

# CA Spool™

## Installation Guide

Version 12.0



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# CA Technologies Product References

This document references the following CA Technologies products:

- CA ACF2® for z/OS
- CA Bundl®
- CA Common Services
- CA IDMS®/DC
- CA LPD Report Convergence
- CA Roscoe® Interactive Environment
- CA Spool™
- CA SymDump® System
- CA Top Secret® for z/OS
- CA View®

# 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

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## Documentation Changes

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

- The following documentation changes were published as Product Documentation Changes (PDCs) and added to this guide:
  - R138305
- The following sections have been removed:
  - Installing Your Product from Tape
  - Installing Your Product from DVD
- An instance of 'usr/lpp/caspool' has been changed to /cai/caspool.
- The CA Spool [component FMIDs](#) (see page 16) have been added.



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# Chapter 1: Overview

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This section contains the following topics:

[Audience](#) (see page 11)

[How the Installation Process Works](#) (see page 11)

## Audience

CA Spool is a comprehensive, flexible print spooling subsystem for IBM mainframe environments that use JES2 or JES3 as the primary spooling system.

This guide is targeted to the systems administrator who will install, use, and maintain CA Spool.

Readers of this book should have knowledge in the following areas:

- JCL
- TSO/ISPF
- z/OS environment and installing software in this environment
- Your organization's IT environment, enterprise structure, and region structure

You may need to work with the following personnel:

- System programmer for z/OS, JES2/JES3, VTAM and TCP/IP
- Storage administrator for DASD allocations

## How the Installation Process Works

CA Technologies has standardized product installations across all mainframe products. Installation uses the following process:

- Acquisition—Transports the software to your z/OS system.
- Installation using SMP/E—Creates an SMP/E environment and runs the RECEIVE, APPLY, and ACCEPT steps. The software is untailed.
- Deployment—Copies the target libraries to another system or LPAR.
- Configuration—Creates customized load modules, bringing the software to an executable state.

[CA Chorus™ Software Manager \(CA CSM\)](#) - formerly known as CA Mainframe Software Manager™ (CA MSM) - is an intuitive web-based tool that can automate and simplify many CA Technologies product installation activities on z/OS systems. This application also makes obtaining and applying corrective and recommended maintenance easier. A web-based interface enables you to install and maintain your products faster and with less chance of error. As a best practice, we recommend that you install mainframe products and maintenance using CA CSM. Using CA CSM, someone with limited knowledge of JCL and SMP/E can install a product.

**Note:** If you do not have CA CSM, you can download it from the Download Center at <http://ca.com/support>. Follow the installation instructions in the CA Chorus Software Manager documentation bookshelf on the CA Chorus Software Manager product page.

You can also complete the standardized installation process manually using pax files that are downloaded from <http://ca.com/support> or a product DVD.

To install your product, do the following tasks:

1. Prepare for the installation by confirming that your site meets all installation requirements.
2. Verify that you acquired the product using one of the following methods:
  - Download the software from <http://ca.com/support> using CA CSM.
  - Download the software from <http://ca.com/support> using Pax-Enhanced Electronic Software Delivery (Pax ESD).
  - Order a product DVD. To do so, contact your account manager or a CA Technologies Support representative.
3. Perform an SMP/E installation using one of the following methods:
  - If you used CA CSM to acquire the product, start the installation process from the SMP/E Environments tab in CA CSM.
  - If you used Pax ESD to acquire the product, you can install the product in the following ways:
    - Install the product manually.
    - Complete the SMP/E installation using the Add Product option in CA CSM.
  - If you used a DVD, install the product manually.

**Note:** If a CA Recommended Service (CA RS) package is published for your product, install it before continuing with deployment.

4. Deploy the target libraries using one of the following methods:
  - If you are using CA CSM to configure your products, a CA CSM deployment is required.
  - If you are using a manual configuration process, a manual deployment is an optional step.

**Note:** Deployment is considered part of starting your product.
5. Configure your product using CA CSM or manually.

**Note:** Configuration is considered part of starting your product.



# Chapter 2: Preparing for Installation

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This section describes what you need to know and do before you install the product.

This section contains the following topics:

[Software Requirements](#) (see page 15)

[CA Common Services Requirements](#) (see page 15)

[Component FMIDs](#) (see page 16)

[Storage Requirements](#) (see page 16)

[Concurrent Releases](#) (see page 18)

## Software Requirements

The following software is required for CA Spool:

- 5694-A01 any z/OS release that is supported by IBM
- z/OS UNIX System Services running in full function mode
- SAS/C 7.50 (or higher) Runtime Library included with CA Spool as FMID ASARB75
- CA Common Services Release 11 SP8 for z/OS or higher

## CA Common Services Requirements

We recommend that you maintain CA Common Services at a current maintenance level to ensure compatibility. For the latest information on maintenance requirements, contact CA Support Online.

**Note:** If you intend to use CA CSM for your installation and maintenance tasks, there may be certain additional CA Common Service requirements. For more information about software requirements, see the the *CA Mainframe Software Manager Product Guide*.

The following CA Common Services are used with CA Spool:

- CAIRIM
- CA LMP
- CAISDI Service
- CA Health Checker Common Service

**Note:** If other CA products are installed at your site, some of these services may already be installed.

## Component FMIDs

The following CA Spool component FMIDs are required:

<b>FMID</b>	<b>Component</b>
CBQ4C00	CA Spool base component
CCSRC00	LPD Interface component
CFD2C00	CA Spool Transformer Option - OMX2YY-XC
ASAR750	SAS/C Resident component

## Storage Requirements

Installation of CA Spool requires about 300 MB disk storage including 60 MB disk storage for the CA Spool distribution data sets, and about 20 MB for the test spool and checkpoint data sets.

## Distribution Libraries

Use the following table to estimate disk space for the distribution libraries that are needed to install CA Spool.

<b>Library Name</b>	<b>Blksize</b>	<b>TRKS</b>	<b>Dir. Blks.</b>	<b>Description</b>
CAI.ABQ4MOD	32760	136	58	Load library
CAI.ABQ4CLS0	27920	17	16	CLIST library
CAI.ABQ4HFS	32760	37	40	HFS library
CAI.ABQ4JCL	27920	23	28	JCL library
CAI.ABQ4MAC	27920	140	95	Macro library
CAI.ABQ4NATU	32760	18	16	Natural Menu library
CAI.ABQ4OPTN	27920	72	63	Options library
CAI.ABQ4PARM	27920	34	34	Parameter library
CAI.ABQ4PNL0	27920	17	16	ISPF Panel library
CAI.ABQ4PROC	27920	33	32	Procedure library
CAI.ASARLOAD	32760	111	57	SAS/C runtime library

Library Name	Blksize	TRKS	Dir. Blks.	Description
CAI.ABQ4SRC	27920	141	61	Source library
CAI.ACSRMOD	32760	48	18	Load library
CAI.ACSRMAC	27920	140	95	Macro library
CAI.ACSRPARM	27920	34	34	Parameter library
CAI.ACSRPROC	27920	33	32	Procedure library
CAI.ACSR SRC	27920	141	61	Source library
CAI.ABQ4XML	32760	42	16	CA CSM Deployment and Configuration Services

## Target Libraries

**Note:** Allocate these libraries *only* if they do not already exist.

Use the following table to estimate disk space for the target libraries that are needed to install CA Spool.

Library Name	Blksize	TRKS	Dir. Blks.	Description
CAI.CBQ4LOAD	32760	804	102	Load library
CAI.CBQ4CLS0	27920	17	16	CLIST library
CAI.CBQ4JCL	27920	23	28	JCL library
CAI.CBQ4MAC	27920	140	95	Macro library
CAI.CBQ4NATU	32760	18	16	Natural Menu library
CAI.CBQ4OPTN	27920	72	63	Options library
CAI.CBQ4PARM	27920	34	34	Parameter library
CAI.CBQ4PNL0	27920	17	16	ISPF Panel library
CAI.CBQ4PROC	27920	33	32	Procedure library
CAI.CBQ4SRC	27920	141	61	Source library
CAI.CSARLOAD	18452	111	57	SAS/C runtime library
/cai/caspool	-	2250	-	HFS directory

Library Name	Blksize	TRKS	Dir. Blks.	Description
CAI.CBQ4XML	32760	42	16	CA CSM Deployment and Configuration Services

## Concurrent Releases

You can install this release of CA Spool and continue to use an older release for your production environment. If you plan to continue to run a previous release, consider the following points:

- When installing into an existing SMP/E environment, this installation deletes previous releases.
- If you acquired your product from Pax-Enhanced ESD, select different target and distribution zones for your new release from where your current release is installed. The new zones use different libraries than your current release.

**Note:** CA CSM installs into a new CSI by default.

- Define DDDEF entries in your new zones to point SMP/E to the proper libraries for installation. Verify that they point to the new release libraries.

# Chapter 3: Installing Your Product Using CA CSM

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This section contains the following topics:

[How to Install Your Product Using CA CSM](#) (see page 19)

## How to Install Your Product Using CA CSM

As a system programmer, your responsibilities include acquiring, installing, maintaining, deploying, and configuring CA Technologies mainframe products on your system.

CA CSM is an application that simplifies and unifies the management of your CA Technologies mainframe products on z/OS systems. As products adopt the CA CSM services, you can install your products in a common way according to industry best practices.

This scenario describes the steps for a system programmer to acquire, install, deploy, and configure products and maintenance. Not all tasks may apply to your organization. For example, you may decide not to deploy and configure products. In this case, do not perform the product deployment task and the product configuration task.

Before you use this scenario, you must have CA CSM installed at your site. If you do not have CA CSM installed, you can download it from the Download Center at <http://ca.com/support>. This web page also contains links to the complete documentation for CA CSM.

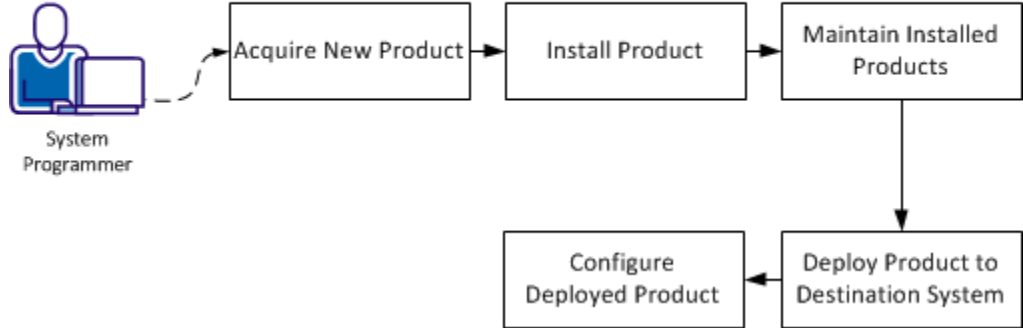
You [access CA CSM](#) (see page 20) from a web browser.

**Note:** This scenario applies to the latest version of CA CSM. If you are using an earlier version, see the appropriate bookshelf on the CA Chorus Software Manager product page.

This scenario is a high-level overview of steps that you perform using CA CSM. For more detailed information, use the online help that is included in CA CSM.

You perform the following tasks to install products and manage them on your system:

### How to Install Your Product Using CA CSM



1. [Acquire a new product](#) (see page 21).
2. [Install the product](#) (see page 22).
3. [Maintain the installed products](#) (see page 24).
4. [Deploy the product to the destination system](#) (see page 25).
5. [Configure the deployed product](#) (see page 26).

## Access CA CSM Using the Web-Based Interface

You access CA CSM using the web-based interface.

You need the URL of CA CSM from the CA CSM administrator.

#### Follow these steps:

1. Start your web browser, and enter the access URL.

The login page appears.

**Note:** If the Notice and Consent Banner appears, read and confirm the provided information.

2. Enter your z/OS login user name and password.

The initial page appears. If you log in for the first time, you are prompted to define your account on [the CA Support Online website](#).

**Note:** For more information about the interface, click the online help link at the top right corner of the page.

3. Click New.

You are prompted for the credentials to use on [the CA Support Online website](#).

4. Specify the credentials, click OK, and then click Next.

You are prompted to review your user settings.

