CA 1® Tape Management

Installation Guide

12.6.00

Sixth Edition

CA Technologies Product References

This document references the following CA Technologies products:

- CA Chorus™ Software Manager (CA CSM)
- CA Chorus™
- CA Mainframe Software Manager™ (CA MSM)
- CA 1® Tape Management (CA 1)
- CA 11™ Restart and Tracking (CA 11)
- CA ACF2™ (CA ACF2)
- CA ASM2® Backup and Restore (CA ASM2)
- CA Earl™ (CA Earl)
- CA Roscoe® Interactive Environment
- CA Top Secret® Security (CA Top Secret)
- CA TLMS® Tape Management (CA TLMS)

Contact CA Technologies

Contact CA Support

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

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

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

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

Documentation Changes

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

- Installing Your Product from Pax-Enhanced ESD—Replaced with the chapter Installing Your Product Using Pax ESD or DVD (see page 31).
- Installing Your Product from Tape—Removed from the guide.
- Installing Your Product from DVD—Replaced with the chapter Installing Your Product Using Pax ESD or DVD (see page 31).
- Security Settings—Added to the guide.

Contents

Chapter 1: Overview

This section contains the following topics:

Audience

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:

- Systems programmer, for z/OS and VTAM definitions
- Security administrator, for library and started task access authority
- SMS or 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 untailored.
- 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

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

This section contains the following topics:

Software Requirements

The software requirement for CA 1 is any IBM supported release of z/OS.

CA Common Services Requirements

The following CA Common Services are used with your product:

- CAIRIM
- CAICCI
- CA LMP
- CAIENF
- CA Earl
- CAISDI
- CA Health Checker
- CA Master
- CA-C Runtime

CA 1 installation requires that the CAIRIM, CA-C Runtime, and CA Earl components are installed first. If you want to print external tape labels or you want to use the USD Integration feature, CAIENF and CAICCI are also required. The USD Integration feature requires CAISDI. The CA 1 health checks require that the CA Health Checker and CA Master components are installed as well.

Note: If other CA Technologies products are installed at your site, some of these services are already installed. For more information about CA Common Services, see the *CA Common Services Administrator Guide*.

LMP Key Requirements

The CA License Management Program (CA LMP) tracks licensed software in a standardized and automated way. CA LMP uses common real-time enforcement software to validate the user configuration. CA LMP reports on activities that are related to the license, usage, and financials of CA Technologies products.

Your product is licensed with an LMP key. You acquire the LMP key with one of the following methods:

- From your product media
- With Pax ESD
- From http://ca.com/support

Note: For more information about LMP keys, see the CA Common Services for z/OS documentation.

Security Requirements

To complete the tasks in this guide, you need the following security privileges:

- Update authority for the SMP/E environment and z/OS system data sets that begin with the SYS1 high-level qualifier.

Storage Requirements

Ensure that you have the following storage available:

- If you install the product with Pax ESD, 44 cylinders for the downloaded files.
- For the installation and setup:
  - Installation = 50 cylinders
  - SMP/E temporary libraries = 40 cylinders

CA 1 SMP/E Data Sets

The following distribution library (DLIB) and target data sets are installed for the base FMID for CA 1, CAL0xx0 (where 'xx' is replaced with the product release).

DLIB	Target	Description
AAL0CLS0	CTAPCLS0	CLISTs
AAL0EARL	CTAPEARL	CA Earl programs
AAL0ECPB	CTAPECPB	CA Earl macros or copybooks
AAL0EVNT	CTAPEVNT	Event members for Service Desk
AAL0EXEC	CTAPEXEC	REXX execs
AAL0EZTM	CTAPEZTM	CA EASYTRIEVE macros
AAL0EZTR	CTAPEZTR	CA EASYTRIEVE programs
AAL0JCL	CTAPJCL	Sample JCL
AAL0MAC	CTAPMAC	Macros
AAL0MENU	CTAPMENU	ISPF messages
AAL0MOD0	CTAPLINK	Link listed load library
AAL0OPTN	CTAPOPTN	Options and system parameters

DLIB	Target	Description
AAL0PENU	CTAPPENU	ISPF panels
AAL0PROC	CTAPPROC	System procedures
AAL0SAMP	CTAPSAMP	Sample user exit source
AAL0SRC	CTAPSRC	User exit source
AAL0TENU	CTAPTENU	ISPF tables
AAL0XML	CTAPXML	XML

The following distribution library (DLIB) and target data sets are installed for the Common Tape System component CBAFxx0 FMID (where 'xx' is replaced with the product release). The target libraries are the same libraries as the CA 1 base FMID.

DLIB	Target	Description
ABAFEARL	CTAPEARL	CA Earl programs
ABAFEPCB	CTAPEPCB	CA Earl macros or copybooks
ABAFEZTM	CTAPEZTM	CA EASYTRIEVE macros
ABAFJCL	CTAPJCL	Sample JCL
ABAFMAC	CTAPMAC	Macros
ABAFMOD0	CTAPLINK	Link listed load library
ABAFOPTN	CTAPOPTN	Options and system parameters
ABAFSAMP	CTAPSAMP	Sample user exit source
ABAFSRC	CTAPSRC	User exit source

The following distribution library (DLIB) and target data sets are installed for the CA Gate component CAG8xx0 FMID (where 'xx' is replaced with the product release). The target load library is the same as the CA 1 base FMID.

DLIB	Target	Description
AAG8MOD0	CTAPLINK	Link listed load library

USS Space Requirements

Ensure that you have sufficient free space in the USS file system that you are using for Pax ESD to hold the directory that the pax command and its contents create. You need approximately 3.5 times the pax file size in free space.

If you do not have sufficient free space, you receive error message EDC5133I.

Other Requirements

Before beginning the installation, verify that the following requirements are met:

- Verify that one type 3 or type 4 SVC is available.

  The CA 1 SVC may be defined in the SYS1.PARMLIB IEASVC*xx* member. The SVC number is used by the CAIRIM procedure as an input parameter for L0C6INIT. The SVC number must be a three-digit number between 200 and 255, inclusive.
- Verify that all modules from previous versions are removed from both SYS1.LPALIB and SYS1.LINKLIB and their concatenations (or use alternates from a previous version that do not contain modifications).
- If you are using CA ASM2 or CA 11, reinstall the product interface.
- Remove CA 1 modules in other libraries, such as CA Roscoe and JES3.
- CA 1 12.6.00 is a new release with a new FMID. You cannot upgrade to 12.6.00 from previous releases by applying PTFs. Install the new release into an SMP/E zone that does not contain an earlier release of CA 1.

Concurrent Releases

You can install this release of your product and continue to use an older release in another SMP/E environment. If you plan to continue to run a previous release, consider the following points:

- When you install the product into an existing SMP/E environment, this installation deletes previous releases in that environment.
- If you acquired your product with Pax 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 a product into a new SMP/E environment by default. You can select an existing SMP/E environment from your working set. For more information, see the online help that is included in CA CSM.
- Define DDDEF entries in your new zones to point SMP/E to the proper libraries for installation. Ensure that they point to the new release libraries.

Relationships Between Versions

When you start a new release, specify new CA 1 parameters. Sometimes interfaces to other products might need to be updated.

Chapter 3: Installing Your Product Using CA CSM

This section contains the following topics:

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.

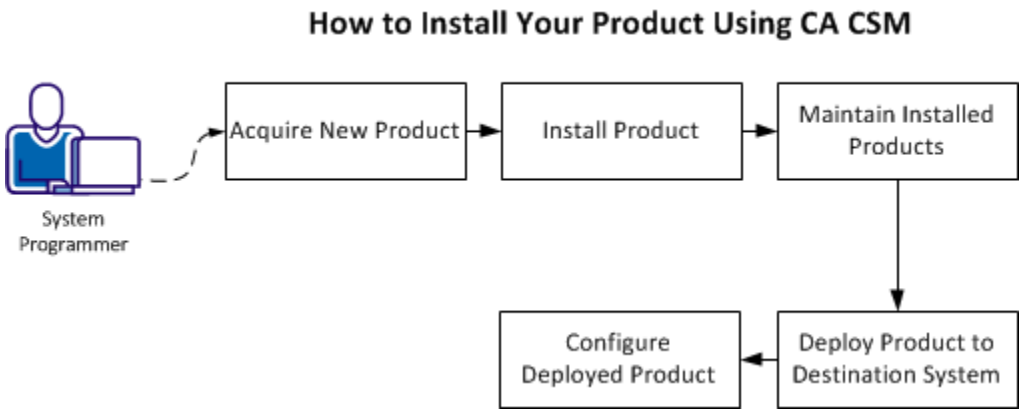
Before you use this scenario, you must have CA CSM installed at your site. If you do not have CA CSM installed, you can download it from the Download Center at http://ca.com/support. This web page also contains links to the complete documentation for CA CSM.

You access CA CSM (see page 22) 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:



1. Acquire a new product (see page 23).
2. Install the product (see page 24).
3. Maintain the installed products (see page 26).
4. Deploy the product to the destination system. (see page 27)
5. Configure the deployed product (see page 29).

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 22), 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.

