CA 2E

Installation Guide

Release 8.7

ca
technologies

Documentation Changes

The following documentation updates have been made since the last release of this documentation:

- New toolkit data objects

  - Toolkit Data Objects (see page 49)

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At http://ca.com/support, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services

- Information about user communities and forums

- Product and documentation downloads

- CA Support policies and guidelines

- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

To provide feedback about CA Technologies product documentation, complete our short customer survey which is available on the CA Support website at http://ca.com/docs.

Install Changes Release 8.7

The following documentation updates have been made since the last release of this documentation:

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Chapter 1: Installation Overview

The first four chapters of this guide describe how to install the CA® 2E and CA 2E Toolkit products on your IBM i machine. These products were formerly known as the Advantage 2E and the Advantage Xtras Toolkit products, respectively. This guide refers to the two products collectively as either the *CA 2E base products* or the *CA 2E products*.

This section contains the following topics:

Types of Installation

There are three types of CA 2E product installations that you can perform:

- First-time installation

  Perform this type of installation if you are a new customer (or if you are re-installing the software). See the chapter "Installing CA 2E."

- Upgrade installation

  Perform this type of installation if you want to upgrade existing products with the new product features in this release. See the chapter, "Upgrade Installations."

- Parallel installation

  Perform this type of installation if you are currently a CA 2E user and you want to load the new release libraries under different names than your current CA 2E product library names. You might perform this type of installation if you are a Beta test site for a new release of the product and you do not want to disrupt your production environment during the Beta period. See the chapter, "Parallel Installations."

It is recommended that you read the rest of this chapter and all sections pertaining to your specific type of installation before installing CA 2E or the CA 2E Toolkit products.

Regardless of the type of installation you choose, print and complete the worksheets in the Appendix, *Installation Worksheets*. These worksheets can assist you in determining the proper library names, and help you to track the progress of your installation.

Prerequisites

Prerequisites for a CA 2E product installation include:

- For supported operating sustems refer to the System Requirements in the Readme
- CA 2E authorization codes

  Contact the CA Technical Support if you need a copy of your authorization code(s).

National Language Support

This guide includes instructions related to both the CA 2E Developer National Language libraries and the End User Environment National Language libraries.

These libraries are available on a separate DVD and are not included with the GA version of the English product. You must specifically order the language DVD to install these national language libraries.

Product Authorization

The CA 2E Toolkit and CA 2E product depend on an a*uthorization library* to control access to the product libraries.

The product DVD contains a template licensing library called YLUSLIB0. The licensing command YCRTLUSLIB uses the YLUSLIB0 template to create or update the licensing library (YLUSLIB).

After successful execution of the YCRTLUSLIB command, the YLUSLIB0 library no longer resides on your system and is replaced with the YLUSLIB licensing library. YLUSLIB is the library that controls the CA 2E Authorization Code for your IBM i server.

The specific authorization instructions for the installation type you select are located in the applicable chapter of this guide.

Authority Requirements for the Installation

We recommend that you sign on as QSECOFR (or with a user profile that has the *ALLOBJ, *SECADM, *SAVSYS and *JOBCTL special authorities).

The actual security level you use is dependent upon your environment. You should check with your System Administrator for the actual security profile to use.

Chapter 2: Installing CA 2E

This chapter describes how to install CA 2E if you do not have any prior releases of the product installed on your machine.

The instructions that follow assume that you will install the product by inserting the product installation DVD into a network-connected PC's DVD drive and transfer files to the IBM i server using FTP. If you want to install the product from an IBM i DVD drive, see the appendix, "Installing from an IBM i DVD Drive."

This section contains the following topics:

Before You Begin

Before you begin the installation, note the following:

- Print and complete the worksheets in the appendix "Installation Worksheets." These worksheets can help you make decisions regarding library names and other information as you install the new release.

- Ensure that you have the authorization codes for all of the CA 2E products you plan to install.

  Contact the CA Technical Support if you need a copy of your authorization code(s).

- If you are also upgrading to a new release of CA 2E Change Management Option, you need to contact MKS Support to get the required MKS Security codes for that release.

Installing the Software

Installing CA 2E involves the following tasks:

- Sign on with correct authority

- Copy files to the IBM i server

- Restore product libraries

- Configure the software

- Authorize the product

Sign On with Correct Authority

Sign on with the QSECOFR user profile or equivalent (for details on required authority, see the chapter Installation Overview (see page 9).

Set your logging level as follows:

```
CHGJOB LOG(4 00 *SECLVL) LOGCLPGM(*YES)
```

Copy Files to the IBM i Server

This procedure describes how to use FTP to copy files from the network-connected PC to the IBM i server.

Note: If you are installing from the IBM i server's DVD drive, substitute the steps in the appendix, "Installing from an IBM i DVD Drive," for this procedure.

1. Insert the CA 2E installation DVD into a network-connected PC's DVD drive.

2. Display the contents of the DVD to view the SAVF files you need to copy to the IBM i server as follows:

   ```
   <drive>:\> DIR/P
   ```

3. Create a temporary library on the IBM i server to contain the SAVF files:

   ```
   CRTLIB LIB(TEMP2E)
   ```

4. Open a DOS command prompt.

5. Use FTP to copy the save files from the installation DVD to the TEMP2E library using these commands:

   ```
   FTP myIBM i      (where myIBM i is the name of the target IBM i server)
   myuserid         (where myuserid is an IBM i user profile)
   mypassword       (where mypassword is an IBM i password)
   bin
   lcd <drive>:\
   cd TEMP2E
   QUOTE SITE NAMEFMT 1
   PUT y1sy.savf
   ```

   Use additional PUT commands to transfer all of the appropriate SAVF files to your IBM i server, using the completed worksheets in the appendix "Installation Worksheets" as a guide.

   ```
   QUIT     (The QUIT command closes the FTP session.)
   EXIT     (The EXIT command closes the DOS session.)
   ```

Restore Product Libraries

Use this procedure to restore the CA 2E product libraries from the SAVF files copied from the installation DVD in the previous section.

1. Enter one Restore Library (RSTLIB) command for each of the SAVF files in the TEMP2E library.

   Specify the Shipped Library Name for the SAVF parameter and the Library Name you have selected for the RSTLIB parameter. Refer to the following examples for more information:

   ■ To restore the Toolkit base product library to a library named Y1SY, enter the following:

   ```
   RSTLIB SAVLIB(Y1SY) DEV(*SAVF) SAVF(TEMP2E/Y1SY) RSTLIB(Y1SY)
   ```

   ■ To restore the Toolkit developer environment national language library and merge it with the Toolkit base product library, enter the following:

   ```
   RSTLIB SAVLIB(Y1SYVENG) DEV(*SAVF) SAVF(TEMP2E/Y1SYVENG) RSTLIB(Y1SY)
   ```

   ■ To submit the restore commands to run in batch, use the SBMJOB command:

   ```
   SBMJOB CMD(RSTLIB SAVLIB(Y1SY) DEV(*SAVF) SAVF(TEMP2E/Y1SY
   RSTLIB(Y1SY)) JOB(Y1SY) JOBQ(QBATCH) LOG(4 00 *SECLVL) LOGCLPGM(*YES)

   SBMJOB CMD(RSTLIB SAVLIB(Y1SYVENG) DEV(*SAVF) SAVF(TEMP2E/Y1SYVENG)
   RSTLIB(Y1SY)) JOB(Y1SYVENG) JOBQ(QBATCH) LOG(4 00 *SECLVL) LOGCLPGM(*YES)
   ```

2. Review the job logs to verify that all objects were restored successfully, and then save the job log using the command:

   ```
   DSPJOBLOG  OUTPUT(*PRINT)
   ```

   Retain the resulting QPJOBLOG spool file. If you encounter errors, CA Technical Support may be able to use the job log to assist in resolving the problem.

Web Services Support

If you plan to use the Web Services support, you will need to download the YCA structure and install it to the IFS in the root directory. The product DVD contains a save file called YCA.savf.

Note: For CA r8.1 SP2 the YCA structure contained Advantage2EEJB and Advantage2EWSP. Because the EJB Option was withdrawn for r8.5, YGENEJB and YGENWSPXY commands are no longer available.

If YCA already exists in the IFS, you can rename it and then restore the new version of YCA, or you can just restore the new YCA to a different name and then copy in the new directories to your existing YCA folder. If you rename your existing version of YCA, you can then copy any data from there that you want to retain into your new YCA directory.

You must restore this directory from the save file shipped with the product. To do this, run the following command:

RST DEV('/qsys.lib/libname.lib/YCA.file') OBJ(('/YCA'))

libname

> The library that contains the YCA save file

Remove the installation DVD from the PC's DVD drive.

Also the IBM Web Services Server and scripts must be installed—they are shipped with i6.1 and higher. See the chapter *Web Service Creation* in the *Building Applications guide* for the specific products and PTFs that you need.

Note: Regardless of release, we recommend that you obtain the latest i5/OS PTFs.

You must separately create and configure the IBM Web services server. See IBM's *Web Administration Interface Guide* for more information.

Configure the Software

Prior to starting the software, you must configure CA 2E for your development environment.

Note: If you have renamed or merged your product libraries, use the library name you selected in place of the product library named in the following steps. You can disregard instructions that specify product libraries that you did not install.

1. Sign on to the IBM i server as QSECOFR or equivalent, if you are not already signed on.

2. Set the logging level as follows:

    CHGJOB LOG(4 00 *SECLVL) LOGCLPGM (*YES)

Configuring National Language Libraries

Use this procedure to set parameters for national language support.

1. Reset the default national language for the product, if you require a default national language other than English as follows:

    CHGDTAARA   DTAARA(Y1SY/YYLNSYA)   VALUE (*national-language-code*)

    > This value is shipped as *ENG.