**Note:** These settings are available on the User Settings page.

5. Change the settings or keep the defaults, and then click Finish.

A dialog opens, which shows the progress of the configuration task. You can click Show Results to view the details of the actions in a finished task.

**Important!** If your site uses proxies, review your proxy credentials on the User Settings, Software Acquisition page.

## Acquire a New Product

Acquisition allows you to download products and product maintenance from the CA Support Online website at <http://ca.com/support> to a USS directory structure on your system. The products to which your site is entitled and the releases available are displayed in the Available Products section on the Products page.

You perform the following high-level tasks to acquire a product using CA CSM:

1. Set up a CA Support Online account at <http://ca.com/support>.

To use CA CSM to acquire or download a product, you must have a CA Support Online account. If you do not have an account, create one on <http://ca.com/support>.

2. Determine the CA CSM URL for your site.

To [access CA CSM](#) (see page 20), you require its URL. You can get the URL from your site CA CSM administrator and log in using your z/OS credentials. When you log in for the first time, you are prompted to create a CA CSM account with your credentials that you use to access <http://ca.com/support>. This account enables you to download product packages.

3. Log in to CA CSM and go to the Products page to locate the product that you want to acquire.

After you log in to CA CSM, you can see the products to which your organization is entitled on the Products tab.

If you cannot find the product that you want to acquire, update the product list. CA CSM refreshes the product list through <http://ca.com/support> using the site IDs associated with your credentials.

4. Download the product installation packages.

After you find your product in the product list, you can download the product installation packages. To do so, use the Update Product Release action.

CA CSM downloads (acquires) the packages (including any maintenance packages) from the CA Support Online website.

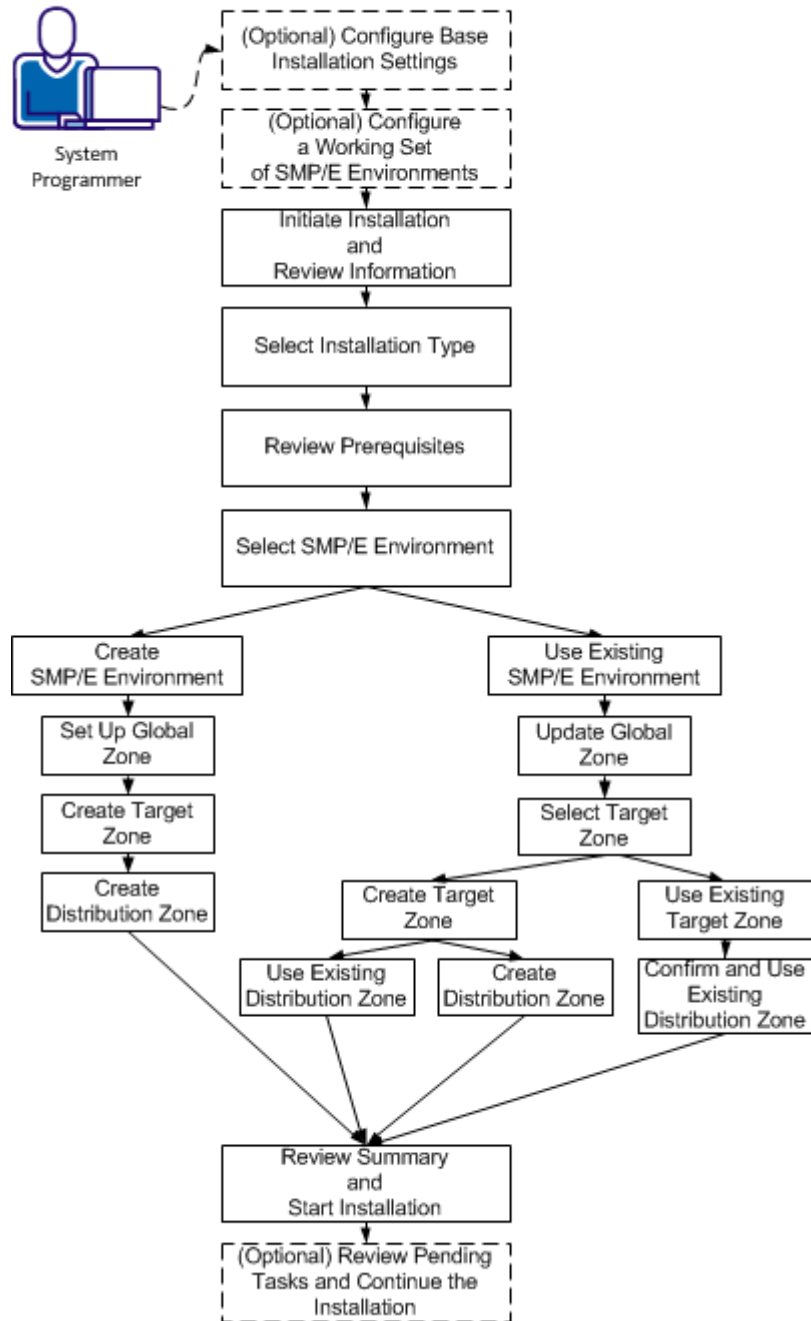
After the acquisition process completes, the product is ready for you to install or apply maintenance.

## Install a Product

CA CSM simplifies and manages SMP/E installation tasks. You can browse and install a product that you acquired and that is available in the product list on the Products page. You can also install the maintenance for the products that are currently installed in a managed SMP/E environment on the driving system.

You perform the following high-level tasks to install a product using CA CSM:

### How to Install a Product



1. (Optional) On the Settings tab, click Software Installation under System Settings, and configure base installation settings.
2. (Optional) Click the SMP/E Environments tab, and configure a working set of SMP/E environments.
3. Click the Products tab and select a product that you want to install. Start the installation wizard and review product information.
4. Select an installation type.
5. Review installation prerequisites if any are presented.
6. Take *one* of the following steps to select an SMP/E environment:
  - Create an SMP/E environment:
    - a. Set up the global zone.
    - b. Create a target zone.
    - c. Create a distribution zone.
  - Use an existing SMP/E environment from your working set:
    - a. Update the global zone.
    - b. Set up the target zone: Create a target zone or use an existing target zone.
    - c. Set up the distribution zone: Create a distribution zone or use an existing distribution zone.

**Note:** If you install a product or its components into an existing target or distribution zone, older versions are *deleted* from the zone and associated data sets. We recommend that you use new target and distribution zones for this installation so that you can apply maintenance to your current version, if necessary.
7. Review the installation summary and start the installation.
8. (Optional) Review pending tasks for the SMP/E environment where you are installing your product. Continue the installation, if applicable.

CA CSM installs the product.

After the installation process completes, check for and install available product maintenance. The product is ready for you to deploy. Sometimes, there are other steps to perform manually outside of CA CSM before continuing.

## Maintain the Installed Products

You can migrate existing SMP/E environments into CA CSM to maintain all your installed products in a unified way from a single web-based interface.

You can use CA CSM to maintain a CA Technologies product.

You perform the following high-level tasks to maintain a product using CA CSM:

1. Verify that CA CSM recognizes the SMP/E environment where your product is installed. If not, migrate the SMP/E environment to CA CSM.

During the migration, CA CSM stores information about the SMP/E environment in the database.

2. From the Product tab, download the latest maintenance for the installed product releases.

If you cannot find the required release, perform the following steps to download the maintenance:

- a. Add the release to the catalog manually.
  - b. Update the added release.
3. Apply the maintenance.

CA CSM applies the maintenance to your product.

After the maintenance process completes, the product is ready for you to deploy to systems that are defined in the system registry.

## Deploy the Product to the Destination System

Deployment is a process of copying SMP/E target libraries to a destination system. The destination system could be the local z/OS system, a remote z/OS system, or a sysplex. You identify the destination system, deployed data set names, and the transport mechanism as part of the deployment process. Deploying a product makes it available for configuration.

**Important!** Before you deploy a product, set up the destination systems and remote credentials in the system registry.

You perform the following high-level tasks to deploy your products using CA CSM:

1. On the Deployments tab, set up methodologies.

**Note:** You can also set up methodologies when creating a deployment, or use existing methodologies, if you have set up any previously. If you do so, you can skip this step.

2. Start the New Deployment wizard to create a deployment. Complete each of the steps in the wizard. The wizard guides you through choosing deployment settings for your site. At any point, you can save your work and come back to it later.

3. Deploy:
  - a. Take a snapshot of the deployment.
  - b. Transmit the deployment to a destination system.
  - c. Deploy (unpack) to the mainframe environment.CA CSM deploys the product to the destination system.

After the deployment process completes, the product is ready for you to configure.

## Configure the Deployed Product

Configuration is a process of copying the deployed libraries to run-time libraries and customizes the product for your site to bring it to an executable state. You can configure CA Technologies products that you have already acquired, installed, and deployed using CA CSM. You cannot use CA CSM to configure a product unless you have already used CA CSM to deploy the product.

You perform the following high-level tasks to configure your products using CA CSM:

1. Select a configurable deployment on the Deployments tab to view details and products for that deployment.
2. Select a product in the deployment and start the Configuration wizard to create a configuration. Complete each of the steps in the wizard. The wizard has multiple levels of detailed instructions and guides you through choosing configuration settings for your site. At any point, you can save your work and come back to it later. Configurations where you have partially completed the steps in the wizard are listed on the Configurations tab. The steps in the wizard include the following:
  - a. Define a configuration name and select a system for the configuration.
  - b. Select configuration functions and options.
  - c. Define system preferences.
  - d. Create target settings.
  - e. Select and edit resources.
3. Build the configuration. The last step of the Configuration wizard lets you build the configuration. If needed, you can edit the configuration and can build the configuration again. Building the configuration closes the wizard and creates a configuration with all your settings.
4. (Optional) Validate the configuration. Validation verifies access to resources that are going to be used when you implement the configuration.

5. Implement the configuration. You implement a configuration to make your deployed software fully functional. Implementation executes on the destination system, applying the variables, resources, and operations that are defined in the configuration.

CA CSM configures the product.

After the configuration process completes, the product is ready for you to use.



# Chapter 4: Installing Your Product Using Pax ESD or DVD

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This section contains the following topics:

[How to Install Your Product Using a Pax File](#) (see page 29)

[Allocate and Mount a File System](#) (see page 31)

[Acquire the Product Pax Files](#) (see page 33)

[Create a Product Directory from the Pax File](#) (see page 39)

[Copy Installation Files to z/OS Data Sets](#) (see page 40)

[Prepare the SMP/E Environment for a Pax Installation](#) (see page 42)

[Run the Installation Jobs for a Pax Installation](#) (see page 44)

[Clean Up the USS Directory](#) (see page 45)

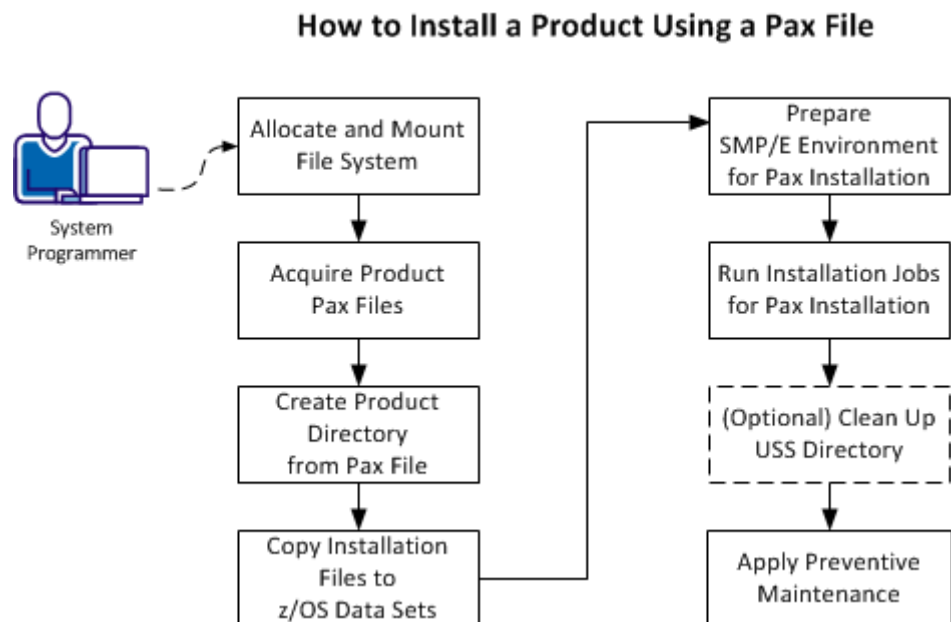
[Apply Preventive Maintenance](#) (see page 46)

## How to Install Your Product Using a Pax File

As a system programmer, your responsibilities include installing products on your mainframe system. With this option, you acquire a product pax file from <http://ca.com/support> or from a product DVD.

