

FOCUS for S/390

COBOL FD Translator for S/390 User's Manual & Installation Guide
Release 3.0

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Preface

The *COBOL FD Translator for S/390 User's Manual and Installation Guide, Release 3.0* describes how to use the COBOL FD Translator to translate COBOL File Descriptions (FDs) into Master Files automatically. This manual also describes how to install the product.

The Translator is designed to operate under the following:

- FOCUS for the IBM Mainframe—MVS/TSO, Multi-Session Option (MSO), and VM/CMS.
- The EDA Server for MVS and VM/CMS.

This release is easy to use and offers a choice of online menus or batch submission.

This manual supersedes the *FOCUS COBOL FD Translator Users Manual Release 2.0*, the *COBOL FD Translator Installation Guide Release 2.0 for MVS/TSO and VM/CMS*, and the *EDA/SQL COBOL FD Translator for VM/CMS and MVS/TSO Installation and Operations Manual*.

Audience

The manual is intended for application developers, database administrators, and others who are responsible for providing access to legacy data.

How This Manual Is Organized

The following table describes the chapters and appendixes included in this manual.

Chapter/Appendix		Contents
1	<i>Using the COBOL FD Translator</i>	Describes the steps involved in the record translation process. It provides instructions for entering the required data for the Translator.
2	<i>Translator Options and Examples</i>	Provides examples of output, illustrating the different effects of the optional menu parameters.
3	<i>Translator Reports</i>	Describes the four standard Translator reports.
A	<i>Warning and Error Messages</i>	Lists warning and error messages.
B	<i>Installation Instructions</i>	Provides the installation instructions for the Translator under FOCUS for S/390 (MVS/TSO, MSO, and VM/CMS) and the EDA Server for MVS and VM/CMS.
C	<i>Batch Execution</i>	Describes how to execute the Translator in batch mode, using a JCL procedure in MVS or an EXEC in VM/CMS.
D	<i>Using TED to Edit or Isolate the COBOL FD</i>	Provides tips on using TED, the FOCUS text editor.

New Features and Enhancements

The following features are new for the Translator:

- An improved user interface:
 - The Translator may be executed directly from FOCUS for IBM Mainframe (MVS/TSO, MSO, and VM/CMS) and from the EDAAUTO Menu from the EDA Server for MVS and VM/CMS.
 - Multiple user input screens are replaced with one easy-to-use menu.
 - Function keys enable you to edit the input COBOL file description or view the generated Master File from the Translator menu without exiting the utility.
 - Multiple COBOL file descriptions may be described within the same session.
 - A function key enables you to display a picture of the generated Master File structure.
 - A function key enables you to display a list of COBOL file description members or Master File members.

New Features and Enhancements

- Translator reports may be viewed online without exiting the utility.
- Online ReadMe capability provides current information.
- REDEFINES can optionally be described as unique segments.
- Long packed fields are described automatically in releases that support them.
- USAGE formats for numeric fields more closely match their COBOL description.
- Fixed OCCURS fields can optionally be described as segments (introduced in Release 2.0) or as repeating fields (fld1 to fldn). This feature reintroduces, as a user selectable option, the original behavior from Release 1.0.
- Nested GROUP fields are included in the generated Master File.
- Double and single quotation marks are supported in Level 88 value clauses.
- The installation process is simplified.

Version 3.0.2 contains the following enhancements and corrections:

- Execution is supported in the VM/CMS operating system.
- Return codes from batch execution indicate when error, warning, or informational messages are issued.
- The record length of the input FD is validated.
- Lengths for Group fields with repeating numeric elements are calculated correctly.

Version 3.0.1 contains the following enhancements and corrections:

- The Translator executes successfully with HiperFOCUS enabled.
- Group fields composed of numeric elements are commented when their length exceeds 256 characters.
- Master Files are generated correctly in MSO when SYSOUT is not allocated.

Release 3.0 corrects the following issues in which:

- Multiple OCCURS segments were incorrectly positioned in the Master File.
- The “OCCURS 0 TO n DEPENDING ON field” phrase used “n” instead of “field.”
- Large zoned fields (greater than 15 digits) were not accurately described.
- Incorrect results were produced from REDEFINE fields with OCCURS that spanned two lines.
- Group fields that exceed 256 characters were not displayed.
- The Translator generated errors with double quotation marks in the Level 88 VALUE clause.

- PIC 99 fields were incorrectly described as USAGE=P3.

Documentation Conventions

The following conventions apply throughout this manual:

Convention	Description
<code>THIS TYPEFACE</code>	Denotes a command that you must enter in uppercase, exactly as shown.
<code>this typeface</code>	Denotes a value that you must supply.
{ }	Indicates two choices from which you must choose one. You type one of these choices, not the braces.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices, not the symbol.
[]	Indicates optional parameters. None of them is required, but you may select one of them. Type only the information within the brackets, not the brackets.
<u>underscore</u>	Indicates the default value.
...	Indicates that you can enter a parameter multiple times. Type only the information, not the ellipsis points.

Related Publications

See the *FOCUS for S/390 User's Manual* and the EDA documentation for details on describing VSAM and fixed files.

See the Information Builders Publications Catalog for the most up-to-date listing and prices of technical publications, plus ordering information. To obtain a catalog, contact the Publications Order Department at (800) 969-4636.

You can also visit our World Wide Web site, <http://www.ibi.com>, to view a current listing of our publications and to place an order.

Information Builders Systems Journal

The *Information Builders Systems Journal* is a unique technical publication dedicated to providing you with the latest information necessary to enhance your use of FOCUS and all other Information Builders products.

Through its detailed articles, illustrated with code, screen shots, and other visuals, the Journal challenges you to develop better reporting habits, customize features to enhance your systems applications, utilize its tips and techniques for better performance and productivity, and so much more.

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Do you have questions about COBOL FD Translator?

Call Information Builders Customer Support Services (CSS) at (800) 736-6130 or (212) 736-6130. Customer Support Consultants are available Monday through Friday between 8:00 a.m. and 8:00 p.m. EST to address all your COBOL FD Translator questions. Information Builders consultants can also give you general guidance regarding product capabilities and documentation. Please be ready to provide your six-digit site code number (xxxx.xx) when you call.

You can also access support services electronically, 24 hours a day, with InfoResponse Online. InfoResponse Online is accessible through our World Wide Web site, <http://www.ibi.com>. It connects you to the tracking system and known-problem database at the Information Builders support center. Registered users can open, update, and view the status of cases in the tracking system, and read descriptions of reported software issues. New users can register immediately for this service. The technical support section of www.informationbuilders.com also provides usage techniques, diagnostic tips, and answers to frequently asked questions.

To learn about the full range of available support services, ask your Information Builders representative about InfoResponse, or call (800) 969-INFO.

Information You Should Have

To help our consultants answer your questions most effectively, be ready to provide the following information when you call:

- Your six-digit site code number (xxxx.xx).
- The release of FOCUS or EDA that you are using.
- The release of your operating system.
- If applicable, your EDA configuration:
 - The front end you are using, including vendor and release.
 - The communications protocol (for example, TCP/IP or LU6.2), including vendor and release.
 - The EDA Client software release.

Preface

- The server you are accessing, including release (for example, 3.2.3).
- The exact nature of the problem:
 - Are the results or is the format incorrect; is the text or calculations missing or misplaced?
 - The error message and return code, if applicable.
 - Is this related to any other problem?
- Has the procedure ever worked in its present form? Has it been changed recently? How often does the problem occur?
- Is this problem reproducible? If so, how?
- Have you tried to reproduce your problem in the simplest form possible?
- How is the problem affecting your business? Is it halting development? Do you just have questions about functionality or documentation?

User Feedback

In an effort to produce effective documentation, the Documentation Services staff at Information Builders welcomes any opinion you can offer regarding this manual. Please use the Reader Comments form at the end of this manual to relay suggestions for improving the publication or to alert us to corrections. You can also use the Document Enhancement Request Form on our Web site, <http://www.ibi.com>.

Thank you, in advance, for your comments.

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1 Using the COBOL FD Translator

Topics:

- Isolating the COBOL FD
- Executing the COBOL FD Translator
- Entering Selections
- Generating the Master File
- Customizing the Master File

The COBOL FD Translator is a productivity tool that enables you to write reports from files described to COBOL. It creates Master Files automatically, based on information from the specified COBOL File Description (FD) and your translation selections.

The COBOL FD Translator may be executed interactively with online menus or as either an MVS batch job or VM/CMS EXEC procedure. If you choose to execute the Translator interactively, see *Entering Selections* on page 1-4 for an example of the Translator menu from which you can enter your selections.

Using the COBOL FD Translator

There are five basic steps for translating a COBOL FD.

Step		See Section ...
1.	Isolate the COBOL file description. Using any standard editor, such as TED, SPF, TSO (Edit), or CMS XEDIT, extract the file description from the COBOL program and place it in a separate dataset.	<i>Isolating the COBOL FD</i> on page 1-3.
2.	Execute the Translator. You may execute the Translator in the foreground or background.	<i>Executing the COBOL FD Translator</i> on page 1-3.
3.	Enter your selections. On the Translator menu, indicate the current location of the COBOL file description, the target location for the generated Master File, and any special processing options you wish to use.	<i>Entering Selections</i> on page 1-4.
4.	After you complete the Translator menu selections, the Translator generates the Master File and stores it in the specified location. The Translator also generates up to four reports that enable you to evaluate the process.	<i>Generating the Master File</i> on page 1-10. See also Chapter 3, <i>Translator Reports</i> .
5.	Customize the Master File. Using the facilities of TED, SPF, TSO (Edit), or CMS XEDIT, edit the generated Master File to add or modify information.	<i>Customizing the Master File</i> on page 1-13.

Translator Prerequisites

The Translator requires a syntactically correct COBOL file description for input. While scanning the COBOL file description, the Translator performs a number of syntax checks. If any of the COBOL statements are invalid, the Translator produces debugging messages, the program stops executing, and a Master File is not generated. Although the syntax check can identify a variety of errors, you should specify only valid COBOL file descriptions that compile successfully.

At a minimum, a valid COBOL file description must have these attributes:

- Level-numbers must be a one- or two-digit integer. Values can be 1 through 49, 66, 77, or 88.
- Level-numbers 01 and 77 must begin in Columns 8 through 11; all other level-numbers may begin in Columns 8 through 72.
- Comment lines are identified with an asterisk (*) in Column 7.
- Continuation lines are identified with a hyphen (-) in Column 7.

- The COBOL file description starts with a level-number 01 column and ends with the last column described.
- The COBOL fieldnames are in upper case characters.
- Other COBOL instructions are not permitted as input.

Isolating the COBOL FD

Before you begin the translation, you must isolate the COBOL FD. You may use any standard editor such as TED, SPF, TSO (Edit), or CMS XEDIT to extract the COBOL FD from your COBOL programs. You may do this before executing the Translator or from the Translator menu.

In MVS, the FD can be exported to either a standard sequential or partitioned dataset. This dataset must have a record length of 80 and cannot be part of a change management package such as Panvalet.

In VM, the FD must be in a file with a record length of 80.

For instructions on using TED, refer to Appendix D, *Using TED to Edit or Isolate the COBOL FD*.

Executing the COBOL FD Translator

There are four ways to execute the Translator:

- To execute the Translator from FOCUS in MVS/TSO, MSO, or VM/CMS, enter the following command from the FOCUS command prompt:

```
EX CTF30
```
- To execute the Translator from the EDA Server for MVS, execute the EDAAUTO CLIST from the TSO Ready prompt. Select the COBOL FD Translator option from the menu.
- To execute the Translator from the EDA Server for VM/CMS, enter the following command from the Ready prompt:

```
FOCUS EXEC CTF30
```
- To execute the Translator in MVS batch mode or from an EXEC in VM/CMS, refer to Appendix C, *Batch Execution*.

Entering Selections

When you execute the Translator, you will see the Translator menu. On this screen, specify the current location of the COBOL file description, the target location of the resulting Master File, and any special processing options you wish to use. You may edit the input COBOL FD prior to beginning and view the output and reports when completed.

