



SERENA<sup>®</sup>  
COMPAREX<sup>®</sup> for z/OS

Installation and Setup Guide

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# Welcome to Serena Comparex

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**About Comparex** COMPAREX<sup>®</sup> is Serena Software's intelligent, anything-to-anything file comparison utility for the z/OS, z/VM, and z/VSE operating systems on IBM<sup>®</sup> Series z<sup>®</sup> mainframes. Comparex is backward-compatible with a wide variety of predecessor systems as well.

**About this Document** This document describes the installation and configuration of Serena<sup>®</sup> COMPAREX<sup>®</sup> 8.8 Patch 2 for z/OS. It also covers installation in predecessor environments such as OS/390, MVS/ESA, MVS/XA, and MVS.

For installation in a z/VM or z/VSE environment, see the *Comparex Installation and Setup Guide* for the relevant operating system family.

If you need additional assistance installing Comparex or configuring it for your requirements, please contact Serena Customer Support. Contact information can be found in the Readme file or at [www.serena.com](http://www.serena.com).

**Audience** This document is intended for use by IBM mainframe systems engineers and systems programmers who are knowledgeable about IBM mainframes and the z/OS operating system or its direct predecessors. It assumes you have a working knowledge of your operating environment.

## Before You Begin

Refer to the README for late-breaking information that became available after publication of this manual. This information is updated frequently. The most recent README information is available to customers online at the Serena Customer Support site at [www.serena.com/support](http://www.serena.com/support).

## Available Documentation

The Comparex documentation suite includes the following manuals.

Manual	Description
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/OS Installation and Setup Guide</i>	Installation and configuration guide for z/OS and related environments.

Manual	Description
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/OS Getting Started Guide</i>	Basic Comparex concepts and usage in a z/OS-related environment.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/OS User's Guide</i>	User's guide to Comparex for z/OS and related environments, with command syntax and use cases.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/VM Installation and Setup Guide</i>	Installation and configuration instructions for z/VM and related environments.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/VM Getting Started Guide</i>	Basic Comparex concepts and usage in a z/VM-related environment.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/VM User's Guide</i>	User's guide to Comparex for z/VM and related environments, with command syntax and use cases.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/VSE Installation and Setup Guide</i>	Installation and configuration instructions for z/VSE and related environments.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/VSE Getting Started Guide</i>	Basic Comparex concepts and usage in a z/VSE-related environment.
<i>Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/VSE User's Guide</i>	User's guide to Comparex for z/VSE and related environments, with command syntax and use cases.
<i>Serena<sup>®</sup> Comparex<sup>®</sup> Quick Reference</i>	Comparex command and keyword reference for all OS environments.

## Tips for Using the PDF Manuals

All Comparex documentation is provided electronically in Adobe Portable Document Format (PDF). To view PDF files, use Adobe<sup>®</sup> Reader<sup>®</sup>, which can be downloaded at no charge from [www.adobe.com/reader/](http://www.adobe.com/reader/).

This section highlights some of the main Reader features. For more detailed information, see the Adobe Reader online help system.

**PDF Features** The Comparex documentation uses the following PDF features:

- **Bookmarks.** All of the manuals contain a panel of nested bookmarks that make it easy to jump directly to specific topics. By default, the bookmarks appear to the left of the document content.



- **Links.** Cross-reference hyperlinks enable you to jump from topic to topic within a manual with a single mouse click. These links are highlighted in blue. Similar active hyperlinks to sites on the World Wide Web are highlighted in blue monospace.
- **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual. Printer output preserves the layout of the online document with higher resolution for graphics.
- **Advanced search.** Adobe Reader includes an advanced search feature that enables you to perform a full-text search across multiple PDF files concurrently in a specified directory.

### Multi-Document Search

To search for a text string in multiple PDF documents at once, perform the following steps (requires Adobe Reader 6 or higher):

- 1 In Adobe Reader, select **Edit > Search** (or press CTRL+F).
- 2 In the text box, enter the word or phrase for which you want to search.
- 3 Select the **All PDF Documents in** option, and browse to select the folder in which you want to search.
- 4 Optionally, select one or more of the additional search options, such as **Whole words only** or **Case-Sensitive**.
- 5 Click the **Search** button.



**NOTE** Optionally, you can click the **Use Advanced Search Options** link near the lower right corner of the application window to enable additional, more powerful search options. (If this link says **Use Basic Search Options** instead, the advanced options are already enabled.) For details, see Adobe Reader's online help.

## Typographical Conventions

Substantive changes to content made since the previous publication of this manual are highlighted by a vertical bar in the left margin parallel to the changed text, as shown at left.

In addition, the following typographical conventions are used in the main body text to highlight special information. (These conventions do not apply to titles or headings.)

Convention	Explanation
<b>bold</b>	Marks field names or literals shown on a screen.
<i>italics</i>	Introduces new terms that you may not be familiar with. Also indicates emphasis.
UPPERCASE	Identifies keys or key combinations that invoke a function. For example, "Press the ENTER key."
greater-than symbol >	Separates menu names from their subordinate options or commands. For example, "select <b>File &gt; Copy</b> " means you should select the <b>Copy</b> option from the <b>File</b> menu.
monospace	Highlights sample code, syntax definitions, inline commands in body text, prompt text displayed on a screen, or values you enter at the keyboard.
<b>monospace bold</b>	In a monospaced syntax definition, highlights the default value in a list of mutually exclusive parameter options.
<i>monospaced italics</i>	Indicates placeholders for values you must specify in a command or file name; for example, <i>filename</i> .
MONOSPACED UPPERCASE	Indicates a literal value that must appear as shown in a command or file name.
vertical line 	In a monospaced syntax definition, separates mutually exclusive choices for a parameter value. For example, "Y N" indicates a choice between allowed parameter values Y (Yes) or N (No), with no other values accepted.
square brackets [ ]	In a monospaced syntax definition, delimits an optional parameter or a choice of possible values for an optional parameter.
curly braces { }	In a monospaced syntax definition, delimits a list of possible values that may be taken by a mandatory parameter.
<a href="#">blue</a>	Active hyperlink to a topic in this manual.
<a href="#">blue monospace</a>	Active hyperlink to an external Web site.

# Chapter 1

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## Requirements and Planning

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### Hardware and Software Requirements

Serena<sup>®</sup> COMPAREX<sup>®</sup> for z/OS has the following minimum requirements for the host hardware and software environment in which it is installed.

#### Host Software Environment

- Operating Systems      Comparex runs without modification on all IBM mainframes and plug-compatible systems running the z/OS operating system, as well as many of its direct predecessors. Supported operating systems include:
- z/OS
  - OS/390
  - MVS/ESA
  - MVS/XA
- Language Environment      In addition, Comparex for z/OS and CPXZOS require the IBM Language Environment (LE) runtime libraries. These CEE libraries, if required, must be APF-authorized and should be added to the LINKLIST. The names of the LE runtime libraries as supplied by IBM are:
- CEE.SCEERUN
  - CEE.SCEERUN2
- These dataset names may have been changed at your site to meet local naming standards.

## Memory Usage

- Capacity Comparex requires a minimum of 96K of virtual memory for the base executable. Invocation of the optional Comparex interface (CPXIFACE) to IBM's DB2 relational database management system and to third-party library management systems such as CA-Panvalet and CA-Librarian also affects memory requirements significantly.
- Addressability Comparex is assembled with the following addressability attributes:
- ```
COMPAREX AMODE ANY
COMPAREX RMODE 24
```
- Consequently, Comparex must reside below the 16 MB line in memory, but it is capable of addressing dynamic storage above the line.
- Reentrant Code Comparex is written in reentrant assembly language. However, it is ineligible for inclusion in the Link Pack Area (LPA). It may be assigned the NORENT attribute.

## Auxiliary Storage

- Required Components The base Comparex load library, including required utilities, requires up to 52 tracks of 3390-type storage. Control tables, CLISTs, and error messages can require an additional 9 tracks.
- Optional Features Certain optional features and components of Comparex will further increase auxiliary storage requirements if used.
- The ISPF interface to Comparex requires up to 30 tracks of additional 3390-type DASD storage.
  - The CPXIFACE module for integrating Comparex with various third-party file management systems varies in size depending on which file systems and how many of them are configured for use with Comparex. Up to 45 tracks of 3390-type DASD could be required if all possible files systems were supported (rare).
  - The ChangeMan M+R (Merge and Reconcile) option requires at least 190 blocks of DASD.

Data storage requirements are not included in these estimates.

# Configuration Options

## System z Hardware Support

- COMPAREX Load Module** The base product load module, COMPAREX, is written in assembly code that will execute on virtually any mainframe that supports the IBM System/370 instruction set. This includes modern System z hardware. The COMPAREX module is installed by default.
- CPXZOS Load Module** For faster performance specifically on System z, as well as support for advanced operating system features and large data objects, an alternative base load module, CPXZOS, is also supplied in the Comparex product load library. This load module uses the full System z instruction set. Elapsed run times should improve by 6% to 10% on System z when customers substitute CPXZOS for COMPAREX in their production load libraries and production JCL.

Instructions for customizing Comparex to use CPXZOS are provided in [Chapter 3, "Basic Configuration and Settings"](#).



**IMPORTANT!** CPXZOS requires z/OS 1.7 or later.

## ISPF Interface Generation

The optional ISPF interface for Comparex is generated using the SYSGEN library. SYSGEN source members must be customized before generating the interface.

- CPX\$ISPF Menu** CPX\$ISPF is the ISPF interface module. You will set it up to be invoked from the primary Comparex menu.

Instructions for generating the ISPF interface to Comparex are provided in [Chapter 4, "Generating the ISPF Interface"](#).

## File Manager and DBMS Integration

- CPXIFACE Module** Comparex can perform comparisons against files or tables managed by third-party library managers or database management systems such as CA-Panvalet, CA-Librarian, ADABAS, IDMS, DATACOM, and Oracle. Custom interfaces to these systems are supported by the CPXIFACE module of Comparex.

Instructions for customizing and generating the CPXIFACE module and linking/binding it to external library managers or DBMSs are provided in [Chapter 5, "Library Manager and DBMS Setup"](#).

DB2 Support Previous releases of Comparex used the CPXIFACE interface to integrate with IBM's DB2 relational database. The DB2 functionality of CPXIFACE has been retained for backward compatibility. However, Comparex now supports DB2 table comparisons natively and the CPXIFACE interface is not needed.

Customers who wish to use DB2 long table names and other advanced DB2 features should disable the CPXIFACE interface to DB2.



**IMPORTANT!** Long table names and other advanced DB2 features are supported by Comparex in *native mode only*. These features are not supported by the older CPXIFACE DB2 interface.

See the *Comparex for z/OS User's Guide* for more information about native DB2 support.

## ChangeMan M+R Option

The ChangeMan M+R option adds a file merge and difference reconciliation feature for output files to Comparex. It is a separately licensed product option.

CDF\$ISPF Menu CDF\$ISPF is the module that invokes ChangeMan M+R. Licensed users can set it up to be invoked from the primary Comparex menu.

Instructions for installing the M+R option and customizing Comparex to use it are provided in [Chapter 6, "Installing ChangeMan M+R"](#).

## Licensing Requirements

The following licensing requirements apply to Comparex 8.8 Patch 2.

### SER10TY License Manager

SER10TY Version Comparex 8.8 Patch 2 for z/OS is a licensed product of Serena Software. Comparex automatically installs Serena SER10TY 4.1 to manage

licensing. You must apply a SER10TY license key in order to run Comparex. An additional key is required for the ChangeMan M+R option.

Instructions for applying a license key and enabling SER10TY in your installation are provided in the *SER10TY User's Guide*, which is available on the product media and online with other Comparex documentation.

## License Key

### License Compatibility

License keys for Comparex 8.6.2 or earlier worked with SER10TY 3.1 or earlier. The old keys are not compatible with Comparex 8.8 Patch 2. Customers upgrading from a prior version of Comparex should contact Serena Customer Support to obtain a new license key prior to installing Comparex 8.8 Patch 2.

### Key Request Procedure

To request a new license key, perform the following steps.

- 1 At a system console on the machine where you plan to install Comparex, enter the following command:

```
D M=CPU
```

Copy the output of this command into a text file.

- 2 Log on to the Serena Customer Support Web site. (The URL for the site is provided in the README.)
- 3 Open a new Support case requesting the creation of a license key for Comparex 8.7.0. If the ChangeMan M+R option is desired, request a key for it at the same time.
- 4 Attach the text file with your system information to the case.
- 5 Support will provide a new license key within 24 hours.



**IMPORTANT!** The new license key will be valid only for the machine whose specifications you provide. Migration to a new machine requires the generation of a new license key.