The DVD contains a folder that includes the pax file for the product. Product updates may have occurred after you acquired the product DVD. The files on the online site always have the most current product updates. To determine if you have the latest updates, go to <http://ca.com/support> and click Download Center.

You perform the following tasks to install a product with a pax file:



1. [Allocate and mount the file system](#) (see page 31).
2. [Acquire the product pax files](#) (see page 33).
3. [Create a product directory from the pax file](#) (see page 39).
4. [Copy the installation files to z/OS data sets](#) (see page 40).
5. Prepare the SMP/E environment for a pax installation.
6. [Run the installation jobs for a pax installation](#) (see page 44).
7. (Optional) [Clean up the USS directory](#) (see page 45).
8. [Apply preventive maintenance](#) (see page 46).

## USS Environment Setup

You need a UNIX System Services (USS) directory and a file system with adequate space to perform the following tasks:

- Receive product pax files from <http://ca.com/support>.
- Perform utility functions to unpack the pax file into MVS data sets that you can use to complete the product installation.

We recommend that you allocate and mount a file system that is dedicated to Pax ESD. The amount of space that you need for the file system depends on the following variables:

- The size of the pax files that you intend to download.
- Whether you plan to keep the pax files after unpacking them. We do not recommend this practice.

We recommend that you use one directory for downloading and unpacking pax files. Reusing the same directory minimizes USS setup. You need to complete the USS setup only one time. You reuse the same directory for subsequent downloads. Alternatively, you can create a directory for each pax download.

**Important!** Downloading pax files for the SMP/E installation as part of the Pax ESD process requires write authority to the UNIX System Services (USS) directories that are used for the Pax ESD process. In the file system that contains the Pax ESD directories, you also need free space approximately 3.5 times the pax file size to download the pax file and unpack its contents. For example, to download and unpack a 14 MB pax file, you need approximately 49 MB of free space in the file system hosting your Pax ESD directory.

## Allocate and Mount a File System

The product installation process requires a USS directory to receive the pax file and to perform the unpack steps. We recommend that you allocate and mount a file system that is dedicated to the product acquisition and create the directory in this file system.

You can use the zSeries File System (zFS) or hierarchical file system (HFS) for product downloads.

This procedure describes how to perform the following tasks:

- Allocate a zFS or an HFS.
- Create a mount point in an existing maintenance USS directory of your choice.
- Mount the file system on the newly created mount point.

**Note:** You must have either SUPERUSER authority, or the required SAF profile setting to allow you to issue the USS mount command for the file system.

- Optionally, permit write access to anyone in the same group as the person who created the directory.

**Important!** USS commands are case-sensitive.

### Follow these steps:

1. Allocate the file system by customizing one of the following samples to your site requirements:

- On a zFS, use the following sample:

```
//DEFINE EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//AMSDUMP DD SYSOUT=*
//SYSIN DD *
  DEFINE CLUSTER ( +
    NAME(your_zFS_data_set_name) +
    STORAGECLASS(class) +
    LINEAR +
    CYL(primary secondary) +
    SHAREOPTIONS(3,3) +
  )
/*
//FORMAT EXEC PGM=IOEAGFMT,REGION=0M,
// PARM=(' -aggregate your_zFS_data_set_name -compat' )
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
//CEEDUMP DD SYSOUT=*
/*
```

- On an HFS, use the following sample:

```
//ALCHFS EXEC PGM=IEFBR14
//CAPAX DD DSN=yourHFS_data_set_name,
// DISP=(NEW,CATLG,DELETE),UNIT=3390,
// DSNTYPE=HFS,SPACE=(CYL,(primary,secondary),1)
```

The file system is allocated.

**Note:** Ensure that the zFS or HFS data set name that you use conforms to your data set naming conventions for USS file systems. If the allocation of the file system data set fails, it is because of environmental settings not allowing for the allocation. On an HFS, try using the ISPF 3.2 Data Set Utility to allocate your HFS data set.

2. Create a mount point for the file system. This example shows how to create a /CA/CAPAX directory in an existing directory, /u/maint. From the TSO OMVS shell, enter the following commands:

```
cd /u/maint/
mkdir CA
cd CA
mkdir CAPAX
```

**Note:** This document refers to this structure as *yourUSSpaxdirectory*.

The mount point is created.

3. Mount the file system by customizing one of the following samples to your site requirements:

- On a zFS, use the following sample:

```
MOUNT FILESYSTEM('your_zFS_data_set_name')
MOUNTPOINT('yourUSSpaxdirectory')
TYPE(ZFS) MODE(RDWR)
PARM(AGGRGROW)
```

- On an HFS, use the following sample:

```
MOUNT FILESYSTEM('your_HFS_data_set_name')
MOUNTPOINT('yourUSSpaxdirectory')
TYPE(HFS) MODE(RDWR)
```

The file system is mounted.

4. (Optional) Set security permissions for the directory. You can use the chmod command to let other users access the Pax ESD directory and its files. For example, to allow write access to the Pax ESD directory for other users in your USS group, from the TSO OMVS shell, enter the following command:

```
chmod -R 775 /yourUSSpaxdirectory/
```

Write access is granted.

**Note:** For more information about the chmod command, see the IBM *z/OS UNIX System Services User Guide (SA22-7802)*.

## Acquire the Product Pax Files

To begin the CA Technologies product installation procedure, copy the product pax file into the USS directory that you set up.

**Important!** Downloading pax files for the SMP/E installation as part of the Pax ESD process requires write authority to the UNIX System Services (USS) directories that are used for the Pax ESD process. Also, you must have available USS file space before you start the procedures in this guide.

Use one of the following methods:

- [Download the product pax file from http://ca.com/support to your PC](http://ca.com/support) (see page 34), and then upload it to your USS file system.  
If you download a zip file, you must unzip it before uploading to your USS file system.
- [Download the pax files from http://ca.com/support directly to your USS file system](http://ca.com/support) (see page 35).
- [Download the pax file from the product DVD to your PC, and then upload the pax files to your USS file system.](#) (see page 38)

This section includes the following information:

- A sample batch job to download a product pax file from the CA Support Online FTP server directly to a USS directory on your z/OS system
- Sample commands to upload a pax file from your PC to a USS directory on your z/OS system

**Important!** The FTP procedures vary due to local firewall and other security settings. Consult your local network administrators to determine the appropriate FTP procedure to use at your site.

Ensure that sufficient free space is available in the USS file system that you are using to hold the product pax file. If you do not have sufficient free space, error messages similar to the following appear:

```
EZA1490I Error writing to data set  
EZA2606W File I/O error 133
```

When the download finishes, the pax file size in your USS directory matches the value in the Size column for the corresponding pax file on the CA Technologies Products Download window.

## Download Files to a PC Using Pax ESD

You can download product installation files from <http://ca.com/support> to your PC.

### Follow these steps:

1. Log in to <http://ca.com/support>, and click Download Center.  
The Download Center web page appears.
2. Under Download Center, select Products from the first drop-down list, and specify the product, release, and gen level (if applicable), and click Go.  
The CA Product Download window appears.

3. Download an entire CA Technologies product software package or individual pax files to your PC. If you download a zip file, you must unzip it before continuing.

**Note:** For traditional installation downloads, see the *Traditional ESD User Guide*. For information about download methods, see the Download Methods and Locations article. Go to <http://ca.com/support>, log in, and click Download Center. Links to the guide and the article appear under the Download Help heading.

## Download Using Batch JCL

You download a pax file from <http://ca.com/support> by running batch JCL on the mainframe. Use the sample JCL attached to the PDF file as [CAtoMainframe.txt](#) (see page 37) to perform the download.

**Important!** The PDF version of this guide includes sample JCL jobs that you can copy directly to the mainframe. To access these jobs, click the paper clip icon at the left of the PDF reader. A window displaying attachments opens. Double-click a file to view a sample JCL. We recommend that you use the latest version of Adobe Reader for viewing PDF files.

**Note:** We recommend that you follow the preferred download method as described on <http://ca.com/support>. This JCL procedure is our preferred download method for users who do not use CA CSM. We also include the procedure to download to the mainframe through a PC in the next section.

### Follow these steps:

1. Replace *ACCOUNTNO* with a valid JOB statement.  
The job points to your profile.
2. Replace *yourTCPIP.PROFILE.dataset* with the name of the TCP/IP profile data set for your system. Consult your local network administrators, if necessary.  
The job points to your profile.
3. Replace *YourEmailAddress* with your email address.  
The job points to your email address.
4. Replace *yourUSSpaxdirectory* with the name of the USS directory that you use for Pax ESD downloads.  
The job points to your USS directory.
5. Locate the product component to download on the CA Support Product Download window.  
You have identified the product component to download.
6. Click Download for the applicable file.  
**Note:** For multiple downloads, add files to a cart.  
The Download Method window opens.

7. Click FTP Request.

The Review Download Requests window displays any files that you have requested to download.

**Note:** We send you an email when the file is ready to download or a link appears in this window when the file is available.

8. Select one of the following methods:

**Preferred FTP**

Uses CA Technologies worldwide content delivery network (CDN). If you cannot download using this method, review the security restrictions for servers that company employees can download from that are outside your corporate network.

**Host Name:** ftp://ftpdnloads.ca.com

**Alternate FTP**

Uses the original download servers that are based on Long Island, New York.

**Host Name:** ftp://scftpd.ca.com for product files and download cart files and ftp://ftp.ca.com for individual solution files.

Both methods display the host, user name, password, and FTP location, which you then can copy into the sample JCL.

**Note:** The following links provide details regarding FTP: the FTP Help document link in the Review Download Requests window and the Learn More link available in the Download Methods window.

9. Submit the job.

**Important!** If your FTP commands are incorrect, it is possible for this job to fail and still return a zero condition code. Read the messages in the job DDNAME SYSPRINT to verify the FTP succeeded.

After you run the JCL job, the pax file resides in the mainframe USS directory that you supplied.

## Example: CAtoMainframe.txt, JCL

The following text appears in the attached CAtoMainframe.txt JCL file:

```
//GETPAX JOB (ACCOUNTNO),'FTP GET PAX ESD PACKAGE',
//          MSGCLASS=X,CLASS=A,NOTIFY=&SYSUID
//*****
/* This sample job can be used to download a pax file directly from *
/* CA Support Online to a USS directory on your z/OS system.      *
/*                                                                *
/*                                                                *
/* When editing the JCL ensure that you do not have sequence numbers *
/* turned on.                                                    *
/*                                                                *
/* This job must be customized as follows:                       *
/* 1. Supply a valid JOB statement.                              *
/* 2. The SYSTCPD and SYSFTPD JCL DD statements in this JCL may be *
/*    optional at your site. Remove the statements that are not  *
/*    required. For the required statements, update the data set  *
/*    names with the correct site-specific data set names.       *
/* 3. Replace "Host" based on the type of download method.      *
/* 4. Replace "YourEmailAddress" with your email address.       *
/* 5. Replace "yourUSSpaxdirectory" with the name of the USS     *
/*    directory used on your system for Pax ESD downloads.      *
/* 6. Replace "FTP Location" with the complete path              *
/*    and name of the pax file obtained from the FTP location   *
/*    of the product download page.                             *
//*****
//GETPAX EXEC PGM=FTP,PARM=(EXIT TIMEOUT 120',REGION=0M
//SYSTCPD DD DSN=yourTCPIP.PROFILE.dataset,DISP=SHR
//SYSFTPD DD DSN=yourFTP.DATA.dataset,DISP=SHR
//SYSPRINT DD SYSOUT=*
//OUTPUT DD SYSOUT=*
//INPUT DD *
Host
anonymous YourEmailAddress
lcd yourUSSpaxdirectory
binary
get FTP_location
quit
/*
```

## Download Files to Mainframe through a PC

You download the product installation files to your PC and transfer them to your USS system.

