

# **BrightStor™ CA-1®**

# **Tape Management**

## **Installation and Maintenance Guide**

**5.2 SP04**



Computer Associates®

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## About This Guide

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This publication describes using SMP/E to install, customize, and maintain the Computer Associates International, Inc., proprietary software product, BrightStor CA-1, without using CA-ACTIVATOR to facilitate the process.

**Note:** If you wish to install BrightStor CA-1 using CA-ACTIVATOR, refer to the *BrightStor CA-1 CA-ACTIVATOR 2.1 Supplement* rather than this document.

This guide is directed to systems software programmers and personnel responsible for the implementation and maintenance of BrightStor CA-1.

# Organization

<b>Chapter</b>	<b>Description</b>
1	Presents an introduction to the IBM System Modification Program Extended (SMP/#), which is used to install and maintain Computer Associates OS/390 software.
2	Presents the basic hardware and software requirements for your OS/390 system. This includes an introduction to the CA Common Services for z/OS and OS/390 services.
3	Presents considerations you need to review prior to installation.
4	Provides detailed instructions for accomplishing each step involved in the installation and customization of BrightStor CA-1 in your system.
5	Tells how to use SMP/# and PTFs to maintain the product.
Index	Provides a quick way to locate specific material.



## Summary of Revisions for Service Pack 4

BrightStor CA-1 Tape Management Version 5.2 Service Pack 4 includes both current maintenance as well as new features. The Service Pack tape is in the standard OS/390 Computer Associates format which provides the ability to only apply maintenance to an existing BrightStor CA-1 5.2 environment or to perform a full install of the product with all maintenance integrated into the install libraries.

### Component Enhancements

#### CBRUXVNL Exit

This feature provides a new sample exit for IBM 3494 and 3494/VTS tape libraries (robots).

#### Data Erase Utility (CTSDEU)

Allows you to erase residual data on tape cartridges for security purposes. Because the new tape media types, such as the IBM 3590 contain servo tracks that can be damaged if a degauss is performed. This utility allows a security erase to be performed on a tape without damaging the servo tracks.

#### Support for Blocking the Tape Management Catalog (TMC)

Allows you to increase the number of volume and DSNB records defined to the TMC by providing support for a blocked TMC.

#### Tape Inquiry (TI) Display

The Tape Inquiry (TI) display allows ISPF users to perform a quick lookup of CA-1 TMC data for cataloged data sets using the ISPF 3.4 Data Set List display. The new, easy to read display returns essential information from the CA-1 TMC organized into groups of related fields.

### Documentation

- Adobe Acrobat PDFs and IBM Books are provided for easy access and printing.
- The Systems Programmer Guide contains the "Troubleshooting" information previously found in the installation guides.
- The Master Index is no longer provided as the PDF and Book formats provided offer greater searching capabilities.

## | **Messages**

|  
|

New messages have been added to support the CBRUXVNL exit and the CTSDEU utility.

# Summary of Revisions for the Fifth Edition

## DFHSM with OY50997

SMPHSM2 user exit has been added to Task L052IL installation of the DFHSM Option.

## PTF Maintenance

Step 11 (L052MV) includes prerequisite information necessary for this procedure.

## Documentation

CA90s is now known as CA Common Services for z/OS and OS/390. However, the panels and some references have been retained.

## Summary of Revisions for the Fourth Edition

- SMP/E Considerations - It is recommended (during installation) due to like module or member names that you should not install BrightStor CA-1 and BrightStor CA-Dynam/TLMS in the same CSI.
- Task L052IL - Install DFHSM Option  
Update SYS1.PSRMLIB member ARCCMDxx with SETSYS.EXITON (ARCTVEXT) if running DFSMS/MVS 1.4 or higher.
- Task L052I1 - Install ISPF Interface  
New to this task is information on TSO Authorization of Modules TMSIOCAP and TMSSCR.

## Removed

All references to Fujitsu and MSP.

# Summary of Revisions for the Third Edition

Technical changes are indicated by a revision bar (|) in the margin next to the changed text.

The following steps in Chapter 4, "Installing BrightStor CA-1 Version 5.2", have been enhanced:

- Step 5 (L052NC)
- Step 6 (L052ND)
- Step 10 (L052IE) - Explanation of the message GIM23903W link-edit processing.
- Step 16 (L052IU) - Information regarding data sets that should not be located on the same volume that the TMC or Audit reside on. Additionally, a note has been added providing detailed information and examples on the logical limit of volume and DSNB records.
- Step 21 (L052JO) - Explanation of the message GIM40501E.
- Step 30 (L052IV) - A new SYS1.PARMLIB member, IKJTSOxx, has been added.

Chapter 6, "Troubleshooting", has introduced a new format for accessing the online Client Support System.

# Summary of Revisions for This Edition

## AIVS

Allows BrightStor CA-1 to track foreign tapes and tapes with duplicate volsers. This is done by assigning a unique external label from a range predefined to the TMC, and cataloging the file(s) to this external label. At mount time, the mount message contains both the external and internal label. At mount validation time, the difference between the internal VOL1 label and the requested volser is resolved through a new intercept.

## Catalog Control

A new intercept has been introduced which allows the realtime tracking of BrightStor CA-1 controlled tape files. Whenever a catalog or uncatalog operation takes place to a tape volume, the TMC is updated. The result is that TMSCTLG no longer has to be run either in locate mode or by using IDCAMS listings.

BrightStor CA-1 now monitors tape CATLG/UNCATLG activity using an SMF exit and records the status in the TMC. Generation data set support is provided for use with ICF catalogs when a generation data set is uncataloged, or it is rolled off when a new generation is cataloged and the GDG limit has been reached.

## Component Enhancements

- **TMSAUDIT** has had several new exception records created by TMSSMF83 added to the TYPE control statement.
- **TMSCLEAN** has been significantly rewritten with Version 5.2. Nearly all changes were done in the portion of the code dealing with the SCRATCHLIST process. One of the biggest changes is that TMSCLEAN simply reads the TMC looking for eligible volumes and then passes the volsers to a subroutine called TMSSCR which actually performs the scratch process.
  - The CLEAN parameter, cleaning criteria, and the SYSIN control statement to control OUTCODE tapes have been moved to a separate utility.
  - The SCRATCHLIST parameter marks expired tapes available for use and produces a flat file used to produce the Scratch and Clean Listing.
  - The function of TMSCTLG moves to TMSCLEAN if the new system option OCTLG is set to N. This option indicates if the old TMSCTLG program should be used or the new catalog processing in TMSCLEAN.
  - The UNCATA option has been changed to include a default of G (for GDG).
  - A new option SCRCAT controls if data sets currently cataloged should be allowed to go scratch.
  - The handling of foreign tapes has been changed. If a tape goes scratch and has the new FOREIGN indicator set (TMC field FLAG4 bit X'04'), that volume is put into delete status.

- Files controlled by LDATE/ddd or CATLG/ddd have their expiration dates changed even when they reside at an off-site location.
- **TMSCLNOA** is a new component which marks volumes that need to be cleaned and sent off-site. This is an optional step that can be run after TMSCLEAN and before the Advantage CA-Earl reports.
- **TMSCONVR** has been moved into the *BrightStor CA-1 Utilities and Reports Reference Guide* from the *CA-1 Conversion Guide*. This is a batch utility program which reformats any machine-readable data set into one of three possible formats. Depending on the format selected, the output record formats are TMSUPDTE control statements, TMSEXPDT Retention Data Set (RDS) control statements, or TMRECORD (TMC record) format.
- **TMSDATA** is a new component which produces sequential data sets from TMC volume records and data set name block (DSNB) records.
- **TMSINIT** has added a new option called SECWTO which controls if the WTOR to ask for the user ID/password should be issued.
- **TMSMERGE** has added three new SYSIN control statements to support merging of other BrightStor CA-1 data centers with matching volsers or foreign volumes already defined to a Version 5.2 TMC.
  - AIVS=xxxxx
  - FOREIGN=yyyyyy
  - CATALOG=NEVER/AIVS/ALWAYS
- **TMSOSCAT** has been changed to report and correct errors based on the new catalog indicator, OCATLG.

In addition to reporting on the difference between the TMC and the operating system catalogs, TMSOSCAT can be used to ensure the new TMISCAT TMC FLAG4 bit X'08' and DSNBISCA DSNB FLAG1 bit X'08' are set on for all files currently cataloged. Due to these changes, new parameters have been added to the JCL and enhancements have been made to the Catalog Control statements. New reports have replaced the TMS Report 17 used in Version 5.1.

The TMSOSCAT control statements that define report content (R=, LIST=) have been replaced with new parameters. You must revise your TMSOSCAT control statements to use the new parameters if defaults are not accepted.

- **TMSSECUR** (online security module) has added two new options, LOGSVC and AADB4, for security processing.
  - LOGSVC indicates if external security system logging is needed.
  - AADB4 indicates if an extra BrightStor CA-1 audit record should be written containing the *before* image of the volume/DSNB record being updated.
- **TMSTPNIT** has been enhanced to provide further verification message processing options.
- **TMSVMEDT** has added two additional control statements. The Volume (VOL=) and Cataloged Data Set Name (CDSN=) control statements designate specific volume or volume sets that need to be moved to an off-site location. The Vaulting with AND conditions pattern has been changed.

## Database Fields

- Five new fields have been added under FLAG4 in TMMTMREC as follows:
  - TMACVOLI (ACV) reflects that the internal and external volser do not match.
  - TMDEGAU (DEG) reflects that all residual data have been erased.
  - TMISCAT (OSC) reflects the MVS catalog status of the first file on the volume.
  - TMNRS (NRS) is set to indicate this is a foreign volume.
  - TMVSR (VSR) shows that a vaulted volume is eligible to be returned from the vault if no entry for it is found in the VPD.
- Two new flag byte fields, FLAG5 and FLAG6, have been defined for future use. The size of the existing TMB1DIS (B1 Disclosure Label) and TMB1INT (B1 Integrity Label) have each been reduced from four bytes to three to provide the new flag byte fields.
- TMACTVL1 (ACTVL1) and TMACTVL2 (ACTVL2) have been created to store the internal volser if different from the external volser.
- The DSNBISCA (OSC) field has been added to TMMDSNB FLAG1.

## Installation Options

An alphabetical listing of the user modifiable fields has been added to the BrightStor CA-1 options section located in the *BrightStor CA-1 Systems Programmer Guide*.

## Module Changes

### Modules Added

- CTSPRINT has been added to the CTS library as a supplement to TMSPRINT processing.
- TMSUX2A added a new function code for the obtain volser process to be used from TMSOCEPR and TMSOMODV.

### Modules Moved/Renamed

- EDM detection has been moved and renamed CTSEDMLK or CTMEDLK.
- TMSARCTV is now a user distributed source module.
- TMSINITD is now the front-end for the CTS module CTSINITP.
- TMSINITE has been moved to CTS as CTSINITE.
- TMSMSGEX and TMSMSGLC have been moved and renamed CTSMMSGEX and CTSMMSGLC respectively.

### Modules Removed

- TMSOCE42 has been removed as it is a duplicate to TMSOCE22.

## MVS Systems Library

Docview format documentation for BrightStor CA-1 Version 5.2 is no longer available. It has been replaced by the MVS Systems Library, a multi-product CD-ROM documentation set in IBM BookManager format.

## O/C/EOV Intercepts

- A new intercept has been added to support the AIVS feature. AIVS=xxxxxx allows a request for volume 123456 (the external volser) to be processed by DFP/Open processing even though the ACTVOL (actual internal volser) is different. It also allows a scratch subpool request to be done using a new VOL=SER=poolid specification which is satisfied by any scratch tape in the requested scratch pool.
- The existing OPEN for Output indicator is turned off at close time. This allows TMSCLEAN to bypass changing the expiration date for tapes under Catalog Control when they are still in the process of being created.

## Realtime Stacking

This major new feature of BrightStor CA-1 allows users to stack multiple files on output volumes without making JCL changes, thereby increasing volume utilization. (This feature is provided in maintenance after the initial 9609 genlevel of Version 5.2.)

## Scratch Subpool Changes

Support has been added to allow scratch subpool assignments to be based on retention and JCL specified by coding the pool-ID in the VOL=SER= field. The only limitation is that the pool-ID must be 6 characters in length for the JCL method to be used.

## Security Features

- TMSINIT security has been improved by preventing unauthorized operators or users from activating, deactivating, reinitializing or placing BrightStor CA-1 into batch active status.
- Audit Before (AUDB4) - See System Options below
- Log Service Processing (LOGSVC) - See System Options below
- Recreate (RECRE8) - See System Options below
- WTOR in TMSINIT (SECWTO) - See System Options below

## SPLIT/MERGE

These utilities are used to allow data from one TMC to be merged into another TMC. With the new duplicate volser support, when a conflict is found, the tape has a unique external volser assigned to it. At the same time, the file name can be cataloged to the external volser. When the data is read for input, it is called for by its unique external volser. The O/C/EOV intercept allows the difference in the VOL1 and the file is read.

Once the file is expired, it is required that the tape be reinitialized prior to its use for output processing. After reinitialization, the internal and external labels match.

## System Options

- **ADGDG** indicates if ADSM pseudo GDGs should be treated as regular GDGs by the vaulting system.
- **AUDB4** controls processing whenever BrightStor CA-1 attempts to update a TMC record for either volume or DSNB type.
- **LOGSVC** indicates if external security logging should be performed for successful SVC I/O operations to the TMC or Audit files.
- **OCTLG** indicates if the old TMSCTLG utility should still be used (not all systems sharing the TMC have been upgraded to Version 5.2).
- **RECRE8** indicates if BrightStor CA-1 should remove or keep volumes not used during recreate processing.
- **SECWTO** controls if WTORs should be issued when TMSINIT is executed as a started task to ensure the operator attempting to reinitialize, stop, or make BrightStor CA-1 batch-active is authorized to perform the desired function.
- **SCRCAT** indicates if in addition to the expiration date, TMSCLEAN should analyze the new catalog indicator prior to selecting volumes for scratch processing.
- **UXSCR** indicates if the new scratch exit module (TMSXSCR) invoked to scratch volumes should call the optional user exit.

The DSSN (Data Set Security DDname) and XMSG (Specific Mount Message) under TMOOPT have been removed.

## Troubleshooting

- A Collecting Diagnostic Data table has been added to assist the user.
- Information has been added regarding accessing the CA home page on the Internet for additional CA products and services.
- Several changes have been made to the following:
  - Accessing the Online Client Support System
  - Product Versions and Maintenance
  - Requesting Enhancements

## User Exits

- All existing realtime user exits have been renamed from TMSUX1x to TMSUX2x with the following exceptions:
  - TMSUX1D is now CTSUXEDM
  - TMSUX1G is now CTSUX1G
  - TMSMSGEX is now CTSMSGEX

All clients are required to review their existing exits for applicability and assemble, and relink with the new names. This change is required because most of the BrightStor CA-1 exits must be 31-bit addressable and may have new parameter lists.

## **Vault Management System**

- Two new parameters have been added that allow you to designate a specific volume or volume sets that need to be moved to an off-site location without regard for rules.
- An additional Vault Pattern Example has been added which shows VOL=, CDSN= and DSN= patterns.

## **Publications**

The following documentation is supplied with BrightStor CA-1. These manuals are intended to help you learn how to use the product and serve as a reference when problems develop or when you want to expand product use.

## BrightStor CA-1 Publications

Title	Description
<i>CA-ACTIVATOR</i>	Describes how to install BrightStor CA-1 using the CA-ACTIVATOR installation driver. Detailed installation considerations and data set storage requirements are supplied to ensure the installer has everything needed before starting the installation. Installation instructions are organized in a detailed, step-by-step procedure. This guide applies only to MVS.
<i>BrightStor CA-1 Installation and Maintenance Guide</i>	Describes how to install BrightStor CA-1 using SMP/E, but without the assistance of CA-ACTIVATOR. Detailed installation considerations and data set storage requirements are outlined to ensure the installer has everything needed before starting the installation. Installation instructions are organized in a detailed, step-by-step procedure.
<i>BrightStor CA-1 Systems Programmer Guide</i>	Supplies the systems programmer with the technical information needed to implement and maintain the BrightStor CA-1 system. The guide describes the functional operation of BrightStor CA-1 and provides detailed information on specific BrightStor CA-1 features, programs, macros, user exits, and TMC and Audit data set maintenance.
<i>BrightStor CA-1 Administrator and Operator Guide</i>	Provides the system administrator, tape librarian and operator with the information needed to run BrightStor CA-1 on a daily basis. The guide discusses daily batch processing, tape library maintenance, Auxiliary Disposition, tape processing, the Vault Management System (VMS), online inquiry and update, and the Common Tape System (CTS) component.
<i>BrightStor CA-1 General Information Guide</i>	Provides a system overview for anyone interested in learning about BrightStor CA-1. This overview describes the features and functions of BrightStor CA-1, such as realtime processing, tape data set retention, online inquiry and update, tape library maintenance, product and security interfaces, and scratch pool management.

<b>Title</b>	<b>Description</b>
<i>BrightStor CA-1 Utilities and Reports Reference Guide</i>	Reference for all users of BrightStor CA-1. This publication identifies each utility's purpose, JCL and parameter information, control statement specifications, and hardcopy output. The BrightStor CA-1 modules which generate reports are presented alphabetically with complete descriptions of the reports they produce. Field descriptions are included to aid in interpreting the information contained in each report.
<i>BrightStor CA-1 Message Guide</i>	Contains WTO/WTOR messages and replies, messages issued by BrightStor CA-1 utilities, and system and user abends most frequently encountered during BrightStor CA-1 operations. Each message or code is accompanied by a brief explanation and the appropriate response or recommended action.
<i>BrightStor CA-1 Release Guide</i>	(Formerly the <i>CA-1 Conversion Guide</i> .) Contains all the information you need to successfully convert to BrightStor CA-1 Version 5.2 from another tape management system or from an earlier version of BrightStor CA-1. Contains descriptions of all conversion utilities and messages issued by these utilities.

All manuals are updated as required. Instructions accompany each update package.

## Related Publications

The following publications relate to BrightStor CA-1 and are available from Computer Associates:

<b>Title</b>	<b>Description</b>
CA Common Services for z/OS and OS/390 documentation	Various manuals specific to your operating system provide information on installing CA Common Services for z/OS and OS/390 with CA-ACTIVATOR, installing CA Common Services for z/OS and OS/390 without CA-ACTIVATOR, operating instructions for using and maintaining the CA Common Services for z/OS and OS/390, and messages and codes for the CA Common Services for z/OS and OS/390.
<i>CA Reference Guide</i> , CAIENF Utilities section	Provides operating instructions for the CAIENF facilities.

## Other Related Publications

The following publications are not available from Computer Associates, but are referenced in the BrightStor CA-1 documentation set and are recommended reading:

### IBM Publications

- Principles of Operation
- MVS Interactive Problem Control System (IPCS) Messages and Codes
- MVS Message Library: System Messages
- MVS SPL: Initialization and Tuning
- MVS Catalog Administration Guide
- MVS Utilities
- MVS Administration: Macro Instruction Reference
- MVS Tape Labels
- MVS Data Facility Product Version 2: Customization
- SMP/E User's Guide
- SMP/E Reference
- SMP/E Messages and Codes
- SMP/E General Information Manual
- JES3 SPL: User Modifications and JES3 Macros
- DFHSM System Programmer's Reference
- DFHSM Installation and Customization Guide
- MVS Programming Library: Debugging Handbook

## Disclaimer

All sample code, JCL, and reports that are provided in this guide are intended as reference aids only. No warranty of any kind is made of the completeness or correctness of these samples for your specific installation environment. If you wish to use any of these samples at your site, be sure to adjust them to your specific site standards.