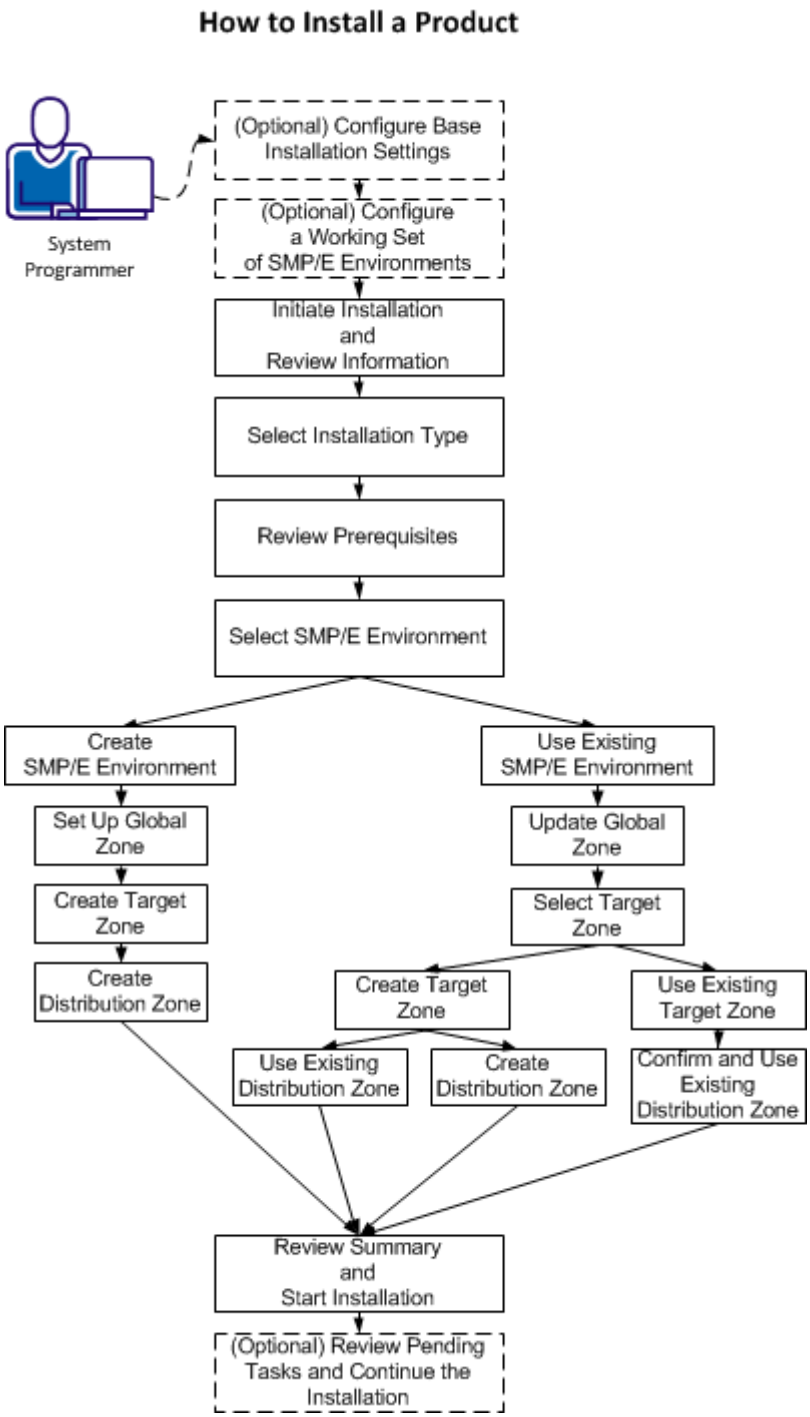
   CA CSM downloads (acquires) the packages (including any maintenance packages) from the CA Support Online website.

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:



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.

If you use SMP/E USERMODs to implement any of the CA 1® Tape Management user exits, APPLY these USERMODs to the SMP/E CSI and zone created by the Software Installation Service before initiating deployment. This allows the Software Deployment Service to replicate the user exit programs in the *hlq*.CTAPLINK data set to multiple destination systems. The USERMODs to install the CA 1® Tape Management user exits are provided in *hlq*.CTAPJCL. The exit source is provided in *hlq*.CTAPSAMP.

To create multiple versions of each user exit, use a unique name that can be specified in member TMOOPTxx during configuration processing. This allows a customized version of each exit to run on each destination system.

Note: For more information about the user exits supported by CA 1® Tape Management, see the *Programming Guide*.

The Software Deployment Service (SDS) facilitates the deployment of mainframe products from the software inventory of the driving system to the destination system, including deploying installed products that are policy driven with a set of appropriate transport mechanisms across a known topology.

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

You can use the SDS component of CA CSM to deploy a CA Technologies product that you have already acquired and installed.

Follow these steps:

1. Set up the system registry:
   a. Determine the systems you have at your enterprise.
   b. Set up remote credentials for those systems.
   c. Set up the destination systems (Non-Sysplex, Sysplex or Monoplex, Shared DASD Cluster, and Staging), and validate them.
   d. Add network information, including data destination information, to each system registry entry.
2. 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.
3. 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.

   Note: If you deploy other products to the previously defined systems using the same methodologies, create a separate deployment.
4. 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.

Prepare to Configure CA 1

Configuration includes both manual and automatic tasks. At the end of the implementation phase, the final manual tasks are to update and start CAS9 and to start TMSINIT. CA 1® Tape Management is not automatically started on the target system.

The CA 1® Tape Management Configuration dialog is for new installations where a Tape Management Catalog (TMC) and Audit file have not been previously allocated. Parameters entered in the Configuration dialog are used to allocate the TMC and Audit files during implementation. The names of the newly allocated TMC and Audit files are saved in the TMOOPTxx member of *hlq*.CTAPOPTN. If you use existing TMC and Audit files that reside on the target system, you may directly update the TMCNAM and AUDNAM parameters in TMOOPTxx to your current TMC and Audit file names. Do this before starting CAS9 at the end of the implementation phase of configuration.

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

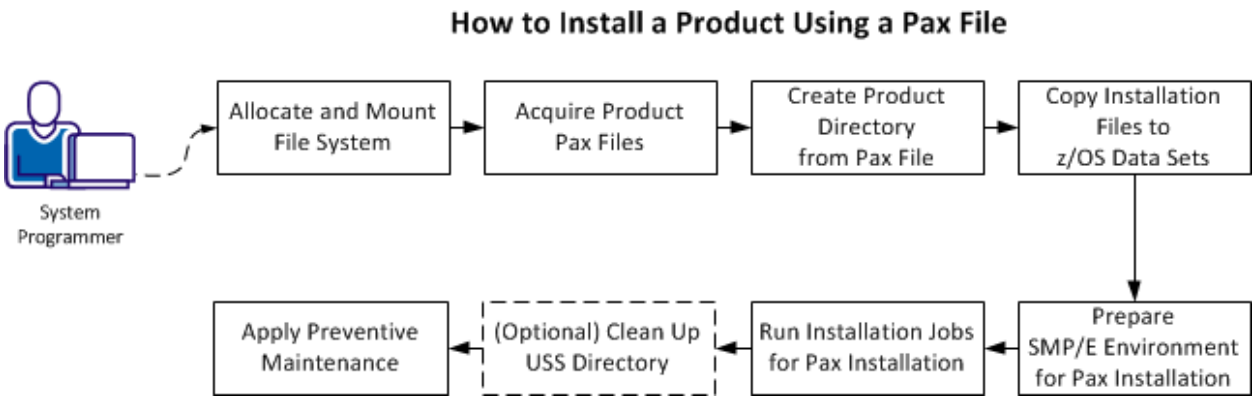
This section contains the following topics:

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 33).
2. Acquire the product pax files (see page 35).

3. Create a product directory from the pax file (see page 40).
4. Copy the installation files to z/OS data sets (see page 41).
5. Prepare the SMP/E environment for a pax installation (see page 43).
6. Run the installation jobs for a pax installation (see page 45).
7. (Optional) Clean up the USS directory (see page 46).
8. Apply preventive maintenance (see page 47).

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 (see page 36), 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 (see page 36).
- Download the pax file from the product DVD to your PC, and then upload the pax files to your USS file system. (see page 39)

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 38) 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.
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://ftpdownloads.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 36). 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 41) 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 y*ourHLQ* 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 y*ourHLQ* as you use for the SMP/E RELFILEs.

   All occurrences of y*ourHLQ* 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.

Note: Steps 1 through 3 of this process are documented in detail in this section. Steps 4 through 9 are documented in the section describing how to run installation jobs for a Pax installation. If applicable to your product, Step 10 is documented in the section describing starting your product.

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 TMSSEDIT 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 TMSSEDIT 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 TMSSEDIT macro each time you open a new SAMPJCL member. To edit all SAMPJCL members simultaneously, read and follow the instructions in the TMSAREAD member, and submit the TMSEDALL member.

2. Open the SAMPJCL member TMS1HOLD in an edit session and execute the TMSSEDIT macro from the command line.

   TMS1HOLD is customized.

3. Submit TMS1HOLD.

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

4. Open the SAMPJCL member TMS2ALL in an edit session and execute the TMSSEDIT macro from the command line.

   TMS2ALL is customized.

5. Submit TMS2ALL.

   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 a USS file system or if you want to install a feature of the product that requires a USS file system, allocate and mount the file system:

   Note: You can customize the supplied HFS JCL to zFS, if your site requires it.

   a. Open the SAMPJCL member *ccc2*ALLU in an edit session and execute the TMSSEDIT macro from the command line.

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

      *ccc2*ALLU is customized.

   b. Submit *ccc2*ALLU.

      This job allocates your HFS or zFS data sets.

   c. Open the SAMPJCL member *ccc3*MKD in an edit session and execute the TMSSEDIT macro from the command line.

      *ccc3*MKD is customized.

   d. Submit *ccc3*MKD.

      This job creates all directories and mounts the file system.

7. Open the SAMPJCL member TMS3CSI in an edit session and execute the TMSSEDIT macro from the command line.

   TMS3CSI is customized.

8. Submit TMS3CSI.

   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, add the DDDEFS that are required for the file system to your SMP/E environment:

   a. Open the SAMPJCL member *ccc*3CSIU in an edit session and execute the TMSSEDIT macro from the command line.

      *ccc*3CSIU is customized.

   b. Submit *ccc*3CSIU.

      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 TMSSEDIT macro each time you open a new SAMPJCL member. To edit all SAMPJCL members simultaneously, read and follow the instructions in the TMSAREAD member, and submit the TMSEDALL member.

Follow these steps:

1. Open the SAMPJCL member TMS4RECD in an edit session, and execute the TMSSEDIT macro from the command line.

   TMS4RECD is customized.

2. Submit TMS4RECD 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 (see page 47) from http://ca.com/support.

4. Open the SAMPJCL member TMS5APP in an edit session, and execute the TMSSEDIT macro from the command line.

   TMS5APP is customized.

5. Submit TMS5APP 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 TMS6ACC in an edit session, and execute the TMSSEDIT macro from the command line.

   TMS6ACC is customized.

7. Submit TMS6ACC 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*.CAW0JCL(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 TMSSEDIT macro that was customized in the installation steps.
7. Open the SAMPJCL member TMS1HOLD in an edit session and execute the TMSSEDIT macro from the command line.

   Note: Update TMS1HOLD SAMPJCL to download the HOLDDATA file.

   TMS1HOLD is customized.
8. Submit TMS1HOLD.

   The job downloads the external HOLDDATA file.
9. Open the SAMPJCL member TMS7RECH in an edit session and execute the TMSSEDIT macro from the command line.

   TMS7RECH is customized.
10. Submit TMS7RECH.

    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/CAR`*yyyy*`.TXT`
        - The quarterly CA RS ASSIGN statements are stored in the following file:

          `ftp.ca.com/pub/ASSIGN/CAR`*yymm*`.TXT`

    b. Open the SAMPJCL member TMS7CARS in an edit session, update TMS7CARS SAMPJCL to download ASSIGN statements from http://ca.com/support, and execute the TMSSEDIT macro from the command line.

    TMS7CARS is customized.
12. (CA RS installation only) Submit TMS7CARS.

    The job downloads the CA RS ASSIGN statements.
13. (CA RS installation only) Open the SAMPJCL member TMS7RECP in an edit session, manually add the data set that contains the ASSIGN statements to the SMPPTFIN DD, and execute the TMSSEDIT macro from the command line.