**Follow these steps:**

1. Download the product file to your PC using one of the following methods:
  - [Pax ESD](#) (see page 34). If you downloaded a zip file, first unzip the file to use the product pax files.
  - DVD. Copy the entire product software package (or individual pax files) to your PC.

The pax file resides on your PC.

**Note:** Do *not* change the format of the pax.Z.

2. Open a Windows command prompt.

The command prompt appears.

3. Customize and enter the following FTP commands:

```
FTP mainframe
userid
password
bin
lcd C:\PC\folder\for\thePAXfile
cd /yourUSSpaxdirectory/
put paxfile.pax.Z
quit
exit
```

***mainframe***

Specifies the z/OS system IP address or DNS name.

***userid***

Specifies your z/OS user ID.

***password***

Specifies your z/OS password.

***C:\PC\folder\for\thePAXfile***

Specifies the location of the pax file on your PC.

**Note:** If you specify a location that has blanks or special characters in the path name, enclose that value in double quotation marks.

***yourUSSpaxdirectory***

Specifies the name of the USS directory that you use for Pax ESD downloads.

***paxfile.pax.Z***

Specifies the name of the pax file to upload.

The pax file is transferred to the mainframe.

## Create a Product Directory from the Pax File

The pax command performs the following actions:

- Extracts the files and directories that are packaged within the pax file.
- Creates a USS directory in the same directory structure where the pax file resides.
- Automatically generates a product and level-specific directory name.

Set the current working directory to the directory containing the pax file, and create a directory in your USS directory by entering the following command:

```
pax -rvf pax-filename
```

Use the sample JCL that is attached to the PDF file as [Unpackage.txt](#) (see page 40) to extract the product pax file into a product installation directory.

**Important!** The PDF version of this guide includes sample JCL jobs that you can copy directly to the mainframe. To access these jobs, click the paper clip icon at the left of the PDF reader. A window displaying attachments opens. Double-click a file to view a sample JCL. We recommend that you use the latest version of Adobe Reader for viewing PDF files.

**Follow these steps:**

1. Replace *ACCOUNTNO* with a valid JOB statement.
2. Replace *yourUSSpaxdirectory* with the name of the USS directory that you use for product downloads.

The job points to your specific directory.

3. Replace *paxfile.pax.Z* with the name of the pax file.

The job points to your specific pax file.

4. Submit the job.

The job creates the product directory.

**Note:** If the PARM= statement exceeds 71 characters, uncomment and use the second form of UNPAXDIR instead. This sample job uses an X in column 72 to continue the PARM= parameters to a second line.

## Example: JCL File, Unpackage.txt, to Customize

The following text appears in the attached Unpackage.txt JCL file:

```
//ESDUNPAX JOB (ACCOUNTNO), 'UNPAX PAX ESD PACKAGE',
// MSGCLASS=X, CLASS=A, NOTIFY=&SYSUID
//*****
//* This sample job can be used to invoke the pax command to create  *
//* the product-specific installation directory.                      *
//*                                                                    *
//* This job must be customized as follows:                          *
//* 1. Supply a valid JOB statement.                                  *
//* 2. Replace "yourUSSpaxdirectory" with the name of the USS        *
//*    directory used on your system for Pax ESD downloads.          *
//* 3. Replace "paxfile.pax.Z" with the name of the pax file.       *
//* NOTE: If you continue the PARM= statement on a second line,    *
//*    start entering characters in column 16 and make sure         *
//*    the 'X' continuation character is in column 72.              *
//*****
//UNPAXDIR EXEC PGM=BPXBATCH,
// PARM='sh cd /yourUSSpaxdirectory/; pax -rvf paxfile.pax.Z'
//*UNPAXDIR EXEC PGM=BPXBATCH,
//* PARM='sh cd /yourUSSpaxdirectory/; pax                          X
//*          -rvf paxfile.pax.Z'
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
```

## Copy Installation Files to z/OS Data Sets

Use this procedure to invoke the SMP/E GIMUNZIP utility to create MVS data sets from the files in the product-specific directory.

The file UNZIPJCL in the product directory contains a sample job to GIMUNZIP the installation package. You edit and submit the UNZIPJCL job to create z/OS data sets.

**Follow these steps:**

1. Locate and read the product readme file or installation notes, if applicable, which resides in the product-specific directory that the pax command created. This file contains the product-specific details that you require to complete the installation procedure.

You have identified the product-specific installation details.

2. Use ISPF EDIT or TSO ISHELL to edit the UNZIPJCL sample job. You can perform this step in one of the following ways:
  - Use ISPF EDIT. Specify the full path name of the UNZIPJCL file.
  - Use TSO ISHELL. Navigate to the UNZIPJCL file and use the E line command to edit the file.

The job is edited.

3. Change the SMPDIR DD PATH to the product-specific directory created by the pax command.

Your view is of the product-specific directory.

4. If ICSF is not active, perform the following steps:
  - a. Change the SMPJHOME DD PATH to your Java runtime directory. This directory varies from system to system.
  - b. Perform one of the following steps:
    - Change the SMPCPATH DD PATH to your SMP/E Java application classes directory, typically `/usr/lpp/smp/classes/`.
    - Change `HASH=YES` to `HASH=NO` on the GIMUNZIP parameter.

One of the following occurs: ICSF is active or you are using Java.

5. Change all occurrences of *yourHLQ* to the high-level qualifier (HLQ) for z/OS data sets that the installation process uses. We suggest that you use a unique HLQ for each expanded pax file to identify uniquely the package. Do *not* remove CAI after *yourHLQ*. Do *not* use the same value for *yourHLQ* as you use for the SMP/E RELFILES.

All occurrences of *yourHLQ* are set to your high-level qualifier for z/OS data sets.

6. Submit the UNZIPJCL job.

The UNZIPJCL job completes with a zero return code. Messages GIM69158I and GIM48101I in the output and IKJ56228I in the JES log are acceptable.

GIMUNZIP creates z/OS data sets with the high-level qualifier that you specified in the UNZIPJCL job. You use these data sets to perform the product installation. The pax file and product-specific directory are no longer needed.

**Note:** For more information, see the IBM *SMP/E for z/OS Reference (SA22-7772)*.

## Prepare the SMP/E Environment for a Pax Installation

The following steps describe the process to install products using native SMP/E JCL:

1. Download external HOLDDATA.
2. Allocate product data sets and SMP/E data sets.
3. Create an SMP/E environment.
4. Receive base functions and HOLDDATA.
5. Download and RECEIVE PTFs from <http://ca.com/support>.
6. Run an SMP/E APPLY CHECK operation.
7. Apply base functions using SELECT GROUPEXTEND.
8. Run an SMP/E ACCEPT CHECK operation.
9. Accept base functions using SELECT GROUPEXTEND.
10. Configure the product according to your site requirements.

The members that are used in this procedure prepare the data sets, initialize the zones, and create the DDDEFs for your product.

Establishing a hierarchical file system (HFS) may be required as part of the product installation or required as a feature of the product.

For information about the members, see the comments in the JCL.

### Follow these steps:

1. Customize the macro SPLSEDIT with your site-specific information and then copy the macro to your SYSPROC location. Replace the rightmost parameters for each ISREDIT CHANGE command. Each time you edit an installation member, type SPLSEDIT on the command line, and press Enter to replace the defaults with your specifications.

The macro is ready to customize the *yourHLQ.SAMPJCL* members.

**Note:** Set the DASD HLQ to the same value specified for *yourHLQ* within the JCL that is used to unzip the pax file.

**Note:** The following steps include instructions to execute the SPLSEDIT macro each time you open a new SAMPJCL member. To edit all SAMPJCL members simultaneously, read and follow the instructions in the SPLAREAD member, and submit the SPLEDALL member.

2. Open the SAMPJCL member SPL1HOLD in an edit session and execute the SPLSEDIT macro from the command line.

SPL1HOLD is customized.

3. Submit SPL1HOLD.

This job downloads the error and FIXCAT HOLDDATA from <http://ca.com/support>.

4. Open the SAMPJCL member SPL2ALL in an edit session and execute the SPLSEEDIT macro from the command line.

SPL2ALL is customized.

5. Submit SPL2ALL.

This job produces the following results:

- The target and distribution data sets for your product are created.
- Unique SMPLTS, SMPMTS, SMPSCDS, and SMPSTS data sets for this target zone are created.

6. If your product requires HFS or if you want to install a feature of the product that requires HFS, complete the following substeps:

If you do not use ZFS or HFS, skip this step and proceed to the next step.

- a. Open the SAMPJCL member BQ42ALLU in an edit session and execute the SPLSEEDIT macro from the command line.

**Note:** All instances of BQ4 in this section indicate a three-character component code based on the FMID.

BQ42ALLU is customized.

- b. Submit BQ42ALLU.

This job allocates your HFS data sets.

- c. Open the SAMPJCL member BQ43MKD in an edit session and execute the SPLSEEDIT macro from the command line.

BQ43MKD is customized.

- d. Submit BQ43MKD.

This job creates all directories and mounts the file system.

7. Open the SAMPJCL member SPL3CSI in an edit session and execute the SPLSEEDIT macro from the command line.

SPL3CSI is customized.

8. Submit SPL3CSI.

This job produces the following results:

- The CSI data set is defined.
- The SMPPTS and SMPLOG data sets are allocated.
- The global, target, and distribution zones are initialized.

- The DDDEF entries for your product are created.
  - The DDDEFs for the required SMP/E data sets are created.
9. If your product requires HFS or if you want to install a feature of the product that requires HFS, complete the following substeps:
- If you do not use ZFS or HFS, skip this step.
- a. Open the SAMPJCL member BQ43CSIU in an edit session and execute the SPLSEEDIT macro from the command line.  
BQ43CSIU is customized.
  - b. Submit BQ43CSIU.  
This job customizes the CSI by adding the DDDEFs associated with the directory.

## Run the Installation Jobs for a Pax Installation

Submit and run these SAMPJCL members in sequence. Do not proceed with any job until the previous job has completed successfully.

**Note:** The following steps include instructions to execute the SPLSEEDIT macro each time you open a new SAMPJCL member. To edit all SAMPJCL members simultaneously, read and follow the instructions in the SPLAREAD member, and submit the SPLEDALL member.

**Follow these steps:**

1. Open the SAMPJCL member SPL4RECD in an edit session, and execute the SPLSEEDIT macro from the command line.  
SPL4RECD is customized.
2. Submit SPL4RECD to receive SMP/E base functions and error HOLDDATA.  
Your product is received and now resides in the global zone.
3. If an FMID was placed in error, [download and receive PTFs](http://ca.com/support) (see page 46) from <http://ca.com/support>.
4. Open the SAMPJCL member SPL5APP in an edit session, and execute the SPLSEEDIT macro from the command line.  
SPL5APP is customized.
5. Submit SPL5APP to apply SMP/E base functions with the CHECK option. If you find unresolved hold errors, we recommend that you note these errors and verify that resolving PTFs are applied before implementing products in production. Update the JCL to BYPASS the unresolved hold error IDs. After successful completion, rerun APPLY with the CHECK option removed.  
Your product is applied and now resides in the target libraries.

6. Open the SAMPJCL member SPL6ACC in an edit session, and execute the SPLSEEDIT macro from the command line.

SPL6ACC is customized.

7. Submit SPL6ACC to accept SMP/E base functions with the CHECK option. After successful completion, rerun APPLY with the CHECK option removed.

Your product is accepted and now resides in the distribution libraries.

## Clean Up the USS Directory

This procedure is optional. If you decide to perform the procedure, do so after you complete the installation process and when you do not need the installation files anymore.

To free file system disk space for subsequent downloads after downloading and processing the pax files for your CA Technologies product, we recommend removing the files from your USS directory and deleting unnecessary MVS data sets. You can delete the following items:

- Pax file
- Product-specific directory that the pax command created and all of the files in it
- SMP/E RELFILES, SMPMCS, and HOLDDATA MVS data sets

These data sets have the HLQ that you assigned in the UNZIPJCL job.