    CHGDTAARA   DTAARA(Y2SY/YPRDLNGSYA)   VALUE (*national-language-code*)

    > This value is shipped as *ENG.

National language codes are listed on the worksheets in the appendix, "Installation Worksheets." The value in the data area must begin with an asterisk (*) and is followed immediately by the national language library code.

2. Reset the internal national language library name data area, if you merged a Developer Environment National Language library into Y2SY (for example, if you merged Y2SYVENG into Y2SY):

CHGDTAARA   DTAARA(Y2SY/YLNG*xxx*SYA)   VALUE(Y2SY)

where *xxx* is the national language library code listed on the worksheets in the appendix "Installation Worksheets."

Authorize the Product

You need to perform the following tasks to authorize the product:

- Add product libraries to the current library list.
- Run the licensing routines and enter authorization codes.

Add to the Current Library List

Add your data objects library and the CA 2E product libraries to your current library list using the EDTLIBL command:

Note: QTEMP must be at the top of your library list.

- QTEMP
- Y1SYVxxx
- Y1SY
- Y2SYRPG
- Y2SYCBL
- Y2SYVxxx
- Y2SY
- QGPL

where *xxx* is the national language library code on the worksheets in the appendix, "Installation Worksheets." If you have multiple national languages, position the English library below the other libraries.

For example, if you installed English only and restored Y1SYVENG into Y1SY and Y2SYVENG into Y2SY, your library list appears as follows:

- QTEMP
- Y1SY

- Y2SYRPG

- Y2SYCBL

- Y2SY

- QGPL

Run the Licensing Routines

Authorize CA 2E using the authorization code and the following instructions:

1. Verify that you restored the library YLUSLIB0 from your product DVD with the command:

   `WRKLIB YLUSLIB0`

2. Execute the command YCRTLUSLIB to create the library YLUSLIB for a first time installation. If this is not a first-time installation, this command updates the existing YLUSLIB library.

3. Verify that the library YLUSLIB exists on your IBM i server:

   `WRKLIB YLUSLIB`

4. Press the F4 key to prompt the YGRTLICAUT command so that you can key in the security code(s) you obtained from the Total License Care team or web site. Enter each set of four digit numbers into each field and then press the Enter key. This authorizes the product(s) on your server.

5. Use the Display Product Licenses command, YDSPLICPRD, to display the list of licensed products, the release level, expiration dates, and the maximum number of concurrent interactive jobs you are allowed.

6. Make a note of the expiration dates on the checklist.

7. Continue with the configuration activities.

Note: If you make an error while entering the authorization code, re-enter the code(s). If you receive an error message when you attempt to use the product, contact Technical Support.

Creating Data Objects

1. Create the CA 2E Toolkit data objects.

   These objects can be placed either in the Toolkit base product library or in another non-CA 2E user library.

   Note: Do not put the objects into QGPL.

   ```
   YCRTY1DTA  LIB(Y1SY)      or
   YCRTY1DTA  LIB(new-data-objects-library)
   ```

2. Authorize the Toolkit user profile and password extension functions:

   `YSETY1AUT`

   This command enables the Toolkit User Profile and Password Validation functions.

3. Save the job log using the command:

   `DSPJOBLOG  OUTPUT(*PRINT)`

   Retain the resulting QPJOBLOG spool file. If you encounter errors, CA Technical Support may be able to use the job log to assist in resolving the problem.

4. Verify that no one is using the CA 2E Licensing Library using the Object Lock (WRKOBJLCK) command:

   `WRKOBJLCK OBJ(QSYS/YLUSLIB) OBJTYPE(*LIB)`

   `WRKOBJLCK OBJ(YLUSLIB/YLICREGP) OBJTYPE(*FILE) MBR(*ALL)`

5. Build the YSYS library list (you can later use this library list for building a CA 2E model):

   `YBLDLIBLST LIBLST(YSYS) CURLIB(*NOCHG)`

   For more information about Toolkit library lists, see the *Toolkit Reference Guide*.

Review 2E System Values

Review your CA 2E system values (see the following table), then use the YCHGMDLVAL command to change one or more of these product defaults.

System values are defaults used during CA 2E model creation. The defaults for all system values except YACTSYM and YDATFMT can be overridden in each user model. For more information about system values and YCHGMDLVAL, see the *CA 2E Command Reference.*

System Value	Shipped Value	Description
YACTSYM	|.|	Symbols used for Action diagram constructs
YDATFMT	*MDY	Date format for generated applications
YSYSCHG	*NONE	Default change control enabling library
YSYSDBF	*DDS	Default data definition language
YSYSHLL	*RPG	Default HLL generator
YSYSNPH	*UIM	Default language for NPT help text
YSYSPMT	*OFF	Default generation mode for device literals
YSYSSAA	*CUAENTRY	Default SAA format

Setting Product Options

You need to set product options for both the CA 2E and the Toolkit prior to using the software as follows:

1. Display the Installation Master Menu using the command:

    YGO MENU(*Y0)

    The master menu contains two options:

    ■   CA 2E Toolkit install menu

    ■   CA 2E install menu

    Each product installation menu contains a number of options grouped into required and optional sections.

2. Execute each of the required options in the order described in the following procedures; otherwise, the CA 2E product cannot function properly.

More Information on Work Management

If you are not the System Administrator, you may need more information about certain features, such as which subsystems will be used, or working with compiler pre-processors, for example.

The product options described in the sections that follow are part of the CA 2E's Work Management features. Before attempting to configure these options, see the manual *Generating and Implementing Applications* for more information.

CA 2E Toolkit Install Menu

You should already have completed the steps in the section, Authorize the Product, discussed earlier in this chapter. These actions complete items 1 and 2 on the menu. To continue configuring the software, select the appropriate option from the following menu options:

Install Menu

```
REQUIRED INSTALLATION STEPS

1. Display Licensed Product Information

2. Grant Product License Authority

3. Install compile pre-processor - menu

4. YSETY1AUT Enable Toolkit User Profiles

OPTIONAL INSTALLATION STEPS

5. Menu of optional installation steps
```

Defining the Preprocessor Routing Entry

Defining the pre-processor routing entry is necessary to apply compiler overrides automatically and to check whether objects have been compiled successfully. The menu that displays when you select option 3 is shown following:

Compile Pre-processor Routing Menu

```
1. Check subsystem is not in use
The subsystems specified for this option are those that will be used for compilations

2. End subsystem

3. Add routing entry for the compile pre-processor

4. Restart subsystem

5. Change routing data on existing job descriptions
```

Note: You can safely skip menu options 1, 2, and 4. You are no longer required to verify that subsystems are not in use, stop and then restart them before defining new routing entries.

Select option 3 to add a routing entry to the subsystem or subsystems that will be used for compilations. Option 3 has its own sub-menu.

Option 5 changes the relevant job descriptions to use the routing data specified. Each CA 2E data model contains a job description which is used to submit batch jobs. The name of the job description is specified by the YCRTJBD (JOBD to compile generated objects) model value. The job description controls the routing data that is used.

Note: The job descriptions in any new models created with the CA 2E Create Model Library (YCRTMDLLIB) command will take their initial values from the QBATCH job description in the CA 2E null model library (Y2SYMDL). You must modify this job description for your standards.

Installing the Compile PreProcessor

As an *optional* procedure, you can use the compiler pre-processor in conjunction with the i OS programmers menu (QPGMMENU) or the Compile Option 14 on the PDM WRKMBRPDM panel. More information on this feature is available in the *CA 2E Toolkit Concepts Guide*, in the chapter "Programmer Aids."

You must complete the following steps to ensure that jobs are submitted with the correct routing data. The installed software's system default for the Submit Job (SBMJOB) command is QCMDB (not *JOBD).

1. You can use either of the following methods listed to set up the pre-processor:

    ■   Modify the default value for the routing data (RTGDTA) parameter on the SBMJOB command in QSYS to be *JOBD rather than the shipped value of QCMDB:

    ```
    CHGCMDDFT  CMD(QSYS/SBMJOB)  NEWDFT('RTGDTA(*JOBD)')
    ```

    ■   Create a copy of the command and modify it by entering these commands:

    ```
    CRTLIB  LIB(YSYS)  TEXT(Alternative versions of system commands)

    CRTDUPOBJ  OBJ(QSYS/SBMJOB)  OBJTYPE(*CMD)  TOLIB(YSYS)

    CHGCMDDFT  CMD(YSYS/SBMJOB)  NEWDFT('RTGDTA(*JOBD)')
    ```

2. Ensure that the library containing the modified version is positioned above the QSYS entry of the invoking job's library list when you use the programmer's menu.

Important! You must repeat these steps each time a new release of the operating system is installed on your machine. Failure to do this may result in your customized SBMJOB command not functioning after you install a new release of the operating system.

3. Add the alternative library **(**YSYS**)** to the system part of your library list as one of the following:

    ...temporarily:

    ```
    CHGSYSLIBL  LIB(YSYS)
    ```

    ... or permanently:

    ```
    CHGSYSVAL SYSVAL(QSYSLIBL)    VALUE(YSYS  QSYS  QHLPSYS QUSRSYS)
    ```

Authorizing User Profile and Password Extensions

Select option 4 from the CA 2E Toolkit Installation menu to authorize the user profile and password extension functions to adopt QSYS authority.

Note: no menu displays; however, you should see the following successful authorization message: "Adoption rights granted successfully to required Toolkit programs."

Toolkit Installation Optional Steps

You can use this menu to set options within the CA 2E Toolkit product. All of the items on this menu are optional. Additional information about the IBM i server commands is available in the online help for each panel.

