	9(11)	00000000000- 99999999999 or blanks
5	Reserved	38-44	7	X(7)	Blanks
6	To Absolute Cycle	45-55	11	9(11)	00000000000- 99999999999 or blanks
7	Reserved	56-80	25	X(25)	Blanks
Record 7					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	007
3	Selection Type	21-26	6	X(6)	PLTFRM
4	Platform Indicator	27-46	20	X(20)	
5	Reserved	47-80	34	X(34)	Blanks
Record 8					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	008

Fld #	Description	Position	Length	Format	Value
3	Selection Type	21-26	6	X(6)	RXDATE
4	Relative Extraction Date - Sign	27	1	X(1)	+, -, or blank
5	Relative Extraction Date	28-30	3	X(3)	000-999 OR blanks
6	Cycle Date Conversion Indicator	31-32	2	X(2)	01-09 or blanks
7	Reserved	33-80	48	X(48)	Blanks
Record 9 and above					
1	Reserved	1-17	17	X(17)	Blanks
2	Record Sequence	18-20	3	X(3)	009-999
3	Selection Type	21-26	6	X(6)	JCHAIN
4	Job ID-1	27-44	18	X(18)	
5	Job ID-2	24-62	18	X(18)	
6	Job ID-3	63-80	50	X(18)	

Create Batch Transactions Utility (UDFB)

Note: The Create Batch utility does not have F20 on the screen, even if you are authorized to run online. To run the selected jobs for Create Batch, press Enter.

Batch transactions are 80-character records stored in a physical file that reflect the information in the definition library and in the definition database. Batch transactions can be used for the following purposes:

- To move job and file definitions into a production environment in a secured way.
- To be used as an audit trail of what has been moved to the production database.
- To be stored for use as a disaster recovery file.

You can use either the Create Batch utility, described here, or the **“Build Batch Transactions Utility (UBBT)”** on page 376 to convert definitions in your definition library to batch transactions. Create Batch lists all of the

13 ■ Using the Utilities

Database Update Utilities (UUPD)

definitions in your library, allowing you to select those to include individually or to select all definitions. (Build Batch provides a menu for selecting the range of job IDs and definition types you want to include).

Both the Create Batch utility and the Build Batch utility generate the following:

- In your product library, the file UNIUPDT containing the batch transactions.
- In your output queue, the Build ACRUPDT Report (ACRDDFB).

```
mm/dd/yy 14:35:37          Utilities          ACR/D releasenumber
UDFB          Create Batch Transactions      USER1

Options: 2 or S = Select/Unselect
Position to:

Opt  ID List          Type          Description          Rows Selected
___ ACCMOD5          FILE ID EXPENSES
___ ACCMOD5J        FILE ID EXPENSES
___ ACCMOD6          FILE ID STUDENTS
___ ACCMOD7          FILE ID STUDENTS
___ ACCUMEXP        FILE ID EXPENSES1
___ ACCUMTST        FILE ID QUARTER 1
___ ACC6SPLF        FILE ID DATES SPOOL FILE
___ ACMOD6EV        FILE ID QADAILY1 REPORT          +

Next Screen _____

F3-Exit F5-Refresh F13-Select All F15-Sort
```

Position to. Enter a character string if you want to go directly to the first instance of the string.

Opt. If you do not want to include all the listed definitions by pressing F13, you can select those you want to include in this field.

To run the utility, press Enter.

Build Batch Transactions Utility (UBBT)

For more information on batch transactions and their purposes, see “[Create Batch Transactions Utility \(UDFB\)](#)” on page 375.

You can use the Build Batch utility, described here, or the Create Batch utility to convert definitions in your definition library to batch transactions. Build Batch provides a menu for selecting the range of job IDs and definition types you want to include. (Create Batch provides no menu and lists of all of the definitions in your library, allowing you to select those to include individually or to select all definitions.)

Both the Create Batch utility and the Build Batch utility generate the following:

- In your product library, the file UNIUPDT containing the batch transactions.
- In your output queue, the Build ACRUPDT Report (ACRDDFB).

mm/dd/yy 13:56:02	Utilities	ACR/D releasenumbr
UDFB	Build Batch Transactions	USER1
Identifier:		
	From: _____	_____
	To: _____	_____
Report Type: _		
Job Queue	Output Queue	Hold Job
<u>QBATCH</u>	<u>PRT01</u>	<u>Y</u>
F3=Exit	F20=Run Online	

Identifier:

From/to. If you want to include only definitions within a range, enter the first and last Job/Step/Qualifier in the range.

Report Type. Optionally enter the type of definitions to be listed. Valid values:

- J.** Job definitions
- B.** Job and associated file definitions
- F.** File definitions
- S.** History analysis definitions
- T.** (Internal) table
- X.** External table
- Blank.** All types of definitions

Job Queue. (This applies in batch processing only) The job queue where the job should be sent.

Output Queue. (This applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

13 ■ Using the Utilities

Database Update Utilities (UUPD)

Update from Batch Transactions Utility (UPDT)

This utility allows you to update a definition database with definitions created previously. This is particularly helpful for moving definitions from a test to a production environment or sharing definitions with other users or areas.