## SER10TY Security Authorization

SER10TY supports several methods for checking product license keys. For Comparex, licensing should be configured as follows:

- The Comparex load library, which contains the product load members and license load member LICUPDAT, should be APF-authorized. The library name is  
  
`somnode.SERCPX.V8R7M0.CPXLOAD`
- A SERLIC DD statement pointing to the Comparex license key file should be added to the JCL that invokes the COMPAREX (or CPXZOS) load module and any optional installed features, such as the ISPF interface module CPX\$ISPF or the ChangeMan M+R module CDF\$ISPF.

See the *SER10TY User's Guide* for more information.

## Library Organization and Concatenations

Comparex shares several common load modules with other Serena products. If you install other Serena products with Comparex, or multiple versions of Comparex at different release levels, shared library concatenations might make the load module for one product or version accessible to another. This can interfere with proper product function.



**CAUTION!** Several Serena products — including ChangeMan ZMF, ChangeMan M+R (Merge + Reconcile), and SERNET — reference common module names shared with Comparex. A conflict might arise in a target load library where these products are installed.

The following best practices will prevent conflicts across products or across multiple versions of the same product.

### Comparex Libraries and the LINKLIST

Serena recommends that you do not add the Comparex load libraries to the LINKLIST. Instead, include a STEPLIB statement in the JCL for each interactive instance of Comparex, and include a JOBLIB statement in the JCL for each batch job submitted by Comparex.



## Customized Code Libraries

Segregate delivered (vendor) versions of the Comparex load modules in libraries separate from any customized versions of those programs. It is easier to maintain the proper concatenation of custom and vendor load libraries if they are in STEPLIB or JOBLIB statements in started task JCL and batch JCL.

## Product Libraries

The product media, whether supplied on CD or downloaded from the Serena Customer Support Web site, contains the following libraries:

| Library               | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RECEIVE.CPX870.JCL    | JCL for TSO RECEIVE job                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SERCPX.V8R7M0.CPXLOAD | <p>Load library for base product, optional features, and Serena shared utilities.</p> <p><b>Base product (install one):</b></p> <ul style="list-style-type: none"> <li>■ COMPAREX — all hardware</li> <li>■ CPXZOS — System z acceleration</li> </ul> <p><b>Required utilities:</b></p> <ul style="list-style-type: none"> <li>■ CPXPARSE — COPYLIB parser (<b>Option 9</b>)</li> <li>■ LICUPDAT — Applies license key</li> <li>■ SERBSAM — SERCOMC utility</li> <li>■ SERALLOC — SERCOMC utility</li> <li>■ SERDATES — SERCOMC utility</li> </ul> <p><b>Optional features:</b></p> <ul style="list-style-type: none"> <li>■ CPX\$ISPF — ISPF interface</li> <li>■ CMNDELTA — Applies ZMF delta deck to a PDS(E)</li> </ul> <p><b>ChangeMan M+R (licensed option):</b></p> <ul style="list-style-type: none"> <li>■ CDFBATCH — Batch module</li> <li>■ CDF\$ISPF — ISPF interface (<b>Option M</b>)</li> <li>■ CDFBUILD — Required module</li> <li>■ CDFPANEL — Required module</li> </ul> |
| SERCPX.V8R7M0.CLIST   | CLIST and REXX library (required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| SERCPX.V8R7M0.MSGS    | Message library (required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Library               | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SERCPX.V8R7M0.SKELS   | File tailoring skeletons (required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SERCPX.V8R7M0.XML     | License keys (required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| SERCPX.V8R7M0.IFACE   | <p>Customizable source code and JCL to modify Comparex's behavior. Must be assembled separately. Includes:</p> <ul style="list-style-type: none"> <li>■ CPXIFACE — Integrates with external library managers &amp; DBMSs</li> <li>■ COMPAREB — Sets installation defaults</li> <li>■ COMPAREO — Sets site options</li> <li>■ COMPAREE — Configures EBCDIC translation table</li> <li>■ CPXBSTUS — Source for COMPAREH Help CSECT</li> <li>■ CPXVB2FB — Converts SYSPRINT file to FBA format</li> <li>■ SERUPDTE — Unloads PDS to sequential (flat) files</li> <li>■ IDMS exit module</li> <li>■ ISPF interface JCL</li> </ul> |
| SERCPX.V8R7M0.PANELS  | ISPF interface panel library (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| SERCPX.V8R7M0.SYSGEN  | ISPF interface code generator (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SERCPX.V8R7M0.TABLES  | ISPF interface table library (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| SERCPX.V8R7M0.SAMPLIB | Sample programs & copybooks (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Chapter 2

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# Installing Comparex on z/OS

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## Unloading the Product Media

**Installation Summary** Whether you install Comparex from a physical CD-ROM or from a downloaded installation program, the process of moving files from the product media to the mainframe host is essentially the same.

First, you will run the installer program to unload the product binaries to an uploadable format on a PC that has TCP/IP connectivity to the host. Copying the files to your local PC decreases the transfer time to the host and decompresses the files from their distributed format. Next, you will edit and execute a generated batch file with the FTP commands needed to upload the product files to the host. Finally, you will run the included JCL RECEIVE job on the mainframe to decompress the product media and install them in a "vendor code" library.

**Prerequisites** This process has the following prerequisites:

- TCP/IP FTP connectivity from your PC to the host computer.
- A TSO userid and password on the host.
- Security authorization to allocate files on the host.
- The IP address of the host.

**Customization and Setup** Subsequent code customization and rollout to your production libraries is discussed in later chapters of this manual.

## Copy the files to your computer

- PC Setup Procedure
- 1 Run the setup software on your host-connected PC to unload the product distribution media. Depending on the source of the media, do one of the following:
    - a Insert the Comparex CD-ROM in your CD drive. The setup program will start automatically. (If autorun is not enabled, run CPX870.msi from the CdInstall folder on the CD).
    - b Download the self-extracting media file CPX870Setup.exe from the Serena Customer Support Web site to a local hard disk on your PC, then run it. Take the default when prompted for an extraction location. The setup program CPX870.msi then starts automatically. (If autorun is not enabled, navigate to the extraction location, C:\Program Files\Serena\CPX870Setup, and run CPX870.msi from there.)



**IMPORTANT! Do not run the setup program from a network drive.** Before running the setup program, copy the setup files to a directory on your local Windows computer and execute it from there. Problems can occur if the installer needs to access files from the network drive and the network connection is not available or if access permissions are not set up correctly.

- 2 If you previously installed Comparex version 8.6.2 or earlier on the installation PC and did not remove the old product files, the first dialog box to display allows you to remove them. If this occurs:
  - a Click **Remove** to remove the old product files, then click **Finish**.
  - b Restart the installer again from [Step 1](#).
- 3 When the Master License Agreement displays, select **"I accept the terms of the Master License Agreement"** and click **Next**.
- 4 When prompted for an operating system, select the desired target operating system on the host and click **Next**.
- 5 When prompted to verify your OS selection, do one or more of the following:
  - To change the target OS for installation on the host, click **Back**.
  - To view the default location where the product media will be unloaded on the PC, click **Show Installation Target**.

- To change the default location where the product media will be unloaded on the PC, click **Change Installation Target.**"
- To accept the target host OS and the target install location on the PC, click **Next.**

- Data Set HLQs **6** The next dialog box requests **Host FTP and Transmission Information.** The information you provide is used to generate automated scripts that transfer the product files from the PC to the host. Choose one of the following options.
- Although it is NOT the easiest way to proceed, you may skip this dialog if you prefer to transfer files to the host manually. Manual file transfer options are described in [Appendix D, "Manual File Transfer to Host"](#)
  - Fill in the dialog to use the automated file transfer process (recommended). The following values are required:
 

**Host Name or IP** — Network name or dotted decimal IP address of the host system where Comparex will be installed.

**Host Logon ID** — Your TSO user ID.

**Transmitted File HLQ** – Specify the high-level qualifier to be added to the host XMIT data sets (that is, the sequential data sets transmitted from the PC to the host). For example:

*somnode*

- PDS Libraries HLQ** – Specify the high-level qualifier to be added to the host RECEIVE data sets (that is, the PDS libraries created when the RECEIVE command expands the XMIT files uploaded from the PC). For example:

*othernod*



**CAUTION!** This HLQ *must be different* from the XMIT HLQ!

#### Rules for HLQs

Follow these rules when entering the high-level qualifiers:

- Do not choose high-level qualifiers that create data set names that already exist on the host. The XMIT and RECEIVE processes overlay existing data sets.
- Your host user ID must have authority to allocate files with these names.

- Do not add leading or trailing periods.
- Do not use parentheses or quotes (single or double).
- The maximum length of the total data set name (high-level qualifier plus Comparex library name) is 44 characters.
- Case is not significant. All entries are normalized to upper case.

When you are satisfied with your entries, click **Next**.

- 7** To change any of your previous entries, click Back. To execute your setup instructions, click **Install**.
- 8** If you would like to view the README file at this time, click the checkbox beside "**View the README file**".

Click **Finish**.

The setup process is complete. You are now ready to transfer files from the PC to the mainframe.

## Automated FTP File Transfer to the Host

Automated  
Upload Scripts

If you provided the requested information in the **Host FTP and Transmission Information** dialog box ([Step 6 on page 21](#)), follow the instructions in this section to perform an automated transfer the product files to the host.

Manual File  
Transfer

If you skipped the **Host FTP and Transmission Information** dialog, go to [Appendix D, "Manual File Transfer to Host"](#), for alternative methods of transferring files to the mainframe.

### Edit the FTP Input File

- 1** Go to **Start | Programs | Serena | Comparex 8.7.0 | Edit FTP Input**, which displays the FTP .bat control file, used by FTP to transfer the compressed Comparex XMIT files to the host.
- 2** Edit the third line in the FTP control file, replacing the text <PASSWORD> with your own password on the host.



**IMPORTANT!** An incorrect password value in the FTP control file will trigger a "login error" message.

- 3 Save the file under the same name.



**NOTE** After you finish uploading the files to the host, delete this password from your PC.

## Edit the RECEIVE Job

The CD installation creates a *somnode.RECEIVE.CPX870.TXT* file using the high level qualifier that you specified for **Host**. This file contains JCL to receive the files on the host. The TXT file is transferred to the host in ASCII format.

You must add your job card in order for the RECEIVE job to run. You may edit the job now or through your TSO session when the files are uploaded to the host.

**If you want to edit the job now, do the following:**

- 1 Go to **Start | Programs | Serena | Comparex 8.7.0 | Edit Receive Text**.
- 2 Add your job card at the top of the job.
- 3 Save the file under the same name.

## Transfer Files to the Host

After you edit the FTP input files by adding your password, you are ready to transfer files to the host. Note that your local system must be connected to the network for this transfer to work.

**To transfer the files:**

- 1 Select **Start | Programs | Serena | Comparex 8.7.0 | FTP Files to Host**.
- 2 A window displays with the message "FTP process has begun". This process will take several minutes to complete.

- 3 After the transfer completes, view the FTP log file to verify that the files were transferred to the host. To do this, select **Start | Programs | Serena | Comparex 8.7.0 | View FTP log.**

If any of the following errors appear, you must make corrections in the FTP Input File and repeat [Step 1](#) above.

| Message         | Corrective Action                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| Invalid Command | Verify that you entered the correct user name and password in the FTP input file.                                    |
| Login Error     | Verify that you entered the correct user name and password in the FTP input file.                                    |
| Not Connected   | The FTP connection was lost so these files did not get uploaded. Resubmit the program by choosing FTP Files to Host. |
| Unknown Host    | Check the IP address of your host and edit the FTP input file.                                                       |

## Submitting the Host RECEIVE Job

After you complete a valid FTP transfer, you need to issue a RECEIVE command for the XMIT files on the host. To do this:

- 1 Log on to your TSO session.
- 2 Find the *somnode.RECEIVE.CPX870.TXT* file.
- 3 If you did not edit the *somnode.RECEIVE.CPX870.TXT* file on the PC ("[Edit the RECEIVE Job](#)" on page 23), edit the file now and add JOB statement information.
- 4 Submit the job contained in the file.
- 5 Examine the libraries created with the host high level qualifier (*othernod* in [Step 6 on page 21](#)) to ensure that they are PDS libraries. They may not have been created successfully despite a zero return code or a job SYSOUT message that says, "Restore successful to dataset."



## Post-Upload Cleanup

After the product files have successfully been uploaded to the host, perform the following cleanup steps on the installation PC.

### Deleting Your Password

To prevent a mainframe security breach, delete your password from the FTP Input file.

- 1 Go to **Start | Programs | Serena | Comparex 8.7.0 | Edit FTP Input**
- 2 Delete your password from the source code.
- 3 Re-save the file.

### Removing Product Files

If you wish to remove the product files from the installation PC when you are finished, do the following:

- 1 Restart the installer software from [Step 1 on page 20](#). The first dialog box to display prompts you to remove it the product files.
- 2 Choose the **Remove** option to remove the product files, then click **Finish** to exit.

