

# Cincom

## **AD/ADVANTAGE**

MANTIS XREF Administration  
OS/390, VSE/ESA

P39-0012-00



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# AD/Advantage® MANTIS XREF Administration OS/390, VSE/ESA

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## Release information for this manual

*AD/Advantage MANTIS XREF Administration, OS/390, VSE/ESA, P39-0012-00*, is dated October 30, 2001. This document supports Release 5.5.01 of MANTIS and Release 5.5.01 of XREF.

### We welcome your comments

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# About this book

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## Using this document

MANTIS<sup>®</sup> is an application development system that consists of design facilities (for example, screens and files) and a programming language.

You can use the XREF system in CICS, OS/390, VSE/ESA, and OpenVMS/Unix environments.

## Document organization

The information in this manual is organized as follows:

### **Chapter 1—XREF overview**

Provides an overview of XREF, when to use it, how it works, and conversion from XREF 2.0 to 3.11.

### **Chapter 2—Supporting XREF in your environment**

Provides information for setting up and supporting your XREF system.

### **Chapter 3—Index maintenance**

Discusses methods available for index maintenance.

### **Chapter 4—System Administrator options**

Describes functions available to System Administrators that are not available to other users.

**Chapter 5—Batch job procedure diagram**

Contains a diagram for the XREFJOB batch job procedure.

**Chapter 6—Batch binding job**

Contains information for users who have the MANTIS High Performance Option.

**Chapter 7—Batch reports**

Provides information for running XREF inquiries in batch mode.

**Appendix—Messages**

Lists alphabetically the error messages that may display when using XREF.

**Index**

## Conventions

The following table describes the conventions used in this document series:

Convention	Description	Example
Constant width type	Represents screen images and segments of code.	Screen Design Facility GET NAME LAST INSERT ADDRESS
Slashed b ( <i>b</i> )	Indicates a space (blank).  The example indicates that a password can have a trailing blank.	WRITEPASS <b>b</b>
Brackets [ ]	Indicate optional selection of parameters. (Do not attempt to enter brackets or to stack parameters.) Brackets indicate one of the following situations.  A single item enclosed by brackets indicates that the item is optional and can be omitted.  The example indicates that you can optionally enter a program name.	COMPOSE [ <i>program-name</i> ]
	Stacked items enclosed by brackets represent optional alternatives, one of which can be selected.  The example indicates that you can optionally enter NEXT, PRIOR, FIRST, or LAST. (NEXT is underlined to indicate that it is the default.)	<u>NEXT</u> PRIOR FIRST LAST

Convention	Description	Example
Braces { }	<p>Indicate selection of parameters. (Do not attempt to enter braces or to stack parameters.) Braces surrounding stacked items represent alternatives, one of which you must select.</p> <p>The example indicates that you must enter FIRST, LAST, or a value for <i>begin</i>.</p>	<pre> { <b>FIRST</b>   <i>begin</i> <b>LAST</b> }                     </pre>
<p><u>Underlining</u> (In syntax)</p>	<p>Indicates the default value supplied when you omit a parameter.</p> <p>The example indicates that if you do not specify ON, OFF, or a row and column destination, the system defaults to ON.</p> <p>Underlining also indicates an allowable abbreviation or the shortest truncation allowed.</p> <p>The example indicates that you can enter either PRO or PROTECTED.</p>	<pre> <b>SCROLL</b> [ <u>ON</u>            <u>OFF</u>            [<i>row</i>][<i>col</i>]           ]                     </pre> <hr/> <p><u>PROTECTED</u></p>
Ellipsis points...	<p>Indicate that the preceding item can be repeated.</p> <p>The example indicates that you can enter (A), (A,B), (A,B,C), or some other argument in the same pattern.</p>	<pre> (<i>argument</i>, ...)                     </pre>

Convention	Description	Example
UPPERCASE	<p>Indicates MANTIS reserved words. You must enter them exactly as they appear.</p> <p>The example indicates that you must enter CONVERSE exactly as it appears.</p>	CONVERSE <i>name</i>
<i>Italics</i>	<p>Indicate variables you replace with a value, a column name, a file name, and so on.</p> <p>The example indicates that you can supply a name for the program.</p>	COMPOSE [ <i>program-name</i> ]
Punctuation marks	<p>Indicate required syntax that you must code exactly as presented.</p> <p>( ) parentheses  . period  , comma  : colon  ; semicolon  ' single quotation mark  " " double quotation marks</p>	[LET] <sub><i>i</i></sub> [ <sup><i>i</i></sup> / <sub><i>i, j</i></sub> ] [ROUNDED( <i>n</i> )] = <i>e1</i> [, <i>e2</i> , <i>e3</i> ...]

## MANTIS documentation series

MANTIS is an application development system designed to increase productivity in all areas of application development, from initial design through production and maintenance. MANTIS is part of AD/Advantage<sup>®</sup>, which offers additional tools for application development. Listed below are the manuals offered with MANTIS in the IBM<sup>®</sup> mainframe environment, organized by task. You may not have all the manuals listed here.

### MASTER User tasks

- ◆ *MANTIS Installation, Startup, and Configuration, MVS/ESA, OS/390, P39-5018*
- ◆ *MANTIS Installation, Startup, and Configuration, VSE/ESA, P39-5019*
- ◆ *MANTIS Administration, OS/390, VSE/ESA, P39-5005*
- ◆ *MANTIS Messages and Codes, OS/390, VSE/ESA, P39-5004\**
- ◆ *MANTIS Administration Tutorial, OS/390, VSE/ESA, P39-5027*
- ◆ *MANTIS XREF Administration, OS/390, VSE/ESA, P39-0012*

### General use

- ◆ *MANTIS Quick Reference, OS/390, VSE/ESA, P39-5003*
- ◆ *MANTIS Facilities, OS/390, VSE/ESA, P39-5001*
- ◆ *MANTIS Language, OS/390, VSE/ESA, P39-5002*
- ◆ *MANTIS Program Design and Editing, OS/390, VSE/ESA, P39-5013*
- ◆ *MANTIS Messages and Codes, OS/390, VSE/ESA, P39-5004\**
- ◆ *AD/Advantage Programming, P39-7001*
- ◆ *MANTIS DB2 Programming, OS/390, VSE/ESA, P39-5028*

- ◆ *MANTIS SUPRA SQL Programming, OS/390, VSE/ESA*, P39-3105
- ◆ *MANTIS XREF, OS/390, VSE/ESA, OpenVMS*, P39-0011
- ◆ *MANTIS Entity Transformers*, P39-0013
- ◆ *MANTIS DL/I Programming, OS/390, VSE/ESA*, P39-5008
- ◆ *MANTIS SAP Facility, OS/390, VSE/ESA*, P39-7000
- ◆ *MANTIS WebSphere MQ Programming*, P39-1365
- ◆ *MANTIS Application Development Tutorial, OS/390, VSE/ESA*, P39-5026



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Manuals marked with an asterisk (\*) are listed twice because you use them for multiple tasks.

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## **Educational material**

AD/Advantage and MANTIS educational material is available from your regional Cincom education department.



# 1

## XREF overview

XREF lets you view list and cross-reference information for the entities and elements on the MANTIS cluster. You can use XREF to:

- ◆ Identify relationships within MANTIS (entity-to-entity and element-to-entity).
- ◆ Identify relationships MANTIS has with external files (VSAM for IBM, RMS for OpenVMS) and with DBMS files (TOTAL and SUPRA for IBM, ULTRA for OpenVMS/Unix).

XREF scans the MANTIS cluster and builds its own index/cross-reference file. The online inquiry facility lets you view lists and cross references of MANTIS elements and entities, as described in the *MANTIS XREF, OS/390, VSE/ESA, OpenVMS*, P39-0011. This chapter provides an overview of XREF.

## When to use XREF

You generally use XREF to determine the impact of change to your existing system, or when you want to look at the names of MANTIS entities or SUPRA views. You can use the list functions of XREF to check naming standards for consistency. When you are ready to make a change in your system, you can use XREF to determine:

- ◆ If you change the length of a MANTIS element, which screens, files, and programs will have to be changed.
- ◆ If you modify an external file view (TOTAL view, SUPRA RDM view, etc.), will any other programs be affected.
- ◆ The impact of changing a view.
- ◆ Whether deleting a view will reduce future maintenance problems.
- ◆ The views that access an External VSAM file, TOTAL file, or DL/I segment.
- ◆ If you change an entity, which MANTIS programs will need to be rebound.
- ◆ The definitions at byte *x* of file *x* and all the possible data mappings against all those fields.