# Chapter 1. Introduction to SMP/E

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The installation process for BrightStor CA-1 Version 5.2 has been enhanced consistent with Computer Associates policy to take advantage of standard operating system installation and maintenance methodologies. The installation process for MVS uses the IBM System Modification Program Extended (SMP/E).

**Caution**

SMP/E is required for BrightStor CA-1 product installation and for the application of product maintenance and upgrades.

This chapter presents an overview of SMP/E. It provides enough information for you to use SMP/E to install and maintain BrightStor CA-1 without presenting a complete discussion of all SMP/E functions and capabilities.

**Note:** If you have experience in using SMP/E, you can skip this section.

**Software Design:** SMP/E is used to install and maintain software on MVS operating systems. Software designed to be installed with SMP/E *must* be installed with SMP/E. Software not designed to be installed with SMP/E *cannot* be installed with SMP/E.

If a software product is installed using SMP/E, all subsequent maintenance and modifications to that software must be applied by SMP/E.

This chapter is an introduction to SMP/E for the BrightStor CA-1 user and supplies the information required to apply maintenance to BrightStor CA-1 using SMP/E. More comprehensive information on maintaining BrightStor CA-1 is provided in Chapter 5, “BrightStor CA-1 Maintenance Process” on page 5-1.

**SYSMOD:** When a product is packaged for installation by SMP/E, the card image file containing all the information about the product and its various elements is called a SYSMOD. The SYSMOD specifies macro names, module names, link edit attributes, relationships between elements, prerequisite SYSMODs, and other information describing how SMP/E will install the product.

## 1.1 Description

SMP/E is an IBM program product designed to manage the installation and modification of MVS products. Additionally, at your discretion, SMP/E can be used to install and maintain user modifications to installed products.

**Objectives:** SMP/E has two major objectives:

1. To automate and manage the installation of products and all modifications to those products.
2. To ensure that all modifications are applied correctly, completely, and to the proper product version levels.

**Facilities:** To meet these objectives, SMP/E provides the facilities needed to:

- Create and maintain a set of SMP/E data sets. These data sets record information concerning product structure, content, and modification status.
- Store and install the basic software product.
- Ensure that all modifications installed are:
  - properly formatted
  - appropriate to the product
  - at the correct service level for the product
  - free of known errors
  - not dependent on modifications which contain errors
  - installed completely
- Ensure that all modifications dependent on each other are installed together.
- Remove modifications after installation, if errors are uncovered.
- Maintain a historical record of product modifications.
- Provide facilities that allow you to maintain and make queries against the data sets SMP/E uses to record information concerning product structure and modification status.
- Optionally manage the installation of user modifications to existing products.

## 1.2 Program Elements

During the installation and maintenance process, SMP/E manages the basic program elements which make up the BrightStor CA-1 product:

- executable modules
- macros
- object modules
- source modules

SMP/E is responsible for the management of these basic program elements and for the creation of the executable BrightStor CA-1 load library.

The implementation of SMP/E support for BrightStor CA-1 is designed to be easy to install and maintain. An SMP/E product expert is not required to use SMP/E in the BrightStor CA-1 environment.

## 1.3 Benefits

The major benefit of using SMP/E for product installation is its ability to accurately and explicitly control the application of maintenance.

SMP/E ensures that all maintenance delivered by Computer Associates is applied completely and accurately to your BrightStor CA-1 system in an easy and efficient manner.

You do not need to keep track of which PTFs you have applied to your system. SMP/E tracks all maintenance activity and automatically reassembles or relinks all affected modules.

## 1.4 Consolidated Software Inventory (CSI)

During the SMP/E installation of BrightStor CA-1, SMP/E processing places all source, macro, and object modules into their proper libraries. SMP/E also performs required assemblies and link edits.

Throughout the installation, SMP/E retains information about every module, library, and process that is used. SMP/E keeps a record of the entire product installation and configuration. Virtually all of this information is stored in the Consolidated Software Inventory (CSI).

The CSI is a VSAM data set which is the repository that SMP/E uses to record all processing activities. It is a primary data set of SMP/E, and every SMP/E job must refer to a CSI through a DD card or statement. The CSI points to the libraries which are referenced or updated.

The default method of installing BrightStor CA-1 uses the same SMP/E CSI used to install other Computer Associates products. Subsequent Computer Associates products are delivered in SMP/E format and should be installed into the same CSI as your previously installed products. However, due to like module or member names, you should not install BrightStor CA-1 and BrightStor CA-Dynam/TLMS in the same CSI.

Based on the information stored in the CSI, SMP/E is able to track and apply maintenance. For example, if a PTF is issued against a macro, SMP/E will automatically reassemble all of the source modules which use the macro and relink all of the load modules, including the new object module.

**Zones:** Every SMP/E job contains an SMPCSI DD card or statement which points to the CSI; more specifically, to the global zone in the CSI. The global zone points to the other zones in the CSI: the target zone and the distribution zone.

**Libraries:** SMP/E uses two sets of libraries when a product is installed:

1. *Target libraries* are the BrightStor CA-1 execution or runtime libraries.
2. *Distribution libraries* are the BrightStor CA-1 backup or recovery libraries.

During the SMP/E installation process, modules will populate the target and distribution libraries.

## 1.5 SMP/E Commands

There are six main SMP/E commands:

SET BOUNDARY  
REJECT  
APPLY  
ACCEPT  
RECEIVE  
RESTORE

The SMP\_CNTL DD statement points to these commands. Every SMP/E job must have an SMP\_CNTL DD statement and an SMP\_CSI DD statement.

- The **SET BOUNDARY** command specifies which zone in the CSI is affected by the subsequent SMP/E commands. The **RECEIVE** command is always preceded by a **SET BOUNDARY(GLOBAL)** command.
- The **RECEIVE** command checks the SYSMOD for syntax errors, saves its name in the global zone, and saves a copy of the SYSMOD. The SMPPTFIN DD statement points to the SYSMOD to be RECEIVED.
- The **APPLY** command is preceded by a **SET BOUNDARY** command specifying the name of the target zone. The **APPLY** command updates the target zone with information from the saved SYSMOD and uses that information to populate the target libraries.

The **APPLY** command may cause various system utilities (IEBCOPY, IEV90, IEWL, AMASPZAP, and so forth) to be run, depending on information in the SYSMOD.

- The **ACCEPT** command is like the **APPLY** command except that it affects the distribution zone and distribution libraries.
- The **REJECT** command is used to back out the effects of a **RECEIVE** command.
- The **RESTORE** command is used to remove the SYSMODs installed with the **APPLY** command. When a SYSMOD is RESTORED, it is REJECTED as well, assuming default settings in the global zone as initialized by the product installation. When a SYSMOD is ACCEPTed, there is no way to remove it from the system other than to restore all the target, distribution, and SMP/E data sets from system backups which were taken before the SYSMOD was ACCEPTed.

## 1.6 Processing Operations

The three major SMP/E operations are RECEIVE processing, APPLY processing, and ACCEPT processing.

### **RECEIVE**

During RECEIVE processing, SMP/E reads data and stores it in the CSI global zone. If an error is detected or you wish to stop the process at this point, you can run a REJECT operation to undo the RECEIVE processing.

### **APPLY**

During APPLY processing, SMP/E performs the operations directed by the SMP/E modification control statements (MCS), and updates the target libraries. You can then test these updates. If you abort the installation at this point, you can run a RESTORE operation which restores the target libraries from the distribution libraries. If the APPLY operation installed the product for the first time, then RESTORE processing deletes the members that were added to the target libraries.

### **ACCEPT**

During ACCEPT processing, SMP/E updates the distribution libraries with a product or a maintenance application. There is no direct way to undo the ACCEPT processing once it is completed. On an initial installation, always run an ACCEPT operation to establish permanent backup libraries. During a maintenance application, do not perform an ACCEPT operation until the APPLY modification has been verified.

**Command Cycle:** The cycle of a product under SMP/E generally follows this schedule:

1. RECEIVE, APPLY and ACCEPT the base product installation material, creating the target and distribution libraries.
2. At this point, the target and distribution libraries are at the same maintenance level. Later, RECEIVE and APPLY maintenance in the form of an APAR or PTF, placing the target libraries in a new maintenance level.
3. The target and distribution libraries are now at different maintenance levels. If there is a problem with the maintenance applied to your target libraries, remove the maintenance with the RESTORE command.
4. The SMP/E RESTORE command replaces in the target library the modules that were affected by the maintenance with backup modules from the distribution libraries.
5. ACCEPT the maintenance (PTF format only) after testing the current maintenance level.
6. At this point, the target and distribution libraries are at the same maintenance level.



## Chapter 2. System Requirements and Installation Materials

---

This chapter contains the system requirements for installation and implementation of BrightStor CA-1. Topics discussed in this chapter include:

- your operating environment
- DASD storage space requirements
- installation materials needed
- an introduction to the CA Common Services for z/OS and OS/390

When you are familiar with your system requirements for this installation, complete all preliminary tasks, be sure you have any applicable Product Information Packets (PIPs), and review all installation considerations.

## 2.1 Operating Environment

BrightStor CA-1 is designed to operate with IBM DFP Version 2.4 or above. IBM, IBM-compatible, Fujitsu, or Fujitsu-compatible direct-access storage devices (DASD) are required for residence of the TMC and Audit files.

The TMC and Audit data sets should not reside on the same disk device to ensure that the TMC can be restored in the event it is inadvertently destroyed.

One type 3 or type 4 SVC is required before BrightStor CA-1 is installed. Be sure the selected SVC number is available before beginning the installation.

## 2.2 Storage Requirements

The space requirements listed below are *in addition to* the DASD space utilized by other Computer Associates products.

### 2.2.1 CA Common Data Sets

DDNAME	DSNAME	BLKSIZE	MIN BLKS	DIR BLKS
CAICLIB	CAI.CAICLIB	3120	5	1
CAIISPL	CAI.CAIISPL	6144	2	1
CAIISPM	CAI.CAIISPM	3120	45	5
CAIISPP	CAI.CAIISPP	3120	170	10
CAIISPS	CAI.CAIISPS	3120	2	1
CAIISPT	CAI.CAIISPT	3120	2	1
CAILIB	CAI.CAILIB	6144	450	45
CAILPA	CAI.CAILPA	6144	0	0
CAIMAC	CAI.CAIMAC	3120	400	10
CAIPROC	CAI.CAIPROC	3120	15	2
CAISRC	CAI.CAISRC	3120	300	10
CAIOPTN	CAI.PPOPTION	3120	60	10

### 2.2.2 BrightStor CA-1 Specific Data Sets

DDNAME	DSNAME	BLKSIZE	MIN BLKS	DIR BLKS
CL052LLD	CAI.CA1.CL052LLD	6144	450	45
CL052MLD	CAI.CA1.CL052MLD	3120	700	20
CL052SLD	CAI.CA1.CL052SLD	3120	300	10
SAMPLIB	CAI.CA1.SAMPLIB	3120	300	10

### 2.2.3 OSI Specific Data Set

DDNAME	DSNAME	BLKSIZE	MIN BLKS	DIR BLKS
CG812LLD	CAI.GATE.CG812LLD	6144	30	5

### 2.2.4 Common Tape System Specific Data Sets

DDNAME	DSNAME	BLKSIZE	MIN BLKS	DIR BLKS
C\$F12LLD	CAI.CTS.C\$F12LLD	6144	300	50
C\$F12MLD	CAI.CTS.C\$F12MLD	3120	30	5
C\$F12SLD	CAI.CTS.C\$F12SLD	3120	30	5

### 2.2.5 Data Set Requirements Summary

VOLUME	MIN # CYL 3380/F6425	DESCRIPTION
TGTSER	10	CA Common Target libraries
DLBSER	10	SMP/E Distribution libraries
SMPSER	15	CA Common SMP/E required data sets
TLBSER	20	SMP/E TLIB data sets (temporary)

## 2.3 Installation Materials

### 2.3.1 Distribution Tape

BrightStor CA-1 is distributed on a single, standard-labeled tape reel (1600 or 6250 BPI) or 3480/F6470 cartridge, which must be installed using SMP/E.

This tape is prepared in SMP/E RELFILE (unloaded PDS) format. Information about SMP/E RELFILE format can be found in the IBM *SMP/E General Information Manual*. The distribution tape contains the following files:

File	Data Set Name	Attributes	Description
001	CAL.INSTALL	IEBCOPY UNLOAD	CA-ACTIVATOR Sample JCL library
002	CAL.IE21.CLIST	IEBCOPY UNLOAD	CA-ACTIVATOR CLISTS
003	CAL.IE21.ISPMLIB	IEBCOPY UNLOAD	CA-ACTIVATOR ISPMLIB
004	CAL.IE21.ISPPLIB	IEBCOPY UNLOAD	CA-ACTIVATOR ISPPLIB
005	CAL.IE21.ISPSLIB	IEBCOPY UNLOAD	CA-ACTIVATOR ISPSLIB
006	CAL.IE21.ISPTLIB	IEBCOPY UNLOAD	CA-ACTIVATOR ISPTLIB
007	CAL.IE21.LOADLIB	IEBCOPY UNLOAD	CA-ACTIVATOR LOADLIB
008	CAL.IE21.PIMLIB	IEBCOPY UNLOAD	CA-ACTIVATOR PIMLIB
009	CAL.SAMPJCL	IEBCOPY UNLOAD	BrightStor CA-1 Sample JCL library
010			Reserved
.			Reserved
027			Reserved
028	CAL.PPOPTION	IEBCOPY UNLOAD	CA common Options
029			Reserved
030	CAL.DOCREF	IEBCOPY UNLOAD	Documentation updates
031	CAL.PTFREF	IEBCOPY UNLOAD	PTF/APAR summary
032	SMPMCS	80/7200/FB	SMP/E MCS format
033	SYSMOD.FN	IEBCOPY UNLOAD	SMP/E RELFILES begin here

### 2.3.2 Documentation

Several days before the installation, check with your Computer Associates International, Inc., regional office or central support office to ensure that you have all PTFs that have been written since your distribution tape was created.

The *BrightStor CA-1 Installation and Maintenance Guide* is provided as a supplement to other BrightStor CA-1 product-specific publications which are necessary to support your installation. A full complement of BrightStor CA-1 publications is supplied with

your installation package. For a list of these and related publications, see “Publications” on page xx of this guide.

## 2.4 CA Common Services for z/OS and OS/390

BrightStor CA-1 uses the following CA Common Services for z/OS and OS/390:

- CA-ACTIVATOR
- CA-C Runtime
- CAICCI
- CAIENF
- CA LMP
- CAIRIM
- CAISSF
- Advantage CA-Earl
- CA-SRAM

If there are other CA products installed at your site, some of these Services may already be installed.

- BrightStor CA-1 requires installation of CA Common Services for z/OS and OS/390 components CAIRIM, CA-C Runtime, and Advantage CA-Earl. CA LMP and CAISSF are included as part of the CAIRIM component.
- CAICCI and CAIENF are required to print external tape labels. CA-SRAM is required by Advantage CA-Earl for reporting services, and is used by some BrightStor CA-1 utilities.
- CA-ACTIVATOR is not required.

This section presents an overview of each of these CA Common Services for z/OS and OS/390. See the *CA Common Services for z/OS and OS/390 Getting Started* and *CA Common Services for z/OS and OS/390 Administrator Guide* for more information about the CA Common Services for z/OS and OS/390.

### 2.4.1 CA-ACTIVATOR

CA-ACTIVATOR is a front-end processor to the IBM System Modification Program Extended (SMP/E), and provides better control over installation and maintenance procedures to ensure their successful completion. CA-ACTIVATOR runs under TSO/ISPF and has the ability to install and upgrade a product in parallel to the current running system without disturbing product use.

**Note:** The instructions for installing the CA-ACTIVATOR Service itself are found only in the *CA Common Services CA-ACTIVATOR Implementation and User Guide*. The *CA Common Services for z/OS and OS/390 CA-ACTIVATOR 2.1 Supplement* guides you in using CA-ACTIVATOR to install all *other* CA Common Services for z/OS and OS/390.

CA-ACTIVATOR features include:

- interactive, full-screen dialogs and HELP panels
- customization steps that allow you to retain control of software installation
- automatic incorporation of options during JCL generation
- recording all software-product options whenever needed
- modifying software-product options whenever needed
- validating and demonstrating software installation
- error-free maintenance

## 2.4.2 CA-C Runtime

CA-C Runtime is a runtime facility with reentrancy capabilities. Its modular architecture insulates CA-C Runtime programs from system and release dependencies. There is little, if any, system-dependent code linked with the user program. This allows for smaller user programs and easier maintenance. CA-C Runtime uses a memory manager to handle dynamic allocation requests for small pieces of storage. This enables fewer calls to be made on the operating system, resulting in faster allocation and deallocation. The routines which accomplish this are grouped under the Computer Associates MVS Service Code, F33x. CA-C Runtime features include:

- calling functions written on other languages, such as Assembler or COBOL
- runtime kernels for each host environment
- device drivers for each environment
- single data structure for entry points

## 2.4.3 CAICCI

The CAI Common Communications Interface (CAICCI) is a communications facility that offers a simple and flexible approach enabling CA products to communicate with one another. This facility provides a layer that isolates application software from the specifics of the communications environment. The routines which make this possible are grouped under the Computer Associates MVS Service Code W410. CAICCI features include:

- single point of control
- multiple platform support
- performance optimization
- peer-to-peer (program to program) communication
- parallel conversations
- dynamic installation configuration
- ease of customization
- error handling

## 2.4.4 CAIENF

The CAI Event Notification Facility (CAIENF) is an operating system interface service that offers a simple and flexible approach for Computer Associates products to obtain data from MVS. By centralizing operating system interfaces within CAIENF, many features which were formerly available within a single product can be shared across the entire product line. The routines which accomplish this are grouped under the Computer Associates MVS Service Code, W110. CAIENF features include:

- dynamic installation and reconfiguration
- true recovery from system or individual power outages
- high performance asynchronous processing
- single interface between CA products and operating system data
- built-in diagnostic aids
- ease of customization
- exploitation of relational database technology

## 2.4.5 CA LMP

Computer Associates License Management Program (CA LMP) provides a standardized and automated approach to the tracking of licensed software. It uses common realtime enforcement software to validate user configuration. CA LMP reports on activities related to the license, usage, and financials of your CA products. The routines which accomplish this are integrated into the Computer Associates MVS dynamic Service Code, S910 (CAIRIM). CA LMP features include:

- common key data set which can be shared among many CPUs
- “check digits” used to detect errors in transcribing key information
- execution keys you can enter without affecting any CA product already running
- no special maintenance requirements

## 2.4.6 CAIRIM

The CAI Resource Initialization Manager (CAIRIM) is the common driver for a collection of dynamic initialization routines that eliminate the need for an IPL to install user SVCs, SMF exits, subsystems, and other installation requirements commonly encountered when installing systems software. These routines are grouped under the Computer Associates dynamic Service Code, S910. Some of the CAIRIM features are:

- obtaining SMF data
- verification of proper software installation
- installation of operating system interfaces
- automatic startup of CA and other vendor products
- proper timing and order of initialization

## 2.4.7 CAISSF

The CAI Standard Security Facility (CAISSF) allows CA software to offer standardized security interfaces regardless of the underlying access control software. CAISSF offers user authentication and resource access validation facilities, and can interface with CA security products (eTrust CA-ACF2 or CA-Top Secret) or compatible non-CA security products. CAISSF is a subservice contained within the Computer Associates Service Code, S910 (CAIRIM). For CA security products, some of the CAISSF features include:

- a single security mechanism
- isolation of CA enterprise solutions from CA or vendor mechanisms

For non-CA security products, some of the CAISSF features include:

- resource class translation
- access level translation
- selective logging of requests
- request type control
- message support for failed access

## 2.4.8 Advantage CA-Earl

Computer Associates Easy Access Report Language (Advantage CA-Earl) reporting component is a user-friendly report definition facility with the power of a comprehensive programming system. Advantage CA-Earl allows you to modify and print the contents and layout of a predefined CA product report using English-like statements. The routines that provide this service are grouped under the Computer Associates Advantage CA-Earl Reporting Service Code, XE60. Some of the Advantage CA-Earl Reporting Service features are:

- page, user, and field headings
- automatic subtotalling and totaling capabilities
- automatic data editing
- full arithmetic computational facilities
- high-level capabilities
- enhanced printed output control

## 2.4.9 CA-SRAM

Computer Associates Sort Reentrant Access Method (CA-SRAM) Service is a complete replacement for conventional methods of invoking a sort system from high-level languages. CA-SRAM allows the activation of several sorts concurrently, thereby simplifying the data and logic flow. The incoming data to the sort can be manipulated as desired by the user program in a high-level language without the need for special exit routines. The Service routines that accomplish this are grouped under the Computer Associates Service Code, SR66. Some of the CA-SRAM features are:

- has all loaded modules coded to be completely reentrant
- sorts in ascending or descending sequence
- accepts fixed- and variable-length records
- allows key definitions to spread out over the record
- low overhead
- operating system independence

## 2.4.10 Using CA LMP

BrightStor CA-1 requires CA LMP to initialize correctly. CA LMP also provides a standardized and automated approach to the tracking of licensed software.

