ibi™ FOCUS®

z/OS Installation

Version 9.3.2 | November 2024

Contents

Introduction to ibi™ FOCUS®

The ibi™ FOCUS® distribution library structure has been modeled after the ibi™ WebFOCUS® distribution library structure. However, the z/OS aliasing capability has been used to provide compatibility with the standard allocations from prior FOCUS® releases.

Overview of ibi FOCUS

Starting with Version 7.7, the FOCUS library structure has been modeled after the ibi™ WebFOCUS® paradigm, so that a small number of libraries are being distributed. We recognize that the Mainframe FOCUS customer has a need to maintain continuity in the procedures used to run FOCUS. In order to ensure compatibility with the JCL (batch) and CLIST (TSO) procedures from prior FOCUS releases, FOCUS has implemented a new construct of physical and logical libraries. While the physical libraries have new names and functions, the logical libraries have the same names as the traditional FOCUS libraries so that the FOCUS startup procedures will be familiar to FOCUS users.

Because of the new construct that maps the logical (traditional) library names to the physical libraries actually distributed, it is no longer possible to run your own JCL procedures to install FOCUS. **You must use the ISETUP procedure distributed with your current release of FOCUS in order to do the installation.**

Note: Information about the new distribution library structure is being provided for the benefit of the FOCUS installer. End users should be able to interact with FOCUS using the traditional library names and have no need to know about the new structure.

This version of FOCUS is a fully 64-bit application. In concert with IBM, files are now delivered and must be run in Partitioned Data Set Extended (PDSE) LIBRARY format. Concatenation of these distributed libraries with existing 32-bit or PDS resources will have to be managed carefully. You also have the option to copy existing PDS data sets to PDSE data sets.

Starting in FOCUS Version 7.6, the HLI module was removed and replaced by HLIH.

This version of FOCUS is an LE application. If an existing HLI program is not LE compliant, it must be made so. There is a new stub to be used for linking 31-bit code to 64-bit FOCUS (ZOS31STB). This stub must be linked to a customer code.

ibi FOCUS Allocations

The FOCUS DASD footprint consists of three types of libraries, two of which are physical and one of which is logical:

- The physical distribution libraries that are used to run FOCUS have names of the form **install_hlq**.HOME.**type**.
- The physical configuration libraries used to install and configure FOCUS have names of the type **install_hlq**.CONF.**type**.
- The logical libraries have the traditional FOCUS library names. These logical libraries use the z/OS aliasing capability to point to the correct physical libraries.

HOME Libraries

The following table describes the physical FOCUS HOME libraries:

Name	Description	Contents
install_hlq.HOME.ACX	Access File library.	Dependent on configuration options.
install_hlq.HOME.BIN	Contains files distributed in binary format.	For example, PFB files for fonts.
install_hlq .HOME.DATA	Installation library.	Contains the ISETUP installation utility and control files.
install_hlq.HOME.ERR	Error message library.	Contains contents of ERRNLS.DATA, ERRORS.DATA, and sample Maintain procedures.

Name	Description	Contents
install_hlq.HOME.ETC	General sample files and utilities.	Contains contents of FUSELIB.DATA.
install_hlq.HOME.FEX	Sample FOCEXEC library.	Contains distributed sample FOCUS procedures.
install_hlq .HOME.LOAD	Library containing FOCUS and adapter load modules.	For example, the modules previously found in FOCLIB.LOAD, FUSELIB.LOAD, FOCSQL.LOAD, and other adapter load libraries.
install_hlq.HOME.MAS	Sample MASTER library.	Contains distributed sample FOCUS Master File.

CONF Libraries

The following table describes the physical FOCUS CONF libraries:

Name	Description	Contents
install_hlq.CONF.ACX	Access File library.	Depends on configuration options.
install_hlq.CONF.CFG	Configuration files for the FOCUS environment.	
install_hlq.CONF.DATA	Sample control files.	For example, FOCUSC, which is a CLIST built by ISETUP based on your installation naming conventions.
install_hlq.CONF.MAS	Master File library.	Depends on configuration

Name	Description	Contents
		options.
install_hlq.CONF.PRF	Profile library.	Contains the sample file EDASPROF.

Alias Libraries

The aliases map the library names used in FOCUS 7.6 and prior releases to the current FOCUS libraries.

The alias libraries are essential to the FOCUS runtime environment. Deleting an alias can cause failures when accessing FOCUS runtime libraries, and the messages generated may be misleading.

The following table lists the aliases created by the installation process and the name of the corresponding physical library:

Alias	Description	Physical Library
ADABAS.DATA	Adapter for Adabas maintenance library.	HOME.DATA
ADABAS.LOAD	Adapter for Adabas load modules.	HOME.LOAD
DATACOM.DATA	Adapter for CA-DATACOM maintenance library.	HOME.DATA
DATACOM.LOAD	Adapter for CA-DATACOM load modules.	HOME.LOAD
ERRNLS.DATA	Text of FOCUS error messages.	HOME.ERR
ERRORS.DATA	Text of FOCUS error messages.	CONF.CFG

Alias	Description	Physical Library
FMU.DATA	Compiled FOCUS Window files.	N/A
FOCCTL.DATA	FOCUS maintenance library.	HOME.DATA
FOCDBC.DATA	Adapter for Teradata maintenance library.	HOME.DATA
FOCDBC.LOAD	Adapter for Teradata load modules.	HOME.LOAD
FOCEXEC.DATA	Sample FOCUS procedures.	HOME.FEX
FOCLIB.LOAD	FOCUS and Adapter load modules.	HOME.LOAD
FOCM204.DATA	Adapter for Model 204 maintenance library.	HOME.DATA
FOCM204.LOAD	Adapter for Model 204 load modules.	HOME.LOAD
FOCSQL.DATA	Adapters for Db2 and Oracle maintenance library.	HOME.DATA
FOCSQL.LOAD	Adapters for Db2 and Oracle load modules.	HOME.LOAD
FOCSTYLE.DATA	Sample StyleSheet files.	HOME.ETC
FUSELIB.DATA	FUSELIB maintenance library.	HOME.ETC
FUSELIB.LOAD	Load a library of user-written routines.	HOME.LOAD
GIF.DATA	Sample gif images.	HOME.BIN
HTML.DATA	Sample HTML files.	HOME.ETC

Alias	Description	Physical Library
IDMS.DATA	Adapter for CA-IDMS maintenance library.	HOME.DATA
IDMS.LOAD	Adapter for CA-IDMS load modules.	HOME.LOAD
IMS.DATA	Adapter for IMS maintenance library.	HOME.DATA
IMS.LOAD	Adapter for IMS load modules.	HOME.LOAD
MASTER.DATA	Sample file descriptions.	HOME.MAS
MODEL.DATA		HOME.BIN
TRF.DATA	Distributed FOCUS Window files.	HOME.ETC

Editing Library Members

While the aliasing methodology enables your JCL and CLIST procedures to use the standard library naming conventions from prior FOCUS releases, these logical names point to the physical data sets.

Therefore, when you edit a member in a library, the data set in which the member actually resides will have a name of the form **install_hlq**.HOME.**type** or **install_hlq**.CONF.**type**, as described in ibi FOCUS Allocations. The physical data set name is displayed at the top of the screen when you edit a member using ISPF or IEDIT.

The following screen shows a listing of FOCUS alias libraries, generated in ISPF by displaying all data sets found under the FOCUS production high-level qualifier **install_hlq**. Note that the user wants to edit the FOCEXEC.DATA library:

```
  Menu  Options  View  Utilities  Compilers  Help

------------------------------------------------------------------------
DSLIST - Data Sets Matching install_hlq.*              Row 1 of 43
Command ===>                                        Scroll ===> PAGE
```

```
Command - Enter "/" to select action         Message       Volume
------------------------------------------------------------------------------
         install_hlq.ADABAS.DATA                                *ALIAS
         install_hlq.ADABAS.LOAD                                *ALIAS
         install_hlq.DATACOM.DATA                               *ALIAS
         install_hlq.DATACOM.LOAD                               *ALIAS
         install_hlq.ERRNLS.DATA                                *ALIAS
         install_hlq.ERRORS.DATA                                *ALIAS
         install_hlq.FOCCTL.DATA                                *ALIAS
         install_hlq.FOCDBC.DATA                                *ALIAS
         install_hlq.FOCDBC.LOAD                                *ALIAS
  E      install_hlq.FOCEXEC.DATA                               *ALIAS
         install_hlq.FOCLIB.LOAD                                *ALIAS
         install_hlq.FOCM204.DATA                               *ALIAS
         install_hlq.FOCM204.LOAD                               *ALIAS
         install_hlq.FOCSQL.DATA                                *ALIAS
         install_hlq.FOCSQL.LOAD                                *ALIAS
         install_hlq.FOCSTYLE.DATA                              *ALIAS
```

The physical library, named **install_hlq**.HOME.FEX, opens for editing. The user can now select a member to edit:

```
  Menu  Functions  Confirm  Utilities  Help

------------------------------------------------------------------------------
__
EDIT              install_hlq.HOME.FEX          Row 00001 of 00928
Command ===>                                            Scroll ===> PAGE
           Name     Prompt       Size   Created    Changed          ID
_________ ADDSCR

_________ ADUACC

_________ ADUBTQ

_________ ADUBTQIN

_________ ADUB41IN

_________ ADUCLR

_________ ADUCOMPL

_________ ADUERR
```

```
_________ ADUGLOB

_________ ADUINST

_________ ADULOAD

_________ ADUMAIN

_________ ADUMAS

_________ ADUMOVE

_________ ADUOPT

_________ ADUPAR

_________ ADUPRO

_________ ADUREL

_________ ADUSEC
```

FAQ About ibi FOCUS

This section contains Frequently Asked Questions about the current FOCUS structure and environment.

Can I use my own JCL or any JCL from prior versions of FOCUS to install the current version of FOCUS?

No, using your own JCL of any kind is not supported for installing FOCUS. You must use the ISETUP procedure supplied with the version of FOCUS you are installing.

Do I have to modify the JCL and CLISTs of my users to point to the HOME.* and CONF.* libraries?

No. If your production library naming convention utilizes a non-release name, such as FOCUS.PROD.FOCLIB.LOAD, then there is no need to change end-user JCL or CLISTs. If your production library naming convention utilizes a release number, such as FOCUS.PROD*nnnn*.FOCLIB.LOAD, then you should make an appropriate change to a middle-qualifier, but no change would have to be done for the FOCUS library suffix.

Do I have to install FOCUS into PDSE libraries?

Yes, FOCUS is now distributed in extended format. If you wish to convert the MASTER, FOCEXEC, and other libraries to PDS format, you can. However, all future versions of FOCUS will be delivered as PDSEs, so you may want to consider converting applications to PDSE. Also, if you want to concatenate your own data sets with the distributed libraries, you will need to be careful about the order of concatenation if you do not convert your data sets to PDSEs.

Can I delete any of the alias libraries generated by the ISETUP utility?

While it may be possible to delete an alias you are absolutely sure that no one at your site will ever use, there is no advantage to doing so, as the alias does not use DASD resources. The benefits of leaving the aliases in place far outweigh the risk of deleting an alias someone may need to use. For example, if you delete an alias, but the end-of-quarter or end-of-year processes require that alias library, these jobs will fail.

How do I recreate a deleted alias library?

ISETUP uses the standard z/OS alias creation methodology to create the aliases for your site. As part of the installation process, ISETUP creates JCL for recreating all of the aliases created during the installation. This JCL can be found in the member named ALIAS in the **install_hlq**.CONF.DATA library. Comment out all of the DEFINE statements for the aliases that were not deleted and then run this job to recreate the aliases that were deleted.

The following is a portion of the ALIAS job showing three DEFINE statements:

```
//JOB card goes here
//*
//*
//* ************************************************************
//*    This jcl is provided to re-create missing dataset alias
//* ************************************************************
//ALIAS    EXEC PGM=IKJEFT01
//SYSTSPRT DD SYSOUT=*
//SYSTSIN  DD *
 DEF ALIAS(NAME('install_hlq.ADABAS.DATA') -
    RELATE('install_hlq.HOME.DATA'))
 DEF ALIAS(NAME('install_hlq.ADABAS.LOAD') -
     RELATE('install_hlq.HOME.LOAD'))
 DEF ALIAS(NAME('install_hlq.DATACOM.DATA') -
    RELATE('install_hlq.HOME.DATA'))
```

Installing the Base Files By Using the .Run File

ibi™ FOCUS® is installed by going to the eDelivery site, downloading the specific `.run` file to a USS directory, and then using the `sh` command to execute the .run file.

> **Note:** The installation process involves using the `.run` file. However, there are additional files available for reference.

By selecting your product, version, and operating system, and accepting the EULA agreement, you may select to download the full product or individual files. If you choose individual files, you must then open the FOCUS® Software folder, select an `IBI_focus_*_mvs_zseries.run` file, where * indicates the release number, and start the download. The `IBI_focus_*_mvs_zseries.run` file is a self-extracting `.run` archive format file.

Once the desired `.run` file is downloaded and transferred to the actual machine where the installation will occur and into a temporary USS working directory, execute the `.run` file.

More specifically, change directory (cd) to the temporary directory and issue the following command, where the actual `.run` file name is the full file name that was downloaded.

```
sh IBI_focus_*_mvs_zseries.run
```

During the execution of the `.run` file, you will be required to supply a high-level-qualifier (HLQ) string using a command line parameter or in response to a prompt. The default HLQ is the running user-id. Execution of the `.run` file will test whether existing libraries will be overwritten, and if so, it will prompt whether to proceed or quit. Successful execution of the `.run` file will create eight PDSE libraries starting with *hlq*.F.HOME.

The extracted files will be included in a temporary subdirectory of the current directory. After successful execution of the `.run` file, you need to run ISETUP from the *hlq*.HOME.DATA library in zOS. You must use the ISETUP procedure in order to install or apply maintenance to FOCUS.

Procedure

1. Change directory (cd) to the temporary USS directory where the installation will occur.
2. Issue the following command, where the actual `.run` file name is the full file name that was downloaded. For example:

   ```
   sh IBI_focus_*_mvs_zseries.run
   ```

   The following prompt appears:

   ```
   Enter datasets HLQ prefix:
   ```

3. Type your HLQ, for example:

   ```
   PMSSAE.MVS1.DF9999
   ```

   - If the datasets already exist, you will receive the following messages, along with a prompt asking whether you want to proceed:

     ```
     Installation datasets prefixed with PMSSAE.MVS1.DF9999 already
     exist.
     They will be deleted and re-created.
     Do you want to proceed (Y/N)?
     ```

     If you type *Y* to proceed, you will receive the following messages that all the temporary datasets are allocated and restored successfully:

     ```
     ALL TEMPORARY DATASETS ARE ALLOCATED SUCCESSFULLY ->
     PROCESSING
     ALL DATASETS ARE RESTORED SUCCESSFULLY
     ```

   - If the datasets do not already exist, the datasets will be allocated and you will receive a message that the datasets were allocated successfully.

Result

Sample Output With Responses

```
Creating directory pds_sf

Verifying archive integrity... 100%  SHA256 checksums are OK. 100% MD5
checksums are OK.
```

```
All good.

Uncompressing FOCUS libraries 100%

Enter HLQ prefix for temporary installation datasets: PGMTST1.FSTDL
All temporary datasets are allocated successfully

Populating PGMTST1.FSTDL datasets.

Processing... 100.00% Elapsed time: 00:33:58

ALL DATASETS ARE RESTORED SUCCESSFULLY
To complete the installation, log on to TSO.
From ISPF 6 run this command:

EX 'PGMTST1.FSTDL.F.HOME.DATA(ISETUP)'

Total disk space allocated for restored datasets is 42239 tracks (on
disk device type 3390)
```

After extraction, proceed with the instructions in Introduction to ISETUP.

Installing ibi FOCUS With ISETUP

FOCUS includes an automated installation and maintenance procedure named ISETUP. You must use this procedure in order to install or apply maintenance to FOCUS.

The ISETUP procedure simplifies the update process by:

- Requiring less interaction.
- Automating most of the procedure.
- Providing a log of all the activity that takes place, to allow for verification.

Introduction to ISETUP

FOCUS includes an automated installation and maintenance procedure named ISETUP. You must use this procedure in order to install or apply maintenance to FOCUS.

There are aspects of the installation process that are not handled by ISETUP. These are detailed in this document and still require manual intervention.

ISETUP asks you for the high-level qualifier for your FOCUS data sets. Based on this qualifier and a list of all of the standard data set names (low level qualifiers), ISETUP installs all the necessary FOCUS libraries. The list of low level qualifiers ISETUP uses is in member FOCSNAME in the F.HOME.DATA data set. If you do not want to use the standard data set names, see Specifying Non-Standard Data Set Names.

About the ISETUP Procedure

The ISETUP procedure is an interactive process that uses ISPF panels.

> **Important:** You must use the version of ISETUP that comes with your FOCUS release to install FOCUS.

Installing without the use of ISETUP is no longer supported. Additionally, you cannot use previous versions of your installation JCL to install FOCUS.

You must execute ISETUP from the ISPF command shell.

You should not use ISETUP to overwrite your current production FOCUS data sets with new versions.

> **Note:** After running ISETUP, you will have to install the new FOCUS License key in order to verify your installation. For more information on requesting and installing your FOCUS license key, see ibi FOCUS License Keys.

Overview of the ISETUP Procedure

This topic provides a high-level overview of the installation procedure and the steps that may be needed after running the installation procedure.

Overview of the Electronic Download Process

The following is a high level summary of how to receive the FOCUS release or maintenance electronically:

1. Install the base files by following the steps in the Installing the Base Files By Using the .Run File section.
2. Execute the ISETUP procedure from the ISPF command shell.
   a. Fill in the information requested on the screens displayed by ISETUP.
   b. Submit the JCL created by ISETUP when ready to proceed.

      > **Note:** The FOCUS installation batch job created by ISETUP should take approximately 15 to 30 minutes of run time to complete.

   c. Verify that the ISETUP job was successful by examining the completion codes for each step.

   When this is complete, you have a basic test environment with the FOCUS installation or maintenance applied which is ready to be tested using the verification standards of your site.

3. After successful testing of the FOCUS release or maintenance, move the test environment to production according to the standards of your site.

Overview of Manual Steps Following ISETUP

The following features are not installed by ISETUP. For these features, you must follow the instructions in the FOCUS Installation Guide for your current production version of FOCUS:

- The number of cache pages.
- FOCPARM member of the ERRNLS.DATA data set.
- FOCPROF member of the ERRNLS.DATA data set.
- IBITABLA member of the FOCCTL.DATA data set.
- The FOCUS Menu.
- The FOCUS Toolkit.
- Simultaneous Usage facility (SU).
- User Exits.
- IBI Subsystem (the subsystem name, however, is preserved).
- CA-ACF2 Interface.
- SU Security Interface (SUSI).
- NLS configuration.
- Maximum number of data exceptions.
- Data Adapters (Interfaces, for example, Db2 or ADABAS).

> **Important:** All data adapter files are included and allocated in FOCUS once you run ISETUP. However, using the instructions in the relevant Installation Guides for those data adapters, you must reinstall every data adapter to which you want to have access in the installed version of FOCUS.

If you run FOCUS out of LPA libraries, you must do the following:

1. Copy all the reentrant modules back into FOCLIB.LOAD from FOCLPA.LOAD. (Use JOB

JFSCPBCK.)

2. Run ISETUP.
3. Copy the reentrant modules from FOCLIB.LOAD back into FOCLPA.LOAD. (Repeat JOB JFSCPLPA.)
4. Delete the reentrant modules FROM FOCLIB.LOAD. (Repeat JOB JFSDELPA.)

Invoke ISETUP to Install ibi FOCUS With the Disk Option

Invoke ISETUP by executing the CLIST contained in member ISETUP of the *installed_hlq*.F.HOME.DATA data set, where *installed_hlq* is the high-level qualifier for the previously unloaded or downloaded version of HOME.DATA.

Note: You must use the version of ISETUP that you downloaded or unloaded with the FOCUS data sets from which you are creating the new instance. You cannot use an older version of ISETUP.

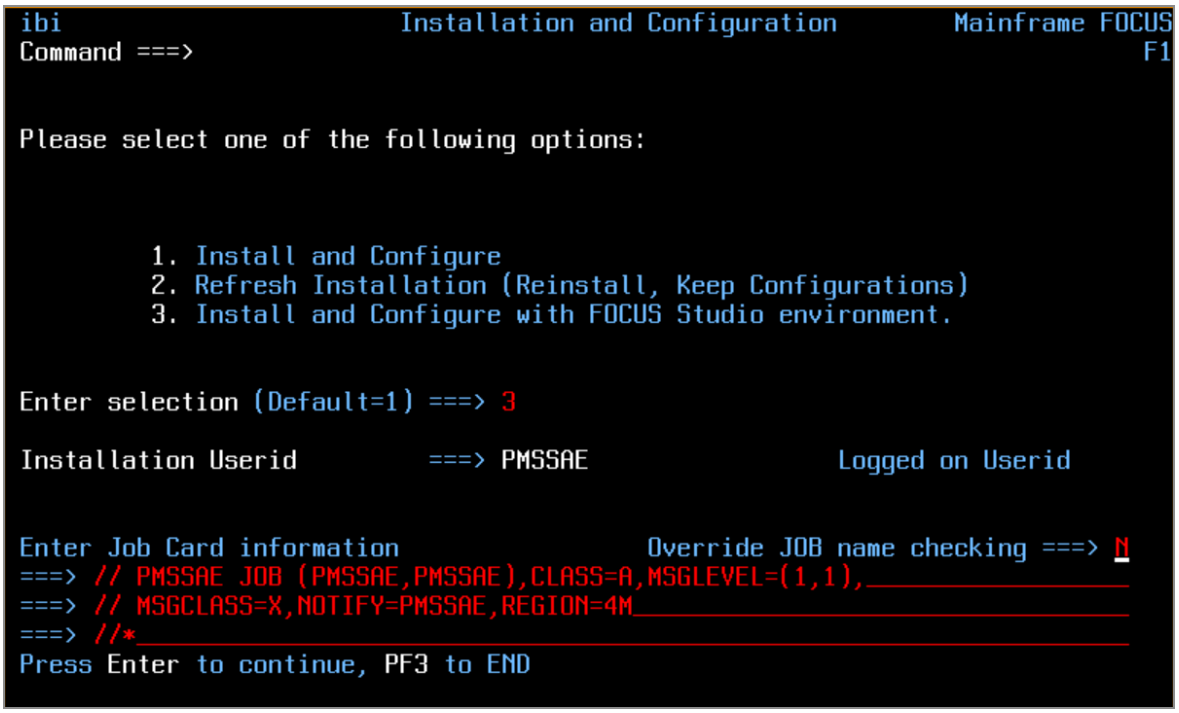
Procedure

1. You must execute this CLIST from the ISPF command shell (option 6):

   ```
   EXEC 'installed_hlq.F.HOME.DATA(ISETUP)'
   ```

   The FOCUS Installation and Configuration panel opens.

