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CA Technologies Product References

This document references the following CA Technologies products:

- CA Common Services for z/OS (CA Common Services)
- CA ACF2™ for z/OS (CA ACF2)
- CA Easytrieve® (CA Easytrieve)
- CA Datacom®/DB (CA Datacom/DB)
- CA IDMS™ (CA IDMS)
- CA Chorus Software Manager™ (CA CSM)
- CA Pan/SQL
- CA Panvalet® for z/OS (CA Panvalet)
- CA Top Secret® for z/OS (CA Top Secret)
Documentation Changes

The following updates have been made to the second edition of this documentation:

- **Installation Process** (see page 11)—Added information about CA Easytrieve being provided with CA Common Services.
- **Installing CA Easytrieve for Linux PC** (see page 21)—This chapter has been added.
- **CA Common Services** (see page 28)—Updated this topic to indicate the current CCS requirements for CA Easytrieve.
- **Installing CA Easytrieve When Packaged With CA Common Services** (see page 135)—Added this appendix.

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

- **Installation Process** (see page 11)—This new topic directs readers to the correct installation process for their platform.
- **Operating Environment** (see page 28)—This topic has been updated with the correct region size.
- **Product Component Structure** (see page 29)—This topic has been updated with the current SYSMOD names.
- **Disk Space** (see page 30)—This topic has been updated with the current data set names and disk space requirements.
- **Installing Your Product Using CA CSM** (see page 33)—This chapter has been updated with the latest CA CSM installation procedures.
- **Configuring Your Product** (see page 61)—This chapter has been restructured to indicate which configuration steps can be performed using CA CSM and which ones must be performed manually.
- **Create Extended Reporting Printer Set Definition** (see page 64)—This topic has been added.
- **Activate the 6.4 Compatibility IDMS and IMS Interface Option** (see page 64)—This topic has been added.
- **Create the DBCS Options Module** (see page 65)—This topic has been added.
- **Activate the Oracle Interface Option** (see page 65)—This topic has been added.
- **Activate the SUPRA Interface Option** (see page 65)—This topic has been added.
- **Activate the TOTAL Interface Option** (see page 68)—This topic has been added.
- **Assemble a User Requirements Table for the CA Datacom/DB Option** (see page 69)—This topic has been added.
- **SAMPJCL and CBAAJCL Contents** (see page 131)—This appendix has been added.
Contact CA Technologies

Contact CA Support

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

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

Providing Feedback About Product Documentation

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

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

Appendix B: Installing CA Easytrieve When Packaged With CA Common Services
Chapter 1: Overview

This guide describes how to install and implement CA Easytrieve.

This section contains the following topics:

**Audience** (see page 11)

**Packaging with CA Common Services** (see page 11)

**Audience**

You can install CA Easytrieve on Windows, UNIX, Linux zSeries, Linux PC, and z/OS platforms. Depending on your platform, the reader of this book should have knowledge in the following areas:

For Windows installation:
- Familiarity with standard Windows installation via InstallShield

For UNIX/Linux zSeries installation:
- System administrator privileges
- Familiarity with tar and other UNIX commands

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

**Packaging with CA Common Services**

Starting with CA Common Services release 14.1, CA Easytrieve is also packaged with CA Common Services (CCS) as a separate product with a separate installation process. If you have an active CA Easytrieve license, you do not need to install the copy that is packaged with CCS. All product functionality is available. If you do not have an active license, install the copy that is packaged with CCS. Product functionality is restricted to running CA Easytrieve reporting jobs that are distributed with other CA products.
More information:

Installing CA Easytrieve When Packaged With CA Common Services (see page 135)
Chapter 2: Installing CA Easytrieve for Windows

This chapter describes the steps required for installing CA Easytrieve for Windows.

This section contains the following topics:
- Pre-Installation Considerations for Windows (see page 13)
- Install CA Easytrieve for Windows (see page 13)
- Starting CA Easytrieve (see page 14)
- Getting Help (see page 14)
- Documentation Set (see page 14)

Pre-Installation Considerations for Windows

Before you start installation for CA Easytrieve in the windows environment, you must meet the following requirements:

- Windows XP or above installed on your PC
- A minimum of 80 MB of free disk space.