**Key Certificate:** Examine the CA LMP Key Certificate you received with your product installation package. That certificate contains the following information:

Fields	Descriptions
Product Name	The trademarked or registered name of the Computer Associates product licensed for the designated site and CPUs.
Supplement	The reference number of your license for the particular product, in the format nnnnnn - nnn. This format differs slightly inside and outside North America, and in some cases may not be provided.
Expiration Date	The date (month dd, yyyy, as in August 12, 1998.) your license for this product expires.
Technical Contact	The name of the technical contact at your site who is responsible for the installation and maintenance of the designated product. This is the person to whom CA addresses all CA LMP correspondence.
MIS Director	The name of the Director of MIS, or the person who performs that function at the site. If the title but not the name of the person is indicated on the Certificate, please supply the actual name when correcting and verifying the Certificate.
CPU Location	The address of the building where the CPU is installed.
Execution Key	An encrypted code required by CA LMP for product initialization. During installation, it is referred to as the LMP Code.
Product Code	A two-character code that corresponds to this particular product.
CPU ID	The code that identifies the specific CPU for which installation of your product is valid.

CA LMP is provided as an integral part of CAIRIM. Once CAIRIM has been installed or maintained at Service Level A5 or higher, CA LMP support is available for all CA LMP-supported CA products.

**Defining KEYS:** Proper initialization of any CA product requires the addition of the CA LMP execution key provided on the Key Certificate to the CAIRIM parameters. To define a CA LMP execution key to the CAIRIM parameters, modify member KEYS in the OPTLIB data set. This is the parameter structure of member KEYS:

```
PROD(pp) DATE(ddmmyy) CPU(tttt-mmmm/sssss) LMPCODE(kkkkkkkkkkkkkk)
```

**pp** **Required.** The two-character product code. For any given CA LMP product, this code agrees with the product code already in use by the CAIRIM initialization parameters for earlier genlevels of the product.

**ddmmyy** The CA LMP licensing agreement expiration date.

**tttt-mmmm**      **Required.** The CPU type and model (for example, 3090–600) on which the CA LMP product will run. If the CPU type, model, or both require less than four characters, blank spaces are inserted for the unused characters.

**sssss**            **Required.** The serial number of the CPU on which the CA LMP product will run.

**kkkkkkkkkkkkkkkk**      **Required.** The execution key needed to run the CA LMP product. This CA LMP execution key is provided on the Key Certificate shipped with each CA LMP product.

**Example:** In this example of a control statement for the execution software parameter:

```
PROD(L0) DATE(12.JAN1997) CPU(3090-600 /370623) LMPCODE(52H2K06130Z7RZD6)
```

For a full description of the procedure for defining the CA LMP execution key to the CAIRIM parameters, see your *CA Common Services for z/OS and OS/390 Getting Started*.

## 2.4.11 Documentation

For a full description of the procedure for defining the CA LMP execution key to the CAIRIM parameters, see the *CA Common Services for z/OS and OS/390 Getting Started*.

A full complement of publications is supplied with BrightStor CA-1. For a list of these and other related publications that are available, see “Publications” on page xx.



## Chapter 3. Installation Considerations

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**Do not initiate the Version 5.2 installation until you understand each step and resolve all questions.**

**Libraries:** During installation of BrightStor CA-1 Version 5.2, modules belonging to previous versions of BrightStor CA-1 are removed from CA common libraries by SMP/E, provided that JCL pointing to the libraries is in the SMP/E JCL.

Ensure that all modules from previous versions are removed from both SYS1.LPALIB and SYS1.LINKLIB (plus their concatenations) before beginning this installation, or use alternates from a previous version that do not contain modifications.

**Interfaces:** If you are using any of the product interfaces listed below, reinstall the product interface whenever you receive a base tape containing a new version of BrightStor CA-1 or a maintenance tape. BrightStor CA-1 modules in other libraries, such as BrightStor CA-Roscoe, JES3 and CICS should be removed prior to reinstallation.

**BrightStor CA-ASM2**

\$NTEXT, \$FTEXT, \$BTTMS, \$TSINQ

**BrightStor CA-3**

ADAMTC04, ADAMTC12, ADAMTMSI

**CA-11** U11TMS

**Version 5.2:** These prerequisites apply to this version of BrightStor CA-1:

- All modules are placed into CA common libraries.
- The CA common load library must be placed in the system link list.
- The CA common load library must be authorized.

BrightStor CA-1 can be installed *only* in DFP Version 2.4 and higher operating systems. Support for IBM OS prior to DFP 2.4 is frozen in BrightStor CA-1 Version 5.0.

**Upgrade:** The Version 5.2 distribution tape is provided for both SMP/E and CA-ACTIVATOR installation and is a *complete replacement for previous versions*. Clients already using an earlier version of BrightStor CA-1 must perform a complete reinstallation using the Version 5.2 distribution tape to upgrade to Version 5.2.

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See the *BrightStor CA-1 Release Guide* for more information. Both CA-ACTIVATOR and non-CA-ACTIVATOR installations use SMP/E. SMP 4 is not supported as a method of installing BrightStor CA-1 Version 5.2.

**Maintenance:** If a USERMOD or special PTF is to be applied to BrightStor CA-1, you can use member JNSEPRE (for SMP/E) from the BrightStor CA-1 sample JCL library to list the SMP/E prerequisites needed for the particular member.

**SMP/E:** CA recommends that you allocate a CA common SMP/E CSI separate from your operating system's CSI. The BrightStor CA-1 USERMODs applied to your MVS target zone (SMPHSM and SMP3480, for example) have been packaged to support BrightStor CA-1 in a separate SMP/E CSI from the operating system. If BrightStor CA-1 is installed in the same CSI as the operating system, SMP/E adjustments need to be made to any BrightStor CA-1 USERMODs which are applied to the MVS target zone.

## Chapter 4. Installing BrightStor CA-1 Version 5.2

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This chapter describes the steps used to install BrightStor CA-1 with SMP/E. Before beginning these steps, please read this guide and complete the *Options Checklist* in the *BrightStor CA-1 Systems Programmer Guide*.

Implementation of BrightStor CA-1 requires the CA Common Services for z/OS and OS/390 CAIRIM, CA-C Runtime, CA-SRAM, and Advantage CA-Earl components to be installed first. If external tape labels are to be printed, CAIENF and CAICCI are also required.

If you have not yet installed the required CA Common Services for z/OS and OS/390, see the *CA Common Services for z/OS and OS/390 Getting Started* to install the components from CA Common Services for z/OS and OS/390 tape, then return to this chapter and continue your BrightStor CA-1 installation.

## 4.1 Overview of BrightStor CA-1 Installation Tasks

The following is an overview of the BrightStor CA-1 installation tasks.

Step	Task	ID	Description
1	BrightStor CA-1 WORKSHEET	L052IA	This worksheet is used to provide information about your libraries.
2	LOAD BrightStor CA-1 SAMPLIB	L052JI	Loads the BrightStor CA-1 sample JCL library.
3	CA ALLOC LIBS	L052NB	Allocates the CA common target libraries, if required.
4	ALLOC DLIBS	L052IB	Allocates and catalogs the distribution libraries.
5	CA ALLOC SMP/E	L052NC	Allocates the CA common SMP/E data sets, if required.
6	BrightStor CA-1 SMP/E PROC	L052ND	Copies the BrightStor CA-1 SMP/E procedure to PROCLIB.
7	LOAD PPOPTION	L052JG	Loads the BrightStor CA-1 system option and BrightStor CA-1 standard USERMOD members to the CA common options library.
8	BrightStor CA-1 OPTIONS	L052I8	Customizes BrightStor CA-1 options into proper CA common options library members.
9	SMP/E RECEIVE	L052ID	RECEIVES the selected functions.
10	SMP/E APPLY	L052IE	APPLYS the selected functions.
11	SMP/E ACCEPT	L052IF	ACCEPTS the selected functions.
12	BrightStor CA-1 REPORTS	L052I7	Customizes BrightStor CA-1 reports with company name and address.
13	SLCT BrightStor CA-1 MODS	L052IH	Selects and customizes the BrightStor CA-1 standard USERMODs to be applied.
14	RECV CA-1 MODS	L052JE	RECEIVES the BrightStor CA-1 standard USERMODs.
15	APPL BrightStor CA-1 MODS	L052JF	APPLYS the BrightStor CA-1 standard USERMODs.
16	ALLOC TMC & AUD	L052IU	Allocates the new BrightStor CA-1 TMC and Audit data sets, if required.
17	FORMAT TMC & AUD	L052JC	Formats the new BrightStor CA-1 TMC and Audit data sets, if required.
18	COPY BrightStor CA-1 PROCS	L052IO	Copies the BrightStor CA-1 procedures to PROCLIB.
19	COPY CTS PROC	\$F12IO	Copies the CTS component procedure to PROCLIB.
20	INST JES3 OPTNS	L052IJ	Installs the JES3 options, if required.
21	INST 3480 MSG EX	L052JO	Installs the DFP 3.1 3480 message display exit, if required.
22	INST 3495 BTLS	L052JR	Installs 3495 Basic Tape Library Data Server (BTLS) support, if required.

Step	Task	ID	Description
23	INST 3495 FULL	L052JS	Installs 3495 Basic Tape Library Data Server (BTLS) full support, if required.
24	INST HSM OPTN	L052IL	Installs the DFHSM interface, if required.
25	DEFINE SECURITY	L052IN	Defines BrightStor CA-1 resources to security system.
26	REM OLD INTERCPT	L052IP	Removes the old BrightStor CA-1 operating system intercepts if a previous version is installed.
27	FAILSAFE USERMOD	L052JU	Installs the optional USERMOD to prevent any tape processing prior to the running of CAS9.
28	GEN RIM PARMS	L052RP	Generates BrightStor CA-1 CAIRIM parameters.
29	TAILOR LMP KEYS	L052JP	Tailors the CA LMP keys for BrightStor CA-1, if required.
30	UPD SYS1.PARMLIB	L052IV	Updates the operating system PARMLIB.
31	VERIFY CATALOG	L052IX	Verifies BrightStor CA-1 data sets are cataloged.
32	ACTIVATING BrightStor CA-1	L052IZ	Activates BrightStor CA-1
33	BUILD TMC	L052JT	Loads data into the Tape Management Catalog (TMC), if required.
34	RUN BrightStor CA-1 DEMO	L052DE	Provides testing of various tape functions and BrightStor CA-1 batch utilities, if required.
35	INST ISPF INTF	L052I1	Installs the optional BrightStor CA-1 ISPF interface, if required.
36	INST ROSCOE INTF	L052I2	Installs the optional BrightStor CA-Roscoe interface, if required.
37	INST TSO INTF	L052I3	Installs the optional TSO interface, if required.
38	INST CICS INTF	L052I4	Installs the optional CICS interface, if required.
39	MERGE CTL TABLES	L052JQ	Merges control tables for BrightStor CA-1/Viewpoint and CA-Unicenter/STAR, if required.

The remainder of this chapter provides a detailed description of each installation step.

## 4.2 Step 1 - Complete Installation Worksheet (L052IA)

### Caution

Implementation of BrightStor CA-1 *requires* that the CAIRIM, CA-C Runtime, CA-SRAM, and Advantage CA-Earl components of CA Common Services for z/OS and OS/390 be installed first, at a minimum genlevel of 9312. If external tape labels are to be printed, CAIENF and CAICCI are also required.

If these components have not been installed with a previous product, see the *CA Common Services for z/OS and OS/390 Getting Started* to install them from the CA Common Services for z/OS and OS/390 tape. Then return here to continue with the BrightStor CA-1 installation.

Use the following worksheet to define the symbolic variables to be used in the installation JCL.

In addition, use the *Options Checklist* in the *BrightStor CA-1 Systems Programmer Guide* to record other relevant information required to complete the installation.

	Description	Variable
1	Assembler program name to be used <b>Default: IEV90</b>	ASM =
2	BrightStor CA-1 Audit data set name <b>Default: CALCA1.AUDIT</b>	AUDIT =
3	BrightStor CA-1 Audit data set unit type <b>Default: SYSDA</b>	AUDUNIT =
4	BrightStor CA-1 Audit data set VOLSER <b>Default: VOLSER</b>	AUDVOL =
5	CA common library data set name prefix <b>Default: CAI</b>	CAINODE =
6	CA common source library data set name <b>Default: CALCAISRC</b>	CAISRC =
7	CA common CLIST library data set name <b>Default: CALCAICLIB</b>	CLSTLIB =
8	CA common SMP/E library CSI data set name prefix <b>Default: CALSMPCSI</b>	CSINODE =
9	CA common SMP/E library CSI data set VOLSER <b>Default: VOLSER</b>	CSISER =

	<b>Description</b>	<b>Variable</b>
10	Distribution library data set VOLSER <b>Default: VOLSER</b>	DLBSER =
11	Distribution library data set unit type <b>Default: SYSDA</b>	DLBUNIT =
12	CA common load library data set name <b>Default: CAI.CAILIB</b>	LINKLIB =
13	Non-VSAM BrightStor CA-1 data set name prefix <b>Default: CAI.CA1</b>	NVSNODE =
14	CA common options library data set name <b>Default: CAI.PPOPTION</b>	OPTLIB =
15	CA common procedure library data set name <b>Default: CAI.CAIPROC</b>	PROCLIB =
16	SMP/E version specification <b>DEFAULT: 5</b>	SMPEREL =
17	CA common SMP/E library data set VOLSER <b>Default: VOLSER</b>	SMPSER =
18	CA common SMP/E library data set unit type <b>Default: SYSDA</b>	SMPUNIT =
19	Output SYSOUT class <b>Default: *</b>	SOUT =
20	Normal tape unit type <b>Default: TAPE</b>	TAPUNIT =
21	3480/F6470 tape unit type <b>Default: 3480</b>	TAP3480 =
22	CA common target library data set name <b>Default: variable</b>	TGTLIB =
23	CA common target library data set VOLSER <b>Default: None</b>	TGTSER =
24	CA common target library data set unit type <b>Default: SYSDA</b>	TGTUNIT =
25	CA common SMP/E TLIB library data set VOLSER <b>Default: VOLSER</b>	TLBSER =

#### 4.2 Step 1 - Complete Installation Worksheet (L052IA)

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	<b>Description</b>	<b>Variable</b>
26	CA common SMP/E TLIB library data set unit type <b>Default: SYSDA</b>	TLBUNIT =
27	BrightStor CA-1 TMC data set name <b>Default: CALCA1.TMC</b>	TMC =
28	BrightStor CA-1 TMC data set unit type <b>Default: SYSDA</b>	TMCUNIT =
29	BrightStor CA-1 TMC data set VOLSER <b>Default: VOLSER</b>	TMCVOL =
30	Work DASD unit type <b>Default: SYSDA</b>	WRKUNIT =

## 4.3 Step 2 - Load BrightStor CA-1 Sample JCL Library (L052JI)

This step allocates and loads the BrightStor CA-1 sample JCL library from the distribution tape.

The BrightStor CA-1 tape contains all the data necessary to install and execute BrightStor CA-1. Before starting the installation, load the sample JCL library from this tape. This is the ninth file on the tape with the data set name CAI.SAMPJCL, and is in IEBCOPY unloaded format.

### 4.3.1 JCL

Use the following JCL as a model to load the sample JCL library to disk.

```
//LOAD      EXEC PGM=IEBCOPY
//SYSPRINT DD  SYSOUT=*
//SYSUT1   DD  DSN=CAI.SAMPJCL,
//          DISP=OLD,
//          UNIT=TAPE,
//          VOL=SER=L0yyym,
//          LABEL=(9,SL,EXPDT=98000)
//SYSUT2   DD  DSN=CAI.CAI.SAMPJCL,
//          DISP=(NEW,CATLG,DELETE),
//          UNIT=SYSDA,
//          VOL=SER=volser,
//          SPACE=(3120,(400,25,25)),
//          DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//SYSUT3   DD  UNIT=SYSDA,
//          SPACE=(TRK,(1,1))
//SYSUT4   DD  UNIT=SYSDA,
//          SPACE=(TRK,(1,1))
//SYSIN    DD  DUMMY
//
```

### 4.3.2 JCL Customization

Edit in the BrightStor CA-1 distribution tape VOLSER and the output VOLSER for the BrightStor CA-1 sample JCL library.

When this job has ended, your library will contain all JCL needed to complete the installation of BrightStor CA-1. A backup copy of the BrightStor CA-1 distribution tape can be created using member JNSCOPYT from the BrightStor CA-1 sample JCL library.

## 4.4 Step 3 - Allocate Common Target Libraries (L052NB)

This step is required only if you wish to allocate a separate set of target libraries for BrightStor CA-1. All CA common target libraries will be allocated in this step.

Existing data sets are deleted with an IEFBR14 using DISP=(MOD,DELETE) before the allocation takes place.

The CA common target libraries were allocated as part of the CA Common Services for z/OS and OS/390 services installation. Before proceeding, verify that enough free space exists in each of the libraries listed below.