The utility adds, deletes, and/or replaces existing definitions in the definition database with the definitions created by running the Build Batch Transactions utility. If there are validation errors, the utility ends with an error message and the database is not updated.

This utility generates the Update Utility Transaction Listing Report, ACRDUNTR.

```
mm/dd/yy 09:39:20          Utilities          ACR/D releasenumber
UPDT                Update From Batch Transactions      user1

Update:
  Definition file: UNIDF
  Library: *LIBL_____

With batch definition file found in
  File: _____
  Library: *LIBL_____

Where is this file coming from:
  1 1. Platforms other than the AS400
  2 AS400 Platform

Job Queue          Output Queue
QBATCH            PRT01          1 1=Yes, 2=No

F3=Exit   F20=Run Online
```

Update:

Definition file. Displays the name of the definition database, UNIDF.

Library. The name of the library that contains the definition database. *LIBL searches the current library list.

With batch definitions file found in:

File. Optionally change the file where the batch definitions can be found.

Library. The name of the library that contains the definition database. *LIBL searches the current library list.

Where is this file coming from: Change to 2 if the file is not coming from another platform.

Job Queue. (This applies in batch processing only.) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (This applies in batch processing only.) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (This applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

Initialize Dynamic Translation DB (DINT)

This utility initializes the dynamic translation database, which is required for the dynamic translation feature. The utility erases any information that is currently in a dynamic translation database. The database will be updated automatically when you run reconciliation.

```
mm/dd/yy 09:39:20      ACR/Details Utilities      ACR/D releasenumbr
UPDT              Initialize Dynamic Translation      user1

Are you sure you want to delete all keys
from the Dynamic Translation Database?  N

F3=Exit
```

Specify whether or not to delete all the keys from the Dynamic Translation Database.

Press Enter to initialize the Dynamic Translation Database.

13 ■ Using the Utilities

Database Update Utilities (UUPD)

Create Comma Delimited Text File (UCSV)

This utility creates a comma delimited file (UNICSV) from the History Extract File (UNIHFE) and the definition database (UNIDF).

```
mm/dd/yy 09:39:20          Utilities          ACR/D releasenumbr
UCSV                      Create Comma Delimited Text File      JPD

          Definition file: UNIDF
                   Library: *LIBL

          Extract file: UNIDHFE
                   Library: *LIBL

Job Queue      Output Queue      Hold Job
QBATCH        PRT01              N

F3=Exit  F20=Run Online
```

Definition file. The field specifies the definition database that contains the definitions for the information contained in the extract file.

Library. The field specifies the location of definition file that must be updated.

Extract file. The field specifies the existing extract file that will be reformatted into the comma delimited file.

Library. The field specifies the name of the library where the Extract File is located.

Job Queue. (Applies in batch processing only) The job queue where the job should be sent. Accept the default entry or change it.

Output Queue. (Applies in batch processing only) The queue where the job's spooled output should be sent. Accept the default entry or change it.

Hold Job. (Applies in batch processing only.) Specify whether or not the job should be held in the job queue.

When you have completed your entries, press F20 to run online or Enter to run in batch.

Date Conversion (UDAT)

To access the Date Conversion utility from the Utilities menu, select **3**.

<i>mm/dd/yy</i>	14:16:33	ACR/Detail Utilities	ACR/D <i>releasenumbr</i>
UDAT		Date Conversion	JPD
Input date format:			
0	1. YYMMDD	Input date:	Resulting date count:
	2. MMDDYY		
	3. MMDDCCYY		
	4. DDMYY		
	5. YYJJJ		
	6. DDMCCYY		
	7. CCYYMMDD		
	8. CCYYMMDD		
	9. CCYYJJJ		
	10. DDMYY		
	11. DDMCCYY		
	12. MMDDYY		
	13. MMDDCCYY		
Input Date Count:	0	Resulting date (CCYYMMDD):	
F3=Exit			

Input date format. Specify the input format of the date or leave this field blank to convert a date count to a date.

Input date. If you are converting a Gregorian or Julian date to a date count, enter the date in the format specified in the Input date format field.

Resulting date count. If you are converting a Gregorian or Julian date to a date count, shows the resulting date count.

Input Date Count. If you are converting a date count to a date in the format CCYYMMDD, enter the date count in the format NNNNNN.

Resulting date (CCYYMMDD). If you are converting a date count to a date, shows the resulting date.

Time Conversion (UTIM)

To access the Time Conversion utility from the Utilities menu, select **4**.

This utility allows you to convert time between HHMMSSNN format and a centisecond value. Typically the utility is used to convert time to a centisecond value, as time is stored as a centisecond value in the history database.

13 ■ Using the Utilities

Time Conversion (UTIM)

```
mm/dd/yy 14:40:50      ACR/Detail Utilities      ACR/D releasenumber
UTIM                  Time Conversion          JPD

>>>>>Convert to centiseconds:

No. of days:          Time (HHMMSSNN):

Resulting centiseconds:

>>>>>Convert from centiseconds to HHMMSSNN:

Centiseconds:

Resulting time:          (No. of days)          (HHMMSSNN)

F3=Exit
```

No of days. Enter the number of days to convert to a centisecond value. This field is optional.