2. Choose Option **3** to install and configure FOCUS with FOCUS Studio, as shown in the following image.



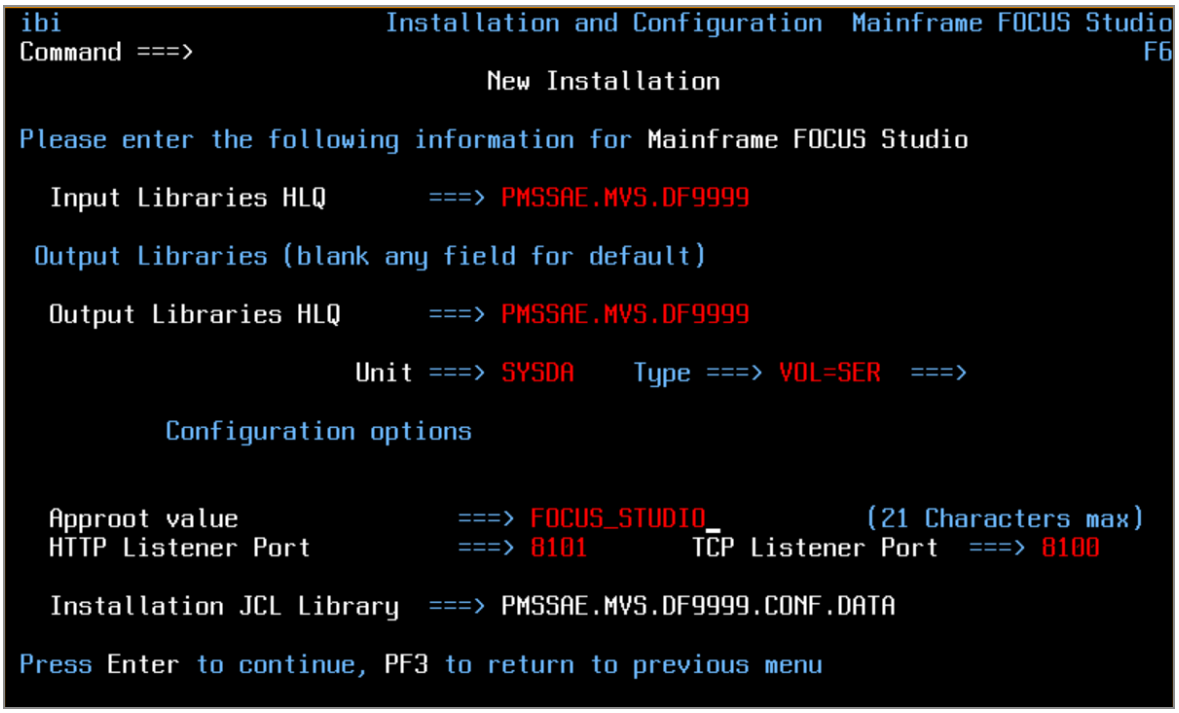
The job card information will be filled in with the options used in your previous installation, and the **Installation Userid** field will contain your logon ID.

> **Note:** Your JOB card must have a REGION parameter that specifies at least 4M. If you get a message that the region size is not large enough to run ISETUP, change the REGION parameter to specify 0M and rerun ISETUP.

3. Press **Enter** to register this choice.
4. Press **Enter** again to proceed to the next panel.

   The New Installation FOCUS Library Definitions panel opens, as shown in the following image.

   The input and output libraries will be the values used in your previous installation.



5. Tab to the input fields and type the high-level qualifier for the output libraries that will be created by ISETUP.

   You can change the following input fields:

   - **Input Libraries HLQ.** Type the high-level qualifier of the installed FOCUS libraries.
   - **Output Libraries HLQ.** Type the high-level qualifier for the additional set of FOCUS libraries.

     > **Note:** You must make sure that the combination of your high-level qualifier and the FOCUS library names is less than or equal to 44 characters, the maximum name length supported on z/OS.

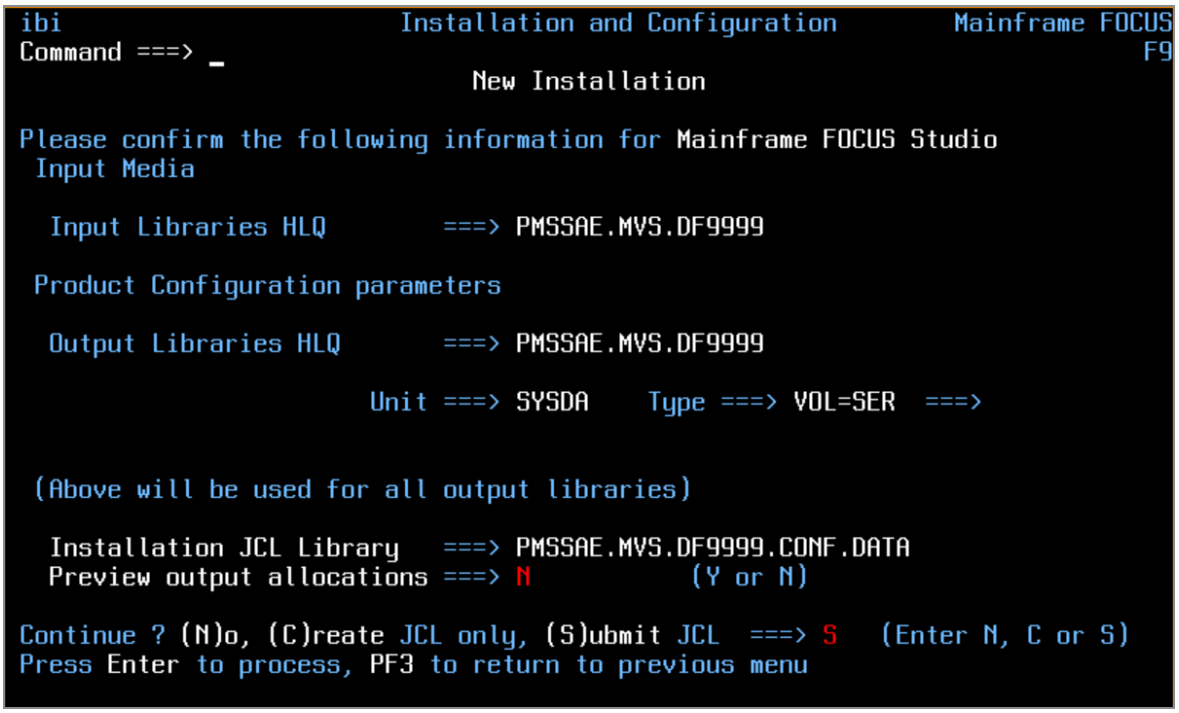
   - **Unit.** By default, the **Unit** value is **SYSDA**. SYSDA is defined by your systems programming group to be a type of DASD device. FOCUS must be installed into PDSE libraries on a 3390 device type. If the SYSDA definition at your site does not comply with these requirements, change the **Unit** value to an appropriate DASD subpool name that defines a 3390 PDSE library.

- **Volume.** This is an optional input value that can be used to place the new FOCUS libraries on a specific volume.

When you are finished, press **Enter**.

Press **Enter** again to proceed to the next panel.

The New Installation FOCUS Library Confirmation panel opens, as shown in the following image.



6. Confirm the options that you entered on the previous panels.

   You can see what the installation process will allocate on your behalf by changing the **Preview output allocations** field from **N** to **Y** and pressing **Enter**.

   If you changed **Preview output allocations** to **Y**, the preview panels will display before ISETUP creates the installation JCL. While you examine the Preview panels, if you see one or more values you want to correct, press **PF3** as many times as necessary to return to the panel that you want to modify.

   There may be several preview panels. You can navigate between them using the following keys:

   - To continue to the next preview panel, press **PF8**.

- To return to the previous preview panel, press **PF7**.
- To exit the preview panels and return to the **Confirmation** panel, press **Enter** or **PF3**.

After you return from the preview panels to the **Confirmation** panel, the **Preview output allocations** field is reset to **N**.

7. When you have verified your choices on the Confirmation panel, you must choose a continuation option:
   - The default option is **N**, which cancels the process and returns to the FOCUS Library Installation panel.
   - Option **C** creates the installation JCL and saves it to member ISETUPJ1 in the NEW_HLQ.CONF.DATA data set. You can review, edit, update, or submit it manually without reinvoking ISETUP:

     ```
     ISETUP - Allocating file 'NEW_HLQ.CONF.DATA'
     ISETUP - Creating installation options file ISOPTS1
     ISETUP - Creating main JCL ISETUPJ1
     ISETUP - JCL created in NEW_HLQ.CONF.DATA but not submitted
     ISETUP - You can manually submit the following JCL to complete
     install
     ISETUP - NEW_HLQ.CONF.DATA(ISETUPJ1)
     ***
     ```

   - Option **S** creates the installation JCL, saves it to member ISETUPJ1 in the NEW_HLQ.CONF.DATA data set, and submits the job directly to the system for processing:

     ```
     ISETUP - Deleting file  'NEW_HLQ.CONF.DATA'
     IDC0550I ENTRY (A) NEW_HLQ.CONF.DATA DELETED
     ISETUP - Allocating file 'NEW_HLQ.CONF.DATA'
     ISETUP - Creating installation options file ISOPTS1
     ISETUP - Creating main JCL ISETUPJ1
     ISETUP - Submitting JCL, use SDSF (or site standard) to monitor
     job
     IKJ56250I JOB USERID1I(JOB28173) SUBMITTED
     ***
     ```

   To register your choice, press **Enter**.

   To execute the option you chose, press **Enter** again.

Note: The libraries allocated to STEPLIB in FRUNJCL must be APF-authorized. All adapter/external load libraries should be allocated to the TASKLIB DDNAME.

ISETUP Processing Flow

The installation job should complete with 0 return codes for all steps, and 39 additional libraries will have been created under the high-level qualifier you entered on the ISETUP screen (for a total of 40 libraries).

There will be 26 logical alias libraries:

```
SYSADMIN1.ADABAS.DATA                                   *ALIAS
SYSADMIN1.ADABAS.LOAD                                   *ALIAS
SYSADMIN1.DATACOM.DATA                                  *ALIAS
SYSADMIN1.DATACOM.LOAD                                  *ALIAS
SYSADMIN1.ERRNLS.DATA                                   *ALIAS
SYSADMIN1.ERRORS.DATA                                   *ALIAS
SYSADMIN1.FOCCTL.DATA                                   *ALIAS
SYSADMIN1.FOCDBC.DATA                                   *ALIAS
SYSADMIN1.FOCDBC.LOAD                                   *ALIAS
SYSADMIN1.FOCEXEC.DATA                                  *ALIAS
SYSADMIN1.FOCLIB.LOAD                                   *ALIAS
SYSADMIN1.FOCM204.DATA                                  *ALIAS
SYSADMIN1.FOCM204.LOAD                                  *ALIAS
SYSADMIN1.FOCSTYLE.DATA                                 *ALIAS
SYSADMIN1.FOCSQL.DATA                                   *ALIAS
SYSADMIN1.FOCSQL.LOAD                                   *ALIAS
SYSADMIN1.FUSELIB.DATA                                  *ALIAS
SYSADMIN1.FUSELIB.LOAD                                  *ALIAS
SYSADMIN1.IDMS.DATA                                     *ALIAS
SYSADMIN1.IDMS.LOAD                                     *ALIAS
SYSADMIN1.IMS.DATA                                      *ALIAS
SYSADMIN1.IMS.LOAD                                      *ALIAS
SYSADMIN1.MASTER.DATA                                   *ALIAS
SYSADMIN1.MODEL.DATA                                    *ALIAS
SYSADMIN1.TRF.DATA                                      *ALIAS
SYSADMIN1.WINFORMS.DATA                                 *ALIAS
```

There will be eight physical HOME libraries

```
SYSADMIN1.F.HOME.BIN                                    USERM1
SYSADMIN1.F.HOME.FEX                                    USERM1
SYSADMIN1.F.HOME.ACX                                    USERM1
SYSADMIN1.F.HOME.LOAD                                   USERM1
SYSADMIN1.F.HOME.ERR                                    USERM1
SYSADMIN1.F.HOME.ETC                                    USERM1
SYSADMIN1.F.HOME.DATA                                   USERM1
SYSADMIN1.F.HOME.MAS                                    USERM1
```

There will be six physical CONF libraries:

```
SYSADMIN1.CONF.ACX                                      USERM1
SYSADMIN1.CONF.CFG                                      USERM1
SYSADMIN1.CONF.DATA                                     USERM1
SYSADMIN1.CONF.SQL                                      USERM1
SYSADMIN1.CONF.MAS                                      USERM1
SYSADMIN1.CONF.PRF                                      USERM1
```

To run the newly installed release of FOCUS, you can use your CLIST or JCL from a prior release of FOCUS by changing the high-level qualifier to the one you just installed. You *do not* have to modify the CLIST or JCL to allocate any CONF or HOME libraries. This is the reason the alias libraries were created.

Note: There is a sample CLIST (member FOCUSC), JCL (member FOCUS), and alias creation job (member ALIAS) in the CONF.DATA library.

ibi FOCUS License Keys

As of January 1st, 2023, the FOCUS licensing process and keys for FOCUS licenses have changed.

As a result of these changes, you need a new FOCUS license key if you are:

- Renewing your contract.
- Upgrading your FOCUS release.
- Upgrading or changing your hardware.
- Changing your CPU serial number.

- Requesting a disaster recovery key.

To request a new license key, open a Customer Support case and supply the following information:

- Output from the "? CPUID" command issued from the FOCUS command line of your current version of FOCUS.
- Output from the "D M=CPU" system command.
- Output from the "? REL" command.
- Expiration date of your current or renewed contract.

Once we receive all the necessary information, we can provide a new license key.

If you are using FOCUS...	You will...
Release 7.7.03M through Release 9.1.1	Receive a standardized IBICPUID load module, which you will add to your FOCLIB.LOAD library. Note that a new site code may be provided. This module will be zapped with your new CPUPLATE. (Note that we will provide JCL to zap the new site code, if required.) You will also receive a PTF that must be run. The PTF contains JCL and object code to call the IBICPUID module.
Releases prior to Release 7.6.13	Receive a standardized IBICPUID load module, which you will use to replace your existing module. Note that a new site code may be provided. This module will be zapped with your new CPUPLATE. (Note that we will provide JCL to zap the new site code, if required.)

Note: Information on the new ibi™ FOCUS® License Management facility and installation instructions for installing the CPUPLATE are included in *New ibi™ FOCUS® License Management for z/OS Sites*.

New ibi FOCUS License Management for z/OS Sites

ibi FOCUS has a new license management facility, which is a mechanism that registers your copy of FOCUS.

This facility checks that your site:

- Has registered the FOCUS software.
- Does not exceed its current expiration date.
- Is running on the registered hardware.

If any of these is not true, or the registration has not been done, an appropriate warning or violation message is displayed each time a user enters FOCUS, and FOCUS will not start.

This new FOCUS License Management facility requires a new version of the IBICPUID load module that is a member of FOCLIB.LOAD. The first time that you request a new key, this new module will be zapped with your information and shipped to you. You will only need to replace the existing IBICPUID module or add the IBICPUID module to FOCLIB.LOAD.

If you need a new CPUPLATE for any reason, you will be required to submit the information indicated below and a new IBICPUID module will be created and sent to you.

New License Overview

The new license management facility is a processor, expiration date, and site code registration facility.

- **Processor registration.** The instructions for installing the CPUPLATE are contained in this document. ibi takes the required information and generates an encrypted registration ID called a CPUPLATE.
    - If your processor has not been registered, a warning message is displayed at FOCUS initialization and FOCUS will not start up.
    - If your copy of FOCUS is registered and then run on a processor other than the one on which FOCUS was registered, or has exceeded the registered expiration date, or if any error occurred during processor registration, a violation message is displayed and FOCUS will not start up.

- You will need to contact ibi Customer Support and request a new CPUPLATE.

In order to generate a CPU registration ID, ibi needs the following information:

- Output from the "? CPUID" command issued from the FOCUS command line of your current release of FOCUS.
- Output from the "D M=CPU" system command.
- Output from the "? REL" command.
- Expiration date of your current or renewed contract.

- **Site code registration.** The instructions for installing the site code are documented in the OS/390 and MVS Installation Guide. We will be using your existing ibi site code, if possible. If required, we will send JCL to zap your site code.

Obtain the Required CPU information

Procedure

1. To obtain the CPU ID, issue the following command from the FOCUS command prompt:

```
? CPUID
```

This command displays the following information.

```
OBSERVED CPU:
   *** Processor mmmm Model nnnn-vv Max pp Site ssss.ss
       LICENSED CPU(S)
   *** NONE
```

where:

mmmm

Is the Processor ID.

nnnn

Is the model number.

vv

Is the version number.

pp

Is the number of processors on the system.

ssss.ss

Is the site code.

2. You also need to capture the information from the operator console when issuing the following z/OS operator command:

```
D M=CPU
```

This command displays the following information.

```
IEE174I 12.16.10 DISPLAY M 218
```

```
PROCESSOR STATUS
```

```
ID   CPU          SERIAL
```

```
1     +           1115379121
```

```
2     +           2115379121
```

```
3     +           3115379121
```

```
4     +           4115379121
```

3. To run ? REL:
   - Start FOCUS.
   - From the FOCUS command prompt, issue the following command:

```
? REL
```

4. Issue the appropriate commands to obtain the required CPU information.
5. Open a Support Case with Customer Support.
6. Provide the CPU information for all CPUs to the Customer Support Consultant. They will provide you with the CPUPLATE ID for each CPU.

Installation Instructions for Release 7.6.13 and Earlier

1. Download the zip file from the Support Case.
2. Expand the files in the zip file to a temporary directory.

   For Release 7.0.8R through Release 7.6.09, you will have the following files:

   - foclib.xmit
   - jcl.xmit

   For Release 7.6.10 through Release 7.6.13, you will have the following files:

   - foclib.xmit
   - jcl.xmit
   - flicense.data
3. On your mainframe, allocate files to receive the files from the zip, as follows:

```
userid.IBIKEYS.LOAD.TEMP
LRECL(80),RECFM(F,B),BLKSIZE(3120),SPACE=(TRK,(5,5))
```

```
userid.IBIKEYS.JCL.TEMP
LRECL(80),RECFM(F,B),BLKSIZE(3120),SPACE=(TRK,(5,5))
```

Note: For FOCUS Release 7.6.10 through Release 7.6.13 only:

```
userid.IBIKEYS.FLICENSE.DATA,DISP=(,CATLG,DELETE),LIKE
focuslibrary.ERRORS.DATA
```

4. Using FTP, transfer the following files to the temporary files you just created, as follows:

```
binary
put jcl.xmit 'userid.IBIKEYS.JCL' (REPLACE
put foclib.xmit 'userid.IBIKEYS.LOAD.TEMP' (REPLACE
```

> **Note:** For FOCUS Release 7.6.10 through Release 7.6.13 only:

```
ascii
put flicense.data 'userid.FLICENSE.DATA(FLICENSE)' (REPLACE
quit
```

5. Using TSO, expand the LOAD.TEMP dataset, as follows:

```
RECEIVE INDSN('userid.IBIKEYS.LOAD.TEMP')
```

Reply to the restore prompt with

```
DSNAME('userid.IBIKEYS.LOAD')
```

6. Using TSO, expand the JCL.TEMP dataset, as follows:

```
RECEIVE INDSN('userid.IBIKEYS.JCL.TEMP')
```

Reply to the restore prompt with

```
DSNAME('userid.JCL.DATA')
```

7. Make a backup of your FOCLIB.LOAD library.
8. Copy and replace the IBICPUID module from '*userid*.IBIKEYS.LOAD' to your FOCLIB.LOAD library.
9. Edit '*userid*.IBIKEYS.JCL' by adding a job card and updating the JCL SET to identify your FOCLIB.LOAD library.

> **Note:** This will update the site code.

10. Submit the JCL. This will apply the new site code.
11. If you are running Release 7.6.10 through Release 7.6.13, replace your current FLICENSE member with the one from the zip file.
12. If you have FOCUS loaded in LPA and/or linklist, you will need to refresh them with this newly zapped module. This is a systems task and should be referred to your systems group.
13. Verify your FOCUS license key installation by running FOCUS and issuing the ? CPUID command in both interactive and batch environments. If FOCUS starts then your installation has been successful. If FOCUS does not start, then the installation has not been successful. Please open a case with Customer Support to review the parameters that have been provided and the process that has been followed.

Installation Instructions for Release 7.7.03 and Higher

1. Download the zip file from the Support Case.
2. Expand the files in the zip file to a temporary directory.

   For Release 7.7.03 and higher, you will have the following files:

   ```
   foclib.xmit
   ```

   ```
   jcl.xmit
   ```

   ```
   flicense.data
   ```

3. On your mainframe, allocate files to receive the files from the zip, as follows:

   ```
   userid.IBIKEYS.LOAD.TEMP
   LRECL(80),RECFM(F,B),BLKSIZE(3120),SPACE=(TRK,(5,5))
   ```

```
userid.IBIKEYS.JCL.TEMP
LRECL(80),RECFM(F,B),BLKSIZE(3120),SPACE=(TRK,(5,5))
```

```
userid.IBIKEYS.FLICENSE.DATA,DISP=(,CATLG,DELETE),LIKE
focuslibrary.ERRORS.DATA
```

4. Using FTP, transfer the following files to the temporary files you just created, as follows:

```
ascii
put flicense.data 'userid.IBIKEYS.FLICENSE.DATA(FLICENSE)'
binary
put foclib.xmit 'userid.IBIKEYS.LOAD.TEMP' (REPLACE
put jcl.xmit 'userid.IBIKEYS.JCL.TEMP' (REPLACE
quit
```

5. Using TSO, expand the LOAD.TEMP dataset, as follows:

```
RECEIVE INDSN('userid.IBIKEYS.LOAD.TEMP')
```

   Reply to the restore prompt with

```
DSNAME('userid.IBIKEYS.LOAD')
```

6. Using TSO, expand the JCL.TEMP dataset, as follows:

```
RECEIVE INDSN('userid.IBIKEYS.JCL.TEMP')
```

   Reply to the restore prompt with

```
DSNAME('userid.JCL.DATA')
```

7. Make a backup of your FOCLIB.LOAD library.
8. Copy or copy and replace the IBICPUID module from '*userid*.IBIKEYS.LOAD' to your FOCLIB.LOAD library.
9. Create the '*userid*.FOCLIB.LOAD.NEW' output library for the relinked module (R1FNS for Release 7.7.03M and Release 7.7.06M, FOCUS for Release 7.7.09M and higher).

10. Edit the JCLPTF member of the 'userid.JCL.DATA' library following the instructions included in the JCL, which include:
    - Add a job card at the top of the JCL.
    - Add values to the three SETs at the top of the JCL:
        - PTFLIB = '*userid*.JCL.DATA'
        - OFOCLIB = '*your_production*.FOCLIB.LOAD'
        - NFOCLIB = '*userid*.FOCLIB.LOAD.NEW'
11. Submit the JCLPTF member.
12. Copy and replace the contents of '*userid*.FOCLIB.LOAD.NEW' to your production FOCUS library.
13. Replace the existing FLICENSE file in your production version of FOCUS with the FLICENSE in *userid*.IBIKEYS.FLICENSE.DATA.
14. If you have FOCUS loaded in LPA and/or linklist, you will need to refresh them with this newly zapped module. This is a systems task and should be referred to your systems group.
15. If you are running FOCUS Release 7.7.09M or higher, and are using FOCUSNA, you need to recreate the FOCUSNA module using the newly zapped FOCUS module you have just created.

    The JCL to create the FOCUSNA module is distributed as member FOCUSNA in the FOCCTL.DATA library:

    a. Copy the FOCUSNA member to your FOCUS production JCL library.
    b. Make a copy of your FOCLIB.LOAD library and name it FOCLIBNA.LOAD.
    c. Make the recommended edits to the FOCUSNA JCL. Instructions for editing the JCL for your site are included as comments in the FOCUSNA member.
    d. Execute the FOCUSNA JCL.
    e. Check the FOCLIBNA.LOAD library for the presence of the new FOCUSNA module and EDASAFNA alias.
    f. Replace your production FOCUSNA with the FOCUSNA module just recreated.

> **Note:** The FOCUSNA module will have an authorization attribute of AC/0, which means that the module was not linked with authorization.

16. Verify your FOCUS license key installation by running FOCUS and issuing the ? CPUID command in both interactive and batch environments. If FOCUS starts, then your installation has been successful. If FOCUS does not start, then the installation has not been successful. Please open a case with Customer Support to review the parameters that have been provided and the process that has been followed.