Note: CA Easytrieve is a per user license. Therefore, the user who does the install is the only user of the product. Administrative privileges are only required to install the licensing portion. Once licensing is installed, any user can install the actual CA Easytrieve product itself.

Install CA Easytrieve for Windows

The installation is straightforward and exploits Microsoft’s latest Windows Installer technology.

Follow these steps:

1. Execute setup.exe on the CD or virtual CD image
   
   Note: Windows may start this program automatically, depending on whether the Autorun option is enabled in Windows.
   
   The InstallShield Wizard Welcome page appears when you install CA Easytrieve the first time.

2. Follow the installation steps to complete the installation in the Windows environment. A valid license key is required.
Starting CA Easytrieve

Once you complete your PC installation, you can start CA Easytrieve by clicking the Start button in Windows, and choosing Programs, CA, CA Easytrieve.

You can now work through some of the sample programs that are located in the EZTPGMS subdirectory where you installed the product.

Getting Help

You can use the extensive online help to display information on your screen as you work, such as:

**Context-sensitive help**

Get context-sensitive help for a menu, menu command, or dialog box by pressing the F1 key when a menu or menu command is selected, or when a dialog box is displayed.

**Language help**

When editing a CA Easytrieve source file, you can receive context-sensitive help for CA Easytrieve commands by double-clicking the mouse within a reserved word and pressing Ctrl+F1.

Documentation Set

All documentation is automatically installed as part of the install. The documentation is also available on the CD for review before installation. You must use the Acrobat Reader to view these files. For your convenience, the doc directory contains the most recent copy of the Adobe Acrobat Reader.

To view the documents, select Start, Programs, CA, CA Easytrieve, Online Documentation.
Chapter 3: Installing CA Easytrieve for Unix and Linux for zSeries

This chapter describes the steps required for installing CA Easytrieve for Unix and Linux for zSeries.

This section contains the following topics:

- Pre-Installation Considerations for Unix and Linux for zSeries (see page 15)
- Install in the UNIX or Linux for zSeries Environment (see page 16)
- How to Verify the Installation (see page 17)

Pre-Installation Considerations for Unix and Linux for zSeries

Before you start the installation, note the following:

- Before installing any product in a UNIX or Linux for zSeries environment, you must have system administrator privileges.
- All products are installed using the tar command.
- Determine whether your system is 32-bit or 64-bit.
- Check the available disk space before beginning. You will need 32 MB of disk space for this product.

See the CA Easytrieve User Guide for information about:

- Customizing the options table.
- Creating and maintaining an alternate collating sequence table.
- Defining environment variables.
- How to compile and execute your CA Easytrieve program.
Install in the UNIX or Linux for zSeries Environment

You must follow this procedure for installing CA Easytrieve in the UNIX or Linux for zSeries environment.

**Note:** (For AIX environments only) Earlier installed versions of CA Easytrieve 11.0 for AIX might have shared libraries loaded into memory. Use the genkld command to inspect a list of modules currently loaded in storage. Run the AIX command: slibclean (this might require sys admin authority). The slibclean command is an AIX command that unloads shared libraries with a use count of 0. This command is also needed when applying new fixes to be able to reload a corrected module. Before running the slibclean command, ensure that there are no current CA Easytrieve users that are active.

**Follow these steps:**

1. Log on as a user who can create and has access to the directories where you install the software. Typically, root is the user ID.
2. Create the directory where you install the software, typically, /ezt/bin. Make the directory the current directory.
   
   **Note:** If you previously linked programs with shared libraries, you should install this release in a different directory, to isolate existing programs from using the new shared libraries.
3. If you are installing in an HP-UX environment:
   
   Insert and mount the CD-ROM and issue the following command:
   
   ```
   $ /bin/csh /cdrom/ezt/eztsetup /cdrom/ezt
   /cdrom/ezt
   ```
   
   Identifies the location of the installation tar file.