Time (HHMMSSNN). Enter the time (in HHMMSSNN format) to convert to a centisecond value.

Resulting centiseconds. If you are converting days/time to centisecond, shows the resulting centisecond value.

Centiseconds. Enter the centisecond value to convert to days/time value.

Resulting time. If you are converting a centisecond time value to days/time (HHMMSSNN format), shows the resulting days and time value.

Batch Definition Transactions

ACR/Detail definition information can be entered through the user interface or by updating batch definition transactions. This appendix describes the format and use of the batch definition transactions. It contains the following information:

- [“What Is a Batch Definition Transaction?” on page 383](#)
- [“Format of Batch Definition Transaction Records” on page 384](#)
- [“Updating the Definition Database” on page 387](#)
- [“Purging Definitions” on page 388](#)
- [“EMPSALES 000000 F0 0001*” on page 388](#)

What Is a Batch Definition Transaction?

A batch definition transaction is a record of information that is stored in the definition database and used to apply changes to ACR/Detail definitions.

ACR/Detail definitions include job definitions, file definitions, table definitions, history analysis definitions, and user report definitions. Each type of definition is divided into definition information categories. A category contains multiple fields containing related definition information. For example, internal item information is one category of job definitions. Definition fields for internal items include information such as the internal item number and the item description. These are all fields containing information related to that category of information.

Each batch definition transaction record consists of 80 positions containing all of the information for a particular ACR/Detail definition along with a transaction type specifying how the transaction will be applied to the definition database. Each type of batch transaction record is identified by a transaction code. The records are created in a sequential file using the following methods:

- The user interface can be used to create batch definition transactions from the online definitions.
- The user interface utility to create batch transactions from the definition database is described in [“Create Batch Transactions Utility \(UDFB\)” on page 375](#). Create Batch lists all of the definitions in your library, allowing you to select those to include individually or to select all definitions.

A ■ Batch Definition Transactions

Format of Batch Definition Transaction Records

- The user interface utility to build batch transactions from the definition database is described in “[Build Batch Transactions Utility \(UBBT\)](#)” on [page 376](#). Build Batch provides a menu for selecting the range of job IDs and definition types you want to include.

The manual creation and modification of definitions is not recommended. Manually coded batch definition transactions are more prone to entry errors than the user interface panels because they do not have the built-in error checking and across field checking or validation of the panels.

Format of Batch Definition Transaction Records

Transaction Key

Each 80-character record begins with a 26-position transaction key that identifies each transaction and specifies how to process it.

Note: Records with an asterisk (*) in position 1 are treated as comments and are ignored during processing.

The transaction key consists of the following:

Transaction ID (18 Positions)

The transaction ID identifies the specific transaction as follows:

- Job Definitions. 18-character Job ID.
- File Definitions. 10-character file ID, the six-digit record number, and two blanks.
- Table Definitions. 16-character table name and two blanks.
- History Analysis Definitions. 16-character process ID or report ID and two blanks. A process ID can be up to 16 characters long. A report ID can be up to 10 characters long.
- User Report Definitions. 10-character user report ID and eight blanks.

Transaction Code (3 Positions)

The transaction code identifies the category of information on the transaction record. Codes beginning with:

- J are job definitions
- F are file definitions
- T are cycle table or internal translation table definitions
- X are external translation table definitions
- R are History Analysis Report Definitions
- E are History Analysis Process Definitions
- U are user report definitions

Following the letters are one or two digits that identify the definition information categories. For example, F4's are selection field definitions, F6's are key field definitions, J31s are history item description definitions, etc. See the left column of the "EMPSALES 000000 F0 0001*" on page 388 for a list of transaction codes.

Transaction Number (3 Positions)

The transaction number identifies the specific transaction within its category, such as the internal item number or selection field number.

Transaction Sequence (1 Position)

This number identifies the sequence of the records for a transaction. Sometimes a batch definition transaction requires 2 or more 80-character transaction records to contain all the definition information that is written to the definition record on the definition database. The transaction sequence number is used to control the sequence of those records.

A ■ Batch Definition Transactions

Format of Batch Definition Transaction Records

Transaction Type (1 Position)

This code specifies how the transaction is to be applied to the definition database when processed by the update utility. Valid transaction types are:

Code	Meaning
A	Add a new definition to the database.
D	Delete an existing definition from the database. When a transaction consists of more than one transaction record, only the first record (Transaction Sequence 1) is needed for delete processing. This record needs to contain only the transaction key (see also type * below).
R	Replace an existing record in the database.
*	Purge: Delete all definitions of the specified transaction key from the database. For more information, see Purging Definitions on page 388 .

Processing of Batch Definition Transaction Sets

A set of batch definition transactions is usually headed by a single purge transaction type, and then followed by a complete set of one or more Add transactions that contain your job, file, table, history analysis, or user report definition parameters. For example, a set might contain a basic job information purge transaction (to delete all previous definitions for that job ID from the definition database), immediately followed by a basic job information Add transaction, and then followed by internal item Add, and so on. In other words, you purge all of the old definitions and add the new ones.