## Completing the Install

The steps required to complete the installation on the host depend on whether you are installing a maintenance release or a full feature release.

### Installing a Maintenance Release

- Fix Install For most maintenance releases, a "fix" install is all that is necessary. For Comparex, the only additional step that is typically needed to complete a fix install is to copy replacement modules from the supplied CPXLOAD load library to your production load library for Comparex. Refer to the

"Product Libraries" section of [Chapter 1, "Requirements and Planning"](#), for a description of the supplied load modules.

If any additional steps are required to complete a fix install, they will be described in the README file for the release.

## Installing a Feature Release

**Full Install** All feature releases require a "full" install. There are many configuration steps to perform before a full install is complete. For example, you will typically be required to apply a new license key or reapply an existing key. (See ["Applying the License"](#) below.)

Depending on which optional features of Comparex are used at your site, you may also need to:

- Configure System z hardware support, customize site defaults, and customize exits ([Chapter 3, "Basic Configuration and Settings"](#)).
- Generate the ISPF interface to Comparex ([Chapter 4, "Generating the ISPF Interface"](#))
- Integrate third-party library managers or DBMSs with Comparex ([Chapter 5, "Library Manager and DBMS Setup"](#))
- Install the ChangeMan M+R (Merge and Reconcile) option ([Chapter 6, "Installing ChangeMan M+R"](#)).

## Applying the License

To enable Comparex, you must apply the license you received from Serena Customer Support. See the *Serena SER10TY User's Guide* for instructions on how to apply the license.



**NOTE** The load modules, JCL, and other components you need to run SER10TY for Comparex are included in the libraries found on the Comparex distribution media. They will not be found in the libraries specified in the *Serena SER10TY User's Guide*.

## Base Product License

Licenses are validated by accessing either the license file or the licenses that have been loaded into Common Storage (CSA). The different methods used for license validation are explained in the *SER10TY User's Guide*.

If you choose to access the license file using the SERLIC DD statement, following are some recommendations for how to add this DD statement:

- Modify your REXX EXEC or LIBDEF CLIST.

A sample REXX can be found in  
'somnode.COMPAREX.CLIST(CPX870)' <sup>6</sup>

See "[Sample LIBDEF CLIST](#)" on [page 69](#) for a LIBDEF example.

- Modify the login procedure, using the following example:

```
//SERLIC DD DISP=SHR,DSN=somnode.COMPAREX.LICENSE
```

## ISPF Interface License

CPX\$ISPF now allows you to add two more lines to the JCL that is used when submitting a batch job from within the ISPF Interface. These lines can be used to add an additional STEPLIB and/or SERLIC DD statement.

### Use the following steps to add additional lines:

1. Edit 'somnode.COMPAREX.IFACE(CPX\$ISPF)' and issue 'FIND #BATCRDA' on the command line. The following lines should be displayed:

```
#BATCRDA DC CL72 '//* REPLACE WITH SECOND STEPLIB IF NEEDED'  
#BATCRDB DC CL72 '//* REPLACE WITH SERLIC DD STATEMENT IF NEEDED'
```

2. Modify the lines with the appropriate JCL and dataset information.



**NOTE** Depending on the length of your license data set name, you may need to use both lines to add the SERLIC DD statement so that CPX\$ISPF will assemble and link successfully. See the example within the source of CPX\$ISPF.

3. Assemble and link CPX\$ISPF using the JCL in:

*somnode*.COMPAREX.IFACE(LNKISPF)

## Chapter 3

---

# Basic Configuration and Settings

This chapter discusses basic customization and setup procedures you can perform after Comparex is installed.

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## Support for System z Hardware

The base product load module, COMPAREX, executes on virtually any mainframe that supports the IBM System/370 instruction set. The COMPAREX module is installed by default.

CPXZOS Load Module However, for faster performance specifically on System z, as well as support for advanced operating system features and large data objects, an alternative base load module, CPXZOS, is also supplied in the Comparex product load library. This load module uses the full System z instruction set.



**NOTE** To support large files with CPXZOS, large file support must be enabled in the SMS file system.

To take advantage of native System z support, you must substitute CPXZOS for COMPAREX. This can be done in one of two ways: by renaming load modules or changing your JCL.

### **Renaming Load Modules**

Renaming load modules has the advantage of being easy and not requiring any JCL changes. If you adopt this approach, you should make changes in a test library first, and then in your production libraries. For

recovery reasons, you should *not* make these changes to the Serena-supplied vendor libraries.

In your production load library *somnode*.COMPAREX.CPXLOAD:

- 1 Rename the COMPAREX load module to CPXMVS.
- 2 Rename the CPXZOS load module to COMPAREX.

The obvious downside of this approach is that the identity of the module is no longer obvious from the module name.

### **Modifying Procedural JCL**

Modifying your procedural JCL to invoke CPXZOS rather than COMPAREX is the preferred approach to enabling System z support. The only downside is that it can be time-consuming.

Everywhere in your procedural JCL where you see

```
// EXEC PGM=COMPAREX
```

substitute

```
// EXEC PGM=CPXZOS
```

Again, Serena recommends that you make changes in a test library first, and then in your production libraries. For recovery reasons, you should *not* make these changes to the Serena-supplied vendor libraries.

## **Modifying Comparex Default Settings**

Comparex has eight CSECTs (control sections). You can modify the defaults in four of these CSECTs.

### **Customizable CSECTs**

The following members in the library *somnode*.COMPAREX.IFACE supply sample JCL and assembly code to recompile the customizable CSECTs and permanently replace their counterparts.

- **COMPAREB**– sets the installation defaults for any execution of Comparex.



**NOTE** CASE=MIXED, where lower- and upper-case characters display as specified, is now the default. You need to modify COMPAREB to change the default setting.

- **COMPAREE**– sets the composition of the EBCDIC Translate table.
- **CPXBSTUS**– is the source for CSECT COMPAREH, which sets the Help messages for any execution of Comparex.
- **COMPAREO**– sets options on a site level for all users at that site. The following section gives more information on COMPAREO.

## COMPAREO Setup

COMPAREO sets options on a site level for all users at that site. Selectable options are:

- Decimal Point is Comma – causes Comparex to not squeeze out commas when comparing COBOL text
- MONO case – makes CASE=MONO the default for Japanese Katakana users
- 24-bit forced storage mode – prevents Comparex from attempting to access above-the-line storage.
- OLD/NEW labeling – causes SYSUT1 printouts to be labeled O L D and SYSUT2 printouts to be labeled N E W instead of O N E and T W O, respectively
- CVMON – always convert alphabetic months to numeric when comparing dates with alphabetic months
- DMY – print date in day, month, year order
- Truncate – do not round when doing UNITS calculations
- Print leading zero when amount is less than one – for example, 0.534 instead of .534 (for UNITS only).

- DBCS – Double Byte Character Set for echoing keywords back exactly as is without any translation



**NOTE** Comparex as shipped does not include a COMPARE0 CSECT in the load library. At runtime, if a COMPARE0 CSECT is not found, the default is all options off.

### **COMPARE0 CSECT Syntax**

To activate any or all of the foregoing options, code and assemble the COMPARE0 CSECT as follows and link it with Comparex:

```
COMPARE0 CSECT
  DC      AL1(2)
  DC      X'00'                .byte one
* All turned off
  DC      X'80'                .byte two
*Case=DBCS
  CNOP   8,8                    double word boundary
END
```

Note that X'00' does not turn on any of the options. To turn on options, set any or all of the following in the X'00' byte:

- X'80' – for Decimal Point is Comma
- X'40' – for MONO case
- X'20' – for 24-bit forced storage mode
- X'10' – for OLD/NEW labeling
- X'08' – always convert alphabetic months to numeric when comparing dates
- X'04' – date in day, month, year order
- X'02' – to truncate UNITS comparisons
- X'01' – for leading zero when a UNIT is less than 1
- X'80' – for Double Byte Character Set

An example COMPARE0 source member exists in the *somnode.COMPAREX.IFACE* library.



### **Additional COMPAREO Options**

You can compare alphabetic month (MMM) dates where SYSUT1 and SYSUT2 are in different languages. Zap the month tables in CSECT COMPAREH appropriately, and set the X'08' bit ON in the COMPAREO option byte. If this bit is OFF then MMM to MMM data compares are done as if it were a character compare, which is the normal case.

## **Customizing the Comparex Exit**

The Comparex exit CPXEXIT allows users to customize the layout of the difference report. This option provides the flexibility to inspect records before comparison and to format portions of the record at will for display on the report.

For example, you can extract and reformat certain key fields from records as they are passed during comparison, and conditionally request Comparex to display or not display these 'key fields.

The source code for CPXEXIT resides in the *somnode*.COMPAREX.IFACE library. Instructions for customizing the exit are included as comments in the source module. Additional information about customizing this exit in appears in the *Comparex for z/OS User's Guide*.

## **Optional Programs**

The following modules are delivered as source code in the library *somnode*.COMPAREX.IFACE:

- SERUPDTE - Unloads a PDS to a single sequential (flat) file
- CPXVB2FB - Converts a SYSPRINT file back into FBA format

You must assemble and link these modules to execute them.



## Chapter 4

---

# Generating the ISPF Interface

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## Editing the SYSGEN Source Members

In the following sections, edit the SYSGEN library members (DSN=*somnode*.COMPAREX.SYSGEN) to create the ISPF interface.

### Edit Member BACKGRND

The default value of this member is:

```
TSO-SUBMIT
```

If you specify this, background jobs generated through the interface are SUBMITed (through the TSO command) for execution into the batch environment. Internally, module CPX\$ISPF dynamically allocates a temporary data set (see member SMS) at initialization time to hold each background job:

```
&prefix.CPXyyddd.Thhmsst.CNTL
```

where

- &PREFIX is the TSO user ID
- yyddd is the Julian date
- hhmsst is the current time of day

For more information about this data set, see ["Edit Member DEFJOB" on page 37](#).

When the job has been constructed (and optionally presented for editing), the TSO SUBMIT command will be invoked using this data set as its only input. The data set is deleted after submission. User exits to this TSO command can plug in the User, Group and Password. An additional feature is that a status line detailing the submitted job displays on the current panel:

```
JOB TS123DTA(JOB02497) SUBMITTED
```

An alternative to the TSO SUBMIT concept is the Internal Reader. To use the Reader, modify member BACKGRND to read:

```
INTERNAL-READER
```

If you specify this, background jobs generated through the interface are done by dynamically opening up an internal reader and writing the job to a JESn reader queue. It is very fast and efficient but can create administrative problems at some shops.

For example, if one of the data sets to be compared is RACF protected, then the job cards must contain the User, Group and Password. These can be put on the job card when presented in a panel, but it is a breach of security to expose the information to others looking over your shoulder or held in a non-RACF protected Profile Pool data set.

## Edit Member CPXDSN

Replace the default value:

```
somnode.COMPAREX.CPXLOAD
```

with the actual name of the load library where Comparex resides. If Comparex is installed in a private library, that library name must be reflected here.

If Comparex is installed in a LINKLIST Library, then a //STEPLIB is not needed in a background job and the LINK is different in the foreground. Comparex is written in reentrant Assembler and is therefore eligible for inclusion in the Link Pack Area (LPA).

To request this alternative to referencing a private library, modify the member to read:

NULLFILE

or

DUMMY

or

<=== spaces - 44 consecutive blanks



**NOTE** Failure to modify this data set name does not stop the SYSGEN Clist from successful completion. Actual execution, however, of module CPX\$ISPF results in an ABEND S806 or message CPX002 CPXDSN Allocation error.

## Edit Member DEFJOB

Replace the default values with a JOB statement that follows the standards of your shop, as follows:

```
//jobname  JOB (account), 'COMPAREX/ISPF ',
//          CLASS=?,
//          NOTIFY=?,
//          MSGCLASS=?
```



**NOTE** The system presents the contents of DEFJOB upon submission of the first Comparex batch job. You can then modify the default JOB statement; it is saved in your ISPF profile for the next Comparex session.

## Edit Member DSPRINT

The default value of this member is:

PRINTDS

There are several supported alternatives to PRINTDS. Edit the DSPRINT member and enter one of the following:

PRINTOFF  
TSPRINT  
VPSPRINT

The specified name is the command executed when the Difference Report, generated during foreground execution, prints.