Toolkit Installation Menu

```
1. Change QUSRLIBL to contain product libraries

2. Change print files in product library

3. Change Company name for menus and documentation

4. Change Application name for design utilities

5. Specify additional substitution character for YEXCOBJLST, YEXCMBRLST, and
YEXCDBFLST commands

6. Change the defaults for the Toolkit design utilities
```

You can use option 2 to change the print file attributes such as forms type, and lines per inch on all of the print files in the Toolkit product library to match your system standards. Specify Y1SY, or the name of the library to which you have restored the Toolkit, as the product library name.

You must also make this change to all Toolkit developer environment national languages that you loaded (for example, Y1SYVENG).

You can use option 6 to change some of the CA 2E Toolkit design defaults for panels, reports, and box characters.

CA 2E Install Menu

You can initiate the installation steps by selecting the appropriate option from the menu.

Checking the Job Queue

Check the job queue for the compilations menu, and specify the job queue to which your compiles are automatically submitted. A menu is provided with the following options:

Job Queue Menu

```
1. WRKSBSD
You can check that the job queue is attached to the correct subsystem and also ensure
that the job queue has a maximum concurrent activity level of one.

2. End the subsystem.

3. Change the maximum concurrent activity level to 1.

4. Restart subsystem.
```

Note: If you have chosen a job queue other than the shipped default QBATCH, you should also change the relevant job descriptions to use this job queue. Each CA 2E data model contains a job description used to submit batch jobs. The name of the job description is specified by the YCRTJBD model value. The job description controls the job queue used. If you want to change the job descriptions to use a different job queue, use the Change Job Description (CHGJOBD) command.

The job descriptions in new models created with the CA 2E Create Model Library (YCRTMDLLIB) command take their initial values from the job description QBATCH in the CA 2E null model library (Y2SYMDL). Modify the job description for your standards as defined earlier.

Optional Installation Steps

The menu of optional installation steps includes these options:

Optional Installation Menu

```
1. Change print attributes in product library

2. Change default HLL for new functions - RPG

3. Change default HLL for new functions - RPGIV

4. Change default HLL for new functions - CBL

5. Change default HLL for new functions - CBLLE

6. Change action diagram symbols - REPEAT

7. Change action diagram symbols - SEQUENCE

8. Change action diagram symbols - CONDITION
```

You can use option 1 to change the print file attributes such as forms type and lines per inch on all the print files in the CA 2E product library to match your system standards. Specify Y2SY, or the name of the library to which you have restored the CA 2E programs as the product library name.

This change will also have to be made to all CA 2E developer environment national languages that you may have loaded (such as Y2SYVENG).

Chapter 3: Upgrade Installations

This chapter describes the type of installation to perform if you are an existing CA 2E user and want to upgrade your existing CA 2E products with the new features in this release.

The instructions that follow assume that you will install the product by inserting the product installation DVD into a networked-connected PC's DVD drive and transfer files to the IBM i server using FTP. If you want to install the product from an IBM i DVD drive, see the appendix, "Installing from an IBM i DVD Drive."

This section contains the following topics:

Before You Begin

Before you begin the installation, note the following:

■ Print and complete the worksheets in the appendix "Installation Worksheets." These worksheets will help you make decisions regarding library names and other information as you install the new release.

■ Back-up all of your existing product libraries because they will be cleared during the upgrade process.

■ Ensure that you have the authorization codes for all of the CA 2E products you plan to install. Contact the CA Technical Support if you need a copy of your authorization code(s).

■ Ensure that no one is using any CA 2E product libraries during the installation. The CA 2E product libraries cannot be on the library list of any interactive sessions. Use the Work Object Lock (WRKOBJLCK) command to verify that there are no locks on the libraries.

Upgrading the Software

Upgrading existing CA 2E product libraries involves the following procedures:

■ Signing on with correct authority

■ Moving data and user objects

■ Copying files to the IBM i server

- Restoring product libraries

- Configuring the software

- Authorizing the product

- Upgrading existing design models and batch job descriptions

Signing On with Correct Authority

Sign on with the QSECOFR user profile. (See the chapter, "Installation Overview" for additional details on required authority levels.)

Set your logging level as follows:

```
CHGJOB LOG(4 00 *SECLVL) LOGCLPGM(*YES)
```

Moving Data and User Objects

You need to move data objects and user-modifiable objects, if any reside in the product libraries, prior to installing the new product files. If you do not do this, the installation processing will overwrite data and user objects in those libraries.

1. Determine the library name that contains the Toolkit data objects by using the WRKOBJ command:

    ```
    WRKOBJ *ALL/YLIBLST *FILE
    ```

    If the Toolkit data objects are in the Toolkit product library, move them to a non-CA 2E library. For example, you could create a library called TEMPLIB to act as a temporary holding library, and then execute the YMOVY1DTA command to move your objects:

    ```
    CRTLIB LIB(TEMPLIB)

    YMOVY1DTA  FROMLIB(Y1SY) TOLIB(TEMPLIB)
    ```

2. Use the Create Duplicate Objects command (CRTDUPOBJ) to save the following user-modifiable objects to TEMPLIB for future reference:

    ```
    CRTDUPOBJ OBJ(YAUOOPT) FROMLIB(Y1SY) OBJTYPE(*FILE) TOLIB(TEMPLIB)
        DATA(*YES)

    CRTDUPOBJ OBJ(YEDTCDERFP) FROMLIB(Y2SY) OBJTYPE(*FILE) TOLIB(TEMPLIB)
        DATA(*YES)

    CRTDUPOBJ OBJ(YMDLPRFRFP) FROMLIB(Y2SYMDL) OBJTYPE(*FILE) TOLIB(TEMPLIB)
        DATA(*YES)
    ```

3. Clear the existing product libraries using the worksheets that you completed earlier in the appendix "Installation Worksheets." For example:

   ■ Clear the Toolkit base product library (with the default name Y1SY) with the command:

   ```
   CLRLIB LIB(Y1SY)
   ```

   ■ Submit the clear commands to run as batch jobs, with the SBMJOB command:

   ```
   SBMJOB CMD(CLRLIB LIB(Y1SY)) JOB(CLRY1SY) JOBQ(QBATCH)
        LOG(4 00 *SECLVL) LOGCLPGM(*YES)
   ```

4. Clear the Y2PTF library, and any other previous PTF libraries, if any exist on your system.

Copying Files to the IBM i Server

This procedure describes the use of FTP to copy files from the network-connected PC to the IBM i server.

Note: If you are installing from the IBM i server's DVD drive, substitute the steps in Appendix D for this procedure.

1. Insert the 2E installation DVD into a network-connected PC's DVD drive.

2. Display the contents of the installation DVD to view the SAVF files you will copy to the IBM i server.

   ```
   <drive>:\> DIR/P
   ```

3. Create a temporary library on the IBM i server to hold the SAVF files:

   ```
   CRTLIB LIB(TEMP2E)
   ```

4. Open a DOS command prompt.

5. Use FTP to copy the SAVF files from the installation DVD to the TEMP2E library using these commands:

   ```
   FTP myIBM i        (where myIBM i is the name of the target server)
   myuserid           (where myuserid is an IBM i user profile)
   mypassword         (where mypassword is an IBM i password)
   bin
   lCD <drive>:\
   CD TEMP2E
   QUOTE SITE NAMEFMT 1
   PUT y1sy.savf
   ```

   Use additional PUT commands to transfer all the appropriate SAVF files to your IBM i server, using the completed worksheets in the appendix "Installation Worksheets" as a guide.

   ```
   QUIT     (The QUIT command closes the FTP session.)
   EXIT     (The EXIT command closes the DOS session.)
   ```

Restoring Product Libraries

This procedure restores the CA 2E product libraries from the SAVF files copied from the installation DVD in the previous section.

1. Enter one Restore Library (RSTLIB) command for each of the SAVF files in the TEMP2E library.

   ■ Specify the Shipped Library Name for the SAVF parameter and the Library Name you have selected for the RSTLIB parameter. See the examples that follow.

   ■ To restore the Toolkit base product library to the Y1SY library:

   ```
   RSTLIB SAVLIB(Y1SY) DEV(*SAVF) SAVF(TEMP2E/Y1SY) RSTLIB(Y1SY)
   ```

   ■ To restore the Toolkit developer environment national language library and merge it with the Toolkit base product library:

   ```
   RSTLIB SAVLIB(Y1SYVENG) DEV(*SAVF) SAVF(TEMP2E/Y1SYVENG) RSTLIB(Y1SY)
   ```

   ■ To submit the restore commands to run in batch, use the SBMJOB command:

   ```
   SBMJOB CMD(RSTLIB SAVLIB(Y1SY) DEV(*SAVF) SAVF(TEMP2E/Y1SY)
          RSTLIB(Y1SY)) JOB(Y1SY) JOBQ(QBATCH) LOG(4 00 *SECLVL) LOGCLPGM(*YES)

   SBMJOB CMD(RSTLIB SAVLIB(Y1SYVENG) DEV(*SAVF) SAVF(TEMP2E/Y1SYVENG)
          RSTLIB(Y1SY) ) JOB(Y1SYVENG) JOBQ(QBATCH) LOG(4 00 *SECLVL)
          OGCLPGM(*YES)
   ```

2. Review the job logs to verify that all objects were restored successfully, and then save the job log using the command:

   ```
   DSPJOBLOG  OUTPUT(*PRINT)
   ```

   Retain the resulting QPJOBLOG spool file. If you encounter errors, CA Technical Support may be able to use the job log to assist in resolving the problem.

3. Remove the installation DVD from the PC's DVD drive.

Configuring the Software

Prior to using the software, you must configure the CA 2E Products for your development environment.

Note: If you have renamed or merged your product libraries, use the library name that you have selected in place of the product library named in the following steps. You can disregard instructions that specify product libraries that you did not install.