**Note:** Retain non-SMP/E installation data sets such as *yourHLQ*.INSTALL.NOTES for future reference.

### Follow these steps:

1. Navigate to your Pax ESD USS directory.  
Your view is of the applicable USS directory.
2. Delete the pax file by entering the following command:

```
rm paxfile
```

***paxfile***

Specifies the name of the CA Technologies pax file that you downloaded.

The pax file is deleted.

3. Delete the product-specific directory by entering the following command:

```
rm -r product-specific_directory
```

***product-specific\_directory***

Specifies the product-specific directory that the pax command created.

The product-specific directory is deleted.

**Note:** You can also use TSO ISHELL to navigate to the pax file and product-specific directory, and delete them using the D line command.

## Apply Preventive Maintenance

**Important!** We strongly recommend that you use CA CSM to maintain your CA Technologies z/OS-based products. The procedure that is discussed in this section is fully automated when you use CA CSM.

CA Support Online at <http://ca.com/support> has maintenance and HOLDDATA published since the installation data was created. After the maintenance process completes, the product is ready to deploy.

Use this procedure during product installation and for ongoing preventive maintenance in non-installation use cases according to your maintenance strategy.

**Note:** To review the CA Technologies mainframe maintenance philosophy, see your *Best Practices Guide* or visit the [CA Next-Generation Mainframe Management page](#).

This procedure directs you to use the CAUNZIP utility. The CAUNZIP utility processes ZIP packages directly on z/OS without the need for an intermediate platform, such as a Microsoft Windows workstation. If you are not familiar with this utility, see the *CA Common Services for z/OS Administration Guide*. This guide includes an overview and sample batch jobs. To use this utility, you must be running CA Common Services for z/OS Version 14.0 with PTF RO54887 or CA Common Services for z/OS Release 14.1 with PTF RO54635 and RO58216. These PTFs are included in CA Common Services for z/OS Release 14.1 at the S1401 Service Update level.

### Follow these steps:

1. Check the Download Center at <http://ca.com/support> for PTFs that have been published since this release was created. If the base release was created recently, no PTFs will have been published yet. If PTFs exist, add published solutions for your product to your Download Cart, and click Checkout.
2. Specify that you want a complete package.

When processing completes, a link appears on the Review Download Requests page. You also receive an email notification.

3. Click the Alternate FTP link for your order to obtain FTP login information and the ZIP file location. Download the ZIP file into a USS directory on your z/OS system.
4. Run the CAUNZIP utility.

CAUNZIP unzips the package of published solutions and creates a SMPNTS file structure that the SMP/E RECEIVE FROMNTS command can process. For sample JCL to run the utility that is located in *yourHLQ.CAWOJCL(CAUNZIP)*, see the *CA Common Services for z/OS CAUNZIP Administration Guide*. After execution completes, the ZIPRPT data set contains the summary report. The summary report does the following:

  - Summarizes the content of the product order ZIP file.
  - Details the content of each data set and the z/OS UNIX files produced.
  - Provides a sample job to receive the PTFs in your order.
5. Review the sample job that is provided in the CAUNZIP output ZIPRPT file. Cut and paste the JCL into a data set, specify your SMP/E CSI on the SMPCSI DD statement and submit the job to receive the PTFs in your order.
6. Verify that you have the values from the base installation in the SPLSEDIT macro that was customized in the installation steps.
7. Open the SAMPJCL member SPL1HOLD in an edit session and execute the SPLSEDIT macro from the command line.

**Note:** Update SPL1HOLD SAMPJCL to download the HOLDDATA file.  
SPL1HOLD is customized.
8. Submit SPL1HOLD.

The job downloads the external HOLDDATA file.
9. Open the SAMPJCL member SPL7RECH in an edit session and execute the SPLSEDIT macro from the command line.

SPL7RECH is customized.
10. Submit SPL7RECH.

The job receives the external HOLDDATA file.

11. (CA Recommended Service (CA RS)) installation only) Do the following:
  - a. Determine which ASSIGN statements to download.
    - The yearly CA RS ASSIGN statements are stored in the following file:  
ftp.ca.com/pub/ASSIGN/YEARLY/CARyyyy.TXT
    - The quarterly CA RS ASSIGN statements are stored in the following file:  
ftp.ca.com/pub/ASSIGN/CARyymm.TXT
  - b. Open the SAMPJCL member SPL7CARS in an edit session, update SPL7CARS SAMPJCL to download ASSIGN statements from <http://ca.com/support>, and execute the SPLSEEDIT macro from the command line.  
  
SPL7CARS is customized.
12. (CA RS installation only) Submit SPL7CARS.  
  
The job downloads the CA RS ASSIGN statements.
13. (CA RS installation only) Open the SAMPJCL member SPL7RECP in an edit session, manually add the data set that contains the ASSIGN statements to the SMPPTFIN DD, and execute the SPLSEEDIT macro from the command line.  
  
SPL7RECP is customized.
14. (CA RS installation only) Submit SPL7RECP.  
  
The job receives the external HOLDDATA file and CA RS ASSIGN statements.
15. Open the SAMPJCL member SPL8APYP in an edit session and execute the SPLSEEDIT macro from the command line.  
  
SPL8APYP is customized.
16. Submit SPL8APYP.  
  
The PTFs are applied.
17. (Optional) Open the SAMPJCL member SPL9ACCP in an edit session and execute the SPLSEEDIT macro from the command line.  
  
SPL9ACCP is customized.
18. (Optional) Submit SPL9ACCP.  
  
The PTFs are accepted.  
  
**Note:** You do not have to submit the job at this time. You can accept the PTFs according to your site policy.

## HOLDDATA

When you apply maintenance, you typically encounter SMP/E HOLDDATA. We use HOLDDATA to notify your SMP/E system of SYSMODs that have errors or special conditions. We support system and external HOLDDATA.

## System HOLDDATA

System HOLDDATA indicates data that is an in-stream part of the SYSMOD, informing you of special conditions. The following reasons are used with SYSTEM HOLDDATA for your product:

### **ACTION**

Indicates that you must perform special processing before or after you apply this SYSMOD.

### **DELETE**

Deletes the SYSMOD load module. You cannot reverse this type of SYSMOD with the SMP/E RESTORE command.

### **DEP**

Indicates a dependency for this SYSMOD that you must externally verify.

### **DOC**

Indicates a documentation change with this SYSMOD.

### **EC**

Indicates that this SYSMOD requires a hardware engineering change. An EC hold SYSMOD usually does not affect the product unless the EC is present on the hardware device.

### **EXRF**

Indicates that the SYSMOD must be installed in both the Active and Alternate Extended Recovery Facility Systems.

Code a BYPASS(HOLDSYS) operand on your APPLY command to install SYSMODs that have internal holds. Code the BYPASS(HOLDSYS) operand only after you have performed the required action, or if you are performing the action after the APPLY, if that is appropriate.

## External HOLDDATA

External HOLDDATA is not part of the PTF. The HOLDDATA resides in a separate file and contains both error and FIXCAT HOLDDATA. The error HOLDDATA is used for SYSMODs that have been distributed and later are discovered to cause problems. The FIXCAT HOLDDATA helps identify maintenance that is required to support a particular hardware device, software, or function.

Download the external HOLDDATA from <http://ca.com/support> to a DASD file, and allocate the file to the SMPHOLD DD statement. To take care of the external HOLDDATA, receive it into your SMP/E environment. SMP/E receives the HOLDDATA from CA-supplied jobs.

You can find JCL to download the external HOLDDATA in your SAMPJCL member. Open SPL1HOLD in an edit session and execute the SPLSEEDIT macro on the command line. Then, submit the JCL.

### Error HOLDDATA

If a SYSMOD has unresolved error HOLDDATA, SMP/E does not install it unless you add a bypass to your APPLY command. You can bypass error HOLDDATA in situations that are not applicable to you. Error HOLDDATA that is not applicable to you can include a problem that happens only with a hardware device that you do not have or in a product feature that you do not use.

When CA Technologies publishes a SYSMOD that resolves the error HOLDDATA, the resolving SYSMOD supersedes the error HOLDDATA. This action lets you apply the original SYSMOD in conjunction with the fixing SYSMOD.

The only manual task is running a REPORT ERRSYSMODS. This report identifies the following:

- Any held SYSMODs already applied to your system
- Any resolving SYSMODs that are in RECEIVE status

SMP/E identifies the SYSMOD to apply to correct the situation.

### FIXCAT HOLDDATA

CA Technologies provides [FIXCAT HOLDDATA](#) to help identify maintenance that is required to support a particular hardware device, software, or function. Fix categories are supplied as SMP/E FIXCAT HOLDDATA statements. Each FIXCAT HOLDDATA statement associates an APAR and its related fixing PTF to one or more fix categories.

# Chapter 5: Starting Your Product

---

This section contains the following topics:

[Introduction](#) (see page 51)

[How to Prepare for Deployment With CA MSM](#) (see page 51)

[How to Complete Deployment With CA CSM](#) (see page 52)

[How to Complete Configuration With CA CSM](#) (see page 52)

[How to Configure Without CA CSM](#) (see page 57)

## Introduction

Choose the topics in this chapter that relate to the type of installation technique you use.

## How to Prepare for Deployment With CA MSM

The topics in this section describe the manual tasks you perform before deploying your product using CA MSM.

### Run UCLIN

Run member CBQ4JCL(BQ4JIUCL) to update SMP/E with information about the relationship between source and macros. A return code of 04 is acceptable.

### Run Post-Install Jobs as Required for Other Environments

Ignore this step if it was done previously as part of the instructions in 'How to Prepare for Deployment With CA MSM'.

CA Spool has interfaces to a number of different environments. In some environments, some of these interfaces require that you run extra installation jobs. The jobs are in the CBQ4JCL data set and begin with "BQ4J" and the remaining characters indicate the relevant environment.

BQ4Jxxxx are SMP/E jobs that update SMP/E with the information that a foreign product is present. Some of the source distributed with CA Spool assembles differently when a BQ4Jxxxx job is executed.

The optional jobs are as follows:

- BQ4JACF2 for CA ACF2 support
- BQ4JCICS for CICS menu support
- BQ4JCOMP (Complete) for Software AG's Complete support
- BQ4JIDMS for CA IDMS support
- BQ4JIMS for IMS menu support
- BQ4JNATU for Software AG's NATURAL support
- BQ4JROSC for Advantage CA Roscoe support
- BQ4JSAP for SAP's R/2 support

### Run Any Other Optional Jobs

Ignore this step if it was done previously as part of the instructions in 'How to Prepare for Deployment With CA MSM'.

Run the following jobs according to the needs of your site:

- BQ4JIU\*\*\* jobs for usermod maintenance
- BQ4JF\*\*\* jobs for fix applies

## How to Complete Deployment With CA CSM

The topics in this section describe the manual tasks that you perform when [deploying your product using CA CSM](#) (see page 25).

You can use CA MSM to deploy a configurable runtime copy of all of the CA Spool SMP/E-installed Target libraries to one or more systems in your enterprise.

All post-deployment steps are detailed in How to Complete Configuration with CA MSM.

## How to Complete Configuration With CA CSM

The topics in this section describe the manual tasks that you perform when [configuring your product using CA CSM](#) (see page 26).

## Add the JES Initialization Parameters (Optional)

**Note:** This step is optional.

Run *one* of the following jobs in CBQ4JCL, depending on which version of JES you are running, and how your JES system is configured:

### BQ4JJES2

If JES2 is configured with DESTDEF NODENAME= OPTIONAL, which is the JES2 default, there is no need to define the destination ESF to JES2, and this step can be skipped.

If JES2 is configured with DESTDEF NODENAME= REQUIRED, run this job to add the destination identifier ESF to the JES2 initialization parameter deck (JES2PARM) and associate an unused local JES2 route code.

**Note:** You can also define the destination ESF with a JES2 \$ADD command, as follows:

```
$ADD DESTID(ESF) ,DEST=Unnn
```

where *Unnn* must specify an unused local JES2 route code.