## Edit Member SMS

This member defines the data set attributes and naming conventions CPX\$ISPF uses when dynamically allocating files. There are four lines in the member. The order is important and must not be changed:

NODES=4  
SPACE=TRK  
PRIME=1  
SECON=5

Only NODES 4 and 3 are valid. (Any other value is ignored.) NODES=4 is the default. A NODES=4 specification takes this form:

&prefix.CPXyyddd.Thhmsst.type

where

- &PREFIX is normally the TSO user ID
- CPXyyddd where yyddd is the Julian date
- hhmsst where hhmsst is the current time of day
- type is either OUTLIST or CNTL

The following are notes about the four lines in member SMS:

- Specifying NODES=3 suppresses the second node (CPXyyddd) such that data set naming is of the form &PREFIX.Thhmsst.CNTL.
- SPACE=TRK is the default. You can specify SPACE=CYL or SPACE=BLK. It is the unit of space allocation. The values for PRIME and SECON reflect these units.
- PRIME=1 is the default. Any numeric value is acceptable; however, a large value (PRIME=200) can consume disk space. Difference Reports are seldom larger than a few tracks of a 3390 and tying up that much space is usually unnecessary.

- SECON=5 is the default. Any numeric value is acceptable (even 0); however, a large value (SECON=1000) can consume disk space.



**NOTE** By default, temporary data sets are given a high-level qualifier equal to the TSO Profile Prefix (normally TSO user ID). If your shop does not allow the use of TSO Profile Prefix, enter a different high-level qualifier in the CPXOPHLQ panel. Access the CPXOPHLQ panel by 2.4 from the **Primary Option Panel**.

## Edit Member FCLIMIT

A limit can be set for the number of records to be compared in foreground mode. FCLIMIT stands for Foreground Comparison Limit. As delivered, the value of this member is 5000.

If this is not changed, a STOPAFT=5000 is invoked for all foreground comparisons. The maximum value is 99999999.

# Generating the ISPF Interface

Using TSO/ISPF, edit the CLIST library *somnode.COMPAREX.CLIST*.

The CLIST library contains the following members:

- COMPAREX
- IBMAL1
- IBMAL2
- SYSGEN

## Editing and Executing Member IBMAL1

Edit member IBMAL1 in the CLIST library. Set CAPS ON first.



**NOTE** As delivered, IBMAL1 contains references to ISR Tables and Panels libraries that may not exist in your shop. Their names must be changed to reflect the actual dataset names at your site.

Modify IBMAL1 to concatenate your ISPF Panel library with the newly created *somnode.COMPAREX.PANELS*. You also need to concatenate *somnode.COMPAREX.TABLES* with your ISPF table library. Now save the member.

Exit from TSO/ISPF into native TSO (get a READY prompt) and execute the CLIST IBMAL1:

```
EXEC ' somnode.COMPAREX.CLIST(IBMAL1) '
```



**NOTE** You must execute IBMAL1 from native TSO; otherwise, the system issues a 'data set in use' error message.

If you use your own version of IBMAL1 (not the supplied version), the CLIST may not work correctly if the concatenation under DDNAME ISPTLIB already contains member CPXINOPT.



**CAUTION!** Return directly to ISPF (without logging off TSO) by typing ISPF (or ISPSTART if your shop does not support the ISPF command).

## Executing SYSGEN CLIST

From TSO/ISPF option 6, generate the ISPF interface:

```
EXEC ' somnode.COMPAREX.CLIST(SYSGEN) '
```

When prompted, type the name of the SYSGEN library:

```
somnode.COMPAREX.SYSGEN
```

System generation is performed. Successful completion results in member CPXINOPT (actually six members within one) added to the installation ISPF table library:

```
(DDNAME=ISPTABL , DSNAME=somnode.COMPAREX.TABLES)
```



**NOTE** If you receive errors in performing the SYSGEN CLIST such as:

```
WRITE SERVICE FAILED - CPXDSN
```

then you must retrace your steps from the beginning. (Return to the start of this section, ["Generating the ISPF Interface"](#).)



## Editing and Executing IBMAL2 CLIST (Optional)

Go to "[Specifying ISPF Libraries with LIBDEF or REXX](#)" unless the order of library concatenations is important. To reduce maintenance and the number of data sets, copy the Comparex PANELS, MSGS and CPXLOAD libraries into the ISPF libraries. Some older operating systems require that the largest block size must be first. If you merged the supplied libraries with your own, this step is not necessary.

If you did not merge the supplied libraries, and the order of concatenation is important, edit member IBMAL2 in the CLIST library. Modify it to concatenate your ISPF Panel library with the newly created *somnode.COMPAREX.PANELS*.

You also need to concatenate the COMPAREX MSGS, TABLES and LOAD libraries with your corresponding ISPF libraries. Save this member; exit from TSO/ISPF again and execute this CLIST:

```
EXEC ' somnode.COMPAREX.CLIST(IBMAL2) '
```

## Specifying ISPF Libraries with LIBDEF or REXX

Instead of using the supplied CLIST or modifying a LOGON procedure, it is possible to allocate the appropriate libraries by specifying a LIBDEF or REXX EXEC that resides in a data set to which users have access. Coding examples can be found in the following locations:

- LIBDEF — See "[Sample LIBDEF CLIST](#)" on page 69
- REXX EXEC — See *somnode.COMPAREX.CLIST(CPXvrm)*

LIBDEF and REXX are each a type of CLIST; the data sets are allocated while each is run. This makes it easier to use, since many security issues can be circumvented. With a logon procedure or CLIST, each user requires RACF authority to initiate the logon. In contrast, a LIBDEF or REXX EXEC can reside in a data set to which users have access.

Comparex specifically looks for the allocated DDNAME CPXLLIB and looks there first when any load module (for example, SERBSAM or CPXIFACE) is to be loaded at run time. If CPXLLIB is not found, the system searches ISPLLIB next. If ISPLLIB is not found, the system searches any STEPLIB. If still not found, the link-list is searched.

If LIBDEF is used to specify the ISPF libraries, either an ALTLIB will need to be added for the CPX $vrm$ .CLIST library, or the CLIST members need to be copied into an existing product CLIST library available to the TSO session.

## Connecting to Your Main Menu

Edit the panel ISR@PRIM to add Comparex as a selection. The selection character invokes CPX\$ISPF (the primary module used in the ISPF Interface) in the following way:

```
' PANEL (CPX@PRIM) NEWAPPL (CPX) NEWPOOL PASSLIB'
```

*somnode*.COMPAREX.PANELS contains member VENDOR, which is another way to invoke Comparex. Key V on the **ISPF Primary Option Menu** (ISR@PRIM), and go to panel VENDOR, which is set to invoke the COMPAREX/ISPF Interface. In the future, you can expand the VENDOR Panel in *somnode*.COMPAREX.PANELS to include other software.

Refer to member XXX@PRIM in *somnode*.COMPAREX.PANELS for an example of coding the **ISPF Primary Option Menu** (ISR@PRIM) to include V for the VENDOR panel. An example of VENDOR in *somnode*.COMPAREX.PANELS follows:

```
)BODY EXPAND(!!)
%!-! Vendor Supplied Software !-!
%Option ==>_ZCMD ! !+
%
% 1 +COMPAREX - Invoke COMPAREX/ISPF
% 2 +Other - Invoke other vendor software (not supplied)
% X +Exit - Return to primary option menu
+
+Press%ENTER+to continue; Enter%END Command+to exit.
)PROC
&ZSEL = TRANS( TRUNC (&ZCMD, '.')
              1, 'PANEL (CPX@PRIM) NEWAPPL (CPX) NEWPOOL PASSLIB'
              , ' '
              , X, 'EXIT'
              , * , '?' )
&ZTRAIL = .TRAIL
)END
```

The implication of using variations on NEWAPPL/NEWPOOL is that it insulates this application (and shared variable pool) from any other concurrent application (on another screen perhaps). Specifying PASSLIB is necessary if the libraries were LIBDEFed to the session in advance. Use the following, although it does require an increase in resource:

```
' PANEL (CPX@PRIM) NEWAPPL (CPX) NEWPOOL PASSLIB '
```

For more information on this subject, refer to the IBM publication *Interactive System Productivity Facility Dialog Management Guide*.



**NOTE** NEWAPPL and NEWPOOL may affect your PFK settings, particularly if you do not use the IBM standard.

You can also merge the delivered panels. To do this, allocate another panel library with similar DCB attributes, go into ISPF Option 6 and issue the ISPPREP command:

```
ENTER TSO COMMAND OR CLIST BELOW:
===> ISPPREP
```

Panel ISPPREPA displays. Fill in the panel accordingly and wait for the panels to convert. There is a performance factor involved in your overall ISPF throughput if you use compiled panels instead of reinterpreting panel code on each display.

Now invoke the interface (through panel VENDOR or directly depending on how it was installed) to see if you can get to CPX@PRIM in *somnode.COMPAREX.PANELS*.

Once there, you can jump to other panels using the first three (0, 1, or 2) options in Comparex. If you pick one of the other options (3, 4, 5, 6, 7, or 8), you invoke program CPX\$ISPF.

Once under the control of program CPX\$ISPF, panel jumping is prohibited. The impact of doing so is that dialog variables become stacked; this may cause unpredictable results in future panels. Also, ending the current panel with the Return command (or equated function key) takes you all the way out to the primary panel and may leave dialog variables hanging.



## Chapter 5

---

# Library Manager and DBMS Setup

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## The CPXIFACE Interface

Comparex can perform comparisons against files or tables managed by third-party library managers or database management systems such as CA-Panvalet, CA-Librarian, ADABAS, DATACOM, IDMS, IMS, and Oracle. Customizable interfaces to these systems are supported by the CPXIFACE module of Comparex.

This chapter describes how to customize and generate the CPXIFACE interface module and link/bind it to external library managers or DBMSs.

If your shop does not use CA-Panvalet or CA-Librarian and does not expect to use Comparex with any other library manager or database management system (DBMS), you can skip this chapter.

## Editing the CPXIFACE Module

Customize the CPXIFACE interface by editing the supplied source code, then assembling that code and linking or binding it to the relevant library manager or DBMS.

CPXIFACE Library Member The source code for CPXIFACE is located in library member `somnode.COMPAREX.IFACE(CPXIFACE)`

User-configurable variables are highlighted in the source by comments:

```
*=====
* BELOW IS WHERE THE USER CAN TAILOR THE SOURCE FOR THE SHOP.
*=====
```

See [Appendix B, "CPXIFACE Interface Parameters"](#) for an example of what this code section looks like. It is located approximately between the 80th and 125th lines of code.

## Global Parameters

The first part of the user-configurable variable list contains global parameters that apply to multiple library or DBMS systems. Of special interest are the following:

### **Maximum Columns in a Relational Table**

&MAXCOL Parameter By default, the maximum number of columns that CPXIFACE can handle in a relational table is 300. The &MAXCOL parameter controls this value. The default is set as follows in CPXIFACE:

```
&MAXCOL SETA 300 Maximum number of columns
```

Edit this value as desired for your Oracle or legacy DB2 integration.

### **Dynamically Loading CPXIFACE**

&DYNAMIC Parameter In general, external library manager modules are statically link-edited together with the CPXIFACE object code to produce a single executable LOAD module. This is controlled by the &DYNAMIC parameter in CPXIFACE, which has the following default value:

```
&DYNAMIC SETB 0 (NO)interfaces to be loaded dynamically
```

However, some of the library systems with which Comparex interfaces, can be bound and loaded dynamically. These are CA-Panvalet, CA-Librarian, DL/1 (for IMS), IAM and RAMIS II. To enable dynamic binding of CPXIFACE to the load modules for these products, edit the &DYNAMIC parameter as follows:

```
&DYNAMIC SETB 1 (YES)interfaces to be loaded dynamically
```

The advantage of dynamic binding is that new releases of the library manager do not need to be relinked to CPXIFACE at each install. The disadvantage is that CPXIFACE and all interfacing modules must be placed in a LINKLIST library for common access. Care must be taken with this step if multiple Serena products are install on your system.



**CAUTION!** Several Serena products — including ChangeMan ZMF, ChangeMan M+R (Merge + Reconcile), and SERNET — reference common module names shared with Comparex. If these products share a LINKLIST library, a conflict might arise that disrupts normal functioning.

## Library Manager Selection Parameters

Comparex classifies external library managers and DBMSs as follows:

- PAN — CA-Panvalet
- LIB — CA-Librarian/Gem
- OTH — All others

You can use a single instance of CPXIFACE to integrate Comparex with CA-Panvalet, CA-Librarian, and one other library manager or DBMS at the same time. Additional integrations require separate instances of CPXIFACE for OTHER file managers.

### ***Enabling Panvalet Integration***

CA-Panvalet If your shop uses CA-Panvalet, set the following parameter value:

```
&PAN      SETB  1          (YES)
```

otherwise,

```
&PAN      SETB  0          (NO)
```

### ***Enabling Librarian Integration***

CA-Librarian If your shop uses CA-Librarian, set the following parameter value:

```
&LIB      SETB  1          (YES)
&LIB$CMC SETC  'nnnn'     Your NUMERIC Current Management Code
&GEM      SETB  0          (NO)
```

otherwise,

```
&LIB      SETB  0          (NO)
```



**NOTE** The Current Management Code (&LIB\$CMC) is optional. CA-Librarian requires it only to access PROD2 modules. If you do not have PROD2 members or do not want users to access them using Comparex, set the value of &LIB\$CMC above to '0000'.