   For other environments:
   
   Insert and mount the CD-ROM and issue the tar command:
   
   ```
   $ tar xvf - < /cdrom/ezt/ezt.tar
   /cdrom/ezt
   ```
   
   Identifies the location of the installation tar file.
4. When the tar command completes, change to the bin directory and issue the ./setup command to install product licensing. You must have root authority to complete the setup operation.
5. Optionally, create an options table as described in the *User Guide*.
6. Optionally, create an alternate collating sequence table as described in the *User Guide*.
7. Review the information provided about archive versus shared libraries in the User Guide to determine if you want to use the CA Easytrieve archive or the shared libraries for your applications.

8. Set all environment variables (see page 83).

9. (DB2 only) You must create packages in the database for the two command programs: dqpspsdbc and dqpspsdbx. Using the DB2 command line processor, connect to the database and issue the bind command for the bind files that were installed:

   bind dqpspsdbc.bnd
   bind dqpspsdbx.bnd

How to Verify the Installation

After you install CA Easytrieve, you must verify that the installation was successful.

You can verify the installation as follows:

- Verify the basic functionality.
- Verify the installation with Ingres, Oracle, and DB2.

Verify Basic Functionality

You can verify that the software is installed correctly by compiling and executing the testezt.ezt program. This program is installed in the directory where you installed CA Easytrieve.

You can compile and execute from the directory where you installed the software. You can also copy testezt.ezt to the home directory of your user ID. This procedure assumes that you did not rename testezt.ezt.

Follow these steps:

1. Compile testezt.ezt with the following command:

   ezt testezt.ezt

   The program compiles.
2. Execute testezt.ezt with the following command:

   a.out

   The executing program shows the following message on your terminal:

   CA Easytrieve installed correctly

   If the previous message does not appear, review the steps in the installation procedure and repeat the verify procedure. If the message still does not display, contact CA Support.

Verify the Installation with Ingres, Oracle, and DB2

You can verify that the software installed correctly and can communicate with Ingres, Oracle, or DB2 by compiling and executing the program for your database. The programs are found in the directory where you installed the software. You can compile and execute the program from the directory where you installed the software. You can also copy the program to the home directory of your user ID. This procedure assumes that you did not rename the program.

Note: The mode version of the libraries you link with must match the mode of your OS (32-bit or 64-bit).

Follow these steps:

1. Edit the program for your database as follows:

   testingr.ezt

   (Optional) Identifies the Ingres application program. Change the USERID parameter of the PARM statement to a valid Ingres user ID and password.

   testora.ezt

   (Optional) Identifies the Oracle application program. Change the USERID parameter of the PARM statement to a valid Oracle user ID and password.

   testdb2.ezt

   (Optional) Identifies the DB2 application program. Change the USERID parameter of the PARM statement to a valid DB2 user ID and password. Also change the SSID parameter to a valid database name.

   The program is edited and ready for compile.
2. Compile the program with the ezt command as follows:
   
   \[ \text{ezt program} \]
   
   **program**
   
   Identifies the program for your database.
   
   **Limits:** testingr.ezt (for Ingres), testora.ezt (for Oracle), testdb2.ezt (for DB2)
   
   The program compiles and is ready for execution.

3. Execute the program with the following command:
   
   a.out
   
   The following message appears:
   
   CA Easytrieve and Ingres are communicating
   CA Easytrieve and Oracle are communicating
   CA Easytrieve and DB2 are communicating
   
   If the message does not display, review the steps in the installation procedure and repeat the verify procedure. If the message still does not display, contact CA Support.
Chapter 4: Installing CA Easytrieve for Linux PC

This chapter describes the steps required for installing CA Easytrieve in the Linux PC environment.

This section contains the following topics:

- Pre-Installation Considerations for Linux PC (see page 21)
- Install in the Linux PC Environment (see page 22)
- Install the Unix/ODBC Driver (see page 22)
- Update the Profile (see page 23)
- Verify the Installation (see page 23)
- Install the License Key after Installation in a Linux PC Environment (see page 24)
- Installation Troubleshooting (see page 25)

Pre-Installation Considerations for Linux PC

Before you start the installation, note the following:

- Root authority is not required to install CA Easytrieve. However, you must have root authority to install CA Technologies licensing and the Unix ODBC driver.
- GNU C Library (glibc) version 2.3.4 or above is required.
- New Curses Library (ncurses) is required.
- Determine whether you have a 32-bit or 64-bit system. If you are running a 64-bit OS, verify that the 32-bit compatibility libraries are installed.
- Verify the available disk space before beginning. This product requires 115 MB of disk space.