The Translator menu for MVS is shown below. The Translator menu for VM/CMS follows. Default responses for the optional parameters are shown and acceptable values appear to the right of the input area. When you enter a parameter value, you are only required to type the capitalized abbreviation.

```

                                COBOL FD Translator - Version 3.0

COBOL FD Dataset Name =>
    Member (if PDS) =>

MFD Dataset Name => userid.MASTER.DATA
    MFD Member =>
    Replace Member => N (Yes,No)

File Type (SUFFIX=)           => F      (Fix,Com,Vsam,Isam)
Field Name Length             => 30     (12,30)
Skip 'n' Hyphens in COBOL Name => 0    (0,1,2,3)
Remove Hyphens or Use Underbars=> R    (Remove,Underbars)
Generate GROUP Fields         => A      (All,None,Printable only)
Generate REDEFINE Fields      => C      (Comments,None,Segments)
Generate LEVEL 88 as Comments => Y      (Yes,No)
Describe Occurs as Segments   => Y      (Yes,No)
Zoned Numeric Field Usage     => P      (Packed,Alpha)
Numeric Field Edit Options    =>        (S,C,B,R,M,N,L combinations)

1=Help      2=Read Me  3=Exit   4=Edit FD   5=Edit MFD  6=Check MFD
7=FD List   8=MFD List 9=Header 10=Messages 11=Debugging 12=Audit

```

```

          COBOL FD Translator - Version 3.0
          COBOL FD Name =>          COBOL      *

          MFD Name =>              MASTER    A
          Replace MFD => N  (Yes,No)

File Type (SUFFIX=)          => F          (Fix,Com,Vsam,Isam)
Field Name Length           => 30         (12,30)
Skip 'n' Hyphens in COBOL Name => 0      (0,1,2,3)
Remove Hyphens or Use Underbars=> R      (Remove,Underbars)
Generate GROUP Fields       => A          (All,None,Printable only)
Generate REDEFINE Fields   => C          (Comments,None,Segments)
Generate LEVEL 88 as Comments => Y       (Yes,No)
Describe Occurs as Segments => Y         (Yes,No)
Zoned Numeric Field Usage  => P          (Packed,Alpha)
Numeric Field Edit Options  =>           (S,C,B,R,M,N,L combinations)

1=Help      2=Read Me   3=Exit    4=Edit FD   5=Edit MFD  6=Check MFD
7=FD List   8=MFD List  9=Header 10=Messages 11=Debugging 12=Audit

```

The following sections describe the Translator menu options and the values you may supply for the parameters. See Chapter 2, *Translator Options and Examples*, for more details and sample input and output.

MVS Dataset Information

The following list describes the dataset parameters in the Translator menu for MVS.

COBOL FD Dataset Name

Enter the fully-qualified dataset name where the COBOL FD to be described is stored. Do not use quotation marks in the dataset name. The dataset may be sequential or partitioned. If it is partitioned, include the member name in the Member entry.

Member (if PDS)

Enter the member name of the COBOL FD if it is stored in a partitioned dataset (PDS). If the dataset is sequential, leave this entry blank. This parameter may also be supplied by choosing it from a list (see *MVS Member Display List* on page 1-9 for details).

Using the COBOL FD Translator

MFD Dataset Name

Enter the fully-qualified dataset name of the Master File PDS where the Master File will be stored. Do not use quotation marks in the dataset name.

MFD Member

Enter the 1 to 8-character name that you will use for the data in all requests. This name must be a valid member name. This parameter may also be supplied by choosing it from a list (see *MVS Member Display List* on page 1-9 for details).

Replace Member (Yes, No)

Enter N if you do not want to overwrite an existing Master File. Enter Y if you wish to replace a Master File that already exists.

VM/CMS File Information

The following list describes the file name parameters in the Translator for VM/CMS.

COBOL FD Name

Enter the filename, filetype, and filemode of the COBOL FD. You may use an asterisk (*) in the filemode to search all attached disks. When selecting the List function, you can use the special character * (asterisk) to represent any number of characters in the filename and filetype (see *VM/CMS File Display List* on page 1-10 for details).

MFD Name

Enter the 1 to 8 character name that you will refer to the data as in all requests. This name must be a valid filename. The filetype is always MASTER. Enter the filemode where the MFD will be written. When selecting the List option, the special character * can be used in the MFD name and the * can be used in the filemode (see *VM/CMS File Display List* on page 1-10 for details).

Replace MFD (Yes, No)

Enter 'N' if you do not want to overwrite an existing MFD. Enter 'Y' if you wish to replace a Master File that already exists.

File and Fieldname Information

The following list describes the file and fieldname parameters in the Translator menu.

File Type (SUFFIX=) (Fix,Com,Vsam,Isam)

Describes the access method used to retrieve data from the file. It is used to populate the SUFFIX attribute in the Master File. Enter F for fixed-format sequential files, C for comma-delimited files, V for VSAM files, and I for ISAM files.

Fieldname Length (12,30)

Enter 30 to generate fieldnames of up to 30 characters. Enter 12 to generate 12-character fieldnames, noting that the COBOL fieldnames may be truncated. Software releases that do not support long fieldnames do not allow you to change this value from 12.

Skip 'n' Hyphens in COBOL Name (0,1,2,3)

Enter the number of COBOL prefixes to eliminate from the Master File fieldnames. A value of 0 will retain the entire COBOL name. A value of 1 ignores the first prefix, up to and including the first hyphen in the COBOL name.

Remove Hyphens or Use Underbars (Remove,Underbars)

Enter R to remove all hyphens in the COBOL name from the Master File fieldnames. Enter U to replace all hyphens in the COBOL name with the underscore character.

Special Options

The following list describes the parameters for the special options in the Translator menu.

Generate GROUP Fields (All,None,Printable only)

Enter A to include all COBOL group fields as GROUP fields in the Master File. Enter N to exclude all COBOL group fields from the Master File. Enter P to include only printable group fields in the Master File. A printable group is one that is composed only of alphanumeric elements. A non-printable group is composed of one or more numeric elements, which are not readable when printed as part of the group.

Generate REDEFINE Fields (Comments,None,Segments)

Enter C to include COBOL REDEFINE fields as comments in the Master File. Enter N to exclude REDEFINES from the Master File. Enter S to describe first level REDEFINE fields as segments. Note that nested REDEFINES are described as comments, even with this option. The Comment option allows you to customize the Master File output to select the redefinitions of your choice. The Segment option gives you immediate access to all first level REDEFINES and may still require customization. The Segment option is only available in software releases that support it.

Generate LEVEL 88 as Comments (Yes,No)

Enter Y to include COBOL level 88 fields as comments in the Master File. Enter N to exclude level 88 fields. The comments act as documentation in the Master File, describing the values of the primary field.

Using the COBOL FD Translator

Describe Occurs as Segments (Yes,No)

Enter Y to describe all COBOL OCCURS fields as segments in the Master File. Enter N to describe fixed OCCURS as individual fields. The existence of any variably occurring group causes this value to be treated as Y.

Zoned Numeric Field Usage (Packed,Alpha)

Enter P to describe unsigned zoned numeric fields as packed numeric data. Enter A to describe these fields as alphanumeric.

Numeric Field Edit Options (S,C,B,R,M,N,L combinations)

Enter up to five edit options from the following list, to be used when displaying numeric fields. This entry may also be left blank for no editing of numeric fields.

- S -Suppresses printing of the digit zero for a field whose value is zero.
- C -Includes commas where appropriate, for example, 1,234.
- B -Brackets negative values, for example, (1234).
- R -Credits negative values, for example, 1234 CR.
- M -Displays a floating dollar sign with commas, for example, \$1,234.
- N -Displays a fixed dollar sign with commas, for example, \$ 1,234.
- L -Displays leading zeroes, for example, 001234.

Edit options may be entered in any order and combination except for the pairs SL, MN, and BR, which are mutually exclusive.

Function Keys

The following list describes the purpose of the function (PF) keys in the Translator menu.

1=Help

Displays the online help screen.

2=Read Me

Displays recent announcements not yet in the documentation.

3=Exit

Exits the COBOL FD Translator.

4=Edit FD

Edits the COBOL FD using TED.

5=Edit MFD

Edits the Master File using TED.

6=Check MFD

Checks the Master File member for errors and generates a diagram of its structure. After the picture is displayed, type in any character and press the Enter key. In MVS, the member must reside in a dataset allocated to ddname MASTER, EDAMFD, or HOLDMAST for this option to execute successfully (the Master File Dataset Name is not used).

7=FD List

Displays a list COBOL FDs. dataset.

8=MFD List

Displays a list of members in the partitioned Master File dataset.

9=Header

Edits the Header Page using TED.

10=Messages

Edits the Messages Report using TED.

11=Debugging

Edits the Debugging Report using TED.

12=Audit

Edits the Audit Report using TED.

MVS Member Display List

Once you have entered a COBOL FD dataset or Master File dataset name, you can display a list of existing members in the designated dataset to select a member rather than having to type it. Press the PF7 key to list members of the COBOL FD dataset. Press the PF8 key to list members of the Master File dataset. The following screen shows the member display list for the supplied COBOL FD dataset:

```

          COBOL FD Translator - Version 3.0      +-----+
COBOL FD Dataset Name => userid.CTF.COBOL      |COBOL FD members|
Member (if PDS) =>                             |+(MORE)-----+
          MFD Dataset Name => userid.MASTER.DATA |MGROUP          |
          MFD Member =>                         |MMAX4K          |
          Replace Member => N (Yes,No)         |MMAX4KOK        |
          |MOCCURSF                             |MOCCURSM        |
          |MOCCURSN                             |MOCCURSV        |
File Type (SUFFIX=)      => F          (Fix,Com,Vsam,I |MREDEF          |
Field Name Length        => 30          (12,30)         |MSALES          |
Skip n Hyphens in COBOL Name => 0      (0,1,2,3)        |MSALES1         |
Remove Hyphens or Use Underbars=> R      (Remove,Underba |MSALES20        |
Generate GROUP Fields    => A          (All,None,Print  |MSALES22        |
Generate REDEFINE Fields => C          (Comments,None,  |MSKIPD          |
Generate LEVEL 88 as Comments => Y      (Yes,No)         |M01             |
Describe Occurs as Segments => Y        (Yes,No)         |M1OLD           |
Zoned Numeric Field Usage => P          (Packed,Alpha)   |PSAFOLD         |
Numeric Field Edit Options =>           (S,C,B,R,M,N,L    |+(MORE)-----+
1=Help      2=      3=Return      4=Edit      5=Edit      6=
7=Backward  8=Forward  9=      10=      11=      12=

```

Using the COBOL FD Translator

The member display list shows the members from the selected partitioned dataset. Scroll the list by pressing the PF7 or PF8 key. Search for a string by entering any pattern and pressing the Enter key. The asterisk (*) is a multiple-character wild card. The question mark (?) is a single-character wild card. An equal sign (=) can be used to repeat the previous search.

You may view a member by placing the cursor on it and pressing the PF4 or PF5 key. You may select a member from this list by positioning the cursor on it and pressing the Enter key. This member name then appears on the Translator menu.

VM/CMS File Display List

You can display a list of existing COBOL FD or Master Files from which you can select. Enter mask values in the file name, file type, and file mode, using the asterisk (*) as a wildcard to represent any number of characters. Press the PF7 key to list matching COBOL FDs. Press the PF8 key to list matching Master Files. The following screen shows the member display list for the mask 'M* COBOL *':

The file display list shows files that match the mask that you entered. Scroll the list by pressing the PF7 or PF8 key. Search for a string by entering any pattern and pressing the Enter key. The asterisk (*) is a multiple-character wild card; the question mark (?) is a single-character wild card. An equal sign (=) can be used to repeat the previous search.

You may view a file by placing the cursor on it and pressing the PF4 or PF5 key. You may select a file from this list by positioning the cursor on it and pressing the Enter key. This file name then replaces the mask on the Translator menu.

Generating the Master File

Once you have filled out the Translator menu, press the Enter key to initiate processing. All of the screen options are checked for accuracy. A list of possible error messages is found in Appendix A, *Warning and Error Messages*. After all entries are validated, the Translator attempts to parse the COBOL FD and create the Master File. Upon successful completion, the following message is displayed:

```
PROCESSING COMPLETED.
```

If informational messages are generated, the following message is displayed:

```
PROCESSING COMPLETED. PLEASE CHECK REPORTS FOR MESSAGES.
```

If warning messages are generated which require customization of the generated Master File, the following message is displayed:

```
PROCESSING COMPLETED. RESULTS MAY REQUIRE CUSTOMIZATION, CHECK REPORTS.
```

If errors are found, the following message is displayed:

```
ERROR/WARNING MESSAGES GENERATED. PLEASE CHECK REPORTS.
```

Whether or not an error message is generated, we strongly recommend that you view the Translator reports after completing translation. The content of these reports is described in Chapter 3, *Translator Reports*.

Viewing Translator Output and Results

The output of the Translator (either the Master File or the reports) can be viewed immediately from the Translator menu by pressing the appropriate function key (see *Function Keys* on page 1-8). The files are displayed with the TED editor. To exit TED without making any changes, press the PF3 key. To end the TED session at any time after making changes, type QUIT on the command line and press the Enter key. Press the PF7 and PF8 keys to scroll backwards and forwards, respectively. You may get help for the TED editor at any time by pressing the PF1 key twice or by typing HELP on the command line. See Appendix D, *Using TED to Edit or Isolate the COBOL FD*, for more information on TED.

Checking the Master File

To check the generated Master File for errors and to display the structure of the file, press the PF6 key. Please note that the Translator makes every effort to describe the COBOL FD accurately; however, it may not be able to handle every situation properly. These occurrences can be easily corrected by manually editing the Master File.

In MVS, the dataset where the Master File is generated must be pre-allocated to ddname MASTER, EDAMFD, or HOLDMAST for this option to execute properly. If not, the following error message is displayed:

```
(FOC205) DESCRIPTION NOT FOUND FOR FILE NAMED:
```

Saving the Reports to Permanent Files

In VM/CMS, the Translator reports are created on the users 'A' mini disk. Each execution of the Translator overwrites the last set of reports, but the final set is retained after exiting the Translator.