For example, the BINDING function from MANTIS improves performance. However, if a program has been bound, and an entity it uses is changed, all programs using this entity require rebinding. You can use XREF to display a list of all programs that use this entity. XREF can also produce an input deck to be used to bind those programs in batch.

---

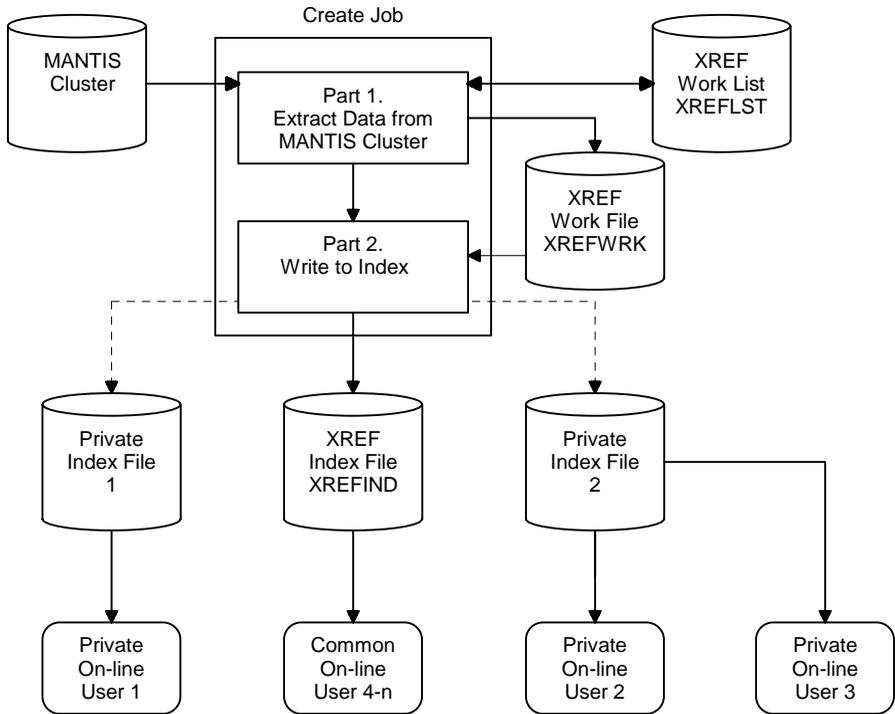
## How XREF works

The index/cross-reference file of XREF is the base for the inquiry facility of XREF. The index creation/maintenance component scans information from the MANTIS cluster and produces a file of index and cross-reference records. This component is run as needed and consists of a batch job with two parts. First, the MANTIS cluster is scanned for selected information; then, a Batch MANTIS program creates cross-reference records (see the figure on the next page).

The online inquiry facility of XREF displays information directly from the index file about usage or definitions of the following entities and elements:

- ◆ MANTIS entities
- ◆ SUPRA RDM views
- ◆ MANTIS data elements and definitions
- ◆ Physical data base definitions derived from MANTIS definitions
- ◆ External entities (VSAM, RMS, TOTAL, SUPRA, DL/I) and their relationships to MANTIS

The following figure provides a graphic overview of MANTIS XREF:



## Sample XREF index

The XREF system was run against itself, and the index file that was produced is supplied as a sample index. This enables you to demonstrate and evaluate XREF without submitting runs to create data. You may want to use this sample index in conjunction with the tutorial that is accessible from the XREF main menu. (See “[Tutorial](#)” on page 26 for more information.)

---

## Note to VSE/ESA users

The terminology in this manual often refers to the OS/390 operating system. In VSE/ESA environments, most of these terms are different. For example:

- ◆ **PROCLIB.** Procedure library.
- ◆ **MACLIB.** Library containing parameters for procedures.

The supplied JCL is based on the assumption that VSE/ESA is being used. Older releases of VSE/ESA may need their JCL tailored differently.

In a VSE/ESA environment, please make allowances for these differences.



# 2

## Supporting XREF in your environment

This chapter provides information for setting up and supporting your XREF system. This chapter includes considerations for defining your XREF files, making adjustments for long print runs in MANTIS, building your XREF user base, tailoring your batch maintenance jobs, and testing your XREF system. Each of these areas is covered in the following sections. This chapter assumes that XREF is successfully installed at your site.

### Set up your XREF system

Index maintenance for XREF (covered in “[Index maintenance](#)” on page 27) depends upon the stability of your MANTIS users. Some users will require more reprocessing than others. In most cases, a MANTIS environment is a mix of stable and volatile users. To manage this type of environment, consider segregating those users who need more reprocessing (volatile users) by creating separate indexes (private XREF clusters). For more details, see “[Multiple XREF indexes \(private clusters\)](#)” on page 33.

Modify your MASTER:START\_FACILITY screen layout to have an option for XREF (such as 24). Then add lines to MASTER:START\_FACILITY (or other facility programs), similar to the following:

```
WHEN MAP= "PF24" OR OPTION=24
  .CHAIN"CSI_XREF:MENU"
END
```

For further details, refer to the information on writing a facility program in [MANTIS Administration, OS/390, VSE/ESA, P39-5005](#).

## Tailor batch maintenance jobs

To tailor XREF batch maintenance procedures, point XREFJOB to the correct file names and customize the SELECT MACLIB members. For other jobs that may need tailoring, see the JCL index \$IXEXJCL. For further details, see the maclib member "INFO". Some other MACLIB members (batch MANTIS input streams) may also need tailoring for your installation.

---

## Define XREF files

If you require larger files, change data and index in the same proportion, but do not alter data or index control interval size.

The size of the work file varies widely by installation. You may want to run LISTCAT (list catalog) after a large run to determine how much defined space is used.

So the tutorial matches data on inquiries, keep the supplied sample index separate on a permanent basis for copying into a new XREF cluster (see the discussion under "[Test index maintenance](#)" on page 25).

## Check CICS FCT definitions against members CICSFCT or CICSRDO

If you have used previous documentation to prepare for the installation, check CICS table entries against the definitions in members CICSFCT or CICSRDO and check VSAM file definitions. Update the CICS file control tables with the information in members CICSFCT or CICSRDO.

## Update CICS startup JCL to point to the XREF cluster

Do this step only after data has been loaded into XREFIND, or CICS startup will fail.

### OS/390

```
//XREFIND DD DSN FFFF.HHHHHH.XREF.CLUSTER,DISP=SHR
```

### VSE/ESA

```
//DLBL XREFIND,FFFF,HHHHH.XREF.CLUSTER,,VSAM,CAT=....
```

## Change external names for XREF files

The default external file names for XREF files are:

- ◆ XREFIND
- ◆ XREFWRK
- ◆ XREF001
- ◆ XRBIND

If desired, change these names by performing the following:

1. Sign on to MANTIS as the MASTER user.
2. Select option 1 (Run a Program by Name).
3. Enter CONTROL:SET\_EXT\_NAMES.
4. Select option 1 (Change System File Names).
5. Change the needed file names for CSI\_XREF only
6. Press ENTER.
7. Press PA2.



---

If you change the external file names for any of the XREF files, you must change the JCL and Procedures accordingly.

---

## Allow for long print runs in MANTIS Batch Print

You may obtain a POTENTIAL LOOP condition in the MANTIS Print Facility if the MANTIS programs are not modified. Optional MANTIS patches are available to bypass slot/slice checking in batch. Refer to the Cincom APMS tape for the necessary patches or sign on as Master User, enter programming mode, and make the following modifications:

- ◆ **START\_FACILITY program.** The START\_FACILITY program initially reads:

```
500 ELSE
510 CHAIN "CONTROL:MPFREADR"
```

Perform these steps:

1. Insert the following into the START\_FACILITY program:

```
505 SLOT 0
```

2. Replace the program (this disables loop checking).

- ◆ **FACILITY program.** The FACILITY program initially reads:

```
510 ELSE
520 CHAIN "CONTROL:MPFREADR"
```

Perform these steps:

1. Insert the following into the FACILITY program:

```
515 SLOT 0
```

2. Replace the program.

Return to the MANTIS Facility Selection Menu, select the Run a Program by Name option, and run CSI\_XREF:MENU. The XREF Main Menu will appear.

---

## Inquiries using the sample index

For the CICS environment:

1. Use the CICS master terminal function to open the XREF index cluster:

```
CEMT I DA(XREFIND)
```

2. Overtyping "CLO" with "OPE".




---

You might not have the required CICS authority to use the master terminal function (CEMT).