    TMS7RECP is customized.
14. (CA RS installation only) Submit TMS7RECP.

    The job receives the external HOLDDATA file and CA RS ASSIGN statements.
15. Open the SAMPJCL member TMS8APYP in an edit session and execute the TMSSEDIT macro from the command line.

    TMS8APYP is customized.
16. Submit TMS8APYP.

    The PTFs are applied.
17. (Optional) Open the SAMPJCL member TMS9ACCP in an edit session and execute the TMSSEDIT macro from the command line.

    TMS9ACCP is customized.
18. (Optional) Submit TMS9ACCP.

    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.

AO

Affects automated operations. It changes either the message identifier or the displacement of a field inside the message.

DB2BIND

Indicates that DBRMs have changed and packages need to be rebound.

DDDEF

Indicates that data sets and DDDEFs are being added or modified.

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.

DYNACT

Describes the steps to dynamically activate this fix without performing an IPL.

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.

ENH

Introduces a small programming enhancement. The hold contains the instructions to implement the enhancement. If no action is needed to implement the enhancement, give a summary of the enhancement.

EXIT

Indicates that changes delivered by this SYSMOD require reassembly of user exits.

EXRF

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

IPL

Indicates that an IPL is required for this SYSMOD to take effect. This is used only when there is no alternative for dynamic activation.

MSGSKEL

Indicates that the SYSMOD contains internationalized message versions that must be run through the message compiler for each language.

MULTSYS

Apply this SYSMOD to multiple systems for either pre-conditioning, coexistence, or exploitation.

RESTART

Indicates that after applying this SYSMOD, the site must perform a special restart as opposed to a routine restart.

SQLBIND

Indicates that a bind is required for a database system other than DB2.

DOWNLD

Indicates that some or all of the elements that this SYSMOD delivers are to be downloaded to a workstation.

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 TMS1HOLD in an edit session and execute the TMSSEDIT 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

Various members of *hlq*.CTAPOPTN allow you to configure CA 1 to operate in your environment. These members can be edited using any text editor. After the installation is complete, some of them can also be edited with the CA 1 ISPF interface.

If you are a new user, we recommend using the default values in *hlq*.CTAPOPTN during initial testing.

Note: For information on *hlq*.CTAPOPTN, see the *Programming Guide*.

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.

Startup JCL Procedures Customized by CA CSM

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.

If this is your first CA 1 installation, then you need to customize members in the CTAPOPTN for your site. For more information about configuration options, see the *Programming Guide.* We recommend that you initialize CA 1 with the default option settings while testing. After testing, customize the options to meet your site standards.

If you are upgrading from an older CA 1 release, we recommend that you verify your current options with the new members in CTAPOPTN. Update the options as needed.

The member names are TMOSYS00, TMOOPT00, TMONSM00, TMOSCR00, TMOKEY00, TMOSEC00 and TMOEDM00. The last two digits of the name may change for your site. In the TMOSYS00 member, you configure CA 1 with the suffix for members.

Customize CA 1® Tape Management Report Options

Most CA 1® Tape Management reports are printed using the CA Earl component. CA Earl provides a flexible means of end-user report tailoring. CA Earl is installed as part of the CA Common Services for z/OS.

CA 1® Tape Management reports are customized with the following CA common options library *hlq*.CTAPOPTN members:

TMOOPTxx

Customize the CONAME, COADDR, and COCITY options of this member to enter the company name and address used in reports. This modification affects reports produced using the TMSRPT DD and CA Earl.

TMSOPTNS

Customize this member to control the format and banners used in reports. This modification affects reports produced using the TMSRPT DD.

Note: For more information on banner page customization, see the *Utilities and Reports Reference and Guide.*

Customize CA Earl Reports

Many of the JCL members have the following two steps:

- A program for the CA 1® Tape Management utility
- An EARL step to produce a report

For every CA 1® Tape Management utility, there is a member in *hlq*.CTAPJCL which begins with the characters 'TMS'.

CA 1 Reports

The complete CA Earl product is not required to run CA 1 reports. Only the CA Earl component installed with CA Common Services is required.

The CA Earl members are located in *hlq*.CTAPEARL. To generate a report, change MEMBER= to the desired CA Earl member and execute member *hlq*.CTAPJCL(TMSEARL).

The EARLLIB DD statement in *hlq*.CTAPJCL(TMSEARL) must point to the *hlq*.CTAPECPB library where the CA 1 EARLDEFS resides. EARLDEFS copies in other CTAPECPB copybook members. When running any of the CA Earl jobs provided by CA 1, point to the SYSIN DD to the *hlq*.CTAPEARL library .

Note: For information on the CA 1 reports available, see the *Utilities and Reports Reference Guide.*

Customize the TMSCLEAN Member

The *hlq*.CTAPJCL member for TMSCLEAN is set up to run TMSCLEAN with PARM='TEST,SCRATCHLIST'. Use the CA Earl member *hlq*.CTAPEARL(TMECLN01) for this parameter.

If you code a different parameter in TMSCLEAN, specify the appropriate CA Earl member as shown in the following table:

CA Earl Member	TMSCLEAN option/parm
TMECLN01	SCRATCHLIST
TMECLN02	RESET
TMECLN03	EXTEND
TMECLN04	SCRATCHRELIST
TMECLN05	RESETCAT

Customize the TMSCLNOA Member

The TMSCLNOA utility marks the tapes to be cleaned and outcodes scratch tapes. You can optionally run this utility after TMSCLEAN and before the CA Earl reports. TMSCLNOA uses the EARLOUT data set produced by TMSCLEAN as input. The JCL to run TMSCLEAN,PARM='SCRATCHLIST' followed by TMSCLNOA is in the *hlq*.CTAPJCL member TMSCLNOA.

You must code CLEAN control statements. If you code one CLEAN control statement with more than one criteria keyword, an 'AND' condition is created. To specify an 'OR' condition, code individual CLEAN control statements with a separate criteria keyword on each line.

Note: For more information about the TMSCLNOA utility, see the *Utilities and Reports Reference Guide.*

Customize CA 1 Standard USERMODs

You may need to modify the following:

- CA 1® Tape Management user exits
- External tape label specifications

Examine the following members to determine if they need to be customized:

***hlq*.CTAPSAMP**

Contains sample versions of the exits.

***hlq*.CTAPJCL**

Contains the JCL to receive and apply the usermods.

Note: For more information, see the *Programming Guide* and the *Administration Guide*.

Members

The names of the exits are customizable. Parameters in the TMOOPTxx member of the CA 1 startup options supply the name of each exit. You can switch between different versions of the exits without having to reload new copies.

You can use the following members to customize CA 1:

CTSJUBTL

Used to install the IBM BTLS exit to set the category for scratch tapes.

Elements: IDCLI04

CTSJUMSG

Displays the first eight characters of the scratch pool name on the 3480/3490 message display. If you implement scratch subpooling, this usermod is also used by the EMC DLM manual tape library. This usermod is applied to the IBM SMP/E zone for z/OS.

The source for this exit is in *hlq*.CTAPSAMP.

Elements: IGXMSGEX / CTSMSGLC

CTSJUX1G

Used to validate that the correct tape is mounted for a scratch subpool request, and to reject a tape from being stacked by Real-time Stacking.

The source for this exit is in *hlq*.CTAPSAMP.

Elements: CTSUX1G

TMELBLS

Defines output assignments for external tape labels. *hlq*.CTAPJCL(TMELBLS)

Parmlib Specification: XSCR, *yourmodulename*, or NONE

Elements: TMELBLS

TMSXSCR

Allows or disallows the scratch request and is called before updating any volumes and before updating any DSNBs. This exit is called for both a SCRATCH and a TEST request. This exit is only called by TMSSCR (invoked by TMSCLEAN or the ISPF Scratch Command) if you set the option XSCR to an exit name.

Elements: TMSXSCR

TMSXITCO

Used to modify fields during a conversion of data to TMC format or control statements. You specify this exit by a run-time parameter on the TMSCONVR PARM= *yourmodulename*.

Elements: *yourmodulename* (Previously named TMSXITCO in r12.0 and TMSUXCO in r11.5)

TMSXITD

Used in a conversion of system catalog data to TMC format during the execution of TMSIDATA. You specify this exit by a run-time parameter on the TMSIDATA PARM= *yourmodulename*.

Elements: *yourmodulename* (Previously named TMSXITD in r12.0 and TMSUXID in r11.5)

TMSVOLDF

Generates exit definitions for use with CA-supplied user exits TMSXITU and TMSXITE. You do not need to generate exit definitions if the TMC has been reformatted with TMSXTEND.

TMSVOLDF is mutually exclusive with TMSXITE and TMSXITU.

After PTF RO32864 for release 12.6, TMSVOLDF links standalone modules TMSVOLDF with TMSXITE and TMSXITU. As part of L0C6INIT (CAS9) process, module TMSVOLDF is dynamically installed. If installing for the first time or modifying to the existing usermod, you can load TMSVOLDF with an IPL or dynamically using the following statements:

```
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
PARM(REINIT,LPA=TMSVOLDF) -
LOADLIB(your.loadlib)
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
PARM(REINIT,LPA=your.exite.name) -
LOADLIB(your.loadlib)
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
PARM(REINIT,LPA=your.exitu.name) -
LOADLIB(your.loadlib)
```

Or

```
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
PARM(REINIT,LPA=ALL) -
LOADLIB(your.loadlib)
```

Note: Release 12.6 is the last release to support the TMSVOLDF usermod. TMSXTEND eliminates the need for alphanumeric user exits.

Elements: TMSVOLDF

TMSXCLN1

Modifies the expiration date and scratch status indicator, or bypass the TMC record update. TMSCLEAN calls this exit only if you set the option XCLN1 to an exit name.

Parmlib Specification: XCLN,1 *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXCLN1)

Note: In previous releases, the TMSCLEAN exit had an optional B (BYPASS) option. To bypass the creation of AUDIT exception records, set the BYPASS option to YES in TMOOPTxx in the options library.

TMSXCLN2

Processes CA 1 Keyword USER/uuu dates. TMSCLEAN calls this exit only if you set the option XCLN2 to an exit name.

Parmlib Specification: XCLN2, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXCLN2)

TMSXCTLG

Enables you to modify the expiration date and "expired by Catalog Control" indicator, or to bypass the TMC record update. TMSCTLG calls this exit only if you set the option XCTLG to an exit name.

Parmlib Specification: XCTLG, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXCTLG)

Note: In previous releases, the TMSCTLG exit had an optional B (BYPASS) option. To bypass the creation of AUDIT exception records, set the BYPASS option to YES in TMOOPTxx in the options library.

TMSXCYCL

Used to modify the expiration date of bypass the TMC record update. This exit is only called by TMSCYCLE if the option XCYCL is set to an exit name.