Batch definition transactions are automatically sorted by transaction key by the batch update utility before they are applied to the definition database. This means that the purge type is always applied first (i.e., the utility program will first purge the database of any previous definitions for that transaction ID, and then process all the other batch definition transactions that add to the database). This ensures that no “leftover” definitions will interfere with your new definitions, and that the set of Add transactions you process contains the complete set of definitions.

Alternatively, instead of purging a complete set of definitions and then adding the complete revised set to the database, you can Add, Replace and/or Delete individual definitions. The resultant executable definitions will be a combination of whatever definitions were originally in the database, with the individual Add, Replace and Delete transactions applied against them.

The set of transactions you process is only a subset of the complete set. For this reason, this method is rarely used, and thus the transaction types R and D are rarely used.

Updating the Definition Database

Before the definitions can be used, the definition database must be updated with the batch definition transactions through the ACR/Detail batch update utility. First, the batch definition transactions are sorted by Transaction key. The UPDT program processes the batch definition transactions in two passes. First, the transactions are validated. Then, if all the transactions are valid, they are written to the definition database.

The transaction validation pass edits each individual transaction to ensure that valid interrelated information is entered in the proper columns. Each transaction is printed in the transaction validation section of the Definitions Update Report. For example, the extended internal item number must be numeric and between 1 to 100. If it isn't, an error message will appear to the right and on the line below the transaction on the transaction validation section of the Definitions Update Report.

If all transactions are valid, the definition database is updated. Using the transaction type from each transaction's key, the UPDT program attempts to add, delete, replace, or purge the specified transaction. If any errors occur (such as trying to Add a definition that already exists in the database), processing stops and no subsequent transactions are applied. Transactions encountered before the update error will be applied correctly. Any error messages will be printed, along with the transactions in the transaction processing section of the Definitions Update Report.

Once applied to the definition database, the reconciliation function or exception reporting function can be used to test the definitions or you can use the List Definitions utility to get a formatted list of the definitions.

Purging Definitions

The Purge transaction type (*) mentioned in the preceding sections can be used to delete all definitions for the specified transaction key from the definition library or the definition database. This transaction type is valid for the definition types shown below:

Transaction Code	Transaction Type	Definition Type
J0	*	Basic Job Information Transaction Layout. Job definitions include the User Report.
F0	*	Basic File Information Transaction Layout
R0	*	History Analysis Report Transaction Layout
E0	*	History Analysis Process Transaction Layout
T0	*	Cycle Table or Internal Translation Table Information Transaction Layout
X0	*	External Translation Table Information Transaction Layout

For example, to delete all file definitions for the file DD EMPSALES, you could submit a batch transaction with the following purge card:

```
EMPSALES 000000 F0 0001*
```

Glossary

A

access mode

This file organization method determines how the input source file is read and processed.

■ **Access Mode 6 (Keys Precede Detail Values)** processes groups from top to bottom for each record. This is the standard mode.

■ **Access Mode 7 (Keys Follow Detail Values)** keeps track of the first selection criteria with a *not found* condition and starts with that selection group's criteria for the next record. Each group is evaluated because the system wraps around the bottom to the top of your criteria, as necessary.

accumulation

Accumulation is the ACR/Detail process that mathematically adds values in counts or amounts to obtain a total for a key break. See also stage 1 accumulation, stage 2 accumulation, and stage 3 accumulation.

ACR/Connector

The ACR/Connector product extends the capabilities of ACR/Summary and ACR/Detail across multiple platforms, processors, and geographic locations. Its cross-platform features include history item retrieval and synchronization of jobs and other processes.

active rule

See standard rule and conditional rule.

alternate job ID

An alternate job ID is a job/step without any associated rules that is used to execute a different job ID. An alternate job ID is used primarily for testing and applies only to jobs run on z/OS or in batch.

assignment rule

This type of lookup rule specifies the values to assign when the selection rule is satisfied. For example, if an untranslated value equals a value in the translation table, translate that value to the value of another column from the table.

B

balancing rule

Balancing rules consist of standard and conditional rules. These rules determine if your reports, files, and other information sources are in or out of balance.

batch definition transaction record

This is an 80-character record, stored in the transaction library, and used to apply changes to definitions in batch. Each record contains information for a particular definition and a transaction type code that specifies how to apply the transaction to the definition database.

build rules

See s.

C

calculated item

A calculated item specifies mathematical manipulation of values that can include internal items, extended internal items, history items, other calculated items, or literals. Calculated items can be used in rules, on Free-form Reports, on User Reports, or in the free-form output file.

column assignment

This extract column values from the source data and loads them into the translation table.

completion code

A completion code is a system code that indicates whether the job completed or why the job did not complete. See also return code.

conditional rule

A conditional rule uses IF/THEN logic to determine if a condition is true or false based on the combined status of up to 10 other rules. An active conditional rule is evaluated, and if the condition is met, takes one of the following actions: activates a calculation, sets a return code, or activates other rules. An inactive conditional rule takes no action.