---

For the Communications Monitor environment, use Run a Program By Name (option 1 on the MANTIS Facility Selection menu) to open the file XREFIND, CSI\_XREF:OPEN\_CLOSE. Sign on to any MANTIS user and select the Run a Program By Name option. Enter the program name "CSI\_XREF:MENU", and access XREF.

---

## Test index maintenance

"[Tailor batch maintenance jobs](#)" on page 22 provided suggestions for tailoring the XREFJOB batch maintenance procedure. Supply a small volume of data from one of your MANTIS users in the SELECT MACLIB member so you can try the index maintenance procedure. ("[Index maintenance](#)" on page 27 contains more information on index maintenance.)

```
USER=.....
TYPE=PROGRAMS
SELECT=.....
TYPE=SCREENS
SELECT=.....
TYPE=VSAM
SELECT=.....
```




---

If you specify TYPE=ALL, XREF can produce a large amount of output. Ensure that the work file is large enough to hold all the data. For further details, see "[Blocking DISKPRF from print](#)" on page 31.

---

## Tutorial

The sample index contains cross-reference data about an earlier version of XREF as well as a set of test data to test conditions not occurring in the user XREF. Run the MENU program and select the tutorial (TU) from the XREF Main Menu for examples of using XREF. The user XREF\_TEST\_DATA is not supplied, but the tutorial gives examples of the code.

You may want to print a copy of the tutorial so that you have a hard copy to use when you work online. To obtain a printed copy, modify and submit job XREFTUT.

The steps involved in setting up the data for the tutorial and performing sample inquiries follow:

- ◆ During the XREF installation procedure, the XREF sample file (XREFSMP) will be copied into the XREF index so that you can immediately run the tutorial that is based on the sample.
- ◆ The XREF sample data will remain on the XREF index until the XREFJOB is run with JOBTYP= XREFNEW. At that time, the current index will be deleted and a new index will be created using user-specified data only.
- ◆ To build a new index that will contain the sample index data and user data, run job SAMPINDX. SAMPINDX will reprocess the sample index to the XREFIND cluster.

# 3

---

## Index maintenance

---

In the production environment, changes do not occur on a daily basis for all applications. Transfer from test to production is normally closely controlled with a log of transfers. XREF offers different types of maintenance runs to use in these environments.

This chapter discusses methods available for index maintenance. Topics covered include using XREFJOB parameter cards, blocking DISKPRT from print, restarting index maintenance, using multiple indexes, and establishing a production (test) system.

---

### Overview of index maintenance

The type of index maintenance performed depends on the stability of the MANTIS users in the environment. For example, if a user is volatile, reprocessing is needed more often. Conversely, if a user is stable, reprocessing is needed less often.

For relatively stable MANTIS users (those with few changes), a weekly maintenance run should be sufficient. Remember that, in most cases, it is not critical to have the most current version of XREF available on all days, but you must be able to make the right decisions when requests for change or problems occur. This may involve running a batch job on request.

The best way to manage an environment containing a mix of volatile and stable users is to segregate them from one another. Specifically, you create a separate index for each type of user. For information on how to establish separate user indexes, see “Multiple XREF indexes (private clusters)” on page 33, or select option 11 from the System Administrator’s menu (AD on the XREF Main Menu) and read the instructions for using private XREF clusters.

If volatile and stable users reside on the same XREF index, you can reprocess them individually (delete and read) by placing special parameter cards in the job XREFJOB (see “XREFJOB parameter cards” on page 29).

For disk space and restart reasons, runs to create or maintain the XREF index should process a single MANTIS user. Before processing the next MANTIS user, back up the XREFIND cluster unless the number of users is relatively small.

---

## XREFJOB parameter cards

By using the **JOBTYPE=** parameter card, you can perform all index maintenance jobs efficiently. Separate discussions on each of these parameter cards follow.

### **JOBTYPE=** parameter card

The **JOBTYPE=** parameter card controls adding information to the index. On the **JOBTYPE=** parameter, you can specify the following options:

- ◆ **JOBTYPE=XREFNEW.** Deletes the current XREF index and creates a new index. Users and entity types to be cross-referenced should be specified in the SELECT member.
- ◆ **JOBTYPE=XREFADD.** Adds cross-reference information to the existing XREF index. Users and entity types to be added should be specified in the SELECT member. XREFADD is the default job type.
- ◆ **JOBTYPE=XREFMOD.** Deletes a user or entity type for one or more users during the XREFJOB run. XREFMOD should contain information on one or more users or entity types to be deleted during the run.
- ◆ **JOBTYPE=XREFMODI.** Deletes a particular entity (such as a screen or file) during the run. XREFMODI should contain the information on the entity to be deleted. When using XREFMODI to change the inquiry file, XREF does not delete names when an entity is deleted or reprocessed. To delete names, run XREFNEW. In any one run of XREFMODI, old cross-references are removed from entities for only the first ten user names. To remove cross-references from entities for the next ten users, run XREFMODI again. For any of the ten users, all entity types can be specified and for any entity type, up to 40 entities can be reprocessed. Any other entities do not have old cross-references deleted.

## Sample maintenance jobs

To illustrate how to use the parameter cards discussed earlier, several maintenance jobs are described below. Specifically, this section discusses building a new index, adding new user information, adding new users and modifying existing users, and modifying specific entities:

- ◆ **Building a new index.** A new index is needed when 30% to 40% of the index information has changed since the last index maintenance. To build a new index, specify the user and entities to be cross-referenced in the SELECT member. The following parameter cards should reside in XREFJOB:

```
JOBTYP= XREFNEW
```

- ◆ **Adding new user information to the index.** Add new user information when new elements are added to entities or new elements or entities are added to programs. SELECT should contain the newly added information. The associated parameter cards should reside in XREFJOB:

```
JOBTYP= XREFADD (This is the default job type.)
```

- ◆ **Adding new users and modifying existing users.** Reprocess user information when particular users have changed significantly but the rest of the index has experienced little or no change. To add new users (e.g., A and B) and reprocess an existing user (e.g., C), place user information about users A, B, and C, in the SELECT member and information about user C in the XREFMOD member. Associated parameter cards are as follows:

```
JOBTYP= XREFMOD
```

During the job run, cross-reference information about user C is deleted from the index, and information about users A, B, and C is added. In effect, user C is modified.



---

During deletion, only cross-reference information is deleted. Entity and element names are only deleted when the entire index is recreated (JOBTYP=XREFNEW).

---

- ◆ **Modifying specific entities.** Reprocess specific entities when only a small number of entities has changed since the last index maintenance. The entities that require reprocessing should be specified in the SELECT and XREFMODI members. Associated job parameters are as follows:

```
JOBTYPE=XREFMODI
```

During the job run, the specified entity cross-references are deleted and re-added.

---

## Blocking DISKPRT from print

In an OS/390 environment, the XREFC1 and XREFP1 programs use blocking 0 and can handle blocked input. The DCB for the MANTIS Print Facility also uses blocking 0.

In order to achieve maximum possible blocksize for the device to which the MANTIS Print Facility is writing, make one of the following modifications in the JCL:

- ◆ Specify BLKSIZE=0.
- ◆ Omit the BLKSIZE parameter

Performing one of the preceding two JCL modifications is helpful for large MANTIS users because these modifications:

- ◆ Reduce run times for the PRINT and EXTRACT steps.
- ◆ Dramatically reduce disk space requirements for the XREFLST file.

## Restart index maintenance

Process small amounts of data rather than an entire user. If the XREF step stops before completion and has processed a lot of data, you can restart after you have found the problem.

If the index maintenance run stops because of an input data format error, skip some of the input data. The run can continue from the step where XREF stopped.

### For nonDL/I users

If you are not a DL/I user, you do not need to tailor the card member START, which executes the MANTIS START\_XREF for normal XREF processing.

### For DL/I users

Specify either the control card member in your job or specify the control card member in your job JCL: for example START=xxxxxxx, where xxxxxxx is:

- ◆ **CALLPROF.** Does not process DL/I entities. Normal MANTIS entity processing and look for call profile names in the second parameter of the CALL statement. Use this when there are no changes to DL/I entities.
- ◆ **XRALLDLI.** Used to process all DL/I entities, but no MANTIS entities. Use SELECT=XRNONE.
- ◆ **XRALLDLM.** Used to process all DL/I entities followed by selected MANTIS entities.
- ◆ **XRSELDLI.** Used to process selected DL/I entities, but no MANTIS entities. Use SELECT=XRNONE.
- ◆ **XRSELDLM.** Used to process selected DL/I entities and selected MANTIS entities.