See the CA Easytrieve User Guide for information about the following:

- Customizing the options table.
- Creating and maintaining an alternate collating sequence table.
- Defining environment variables.
- How to compile and execute your CA Easytrieve program.
Install in the Linux PC Environment

This section describes how to install CA Easytrieve in the Linux PC environment.

**Note:** If CA Easytrieve is already installed on the PC, remove it before following these instructions. Navigate to the uninstall subdirectory (in the installed directory), type `/ezt_uninstall` at the command prompt, and follow the prompts.

**Follow these steps:**

1. Log in.
   
   **Note:** We recommend logging in as a user with root access. Although CA Easytrieve installation does not require this level of access, it is required to install CA Technologies licensing and the Unix ODBC driver.

2. Download the ezt_install file to a directory and make it the current directory.

3. Type `/ezt_install` at the command prompt and press Enter.

4. Follow the prompts to install the software. Keep in mind the following items:
   
   - When prompted for an installation path, press Enter to accept the default path of `/opt/CA/ezt`, or type your own path.
   
   - A Unix/ODBC notification appears during the installation wizard. The Unix/ODBC driver is installed separately.

   - When prompted to update the login profile, copy the provided profile code before pressing Enter to exit the installer. The login profile is updated separately.

   The installation wizard exits and returns you to the command prompt. CA Easytrieve is installed. You can now install the Unix/ODBC driver and update the profile.

Install the Unix/ODBC Driver

CA Easytrieve supports a native Oracle interface and an ODBC interface to connect with databases. If you intend to use the ODBC interface to access information from a database, follow these instructions to download and install the Unix/ODBC driver. These instructions assume that an internet browser is already installed on the Linux PC.

**Important!** CA Technologies has built and tested the driver that is provided on the following site. We recommend that you use this driver. We do not support any other Unix/ODBC drivers.
Follow these steps:
1. Open the browser and navigate to the following address:
   \[ \text{http://opensrcd.ca.com/ips/10393_1/unixODBC_install} \]
2. Download the unixODBC_install file to a directory and make it the current directory.
3. Type \[./unixODBC_install\] at the command prompt and press Enter.
4. Follow the prompts to install the driver.

**Update the Profile**

When you install CA Easytrieve for Linux PC, the installation wizard prompts you to update the login profile and provides the lines of code to insert. This code sets up the environmental variables. The installation instructions directed you to copy this code.

To update the login profile, insert the following lines of code. You can add them to the global login profile or to individual user login profiles.

```bash
export EZT=/yourinstallpath
if [ -f $EZT/eztprofile ]; then
  . $EZT/eztprofile
fi
```

*Note:* The first line shows the installation path specified during installation. The default path is /opt/CA/ezt.

**Verify the Installation**

After you install CA Easytrieve, verify that the installation was successful.

*Important!* Update the profiles before verifying your installation.

Follow these steps:
1. Log out and then log in again.
2. Verify that the EZTPATH variable has been set by issuing the `printenv` command from the terminal.
Install the License Key after Installation in a Linux PC Environment

After installing CA Easytrieve in a Linux PC environment, you need to obtain and install a license key. Installing this key ensures that the installed version of CA Easytrieve is properly licensed. You can install the key automatically or manually.

Follow these steps:

2. Click Licensing from the menu on the left side.
   The CA Licensing page appears.
3. Perform one of the following installation methods:
   - Install the license automatically by clicking Launch the application.
     Note: This process requires Java installed on your machine and active in your browser.
     Messages appear, describing the status of the license installation. If you see a message that indicates success, your key installation is complete. If any problems occur, contact the CA Licensing department or install the key manually.
   - Install the license manually:
     a. Under View your LMP/ALP licenses, click ALP keys to display an ALP license key file that shows key information for your site.
     b. Verify that the license key file includes the 2EZT product code for CA Easytrieve.
        Note: If you do not see the information or you want to have the key emailed to you, contact the CA Licensing department.
     c. Verify that you have an existing ca.olf file in your /opt/CA/SharedComponents/ca_lic directory, and make a backup of the file.
        Note: If no ca.olf file exists in the directory, copy the entire ALP license key file (starting with ID...), paste it into an editor, and save it as ca.olf. In this case, you do not need to perform any additional edits. This file must have security permissions that, at a minimum, allow all users to read the file.
     d. If you have an existing file, open your existing ca.olf file in a text editor.
e. Replace all "ID_" lines with the "ID_" lines indicated in the ALP license key file; add any "FEATURE" lines from the ALP license key file so that these lines immediately follow any existing "FEATURE" lines in your existing ca.olf file.