If you have multiple LIB Masters, each of which has its own Current Management Code, set &LIB\$CMC to zero in CPXIFACE. Then pass the four-digit code dynamically at execution time using the PARM parameter for the appropriate input file, as follows:

```
SYSUT1=(LIB,M=abc,PARM=nnnn)
```

### Enabling OTHER Integrations

&OTH Parameter To integrate Comparex with any library manager or DBMS *other* than CA-Panvalet or CA-Librarian/Gem, perform the following steps.

- 1 Turn on support for an OTHER library manager. This flag simply indicates that an OTHER-type interface should be generated.

```
&OTH      SETB  1          (YES)
```

Otherwise, if no such library manager should be configured, set

```
&OTH      SETB  0          (NO)
```

- 2 Identify *which* library manager or DBMS should be integrated into Comparex. One and only one OTHER file manager may be enabled in a single instance of CPXIFACE.

For example, to enable Oracle integration, set the following

```
&Oracle   SETB  1          (YES) .Oracle (z/OS & MVS only)
```

otherwise,

```
&Oracle   SETB  0          (NO)  .Oracle (z/OS & MVS only)
```

A complete list of supported OTHER library managers and DBMSs appears in the CPXIFACE member source code shipped in library *somnode.SERCPX.V8R7M0.IFACE*. An example list appears in [Appendix B, "CPXIFACE Interface Parameters"](#).



- 3 Verify that all other interfaces in the OTHER category are set to zero.



**CAUTION!** Only one OTHER file manager may be enabled in a single instance of CPXIFACE.

## Creating Multiple CPXIFACE Interface Modules

While it is true that only one of the OTHER file manager interfaces can be enabled in a single instance of CPXIFACE, multiple OTHER interfaces may nevertheless be implemented using *multiple instances* of CPXIFACE.



**NOTE** If you are generating an interface to Panvalet and/or Librarian and only one OTHER interface — such as DB2 or DL/I — then only one interface is needed for all of these and you can generate the interface module as CPXIFACE. You only need to create multiple, differently named interfaces if you are creating more than one OTHER interface.

### Alternate CPXIFACE Module Names

To create multiple CPXIFACE interfaces, create, compile and link a unique module with a distinct name for each OTHER-type interface. Start each module name with the letters CPX so that it can be identified easily as being associated with Compaex.

The table below provides recommended interface module names for some of the more commonly used data management products.

| Library Manager/DBMS | Alternate CPXIFACE Module Name |
|----------------------|--------------------------------|
| ADABAS               | CPXADABS                       |
| CAMLIB               | CPXCAMLB                       |
| CINCOM MANTIS        | CPXCINCM                       |
| DATAKOM              | CPXDATCM                       |
| DB2                  | CPXIDB2                        |
| DL/1                 | CPXDLI                         |
| DMS                  | CPXDMS                         |

| Library Manager/DBMS | Alternate CPXIFACE Module Name |
|----------------------|--------------------------------|
| FOCUS                | CPXFOCUS                       |
| IAM                  | CPXIAM                         |
| IDMS                 | CPXIDMS                        |
| Oracle               | CPXORCL                        |
| OWL                  | CPXOWL                         |
| RAMIS                | CPXRAMIS                       |
| ROSCOE               | CPXROSCO                       |
| UFAM                 | CPXUFAM                        |
| WYLBUR               | CPXWYLBUR                      |
| Roll Your Own        | CPXROLON                       |

## Referencing Alternate Interface Modules

The link-edit control card images delivered in *somnode.COMPAREX.IFACE* (CPXIFASM) use the following syntax to reference a standard, single CPXIFACE interface:

```
INCLUDE ...  
ENTRY CPXIFACE  
NAME CPXIFACE(R)
```

This must be modified for job cards that reference alternative CPXIFACE interface modules.

Do not change the entry point name. The name of this CSECT must be kept internally as CPXIFACE. However, you should alter the NAME statement as necessary to match the alternative CPXIFACE module name. For example, to reference an Oracle interface:

```
INCLUDE ...  
ENTRY CPXIFACE  
NAME CPXORCL(R)
```

The NAME statement identifies the interface module you will call with the CPXIFACE keyword when you run Comparex.

For example, if the SYSUT1 and SYSUT2 files use different data management products, you will create two versions of CPXIFACE with

different module names. You identify these alternate interface module names for SYSUT1 and SYSUT2 with the CPXIFACE1 and CPXIFACE2 keywords.

For more information about specifying alternate interface modules, see the *Comparex for z/OS User's Guide*.

## Library Manager Module Integration

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INCLUDE Step                  | Most OTHER-type library managers and DBMSs require that you INCLUDE and link-edit one or more specific load modules with CPXIFACE to build the integration interface. Other requirements may also apply.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Static Versus Dynamic Linking | Some products have requirements for static versus dynamic linking. If you use dynamic linking, the &DYNAMIC parameter in CPXIFACE must be turned on, as described in <a href="#">"Editing the CPXIFACE Module" on page 45</a> . Dynamic linking is incompatible with CA-Panvalet and CA-Librarian. If you use Comparex with these product, you should reserve the name CPXIFACE for a statically linked interace to them and create a separate interface module for dynamically linking to OTHER library managers. (See <a href="#">"Creating Multiple CPXIFACE Interface Modules" on page 49</a> for information on creating multiple CPXIFACE interface modules.) |

## Module Linking Requirements

A partial list of INCLUDE and link-edit requirements for some popular library managers and DBMSs follows.

- **ADABAS** needs module ADAUSER statically link-edited.

You need to link the module ADAUSER as NORENT, so change the option in CPXIFASM for the generated interface moduel from RENT to NORENT.



**CAUTION!** If you do not link ADAUSER with the NORENT option, the system issues a return code of 4 on the link-edit step and a SOC4 ABEND in CPXIFACE when you try to run a compare with the generated interface.

- **CAMLIB** needs modules USERIOCS, CAMPIOCS, CAMLIOCS and GAOLPS. For example:

```
INCLUDE CAMLOGIC,(USERIOCS)
INCLUDE CAMLOGIC,(CAMPIOCS)
INCLUDE CAMLOGIC,(CAMLIOCS)
INCLUDE GAOLPS,(GAOPEN,GALOCT,GADISK,GACCWB)
```

- **DATACOM** is a complex case. Refer to ["Special Considerations for DATACOM Setup" on page 53](#).
- **DB2** no longer requires CPXIFACE. However, the prior CPXIFACE integration feature is retained for backward compatibility. Refer to ["Special Considerations for DB2 Setup" on page 55](#).
- **DL/1** needs module CBLTDLI.
- **FOCUS** needs HLIFOCUS statically linked.



**NOTE** FOCUS users may see message ASMA303W when building the CPXIFACE interface. This message is issued when base registers overlap. It does not indicate an error and can be ignored.

To eliminate this message, specify USING(WARN(11)) in the assembler step PARM=field. (The default for WARN is 15.) Doing so eliminates the return code 4.

- **IAM** needs module IAMACC.
- **IDMS** needs module IDMS.

IDMS users have a special COBOL exit module called JOSEFINE to use as a model for navigating through databases. If you want to use this module, the compile step for JOSEFINE must incorporate the following attributes:

```
ENDJOB
NODYNAM
NORES
```

- **ORACLE** needs the following added to the LINK JCL step:

```
in JCL: //SQLLIB DD DISP=SHR,DSN=oracle.SQLLIB
SYSIN:  INCLUDE SQLLIB(HLISTUB)
        ENTRY CPXIFACE
        NAME CPXORCL(R)
```

- **OWL** needs modules OWLIEAV5, OWLIEAIO, OWLIEEXP, OWLIEMTC, OWLISMAN and OWLOZGEN. (If the PDB is VSAM, you also need to include OWLVEAIO and OWLVEAV5.)
- **RAMIS** needs module RPIINT (RAMIS Procedural Interface).



**NOTE** This module may be an extra cost item from the vendor.

- **ROSCOE** needs macros for the assembly and system modules for the link-edit.

If your installation uses ROSCOE, you must maintain the logic that allows or disallows user IDs to access members in a library. To find the appropriate code, search for ROS\$2MAR in column 1. This logic is entitled "Member Access Rights." As delivered, it is fairly restrictive. It does allow access to members with the SHARED attribute, but anything else is basically restricted.

## Special Considerations for DATACOM Setup

There are the three methods for installing the Datacom interface:

- 1 *The simplest method is the quickest, but it is the least flexible and is the least user friendly.* It means that a fairly large User Requirements Table (URT) comprised of many tables must be physically link-edited together with CPXIFACE. The recommended name for this large module is CPXDATCM with the external reference DBNTRY resolved. The long-term problem is that only those tables in the URT can be accessed and compared.
- 2 *This more complex method delivers a wider range of flexibility, making it fairly user friendly.* It means that the URT is first split into two parts. The first part is:

```
CPXUR      TITLE 'COMPAREX/DATACOM STATIC DBNTRY, PART 1'
           DBURINF  BACKSPT=NO,COBOL=NO,LOADNAM=CPXDEMO,      X
           OPEN=USER,USRNTRY=CPXIFACE,URTABLE=LOAD
           DBUREND  USRINFO=CPXDEMO
           END
```

At the assembly of CPXIFACE, the first part of the URT is link-edited together with it, resolving DBNTRY. Name the resultant module CPXDATCM.

The second part is the actual User Requirements Table, which is dynamically loaded at open time on the first entry into DBNTRY:

```

URTBL  TITLE 'COMPAREX/DATACOM DYNAMIC URT TO CPXLOAD'
DBURSTR ABEND=NO,MULTUSE=YES,PRTY=7,TXNUNDO=YES
DBURTAB ACCESS=SEQ,DBID=155,SYNONYM=YES,                X
        TBLNAM=X06,UPDATE=NO,SEQBUFS=2
        DBURTAB ACCESS=SEQ,... other entries as necessary
DBUREND SYSTEM=OS,USRINFO=CPXDEMO
END

```

Each combination of tables in module CPXDEMO should be in its own CPXLOAD library.

- 3** Finally, *the most flexible and user friendly method* is a variation on method 2. It is the most dynamic because it allows any existing (ACCESS=SEQ) URT to be loaded and processed. The first part of the URT must be linked with NCAL since it attempts to resolve V-type Adcon CPXDATCM, as in the following example:

```

//ASM      EXEC PGM=IEV90
...
//SYSIN    DD *
CPXUR      TITLE 'COMPAREX/DATACOM DYNAMIC ROUTE, PART 1'
DBURINF   BACKSPT=NO,COBOL=NO,LOADPRM=CPXURT,          X
OPEN=USER,USRNTRY=CPXDATCM,URTABLE=CPXLOAD
DBUREND   USRINFO=COMPAREX
END
//*
//LINK     EXEC PGM=IEWL,PARM='XREF,LIST,NCAL'
...
NAME CPXURT(R)
//* EOJ

```

Now the assembly of CPXIFACE can bring in the above assembled CPXURT; this resolves the previously unresolved entry point called CPXDATCM. Create two interface modules, CPXDATCM and CPXDATC2 because the Datacom (DBNTRY) modules are not reentrant and cannot handle both a SYSUT1 and SYSUT2 path through them.

Once you create CPXDATCM, you can copy it to CPXDATC2 instead of a full recompile and link. If you want to compare one table to another in the same execution, use a variation on these keywords:

```

CPXIFACE1=CPXDATCM,CPXIFACE2=CPXDATC2
SYSUT1=(OTH,M=F01,PARM='CPXURT=DBFLTO2,...
SYSUT2=(OTH,M=F13,PARM='CPXURT=DBURTAB,...

```

## Special Considerations for DB2 Setup

DB2 Integration  
Without CPXIFACE

Previous releases of Comparex used the CPXIFACE interface to integrate with IBM's DB2 relational database. The DB2 functionality of CPXIFACE has been retained for backward compatibility, as documented in this chapter. However, Comparex now supports DB2 table comparisons natively and the CPXIFACE interface is not needed.

Customers who wish to use DB2 long table names and other advanced DB2 features *must* disable the CPXIFACE interface to DB2.



**IMPORTANT!** Long table names and other advanced DB2 features are supported by Comparex in *native mode only*. These features are not supported by the legacy CPXIFACE DB2 interface.

See the *Comparex for z/OS User's Guide* for more information about native DB2 support.

### Generating and Binding the DB2 Interface

DB2 Integration  
with CPXIFACE  
(Legacy Method)

**DB2** requires a special procedure to pre-process the source code that selects out the static SQL code into a DBRM and then BINDs it together into a usable PLAN. This needs to be done by your database administration group.