## Multiple XREF indexes (private clusters)

If your installation has a number of large MANTIS users, and if these users are fairly stable, you may want to separate XREF information onto a number of index files that you maintain separately. As System Administrator, you can specify those users who should have a private XREF cluster, and those users who should share a private XREF cluster.

Inquiry programs are designed so that they can automatically use a private or common version of the XREF cluster, determined upon sign-on to MANTIS. Batch jobs must be tailored to use the correct data set name for XREFIND.

Private XREF clusters can be useful when you have several stable MANTIS applications, as well as others that change frequently. By splitting the cross-reference over separate clusters, batch maintenance processing is reduced because you may then just rerun the users who have changed.

To create a private XREF cluster:

1. Sign on to user "MASTER" and select option 10 (External File Views). Copy the following file views to a new name that is the existing name plus a 1–4 character suffix. Use the same suffix for all six views. In the following example, the suffix is "\_01".

Existing file view	File view with suffix
ELEMENT_XREF	ELEMENT_XREF_01
ENTITY_XREF	ENTITY_XREF_01
NAME_INDEX	NAME_INDEX_01
PHYS_XREF	PHYS_XREF_01
XREF_CONTROL	XREF_CONTROL_01
WHAT_IT_USES	WHAT_IT_USES_01

2. Change the external file name for each of the file views:
  - ◆ **CICS users.** Change XREFIND to XREFP01.
  - ◆ **CM users.** Change XREFIND to XR01.
3. To define the user name as a private XREF user, run the program “CSI\_XREF:MENU” and select option “AD” to display the System Administrator’s menu. Then select option 12, and go into maintenance mode (PF4). Enter the user name and the same suffix that you added to the file view name.
4. Change CICS FCT and startup JCL to include the additional files or the Communications Monitor filemod.
5. Copy procedure XRJOB1 to XREFJ001 and change the JCL to use the new file name and point to the new files.
6. Create a new JCL member (for example XREFJB01) to execute the new procedures in XREFJ001 described above.
7. Run job XREFJB01, and so on, to create the separate index.
8. Sign on to the private user and select XREF to run the inquiries. Select from the menu or option 1 Run a Program By Name to run CSI\_XREF:MENU.
9. Sign on to a user without a private cluster and repeat the inquiries.



---

More than one MANTIS user can share one private cluster.

---

### General considerations

- ◆ MANTIS programs add the suffix to the existing name of the file view for any user specified as a private XREF user.
- ◆ Batch programs use the file name XREFIND. The data set name in the JCL must be tailored.
- ◆ Programs only use one version of the work files.

---

## Production system/test system

Most often, only one XREF system is required for test and production systems. You can use the production MANTIS cluster to generate the common XREF inquiry file and process only development users in private XREF inquiry files. Remember that some processing is required to create a cross-reference.

If the test system includes many old entities, you may want to delete some of them or use XREF on the production system. Similarly, if an XREF run shows that many entities are obsolete, delete the obsolete entities to shorten future runs.

---

## Resolving batch run problems

Three problems that could occur during your batch run are discussed below.

### Failure after writing to the first work file

If the step writing to the first work file (XREFLST) fails, check the MANTISB Print utility to determine if the same problem exists. If it does, the problem is not related to XREF. Contact your Cincom support representative for a resolution.

If an I/O error occurs on XREFLST, the files may be full. Approximate requirements for a medium-sized MANTIS library to run through XREF are:

```
XREFIND - 15,000 - 20,000 records  
XREFLST - 80,000 - 160,000 records  
XREFWRK - 8,000 - 16,000 records
```

### XREFC1/XREFP1 extraction program

The XREFC1/XREFP1 extraction program could fail because of insufficient space on the VSAM data set XREFWRK, or because of insufficiently supported input conditions. Input conditions return an explanatory message. (See the Limitations option (NO) on the XREF Main Menu to check for limitations.) Remove input data specified as unsupported.

## MANTISB

If the Batch MANTIS step fails, try any other batch MANTIS run. If the problem recurs, check for other possible problem areas. This problem is not related to XREF.

---

## Restart after abnormal termination

To restart a step, modify the JCL as follows:

- ◆ **OS/390.** Enter the following:

```
RESTART=XREFJOB.STEP4
```

- ◆ **VSE/ESA.** Enter the following:

```
GOTO STEP4
```

Note that because steps 3, 5, and 7 use temporary work files as input, they are the only steps at which the job cannot be restarted. See “[Multiple XREF indexes \(private clusters\)](#)” on page 33 to review all steps.

## Processing DL/I entities

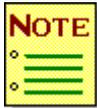
To process DL/I entities, use the appropriate START member in XREFJOB:

- ◆ To process all DL/I entities but no MANTIS entities, specify:

```
SELECT=XRNONE,
START=XRALLDLI
```

- ◆ To process selected DL/I entities but no MANTIS entities, specify the following:

```
SELECT=XRNONE,
START=XRSELDLI
```




---

Selected DL/I entities are specified in the member XRSELDLI.

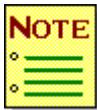
---

- ◆ To process all DL/I entities and selected MANTIS entities, specify:

```
SELECT= (member containing selected MANTIS entities),
START=XRALLDLM
```

- ◆ To process selected DL/I entities and selected MANTIS entities, specify:

```
SELECT= (member containing selected MANTIS entities),
START=XRSELDLM
```




---

Selected DL/I entities are specified in the member XRSELDLM.

---

- ◆ To process MANTIS entities only, but perform the additional processing needed to look for DL/I CALL PROFILES, specify:

```
SELECT= (member containing selected MANTIS entities),
START=CALLPROF
```

Any of the above can be run with JOBTYP=XRNEW, XREFADD, XREFMOD, or XREFMODI.

If you are a DL/I user, you need to specify the control card member in your job or in your job JCL (e.g., START=xxxxxxx, where xxxxxxx is CALLPROF, XRALLDLI, XRALLDLM, XRSELDLI, or XRSELDLM. These options are described below.

- ◆ **CALLPROF.** Processes no DL/I entities but all MANTIS entities. This option looks for call profile names in the second parameter of the CALL statement. Use this option when there are no changes to DL/I entities.
- ◆ **XRALLDLI.** Processes all DL/I entities, but no MANTIS entities. Use SELECT=XRNONE.
- ◆ **XRALLDLM.** Processes all DL/I entities and selected MANTIS entities.
- ◆ **XRSELDLI.** Processes selected DL/I entities, but no MANTIS entities. Use SELECT=XRNONE.
- ◆ **XRSELDLM.** Processes selected DL/I entities and selected MANTIS entities

Any of these options can be run with any one of the four job types, as shown in the following table.

Control card	Batch MANTIS program	Parameter	Next MANTIS program
START	START_XREF	MANT-XREF=Y	XR_CONTROL_INFO
CALLPROF	START_XREF_CALL_PROF	DLI-USER=Y	START_XREF
XRALLDLI	START_ALL_DLI	DLI-USER=Y DLI-XREF=Y	XR_CONTROL_INFO
XRALLDLM	START_ALL_DLI_MANT	MANT-XREF=Y	TART_ALL_DLI
XRSELDLI	START_SEL_DLI	-	XR_SEL_DLI_XREF
XRSELDLM	START_SEL_DLI_MANT	MANT-XREF=Y	START_SEL_DLI

Processing DL/I entities depends on the control cards used in step 5 of the batch job. These cards determine which MANTIS programs run. Members XRALLDLI and XRALLDLM process all DL/I entities. You can process entities individually by using XRSELDLI or XRSELDLM and using the following format to make selections.

---

```

TYPE = {
  QUAL
  UNQUAL
  SEGMENT
} ;NAME = DL/I - entity-name;...

```

---



---

## TYPE=

<b>Description</b>	<i>Required.</i> Specifies the type of DL/I entity.
<b>Options</b>	<p>QUAL For qualified call profile</p> <p>UNQUAL For unqualified call profile</p> <p>SEGMENT For DL/I segment layout</p>

---

## NAME=

**Description** *Required.* Specifies the MANTIS symbolic name of the DL/I entity.

### General considerations

- ◆ You must conclude with END;<PA2>
- ◆ Batch MANTIS input requires the semi-colon (;) to delimit data.