Parmlib Specification: XCYCL, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXCYCL)

Note: In previous releases, the TMSCYCLE exit had an optional B (BYPASS) option. To bypass the creation of AUDIT exception records, set the BYPASS option to YES in TMOOPTxx of the CA 1 options library.

TMSXEXP

Enables you to modify the expiration date and to bypass the RDS indicator of the TMC record update. TMSEXPDT calls this exit only if you set the option XEXP to an exit name.

Parmlib Specification: XEXP, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXEXP)

Note: In previous releases, the TMSEXPDT exit had an optional B (BYPASS) option. To bypass the creation of AUDIT exception records, set the BYPASS option to YES in TMOOPTxx in the options library.

TMSXITA

Used to automatically bypass real-time tape tracking without using EXPDT=98000 (nonresident) in the JCL. This exit is invoked at:

- Every tape OPEN, CLOSE and EOV request
- Prior to the CA 1® Tape Management nonlabel volser WTOR
- After the nonlabel WTOR
- From the CA 1® Tape Management label editor routine (which replaces the system label editors)

Parmlib Specification: XITA, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITA in r12.0 and TMSUX2A in r11.5)

TMSXITB

Used to establish retention other than the assigned Abend Default Retention specified in the CA 1 option member TMOOPTxx (parameter ABE). This exit is optional because unique Abend retention values can be specified in the Retention Data Set (RDS) rules.

Parmlib Specification: XITB, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITB in r12.0 and TMSUX2B in r11.5)

TMSXITC

Used to customize the accounting information copied to the TMC records for secondary volumes.

Parmlib Specification: XITC, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITC in r12.0 and TMSUX2C in r11.5)

TMSXITD

Used to more specifically define data sets that are to be controlled by an External Data Manager (EDM).

Parmlib Specification: XITD, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named CTSUXEDM in r12.0)

TMSXITE

Used to convert internal numeric volume serial numbers to an external alphanumeric value. TMSXITE is not required if the TMSXTEND utility has been used to format the TMC or if the TMSVOLDF usermod is being used. TMSXITE is mutually exclusive with TMSVOLDF.

Parmlib Specification: XITE, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITE in r12.0 and TMSUX2E in r11.5)

TMSXITF

Used to allow/disallow double opens and recreates

Parmlib Specification: XITF, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITF in r12.0 and TMSUX2F in r11.5)

TMSXITJ

Used to capture accounting data specified in job or step statements in the JCL.

Parmlib Specification: XITJ, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITJ in r12.0 and TMSUX2J in r11.5)

TMSXITL

Used to more specifically designate which tapes should have external gummed labels created by TMSLBLPR.

Parmlib Specification: XIT,L *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITL in r12.0 and TMSUX2L in r11.5)

TMSXITS

Used with the CA 1 external security interface. If used to supply a default CA 1 password; that process is now available as an option in CTAPOPTN member TMOOPTxx, ISPFDEF. If used to notify robotic/virtual tape library of scratch status; that process is now available as an option called ROBSCR.

Parmlib Specification: XITS, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITS in r12 andTMSUX2S in r11.5)

TMSXITU

Used to convert external alphanumeric volume serial numbers to an internal numeric value. TMSXITU is not required if the TMSXTEND utility has been used to format the TMC or if the TMSVOLDF usermod is being used. TMSXITU is mutually exclusive with TMSVOLDF.

Parmlib Specification: XITU, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXITU in r12.0 and TMSUX2U in r11.5)

TMSXOCAT

Provides the TMC record selection for MVS catalog and TMC synchronization processing. This exit is only called by TMSOSCAT if the option XOCAT option is set to an exit name.

Parmlib Specification: XOCAT, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXOCAT)

TMSXTPNT

Allows the user to reject volumes for label processing, modify the TMC record prior to TMC update, and modify tape label information. This exit is only called by TMSTPNIT if option XTPNT is set to an exit name.

Parmlib Specification: XTPNT, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXTPNT)

TMSXTPPR

Provides various options to control the processing of tapes. This exit is only called by TMSTPPRO if the option XTPPR is set to an exit name.

Parmlib Specification: XTPPR, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXTPPR)

TMSXVLT1

Provides for TMC record selection for Vault Management System processing. This exit is only called by TMSVMEDT if the option XVLT1 is set to an exit name.

Parmlib Specification: XTVLT1, *yourmodulename,* or NONE

Elements: *yourmodulename* (Previously named TMSXVLT1)

USERMODs

This process determines the prerequisites for the CA 1® Tape Management supplied USERMODs at your site.

1. Determine which CA 1 USERMODs have been or will be installed at your site.
2. Using the USERMODs element name (macro/source name) construct a list of element names in the following SMPCNTL DD. Specify:
   - One LIST MAC statement for each macro update (++MACUPD)
   - One LIST SRC and one LIST MOD for each source update (++SRCUPD) and for each ASSEM entry on a macro update.

   The output from this job provides the prerequisites for your site CA 1 standard USERMODs. The prerequisites are the RMIDs and the UMIDs listed.

   ```
   //SMPLOG DD DUMMY
   //SMPOUT DD SYSOUT=
   //SMPCSI DD DSN=CSINODE.CSI,
   // DISP=SHR
   //SMPLIST DD SYSOUT=
   //
   //SMPCNTL DD
   SET BDY(CAITGT).
   LIST MAC(element-name).
   LIST SRC(element-name).
   LIST MOD(element-name).
   /
   ```
3. Change the PRE list for the USERMOD entries found in the CA 1 *hlq*.CTAPJCL data set using RMIDs and UMIDs that were found. If no entries were found, no existing USERMOD has been applied. Use the base FMID on the new USERMOD.
4. Receive and Apply.

Allocate the TMC and Audit Data Sets

If you are migrating from CA 1® Tape Management r11 or higher, skip this section.

The placement of other data sets on the same volume that the TMC or Audit reside must be done so as not to create a RESERVE/ENQUEUE lockout condition. Data sets which should not be located on the same volume that the TMC or Audit reside on include, but are not limited to, data sets of products CA 1® Tape Management optionally interfaces with, for example:

- Security products (CA Top Secret Security, CA ACF2)
- DASD management products (CA ASM2 Backup and Restore, CA-Disk)
- The operating system catalogs

We recommend that the Tape Management Catalog (TMC) and Audit data sets:

- Be allocated on separate disk volumes. This eliminates the possibility of both data sets being destroyed in the event of a hardware failure.
- Be allocated as unmovable (DSORG=PSU).

Block Size Requirements

The BLKSIZE for the Tape Management Catalog (TMC) must be 340 or a multiple of 340 greater or equal to 1020. A BLKSIZE of 680 is not valid. The BLKSIZE for the Audit data set must be a multiple of 370. When using a BLOCKSET audit data set there is a minimum BLKSIZE of 4440.

Note: For more information about space requirements for the TMC and Audit data sets, see the *Programming Guide*.

The following table is an example of block sizes and records per cylinder which can be used for the TMC and Audit data set on various devices.

Device	3350/F493	3380/F6425	3390
TMC 340 x 340	1080/cylinder	855/cylinder	855/cylinder
TMC 340 x 8840	1560/cylinder	1950/cylinder	2340/cylinder
Audit data set unblocked 370 x 370	1020/cylinder	825/cylinder	825/cylinder
Audit data set blocked370 x 8880	1440/cylinder	1800/cylinder	2160/cylinder

Calculate Tape Management Catalog Storage Requirements

Use the following formula to calculate the Tape Management Catalog (TMC) storage requirements:

```
Cylinders = (3 + V + (D / 2)) / RC
```

V

The number of volume records.

D

The number of DSNB records.

RC

The records per cylinder for device type and blocking factor.

Note: Round up all values.

Example: TMC Storage Requirement

In this example, the values are 100,000 Volume records + 300,000 DSNB records (3380):

```
(3+100,000) + (300,000 / 2)) / 855 = 293 cylinders
```

Tape Management Catalog Physical Limits

There is a logical limit of 99,999,998 DSNB records which can be formatted in the TMC. However, the physical limit is actually much smaller unless you have allocated the TMC with DSNTYPE=LARGE.

The limit for the allocation of a standard sequential data set is X'FFFF' tracks or 65,535 decimal tracks. This is equal to 4,369 cylinders on a 3390. The total number of volume records plus half of the total number of DSNB records (there are two DSNB records on each physical record) of an unblocked TMC must be equal to or less than 3,735,492. For a TMC blocked at 8840, this limit is 10,223,457. There are 3 control records.

The X'FFFF' track limit does not apply if the TMC is allocated with DSNTYPE=LARGE. TMSPTRS and TMSFORMT do *not* support an allocation with DSNTYPE=LARGE specified. Use the replacement utilities TMSAPEC (a subtask of the CTS address space) and TMSXTEND.

For example, if the TMC is allocated as a standard sequential file, you can format the following:

- 6,000,000 volume records plus 8,446,914 DSNB records
- 3,000,000 volume records plus 14,446,914 DSNB records
- 1,000,000 volume records plus 16,750,000 DSNB records

Calculate Audit Data Set Storage Requirements

Use the following formula to calculate the Audit data set storage requirements:

```
Cylinders = (1 + A) / RC
```

A

The number of Audit records.

RC

The number of records per cylinder for the device type and blocking factor.

Example: Audit Data Set Storage Requirements

In this example, the values are 100,000 Audit records (3390 - blocked):

```
(100,000+1) / 2160 = 47 cylinders
```

Allocation JCL

The JCL to allocate the Tape Management Catalog (TMC) and Audit data sets is in library *hlq*.CTAPJCL(TMSALLOC). No secondary allocations should be given for the TMC and Audit data sets, and they must each reside on a single volume. Modify the parameters and symbolics for each program based on your requirements. Modify the space allocation for the TMC and Audit data sets based on your requirements.

Format the Tape Management Catalog and Audit Data Sets

(Optional) If you are migrating from CA 1® Tape Management r11 or higher, skip this section.

Formatting of the TMC is done via the TMSBLDVR program.

Formatting of the Audit is done via the TMSFORMT program.

Optionally you can use TMSFORMT to format the TMC. If you choose this method and you are using alphanumeric volsers you will need to code the usermods TMSXITE and TMSXITU or TMSVOLDF and install them.

Format JCL

The JCL to format the TMC Audit data sets is in the CA 1® Tape Management sample JCL library *hlq*.CTAPJCL. Use TMSBLDVR to format the TMC and TMSFORMT to format the Audit/TMC. Modify the parameters and symbolics for each program based on your requirements. Supply control statements based on your requirements.

Note: For more information about the TMSFORMT and TMSBLDVR utilities, see the *Utilities and Reports Reference Guide*.

CA 1 Procedures in PROCLIB

Important! Do not use procedures from a previous version of CA 1.