In MVS, the Translator reports are created in temporary datasets. Each execution of the Translator overwrites the last set of reports, but they are retained as temporary files after exiting the Translator. There are two methods that you can use to save the reports in a permanent dataset, one from the Translator menu, and one from FOCUS:

- From the Translator menu, view the report by pressing the appropriate function key (see *Function Keys* on page 1-8). On the TED editor command line, issue the following command:

```
PUT *
```

This command will save the contents of the file in memory. On the command line, issue the following command

```
TED 'data.set.name'
```

where:

```
'data.set.name'
```

Is the fully-qualified name of a dataset that already exists. This dataset must have a record length of 133 and record format of FBA. The block size must be a multiple of the record length.

If you want to append data to an existing file, issue the following command:

```
BOTTOM
```

Once the second file is open, issue the following command:

```
GET
```

This will retrieve the lines "put" from the original file. To save the information, enter the following on the command line:

```
FILE
```

You will be returned to the original report file, where you can press the PF3 key to exit.

- When executing the Translator from FOCUS or MSO, you may copy the report output to a permanent dataset using the DYNAM COPY command. Exit the Translator and issue the following from the FOCUS command line

```
DYNAM COPY PRINTn data.set.name
```

where:

```
n
```

Is the report number that you are copying (see Chapter 3, *Translator Reports*).

data.set.name

Is the fully-qualified dataset name of the target file.

You may append to the target dataset by issuing the following command:

```
DYNAM COPY PRINTn data.set.name APPEND
```

Customizing the Master File

You may use any editor to change the Master File. There are several reasons why the Master File may need to be customized, for example:

- One of the following warnings is issued:

```
FR027W - 'SUFFIX=ISAM' SPECIFIED; 'ALIAS = KEY' FIELD SHOULD BE ADDED TO THE
FOCUS DESCRIPTION MANUALLY TO IDENTIFY THE ISAM KEY
```

```
FR028W - 'SUFFIX=VSAM' SPECIFIED; 'ALIAS = KEY' FIELD SHOULD BE ADDED TO THE
FOCUS DESCRIPTION MANUALLY TO IDENTIFY THE VSAM KEY
```

- The COBOL FD describes a VSAM file that contains secondary indexes and you want to add this information to the Master File.
- The COBOL FD contains multiple record types. The Translator cannot determine what values are associated with which records.
- You want to use commented REDEFINE fields instead of the original fields.
- You want to add date formats (for example, YMD) to date fields. The Translator cannot reliably determine date fields, or their appropriate format.
- You want to change display lengths or formats for numeric fields. For example, all unsigned zoned fields may be described as either packed or alphanumeric. You may want to change the formats for one or more of these fields. Also, you may want to increase the size of numeric fields to support totals.
- You want to change fieldnames from COBOL to something more user friendly. You may also want to rename fields generated by the Translator.
- You want to display occurrence numbers for repeating groups by adding the ORDER field.
- You want to add comments to the Master File. Comments begin with a dollar sign (\$) in column one.
- You want to remove segments generated from OCCURS or REDEFINE clauses when the number of segments in the Master File exceeds the maximum of 64.
- You want to add DESCRIPTION or TITLE attributes to the field definition.

You should always check the Master File for errors after making any changes to it.

2 Translator Options and Examples

Topics:

- Fieldname Information
- Special Options
- Field Formatting
- Multiple Records as Input
- Maximum Number of Fields
- Year 2000

The Translator menu offers you a variety of file conversion options, such as converting COBOL fieldnames to fieldnames in Master Files. This chapter describes these options and illustrates them with sample input and output.

Fieldname Information

The Translator generates fieldnames in the Master File from COBOL fieldnames using the following procedure:

1. The Translator processes the Skip 'n' Hyphens option. It removes characters from the left, up to and including the nth hyphen (depending on the value of n you entered on the menu). It then either removes all remaining hyphens or replaces them with underscores, depending on the setting of the menu option Remove Hyphens or Use Underbars. Finally, if the Field Name Length option has been set to 12, the Translator uses only the 12 leftmost characters.
2. If the name duplicates a previously-generated fieldname, a qualifier is added to make it unique. For example, given the following COBOL structure

```
02  EMPL-POR-TION.  
    03  SOC-SEC-NUM  PIC 9(9).  
02  MGR-POR-TION.  
    03  SOC-SEC-NUM  PIC 9(9).
```

the Translator will generate SOCSECNUM from the first elementary fieldname and SOCSECNUM2 from the second elementary fieldname.

Translator Options and Examples

The following table illustrates the results of the possible combinations of menu options that control fieldname generation.

COBOL Fieldname: PAYROLL-REC-IN-FICA			
Fieldname Length	Remove Hyphens or Use Underbars	Skip 'n' Hyphens	Generated Fieldname
12	Remove Hyphens	0 1 2 3	PAYROLLRECIN RECINFICA INFICA FICA
	Use Underbars	0 1 2 3	PAYROLL_REC REC_IN_FICA IN_FICA FICA
30	Remove Hyphens	0 1 2 3	PAYROLLRECINFICA RECINFICA INFICA FICA
	Use Underbars	0 1 2 3	PAYROLL_REC_IN_FICA REC_IN_FICA IN_FICA FICA

Special Options

From the Translator menu, you can also generate GROUP fields, REDEFINE fields, Level 88 comments, and describe COBOL OCCURS as segments. The following sections give examples of input and output for the different values for these options.

Generate GROUP Fields

You have three options for how GROUP fields are included in the Master File generated by the Translator:

- Include all GROUP fields in the Master File (enter A for all).
- Exclude all GROUP fields from the Master File (enter N for none).
- Include only printable GROUP fields in the Master File (enter P for printable only).

A printable group is one that is composed only of alphanumeric elements. A non-printable group is composed of one or more numeric elements, which are not readable when printed as part of the group. Note that any GROUP field that exceeds 256 characters will always be included in the Master File as a comment.

Example **Generate GROUP Fields**

Consider the following COBOL input description:

```
01  PAYROLL-REC.
    05  PAYROLL-NAME.
        10  PAYROLL-LAST-NAME  PIC X(20).
        10  PAYROLL-FIRST-NAME PIC X(10).
    05  PAYROLL-AMT-FIELDS.
        10  PAYROLL-AMT-CURR-YR  PIC S9(7)V99 COMP-3.
        10  PAYROLL-AMT-PREV-YR  PIC S9(7)V99 COMP-3.
```

The Translator can generate the following three Master Files from this input, depending on the value entered for Generate GROUP Fields.

For a value of A:

```
FILE=GROUPA,                SUFFIX=FIX,                $
SEGNAME=RECSEG,             SEGTYPE=S0,                $
  GROUP=REC,                 ALIAS=E01,                 USAGE=A46,                 ACTUAL=A40,                $
  GROUP=NAME,                ALIAS=E02,                 USAGE=A30,                 ACTUAL=A30,                $
  FIELD=LASTNAME,           ALIAS=E03,                 USAGE=A20,                 ACTUAL=A20,                $
  FIELD=FIRSTNAME,          ALIAS=E04,                 USAGE=A10,                 ACTUAL=A10,                $
  GROUP=AMTFIELDS,          ALIAS=E05,                 USAGE=A16,                 ACTUAL=A10,                $
  FIELD=AMTCURRYR,          ALIAS=E06,                 USAGE=P11.2,               ACTUAL=P5,                 $
  FIELD=AMTPREVYR,          ALIAS=E07,                 USAGE=P11.2,               ACTUAL=P5,                 $
```

For a value of N:

```
FILE=GROUPN,                SUFFIX=FIX,                $
SEGNAME=RECSEG,             SEGTYPE=S0,                $
  FIELD=LASTNAME,           ALIAS=E01,                 USAGE=A20,                 ACTUAL=A20,                $
  FIELD=FIRSTNAME,          ALIAS=E02,                 USAGE=A10,                 ACTUAL=A10,                $
  FIELD=AMTCURRYR,          ALIAS=E03,                 USAGE=P11.2,               ACTUAL=P5,                 $
  FIELD=AMTPREVYR,          ALIAS=E04,                 USAGE=P11.2,               ACTUAL=P5,                 $
```

For a value of P:

```
FILE=GROUPP,                SUFFIX=FIX,                $
SEGNAME=RECSEG,             SEGTYPE=S0,                $
  GROUP=NAME,                 ALIAS=E01,                 USAGE=A30,                 ACTUAL=A30,                $
  FIELD=LASTNAME,           ALIAS=E02,                 USAGE=A20,                 ACTUAL=A20,                $
  FIELD=FIRSTNAME,          ALIAS=E03,                 USAGE=A10,                 ACTUAL=A10,                $
  FIELD=AMTCURRYR,          ALIAS=E04,                 USAGE=P11.2,               ACTUAL=P5,                 $
  FIELD=AMTPREVYR,          ALIAS=E05,                 USAGE=P11.2,               ACTUAL=P5,                 $
```

For the P value output, the group field REC contains two numeric fields, AMTCURRYR and AMTPREVYR, and is therefore not included in the Master File. You should include all groups when describing VSAM files whose primary keys contain numeric fields.

Generate REDEFINE Fields

You may treat COBOL REDEFINE fields in one of three ways:

- Describe REDEFINES as segments in the Master File (enter S for segments).
- Describe REDEFINES as comments in the Master File (enter C for comments).
- Exclude REDEFINES altogether (enter N for none).

Describing REDEFINES as segments gives you immediate access to all first-level REDEFINES but may still require user customization. Note that nested REDEFINES are described as comments, even with this option. The Segment option is only available in software releases that support it. Including REDEFINES as comments allows you to customize the Master File output to select the redefinitions of your choice.

Fields are described as comments with a dollar sign (\$) in column one. If you wish to use the redefinition of a field instead of the original definition, delete the first definition, or insert dollar signs (\$) in column one, and remove the dollar signs (\$) from the redefinition.

Example

Generate REDEFINE Fields

Consider the following COBOL input description:

```
01 CLIENT-REC.
  02 NAME-ADDR-AREA          PIC X(57).
  02 NAME-AND-ADDR
    REDEFINES NAME-ADDR-AREA.
    03 NAME                  PIC X(20).
    03 STREET                PIC X(15).
    03 CITY                  PIC X(15).
    03 STATE                 PIC X(2).
    03 ZIP                   PIC X(5).
    03 ZIP_NUMERIC          REDEFINES ZIP PIC 9(5).
```

The Translator can generate the following three Master Files from this input, depending on the value entered for Generate REDEFINE Fields.

For a value of S:

```
FILE=REDEFS,                                SUFFIX=FIX,                                $
SEGNAME=CLIENSEG,                            SEGTYPE=S0,                                $
  GROUP=CLIENTREC,                            ALIAS=E01,                                USAGE=A57,                                ACTUAL=A57,                                $
  FIELD=NAMEADDRAREA,                        ALIAS=E02,                                USAGE=A57,                                ACTUAL=A57,                                $
SEGNAME=NAMEASEG,                            SEGTYPE=U,                                PARENT=CLIENSEG,
OCCURS=1,                                    POSITION=NAMEADDRAREA,                                $
  GROUP=NAMEANDADDR,                        ALIAS=E03,                                USAGE=A57,                                ACTUAL=A57,                                $
  FIELD=NAME,                                ALIAS=E04,                                USAGE=A20,                                ACTUAL=A20,                                $
  FIELD=STREET,                              ALIAS=E05,                                USAGE=A15,                                ACTUAL=A15,                                $
  FIELD=CITY,                                ALIAS=E06,                                USAGE=A15,                                ACTUAL=A15,                                $
  FIELD=STATE,                              ALIAS=E07,                                USAGE=A2,                                 ACTUAL=A2,                                 $
  FIELD=ZIP,                                ALIAS=E08,                                USAGE=A5,                                 ACTUAL=A5,                                 $
$ FIELD=ZIP_NUMERIC,                        ALIAS=E09,                                USAGE=P5,                                 ACTUAL=Z5,                                $
```

For a value of C:

```

FILE=REDEFC,                                SUFFIX=FIX,                                $
SEGNAME=CLIENSEG,        SEGTYPE=S0,                                $
    GROUP=CLIENTREC,    ALIAS=E01,    USAGE=A57,    ACTUAL=A57,    $
    FIELD=NAMEADDRAREA, ALIAS=E02,    USAGE=A57,    ACTUAL=A57,    $
$ GROUP=NAMEANDADDR,    ALIAS=E03,    USAGE=A57,    ACTUAL=A57,    $
$   FIELD=NAME,        ALIAS=E04,    USAGE=A20,    ACTUAL=A20,    $
$   FIELD=STREET,     ALIAS=E05,    USAGE=A15,    ACTUAL=A15,    $
$   FIELD=CITY,       ALIAS=E06,    USAGE=A15,    ACTUAL=A15,    $
$   FIELD=STATE,     ALIAS=E07,    USAGE=A2,    ACTUAL=A2,    $
$   FIELD=ZIP,       ALIAS=E08,    USAGE=A5,    ACTUAL=A5,    $
$   FIELD=ZIP_NUMERIC, ALIAS=E09,    USAGE=P5,    ACTUAL=Z5,    $

```

For a value of N:

```

FILE=REDEFN,                                SUFFIX=FIX,                                $
SEGNAME=CLIENSEG,        SEGTYPE=S0,                                $
    GROUP=CLIENTREC,    ALIAS=E01,    USAGE=A57,    ACTUAL=A57,    $
    FIELD=NAMEADDRAREA, ALIAS=E02,    USAGE=A57,    ACTUAL=A57,    $

```

Generate LEVEL 88 as Comments

Level 88 fields in the COBOL FD associate particular values with a fieldname. Level 88 fields and values are not required in the Master File; however, the Translator allows you to include them as comments. Enter Y (for yes) to include them or N (for no) to exclude them. Including Level 88 fields lets you easily identify values for RECTYPES for those files that require Level 88 fields. (You must manually add the RECTYPE and value. Because many Level 88 fields may occur in a COBOL FD, it is impossible for the Translator to successfully determine the appropriate RECTYPE fields and values.) Since Level 88 fieldnames typically describe the values they represent, including them as comments is also a way to document the Master File.