### Caution

If you have other CA products installed, some or all of the product libraries defined below may exist. If all libraries listed below are allocated, this step can be excluded. If some of the libraries are allocated, comment out their JCL statements prior to submitting the job to prevent inadvertent deletion.

The following is an alphabetical list of the ddnames associated with CA common libraries. Storage requirements for these libraries are supplied in this guide.

DDNAME	DSNAME	LIBRARY
CAICLIB	CAI.CAICLIB	CA common CLIST library
CAIISPL	CAI.CAIISPL	CA common ISPF load library
CAIISPM	CAI.CAIISPM	CA common ISPF message library
CAIISPP	CAI.CAIISPP	CA common ISPF panel library
CAIISPS	CAI.CAIISPS	CA common ISPF skeleton library
CAIISPT	CAI.CAIISPT	CA common ISPF table library
CAILIB	CAI.CAILIB	CA common load library
CAILPA	CAI.CAILPA	CA common LPA library
CAIMAC	CAI.CAIMAC	CA common macro library
CAIOPTN	CAI.PPOPTION	CA common options library
CAIPROC	CAI.CAIPROC	CA common procedure library
CAISRC	CAI.CAISRC	CA common source library

### 4.4.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052NB.

### 4.4.2 JCL Customization

The symbolics associated with this procedure are:

**CAINODE** CA common data set name prefix  
**TGTSER** CA common target library DASD VOLSER  
**TGTUNIT** CA common target library DASD unit type

Remove the JCL statements for product libraries to be used that already exist.

## 4.5 Step 4 - Allocate Distribution Libraries (L052IB)

This step will allocate the BrightStor CA-1, CTS component, and OSI component distribution libraries.

Existing data sets are deleted with an IEFBR14 using DISP=(MOD,DELETE) before the allocation takes place.

The following is a list of ddnames associated with the libraries:

DDNAME	DSNAME	LIBRARY
CL052MLD	CAI.CA1.CL052MLD	BrightStor CA-1 distribution macro library
CL052SLD	CAI.CA1.CL052SLD	BrightStor CA-1 distribution source library
CL052LLD	CAI.CA1.CL052LLD	BrightStor CA-1 distribution load library
C\$F12LLD	CAI.CTS.C\$F12LLD	CTS distribution load library
C\$F12MLD	CAI.CTS.C\$F12MLD	CTS distribution macro library
C\$F12SLD	CAI.CTS.C\$F12SLD	CTS distribution source library
CG82LLD	CAI.GATE.CG812LLD	OSI distribution load library

Storage requirements for these libraries are supplied in Chapter 2, “System Requirements and Installation Materials” on page 2-1.

### 4.5.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052IB.

### 4.5.2 JCL Customization

The symbolics associated with this procedure are:

**DLBSER** Distribution library DASD volume serial number  
**DLBUNIT** Distribution library DASD unit type  
**NVSNODE** Non-VSAM BrightStor CA-1 data set name prefix

## 4.6 Step 5 - Allocate Common SMP/E Data Sets (L052NC)

All CA common SMP/E data sets are allocated and initialized in this step. If you are installing BrightStor CA-1 into an existing CSI, do not run this step.

The following is an alphabetical list of the DDNAMEs associated with the CA common SMP/E data sets:

DDNAME	DSNAME
SMPCSI	CA1.SMPCSI.CSI
SMPMTS	CA1.SMPMTS
SMPPTS	CA1.SMPPTS
SMPSCDS	CA1.SMPSCDS
SMPSTS	CA1.SMPSTS

Storage requirements for these libraries are supplied in Chapter 2, “System Requirements and Installation Materials” on page 2-1.

### 4.6.1 JCL

The member provided in the BrightStor CA-1 Sample JCL library is L052NCE.

### 4.6.2 JCL Customization

The symbolics associated with this procedure are:

<b>ASM</b>	Assembler program name
<b>CAINODE</b>	CA common data set name prefix
<b>CSINODE</b>	CA common SMPCSI data set name prefix
<b>CSISER</b>	CA common SMPCSI DASD VOLSER
<b>SMPEREL</b>	SMP/E release
<b>SMPSER</b>	DASD VOLSER for CA common SMP/E data sets
<b>SMPUNIT</b>	Unit type for CA common SMP/E data sets
<b>SOUT</b>	Output SYSOUT class
<b>WRKUNIT</b>	Work DASD unit type

## 4.7 Step 6 - Create BrightStor CA-1 SMP/E Procedure (L052ND)

This step adds the SMP/E procedure to the CA common procedure library (CAI.CAIPROC) or other specified procedure library using IEBUPDTE. Skip this step if the SMP/E procedure already exists from a previous BrightStor CA-1 install. Compare this procedure to your current one and make necessary changes to the distribution libraries.

### 4.7.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is:

L052NDE - MVS

### 4.7.2 JCL Customization

The symbolics associated with these procedures are:

<b>CAINODE</b>	CA common data set name prefix
<b>CSINODE</b>	SMPCSI VSAM data set name prefix, MVS only
<b>NVSNODE</b>	Non-VSAM BrightStor CA-1 data set name prefix
<b>PROCLIB</b>	Procedure library name
<b>SOUT</b>	Output SYSOUT class
<b>TLBSER</b>	SMP/E TLIB library DASD VOLSER
<b>TLBUNIT</b>	SMP/E TLIB library DASD unit type
<b>WRKUNIT</b>	Work DASD unit type

Further customization may be required if system data set SYS1.AMODGEN or other required data sets are not cataloged.

## 4.8 Step 7 - Load CA Common Options Library (L052JG)

This step unloads the default BrightStor CA-1 system option members and the standard USERMODs to the CA common options library (CAL.PPOPTION). IEBCOPY is used to copy members required for the installation of BrightStor CA-1 from the distribution tape.

The data set was allocated by a previous step (L052NB). The file to be copied is the 28th file on the installation tape, with a data set name of CAL.PPOPTION. It is in IEBCOPY unloaded format.

### 4.8.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052JG.

### 4.8.2 JCL Customization

The symbolics associated with this procedure are:

<b>OPTLIB</b>	CA common options library
<b>SOUT</b>	Output SYSOUT class
<b>TAPUNIT</b>	Normal tape unit type
<b>WRKUNIT</b>	Work DASD unit type

## 4.9 Step 8 - Customize BrightStor CA-1 Options (L052I8)

This step provides for the customization of any required BrightStor CA-1 system options into the proper BrightStor CA-1 parameter library members. The *BrightStor CA-1 Systems Programmer Guide* provides a description of each option, and an Options Checklist that you should have previously filled out and are using as a reference during this installation.

The *BrightStor CA-1 Systems Programmer Guide* describes how to update each of the options described on your Options Checklist. The normal ISPF or PDF EDIT method is recommended to accomplish the update. Be aware that default conditions listed on the Options Checklist are in effect unless changed by this step.

See the *BrightStor CA-1 Administrator and Operator Guide* for additional information on the Common Tape System (CTS) component startup commands.

Modifications are made to members of your CA common options library:

<b>CTSSTART</b>	Common Tape System (CTS) component startup commands
<b>TMODYNxx</b>	BrightStor CA-Dynam/T interface options
<b>TMOEDMxx</b>	External Data Manager (EDM) rules
<b>TMONSMxx</b>	Scratch pool access rules
<b>TMOOPTxx</b>	BrightStor CA-1 system options
<b>TMOSCRxx</b>	Scratch pool definitions
<b>TMOSYSxx</b>	System parameter list

### 4.9.1 JCL

No JCL is provided.

## 4.10 Step 9 - SMP/E RECEIVE Selected Functions (L052ID)

This step does an SMP/E RECEIVE of selected BrightStor CA-1 functions. Select only the functions you wish to install. Delete the control statements from the RECEIVE selection for the functions you cannot use or do not intend to use.

The following is a list of the functions:

<b>CL052B0</b>	<b>(Required.)</b> BrightStor CA-1 base
<b>CG81200</b>	<b>(Required.)</b> Dynamic intercepts
<b>C\$F1200</b>	<b>(Required.)</b> Common tape component
<b>CL052A1</b>	BrightStor CA-1 Accounting - TMSACTRT
<b>CL052A2</b>	BrightStor CA-1 Accounting - TMSUJI
<b>CL052A3</b>	BrightStor CA-1 Accounting - TMSUSI
<b>CL052I0</b>	BrightStor CA-1 ISPF interface (MVS)
<b>CL052K0</b>	BrightStor CA-1 conversion module TMSCONTM

The SMP/E TLIB requires approximately 20 cylinders of space on a 3380 device.

### 4.10.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is:

L052IDE - MVS

### 4.10.2 JCL Customization

Remove any SYSMOD SELECTs for functions not being installed.

Reference the documentation on user exit TMSUX2J in the *BrightStor CA-1 Systems Programmer Guide* for detailed information on FMIDs CL052A1, CL052A2 and CL052A3 to determine which FMIDs are needed.

## 4.11 Step 10 - SMP/E APPLY Selected Functions (L052IE)

This step does an SMP/E APPLY of functions selected in the previous step. Select only the functions you wish to install. Delete the control statements from the APPLY selection for the functions you cannot use or do not intend to use, and that were not RECEIVED in the previous step.

The following is a list of the functions:

**CL052B0** (Required.) BrightStor CA-1 base  
**CG81200** (Required.) Dynamic intercepts  
**C\$F1200** (Required.) Common tape component  
**CL052A1** BrightStor CA-1 Accounting - TMSACTRT  
**CL052A2** BrightStor CA-1 Accounting - TMSUJI  
**CL052A3** BrightStor CA-1 Accounting - TMSUSI  
**CL052I0** BrightStor CA-1 ISPF interface (MVS)  
**CL052K0** BrightStor CA-1 conversion module TMSCONTM

### 4.11.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is:

L052IEE - MVS

### 4.11.2 JCL Customization

Remove any SYSMOD SELECTs for functions not being installed.

A condition code of 4 is normal for this step. Message GIM43401W, indicating that a module was not installed in any target library, is normal for G8API, G8BRC, TMSEXITE, TMSEXITU, TMSVOLDF, and for the BrightStor CA-1 user exits which begin with TMSUX, TMSX and CTSUX.

A condition code of 4 is normal for this step. Message GIM44402W, indicating that a module was not assembled is normal for CTSUXENT, CTSUXEJC, and CTSUXVNL.

In addition, the message 'GIM23903W LINK-EDIT PROCESSING FOR SYSMOD aaaaaa WAS SUCCESSFUL FOR MODULE bbbbbb IN LMOD ccccc IN THE CAILIB LIBRARY. THE RETURN CODE WAS 04.' is normal. This message is seen in many of the modules.

Reference the documentation on user exit TMSUX2J in the *BrightStor CA-1 Systems Programmer Guide* for detailed information on FMIDs CL052A1, CL052A2 and CL052A3 to determine which FMIDs are needed.

## 4.12 Step 11 - SMP/E ACCEPT Selected Functions (L052IF)

This step does an SMP/E ACCEPT of selected functions. Select only the functions you wish to install. Delete the control statements from the ACCEPT selection for the functions you cannot use or do not intend to use, and that were not RECEIVED and APPLIED in the previous two steps.

The following is a list of the functions:

<b>CL052B0</b>	<b>(Required.)</b> BrightStor CA-1 base
<b>CG81200</b>	<b>(Required.)</b> Dynamic intercepts
<b>C\$F1200</b>	<b>(Required.)</b> Common tape component
<b>CL052A1</b>	BrightStor CA-1 Accounting - TMSACTRT
<b>CL052A2</b>	BrightStor CA-1 Accounting - TMSUJI
<b>CL052A3</b>	BrightStor CA-1 Accounting - TMSUSI
<b>CL052I0</b>	BrightStor CA-1 ISPF interface (MVS)
<b>CL052K0</b>	BrightStor CA-1 conversion module TMSCONTM

### 4.12.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is:

L052IFE - MVS

### 4.12.2 JCL Customization

Remove any SYSMOD SELECTs for functions not being installed.

Reference the documentation on user exit TMSUX2J in the *BrightStor CA-1 Systems Programmer Guide* for detailed information on FMIDs CL052A1, CL052A2 and CL052A3 to determine which FMIDs are needed.

## 4.13 Step 12 - Customize BrightStor CA-1 Report Options (L05217)

Starting with BrightStor CA-1 Version 5.1, most reports are printed using the Advantage CA-Earl component. Advantage CA-Earl provides a flexible means of end-user report tailoring. If you were not already using Advantage CA-Earl, it was installed as part of the CA Common Services for z/OS and OS/390.

This task provides for the customization of CA common options library members CL05200 and TMSOPTNS.

**CL05200:** Member **CL05200** is processed by a subsequent task to allow company information to be printed on BrightStor CA-1 report headings. CL05200 contains SMP/E updates for three members of CAI.CAISRC.

1. Modification to member **TMSKEYAB** will affect reports produced using the TMSRPT DD by Advantage CA-Earl. Enter your company name and address for use in BrightStor CA-1 reporting not using Advantage CA-Earl. The information should be left justified. If the company name or address contains a quote ('), supply two of them together (") for each one to appear on the report. Also, if the information contains an ampersand (&), supply two of them together (&&) for each one to appear on the report.
2. Modification to member **TMEYCOMP** will affect reports produced by Advantage CA-Earl. The company name provided should be centered, if desired. If the company name contains a quote ('), supply two of them together (") for each one to appear on the report. The maximum length is 50 characters.
3. Modification to member **TMZ\$COMP** will affect reports produced by Advantage CA-Easytrieve for reporting. The company name provided should be centered, if desired. If the company name contains a quote ('), supply two of them together (") for each one to appear on the report.

**TMSOPTNS:** Member **TMSOPTNS** can affect reports produced using the TMSRPT DD and can be modified to control the following information:

### **Banner pages**

The LOGO parameter permits you to selectively suppress TMS banner pages. LOGO=YES prints the banner pages for the report. LOGO=NO suppresses banner pages.

### **Maximum lines per page**

Parameter value LINECNT specifies the number of lines to be printed on each page of the report.

### **Report record length**

Parameter LRECL specifies the maximum report record length for the report.

**Print FLAG definitions (not available in all reports)**

The FLAGS parameter allows you to print the FLAG Bit Definition page for certain reports. FLAGS=YES prints the page; FLAGS=NO suppresses the page.

**CTEARLCN:** Modification to member CTEARLCN in CAI.CAISRC will affect reports produced by Advantage CA-Earl and Advantage CA-Easytrieve, and external tape labels produced by the Online Label Interface. Manually modify the DEF DATE\_FMT statement to effect a change for the preferred date format pattern. See the *BrightStor CA-1 Utilities and Reports Reference Guide* for acceptable values for the preferred date format pattern.

### 4.13.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052I7. Modifications to this member will update members CL05200 and TMSOPTNS of CAI.PPOPTION.

### 4.13.2 JCL Customization

The symbolics associated with this procedure are:

**OPTLIB** CA common options library

**SOUT** Output SYSOUT class

*Do not* alter sequence numbers when editing the member CL05200.

## 4.14 Step 13 - Customize BrightStor CA-1 Standard USERMODs (L052IH)

This step provides for the selection and customization of any required BrightStor CA-1 user exits, macros and tables.

**Modify:** You will need to modify the following in accordance with the *BrightStor CA-1 Systems Programmer Guide* and *BrightStor CA-1 Administrator and Operator Guide*:

- BrightStor CA-1 user exits
- the BrightStor CA-1 Keyword table
- the BrightStor CA-1 Security table
- external tape label specifications

**Members:** User modifications are to be stored in the CA common options library, CAI.PPOPTION, in IEBUPDTE format. Two members are used for each modification in the following format:

- **CL052nn** - where nn is the same number as the USERMOD. This member contains the IEBUPDTE control statements used to update the appropriate member in CAI.CAISRC or CAI.CAIMAC.
- **CL052nnS** - where nn is the same number as the USERMOD. This member contains the SMP/E control statements.

The IEBUPDTE portion of the source relevant to tailoring the USERMOD is used. You can use a compare utility (such as SUPERC with ISPF 2.3) to determine the IEBUPDTE control statements you are using in Version 5.1 that need to be incorporated into the Version 5.2 customization if converting from Version 5.0.

### 4.14.1 JCL

No JCL is provided.

<b>USERMOD</b>	<b>Macro/Source</b>	<b>Description</b>
CL05200	TMSKEYAB	Company name and address
CL05201	TMSUX2A	Bypass BrightStor CA-1 control
CL05202	TMSUX2B	Assign abend retention
CL05203	TMSUX2J	Accounting user exit
CL05204	TMSUX2C	Move data to user accounting field
CL05205	TMSUX2E	Volume serial number conversion
CL05206	TMSUX2L	TMSLBLPR user exit
CL05207	TMSUX2S	Security exit
CL05209	TMSUX2U	Volume serial number conversion
CL05210	TMSKEYAB	BrightStor CA-1 Keyword table
CL05211	TMSSECAB	BrightStor CA-1 Security table
CL05212	CTSUXEDM	Define External Data Manager control
CL05216	TMMUSER	Accounting Definition Macro
CL05219	CTSMGEX	3480 message exit for DFP 3.1 and higher
CL05220	TMSUXCV	TMSCONTM user exit
CL05222	TMSUXCO	TMSCONVR user exit
CL05223	TMSTMVT	Change BrightStor CA-1 system password
CL05224	TMSUXID	TMSIDATA user exit
CL05228	TMSUX2S	IBM 3495 scratch notification
CL05230	TMSUX2F	Double open/recreate exit
CL05231	CTSUX1G	SCR pool verification exit
CL05232	TMSXCLN1	TMSCLEAN scratch user exit
CL05233	TMSXCLN2	TMSCLEAN USER/uuu user exit
CL05234	TMSXCTLG	TMSCTLG user exit
CL05235	TMSXCYCL	TMSCYCLE user exit
CL05236	TMSXEXP	TMSEXPDT user exit
CL05237	TMSXOCAT	TMSOSCAT user exit
CL05238	TMSXTPNT	TMSTPNIT user exit
CL05239	TMSXTPPR	TMSTPPRO user exit
CL05240	TMSXVLT1	TMSVMEDT user exit
CL05241	TMSVOLDF	Volume serial translation
CL05242	TMELBLS	External tape label specifications
CL05243	TMSXSCR	TMSSCR user exit

USERMOD	Macro/Source	Description
CL05244	CTSUXENT CTSUXEJC CTSUXVNL	CBRUXENT user exit for 3494 CBRUXEJC user exit for 3494 CBRUXVNL user exit for 3494

- CL05200 was previously customized in job L052I7. CL05200 and CL05210 affect the same table. Both can be selected.
- CL05207 and CL05228 affect the same user exit. Both can be selected.
- CL05228 contains the modification for TMSUX2S to have BrightStor CA-1 notify the 3495 when a tape becomes scratch. The SCRATCH option in CALPPOPTION member TMOOPTxx should be set to YES for TMSUX2S to be called during TMSCLEAN processing.
- CL05232 through CL05240 represent user exits invoked from specific BrightStor CA-1 batch utilities only if the appropriate option in CALPPOPTION member TMOOPTxx is set to YES.
- CL05241 is mutually exclusive with CL05205 and CL05209.