The CA 1 procedures (PROCs) are in the *hlq*.CTAPPROC procedure library.

The procedure library can be the system or the installation library. All procedures are optional except for TMSINIT. The following PROCs are available:

- CTS—Common Tape System component started task. This procedure is required if you choose to use any of the following features:
  - Database Services (DBS)
  - Label Print (LAB)
  - Automatic Pointers Error Correction (APEC)
  - Distributed Tape Support (DTS)
  - Volume Pool Monitor (VPM)

  To ensure that you properly define the DD statements that are required for the features you select, follow the instructions provided in the procedure.
- DYNCOMM—CA Dynam/T interface.
- TMSINIT—CA 1® Tape Management initialization. Do not rename TMSINIT to TMS. The subsystem name for CA 1® Tape Management is TMS.
- TMSLBLPR—Batch external label generator.
- TMSOSTQ—MVS console Online Inquiry/Update.
- TMSTPPRO—Tape header label analysis.

Modify the parameters and symbolics for each program that is based on your requirements.

Note: For more information about each utility, see the *Utilities and Reports Reference Guide*. For more information about the Common Tape System component, see the *Administration Guide.*

Install JES3 Options

If you do not have JES3, skip this step and proceed to the next step.

This optional step provides JCL for installation of the JES3 options. At this point, JES3 users should consider the options discussed in this step.

Disable the JES3 Write Ring and Expiration Date Checks

Because of the tape protection provided by CA 1, it is recommended that you disable two checks provided by JES3.

During setup, JES3 checks the label expiration date of SL tapes mounted for scratch requests. All tapes originally created with a CA 1 keyword expiration date will be rejected. JES3 allows this check to be disabled only on a job basis using the //*MAIN statement.

JES3 checks for the presence or absence of tape write rings.

With CA 1, it is not necessary to remove the write rings.

The subsystem forces the label type and density of the tape being mounted to match the JCL by rejecting the tape if the label type and density do not match for JES3 users. For JES3 versions having IATUX62 (JES3 2.1.5 or higher), this user exit allows SL functions to be overridden.

To disable both checks, modify the JES3 user exit IATUX29.

See "Obtaining Job Accounting Information" in the IBM *JES3 Customization Manual*. Turn on the following bits in the JDAB control blocks (DSECTed by the JES3 macro IATYJDA):

```
OI   JDABFLG3,JDABNOXP  BYPASS EXPDT CHECK
OI   JDABFLG2,JDABRNGC  RING CHECK=NO
```

If the following code is not present in IATUX29, you will also need to add it prior to the two OI instructions above:

```
USING  IATISDT,R13
L      R8,JDABADDR
USING  JDABSTRT,R8
```

You must also ensure that R15 is set with the correct value for the IATUX29 exit to be invoked. Please see the appropriate IBM guide.

Additionally, a suggested change is to the JES3 module IATIIDY to disable expiration date checking during dynamic allocation. Sequence numbers should be checked, as they may change. Consult your IBM PSR.

```
TM        JSTDFLG1,JSTTA   Q. TAPE?        02580100
BC        ALLOFF,SKIPNEXT  A. NO           02580200
OI        JSTHFLG4,JSTNOXP BYPASS EXP CHK  02580300
SKIPNEXT  DS  0H                           02580400
```

Install an SMS Managed IBM Tape Library

If you do not have an IBM Automated Tape Library (ATL) or Virtual Tape Server (VTS), skip this section.

CA 1 provides full support for the SMS managed tape libraries IBM ATL and VTS systems.

CA 1 support includes the ROBSCR option that notifies the IBM ATL or VTS when a tape is scratched. The ROBSCR option is in *hlq*.CTAPOPTN(TMOOPT00). This option requires you to use the CA 1 provided sample exits CBRUXENT, CBRUXEJC, and CBRUXVNL.

The CTSSYNC synchronization utility is also provided.

If you have installed the CA 1 version of CBRUXENT, CBRUXEJC, or CBRUXVNL, CA 1 should be active before starting OAM.

CA 1 scratch subpooling is not supported in the IBM ATL and VTS Tape Library Data Server.

Note: For information about the IBM ATL and VTS Tape Library Data Server support, see the *Administration Guide*.

Two methods are provided to install support for the IBM ATL and VTS.

If you want to use the DFSMS SMP/E zone only, do the following:

Follow these steps:

1. Modify the source that the SMPPTFIN in CTSJUCBX references.
2. Submit *hlq*.CTAPJCL (CTSJUCBX) to receive and apply the usermod your DFSMS SMP/E zone.
3. Verify that the CA 1 option ROBSCR is set to YES in *hlq*.CTAPOPTN member TMOOPTxx.
4. Verify that the ROBTY field is updated accordingly. If the field is set properly, the option ROBSCR is unable to notify the ATL that the tape is scratch. To update the ROBTY field properly, verify that modifications were made to CTSUXENT's ATLTABLE label as part of the CA 1 usermod cai.CTAPJCL(CTSJUCBR) done in step 1. If there are current tapes in the robot with the current ROBTY field blank, it is required to update the appropriate ROBTY in ISPF or TMSUPDTE before setting ROBSCR=YES.

If you want to use the CA 1 SMP/E zone and the DFSMS SMP/E zone, do the following:

Follow these steps:

1. Modify the source that the SMPPTFIN in CTSJUCBR references.
2. Submit *hlq*.CTAPJCL (CTSJUCBN) to receive and apply the usermod to your CA 1 SMP/E zone. This way you assemble and link CTSUXENT, CTSUXEJC, and CTSUXVNL as CBRUXENT, CBRUXEJC, and CBRUXVNL in your *hlq*.CTAPJCL.

3. Submit usermod *hlq*.CTAPJCL (CTSJUCBR) to receive and apply the usermod to your DFSMS SMP/E zone. This usermod renames your existing CTSUXENT, CTSUXEJC, and CTSUXVNL in SYS1.LINKLIB. You can optionally change the TONAME field that the SMPPTFIN in CTSJUCBR references to a name of your choosing.
4. Verify that the CA 1 option ROBSCR is set to YES in *hlq*.CTAPOPTN member TMOOPTxx.
5. Verify that the ROBTY field is updated accordingly. If the field is not set properly, the option ROBSCR is unable to notify the ATL that the tape is scratch. To update the ROBTY field properly, verify that modifications were made to CTSUXENT's ATLTABLE label as part of the CA 1 usermod hlq.CTAPJCL(CTSJUCBN) done in step 1. If there are current tapes in the robot with the current ROBTY field blank, update the appropriate ROBTY in ISPF or TMSUPDTE before setting ROBSCR=YES.

The CBRUXVNL Exit

CA 1® Tape Management provides the sample exit CBRUXVNL (volume not-in-library). In the event of a volume not-in-library, this exit allows the job to do one of the following:

- Continue normal processing and try to allocate a compatible device outside the robot
- Abend the job
- Redrive allocation processing

The decision on which of these options to take can either be programmed directly into the exit or a WTOR can be issued to allow the operator to decide. CBRUXVNL requires modification to make it unique to each site.

Define DFSMShsm as an EDM

If you do not have DFSMShsm, skip this section.

The DFSMShsm tape interface consists of the following modules:

TMSARCTV

Is an alias of ARCTVEXT. This module allows DFSMShsm controlled tapes to be released to the CA 1 scratch pool through TMSTMSTV when DFSMShsm has determined the tape is no longer needed.

DFSMShsm controlled tapes are recognized in the TMC by the EDM bit in FLAG3 (X'20'). The EDM part is set ON at OPEN for output time based on rules in the CA 1 options member (TMOEDMxx) of the *hlq*.CTAPOPTN library.

ARCTVEXT

The IBM DFSMShsm tape volume exit. DFSMShsm calls this exit to inform a tape management system that all valid data has been removed from a tape volume.

Note: For more information about this user exit, see the *IBM DFSMShsm Implementation and Customization Guide*.

To identify DFSMShsm tapes as EDM controlled tapes to CA 1® Tape Management, update the TMOEDMxx member of the CA common options library. Set the EDM parameter to any name in up to four characters. This helps identify which EDM controls the tape if multiple EDMs are active in your data center.

The parameters, JOB=, DSN=, PGM=, and DD= are optional. However, at least one must be present. Pattern Masking can be used for any or all four of the optional parameters, and any combination may be included. Based on this set of selection criteria, if a tape is found to match all specified criteria, it is defined as EDM controlled and assigned the specified EDMID

Once these options are set, all DFSMShsm created tapes are indicated as controlled by an External Data Manager (EDM) and CA 1® Tape Management expires them when told to by DFSMShsm.

A CA 1® Tape Management user exit, CTSJUEDM is available to further define data sets which should be flagged by CA 1® Tape Management as externally managed.

Note: For more information, see the *Programming Guide*.

To ensure that DFSMShsm functions properly as an EDM to CA 1® Tape Management, review the following DFSMShsm options:

SELECTVOLUME

Set this option to SCRATCH.

TAPEDELETION

Set this option to SCRATCHTAPE.

Important! Failure to set this option can result in DFSMShsm overwriting data on a non-scratch tape if the HSM tape pool does not have sufficient tapes available. .

Update the SYS1.PARMLIB member ARCCMDxx with the following:

```
SETSYS EXITON(ARCTVEXT)
```

Note: For more information about these options and how they are reset within DFSMShsm, see the IBM *DFSMShsm System Programmer's Reference*.

Important! Tracking HSM tapes in CA 1® Tape Management without the EDM interface in use can result in tapes being scratched erroneously.

DFSMShsm/ABARS Considerations

DFSMShsm calls the ARCTVEXT exit for tapes no longer needed by ABARS. Because ABAR tapes may not be controlled as EDM tapes, the following message may be issued:

TMSTMSTV-08 vvvvvv EXPIRE IGNORED, NOT EXTERNALLY MANAGED

To prevent this problem, we recommend that you control ABAR tapes with EDM.

Note: For more information about changing the EDM rules, see the *Programming Guide*.

You can use a new EDM name or an existing EDM name, and any combination of data set name and program name to identify the ABARS tapes.

To identify ABARS tapes as EDM controlled tapes

1. Use either TMSGRW or CA Earl to create a list of the volumes you want treated as EDM controlled tapes.
2. If secondary files are present, use the TMSAGGR utility to purge all DSNB records (secondary file records) for those volumes. If secondary volumes are present, use TMSUPDTE to zero out the NEXTVOL, PREVVOL, and 1STVOL fields and set the VOLSEQ to 1.

   The tapes are all single-data set, single-volume entities.
3. Use the TMSUPDTE utility to turn on the X'20' bit in FLAG3 ('controlled by external manager' indicator) and to set the EDM field to the name you chose.

   The ABARS tapes are identified as EDM controlled.