Control Report

This report is the primary output of a job run. It shows both the components and the results of the run. By default, the system automatically generates this report.

control value

A control value is a count, amount, text item, or date obtained during an extraction, or a value for an internal item, calculated item, history item, or rule input by a user for the job.

cycle ID

A cycle ID, which consists of an 8-digit cycle number and a 3-digit run number, uniquely identifies each run of a job. If numbers are not set up to increment for each cycle, the system assigns the default, 000, as the run number. Cycle IDs must be numeric and greater than zero, and they are typically processed in ascending order.

cycle number

The cycle number, which is part of the cycle ID, is an 8-digit ascending number that identifies the processing cycle for a job. Usually, cycle numbers are in ccymmdd format.

cycle table

A cycle table is used to verify cycle numbers.

D

data extraction

This is the first phase of the reconciliation process. Data extraction uses file definitions to select, reformat, extract, and translate key and detail field values from the input sources and then sort, merge, and accumulate the values by reconciliation key.

data filter

The data filter option lets you create a temporary file in which to store out-of-balance keys for use in a subsequent qualifier.

database

See definition database or history database.

database utilities

Database utilities are programs that are used to view, list, or maintain the definition, history, and dynamic translation databases.

DDNAME

The data definition name (DDNAME) identifies a file in the JCL. The DDNAME is equal to the file name in the file ID.

definition

A definition is a set of parameters that determines how a process is performed. Definition types include job, file, and table.

definition database

This database is a keyed file that stores the job, file, and table definitions.

detail field

This file definition type, for access modes 6 and 7, specifies the value to extract, whether to total or tally the extracted value, and whether to store the result in an internal item, extended internal item, or extraction variable.

detail value

A detail value is a count, amount, date, or text string extracted from an input source and used in reconciliation. Key fields or detail fields are used to extract detail values.

DSN

The dataset name (DSN or DSName) represents the catalogued name of a particular computer file.

dynamic translation table

Dynamic translation makes use of a translation database to turn strings of up to 80-bytes into standard eight-byte identifiers. A dynamic translation table allows you to store keys greater than 40-bytes. See also internal translation table, external translation table, and cycle table.

E**error message**

If the user interface cannot perform a requested function, the system displays a message that tells you what the problem is, and often, what to do about it. System messages typically begin with #U and are documented in the Messages and Codes guide.

extended data

Extended data is the data from extended internal items. Like data from regular internal items, extended data can be used in calculated items, history items, rules, reports, and output files.

extended internal item

An extended internal item is a storage place for a control value (count, amount, text item, or date) extracted or accumulated when a job is run, or a control value that results from the manipulation of item values in a calculated item. An extended internal item allows extraction and storage of a number with up to 30 digits or a text value with up to 80 characters. See also internal item.

external translation table

An external translation table is used to translate and match values across input sources. For example, you might want to translate a state name into a 2-character state abbreviation. An external translation table is built at run time, usually by referencing an external data source.

extract definition

See file definition.

extract file

An extract file lets you easily pass information between platforms or products. You can use the Extract History Utility to create a history extract file to easily move history data.

extraction variable

An extraction variable is a storage place where regular or extended data from file definitions or external translation table definitions is held for further processing.

F

field format

Field format refers to the six choices to display selection, extraction, or output field information. Field formats include number, text, packed, signed numeric, binary, and unsigned packed.

file definition

A file definition specifies how to locate and extract values from records in the selected input files.

file ID

A file ID is a unique identifier for the input source. It consists of an 8-character file name and an optional 2-character file name qualifier that is usually used for repetitive processing of the same file during a job.

file interface mode

This is the typical mode to extract control values directly from your business application. No source code changes are required.

file item

A file item is job definition information that associates a job ID with a file ID. File items are automatically generated when you create an input source.

file name

This is the 8-character prefix of the file ID. See also DDNAME and file ID.

file name qualifier

This is an optional 2-character suffix to the file name. See also file ID.

file organization

File organization refers to the type of input file processed for the job.

flow rule

This type of lookup rule specifies the system response after a value is translated. By default, processing stops.

FNQ

See file name qualifier.

Free-Form Report

A Free-Form Report is a fully customizable report that can include any of the control values obtained from a job run.

G

global reformat

Global reformat reformats the data values in two input sources to the same format. This feature ensures that the data in different input files can be matched with a common reconciliation key. The reformat is performed before any selection criteria is applied.

H

hash translation

Hash translation allows a key field to be stored in and retrieved from the history database as a hashed value. The first 4 bytes are the beginning of the original key and the last 4 bytes are the hash value. The original key can be stored as an internal item.

History Data Detail Report

This report shows history records and their values for a range of keys.

history database

This database is a keyed sequenced file that stores the results of previous runs for use in another run of the same job or in another job. Each history record contains a job ID, cycle ID, and the control values extracted for each internal or extended internal item.

history insert

History insert refers to the insertion of history records regardless of the cycle ID.

history item

This job definition type specifies that the current job will use a value that was extracted from a previous run of the current job or another job and stored in the history database.

history key

A history key is a 40-character identifier of detail values from history. The key has five segments, each eight characters in length.

history key mask

The history key mask enables a user to control which information to retrieve from the history database for use in history items. A user can mask the current reconciliation key by overlaying any of the five key fields with constant values. The system then retrieves the records from the history database that match the masked key. You can use this feature in conjunction with the reconciliation key mask feature.