### BQ4JJES3

This job adds the destination identifier ESF to the JES3 initialization-parameter deck (JES3IN).

Unless it was added dynamically, JES2 or JES3 has to be restarted to make the destination ESF known. The Automatic File Transfer interface JESTOESF cannot be used until the destination is known to JES, but all the remaining CA Spool facilities will function.

This job is self-documenting. Be sure to adjust the JCL to your site's standards and assign proper values to various installation-dependent parameters.

## Configure TCP/IP Setup

To use the CA Spool TCP/IP interfaces, the CA Spool Started Task User ID must have an OMVS segment assigned. Contact your security administrator to have an OMVS segment defined for your CA Spool user ID.

## Start CA Spool Version 12.0 for the First Time

Start the CA Spool Version 12.0 system for the first time as follows:

1. Enter the following command to activate the CA Spool VTAM resource:

```
V NET,ACT,ID=aaaaaaaa
```

where *aaaaaaaa* is the applid defined for CA Spool. Perform the following to start the system:

- a. Enter the following MVS start command on the MVS operator console:

```
S procname,OPTION=FORMAT
```

where *procname* is the member name of the CA Spool proc in your system procedure library.

The following WTOR message asks you to confirm that the checkpoint data set must be overwritten:

```
*yy ESF053 REPLY Y OR N TO CONFIRM CHECKPOINT RECORD CHANGE
```

- b. To confirm, enter:

```
R yy,Y
```

- c. CA Spool displays initialization progress with the following WTO messages:

```
-ESF059 CHKPTDS1 COLD-START IS IN PROGRESS  
-ESF024 FORMATTING VOLUME=vvvvvv DSN=ddddddd.ssssssss.nnnnnnnn  
-ESF024 FORMAT COMPLETE V=vvvvvv DSN=ddddddd.ssssssss.nnnnnnnn  
-ESF041 INTERNAL TRACE REQUESTED, 512 ENTRIES ALLOCATED  
-ESF719 CA Spool BASE option enabled  
-ESF4117 Transformer Interface initialized  
-ESF100 SIMPLE COLD START COMPLETED  
-ESF301 VIRTUAL PRINTER INTERFACE STARTED  
-ESF490 NETWORK INTERFACE STARTED
```

The message NETWORK INTERFACE STARTED confirms a successful initialization.

2. As a quick check, enter the following display-status command from the MVS operator console (where "-" is a communication character defined by COMCHAR statement in CAIQPARM):

-DS

CA Spool responds by writing the following messages to the MVS console:

```
-ESF809 VERSION.LEVEL CA Spool V12.0 INC00
-ESF816      0 OUTSTANDING I/O-REQUESTS
-ESF817 OPEN FILE COUNT:      0/      0 OUTPUT,      0/      0 INPUT
-ESF818      0 % SPOOL UTILIZATION / HWM UTILIZATION      0 %
-ESF820      0 FILE QUEUE ELEMENTS IN USE - MAX      500 / HWM      0
-ESF823 VTAM ACB OPEN - LOGONS ENABLED
-ESF865      NO ACTIVE COMMUNICATION CHANNELS
-ESF889 SUBSYS Interface is active
-ESF857 Printers Defined(      1) Remaining(      10)
-ESF853 TCP/IP printer subtasks:      0
-ESF318 VPS      10(      0) ACB(S)      0(      0) STG(      9K)
-ESF827 SAR INTERFACE IS NOT ACTIVE
-ESF878 Transformer Interface is active,      0 files
-ESF886 LPD Interface is undefined
-ESF885 A(ESFSSM )=X'25270000' A(ESFUSS )=X'254E74C0'
-ESF854      Current Hour      Max Hour      Grand Total
-ESF854 Files printed:      0      0      0
-ESF854 Pages printed:      0      0      0
-ESF854 Lines printed:      0      0      0
```

If there are no errors, you can proceed to the Verify the Installation step.

## Verify the Installation

This section contains information that lets you verify the installation of the basic system and optional features.

The CBQ4JCL library includes some sample test jobs. These jobs are self-documenting but each job should be adjusted to your local JCL standards.

**Note:** The CA Spool CBQ4LOAD must be available to the user's session in linklist or STEPLIB to complete some of the following steps.

## Basic System Verification

Verification of the basic system normally includes these steps:

1. To operate from a 3270 display terminal, first log on through VTAM. To start a session, enter the logon APPLID. For example:

```
LOGON APPLID(ESF)
```

- a. CA Spool prompts for a user ID and password. Enter the userid and password which is specified in CAIQPARM.

When the session is successfully established, CA Spool formats the screen into a message-output area and a command-entry area.

- b. Enter the display-file command. For example:

```
DF
```

CA Spool responds to the display-file command with the message:

```
ESF840 QUEUE EMPTY
```

2. Run the supplied sample job IVPBPRNT to test the ESFPRINT utility in batch mode, to generate the first CA Spool file.

After the job has terminated, start the specified CA Spool printer. CA Spool starts printing the spool file if the printer setup matches the file setup.

3. To test the CA Spool to JES file transfer interface, enter the following:

```
RF1,ND=LOCAL => ESF850 1 FILE(S) ROUTED  
RF1           => ESF850 1 FILE(S) REQUEUED
```

The file is copied to a JES2 or JES3 spin-off SYSOUT data set.

4. Run the supplied sample job IVPBJESX to test the automatic JESTOESF file transfer interface.

After the job has terminated, a new file starts printing on the specified printer.

5. To test the ESFPRINT/DSPRINT TSO command, start a TSO session:

```
ESFPRINT DSN('CAI.CBQ4PARAM(CAIQPARM)')  
         DEST(destination) SUB(ESF)
```

Specify the name of the test printer as the destination.

## SUBSYS Verification

### To verify the SUBSYS parameter interface

1. Run the supplied sample job IVPBSUBS to test the SUBSYS-parameter interface.  
After the job has terminated, a new file starts printing on the specified CA Spool printer.
2. To test the ESFALLOC TSO command, first start a TSO session. After the session is started, you can use the ESFALLOC command, as follows:

```
ALLOC    DUMMY FILE(SYSPRINT)
ALLOC    DUMMY FILE(SYSIN)
ALLOC    CAI.CBQ4PARAM(CAIQPARAM) FILE(SYSUT1) SHR
ESFALLOC SYSUT2 DEST(destination) SUBSYS(ESF)
CALL     'SYS1.LINKLIB(IEBGENER) '
FREE     FILE(SYSPRINT, SYSIN, SYSUT1, SYSUT2)
```

Specify the name of the test printer as the destination.

## Menu Verification

### To verify the menu system and the Advanced Communication Interface

1. Start a TSO session and test the menu system from TSO.
2. Start the menu system by entering the native TSO command:

```
ESFMSTO
```

## How to Configure Without CA CSM

The topics in this section describe the manual tasks you perform if you are not configuring your product using CA CSM.

## Run UCLIN

Ignore this step if it was done previously as part of the instructions in 'How to Prepare for Deployment With CA MSM'.

Run member CBQ4JCL(BQ4JIUCL) to update SMP/E with information about the relationship between source and macros. A return code of 04 is acceptable.

## Verify the SAS/C Runtime Library

The SAS/C runtime library is installed by SMP/E.

If you did not install ASARB75 and need the SAS/C runtime libraries then you must do a RECEIVE, APPLY, and ACCEPT of FMID ASARB75.

## APF Authorize the CA Spool Libraries

APF authorize the CA Spool CAILIB library and the SAS/C Runtime library by adding the following to the PROGxx member in SYS1.PARMLIB:

- APF ADD DSNAME(cai.CBQ4LOAD) VOLUME(volume)
- APF ADD DSNAME(cai.CSARLOAD) VOLUME(volume)

Use the MVS System Command SET PROG=xx to activate the updated SYS1.PARMLIB PROGxx member.

## Add the JCL Procedure

The CAI Common Procedure library (CBQ4PROC) contains all the procedures relevant to CA Spool. These procedures were placed in this library during SMP APPLY processing.

Edit each JCL procedure to conform to your site's installation standards.

After completing these modifications, you can do either of the following:

- Copy the procedures into a PROCLIB of your choice.
- Copy the following procedure into a common procedure library, which can be added to the system PROCLIB concatenations.

```
//CAIQPOOL PROC MEMBER=CAIQPARAM,           * Initialization Parm
//      LOADLIB='CAI.SPOOL.CBQ4LOAD',       * CA Spool Load Library
//      SASCLIB='CAI.CSARLOAD',             * SAS/C Runtime Library
//      PARMLIB='CAI.CBQ4PARAM',           * Parmlib library
//      OPTION=WARM                        * Start options
//*****
//*
//*          CA Spool V12.0
//*
//* Tailor the Proc as required by your setup
//*
//* Copyright (c) 2014 CA. All rights reserved.
//*****
//IEFPROC EXEC PGM=ESFMAIN,TIME=1440,REGION=0M,PARM=&OPTION
//STEPLIB DD DISP=SHR,DSN=&LOADLIB          * CA Spool Load Library
//      DD DISP=SHR,DSN=CEE.SCEERUN        * LE run-time library
//      DD DISP=SHR,DSN=&SASCLIB           * SAS/C Load Library
//*      DD DISP=SHR,DSN=CAI.VIEW.CBRMLoad * CA View Load Library
//*      DD DISP=SHR,DSN=CAI.XCOM.CBGXLOAD * CA XCOM Load Library
//*      DD DISP=SHR,DSN=$CD.LINKLIB       * Connect:Direct Load Lib
//ESFPARM DD DISP=SHR,DSN=&PARMLIB(&MEMBER) * Initialization Parm
//ESFLIST DD SYSOUT=*,OUTLIM=0
//SYSPRINT DD SYSOUT=*
//SYSTEM DD DUMMY
//SYMDUMP DD DUMMY
//*NJESNAP DD SYSOUT=*                    * NJE trace
//*SAPISNAP DD SYSOUT=*                   * SAPI trace
//*SECUSNAP DD SYSOUT=*                   * SAF trace
```

```
/*-----*
/* Local IMAGELIB libraries. *
/*-----*
//IMAGELIB DD DISP=SHR,DSN=SYS1.IMAGELIB
/*          DD DISP=SHR,DSN=**YOUR**.IMAGELIB
/*-----*
/* Local TCPIP.DATA file. *
/*-----*
/*SYSTCPD DD DISP=SHR,DSN=**YOUR**.TCPIP.DATA.FILE
/*-----*
/* CA Spool Print formatting resource libraries. *
/*-----*
/*PJLLIB DD DISP=SHR,DSN=**YOUR**.PJM.RESOURCE.LIBRARY
/*PCLLIB DD DISP=SHR,DSN=**YOUR**.PCL.RESOURCE.LIBRARY
/*BINLIB DD DISP=SHR,DSN=**YOUR**.BIN.RESOURCE.LIBRARY
/*OVLVLIB DD DISP=SHR,DSN=**YOUR**.OVLV.RESOURCE.LIBRARY
/*HTMLIB DD DISP=SHR,DSN=**YOUR**.HTML.RESOURCE.LIBRARY
/*MAILLIB DD DISP=SHR,DSN=**YOUR**.MAILBOOK.RESOURCE.LIBRARY

/*-----*
/* CA Spool AFP Transformer libraries. *
/*-----*
/*A2PCPARAM DD DISP=SHR,DSN=CAI.CE0CGEN(A2PCPARAM)
/*A2PCFCOR DD DISP=SHR,DSN=**YOUR**.A2PCFCT <= Font Correlation Table
/*A2PCREPT DD SYSOUT=*
/*A2PSPARM DD DISP=SHR,DSN=CAI.CE0CGEN(A2PSPARM)
/*AFPMFCT DD DISP=SHR,DSN=CAI.CE0CGEN(AFPMFCT)
/*A2PSREPT DD SYSOUT=*
/*A2PDPARM DD DISP=SHR,DSN=CAI.CE0CGEN(A2PDPARM)
/*A2PDREPT DD SYSOUT=*
/*PSEGPDS DD DISP=SHR,DSN=**PSF**.PSEGLIB
/*FDEFPS DD DISP=SHR,DSN=**PSF**.FDEFPS
/*PDEFPS DD DISP=SHR,DSN=**PSF**.PDEFPS
/*OVLVPS DD DISP=SHR,DSN=**PSF**.OVLVPS
/*FONTPDS DD DISP=SHR,DSN=**PSF**.FONTPDS
/*FONTPDS3 DD DISP=SHR,DSN=**PSF**.FONTPDS3
```

```

/*-----*
/*  Common FTP, CA XCOM and Connect:Direct userid/password file  *
/*-----*
/*NETRC    DD  DISP=SHR,DSN=&PARMLIB(IQNETRC)
/*-----*
/*  CA XCOM libraries.
/*-----*
/*XCOMCTL DD  DISP=SHR,DSN=CAI.XCOM.CBGXPARM
/*XCOMSYSI DD DISP=SHR,DSN=&PARMLIB(IQXCOMPR)
/*SYSIN01 DD  DSN=&SYSIN01,UNIT=SYSDA,SPACE=(TRK,(1,1))
/*LCLDS01 DD  DSN=&LCLDS01,UNIT=SYSDA,SPACE=(CYL,(10,10))
/*-----*
/*  Connect:Direct libraries.
/*-----*
/*DMNETMAP DD  DISP=SHR,DSN=$CD.NETMAP
/*DMPUBLIB DD  DISP=SHR,DSN=$CD.PROCESS
/*DMMSGFIL DD  DISP=SHR,DSN=$CD.MSG
/*DMPRINT  DD  SYSOUT=*
/*

```

## Standard Data Sets

The standard CA Spool data sets are as follows:

### STEPLIB

Points to the CA Spool load library, the LE run-time library and the SAS/C runtime library. If you are not using the STEPLIB DD statement, these libraries must be in linklist and APF authorized.