Example Generate LEVEL 88 as Comments

Consider the following COBOL input description:

```

01  EMPL-REC.
    02  EMPL-SOC-SEC-NUM          PIC S9(8) COMP-3.
    02  EMPL-STATUS              PIC X(1).
        88  EMPL-ACTIVE          VALUE 'A'.
        88  EMPL-INACTIVE       VALUE 'I'.
        88  EMPL-RETIRED        VALUE 'R'.

```

The Translator can generate the following two Master Files from this input, depending on the value entered for Generate LEVEL 88 as Comments.

Translator Options and Examples

For a value of Y:

```
FILE=LEV88Y,                                SUFFIX=FIX,                                $
SEGNAME=RECSEG,                            SEGTYPE=S0,                                $
    FIELD=SOCSECNUM,    ALIAS=E01,    USAGE=P9,    ACTUAL=P5,    $
    FIELD=STATUS,    ALIAS=E02,    USAGE=A1,    ACTUAL=A1,    $
$      ACTIVE, VALUE 'A'.                    $
$      INACTIVE, VALUE 'I'.                  $
$      RETIRED, VALUE 'R'.                   $
```

The Level 88 fields are indented under the field they describe (STATUS). The values are left-justified to include the maximum information in the Master File, when many values are in the COBOL record. If the COBOL Level 88 values exceed one line in the FD, only the first line will be included in the Master File.

For a value of N:

```
FILE=LEV88N,                                SUFFIX=FIX,                                $
SEGNAME=RECSEG,                            SEGTYPE=S0,                                $
    FIELD=SOCSECNUM,    ALIAS=E01,    USAGE=P9,    ACTUAL=P5,    $
    FIELD=STATUS,    ALIAS=E02,    USAGE=A1,    ACTUAL=A1,    $
```

Describe OCCURS as Segments

The Translator supports all forms of COBOL OCCURS structures: fixed, variable, and nested. You may describe OCCURS structures as segments in the Master File or as individual, numbered fields. Enter Y (for yes) to describe OCCURS structures as segments or N (for no) otherwise.

Fixed and nested repeating groups described as segments use the OCCURS clause to describe the number of occurrences of the group. For fixed repeating groups, the OCCURS value is the number of occurrences. For variable OCCURS, the value is the name of the COBOL DEPENDING ON field. The POSITION attribute is used to describe their location in the record, which is reserved in the Master File with an internally generated POSITION field. All internal POSITION fields generated by the Translator end with POSN.

Fixed repeating groups described as numbered fields have a unique number appended to the COBOL fieldname, once for each occurrence. Because the number of occurrences of a variably occurring group is unknown, they cannot be described individually. In fact, if any one of the repeating groups is variable, they are all described as segments, including fixed occurs, regardless of your menu selection.

Example Simple Fixed OCCURS

Consider the following COBOL input description:

```
01 TBL-REC.
   02 TBL-ENTRY OCCURS 2 TIMES.
       03 TBL-AMT-A                               PIC S9(5).
       03 TBL-AMT-B                               PIC S9(5).
```

The Translator can generate the following two Master Files from this input, depending on the value entered for Describe OCCURS as Segments.

For a value of Y:

```
FILE=OCCURSFY,                                SUFFIX=FIX,                                $
SEGNAME=TBLRESEG,    SEGTYPE=S0,              $
    GROUP=TBLREC,    ALIAS=E01,    USAGE=A20,    ACTUAL=A20,    $
    FIELD=TBLSEGPOSN, ALIAS=E02,    USAGE=A20,    ACTUAL=A20,    $
SEGNAME=TBLRESEG,    SEGTYPE=S0,    PARENT=TBLRESEG,    $
OCCURS=2,            POSITION=TBLSEGPOSN,    $
    GROUP=TBLRESEG,    ALIAS=E03,    USAGE=A16,    ACTUAL=A10,    $
    FIELD=TBLAMTA,    ALIAS=E04,    USAGE=P6,    ACTUAL=Z5,    $
    FIELD=TBLAMTB,    ALIAS=E05,    USAGE=P6,    ACTUAL=Z5,    $
```

For a value of N:

```
FILE=OCCURSFN,                                SUFFIX=FIX,                                $
SEGNAME=TBLRESEG,    SEGTYPE=S0,              $
    GROUP=TBLREC,    ALIAS=E01,    USAGE=A32,    ACTUAL=A20,    $
    GROUP=TBLRESEG1, ALIAS=E02,    USAGE=A16,    ACTUAL=A10,    $
    FIELD=TBLAMTA1,  ALIAS=E03,    USAGE=P6,    ACTUAL=Z5,    $
    FIELD=TBLAMTB1,  ALIAS=E04,    USAGE=P6,    ACTUAL=Z5,    $
    GROUP=TBLRESEG2, ALIAS=E05,    USAGE=A16,    ACTUAL=A10,    $
    FIELD=TBLAMTA2,  ALIAS=E06,    USAGE=P6,    ACTUAL=Z5,    $
    FIELD=TBLAMTB2,  ALIAS=E07,    USAGE=P6,    ACTUAL=Z5,    $
```

Example

Variable OCCURS

Consider the following COBOL input description:

```
01 TABLE-REC.
   02 TABLE-COUNT          PIC S9(2) COMP.
   02 TABLE-ENTRY
      OCCURS 1 TO 10 TIMES
      DEPENDING ON TABLE-COUNT.
   03 TABLE-AMT-A         PIC S9(5).
   03 TABLE-AMT-B         PIC S9(5).
```

The Translator generates the following Master Files from this input when either Y or N is entered for Describe OCCURS as Segments:

```
FILE=OCCURSVY,                                SUFFIX=FIX,                                $
SEGNAME=TABLESEG,    SEGTYPE=S0,              $
    FIELD=TABLECOUNT, ALIAS=E01,    USAGE=I3,    ACTUAL=I2,    $
SEGNAME=TABLESEG2,    SEGTYPE=S0,    PARENT=TABLESEG,    $
OCCURS=TABLECOUNT,    $
    GROUP=TABLEENTRY, ALIAS=E02,    USAGE=A16,    ACTUAL=A10,    $
    FIELD=TABLEAMTA,  ALIAS=E03,    USAGE=P6,    ACTUAL=Z5,    $
    FIELD=TABLEAMTB,  ALIAS=E04,    USAGE=P6,    ACTUAL=Z5,    $
```

The fields to be reported from (TABLEAMTA and TABLEAMTB) are within the OCCURS segment. The number of table occurrences is determined automatically by the TABLECOUNT field.

Example Nested OCCURS

Consider the following COBOL input description:

```
01 TABLE-REC.
   02 TABLE-LEVEL-A OCCURS 2.
       03 TABLE-LEVEL-B OCCURS 3.
           04 TABLE-AMT                PIC S9(5) COMP-3.
```

The Translator can generate the following two Master Files from this input, depending on the value entered for Describe OCCURS as Segments:

For a value of Y:

```
FILE=OCCURSNY,                SUFFIX=FIX,                $
SEGNAME=TABLESEG,            SEGTYPE=S0,                $
  GROUP=TABLEREC,            ALIAS=E01,            USAGE=A18,            ACTUAL=A18,            $
  FIELD=TABLESE2POSN,        ALIAS=E02,            USAGE=A18,            ACTUAL=A18,            $
SEGNAME=TABLESE2,            SEGTYPE=S0,            PARENT=TABLESEG,
OCCURS=2,                    POSITION=TABLESE2POSN,    $
  GROUP=TABLELEVELA,        ALIAS=E03,            USAGE=A9,            ACTUAL=A9,            $
  FIELD=TABLESE3POSN,        ALIAS=E04,            USAGE=A9,            ACTUAL=A9,            $
SEGNAME=TABLESE3,            SEGTYPE=S0,            PARENT=TABLESE2,
OCCURS=3,                    POSITION=TABLESE3POSN,    $
  GROUP=TABLELEVELB,        ALIAS=E05,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT,            ALIAS=E06,            USAGE=P6,            ACTUAL=P3,            $
```

The Translator defines the nested table structure with nested segments. You need only refer to the final reporting field, TABLEAMT.

For a value of N:

```
FILE=OCCURSN,                SUFFIX=FIX,                $
SEGNAME=TABLESEG,            SEGTYPE=S0,                $
  GROUP=TABLEREC,            ALIAS=E01,            USAGE=A48,            ACTUAL=A18,            $
  GROUP=TABLELEVELA1,        ALIAS=E02,            USAGE=A24,            ACTUAL=A9,            $
  GROUP=TABLELEVELB1,        ALIAS=E03,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT11,          ALIAS=E04,            USAGE=P6,            ACTUAL=P3,            $
  GROUP=TABLELEVELB2,        ALIAS=E05,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT12,          ALIAS=E06,            USAGE=P6,            ACTUAL=P3,            $
  GROUP=TABLELEVELB3,        ALIAS=E07,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT13,          ALIAS=E08,            USAGE=P6,            ACTUAL=P3,            $
  GROUP=TABLELEVELA2,        ALIAS=E09,            USAGE=A24,            ACTUAL=A9,            $
  GROUP=TABLELEVELB4,        ALIAS=E10,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT21,          ALIAS=E11,            USAGE=P6,            ACTUAL=P3,            $
  GROUP=TABLELEVELB5,        ALIAS=E12,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT22,          ALIAS=E13,            USAGE=P6,            ACTUAL=P3,            $
  GROUP=TABLELEVELB6,        ALIAS=E14,            USAGE=A8,            ACTUAL=A3,            $
  FIELD=TABLEAMT23,          ALIAS=E15,            USAGE=P6,            ACTUAL=P3,            $
```

ORDER Field

If you wish to select specific occurrences for reporting, add an ORDER field to the Master File as the last entry of the OCCURS segment:

```
FIELD=fieldname, ALIAS=ORDER, USAGE=I4, ACTUAL=I4, $
```

The value for ALIAS must be ORDER, the value for ACTUAL must be I4, the fieldname is arbitrary, and the value for USAGE must be an integer (I) but can be of any length from 1 to 9. The ORDER field is automatically populated.

The following example adds the ORDER field SEQUENCE to the nested fixed OCCURS segments 2 and 3:

```
FILE=OCCURSNY, SUFFIX=FIX, $
SEGNAME=TABLESEG, SEGTYPE=S0, $
  GROUP=TABLEREC, ALIAS=E01, USAGE=A18, ACTUAL=A18, $
  FIELD=TABLESE2POSN, ALIAS=E02, USAGE=A18, ACTUAL=A18, $
SEGNAME=TABLESE2, SEGTYPE=S0, PARENT=TABLESEG, $
OCCURS=2, POSITION=TABLESE2POSN, $
  GROUP=TABLELEVELA, ALIAS=E03, USAGE=A9, ACTUAL=A9, $
  FIELD=TABLESE3POSN, ALIAS=E04, USAGE=A9, ACTUAL=A9, $
  FIELD=SEQUENCEA, ALIAS=ORDER, USAGE=I4, ACTUAL=I4, $
SEGNAME=TABLESE3, SEGTYPE=S0, PARENT=TABLESE2, $
OCCURS=3, POSITION=TABLESE3POSN, $
  GROUP=TABLELEVELB, ALIAS=E05, USAGE=A8, ACTUAL=A3, $
  FIELD=TABLEAMT, ALIAS=E06, USAGE=P6, ACTUAL=P3, $
  FIELD=SEQUENCEB, ALIAS=ORDER, USAGE=I4, ACTUAL=I4, $
```

Field Formatting

When formatting fields, apply the rules described in *General Format Conversion Notes* on page 2-10. Additional formatting information is provided in *Zoned Numeric Field Usage* on page 2-11, and in *Numeric Field Edit Options* on page 2-13.