**Note:** Do not remove any existing "FEATURE" lines. The "FEATURE" line may wrap to a second line on this certificate, but do not enter any line feeds.

After making these edits, manual license installation is complete.

---

**Installation Troubleshooting**

All installation information is written to a log. If you experience problems during installation, this log can help CA Support troubleshoot the cause.

The log can be found in the directory where CA Easytrieve was installed, and is named `CA_Easytrieve_Report_Generator_Install_date_time.log`. 
Chapter 5: Installing CA Easytrieve for z/OS

This chapter provides an overview of CA Easytrieve on the mainframe and describes the operating environment, required CA Common Services, and installation process.

This section contains the following topics:

**Overview** (see page 27)
**Operating Environment** (see page 28)
**CA Common Services** (see page 28)
**How the z/OS Installation Process Works** (see page 29)
**Pre-Installation Considerations** (see page 29)

**Overview**

CA Easytrieve provides a language to develop reports against existing data as well as the ability to manipulate information from different sources to create data. CA Easytrieve lets programs execute in linkedited mode, which results in a load module.

**Important!** To support programs compiled and linked on a prior release of CA Easytrieve, a compatible runtime system is shipped with this product. To take advantage of the new features and functionality of this, and future releases, a program must be recompiled.

A "toolkit" option is offered to package commonly used functionality. You can also access various optional database products as described in the following sections.

**Toolkit Option**

The Toolkit option provides easy-to-use pre-written routines. These routines enable users to further enhance the capabilities of CA Easytrieve with minimal effort.

**SQL Options**

CA Easytrieve offers options that provide SQL access to DB2, Oracle, CA Datacom/DB, and CA IDMS. These programs are interpretive and access is always dynamic. For DB2, you can also program this access using static SQL.

You can run existing programs written using SQL with this release.
Operating Environment

In your z/OS operating system, CA Easytrieve link-edited application programs execute in as little as 640 KB of main storage. CA Easytrieve compilations and compile-and-go applications require a 2 MB to 4 MB region size. The size depends on the number of dynamically acquired storage areas, such as I/O buffers and operating system control blocks. The maximum amount of storage required depends on the size of the program to be compiled or executed, and the options that are implemented.

Migration Considerations

CA Easytrieve is upwardly compatible. This means that older CA Easytrieve programs will execute using the new CA Easytrieve runtime; however, programs compiled using the new release of CA Easytrieve will not execute properly using the older runtime libraries. This should be a consideration during migration. If you compile new application programs in development at the current release, they will not run in production until that system is upgraded as well.

Note: For more information about migrating to the current release of CA Easytrieve from prior releases, see the Release Notes.

JCL Notation

There are many examples of JCL in this chapter. Because sites vary in their conventions for naming data sets, volumes, and other computer-related resources, you must adjust the JCL.

CA Common Services

The CA Common Services (CCS) are a group of system services that help you manage your data center more efficiently. CA Easytrieve requires the CAIRIM service (CA Resource Initialization Manager), which acts as a common driver for dynamic initialization routines.

Note: For more information about CAIRIM and how to install it, see the CA Common Services Installation Guide.
How the z/OS Installation Process Works

The following steps describe the z/OS installation process:

1. Prepare for the installation by confirming that your site meets all installation requirements.

2. Acquire the product using one of the following methods:
   - CA CSM
     Note: If you do not have CA CSM, you can download it from the Download Center at CA Support Online. Follow the installation instructions in the CA CSM Product Guide, available on the Documentation page of https://support.ca.com/.
   - Pax-Enhanced Electronic Software Delivery (ESD) or DVD

3. Install your product based on your acquisition method.
   - CA CSM
     For instructions regarding this method, see Installing Your Product using CA CSM (see page 33).
   - Pax-Enhanced Electronic Software Delivery (ESD) or DVD
     For instructions regarding this method, see Installing Your Product From Pax ESD or DVD (see page 37).