Beginning with Version 5.1 of BrightStor CA-1, the USERMODs supplied with BrightStor CA-1 no longer contain the necessary prerequisites built in.

1. Determine which BrightStor 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 SMPCTL DD listed below. The output from this job will provide the necessary prerequisites for your site's BrightStor CA-1 standard USERMODs. The necessary prerequisites will be the RMIDs and the UMIDs listed.

```
//LIST EXEC PGM=GIMSMP,REGION=2048K
//SMPLOG DD DUMMY
//SMPOUT DD SYSOUT=*
//SMPCSI DD DSN=CSINODE.CSI,
// DISP=SHR
//SMPLIST DD SYSOUT=*
//*
//SMPCTL DD *
SET BDY(CAITGT).
LIST SRC(element-name).
/*
```

3. SMP/E Procedure.
  - a. Change the PRE list for the USERMOD entries found in the BrightStor CA-1 PPOPTION data set using RMIDs and UMIDs that were found. Modify the PPOPTION member with the USERMOD name and ending in an S.
  - b. Receive the USERMODs using Job/Task L052JEx (see Step 14).

## 4.15 Step 14 - SMP/E RECEIVE BrightStor CA-1 Standard USERMODs (L052JE)

This step SMP/E receives all selected BrightStor CA-1 standard USERMODs.

### 4.15.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is:

L052JEE - MVS

### 4.15.2 JCL Customization

The SELECT control statements located under ddname SMP\_CNTL in the JCL can be edited to remove references to items *not modified*. Otherwise, all user exits and tables are received.

The concatenated DD statements for any unmodified entry can be removed from the references associated with ddname SMPPTFIN. Be sure to keep both entries for the USERMODs to be installed. (For example: CL05200S and CL05200)

<b>USERMOD</b>	<b>Macro/Source</b>	<b>Description</b>
CL05200	TMSKEYAB	Company name and address
CL05201	TMSUX2A	Bypass BrightStor CA-1 control
CL05202	TMSUX2B	Assign abend retention
CL05203	TMSUX2J	Accounting user exit
CL05204	TMSUX2C	Move data to user accounting field
CL05205	TMSUX2E	Volume serial number conversion
CL05206	TMSUX2L	TMSLBLPR user exit
CL05207	TMSUX2S	Security exit
CL05209	TMSUX2U	Volume serial number conversion
CL05210	TMSKEYAB	BrightStor CA-1 Keyword table
CL05211	TMSSECAB	BrightStor CA-1 Security table
CL05212	CTSUXEDM	Define External Data Manager control
CL05216	TMMUSER	Accounting Definition Macro
CL05219	CTSMSEX	3480 message exit for DFP 3.1 and higher
CL05220	TMSUXCV	TMSCONTM user exit
CL05222	TMSUXCO	TMSCONVR user exit
CL05223	TMSTMVT	Change BrightStor CA-1 system password
CL05224	TMSUXID	TMSIDATA user exit
CL05228	TMSUX2S	IBM 3495 scratch notification
CL05230	TMSUX2F	Double open/recreate exit
CL05231	CTSUX1G	SCR pool verification exit
CL05232	TMSXCLN1	TMSCLEAN scratch user exit
CL05233	TMSXCLN2	TMSCLEAN USER/uuu user exit
CL05234	TMSXCTLG	TMSCTLG user exit
CL05235	TMSXCYCL	TMSCYCLE user exit
CL05236	TMSXEXP	TMSEXPDT user exit
CL05237	TMSXOCAT	TMSOSCAT user exit
CL05238	TMSXTPNT	TMSTPNIT user exit
CL05239	TMSXTPPR	TMSTPPRO user exit
CL05240	TMSXVLT1	TMSVMEDT user exit
CL05241	TMSVOLDF	Volume serial translation
CL05242	TMELBLS	External tape label specifications
CL05243	TMSXSCR	TMSSCR user exit

## 4.16 Step 15 - SMP/E APPLY BrightStor CA-1 Standard USERMODs (L052JF)

This step does an SMP/E APPLY of the BrightStor CA-1 standard USERMODs RECEIVED in the previous step. Only those RECEIVED need be APPLIED.

### 4.16.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is:

L052JFE - MVS

### 4.16.2 JCL Customization

The SELECT control statements located under ddname SMP\_CNTL in the JCL can be edited to remove references to items *not modified*. Otherwise, all user exits and tables are assembled and installed.

<b>USERMOD</b>	<b>Macro/Source</b>	<b>Description</b>
CL05200	TMSKEYAB	Company name and address
CL05201	TMSUX2A	Bypass BrightStor CA-1 control
CL05202	TMSUX2B	Assign abend retention
CL05203	TMSUX2J	Accounting user exit
CL05204	TMSUX2C	Move data to user accounting field
CL05205	TMSUX2E	Volume serial number conversion
CL05206	TMSUX2L	TMSLBLPR user exit
CL05207	TMSUX2S	Security exit
CL05209	TMSUX2U	Volume serial number conversion
CL05210	TMSKEYAB	BrightStor CA-1 Keyword table
CL05211	TMSSECAB	BrightStor CA-1 Security table
CL05212	CTSUXEDM	Define External Data Manager control
CL05216	TMMUSER	Accounting Definition Macro
CL05219	CTSMMSGEX	3480 message exit for DFP 3.1 and higher
CL05220	TMSUXCV	TMSCONTM user exit
CL05222	TMSUXCO	TMSCONVR user exit
CL05223	TMSTMVT	Change BrightStor CA-1 system password
CL05224	TMSUXID	TMSIDATA user exit
CL05228	TMSUX2S	IBM 3495 scratch notification
CL05230	TMSUX2F	Double open/recreate exit
CL05231	CTSUX1G	SCR pool verification exit
CL05232	TMSXCLN1	TMSCLEAN scratch user exit
CL05233	TMSXCLN2	TMSCLEAN USER/uuu user exit
CL05234	TMSXCTLG	TMSCTLG user exit
CL05235	TMSXCYCL	TMSCYCLE user exit
CL05236	TMSXEXP	TMSEXPDT user exit
CL05237	TMSXOCAT	TMSOSCAT user exit
CL05238	TMSXTPNT	TMSTPNIT user exit
CL05239	TMSXTPPR	TMSTPPRO user exit
CL05240	TMSXVLT1	TMSVMEDT user exit
CL05241	TMSVOLDF	Volume serial translation
CL05242	TMELBLS	External tape label specifications
CL05243	TMSXSCR	TMSSCR user exit

<b>USERMOD</b>	<b>Macro/Source</b>	<b>Description</b>
CL05244	CTSUXENT CTSUXEJC CTSUXVNL	CBRUXENT user exit for 3494 CBRUXEJC user exit for 3494 CBRUXVNL user exit for 3494

## 4.17 Step 16 - Allocate TMC and Audit Data Sets (L052IU)

If you are currently processing with BrightStor CA-1 Version 5.0 or 5.1, check your current placement of the TMC and Audit data sets in this step. 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 BrightStor CA-1 optionally interfaces with. Examples of these products are security products (&top., &etacf2.), DASD management products (BrightStor CA-ASM2, CA-3), and the operating system catalogs.

### Caution

It is strongly recommended that the Tape Management Catalog (TMC) and Audit data sets be allocated on separate disk volumes to eliminate the possibility of destroying both data sets in the event of a hardware failure. They should also be allocated as unmovable (DSORG=PSU). In addition, due to the type of I/O that BrightStor CA-1 performs against the TMC and Audit data sets, these two DASD data sets **can** reside on UCBs above the 16 megabyte line (UCBs with 4-byte addresses at maint level 9910 or higher).

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. For information on space requirements for the TMC and Audit data sets, see the *BrightStor CA-1 Tape Management Systems Programmer Guide*.

The table below illustrates an example of block sizes and records per cylinder which can be used for the TMC and Audit data set on various devices. It is followed by the formula for calculating storage requirements for these data sets.

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 blocked 370 x 8880	1440/cylinder	1800/cylinder	2160/cylinder

The following formulas can be used to calculate Tape Management Catalog (TMC) and Audit data set storage requirements (in cylinders). You can refer to the appropriate device reference card/statement for your device type.

**Formula:**  $TMC \text{ storage} = (3 + V + (D / 2)) / RC$

**Note:** When you round the value, be sure to round up.

**V** equals number of Volume records

**D** equals number of DSNB records

**RC** equals records per cylinder for device type and blocking factor

**Example:** 100,000 Volume records + 300,000 DSNB records (3380):

**Formula:**  $Audit \text{ storage} = (1 + A) / RC$

**A** = # of Audit records

**RC** = records per cylinder for device type and blocking factor

**Example:** 100,000 Audit records (3390 - blocked):

$(100,000+1) / 2160 = 47 \text{ cylinders}$

**Note:** There is a logical limit of 9,999,999 volume records and 9,999,999 DSNB records which can be formatted in the TMC. However, the physical limit is actually much smaller. The limit for the allocation of a sequential data set is X'FFFF' tracks or 65,535 decimal tracks. This is equal to 4,369 cylinders on a 3390. This means that 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. Keep in mind, there are 3 control records.

For example, you can format:

- 2,000,000 volume records plus 3,470,984 DSNB records or
- 3,000,000 volume records plus 1,470,984 DSNB records or
- 1,000,000 volume records plus 5,470,984 DSNB records.

### 4.17.1 Support for Blocked TMC

With the increased use of virtual tape systems and data center merges BrightStor CA-1 can now handle more volumes and secondary data sets. By changing the basic I/O algorithm to support a blocked architecture, the volumes are still hashed to point to the relative byte address of the record to be updated. On a read, the entire block is still read, but only the requested record is returned. When an update is performed, the entire block is read again to ensure the most current versions of other records in the block are obtained, and the single record being updated replaces the previous version.

## 4.17.2 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052IU.

No secondary allocations should be given for the Tape Management Catalog (TMC) and Audit data sets, and they must each reside on a single volume. These data sets should *not* be on the same volume.

## 4.17.3 JCL Customization

The symbolics associated with this procedure are:

<b>AUDUNIT</b>	Audit data set DASD unit type
<b>AUDVOL</b>	Audit data set VOLSER
<b>NVSNODE</b>	Non-VSAM BrightStor CA-1 data set name prefix
<b>TMCUNIT</b>	TMC data set DASD unit type
<b>TMCVOL</b>	TMC data set VOLSER

Modify the space allocation for the TMC and Audit data sets based on your requirements.

## 4.18 Step 17 - Format TMC and Audit Data Sets (L052JC)

**If you are currently processing with BrightStor CA-1 Version 5.0 or 5.1, skip this step and proceed to the next step.**

This step formats the Tape Management Catalog (TMC) and Audit data sets using the BrightStor CA-1 utility TMSFORMT.

If alphanumeric VOLSERS are to be used, USERMODs CL05205 and CL05209, or CL05241 must have been previously installed.

### 4.18.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052JC.

### 4.18.2 JCL Customization

The symbolics associated with this procedure are:

<b>AUDIT</b>	Audit data set name
<b>LINKLIB</b>	CA common load library
<b>OPTLIB</b>	CA common options library
<b>PRM</b>	Parameters for the program
<b>SOUT</b>	Output SYSOUT class
<b>TMC</b>	TMC data set name

Supply control statements based on your requirements. See the *BrightStor CA-1 Utilities and Reports Reference Guide* for information on the TMSFORMT utility.

## 4.19 Step 18 - Copy BrightStor CA-1 Procedures to PROCLIB (L052IO)

This step copies the BrightStor CA-1 procedures into the procedure library (PROCLIB) using IEBUPDTE. The procedure library can be the system or the installation library. All procedures (PROCs) are optional with the exception of TMSINIT. The PROCs are listed below in alphabetical order.

<b>DYNCOMM</b>	BrightStor CA-Dynam/T interface
<b>TMSINIT</b>	BrightStor CA-1 initialization
<b>TMSLBLPR</b>	Batch external label generator
<b>TMSOSTQ</b>	MVS console Online Inquiry/Update
<b>TMSTPPRO</b>	Tape header label analysis

*Do not* rename the TMSINIT procedure TMS, since the Version 5.2 subsystem name for BrightStor CA-1 is TMS.

### 4.19.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052IO.

### 4.19.2 JCL Customization

The symbolics associated with this procedure are:

<b>AUDIT</b>	Audit data set name
<b>DATEFMT</b>	BrightStor CA-1 preferred date format
<b>LINKLIB</b>	CA common load library
<b>MEMBER</b>	CA common option library member name for the BrightStor CA-Dynam/T interface
<b>OPTLIB</b>	CA common options library
<b>PRM</b>	Parameters for the program
<b>PROCLIB</b>	Procedure library name
<b>RECVQ</b>	RECEIVE queue data set name
<b>ROUTCDE</b>	Route code for the MVS console interface
<b>SENDQ</b>	SEND queue data set name
<b>SOUT</b>	Output SYSOUT class
<b>TAPUNIT</b>	Normal tape unit type
<b>WRKUNIT</b>	DASD work unit type
<b>VERIFY</b>	Data set verification for update for the MVS console interface

Modify the parameters for each program based on your requirements. See the *BrightStor CA-1 Utilities and Reports Reference Guide* for detailed information on each utility.

**Caution**

Do not use procedures from a previous version of BrightStor CA-1.

## 4.20 Step 19 - Copy CTS Procedure to PROCLIB (\$F12IO)

This step copies the Common Tape System (CTS) component procedure into the procedure library (PROCLIB) using IEBUPDTE. The procedure library can be the system library or the installation library. This starter task allocates the TMC and Audit data sets for integrity control and provides the services required to print external labels. The following PROC is only required if the LAB (for printing external labels) or DBS (Database Services) subtasks will be used.

**CTS** Common Tape System component started task

### 4.20.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is \$F12IO.

### 4.20.2 JCL Customization

The symbolics associated with this procedure are:

<b>CAISRC</b>	CA common source library
<b>CTSSTART</b>	CTS startup options
<b>LAB1</b>	Label printer #1 output SYSOUT class
<b>LAB2</b>	Label printer #2 output SYSOUT class
<b>LAB3</b>	Label printer #3 output SYSOUT class
<b>LINKLIB</b>	CA common load library
<b>OPTS</b>	CA common options library
<b>PRM</b>	Parameters for the program
<b>PROCLIB</b>	Procedure library name
<b>SOUT</b>	Output SYSOUT class
<b>SPIN</b>	SPINOFF output SYSOUT class
<b>TMELBLS</b>	Label format member
<b>WRKUNIT</b>	DASD work unit type

See the *BrightStor CA-1 Administrator and Operator Guide* for more details about the Common Tape System (CTS) component.

## 4.21 Step 20 - Install JES3 Options (L052IJ)

**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.

### 4.21.1 Disabling the JES3 Write Ring and Expiration Date Checks

Because of the tape protection provided by BrightStor 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 BrightStor 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 BrightStor 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 SPL: User Modifications and JES3 Macros*. 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 manual.

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

## 4.21.2 Installing the JES3 DSP, TIQ

For JES3 users who wish to use the BrightStor CA-1 Online Inquiry/Update system using JES3 consoles, a DSP is provided. The installation procedure supplied here should be followed. For more information, see *IBM JES3 SPL: User Modifications and JES3 Macros*.

1. Add the DEVICE statements shown below to the INISH deck to specify pseudo devices for consoles using TIQ concurrently. To do updates, the physical console JNAME *must* start with TMS. Add a DEVICE statement describing the physical console to be used for updates:

```
DEVICE,DTYPE=TMS,JNAME=TM1,JUNIT=(NONE,SY1)
DEVICE,DTYPE=TMS,JNAME=TM2,JUNIT=(NONE,SY1)
```

**Note:** To do updates, the physical console JNAME *must* start with TMS.

2. Modify the JES3 resident parameter table (IATGRPT). IATGRPT must be modified, reassembled and link edited into the JES3 nucleus:

```
TIQ IATYDSD PRTY=5,REENT=YES,XABLE=YES,NOREQ=1,
      REQ=(TMS),CSECT=TMSTQCT,DRV=TMSTQDP
```

3. Install the BrightStor CA-1 JES3 DSP interface:
  - For SMP/E installation, use SMPJES3 of the BrightStor CA-1 sample JCL library as input to the SMPPTFIN DD statement in your JES3 SMP/E PROC used for JES3 maintenance. Change the FMID to the current FMID for JES3. A CAILIB DD statement pointing to the CA common load library must be inserted into this SMP/E PROC.
  - For non-SMP/E installation, run JNSNJES3 of the BrightStor CA-1 sample JCL library with the TGTLIB parameter pointing to your JES3 execution library. The symbolics associated with this procedure are:

<b>LINKLIB</b>	CA common load library
<b>RENT</b>	Link-edit attribute for linkage editor
<b>SOUT</b>	Output SYSOUT class
<b>TGTLIB</b>	JES3 load library
<b>WRKUNIT</b>	DASD work unit type

---

## 4.22 Step 21 - Install 3480 Message Display Exit (L052JO)

This optional step provides for the installation of the 3480 message display exit. This applies only to a DFP system at Version 3.1 or higher. This exit is not supported in JES3 environments.

You must first have RECEIVED and APPLIED USERMOD CL05219 with Steps 15 and 16.

The 3480 message display exit is optional and, when installed into the operating system, provides the following two functions:

1. Displays the first eight characters of the BrightStor CA-1 MVS scratch pool name on the 3480 display.
2. Disables an automatic cartridge loader, if present, when a scratch pool mount is requested.

Module IGXMSGEX is a BrightStor CA-1 user exit to the IBM module IGX00030, which is responsible for handling requests made through the MSGDISP macro. This exit must be linked with IGX00030 to be activated.

If the request is for a scratch pool defined in the TMOSCRxx member in CA1.PPOPTION, the automatic cartridge loader request will be disabled and the first eight bytes of the scratch pool name will be placed in the first eight bytes of the message area passed in the parameter list.

It is assumed that CTSMMSGEX has already processed the mount request and placed the scratch pool number in the mount list element entry for the specified UCB. This number will be used to locate the correct scratch pool entry and extract the scratch pool name.

If it is desired that the automatic cartridge loader (ACL) *not* be disabled for scratch pool requests, then the source for this exit is provided (see source member CTSMMSGEX) and can be modified. To prevent disabling of the ACL, comment out the following instruction after the label SCRATCH:

```
NI MSGFCB,255-MSGQACL  A. DISABLE AUTO CART LOADER
```

## 4.22.1 Installation

Use member SMP3480 from the BrightStor CA-1 sample JCL library as input to the SMPPTFIN DD statement in your SMP/E PROC used for MVS maintenance. A CAILIB DD statement, pointing to the CA common load library, must be inserted into this SMP/E PROC.

Do an SMP/E RECEIVE and APPLY for USERMOD SMP3480.

**Note:** If SMP already knows the DISTLIB for IGXMSGEX, it may be different than what has been specified and will cause the following error::

```
GIM40501E THE DISTLIB SPECIFIED FOR MOD IGXMSGEX IN SYSMOD
SMP3480 DOES NOT MATCH THE DISTLIB VALUE IN THE MOD ENTRY FOR
IGXMSGEX.
```

If this error is received, then REJECT SMP3480 and remove the DISTLIB specification so you will have:

```
++MOD (IGXMSGEX) LKLIB(CAILIB)
```

Next, do an SMP/E RECEIVE and APPLY of the updated USERMOD SMP3480.