**Note:** If the direct interface to CA View is used, or the CA Roscoe menu interface is used, or the CA XCOM or Connect:Direct print drivers are used. The load libraries from these products must also be included in the steplib or in linklist and be APF authorized.

### ESFPARM

Points to the CA Spool initialization parameter file.

### ESFLIST

The CA Spool initialization parameters are listed here if PARM=LIST was specified when the task was started.

### SYSTEM

Points to the SAS/C error message file. Activate this DD when necessary for debugging.

**SYMDUMP**

Used in conjunction with the CA SymDump System for abend debugging.

**NJESNAP**

Points to the NJE trace file.

**SAPISNAP**

Points to the SAPI trace file.

**SECUSNAP**

Points to the security trace file.

**IMAGELIB**

Points to the system image library.

**SYSTCPD**

Points to the optional TCPIP.DATA file.

**PJLLIB**

Points to the PJL resource library.

**PCLLIB**

Points to the PCL resource library.

**BINLIB**

Points to the binary resource library.

**OVLYLIB**

Points to the OVLY resource library.

**HTMLIB**

Points to the email HTML skeleton resource library.

**MAILLIB**

Points to the email MAILBOOK resource library.

## Enter the LMP Code

CA Spool requires CA LMP (License Management Program), one of the CA Common services to initialize correctly. CA LMP provides a standardized, automated approach to the tracking of licensed software. Examine the CA LMP Key Certificate you received with your installation cartridge.

## LMP Codes

The CA Spool LMP product codes:

**OA**

CA Spool Base Product

**OB**

CA Spool Advanced Laser Printer option

**OC**

CA Spool NATURAL Interface option

**OD**

CA Spool NJE Interface option

**OF**

CA Spool PSF Interface option

**OG**

CA Spool VPI Interface option

**JT**

CA Spool MAS Interface option

**OI**

CA Spool Package (CA Spool Base and all the above options)

When the CA Spool NJE interface was first added, one NJE connection was included in the base product, so that NJE could be used as the preferred interface, instead of the XFER interface, when exchanging reports with JES2/JES3. If more than one NJE connection is needed, it is necessary to license the NJE interface option or the CA Spool package option.

## Add the VTAM Resource Definition

Run job BQ4JVTAM in CBQ4JCL to add the special CA Spool VTAM resource definition member APPLESF to SYS1.VTAMLST. This member only contains the definition of the VTAM application ESF.

This job is self-documenting. Be sure to adjust the JCL deck to your site's standards and assign proper values to various installation-dependent parameters.

## Add the JES Initialization Parameters (Optional)

**Note:** This step is optional.

Run *one* of the following jobs in CBQ4JCL, depending on which version of JES you are running, and how your JES system is configured:

### BQ4JJES2

If JES2 is configured with DESTDEF NODENAME= OPTIONAL, which is the JES2 default, there is no need to define the destination ESF to JES2, and this step can be skipped.

If JES2 is configured with DESTDEF NODENAME= REQUIRED, run this job to add the destination identifier ESF to the JES2 initialization parameter deck (JES2PARM) and associate an unused local JES2 route code.

**Note:** You can also define the destination ESF with a JES2 \$ADD command, as follows:

```
$ADD DESTID(ESF) ,DEST=Unnn
```

where *Unnn* must specify an unused local JES2 route code.

### BQ4JJES3

This job adds the destination identifier ESF to the JES3 initialization-parameter deck (JES3IN).

Unless it was added dynamically, JES2 or JES3 has to be restarted to make the destination ESF known. The Automatic File Transfer interface JESTOESF cannot be used until the destination is known to JES, but all the remaining CA Spool facilities will function.

This job is self-documenting. Be sure to adjust the JCL to your site's standards and assign proper values to various installation-dependent parameters.

## Configure TCP/IP Setup

To use the CA Spool TCP/IP interfaces, the CA Spool Started Task User ID must have an OMVS segment assigned. Contact your security administrator to have an OMVS segment defined for your CA Spool user ID.

## Define directories for the CA Spool Web Interface

Run the BQ4JHFSD job in CBQ4JCL to define swap and logs directories for use by the CA Spool Web Interface. The job must be run with a userid that has the required permissions to define the directories and allow access to these directories.

## Allocate the Spool and Checkpoint Data Sets

Run the BQ4JALOC job in CBQ4JCL to allocate the CA Spool spool and checkpoint data sets onto any type of disk storage.

This job is self-documenting. Be sure to adjust the JCL deck to your site's standards and assign proper values to various installation-dependent parameters.

## Assign Values to the Initialization Parameters

Assign suitable values to initialization parameters in the member CAIQPARM in CBQ4PARM. Define a test network group containing printer nodes and user IDs, and for internal security, the user IDs should also be defined.

### SVCCODE

The SVCCODE statement specifies the user SVC number used by CA Spool. The CA Spool SVC is designed so it can run as a normal type-4 user SVC routine. The system administrator responsible for the MVS system must decide which unused Type 4 SVC number to use.

During startup, CA Spool verifies if the specified SVC number in the SVC table points to a valid SVC routine. If the SVC table entry corresponding to the specified SVC number is not in use, CA Spool dynamically loads the SVC routine module into the CSA and updates the SVC table entry to point to it.

Note the following:

- If both the ESRCODE and SVCCODE statements are specified, the ESRCODE definition is used and the SVCCODE definition is ignored.
- During startup CA Spool verifies if the specified SVC number in the SVC table points to a valid CA Spool SVC routine.
- If the SVC table entry corresponding to the specified SVC number is not in use, CA Spool dynamically loads the SVC routine module into the CSA and updates the SVC table entry to point to it.
- If an installation wants to pre-load the CA Spool SVC routine into the PLPA during IPL, the supplied ESFSVC module must be renamed to the SVC module name matching the specified SVC number and made accessible using LPALSTxx or MLPA. For example, if SVCCODE=241 is specified, then the corresponding CA Spool SVC module name must be IGC0024A.

## ESRCODE

The CA Spool SVC is designed to use the extended SVC-router (ESR) support. This means that the CA Spool SVC does not need to occupy an SVC number by itself. ESR is called (SVC 109) with a routing code in register 15, indicating the module to be given control.

Note the following:

- If both the ESRCODE and SVCCODE statements are specified, the ESRCODE definition is used and the SVCCODE definition is ignored.
- During startup CA Spool verifies if the specified ESR number in the ESR table points to a valid CA Spool SVC routine.
- If the ESR table entry corresponding to the specified ESR number is not in use, CA Spool dynamically loads the SVC routine module into the CSA and updates the ESR table entry to point to it.
- If an installation wants to pre-load the CA Spool SVC routine into the PLPA during IPL, the supplied ESFSVC module must be renamed to the SVC module name matching the specified ESR number and made accessible using LPALSTxx or MLPA. For example, if ESRCODE=241 is specified, then the corresponding CA Spool SVC module name must be IGX00241.

## Run Post-Install Jobs as Required for Other Environments

Ignore this step if it was done previously as part of the instructions in 'How to Prepare for Deployment With CA MSM'.

CA Spool has interfaces to a number of different environments. In some environments, some of these interfaces require that you run extra installation jobs. The jobs are in the CBQ4JCL data set and begin with "BQ4J" and the remaining characters indicate the relevant environment.

BQ4Jxxxx are SMP/E jobs that update SMP/E with the information that a foreign product is present. Some of the source distributed with CA Spool assembles differently when a BQ4Jxxxx job is executed.

The optional jobs are as follows:

- BQ4JACF2 for CA ACF2 support
- BQ4JCICS for CICS menu support
- BQ4JCOMP (Complete) for Software AG's Complete support
- BQ4JIDMS for CA IDMS support
- BQ4JIMS for IMS menu support
- BQ4JNATU for Software AG's NATURAL support
- BQ4JROSC for Advantage CA Roscoe support
- BQ4JSAP for SAP's R/2 support

## Run Any Other Optional Jobs

Ignore this step if it was done previously as part of the instructions in 'How to Prepare for Deployment With CA MSM'.

Run the following jobs according to the needs of your site:

- BQ4JIU\*\*\* jobs for usermod maintenance
- BQ4JF\*\*\* jobs for fix applies

## Start CA Spool Version 12.0 for the First Time

Start the CA Spool Version 12.0 system for the first time as follows:

1. Enter the following command to activate the CA Spool VTAM resource:

```
V NET,ACT, ID=aaaaaaaa
```

where *aaaaaaaa* is the applid defined for CA Spool. Perform the following to start the system:

- a. Enter the following MVS start command on the MVS operator console:

```
S procname,OPTION=FORMAT
```

where *procname* is the member name of the CA Spool proc in your system procedure library.

The following WTOR message asks you to confirm that the checkpoint data set must be overwritten:

```
*yy ESF053 REPLY Y OR N TO CONFIRM CHECKPOINT RECORD CHANGE
```

- b. To confirm, enter:

```
R yy,Y
```

- c. CA Spool displays initialization progress with the following WTO messages:

```
-ESF059 CHKPTDS1 COLD-START IS IN PROGRESS  
-ESF024 FORMATTING VOLUME=vvvvvv DSN=ddddddd.ssssssss.nnnnnnnn  
-ESF024 FORMAT COMPLETE V=vvvvvv DSN=ddddddd.ssssssss.nnnnnnnn  
-ESF041 INTERNAL TRACE REQUESTED, 512 ENTRIES ALLOCATED  
-ESF719 CA Spool BASE option enabled  
-ESF4117 Transformer Interface initialized  
-ESF100 SIMPLE COLD START COMPLETED  
-ESF301 VIRTUAL PRINTER INTERFACE STARTED  
-ESF490 NETWORK INTERFACE STARTED
```

The message NETWORK INTERFACE STARTED confirms a successful initialization.