Define CA 1 to the Security System

If using an OAM managed robotic or virtual-tape library (with either MTL or ATL devices) and the CA 1 option YSVC is set to YES (as recommended), give the OAM address space UPDATE level access to the YSVCUNCD resource. Both the ENTRY exit (CBRUXENT) and EJECT exit (CBRUXEJC) can then update CA 1 volume records correctly as tapes are added, defined, or removed from OAM.

If you have Command Processing enabled for MVS Commands (explicit permission is required to issue certain MVS commands or to reply to outstanding WTOR's), give the user-id that is associated with TMSINIT READ level access to the MVS.REPLY resource. CA 1 can then automatically reply to WTOR's such as IEC507D (REPLY 'U'-USE OR 'M'-UNLOAD).

Note: For information about the requirements to support your security system, see the *Programming Guide*.

Install the Failsafe USERMOD SMPSAFE

We recommend that you can install the optional USERMOD SMPSAFE into the operating system. This prevents tape processing from occurring in the following conditions:

- Before the CAS9 execution of L0C6INIT
- When CA 1 is deactivated
- When CA 1 is batch activated

With USERMOD SMPSAFE, WTORs are issued that indicate that CA 1 intercepts are not active. Message CTS999D and either message CTS997E or CTS998E is issued.

To install SMPSAFE, perform an SMP/E RECEIVE and APPLY of *hlq*.CTAPJCL(CTSJUSAF). See the comments in the member for more information.

SMPSAFE replaces the IBM tape management exit IFG019VM with CTS019VM in module IFG019RB, which resides in SYS1.LPALIB.

To implement this change, perform an IPL.

Note: Installation of the fail-safe usermod no longer requires you to move the TMS00SVC module from *cai*.CTAPLINK to SYS1.LPALIB or an LPA listed library.

Generate CAIRIM Parameters

This procedure generates the parameters that the CA Common Services for z/OS component CAIRIM uses to initialize CA 1. If you have member CARIMPRM residing in *hlq*.CTAPOPTN, add the following parameter statement:

```
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) PARM(SVC=xxx,INIT)
```

xxx

Represents your CA 1 SVC number.

Range: 200 to 255

If CARIMPRM does not exist, add it to contain the preceding parameter statement.

A sample CAIRIM parameter statement for CA 1 is in library *hlq*.CTAPOPTN member L0RIMPRM.

To start TMSINIT PROC optionally with the automatic command facility of CAIRIM, add the following statement to member CAUTOCMD in *hlq*.CTAPOPTN:

```
START TMSINIT
```

To issue TMSINIT PROC by the system automatic command facility, add the START command to the COMMNDxx member in SYS1.PARMLIB.

If you use L0C6INIT to execute TMSINIT directly, the START TMSINIT in the CAUTOCMD or COMMNDxx member in SYS1.PARMLIB is not required.

Note: For more information, see the *Utilities and Reports Reference Guide*.

CAIRIM initialization for CA 1 must be successfully completed before TMSINIT PROC startup.

Add the CTS PROC, the started task for the Common Tape System component. To generate external tape labels, add the START command for CTS to the ENFCMDS member in *hlq*.CTAPOPTN.

This member contains the automatic commands that the CAIENF facility processes.

You can generate external tape labels on one CPU and you can route the label image to another CPU to print. Customize additional CAICCI options in member CCIPARM of *hlq*.CTAPOPTN.

Note: For more information, see the *Administration Guide* and the *CA Common Services for z/OS Reference Guide*.

If you are using the CA Dynam/T interface, you can initiate the DYNCOMM PROC automatically. CA 1 is required to be active to make this feature function properly.

If you have other vendor products that modify the data management modules of the operating system and these modified versions are MLPAd, include the CAG8LIB2 DD statement in the CAIRIM procedure and the TMSINIT procedure. Specify any MLPA data set in the CAG8LIB2 DD statement which contains these modifications. If you have a data set name for the contents of the LPA other than SYS1.LPALIB, put that data set name in the CAG8LIB1 DD statement and include the DD statement in the CAIRIM procedure and the TMSINIT procedure.

CAIRIM can execute TMSINIT directly by including a TMSPARM DD statement that references the CTAPOPTN data set in the CAIRIM JCL. By default the TMOSYS00 member is read from the CTAPOPTN data set. This setting can be overridden by specifying SYS=xx in the L0C6INIT RIMPARM PARM statement.

Tailor the CA LMP Keys

If you are migrating from CA 1® Tape Management r11 or higher, skip this section.

The CA License Management Program (CA LMP) is part of the Total Client Care (CA-TCC). The CA LMP common enforcement software is distributed as part of the CA Common Services for z/OS CAIRIM component.

CA 1® Tape Management is a CA LMP-managed product. CA LMP is comprised of three elements: the CA product, the CA LMP Product Key Certificate, and the common CA LMP enforcement software.

The CA LMP Product Key Certificate contains an execution key for each CPU licensed at your site. These keys must be entered into the *hlq*.CAIOPTN data set CA LMP product keys member which has a default name of KEYS.

This installation step provides a means to transfer the information from your CA LMP Product Key Certificate to the KEYS member. Edit the information as needed.

Update SYS1.PARMLIB

This procedure modifies SYS1.PARMLIB to support CA 1® Tape Management. The SYS1.PARMLIB members to be updated for MVS are:

LNKLSTxx

Specifies the CA common load library *(hlq*.CTAPLINK).

IEAAPFxx

Specifies the CA common load library (*hlq*.CTAPLINK). This library is not required if in LNKLSTxx and or PROGxx authorized by default.

IEFSSNxx

If you are using a Tape Silo/Robot and your vendor requires exact placement of the CA 1® Tape Management subsystem, then specify subsystem name TMS. Do not specify any other PARMs with TMS.

This specification should also be made if another software automation product modifies tape-related messages or if another software automation product expects to see the TMS prefixed message. The TMS subsystem must be placed ahead of the other product's subsystem entry to help ensure that CA 1® Tape Management properly modifies tape-related mount messages.

If the above does not apply, modification to IEFSSNxx is not necessary. However, CA recommends an explicit entry to prevent possible interference with other products' subsystems. Place the entry near the top of the list. Verify that no subsystem named TLMS is present ahead of TMS.

IEASYSxx

Specifies the members modified.

SMFPRMxx

Must be active. However, there are no requirements regarding SMF record types that must be recorded.

IKJTSOxx

Add the program names TMSIOCAP and TMSSCR to the AUTHPGM and AUTHTSF entries.

Note: If using the TSO table CSECTs, add the program names to the IKJEFTE2, IKJEFTE8, and IKJEFTAP CSECTs.

Validate the CA 1 Runtime Data Sets

Verify that the following CA 1® Tape Management data sets are cataloged for each system that has CA 1® Tape Management installed:

- CA 1® Tape Management TMC data set
- CA 1® Tape Management Audit data set
- CA common load library (*hlq*. CTAPLINK)
- CA common options library (*hlq*.CTAPOPTN)

  Note: The library must be secured. The library contains the options that CA 1 uses, the security profiles for the ISPF panels, and the master password for CA 1.
- CA common source library (*hlq*.CTAPSRC)
- CA Earl Source (*hlq*.CTAPEARL)
- CA EARL Copybooks (*hlq*.CTAPECPB)

IPL the Operating System and Initialize CA 1® Tape Management

To implement r12.6 through an IPL, use the following information.

The CA 1 load library must be APF authorized and added to the system linklist.

Specify the following control statements in the CARIMPRM:

```
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
PARM(SVC=xxx,INIT)
```

If you are currently running any version of CA 1:

- Suspend tape operations.
- Back up your current tape management catalog (TMC) and audit data sets with your currently installed version of TMSCOPY before IPLing the operating system.

CA 1 initialization requires CAIRIM processing and TMSINIT processing. CAIRIM initialization processing for CA 1 must complete successfully before TMSINIT startup to initialize CA 1 properly.

Note: For more information about CAIRIM initialization processing, see the *Programming Guide*.

To initialize CA 1, use the TMSINIT PROC. The TMSINIT PROC executes TMSINIT to initialize CA 1 resident modules and tables, and to activate the message intercept. A report is produced showing the CA 1 system specifications and detailing any errors found. Examine the output thoroughly before executing production tape jobs.

Note: For information on the TMSINIT utility, see the *Utilities and Reports Reference Guide*.

Do not use TMS as the started task name for TMSINIT because the subsystem name for CA 1 r12 is TMS.

To initialize the Common Tape System component, use the CTS PROC. This started task allocates the TMC and Audit data sets for integrity control and is required to print external tape labels.

Note: For more information about the Common Tape System component, see the *Administration Guide*.

More information:

Migration Considerations (see page 87)

Run the CA 1® Tape Management Demonstration

This optional procedure tests the CA 1® Tape Management tape functions and batch utilities to verify the proper installation of CA 1® Tape Management.

JCL is provided in the CA 1® Tape Management library *hlq*.CTAPJCL(TMSIVP) member. Remove any steps not needed for testing and modify the parameters and symbolics for each program based on your requirements.

Install the ISPF Interface

(Optional) This procedure installs the CA 1® Tape Management ISPF interface. If you do not use the ISPF interface, proceed to the next section.

The CA 1® Tape Management ISPF libraries are loaded onto disk during installation. All CA 1® Tape Management ISPF interface modules are contained in the CA common load library. To install the CA 1® Tape Management ISPF subsystem, modifications are made to your ISPF main menu panel, and possibly to your TSO PROC.

To install the ISPF interface by modifying the TSO users logon procedure

1. Open ISR@PRIM in the first library in the ISPPLIB concatenation.

   ISR@PRIM can be edited.

2. Insert the following line into the screen definition:

   ```
   %n + CA 1® Tape Management ISPF - CA 1® Tape Management ISPF subsystem
   ```

3. Insert the following line into the PROC definition:

   n,'PGM(TMSIOPRI) NOCHECK NEWAPPL(TMS)'

   n

   Specifies the main menu option to invoke CA 1® Tape Management ISPF.

   ISPF is added to the menu.

To install the ISPF interface by adding an optional CLIST

This CLIST dynamically allocates the required libraries (except the load modules) using the LIBDEF facility of ISPF.

1. Open ISR@PRIM in the first library in the ISPPLIB concatenation.

   ISR@PRIM can be edited.

2. Insert the following line into the screen definition:

   ```
   %n + CA 1® Tape Management ISPF - CA 1® Tape Management ISPF subsystem
   ```

3. Insert the following line into the PROC definition:

   n,'CMD(TMSISPF) NOCHECK NEWAPPL(TMS) PASSLIB'

   n

   Specifies the main menu option to invoke CA 1® Tape Management ISPF.

   CLIST invokes the CA 1® Tape Management ISPF subsystem.

Note: A sample CLIST is provided in *hlq*.CTAPCLS0(TMSISPF).