I**inactive rule**

See standard rule and conditional rule.

input area

When you define selection criteria, this option indicates that you will extract data from a position within the current record.

input source

An input source is typically a file or report from your application that contains the data to extract for use in a job.

internal item

An internal item is a storage place for a control value (count, amount, text item, or date) extracted or accumulated when a job is run, or a control value that results from the manipulation of item values in a calculated item. An internal item allows extraction and storage of a number with up to 15 digits or a text value with up to 8 characters. See also extended internal item.

internal translation table

An internal translation table is used to translate values from an input source. The internal table consists of two columns, input and output. You define up to 999 input/output entries. This type of table is suitable for performing simple, static, one-to-one, text-to-text translations within a job.

J**job definition**

A job definition defines the rules and processing options required to execute a job run.

job ID

A job ID is a compound data element that identifies a job and its definitions. It consists of an 8-character job name, an 8-character step name, and an optional 2-character qualifier.

job name

A job name is an 8-character name that, together with the step name, identifies the job. This is the first portion of the job ID. See also job ID.

job step

A job step represents one step in a multi-step job. A job step can execute an application, utility, or ACR program, which in turn invokes a job run.

K

key

See reconciliation key.

key break

A key break refers to the location in a file where a different reconciliation key is encountered. For each key break, the system extracts one value and stores the value in a temporary location based on field type.

key field

This file definition type, for access modes 6 and 7, specifies how to load one of up to five 8-character fields that together constitute the reconciliation key. Key fields can be loaded with data extracted from an input file, from text supplied in a literal, from a reformatted combination of the two, or from an extraction variable.

key mask

See history key mask or reconciliation key mask.

key segment

A key segment is an eight-character section of a reconciliation key. A reconciliation key can have up to five key segments.

L

level qualifier

See reconciliation level qualifier.

lookup rules

Lookup rules tell the system what to do when it encounters a value to translate. There are three types of lookup rules: selection, assignment, and flow.

M

message

A message is user-defined information associated with a return code set by a balancing rule. A message usually identifies why a step is not in balance and outlines the correction procedures. Messages print on the Control Report, and optionally, on the User Report, Free-From Report, and z/OS console.

multi-level reconciliation

This type of reconciliation processing enables you to extract data at the maximum level of detail, and then reconcile the extracted data at a variety of key levels. A file definition specifies the most detailed level of key to use.

N

note area

This is an 80-character line printed below each key on the Control Report and saved on the history database if the job stores history.

O**out-of-balance condition**

An out-of-balance condition exists when not all of the stipulations in your rules have been met.

out-of-balance message

See message.

output file

This file is output by the reconciliation process for use as input to other programs. This file contains the reconciliation key, cycle and run number, job, step, and qualifier name, return code, note area, internal and extended internal item count, as well as internal and extended internal items. See also free-form output file.

P**process control**

This specifies the action to take after a selection group has been satisfied.

processing error

See error message.

Q**qualifier**

In the job ID, qualifier is the optional 2-character field that identifies multiple invocations of a job with the same job/step name. In the file ID, qualifier is the optional 2-character identifier of the input source to include in the reconciliation run. See also reconciliation level qualifier.

R**Recap Report**

This user-defined report summarizes the results of multiple jobs.

reconciliation

Reconciliation consists of two phases: data extraction and reconciliation. It compares transaction-level data according to user-defined rules and produces reports. The reports show whether the results are in or out of balance and provide additional information to help you analyze the results and make needed corrections.

reconciliation key

A reconciliation key can consist of up to five key segments, each of which can contain up to eight positions. The segments define the criteria to locate and extract data from the input source. The first key segment determines the highest level of sort criteria.

reconciliation key mask

The reconciliation key mask is a job-level or job-step-level option that enables a user to place a constant value in any of the five key segments that make up the reconciliation key. This key mask allows the storage and retrieval of data from multiple jobs or job steps on the same history database.

reconciliation level qualifier

This two-digit level qualifier is used to indicate levels for a multi-level reconciliation job. The job has a base-level job with up to 99 subordinate-level qualifier jobs that use the same name and step name as the base job. Each qualifier has a unique level qualifier, the RLQ, to reconcile data at a more detailed level.

reconciliation rule

See balancing rule.

reformat field

See reformat record.

reformat record

Reformat record is both a file definition type and a . As a file definition type for access modes 6 and 7, it specifies how to rearrange or combine detail values from the input records, a literal, or an extraction variable and outputs the reformatted values to the output area or to an extraction variable. As a , it uses the same procedure to reformat a column value before using the value in a column assignment.

relative cycle

A relative cycle points to a history record of a previously run job relative to the current run. Relative cycles are numbered -998 to +000. A relative cycle of +000 refers to the current cycle, -001 refers to the prior cycle, and so forth.

relative record

Relative record is both a file definition type and a . As a file definition type, for access modes 6 and 7, it locates a record by specifying a number of records to move in relation to the last record selected. The move can be backward (toward the beginning of the file) or forward (toward the end of the file). As a , used in conjunction with selection criteria, it uses the same procedure to identify the relative position from a selected record.

return code

A return code is a user-defined four-digit code that indicates the result of a job run. Return codes and their associated messages appear on the Control Report, and optionally, on the User Report, Free-form Report, and z/OS console.