Previous Licensing Violation Message

If FOCUS is registered and it is run on another processor, the following message display at initialization. This message also displays if there was an error in the License Management Facility installation procedure. FOCUS will not start until it is correctly registered.

```
FOCUSrelease  01/01/2023  13.39.43  27.02
******************************************************
* VIOLATION:
* THIS COPY OF FOCUS IS RUNNING ON AN UNLICENSED CPU.
* PLEASE CONTACT ibi.
* "EX READMEF" FOR COMPLETE DETAILS.
******************************************************
*** Processor mmmm Model nnnn-vv Max pp Site ssss.ss
LICENSED CPU(S):
*** Processor mmmm Model nnnn-vv Max pp > Registration qqqqqqqqq
>
```

where:

mmmm

Is the Processor ID.

nnnn

Is the model number.

vv

Is the version number.

pp

Is the number of processors on the system.

qqqqqqqqqq

Is the encrypted processor ID.

New Licensing Violation Messages

If your site code is not registered, or the registered site code does not match the installation site code, one of the following messages display at the beginning of all FOCUS user sessions.

```
FOCUSrelease  01/01/2023  13.39.43  27.02
*********************************************************
* VIOLATION:
* THE SITE CODE FOR YOUR COMPANY WAS NOT REGISTERED
* PROPERLY DURING THE FOCUS INSTALLATION PROCESS.
* PLEASE CONTACT ibi.
* "EX READMEF" FOR COMPLETE DETAILS.
*********************************************************

********************* TOP OF DATA ************************
FOCUSrelease 02/23/2023  14.19.46  xxxx
*********************************************************
* VIOLATION:
* THIS COPY OF FOCUS IS RUNNING ON AN UNLICENSED CPU.
* PLEASE CONTACT ibi.
* "EX READMEF" FOR COMPLETE DETAILS.
*********************************************************
OBSERVED CPU:

******* CEC:  machine type type  model ID model            capacity 45
******* LPAR: name L1                                       capacity 45

******* VM:   name N/A                                      capacity N/A
******* Processor processorinfo >Site xxxx

Licensed Site     xxxx Expires  mmddyyyy
LICENSE PLATES:
16423513B000EBB3400E0119
2981AA172800
FOCUS TERMINATED
****************************** BOTTOM OF DATA ************
```

Verifying ibi FOCUS Installation

The Installation Verification Procedure (IVP) tests the FOCUS installation by creating the CAR database and running tests of several areas of FOCUS processing against it.

In order to run the IVP, you must have a member named CAR in your allocation for DDNAME MASTER. If you do not have the CAR Master File in a data set allocated to DDNAME MASTER, create the member and copy the following syntax into it prior to running the IVP.

```
FILENAME=CAR,SUFFIX=FOC
SEGNAME=ORIGIN,SEGTYPE=S1
 FIELDNAME=COUNTRY,COUNTRY,A10,FIELDTYPE=I,$
SEGNAME=COMP,SEGTYPE=S1,PARENT=ORIGIN
 FIELDNAME=CAR,CARS,A16,$
SEGNAME=CARREC,SEGTYPE=S1,PARENT=COMP
 FIELDNAME=MODEL,MODEL,A24,$
SEGNAME=BODY,SEGTYPE=S1,PARENT=CARREC
 FIELDNAME=BODYTYPE,TYPE,A12,$
 FIELDNAME=SEATS,SEAT,I3,$
 FIELDNAME=DEALER_COST,DCOST,D7,$
 FIELDNAME=RETAIL_COST,RCOST,D7,$
 FIELDNAME=SALES,UNITS,I6,$
SEGNAME=SPECS,SEGTYPE=U,PARENT=BODY
 FIELDNAME=LENGTH,LEN,D5,$
 FIELDNAME=WIDTH,WIDTH,D5,$
 FIELDNAME=HEIGHT,HEIGHT,D5,$
 FIELDNAME=WEIGHT,WEIGHT,D6,$
 FIELDNAME=WHEELBASE,BASE,D6.1,$
 FIELDNAME=FUEL_CAP,FUEL,D6.1,$
 FIELDNAME=BHP,POWER,D6,$
 FIELDNAME=RPM,RPM,I5,$
 FIELDNAME=MPG,MILES,D6,$
 FIELDNAME=ACCEL,SECONDS,D6,$
SEGNAME=WARANT,SEGTYPE=S1,PARENT=COMP
 FIELDNAME=WARRANTY,WARR,A40,$
SEGNAME=EQUIP,SEGTYPE=S1,PARENT=COMP
 FIELDNAME=STANDARD,EQUIP,A40,$
```

By default, the IVP creates a temporary CAR file that is deleted when you exit the FOCUS session. You can retain the CAR database by allocating DDNAME CAR to a permanent physical sequential file with record length and blocksize 4096. The standard naming convention is to use the high-level qualifier for your FOCUS production data sets and the low-level qualifier CAR.FOCUS. After the CAR database is created, allocate it with the disposition SHR in batch or SHR REUSE in TSO.

You can run FOCUS interactively, using a CLIST, or in batch, using JCL. The following sections describe how to run the IVP in each of these environments.

Verifying ibi FOCUS Installation Interactively

If you are running FOCUS interactively, execute the CLIST that was created by the ISETUP installation procedure as member FOCUSC in the *install_hlq*.CONF.DATA data set.

When the FOCUS prompt (>) displays, enter the following command in uppercase, and Press **Enter**.

```
EX CARTEST
```

The following messages display that show that the CAR Master File is valid and that the CAR database was created. The FOC486 message displays if you did not allocate DDNAME CAR to a permanent file.

```
 TEST THE CAR MASTER FOR ERRORS
FOCUS  7.7.06          CREATED 01/17/2018  SITE.ID     XXX
 NUMBER OF ERRORS=     0
 NUMBER OF SEGMENTS=   7  ( REAL=    7  VIRTUAL=   0 )
 NUMBER OF FIELDS=    20  INDEXES=   1  FILES=     1
 TOTAL LENGTH OF ALL FIELDS=  221
OK CAR MASTER
(FOC486) A NEW FILE WAS DYNAMICALLY ALLOCATED
CREATE THE CAR FILE NUMBER OF SEGMENTS TO BE INPUT =102
 LOADING OF DATA COMPLETE
SIMPLE TABLE ON CAR FILE OVERALL RATIO AT END= 1.21
 PAUSE.. PLEASE ISSUE CARRIAGE RETURN WHEN READY
```

Press **Enter**.

A basic TABLE request is executed next. The following output displays.

```
 PAGE     1



                TEST1 SIMPLE TABLE

            AVE          AVE
```

```
 COUNTRY     RETAIL_COST  DEALER_COST           RATIO
 -------     -----------  -----------           -----
 ENGLAND          11,330        9,463            1.20
 FRANCE            5,610        4,631            1.21
 ITALY            12,766       10,309            1.24
 JAPAN             3,239        2,756            1.18
 W GERMANY         9,247        7,795            1.19

 TOTAL            42,192       34,954            1.21

 BOTTOM OF PAGE









                                  END OF REPORT
```

Press **Enter** to close the report output.

A test that creates a HOLD file and uses the TABLEF command is executed next. The following output displays.

```
TEST OF A HOLD FILE AND A TABLEF REPORT AFTER
NUMBERS SHOULD BE SAME AS TEST1 WITHOUT RATIO
 PAUSE.. PLEASE ISSUE CARRIAGE RETURN WHEN READY

 PAGE     1


 TEST2 TABLEF FROM HOLD FILE
             AVE          AVE
 COUNTRY     RETAIL_COST  DEALER_COST
 -------     -----------  -----------
 ENGLAND          11,330        9,463
 FRANCE            5,610        4,631
 ITALY            12,766       10,309
 JAPAN             3,239        2,756
 W GERMANY         9,247        7,795

DEFINE TEST WITH REPORT .. TOTAL MARGIN SHOULD=99.50
```

```
FILE NAME            FIELD NAME                          FORMAT  SEGMENT
TYPE
CAR                  MARGIN                              D10.2         4
 PAUSE.. PLEASE ISSUE CARRIAGE RETURN WHEN READY
```

Press **Enter** to close the report output.

A test of the DEFINE command is executed next. The following output displays.

```
PAGE     1


TEST3 DEFINE MARGIN

TOTAL SUM OF MARGIN =        99.50

MODEL                           MARGIN

-----                           ------

INTERCEPTOR III                  19.48

TR7                              18.83

V12XKE AUTO                      19.54

XJ12L AUTO                       20.52

504 4 DOOR                       21.14


TOTAL                            99.50
```

```
                                END OF REPORT
```

Press **Enter** to close the report output.

A test of the SCAN command is executed next. The following output displays.

```
SCAN TEST  SEATS 2 CHANGED TO SEATS 4

COUNTRY=ENGLAND    CAR=JAGUAR           MODEL=V12XKE AUTO
SEAT=  2
COUNTRY=ENGLAND    CAR=JAGUAR           MODEL=V12XKE AUTO
SEAT=  4
TESTING SML WITH SHORT MODEL

 PAUSE.. PLEASE ISSUE CARRIAGE RETURN WHEN READY


PAGE     1


            AVE
            RETAIL_COST
            -----------
MILAGE RANGE
0 TO 12          16,495
13 TO 20         11,069
COMPARISON            1
```

```
                                END OF REPORT
```

Press **Enter** to close the report output.

A GRAPH request is executed next. The following output displays.

```
TESTING GRAPHS

18 RECORDS SHOULD BE RETRIEVED AND PLOTTED

 PAUSE..PLEASE ISSUE CARRIAGE RETURN WHEN READY



  R     40,000 +
  E            I
  T            I
  A            I
*
  I            I                                                  .
  L            I                                            .
  _     20,000 +                                     .
  C            I                             .  *
  O            I                  . * ** . .
  S            I            . * *
  T            I   . *****
               I *
             0 +----+----+----+----+----+----+----+----+----+----+----+-
---+
```

```
              2,000     6,000    10,000    14,000    18,000    22,000
26,000
                   4,000     8,000    12,000    16,000    20,000
24,000


                                       DEALER_COST

 AT END OF TEST MAJOR AREAS OK

 >  >
```

These tests show that FOCUS is installed and operational. Enter the following command to exit FOCUS.

```
FIN
```

Verifying ibi FOCUS Installation in Batch

If you are running FOCUS in batch, edit the FOCUS JCL that was created by ISETUP as member FOCUS in the *install_hlq*.CONF.DATA data set to add the installation verification procedure.

The installation verification procedure will be added in the allocation for DDNAME SYSIN. The FOCUS member in the *install_hlq*.CONF.DATA data set has the following JCL statements.

```
//SYSIN    DD *
Put your input here in uppercase
FIN
```

Replace the line that says **Put your input here in uppercase** with the following command.

```
EX CARTEST
```

Edit the JOB card with your information and submit the job. Output similar to the following will appear in the SYSPRINT DDNAME of the FOCUS step. Note that the FOC486 message will display if you did not allocate DDNAME CAR to a permanent file.

```
FOCUS  7.7.06  11.16.57  07/27/2018  CARTEST   LINE   20  XXX

 SET MSG=OFF
FOCUS  7.7.06          CREATED 01/17/2018  SITE.ID     XXX
 NUMBER OF ERRORS=     0
 NUMBER OF SEGMENTS=   7  ( REAL=    7  VIRTUAL=   0 )
 NUMBER OF FIELDS=    20  INDEXES=   1  FILES=     1
 TOTAL LENGTH OF ALL FIELDS=  221
OK CAR MASTER
(FOC486) A NEW FILE WAS DYNAMICALLY ALLOCATED
CREATE THE CAR FILE NUMBER OF SEGMENTS TO BE INPUT =102
 LOADING OF DATA COMPLETE
SIMPLE TABLE ON CAR FILE OVERALL RATIO AT END= 1.21
 PAGE     1
               TEST1 SIMPLE TABLE
            AVE          AVE
COUNTRY     RETAIL_COST  DEALER_COST           RATIO
-------     -----------  -----------           -----
ENGLAND          11,330        9,463            1.20
FRANCE            5,610        4,631            1.21
ITALY            12,766       10,309            1.24
JAPAN             3,239        2,756            1.18
W GERMANY         9,247        7,795            1.19

TOTAL            42,192       34,954            1.21

BOTTOM OF PAGE
```

```
TEST OF A HOLD FILE AND A TABLEF REPORT AFTER

NUMBERS SHOULD BE SAME AS TEST1 WITHOUT RATIO

 PAGE     1



TEST2 TABLEF FROM HOLD FILE
            AVE          AVE
COUNTRY     RETAIL_COST  DEALER_COST
-------     -----------  -----------
ENGLAND          11,330        9,463
FRANCE            5,610        4,631
ITALY            12,766       10,309
JAPAN             3,239        2,756
```

```
W GERMANY         9,247        7,795
```

```
DEFINE TEST WITH REPORT .. TOTAL MARGIN SHOULD=99.50

FILE NAME            FIELD NAME                        FORMAT  SEGMENT
TYPE
CAR                  MARGIN                            D10.2         4
 PAGE     1

 TEST3 DEFINE MARGIN
 TOTAL SUM OF MARGIN =        99.50
 MODEL                           MARGIN
 -----                           ------
 INTERCEPTOR III                  19.48
 TR7                              18.83
 V12XKE AUTO                      19.54
 XJ12L AUTO                       20.52
 504 4 DOOR                       21.14

 TOTAL                            99.50
```

```
SCAN TEST  SEATS 2 CHANGED TO SEATS 4

COUNTRY=ENGLAND    CAR=JAGUAR           MODEL=V12XKE AUTO
SEAT=  2
COUNTRY=ENGLAND    CAR=JAGUAR           MODEL=V12XKE AUTO
SEAT=  4
TESTING SML WITH SHORT MODEL

 PAGE     1



             AVE

             RETAIL_COST

             -----------
```

```
 MILAGE RANGE

 0 TO 12          16,495

 13 TO 20         11,069

 COMPARISON            1
```

```
TESTING GRAPHS
18 RECORDS SHOULD BE RETRIEVED AND PLOTTED


       35,000 +
              I
              I
              I                                                    *
       30,000 +                                                  .
              I                                               .
              I                                            .
              I                                         .
 R            I                                      .
 E     25,000 +                                   .
 T            I                                .
 A            I                             .
 I     20,000 +                          .
 L            I                      .
 _            I                   *
 C            I               .
 O     15,000 +           .
 S            I       * **
 T            I      .
              I   .
       10,000 +   *
              I * *
              I .
              I  * *
        5,000 +  **
              **
              I
              I
            0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
            2,500       7,500      12,500      17,500      22,500
                  5,000      10,000      15,000      20,000      25,000

                                  DEALER_COST


AT END OF TEST MAJOR AREAS OK
```

This output shows that FOCUS is installed and operational.

Next Steps

In the next steps, you will customize your CLIST or JOB to add private data sets and to move FOCUS to production. After performing those steps, you can run the IVP again to make sure the customized version of FOCUS is still operational. If you run into any problems at that stage, review your customization steps.

You may have inadvertently:

- Renamed required libraries so that they are not allocated correctly.
- Erased the aliases so that the required name transformations cannot be completed correctly.
- Moved members in the libraries so that they cannot be found using the standard DDNAMEs

Specifying Non-Standard Data Set Names

ISETUP asks you for the high-level qualifier for your current production version of FOCUS. Based on this qualifier and a list of all of the standard data set names (low level qualifiers), ISETUP installs all the necessary FOCUS libraries. The list of low level qualifiers ISETUP uses is in member FOCSNAME in the F.HOME.DATA data set:

- If you use non-standard low level qualifiers for your FOCUS data sets, you must edit this file. Once you have done this, ISETUP will use these qualifiers for future installs as well as the current one.

- If you use multiple prefixes for your FOCUS data sets, you can edit this file to specify the correct data set names.

Important: You must use the version of FOCSNAME provided for the current release, not the version from a previous installation.

If you use only the standard FOCUS data set names, you do not have to perform this step.

Note: Only ISETUP uses FOCSNAME. FOCUS, once installed, does not use this member.

To edit FOCSNAME, open member FOCSNAME in the F.HOME.DATA data set and follow the instructions entered as comments at the top of the file.

The following is an example of a partial listing of the FOCSNAME member. The contents of this member may change over time, but should be simliar to the following.

```
//*********************************************************************
//*Purpose: To Allow the setting of site specific low level qualifiers*
//*         for z/OS PDS FOCUS install process                        *
//*                                                                   *
//*         Change the values below for the different datasets that   *
//*         may be allocated by the installation process. Keep in     *
//*         mind that a "qualifier" will be used as a suffix to these *
//*         names so be careful as to length.                         *
//*                                                                   *
//*********************************************************************
//         SET  EDALOAD='F.HOME.LOAD'   Load Library
//         SET  EDAERR='F.HOME.ERR'     Errors files
//         SET  EDAHMAS='F.HOME.MAS'    Master files
//         SET  EDAHFEX='F.HOME.FEX'    RPCs
//         SET  EDAHETC='F.HOME.ETC'    Html and Text files
//         SET  EDAHACX='F.HOME.ACX'    Access files
//         SET  EDAHBIN='F.HOME.BIN'    Binary files
//         SET  EDAHDAT='F.HOME.DATA'     Isetup library
//         SET  PDSFOCD='CONF.DATA'     Focus Install/Runtime JCLs
//         SET  EDACCFG=&CONFTYPE..CFG  Configuration files
//         SET  EDAPROF=&CONFTYPE..PRF
//         SET  EDACACX=&CONFTYPE..ACX
//         SET  EDACMAS=&CONFTYPE..MAS
//         SET  EDACSQL=&CONFTYPE..SQL
//         SET  FOCUSSU=&CONFTYPE..FOCUSSU.FOCUS
```

As described, where necessary overwrite each standard name with your non-standard name.

For example, if you use the name CONFIG.DATA for your production configuration library, change the following line:

```
// SET  EDACCFG=&CONFTYPE..CFG        Configuration files
```

It should now say:

```
// SET  EDACCFG=&CONFTYPE..CONFIG.DATA       Configuration files
```

Creating a CLIST or Batch Job to Invoke the Installed Version of ibi FOCUS

Edit a copy of the CLIST or batch JCL you use to invoke your current production version of FOCUS. Create a new CLIST or batch job with the new high level qualifiers to invoke the upgraded version of FOCUS.

The fact that the FOCUS data sets are distributed as PDSEs requires you to concatenate these PDSE libraries in front of any fixed blocked private data sets you want to carry forward from prior releases.

When you invoke FOCUS, the banner indicates that the version was upgraded.

Generating Sample ibi FOCUS Data Sources

The sample FOCUS data sources are delivered as tutorials in a jtar file under USS, which must be unloaded to an application on z/OS.

Generate Sample ibi FOCUS Data Sources

Procedure

1. From the TSO command line, enter the following command.

   ```
   OMVS
   ```

   This command puts you in your root directory under USS. We will refer to this directory as /u/user1.

2. Create a directory for the jtar file and open that directory.

   The following commands create a directory under your root directory named *unload* and opens that directory.

   ```
   mkdir unload
   cd unload
   ```

3. FTP to your MVS host.

   The following command opens FTP to a host named *mvshost*.

   ```
   ftp mvshost
   ```

   You will be prompted to enter your user ID and password.

4. Establish binary transfer mode, transfer the jtar file to the directory you created, and quit out of FTP.

   Issue the following commands.

   ```
   bin
   get 'hlq.f.home.bin(jtar)' jtar
   quit
   ```

   where *hlq* is the high-level qualifier under which you installed FOCUS.

5. Unload the jtar file.

   Issue the following command.

   ```
   tar -xvf jtar
   ```

6. Exit from USS.

7. Create a PDSE with a member named EDASERVE and concatenate it to the data sets allocated to DDNAME ERRORS in your FOCUS JCL or CLIST.

   The EDASERVE member enables APPS by setting the APPROOT variable, and sets the edahome_dir variable to the directory you created under USS. For example:

   ```
   APPROOT=USER1.APPS
   edahome_dir=/u/user1/unload
   ```

   Note: The edahome_dir variable line must be in lowercase.

8. Start FOCUS and issue the following command to create the FOCUS data sources.

   ```
   EX SAMPLTUT TUTORIAL=LEGACY
   ```

   The FOCUS data sources will be generated in an application named IBISAMP, which will consist of a set of data sets whose high-level qualifier consists the value of APPROOT, and the application name. For example, the following is a partial list of the data sets created for APP IBISAMP, where the user ID is USER1 and APPROOT is set to USER1.APPS:

   ```
   USER1.APPS.IBISAMP.ACCESS.DATA
   USER1.APPS.IBISAMP.BROKERS.FOCUS
   USER1.APPS.IBISAMP.CAR.FOCUS
   USER1.APPS.IBISAMP.CASHFLOW.FOCUS
   USER1.APPS.IBISAMP.COURSE.FOCUS
   USER1.APPS.IBISAMP.DTD.DATA
   USER1.APPS.IBISAMP.EDUCFILE.FOCUS
   USER1.APPS.IBISAMP.EMPDATA.FOCUS
   USER1.APPS.IBISAMP.EMPLOYEE.FOCUS
   ```

   If you do not want to run focus using APPS, you can copy the application data sets to other data sets and remove the data set you created with the EDASERVE member from the ERRORS concatenation.

   For more information about APPS, see the *ibi™ FOCUS® Developing Applications* manual.

Moving the Installed Version of ibi FOCUS to Production After Testing

After successful testing of the service pack or upgrade, move the test environment to production according to the standards of your site.

Customizing ibi FOCUS

This chapter describes default FOCUS parameter settings and tells how to change them, as well as providing instructions for installing several of the major optional FOCUS features.

Changing the ibi FOCUS Defaults

You can customize many of the default FOCUS space allocations, command lists and naming conventions while doing your install. Customizable items include:

- Number of cache pages permitted
- Space allocation for work files (IBITABLA)
- Number of data exceptions permitted before a session terminates

Record Buffer Size

The default buffer size has been made unlimited. This is the required size for both the LINREC and DATREC buffers and may no longer be changed.

Setting the Maximum Number of Cache Pages

FOCUS sites can limit the maximum number of cache pages allowed per FOCUS session. Check your IBM documentation for cache requirements. During installation, you can set a cache page limit of between 3 and 524,288 pages (the hardware maximum), with each page 4096 bytes in length. The FOCUS default is 0 pages. The HiperFOCUS default is 256.

Individual users or batch jobs can reset cache page limits to one less than the site-selected maximums by using the SET CACHE command.

Set the Cache Page Limit

```
SET CACHE = {0|n}
```

where:

0

The default FOCUS setting allocates no space for cache. Cache is inactive.

n

Is the number of 4K-byte pages of contiguous storage allocated to cache memory. The minimum is two pages. The maximum value is either 524287, or one less than the site-specified maximum value.

In normal use, the number of pages requested by users should be far less than the hardware maximum to avoid degrading the performance of the paging subsystem.

Configuring Default Space Allocations for Work Files: IBITABLA

FOCUS dynamically allocates output data sets not allocated by the user. To change the default space attributes for these dynamically allocated ddnames, edit member IBITABLA of the **install_hlq**.F.HOME.DATA physical library.

To change the FOCUS default allocations for output data sets, you must copy file IBITABLA to the **install_hlq**.HOME.ERR physical library that will be allocated to ddname ERRNLS. IBITABLA is a fixed columnar file and you must make all changes in the appropriate columns, which are as follows:

Column Name	Starting Column	Length
DDname	01	8
Allocation units (CYLS,TRKS)	10	4

Column Name	Starting Column	Length
Primary space	15	3
Secondary space	19	3
Number of Directory entries (PDS)	23	2
Sysout class (OFFLINE only)	26	1
Volume	28	6
Unit (SYSDA, DASD, HIPER, NOHIPER*)	35	8
Unit Count (multi-volume)	44	2

*Use NOHIPER as a unit name to exclude particular data sets from HiperFOCUS.