Enable the ISPF Tape Inquiry (TI) Command

The Tape Inquiry Command (TI) enables users to display information about CA 1® Tape Management controlled volumes cataloged in the z/OS catalog without starting up the full CA 1® Tape Management ISPF interface. The TI command is issued from the ISPF DSLIST (3.4) command line.

To enable the TI command

1. Copy the ISPF panels TMPITTIG, TMPTTIH, TMPTTIH1, TMPTTIH2, and TMPTTIH3 from *hlq*.CTAPPENU to your ISPF panel library.
2. Copy message number CMGA00 from *hlq*.CTAPMENU to your ISPF message library.
3. Copy the CLIST member TI from *hlq*.CTAPEXEC to your CLIST library and edit the member to reflect the data set names in use at the time of installation.
4. Do *one* of the following:
   - If the CA target load library *hlq*.CTAPLINK is in the LNKLST, copy load module CTSTI to a LNKLST data set.
   - If the CA target load library *hlq*.CTAPLINK is *not* in the LNKLST copy load module CTSTI to the CA target library provided in the TSO logon JCL.

JCL is provided in *hlq*.CTAPCLS0(TMSISPF).

Authorize Module TMSIOCAP and TMSSCR

The CA 1® Tape Management online scratch facility requires modules TMSIOCAP and TMSSCR to be authorized.

Note: For more information about adding authorized programs to the TSO environment, see the *TSO Customization Guide*.

If you are using SYS1.PARMLIB member IKJTSO00, add the program names TMSIOCAP and TMSSCR to the AUTHPGM and AUTHTSF entries.

If you are using the TSO table CSECTs, add the program names TMSIOCAP and TMSSCR to the IKJEFTE2 (APFCTABL), IKJEFTE8 (APFPTABL) and IKJEFTAP (APFTTABL) CSECTs.

Install the CA Roscoe Interface

(Optional) If you do not have CA Roscoe, skip this procedure.

This step provides the required changes within CA Roscoe to support the CA 1® Tape Management Online Inquiry/Update system.

To install the CA Roscoe Interface

1. Add TIQ to the run parameter in the CA Roscoe SYSIN stream.
2. In the CA Roscoe startup JCL STEPLIB concatenation, add a DD statement pointing to *hlq*.CTAPLINK. CTAPLINK contains the CA 1® Tape Management interface program RSSCTIQ0.

Note: For more information, see the CA Roscoe documentation.

Install the TSO Interface

(Optional) This procedure enables CLIST to invoke the CA 1® Tape Management TSO interface.

The CA 1® Tape Management ISPF libraries are loaded onto disk during installation. To use the optional TSO interface to the CA 1® Tape Management Online Inquiry/Update System, create the following TSO CLIST:

```
PROC 0 D(DSN) P(PROMPT) DATEFMT(DEFAULT)
CALL 'CAI.CAILIB(TMSTSO)' '&D,&P,DATEFMT=''&DATEFMT'''
END
```

&D

Specifies the data set name verification option parameter. The verification option value NODSN allows the TMC record to be updated without verifying the data set name for that record.

If the data set name is allowed to be changed, specify NODSN.

If the data set name cannot be changed specify DSN must twice on the update command, once for the verification and again for the update. If DSN is specified, an update to any field requires data set name verification.

&P

Specifies the prompt for the access password parameter. PROMPT causes the prompt for the access password prior to invoking the external security interface. NOPROMPT is used only when the optional security exit, TMSXITS, is coded to supply a default access password.

&DATEFMT

Specifies the date format option for this session. In the example above, the date format pattern is set as DEFAULT. To specify a preferred date format by replace DEFAULT with the desired pattern, such as DATEFMT('MMMDD YYYY'). &DATEFMT must be preceded by two single quotes and followed by three single quotes.

Note: For more information about valid values, see the *Utilities and Reports Reference Guide*.

JCL is provided in *hlq*.CTAPCLS0(TSOTIQ). Manually edit the CA common load library name and default parameter values into the CLIST.

Install the Volume Pool Monitor

To monitor scratch availability and tape usage and to send an email or issue a WTO when specific conditions are met, optionally install the Volume Pool Monitor.

Follow these steps:

1. Create the VSAM Database (VDB) by updating and running member CTSJVDBA in *hlq*.CTAPJCL.
2. Initialize the VDB by updating and running member CTSJVDBI in *hlq*.CTAPJCL with PARM=INIT.

   The VDB initializes with default variables that the volume pool monitor uses. The VDB is prepared for updating through the CTS ISPF interface.
3. Create the SEND data set by updating and running member CTSJSNDA in *hlq*.CTAPJCL.

   This job creates the SEND data set and loads it with sample members that create emails and WTOs.
4. Follow the instructions in the comments of the job.
5. Update the options variable OPT_EMAIL_DEFAULT_DSN with the name of the SEND data set. To update this variable, enter **1** on the CTS ISPF Primary Menu. To be presented with the CTS Option Variables List, select **2**.
6. Specify information about your email environment by updating the options variables. Identify the HOSTNAME, SMTP SYSOUT WRITER, and SYSOUT CLASS for each system where emails can be sent from.
7. (Optional) Control the functioning of the VPM task and email or WTO processing by specifying other options variable.
8. Create volume pools and alerts.

Note: For more information about the Volume Pool Monitor feature, the email environment setup, and the possible options variables, see the *Administration Guide*. For more information about the VDB and the SEND data set, see the *Programming Guide*.

Start CA 1

Parameters used by the CA Common Services for z/OS component CAIRIM to initialize CA 1 are generated by this procedure.

If you have the *yourhlq*.CTAPOPTN CARIMPRM member, add the following parameter statement:

```
PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) PARM(SVC=xxx,INIT)
```

xxx

Your CA 1 SVC number

Range: 200 to 255

If this member does not exist, add it to contain the above parameter statement. There is a sample CAIRIM parameter statement for CA 1 in CTAPOPTN member L0RIMPRM.

To start TMSINIT PROC automatically by the CAIRIM automatic command facility, add the following statement to the CTAPOPTN CAUTOCMD member:

```
START TMSINIT
```

To issue TMSINIT PROC automatically by the system automatic command facility, add the START command to the SYS1.PARMLIB COMMND*xx* member. CAIRIM initialization for CA 1 must be completed prior to TMSINIT PROC startup.

Installation Verification Procedure

Once CA 1 has been activated on your system, validate that the CA 1 OPEN/CLOSE/EOV intercepts are properly installed. The sample job named TMSIVP distributed in the CAI.CTAPJCL contains JCL to create multivolume, multifile tapes in SL, AL, and NL formats. This JCL also contains steps to run TMSCYCLE, TMSCTLG, TMSCLEAN, TMSAUDIT and various CA Earl reports.

Chapter 6: Migration Information

This section contains the following topics:

Migration Considerations

If you are migrating to 12.6.00 from a previous release of CA 1, consider the following:

TMC and AUDIT Files Sharing

The TMC file and the AUDIT file can be shared between 12.6.00 and any supported release of CA 1.

If you are running an unsupported release of CA 1, it is possible that the TMC and AUDIT files can be shared. For more information, contact CA 1 support. You can share both a standard TMC or a TMC created with the TMSXTEND utility in 12.6.00 and earlier releases of CA 1.

Vault Pattern Data Set (VPD) and Retention Data Set (RDS)

The VPD and RDS used with either r11.0 or r11.5 can be used with 12.6.00.

Options

A published PTF (RO10161) added new options and deleted others. These changes were carried forward to 12.6.00. If you have not applied RO10161, review the changes documented in RI10751.

CAIRIM Control Statement

The CAIRIM Control Statement has changed for 12.6.00. The INIT program was renamed from L0C0INIT to L0C6INIT, and the VERSION changed from L0C0 to L0C6. Make these changes to the CAIRIM control statements.

Batch Job Considerations

New sample jobs are supplied in the CAI.CTAPJCL library. CA 1 includes two EARL libraries, one for the source and one for the Copybooks (record layouts). These changes have been made to the new supplied sample jobs. When running EARL jobs on a 12.6.00 system, use the 12.6.00 JCL. When running EARL jobs on a r11.5 or r12 system, use the existing JCL.

USER Exits

The names of all the optional user exists are user-specified. We recommend that you resource all user exists and reapply them as part of the 12.6.00 installation. Determine if the exits are needed. For example, in most sites TMSXITB (now called Exit-B) can be eliminated by including some ABEND= statements in the RDS. Exits TMSXITU (now called Exit-U) and TMSXITE (now called Exit-E) can be eliminated when the TMC is extended using the TMSXTEND utility.

IPL Considerations

If you are running CA 1 11.5 SP4 or lower, an IPL is required to implement r12.6.

Note: If you have installed any of the CA 1 z/OS usermods from a previous release, they can continue to be used until the next scheduled IPL. With the IPL, we recommend that you put in the r12.6 usermods. The usermods include the failsafe usermod, CBRXUENT, CBRUXEJC, CBRUXVNL, and IGXMSGEX.

If you are currently running CA 1 11.5 sp5 (which includes RO02572) or higher, you can upgrade without an IPL. If you upgrade to 12.6 from r11.5 (sp5 or sp6) or from 12.0 without an IPL, you can go back to 11.5 (sp5 or sp6) or 12.0 and you do not have to perform an IPL.

IMPORTANT! To remove 12.6 dynamically, SECWTO=YES is required. For more information about the security setup of the BATCH, DEACT, REINIT resources for TMSINIT, see the *Programming Guide*.

If you perform an IPL and bring 12.6 active, an IPL is required to go back to 11.5 or 12.0. The CA 1 load library must be APF authorized and added to the system linklist.CA 1 initialization requires CAIRIM processing and TMSINIT processing. CAIRIM initialization processing for CA 1 must complete successfully before TMSINIT startup.

Initialize CA 1 using the TMSINIT PROC. The TMSINIT PROC executes TMSINIT to initialize CA 1 resident modules and tables, and to activate the message intercept. A report is produced showing the CA 1 system specifications and detailing any errors found. Before you execute production tape jobs, examine the output thoroughly.

Notes:

- For more information about CAIRIM initialization processing, see the *Programming Guide*.
- For more information about the TMSINIT utility, see the *Utilities and Reports Reference Guide*.
- Do not use TMS as the started task name for TMSINIT because the subsystem name for CA 1 Rel 12.6 is TMS.

Dynamically Upgrade from 11.5 (Service Pack 5 or Service Pack 6) to 12.6

To use the features of the release 12.6, you can upgrade from 11.5 to 12.6.

If your TMC is still in the old format and you are using the TMSVOLDF usermod to build TMSUX2E and TMSUX2U to do the alphanumeric volser conversions, apply r12.6 PTF RO32864. Use TMSXTEND to convert your TMC to the new format so that the exits are not needed. Contact CA Support for more maintenance.