4. Apply maintenance, if applicable.

5. Deploy your product.

6. Configure the minimum settings for your product.
   For configuration instructions, see Configuring Your Product (see page 61).

Pre-Installation Considerations

Before you install CA Easytrieve, consider the following:

- The product component structure (see page 29)
- The required disk space (see page 30)

Product Component Structure

The CA Easytrieve system consists of several components. The term component refers to the base product component and its options or interfaces. The components are provided in several files on the tape. You can unload the components from the tape by specifying the correct CA LMP keyword in the installation jobs.
The SMP/E installation process installs all components into a single target and distribution library. The installation process always creates the target and distribution libraries.

This release has the following SYSMODs:

**CBAAB60**
- Contains the runtime component for r11.6.

**CCL2B60**
- Contains the 6.4 compatibility component.

**CA03B60**
- Contains the compiler component for r11.6.

**Disk Space**

Before you install the product, review the following table for adequate space availability:

<table>
<thead>
<tr>
<th>Data Set</th>
<th>Description</th>
<th>3390 Cylinders</th>
<th>Block Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPJCL</td>
<td>Sample JCL file</td>
<td>1</td>
<td>3120</td>
</tr>
<tr>
<td>CBAALOAD</td>
<td>Target Load Library</td>
<td>20</td>
<td>6144</td>
</tr>
<tr>
<td>CBAAMAC</td>
<td>Target Macro Library</td>
<td>2</td>
<td>3120</td>
</tr>
<tr>
<td>CBAJCL</td>
<td>Target JCL/Sample Library</td>
<td>2</td>
<td>3120</td>
</tr>
<tr>
<td>CBAAXML</td>
<td>Target CSM Metadata Library</td>
<td>2</td>
<td>3120</td>
</tr>
<tr>
<td>ABAALOAD</td>
<td>Distribution Load Library</td>
<td>20</td>
<td>6144</td>
</tr>
<tr>
<td>ABAASRC</td>
<td>Distribution Source Library</td>
<td>1</td>
<td>3120</td>
</tr>
<tr>
<td>ABAAMAC</td>
<td>Distribution Macro Library</td>
<td>2</td>
<td>3120</td>
</tr>
<tr>
<td>ABAAXML</td>
<td>Distribution CSM Metadata Library</td>
<td>2</td>
<td>3120</td>
</tr>
<tr>
<td>SMPMTS</td>
<td>SMP MTS</td>
<td>2</td>
<td>9040</td>
</tr>
<tr>
<td>SMPSCDS</td>
<td>SMP SCDS</td>
<td>2</td>
<td>9040</td>
</tr>
<tr>
<td>SMPSTS</td>
<td>SMP STS</td>
<td>1</td>
<td>9040</td>
</tr>
<tr>
<td>SMPLOG</td>
<td>SMP LOG</td>
<td>5</td>
<td>32000</td>
</tr>
<tr>
<td>SMPLOGA</td>
<td>SMP LOGA</td>
<td>5</td>
<td>32000</td>
</tr>
<tr>
<td>SMPPTS</td>
<td>SMP PTS</td>
<td>10</td>
<td>3120</td>
</tr>
<tr>
<td>SMPCS1</td>
<td>SMP CSI</td>
<td>8</td>
<td>4096</td>
</tr>
</tbody>
</table>
**Note:** If you are upgrading from a previous r11 release, you might need to increase the size of the SMPPTS data set. Allocate the replacement with \( \text{SPACE}=(\text{CYL},(10,1,20)) \).
Use the procedures in this section to manage your product using CA CSM. Managing includes acquiring, installing, maintaining, and deploying products, setting system registries, and managing your CSIs. These procedures assume that you have already installed and configured CA CSM.

**Note:** If you do not have CA CSM, you can download it from the Download Center at CA Support Online. Follow the installation instructions in the *CA CSM Product Guide*, available on the Documentation page of https://support.ca.com/.