Sample of Distributed IBITABLA

IBITABLA defines the default allocations for all dynamically allocated FOCUS files. It is provided to allow each customer to tailor these defaults as required, thereby creating a local copy of IBITABLA.

```
*...+....1....+....2....+....3....+....4....+
HOLD     CYLS   5  10                       3,
HOLDMAST TRKS   5   5 36          NOHIPER    ,
SAVE     CYLS   5  10                       3,
REBUILD  CYLS   5  10                       3,
FOCSML   CYLS   5   5                       2,
FOCUS    CYLS   5   5                       1,
FOCSTACK TRKS   5   5                       2,
FOCSORT  CYLS   5   5                       1,
OFFLINE  CYLS            A                   ,
SESSION  TRKS   5   5                       2,
FOCCOMP  TRKS   5   5 12                     ,
HOLDACC  TRKS   5   5 12                     ,
FMU      TRKS   5   5 12                     ,
TRF      TRKS   5   5 12                     ,
FOCPOOLT CYLS   5  20             NOHIPER   4,
FUSION   CYLS   5  50             NOHIPER   4,
```

```
MDI      CYLS   5  20            NOHIPER   4,
FOC$HOLD CYLS   5   5                      2,
EXTINDEX CYLS   5   5                      2,
```

Adjusting the Number of Allowable Data Exceptions

FOCUS allows **ten** data exception interrupts before terminating a run with the following error message.

```
(FOC204) TOO MANY INTERRUPTS. RUN TERMINATED.
```

You can change this limit with the SET MAXDATAEXCPT command.

Set a Maximum Number of Data Exceptions in a Session or Request

Issue the following command in any supported profile, in a FOCEXEC, or at the FOCUS prompt:

```
SET MAXDATAEXCPT={10|n}
```

Issue the following command in a TABLE request

```
ON TABLE SET MAXDATAEXCPT {10|n}
```

where:

n

Is a one to four-digit number that represents how many data exceptions can occur before the session is terminated. 10 is the default value. The value zero (0) allows an unlimited number of data exceptions. The value one (1) terminates the session at the

first data exception.

If MAXDATAEXCPT is changed in a request, a new count is established for the request. The session counter is saved and is restored after the request executes.

Each time you issue the command outside of a TABLE request, the running counter is reset to zero.

This command is not supported on a FOCUS Database Server (sink machine).

Selecting ibi FOCUS Default Startup Options

Sites wishing to change FOCUS startup options have two options for implementing site-wide configuration parameters:

- They can either set their own defaults in the FOCPARM member of ERRNLS.DATA, a profile consisting of SET commands used to change default startup options.
- Or, they can set the defaults in the system-wide FOCPROF and/or EDASPROF profile, each of which is executed once per session. They can also create group profiles or user profiles (the member name is the user ID), all of which must be in the concatenation of data sets allocated to DDNAME ERRORS.

Note: These are independent procedures. A change made to one does not require changes to the other.

The order of execution of profiles is:

1. FOCPARM
2. EDASPROF
3. FOCPROF
4. Group profile
5. User profile

A site can also create an ODIN communication file (member ODIN in the concatenation of data sets allocated to DDNAME ERRORS). ODIN can point to remote servers and point sink machines and clients to subsystem names other than the default (IBIS).

Edit the FOCPARM SET Commands

Member FOCPARM in ERRNLS.DATA is executed before FOCPROF and before each user's PROFILE FOCEXEC. It may only include SET commands. The FOCPARM file shipped with FOCUS follows:

```
-*-------------------------------------------------------------------*
-* THIS SECTION CONSISTS SOLELY OF SET COMMANDS USED TO CUSTOMIZE    *
-* THE BEHAVIOR OF FOCUS AT YOUR SITE. PLEASE NOTE THAT ONLY SET     *
-* COMMANDS ARE SUPPORTED, AND THAT ANY OTHER FOCUS COMMANDS ARE     *
-* NOT PERMITTED AND WILL FORCE YOU OUT OF FOCUS. THIS MEMBER MAY    *
-* NOT BE USED AS A PROFILE EXCEPT FOR SET COMMANDS.                 *
-*-------------------------------------------------------------------*
SET EMPTYREPORT=OFF
SET BLKCALC=NEW
SET FIELDNAME=NEW
SET QUALCH=.
SET QUALTITL=OFF
SET HOLDSTAT=OFF
SET HOTMENU=OFF
SET IMMEDTYPE=OFF
SET AUTOPATH=ON
SET AUTOINDEX=ON
SET COLLATION=BINARY
SET JOINLM=RANGE
-*FOR A MORE CONSERVATIVE ENVIRONMENT, ACTIVATE THE FOLLOWING SETTINGS:
-*SET EMPTYREPORT=ON
-*SET BLKCALC=OLD
-*SET FIELDNAME=OLD
-*SET AUTOPATH=OFF
-*SET AUTOINDEX=OFF
-*FOR A MORE AGGRESSIVE ENVIRONMENT, ACTIVATE THE FOLLOWING SETTINGS:
-*SET HOLDSTAT=ON
-*SET HOTMENU=ON
-*SET IMMEDTYPE=ON
-*SET CACHE=256
-*SET QUALTITL=ON
-*SET PRINTPLUS=ON
```

Create the System-Wide FOCPROF Profile

FOCPROF is a global profile for FOCUS that can contain any command valid in a FOCEXEC, including: TABLE, MATCH, MODIFY, MAINTAIN, REBUILD, COMPILE, LOAD, Dialogue Manager

commands, TSO commands and DYNAM commands.

This gives you three FOCUS profiles: FOCPARM, FOCPROF, and PROFILE. FOCPARM and FOCPROF files are members of the ERRNLS PDS. The PROFILE file is a member of the FOCEXEC PDS. Their order of execution is:

1. FOCPARM, which can only contain FOCUS SET commands.
2. FOCPROF, a global profile.
3. PROFILE.

Create a new member of the ERRNLS PDS named FOCPROF and include any commands you wish to have executed each time FOCUS is invoked.

Optionally, Create the ODIN Communication File

The ODIN communication file can contain nodes that enable access to remote servers (see the *ibi™ FOCUS® Overview and Operating Environments* manual) and that point sink machines and clients to subsystems that have been generated with non-default names.

The ODIN file can be used to control the name of the subsystem that is used for communication using the SBS protocol. SBS is the data exchange protocol on z/OS that uses the subsystem. The subsystem is a named driver resident in the host operating system.

The following rules determine the subsystem name for the FOCUS Database Server (sink machine). You must first have installed a subsystem with that name and started the subsystem, using the jobs described in Subsystem Sample JCL and Zaps:

1. If ODIN exists, and there is a block with PROTOCOL=SBS that has a variable named SUBSYS within its body, the value of the SUBSYS variable is used as the subsystem name.
2. Else, if there is an environment variable named IBIS and it is not empty, its value is used as the subsystem name.
3. Otherwise, the default name IBIS is used as the subsystem name.

The following are CLIENT-side rules that determine the subsystem name (for example SUB1):

1. If ODIN exists, and there is a block NODE=SUB1 with CLASS=SUCLIENT in its body, and the body has a variable named SUBSYS, the value of this SUBSYS variable is used as a subsystem name.
2. Otherwise, the previous rules for the sink machine are used.

When there is no ODIN file, or this file does not have any SUBSYS settings, the subsystem name is controlled by the IBIS environment variable. Its value can be set in the JCL by using one of the following methods:

- Using the ENVAR parameter. For example, the following EXEC card sets the variable IBIS to the value IBIT:

  ```
  //FOCSINK  EXEC  PGM=HLISNK,PARM='ENVAR(IBIS=IBIT)/ ECHO'
  ```

  This technique is not limited to HLISNK, but can be used for any startup, including FOCUS and HLI programs.

- Using an EDAENV DD card. For example, the following DD card sets the variable IBIS to the value IBIT:

  ```
  //EDAENV DD *
  IBIS=IBIT
  ```

ODIN Sample Files

The following ODIN file makes the sink use the subsystem name ABCD and makes clients use subsystem name ABCD.

```
PROTOCOL=SBS
BEGIN
  SUBSYS=ABCD
END
```

The following ODIN file makes the sink use the subsystem name ABCD, makes clients connecting to sink FOCSBS use subsystem name IBIT, and makes clients connecting to other sinks use subsystem name ABCD.

```
PROTOCOL=SBS
BEGIN
```

```
  SUBSYS=ABCD
END

NODE=FOCSBS
BEGIN
  CLASS=SUCLIENT
  PROTOCOL=SBS
  SUBSYS=IBIT
  SERVICE=USER1.FOCSU.DATA
END
```

The following ODIN file makes the sink use the subsystem name IBIS (the default), makes clients connecting to sink FOCSBS use subsystem name IBIT, and makes clients connecting to other sinks use subsystem name IBIS.

```
NODE=FOCSBS
BEGIN
  CLASS=SUCLIENT
  PROTOCOL=SBS
  SUBSYS=IBIT
  SERVICE=USER1.FOCSU.DATA
END
```

Installing HiperFOCUS

This section describes installation of HiperFOCUS.

HiperFOCUS is installed and customized using SET commands in the FOCPARM member of ERRNLS.DATA. You can install HiperFOCUS by simply adding SET HIPERINSTALL=ON to the FOCPARM entries and accepting the defaults.

All SET options (except for SET HIPERFOCUS) can be issued only from the FOCPARM member of the ERRNLS file. Issuing these commands from a FOCUS session produces a FOC964 error.

Install HiperFOCUS

```
SET HIPERINSTALL={ON|OFF}
```

where:

ON

Installs HiperFOCUS.

OFF

Disables HiperFOCUS.

Activate HiperFOCUS

```
SET HIPERFOCUS={ON|OFF}
```

where:

ON

Activates a HiperFOCUS session when HiperFOCUS is installed. ON is the default.

OFF

Deactivates a HiperFOCUS session.

Creating Compiled ibi FOCUS Windows Files

Certain FOCUS interactive utilities present screens to the user. The source files for these screens are distributed as TRF files. In order to use them, you must run the TRF2FMU FOCEXEC, which compiles them into FMU files, which are formatted screens that are used by these utilities.

If you use any of the following FOCUS features or utilities, you must run the TRF2FMU FOCEXEC in order to create the FMU files:

- FOCUS Menu.
- FOCUS Shell.
- Power Reporter.
- SiteAnalyzer.

- Talk Technologies (TableTalk, ModifyTalk, PlotTalk, FileTalk).

Create Compiled Window Files

Procedure

1. Determine if your site runs any of the products listed above.
2. If so, make a copy of the TRF2FMU FOCEXEC that is distributed in the **install_HLQ_** FOCEXEC.DATA library.

   For example, create a copy named TRF2FMUO (original).
3. Edit the TRF2FMU FEX and place your **install_HLQ** in between the quotes of the -DEFAULT &INSTALLHLQ = ' ' command.

   For example, specify the high-level qualifier used when you execute ISETUP to install FOCUS. Assume this high-level qualifier is INSTALLID.PROD7709. Change the following:

   ```
   -DEFAULT &INSTALLHLQ = ' '
   ```

   to:

   ```
   -DEFAULT &INSTALLHLQ = 'INSTALLID.PROD7709'
   ```

   Note: The TRF2FMU FOCEXEC will create a new library named INSTALLID.PROD7709.FMU.DATA.
4. Bring up FOCUS using the sample FOCUSC CLIST that was created by ISETUP and resides in the install_HLQ.CONF.DATA library.
5. Execute the TRF2FMU FOCEXEC from the FOCUS command prompt (it runs in less than 30 seconds).

   For example:

   ```
   > > ex trf2fmu
   ```

   When the FOCUS prompt returns, the FOCEXEC has created all necessary compiled

window files.

6. Exit FOCUS by issuing the FIN command at the FOCUS prompt.
7. Edit the FOCUSC CLIST and add an allocation for DDNAME FMU.

   For example, add the following allocation to the FOCUSC CLIST:

```
ALLOC F(FMU)      DA('INSTALLID.PROD7709.FMU.DATA') SHR REU
```

What to do next

Note: You must use the updated FOCUSC CLIST to run any of the FOCUS features or utilities that require compiled Window files. Prior releases of FOCUS required you to add allocations for DDNAMEs TRF and FMU. However, these allocations have now been automatically added to the CLIST by the TRF2FMU FOCEXEC.

Installing the Re-entrant ibi FOCUS Modules

To optimize performance for each TSO/FOCUS user, place re-entrant and serially reusable FOCUS modules in the Extended Link Pack Area. All programs in the ELPA have corresponding entries in the LPA Directory, which is created at IPL. This both optimizes FOCUS performance and reduces total virtual storage requirements for each user.

Sample JCL for performing this procedure resides in members JFSALLPA, JFSCPLPA, JFSDELPA, and JFSCPBCK of the data set FOCCTL.DATA. For more information about these members, see Link Pack Area Sample JCL.

Installing the IBI Subsystem

The IBI Subsystem provides communication between and coordination among address spaces running FOCUS products on z/OS systems. The IBI Subsystem is also referred to as the *subsystem* in this document.

Products that Require the IBI Subsystem

The following FOCUS products use the IBI Subsystem:

- **Simultaneous Usage (SU).**SU uses the IBI Subsystem to communicate between FOCUS users and the FOCUS Database Server.
- **SmartMode.**Since SmartMode is an SU-based service, it uses the IBI Subsystem through SU.

IBI Subsystem Technical Overview

The IBI Subsystem runs in the address space of the IBI product using its services. All subsystem modules are re-entrant and pageable, and reside in the Extended Common Storage Area (ECSA). Control blocks created by the subsystem also reside in the ECSA and are also pageable.

The subsystem uses 20K of ECSA for programs and control blocks, most of which is taken up by programs.

The subsystem is loaded and initialized by the SUBSYSI utility, which must be run from an APF-authorized library. SUBSYSI can also be used to stop, replace, and/or unload the subsystem modules.

When used for communications between address spaces, the subsystem can only use cross-memory services when the server address space (SU sink machine) is defined as non-swappable. If cross-memory services cannot be used, then an 8K mailbox is allocated in ECSA for each communication path used by the server. SU address spaces use one mailbox.

The subsystem code is run whenever any of the following events occur:

- A FOCUS product requests subsystem services.
- An operator command is issued, which includes the 4-digit subsystem name as the first four characters of the command.
- A task-end or memterm event occurs in an IBI address space.
- The SUBSYSI utility program is run.

Note: Communication data sets FOCSU and FOCUSSU are used with the IBI Subsystem. Since the data sets are never actually updated, it may be necessary to take action to prevent HSM or similar products from migrating them offline.

IBI Subsystem Installation Requirements

IBI Subsystem installation requirements:

- An APF-authorized library is required for the subsystem modules.
- Activate the subsystem by running the SUBSYSI utility program.
- Optionally, edit SYS1.PARMLIB and IPL the operating system to activate the changes.

IBI Subsystem Features and Functionality

The IBI subsystem provides the following features:

- Basic inter-address space communications, for SU.
- Use of cross-memory services for inter-address space communications.
- Operator controls, through system commands and through the SUBSYSI utility program.
- More efficient cleanup of CSA storage at task and address space failure.

IBI Subsystem Troubleshooting and Maintenance

With the IBI Subsystem:

- The SUBSYSI utility enables you to install a new version of the subsystem without doing another IPL of the system.
- Operator commands support basic troubleshooting of the subsystem.

- The subsystem must be updated when installing a new release of FOCUS.

IBI Subsystem Installation Planning

This section discusses the impact of installing the IBI Subsystem on your z/OS system. Please read this and the following section, before starting the installation procedure.

When installing FOCUS on z/OS, you may optionally update IEFSSNxx in SYS1.PARMLIB.

Sample:

```
JES2   PRIMARY          JOB ENTRY SUBSYSTEM
RACF,IRRSSI00,#         RESOURCE ACCESS CONTROL FACILITY
CICS                    CUSTOMER INFORMATION CONTROL SYSTEM
IBIS                    IBI SUBSYSTEM
```

Even though you update IEFSSNxx with the subsystem name, you must still run the SUBSYSI utility with the START option to load and activate the IBI Subsystem. You can use a name in IEFSSNxx if it is currently unused. The sample job SUBSYSNM, in FOCCTL.DATA, demonstrates replacing the default subsystem name with your own.

The SUBSYSI utility requires an APF-authorized library. This may be an existing library, a LNKLST member, or a new library created just for SUBSYSI. Whichever option you choose, you may wish to protect SUBSYSI by permitting only authorized personnel to run it.

IBI Subsystem Capacity and Performance

With the IBI Subsystem:

- 20K of ECSA is used to hold the subsystem modules and data. If the modules and data are deleted (by using the REMOVE option of SUBSYSI), 2K of ECSA is still used to hold items that may not be deleted. This storage is reclaimed if the subsystem is reactivated.
- If a server is running and is swappable, a mailbox must be allocated in ECSA.
- The subsystem uses Compare and Swap for serialization.
- The subsystem uses a PC routine and cross-memory services for moving data, as long as the server address space is non-swappable.

IBI Subsystem Training

Appropriate operations and system support staff should be trained in the use of the SUBSYSI utility for starting and controlling the subsystem, and in the operator commands that the subsystem provides, DISPLAY and SET. It may also be necessary to update your system IPL procedures to ensure the subsystem is properly started after z/OS is initialized.

IBI Subsystem Installation Steps

Perform these steps to install the IBI Subsystem. This procedure assumes that FOCUS is already installed and tested and that the data sets FOCLIB.LOAD and FOCCTL.DATA are loaded on your system.

All of the samples discussed herein are shipped in FOCCTL.DATA and are also reproduced for quick reference in Subsystem Sample JCL and Zaps.

1. Choose a subsystem name.

   Choose a valid 4-character name for the subsystem. The default name is IBIS.

2. Choose an APF-authorized library.

   SUBSYSI must be run from an APF-authorized library. You may copy SUBSYSI to a library in the LNKLST or to an existing authorized library, or you may create a new library for this purpose. As SUBSYSI should only be run by authorized personnel, we recommend placing it in a secure library protected from unauthorized access. (Note that while FOCLIB.LOAD is APF-authorized when the zIIP feature is installed, all FOCUS users have access to it in order to run FOCUS.)

3. Update SYS1.PARMLIB (optional).

   Update IEFSSNxx member of SYS1.PARMLIB with the name of the subsystem.

   If creating a new APF-authorized library, or adding non-swappable programs (HLISNK for SU), update SYS1.PARMLIB as needed to specify these changes.

4. Zap to change the subsystem name (optional).

   If you select a name other than IBIS for the IBI Subsystem, edit the JCL in SUBSYSNM with the appropriate name and run it to apply the zap.

   If a maintenance job (Service Pack) updates the IBI subsystem modules, and if those modules were moved to a separate subsystem library using the

FOCCTL.DATA.SUBSYSCP job, then they must be copied back into FOCLIB.LOAD for the maintenance job execution. On completion of the maintenance, the subsystem modules may be moved back into your subsystem library with the SUBSYSCP job.

You can use the ODIN communication file to point sink machines and clients to subsystems with non-default names, as described in Selecting ibi FOCUS Default Startup Options.

5. Copy modules to an APF-authorized library and protect the library.

   The JCL in SUBSYSCP will copy SUBSYSI and related modules from FOCLIB.LOAD into an APF-authorized library. This library can be a library dedicated to SUBSYSI, a member of the LNKLST, or any other library you choose. Since SUBSYSI is only for use by authorized personnel, ensure that the library is protected from unauthorized access.

6. Protect modules or delete them from FOCLIB.LOAD.

   SUBSYSI and all other copied modules should be deleted from FOCLIB.LOAD or protected from unauthorized use.

7. Set up the automatic start of the subsystem (optional).

   If desired, set up JCL to run SUBSYSI and initialize the IBI Subsystem at system startup. Sample JCL to run SUBSYSI is found in members SUBSYSIJ and SUBSYSIH of FOCCTL.DATA.

8. Set up a SUBSYSI cataloged procedure (optional).

   If desired, set up a cataloged procedure so SUBSYSI can be run as a started task. A sample procedure is delivered as member SUBSYSP in FOCCTL.DATA.

9. IPL the system (optional).

   IPL the system to activate changes to SYS1.PARMLIB. If an authorized library was already available, no IPL is necessary in order to use the basic subsystem, although certain facilities, such as non-swappable servers, will not be available until you IPL the system.

   If you are upgrading the subsystem but retaining its former name, you may have to perform an IPL. Please check the latest Tech Bulletins and our web site (http://techsupport.informationbuilders.com/) for the latest information.

10. Start the IBI Subsystem.

    Bring up the subsystem by running SUBSYSI with the START parameter. It is now ready to use.

The SUBSYSI program requires the allocation of a STEPLIB DD statement when performing the START function. If the load library used (FOCLIB.LOAD) is defined in the link list, it will still require APF authorization (IEAAPF00) so that it may be executed from STEPLIB with the proper APF authorization.

If SUBSYSI START is executed without a STEPLIB statement, the following message will occur:

```
SUBSYS003 UNABLE TO LOAD MODULES TO CSA.
```

To remedy this situation, simply allocate the load library to STEPLIB.

IBI Subsystem Product-related Installation Issues

- **HiperFOCUS**

  It is recommended that the subsystem be initialized and the SET commands issued at z/OS startup. See the JCL in member SUBSYSIH of FOCCTL.DATA for an example.

- **SU, SmartMode**

  No changes are required. Use of the subsystem is transparent for these products.

IBI Subsystem Maintenance Issues

- **Applying Maintenance**

  After applying maintenance to FOCUS, be sure to re-run all appropriate zap and copy jobs, and then run SUBSYSI with the REPLACE parameter to load the new subsystem modules.

  Make sure that no servers are using the subsystem when you perform the REPLACE operation.

- **Multiple FOCUS Releases**

  The subsystem supports use by multiple versions of FOCUS.

- **Removing the IBI Subsystem**

To remove the IBI Subsystem, run SUBSYSI with the REMOVE parameter. When doing so, make sure that no IBI server address spaces that use the IBI Subsystem are active.

Using the IBI Subsystem

To use the IBI Subsystem, you must be familiar with the SUBSYSI program, the operator controls, the display commands, and the SET commands.

The SUBSYSI Program

The SUBSYSI program is used to control the IBI Subsystem. Its basic function is to initialize the subsystem and it can also be used to stop, unload, and replace the subsystem modules in storage.

SUBSYSI can be run as a batch job or as a started task. JCL samples are provided in members SUBSYSIJ and SUBSYSP, respectively, of FOCCTL.DATA.

Do not use SUBSYSI to STOP or REMOVE the subsystem while any IBI server address spaces are running. All servers must be stopped before you stop the subsystem. HiperFOCUS users may continue to run.

Valid SUBSYSI parameters are:

- **START:** Initializes the subsystem load modules into CSA. If the modules are already loaded but the subsystem is not active (STOP issued), RESTART is assumed and executed.
- **STOP:** Logically disables the subsystem without removing the modules from CSA. Do not do this while any IBI servers are running.
- **RESTART:** Restarts the subsystem following the STOP command. The modules already exist in CSA (that is, START has already been run).
- **REPLACE:** Reloads modules into CSA. This can be used to upgrade without an IPL of the operating system. Only run this after performing a STOP.
- **REMOVE:** Disables the subsystem and removes modules from CSA. This operation will leave the SSCT entry and small (2K) module, but the module will be inactive. Do not do this while any IBI servers are running.

When START or RESTART is specified, SUBSYSI reads commands from SYSIN, as if issued from the z/OS console.

IBI Subsystem Operator Controls

To issue operator commands to the subsystem, prefix them with the IBI Subsystem name. Leading blanks are not permitted in the command itself but blanks are permitted in the command text. For example, assuming the subsystem has been installed as IBIS, the following commands are all valid:

```
IBIS D SUBSYSTEM
IBIS DISPLAY IBIPROD
IBIS D IBIPROD
```

You can also control the subsystem with the SUBSYSI program, by submitting commands from SYSIN DD. In this case, do not specify the PARM parameter on the EXEC card. The following example illustrates supplying several commands in this manner. The output of these commands will be in the job log.

```
//SUBSYSI EXEC PGM=SUBSYSI,REGION=4096K,
//STEPLIB  DD DSN=******.SUBSYS.LOAD,DISP=SHR
//SYSIN DD *
D SUBSYSTEM
D IBIPROD/*
```

IBI Subsystem Display Commands

The DISPLAY commands show subsystem-related or subsystem-managed information. The keyword DISPLAY can be abbreviated as D. The following commands are available:

- DISPLAY IBIPROD displays one line of information for every IBI address space running on the system.
- DISPLAY SUBSYSTEM shows internal information about the subsystem.