General Format Conversion Notes

Format conversion is the process of defining the ACTUAL and USAGE formats based on the COBOL format. The Translator performs the conversion as described in the following table:

COBOL Format	ACTUAL	USAGE
PICTURE X(n)	An	An
PICTURE 9(n)	Zn (packed option)	Pn (packed option)
PICTURE 9(n)	An (alpha option)	An (alpha option)
PICTURE S9(n)	Zn	Pn+1
PICTURE 9(n)V9(m)	Zn+m	Pn+m+1.m
PICTURE S9(n)V9(m)	Zn+m	Pn+m+2.m
PICTURE 9(n) COMP (1 ≤ n ≤ 4)	I2	I9
PICTURE 9(n) COMP (5 ≤ n ≤ 9)	I4	I9
PICTURE 9(n) COMP (n > 9)	A8	A8
COMP-1	F4	F8
COMP-2	D8	D15
PICTURE 9(n) COMP-3	P(n+2/2)	Pn
PICTURE S9(n) COMP-3	P(n+2/2)	Pn+1
PICTURE 9(n)V9(m) COMP-3	P(n+m+2/2)	Pn+m+1.m
PICTURE S9(n)V9(m) COMP-3	P(n+m+2/2)	Pn+m+2.m

The format conversions are subject to the following limitations:

- Alphanumeric fields are limited to 256 characters. Elementary fields that exceed 256 characters are truncated to 256 characters and have filler fields inserted to provide for the total length. Group fields that exceed 256 characters are commented.
- Unsigned zoned fields that exclude a decimal point are described with a USAGE of packed (P) or alphanumeric (A), depending on the value entered for the Zoned Numeric Field Usage option on the Translator menu.
- COMP-4 binary fields are described the same as COMP fields.
- Binary fields that exceed 9 digits in the picture clause are described with ACTUAL format A8 and USAGE format A8.

- The maximum length of the packed USAGE format depends on the software release that uses the generated Master File. For releases that support long packed fields (16 or more digits), the maximum ACTUAL length is 16 bytes and the maximum USAGE length is 31 digits (or 32 characters including a decimal point and sign). For earlier releases, the maximum ACTUAL length is 8 bytes and the maximum USAGE length is 15 total digits, including decimal and sign. The number of decimal places is limited to one fewer than the total USAGE length.
- In general, the USAGE length of packed fields is calculated as the sum of the digits to the left of the decimal (n), the number of decimal positions (m), one for the leading minus sign if present (S), and one for the decimal (V) if present.
- The ACTUAL and USAGE formats for GROUP fields are always alphanumeric (A). The ACTUAL length is the sum of the ACTUAL lengths of its components. The USAGE length is the sum of the following:
 - The USAGE lengths of all the alphanumeric (A) components.
 - 16 for each long packed (P) component.
 - 8 for each short packed (P) and double precision (D) component.
 - 4 for each integer (I) and floating point (F) component.

Zoned Numeric Field Usage

A COBOL FD may describe alphanumeric characters as zoned decimal numeric data using the PICTURE 9(n) clause. This clause is commonly used for numeric string data on which no arithmetic operations is performed, such as phone numbers, identification numbers, and dates. The Translator allows you to describe these fields in packed numeric or alphanumeric USAGE format (enter the values P or A, respectively). The ACTUAL format is described as zoned (Z).

If you intend to use COBOL numeric display fields for summing or in mathematical operations, use the packed option. If you intend to use these elements for display only, use the alphanumeric option. Only simple numeric display elements of the format PICTURE 9(n) are subject to this feature. Signed elements (PICTURE S9(n)) and elements with decimal positions (PICTURE 9(n)V(m)) are always described as packed.

Example Zoned Numeric Field Usage

Consider the following COBOL input description:

```
01 EMPL-REC.
    02 EMPL-SOC-SEC-NUM          PIC 9(8).
    02 EMPL-HIRE-DATE.
        03 EMPL-HIRE-YEAR       PIC 9(2).
        03 EMPL-HIRE-MONTH      PIC 9(2).
        03 EMPL-HIRE-DAY        PIC 9(2).
    02 EMPL-SICK-DAYS-ALLOWED   PIC S9(2).
    02 EMPL-SICK-DAYS-TAKEN     PIC 9(2).
    02 EMPL-YTD-HOURS-WORKED    PIC 9(4)V9(2).
```

The Translator can generate the following two Master Files from this input, depending on the value entered for Zoned Numeric Field Usage.

For a value of P:

```
FILE=ZONEDP,                                SUFFIX=FIX,                                $
SEGNAME=RECSEG,                             SEGTYPE=S0,                                $
GROUP=REC,                                  ALIAS=E01,    USAGE=A56,    ACTUAL=A24,    $
FIELD=SOCSECNUM,                            ALIAS=E02,    USAGE=P8,    ACTUAL=Z8,    $
GROUP=HIREDATE,                             ALIAS=E03,    USAGE=A24,    ACTUAL=A6,    $
FIELD=HIREYEAR,                             ALIAS=E04,    USAGE=P2,    ACTUAL=Z2,    $
FIELD=HIREMONTH,                           ALIAS=E05,    USAGE=P2,    ACTUAL=Z2,    $
FIELD=HIREDAY,                              ALIAS=E06,    USAGE=P2,    ACTUAL=Z2,    $
FIELD=SICKDAYSALLO,                        ALIAS=E07,    USAGE=P3,    ACTUAL=Z2,    $
FIELD=SICKDAYSTAKE,                        ALIAS=E08,    USAGE=P2,    ACTUAL=Z2,    $
FIELD=YTDHOURSWORK,                        ALIAS=E09,    USAGE=P7.2,    ACTUAL=Z6,    $
```

For a value of A:

```
FILE=ZONEDA,                                SUFFIX=FIX,                                $
SEGNAME=RECSEG,                             SEGTYPE=S0,                                $
GROUP=REC,                                  ALIAS=E01,    USAGE=A32,    ACTUAL=A24,    $
FIELD=SOCSECNUM,                            ALIAS=E02,    USAGE=A8,    ACTUAL=Z8,    $
GROUP=HIREDATE,                             ALIAS=E03,    USAGE=A6,    ACTUAL=A6,    $
FIELD=HIREYEAR,                             ALIAS=E04,    USAGE=A2,    ACTUAL=Z2,    $
FIELD=HIREMONTH,                           ALIAS=E05,    USAGE=A2,    ACTUAL=Z2,    $
FIELD=HIREDAY,                              ALIAS=E06,    USAGE=A2,    ACTUAL=Z2,    $
FIELD=SICKDAYSALLO,                        ALIAS=E07,    USAGE=P3,    ACTUAL=Z2,    $
FIELD=SICKDAYSTAKE,                        ALIAS=E08,    USAGE=A2,    ACTUAL=Z2,    $
FIELD=YTDHOURSWORK,                        ALIAS=E09,    USAGE=P7.2,    ACTUAL=Z6,    $
```

The two generated Master Files contains zoned decimal fields that are truly used in numeric and alphanumeric formats, but the Translator cannot distinguish between the two cases. You must select the option most appropriate to your situation. You may edit the resulting Master File to change the formats to packed or alphanumeric as necessary. The USAGE length of any GROUP fields that contain these zoned fields must also be changed, according to the format conversion rules in *General Format Conversion Notes* on page 2-10.

Numeric Field Edit Options

The Translator automatically adds any edit options that you supply to all numeric fields in the generated Master File. Edit options affect how the numeric data is displayed. The options are as follows:

- S - Suppresses printing of the digit zero for a field whose value is zero.
- C - Includes commas where appropriate, for example, 1,234.
- B - Brackets negative values, for example, (1234).
- R - Credits negative values, for example, 1234 CR.
- M - Displays a floating dollar sign with commas, for example, \$1,234.
- N - Displays a fixed dollar sign with commas, for example, \$ 1,234.
- L - Displays leading zeroes, for example, 001234.

You may enter up to five edit options. You may leave this option blank to tell the Translator not to edit numeric fields. Edit options may be entered in any order and combination except for the pairs SL, MN, and BR, which are mutually exclusive.

Example

Numeric Field Edit Options

Consider the following COBOL input description:

```
01 PAYROLL-REC.
   05 PAYROLL-NAME.
      10 PAYROLL-LAST-NAME PIC X(20).
      10 PAYROLL-FIRST-NAME PIC X(10).
   05 PAYROLL-AMT-FIELDS.
      10 PAYROLL-AMT-CURR-YR PIC S9(7)V99 COMP-3.
      10 PAYROLL-AMT-PREV-YR PIC S9(7)V99 COMP-3.
```

The Translator generates the following Master Files from this input when MB is entered for Numeric Field Edit Options:

```
FILE=EDITOPT,                SUFFIX=FIX,                $
SEGNAME=RECSEG,              SEGTYPE=S0,                $
GROUP=REC,                   ALIAS=E01,                 USAGE=A46,                 ACTUAL=A40,                $
GROUP=NAME,                  ALIAS=E02,                 USAGE=A30,                 ACTUAL=A30,                $
FIELD=LASTNAME,             ALIAS=E03,                 USAGE=A20,                 ACTUAL=A20,                $
FIELD=FIRSTNAME,           ALIAS=E04,                 USAGE=A10,                 ACTUAL=A10,                $
GROUP=AMTFIELDS,           ALIAS=E05,                 USAGE=A16,                 ACTUAL=A10,                $
FIELD=AMTCURRYR,           ALIAS=E06,                 USAGE=P11.2MB,            ACTUAL=P5,                 $
FIELD=AMTPREYR,            ALIAS=E07,                 USAGE=P11.2MB,            ACTUAL=P5,                 $
```

Multiple Records as Input

The Translator generates a new segment for each COBOL record description (01-level field) it receives as input. When multiple records are present, an additional DUMMY segment is created that is used as the common parent for the record descriptions. Whenever you submit more than one 01-level record as input to the Translator, you must manually add RECTYPE fields to identify the different record types.

Example Multiple Records as Input

Consider the following COBOL input description:

```
01  HDR-REC.
    02  HDR-KEY          PIC X(1).
        88  HDR-VALUE   VALUE 'H'.
    02  HDR-DATA        PIC X(10).
01  DET-REC.
    02  DET-KEY          PIC X(1).
        88  DTL-VALUE   VALUE 'D'.
    02  DTL-DATA        PIC X(10).
```

From this input, the Translator creates the following Master File with multiple segments:

```
FILE=MULT01,                SUFFIX=FIX,                $
SEGNAME=DUMMY,              SEGTYPE=S0,                $
FIELD=,                     ALIAS=,          USAGE=A1,          ACTUAL=A1,          $
SEGNAME=HDRRESEG,          SEGTYPE=S0,          PARENT=DUMMY,          $
GROUP=HDRREC,              ALIAS=E01,          USAGE=A11,          ACTUAL=A11,          $
FIELD=HDRKEY,              ALIAS=E02,          USAGE=A1,          ACTUAL=A1,          $
$   HDRVALUE, VALUE 'H'.          $
FIELD=HDRDATA,            ALIAS=E03,          USAGE=A10,          ACTUAL=A10,          $
SEGNAME=DETRESEG,          SEGTYPE=S0,          PARENT=DUMMY,          $
GROUP=DETREC,              ALIAS=E04,          USAGE=A11,          ACTUAL=A11,          $
FIELD=DETKEY,              ALIAS=E05,          USAGE=A1,          ACTUAL=A1,          $
$   DTLVALUE, VALUE 'D'.          $
FIELD=DTLDATA,            ALIAS=E06,          USAGE=A10,          ACTUAL=A10,          $
```

After editing to add the RECTYPE information, the completed Master File is:

```
FILE=MULT01,                SUFFIX=FIX,                $
SEGNAME=DUMMY,              SEGTYPE=S0,                $
FIELD=,                     ALIAS=,          USAGE=A1,          ACTUAL=A1,          $
SEGNAME=HDRRESEG,          SEGTYPE=S0,          PARENT=DUMMY,          $
GROUP=HDRREC,              ALIAS=E01,          USAGE=A11,          ACTUAL=A11,          $
FIELD=RECTYPE,            ALIAS=H,            USAGE=A1,          ACTUAL=A1,          $
$   HDRVALUE, VALUE 'H'.          $
FIELD=HDRDATA,            ALIAS=E03,          USAGE=A10,          ACTUAL=A10,          $
SEGNAME=DETRESEG,          SEGTYPE=S0,          PARENT=DUMMY,          $
GROUP=DETREC,              ALIAS=E04,          USAGE=A11,          ACTUAL=A11,          $
FIELD=RECTYPE,            ALIAS=D,            USAGE=A1,          ACTUAL=A1,          $
$   DTLVALUE, VALUE 'D'.          $
FIELD=DTLDATA,            ALIAS=E06,          USAGE=A10,          ACTUAL=A10,          $
```

Maximum Number of Fields

Each 01-level record input to the Translator can contain up to 4,000 fields. Any number of 01-level entries can be input to the Translator as long as no individual record exceeds this limit. Each occurrence of an OCCURS structure counts in this limit. If the limit is exceeded, an error message is printed and program execution stops. Note that this limitation applies to the Translator and not the Master File generated.