Note: If you have installed any of the CA 1 z/OS usermods from a previous release, they can continue to be used until the next scheduled IPL at which time we recommend that you put in the r12.6 usermods. These usermods include the failsafe usermod, CBRXUENT, CBRUXEJC, CBRUXVNL, and IGXMSGEX.

Follow these steps:

1. Stop tape processing and back up the TMC and Audit data sets using your currently installed version of TMSCOPY.
2. Remove the CA 1 catalog intercept by running the CAS9 procedure with the following control statements for CA 1 in CARIMPRM pointing to the 11.5 (sp5 or sp6) libraries:

   ```
   PRODUCT(CA 1/MVS) VERSION(L052) INIT(L052INIT) -
   PARM(REINIT,COSI=NO) -
   LOADLIB(hlq.ca1.r115.CAILIB)
   ```

3. Stop CTS if active.
4. Deactivate CA 1 by starting 11.5 TMSINIT and replying with the system password. This process removes the 11.5 OSI intercepts.
5. Back up the 11.5 load library.

   Note: Backing up is needed when you have to remove 12.6 dynamically. A new load library is created during the installation of 12.6. Empty the 11.5 (sp5 or sp6) library. Copy the entire contents of the 12.6 library into the current 11.5 (sp5 or sp6) link-listed library and issue a F LLA REFRESH.
6. Load 12.6 by executing the CAS9 procedure with the following control statements for CA 1 in CARIMPRM:

   ```
   PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
   PARM(REINIT,LPA=ALL,SVC=xxx,SMF=YES) -
   LOADLIB(hlq.ca1.r126.CTAPLINK)

   PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
   PARM(REINIT,COSI=YES) -
   LOADLIB(hlq.ca1.r126.CTAPLINK)
   ```

   Note: For a future IPL, insert the 12.6 load library in place of the 11.5 (sp5 or sp6) load library in the link-list concatenation.

7. Using the 12.6 options library, start the 12.6 TMSINIT to activate CA 1.
8. Start CTS if previously active.

Dynamically Upgrade from 12.0 to 12.6

To use the features of the release 12.6, you can upgrade from 12.0 to 12.6.

If your TMC is in the old format and you are using the TMSVOLDF usermod to build TMSUX2E and TMSUX2U to do the alphanumeric volser conversions, apply r12.0 PTF RO32245 and r12.6 PTF RO32864. If possible, use TMSXTEND to convert your TMC to the new format so that the exits are not needed. You can contact CA Support for help on the conversion.

Note: If you have installed any of the CA 1 z/OS usermods from a previous release, they can continue to be used until the next scheduled IPL at which time we recommend that you put in the r12.6 usermods. These usermods include the failsafe usermod, CBRXUENT, CBRUXEJC, CBRUXVNL, and IGXMSGEX.

Follow these steps:

1. Stop tape processing and back up the TMC and Audit data sets using your currently installed version of TMSCOPY.
2. Remove the CA 1 catalog intercept by running the CAS9 procedure with the following control statements for CA 1 in CARIMPRM pointing to the 12.0 libraries:

   ```
   PRODUCT(CA 1/MVS) VERSION(L0C0) INIT(L0C0INIT) -
   PARM(REINIT,COSI=NO) -
   LOADLIB(hlq.ca1.r120.CTAPLINK)
   ```

3. Stop CTS if active.
4. Deactivate CA 1 by starting 12.0 TMSINIT and replying with the system password. This process removes the 12.0 OSI intercepts.
5. Back up the 12.0 load library.

   Note: Backing up is needed when you have to remove 12.6 dynamically. A new load library is created during the installation of 12.6. Empty the 12.0 library. Copy the entire contents of the 12.6 library into the current 12.0 link-listed library and issue a F LLA REFRESH.
6. Load 12.6. dynamically by executing the CAS9 procedure with the following control statements for CA 1 in CARIMPRM:

   ```
   PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
   PARM(REINIT,LPA=ALL,SVC=xxx,SMF=YES) -
   LOADLIB(hlq.ca1.r126.CTAPLINK)

   PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
   PARM(REINIT,COSI=YES) -
   LOADLIB(hlq.ca1.r126.CTAPLINK)
   ```

   Note: For a future IPL, insert the 12.6 load library in place of the 12.0 load library in the link-list concatenation.
7. Using the 12.6 options library, start the 12.6 TMSINIT to activate CA 1.

8. Start CTS if previously active.

Dynamically Back Out from 12.6 to 11.5 (Service Pack 5 or Service Pack 6)

If you upgrade to 12.6 from 11.5 (service pack 5 or service pack 6) without an IPL (and have not IPL'ed with 12.6 installed), you can go back to 11.5 (service pack 5 or service pack 6) without an IPL.

IMPORTANT! To remove 12.6 dynamically, SECWTO=YES is required. For more information about the security setup of the BATCH, DEACT, REINIT resources for TMSINIT, see the *Programming Guide*.

To use the features of the Release 11.5, you can back out from 12.6 to 11.5.

Follow these steps:

1. Stop tape processing and back up the TMC and Audit data sets using your currently installed version of TMSCOPY.
2. Remove the CA 1 catalog intercept by running the CAS9 procedure with the following control statements for CA 1 in CARIMPRM pointing to the 12.6 libraries:

   ```
   PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
   PARM(REINIT,COSI=NO) -
   LOADLIB(hlq.ca1.r126.CTAPLINK)
   ```

3. Stop CTS if active.
4. Deactivate CA 1 by starting 12.6 TMSINIT and replying with the system password. This process removes the 12.6 OSI intercepts.
5. Empty the 12.6 members from the 11.5 (sp5 or sp6) link-listed library. Copy the entire contents of the backed up 11.5 (sp5 or sp6) load library back into the 11.5 link-listed library. Issue a F LLA REFRESH.
6. Load 11.5 (sp5 or sp6) dynamically by executing the CAS9 procedure with the following control statements for CA 1 in CARIMPRM:

   ```
   PRODUCT(CA 1/MVS) VERSION(L052) INIT(L052INIT) -
   PARM(REINIT,LPA=ALL,SVC=xxx,SMF=YES) -
   LOADLIB(hlq.ca1.r115.CAILIB)

   PRODUCT(CA 1/MVS) VERSION(L052) INIT(L052INIT) -
   PARM(REINIT,COSI=YES) -
   LOADLIB(hlq.ca1.r115.CAILIB)
   ```

7. Using the 11.5 (sp5 or sp6) options library, start the 11.5 TMSINIT to activate CA 1.
8. Start CTS if previously active.

Dynamically Back Out from 12.6 to 12.0

If you upgrade to 12.6 from 12.0 without an IPL (and have not IPL'ed with 12.6 installed), you can go back to 12.0 without an IPL.

IMPORTANT! To remove 12.6 dynamically, SECWTO=YES is required. For more information about the security setup of the BATCH, DEACT, REINIT resources for TMSINIT, see the *Programming Guide*.

To use the features of the Release 12.0, you can back out from 12.6 to 12.0.

Follow these steps:

1. Stop tape processing and backup the TMC and Audit data sets using your currently installed version of TMSCOPY.
2. Remove the CA 1 catalog intercept by running the CAS9 procedure with the following control statements for CA 1 in CARIMPRM pointing to the 12.6 libraries:

   ```
   PRODUCT(CA 1/MVS) VERSION(L0C6) INIT(L0C6INIT) -
   PARM(REINIT,COSI=NO) -
   LOADLIB(hlq.ca1.r126.CTAPLINK)
   ```

3. Stop CTS if active.
4. Deactivate CA 1 by starting 12.6 TMSINIT and replying with the system password. This process removes the 12.6 OSI intercepts.
5. Empty the 12.6 members from the 12.0 link-listed library. Copy the entire contents of the backed up 12.0 load library back into the 12.0 link-listed library and issue a F LLA REFRESH.
6. Load 12.0. dynamically by executing the CAS9 procedure with the following control statements for CA 1 in CARIMPRM:

   ```
   PRODUCT(CA 1/MVS) VERSION(L0C0) INIT(L0C0INIT) -
   PARM(REINIT,LPA=ALL,SVC=xxx,SMF=YES) -
   LOADLIB(hlq.ca1.r120.CTAPLINK)

   PRODUCT(CA 1/MVS) VERSION(L0C0) INIT(L0C0INIT) -
   PARM(REINIT,COSI=YES) -
   LOADLIB(hlq.ca1.r120.CTAPLINK)
   ```

7. Using the 12.0 options library, start the 12.0 TMSINIT to activate CA 1.
8. Start CTS if previously active.

Appendix A: Checklists

Use the following checklist during your installation:

ASM

Assembler program name to be used.

Default: IEV90

AUDIT

CA 1 Audit data set name.

Default: CAI.CA1.AUDIT

AUDUNIT

CA 1 Audit data set unit type.

Default: SYSDA

AUDVOL

CA 1 Audit data set VOLSER.

Default: VOLSER

CAINODE

CA common library data set name prefix.

Default: CAI

CTAPECPB

CA common source library data set name

Default: CAI.CTAPECPB

CLSTLIB

CA common CLIST library data set name.

Default: CAI.CTAPISRC

CSINODE

CA common SMP/E library CSI data set name prefix.

Default: CAI.SMPCSI

CSISER

CA common SMP/E library CSI data set VOLSER.

Default: VOLSER

DLBSER

Distribution library data set VOLSER.

Default: VOLSER

DLBUNIT

Distribution library data set unit type.

Default: SYSDA

LINKLIB

CA common load library data set name.

Default: CAI.CTAPLINK

NVSNODE

Non-VSAM CA 1 data set name prefix.

Default: CAI.CA1

OPTLIB

CA common options library data set name.

Default: CAI.CTAPOPTN

PROCLIB

CA common procedure library data set name.

Default: CAI.CTAPPROC

SMPEREL

SMP/E version specification.

Default: 5

SMPSER

CA common SMP/E library data set VOLSER.

Default: VOLSER

SMPUNIT

CA common SMP/E library data set unit type.

Default: SYSDA

SOUT

Output SYSOUT class.

Default: *

TAPUNIT

Normal tape unit type.

Default: TAPE

TAP3480

3480/F6470 tape unit type.

Default: 3480

TGTLIB

CA common target library data set name.

Default: variable

TGTSER

CA common target library data set VOLSER.

Default: None

TGTUNIT

CA common target library data set unit type.

Default: SYSDA

TLBSER

CA common SMP/E TLIB library data set VOLSER.

Default: VOLSER

TLBUNIT

CA common SMP/E TLIB library data set unit type.

Default: SYSDA

TMC

CA 1 TMC data set name.

Default: CAI.CA1.TMC

TMCUNIT

CA 1 TMC data set unit type.

Default: SYSDA

TMCVOL

CA 1 TMC data set VOLSER.

Default: VOLSER

WRKUNIT

Work DASD unit type

Default: SYSDA

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