## 4.23 Step 22 - Install 3495 Basic Tape Library Data Server Support (L052JR)

**If you do not have an IBM 3495 Tape Library Data Server, skip this step and the next step. Then proceed with the installation.**

Basic Tape Library Support for the IBM 3495 Tape Library Data Server is provided by a single module (CTSBTLS) which has been linked with the name of IDCLI04, the Set Category Installation Exit.

There are four basic functions available to support the 3495 BTLS:

1. Set cartridges entering the 3495 to the correct category.
2. Synchronize the BrightStor CA-1 TMC and the 3495 database.
3. Eject cartridges needed for off-site storage from the 3495.
4. Change the category of cartridges as they are scratched.

Two levels of support are available for the IBM 3495 Tape Library Data Server, depending on your operating system level.

Full IBM 3495 support is available if you are using at least the MVS/SP Version 4.3.0 and DFSMS/MVS 1.1.0. Basic Tape Library Data Server (BTLS) is for levels below this.

See the *BrightStor CA-1 Administrator and Operator Guide* for more details about the 3495 Tape Library Data Server support.

### 4.23.1 Installation

Use member SMPBTLS from the BrightStor CA-1 sample JCL library as input to the SMPPTFIN DD statement in your SMP/E PROC used for MVS maintenance. A CAILIB DD statement, pointing to the CA common load library, must be inserted into this SMP/E PROC.

Do an SMP/E RECEIVE and APPLY for USERMOD SMPBTLS.

## 4.24 Step 23 - Install 3494, 3494/VTs, and 3495 Tape Library Data Server Full Support (L052JS)

**If you do not have an SMS managed IBM 3494, 3494/VTs, or 3495 Tape Library Data Server, skip this step and proceed to the next step.**

Full support for the IBM 3494, 3494/VTs, and 3495 Tape Library Data Server (IBM 3494 for short) that is managed by SMS is provided with BrightStor CA-1. This support includes a usermod to the security exit to notify the IBM 3494 when a tape is scratched; sample exits CBRUXENT, CBRUXEJC, and CBRUXVNL and a synchronization utility called CTSSYNC.

Two levels of support are available for the IBM 3495 Tape Library Data Server, depending on your operating system level.

Full IBM 3495 support is available if you are using at least the MVS/SP Version 4.3.0 and DFSMS/MVS 1.1.0. Basic Tape Library Support (BTLs) is for levels below this.

BrightStor CA-1 must be active before starting OAM if you have installed the BrightStor CA-1 version of CTRUXENT, CBRUXEJC, or CBRUXVNL. See the *BrightStor CA-1 Administrator and Operator Guide* for more details about the 3495 Tape Library Data Server support.

### 4.24.1 Installation

Use the following procedure to install the support:

1. Modify the sample CTSUXENT, CTSUXEJC, and CTSUXVNL exits supplied with BrightStor CA-1 using usermod CL05244 found in the CA1.CA1.PPOPTION library.
2. Once the CL05244 usermod has been received and applied, the SMPEOAM usermod found in CA1.CA1.SAMPJCL should be received and applied in your DFSMS SMP/E zone. This usermod relinks the CTSUXnnn exits as CBRUXNNN exits into SYS1.LINKLIB (replacing any default versions supplied by IBM).
3. Verify that the BrightStor CA-1 usermod CL05228 was previously installed.
4. Verify that the BrightStor CA-1 option SCRTCH is set to YES in CA1.CA1.PPOPTION member TMOOPTxx.

BrightStor CA-1 now provides a sample CBRUXVNL (volume not-in-library) exit. This exit allows the job to either continue normal processing and try to allocate a compatible device outside the robot, abend the job, or 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 the operator to allow the operator to decide. Unlike the sample exits, CBRUXENT and CBRUXEJC, CBRUXVNL requires more modification making it unique to each site.

## 4.25 Step 24 - Install DFHSM Option (L052IL)

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

This step provides for the installation of the DFHSM (External Data Manager) interface.

The DFHSM tape interface provided by BrightStor CA-1 consists of two modules, TMSARCTV and TMSTMSTV. These modules allow DFHSM controlled tapes to be released to the BrightStor CA-1 scratch pool when DFHSM has determined the tape is no longer needed.

DFHSM controlled tapes are recognized in the Tape Management Catalog (TMC) by the External Data Manager (EDM) bit in FLAG3 (X'20'), which is set ON at OPEN for output time based on rules established in the BrightStor CA-1 options member (TMOEDMxx) of the CA common options library.

TMSARCTV must be relinked as ARCTVEXT by either BrightStor CA-1's usermod SMPHSM or SMPHSM2 depending on your operating system level. ARCTVEXT is the name of the IBM DFHSM tape volume exit. DFHSM calls this exit when it wants to inform a tape management system that all valid data has been removed from a tape volume. See the *IBM DFHSM Installation and Customization Guide* for more information on this user exit.

To identify DFHSM tapes as EDM controlled tapes to BrightStor CA-1, the TMOEDMxx member of the CA common options library will need to be updated. The EDM parameter can be set to any name in up to four characters. This will help identify which EDM controls the tape if multiple EDMs are active in your data center.

The other four 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.

See the sections on selecting and changing options in the *BrightStor CA-1 Systems Programmer Guide* for more information. Once these options have been properly reset, all DFHSM created tapes will be indicated as controlled by an External Data Manager (EDM) and BrightStor CA-1 will expire them when told to by DFHSM.

A BrightStor CA-1 user exit, CTSUXEDM, is available to further define data sets which should be flagged by BrightStor CA-1 as externally managed. See the *BrightStor CA-1 Systems Programmer Guide*.

Next, review several DFHSM options to ensure that DFHSM functions properly as an EDM to BrightStor CA-1. Specifically, the SELECTVOLUME option must be set to SCRATCH and the TAPEDELETION option must be set to SCRATCHTAPE. These two options are required to ensure that tape volumes used by DFHSM come from the

BrightStor CA-1 scratch pool and are returned to the BrightStor CA-1 scratch pool when DFHSM is finished with them.

The EXITS options should be specified with a Y in the eighth position to activate the Tape Volume exit (ARCTVEXT) which is required by BrightStor CA-1. However, if you are running DFSMS/MVS 1.4 or higher, you will need to update SYS1.PARMLIB member ARCCMDxx with the following: SETSYS EXITON(ARCTVEXT) See the *IBM DFHSM System Programmer's Reference* for more information on these options and how they are reset within DFHSM.

**Caution**

Failure to specify the TAPEDELETION option as SCRATCHTAPE could result in DFHSM overwriting data on a nonscratch tape if the HSM tape pool does not have sufficient tapes available.

Tracking of HSM tapes in BrightStor CA-1 without the EDM interface in use can result in tapes being scratched erroneously.

### 4.25.1 DFHSM with OY50997 Applied and/or ABARS Consideration

Those BrightStor CA-1 clients that use the External Data Manager (EDM) function to control DFHSM tapes may experience a problem with OY50997 applied. When OY50997 is applied, DFHSM calls the ARCTVEXT to release CDS backup tapes (in addition to the migration, backup, and dump tapes). Because these CDS tapes may not be considered EDM controlled by BrightStor CA-1, this results in many 'TMSTMSTV-08 vvvvvv EXPIRE IGNORED, NOT EXTERNALLY MANAGED' error messages (once for each CDS tape that DFHSM attempts to release).

The same applies to BrightStor CA-1 clients that use ABARS, since ABARS also calls the ARCTVEXT exit for tapes no longer needed by ABARS (either because ABACKUP fails, during ABARS version rolloff, or during EXPIREBV processing). Because you may not be controlling these ABAR tapes as EDM tapes, again many extra TMSTMSTV-08 messages may be issued.

There are two methods to prevent these error messages. The first is to modify the sample ARCTVEXT exit as supplied from CA so that requests to release CDS backup tapes or ABARS tapes are not sent to TMSTMSTV for processing. The second method is to consider these tapes as controlled by EDM's.

To modify the sample ARCTVEXT exit so that requests to release certain tapes are not sent to TMSTMSTV for processing, you should add the following 5 lines of code after sequence numbers 00001210 in BrightStor CA-1 source module TMSARCTV:

```

++USERMOD      (usermod).
++VER          (Z038)      FMID(CL052B0)
PRE ( ??????? )
++SRCUPD(TMSARCTV) ,
./            CHANGE NAME=TMSARCTV
              L      R3,0(,R2)   Load address of first data area   00001211
              TM     7(R3),X'05' Is this an ABARS backup tape       00001212
              BO     RETURN      Yes, do not process                00001213
              TM     7(R3),X'04' Is this a CDS backup tape         00001214
              BO     RETURN      Yes, do not process                00001215

```

After you have RECEIVED and APPLIED your USERMOD (providing applicable USERMOD ID and PREs), perform the following installation instructions.

To control these tapes as EDM tapes, there are 2 steps that must be performed.

1. Change the rules so that all new CDS backup tapes and/or ABARS tapes are identified as EDM controlled.
2. Change the TMC so that all existing CDS backup tapes and/or ABARS tapes are identified as EDM controlled tapes.

To change the EDM rules, see Chapter 1 of the *BrightStor CA-1 Systems Programmer Guide* (External Data Manager Specification (Options Checklist #34)). You can use a new EDM name or an existing EDM name, and any combination of data set name and/or program name to identify either the CDS backup tapes and/or the ABARS tapes.

**Note:** If you are going to treat CDS backup tapes as EDM controlled, you must treat ALL CDS backup tapes as EDM controlled. This includes the OCDS, BCDS, MCDS, and JRNL backups.

To change the TMC so that all existing CDS backup tapes and/or ABARS tapes are identified as EDM controlled tapes you must first identify them. Using either TMSGRW or Advantage CA-Earl, create a list based on data set name of those volumes you want treated as EDM controlled tapes. Next, ensure that these tapes are all single data set, single volume entities. 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 also set the VOLSEQ to 1. This will make all volumes single file/single volume.

Once all existing CDS backup tapes and/or ABARS tapes are single volume, single data set entities, you must identify them as EDM controlled. This is also done using the TMSUPDTE utility to turn on the X'20' bit in FLAG3 ('controlled by external manager' indicator).

A variation here is to only change the existing EDM rules and not change the TMC records for existing CDS backup tapes. This will decrease over time the number of TMSTMSTV-08 messages, but their elimination will not occur until all existing CDS backup tapes have been cycled through and are back in the scratch pool.

## 4.25.2 Installation

Use SMPHSM (for DFSMS/MVS 1.3 or lower) or SMPHSM2 (for DFSMS/MVS 1.4 or higher) from the BrightStor CA-1 sample JCL library as input to the SMPPTFIN DD statement in your DFHSM SMP/E PROC used for DFHSM maintenance. A CAILIB DD statement, pointing to the CA common load library, must be inserted into this SMP/E PROC.

Do an SMP/E RECEIVE and APPLY for USERMOD SMPHSM or SMPHSM2.

For non-SMP/E installation, run JNSNHSM (for DFSMS/MVS 1.3 or lower) or JNSNHSM2 (for DFSMS/MVS 1.4 or higher) from the BrightStor CA-1 sample JCL library with the TGTLIB parameter pointing to your DFHSM execution library.

The symbolics associated with this procedure are:

<b>LINKLIB</b>	CA common load library
<b>RENT</b>	Link-edit attribute for linkage editor
<b>SOUT</b>	Output SYSOUT class
<b>TGTLIB</b>	Target library data set name
<b>WRKUNIT</b>	DASD work unit type

## 4.26 Step 25 - Define BrightStor CA-1 to Security System (L052IN)

**If BrightStor CA-1 Version 5.1 is currently installed, you may skip this step and proceed to the next step.**

This step provides for the definition of BrightStor CA-1 resources to your security system.

Define BrightStor CA-1 security rules within your security system at this point. Consult the reference material for the security system you are using. See the *BrightStor CA-1 Systems Programmer Guide* for a detailed discussion of requirements to support your security system.

A BrightStor CA-1 security user exit (TMSUX2S) is also available to further define security. This exit is detailed in the *BrightStor CA-1 Systems Programmer Guide*.

### 4.26.1 JCL

No JCL is provided.

## 4.27 Step 26 - Remove Old Operating System Intercepts (L052IP)

**If you are a first time BrightStor CA-1 client or are currently running Version 5.1, skip this step and proceed to the next step.**

This step provides for the removal of the BrightStor CA-1 Operating System Intercepts (OSIs) from a previous version. This step must be performed before generating new operating system intercepts (the next installation step).

Two methods of removing old operating system intercepts are provided. The method used depends on whether the intercepts were installed with SMP/E.

1. If the BrightStor CA-1 operating system intercepts or USERMODs were installed with SMP/E, you can remove them by restoring the BrightStor CA-1 USERMODs that were applied with your operating system SMP/E PROC used for system maintenance. You can also use the method described in the following paragraph, but if SMP/E was used to install the operating system intercepts or USERMODs, CA recommends that you use SMP/E to remove them.

To find out the name of the USERMOD, you may need to refer to CAI.CA1.USERMOD, which was generated by Version 5.0 installation task L050IY. For Version 4.x, see the Version 4.x Technical Manual, Section 4, for details.

2. If the BrightStor CA-1 operating system intercepts were installed without SMP/E, they can be removed by running the job (L049IYN or L050IYN) that was previously used to apply the operating system intercepts.

You must also remove the MLPA specifications for BrightStor CA-1 modules which were loaded into MLPA by previous versions of BrightStor CA-1.

Remove the entry for IEALPAU1 from your SYS1.PARMLIB(IEALPAxx) member.

For Version 5.0, member IEALPAU1 was added to CAI.PPOPTION by BrightStor CA-1 installation job L050IRx. See IEALPAU1 if you need to know the MLPA resident module names.

For Version 4.9, member IEALPAU1 was added to the BrightStor CA-1 Sample library by BrightStor CA-1 installation job L049IR. See IEALPAU1 if you need to know the MLPA resident module names. You must also do an SMP/E RESTORE for USERMOD SMPMVOL1 (or SMPMVOL2) using your operating system SMP/E PROC to remove the label editors.

### **4.27.1 JCL**

No JCL is provided.

## 4.28 Step 27 - Install Failsafe USERMOD (L052JU)

This optional USERMOD can be installed into the operating system to prevent any tape processing from occurring prior to the running of CAS9. For each tape job that is run prior to CAS9 running, you will receive IECTMS0CA-1 IS NOT ACTIVE, REPLY "CANCEL", "RETRY", or "BYPASS" to continue, or "HELP".

### 4.28.1 Installation

Use member SMPSAFE from the BrightStor CA-1 Sample library as input to the SMPPTFIN DD statement in your SMP/E PROC used for operating system maintenance.

Modification of member SMPSAFE is required to include the hex value of the BrightStor CA-1 SVC. See comments in the member for details.

Do an SMP/E RECEIVE and APPLY for USERMOD SMPSAFE.

If this option is used, the BrightStor CA-1 SVC must be installed in accordance with the rules specified in the IBM *Initialization and Tuning* manual for your operating system as a type 2/3/4 SVC with no locks and non-APF. The EPNAME is TMS00SVC. The BrightStor CA-1 SVC number should be defined in the IEASVCxx member of SYS1.PARMLIB. In addition, the module TMS00SVC must be in a MLPA or LPA library.

## 4.29 Step 28 - Generate CAIRIM Parameters (L052RP)

Parameters used by the CA Common Services for z/OS and OS/390 component CAIRIM to initialize BrightStor CA-1 are generated by this step. If you have member CARIMPRM residing in CAI.PPOPTION, add the following parameter statement:

```
PRODUCT(BrightStor CA-1/MVS) VERSION(L052) INIT(L052INIT) PARM(SVC=xxx,INIT)
```

xxx represents your BrightStor CA-1 SVC number. An SVC number must be a three-digit number between 200 and 255, inclusive.

If this member does not exist, add it to contain the above parameter statement. A sample CAIRIM parameter statement for BrightStor CA-1 can be found in library CAI.PPOPTION member LORIMPRM.

You can optionally direct that the TMSINIT PROC be started automatically by the automatic command facility of CAIRIM. Add the following statement to member CAUTOCMD member residing in CAI.PPOPTION:

```
START TMSINIT
```

Otherwise, you may want the TMSINIT PROC to be issued automatically by the system automatic command facility. The START command can be added to the COMMNDxx member in SYS1.PARMLIB. CAIRIM initialization for BrightStor CA-1 must have been successfully completed prior to TMSINIT PROC startup.

The CTS PROC, the started task for the Common Tape System (CTS) component, should also be added. If external tape labels are to be generated, it is recommended that the START command for CTS be added to the ENFCMDS member in CAI.PPOPTION. This member contains the automatic commands processed by the CAIENF facility.

If you wish to generate external tape labels on one CPU and route the label image to another CPU to print, additional customization of CAICCI options will be required in member CCIPARM of CAI.PPOPTION. See the *BrightStor CA-1 Administrator and Operator Guide* and the *CA Common Services for z/OS and OS/390 Reference Guide* for additional information.

If you are using the BrightStor CA-Dynam/T interface, you may also wish to initiate the DYNCOMM PROC automatically. BrightStor CA-1 is required to be active for this to function properly.

**Note:** If you have other vendor products which modify the operating system's data management modules and these modified versions are MLPAd, you must include the CAG8LIB2 DD statement in the CAIRIM procedure and the TMSINIT procedure. Any MLPA data set must be specified 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, you must put that data set name in the CAG8LIB1 DD statement and include the DD statement in the CAIRIM procedure and the TMSINIT procedure.

### 4.29.1 JCL

No JCL is provided.

## 4.30 Step 29 - Tailor CA LMP Keys (L052JP)

**If you are currently processing with BrightStor CA-1 Version 5.x, skip this step and proceed to the next step.**

The Computer Associates 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 and OS/390 CAIRIM component.

BrightStor CA-1 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 PPOPTION 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.

See 2.4, "CA Common Services for z/OS and OS/390" on page 2-7 for a description of the CA LMP component and specific instructions for its use.

### 4.30.1 JCL

No JCL is provided.

## 4.31 Step 30 - Update SYS1.PARMLIB for BrightStor CA-1 (L052IV)

This step requires that you modify SYS1.PARMLIB to support BrightStor CA-1. The following specifications must be made in SYS1.PARMLIB to support BrightStor CA-1.

The SYS1.PARMLIB members to be updated for MVS are:

<b>LNKLSTxx</b>	Specify the CA common load library (CAI.CAILIB).
<b>IEAAPFxx or PROGxx</b>	Specify the CA common load library (CAI.CAILIB). This library is not required if in LNKLSTxx and authorized by default. For MVS/ESA 4.3 and above, PROGxx can be used instead of IEAAPFxx.
<b>IEFSSNxx</b>	<p>If you are using a Tape Silo/Robot and your vendor requires exact placement of the BrightStor CA-1 subsystem, then specify subsystem name TMS. Do not specify any other PARMs with TMS.</p> <p>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 ensure that BrightStor CA-1 properly modifies tape related mount messages.</p> <p>If the above does not apply, modification to IEFSSNxx is not necessary. However, Computer Associates recommends an explicit entry to prevent possible interference with other products' subsystems. The entry should be placed near the top of the list. Make sure that no subsystem named TLMS is present ahead of TMS.</p>
<b>IEASYSxx</b>	Specify the members modified.
<b>SMFPRMxx</b>	Must be active. However, there are no requirements regarding SMF record types that must be recorded.
<b>IKJTISOxx</b>	<p>Add the program names TMSIOCAP and TMSSCR to the AUTHPGM and AUTHTSF entries.</p> <p><b>Note:</b> If using the TSO table CSECTs, add the program names to the IKJEFTE2, IKJEFTE8, and IKJEFTAP CSECTs.</p>

### 4.31.1 JCL

No JCL is provided.