### Example

```

TYPE=QUAL;
NAME=QUAL_CALL_PROF_1;
NAME=ANOTHER_CALL_PROF;
TYPE=UNQUAL;
NAME=CALL_UNQUAL_1;
NAME=CALL_PROF_UNQ_01;
TYPE=SEGMENT;
NAME=SEGMENT_LAYOUT_1;
NAME=SEGMENT_LAYOUT_7;
END;
<PA2>

```



# 4

## System Administrator options

As the System Administrator, you have access to certain functions in XREF that other users do not. This chapter describes those functions.

### Accessing System Administrator options

To access the list of System Administrator's functions, sign on to XREF and enter "AD" in the action field of the XREF Main Menu. The following screen will display.

```
MANT XREF          MANTIS Cross Reference System      YYYY/MM/DD  HH:MM:SS
REL 3.1

                System Administrator's Menu

Please Select One Of The Following :      :

  1. Tutorial
  2. XREF File Open/Close (Environ/1 Or CM Users Only)
  3. Enter/Maintain/Inquire List Of Changed Entities For Binding Job
  4. Explain Start
  5. Tailor Sign-On To Bypass Problems With Batch MANTIS And Sign-On
  6. Requirements For Batch MANTIS And MANTIS Print Facility
  7. Explain Restart
  8. Explain Batch Maintenance Jobs
  9. Explain Controls For Individually Selected DL/I Entities
 10. Explain Data In Member 'Select'
 11. Explain Private XREF Inquiry Files
 12. Set User To Access Private XREF Files

PA2 = Stop
```

---

## Tutorial

**Description** This option gives a brief tutorial about the features of XREF. You can print the tutorial using the member XREFTUT in the JCLLIB. The tutorial is based on the XREF sample index that can be loaded into the XREFIND cluster.

---

## XREF File Open/Close (Environ/1 Or CM Users Only)

**Description** This option is for Communications Monitor users only. This option lets those users open and close the XREFIND file.

---

## Enter/Maintain/Inquire List Of Changed Entities For Binding Job

**Description** When you select this option, the following screen appears:

```
MANT XREF                MANTIS Cross Reference System      YYYY/MM/DD  HH:MM:SS
                          Changed Entity Name Entry/Inquiry

Default User:
Type  Name ----- User ----- Message -----

Hit 'PF2/PF14' To Display Names Of Programs Using The Above Entities
ENTER, UPDATE OR DELETE ENTITY NAMES
ENTER - Page, CLEAR - Clear Data, Or Jump To ==>
```

If the screen contains no entries, check the default user before pressing ENTER. The user field for any entry will be the same as the default user. Any entry in the User field will change the default user.

Enter the type and name of the entity. Enter a user if it is different than the displayed user. Only names that exist on the XREF inquiry file are valid.

Only entity types that require rebinding of programs can be entered. (DL/I entity types are not valid for XREF binding.) Entities H for prompts and P for programs are not valid because they are not bound to programs.

When the list is complete, check all users in which the required programs reside by pressing PF2 to inspect the generated control cards.



Programs in several different users can use an external file view in the MASTER User. This allows other users to read in the generated binding cards and process the information (that is, generate a report of programs to be rebound).

When you press PF2, the following screen appears:

```

MANT XREF          MANTIS Cross Reference System      YYYY/MM/DD  HH:MM:SS
                   Programs To Be Rebound
                   -----
User-----      Program-----

I007 NO MORE PROGRAM NAMES FOUND
ENTER - Next Page, CLEAR - Back To Start, PF2 - Job Cards,  PA2 - Exit
    
```

Press ENTER until all cards are displayed and then press PA2 to exit.

If you note that any of the sign-on cards has the wrong program password, edit the binding input cards. (XREF expects the program passwords to be the same as the user passwords.) See “[Batch binding job](#)” on page 53 for information on batch binding jobs.

## Explain Start

**Description** If you are not a DL/I user, you do not need to tailor the card member START, which executes the MANTIS START\_XREF for normal XREF processing.

If you are a DL/I user, you need to specify the control card member in your job or in your job JCL (e.g. START=xxxxxxx, where xxxxxxxx is CALLPROF, XRALLDLI, XRALLDLM, XRSELDLI, or XRSELDLM.

**Options** CALLPROF Processes no DL/I entities but selected MANTIS entities. This option looks for call profile names in the second parameter of the CALL statement. Use this option when there are no changes to DL/I entities.

XRALLDLI Processes all DL/I entities, but no MANTIS entities. Use SELECT=XRNONE.

XRALLDLM Processes all DL/I entities and selected MANTIS entities.

XRSELDLI Processes selected DL/I entities, but no MANTIS entities. Use SELECT=XRNONE.

XRSELDLM Processes selected DL/I entities and selected MANTIS entities.

---

## Tailor Sign-On To Bypass Problems With Batch MANTIS And Sign-On

**Description** If you use an alternate sign-on in your online environment, you may have problems running Batch MANTIS. If your alternate sign-on uses programs not available in batch, or if it updates MANTIS files, this option will prevent batch access while the online system is active. The following method allows batch sign-ons to run while the online system is active:

1. Sign on to your Master User.




---

Cincom recommends that you sign on to two MANTIS sessions when making changes to the sign-on procedure. Use the first session to make changes and the second session to test your changes. Doing this lets you make corrections and test the changes again without being locked out of MANTIS, unable to sign-on, if an error occurs in your modified program.

If you cannot sign on to two MANTIS sessions while you make changes to the sign-on procedure, be sure to back up your MANTIS SETPRAY cluster before you change the MASTER:SIGN\_ON program.

---

2. Edit MASTER:SIGN\_ON. After line 30, change the code so that it is similar to the following:

```
IF TERMINAL="DUMMY"
.ATTRIBUTE(PRINTER)="CLASS(1),(60,132)"
.CHAIN"CONTROL:SIGN_ON",NAME,CLEARANCE,PARAMETER
END
```




---

This code bypasses alternate sign-on in batch mode and sets the proper attributes for the MANTIS Print listing.

---

3. Replace the program.

---

## Requirements For Batch MANTIS And MANTIS Print Facility

**Description** Batch utilities need to be operational to be able to run the batch XREF job. Batch MANTIS will try to open the MANTIS cluster for update. If it cannot, (because the online system is already up) it will open the MANTIS file for read-only access. This means you should not start a long Batch MANTIS job just before the online system is about to come up, unless it has been generated with RO=SETPRAY in the MANTIS Customization Macro.

Batch MANTIS is required in step 6 of the job. This step accesses VSAM work files defined by XREF.

Batch MANTIS will run while the online system is active. XREF programs do not update the MANTIS cluster and do not use the MANTIS transfer cluster CSOT. There may be VSAM open errors, but MANTIS will go ahead and open the MANTIS cluster for read-only operation.

Batch Print Utility is required in step 2 of the job. Users who have one of the Cincom database management systems installed should not have this step access the DBMS.

---

## Explain Restart

**Description** Cross-reference processing has a number of steps, and error conditions such as “file full” or “selection not found” could occur. When processing a small amount of data, rerun the job from the beginning.

In the XRJOB1 procedure, JCL steps 3 and 5 cannot be restarted, because JCL step 3 uses a temporary file which will be lost. Similarly, a failure in JCL step 7 will require a restart at JCL step 6.

You can restart the XREF jobstream at step 2, 4, or 6 by completing the following steps:

1. Make sure that the error is not just a file full condition on XREFIND or any other of the relevant files.
2. Step 7 can fail if the XREFIND file is open online while the batch job is attempting to write to it. Even if the XREFIND file is defined to have read-only access online, batch step 7 requires the file to be closed to the online system when writing to it.

---

## Explain Batch Maintenance Jobs

**Description** The procedure XRJOB1 allows four batch maintenance jobs by assigning the appropriate jobtype and other overrides in the procedure XRJOB1. The four jobtypes are: XREFADD, XREFNEW, XREFMOD, XREFMODI.

**Options** **JOBTYPE=XREFADD** This is the default jobtype. It adds more data to an existing XREF inquiry file by processing additional users or entities. Use it when detail changes to programs are such that previous cross-references do not need to be deleted. Specify details of MANTIS entities to be processed by the member specified in “SELECT=...” control statements.

**JOBTYPE=XREFNEW** This jobtype clears the inquiry file XREFIND in step 6. You may also wish to use this jobtype to remove old names. Jobs XREFMOD and XREFMODI remove cross-references, but not names, so they will still appear in name or entity lists.