Example

Maximum Number of Fields

Consider the following COBOL input description:

```
01 RECL.  
   02 FLD1 OCCURS 5000 TIMES PIC X(1).
```

This input causes the Translator to issue the following error message:

```
FR011E - INTERNAL TABLE OVERFLOW
```

To bypass this limitation, edit the COBOL FD and temporarily reduce the total number of OCCURS. After execution, edit the Master File and restore the original number of occurrences.

Consider the following COBOL input description:

```
01 RECL.  
   02 FLD1 OCCURS 2000 TIMES PIC X(1).  
01 REC2.  
   02 FLD2 OCCURS 2000 TIMES PIC X(1).
```

Translator Options and Examples

The Translator creates this Master File with multiple segments from this input:

```
FILE=MAXRECS,                SUFFIX=FIX,                $
SEGNAME=DUMMY,              SEGTYPE=S0,                $
    FIELD=,                  ALIAS=,                    USAGE=A1,                   ACTUAL=A1,                   $
SEGNAME=REC1SEG,           SEGTYPE=S0,                PARENT=DUMMY,              $
$  GROUP=REC1,             ALIAS=E01,                 USAGE=A2000,               ACTUAL=A2000,               $
    FIELD=FLD1SEGPOSN,     ALIAS=E02,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E03,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E04,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E05,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E06,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E07,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E08,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E09,                 USAGE=A208,                ACTUAL=A208,                $
SEGNAME=FLD1SEG,          SEGTYPE=S0,                PARENT=REC1SEG,            $
OCCURS=2000,              POSITION=FLD1SEGPOSN,        $
    FIELD=FLD1,            ALIAS=E10,                 USAGE=A1,                   ACTUAL=A1,                   $
SEGNAME=REC2SEG,          SEGTYPE=S0,                PARENT=DUMMY,              $
$  GROUP=REC2,             ALIAS=E11,                 USAGE=A2000,               ACTUAL=A2000,               $
    FIELD=FLD2SEGPOSN,     ALIAS=E12,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E13,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E14,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E15,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E16,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E17,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E18,                 USAGE=A256,                ACTUAL=A256,                $
    FIELD=FILLER,          ALIAS=E19,                 USAGE=A208,                ACTUAL=A208,                $
SEGNAME=FLD2SEG,          SEGTYPE=S0,                PARENT=REC2SEG,            $
OCCURS=2000,              POSITION=FLD2SEGPOSN,        $
    FIELD=FLD2,            ALIAS=E20,                 USAGE=A1,                   ACTUAL=A1,                   $
```

This description does not exceed the 4,000 field limit because each 01-level has fewer than 4,000 fields.

Year 2000

Because a COBOL FD cannot describe fields as dates, the Translator cannot reliably determine which fields are dates and apply date formats to them. However, Master Files generated by the Translator may be edited to add date formats and Project 2000 date defaults. These are respected in Information Builders software designed to take advantage of them.

3 Translator Reports

Topics:

- Header Page
- Audit Report
- Message Report
- Debugging Report

The Translator produces up to four reports, which can be examined online by pressing the appropriate function key from the Translator menu, according to the following chart. In MVS, you may also access the reports by referring to their ddname once you exit the Translator. In VM/CMS, you may access the reports by referring to their file name once you exit the Translator.

Report Name	Function Key	MVS ddname	VM/CMS File Name
Header Page	PF 9	PRINT1	FOC\$CTF PRINT1 A
Audit Report	PF 12	PRINT4	FOC\$CTF PRINT2 A
Message Report	PF 10	PRINT2	FOC\$CTF PRINT3 A
Debugging Report	PF 11	PRINT3	FOC\$CTF PRINT4 A

The Header Page and the Audit Report are produced every time you execute the Translator. The Message Report and the Debugging Report are produced only when warranted by run-time conditions.

Header Page

The Header Page shows which parameters were supplied by the user at run time and which Translator options were in effect.

```

*****
*                               *
*           C T F               *
*                               *
*****
VERSION 3.0.2
PARAMETERS SUPPLIED
-----
IEBUPD=NO
FUNC=REPL
MEMBER=GROUPA
NEW1=00000010
INCR=00000010
SEQFLD=738
FILE=GROUPA
SUFFIX=FIX
SKPDASH=0
ZONED=P
NAMELEN=12
GRPPRT=A
LEV88=Y
REDEF=C
HYPHEN=S
LONGPACKED=Y
OCCRSEG=Y
OPTIONS IN EFFECT
-----
IEBUPD=NO          IEBUPDTE CONTROL CARDS WILL NOT BE GENERATED
FILE=GROUPA       FILENAME FOR MFD RECORD
SUFFIX=FIX        FILESUFFIX FOR MFD RECORD
SKPDASH=0        FIELD NAMES WILL START WITH BEGINNING OF COBOL NAMES
ZONED=P          FIELD USAGE FOR NUMERIC DISPLAY FIELDS
NAMELEN=12       FIELD NAMES WILL BE 12 CHARACTERS MAX
GRPPRT=A        GROUP NAMES FOR ALL FIELDS WILL BE GENERATED
LEV88=Y         LEVEL 88'S WILL BE GENERATED AS COMMENTS
REDEF=C         REDEFINES WILL BE GENERATED AS COMMENTS
HYPHEN=S        COBOL HYPHENS WILL BE ELIMINATED IN FIELD NAMES
LONG PACKED=Y    LONG PACKED FIELDS WILL BE GENERATED
OCCURS SEGMENTS=Y FIXED AND VARIABLE OCCURS SEGMENTS WILL BE GENERATED

```

Audit Report

The Audit Report provides a detailed “audit trail” of all fields in the Master File that were generated from corresponding COBOL fields. As illustrated in the sample that follows, the COBOL input is on the left side of the report and the Translator output is on the right. Any messages pertaining to individual fields are shown directly beneath those fields. Each segment (corresponding to an 01-level COBOL field) starts at the top of a new page.

Consider the following COBOL input description:

```
01 AUDIT-REC .
   02 FIELD1          PIC X(100) .
   02 FIELD2          PIC X(100) .
   02 FIELD3          PIC X(100) .
```

The Translator generates this Master File from this input:

```
FILE=AUDIT,                SUFFIX=FIX,                $
SEGNAME=AUDITSEG,         SEGTYPE=S0,                $
$  GROUP=AUDITREC,        ALIAS=E01,    USAGE=A300,    ACTUAL=A300,    $
   FIELD=FIELD1,         ALIAS=E02,    USAGE=A100,    ACTUAL=A100,    $
   FIELD=FIELD2,         ALIAS=E03,    USAGE=A100,    ACTUAL=A100,    $
   FIELD=FIELD3,         ALIAS=E04,    USAGE=A100,    ACTUAL=A100,    $
```

The Translator also creates the following Audit Report:

COBOL FIELDS		M F D FIELDS						
LEV	NAME	PICTURE	USAGE	NAME	ALIAS	USAGE	ACTUAL	\$
UTILITY PROGRAM PAGE 1								
C T F								
*** AUDIT-REC ***								
01	AUDIT-REC		DISPLAY	FILE=AUDIT,		SUFFIX=FIX,		\$
				SEGNAME=AUDITSEG,		SEGTYPE=S0,		\$
				GROUP=AUDITREC,	ALIAS=E01,	USAGE=A300,	ACTUAL=A300,	\$
				FIELD=FIELD1,	ALIAS=E02,	USAGE=A100,	ACTUAL=A100,	\$
				FIELD=FIELD2,	ALIAS=E03,	USAGE=A100,	ACTUAL=A100,	\$
				FIELD=FIELD3,	ALIAS=E04,	USAGE=A100,	ACTUAL=A100,	\$
* PR030W - GROUP EXCEEDS MAX LENGTH - GENERATED AS COMMENT								

Message Report

The Message Report supplements the audit report with additional information about the translation. Warning messages typically identify changes that must be made manually to the Master File. Error messages usually refer you to the Debugging report. In either case, the online menu will display the following message:

```
ERROR/WARNING MESSAGES GENERATED. PLEASE CHECK REPORTS.
```

Consider the following COBOL input description:

```
01  HDR-REC.
    02  HDR-KEY           PIC X(1).
       88  HDR-VALUE     VALUE 'H'.
    02  HDR-DATA        PIC X(10).
01  DET-REC.
    02  DET-KEY         PIC X(1).
       88  DTL-VALUE     VALUE 'D'.
    02  DTL-DATA        PIC X(10).
```

The Translator creates the following Message Report from this input:

```

                                C T F
                                MESSAGE REPORT
CODE                               M E S S A G E
-----
FR038W  MORE THAN ONE RECORD TYPE GENERATED - 'RECTYPE' FIELD WILL HAVE
        TO BE ADDED TO EACH SEGMENT MANUALLY TO IDENTIFY THE DIFFERENT
        RECORD TYPES
```

Debugging Report

The Debugging Report is produced only when a serious error is encountered. It provides information that is helpful for debugging purposes. The Debugging Report displays the following:

- Information about the current COBOL record being processed.
- The image of the last input card read.
- The card number.
- An error message.

Consider the following COBOL input description:

```
01 DEBUG-REC.
   02 FIELD1  PIC X(5) USAGE UNKNOWN.
```

The Translator creates the following Debugging Report from this input:

```

                                *****
                                * CTF SCAN ERROR *
                                *****

NAME OF RECORD
BEING PROCESSED  DEBUG-REC
-----
LAST CARD READ           02 FIELD1  PIC X(5) USAGE UNKNOWN.
-----
CARD NUMBER           00002
-----
ERROR CODE            FR006E
-----
ERROR TYPE            COBOL SYNTAX ERROR - USAGE CLAUSE
```

A Warning and Error Messages

This appendix lists the error and warning messages that may appear in the Translator's Error, Debugging, and Audit reports. Error messages 13 through 17 and 20 through 23 are no longer used in this release and thus do not appear in this manual. Error messages displayed on the online menu are listed in the online help option.

- FR001E** **UNSUCCESSFUL OPEN FOR CTFIN**
COBOL input file (CTFIN) could not be opened.
- FR002E** **COBOL SYNTAX ERROR - UNRECOGNIZED CLAUSE**
The system was expecting a standard COBOL clause (for example, PIC, VALUE) and did not find one.
- FR003E** **COBOL SYNTAX ERROR - RENAMES CLAUSE**
The RENAMES clause in a COBOL input field violated COBOL syntax rules.
- FR004E** **COBOL SYNTAX ERROR - PICTURE CLAUSE**
The PICTURE clause in a COBOL input field violated COBOL syntax rules.
- FR005E** **COBOL SYNTAX ERROR - VALUE CLAUSE**
The VALUE clause in a COBOL input field violated COBOL syntax rules.
- FR006E** **COBOL SYNTAX ERROR - USAGE CLAUSE**
The USAGE clause in a COBOL input field violated COBOL syntax rules.
- FR007E** **COBOL SYNTAX ERROR - BLANK ZERO CLAUSE**
The BLANK WHEN ZERO clause in a COBOL input field violated COBOL syntax rules.
- FR008E** **COBOL SYNTAX ERROR - SIGN CLAUSE**
The SIGN clause in a COBOL input field violated COBOL syntax rules.
- FR009E** **COBOL SYNTAX ERROR - INVALID LEVEL NUMBER**
The COBOL input field had a level number not equal to 01 through 49, 66, 77, or 88.
- FR010E** **UNALLOWABLE USAGE - DISPLAY-ST**
System cannot process fields with this USAGE (DISPLAY STERLING).
- FR011E** **INTERNAL TABLE OVERFLOW**
The COBOL input record, after possible expansion via the OCCURS clause, contained more than 4,000 fields.
- FR012E** **ERROR ENCOUNTERED WHILE SCANNING COBOL RECORD DESCRIPTIONS**
DEBUGGING OUTPUT FOLLOWS
One of the above COBOL-related errors (FR001E - FR011E) occurred.