IBI Subsystem SET Commands

The SET commands are used with the HiperBUDGET feature of HiperFOCUS to change the limit values. The keyword SET can be abbreviated as T. More than one limit may be set on the same command, as shown in the following example:

```
IBIS SET MVSLIM=500
IBIS T FILELIM=300, MVSLIM=500
```

Acceptable values are:

```
SET MVSLIM =  {value|-1}
SET SERVLIM = {value|-1}
SET TCBLIM =  {value|-1}
SET FILELIM = {value|-1}
```

A value of -1 specifies no limit checking for that particular parameter. The parameters MVSLIM and SERVLIM must be set in the subsystem by issuing IBIS SET commands in the console (see IBI Subsystem Operator Controls) or by running job SUBSYSIH (see Subsystem Sample JCL and Zaps).

TCBLIM and FILELIM have equivalents that can be used to set their values in FOCPARM, as indicated in the following table.

Subsystem Parameter	FOCPARM Equivalent	Definition
`TCBLIM`	`HIPERSPACE`	Maximum number of hiperspace pages/user.
`FILELIM`	`HIPERFILE`	Maximum number of hiperspace pages/file.
`MVSLIM`	None	Maximum number of hiperspace pages for all FOCUS products on the operating system.
`SERVLIM`	None	Maximum number of hiperspace pages allowed for multiple users per server.

IBI Subsystem Troubleshooting

In the event of problems with the IBI Subsystem, check the following conditions before contacting the Customer Support team.

The following are the most common causes of problems with the IBI Subsystem:

- The zap job was not run, or did not run correctly, or an incorrect value may have been used for the zap.
- The zap job was run against the wrong library (SUBSYSI might be in two different libraries).
- SUBSYSI is not being run from an APF-authorized library.
- SUBSYSI was not run to START the subsystem.
- SUBSYSI was run with STOP or REMOVE and disabled the subsystem.
- For SU or other environments that require them, the communication data sets were not allocated.
- The communication data sets were allocated, but with the wrong ddname.
- The communication data sets were allocated incorrectly.
- There is a conflict with an existing subsystem name.
- There is a mismatch between the subsystem code and FOCUS code. If necessary for a new release of FOCUS, you must re-run the appropriate copy and zap jobs.
- FOCUS is running from a library that was not zapped.

IBI Subsystem Diagnostic information

When contacting Customer Support for subsystem problems, some or all of the following information may be needed, depending on the nature of the problem:

1. For installation problems, the JCL, input, and output for all zap and copy jobs run.
2. For installation problems, all SYS1.PARMLIB updates performed.
3. The output from the D SUBSYSTEM and D IBIPROD commands.
4. The JCL, input, and output for all SUBSYSI jobs run.

5. The JCL and output for the failing address spaces.

Installing the Simultaneous Usage (SU) Facility

This optional feature was described briefly in the first section of this manual and is fully documented in the *ibi™ FOCUS® Simultaneous Usage Reference Manual for z/OS*.

The installation steps are:

- Install the IBI Subsystem.
- Allocate the communication data set FOCSU.
- Create the auxiliary FOCUS database FOCUSSU.
- Create JCL for the Simultaneous Usage (SU) central database job.

If you wish to install the optional FOCUS/SU Security Interface, see Install the FOCUS/SU Security Interface (Optional).

Allocate the Communication Data Set FOCSU

The database job that performs the centralized FOCUS I/O runs in its own address space, and makes its presence in the system known through a communication data set that is accessed by all TSO users and batch jobs that it services. This data set plays a role only in the initial handshake. Subsequent transfers of commands and of data between the central database job and client jobs or TSO IDs take place entirely in virtual storage.

The communication data set must be allocated and cataloged on a permanently mounted volume, and its name must be chosen so as to allow WRITE access by the central database job and READ access by any other TSO ID or batch job. The allocation is for a minimal amount of space for a single 16-byte fixed-length record. The actual data set name is irrelevant but we recommend using something suggestive of its role:

```
ATTR ADCB LRECL(16) RECFM(F) BLKSIZE(16)
ALLOCATE DA('SYS1.FOCSU.DATA') CATALOG SP(1) TRACK USING(ADCB)
```

You may want to run several central database jobs, each dedicated to a set of FOCUS data sources associated with a particular application. To do so, you must allocate a different communication data set to each such job.

Create the Auxiliary ibi FOCUS Database FOCUSSU

This auxiliary FOCUS database is accessed in READ mode by the central database job, but not by the TSO users or batch jobs that it services. The same auxiliary database can be used by all central database jobs, if there is more than one. The following process creates it:

```
ALLOCATE F(MASTER) DA('prefix.FOCCTL.DATA') SHR
ALLOCATE F(ERRORS) DA('prefix.ERRORS.DATA') SHR
ALLOCATE F(FOCUSSU) DA('SYS1.FOCUSSU.FOCUS') CATALOG SP(1) TRACKS +
     LRECL(4096) BLKSIZE(4096) RECFM(F)
CALL 'prefix.FOCLIB.LOAD(FOCUS)'
CREATE FILE FOCUSSU
FIN
```

where:

prefix

Is the high-level qualifier for your FOCUS production data sets.

Install the ibi FOCUS/SU Security Interface (Optional)

The only installation step is authorization of the FOCLIB.LOAD library. An operating systems programmer must authorize the entire FOCLIB.LOAD library. This process allows some of the modules in FOCLIB.LOAD to issue certain privileged operating system functions, including making security requests. The module that actually issues the security requests is module SUSI. The HLISECUR module in FOCLIB.LOAD is the only module with a non-zero authorization code, meaning it is the only module that can be invoked directly as an authorized program. All other modules in FOCLIB.LOAD have authorization codes of zero, meaning they can only run authorized if invoked properly by HLISECUR.

The program HLISECUR simply links to the module HLISNK, which controls the FOCUS Database Server. This must run authorized so that the interface can later invoke module SUSI to do the security access checking.

The program SUSI checks security access on behalf of the source user. This program runs under the authorization of HLISECUR in order to issue the RACROUTE macro.

The modules HLISECUR and SUSI are the only modules in FOCLIB.LOAD that must run authorized.

Source code for these modules is provided on the tape to permit you to verify, if you wish, that these modules do not pose a system security risk when installed as authorized modules. The source code for HLISECUR and SUSI can be found in members HLISESRC and SUSISRC in the FOCCTL.DATA library.

Using the ibi FOCUS/SU Security Interface

To use the interface, insert the following command in the SU profile:

```
SET SUSI=ON
```

The SU profile is member HLIPROF of a PDS allocated to ddname FOCEXEC on the FOCUS Database Server (sink machine).

Once the interface is installed, you must change all FOCUS Database Server jobs to execute the program HLISECUR, rather than HLISNK, as in the following JCL line:

```
//SINK EXEC PGM=HLISECUR,PARM='parameters'
```

You can use the same password and ECHO or STAT parameters for HLISECUR as for HLISNK.

For more information, see the *ibi™ FOCUS® Simultaneous Usage Reference Manual for z/OS*.

Making ibi FOCUS Database Servers Non-Swappable

To ensure optimal communications between the client and the central database region, we recommend running the central database region as non-swappable. This requires APF authorization, as well as updating member SCHEDxx of SYS1.PARMLIB. To do this simply insert two PPT entries for the HLISNK and HLISECUR programs as follows:

```
PPT PGMNAME(HLISNK)NOSWAP CANCEL
PPT PGMNAME(HLISECUR)NOSWAP CANCEL
```

These statements are activated with the next system IPL, or can be refreshed using certain operating system products.

Installing the IEDIT Feature

The IEDIT command opens ISPF EDIT from within FOCUS. This feature enables z/OS users to edit and execute variable length files and those with record lengths longer than 80 bytes, which TED does not support.

In addition, IEDIT adds the following TED-like functionality to the editing session:

- You can issue the RUN command with or without parameters to save and execute a FOCEXEC that is open in the editor.
- The editor will be positioned to the line number where FOCUS encounters an error while executing a FOCEXEC.
- The last FOCEXEC executed will open when no file name is specified when you issue the IEDIT command.

All system editor commands are valid and any editor environment you establish as your default should be in force. TED commands other than RUN are not valid.

Installing IEDIT on z/OS

Two files are required for using IEDIT. The files are distributed as members of the FOCCTL.DATA data set and must be copied to a library in the concatenation of data sets allocated to DDNAME SYSPROC.

- FOCIESTL. This macro enables the RUN command and determines where in the file the editor is positioned.
- FOCIERUN. This macro processes the RUN command.

Configuring ibi FOCUS for National Language Support Services

This chapter describes how to add code pages to the FOCUS configuration and change the language settings in effect when FOCUS is invoked.

Introduction to ibi FOCUS National Language Support (NLS) Services

NLS services enable FOCUS to support many different languages. Each supported language has an associated code page. In FOCUS, the mapping of graphic characters from one code page into the graphic characters of another is managed by the FOCUS NLS translation component.

FOCUS comes with the Transcoding Services Generation Utility (TSGU) program that you execute to generate the NLS transcoding table file based on the code page list of your site.

There are no additional allocations you need to issue in order to add or edit your code page and language settings. You can run the TSGU from FOCUS using the FOCUS CLIST or JCL created during installation.

Note: NLS is only supported if your terminal emulator is IBM Personal Communications (PC3270).

You can customize your NLS FOCUS configuration to:

- **Change your code page settings.** You can specify which code page transcoding tables you want to configure for FOCUS. For more information, see Adding New or Alternate Code Pages to FOCUS.
- **Customize NLS default characteristics.** You can change the FOCUS code page and the language FOCUS uses for error messages. For more information, see Configuring FOCUS Default Language Settings.

- **Customize monocasing.** You can customize the conversion of letters from lowercase to uppercase or uppercase to lowercase. For more information, see Configuring Customized FOCUS NLS Monocasing.
- **Customize sorting.** You can customize the sort sequence used by FOCUS. For more information, see Configuring Customized FOCUS NLS Sort Sequences.

Note:

- Customization of your NLS configuration is only necessary if you require support for alternate or additional code pages, or custom monocasing and sorting.
- If you modified your code page configuration in a FOCUS release prior to FOCUS 7.7, and you want to keep the same language and code page configuration, you can copy the CPCODEPG file, any CP**nnnnn** files that were modified, and the NLSCFG file from the FOCCTL.DATA library in the prior FOCUS release to the FOCUS 7.7 library named *install_hlq*.CONF.CFG.
- When you upgrade from a FOCUS 7.7 release to a new release of FOCUS, and you want to keep the same code page and language configuration, you can copy your code page configuration files from the *install_hlq*.CONF.CFG library in the old release of FOCUS to the *install_hlq*.CONF.CFG library in the new release of FOCUS.
- If you want to customize your NLS configuration and the member NLSCFG does not exist in the concatenation of data sets allocated to DDNAME ERRORS, create a member named NLSCFG in the *install_hlq*.CONF.CFG library.
- If you want to configure new code page and language settings for the new release of FOCUS, follow the instructions in Configuring New or Alternate Code Pages for FOCUS.

Sample NLS Configuration Session

This example adds French code page 297 to the FOCUS configuration. The instructions in the remainder of the chapter describe the process in detail but, in most cases, it is a simple process.

1. Copy the following line for French code page 297 into the CPCODEPG file.

```
CP00297   E SBCS  IBM MF France
```

2. Enter FOCUS and issue the following command to generate the transcoding tables.

```
TSGU
```

3. Create the NLSCFG file with the following settings to change the default code page and language settings.

```
LANG=FRE
CODE_PAGE = 297
DATEOUTPUT=DEFAULT
COLLATION=CODEPAGE
```

The detailed instructions in Detailed NLS Configuration Steps first have you copy all files that may be modified or used for copying to a new location in order to leave the original files intact.

Overview of Steps for Configuring Code Page Settings

You must perform the following steps to change your code page configuration:

1. Review your current code page list and decide whether you need alternate or additional code pages.
2. Update the code page generation list of your site with the code page information required for those alternate or additional code pages.
3. If you need to change any of the code pages to conform to the requirements of your site or for the purpose of monocasing or sorting, edit the appropriate code page definition files.
4. Start FOCUS and run the TSGU to generate the new transcoding tables based on the updated code page generation list.
5. If you generated a new FOCUS code page in step 4, configure FOCUS to use the new code page and/or language.

6. While logged out of z/OS, change the session parameters in your PC3270 configuration to use the same code page as the code page to be used by FOCUS.
7. Verify the configuration by logging back in to z/OS and invoking FOCUS.
    a. Issue the ? LANG query command to see the language and code page settings in effect. For example:

```
         NATIONAL LANGUAGE INFORMATION

Language                033/FRENCH      (FRE,fr)
Code Page               297
Client Code Page        297
Dollar                  5B($)
Lowcase alphabet        YES
Decimal notation        OFF(.)
Currency symbol         $
Date/Time format        EDA
NLS sort                NO(BINARY)
NLS upcase/lowcase      NO
NLS Control Characters  OFF
DBCS Flag               OFF(SBCS)
```

    b. Display data that has characters from the new code page to see that they display properly.

During NLS configuration, some of the distributed NLS files need to be edited. In order to leave the original files intact, copy the code pages that you will edit to *install_hlq*.CONF.CFG and edit those copies.

Note: If you reinstall FOCUS over your current production FOCUS libraries, using the same names, the configuration changes will be overwritten. In this case, you should copy these files to another location before reinstalling, and then copy them back after the new installation process is complete.

Overview of NLS Configuration Files

The following table describes the NLS configuration files distributed with FOCUS 7.7 in alias library *install_hlq*.ERRNLS.DATA (physical library *install_hlq*.HOME.ERR):

Member	Description and Use
CPCODEPG	**Description:** Code page generation list. This file is a list of currently active code pages. **Use:** You must update this file in order to change your NLS configuration.
CPCPALL	**Description:** List of language codes and associated code pages. **Use:** This file is a reference file containing a list of language codes and code pages for all languages supported for use with FOCUS.
CP*nnnnn*	**Description:** Code page definition file. This file contains information on each code point value in the code page. There is a code page definition file for every code page listed in the known code page file (CPXCPTBL). **Use:** This file will not be updated unless you want to change any character within the code page character definitions.
CPXCPTBL	**Description:** Known code page list. This file contains a list of enabled code pages for FOCUS products. **Use:** This file is a reference file for finding alternate or additional code pages to add to CPCODEPG.

The following table describes the NLS configuration files that may be created by the TSGU (the utility that generates the tables required for your NLS configuration). These files are generated in the physical library *install_hlq*.CONF.CFG:

Member	Description
CASETBL	**Monocasing table.** This file contains the monocasing tables, which are generated using the TSGU and are based on the code page generation list (CPCODEPG). You only need to generate this table if you

Member	Description
	customized the monocasing options in any of the code page definition files.
SORTTBL	**Sorting table.** This file contains the sorting tables, which are generated using the TSGU and are based on the contents of the code page generation list (CPCODEPG). You only need to generate this table if you customized the sorting options in any of the code page definition files.
TRANTBL	**Transcoding table.** This file contains the transcoding tables, which are generated using the TSGU and are based on the contents of the code page generation list (CPCODEPG).

You also need to create an NLS configuration file, member NLSCFG in the library *install_hlq*.CONF.CFG, if you want to start FOCUS using a non-default language or code page.

You must also configure your terminal emulator software to use the same code page as FOCUS.

ibi FOCUS Default Code Page Configuration

Code page settings are reflected in the code page generation list file *install_hlq*.ERRNLS.DATA(CPCODEPG). This file contains code page settings for FOCUS and it is used by the TSGU to generate the transcoding tables. To identify your current code page settings, view the code page generation list file (CPCODEPG).

During the FOCUS installation, FOCUS is set up by default with the US EBCDIC code page 37. The code page configuration for FOCUS is set up to support the following default code pages:

- CP00037 E SBCS US IBM MF EBCDIC code
- CP00437 A SBCS US PC ASCII code
- CP00137 A SBCS ANSI Character Set for MS-Windows

- CP01047 E SBCS IBM MF Open Systems (Latin 1)
- CP65001 A UTF8 Unicode (UTF-8)

You can add additional code pages to this configuration, replace existing code pages with alternates, or change the properties in a code page file to conform to the standards of your site or to modify the monocasing or sorting properties of the code page.

Detailed NLS Configuration Steps

This section describes how to add code pages to the FOCUS configuration, implement default language settings, configure PC3270 for the same code page as FOCUS, and verify the configuration.

Adding New or Alternate Code Pages for ibi FOCUS

Review your code page configuration requirements. If you did not previously modify your code page configuration but need to do so in the current release of FOCUS, follow the instructions in this section.

If you require customized monocasing or sorting for one or more of your configured code pages, edit the code page definition file for those code pages as described in Advanced NLS Configuration Options.

Add New or Alternate Code Pages to FOCUS

Procedure

1. Copy member CPCODEPG (list of code pages to be configured), any CP*nnnnn* files that you may want to modify, member CPCPALL (list of languages, language codes, and their associated code pages), and member CPXCPTBL (known code page list) files from *install_hlq*.ERRNLS.DATA to *install_hlq*.CONF.CFG.

All changes will be made in the *install_hlq*.CONF.CFG library so that the original files remain intact.

> **Note:** If you reinstall FOCUS over your current production FOCUS libraries, using the same names, the configuration changes will be overwritten. In this case, you should copy these files to another location before reinstalling, and then copy them back after the new installation process is complete.

2. Browse member CPCPALL in the *install_hlq*.CONF.CFG library to determine which code pages are available and supported for the language you want to configure.

   The following is a portion of the CPCPALL file that contains the language abbreviation and supported code pages for French:

   ```
   * LANG=FRE
   cp297
   cp863
   cp137
   cp1047
   cp37
   cp65001
   BR
   ```

3. Copy additional or alternate code pages into CPCODEPG from the known code page file, CPXCPTBL.

   Add the information for each additional or alternate code page on a separate line. Note that only the characters CP and the code page number (for example, CP00297) are required to generate the new transcoding tables. The maximum number of code page entries in the file is 16.

   a. Open the known code page file, member CPXCPTBL in the library *install_hlq*.CONF.CFG.

      The following is a portion of the CPXCPTBL file that contains the code page information for French code page 297 (CP00297):

      ```
      CP00281   E SBCS  IBM MF Japanese English
      CP00284   E SBCS  IBM MF Spain/Latin America
      ```

```
CP00285   E SBCS  IBM MF United Kingdom
CP00297   E SBCS  IBM MF France
```

For a description of all of the fields in CPXCPTBL, see Structure of the Known Code Page File (CPXCPTBL).

b. Copy the lines for the additional or alternate code pages you need from member CPXCPTBL to member CPCODEPG.

For example, to add French code page 297 to your configuration, copy the following line from CPXCPTBL to CPCODEPG:

```
CP00297   E SBCS  IBM MF France
```

If you started with the default CPCODEPG FILE, the new version will contain the following information:

```
CP00037   E SBCS  US IBM MF EBCDIC cod
CP00437   A SBCS  US PC ASCII code
CP00137   A SBCS  ANSI Character Set for MS-Windows
CP01047   E SBCS  IBM MF Open Systems (Latin 1)
CP65001   A UTF8  Unicode (UTF-8)
CP00297   E SBCS  IBM MF France
```

Note: If the desired code page is not listed in the known code page file (CPXCPTBL), refer to the appropriate IBM Character Data Representation Architecture (CDRA) document and create your own, or contact your local ibi representative for information about additional code pages.

4. Execute the FOCUSC CLIST to start FOCUS.

The ISETUP installation procedure creates a CLIST named FOCUSC in the **install_hlq**.CONF.DATA library. This CLIST allocates all of the required libraries for executing FOCUS using the high-level qualifier you chose during the installation process.

Alternatively, you can submit the FOCUS JCL generated by the installation process, member FOCUS in the **install_hlq**.CONF.DATA library. In this case, place the TSGU command in SYSIN. For an example, see Use the TSGU Command.

5. At the FOCUS command prompt, issue the TSGU command to generate the necessary

tables.

For example, to generate the transcoding table (TRANTBL) that adds the new or alternate code pages from the CPCODEPG file, issue the following command.

```
TSGU
```

The tables are created as members in the **install_hlq**.CONF.CFG library.

Next, configure the FOCUS default code page and language as described in Configuring the FOCUS Default Language Settings.

What to do next

If you modified the monocasing information in any of the code page definition files, issue the following command to generate the monocasing table (CASETBL):

```
TSGU CASE
```

If you modified the sorting sequence in any of the code page definition files, issue the following command to generate the sorting table (SORTTBL):

```
TSGU SORT
```

To create all three types of tables (transcoding, monocasing, and sort tables), issue the following command:

```
TSGU GEN
```

After running the TSGU, check the **install_hlq**.CONF.CFG library to make sure the required tables were generated.

For complete information about TSGU command syntax, see Generating New Transcoding Tables.

Configuring ibi FOCUS To Use a New Code Page

When you invoke FOCUS, one language and code page combination will be in effect by default. When you configure NLS Services, the default language and code page are

controlled by settings in the NLSCFG configuration file, member NLSCFG in the *install_hlq*.CONF.CFG library.

For example, to change the default language to French and the code page to 297, enter the following settings in NLSCFG:

```
LANG=FRE
CODE_PAGE=297
```

If there is no NLSCFG member in the concatenation of data sets allocated to DDNAME ERRORS, the FOCUS default language and code page will be in effect. For more information, see FOCUS Default Code Page Configuration.

For complete information about the NLSCFG configuration file, see Use the NLS Configuration File (NLSCFG).

Configuring PC3270 Session Parameters

Before invoking FOCUS, you must configure PC3270 to use the same code page that will be used by FOCUS.

1. Log off your z/OS session.
2. On the PC3270 Communication menu, select **Configure**.
3. Click **Session Parameters**.
4. Select the code page that FOCUS will use from the list of code pages, and click **OK**.

PC3270 will display a message about the new configuration. Accept the change to the new PC3270 code page, and wait for the screen to refresh before logging in again.

Verifying the ibi FOCUS Language Configuration

Once you have configured FOCUS for a new code page and language, you should verify that they are in effect when FOCUS is invoked.

1. Log in to z/OS and invoke FOCUS. You can use the FOCUSC CLIST that was created by the installation procedure.

2. Issue the ? LANG command to check that the language and code page you configured are in effect. For example:

```
         NATIONAL LANGUAGE INFORMATION

Language                033/FRENCH      (FRE,fr)
Code Page               297
Client Code Page        297
Dollar                  5B($)
Lowcase alphabet        YES
Decimal notation        OFF(.)
Currency symbol         $
Date/Time format        EDA
NLS sort                NO(BINARY)
NLS upcase/lowcase      NO
NLS Control Characters  OFF
DBCS Flag               OFF(SBCS)
```

3. Display data that contains characters specific to the new code page to make sure that they display correctly.

Advanced NLS Configuration Options

This section describes how to customize monocasing and sort sequences. Although these advanced options are available, they are not needed in a typical NLS configuration.

Configuring Customized ibi FOCUS NLS Monocasing

Monocasing (also called Case Conversion) is the conversion of a letter from its lowercase to uppercase form (or vice versa). As part of the basic FOCUS initialization, FOCUS is set up with standard monocasing where all requests, except for data between single quotes, are converted to uppercase according to the monocasing table (CASETBL). The monocasing table file *install_hlq*.CONF.CFG(CASETBL) converts a-z to A-Z only. If you require customized monocasing, such as special upper/lowercase accented characters, then you must modify the code page definition file (CP*nnnnn*) and then generate a new NLS monocasing table file (CASETBL) using the TSGU. The new monocasing table is based on the changes made to the code page definition file (CP*nnnnn*).