## 4.32 Step 31 - Verify Catalog (L052IX)

This step requires you to verify that the following BrightStor CA-1 data sets are cataloged. These data sets must be cataloged for each system that has BrightStor CA-1 installed.

- BrightStor CA-1 TMC data set
- BrightStor CA-1 Audit data set
- CA common load library (CAI.CAILIB)
- CA common options library (CALPPOPTION)
- CA common source library (CAI.CAISRC)

### 4.32.1 JCL

No JCL is provided.

## 4.33 Step 32 - IPL Operating System and Initialize BrightStor CA-1 (L052IZ)

If BrightStor CA-1 libraries are not authorized or Operating System Intercepts (OSIs) have not yet been removed, an IPL will be necessary; otherwise, no IPL is needed.

**Note:** An IPL is always required if a different version is already active on the system.

If you are currently running any version of BrightStor CA-1:

- Suspend tape operations.
- Back up your current Tape Management Catalog (TMC) and Audit data sets with your currently installed version of TMSCOPY prior to IPLing the operating system.

BrightStor CA-1 initialization requires CAIRIM processing and TMSINIT processing. CAIRIM initialization processing for BrightStor CA-1 must complete successfully prior to TMSINIT startup to initialize BrightStor CA-1 properly. See the *BrightStor CA-1 Systems Programmer Guide* for detailed information on CAIRIM initialization processing.

The TMSINIT PROC should be used to initialize BrightStor CA-1. The TMSINIT PROC executes TMSINIT to initialize BrightStor CA-1 resident modules and tables, and to activate the message intercept. A report is produced showing the BrightStor CA-1 system specifications and detailing any errors found. Examine the output thoroughly before executing production tape jobs. See the *BrightStor CA-1 Utilities and Reports Reference Guide* for information on the TMSINIT utility.

*Do not* use TMS as the started task name for TMSINIT since the subsystem name for BrightStor CA-1 Version 5.2 is TMS.

The CTS PROC should be used to initialize the Common Tape System (CTS) component. This started task allocates the TMC and Audit data sets for integrity control, and is required to print external tape labels. See the *BrightStor CA-1 Administrator and Operator Guide* for information on the Common Tape System (CTS) component.

### 4.33.1 JCL

No JCL is provided.

## 4.34 Step 33 - Build TMC (L052JT)

**If you are currently processing with BrightStor CA-1 Version 5.x, skip this step and proceed to the next step.**

This step provides for the conversion of data for BrightStor CA-1 Version 5.2 use. This includes the following:

- Upgrading from BrightStor CA-1 Version 4.x requires the conversion of the TMC, Retention Data Set (RDS), and Vault Pattern Description Data Set (VPD) to BrightStor CA-1 Version 5.2 format. Changes can also have to be made to the Scratch Pool Management rules.
- Converting from another tape management system requires conversion processing of tape management catalog and related files to BrightStor CA-1 Version 5.2 format.
- First time BrightStor CA-1 clients may not have an existing tape management system and may desire to convert existing MVS catalog data or data from another source to BrightStor CA-1 Version 5.2 format.

See the *BrightStor CA-1 Release Guide* for detailed information on the procedures and utilities required for these conversion processes.

## 4.35 Step 34 - Run BrightStor CA-1 Product Demonstration (L052DE)

This optional step provides testing of various tape functions and BrightStor CA-1 batch utilities to verify proper installation of BrightStor CA-1.

### 4.35.1 JCL

The member provided in the BrightStor CA-1 sample library is L052DE.

### 4.35.2 JCL Customization

Remove any steps not needed for testing. The following symbolics are associated with the JCL:

<b>CAISRC</b>	CA common source library
<b>LINKLIB</b>	CA common load library
<b>NVSNODE</b>	Non-VSAM BrightStor CA-1 data set name prefix
<b>OPTLIB</b>	CA common options library
<b>PRM</b>	Parameters for TMSTAPER program
<b>SOUT</b>	Output SYSOUT class
<b>TAPUNIT</b>	Normal tape unit type
<b>TAP3480</b>	3480 tape unit type
<b>WRKUNIT</b>	DASD work unit type

## 4.36 Step 35 - Install ISPF Interface (L05211)

This *optional* step provides for the installation of the BrightStor CA-1 ISPF interface, and is required only if the ISPF interface feature is desired. If not, you can proceed to the next installation step.

As part of the installation, the BrightStor CA-1 ISPF libraries have already been loaded onto disk. All BrightStor CA-1 ISPF interface modules are contained in the CA common load library. To install the BrightStor CA-1 ISPF subsystem, modifications must be made to your ISPF main menu panel, and possibly to your TSO PROC.

Two methods are available for invoking the BrightStor CA-1 ISPF subsystem. Method 1 involves modification of the TSO users logon procedure, while Method 2 adds an optional CLIST for invoking the BrightStor CA-1 ISPF interface.

### 4.36.1 Method 1

To install the BrightStor CA-1 ISPF subsystem using Method 1, the following data sets must be concatenated to the TSO PROC. This can be done in the BrightStor CA-1 ISPF initialization CLIST or in the TSO PROC. All dispositions must be SHR.

DDNAME	DSNAME	LIBRARY
ISPMLIB	CAI.CAIISPM	CA common ISPF message library
ISPPLIB	CAI.CAIISPP	CA common ISPF panel library
ISPSLIB	CAI.CAIISPS	CA common ISPF skeleton library
ISPTLIB	CAI.CAIISPT	CA common ISPF table library

With Method 1, the following lines must be inserted in ISR@PRIM in the first library in the ISPPLIB concatenation to establish BrightStor CA-1 ISPF as a main menu option:

```
%n + BrightStor CA-1 ISPF - BrightStor CA-1 ISPF subsystem
```

in the screen definition, and

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

in the PROC definition. Replace *n* with the main menu option you wish to choose to invoke BrightStor CA-1 ISPF.

## 4.36.2 Method 2

This method utilizes a CLIST to invoke the BrightStor CA-1 ISPF subsystem. This CLIST dynamically allocates the required libraries (except the load modules) using the LIBDEF facility of ISPF. With Method 2, the following lines must be inserted into ISR@PRIM in the first library in the ISPPLIB concatenation to bring BrightStor CA-1

```
%n + BrightStor CA-1 ISPF - BrightStor CA-1 ISPF subsystem
```

into the screen definition, and

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

into the PROC definition. Replace *n* with the main menu option you wish to choose to invoke BrightStor CA-1 ISPF.

## 4.36.3 JCL

The member provided in the BrightStor CA-1 sample library is L052I1.

## 4.36.4 JCL Customization

The following symbolics are associated with the JCL:

<b>CLSTLIB</b>	CA common CLIST library
<b>LINKLIB</b>	CA common load library
<b>SOUT</b>	Output SYSOUT class
<b>WRKUNIT</b>	DASD work unit type

You are required to manually edit the CA common ISPF libraries into the CLIST.

## 4.36.5 TSO Authorization of Modules TMSIOCAP and TMSSCR

The BrightStor CA-1 online scratch facility requires modules TMSIOCAP and TMSSCR to be authorized.

See the TSO Customization Manual for instructions about adding authorized programs to the TSO environment. If using SYS1.PARMLIB member IKJTSO00, add the program names TMSIOCAP and TMSSCR to the AUTHPGM and AUTHTSF entries. If using the TSO table CSECTs, add the program names TMSIOCAP and TMSSCR to the IKJEFTE2 (APFCTABL), IKJEFTE8 (APFPTABL) and IKJEFTAP (APFTTABL) CSECTs.

| Authorized programs running in an ISPF environment are invoked under the  
| TSO TMP and, therefore, should not reside in the ISPLLIB library.

## 4.37 Step 36 - Install BrightStor CA-Roscoe Interface (L052I2)

**If you do not have BrightStor CA-Roscoe, skip this step and proceed to the next step.**

This optional step provides you with the required changes within BrightStor CA-Roscoe to support the BrightStor CA-1 Online Inquiry/Update system, and is required only if the BrightStor CA-Roscoe feature is desired.

### 4.37.1 Installation

Add TIQ to the run parameter in the BrightStor CA-Roscoe SYSIN stream. See the BrightStor CA-Roscoe documentation for details.

Include in the BrightStor CA-Roscoe startup JCL STEPLIB concatenation a DD statement pointing to CAI.CAILIB, which contains the BrightStor CA-1 interface program RSSCTIQ0.

### 4.37.2 JCL

No JCL is provided. The required modifications are to be made to the users BrightStor CA-Roscoe startup JCL.

## 4.38 Step 37 - Install TSO Interface (L052I3)

This optional step provides a description of the CLIST required to invoke the BrightStor CA-1 TSO interface. JCL is provided to add the required CLIST into the CA common CLIST library.

To use the optional TSO interface to the BrightStor CA-1 Online Inquiry/Update System, the following TSO CLIST must be created:

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

**&D** is 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, NODSN must be specified. Otherwise, DSN= must be specified twice on the update command, once for the verify and again for the update. If DSN is specified, any update to any field will require data set name verification.

**&P** is the prompt for the access password parameter. The option parameter value PROMPT causes the prompt for the access password prior to invoking the external security interface. NOPROMPT should only be used when the optional security exit, TMSUX0S, has been coded to supply a default access password.

**&DATEFMT** represents the date format option for this session. In the example above, the date format pattern is set as DEFAULT. You can specify a preferred date format by replacing DEFAULT with the desired pattern, such as DATEFMT('MMDD YY'). **&DATEFMT** must be preceded by two single quotes and followed by three single quotes. See the *BrightStor CA-1 Utilities and Reports Reference Guide* for valid values.

### 4.38.1 JCL

The member provided in the BrightStor CA-1 sample JCL library is L052I3.

### 4.38.2 JCL Customization

The following symbolics are associated with this procedure:

**CLSTLIB** CA common CLIST library  
**SOUT** Output SYSOUT class

You are required to manually edit the CA common load library name and default parameter values into the CLIST.

## 4.39 Step 38 - Install CICS Interface (L052I4)

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

This optional step discusses the tasks required to support the BrightStor CA-1 Online Inquiry/Update function under CICS, and is required only if the CICS feature is desired.

1. Concatenate the CA common library (CAI.CAILIB) to the CICS DFHRPL DD statement.
2. Concatenate the CA common load library (CAI.CAILIB) to the CICS STEPLIB DD only if the CA common load library is not accessed through LNKLST concatenation.
3. Increase the OSCOR parameter in DFHSIT by approximately 20K to allow for the TIQ requirements.
4. Place the following entry in the DFHPPT table:

```
DFHPPT TYPE=ENTRY,PROGRAM=TMSTCICS,PGMLANG=ASSEMBLER
```

5. Place the following entries in the DFHPCT table:

```
DFHPCT TYPE=ENTRY,PROGRAM=TMSTCICS,TRANSID=TMSU  
DFHPCT TYPE=ENTRY,PROGRAM=TMSTCICS,TRANSID=TMSI
```

These transactions can be defined as using an alternate screen size.

When defining CICS resources using a CEDA transaction of 3.3 or above, the following transactions are shown:

```

CEDA View PROGram(TMSTCICS)
PROGram      : TMSTCICS
Group        : TECHCA1
DEscription  : CA-1 (TMS) VERSION 5.2
Language     : Assembler          CObo1 / Assembler / Le370 / C / Pl1
                                          / Rpg
REload       : No                  No / Yes
RESident     : No                  No / Yes
USage        : Normal              Normal / Transient
USELpacity   : No                  No / Yes
Status       : Enabled              Enabled / Disabled
RSI          : 00                  0-24 / Public
Cedf         : Yes                  Yes / No
DATAlocation : Below               Below / Any
EXECKey      : CICS                User / CICS
REMOTE ATTRIBUTES
REMOTESystem :
REMOTENAME   :
Transid      :
EXECUTIONset : Fullapi             Fullapi / Dplsubset

```

```

CEDA View TRANSAction (TMSI)
TRANSAction  : TMSI
Group        : TECHCA1
DEscription  : CA-1 (TMS) VERSION 5.2
PROGram      : TMSTCICS
TWasize      : 00100               0-32767
PROFile      : XXXXTMS
PARTitionset :
STATUS       : Enabled              Enabled / Disabled
PRIMEsize    : 00000               0-65520
TASKDATAloc  : Below               Below / Any
TASKDATAkey  : CICS                User / CICS
STORageclear : No                  No / Yes
RUNaway      : 0000000             System / 0-2700000
SHUTDOWN     : Disabled             Disabled / Enabled
ISolate      : Yes                  Yes / No
REMOTE ATTRIBUTES
DYNAMIC      : No                  No / Yes
REMOTESystem :
REMOTENAME   :
TRProf       :
LOCALq       :                     No / Yes

```

#### 4.39 Step 38 - Install CICS Interface (L052I4)

---

```
SCHEDULING
PRIOrity      : 001           0-255
TClass       :              No / 1-10
TRANClass    : DFHTCL00
ALIASES
Alias        :
TASKReq      :
XTRanid      :
TPName       :
             :
XTPname      :
             :
             :
RECOVERY
DTimeout     : No           No / 1-6800
INDoubt      : Backout     Backout / Commit / Wait
REStart      : No         No / Yes
SPurge       : No         No / Yes
TPurge       : No         No / Yes
DUmp         : No         Yes / No
TRACe        : No         Yes / No
```

```
SECURITY
RESec        : No         No / Yes
Cmdsec       : No         No / Yes
Extsec       : No
TRANSec      : 01         1-64
RS1          : 00         0-24 / Public
```

```
CEDA View TRAnsAction (TMSU)
TRAnsAction : TMSU
Group       : TECHCA1
DEscription : CA-1 (TMS) VERSION 5.2
PRoGram     : TMSTCICS
TWAsize     : 00100           0-32767
PRoFile     :
PARtitionset :
STatus      : Enabled           Enabled / Disabled
PRIMedsize  : 00000           0-65520
TASKDATAloc : Below           Below / Any
TASKDATAkey : CICS            User / CICS
STOrageclear : No              No / Yes
RUNaway     : 0000000         System / 0-2700000
SHUTDOWN    : Disabled        Disabled / Enabled
ISolate     : Yes             Yes / No
REMOTE ATTRIBUTES
DYNAMIC     : No              No / Yes
REMOTESystem :
REMOTENAME  :
TRProf      :
Localq      :                  No / Yes
```

```
SCHEDULING
PRIOrity    : 001             0-255
TClass      :                No / 1-10
TRANClass   : DFHTCL00
ALIASES
Alias       :
TASKReq     :
XTRanid     :
TPName      :
XTPname     :
RECOVERY
DTimeout    : No             No / 1-6800
INDoubt     : Backout        Backout / Commit / Wait
REStart     : No             No / Yes
SPurge      : No             No / Yes
TPurge      : No             No / Yes
DUmp        : No             Yes / No
TRACe       : No             Yes / No
```

```
SECURITY
RESec      : No           No / Yes
Cmdsec     : No           No / Yes
Extsec     : No
TRANSec    : 01           1-64
RS1        : 00           0-24 / Public
```

6. Modify the CICS DFHDCT table if logging is desired. The output record size is 89 characters. Use CICS definitions similar to the following:

```
DFHPCT TYPE=SDSCI,DSCNAME=TMSLOG,BLKSIZE=89,RECSIZE=89,
        TYPEFLE=OUTPUT,RECFORM=FIXUNB
DFHDCT TYPE=EXTRA,DSCNAME=TMSLOG,DESTID=TMSL,OPEN=INITIAL
```

All activity under the transaction identification TMSU will be logged to the TMSL file. The TMSL file can be specified in the CICS destination control table. If TMSL is not specified, logging is performed to the SLOG file.

### 4.39.1 JCL

No JCL is provided

## 4.40 Step 39 - Merge Control Tables for BrightStor CA-1/Viewpoint and CA-Unicenter/STAR (L052JQ)

**Skip this step if you are not using BrightStor CA-1/Viewpoint and CA-Unicenter/STAR (an enterprise-wide graphical interface to CA products).**

If you are using BrightStor CA-1/Viewpoint and have not already done so, complete the installation of BrightStor CA-1/Viewpoint through the step for applying BrightStor CA-1/Viewpoint. See the *CA Common Services for z/OS and OS/390 Installation and Maintenance Guide* for specific instructions.

BrightStor CA-1/Viewpoint is part of the CA Common Services for z/OS and OS/390. The member WCxxMRG was distributed in the CA Common Services for z/OS and OS/390 sample JCL library, merges one or more BrightStor CA-1 tables with those of BrightStor CA-1/Viewpoint or CA-Unicenter/STAR. Located at the bottom of the JCL are four step names: APPL, PNDX, ZOOM, and PROF. The ZOOM step is *not* used and should be commented out. Execute the other step(s) depending on which interface is to be used. The PROD= parameter in the JCL must be set to PROD=L0.

Interface	Steps to Execute
BrightStor CA-1/Viewpoint	APPL, PNDX, PROF
CA-Unicenter/STAR	APPL
Both	APPL, PNDX, PROF

Submit the job and review the output to verify that processing completed with a condition code of no greater than 4.



## Chapter 5. BrightStor CA-1 Maintenance Process

---

The maintenance process for BrightStor CA-1 provided in this section includes:

- BrightStor CA-1 maintenance delivery
- USERMOD installation steps
- APAR installation steps
- PTF maintenance tape installation steps

All BrightStor CA-1 Version 5.2 maintenance is delivered in SMP/E format. If you installed using SMP/E, you must use SMP/E to apply all maintenance modifications.

**Caution**

If you used SMP/E to install but attempt to apply maintenance without it, the integrity of your BrightStor CA-1 libraries is at risk and the maintenance tracking capabilities of SMP/E are lost.

## 5.1 Maintenance Delivery

Maintenance to your BrightStor CA-1 system is packaged and delivered as SMP/E USERMODs, APARs, and PTFs. The various types of maintenance delivery are discussed below.

Standard USERMODs are a series of options available during installation of the BrightStor CA-1 base product. Such USERMODs do not represent fixes to problems, but rather are features that can be modified to uniquely customize the product for your use. The SMP/E MCS for these user modifications is located in the CA common options library, with relevant member names similar to the USERMOD ID. An example is CL05200S (defines report options). Standard USERMODs should not be ACCEPTed, and should be RESTORED prior to PTF APPLY processing.

### 5.1.1 Test Fix (USERMOD)

Temporary test fix USERMODs represent test fixes to a reported problem and contain the minimum amount of changes required to an element. Verification of the fix is required prior to publication as an official APAR.

APARs that correspond to an element may be superseded by a USERMOD. However, it is possible that there may be a prerequisite relationship to other APARs, as in the case of adding a new element to an existing component. USERMODs should not be ACCEPTed, and should be RESTORED prior to TPF APPLY processing.