Example JCL for this is shown in [Appendix C, "DB2 Interface Generation"](#) and in sample code member *somnode.COMPAREX.IFACE(CPXDB2)*.

Deleting and printing the EXPLAIN is suggested, but is not necessary. Delete the steps as required.

You must decide whetherto use the Call Attach Facility or run under the TSO DSN command. For example:

```
&DB2      SETB  1      (YES)      .DB2 FROM IBM - MVS ONLY
* FOR TSO-DSN: "&DB2CAF SETB 0"; FOR CAF: "&DB2CAF SETB 1"
&DB2CAF   SETB  0      (NO)       ..DB2 CALL ATTACH FACILITY
```

This generates an interface for running under the TSO DSN command. You need to include module DSNHLI at link-edit time. Conversely,

```
&DB2      SETB  1      (YES)      .DB2 FROM IBM - MVS ONLY
* FOR TSO-DSN: "&DB2CAF SETB 0"; FOR CAF: "&DB2CAF SETB 1"
&DB2CAF   SETB  1      (YES)      ..DB2 CALL ATTACH FACILITY
```

generates an interface for the Call Attach Facility; do not include anything at link-edit time.

### **Customizing Column Processing**

You can customize the number of columns that CPXIFACE can handle in DB2 tables. By default, this number is set to 300. To change that value, find the line of code in CPXIFACE that says:

```
&MAXCOL      SETA  300
```

and change it to a sufficiently large number for your installation. Then generate the DB2 interface as described above.

## **Generating the CPXIFACE Interface**

### **Editing JCL Member CPXIFASM**

Member CPXIFASM in library *somnode*.COMPAREX. IFACE provides the JCL to assemble and link-edit CPXIFACE. Edit this member as needed.



**IMPORTANT!** When building a DB2 interface, use CPXDB2 JCL instead of CPXIFASM. If you are building a DB2 interface that also supports CA-Panvalet or CA-Librarian, combine CPXDB2 and CPXIFASM JCL.

The following considerations may apply.

- When assembling CPXIFACE under the High-Level Assembler, be sure to include USING(WARN(11)) in the assembler PARM field. For example:

```
PGM=HLASM, PARM=('LIST,XREF,RENT,USING(WARN(11)),OBJECT')
```

- In the LINKAGE EDIT step of CPXIFASM, the SYSLIB statement should point to the library containing one or all of the following:
  - CA-Panvalet Access Methods (PAM)
  - CA-Librarian File Access Interface Routines (FAIR)
  - System routines for the OTHER interfaces





**NOTE** If you are generating the interface to CA-Panvalet, the PAN open routine POPEN is marked as reentrant when actually it is not. Assembling CPXIFACE and linking it as RENT causes a S0C4 ABEND at open time. Regenerate CPXIFACE with NORENT instead.

- The SYSLMOD statement must point to the library where the Comparex load module resides:

```
somnode.COMPAREX.CPXLOAD
```

## Submitting CPXIFASM for Execution

Submit the edited CPXIFASM job for execution. There may be assembly or link-edit (weak EXTRNs excepted) errors.

Once Comparex and CPXIFACE have been generated into the same partitioned library, you can begin testing.



**NOTE** A warning, ASMA303W, about multiple address resolutions may occur causing the assembly to end with a return code 4. This is now common with the High-Level Assembler and should not cause problems. It means that two base registers are pointing less than 4K apart and that some field or instruction can be accessed by either one. (The assembler chooses the base register that gives the lesser displacement).



## Chapter 6

---

# Installing ChangeMan M+R

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---

## The ChangeMan M+R Option

M+R refers to Serena® ChangeMan® Merge+Reconcile. It is a separately licensed option of Comparex. If you want to learn more about M+R, contact your sales representative.

If you mix release levels and pick up an older release of Comparex, an abend occurs when you invoke M+R because module CDF\$ISPF calls Comparex to see if M+R is licensed and only the synchronized version answers back properly.

## Invoking M+R through Option M

You can invoke M+R with a CLIST or REXX EXEC from option M of the primary Comparex panel CPX@PRIM. A sample REXX member CDF to invoke M+R can be found in 'somnode.COMPAREX.CLIST(CDF)'.

### To set up Option M for M+R:

- In 'somnode.COMPAREX.CLIST(CPX870)', change the selected panel name from CPX@PRIM to CPX@PRMR as follows:

Update the following line:

```
address ispexec "SELECT PANEL(CPX@PRIM)
NEWAPPL(CPX) SCRNAME(CPX) PASSLIB"
```

to:

```
address ispexec "SELECT PANEL(CPX@PRMR)
NEWAPPL(CPX) SCRNAME(CPX) PASSLIB"
```

**OR**

- In *somnode*.COMPAREX.PANELS library:
  - a Rename panel CPX@PRIM to CPXONLY
  - b Rename panel CPX@PRMR to CPX@PRIM



**IMPORTANT! Option M** on the Comparex ISPF menu invokes module CDF\$ISPF to drive M+R. CDF\$ISPF calls the ISPLINK module, which should reside in a link-listed library; ISPLINK cannot be statically link-edited with CDF\$ISPF.

## Customizing the Panel SEROJECT

To complete the installation of M+R, refer to the following sections that describe how to edit the necessary panels to set M+R options.

### M+R Projects and Sample Data Sets

You must make the team-oriented M+R Projects and Samples data sets known to M+R by manually editing the SEROJECT panel in the *somnode*.COMPAREX.PANELS library.

In the )INIT section, type:

```
&CDFPROJ = somnode.CDF.PROJECTS
&CDFSAMPL = somnode.COMPAREX.SAMPLIB
```

You must allocate the M+R Projects data set as a SEQuential file, with:

- Record Format FB
- Logical Record Length 80
- Block Size 6000

- First extension 20 blocks
- Secondary extension 400

The DSName *somnode.CDF.PROJECTS* is an example only.

Grant all M+R users the following:

- READ/WRITE authority to the M+R Projects data set *somnode.CDF.PROJECTS*.
- READ authority to the M+R Samples data set *somnode.COMPAREX.SAMPLIB*.

## Specifying M+R Profile Data Set

M+R automatically allocates the data sets specified in the user's PROFILE settings. Assign appropriate high-level qualifiers to the ISPF variable, &CDFDSNQ. You can specify a maximum of 24 characters. Use a literal constant or an ISPF variable name. For example, if &CDFDSNQ is set to XYZ, then M+R auto-allocates the following data sets:

XYZ.CDF.USERID.WIS - work-in-suspense SEQ data set

XYZ.CDF.USERID.PRINT - printout SEQ data set

XYZ.CDF.USERID.EXPORT - consolidations PDS

XYZ.CDF.USERID - individual projects SEQ data set

If &CDFDSNQ = CD.&ZSYSID and the system ID variable is set from the shared pool with VGET ZSYSID SHARED to the default value of NONAME, M+R auto-allocates the following data sets:

CD.NONAME.CDF.USERID.WIS

CD.NONAME.CDF.USERID.PRINT

CD.NONAME.CDF.USERID.EXPORT

CD.NONAME.CDF.USERID.USERID

CD.NONAME.CDF.USERID.PROFILE

where USERID is the M+R user TSO logon ID.



**NOTE** If &CDFDSNQ is set so that it contains the user ID ZUSER, then M+R does not include user ID in the data set name it auto-allocates for new M+R users.

## Additional Customizations

- In the )INIT section, assign an appropriate Unit Name to the ISPF variable &CDFUNIT that M+R uses to auto-allocate working data sets. The default value is SYSDA.
- M+R is delivered with the ISPF variable &CDFTIME set to YES, which checks the batch JCL for the TIME parameter. To disable this check, edit panel SER@PRIM and set &CDFTIME to NO.

## Chapter 7

---

# Verifying the Install

This chapter discusses procedures to perform after Comparex is installed.

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| <a href="#">Running Comparex in the Foreground</a> | 64 |

---



**NOTE** For Comparex messages and user ABEND codes, refer to the *Comparex for z/OS User's Guide*.

## Running Comparex in the Background

You can run Comparex in the background by editing member POSTINST in *somnode*.COMPAREX.IFACE. Sequence numbers do not exist in the member as delivered and should not be added by renumbering. Sequence numbers can distort the expected results when running a DATA compare.

Submit the sample batch execution and review the printout. Near the end of the printout, find message CPX75I. It should read:

```
CPX75I - RECORDS PROCESSED: SYSUT1(4)/SYSUT2(4), DIFFERENCES(2,1,1)
        EXPLANATION - 2 RECORDS DIFFER THAT SYNCHRONIZED TOGETHER
                   1 RECORD WAS CONSIDERED INSERTED ON SYSUT1
                   1 RECORD WAS CONSIDERED INSERTED ON SYSUT2
```

If message CPX75I does not appear, call Serena Support.

If message CPX75I appears but the numbers are different, examine the job stream to ensure that the example job stream was correctly entered.

If you are still unable to resolve the problem, call Serena Support.

Differences are expected so the return code in message CPX80I will be four. If the numbers in message CPX75I are the same as in the above

message, you successfully installed Comparex, and the sample execution ran correctly.

## Running Comparex in the Foreground

You can also run Comparex in the foreground using TSO/ISPF. To run Comparex in the foreground, go to the **Comparex Primary Menu**. This depends on how you made the connection (VENDOR menu or a direct call of CPX@PRIM from the main menu). Refer to CPX@PRIM below:

```
----- SERENA (R) COMPAREX (R) / ISPF 8.6 Primary Menu -----
Option ==> Profile: *

0 - SHORT CUT - Single screen for options and dataset names (recommended)
1 - OPTIONS   - Specify compare options for this session
2 - DSNAMES   - Specify dataset names to be compared
3 - SAVE      - Save options profile for future sessions
4 - LOAD      - Select/Delete options profile from prior session(s)
5 - CLEAR     - Clear previously loaded profile
6 - FOREGROUND - Invoke SERENA COMPAREX in the foreground and wait
7 - BACKGROUND - Invoke SERENA COMPAREX as a submitted batch job
8 - BACKGROUND - Similar to above but edit job (and optionally SUBMIT)
9 - PARSE     - Parse Cpylib for keyword assistance
X - EXIT      - Exit

Press HELP KEY for tutorial assistance at any point;
Enter END Command to terminate SERENA COMPAREX/ISPF 8.6.0 (2006/105).

      S E R E N A   Software                               www.serena.com
```

Type **6** at **Option ==>** to invoke Comparex in the foreground. Type a data set name for file SYSUT1.

A U0005 abend occurs if Comparex is unable to create the temporary data set with a high-level node equal to the TSO Profile Prefix in effect (normally the TSO user ID). Use the CPXOPHLQ panel to correct the error. Access the CPXOPHLQ panel by **2.4** from the **Primary Option Panel**.

## Release Levels

If you previously installed an older version of Comparex and this overlays that install, the older V.R.M level numbers are shown on the top center of the above panel. For example:



----- COMPAREX/ISPF 8.6.2 Primary Menu -----

The supplied module CPX\$ISPF issues a VPUT of variable CPXVRM into the ISPF profile pool. It is only invoked by Options 3 through 8. The above panel displays directly by ISPF and it picks up whatever is in the profile pool from the last invocation of CPX\$ISPF. This can cause confusion for the installer since the new software is displaying older release levels. This is also aggravated because the new panel set stipulates the release level by hard-coding on the panel, for example,

```
Press HELP KEY for tutorial assistance at any point;  
Enter END Command to terminate COMPAREX/ISPF 8.6 (2006/105).
```

Invoke Option 5 (clear variables) to get the latest V.R.M from the newer CPX\$ISPF. Use this concept of tying the program to a displayed dialog variable to diagnose installation problems.

## Limiting Comparisons

For this example, try to keep it simple and limit your comparison to two files that have very few, if any, differences. Fill in the name of a known data set in the normal ISPF fashion and press **Enter**.

Assuming you did not make any errors in the naming syntax, panel CPXOPDS2 (which is similar to CPXOPDS1) prompts you for the file name of SYSUT2. Fill in the name of another known data set or even the same name as that of SYSUT1 and press **Enter**.

```

CPXOPDS1 ----- File One (SYSUT1) -----
Command ==>                                     Profile: *

ISPF LIBRARY:
PROJECT ==>
LIBRARY ==>
TYPE ==>
MEMBER ==>          DATASET PASSWORD ==>          (If Protected)

OTHER PARTITIONED OR SEQUENTIAL DATASET:
DATASET NAME ==> 'somnode.SEQ.SYSUT1'
VOLUME SERIAL ==>          (If Not Cataloged)
UNIT ==>          (If Not Cataloged)

TYPE OF DATASET ==>          (COMPAREX Interface Only)
1 - PANVALET 2 - LIBRARIAN/GEM 3 - OTHER PROPRIETARY LIBRARY/DBMS
MEMBER NAME ==>          (16 Character Member Name)
INCLUDES ==> NO          (YES or NO - Expand Includes)
LEVEL ==> 0          (Librarian Only - Archie Level)
PARAMETER ==>          ('Parameter Data' for CPXIFACE)

Press ENTER to register and stay; Enter END Command to register and exit.