RLQ

See reconciliation level qualifier.

rule

A rule is a set of criteria to apply to the values of internal items, extended internal items, calculated items, or history items to determine if values extracted from an input source are in or out of balance. A single job may need to have multiple rules to determine if a variety of values are in balance. If one or more rules are out of balance, the entire job is considered out of balance. See also standard rule and conditional rule.

rule action

A rule action is the step that the system will take if a rule is out of balance.

rule type

See conditional rule and standard rule.

run

A run is a single execution of a job or process.

run number

The run number, which is part of the cycle ID, is a 3-digit ascending number that enables unique identification of multiple runs of a job with the same cycle number.

S

selection criteria

See selection group.

selection field

Selection field is both a file definition type and a . As a file definition type for access modes 6 and 7, it locates records in the input area that contain a specified value. The specified value can be a text literal, numeric literal, or extraction variable. As a , it uses the same procedure to define criteria for selecting records from the source data.

selection group

A selection group consists of one or more consecutive selection fields that, when evaluated together, determine whether to extract data to process from the current record.

selection rule

This type of lookup rule compares the untranslated values from input/output parameters to the values in a translation table. When the selection rule is satisfied, the data from the selected table row becomes available for assignment and flow rules.

special instructions

See message.

stage 1 accumulation

Stage 1 accumulation is the accumulation of detail fields when detail values for the same internal item number are encountered consecutively for the same reconciliation key. The values are accumulated according to the access mode and field type specifications. See also accumulation.

stage 2 accumulation

Stage 2 accumulation occurs after all input files are processed. Any work records with identical reconciliation keys are merged into a single work record, with the detail values accumulated according to the accumulation option specified in the detail field information. See also accumulation.

stage 3 accumulation

Stage 3 accumulation is the process of accumulating values from work records and history into new history values. This type of accumulation occurs if your job is set up to store new history. See also accumulation.

standard rule

A standard rule compares values from any combination of internal, extended internal, calculated, and history items to determine if they are in or out of balance. It uses a rule equation in the left-side/operator/right-side format. An active standard rule sets a return code, performs a calculation, or abends the job. An inactive standard rule is evaluated only within a conditional rule.

step name

A step name is an 8-character name that, together with the job name, identifies the job. This portion of the name enables you to assign a distinct name to each step of a multiple step job. See also job ID.

Suspense Aging Report

This report shows aging information for data in suspense, which is stored in the history database.

T**table build rules**

Table build rules are selection criteria that tell the system how to extract parts of the source data to build a translation table.

table definition

A table definition identifies the table name and the type of information on the transaction record. The definition includes the specifications needed to access the data stored in a table. Table definitions types include external translation tables, internal translation tables, and cycle tables.

table ID

See table name.

table name

A table name is a unique 16-character ID that identifies the translation or cycle table.

transaction code

This code identifies the transaction type of a batch transaction record.

transaction record

See batch definition transaction record.

translation table

See external translation table and internal translation table.

U

user options

User options are local configuration settings such as currency, negative signs, date and time, and report formats.

User Report

This user-defined report can contain any or all of the data from a Control Report, in a specified sequence.

utilities

See database utilities.

V

validation error

The system displays this error if it receives input that it cannot recognize.

variable cycle processing

Variable cycle processing enables you to control the retrieval of history items based on a key mask or allows the run date, time, and cycle ID to be greater than the current run.

Index

Numerics

22-character numeric option 26

A

access mode 120, 122

 differences between access modes 124

 Keys Follow Detail Values 123

 Keys Follow Detail Values, example 128

 Keys Precede Detail Values 123

 Keys Precede Detail Values, example 125

 Keys Precede Detail Values, processing 125

 similarities between access modes 124

accumulate out-of-balance item value 38

ACR/Detail major components 9

analyzing your reconciliation needs 28

authorizing

 commands and online processing 16

B

basic file information 112

 data area 118

 physical file 113

 spool file 116

basic job information 31, 35

basic job information list 34

Batch definition transaction 361

 sequence 363

 set 364

 transaction

 code 363

 number 363

 transaction key 362

batch execution options 25

Build Batch Transactions utility 354

C

calculated item 29, 70

 conditional 70

century value

 calculation 173

 verifying 173

command line

 authorizing 16

commas, formatting option 26

comments

 file 44

 job 44

conditional calculated items 70

Control Report 30, 196

 interpreting 196

 print options 183

 XML option at job level 184

Create Batch Transactions utility 353

Cross-reference File Definitions utility 341

currency options 23

customer support 11

cycle number

 display and printing 173

 extraction 171

 formats 172

 storage 173

D

data area

 extracting data from 130

database report utilities 325

databases, see definition and history

date

 display and printing 173

 extraction 171

 format options 25

 formats 172

 storage 173

DDS extraction 130

debugging reports

 accumulated data detail 188

 extracted data detail 188

 history data detail 188

 sorted data detail 188

Definition database

- updating 365
- definition database 10
- Definition File List utility 326
- definitions
 - maintaining 18
 - file 20
 - job 19
 - selection group 21
 - translation table 22, 296
- delimited data, direct extraction of 175
- detail field
 - defining 164
 - processing 155
- dynamic translation table 151