**JOBTYPE=XREFMOD** This jobtype reprocesses a part of existing cross-reference data. Use this job only if your XREF inquiry file already contains data and only some of the data has been modified. This job deletes all cross references specified in member XREFMOD, adding all data specified in “SELECT=...”

**JOBTYPE=XREFMODI** This jobtype specifies details to reprocess cross-reference data for individual entities. Use this jobtype in similar situations as XREFMOD, but when only individual entities need reprocessing. This requires a MODI card in the member. The MODI parameter card tells program XREFC2 to skip any old cross-reference records for the entities and users listed in the other control cards in this member. XREFMODI only specifies what is to be deleted; SELECT specifies new entities to be analyzed.



---

**IBM VSE/ESA USERS:** The jobtype members XREFADD, XREFNEW, XREFMOD and XREFMODI are not included dynamically into the job for VSE/ESA. Your job includes a member named “JOBTYPE”. Copy the relevant data into this member from one of the above members, depending on the jobtype you desire. The included member is assumed to be in the XREF library for ICCF. You may need to switch to this library to submit the job.

---

## Explain Controls For Individually Selected DL/I Entities

**Description** Processing DL/I entities depends on the control cards used in step 5 of the batch job. These cards determine which MANTIS programs will be executed. To process all DL/I entities, code either START=XRALLDLI or START=XRALLDLM in the XREFJOB JCL. You can process DL/I entities individually by specifying START=XRSELDLI or START=XRSELDLM in the XREFJOB JCL and the selections would be keyed as:

**Options** TYPE=QUAL For qualified DL/I call profiles  
TYPE=UNQUAL For unqualified DL/I call profiles  
TYPE=SEGMENT For DL/I segment layouts  
Followed by the selections for that entity type:  
NAME=.... Name of the MANTIS entity

### Example of input

```
TYPE=QUAL;  
NAME=QUAL_CALL_PROF_1;  
NAME=ANOTHER_CALL_PROF;  
TYPE=UNQUAL;  
NAME=CALL_UNQUAL_1;  
NAME=CALL_PROF_UNQ_01;  
TYPE=SEGMENT  
NAME=SEGMENT_LAYOUT_1;  
NAME=SEGMENT_LAYOUT_7;  
END;  
<PA2>
```

---

## Explain Data In Member 'Select'

**Description** The member SELECT is included in the batch jobs and specifies your selection of data to be extracted from the MANTIS file and processed. The format is exactly as documented in *MANTIS Facilities, OS/390, VSE/ESA, P39-5001*, for the Batch Print Utility but does not include the last control cards for MANTIS Batch Print Utility. These cards are in a separate member. You can give any name to the member. The override in the JCL determines the member name used. For example:

```
SELECT=INVOICE
SELECT=ACCPAY
```

The above members INVOICE and ACCPAY would contain the MANTIS users and entities that the user wants to cross-reference.

---

## Explain Private XREF Inquiry Files

**Description** Private XREF clusters can be useful when you have several stable MANTIS applications, and others that change frequently. By splitting the cross-reference over separate clusters, batch maintenance processing is reduced because you may then just rerun the users that have changed. More than one private MANTIS user can share the same private cluster.

**Consideration** To create a private XREF cluster, create the following steps:

1. Sign on to user MASTER and select option 10—External File View. Copy the following file views to a new name which is the existing name plus a 1–4 character suffix, using the same suffix for all six views.
  - ◆ ELEMENT\_XREF ⇒ ELEMENT\_XREF\_01
  - ◆ ENTITY\_XREF ⇒ ENTITY\_XREF\_01
  - ◆ NAME\_INDEX ⇒ NAME\_INDEX\_01
  - ◆ PHYS\_XREF ⇒ PHYS\_XREF\_01
  - ◆ XREF\_CONTROL ⇒ XREF\_CONTROL\_01
  - ◆ WHAT\_IT\_USES ⇒ WHAT\_IT\_USES\_01

2. Change the external file name for each file view:
  - ◆ **CICS users.** XREFIND ⇒ XREFP01, and so on.
  - ◆ **Communications Monitor users.** XREFIND ⇒ XR01, and so on.
3. To define the user name as a private XREF user, run the program CSI\_XREF:MENU and select option AD for the Administrator menu. Then select option 12 and go into maintenance mode (PF4). Enter the user name and the same suffix that you added to the file view name.
4. Change CICS FCT and startup JCL to include the additional files or Communications Monitor FILEMOD.
5. Copy procedure XRJOB1 to XREFJ001, and so on, and change JCL to use the new file names and point to the new files.
6. Create new JCL member (for example, XREFJB01) to execute new procedures XREFJ001 described above.
7. Run job XREFJB01, and so on, to create the separate index.
8. Sign on to the private user and select XREF to run the inquiries. Select from menu or option 1 (Run a Program By Name) for CSI\_XREF:MENU.
9. Sign on to a user without a private cluster and repeat the inquiries.

---

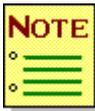
### Set User To Access Private XREF Files

**Description** To define the user name as a private XREF user, run the program CSI\_XREF:MENU and select option AD for the Administrator menu. Then select option 12 and go into maintenance mode PF4. Enter the user name and the suffix that you added to the file view name.

# 5

## Batch job procedure diagram

This chapter contains a diagram for the XREFJOB batch job procedure.

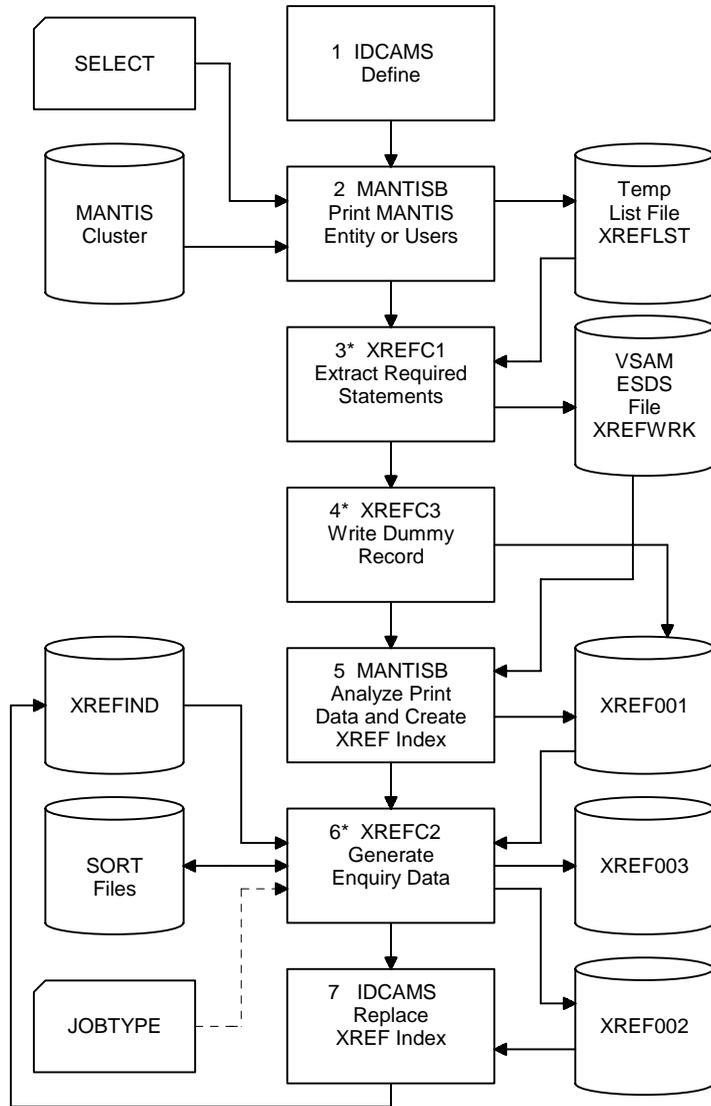


---

Repro file XREF002 to your inquiry file with REUSE when that file is closed to the online system. Use the same procedure for job types XREFNEW, XREFADD, XREFMOD, and XREFMODI.

---

## Batch job procedure XREFJOB



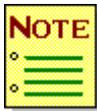
\* For PL/I users, the names are XREFP1, XREFP2, and XREFP3.

# 6

## Batch binding job

This chapter is for users who have the MANTIS High Performance Option.