Warning and Error Messages

FR018E	SUFFIX MUST BE FIX, COM, ISAM, VSAM, IDMS, IMS OR DB2 Error in symbolic parameter SUFFIX.
FR019E	SKPDASH MUST BE '0', '1', '2', OR '3' Error in symbolic parameter SKPDASH.
FR024E	ZONED USAGE MUST BE 'P' OR 'A' Error in symbolic parameter ZONED.
FR026E	ONE OR MORE ERRORS FOUND IN PARAMETER LIST - PROCESSING TERMINATED One of the above symbolic parameter errors (FR013E - FR025E) has occurred.
FR027W	'SUFFIX=ISAM' SPECIFIED; 'ALIAS = KEY' SHOULD BE ADDED TO THE DESCRIPTION MANUALLY TO IDENTIFY THE ISAM KEY System does not generate the SEGTYPE attribute used in the MFD when accessing ISAM files. Add the attribute after the MFD has been generated.
FR028W	'SUFFIX=VSAM' SPECIFIED; 'ALIAS = KEY' SHOULD BE ADDED TO THE DESCRIPTION MANUALLY TO IDENTIFY THE VSAM KEY System does not generate the SEGTYPE attribute used in the MFD when accessing VSAM files. Add the attribute after the MFD has been generated.
FR029W	REDEFINE='S' (SEGMENTS) VALID ONLY FOR FIX, VSAM, IDMS, IMS, AND DB2 FILE TYPES REDEFINES parameter was internally set to N.
FR030W	GROUP EXCEEDS MAX LENGTH - GENERATED AS COMMENT The length of a COBOL group item exceeded the maximum allowable length for group items; therefore, the group item was commented in the MFD.
FR031W	BINARY FIELD SIZE EXCEEDS MAXIMUM LENGTH - USAGE CHANGED TO ALPHANUMERIC An unsupported double-word binary element was encountered. It has been described as alphanumeric.
FR032W	FIELDNAME DUPLICATES A PREVIOUS FIELDNAME-QUALIFIER ADDED A qualifier was added to a duplicate fieldname to ensure uniqueness.
FR033W	ORIGINAL COBOL PICTURE CONTAINS MORE THAN 12 CHARACTERS- PRINTOUT OF PICTURE TRUNCATED The original COBOL picture was too large to fit on the hardcopy report and was therefore truncated. (This does not affect the generated description.)
FR034W	COBOL FIELD EXCEEDS MAX LENGTH - ADDITIONAL FIELDS GENERATED The length of a COBOL field exceeded the maximum allowable length for fields in the MFD, therefore several smaller fields were generated.

- FR035W** 'value' IS A RESERVED WORD
The characters in quotes form a fieldname which is a reserved word (for example, RECTYPE). This may cause errors when the field is referenced in a report request.
- FR036E** CTFIN FILE EMPTY - NO FIELDS GENERATED
The COBOL input file was empty, or contained only comments; therefore, an MFD could not be created.
- FR037W** MORE THAN 1000 FIELDS GENERATED - ONLY FIRST 1000 CHECKED FOR DUPLICATE NAMES
More than 1,000 fields were generated in the output MFD. Because the system only checks and qualifies the first 1,000 for duplicate names, fields past this point may not have unique names.
- FR038W** MORE THAN ONE RECORD TYPE GENERATED - 'RECTYPE' FIELD WILL HAVE TO BE ADDED TO EACH SEGMENT MANUALLY TO IDENTIFY THE DIFFERENT RECORD TYPES
Two or more separate record descriptions (level-01 records) were input to the system. Add RECTYPE fields manually to each segment to ensure proper record identification during data retrieval.
- FR039W** GROUP FILLER - FIELD NOT GENERATED
System does not generate group items from COBOL group items with the name FILLER.
- FR040E** NAME LENGTH MUST BE 12 OR 30
The fieldname length must be 12 or 30 characters.
- FR041E** GROUP PRINT OPTION MUST BE P, A, OR N
The group print option must be 'P' (show printable groups only), 'A' (show all groups), or 'N' (do not include groups).
- FR042E** LEVEL 88 OPTION MUST BE Y OR N
The Level 88 option must be 'Y' (include level 88 elements as comments) or 'N' (do not include level 88 elements).
- FR043E** REDEFINES OPTION MUST BE S, C, OR N
The redefines option must be 'S' (include redefines as segments), 'C' (include redefines as comments), or 'N' (do not include redefines).
- FR045E** LONG PACKED OPTION MUST BE Y OR N
The long packed option must be 'Y' (describe long packed fields as packed) or 'N' (describe long packed fields as alphanumeric).
- FR046E** OCCURS SEGMENT OPTION MUST BE Y OR N
The occurs segment option must be 'Y' (describe repeating groups as segments) or 'N' (describe repeating groups as numbered fields).

Warning and Error Messages

FR047W OCCURRENCE NUMBERS TRUNCATED IN FIELDNAME

Repeating groups were described as numbered fields, but the fieldname size was not large enough to accommodate the fieldname and numbered suffix. The suffix was truncated.

FR048W VARIABLE OCCURS ENCOUNTERED IN RECORD - ALL OCCURS FIELDS WILL BE GENERATED AS SEGMENTS

The option to describe repeating groups as numbered fields was selected. A variable occurs was found in the COBOL FD and cannot be numbered. Fixed occurs will not be numbered, either.

B Installation Instructions

Topics:

- Pre-installation and Maintenance Requirements
- Installing the COBOL FD Translator in MVS
- Installing the COBOL FD Translator in VM/CMS

The installation instructions for the COBOL FD Translator in the MVS and VM/CMS operating environments apply to FOCUS Release 6.5 (and higher) and EDA Release 3.2 (and higher).

Pre-installation and Maintenance Requirements

The person performing the installation and maintenance procedures should have, at a minimum, a working knowledge of MVS or VM/CMS. Knowledge of FOCUS, MSO, or EDA is not required.

Software Requirements

The following are the software requirements for using the Translator:

- **FOCUS for S/390 Installation.** FOCUS for S/390 (MVS/TSO, MSO, or VM/CMS) must be installed and fully operational. If it is not, contact your FOCUS database administrator or consult the appropriate FOCUS installation guide for installation instructions.

The FOCUS Release must be 6.5 or higher. Every copy of FOCUS has a release number and a maintenance level. To identify your release, you can either check the label of the distribution tape used to install FOCUS (the numbers are printed on it) or invoke FOCUS if it is already installed. The release is displayed each time you begin a session. To display the maintenance level, issue the ? RELEASE query command.

- **EDA Installation.** The EDA Server for MVS or EDA Server for VM/CMS must be installed and fully operational. If it is not, contact your EDA administrator or consult the appropriate EDA installation documentation for installation instructions.

The EDA Release must be Release 3.2 or higher. Every copy of EDA has a release number and a maintenance level.

Maintenance

You do not have to perform any maintenance procedures to ensure proper functioning of the Translator. If you install a new release of FOCUS or the EDA Server (including maintenance releases), you do not need to reinstall the Translator. However, in VM/CMS, if you installed the Translator on the FOCUS or EDA production disk, you may either copy the Translator files to the new release or reinstall the product.

Installing the COBOL FD Translator in MVS

The Translator is distributed in ready-to-execute form. The installation requires only a tape-to-disk load and a copy step to move the components to the appropriate libraries. You also have the option of changing the Translator menu to provide customized default values.

The Translator is distributed on a separate tape or cartridge. The following chart shows the dataset attributes for the partitioned datasets (PDS), or libraries, needed to use the Translator:

Dataset	Allocation Parameters
CTF30.LOAD	SPACE=(TRK,(7,1,2)) DCB=(LRECL=0,BLKSIZE=13030,RECFM=U)
CTF30.DATA	SPACE=(TRK,(3,1,2)) DCB=(LRECL=80,BLKSIZE=1600,RECFM=FB)

Both of these files are partitioned datasets in IEBCOPY dump format:

- The CTF30.LOAD library contains the Translator load module.
- The CTF30.DATA library contains the online menu application and sample batch JCL.

Unloading the Distribution Tape

To unload the distribution tape, perform these steps:

1. Allocate the required disk space for the CTF30.LOAD and CTF30.DATA libraries.
2. To unload the files from the tape, create an IEBCOPY procedure like this JCL sample and submit it for execution.

```

//UNLOAD      EXEC  PGM=IEBCOPY
//SYSPRINT    DD  SYSOUT=*
//I1          DD  DSN=CTF30.LOAD,DISP=OLD,
//            UNIT=tape,LABEL=(1,SL,EXPDT=98000),VOL=SER=volser
//I2          DD  DSN=CTF30.DATA,DISP=OLD,
//            UNIT=tape,LABEL=(2,SL,EXPDT=98000),VOL=SER=volser
//O1          DD  DSN=prefix.CTF30.LOAD,DISP=OLD
//O2          DD  DSN=prefix.CTF30.DATA,DISP=OLD
//SYSIN       DD  *
              COPY  INDD=I1,OUTDD=O1
              COPY  INDD=I2,OUTDD=O2
/*

```

where:

tape

Is the distribution tape or cartridge device.

volser

Is the tape serial number.

prefix.CTF30.LOAD

Is the dataset name of the load library. The value of *prefix* is the high-level qualifier at your site.

prefix.CTF30.DATA

Is the dataset name of the source library.

Once you have successfully completed these steps, two new Translator libraries are loaded on your system.

Special MSO Considerations

If you are not installing the Translator for use in MSO or if your MSO region is executed non-authorized, you may skip this section.

If your MSO region is configured to run authorized, you must do one of two things to allow execution of the Translator:

- Copy the member CTF10000 from *prefix.CTF30.LOAD* to the authorized dataset *prefix.FOCLIB.LOAD* (allocated to the ddname STEPLIB in the MSO start-up JCL).
- or
- Add the following line to the MSO configuration file (allocated to ddname FOCMSO in the MSO start-up JCL) to allow execution from a non-authorized library:

```
APFAUTH = INTERNAL
```

Customizing the Translator Defaults

You may customize the values on the Translator menu by editing the source code in the member CTF30 in the dataset *prefix*.CTF30.DATA. Make changes only in the area labeled Customization area. When making changes, be sure to maintain the existing length of the preset variables and to include only acceptable values. Acceptable values are those originally displayed on the Translator menu (see Chapter 1, *Using the COBOL FD Translator*).

Changing Optional Defaults

To customize the default values that appear on the Translator menu, locate the following lines in the member CTF30 in the dataset *prefix*.CTF30.DATA and change their values as desired:

```
-SET &COBFDMEM='          ';
-SET &MFDMEM='          ';
-SET &REPLACE='N';
-SET &SUFFIX='F';
-SET &NAMELEN='30';
-SET &SKIPDASH=0;
-SET &HYPHEN='R';
-SET &GROUPNM='A';
-SET &REDEF='C';
-SET &LEV88='Y';
-SET &OCCURS='Y';
-SET &ZONEUSE='P';
-SET &EDITOPT='          ';
```

Except for the entries for dataset names, each variable above appears in the same order as its corresponding entry on the Translator menu.

Changing Initial Dataset Defaults

To customize the initial dataset defaults for all users, locate the following lines in the member CTF30 in the dataset *prefix*.CTF30.DATA. Change the expression on the right-hand side of the equal sign as appropriate. The resulting expression must retain a length of 44 characters (&USERID accounts for eight characters). Change the first pair of entries for FOCUS users. Change the second pair of entries for EDA users.

```
-* Change this set of defaults for FOCUS access.
-SET &COBFDDSN='          ';
-SET &MFDDSN=&USERID ||'.MASTER.DATA';
-* Change this set of defaults for EDA access.
-SET &COBFDDSN='          ';
-SET &MFDDSN=&USERID ||'.EDAMFD.DATA';
```

where:

&COBFDDSN

Is the input COBOL FD dataset.

&MFDDSN

Is the Master File output dataset.

Allocating Translator Libraries for Run-time

The Translator requires three allocations (listed below) in an online session for successful execution. You may issue these allocations in the CLIST that invokes FOCUS, within your FOCUS session, in the MSO start-up JCL, or in the CLIST that invokes EDAAUTO.

- Allocate or concatenate *prefix*.CTF30.LOAD to ddname USERLIB.
- Allocate or concatenate *prefix*.CTF30.DATA to ddname FOCEXEC or EDARPC.
- Allocate or concatenate *prefix*.CTF30.DATA to ddname TRF.

In your CLIST that invokes FOCUS, the allocations may appear as shown below:

```
ALLOC F(USERLIB) DA('prefix.FUSELIB.LOAD' -
                  'prefix.CTF30.LOAD')    SHR REUSE
ALLOC F(FOCEXEC) DA('prefix.FOCEXEC.DATA' -
                  'prefix.CTF30.DATA')    SHR REUSE
ALLOC F(TRF)     DA('prefix.CTF30.DATA')  SHR REUSE
```

From within FOCUS, the allocations may appear as shown below:

```
DYNAM ALLOC FILE USERLIB  DA prefix.FUSELIB.LOAD SHR REUSE
DYNAM ALLOC FILE USERLIB1 DA prefix.CTF30.LOAD SHR REUSE
DYNAM CONCAT FILE USERLIB USERLIB1
DYNAM ALLOC FILE FOCEXEC  DA prefix.FOCEXEC.DATA SHR REUSE
DYNAM ALLOC FILE FOCEXEC1 DA prefix.CTF30.DATA SHR REUSE
DYNAM CONCAT FILE FOCEXEC FOCEXEC1
DYNAM ALLOC FILE TRF     DA prefix.CTF30.DATA SHR REUSE
```

In your MSO start-up JCL, the allocations may appear as shown below.

```
//USERLIB DD DSN=prefix.FUSELIB.LOAD,DISP=SHR
//        DD DSN=prefix.CTF30.LOAD,DSP=SHR
//FOCEXEC DD DSN=prefix.FOCEXEC.DATA,DISP=SHR
//        DD DSN=prefix.CTF30.DATA,DISP=SHR
//TRF     DD DSN=prefix.CTF30.DATA,DISP=SHR
```

The USERLIB allocation is not necessary when CTF10000 has been copied to *prefix*.FOCLIB.LOAD; otherwise, USERLIB must be allocated in the MSO start-up JCL. The FOCEXEC and TRF allocations can be made in the user session, using the previous FOCUS example, if they are not allocated globally or if the installation has activated private allocation (available in FOCUS Release 7.0.5).