1. Sign on to the IBM i server as QSECOFR or equivalent, if you are not already signed on.

2. Set the logging level as follows:

   ```
   CHGJOB LOG(4 00 *SECLVL) LOGCLPGM (*YES)
   ```

Configuring National Language Libraries

Use this procedure to set parameters for national language support.

1. Reset the default national language for your product, if you require a default national language other than English:

   `CHGDTAARA  DTAARA(Y1SY/YYLNSYA) VALUE (National-Language-code)`

   This value is shipped as *ENG.

   `CHGDTAARA  DTAARA(Y2SY/YPRDLNGSYA) VALUE (National-Language-code)`

   This value is shipped as *ENG.

   National language library (NLL) codes are listed on the worksheets in the appendix, "Installation Worksheets." The value in the data area must begin with an asterisk (*) and is followed immediately by the NLL code.

2. Reset the internal national language library name data area, if you merged a Developer Environment National Language library into Y2SY. (For example, you might have merged Y2SYVENG into Y2SY).

   `CHGDTAARA  DTAARA(Y2SY/YLNGxxxSYA)  VALUE(Y2SY)`

   where *xxx* is the code for the national language library listed on the worksheet in the appendix, "Installation Worksheets."

Authorizing the Product

Authorizing your product involves these procedures:

- Adding product libraries to the current library list
- Running the licensing routines and entering authorization codes

Adding to the Current Library List

1. Add your data objects library and the CA 2E product libraries to your current library list using the EDTLIBL command:

   Note: QTEMP must be at the top of your library list.

   - QTEMP
   - Y1SYVxxx
   - Y1SY
   - Y2SYRPG
   - Y2SYCBL

- Y2SYVxxx

- Y2SY

- QGPL

where *xxx* is the national language code on the worksheet from Appendix F. If you have multiple national language libraries installed, position the English library below the other libraries.

For example, if you installed English only and restored Y1SYVENG into Y1SY and Y2SYVENG into Y2SY, your library list would appear as follows:

- QTEMP

- Y1SY

- Y2SYRPG

- Y2SYCBL

- Y2SY

- QGPL

2. Resolve object locks on YLUSLIB. (This must be done before you can issue the YCRTLUSLIB command in the next section.)

Running the Licensing Routines

Follow these steps to complete authorization of the product.

1. Delete the YLUSLIBSAV library, if it already exists:

   `DLTLIB LIB(YLUSLIBSAV)`

2. Create a backup copy of your current YLUSLIB:

   `CPYLIB FROMLIB(YLUSLIB) TOLIB(YLUSLIBSAV)`

3. Verify that you restored the library YLUSLIB0 from your product DVD with the command:

   `WRKLIB YLUSLIB0`

4. Execute the command YCRTLUSLIB to update the existing YLUSLIB library.

5. Press the F4 key to prompt the YGRTLICAUT command so that you can key in the security code(s) you obtained from the Total License Care team or web site. Enter one set of four digit numbers into each field and then press the Enter key. This authorizes the product(s) on your server.

6. Use the Display Product Licenses command, YDSPLICPRD, to verify that your authorization was successful.

   This command displays the list of licensed products, the release level, expiration dates, and the maximum number of concurrent interactive jobs you are allowed.

7. Make a note of the expiration dates on the checklist.

8. Continue with the configuration activities.

Note: If you make an error while entering the authorization code, re-enter the authorization codes. If you receive an error message when you attempt to use the product, contact Technical Support.

Updating Data and User Object Locations

1. If you moved your Toolkit data objects from Y1SY, move them back to Y1SY with this command.

   `YMOVY1DTA FROMLIB(TEMPLIB) TOLIB(Y1SY)`

2. Update the Toolkit data objects with this command, if they reside in the Y1SY library:

   `YCRTY1DTA  LIB(Y1SY)`

   If your Toolkit data objects reside in a different library, update them with this command:

   `YCRTY1DTA  LIB(my-data-objects-library)`

   The upgrade processing automatically adds new Toolkit data objects and updates existing ones.

   Note: Do not put the objects into the QGPL library.

   Consult your CA 2E application developers to determine which user-defined records need to be retained from the files YEDTCDERFP, YAUOOPT, and YMDLPRFRFP. Once the records are identified, copy them to the corresponding files in the new product libraries.

   Note: You cannot successfully complete this step by copying the entire files into the new product libraries. The user-defined data must be copied manually.

   Delete the temporary library you created:

   `DLTLIB LIB(TEMPLIB)`

   This step can be performed later, after all installation and configuration tasks are complete.

3. Remove previously installed PTF fix libraries from your interactive and batch job description library lists using the command YWRKLIBLST and option 2.

Authorizing the Toolkit Product

1. Authorize the Toolkit user profile and password extension functions with the command:

   YSETY1AUT

   This command enables the Toolkit User Profile and Password Validation functions.

2. Save the job log file using the command:

   DSPJOBLOG OUTPUT(*PRINT)

   Retain the resulting QPJOBLOG spool file. If you encounter errors, CA Technical Support may be able to use the job log to assist in resolving the problem.

Review 2E System Values

Review your CA 2E system values (see the following table), then use the YCHGMDLVAL command to change one or more of these product defaults.

System values are defaults used during CA 2E model creation. The defaults for all system values except YACTSYM and YDATFMT can be overridden in each user model. For more information about system values and YCHGMDLVAL, see the *CA 2E Command Reference.*

System Value	Shipped Value	Description
YACTSYM	|.|	Symbols used for Action diagram constructs
YDATFMT	*MDY	Date format for generated applications
YSYSCHG	*NONE	Default change control enabling library
YSYSDBF	*DDS	Default data definition language
YSYSHLL	*RPG	Default HLL generator
YSYSNPH	*UIM	Default language for NPT help text
YSYSPMT	*OFF	Default generation mode for device literals
YSYSSAA	*CUAENTRY	Default SAA format

Upgrading Existing Design Models

After installing an upgrade to an existing version of CA 2E, you need to run a conversion procedure to update your design models. Upgrading your design models involves the following procedures:

- Signing on with correct authority

- Modifying library lists

- Running the upgrade utility

Signing On with Correct Authority

To upgrade a CA 2E design model:

1. Sign on to the IBM i server as QSECOFR or equivalent, if you are not already signed on.

2. Ensure that you have a current backup of your data model.

   Note: When making a backup of your models, set the SAVLIB parameter for 'Save access paths' to *YES.

Modifying Library Lists

1. Ensure that the Null model data area contains the name of the CA 2E Null model library (Y2SYMDL).

   DSPDTAARA   DTAARA(Y2SY/YNLLMDLRFA)

   Important! If this data area references a user-modified null model, it must be re-referenced to the null model supplied with the upgrade version or severe model corruption can occur.

   CHGDTAARA   DTAARA(Y2SY/YNLLMDLRFA)   VALUE(Y2SYMDL)

2. Add the CA 2E Product libraries and any additional language and/or high-level language libraries that you may have installed to your library list using the Edit Library command (EDTLIBL).

   In general, the following libraries are necessary to run the CA 2E products:

   - QTEMP

   Y1SYV*xxx*

   - Y1SY

   - Y2SYRPG

   - Y2SYCBL

   - Y2SYV*xxx*

- Y2SY

- QGPL

where *xxx* is the national language code on the worksheet. If you have multiple national languages, position the English library below the other libraries.

If your Toolkit data objects are not in Y1SY, position your Toolkit data library after Y1SY.

Note: Only add the generator libraries that you have installed (Y2SYRPG and/or Y2SYCBL).

```
SBMJOB CMD(YAPYMDLCHG MDLLIB(model-library-name)) INLLIBL(*CURRENT)
    LOG(4 00 *SECLVL) LOGCLPGM(*YES)
```

Running the Upgrade Utility

1. Remove all models from your library list.

2. Upgrade each model individually by submitting a separate batch job for each model. The batch jobs should execute one at a time in a single-threaded job queue:

   ```
   SBMJOB  CMD(YAPYMDLCHG  MDLLIB(model-library-name)) INLLIBL(*CURRENT) +
    LOG(4 00 *SECLVL)  LOGCLPGM(*YES)
   ```

3. Verify that each model was successfully upgraded by checking its batch job log. The command should complete with an ending code of "0". If it does not, contact Technical Support.

4. Execute the Duplicate Application Objects (YDUPAPPOBJ) command into the appropriate library or libraries.

   You can find libraries that contain a set of CA 2E Application Objects with the command:

   ```
   DSPOBJD  OBJ(*ALLUSR/YG0)  OBJTYPE (*CMD)
   ```

   Important! You should not run YDUPAPPOBJ with Y1SY or any product libraries as the target.

   For more information about the YDUPAPPOBJ command, see the CA 2E *Command Reference Guide* and *Generating and Implementing Applications*.

Chapter 4: Parallel Installations

This chapter describes the type of installation to perform if you are an existing CA 2E user and want to load the new CA 2E product libraries under different names than your current product library names. For example, you might load the software in parallel if you are a Beta test site for a new version of a CA 2E product. By installing in parallel, you would not disrupt your production environment during the Beta testing.

The instructions that follow assume that you will install the product by inserting the product installation DVD into a networked-connected PC's DVD drive and transfer files to the IBM i server using FTP. If you want to install the product from an IBM i DVD drive, see the appendix, "Installing from an IBM i DVD Drive."

This section contains the following topics:

Before You Begin

Before you begin the installation, note the following:

- Print and complete the worksheets in the appendix, "Installation Worksheets." These worksheets will help you make decisions regarding library names and other information as you install the new release.

- Ensure that you have the new authorization codes for all of the CA 2E products you plan to install.

  Contact the CA Technical Support if you need a copy of your authorization code(s).