E

- EPI, see Extraction Program Interface
- execution parameters for UDS2000 195
- extended data
 - maximum length 49
- extended internal item 47, 48, 52
 - planning for 29
- external translation table 254, 255
 - assign rule 268
 - build preparation rule 270
 - column 263
 - column assignment record 281
 - constant table data 285
 - creating 258
 - example 256
 - extract table info 271
 - extraction variables in 262
 - flow rule 269
 - input-output parameters 261
 - lookup rule 264
 - process control rule 284
 - reformat record 277
 - relative record 277
 - selection record 273
 - selection rule 265
- Extract History utility 343
 - layout, alternate 348
 - layout, packed 347
 - parameters, alternate 350
 - parameters, packed 348
- extraction program 176

- Extraction Program Interface 307
 - call statements 311
 - diagram 309
 - limitations 308
 - sample CL 315
 - sample program 319
 - UDPAREA copy member 311
 - UDP-COMM-AREA fields 313
 - using EPI 315
- extraction variable 54, 61
 - extended formatting 54
 - reformatting 59
 - uses 56

F

- field formats 179
- file comments 44
- file definitions
 - creating 129
 - formats of fields 179
- Free-Form Report 185, 207
 - completing report screens 209
 - creating 208
 - editing 232
- Free Form Report Window 213
- Key Breaks Screen 212
- planning 207
- printing 236
- Report Parm's screen 211

H

- hash translation for key value 151
- history database 10
- History File List utility 333
- history item 62
- History key mask
 - defining 66
 - example 68

I

- Initialize Dynamic Translation DB utility 357
- initialize text items to spaces option 26
- input source
 - planning for 29
- installation 8
- internal item 47, 48

planning for 29
internal translation table 254, 255

J

job
 creating 47
 definitions, types 33
 reconciliation
 run-time overrides 195
 running 193
 setting up basic information 35
job comments 44
Job Control Error Report 195
job definitions
 extended internal item 47
 extraction variables 54
 internal item 47
job ID 33

K

key field 149
Key mask
 history 66, 68
key matching 111

M

messages 30, 95
 processing 95
multi-level reconciliation 99

N

negative signs options 24

O

online processing
 authorizing 16
output file 193, 297
 column information 300
 creating 298
 example 305
 generating 303
 layout 305

P

parameters

 runtime for reconciliation 195
physical file
 extracting data from 130
Print Control Update Info Report utility 339
Print Management Report utility 334
print options
 setting 40
Print Suspense Aging Report utility 336
processing flow diagram 9

Q

qualifier 33

R

Recap Report 185
recap report
 interpreting the report 187
reconciliation
 job 31
 overview 10
reconciliation key 31
reconciliation level qualifier 33
reformat field 146
regular data
 maximum length 49
relative record, in external translation table 277
report
 Control Report 183, 196
 Cross-reference File Definitions Report 342
 Database Definition Listing 327
 distribution 40
 Free-Form 185, 207
 Job Control Error Report 195
 List History 334
 Recap Report 185
 User Report 185, 239
report options
 list of jobs 182
 setting up 181
reports main menu 181
return code 30
RLQ 33
rule 30, 78

- conditional
 - active 86
 - evaluation of 87
 - inactive 87
 - setting up 91
- processing when item is not found 94
- reporting status 93
- standard 94
 - active 78
 - inactive 79
 - setting up 80

S

- screens
 - data entry 15
 - menus 16
 - selection list 16
- selection field 120
 - defining 133
- selection group 120
 - toggling between AND and OR 121
 - toggling between group and subgroup level 121
- single- and double-precision numbers
 - constraints 44
- spool file
 - extracting data from 130
- starting ACR/Detail 13

T

- tables
 - external translation table 253
 - internal translation table 253
- tally out-of-balance keys 38
- tolerance
 - out-of-balance keys 38
 - out-of-balance total 38
- translation processing 253
- translation table
 - external 255
 - internal 294
 - using in a job 295
- translation table, see internal, or external table

U

- UDS2000
 - run-time overrides CALL statement 195
- UDSRUN 195
- Update from Batch Transactions utility 356
- User Guide overview 7
- user interface 9, 14
- user options 22
 - 22-character numeric 26
 - batch execution 25
 - commas 26
 - currency 23
 - date format 25
 - initialize text items to spaces 26
 - negative sign 24
 - XML 26
- User Report 185
- user report 239
 - basic user report information screen 241
 - column information 246
 - key break information 250
 - list screen 209, 240
 - page header information 244
 - setting up 239
 - user report function 244
 - user report screen 243
- utilities 10, 323
 - accessing 323
 - Build Batch Transactions 354
 - Create Batch Transactions 353
 - Cross-reference File Definitions 341
 - Definition File List 326
 - Extract History 343
 - History File List 333
 - Initialize Dynamic Translation DB 357
 - Print Control Update Info Report 339
 - Print Management Report 334
 - Print Suspense Aging Report 336
 - running 324
 - Update from Batch Transactions 356

X

- XML 184
- XML options 26