2. As a quick check, enter the following display-status command from the MVS operator console (where "-" is a communication character defined by COMCHAR statement in CAIQPARM):

-DS

CA Spool responds by writing the following messages to the MVS console:

```
-ESF809 VERSION.LEVEL CA Spool V12.0 INC00
-ESF816      0 OUTSTANDING I/O-REQUESTS
-ESF817 OPEN FILE COUNT:      0/      0 OUTPUT,      0/      0 INPUT
-ESF818      0 % SPOOL UTILIZATION / HWM UTILIZATION      0 %
-ESF820      0 FILE QUEUE ELEMENTS IN USE - MAX      500 / HWM      0
-ESF823 VTAM ACB OPEN - LOGONS ENABLED
-ESF865      NO ACTIVE COMMUNICATION CHANNELS
-ESF889 SUBSYS Interface is active
-ESF857 Printers Defined(      1) Remaining(      10)
-ESF853 TCP/IP printer subtasks:      0
-ESF318 VPS      10(      0) ACB(S)      0(      0) STG(      9K)
-ESF827 SAR INTERFACE IS NOT ACTIVE
-ESF878 Transformer Interface is active,      0 files
-ESF886 LPD Interface is undefined
-ESF885 A(ESFSSM )=X'25270000' A(ESFUSS )=X'254E74C0'
-ESF854      Current Hour      Max Hour      Grand Total
-ESF854 Files printed:      0      0      0
-ESF854 Pages printed:      0      0      0
-ESF854 Lines printed:      0      0      0
```

If there are no errors, you can proceed to the Verify the Installation step.

## Verify the Installation

This section contains information that lets you verify the installation of the basic system and optional features.

The CBQ4JCL library includes some sample test jobs. These jobs are self-documenting but each job should be adjusted to your local JCL standards.

**Note:** The CA Spool CBQ4LOAD must be available to the user's session in linklist or STEPLIB to complete some of the following steps.

## Basic System Verification

Verification of the basic system normally includes these steps:

1. To operate from a 3270 display terminal, first log on through VTAM. To start a session, enter the logon APPLID. For example:

```
LOGON APPLID(ESF)
```

- a. CA Spool prompts for a user ID and password. Enter the userid and password which is specified in CAIQPARM.

When the session is successfully established, CA Spool formats the screen into a message-output area and a command-entry area.

- b. Enter the display-file command. For example:

```
DF
```

CA Spool responds to the display-file command with the message:

```
ESF840 QUEUE EMPTY
```

2. Run the supplied sample job IVPBPRNT to test the ESFPRINT utility in batch mode, to generate the first CA Spool file.

After the job has terminated, start the specified CA Spool printer. CA Spool starts printing the spool file if the printer setup matches the file setup.

3. To test the CA Spool to JES file transfer interface, enter the following:

```
RF1,ND=LOCAL => ESF850 1 FILE(S) ROUTED  
RF1           => ESF850 1 FILE(S) REQUEUED
```

The file is copied to a JES2 or JES3 spin-off SYSOUT data set.

4. Run the supplied sample job IVPBJESX to test the automatic JESTOESF file transfer interface.

After the job has terminated, a new file starts printing on the specified printer.

5. To test the ESFPRINT/DSPRINT TSO command, start a TSO session:

```
ESFPRINT DSN('CAI.CBQ4PARAM(CAIQPARM)')  
         DEST(destination) SUB(ESF)
```

Specify the name of the test printer as the destination.

## SUBSYS Verification

### To verify the SUBSYS parameter interface

1. Run the supplied sample job IVPBSUBS to test the SUBSYS-parameter interface.  
After the job has terminated, a new file starts printing on the specified CA Spool printer.
2. To test the ESFALLOC TSO command, first start a TSO session. After the session is started, you can use the ESFALLOC command, as follows:

```
ALLOC    DUMMY FILE(SYSPRINT)
ALLOC    DUMMY FILE(SYSIN)
ALLOC    CAI.CBQ4PARAM(CAIQPARAM) FILE(SYSUT1) SHR
ESFALLOC SYSUT2 DEST(destination) SUBSYS(ESF)
CALL     'SYS1.LINKLIB(IEBGENER) '
FREE     FILE(SYSPRINT, SYSIN, SYSUT1, SYSUT2)
```

Specify the name of the test printer as the destination.

## Menu Verification

### To verify the menu system and the Advanced Communication Interface

1. Start a TSO session and test the menu system from TSO.
2. Start the menu system by entering the native TSO command:

```
ESFMTO
```

## Post-Installation Considerations

Now that you have successfully installed CA Spool, consider the following:

- For information on shutting down CA Spool, see the *Operations and Commands Guide*.
- For information on tuning CA Spool for optimal performance, see the *Best Practices Guide*.
- For information on the parameter statements required to define the printers in your enterprise, see the *Customization Guide*.



# Chapter 6: Migration Information

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This section discusses the guidelines for migrating from an earlier release of CA Spool to CA Spool Version 12.0. It also provides information about the Initialization statements, Macros, and Encryption.

This section contains the following topics:

[Migration Considerations](#) (see page 73)

[Initialization Statements](#) (see page 74)

## Migration Considerations

When migrating from CA Spool Release 11.6 or Release 11.7 to Version 12.0 consider the following:

- The file queue has *not* been restructured.
- CA Spool Version 12.0 can be *warm* started on your existing CA Spool Release 11.6 or Release 11.7 spool and checkpoint configuration. In addition, should it become necessary to fall back from CA Spool Version 12.0 to CA Spool Release 11.6 or Release 11.7 you can do this by simply *warm* starting the CA Spool Version 12.0 checkpoint and spool configuration on your CA Spool Release 11.6, or Release 11.7 system.
- CA Spool Version 12.0 members may coexist with CA Spool Release 11.6 or Release 11.7 members in the same EMAS/MAS complex.

If you have files under control of any previous release, which must now be used with Version 12.0, do the following:

1. Use your current version of ESFSPTP to unload these files.
2. Use the Version 12.0 ESFSPTP to reload the files.

When migrating from any previous CA Spool release to Version 12.0 consider that:

- Any application programs using pre-V8.0 interface routines (AESFPRIV) must be re-linked with the Version 12.0 interface routines.
- All user exits have been renumbered in CA Spool Version 12.0. Source updates to exits in IEBUPDTE format must use these new numbers, so be sure to check the sequence numbers before applying the updates.

## Revert to a Previous Release

If you have CA Spool Version 12.0 encrypted reports and have to revert to CA Spool Release 11.6 or Release 11.7 without encryption, do the following:

1. Run the ESFSPTP utility with ENCRYPT=NO against the CA Spool Version 12.0 system to unload all reports.

**Note:** To be able to use ENCRYPT=NO parameter ESFSPTP must be executed from an APF authorized library and requestor's userid has to have read access to SAFTYPE 12, 13 and 14.

2. Restart CA Spool Release 11.6 or Release 11.7 system with a COLD start.
3. Reload the ESFSPTP backup to the CA Spool Release 11.6 or Release 11.7 system.

**Note:** If you have no CA Spool Version 12.0 encrypted reports and have to revert to CA Spool Release 11.6 or Release 11.7, restart CA Spool Release 11.6 or Release 11.7 on the same spool configuration. If Version 12.0, Release 11.7, and Release 11.6 have encrypted reports and you have to revert back to Release 11.6 or Release 11.7, restart CA Spool Release 11.6 or Release 11.7 on the same spool configuration.

## Initialization Statements

For initialization statements, see the "Initialization" chapter in the *Customization Guide*.

# Appendix A: Integration with CA OPS/MVS EMA

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This section contains the following topics:

[Overview](#) (see page 75)

[Ensure that CA OPS/MVS Is Enabled for Capturing These Events](#) (see page 76)

[CA Spool Active State Events](#) (see page 76)

[CA Spool Heartbeat Events](#) (see page 78)

## Overview

CA Spool provides seamless integration with CA OPS/MVS by automatically communicating both active status events and heart beat events to CA OPS/MVS. The enabling technology for this is through a generic event API call that CA OPS/MVS provides the other mainframe products so that they can communicate events to CA OPS/MVS.

You do not need to do anything for CA Spool to enable this event communication interface to CA OPS/MVS. If CA Spool and CA OPS/MVS are active in the same z/OS image, CA Spool automatically communicates these automation events to CA OPS/MVS.

By generating active status events CA Spool and other CA products are able to communicate to CA OPS/MVS's System State Manager (SSM) component when they are starting, up, stopping or down.

SSM is a built-in feature that uses an internal relational data framework to proactively monitor and manage started tasks, online applications, subsystems, JES initiators, and other z/OS resources including your CA mainframe products. SSM compares the current state of online systems, hardware devices, and the other resources with their desired state, and then automatically makes the necessary corrections when a resource is not in its desired state. This provides proactive and reactive state management of critical resources.

Before the CA OPS/MVS interface existed, CA OPS/MVS could automate active status events for your CA products; however this typically required monitoring unique messages for each CA product. With this interface, CA OPS/MVS can capture these events for any of your CA products with a single automation event rule.

With the heart beat event, CA Spool can communicate a normal, warning, or problem overall health status and reasoning to CA OPS/MVS on a regular interval. Once CA Spool begins generating heart beat events for CA OPS/MVS, CA OPS/MVS can also react to the lack of a heart beat event from CA Spool, treating this as an indication that there is either a potential problem with CA Spool, or there is a larger system-level problem that is taking place.

## Ensure that CA OPS/MVS Is Enabled for Capturing These Events

To ensure that this CA OPS/MVS interface is active, make sure the CA OPS/MVS parameter `APIACTIVE` is set to its default of `ON`. This allows CA OPS/MVS to acknowledge and process the events generated by CA Spool and other CA products through this interface.

## CA Spool Active State Events

CA Spool provides a direct interface to the CA OPS/MVS System State Manager (SSM) application to notify CA OPS/MVS of the current operating state of the given CA Spool address space. The CA OPS/MVS SSM application can use this information to automatically control the operation of the CA Spool address space, and any other address space that is dependent upon the CA Spool address space being active. For more information on using CA OPS/MVS SSM see the CA OPS/MVS User Guide.

The CA Spool product active state is presented to CA OPS/MVS and can be processed by the following rule:

```
)API CASTATE
```

The available OPS/REXX variables for CA Spool product state management are:

<b>OPS/REXX Variable</b>	<b>Value</b>
API.APPLICATION	CA Spool
API.VERSION	Current release
API.LEVEL	00
API.EVENTID	CASTATE
API.MSGID	CASTATE
API.TEXT	State of CA Spool

The API.TEXT variable has the following format:

State of *appl\_id* is *current\_state*'

**appl\_id**

Specifies the same value as the API.APPLICATION variable

**current\_state**

**STARTING**

Indicates that CA Spool is initializing

**UP**

Indicates that CA Spool is active

**STOPPING**

Indicates that CA Spool is terminating

**DOWN**

Indicates that CA Spool is exiting the system

For more information on how to use the CASTATE API, see the member SSMCAAPI of opsmvsHLQ.STATEMAN.RULES.

## CA Spool Heartbeat Events

CA Spool provides a continuous heartbeat event directly to CA OPS/MVS. CA OPS/MVS can use this information in several ways to determine the operational health of the CA Spool product.

CA Spool issues a heartbeat update every nnnn seconds that notifies CA OPS/MVS of the current operational health of the CA Spool product.

If CA Spool detects a health state change, it immediately generates a heartbeat update without waiting for the nnnn second heartbeat interval to expire. In this way, CA Spool provides CA OPS/MVS with a constant operational health state view of the CA Spool product.

CA OPS/MVS can also react to the lack of a heartbeat update from CA Spool and an indication that there is either a potential problem with CA Spool, or there is a larger system level problem that is taking place.

The CA Spool product heartbeat event is presented to CA OPS/MVS and can be processed by the following rule:

```
)API CAHEARTBT
```

The available OPS/REXX variables for CA Spool state management are:

<b>OPS/REXX Variable</b>	<b>Value</b>
API.APPLICATION	CA Spool
API.VERSION	Current release
API.LEVEL	00
API.EVENTID	CAHEARTBT
API.MSGID	CAHEARTBT
API.TEXT	State of CA Spool

The API.TEXT variable has the following format:

appl\_id Status: *heartbeat\_state* Reason: reason\_text

**appl\_id**

Specifies the value of the API.APPLICATION variable.

**heartbeat\_state**

Heart\_beat\_state can be one of the following:

**NORMAL**

Indicates that CA Spool is operating normally, without any detected problems.

**WARNING**

**PROBLEM**

**reason\_text**

reason\_text explains the problem as reported by the event API call.

For information on how you use the CAHEARTBT API, see members APIHRTB1, APIHRTB2, and APIHRTB3 of opsmvsHLQ.SAMPLE.RULES.