```

Comparex is now running in the foreground comparing the two data sets you just specified. Since you did not specify any options to the compare, there may be many differences particularly if you specified data sets that are vastly different.

When Comparex finishes executing, the difference report displays for browsing. At this point, the ISPF interface to Comparex is functional.

If you force invocation of CPXIFACE in the foreground by specifying PAN, LIB or OTH for SYSUT1 or SYSUT2; for example:

```

TYPE OF DATA SET ==> 1          (COMPAREX Interface Only)
1 - PANVALET 2 - LIBRARIAN/GEM 3 - OTHER PROPRIETARY LIBRARY/DBMS

```

and you did not

- allocate DDNAME ISPLLIB to where Comparex and CPXIFACE reside, or
- allocate a STEPLIB library for Comparex and CPXIFACE, or
- put Comparex and CPXIFACE in a LINKLIST library

then Comparex can not load CPXIFACE and an S806 abend occurs.

# Appendix A

---

## Sample CLISTS

### IBM Model Clist - Allocation for SYSGEN

```
PROC 0
/*****/
/* IIIIIIII BBBBBB M M AAAAA L 1 */
/* I B B MM MM A A L 11 */
/* I B B M M M A A L 1 */
/* I BBBBBB M M M AAAAAA L 1 */
/* I B B M M A A L 1 */
/* I B B M M A A L 1 */
/* IIIIIIII BBBBBB M M A A LLLLLL 11111 */
/* ****/
/* IBM Users Only */
/* ****/
/* NOTE - Set "CAPS ON" when you edit this! */
/*****/
FREE FI (ISPPLIB, ISPTLIB)
/*****/
/* Always concatenate the higher block size first! */
/*****/
ALLOC FI (ISPPLIB) DA ('somnode.COMPAREX.PANELS' +
                      'ISR.V3R5M0.ISRPLIB' +
                      'ISP.V3R5M0.ISPPLIB') SHR
ALLOC FI (ISPTLIB) DA ('somnode.COMPAREX.TABLES' +
                      'ISR.V3R5M0.ISRTLIB' +
                      'ISP.V3R5M0.ISPTLIB') SHR
/*****/
/* No concatenations allowed for 'ISPTABL'! */
/*****/
FREE FI (ISPTABL)
ALLOC FI (ISPTABL) DA ('somnode.COMPAREX.TABLES') SHR
```

# IBM Model Clist - Normal Allocation

## IBMAL2 in COMPAREX.CLIST

```

PROC 0 +
LIST CONLIST SYMLIST
/*****
/* IIIIIIII BBBBBB M M AAAAA L 22222
/* I B B MM MM A A L 2 2
/* I B B M M M M A A L 2
/* I BBBBBB M M M AAAAAA L 2
/* I B B M M A A L 2
/* I B B M M A A L 2
/* IIIIIIII BBBBBB M M A A LLLLLLL 2222222
/*
/* IBM Users Only
/*
/* NOTE - Set "CAPS ON" when you edit this!
/*****
IF &LIST> THEN CONTROL LIST
IF &CONLIST> THEN CONTROL CONLIST
IF &SYMLIST> THEN CONTROL SYMLIST
CONTROL NOMSG
FREE FI (ISPPLIB, ISPMLIB, ISPLLIB, ISPTLIB)
CONTROL MSG
/*****
/* Always concatenate the higher block size first! */
/*****
ALLOC FI (ISPPLIB) DA ('somnode.COMPAREX.PANELS' +
'ISR.V3R5M0.ISRPLIB' +
'ISP.V3R5M0.ISPPLIB') SHR
ALLOC FI (ISPTLIB) DA ('somnode.COMPAREX.TABLES' +
'ISR.V3R5M0.ISRTLIB' +
'ISP.V3R5M0.ISPTLIB') SHR
ALLOC FI (ISPMLIB) DA ('somnode.COMPAREX.MSGS' +
'ISR.V3R5M0.ISRMLIB' +
'ISP.V3R5M0.ISPMLIB') SHR
ALLOC FI (ISPLLIB) DA ('somnode.COMPAREX.LOAD' +
'ISR.V3R5M0.ISRLOAD' +
'ISP.V3R5M0.ISPLOAD') SHR

```

## Sample Comparex CLIST

```

*****
PROC 2 DSNSYSUT1 DSNSYSUT2
FREE FI(SYSUT1,SYSUT2,SYSPRINT,SY SIN)
ALLOC FI(SYSPRINT) DA(*)
ALLOC FI(SYSUT1) DA(&DSNSYSUT1) SHR
ALLOC FI(SYSUT2) DA(&DSNSYSUT2) SHR
WRITE *****
WRITE *   PREPARE TO CREATE SYSIN INPUT TO*
WRITE *   PROGRAM COMPAREX.   TERMINATE*
WRITE *   SYSIN WITH A /* (SLASH-ASTERISK).*
WRITE *   KEY IN HELP FOR ASSISTANCE*
WRITE *****
ALLOC FI(SYSIN) DA(*)
CALL 'somnode.COMPAREX.LOAD(COMPAREX)'
*****

```

## Sample LIBDEF CLIST

```

PROC 0
CONTROL MAIN NOLIST /* CONLIST */
/* DROP CURRENT ALLOCATIONS */
ISPEXEC LIBDEF ISPLLIB
ISPEXEC LIBDEF ISPLMLIB
ISPEXEC LIBDEF ISPLPLIB
ISPEXEC LIBDEF ISPTLIB
/* ALLOCATE COMPAREX LIBRARIES */
ALLOC DD(CPXLLIB) DSN('somnode.COMPAREX.CPXLOAD') SHR REUSE
ALLOC DD(SERLIC) DSN('somnode.COMPAREX.LICENSE') SHR REUSE
ISPEXEC LIBDEF ISPLLIB DATASET ID('somnode.COMPAREX.CPXLOAD')
ISPEXEC LIBDEF ISPLMLIB DATASET ID('somnode.COMPAREX.MSGS')
ISPEXEC LIBDEF ISPLPLIB DATASET ID('somnode.COMPAREX.PANELS')
ISPEXEC LIBDEF ISPTLIB DATASET ID('somnode.COMPAREX.TABLES')
ISPEXEC SELECT PANEL(CPX@PRIM) NEWAPPL(CPX) PASSLIB
/* RESTORE OLD ALLOCATIONS */
ISPEXEC LIBDEF ISPLLIB
ISPEXEC LIBDEF ISPLMLIB
ISPEXEC LIBDEF ISPLPLIB

```

```
ISPEXEC LIBDEF ISPTLIB
FREE DD(CPXLLIB)
FREE DD(SERLIC)
EXIT
```

## Sample LIBDEF REXX EXEC

```
/******REXX*/
/*
/* This REXX exec will activate the COMPAREX ISPF user interface. */
/*
/* This exec is recommended for sites with ISPF 4.1 or better. */
/*
/******
arg release

if release='' then release='somnode.CPX860'

Elib= ""release".CLIST"
Plib= ""release".PANELS"
Mlib= ""release".MSG5"
Llib= ""release".LOAD"
Tlib= ""release".TABLES"

if sysvar("SYSISPF")="ACTIVE" then
do
address ispeexec "libdef isplib dataset id("Plib") stack"
address ispeexec "libdef isplib dataset id("Mlib") stack"
address ispeexec "libdef isplib dataset id("Llib") stack"
address ispeexec "libdef isptlib dataset id("Tlib") stack"

address TSO "ALLOC F(ISPTABL) DA("Tlib") SHR REUSE"
address TSO "ALLOC F(CPXLLIB) DA("Llib") SHR REUSE"
address TSO "ALLOC F(SERLIC) DA('somnode.LICENSE.DATA') SHR REUSE"
address TSO "ALTLIB ACTIVATE APPLICATION(EXEC) DATASET("Elib") UNCOND QUIET"

address ispeexec "SELECT PANEL(CPX@PRIM) NEWAPPL(CPX) SCRNAME(CPX) PASSLIB"

address TSO "ALTLIB DEACTIVATE APPLICATION(EXEC)"
address TSO "FREE F(SERLIC)"
address TSO "FREE F(CPXLLIB)"
address TSO "FREE F(ISPTABL)"

address ispeexec "libdef isptlib"
address ispeexec "libdef isplib"
address ispeexec "libdef isplib"
address ispeexec "libdef isplib"
end
else
do
parse source s1 s2 s3 s4 s5 s6
"FREE F(SYSEXEC)"
"ALLOC F(SYSEXEC) DA("Elib") SHR REUSE"
"ISPSTART CMD("s3)"
end
Exit 0
```

# Link CPX\$ISPF

## LNKISPF in somnode.COMPAREX.IFACE

```

//jobname JOB (account),'ASM CPX$ISPF', <=== Change Accordingly
//          CLASS=?,NOTIFY=?,          <=== Change Accordingly
//          MSGCLASS=?                  <=== Change Accordingly
//*****
/* This is a sample Assembly and Link of 'CPX$ISPF'. Use this
/* procedure to add the SERLIC DD to all batch jobs submitted
/* through the CPX ISPF interface.
//*****
//ASMLINK PROC ASM=ASMA90,              <=== Name of Assembler (IEV90)
//          IEWL=IEWL,                  <=== Name of your Link Editor
//          UNIT=SYSDA,                 <=== Disk unit type
//          SOMNODE='SYS2.'            <=== Highest level node
//ASM      EXEC PGM=&ASM,REGION=1M,PARM=('LIST',
//          'USING(WARN(11)),OBJECT')   <=== Change Accordingly
//*
//SYSLIB   DD DISP=SHR,DSN=SYS1.MACLIB
//          DD DISP=SHR,DSN=SYS1.AMODGEN
//SYSPRINT DD SYSOUT=*
//SYSPUNCH DD DUMMY
//SYSUT1   DD UNIT=&UNIT,SPACE=(CYL,(1,1))
//SYSLIN   DD DISP=(,PASS),DSN=&&OBJECT, <=== Could be //SYSGO
//          UNIT=&UNIT,SPACE=(TRK,(2,1)),
//          DCB=(RECFM=F,BLKSIZE=80)
//SYSIN    DD DISP=SHR,DSN=&somnode.COMPAREX.IFACE(CPX$ISPF)
//*
//LKED     EXEC PGM=&IEWL,PARM='LIST,XREF,MAP,RENT'
//SYSPRINT DD SYSOUT=*
//SYSLIB   DD DISP=SHR,
//          DSN=&somnode.COMPAREX.CPXLOAD <=== Change Accordingly
//SYSLMOD  DD DISP=SHR,
//          DSN=&somnode.COMPAREX.CPXLOAD <=== Change Accordingly
//SYSUT1   DD UNIT=&UNIT,SPACE=(CYL,1)
//SYSLIN   DD DISP=(OLD,DELETE),DSN=&&OBJECT
//          DD DDNAME=SYSIN
// PEND
//*
//ASMLINK EXEC ASMLINK
//LKED.SYSIN DD *
//          ENTRY CPX$ISPF
//          NAME CPX$ISPF(R)
//* EOJ

```





# Appendix B

## CPXIFACE Interface Parameters

### List of User-Customizable Parameters

The example source code in [Figure B-1](#) lists the user-customizable parameters in a recent CPXIFACE member. Refer to the actual CPXIFACE source member in library *somnode*. SERCPX.VRM. IFACE for the most current parameter list.

#### Parameter Groups

- Global CPXIFACE Parameters** Global parameters for Comparex are listed first, before the elipsis (three dots). Do not change the hard-coded operating system flags or version, release, and modification numbers. Parameter values that may be changed in this group are &DYNAMIC and &MAXCOL. (See ["Global Parameters"](#) in [Chapter 5, "Library Manager and DBMS Setup"](#) for instructions.)
- Library Manager Selection Parameters** Library manager parameters are listed after the first elipsis. The first group of these concerns CA-Panvalet and CA-Librarian/Gem. After the second elipsis, the OTHER library manager parameters are listed. (See ["Library Manager Selection Parameters"](#) in [Chapter 5, "Library Manager and DBMS Setup"](#) for customization instructions.)