Note: CA recommends that when you rename your product libraries, you substitute only the first letter of each shipped library name, for example Y, with one other letter such as Z.

Important! Do not rename the YLUSLIBO library.

Adding the Software in Parallel

Adding a parallel installation to the existing CA 2E product libraries involves these procedures:

- Sign on with correct authority

- Copy files to the IBM i server

- Restore product libraries

- Configure the software

- Authorize the product

- Upgrade existing design models and batch job descriptions

Sign On with Correct Authority

Sign on with the QSECOFR user profile. (See the chapter, "Installation Overview" for additional details on required authority levels.)

Set your logging level as follows:

CHGJOB LOG(4 00 *SECLVL) LOGCLPGM(*YES)

Copy Files to the IBM i Server

This procedure describes the use of FTP to copy files from the network-connected PC to the IBM i server.

Note: If you are installing from the IBM i server's DVD drive, substitute the steps in the appendix "Installing from an IBM i DVD Drive," for this procedure.

1. Insert the CA 2E installation DVD into a network-connected PC's DVD drive.

2. Display the contents of the installation DVD to view the SAVF files you need to copy to the IBM i server.

    `<drive>:\> DIR/P`

3. Create a temporary library on the IBM i server to contain the SAVF files:

    `CRTLIB LIB(TEMP2E)`

4. Open a DOS command prompt.

5. Use FTP to copy the SAVF files from the installation DVD to the TEMP2E library using these commands:

```
FTP myIBM i       (where myIBM i is the name of the target IBM i server)
myuserid          (where myuserid is an IBM i user profile)
mypassword        (where mypassword is an IBM i password)
bin
lCD <drive>:\
CD TEMP2E
QUOTE SITE NAMEFMT 1
PUT y1sy.savf
```

Use additional PUT commands to transfer all the appropriate SAVF files to your IBM i server, using the completed worksheets in the appendix "Installation Worksheets" as a guide.

```
QUIT      (The QUIT command closes the FTP session.)
EXIT      (The EXIT command closes the DOS session.)
```

Restore Product Libraries

Use this procedure to restore the CA 2E product libraries from the SAVF files copied from the installation DVD in the previous section.

1. Enter one Restore Library (RSTLIB) command for each of the SAVF files in the TEMP2E library.

    Specify the Shipped Library Name for the SAVF parameter and the Library Name you have selected for the RSTLIB parameter from the worksheets in the appendix "Installation Worksheets." See the examples that follow.

    ■   To restore the Toolkit base product library to the Y1SY library, use the following:

        ```
        RSTLIB SAVLIB(Y1SY) DEV(*SAVF) SAVF(TEMP2E/Y1SY) RSTLIB(Z1SY)
        ```

    ■   To restore the Toolkit developer environment national language library and merge it with the Toolkit base product library, use the following:

        ```
        RSTLIB SAVLIB(Y1SYVENG) DEV(*SAVF) SAVF(TEMP2E/Y1SYVENG) RSTLIB(Z1SY)
        ```

    ■   To submit the restore commands to run in batch, use the SBMJOB command:

        ```
        SBMJOB CMD(RSTLIB SAVLIB(Y1SY) DEV(*SAVF) SAVF(TEMP2E/Y1SY
              RSTLIB(Z1SY)) JOB(Y1SY) JOBQ(QBATCH) LOG(4 00 *SECLVL)
              LOGCLPGM(*YES)

        SBMJOB CMD(RSTLIB SAVLIB(Y1SYVENG) DEV(*SAVF)
              SAVF(TEMP2E/Y1SYVENG)
           RSTLIB(Z1SY)) JOB(Y1SYVENG) JOBQ(QBATCH) LOG(4 00 *SECLVL)
              LOGCLPGM(*YES)
        ```

2. Review the job logs to verify that all objects were restored successfully, and then save the job log using the command:

```
DSPJOBLOG  OUTPUT(*PRINT)
```

Retain the resulting QPJOBLOG spool file. If you encounter errors, CA Technical Support may be able to use the job log to assist in resolving the problem.

3. Remove the installation DVD from the PC's DVD drive.

Configure the Software

Prior to using the software, you must configure the CA 2E products for your development environment.

1. Sign on to the IBM i server as QSECOFR or equivalent, if you are not already signed on.

2. Set the logging level as follows:

```
CHGJOB LOG(4 00 *SECLVL) LOGCLPGM (*YES)
```

Note: Use the library name that you have selected in place of the product library named in all of the following steps. Disregard all commands that specify product libraries that you did not install. The examples will use the letter Z as the prefix for each library name.

Configuring National Language Libraries

Use this procedure to set parameters for national language support.

1. Reset the default national language for your product, if you require a default national language other than English:

```
CHGDTAARA  DTAARA(Z1SY/YYLNSYA) VALUE (National-Language-code)
```

   This value is shipped as *ENG.

```
CHGDTAARA  DTAARA(Z2SY/YPRDLNGSYA) VALUE (National-Language-code)
```

   This value is shipped as *ENG.

National language library (NLL) codes are listed on the worksheets in the appendix "Installation Worksheets." The value in the data area must begin with an asterisk (*) and is followed immediately by the NLL code.

Resetting Library Names

1. Reset the internal null model library name data areas as follows:

   CHGDTAARA   DTAARA(Z2SY/YNLLMDLRFA)   VALUE(Z2SYMDL)

   CHGDTAARA   DTAARA(Z2SYMDL/YMDLLIBRFA)   VALUE(Z2SYMDL)

2. Do one of the following to reset the National Language library name data areas:

   - If you restored Y2SYVENG into Z2SYVENG, use the following:

   - CHGDTAARA DTAARA (Z2SY/YLNGENGSYA)   VALUE(Z2SYVENG)

   - If you restored Y2SYVENG into Z2SY, use the following:

     CHGDTAARA   DTAARA(Z2SY/YLNGENGSYA)   VALUE(Z2SY)

3. If you have an additional national language, execute the command:

   CHGDTAARA   DTAARA(Z2SY/YLNG*xxx*SYA)   VALUE(CA 2E*xxx*-lang-library)

   where *xxx* is the national language library code listed on the worksheets in the appendix "Installation Worksheets."

Adding to the Current Library List

1. Add your data objects library and the CA 2E product libraries to your current library list using the EDTLIBL command:

   Note: QTEMP must be at the top of your library list.

   - QTEMP

   - Z1SYV*xxx*

   - Z1SY

   - Z2SY

   - QGPL

   where *xxx* is the national language code on the worksheet. If you have multiple national language libraries, position the English library below the other libraries.

   For example, if you installed English only and restored Y1SYVENG into Z1SY, your library list would appear as follows:

   - QTEMP

   - Z1SY

   - Z2SY

   - QGPL

2. Before executing the YCRTLUSLIB command, verify that no one is using the CA 2E Licensing Library using the IBM Object Lock' (WRKOBJLCK) command:

   `WRKOBJLCK OBJ(QSYS/YLUSLIB)  OBJTYPE(*LIB)`

   `WRKOBJLCK OBJ(YLUSLIB/YLICREGP)  OBJTYPE(*FILE) MBR(*ALL)`

3. Resolve object locks on YLUSLIB. (This must be performed before you can issue the YCRTLUSLIB command in the next section.)

Authorize the Product

Authorize your CA 2E products using the authorization code and instructions.

1. If library YLUSLIBSAV already exists, delete it using this command:

2. DLTLIB LIB(YLUSLIBSAV)

3. Make a backup copy of your current YLUSLIB, using the command:

   `CPYLIB FROMLIB(YLUSLIB) TOLIB(YLUSLIBSAV)`

4. Verify that you restored the library YLUSLIB0 from your product DVD with the command:

   `WRKLIB YLUSLIB0`

5. Execute the command YCRTLUSLIB to update the existing YLUSLIB library.

6. Press the F4 key to prompt the YGRTLICAUT command so that you can key in the security code(s) you obtained from the Total License Care team or web site. Enter each set of four digit numbers into each field and then press the Enter key. This authorizes the product(s) on your server.

7. Use the Display Product Licenses command, YDSPLICPRD to verify that your authorization was successful. This command displays the list of licensed products, release level, expiration dates, and the maximum number of concurrent interactive jobs you are allowed.

8. Make a note of the expiration dates on the checklist.

9. Continue with the configuration activities.

Note: If you make an error while entering the authorization code, re-enter the code. If you receive an error message when you attempt to use the product, contact Technical Support.

Setting Data and User Object Locations

1. Create the Toolkit data objects:

    ```
    YCRTY1DTA  LIB(Z1SY)            or
    YCRTY1DTA  LIB(new-data-objects-library)
    ```

    These objects can be placed either in the Toolkit base product library or in another non-CA 2E user library.

    Note: Do not put the objects into the QGPL library.

2. If you want to use a duplicate set of Toolkit data objects such as library lists and user profile extensions with the new product, enter the following commands:

    ```
    CRTLIB LIB(TEMPLIB)
    ```

    ```
    YMOVY1DTA FROMLIB(new-data-objects-library) TOLIB(TEMPLIB)
    ```

    ```
    YBLDOBJLST OBJ(TEMPLIB/*ALL)
    ```

    ```
    YCHKLSTE CHKLIB(old-data-objects-library)
    ```

    ```
    YCRTDUPOBJ OBJ(*O) FROMLIB(old-data-objects-library) OBJTYPE(*ALL)
          TOLIB(TEMPLIB) DATA(*YES) CRTOPT(*ALL)
    ```

    ```
    YMOVY1DTA FROMLIB(TEMPLIB)  TOLIB(new-data-objects-library)
    ```

    ```
    YAPYY1DCHG Y1DLIB (new-data-objects-library) Y1DTYPE(*ALL)
    ```

    ```
    DLTLIB LIB(TEMPLIB)
    ```

    Note: You will now have two sets of Toolkit data objects. You need to maintain both sets of data objects separately; namely, one for your production environment and one for your parallel environment.