- The Test Fix may be delivered by hardcopy, phone, fax, SupportConnect, and in some cases on tape. SupportConnect is the primary vehicle for the delivery of the Test Fix.
- USERMOD IDs are in the format, Tnnnnnn, where nnnnnn is alphanumeric.

### 5.1.2 Special Fix (USERMOD)

Special USERMODs are not provided as fixes to reported problems, but as minor changes to product design or methodology that most clients do not want or need. As special USERMODs are developed and verified in testing, they are provided to clients who wish to take advantage of the same design changes.

These USERMODs may supersede other APARs. However, APARs will never supercede special USERMODs. During the installation of maintenance you may be required to RESTORE these USERMODs. Special USERMODs should never be placed in ACCEPT status.

- The Special Fix may be delivered by hardcopy, phone, fax, SupportConnect, and in some cases on tape. SupportConnect is the primary vehicle for the delivery of the Special Fix.
- Special USERMOD IDs use the format CSnnnnn or GSnnnnn, where nnnnn is alphanumeric.

### 5.1.3 APAR

An APAR is a tested fix to a reported problem, usually containing the minimum amount of changes required for a given SMP/E element.

APARs may supersede any previous APARs associated with the element, although it is possible there may be a prerequisite relationship to other APARs, as in the case of adding new SMP/E elements to an existing component. APARs should not be ACCEPTed.

- APARs may be delivered by hardcopy, phone, fax, SupportConnect, and in some cases on tape. SupportConnect is the primary vehicle for the delivery of APARs.
- APAR IDs are in the format, COnnnnn or GOnnnnn, LOnnnnn, or QOnnnnn, where nnnnn is numeric.

### 5.1.4 Informational APAR or PIP

Informational APARs contain no fixes to a specific component, and are used only to provide some information regarding a product feature or function. Another Computer Associates' term for this type of APAR is 'Product Information Packet' (PIP).

- PIPs are delivered by hardcopy, SupportConnect, and on maintenance tapes.
- IDs for informational APARs are in the format, CInnnnn or GInnnnn, where nnnnn is numeric.

### 5.1.5 PTF

A PTF is a replacement SMP/E element to a specific component and serves as preventative, cumulative maintenance for all reported problems to date. The changes incorporated into PTFs have been tested, and the fix is meant to be installed in all environments. PTFs are normally available only on a published maintenance tape.

PTFs are designed to supersede all APARs that have been previously applied to the product. Whether APARs are present on your component or not, the PTF maintenance is processed. It is anticipated that, after suitable testing, PTFs are placed into an SMP/E ACCEPT status.

- PTFs are always delivered on a periodic maintenance tape.

### 5.1.6 SMP/E Structures

<u>Type of Service</u>	<u>SMP Service Classification</u>	
Officially Published PTF	++PTF	(CAnnnnn..,GAnnnnn..)
Officially Published APAR	++APAR	(COnnnnn,GOnnnnn)
Informational APAR (PIP)	++APAR	(CIInnnnn,GInnnnn)
Temporary Test Fix	++USERMOD	(Txxxnnn)
Temporary Special Fix	++USERMOD	(CSnnnnn..,GSnnnnn..)

<u>SMP Service</u>	<u>Form</u>		<u>Comments</u>
++PTF	++MOD, ++MAC	or ++SRC	RECEIVE, APPLY, and ACCEPT
++APAR	++ZAP, ++MACUPD ++MOD, ++MAC	or ++SRCUPD or ++SRC	do not ACCEPT
++USERMOD	++ZAP, ++MACUPD ++MOD, ++MAC	or ++SRCUPD or ++SRC	do not ACCEPT

**Note:** CA-UNISERVICE/II clients may access the Customer Service System (CSS) where published maintenance resides. USERMODs, APARs, and PTFs can be extracted from CSS using CA-LINK.

**Note:** PTFs are designed to supersede official APARs and PTFs only. USERMODs applied to a component may need to be RESTORED before the application of maintenance.

## 5.2 System Considerations

As you install and apply maintenance to products, Computer Associates' SMP/E and Target libraries are modified to include the latest changes. The SMPPTS is used to store SYSMODs as they are RECEIVED; they are deleted only when ACCEPTed. If you are installing a large number of SYSMODs (functions, PTFs, APARs, and so on), your SMPPTS data set may need to be enlarged to accommodate the volume.

SMP/E may also compress the Target libraries according to options set during the SMP/E initialization task. SMP/E should never be allowed to compress a data set specified in the link list member of SYS1.PARMLIB (LNKLSTnn). Additionally, care should be taken to APPLY maintenance only to idle libraries where products are not currently executing.

If a product is executing from your CA Target libraries, make a new copy; one for execution, the other for maintenance. As the maintenance is completed and adequate testing performed, copy the maintenance libraries to the execution libraries and IPL the operating system (if necessary).

Application of maintenance, or even the installation of new components, into Target libraries where products are currently executing may produce unpredictable results.

## 5.3 USERMOD Installation Steps

When you receive a Test Fix from Computer Associates, use the following steps to install the USERMOD SYSMOD:

- RECEIVE the USERMOD.
- Run an APPLY CHECK to verify the USERMOD.
- Review the results of the APPLY CHECK and make any necessary corrections.
- APPLY the USERMOD.
- Test.
- Do not ACCEPT the USERMOD.

## 5.4 APAR Installation Steps

When you receive an APAR from Computer Associates, use the following steps to install the APAR SYSMOD:

- RECEIVE the APAR.
- Run an APPLY CHECK to verify the APAR.
- Review the results of the APPLY CHECK and make any necessary corrections.
- APPLY the APAR.
- Test.
- Do not ACCEPT the APAR.

### 5.4.1 Printing Documentation Updates with DOCREF

The DOCREF member in CAI.INSTALL contains the sample JCL to unload the documentation updates from file 30, DSN=CAI.DOCREF, on the maintenance tape. This file contains documentation that is additional to the regular documentation updates periodically distributed.

In CAI.DOCREF, the \$DOCREF member identifies each other member present and the names of the publications that the member updates. To examine the updates, edit the JCL to your installation standards and submit the job.

### 5.4.2 Printing PTF and APAR Information with PTFREF

Member PTFREF in CAI.INSTALL contains sample JCL to load the PTF/APAR descriptions from file 31, DSN=CAI.PTFREF, from the maintenance tape. The information it contains describes, in very brief form, the nature of the maintenance you are applying.

In CAI.PTFREF, the \$PTFREF member lists each PTF on the tape and the corresponding maintenance it incorporates. \$APARREF provides the same information for APARs, and \$INFOREF indexes the informational APARs (PIPs) and the related components. Each member lists the PTFs and APARs in the order published.

To examine the descriptions, edit the JCL to your installation standards and submit the job.

## 5.5 PTF Maintenance Tape Installation Steps

### 5.5.1 Highlights of Maintenance Steps Not Using CA-ACTIVATOR

1. Read the PIP (cover letter) shipped with the tape.
2. Ensure all prior maintenance has been completed. All prior PTFs (not APARs) should be in ACCEPT status before beginning this maintenance
3. Read this document and other maintenance documentation.
4. Perform appropriate maintenance activities.

This section describes the steps required to install a BrightStor CA-1 maintenance tape. A combined installation and maintenance tape is distributed periodically on a standard label, 6250 BPI tape or 3480 non-IDRC which contains the newly published official PTF SYSMODs for BrightStor CA-1.

**Caution**

Use this tape only where SMP/E controls BrightStor CA-1 installation and maintenance.

### 5.5.2 Materials

The following materials should be available during the SMP/E application of product maintenance:

- maintenance instructions
- current informational APARs and PIPs
- product systems programmer guides
- appropriate IBM manuals
- current product maintenance tape

A partitioned data set containing all the sample JCL and complete instructions is provided on the tape. All of the JCL needed to perform maintenance is found in the ninth file and is in IEBCOPY unload format.

The VOLSER for maintenance tapes follows the format *LOyymm*, where *LO* is the product ID and *yymm* is the year and month of the tape. The distribution tape is described in Chapter 2, “System Requirements and Installation Materials” on page 2-1. See the external label of the tape for the current volume serial number.

### 5.5.3 Tape Layout

The maintenance tape files are as follows:

File			
<u>Seq.</u>	<u>Data Set Name</u>	<u>Attributes</u>	<u>Description</u>
001	CAI.INSTALL	IEBCOPY unload	CA-ACTIVATOR JCL
002	CAI.IE21.CLIST	IEBCOPY unload	CA-ACTIVATOR CLISTs
003	CAI.IE21.ISPMLIB	IEBCOPY unload	CA-ACTIVATOR Message library
004	CAI.IE21.ISPPLIB	IEBCOPY unload	CA-ACTIVATOR Panel library
005	CAI.IE21.ISPSLIB	IEBCOPY unload	CA-ACTIVATOR Skeleton library
006	CAI.IE21.ISPTLIB	IEBCOPY unload	CA-ACTIVATOR Table library
007	CAI.IE21.LOADLIB	IEBCOPY unload	CA-ACTIVATOR LOADLIB
008	CAI.IE21.PIMLIB	IEBCOPY unload	CA-ACTIVATOR PIMLIB
009	CAI.SAMPJCL	IEBCOPY unload	Non-ACTIVATOR JCL
010	---		
.	\		
.			These files contain product testing data, special product
.			files, etc.. Individual product maintenance documentation
.	/		will provide instructions on their use.
.	---		
027	RESERVED		
028	CAI.PPOPTION	IEBCOPY unload	Component Options
029	RESERVED		
030	CAI.DOCREF	IEBCOPY unload	Documentation updates
031	CAI.PTFREF	IEBCOPY unload	PTF/APAR information
032	SMPMCS	80/3120/FB	PTFs/APARs in MCS format
033+	RELFILES	80/3120/FB	SMP RELFILES

The BrightStor CA-1 product is maintained by SMP/E. The maintenance tape is a standard label, 6250 BPI tape or 3480 non IDRC containing all the data needed to maintain BrightStor CA-1.

Prior to installing BrightStor CA-1 maintenance, read the accompanying PIP which may describe changes to the maintenance instructions. *These instructions may change with each maintenance cycle.*

**Note:** If you installed BrightStor CA-1 Version 5.2 with CA-ACTIVATOR, it is **strongly** recommended that you also apply this maintenance with CA-ACTIVATOR.

**Note:** BrightStor CA-1 5.2 requires CA Common Services for z/OS and OS/390 GENLEVEL 9409 or higher to initialize. Ensure that you upgrade CA Common Services for z/OS and OS/390 first.

## 5.5.4 Maintenance Tasks

- STEP 1** Verify that your data sets have sufficient space and directory blocks available. For estimated requirements, see Chapter 2, System Requirements and Installation Materials. The data sets should be in a compressed state.
- STEP 2** Determine your currently installed genlevel for BrightStor CA-1 Version 5.2. To determine your current genlevel, run BrightStor CA-1 utility TMSSTATS against your currently running BrightStor CA-1 system. Specify a parameter such that the Options Table Status Report is printed. This report shows the genlevel. See the *BrightStor CA-1 Utilities and Reports Reference Guide* for details. The genlevel value is used in subsequent tasks.
- STEP 3 (L052MA)** Unload and run the job L052MA that unloads the replacement BrightStor CA-1 Sample library and CA common Options library members from the maintenance tape. The selection control statements in L052MA are grouped by genlevel. You can remove groups which are at or below your currently installed genlevel. The group of selection control statements marked as LVL-ALL must always be selected, regardless of your currently installed genlevel.

**Caution**

Do not unload the entire Sample library at this time. This would cause all members unloaded from the tape to replace members in your SAMPLIB.

**Sample JCL:** Use the following JCL:

```

//UNLOAD JOB (ACCOUNT),'CA-1 MAINT'
//*****
//*
//* THIS JOB COPIES JOB L052MA FROM THE CA-1 MAINTENANCE TAPE *
//* TO THE CA-1 SAMPLE LIBRARY. *
//* *
//* PROVIDE THE CORRECT TAPE VOLSER FOR TAPSER PARM, BELOW. *
//* *
//*****
//UNLOAD PROC SAMPLIB='CAI.CA1.SAMPLIB',
//          SOUT='*',
//          TAPSER='volser',
//          TAPUNI='TAPE'
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=&SOUT
//INSAMP DD DSN=CAI.SAMPJCL,
//          DISP=OLD,
//          UNIT=&TAPUNI,
//          VOL=(,RETAIN,SER=&TAPSER),
//          DCB=DEN=4,
//          LABEL=(9,SL,EXPDT=98000)
//OUTSAMP DD DSN=&SAMPLIB,
//           DISP=SHR
//*
// PEND
//*
//UNLOAD EXEC UNLOAD
//STEP1.SYSIN DD *
COPY INDD=((INSAMP,R)),OUTDD=OUTSAMP
SELECT MEMBER=L052MA
/*
//

```

**STEP 4 (L052ML)** Run job L052ML to update the CA common Procedure library with BrightStor CA-1 members that have had significant modifications or are new.

**STEP 5 (\$F12ML)** Run job \$F12ML to update the CA common Procedure library with Common Tape System (CTS) member(s) that have had significant modifications or are new.

**STEP 6 (L052MU)** Run job L052MUE to do a RESTORE of applied standard USERMODs (CL05200 - CL05242) which were affected by maintenance. Remove any USERMOD entries and functions that you have not installed.

**STEP 7 (L052MQ)** If your SMP/E data base options were set up to have the NOREJECT option in place, an SMP REJECT must be performed for the USERMODs following the RESTORE. To perform the REJECT, run job L052MQE.

**Note:** The NOREJECT option is not the default and the REJECT would not normally be required if the provided L052NCE job was used to create your SMP/E data base. To determine if the NOREJECT option is turned on, you may run an SMP/E job with

one of the following sets of SMPCNTL control statements:

```
SET BDY(GLOBAL).
LIST OPTIONS.
```

**STEP 8 (L052MB)** Run job L052MBE to RECEIVE the PTFs after you have performed the following edits. The maintenance tape volser must be supplied.

Remove (from Sample library member) the DD statements concatenated to SMPCNTL related to BrightStor CA-1 functions that you do not have installed.

**STEP 9 (L052MC)** Run job L052MCE to do an APPLY of the &ca1/MVS maintenance. Remove any functions that you have not installed. It may be best to run the APPLY with a CHECK option first to determine which PTFs are already applied.

A return code of 4 is considered normal if caused by a message indicating element(s) not installed into any target library.

**STEP 10** Run job L052MHE to ACCEPT the PTFs. A return code of 4 is considered normal if a new source or load module is being introduced by this maintenance.

**STEP 11 (L052MV)** Run job L052MVE to re-RECEIVE the standard USERMODs (CL05200 - CL05244) which have been installed. Beginning with version 5.1 of BrightStor CA-1, the USERMODs supplied with BrightStor CA-1 no longer contain the necessary prerequisites built in.

1. Determine which BrightStor 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 SMPCNTL DD listed below. The output from this job will provide the necessary prerequisites for your site's BrightStor CA-1 standard USERMODs. The necessary prerequisites will be the RMIDs and the UMIDs listed.

```
//LIST EXEC PGM=GIMSMP.,REGION=2048K
//SMPLOG DD DUMMY
//SMPOUT DD SYSOUT=*
//SMPCSI DD DSN=CSINODE.CSI.
// DISP=SHR
//SMPLIST DD SYSOUT=*
//*
//SMPCTL DD *
SET BDY(CAITGT).
LIST SRC(element-name).
/*
```

## 3. SMP/E Procedure.

- a. Change the PRE list for the USERMOD entries found in the BrightStor CA-1 PPOPTION data set using RMIDs and UMIDs that were found. Modify the PPOPTION member with the USERMOD name and ending in an S.
- b. Receive the USERMODs using Job/Task L052MVE.

Run job L052MIE to re-APPLY the standard USERMODs (CL05200 - CL05242) which have been installed. These USERMODs will be re-assembled by this job.

**Note:** The USERMODs should never be ACCEPTed.

- STEP 12 (L052MS)** The 3480 Message Display Exit may have been modified by maintenance and should be reinstalled if it was installed. Using your SMP/E PROC used for MVS maintenance, add a CAILIB DD statement, pointing to the CA common load library and perform an SMP/E APPLY of USERMOD SMP3480. If using SMP/E, add the REDO option to the APPLY statement.
- STEP 13 (L052MT)** The 3495 BTLS exit may have been modified by maintenance and should be reinstalled if it was installed. Using your SMP/E PROC used for MVS maintenance, add a CAILIB DD statement, pointing to the CA common load library and perform an SMP/E APPLY of USERMOD SMPBTLS. If using SMP/E, add the REDO option to the APPLY statement.
- STEP 14 (L052MO)** The DFHSM tape interface BrightStor CA-1 module, TMSARCTV, may have been modified by maintenance and should be reinstalled if it was installed. If you previously installed TMSARCTV with SMP/E (by using BrightStor CA-1 Sample library member SMPHSM), use the same JCL to re-APPLY the chosen USERMOD (UMDHSM1) on your DFHSM SMP/E system. If using SMP/E, specify REDO on the APPLY statement. If you previously installed TMSARCTV without using SMP/E (by using BrightStor CA-1 Sample library member JNSNHSM), use the same JCL to replace TMSARCTV.
- STEP 15 (L052MJ)** The JES3 message intercept may have been modified by maintenance and should be reinstalled if it was installed. See task L052IJ, for specific details.
- STEP 16 (L052MG)** IPL the operating system.
- STEP 17 (L052DE)** Perform testing to verify that the maintenance was correctly applied; member L052DE can be used for this purpose.

## 5.6 Maintenance Task Cross-Reference

Some of the following maintenance tasks are identical to installation tasks you performed to install Version 5.2. For more information about each of these tasks, use the following table to locate the appropriate text in Chapter 4, Installing BrightStor CA-1 Version 5.2.

MAINTENANCE TASK	INSTALL TASK	TASK DESCRIPTION
L052M9	L05290	CA Common Services for z/OS and OS/390 Maintenance Task
L052MA	L052JI	Replace Sample and Options members
L052MBE	N/A	Receive Maintenance
L052MCE	N/A	Apply Maintenance
L052MG	L052IZ	Time to IPL
L052MHE	N/A	Accept Maintenance
L052MIE	N/A	Reinstall USERMODs
L052MJ	L052IJ	Reinstall JES3 DSP
L052MP	L052I4	Reinstall CICS Interface
L052ML	L052IO	Copy PROCs to PROCLIB
L052MQE	N/A	Reject USERMODs
L052MR	L052I3	Reinstall BrightStor CA-Roscoe Interface
L052MS	L052JO	Reinstall 3480 Message Exit
L052MT	L052JR	Reinstall 3495 BTLS USERMOD
L052MUE	L052UD	Restore USERMODs
L052MVE	L052JE	Receive USERMODs
L052MW	L052IA	Maintenance Worksheet

**Note:** Tasks are not mentioned in the maintenance instructions if no maintenance applies to those tasks.

### 5.6.1 Save all Materials and Output

Be sure to save all of your maintenance materials and all output from the maintenance process. This material is essential for timely and accurate Computer Associates maintenance and support of the product.

### 5.6.2 Final Note

After running and testing your maintenance to verify that all the PTFs applied are valid and correct for your site, you may wish to ACCEPT them before you receive your next maintenance tape. If so, run the appropriate Sample JCL library member for your system (MVS).



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