In your CLIST that invokes EDAAUTO, the allocations may appear as shown below:

```
ALLOC F(USERLIB) DA('prefix.CTF30.LOAD')    SHR REUSE
ALLOC F(EDARPC)  DA('prefix.EDARPC.DATA' -
                  'prefix.CTF30.DATA')    SHR REUSE
ALLOC F(TRF)     DA('prefix.CTF30.DATA')    SHR REUSE
```

Installing the COBOL FD Translator in VM/CMS

The Translator is distributed in ready-to-execute form. The installation requires only a tape-to-disk load and a copy step to move the components to the appropriate libraries. You also have the option of changing the Translator menu and EXEC procedure to provide customized default values.

The Translator is distributed on a separate tape or cartridge. It requires 60 4K blocks of disk or SFS directory storage. It is recommended that you install the Translator to the FOCUS or EDA maintenance disk and then copy it to the production disk. This will provide easy access to the product.

Unloading the Distribution Tape

The Translator distribution tape is an unlabeled 6250 BPI 9-track tape, or a 3480 cartridge, created by the VMFPLC2 command. This step moves the contents of the tape or cartridge onto the maintenance disk.

To unload the distribution tape, perform these steps:

1. Mount the tape on a 6250 BPI drive as virtual 181, or the cartridge on a 3480 drive as 181.
2. Access the maintenance disk as your A disk, in READ/WRITE mode.
3. Issue the VMFPLC2 command to unload the tape or cartridge to unload all files onto the maintenance disk:

```
VMFPLC2 LOAD * * A
```

4. When the tape or cartridge is unloaded, detach virtual 181.
5. Optionally, change the Translator defaults as described in the next section.
6. Access the production disk as your C disk, in READ/WRITE mode.
7. Copy the Translator files from the maintenance disk to the production disk:

```
COPYFILE CTF30 FOCEXEC A = = C
```

```
COPYFILE CTF30 LOADLIB A = = C
```

```
COPYFILE CTF30E EXEC A = = C
```

```
COPYFILE CTFTRF30 TRF A = = C
```

8. Release the maintenance disk and access the production disk as READ only.

Customizing the Translator Defaults

You may customize the values on the Translator menu by editing the source code in the files CTF30 FOCEXEC and CTF30E EXEC. Make changes only in the area labeled Customization area. When making changes, be sure to maintain the existing length of the preset variables and to include only acceptable values. Acceptable values are those originally displayed on the Translator menu (see Chapter 1, *Using the COBOL FD Translator*).

Changing Optional Defaults

To customize the default values that appear on the Translator menu, locate the following lines in the file CTF30 FOCEXEC and change their values as desired:

```
-SET &REPLACE='N' ;
-SET &SUFFIX='F' ;
-SET &NAMELEN='30' ;
-SET &SKIPDASH=0 ;
-SET &HYPHEN='R' ;
-SET &GROUPNM='A' ;
-SET &REDEF='C' ;
-SET &LEV88='Y' ;
-SET &OCCURS='Y' ;
-SET &ZONEUSE='P' ;
-SET &EDITOPT='      ' ;
```

Each variable above appears in the same order as its corresponding entry on the Translator menu.

To customize the default values for background execution, locate the following lines in the file CTF30E EXEC and change their values as desired:

```
suffix  =FIX /* File Type (SUFFIX=)           (FIX,COM,VSAM,ISAM) */
namelen =12 /* Field Name Length             (12,30) */
skpdash =0 /* Skip 'n' Hyphens in COBOL Name     (0,1,2,3) */
hyphen  =S /* Remove HyphenS or Use UnderBars (removeS,underBars) */
groupnm =A /* Generate GROUP Fields             (All,None,Printable only) */
redef   =C /* Generate REDEFINE Fields          (Comments,None,Segments) */
lev88   =Y /* Generate LEVEL 88 as Comments     (Yes,No) */
occurs  =Y /* Describe Occurs as Segments       (Yes,No) */
zoned   =P /* Zoned Numeric Field Usage         (Packed,Alpha) */
editopt = /* Numeric Field Edit Options        (S,C,B,R,M,N,L combinations) */
longpack=N /* Long Packed Fields                (Yes,No) */
tempfm  = /* File mode for temporary files     (A-Z, null) */
```

Each variable above appears in the same order as its corresponding entry on the Translator menu. Leave the value for tempfn null to let the Translator automatically choose the largest READ/WRITE disk for temporary use.

Changing Initial File Name Defaults

To customize the initial file name defaults for all users, locate the following lines in the file CTF30 FOCEXEC. Change the expression on the right-hand side of the equal sign as appropriate.

```
-* Change this set of defaults for VM/CMS FOCUS access.  
-SET &COBFN='      ' ;  
-SET &COBFT='COBOL  ' ;  
-SET &COBFM='* ' ;  
-SET &MFDFM='A ' ;
```

where:

&COBFFN

Is the input COBOL FD file name.

&COBFFT

Is the input COBOL FD file type.

&COBFFM

Is the input COBOL FD file mode.

&MFDFM

Is the Master File output file mode.

C Batch Execution

Topics:

- MVS Batch
- VM/CMS Execution

The COBOL FD Translator may be executed as an MVS batch job or VM/CMS EXEC procedure. Executing the Translator results in one of the following return codes:

Return Code	Description
0	Successful execution
1	Master File created, informational and warning messages generated
3	Master File created, results may require customization
16	Error messages generated

MVS Batch

To execute the Translator in batch mode, use the following JCL procedure. This procedure can be found in member CTF30JCL of dataset *prefix.CTF30.DATA*. Simply add a valid job card and update the symbolic parameters as desired.

The descriptions of the parameters, as included on the Translator menu, appear in the JCL, along with the permissible values in capital letters. Note that some of the values here are slightly different than on the online menu. The parameter LONGPACK does not appear on the online menu; it is set automatically based on the software release that you are executing. Enter Y for LONGPACK if your software release supports long packed fields (packed fields with 16 or more digits). Enter N if your software release does not support long packed fields.

```
/* Insert job card here
/*=====
/* COBOL FD Translator - Version 3.0
/* Copyright Information Builders Inc. 1994, 1997
/*=====
/* 970303 RJF 22424 Initial Implementation - Version 3.0
/*=====
/* Enter the COBOL FD dataset name and member name (if not sequential)
/*      using the format 'data.set.name' or 'data.set.name(member)' in FD.
/* Enter the Master File PDS name where the Master will be stored in MASTER.
/* Enter the Master File member name in MEMBER.
/* Change other options as desired, using capitalized values in right column.
//CTF30 PROC SYSOUT=*, SYSOUT Class
```

Batch Execution

```
// FD=,
// MASTER=,
// MEMBER=,
// SUFFIX=FIX, File Type (SUFFIX=) (FIX,COM,VSAM,ISAM)
// NAMELEN=12, Field Name Length (12,30)
// SKPDASH=0, Skip 'n' Hyphens in COBOL Name (0,1,2,3)
// HYPHEN=S, Remove HyphenS or Use UnderBars (removeS,underBars)
// GROUPNM=A, Generate GROUP Fields (All,None,Printable only)
// REDEF=C, Generate REDEFINE Fields (Comments,None,Segments)
// LEV88=Y, Generate LEVEL 88 as Comments (Yes,No)
// OCCURS=Y, Describe Occurs as Segments (Yes,No)
// ZONED=P, Zoned Numeric Field Usage (Packed,Alpha)
// EDITOPT=, Numeric Field Edit Options (S,C,B,R,M,N,L combinations)
// LONGPACK=N Long Packed Fields (Yes,No)
//* Do Not make changes below this point
/*=====
//CTF10000 EXEC PGM=CTF10000,PARM=('NO','REPL','&MEMBER',
// '10','10','738','&MEMBER','&SUFFIX','&EDITOPT',
// '&SKPDASH','I','F','D','P','&ZONED',
// '&NAMELEN','&GROUPNM','&LEV88','&REDEF','&HYPHEN',
// '&LONGPACK','&OCCURS')
//STEPLIB DD DISP=SHR,DSN=prefix.CTF30.LOAD
//CTFIN DD DISP=SHR,DSN=&FD
//OUTPUT2 DD DISP=SHR,DSN=&MASTER(&MEMBER)
//PRINT1 DD SYSOUT=&SYSOUT
//PRINT2 DD SYSOUT=&SYSOUT
//PRINT3 DD SYSOUT=&SYSOUT
//PRINT4 DD SYSOUT=&SYSOUT
//SYSOUT DD SYSOUT=&SYSOUT
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1)),DCB=BLKSIZE=6138
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1)),DCB=BLKSIZE=6210
//OUTPUT DD UNIT=SYSDA,SPACE=(CYL,(1,1)),DCB=BLKSIZE=6156
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
// PEND
//CTF EXEC PROC=CTF30
```

VM/CMS Execution

To execute the Translator directly, without using the interactive screens, execute the CTF30E EXEC procedure from the Ready prompt:

```
CTF30E cobolfn cobolft masterfn <( options <)>>
```

where:

cobolfn

Is the file name of the input COBOL FD.

cobolft

Is the file type of the input COBOL FD.

masterfn

Is the file name of the output Master File.

Options include:

Name	Description	n
SUFFIX n	File Type (SUFFIX=)	FIX, COM, VSAM, ISAM
NAMELEN n	Field Name Length	12, 30
SKPDASH n	Skip 'n' Hyphens in COBOL Name	0, 1, 2, 3
HYPHEN n	Remove HyphenS or Use UnderBars	removeS, underBars
GROUPNM n	Generate GROUP Fields	All, None, Printable only
REDEF n	Generate REDEFINE Fields	Comments, None, Segments
LEV88 n	Generate LEVEL 88 as Comments	Yes, No
OCCURS n	Describe Occurs as Segments	Yes, No
ZONED n	Zoned Numeric Field Usage	Packed, Alpha
EDITOPT n	Numeric Field Edit Options	S, C, B, R, M, N, L combinations
LONGPACK n	Long Packed Fields	Yes, No
TEMPFM n	File mode for temporary files	A - Z

The LONGPACK option does not appear on the online menu; it is set automatically based on the software release that you are executing. Enter Y for LONGPACK if your software release supports long packed fields (packed fields with 16 or more digits). Enter N if your software release does not support long packed fields. The TEMPFM option identifies the read/write disk to use for temporary files crated by the Translator. By default, the translator uses the read/write disk with the largest available space.

The following example translates the COBOL FD *INPUT COBOL* to the Master File *OUTPUT MASTER*, with SUFFX = FIX and hyphens replaced with underbars:

```
CTF30E INPUT COBOL OUTPUT (SUFFIX FIX HYPHEN B
```

D Using TED to Edit or Isolate the COBOL FD

Follow these steps, which describe basic TED operations, to edit or isolate the COBOL FD. Refer to online help for full TED capabilities. You may get help for the TED editor at any time by pressing the PF1 key twice or by typing HELP on the command line.

1. In the area on the Translator menu titled COBOL FD Name, enter the name of an existing COBOL FD or a name where you wish to create an isolated COBOL FD.
 - **MVS:** Do not use quotation marks in the dataset name. The dataset must already exist and may be sequential or partitioned. If it is partitioned, include the existing member name or the new member name in the Member entry field.
 - **VM/CMS:** Enter the file name, file type, and file mode.
2. To edit the COBOL FD, press the PF5 key. To edit text, use the cursor and tab keys to move around the screen. Press the PF7 and PF8 keys to scroll backwards and forwards, respectively. To make changes, type over existing text, insert new text, or use the following commands:

- If you want to delete the entire contents of an existing file, type the following two commands on the command line, pressing the Enter key after each one:

```
TOP
```

```
DELETE *
```

- To copy a COBOL program or FD into the TED editor, type

```
GET filename
```

where:

```
filename
```

Is the name of the COBOL FD to retrieve.

- **MVS:** *Filename* is the fully-qualified dataset name, enclosed in single quotes. The dataset name must include a member if the dataset is partitioned.

```
'data.set.name'
```

```
'data.set.name(member)'
```

- **VM/CMS:** *Filename* is the file name, file type, and file mode of the COBOL FD to retrieve

Using TED to Edit or Isolate the COBOL FD

- To delete lines from a COBOL FD, first turn on the prefix area of the editor, if it is not already on, by typing the following on the command line:

`Edit`

You then have two options:

To delete a single line, type `D` in the prefix area for that line.

To delete blocks of lines, type `DD` in the prefix area of the first line, scroll to the last line of the block, and type `DD` in its prefix area. Press the Enter key to complete the process.

3. You have two options for saving:

- To save your changes and return to the Translator menu, type the following on the command line and press the Enter key:

`FILE`

- To save your changes and remain in the editor, type the following on the command line and press the Enter key:

`SAVE`

4. To exit the TED editor without making any changes, press the PF3 key.

To end the TED session at any time after making changes, type the following on the command line and press the Enter key:

`QUIT`

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