1. Tailor the supplied job BINDJOB and the supplied procedure BINDPROC. This job requires that during installation the external file XRBIND has been defined. If not, use the supplied definition in MACLIB (XRDEFVSM) to define this file. The procedure BINDPROC allows you to choose between placing the generated binding input cards to a temporary file or writing to a Partitioned Data Set (PDS). This allows for the installation to produce audit reports of the programs that were bound during the batch run.
2. Enter the names of the changed entities online, as described in “[System Administrator options](#),” beginning on page 41 (System Administrator option 3).
3. Run job BINDJOB when the MANTIS cluster is closed, because binding requires update of the MANTIS cluster.



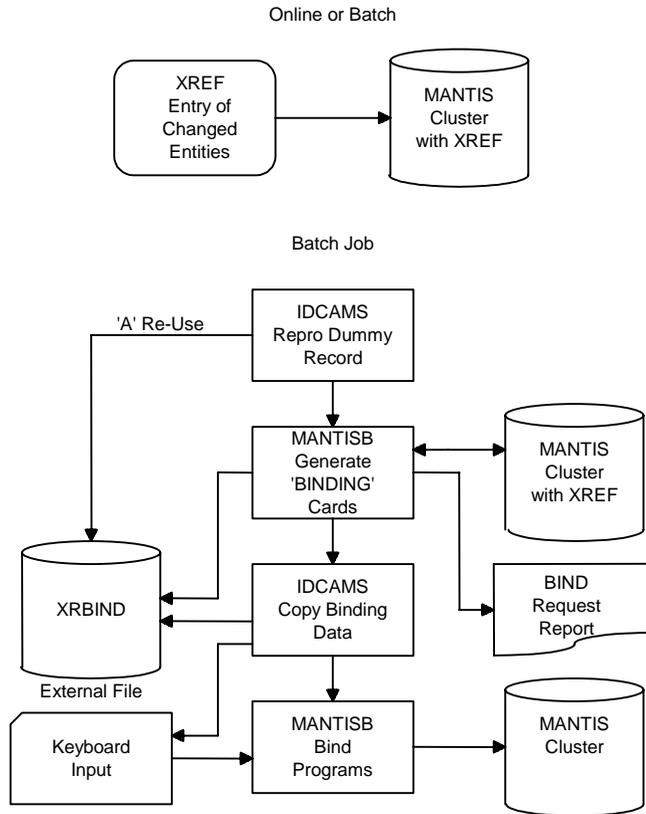
---

The first part of the bind job requires a MANTIS cluster that has XREF installed. However, the BIND step does not require XREF. For example, XREF may only be installed in the development environment, but binding may be required on the production MANTIS cluster. Correct tailoring of the procedure allows this.

---

## Batch flow diagrams

The following diagrams show the batch flow in XREF.



# 7

## Batch reports

All XREF inquiries can be run in batch mode using Batch MANTIS. The following members need to be tailored to your installation's standards:

### XREF.JCLLIB(REPORT)

The report member contains the JCL needed to execute Batch MANTIS and use the input cards to produce the needed reports.

```
//HHHRPT JOB (,*BIN),
//          'XREF REPORTS',
//          CLASS=Q,
//          MSGCLASS=F,
//          REGION=1024K,
//          USER=*UID,PASSWORD=*PSW,NOTIFY=*UID
//*
//REPORT EXEC PGM=MANTISB,REGION=2048K
//STEPLIB DD DSN=high-level-qualifier.MANTIS.LINKLIB,DISP=SHR
//SETPRAY DD DSN=high-level-qualifier.MANTIS.CLUSTER,DISP=SHR
//CSOT DD DUMMY
//XREFIND DD DSN=high-level-qualifier.xreflibrary.CLUSTER,DISP=SHR
//TERMINAL DD SYSOUT=*,DCB=BLKSIZE=133
//PRINTER DD SYSOUT=*,DCB=BLKSIZE=133
//SYSPRINT DD SYSOUT=*,DCB=BLKSIZE=133
//KEYBOARD DD DSN=high-level-qualifier.xreflibrary.MACLIB(REPSINON),DISP=SHR
//          DD DSN=high-level-qualifier.xreflibrary.MACLIB(REPTELEM),DISP=SHR
//          DD DSN=high-level-qualifier.xreflibrary.MACLIB(REPTENTS),DISP=SHR
//
```

## XREF.MACLIB(REPSINON)

The REPSINON member contains the needed input cards to sign on to Batch MANTIS. The user ID and password need to be tailored to a valid MANTIS user for the Batch MANTIS run.

```
USERID;PSWD;<ENTER>;  
1;<ENTER>;  
CSI_XREF:MENU;<ENTER>:
```

---

## XREF.MACLIB(REPTENTS)

The REPTENTS member contains the needed input cards to produce the inquiry of the specified entity.

```
| SELECT TYPE OF ENTITY TO BE CROSS-REFERENCED:  
| CHANGE 'X?' TO  
| 'XA' FOR EXTERNAL FILE ACCESSES  
| 'XF' FOR MANTIS FILES  
| 'XI' FOR INTERFACES  
| 'XP' FOR PROGRAMS  
| 'XH' FOR PROMPTERS  
| 'XS' FOR SCREENS  
| 'XT' FOR TOTAL VIEWS  
| 'XV' FOR RDM VIEWS  
X?;<ENTER>;  
| ENTER USER NAME THEN ENTITY NAME FOR XREF REFERENCE REPORT  
USERID;ENTITYNAME;<ENTER>;  
<PA2>;  
<PA2>;  
<PA2>;
```

---

## XREF.MACLIB(REPTELEM)

The REPTELEM member contains the needed input cards to produce the inquiry of the specified elements.

```
| SELECT NAME XREF
NX;<ENTER>;
| ENTER ELEMENT NAME FOR CROSS REFERENCE REPORT
elementname;<ENTER>;
<ENTER>;
<PA2>;
<PA2>;
<PA2>;
```

Members REPTENTS and REPTELEM need to be tailored for each report as elements and entities change. Member REPSINON needs to be tailored once.



# A

## Messages

This appendix lists alphabetically the error messages that may display when using XREF.

---

### CHECK OR ENTER MANTIS USER NAME

**Explanation** Either you did not supply a user name or the user name you entered is invalid.

**Action** Enter a valid MANTIS user name. Access LU (List Users) from the XREF Main Menu for a list of users that reside on XREF.

---

### DATA DOES NOT START FROM START OF ENTITY. LOOKS LIKE PRINT DATA IS INCORRECT.

**Explanation** The program that starts XREF encountered unknown data.

**Action** Evaluate the line of code that XREF was processing and correct the line.

---

### DELETION OF RECORD FAILED

**Explanation** The deletion of the private user record was unsuccessful.

**Action** Check the file definition and ensure that you have the needed access to delete records from the file.

---

### DID NOT GET EXPECTED RECORD LAYOUT HEADING LINE.

**Explanation** The record layout heading line is not in the format that XREF expects.

**Action** Contact Cincom support.

---

### **DID NOT GET EXPECTED SCREEN FIELD NAME HEADER.**

**Explanation** The program CREATE\_INDEX encountered a screen with an incorrect field name header.

**Action** Verify that the screen is in MANTIS 4.2 format. (IBM only).

---

### **ELEMENT DOES NOT EXIST ON INDEX**

**Explanation** The specified element does not exist on the XREF index.

**Action** Access an element list for the names of the elements that are on the XREF index.

---

### **ENTER NEW SEARCH DATA OR HIT ENTER TO REPEAT ENQUIRY**

**Explanation** You have reached the end of the results list.

**Action** Press ENTER to repeat the inquiry or enter new search data.

---

### **ENTITY DOES NOT EXIST ON INDEX**

**Explanation** The specified entity does not exist on the XREF index.

**Action** Access an entity list for the names of the entities that are on the XREF index.

---

### **INPUT DOES NOT START WITH CORRECT HEADING. ABORT. CHECK MASTER USER: ATTRIBUTE PRINTER="(60,132)"**

**Explanation** An incorrect printer specification exists.

**Action** Check the program MASTER:SIGN\_ON to make sure that ATTRIBUTE(PRINTER)="(60,132)" when printing using Batch MANTIS. The program CSI\_XREF:BATC\_H\_SIGNON contains a sample of the necessary code.

---

### **NO CROSS REFERENCE FOR THIS ELEMENT NAME**

**Explanation** The requested element has no current cross-reference entries.

**Action** Check the name of the specified element. It may no longer be used.

---

---

**NO INPUT DATA FROM MANTIS PRINT**

- Explanation** There was no output from the Batch MANTIS print of the selected entities.
- Action** Verify that the user has entities and resubmit the request.