Note: The FOCUS functions LOCASE and UPCASE respect the NLS monocasing table file (CASETBL).

Customize Your NLS Monocasing Table

Note: As part of the basic initialization, monocasing tables are provided for most of the common European languages. You will only need to customize the monocasing tables if you require a special monocasing configuration.

NLS monocasing involves language-sensitive (code page sensitive) uppercase and lowercase conversion. You can customize the attributes of each character by completing the following steps:

Procedure

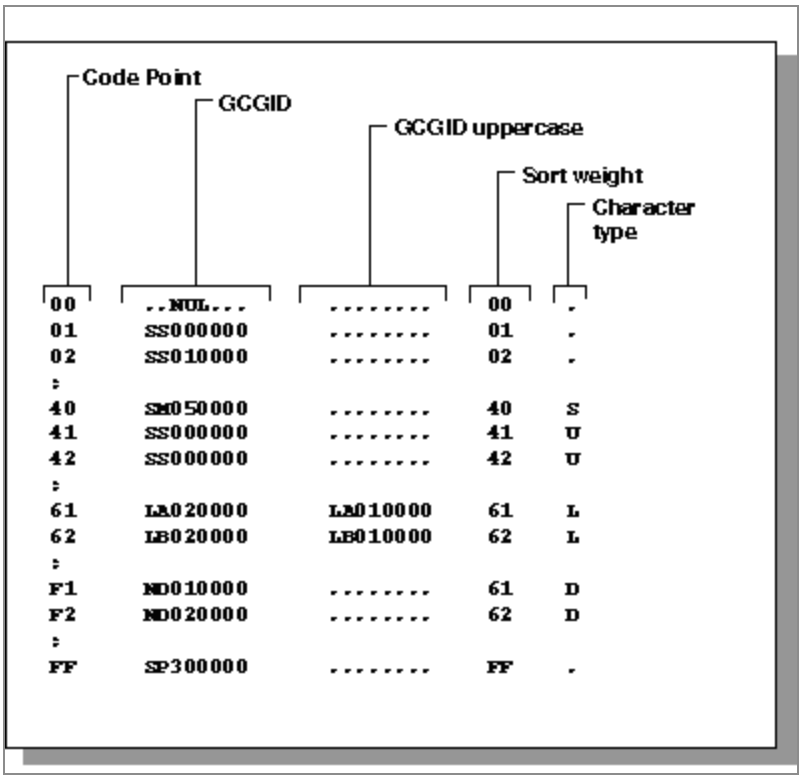
1. Copy the code page definition file you want to edit from the *install_hlq*.ERRNLS.DATA library to the *install_hlq*.CONF.CFG library. The code page definition file (CP*nnnnn*) is named by the code page number. For example, CP00037 contains the monocasing information for US English code page 37. For more information on the code page definition file (CP*nnnnn*), see Use the Code Page Definition File (CPnnnnn).

   Note: You can reference the known code page file (CPXCPTBL) to find the name of the code page definition file.

2. Edit the code page definition file.

   The code page definition file (CP*nnnnn*) contains the Code Point and Graphic Character Global Identifier (GCGID). Make the appropriate changes to GCGID uppercase in the third column and Character type in the fifth column.

   The following is a chart of a sample code page definition file layout:



3. Edit the code page generation list file (CPCODEPG) and add the code page definition information as described in Adding New or Alternate Code Pages to FOCUS. The updated code page generation list (CPCODEPG) is used to regenerate the custom monocasing table file (CASETBL).
4. Execute the TSGU with the parameter CASE.

   The TSGU generates the updated NLS monocasing table file *install_hlq*.CONF.CFG (CASETBL).

Result

Note: For additional information on modifying monocasing values in the code page definition file, refer to the IBM CDRA Library or contact your local ibi representative.

Configuring Customized ibi FOCUS NLS Sort Sequences

As part of the basic FOCUS initialization, FOCUS is set up with standard sorting where FOCUS uses sort sequences of the binary representation of a character string. If you require customized sorting, such as changing your sort order to account for Swedish umlauts (Ü), then you must modify the NLS sorting table file (SORTTBL).

Customize Your NLS Sort Tables

Note: As part of the basic initialization, sorting tables are provided for most of the common European languages. You will only need to customize the sorting tables if you require a special sorting sequence.

If you want to use a weighted sort that accounts for characters that are out of binary sequence, you can customize the sort tables by completing the following steps.

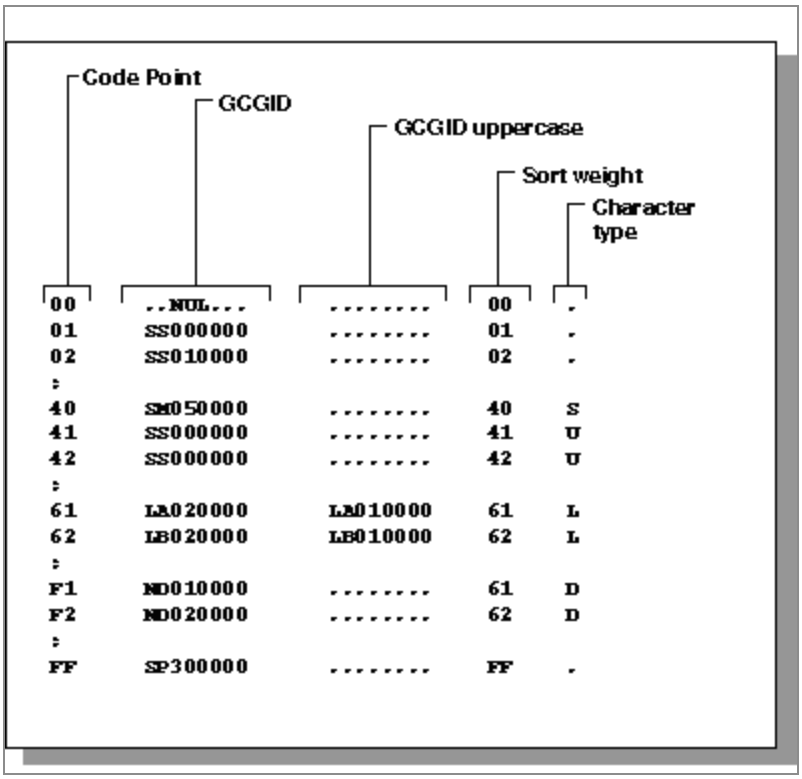
Procedure

1. Copy the code page definition file *install_hlq*.ERRNLS.DATA(CP*nnnnn*), which is named by the code page number, to *install_hlq*.CONF.CFG(CP*nnnnn*). For example, CP00037 contains the sorting information for US English code page 37.

   Note: You can reference the known code page file (CPXCPTBL) to find the name of the code page definition file.

2. Edit the code page definition file For more information on the code page definition file (CP*nnnnn*), see Use the Code Page Definition File (CPnnnnn).

   The code page definition file (CP*nnnnn*) contains the Code Point and Graphic Character Global Identifier (GCGID). Make the appropriate changes to the Sort weight listed in the fourth column. The following is a chart of a sample code page definition file layout:



3. Edit the code page generation list file (CPCODEPG) and add the code page definition information as described in Adding New or Alternate Code Pages to FOCUS. The updated code page generation list (CPCODEPG) is used to regenerate the custom sorting table file (SORTTBL).
4. Execute the TSGU from FOCUS with the parameter SORT.

   The TSGU generates the updated NLS sorting table file *install_hlq*.CONF.CFG (SORTTBL).

Result

Note: For additional information on modifying monocasing values in the code page definition file, refer to the IBM CDRA Library or contact your local ibi representative.

Using the NLS Configuration Files

This section provides detailed descriptions of the NLSCFG configuration file, the Code Page Definition File (CP*nnnnn*), and the Known Code Page File (CPXCPTBL).

Use the NLS Configuration File (NLSCFG)

The NLSCFG configuration file controls the code page and the language used for error messages and characters in FOCUS. You can configure several different code pages and languages in the CPCODEPG file. Using the NLSCFG file, you can specify which one will be in effect when you invoke FOCUS.

You change the FOCUS code page and language by entering the LANG and CODE_PAGE settings in the NLSCFG configuration file. Changing the LANG setting sets all other parameters to valid values.

Note: The LANG setting should match the three-character language abbreviation (language ID) or the language name.

You can find the appropriate language abbreviation for each code page in member CPCPALL in the alias library **install_hlq**.ERRNLS.DATA. The following shows a portion of the CPCPALL file, which includes the language setting for code page 297:

```
* LANG=FRE
cp297
cp863
cp137
cp1047
cp37
cp65001
BR
* LANG=GER
cp273
cp850
cp137
cp1047
cp37
cp65001
BR
```

If you do not configure FOCUS for NLS services, the LANG value used by FOCUS is AMENGLISH. To change the default language to French, enter the following setting in the NLSCFG configuration file:

```
LANG = FRE
```

Error messages are only translated for German, Spanish, French, Dutch, and Japanese. Error messages for all other languages are translated to English.

Note: Swedish and some other languages may only be partially translated.

The following is a reference of keywords in the NLSCFG file and their associated values:

LANG=

Is the language. The list of known languages file (CPCPALL), located in *install_hlq*.ERRNLS.DATA, contains a list of valid values. The value of LANG determines the defaults for other parameters in FOCUS. The default value is AMENGLISH (American English).

COLLATION=

Establishes the collation (sort) sequence. Valid values are:

- **CODEPAGE**. Bases collation sequence on the code page in effect. This is the default value.
- **BINARY.** Bases the collation sequence on binary values. When code page files are not modified, CODEPAGE is the same as BINARY, except when LANGUAGE is Danish, Finnish, German, Norwegian or Swedish in an EBCDIC environment.
- **SRV_CS.** Bases collation sequence on the LANGUAGE setting, and is case-sensitive.
- **SRV_CI.** Bases collation sequence on the LANGUAGE setting, and is case-insensitive

This setting can be overridden by the SET COLLATION command.

DATEOUTPUT=

Localizes month and week names on date format output for display options T, t, TR, tr, W, w, WR and wr. Valid values are:

- **DEFAULT.** Generates English month and week names regardless of the language

setting. This is the default setting.

- **LOCALIZED.** Generates localized month and week names for the current language setting.

  For example, assume FOCUS is configured to use French code page 297. In the following request, the HIRE_DATE field is displayed with the YYMDtr display option:

```
TABLE FILE EMPLOYEE
SUM CURR_SAL HIRE_DATE/YYMDtr
BY DEPARTMENT
ON TABLE SET PAGE NOPAGE
END
```

  Omitting the DATEOUTPUT setting from NLSCFG or entering DATEOUTPUT=DEFAULT displays month names in English:

```
DEPARTMENT         CURR_SAL  HIRE_DATE
----------         --------  ---------
MIS             $108,002.00  1981, November  2
PRODUCTION      $114,282.00  1982, February  2
```

  Entering the setting DATEOUTPUT=LOCALIZED in NLSCFG translates month names to French:

```
DEPARTMENT         CURR_SAL  HIRE_DATE
----------         --------  ---------
MIS             $108,002.00  1981, novembre  2
PRODUCTION      $114,282.00  1982, février  2
```

CURRENCY=

Is a one-to-four character string or a hexadecimal value that identifies a currency symbol. You can use any characters. The default currency symbol is the dollar sign ($). Examples of popular currency symbols and their corresponding character abbreviations include the following.

- **€** or **EUR** for euro.
- **¥** or **JPY** for yen.
- **$** or **USD** for U.S. dollar. This is the default currency symbol.

- **£** or **GBP** for British pound sterling.
- **NIS** for Israeli New Shekel.

The following are examples of hexadecimal values for code page 137.

- **0x80** for the euro symbol.
- **0x24** for the dollar sign.

Sample NLSCFG File

The following NLSCFG file specifies French as the language and 297 as the code page.

```
LANG=FRE
CODE_PAGE = 297
DATEOUTPUT=DEFAULT
COLLATION=CODEPAGE
```

Use the Code Page Definition File (CP*nnnnn*)

The code page definition file *install_hlq*.ERRNLS.DATA(CP*nnnnn*) contains information on the characters for each code point value in the code page.

```
dd aaaaaaaa aaaaaaaa xx h
```

where:

dd

Is the hexadecimal code point value (00 through FF).

aaaaaaaa

Is the Graphic Character Global IDentifier (GCGID).

xx

Is the Sort weight. Consists of a hexadecimal code point value (00 through FF).

h

Is the character type. Possible values are:

L for Lower-case alphabet.

U for Upper-case alphabet.

A for Asian (non-alphabet) character.

D for Digit.

S for Special character.

C for Control (non-printable) character.

Structure of the Known Code Page File (CPXCPTBL)

When you add code pages to the FOCUS configuration, you copy code page information from the known code page file, member CPXCPTBL in the **install_hlq**.ERRNLS.DATA library.

```
CPnnnnn b dbcs-id description
```

where:

CP

Is the code page prefix (always CP).

nnnnn

Is the code page number.

b

Is the character type. Possible values are:

A for ASCII.

E for EBCDIC.

dbcs-id

Is the DBCS identifier (DBCSID).

description

Is a description of the code page.

Using the TSGU to Generate New Transcoding Tables

The TSGU is a multi-functional utility that is used to create the transcoding table (TRANTBL), sorting table (SORTTBL), and monocasing table (CASETBL).

Use the TSGU Command

```
TSGU
TSGU GEN
TSGU KTBL {pdfy_name|??}
TSGU INFO info-command
TSGU CASE
TSGU SORT
```

where:

no parameters

Generates the NLS transcoding table (TRANTBL).

GEN

Generates all the tables (TRANTBL, CASETBL and SORTTBL).

INFO

Displays information about the current NLS configuration.

CASE

Generates the custom monocasing table (CASETBL) binary file.

SORT

Generates the custom sort sequence table (SORTTBL) binary file.

KTBL PD??

Generates the special font information tables (PDFYTBL) when Unicode fonts should be used in PDF format files. You can specify a *pdfy-name* font metrics file for a specific font, or use PD?? to generate all of the files.

Submitting JCL to Generate the Transcoding Table and Unicode PDF Font Tables

In this example, the high-level qualifier for your FOCUS production libraries is FOC7706.

Taiwanese code page 937 has been added to member CPCODEPG in FOC7706.CONF.CFG:

```
CP00037   E SBCS  US IBM MF EBCDIC code
CP00437   A SBCS  US PC ASCII code
CP00137   A SBCS  ANSI Character Set for MS-Windows
CP01047   E SBCS  IBM MF Open Systems (Latin 1)
CP65001   A UTF8  Unicode (UTF-8)
CP00937   E SOSI  Taiwanese IBM MF (cp37+cp835)
```

The following JCL invokes FOCUS, issues the TSGU commands to generate the transcoding and PDF tables, and exits FOCUS:

```
//*  YOUR JOB CARD GOES HERE
//*
//FOCUS    EXEC PGM=FOCUS
//STEPLIB  DD DSN=FOC7706.FOCLIB.LOAD,DISP=SHR
//ERRORS   DD DSN=FOC7706.CONF.CFG,DISP=SHR
//         DD DSN=FOC7706.ERRORS.DATA,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
TSGU
TSGU KTBL PD??
FIN
/*
```

SYSPRINT will show various Generating file messages.

Member NLSCFG in FOC7706.CONF.CFG has been created with the following commands to invoke FOCUS with the new code page and language:

```
LANG = T-CHINESE
CODE_PAGE = 937
DATEOUTPUT = DEFAULT
COLLATION = CODEPAGE
```

Now, you can invoke FOCUS, and code page 937 will be in effect with Taiwanese as the configured language. Issue the following command so that your emulator can display the Chinese characters:

```
SET TERMINAL=IBM5550
```

Use the TSGU Info-Commands

```
TSGU INFO CP [DBCS] [nnn [nnn [...]]] [MAT [DES]]
TSGU INFO CP [SBCS] [nnn [nnn [...]]] [MAT [DES]]
TSGU INFO TRAN [idx [idx [...]]] [M] [V]
TSGU INFO CASE [nnn [nnn [...]]] [M] [V]
TSGU INFO SORT [nnn [nnn [...]]] [M] [V]
TSGU INFO SET
```

where:

CP

Lists transcoding tables.

DBCS

Lists only DBCS transcodings.

SBCS

Lists only SBCS transcodings.

nnn

Code page which only shows given code page transcodings (no leading zeros necessary).

idx

Index which only shows given index transcodings.

MAT

Creates a matrix report for transcoding tables.

DES

Reverses an order of code pages in a matrix report.

TRAN

Shows transcoding table contents (trantbl.err).

CASE

Shows uppercase/lowercase table contents (casetbl.err).

SORT

Shows sort table contents (sorttbl.err).

M

Masks null transcode values in tables.

V

Shows tables in vertical layout.

SET

Shows the list of available languages.

Use the TSGU ? Command

To see the online help information for the TSGU command, issue the following command:

```
TSGU ?
```

The output is:

```
TSGU  : GEN   : cpcodepg-id ::
      : TRAN  : cpcodepg-id :: (default)
      : CASE  : cpcodepg-id ::
      : SORT  : cpcodepg-id ::
      : INFO  : info-command ::
```

```
      : XLAT  : infile  : outfile  :::
      : XLAT  TEMPLATE : cp1 cp2 ::
      : KTBL  : ktbl-command : : xxxx : xxxx : ... ::::
      : ERR   err-command :
```

```
 GEN  : generate all necessary tables (binary files)
 TRAN : generate a TRANTBL and KTBL binary files
 CASE : generate a CASETBL binary file
 SORT : generate a SORTTBL binary file
 INFO : display info of the current Translation Services (? LANG)
 XLAT : convert a file by specified Code Pages in config file (tsgu.nls)
       TEMPLATE shows a sample batch file/unix shell script for multi-
       files to be XLATed. (tsgult only)
 KTBL : generate individual KTBL binary files
 ERR  : convert EDAHOME/nls/*.err file (UNIX and Windows NT only)
 xxxx : DBCS translation table identifier
```

```
cpcodepg-id:
    Max 4 characters. To use customized and saved CPCODEPG.NLS
    If specified, a file named 'cpcp:cpcodepg-id:.nls' is used instead.
    cpcpall.nls and cpcpucs.nls are provided as samples.
```

```
info-command:
    CP   :| DBCS |: : nnn | nnn | ... : : MAT : DES ::
          | SBCS |
    TRAN : idx : idx : ... :: : M : : V ::
    CASE : nnn : nnn : ... :: : M : : V ::
    SORT : nnn : nnn : ... :: : M : : V ::
    ALL

    CP   : Show TRTIDX
    DBCS : Show only DBCS translations
    SBCS : Show only SBCS translations
      idx  : Index, show only given indexes translations
      nnn  : Code Page, show only given Code Pages translations
      MAT  : Make a matrix report for TRTIDX
      DES  : Reverses an order of Code Pages in a matrix report
      TRAN : Show translation tables (TRANTBL)
      CASE : Show upcase/lowcase tables (CASETBL)
      SORT : Show sort tables (SORTTBL)
      M    : Mask null translate values in tables
      V    : Show tables vertical layout against horizontal
      ALL  : Show intlcm info for debugging
```

```
ktbl-command:
      CHK
      FMT
      CNV : UDC : : nn | CPU | MEM :
      RVS : UDC : : nn | CPU | MEM :
      LST : FFFF :
      ADD

      CHK : Check the KTBLs translation integrity
      FMT : Format the KTBLs
      CNV : Convert the KTBLs
      RVS : Make a reverse translation table for the KTBLs
      LST : List the DBCS translation
      ADD : Make a new DBCS translation from two KTBLs
      UDC : Remove Unused UDC code translation
      nn  : Threshold level for indexing the ranges
      CPU : nn = 65536, to make only one index range
      MEM : nn = 4, to make the smallest size format for the KTBLs
      FFFF: Produce entries for source code even they are translated
             to invalid codes
```

```
err-command:
     GEN  aaa
     UCS  aaa

     GEN : Create *:aaa:.err files in the directory EDACONF/etc.
           (JPE and GE5 only)
     UCS : Create *(aaa).err files in Unicode (utf-8) into the
           directory EDACONF/etc.
     aaa : Language abbreviation
```

Interface Installation

This chapter describes procedures for installing special interfaces for external security systems.

Upgrading and Using an External Password Security System

This section describes how to use the CA-ACF2 Interface that you installed with prior releases of FOCUS.

This procedure assumes that the FOCUSID module that makes the connection between FOCUS and CA-ACF2 already exists. You may need to relink it to run it in this release.

If you install FOCUS 7.7.03 gen 778 or higher, and you had a working FOCUSID module in a prior FOCUS release (for example, 7.6.13) or a prior 7.7.03 gen, copy it from that release or gen to your newly installed test version of the **newhlq**.FOCLIB.LOAD library. If it has already been linked to AMODE 31, RMODE ANY, then it will work without relinking. If the FOCUSID module was linked to AMODE 24, RMODE 24, then FOCUS will abend with an 0C4. To prove that this abend is caused by the FOCUSID module, rename the FOCUSID module to FOCUSIDO and restart FOCUS. If FOCUS comes up without abending, then you must use the following JCL to relink the module AMODE 31, RMODE ANY.

```
//Add  JOB card here
//*****************************************************************
//* Update the 'installed_hlq' variable to the high-level qualifier
//* you used during ISETUP installation
//* Update the dsn_load variable to the fully-qualified name of
//* your test load library.
//* Note that the dsn_load value should not be in quotes.
//*****************************************************************
//SETS     SET SOURCE='installed_hlq.F.HOME.DATA(FOCUSIDA)'
//      SET LOADLIB=dsn_load
//*****************************************************************
//* Compile  for  ASSEMBLER (ASMA90) ...
//*****************************************************************
```

```
//ASSEMBLR EXEC PGM=ASMA90,
// PARM='NODECK,OBJECT,LIST,XREF(SHORT)'
//SYSIN    DD  DISP=SHR,DSN=&SOURCE
//SYSLIB   DD  DISP=SHR,DSN=SYS1.MACLIB
//         DD  DISP=SHR,DSN=SYS1.MODGEN
//SYSTERM  DD  SYSOUT=*
//SYSPUNCH DD  DUMMY
//SYSLIN   DD  DSN=&&LOADSET,DISP=(,PASS),UNIT=SYSDA,
//             SPACE=(CYL,(1,1)),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SYSPRINT DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSCPRT  DD  SYSOUT=*
//SYSUT1   DD  SPACE=(CYL,(1,1)),UNIT=SYSDA
```

Note: Because your FOCUSID module is customized at your site and, therefore is not distributed with FOCUS, you must copy it to your new test and production environments every time you install a new gen of FOCUS.

FOCUSibi FOCUS-Supplied CA-ACF2 Interface

The FOCUS/CA-ACF2 Interface is an optional FOCUS facility that integrates FOCUS security features with the CA-ACF2 file security system. It provides the following benefits to FOCUS users and security administrators:

- The FOCUS user ID set by the CA-ACF2 Interface is not echoed to the terminal and is not shown in batch job output listings. This ensures greater security than explicit SET USER and SET PASS commands, which both echo output to the screen and show it in batch output listings.
- Since FOCUS users do not need to know their FOCUS user IDs, security is improved.
- Many logon IDs can be translated into the same FOCUS user ID. This enables the creation of classes of FOCUS users, each of whom has a private logon ID but the same level of access to FOCUS data sources.
- There is no need to embed FOCUS user ID declarations in catalogued FOCUS procedures. When employees leave or FOCUS user IDs are changed, security can be maintained without changing production procedures. In addition, database administrators can assume all responsibility for FOCUS user ID maintenance.