3. Add your data objects library and the CA 2E product libraries to your current library list by using the EDTLIBL command:

    ■   QTEMP

    ■   Z1SYVxxx

    ■   Z1SY

    ■   Z2SYRPG

    ■   Z2SYCBL

    ■   Z2SYVxxx

    ■   Z2SY

    ■   QGPL

where *xxx* is the national language code on the worksheet in the appendix "Installation Worksheets." If you have multiple national languages, position the English library below the other libraries.

If you installed English only and restored Y1SYVENG into Z1SY and Y2SYVENG into Z2SY, your library list would appear as follows:

- QTEMP

- Z1SY

- Z2SYRPG

- Z2SYCBL

- Z2SY

- QGPL

Authorizing the Toolkit Product

1. Authorize the Toolkit user profile and password extension functions with the command:

    YSETY1AUT

    This command enables the Toolkit User Profile and Password Validation functions.

2. Save the job log using the command:

    DSPJOBLOG OUTPUT(*PRINT)

    Retain the resulting QPJOBLOG spool file. If you encounter errors, CA Technical Support may be able to use the job log to assist in resolving the problem.

3. Remove previously installed PTF fix libraries from your interactive and batch job description library lists using the command YWRKLIBLST and option 2.

    You must modify your CA 2E model and batch job descriptions library lists before using this new release.

4. Copy the existing CA 2E design models that you want to use with the parallel installation and then upgrade them. Proceed to the instructions in the section, Upgrade Existing CA 2E Design Models later in this chapter.

Adding Routing Entries

Use this procedure to add a second routing entry to the subsystem you currently use for CA 2E jobs.

Note: You must have two different routing entries in the subsystem to which CA 2E jobs are submitted for the compile preprocessor program (YBRTPRC). For example, if you name the CA 2E Product libraries Z1SY, Z2SY, and so forth, you need to perform the following tasks:

1. Add the following routing entry to your subsystem:

2.

Seq.	Program	Library	Compare Value	Start Pos.
1112	YBRTPRC	Z1SY	ZCRTOVR	1

Your subsystem will then contain these two routing entries for program YBRTPRC:

Seq.	Program	Library	Compare Value	Start Pos.
1111	YBRTPRC	Y1SY	YCRTOVR	1
1112	YBRTPRC	Z1SY	ZCRTOVR	1

Note: Ensure this routing entry has a lower value than the system-supplied *ANY routing entry in the subsystem you have chosen.

3. Change the model job description routing data to contain routing data ZCRTOVR for all models to be used by the parallel version of the product.

   To identify your model job description name, perform these tasks:

   a. Add your model library to your library list:

   ```
   ADDLIBLE model-library-name
   ```

   b. From a command line, enter:

   ```
   YDSPMDLVAL
   ```

   - Select the Display Environment Values option.

   - Note the job description name under the heading Model Libraries.

4. Use the CHGJOBD command to change the model job description routing data:

   ```
   CHGJOBD JOBD(job-description)  RTGDTA(ZCRTOVR)
   ```

   For more information about CA 2E Work Management, see the *Generating and Implementing Applications* manual.

Review 2E System Values

Review your CA 2E system values (see the following table), then use the YCHGMDLVAL command to change one or more of these product defaults.

System values are defaults used during CA 2E model creation. The defaults for all system values except YACTSYM and YDATFMT can be overridden in each user model. For more information about system values and YCHGMDLVAL, see the *CA 2E Command Reference.*

System Value	Shipped Value	Description
YACTSYM	|.|	Symbols used for Action diagram constructs
YDATFMT	*MDY	Date format for generated applications
YSYSCHG	*NONE	Default change control enabling library
YSYSDBF	*DDS	Default data definition language
YSYSHLL	*RPG	Default HLL generator
YSYSNPH	*UIM	Default language for NPT help text
YSYSPMT	*OFF	Default generation mode for device literals
YSYSSAA	*CUAENTRY	Default SAA format

Upgrade Existing CA 2E Design Models

After installing a parallel version of CA 2E, you need to run a conversion procedure to update your design models. Upgrading your design models involves the following procedures:

- Signing on with correct authority
- Modifying library lists
- Running the upgrade utility

Signing On with Correct Authority

To upgrade a CA 2E design model:

1. Sign on to the IBM i server as QSECOFR or equivalent, if you are not already signed on.

2. Ensure that you have a current backup of your data model.

   Note: When making a backup of your models, set the SAVLIB parameter for 'Save access paths' to *YES.

Modifying Library Lists

1. Ensure that the Null model data area contains the name of the CA 2E Null model library (Z2SYMDL) that you installed in parallel.

   DSPDTAARA   DTAARA(Z2SY/YNLLMDLRFA)

   Important! If this data area references a user-modified null model, it must be redirected to the shipped null model or severe model corruption can occur.

   CHGDTAARA   DTAARA(Z2SY/YNLLMDLRFA)   VALUE(Z2SYMDL)

2. Add the CA 2E product libraries and any additional language or high level language libraries you may have installed to your library list.

   When the Toolkit product is in the current library list, you may use the Toolkit Change Library List (YCHGLIBL or R) command to change your current library list to the YSYS library list built during the installation:

   ADDLIBLE   LIB(Z1SYVENG)   POSITION(*LAST)

   ADDLIBLE   LIB(Z1SY)   POSITION(*LAST)

   ADDLIBLE   LIB(*Toolkitdata-objects-library*)   POSITION(*LAST)

   YCHGLIBL   LIBLST(YSYS)

   In general, the following libraries are necessary to run the CA 2E product. The YSYS library list already contains these libraries:

   - QTEMP
   - Z1SYVxxx
   - Z1SY
   - Z2SYRPG
   - Z2SYCBL
   - Z2SYVxxx
   - Z2SY
   - QGPL

   where *xxx* is the national language code on the worksheet in Appendix F. If you have multiple national languages, position the English library below the other libraries.

   If your Toolkit data objects are not in Z1SY, position your library after Z1SY.

   Note: Add only the generator libraries that you have installed (Z2SYRPG and/or Z2SYCBL).

Running the Upgrade Utility

1. Remove all models from your library list.

2. Upgrade each model individually by submitting a separate batch job for each model. The batch jobs should execute one at a time in a single-threaded job queue:

```
SBMJOB CMD(YAPYMDLCHG MDLLIB(model-library-name)) INLLIBL(*CURRENT)
    LOG(4 00 *SECLVL) LOGCLPGM(*YES)
```

3. Verify that each model was successfully upgraded by checking its batch job log. The command should complete with an ending code of "0." If it does not, please contact Technical Support.

4. Execute the Duplicate Application Objects (YDUPAPPOBJ) command into the appropriate library or libraries.

   You can find libraries that contain a set of CA 2E Application Objects with the command:

```
DSPOBJD  OBJ(*ALLUSR/YG0)  OBJTYPE (*CMD)
```

WARNING! You should not run YDUPAPPOBJ with Y1SY or any product libraries as the target.

For more information about the YDUPAPPOBJ command, see the CA 2E guides, *Command Reference Guide* and *Generating and Implementing Applications Manual*.

Note: Before you use the copied models, ensure that you update the model and job description libraries.

Renaming the Product Libraries

If you install in parallel with an existing CA 2E product, you may want to delete the old version of the product and rename your new version to the old product library names once you are satisfied with its operation.

Note: No active user should have a CA 2E library in a current job library list when you attempt to rename the product libraries.

Renaming the Toolkit Product Library

To rename the Toolkit product library from the name under which you installed it to Y1SY, CA recommends you use the Toolkit Rename Library (YRNMLIB) command to rename the library and update any library lists that reference the library. For example:

```
YRNMLIB  FROMLIB(Z1SY)  TOLIB(Y1SY)
```

```
After you rename the Toolkit product library, you should sign off and sign on again
before continuing to rename the other libraries.
```

Renaming the CA 2E Product Library

To rename the CA 2E product library from the name under which you installed it to Y2SY, it is recommended that you use the Toolkit Rename Library (YRNMLIB) command to rename the library and update any library lists that reference that library. For example:

```
YRNMLIB  FROMLIB(Z2SY)  TOLIB(Y2SY)
```

Renaming the CA 2E Null Model Library

The CA 2E product library contains a data area called YNLLMDLRFA. This data area specifies the name of the null model associated with it. The null model is referenced when you create a new model, or clear or upgrade an existing model (with theYCRTMDLLIB, YCLRMDL, YAPYMDLCHG commands). If you rename the null model, you should update the value of the data area. For example:

```
CHGDTAARA  DTAARA(Y2SY/YNLLMDLRFA)  VALUE('Y2SYMDL')

YRNMMDL MDLLIB(Z2SYMDL) NEWMDLLIB(Y2SYMDL) LIBLST(*NONE)
     NEWLIBLST(*SAME) UPDLIBLST(*NONE) JOBD(*NONE)
```

Renaming CA 2E National Language Libraries

The CA 2E product library contains a data area YLNGxxxSYA, where xxx is the three-letter national language code (see the section, Configuring National Language Libraries earlier in this chapter), for each national language library, which specifies the name of the national language library. If you rename a national language library, you should update the value of the data area. It is recommended that you use the Toolkit Rename Library (YRNMLIB) command. This will rename the library and update any library lists that reference that library. For example:

```
YRNMLIB FROMLIB(Z2SYVENG)  TOLIB(Y2SYVENG)

CHGDTAARA  DTAARA(Y2SY/YLNGENGSYA)  VALUE('Y2SYVENG')
```

Renaming User Model Libraries

CA recommends that you use the CA 2E Rename Model (YRNMMDL) command to rename a user model library, since the YMDLLIB Model Library (YMDLLIBRFA) data area will be updated automatically, as well as any library lists that reference that model library.