**Figure B-1**  
CPXIFACE  
Parameters

```
=====
* Below is where the user can tailor the source for the shop
=====
&OPSYS   SETB  1          '&OPSYS'   on for z/OS & MVS or z/VM & VM/CMS
*OPSYS   SETB  0          '&OPSYS'   on for z/VSE & VSE family only
*CMS     SETB  1          '&CMS'    on for z/VM & VM/CMS family only
&DYNAMIC SETB  0          (NO)        interfaces loaded dynamically
&CPXVER  SETC  '8'        version 8
&CPXREL  SETC  '7'        release 7
&CPXMOD  SETC  '0'        modification 0
&CPXVRM  SETC  '&CPXVER..&CPXREL..&CPXMOD' version/release/mod
&MAXCOL  SETA  300        (NO)        maximum number of columns
* . . .
&PAN     SETB  0          (NO)        Panvalet
&LIB     SETB  1          (YES)
```

```

&LIB$CMC SETC 'nnnn' Your NUMERIC Current Management Code
&GEM      SETB 0      (NO)
* . . .
&OTH      SETB 0      (NO) generate the 'OTHer' interface.
&ADABAS   SETB 0      (NO) .ADABAS DBMS including Natural
&CAMLIB   SETB 0      (NO) .CONDOR CAMLIB
&CINCOM   SETB 0      (NO) .CINCOM - TOTAL/SUPRA/MANTIS
&DATACOM  SETB 0      (NO) .DATACOM - CA-ADR
&DB2      SETB 0      (NO) .DB2 from IBM - MVS only
* for TSO-DSN: "&DB2CAF SETB 0"; for CAF: "&DB2CAF SETB 1"
&DB2CAF   SETB 0      (NO) ..DB2 Call Attach Facility
&DL1      SETB 0      (NO) .DL/1 of IMS or CICS
&DL1FP    SETB 0      (NO) ..IMS'S Fastpath
&DMS      SETB 0      (NO) .DASD Management System
&FILEDEF  SETB 0      (NO) .Filedef for CMS - MVS parallel
&FOCUS    SETB 0      (NO) .Focus - Information Builders
&IAM      SETB 0      (NO) .Innovation Access Method
&IDMS     SETB 0      (NO) .IDMS
&Oracle   SETB 0      (NO) .Oracle (z/OS & MVS only)
&OWL      SETB 0      (NO) .Online Without Limits - CA-PAN
&RAMIS    SETB 0      (NO) .RAMIS-II from Mathematica
&ROSCOE   SETB 0      (NO) .ROSCOE - CA-ADR
&SQL      SETB 0      (FUTURE) .Structured Query Language (VM/VSE)
&UFAM     SETB 0      (NO) .UFAM - Citizens Software
&WYLBUR   SETB 0      (NO) .Wylbur format files (MVS only)
&ZROLOWN  SETB 0      (NO) .roll your own - proprietary
&ZASCII   SETB 0      (NO) ..ASCII to EBCDIC translation
=====
* Above is where the user can tailor the source for the shop
=====

```

## Identifying User-Modifiable Parameters

User-customizable parameters have one of the following comments beginning in the area beyond column 16:

(NO)

or

(BETA)

BETA works in the environment where it was developed but has never been tested in production. Generally, the BETA designation applies for a single modification level and then is changed to NO.

Variables marked:

(FUTURE)

are in varying stages of development and should not be used.

# Appendix C

---

## DB2 Interface Generation

This is a sample JCL procedure to generate CPXIFACE for the DB2 interface. Your database administrators probably already have a similar procedure in place. Use this sample only as a model.

### CPXDB2 in *somnode*.COMPAREX.IFACE

```
//jobname JOB
//
//PRECOMP EXEC PGM=DSNHPC, <=== Precompiler, scan for SQL code
//          PARM='HOST(ASM)' <=== In Assembler format
//*
//DBRMLIB DD DISP=SHR,DSN=somnode.DBRMLIB(CPXIFACE)
//SYSCIN DD DISP=(,PASS),DSN=&&SOURCE,
//          UNIT=SYSDA,SPACE=(CYL,(1,5)),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SYSLIB DD DISP=SHR,DSN=somnode.DCLGNLIB
//SYSPRINT DD SYSOUT=*
//SYSTEM DD SYSOUT=*
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,5))
//SYSIN DD DISP=SHR,DSN=somnode.COMPAREX.IFACE(CPXIFACE)
//*
//ASM EXEC PGM=IEV90,REGION=1M,PARM=OBJECT
//*
//SYSLIB DD DISP=SHR,DSN=SYS1.MACLIB
//          DD DISP=SHR,DSN=SYS1.AMODGEN
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,5))
//SYSPUNCH DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSLIN DD DISP=(,PASS),DSN=&&OBJECT,
//          UNIT=SYSDA,SPACE=(TRK,(15,15),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)
//SYSIN DD DISP=(OLD,DELETE),DSN=&&SOURCE
//*
//LKED EXEC PGM=IEWL,COND=(4,LT),PARM='LIST,XREF,LET,RENT'
//*
//SYSPRINT DD SYSOUT=*
//SYSLIB DD DISP=SHR,DSN=somnode.DB2.LINKLIB <=== Optional
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,5))
```

```

//SYSLMOD DD DISP=SHR,DSN=somnode.COMPAREX.LOAD
//SYSLIN DD DISP=(OLD,DELETE),DSN=&&OBJECT
//SYSIN DD *
ENTRY CPXIFACE
NAME CPXIFACE(R)
//*
/* NOTE: The Explain process that follows is optional!
/*
//DELETE EXEC PGM=IKJEFT01,COND=(4,LT,PRECOMP),
// DYNAMNBR=20 <=== Delete old Explain info.
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSTSIN DD * LIB('If not in Linklist')
DSN SYSTEM(DSN)
RUN PROGRAM(DSNTEP2) PLAN(DSNTEP2) LIB('somnode.DB2.LINKLIB')
//SYSIN DD *
DELETE FROM PLAN_TABLE WHERE APPLNAME = 'CPXIFACE';
/*
/* NOTE: If Explain process deleted, Bind with 'EXPLAIN(NO)'
/*
//BIND EXEC PGM=IKJEFT01,COND=(4,LT,PRECOMP),
// DYNAMNBR=20 <=== Bind the DBRM to CPXIFACE
//DBRMLIB DD DISP=SHR,DSN=somnode.DBRMLIB
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSTSIN DD *
DSN SYSTEM(DSN)
BIND PLAN(CPXIFACE) MEMBER(CPXIFACE) ACT(REP) ISO(CS) RETAIN -
EXPLAIN(YES) VALIDATE(RUN)
END
/*
/* NOTE: The explain process that follows is optional!
/*
//PRINT EXEC PGM=IKJEFT01,
// COND=(4,LT,PRECOMP),DYNAMNBR=20 <=== Print Explain info.
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSTSIN DD * LIB('If not in Linklist')
DSN SYSTEM(DSN)
RUN PROGRAM(DSNTEP2) PLAN(DSNTEP2) LIB('somnode.DB2.LINKLIB')
//SYSIN DD *
SELECT * FROM PLAN_TABLE WHERE APPLNAME = 'CPXIFACE';
/* E0J

```

## Appendix D

---

# Manual File Transfer to Host

The XMIT binary format files that were unloaded from the Comparex distribution media must be transferred from your PC to the mainframe where Comparex will actually execute. If you did not choose the automated FTP file transfer process when you unloaded the product media to the PC (see [Chapter 2, "Installing Comparex on z/OS"](#)), then use one of the alternative methods described in this appendix to transfer the files from your PC to the host.

The transfer process must not convert the file character format; the transfer must be binary. The receiving host files must have the following characteristics:

|                       |             |
|-----------------------|-------------|
| Record Format         | Fixed block |
| Record Length (LRECL) | 80          |
| Block Size            | 3120        |

Choose the procedure for the software upload that you prefer:

- To use FTP, see ["File Transfer Using FTP" on page 77](#).
- To use 3270 emulator software, see ["File Transfer Using 3270 Emulator" on page 79](#).

## File Transfer Using FTP

This section describes how to use FTP to upload the Comparex files from a PC to a host. These instructions assume that you have:

- TCP/IP FTP connectivity from your PC to the host.
- A host userid and password.
- Security authorization to allocate files on the host.
- The IP address of the host.

**Execute these steps on your PC.**

- 1 Open a DOS/Command Prompt window:

Windows<sup>®</sup> 9x:      **Start | Programs | MS-DOS Prompt**  
Windows NT<sup>®</sup>,      **Start | Programs | Command Prompt**  
Windows 2000,  
Windows XP:

- 2 At the prompt, type the following command to start FTP and connect to the host. Specify the dotted decimal IP address of the target host:

```
ftp nnn.nnn.nnn.nnn
```

Press **Enter**.

- 3 When you are prompted for your userid, type your host userid and press **Enter**.
- 4 When you are prompted for your password, type your host password and press **Enter**.
- 5 At the FTP prompt, type this command to set the transfer type to binary:

```
binary
```

Press **Enter**.

- 6 At the FTP prompt, type each of these commands in the order shown and press **Enter**:

```
literal site blocksi=3120  
literal site lr=80  
literal site rec=fb
```

These commands set the DCB for the receiving files that are automatically allocated on the host.

- 7 At the FTP prompt, type this command to transfer a file from the PC to the host:

```
put "d:\CPX.loadlib" 'host.target.dataset.name'
```

The first file name is the PC file to be transmitted. You must enclose the PC file name in double quotes if there are spaces in a directory name or in the file name.

The second file name is the receiving file on the host. Enclose the host file in single quotes to suppress the addition of the working directory (userid) as a high level qualifier.



**NOTE** The host file you specify in the PUT command is not a PDS library. Specify an intermediate file name rather than a DSN you intend to use for a Compex PDS library on the host.

Press **Enter**.

- 8** Type a PUT command at the FTP prompt and press **Enter** for each file to be transferred to the host.
- 9** After you transfer all of the Compex files from the PC to the host, type the following command at the FTP prompt to disconnect from the host and end the FTP session:

quit

Press **Enter**.

- 10** Close the DOS/Command Prompt window.
- 11** Log on to the host and verify that the new host files have the proper record format, logical record length, and block size.
- 12** Proceed to "[Expand Host Target Files](#)" on [page 81](#) to receive the files on the host.

## File Transfer Using 3270 Emulator

Popular 3270 emulator programs include Extra!® from Attachmate Corporation and Personal Communications from IBM. These programs commonly use IND\$FILE to transfer files between a PC and a host.

**Execute these steps if you use 3270 emulator software on your PC to transfer Comparex files to the host.**

- 1 In the File Transfer facility of your PC host emulator software, change the TSO binary transfer type to use these settings, or define a new TSO Binary transfer type:

| Setting              | Value         |
|----------------------|---------------|
| VM / TSO / CICS      | TSO           |
| Transfer Type        | Binary        |
| ASCII                | NO            |
| CRLF                 | NO            |
| APPEND               | NO            |
| Record Format        | Fixed (block) |
| Record Length        | 80            |
| Block Size           | 3120          |
| Allocation Units     | Cylinders     |
| Primary Allocation   | 5             |
| Secondary Allocation | 5             |

- 2 With the preceding settings, the file transfer software should allocate a sequential target file on the host for each file transfer. However, if you want to preallocate one or more host target files, use these file allocation parameters:

```
SPACE=(CYL,(5,5),
DCB=(DSORG=PS,RECEM=FB,LRECL=80,BLKSIZE=3120)
```

- 3 Run the file transfer function to transfer each Comparex file on the PC to a target sequential disk data set on the host.



**NOTE** The host file you specify in the transfer facility is not a PDS library. Specify an intermediate file name rather than the DSN you intend to use for the Comparex PDS library on the host.

- 4 Log on to the host and verify that the new host files have the proper record format, logical record length, and block size.
- 5 Proceed to ["Expand Host Target Files" on page 81](#) to receive the files on the host.



## Expand Host Target Files

**Execute these steps to expand the sequential XMIT files transferred from your PC into Comparex PDS libraries.**

- 1 Choose Option **6** (Command) from the **ISPF/PDF Primary Option Menu**.

- 2 On the **ISPF Command Shell** panel, type the TSO RECEIVE command:

```
RECEIVE INDATASET('host.target.dataset.name')
```

Specify one of the sequential XMIT files that you uploaded from the PC.

- 3 The RECEIVE command prompts you with these messages.

```
INMR901I Dataset USERID.CPX.GOLDCODE.CNTL.FIX from...
INMR906A Enter restore parameters or 'DELETE' or 'END' +
```

Respond by typing a DATASET parameter to specify the data set name you want for the expanded PDS library:

```
DATASET('somnode.loadlib') NEW|OLD
```



**NOTE** Serena recommends that you define the last two nodes in your PDS library names the same as the first two nodes of the original files on the distribution CD.

- 4 The RECEIVE command displays IEBCOPY SYSOUT messages.



**NOTE** If you need more information about using the RECEIVE receive command, type the following on the Command line:

```
TSO HELP RECEIVE
```

- 5 Complete the installation by going to "[Completing the Install](#)," in [Chapter 2, "Installing Comparex on z/OS"](#).



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