Each logon ID exists on a CA-ACF2 LOGONID record and is paired with a FOCUS user ID that provides access to FOCUS data sources. Upon entering FOCUS, the CA-ACF2 Interface infers the FOCUS user ID from the user-supplied logon ID. This FOCUS user ID is maintained for the duration of the session, and may or may not be overridden by the user. The result of the inference is equivalent to issuing the FOCUS command:

```
SET USER = userid
```

Once installed, FOCUS users see no difference between the default version of FOCUS and the CA-ACF2 protected version until they attempt to override the FOCUS user IDs. Database administrators can use the CA-ACF2 CHANGE command to assign FOCUS user IDs to logon IDs as default or imposed FOCUS user IDs.

Assign a Default FOCUS User ID

The LOGONID record contains a default FOCUS user ID that the user can override, which can be up to eight bytes long and is inferred for the LOGONID record of the user.

To assign a default FOCUS user ID for a logon ID, use the CHANGE command and specify a FOCUS user ID (up to eight bytes long) that does not end in a period. For example, if logon user SMITH wishes to access the data as TOM, he (or the /jadministrator) would issue the following CA-ACF2 command:

```
CHANGE SMITH FOCUSID(TOM)
```

This is functionally equivalent to issuing the FOCUS command

```
SET USER = TOM
```

or

```
SET PASS = TOM
```

issued by user ID SMITH. SMITH could override this latest access by issuing another SET USER or SET PASS command, or a Dialogue Manager -PASS command.

Assign an Imposed FOCUS User ID

When the CA-ACF2 LOGONID record contains an imposed FOCUS user ID, the user cannot override it. An imposed FOCUS user ID can have up to seven bytes plus a period, for a maximum length of eight bytes.

To assign an imposed FOCUS user ID to a logon ID, use the CA-ACF2 CHANGE command and include a period (.) at the end of the FOCUS user ID. For example,

```
CHANGE SMITH FOCUSID(TOM.)
```

This assigns an imposed FOCUS user ID of TOM. for logon ID, SMITH. In this case, the user operates FOCUS with an imposed level of access to FOCUS files that he cannot change. FOCUS behaves as if user SMITH had entered

```
SET USER = TOM
```

as his first FOCUS command. However, the period at the end of the FOCUS user ID in the LOGONID record prevents the user from overriding this level of access. Any attempt to override the imposed ID results in a FOCUS diagnostic message.

Unidentified FOCUS Users

It is not necessary to identify all possible FOCUS users in the CA-ACF2 LOGONID records. Users whose LOGONID records provide no FOCUS user ID operate FOCUS as if the FOCUS/CA-ACF2 Interface were not installed. If they wish to access files protected by FOCUS security features, they must identify themselves through an explicit SET USER or SET PASS command or the Dialogue Manager -PASS command.

Subsystem Sample JCL and Zaps

The following members of FOCCTL.DATA contain sample JCL and zaps for use with the IBI Subsystem.

SUBSYSNM: Changing the Subsystem Name

Run the SUBSYSNM zap to change the default Subsystem name:

```
//*** Your JOB card
//*
//*--------------------------------------------------------------------*
//*                                                                    *
//* This zap may be applied to change the default subsystem name     *
//* used by the IBI Subsystem.                                         *
//*                                                                    *
//* If you have defined the IBI Subsystem in SYS1.PARMLIB(IEFSSNxx), *
//* be sure to update the definition with the new subsystem name.    *
//*                                                                    *
//* As this job updates one of the members copied by SUBSYSCP,       *
//* SUBSYSCP must be run after this JOB.                               *
//*                                                                    *
//* Affected products:                                                 *
//*      SU, MSO, SmartMode, HiperFOCUS, IMS BMP                       *
//*                                                                    *
//*--------------------------------------------------------------------*
//*
//ZAP      EXEC PGM=AMASPZAP
//SYSPRINT DD   SYSOUT=*
//SYSLIB   DD   DISP=SHR,DSN=prefix.FOCLIB.LOAD
//SYSIN    DD   *
  NAME MVSDLL   SUBSYSN
  REP  00  C9C2C9E2             <-- 'IBIS'
  NAME SUBSYSI  SUBSYSN
  REP  00  C9C2C9E2             <-- 'IBIS'
/*
//
```

SUBSYSCP: Copying SUBSYSI Into a Separate Library

Use the SUBSYSCP JCL below to copy the IBI Subsystem modules from FOCLIB.LOAD to a secured library.

Note: When applying maintenance, such as a PTF or Service Pack, the IBI Subsystem modules must be in FOCLIB.LOAD. If they were moved to a separate library, copy them back into FOCLIB.LOAD and after executing the maintenance job, return them to your subsystem library with SUBSYSCP.

```
//*** Your JOB card
//*
//*-------------------------------------------------------------------*
//*                                                                   *
//* This job can be used to move the IBI Subsystem modules from       *
//* FOCLIB.LOAD to a secured library.  The target library must be     *
//* APF-authorized.                                                   *
//*                                                                   *
//* If the zap provided in SUBSYSNM has been run, ensure that this    *
//* job is re-run.                                                    *
//*                                                                   *
//* Remove all members of SSLIB prior to running this.                *
//*                                                                   *
//* It is recommended that you delete the modules from FOCLIB.LOAD    *
//* after this job is run.                                            *
//*                                                                   *
//*-------------------------------------------------------------------*
//*
//COPY    EXEC PGM=IEBCOPY
//FOCLIB  DD   DISP=SHR,DSN=prefix.FOCLIB.LOAD
//SSLIB   DD   DISP=OLD,DSN=prefix.SUBSYS.LOAD
//SYSIN   DD   *
 COPYMOD INDD=FOCLIB,OUTDD=SSLIB
 S M=(SUBSYSI,SUBCSAMD,SUBPCRMD,SUBPERMD,SUBVECMD)
/*
//
```

SUBSYSIJ: Running SUBSYSI

Use the SUBSYSIJ JCL to start and control the IBI Subsystem:

```
//*** Your JOB card
//*
//*-------------------------------------------------------------------*
//*                                                                   *
//* Sample JCL to run SUBSYSI, used for starting and controlling      *
//* the IBI Subsystem.  (Additional controls are available from       *
//* the system console; refer to the appropriate product              *
//* documentation for details.)  To run SUBSYSI as a started task,    *
//* refer to member SUBSYSP.                                          *
//*                                                                   *
//* SUBSYSI must be run from an APF-authorized library.               *
//*                                                                   *
//* Update the PARM field to select the desired operation.            *
//* Valid parameters are:  START, RESTART, REPLACE, STOP, REMOVE      *
//*                                                                   *
//*-------------------------------------------------------------------*
//*
//SUBSYSI  EXEC PGM=SUBSYSI,PARM=START
//STEPLIB  DD   DISP=SHR,DSN=prefix.SUBSYS.LOAD
//
```

SUBSYSP: Sample Cataloged Procedure

The SUBSYSP JCL is a sample cataloged procedure for running the Subsystem as a started task:

```
//*-------------------------------------------------------------------*
//* SUBSYSP:  Sample cataloged procedure for running SUBSYSI as a     *
//*           started task.  To run SUBSYSI as a batch job,           *
//*           refer to member SUBSYSI.                                *
//*                                                                   *
//*-------------------------------------------------------------------*
//*
//SUBSYSI  PROC OPT=START
//*
//SUBSYSI  EXEC PGM=SUBSYSI,PARM=&OPT
//STEPLIB   DD  DISP=SHR,DSN=prefix.SUBSYS.LOAD
```

```
//*
//*-------------------------------------------------------------------*
```

Subsystem Error Messages

These SUBSYSI messages are written directly to the operating system console by a WTO operation. Since they are not read from ERRORS.DATA, there is no national language support for SUBSYSI messages.

SUBSYSI Error Messages

```
SUBSYS001   UNABLE TO CREATE SUBSYSTEM
```

An error has been encountered while creating the subsystem. Contact your IBI support representative.

```
SUBSYS002   CREATED SUBSYSTEM NOT FOUND
```

The subsystem search has failed even though the subsystem has just been created. Contact your IBI support representative.

```
SUBSYS003   UNABLE TO LOAD MODULES TO CSA
```

Error during LOAD of modules to CSA. Refer to the accompanying CSV*xxxx* messages for further information.

```
SUBSYS004   INVALID PARAMETERS PASSED
```

An invalid parameter has been passed to SUBSYSI. Valid parameters are: START, RESTART, REPLACE, STOP, and REMOVE.

```
SUBSYS005   SUBSYSTEM XXXX NOT FOUND. UNABLE TO STOP
```

The specified subsystem cannot be located; the requested operation will not be performed.

```
SUBSYS006   SUBSYSTEM XXXX NOT FOUND. UNABLE TO REPLACE
```

The specified subsystem cannot be located; the requested operation will not be performed.

```
SUBSYS007   SUBSYSTEM XXXX NOT FOUND. UNABLE TO REMOVE
```

The specified subsystem cannot be located; the requested operation will not be performed.

```
SUBSYS008   SUBSYSTEM XXXX NOT FOUND. UNABLE TO INFO
```

The specified subsystem cannot be located; the requested operation will not be performed.

```
SUBSYS009   UNABLE TO ACTIVATE PC ROUTINE
```

A bad return code was received during activation of the PC routines. Contact your IBI support representative.

```
SUBSYS010   UNABLE TO RUN NON-AUTHORIZED
```

An attempt was made to run SUBSYSI from an unauthorized library. Copy SUBSYSI and the associated modules to an APF-authorized library and try again.

```
SUBSYS100   SUBSYSTEM XXXX SUCCESSFULLY CREATED
```

The subsystem control blocks have been created and linked to the system control blocks.

```
SUBSYS101   SUBSYSTEM XXXX SUCCESSFULLY INITIALIZED
```

The subsystem has been initialized and all control blocks have been filled in.

```
SUBSYS102   SUBSYSTEM XXXX DOES NOT EXIST. START MODE ASSUMED
```

SUBSYSI was called with 'RESTART', but it has not been initialized. 'START' will be assumed.

```
SUBSYS103   SUBSYSTEM XXXX ALREADY EXISTS. RESTART MODE ASSUMED
```

SUBSYSI was called with 'START' but it was already initialized. 'RESTART' will be assumed.

```
SUBSYS104   SUBSYSTEM XXXX ENVIRONMENT REPLACED
```

SUBSYSI was called with 'REPLACE' and the operation succeeded.

```
SUBSYS105   SUBSYSTEM XXXX STOPPED
```

The subsystem is logically stopped. The CSA modules are still loaded but are not active.

```
SUBSYS106   SUBSYSTEM XXXX INTERFACE REMOVED
```

The subsystem has been stopped, and modules have been removed from the CSA. The SSCT and the PC routine still exist, but are unused.

```
SUBSYS107   SUBSYSTEM XXXX COUNTER ERROR OCCURRED
```

The subsystem has been stopped, but one or more users are still using it. A 30-second wait to allow all activity to stop has not fixed this.

This message generally indicates that the subsystem was stopped while one or more IBI servers were still running. If this is not the case, contact your IBI support representative.

Link Pack Area Sample JCL

The following members of FOCCTL.DATA contain sample JCL and control statements for placing re-entrant and serially reusable FOCUS modules in the Extended Link Pack Area.

JFSALLPA: Allocating Space for the ibi FOCUS LPA Library

Run the JFSALLPA JCL to allocate the FOCUS LPA library, FOCLPA.LOAD:

```
//JFSALLPA JOB (USER,ACCOUNT),'PROGRAMMER NAME',REGION=4096K,
//*        TYPRUN=SCAN,
//         CLASS=S,MSGCLASS=A,MSGLEVEL=(1,1),NOTIFY=USER
//*********************************************************************
//*                                                                   *
//*  NAME: JFSALLPA                                                   *
//*                                                                   *
//*  FUNCTION: ALLOCATE DASD SPACE FOR THE FOCUS LPA LIBRARY.         *
//*                                                                   *
//*  USAGE NOTES:                                                     *
//*                                                                   *
//*      THIS JOB WILL ALLOCATE A PARTITIONED DATASET TO BE USED FOR  *
//*      THE FOCUS LPA LIBRARY.  IF YOU WISH TO OBTAIN GREATER        *
//*      PERFORMANCE BENEFITS FOR TSO USERS AND MVS BATCH JOBS, YOU   *
//*      MAY PERFORM THE OPTIONAL TASK OF MOVING THE REENTRANT FOCUS  *
//*      MODULES, FROM THE FOCUS LOAD LIBRARY, FOCLIB.LOAD, TO A      *
//*      SPECIAL LOAD LIBRARY, FOCLPA.LOAD, WHICH WOULD BE LIMITED TO *
//*      THE REENTRANT MODULES. PLEASE NOTE, HOWEVER, THAT THIS       *
//*      SCENERIO IS ONLY APPLICABLE TO TSO AND MVS BATCH; MSO AND    *
//*      EDA USE A DIFFERENT TECHNIQUE TO MANAGE THE PROGRAMS;        *
//*      THEREFORE, NO BENEFITS WOULD BE REALIZED UNDER MSO AND EDA.  *
//*                                                                   *
```

```
//*      THE PROCEDURE FOR PERFORMING THIS TASK REQUIRES THE          *
//*      FOLLOWING STEPS USING IBI SUPPLIED BATCH JOBS:               *
//*                                                                   *
//*  A - ALLOCATE THE SPECIAL FOCUS LPA LIBRARY: FOCLPA.LOAD.         *
```

```
//*      (EXECUTE JOB JFSALLPA.)                                    *
//*                                                                 *
//*  B - COPY THE REENTRANT FOCUS MODULES FROM FOCLIB.LOAD TO       *
//*      FOCLPA.LOAD. (EXECUTE JOB .)                          *
//*                                                                 *
//*  C - INSTALL FOCLPA.LOAD INTO MVS AS AN LPA LIBRARY.            *
//*                                                                 *
//*  D - DELETE THE REENTRANT FOCUS MODULES FROM FOCLIB.LOAD.       *
//*      (EXECUTE JOB JFSDELPA.)                                    *
//*                                                                 *
//*                                                                 *
```

```
//*      DUE CARE MUST BE TAKEN TO ENSURE THAT ANY MAINTENANCE, SUCH  *
//*      AS A PTF OR PATCH TAPE, IS PROPERLY APPLIED TO THE REENTRANT *
//*      MODULES. THE PROCEDURE FOR PERFORMING MAINTENANCE IS AS      *
//*      FOLLOWS, USING IBI SUPPLIED BATCH JOBS:                      *
//*                                                                   *
//*  A - COPY ALL THE REENTRANT MODULES BACK INTO FOCLIB.LOAD          *
//*      FROM FOCLPA.LOAD. (USE JOB JFSCPBCK. IT IS RECOMMENDED       *
//*      THAT YOU COMPRESS FOCLIB.LOAD BEFORE YOU PERFORM THE COPY.)  *
//*                                                                   *
//*  B - APPLY THE MAINTENANCE (PATCHES OR PTFS).                     *
//*                                                                   *
//*  C - COPY THE REENTRANT MODULES FROM FOCLIB.LOAD BACK INTO        *
//*      FOCLPA.LOAD. (REPEAT JOB JFSCPLPA. IT IS RECOMMENDED THAT    *
//*      YOU COMPRESS FOCLPA.LOAD BEFORE YOU PERFORM THE COPY.)       *
//*                                                                   *
//*  D - DELETE THE REENTRANT MODULES FROM FOCLIB.LOAD.               *
//*      (REPEAT JOB JFSDELPA).                                       *
//*                                                                   *
//*                                                                   *
//*  INSTRUCTIONS:                                                    *
//*                                                                   *
//*  1 - UPDATE JOB CARD WITH VALID SITE SPECIFIC VALUES.             *
//*                                                                   *
//*  2 - PREFIX MUST BE CHANGED TO THE HIGH LEVEL QUALIFIERS          *
//*      USED FOR FOCUS-PROGRAM DATASETS.                             *
//*                                                                   *
```

```
//*  3 - VOLID MUST BE CHANGED TO A VALID VOLUME IDENTIFIER.          *
//*                                                                   *
//*  4 - DEVICE IS THE DEVICE TYPE FOR THE DISK ALLOCATIONS.          *
//*                                                                   *
//*                                                                   *
//*******************************************************************
```

```
//JFSALLPA  PROC  PREFIX='XXXXXXXX',
//          VOLID='XXXXXX',
//          DEVICE='SYSDA'
//*
//STEP1     EXEC  PGM=IEFBR14
//*
//FOCLPA    DD    DISP=(NEW,CATLG,DELETE),
//          DSN=&PREFIX..FOCLPA.LOAD,
//          UNIT=&DEVICE,
//          VOL=SER=&VOLID,
//          SPACE=(CYL,(20,1,24)),
//          DCB=(RECFM=U,BLKSIZE=13030,DSORG=PO,LRECL=0)
//*
//JFSALLPA  PEND
//DOIT      EXEC  JFSALLPA
//*******************************************************************
```

JFSCPLPA: Copying the Reentrant Modules to FOCLPA.LOAD

Run the JFSCPLPA JCL to copy the reentrant modules to the FOCUS LPA library, FOCLPA.LOAD:

```
//JFSCPLPA JOB (USER,ACCOUNT),'PROGRAMMER NAME',REGION=4096K,
//*       TYPRUN=SCAN,
//        CLASS=S,MSGCLASS=A,MSGLEVEL=(1,1),NOTIFY=USER
//*******************************************************************
//*                                                                 *
//*  NAME: JFSCPLPA                                                 *
//*                                                                 *
//*  FUNCTION: COPY REENTRANT MODULES FROM FOCLIB.LOAD TO FOCLPA.LOAD.*
//*                                                                 *
//*  USAGE NOTES:                                                   *
//*                                                                 *
//*      This job will copy the REENTRANT modules from FOCLIB.LOAD to *
//*      FOCLPA.LOAD. After this step is successfully completed, you  *
//*      must re-fresh the LPA library, using an IPL or another       *
//*      comparable method. Also, following the IPL, it is necessary  *
//*      to scratch the REENTRANT modules from FOCLIB.LOAD to insure  *
//*      that the REENTRANT modules are obtained from the LPA, and    *
//*      not from STEPLIB or JOBLIB.  If you wish to obtain greater   *
//*      performance benefits for TSO users and MVS batch jobs, you   *
```

```
//*      may perform the optional task of moving the REENTRANT FOCUS  *
//*      modules, from the FOCUS LOAD library, FOCLIB.LOAD, to a      *
//*      special LOAD library, FOCLPA.LOAD, which would be limited to *
//*      the REENTRANT modules. Please note, however, that this       *
//*      scenario is only applicable to TSO and MVS batch; MSO AND    *
//*      EDA use a different technique to manage the programs;        *
//*      therefore, no benefits would be realized under MSO and EDA.  *
//*                                                                   *
//*                                                                   *
//*      The procedure for performing this task requires the          *
//*      following steps using IBI supplied batch jobs:               *
//*                                                                   *
//*  A - Allocate the special FOCUS LPA library: FOCLPA.LOAD.         *
//*      (EXECUTE JOB JFSALLPA.)                                      *
//*                                                                   *
```

```
//*  B - Copy the REENTRANT FOCUS modules from FOCLIB.LOAD to         *
//*      FOCLPA.LOAD. (EXECUTE JOB JFSCPLPA.)                         *
//*                                                                   *
//*      Review the output of JFSCPLPA. The second step is a FOCUS    *
//*      report that lists the ROOT modules in the newly created      *
//*      FOCLPA LIBRARY. The total amount of LPA storage that the     *
//*      modules require is listed on the report.                     *
//*                                                                   *
//*      Verify that all the members are listed with a "Y" in the     *
//*      RENT, REUS, AND EXEC columns.  Normally this will be the     *
//*      case. However, applying MAINTENANCE may, in rare             *
//*      circumstances, change the execution characteristics of the   *
//*      module.                                                      *
//*                                                                   *
//*      Delete any module in FOCLPA that does not have a "Y" in      *
//*      all THREE of these attributes.                               *
//*                                                                   *
//*      Also update the members JFSDLCN1 and JFSCPCN1 to remove      *
//*      the references to those modules as well. This will           *
//*      ensure that the MAINTENANCE procedure below will work        *
//*      correctly.                                                   *
//*                                                                   *
//*  C - Install FOCLPA.LOAD into MVS as an LPA library.              *
//*                                                                   *
//*  D - Delete the REENTRANT FOCUS modules from FOCLIB.LOAD.         *
//*      (EXECUTE JOB JFSDELPA.)                                      *
//*                                                                   *
//*                                                                   *
//*      Due care must be taken to ensure that any MAINTENANCE, such  *
//*      as a PTF, is properly applied to the REENTRANT modules. The  *
```

```
//*      procedure for performing MAINTENANCE is as follows, using    *
//*      IBI supplied batch jobs:                                     *
//*                                                                   *
//*  A - Copy all the REENTRANT modules back into FOCLIB.LOAD         *
//*      from FOCLPA.LOAD. (USE JOB JFSCPBCK. It is recommended       *
//*      that you compress FOCLIB.LOAD before you perform the copy.)  *
//*                                                                   *
//*  B - Apply the MAINTENANCE (PTFS).                                *
//*                                                                   *
//*  C - Copy the REENTRANT modules from FOCLIB.LOAD back into        *
//*      FOCLPA.LOAD. (REPEAT JOB JFSCPLPA. It is recommended that    *
//*      you compress FOCLPA.LOAD before you perform the copy.)       *
//*                                                                   *
//*  D - Delete the REENTRANT modules from FOCLIB.LOAD.               *
//*      (REPEAT JOB JFSDELPA).                                       *
//*                                                                   *
//*                                                                   *
```

```
//*  INSTRUCTIONS:                                                    *
//*                                                                   *
//*  1 - Update the JOB CARD with valid site specific values.         *
//*                                                                   *
//*  2 - All copy control statements are in the member JFSCPCN1.      *
//*      This member is allocated to the SYSIN DD contained herein.   *
//*      Review the statements in member JFSCPCN1 to verify that the  *
//*      copy for CORFOC is consistent with your current installation *
//*      of FOCUS, ie: Has the CORFOC module name been changed? Call  *
//*      IBI TECHNICAL SUPPORT for assistance if necessary at         *
//*      212-736-4433. Make appropriate adjustments as needed.        *
//*                                                                   *
//*  3 - PREFIX attribute must be changed to the High Level Qualifiers*
//*      used for FOCUS-PROGRAM datasets. Adjust the JCL as needed.   *
//*                                                                   *
//*                                                                   *
//*********************************************************************
//JFSCPLPA  PROC  PREFIX='XXXXXXXX'
//*
//COPY2LPA EXEC PGM=IEBCOPY
//SYSPRINT DD   SYSOUT=*
//SYSUT3   DD   UNIT=VIO,SPACE=(CYL,(1,1))
//SYSUT4   DD   UNIT=VIO,SPACE=(CYL,(1,1))
//INLIB    DD   DISP=SHR,DSN=&PREFIX..FOCLIB.LOAD
//OUTLIB   DD   DISP=SHR,DSN=&PREFIX..FOCLPA.LOAD
//SYSIN    DD   DISP=SHR,DSN=&PREFIX..FOCCTL.DATA(JFSCPCN1)
//LISTLPA  EXEC PGM=FOCUS
//STEPLIB  DD DISP=SHR,DSN=&PREFIX..FOCLIB.LOAD
```

```
//ERRORS   DD DISP=SHR,DSN=&PREFIX..ERRORS.DATA
//FOCEXEC  DD DISP=SHR,DSN=&PREFIX..FOCCTL.DATA
//MASTER   DD DISP=SHR,DSN=&PREFIX..MASTER.DATA
//FOCMAP   DD DISP=SHR,DSN=&PREFIX..FOCLPA.LOAD
//SYSPRINT DD SYSOUT=*
//JFSCPLPA PEND
//LISTLPA  EXEC JFSCPLPA
//LISTLPA.SYSIN    DD *
TABLE FILE FOCMAP
HEADING CENTER
"<DSN"
" "
" SIZE AND LKED ATTRIBUTES OF LPA ROOT MEMBERS "
" ALIAS NAMES ARE NOT LISTED "
" "
SUM ISIZE AS 'LPA SIZE' WHERE ALIAS NE 'Y'
PRINT ALIAS RENT REUS EXEC
      ISIZE AS 'SIZE,DEC'
BY TTR
BY MEMBER
ON TABLE COLUMN-TOTAL
END
FIN
/*
```