For example:

```
YRNMMDL  MDLLIB(Z2MDL)   NEWMDLLIB(Y2MDL)
```

Note: Journaling cannot be active while renaming model and generation libraries. Remove the journal receivers from the libraries before renaming the library.

Appendix A: Toolkit Data Objects

Some of the CA 2E Toolkit commands use database files or data areas to store user data such as library lists, user profile extension attributes, and design defaults. These objects are stored in the CA 2E Toolkit data objects library.

This section contains the following topics:

Toolkit Data Objects

Process this list of data objects with the Create Product Data Objects (YCRTY1DTA), Move Product Data Objects (YMOVY1DTA), and Apply Toolkit Data Changes (YAPYY1DCHG) commands for a new release of the CA 2E Toolkit product:

Object Name	Description
YLIBLST	Library list file
YPWDVAL	Forbidden password file
YUSRPRF	User profile file
YDLCLMA	SDU consider lowercase if alpha *GE limit
YDRPDFA	Report design utility defaults
YDSCDCA	YDOCSCR default values
YDSCDFA	YCHGDSNDFT default design values
YMHPFLA	YDSPMNU default help text file
YMHPIXA	YDSPHLP UIM Help Index for Mode(*UIM)
YMHPLBA	YDSPMNU default help text library
YMHPOPA	YDSPHLP default value for USROPT parameter
YMHPYKA	YDSPHLP default keys help label
YMHPYWA	YDSPHLP window default size directive
YPBXCHA	YCVTPRT box characters
YPEXCHA	YEXCxxxLST alternative character to @
YPLGOQA	YDSPABR name of job log output queue

YYCOTXA	Company name text
YWWDBDA	Window border defaults
YYPWCKA	YCHKPWD control values
YYSYTXA	Software system name
YCVTOPTP	TCVTSPLF conversion options
YSPLRTRP	Spooled router control file
YBRTPXA	YCRTOVR Compile preprocessor default exit programs
YDBFCCS	YCVTSPLF - Database coded character set identifier
YDMNAUDP	Menu Audit File
YERRDFNP	Error definition file (UK: errcde/errprc)
YMSGPFXP	YAPPOBJ Message prefixes
YPDFSKL	YCVTSPLF - PDF Skeleton
YSTMFCOD	YCVTSPLF - Stream file code page
YSTRCONP	String constants (UK: strid)

User-Created Design Objects

In addition, you can process these user-created design objects with the YAPYY1DCHG command.

Object Name	Description
YDSNMNU	Menu design file
YDSNPNL	Panel design file
YDSNPNL1	Panel design file
YDSNPNLA	Panel design file
YDSNPNLA0	Panel design file
YDSNPNLA1	Panel design file
YDSNPNLA2	Panel design file
YDSNPNL2	Panel design file
YDSNRPTA	Report design file
YDSNRPTB	Report design file
YDSNRPTC	Report design file

YDSNRPT0	Report design file
YDSNRPT1	Report design file

Appendix B: Required Authorities

This appendix describes the authorities required to run the CA 2E products.

This section contains the following topics:

Authorities Table

Library	Object	Object Type	Authority Required
QSYS	ADDLFM	*CMD	*USE
QSYS	ADDPFM	*CMD	*USE
QSYS	CHGDTAARA	*CMD	*USE
QSYS	CHGJOB	*CMD	*USE
QSYS	CHGJOBD	*CMD	*USE
QSYS	CHGLF	*CMD	*USE
QSYS	CHGMSGD	*CMD	*USE
QSYS	CHGOBJOWN	*CMD	*USE
QSYS	CHGLF	*CMD	*USE
QSYS	CPYF	*CMD	*USE
QSYS	CRTCMD	*CMD	*USE
QSYS	CRTDSPF	*CMD	*USE
QSYS	CRTDTADCT	*CMD	*USE
QSYS	CRTDTAARA	*CMD	*USE
QSYS	CRTDUPOBJ	*CMD	*USE
QSYS	CRTJOBD	*CMD	*USE
QSYS	CRTJRN	*CMD	*USE
QSYS	CRTJRNRCV	*CMD	*USE
QSYS	CRTLIB	*CMD	*USE
QSYS	CRTLF	*CMD	*USE
QSYS	CRTMSGF	*CMD	*USE

Library	Object	Object Type	Authority Required
QSYS	CRTMSGQ	*CMD	*USE
QSYS	CRTPF	*CMD	*USE
QSYS	CRTPRTF	*CMD	*USE
QSYS	CRTSRCPF	*CMD	*USE
QSYS	DLTDTADCT	*CMD	*USE
QSYS	DLTF	*CMD	*USE
QSYS	DLTLIB	*CMD	*USE
QSYS	DLTPGM	*CMD	*USE
QSYS	DMPOBJ	*CMD	*USE
QSYS	RGZPFM	*CMD	*USE
QSYS	RMVM	*CMD	*USE
QSYS	STRDBG	*CMD	*USE
QSYS	QGPL	*LIB	*CHANGE
QSYS	CRTPNLGRP	*CMD	*USE
QRPG	CRTRPGPGM	*CMD	*USE
QSYS	CRTRPGPGM	*CMD	*USE
QSYS	CRTCBLPGM	*CMD	*USE
QSQL	CRTSQLRPG	*CMD	*USE
QSYS	CRTSQLRPG	*CMD	*USE
QSQL	CRTSQLCBL	*CMD	*USE
QSYS	CRTSQLCBL	*CMD	*USE
QSYS	CRTBNDRPG	*CMD	*USE
QSYS	CRTRPGMOD	*CMD	*USE
QSYS	CRTBNDDIR	*CMD	*USE

Appendix C: Troubleshooting

If an error occurs during the installation process, one or more messages is sent to the job running the installation.

If an error occurs, check the job log of the job that executed the command. If the job was submitted to batch, display the spooled job log. If the job was run interactively, either sign off with the *LIST option, or press F10 to see the low level messages on the screen. Alternatively, you can issue the command:

```
DSPJOBLOG  OUTPUT(*PRINT)
```

```
Review the spool file of the job log.
```

This section contains the following topics:

Possible Problems

The following is a list of possible cause for errors that can occur during the installation process:

- Not enough authority

- This would suggest that the user profile used to clear an existing product or to run the Post-load commands did not have QSECOFR authority. RECOVERY: Sign on with an authorized profile and retry the installation.

- Media error

  If the restore fails due to a media error it is recommended that you contact your product supplier.

Appendix D: Installing from an IBM i DVD Drive

If you prefer to install the CA 2E product from an IBM i server's DVD drive, you can transfer the SAVF files on the installation DVD to your IBM i server using the Copy From Stream File (CPYFRMSTMF) command.

This section contains the following topics:

Using the CPYFRMSTMF Command

The following procedure replaces the procedure, "Copying Files to the IBM i Server." Using the worksheets in the appendix, "Installation Worksheets," as a guide to determine which SAVF files you need to transfer, enter a CPYFRMSTMF command for each file:

1. Type the command CPYFRMSTMF and press the F4 key. Your screen should resemble the following example:

From stream file . . . . > _____

```
To file member or save file  . . > _____

Member option  . . . . . . . . . >  _____  *NONE, *ADD, *REPLACE
```

1. Type the values as shown in the following example:

From stream file . . . . > 'QOPT/XXXXXXXXX/Y1SY~1.SAV'

```
To file member or save file  . . > '/QSYS.LIB/TEMP2E.LIB/Y1SY.FILE'

Member option  . . . . . . . . . > *ADD        *NONE, *ADD, *REPLACE
```

Note: The characters "XXXXXXXXX" in the previous example should be substituted for the DVD VOL-ID.

The values shown in this example transfer the Y1SY.SAVF to the TEMP2E library.

1. Repeat the command for each of the save files you need:

Stream file	Save file
YLUSLI~1.SAV	YLUSLIB0.SAVF

Y1SY~1.SAV	Y1SY.SAVF
Y1SYVE~1.SAV	Y1SYVENG.SAVF
Y2SY~1.SAV	Y2SY.SAVF
Y2SYVE~1.SAV	Y2SYVENG.SAVF
Y2SYCB~1.SAV	Y2SYCBL.SAVF
Y2SYRP~1.SAV	Y2SYRPG.SAVF
Y2SYMD~1.SAV	Y2SYMDL.SAVF
Y2SYSR~1.SAV	Y2SYSRC.SAVF

Appendix E: Upgrading from Releases Prior to Version 7.0

This section describes changes to the CA 2E Null Model. Review the changes carefully before upgrading (to the latest release) any existing CA 2E models with a release *prior* to Version 7.0.

This section contains the following topics:

New Objects within the CA 2E Null Model

The CA 2E Null Model for Version 7.0 included new internal system-defined fields and new messages as described in the following sections.

New Internal SystemDefined Fields

A number of new internal system-defined fields were created for CA 2E Version 7.0. These fields allow additional functionality (described in detail in the *Release Summary* document). All of the new fields, such as existing internal system fields like *Job date, have three-character internal DDS names and textual names that begin with an asterisk (*).

Important! Before you upgrade from a previous version of the CA 2E products to the latest release, you must ensure that user-defined fields do not duplicate the new field names shown in the table on the following page in this chapter.

If you have created fields in your model that have either the same textual name or the same DDS name as any of the fields shown in the table, you must rename your existing fields. If necessary, you must also regenerate and recompile any functions that use them prior to upgrading to the latest release.