---

**NO KNOWN USAGE OF THIS ELEMENT.**

- Explanation** XREF could not find a reference to the specified element.
- Action** Check the spelling of the element name and reenter.

---

**NO KNOWN USAGE OF THIS ENTITY.**

- Explanation** XREF could not find a reference to this entity.
- Action** Check the spelling of the entity name and reenter.

---

**NO KNOWN USAGE OF THIS ENTITY FOR PROGRAMS.**

- Explanation** The requested entity has no current cross-reference entries in any cross-referenced programs.
- Action** Check the name of the specified entity. It may no longer be used.

---

**NO KNOWN USAGE OF THIS ENTITY FOR THIS USER.**

- Explanation** The requested entity has no current cross-reference entries for the specified user.
- Action** Check the name of the specified entity and resubmit.

---

**NO KNOWN USAGE OF VIEWS FOR THIS ELEMENT.**

- Explanation** The requested element has no usage of views on the XREF index.
- Action** Check the element name and resubmit.

---

**NO PROFILE NAME FOUND ON INPUT.**

- Explanation** XREF did not find a profile name for the indicated unqualified call profile.
- Action** Correct the call profile and resubmit the job.

---

**NO PROFILE NAME FOUND ON QUALIFIED CALL PROFILE.**

**Explanation** XREF did not detect a profile name for the indicated qualified call profile.

**Action** Correct the call profile and resubmit the XREF job.

---

**NO SEARCH TYPE WAS PASSED.**

**Explanation** XREF did not pass a search type.

**Action** Contact Cincom support.

---

**NO VALID ENTITY TYPE WAS PASSED.**

**Explanation** The entity type that was passed is not one of the valid types that XREF can process.

**Action** Contact Cincom support.

---

**NULL PROGRAM: xxxxxxxxxx IN USER yyyyyyyy IGNORED.**

**Explanation** The specified program has no program code or variables. It is an empty program with no code.

**Action** None

---

**NUMBER MUST CORRESPOND TO KNOWN ENTITY**

**Explanation** The number that was entered does not correspond to an entity.

**Action** Enter the number that is displayed next to the requested entity.

---

**PHYSICAL TO LOGICAL NOT POSSIBLE FOR PERFORMED PROGRAMS**

**Explanation** You tried to access a physical to logical cross-reference (*nn*, followed by PF2) for a performed program. The physical to logical function does not apply to performed programs.

**Action** Access a valid cross-reference for external entities (*nn*, followed by ENTER).

---

**PRINT FORMAT IS NOT XREF RELEASE 3.1.**

**Explanation** The printout from XREFC1/XREFP1 is not in the XREF 3.1 format.

**Action** Correct the problem and resubmit the job.

---

---

**PROBLEM READING INPUT FILE - CODE=xxxx.**

- Explanation** The input file may be empty.
- Action** Check to see if data exists on the XREFWRK file.

---

**PROBLEM WRITING TO INDEX. RETURN CODE=xxxx**

- Explanation** There is a problem writing to the XREF001 file.
- Action** Determine what the problem is by using the return code.

---

**PROBLEM WRITING IN 'XR\_ALL\_DLI\_XREF'. CODE=xxxx.**

- Explanation** The program encountered a problem when trying to write to the XREF001 file.
- Action** Use the error code to correct the problem.

---

**PROGRAM LISTING DOES NOT START CORRECTLY.**

- Explanation** The output from the MANTIS batch print is not in the correct format for XREF.
- Action** Obtain the printout of the program that XREF was processing and contact Cincom support.

---

**SERIOUS ERROR IN PROGRAM 'CREATE\_INDEX'.**

- Explanation** The program CREATE\_INDEX encountered a major problem processing the input.
- Action** Save the output from the job and contact Cincom support.

---

**SERIOUS ERROR IN 'XR\_ALL\_DLI\_XREF'.**

- Explanation** The record indicated in the error message is causing an error in the XREF program.
- Action** Try to correct the problem with the input and resubmit the job.

---

**THE NUMBER MUST CORRESPOND TO A DISPLAYED ELEMENT.**

- Explanation** The number that was entered does not correspond to an element.
- Action** Enter the number that is displayed next to the requested element.

---

**THERE ARE NO REFERENCES TO THIS ELEMENT**

**Explanation** XREF could not find a reference to the specified element.

**Action** Check the spelling of the element name and reenter.

---

**THERE ARE NO REFERENCES TO THIS ENTITY**

**Explanation** XREF could not find a reference to the specified entity.

**Action** Check the spelling of the entity name and reenter.

---

**THESE ARE ALL THE ELEMENTS USED BY THIS ENTITY.**

**Explanation** There are no other elements used by the specified entity.

**Action** Enter another entity or press PA2 to return to the previous menu.

---

**THESE ARE ALL THE REFERENCES FOR THIS ELEMENT.**

**Explanation** There are no more references for the specified element.

**Action** Enter another element or press PA2 to return to the previous menu.

---

**THESE ARE ALL THE REFERENCES FOR THIS ENTITY.**

**Explanation** There are no more references for the specified entity.

**Action** Enter another entity or press PA2 to return to the previous menu.

---

**THIS ENTITY MAY NOT EXIST FOR THIS USER. HIT 'PF1' FOR HELP.**

**Explanation** The requested entity does not exist for the specified user.

**Action** Enter another MANTIS user or press PF1 for help.

---

**THIS USER NAME DOES NOT EXIST AS PRIVATE XREF USER.**

**Explanation** The specified user is not designated as a private XREF user.

**Action** Check to see if the user is defined to XREF.

---

---

**UNEXPECTED XREFLST FILE STATUS OF *xxxx* ON INITIAL OPEN.**

- Explanation** XREF cannot open the file XREFLST.
- Action** Check the file status and verify that the file was created properly. Correct the problem and resubmit the job.

---

**UNEXPECTED XREFWRK FILE STATUS OF *xxxx* ON INITIAL OPEN.**

- Explanation** There is a problem opening the specified file.
- Action** Check the file status and verify that the file was created properly. Correct the problem and resubmit the job.

---

**USER IS NOT ON INDEX. CORRECT SPELLING.**

- Explanation** The user specified is not on the XREF index.
- Action** Access LU (List Users) from the XREF Main Menu for the names of user on the XREF index.

---

**VARIABLE XREF LINE NOT FOUND IN PROGRAM.**

- Explanation** XREF cannot find a variable listing for the program.
- Action** Verify that the Batch MANTIS print used XREF=VAR to print only program variables. Check the program that XREF was processing to see if special conditions exist.

---

**'WHAT-IT-USES' IS NOT POSSIBLE FOR ELEMENTS.**

- Explanation** You tried to access a what-it-uses cross-reference (*nn,W*, followed by ENTER) for an element. The what-it-uses function does not apply to elements.
- Action** Access a valid cross-reference for elements (*nn*, followed by ENTER).

---

**'WHAT-IT-USES' IS NOT POSSIBLE FOR EXTERNAL ENTITIES.**

- Explanation** You tried to access a what-it-uses cross-reference (*nn,W*, followed by ENTER) for an external entity. The what-it-uses function does not apply to external entities.
- Action** Access a valid cross-reference for external entities (*nn*, followed by ENTER) or (*nn*, followed by PF2).

---

**YOU MUST ENTER A MANTIS USER NAME.**

**Explanation** A user name was not supplied.

**Action** Enter a valid user name that is on the XREF index. Access LU (List Users) from the XREF Main Menu for the names of users on the XREF index.

---

**YOU MUST ENTER A NEW DATA ELEMENT NAME.**

**Explanation** A valid data element name was not supplied.

**Action** Enter a data element name or press PA2 to return to the XREF Main Menu.

---

**YOU MUST ENTER A NEW DATA ENTITY NAME.**

**Explanation** A valid data entity name was not supplied.

**Action** Enter a data entity name or press PA2 to return to the XREF Main Menu.

---

**YOU MUST ENTER AN ELEMENT NAME.**

**Explanation** A valid element name was not supplied.

**Action** Enter an element name to receive a cross-reference of the desired element.

---

**YOU MUST ENTER AN ENTITY NAME**

**Explanation** A valid entity name was not supplied.

**Action** Enter an entity name to receive a cross-reference of the desired entity.

---

**YOU MUST ENTER A NEW ENTITY NAME**

**Explanation** A valid entity name was not supplied.

**Action** Enter an entity name to receive a cross-reference of the desired entity.

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