JFSDELPA: Deleting the Reentrant Modules From FOCLIB.LOAD

After copying the reentrant modules to FOCLPA.LOAD, run this job to delete them from FOCLLIB.LOAD:

```
//JFSDELPA JOB (USER,ACCOUNT),'PROGRAMMER NAME',REGION=4096K,
//*        TYPRUN=SCAN,                                                *
//         CLASS=S,MSGCLASS=A,MSGLEVEL=(1,1),NOTIFY=USER
//*****************************************************************
//*                                                                 *
//*  NAME: JFSDELPA                                                 *
//*                                                                 *
//*  FUNCTION: DELETE REENTRANT MODULES FROM FOCLIB.LOAD.           *
//*                                                                 *
//*  USAGE NOTES:                                                   *
//*                                                                 *
```

```
//*      THIS JOB WILL DELETE THE REENTRANT MODULES FROM FOCLIB.LOAD. *
//*      EXECUTE THIS JOB AFTER YOU HAVE SUCCESSFULLY COPIED THE      *
//*      REENTRANT FOCUS MODULES FROM FOCLIB.LOAD INTO FOCLPA.LOAD.   *
//*      IF YOU WISH TO OBTAIN GREATER PERFORMANCE BENEFITS FOR TSO   *
//*      USERS AND MVS BATCH JOBS, YOU MAY PERFORM THE OPTIONAL TASK  *
//*      OF MOVING THE REENTRANT FOCUS MODULES, FROM THE FOCUS LOAD   *
//*      LIBRARY, FOCLIB.LOAD, TO A SPECIAL LOAD LIBRARY, FOCLPA.LOAD,*
//*      WHICH WOULD BE LIMITED TO THE REENTRANT MODULES. PLEASE NOTE,*
//*      HOWEVER, THAT THIS SCENERIO IS ONLY APPLICABLE TO TSO AND MVS*
//*      BATCH; MSO AND EDA USE A DIFFERENT TECHNIQUE TO MANAGE THE   *
//*      PROGRAMS; THEREFORE, NO BENEFITS WOULD BE REALIZED UNDER MSO *
//*      AND EDA.                                                     *
//*                                                                   *
```

```
//*      THE PROCEDURE FOR PERFORMING THIS TASK REQUIRES THE          *
//*      FOLLOWING STEPS USING IBI SUPPLIED BATCH JOBS:               *
//*                                                                   *
//*  A - ALLOCATE THE SPECIAL FOCUS LPA LIBRARY: FOCLPA.LOAD.         *
//*      (EXECUTE JOB JFSALLPA.)                                      *
//*                                                                   *
//*  B - COPY THE REENTRANT FOCUS MODULES FROM FOCLIB.LOAD TO         *
//*      FOCLPA.LOAD. (EXECUTE JOB JFSCPLPA.)                         *
//*                                                                   *
//*  C - INSTALL FOCLPA.LOAD INTO MVS AS AN LPA LIBRARY.              *
//*                                                                   *
//*  D - DELETE THE REENTRANT FOCUS MODULES FROM FOCLIB.LOAD.         *
//*      (EXECUTE JOB JFSDELPA.)                                      *
//*      THE IEHPROGM CONTROL CARDS ARE CONTAINED IN ONE OR           *
//*      MORE MEMBERS OF ....FOCCTL.DATA. SEE THE SYSIN DD            *
//*      CARD FOR THE ACTUAL MEMBER(S) THAT ARE REFERENCED.           *
//*                                                                   *
```

```
//*  DUE CARE MUST BE TAKEN TO ENSURE THAT ANY MAINTENANCE, SUCH      *
//*  AS A PTF OR PATCH TAPE, IS PROPERLY APPLIED TO THE REENTRANT     *
//*  MODULES. THE PROCEDURE FOR PERFORMING MAINTENANCE IS AS          *
//*  FOLLOWS, USING IBI SUPPLIED BATCH JOBS:                          *
//*                                                                   *
//*  A - COPY ALL THE REENTRANT MODULES BACK INTO FOCLIB.LOAD         *
//*      FROM FOCLPA.LOAD. (USE JOB JFSCPBCK. IT IS RECOMMENDED       *
//*      THAT YOU COMPRESS FOCLIB.LOAD BEFORE YOU PERFORM THE COPY.)  *
//*                                                                   *
//*  B - APPLY THE MAINTENANCE (PATCHES OR PTFS).                     *
//*                                                                   *
//*  C - COPY THE REENTRANT MODULES FROM FOCLIB.LOAD BACK INTO        *
//*      FOCLPA.LOAD. (REPEAT JOB JFSCPLPA. IT IS RECOMMENDED THAT    *
```

```
//*      YOU COMPRESS FOCLPA.LOAD BEFORE YOU PERFORM THE COPY.)       *
//*                                                                   *
//*  D - DELETE THE REENTRANT MODULES FROM FOCLIB.LOAD.               *
//*      (REPEAT JOB JFSDELPA).                                       *
//*                                                                   *
//*                                                                   *
//*  INSTRUCTIONS FOR TAYLORING THIS JOB AND REFERENCED IEHPROGM      *
//*  CONTROL CARDS.                                                   *
//*                                                                   *
//*  1 - UPDATE JOB CARD WITH VALID SITE SPECIFIC VALUES.             *
//*                                                                   *
//*  2 - USE THE ISPF EDITOR TO MAKE THE FOLLOWING CHANGES GLOBALLY   *
//*      WITHIN THIS MEMBER AND ALL MEMBERS THAT ARE ALLOCATED TO     *
//*      THE SYSIN DD CARD OF THIS JOB.                               *
//*                                                                   *
```

```
//*     A - "PREFIX" MUST BE CHANGED TO THE HIGH LEVEL QUALIFIERS     *
//*         USED FOR FOCUS-PROGRAM DATASETS.                          *
//*                                                                   *
//*     B - "VOLID" MUST BE CHANGED TO A VALID VOLUME IDENTIFIER.     *
//*         THIS "VOLID" MUST SPECIFY THE VOLUME SERIAL NUMBER        *
//*         WHERE FOCLIB.LOAD RESIDES.                                *
//*                                                                   *
//*     C - "DEVICE" IS THE DEVICE TYPE FOR THE IEHPROGM UTILITY.     *
//*         THIS "DEVICE" MUST SPECIFY THE ACTUAL DEVICE TYPE WHERE   *
//*         FOCLIB.LOAD RESIDES, SUCH AS 3390 OR 3380, ETC.           *
//*                                                                   *
//*  3 - WHEN YOU ARE MODIFYING A MEMBER ALLOCATED TO SYSIN           *
//*      BE SURE TO USE THE PROPER SYNTAX FOR IBM OS UTILITIES.       *
//*                                                                   *
//*     A - LINE CONTINUATIONS REQUIRE A NON-BLANK CHARACTER IN       *
//*         COLUMN 72.                                                *
//*                                                                   *
//*     B - ALL CONTINUATIONS MUST BEGIN EXACTLY IN COLUMN 16.        *
//*                                                                   *
//*                                                                   *
```

```
//*******************************************************************
//*
//STEP1   EXEC PGM=IEHPROGM
//SYSPRINT DD  SYSOUT=*
//FOCLIB   DD  DISP=SHR,UNIT=DEVICE,
//         VOL=SER=VOLID
//SYSIN    DD  DISP=SHR,DSN=PREFIX.FOCCTL.DATA(JFSDLCN1)
//*
```

JFSCPBCK: Restoring the Reentrant Modules to FOCLIB.LOAD

When applying maintenance to the FOCUS libraries, first restore them from FOCLPA.LOAD to FOCLIB.LOAD using this job:

```
//JFSCPBCK JOB (USER,ACCOUNT),'PROGRAMMER NAME',REGION=409
//*        TYPRUN=SCAN,
//         CLASS=S,MSGCLASS=A,MSGLEVEL=(1,1),NOTIFY=USER
//*****************************************************************
//*                                                               *
//*  NAME: JFSCPBCK                                               *
//*                                                               *
//*  FUNCTION: COPY REENTRANT MODULES FROM FOCLPA.LOAD TO FOCLIB.LOAD.*
//*            (IE: USE THIS JOB TO RESTORE THE MODULES)          *
//*                                                               *
//*  USAGE NOTES:                                                 *
//*                                                               *
//*      THIS JOB WILL COPY THE REENTRANT MODULES FROM FOCLPA.LOAD TO *
//*      FOCLIB.LOAD. THE PRIMARY PURPOSE OF THIS JOB IS TO       *
//*      FACILITATE MAINTENANCE, SUCH AS THOSE PERFORMED WITH A PATCH *
//*      OR AN INDIVIDUAL PTF TAPE.  UPON COMPLETION OF THE       *
//*      MAINTENANCE, THE PROCEDURES FOR COPYING THE REENTRANT    *
//*      MODULES INTO FOCLPA MUST BE REPEATED.  IF YOU WISH TO OBTAIN *
//*      GREATER PERFORMANCE BENEFITS FOR TSO USERS AND MVS BATCH  *
//*      JOBS, YOU MAY PERFORM THE OPTIONAL TASK OF MOVING THE    *
//*      REENTRANT FOCUS MODULES, FROM THE FOCUS LOAD LIBRARY,    *
//*      FOCLIB.LOAD, TO A SPECIAL LOAD LIBRARY, FOCLPA.LOAD, WHICH *
//*      WOULD BE LIMITED TO THE REENTRANT MODULES. PLEASE NOTE,   *
//*      HOWEVER, THAT THIS SCENERIO IS ONLY APPLICABLE TO TSO AND *
//*      MVS BATCH; MSO AND EDA USE A DIFFERENT TECHNIQUE TO MANAGE *
//*      THE PROGRAMS; THEREFORE, NO BENEFITS WOULD BE REALIZED UNDER *
//*      MSO AND EDA.                                             *
//*                                                               *
//*                                                               *
```

```
//*      THE PROCEDURE FOR PERFORMING THIS TASK REQUIRES THE      *
//*      FOLLOWING STEPS USING IBI SUPPLIED BATCH JOBS:           *
//*                                                               *
//*  A - ALLOCATE THE SPECIAL FOCUS LPA LIBRARY: FOCLPA.LOAD.     *
//*      (EXECUTE JOB JFSALLPA.)                                  *
//*                                                               *
//*  B - COPY THE REENTRANT FOCUS MODULES FROM FOCLIB.LOAD TO     *
//*      FOCLPA.LOAD. (EXECUTE JOB JFSCPLPA.)                     *
```

```
//*                                                                   *
//*  C - INSTALL FOCLPA.LOAD INTO MVS AS AN LPA LIBRARY.              *
//*                                                                   *
//*  D - DELETE THE REENTRANT FOCUS MODULES FROM FOCLIB.LOAD.         *
//*      (EXECUTE JOB JFSDELPA.)                                      *
//*                                                                   *
//*                                                                   *
//*      DUE CARE MUST BE TAKEN TO ENSURE THAT ANY MAINTENANCE, SUCH  *
//*      AS A PTF OR PATCH TAPE, IS PROPERLY APPLIED TO THE REENTRANT *
//*      MODULES. THE PROCEDURE FOR PERFORMING MAINTENANCE IS AS      *
//*      FOLLOWS, USING IBI SUPPLIED BATCH JOBS:                      *
//*                                                                   *
//*  A - COPY ALL THE REENTRANT MODULES BACK INTO FOCLIB.LOAD         *
//*      FROM FOCLPA.LOAD. (USE JOB JFSCPBCK. IT IS RECOMMENDED       *
//*      THAT YOU COMPRESS FOCLIB.LOAD BEFORE YOU PERFORM THE COPY.)  *
//*      THE IEBCOPY CONTROL STATEMENTS ARE CONTAINED IN ONE OR       *
//*      MORE MEMBERS OF FOCCTL.DATA. REFER TO THE SYSIN DD CARD      *
//*      FOR THE SPECIFICS.                                           *
//*                                                                   *
//*  B - APPLY THE MAINTENANCE (PATCHES OR PTFS).                     *
//*                                                                   *
//*  C - COPY THE REENTRANT MODULES FROM FOCLIB.LOAD BACK INTO        *
//*      FOCLPA.LOAD. (REPEAT JOB JFSCPLPA. IT IS RECOMMENDED THAT    *
//*      YOU COMPRESS FOCLPA.LOAD BEFORE YOU PERFORM THE COPY.)       *
//*                                                                   *
//*  D - DELETE THE REENTRANT MODULES FROM FOCLIB.LOAD.               *
//*      (REPEAT JOB JFSDELPA).                                       *
//*                                                                   *
```

```
//*                                                                   *
//*  INSTRUCTIONS:                                                    *
//*                                                                   *
//*  1 - UPDATE JOB CARD WITH VALID SITE SPECIFIC VALUES.             *
//*                                                                   *
//*  2 - ALL COPY CONTROL STATEMENTS ARE IN THE MEMBER JFSCPCN1.      *
//*      THIS MEMBER IS ALLOCATED TO THE SYSIN DD BELOW.              *
//*      REVIEW THE STATEMENTS IN MEMBER JFSCPCN1 TO VERIFY THAT THE  *
//*      COPY FOR CORFOC IS CONSISTENT WITH YOUR CURRENT INSTALLATION *
//*      OF FOCUS, IE: HAS THE CORFOC MODULE NAME BEEN CHANGED?  CALL *
//*      IBI TECHNICAL SUPPORT FOR ASSISTANCE IF NECESSARY AT         *
//*      212-736-4433. MAKE APPROPRIATE ADJUSTMENTS AS NEEDED.        *
//*                                                                   *
//*  3 - PREFIX MUST BE CHANGED TO THE HIGH LEVEL QUALIFIERS          *
//*      USED FOR FOCUS-PROGRAM DATASETS. ADJUST THE JCL AS NEEDED.   *
//*                                                                   *
//*                                                                   *
```

```
//*******************************************************************
//JFSCPBCK  PROC  PREFIX='XXXXXXXX'
//*
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD   SYSOUT=*
//SYSUT3   DD   UNIT=VIO,SPACE=(CYL,(1,1))
//SYSUT4   DD   UNIT=VIO,SPACE=(CYL,(1,1))
//INLIB    DD   DISP=SHR,DSN=&PREFIX..FOCLPA.LOAD
//OUTLIB   DD   DISP=SHR,DSN=&PREFIX..FOCLIB.LOAD
//JFSCPBCK PEND
//DOIT     EXEC JFSCPBCK
//SYSIN    DD   DISP=SHR,DSN=&PREFIX..FOCCTL.DATA(JFSCPCN1)
/*
```

JFSCPCN1: Control Statements for JFSCPLPA and JFSCPBCK

This member contains the IEBCOPY control statements used by jobs JFSCPLPA and JFSCPBCK:

```
*
* MEMBER: JFSCPCN1
* DATASET: PREFIX.FOCCTL.DATA
*
* This member contains IEBCOPY UTILITY CONTROL STATEMENTS for
* the jobs JFSCPLPA AND JFSCPBCK. They copy REENTRANT FOCUS
* modules to the appropriate library. See the descriptions in
* the aforementioned jobs for detailed instructions.
*
* The PRIMARY or ROOT names of the modules are in alphabetical
* sequence. Any ALIAS names are included in the same select
* statement that specifies the ROOT name.
*
* FOCUS modules that have an RMODE OF 24 are excluded from
* being copied. In addition, the following module(s) are excluded
* because their control points are subject to being "ZAPPED".
*   MVSDLL, SSCONSEC, HFINST
*
*
*
*
```

```
*
*
```

```
   COPY     INDD=((INLIB,R)),OUTDD=OUTLIB
   SELECT   MEMBER=(CDTAB)
   SELECT   MEMBER=(CORFOC)
   SELECT   MEMBER=(DQSQLF)
   SELECT   MEMBER=(EDXFOC)
   SELECT   MEMBER=(EMGSRV)
   SELECT   MEMBER=(FMI)
   SELECT   MEMBER=(FOCMIL)
   SELECT   MEMBER=(FOCUTL)
   SELECT   MEMBER=(GNTINT)
   SELECT   MEMBER=(GRMMNT)
   SELECT   MEMBER=(HFFUNC)
   SELECT   MEMBER=(IMSRV)
   SELECT   MEMBER=(INTCBS)
   SELECT   MEMBER=(MASPAR)
   SELECT   MEMBER=(MFP)
   SELECT   MEMBER=(MNTIPR)
   SELECT   MEMBER=(NLSP)
   SELECT   MEMBER=(NTDM)
   SELECT   MEMBER=(NTDUMP)
   SELECT   MEMBER=(NTHR)
   SELECT   MEMBER=(NWH)
   SELECT   MEMBER=(OSL)
   SELECT   MEMBER=(PARSER)
   SELECT   MEMBER=(QDATACOM)
   SELECT   MEMBER=(QFMI)
   SELECT   MEMBER=(QFQDBE)
   SELECT   MEMBER=(QIDMSR)
   SELECT   MEMBER=(QIMSX)
   SELECT   MEMBER=(QLEGACY,QTOTAL,QTOTIN,                              X
                 QS2K,QHLIX,QFSP000)
```

```
  SELECT   MEMBER=(QMFINT)
   SELECT   MEMBER=(QSQLDS)
   SELECT   MEMBER=(QSWDB2)
   SELECT   MEMBER=(QVSAMX)
   SELECT   MEMBER=(RMH)
   SELECT   MEMBER=(RTH)
   SELECT   MEMBER=(SQLDS)
   SELECT   MEMBER=(SQLFOC)
   SELECT   MEMBER=(SQLGET)
   SELECT   MEMBER=(TSCOM3)
```

```
  SELECT   MEMBER=(UFAAPI)
  SELECT   MEMBER=(UTL)
  SELECT   MEMBER=(VSAMX)
  SELECT   MEMBER=(VVSET)
  SELECT   MEMBER=(WFINIT)
  SELECT   MEMBER=(WTINIT)
  SELECT   MEMBER=(XVSRV)
* END OF MEMBER: JFSCPCN1
```

JFSDLCN1: SCRATCH Statements Used by Job JFSDELPA

This member is used by job JFSDELPA to remove the reentrant modules from FOCLIB.LOAD after copying them to FOCLPA.LOAD:

```
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=CDTAB
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=CORFOC
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=DQSQLF
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=EDXFOC
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=EMGSRV
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=FMI
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=FOCMIL
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=FOCUTL
  SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
               VOL=SYSDA=VOLSER,                                   C
               MEMBER=GNTINT
```

```
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=GRMMNT
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=HFFUNC
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=IMSRV
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=INTCBS
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=MASPAR
```

```
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=MFP
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=MNTIPR
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=NLSP
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=NTDM
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=NTDUMP
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=NTHR
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=NWH
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=OSL
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=PARSER
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QDATACOM
```

```
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QFMI
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QFQDBE
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QHLIX
```

```
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QIDMSR
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QIMSX
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QLEGACY
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QTOTAL
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QTOTIN
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QS2K
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QFSP000
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QMFINT
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QSQLDS
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QSWDB2
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=QVSAMX
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=RMH
```

```
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=RTH
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=SQLDS
```

```
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=SQLFOC
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=SQLGET
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=TSCOM3
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=UFAAPI
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=UTL
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=VSAMX
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=VVSET
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=WFINIT
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=WTINIT
SCRATCH      DSNAME=PREFIX.FOCLIB.LOAD,                          C
             VOL=SYSDA=VOLSER,                                   C
             MEMBER=XVSRV
```

ibi Documentation and Support Services

For information about this product, you can read the documentation, contact Support, and join Community.

How to Access ibi Documentation

Documentation for ibi products is available on the Product Documentation website, mainly in HTML and PDF formats.

The Product Documentation website is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The documentation for this product is available on the ibi™ FOCUS® Documentation page.

How to Contact Support for ibi Products

You can contact the Support team in the following ways:

- To access the Support Knowledge Base and getting personalized content about products you are interested in, visit our product Support website.
- To create a Support case, you must have a valid maintenance or support contract with a Cloud Software Group entity. You also need a username and password to log in to the product Support website. If you do not have a username, you can request one by clicking **Register** on the website.

How to Join ibi Community

ibi Community is the official channel for ibi customers, partners, and employee subject matter experts to share and access their collective experience. ibi Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from ibi products. For a free registration, go to ibi Community.

Legal and Third-Party Notices

SOME CLOUD SOFTWARE GROUP, INC. (“CLOUD SG”) SOFTWARE AND CLOUD SERVICES EMBED, BUNDLE, OR OTHERWISE INCLUDE OTHER SOFTWARE, INCLUDING OTHER CLOUD SG SOFTWARE (COLLECTIVELY, “INCLUDED SOFTWARE”). USE OF INCLUDED SOFTWARE IS SOLELY TO ENABLE THE FUNCTIONALITY (OR PROVIDE LIMITED ADD-ON FUNCTIONALITY) OF THE LICENSED CLOUD SG SOFTWARE AND/OR CLOUD SERVICES. THE INCLUDED SOFTWARE IS NOT LICENSED TO BE USED OR ACCESSED BY ANY OTHER CLOUD SG SOFTWARE AND/OR CLOUD SERVICES OR FOR ANY OTHER PURPOSE.

USE OF CLOUD SG SOFTWARE AND CLOUD SERVICES IS SUBJECT TO THE TERMS AND CONDITIONS OF AN AGREEMENT FOUND IN EITHER A SEPARATELY EXECUTED AGREEMENT, OR, IF THERE IS NO SUCH SEPARATE AGREEMENT, THE CLICKWRAP END USER AGREEMENT WHICH IS DISPLAYED WHEN ACCESSING, DOWNLOADING, OR INSTALLING THE SOFTWARE OR CLOUD SERVICES (AND WHICH IS DUPLICATED IN THE LICENSE FILE) OR IF THERE IS NO SUCH LICENSE AGREEMENT OR CLICKWRAP END USER AGREEMENT, THE LICENSE(S) LOCATED IN THE “LICENSE” FILE(S) OF THE SOFTWARE. USE OF THIS DOCUMENT IS SUBJECT TO THOSE SAME TERMS AND CONDITIONS, AND YOUR USE HEREOF SHALL CONSTITUTE ACCEPTANCE OF AND AN AGREEMENT TO BE BOUND BY THE SAME.

ibi, the ibi logo, FOCUS, iWay, WebFOCUS, RStat, Information Builders, Studio, and TIBCO are either registered trademarks or trademarks of Cloud Software Group, Inc. in the United States and/or other countries.

All other product and company names and marks mentioned in this document are the property of their respective owners and are mentioned for identification purposes only. You acknowledge that all rights to these third party marks are the exclusive property of their respective owners. Please refer to Cloud SG’s Third Party Trademark Notices (https://www.cloud.com/legal) for more information.

This document includes fonts that are licensed under the SIL Open Font License, Version 1.1, which is available at: https://scripts.sil.org/OFL

Copyright (c) Paul D. Hunt, with Reserved Font Name Source Sans Pro and Source Code Pro.

Cloud SG software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. See the “readme” file for the availability of a specific version of Cloud SG software on a specific operating system platform.

THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENT COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THIS DOCUMENT. CLOUD SG MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S), THE PROGRAM(S), AND/OR THE SERVICES DESCRIBED IN THIS DOCUMENT AT ANY TIME WITHOUT NOTICE.

THE CONTENTS OF THIS DOCUMENT MAY BE MODIFIED AND/OR QUALIFIED, DIRECTLY OR INDIRECTLY, BY OTHER DOCUMENTATION WHICH ACCOMPANIES THIS SOFTWARE, INCLUDING BUT NOT LIMITED TO ANY RELEASE NOTES AND "README" FILES.

This and other products of Cloud SG may be covered by registered patents. For details, please refer to the Virtual Patent Marking document located at https://www.cloud.com/legal.