Textual Name	DDS Name	Details
*ALLPARMS	ALL	Stand-alone field
*Relative record number	RRN	Stand-alone field
*Pgm STATUS	STS	Added to *Job data file
*Pgm Previous *STATUS	PST	Added to *Job data file
*Pgm *ROUTINE	RVN	Added to *Job data file

Textual Name	DDS Name	Details
*Pgm *PARMS	PRM	Added to *Job data file
*Pgm Exception msgid	MSI	Added to *Job data file
*Pgm Program library	PLB	Added to *Job data file
*Pgm Exception data	MSD	Added to *Job data file
*Pgm File in error	EFL	Added to *Job data file
*Pgm Last file status	EFS	Added to *Job data file

New Messages

The Null Model contains four new messages that the installation will add to your model during the upgrade processing. The new messages are execute messages (EXCMSG) used as compilation messages for the RPGIV generator.

You must ensure you have not already created messages with these names. If you have, you must rename your messages **prior** to upgrading to the latest release. The new messages are as follows:

Message Name	Message ID	Description
*CRTBNDRPG	Y2U1022	Defaults for CRTBNDRPG command
*CRTSQLRPGI	Y2U1023	Defaults for CRTSQLRPGI command
*CRTRPGMOD	Y2U1024	Defaults for CRTRPGMOD command
*CRTCLMOD	Y2U1026	Defaults for CRTCLMOD command (not yet used)

Changes to Program Status Data Structure Files

Changes were made to the Program Status Data Structure files Y2PGDSP and Y2PGDSPK that affect the DDS names of some of the fields within these files. The changes do not affect the structure of either of these files.

You may have Execute user source (EXCUSRSRC) or Execute user program (EXCUSRPGM) functions, or external functions defined separately from a CA 2E model. If these functions make use of any of the old DDS field names on either of these files, you need to change the source for those functions to reflect the field name changes. The changed field names are as follows:

Y2PGDSP Old Name	New Name	Textual Name	Y2PGDSPK Old Name	New Name
##STCD	##STS	*STATUS	ZZSTCD	ZZSTS
##STCP	##PST	Previous *STATUS	ZZSTCP	ZZPST
##RTVN	##RVN	*ROUTINE	ZZRTVN	ZZRVN
##PMCT	##PRM	*PARMS	ZZPMCT	ZZPRM
##MSID	##MSI	Exception msgid	ZZMSID	ZZMSI
##PGLB	##PLB	Program library	ZZPGLB	ZZPLB
##MSDA	##MSD	Retrieved exception data	ZZMSDA	ZZMSD
##ERFL	##EFL	Name of file in error	ZZERFL	ZZEFL
##ERST	##EFS	Status info of last file	ZZERST	ZZEFS

For example, if you have a user source function that refers to ZZMSDA, you must change it to refer to ZZMSD and regenerate and recompile any functions that use this user source prior to upgrading to the latest release.

Appendix F: Installation Worksheets

Complete the following worksheets by writing in the library names you select for each of the CA 2E products that you are installing. You need to make entries for all features that you plan to install.

This section contains the following topics:

Product Libraries (see page 63)
National Language Support Libraries (see page 64)

Product Libraries

This table contains the list of product libraries needed for the product installation.

Product Library	Shipped Library	Valid Merge Library	Selected Library Name	CLRLIB Completed?	RSTLIB Completed?
CA 2E Licensed Library	YLUSLIB0	Cannot be renamed	YLUSLIB0		
Toolkit Base Library	Y1SY	None			
CA 2E Base Library	Y2SY	None			
CA 2E Null Model Library	Y2SYMDL	None			
CA 2E Source Library	Y2SYSRC	None			
RPG/RPGIV Generator Library	Y2SYRPG	Y2SY			
COBOL Generator Library	Y2SYCBL	Y2SY			

Valid Merge Libraries

A Valid Merge Library can contain objects from more than one shipped library. Also, please note the following:

- If the Valid Merge Library column contains the value "None" the library cannot be restored into another library.

- If the Valid Merge Library column contains Y1SY, the shipped library can be restored into Y1SY.

- If the Valid Merge Library column contains Y2SY, the shipped library can be restored into Y2SY.

All High Level Language (HLL) generator libraries can be merged. The Valid Merge Library column in the previous table indicates the valid target product library to merge HLL generator libraries. At least one High Level Language (HLL) generator must be installed.

If you are upgrading and are not sure what product libraries were previously merged, use the following commands to determine your current configuration:

```
WRKOBJ  OBJ(*ALL/YFIXRPGRFA) OBJTYPE(*DTAARA)
```

If YFIXRPGRFA is found in Y2SY, then Y2SYRPG was merged into Y2SY. If it is found in Y2SYRPG, then that library was not merged.

```
WRKOBJ  OBJ(*ALL/YFIXCBLRFA) OBJTYPE(*DTAARA)
```

If YFIXCBLRFA is found in Y2SY, then Y2SYCBL was merged into Y2SY. If it is found in Y2SYCBL, then that library was not merged.

National Language Support Libraries

Toolkit Developer National Languages

At least one of the Toolkit Developer National Language libraries must be installed. If in doubt, display the contents of your National Language installation DVD.

For the 8.0 release, developer national languages other than English reside on a separate DVD and are not shipped unless specifically ordered.

For national language libraries, only one language library can be merged into the base product library. Additional national language libraries must be separate, external libraries.

Developer National Languages	NLL Code	Shipped Library	Valid Merge Library	Selected Library Name	CLRLIB Completed?	RSTLIB Completed?
Toolkit English	ENG	Y1SYVENG	Y1SY			
Toolkit French Multinational	FRN	Y1SYVFRNM	Y1SY			
Toolkit Japanese	JPN	Y1SYVJPN	Y1SY			

If you are upgrading and are not sure which Toolkit Developer National Language libraries were previously merged, use the following command to determine your current configuration:

```
WRKOBJ  OBJ(*ALL/Y1LNSYA) OBJTYPE(*DTAARA)
```

If there is a Y1LNSYA data area in Y1SY and it contains a value of *ENG, then Y1SYVENG has been merged into Y1SY. If that data area is in Y1SYVENG, then that library was not merged into Y1SY.

Note: The National Language Library code (NLL) is an abbreviation used in the configuration instructions in the installation chapters.

CA 2E Developer National Languages

For national language libraries, at least one developer environment language must be installed. If in doubt, display the contents of your DVD.

Developer national languages other than English are on a separate DVD and will not be shipped unless ordered.

For national language libraries, only one developer environment language library can be merged into the base product library. Additional developer national language libraries must be separate, external libraries.

Developer National Languages	NLL Code	Shipped Library	Valid Merge Library	Selected Library Name	CLRLIB Completed?	RSTLIB Completed?
CA 2E English	ENG	Y2SYVENG	Y2SY			
CA 2E Japanese	JPN	Y2SYVJPN	Y2SY			

If you are upgrading and are not sure which CA 2E Developer National Language libraries were previously merged, use the following command to determine your current configuration:

```
WRKOBJ OBJ(*ALL/YMDLLNGSYA) OBJTYPE(*DTAARA)
```

If the YMDLLNGSYA data area is in Y2SY and contains a value of '*ENG', then the Y2SYVENG library was merged into Y2SY. If it is in Y2SYVENG, then this library was not merged.

Toolkit End User Environment National Languages

Note: The National Language Library code (NLL) is an abbreviation used in the configuration instructions in the installation chapters.

Developer National Languages	NLL Code	Shipped Library	Valid Merge Library	Selected Library Name	CLRLIB Completed?	RSTLIB Completed?
Toolkit Croatian	HRZ	Y1SYVHRZ	None			
Toolkit Danish	DAN	Y1SYVDAN	None			
Toolkit Dutch	NDL	Y1SYVNDL	None			
Toolkit Finnish	FIN	Y1SYVFIN	None			
Toolkit French National	FRN	Y1SYVFRN	None			
Toolkit French Multinational	FRN	Y1SYVFRNM	None			
Toolkit German National	DTC	Y1SYVDTC	None			
Toolkit German Multinational	DTC	Y1SYVDTCM	None			
Toolkit Italian	ITA	Y1SYVITA	None			
Toolkit Norwegian	NSK	Y1SYVNSK	None			
Toolkit Portuguese	PTG	Y1SYVPTG	None			
Toolkit Slovenian	SLO	Y1SYVSLO	None			
Toolkit Spanish	ESP	Y1SYVESP	None			
Toolkit Swedish	SVK	Y1SYVSVK	None			

CA 2E End User Environment National Languages

End user national language libraries contain the objects needed to generate your application in another language. End user environment national language libraries cannot be merged into the base product library; they must be separate libraries.

Note: The National Language Library code (NLL) is an abbreviation used in the configuration instructions in the installation chapters.

End User National Languages	NLL Code	Shipped Library	Valid Merge Library	Selected Library Name	CLRLIB Completed?	RSTLIB Completed?
CA 2E Croatian	HRZ	Y2SYVHRZ	None			
CA 2E Danish	DAN	Y2SYVDAN	None			
CA 2E Dutch	NDL	Y2SYVNDL	None			
CA 2E Finnish	FIN	Y2SYVFIN	None			
CA 2E French National	FRN	Y2SYVFRN	None			
CA 2E French Multinational	FRN	Y2SYVFRNM	None			
CA 2E German National	DTC	Y2SYVDTC	None			
CA 2E German Multinational	DTC	Y2SYVDTCM	None			
CA 2E Italian	ITA	Y2SYVITA	None			
CA 2E Norwegian	NSK	Y2SYVNSK	None			
CA 2E Portuguese	PTG	Y2SYVPTG	None			
CA 2E Slovenian	SLO	Y2SYVSLO	None			
CA 2E Spanish	ESP	Y2SYVESP	None			
CA 2E Swedish	SVK	Y2SYVSVK	None			

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