When you have completed the procedures in this section, follow the configuration instructions in "Configuring Your Product".

This section contains the following topics:

- **How the Installation Process Works** (see page 33)
- **Preparing for Installation** (see page 35)
- **Installing Your Products Using CA CSM** (see page 37)
- **Installing Your Product Using Pax ESD or DVD** (see page 37)

### How the Installation Process Works

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

- **Acquisition**—Transports the software to your z/OS system.
- **Installation using SMP/E**—Creates an SMP/E environment and runs the RECEIVE, APPLY, and ACCEPT steps. The software is untailedored.
- **Deployment**—Copies the target libraries to another system or LPAR.
  
  **Note:** This step is optional for CA CSM Version 6.0. For more information, see the scenario *Configuring Products Using CA CSM* that is available in the CA CSM Version 6.0 bookshelf at [http://ca.com/support](http://ca.com/support).

- **Configuration**—Creates customized load modules, bringing the software to an executable state.
- **Deployment**—Makes configured run-time libraries available to a remote location where that software can be activated, bringing it to an executable state.
CA Chorus™ Software Manager (CA CSM) - formerly known as CA Mainframe Software Manager™ (CA MSM) - is an intuitive web-based tool that can automate and simplify many CA Technologies product installation activities on z/OS systems. This application also makes obtaining and applying corrective and recommended maintenance easier. A web-based interface enables you to install and maintain your products faster and with less chance of error. As a best practice, we recommend that you install mainframe products and maintenance using CA CSM. Using CA CSM, someone with limited knowledge of JCL and SMP/E can install a product.

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

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

To install your product, do the following tasks:

1. Prepare for the installation by confirming that your site meets all installation requirements.

2. Verify that you acquired the product using one of the following methods:
   - Download the software from http://ca.com/support using CA CSM.
   - Order a product DVD. To do so, contact your account manager or a CA Technologies Support representative.

3. Perform an SMP/E installation using one of the following methods:
   - If you used CA CSM to acquire the product, start the installation process from the SMP/E Environments tab in CA CSM.
   - If you used Pax ESD to acquire the product, you can install the product in the following ways:
     - Install the product manually.
     - Complete the SMP/E installation using the Add Product option in CA CSM.
   - If you used a DVD, install the product manually.
   Note: If a CA Recommended Service (CA RS) package is published for your product, install it before proceeding.

4. (For CA CSM Release 5.1 and earlier only) Deploy the target libraries.

    Note: This step is optional for CA CSM Version 6.0. For more information, see the scenario Configuring Products Using CA CSM that is available in the CA CSM Version 6.0 bookshelf at http://ca.com/support.
5. Configure your product using CA CSM or manually.
6. (For staging system configurations in CA CSM Version 6.0 only) Deploy configured run-time libraries, and activate your product.
   
   **Note:** Configuration is considered part of starting your product.

---

### Preparing for Installation

#### CA Common Services Requirements

The following CA Common Services are used with your product:

- CAIRIM
- CAICCI
- CA LMP

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

#### LMP Key Requirements

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

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

- From your product media
- With Pax ESD
- From [http://ca.com/support](http://ca.com/support)

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

#### USS Space Requirements

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

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

**Concurrent Releases**

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

- When you install the product into an existing SMP/E environment, this installation deletes previous releases in that environment.

- If you acquired your product with Pax ESD, select different target and distribution zones for your new release from where your current release is installed. The new zones use different libraries than your current release.

  **Note:** CA CSM installs a product into a new SMP/E environment by default. You can select an existing SMP/E environment from your working set. For more information, see the online help that is included in CA CSM.

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

**Relationships Between Versions**

The following diagram shows the relationships among multiple versions of CA View and CA Deliver.
Installing Your Products Using CA CSM

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

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

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

You can use the following scenarios to guide you through the product installation process (see page 33) using CA CSM:

- Acquiring Products Using CA CSM
- Installing Products Using CA CSM
- Maintaining Products Using CA CSM
- Configuring Products Using CA CSM

These scenarios are available in the CA CSM Version 6.0 bookshelf at http://ca.com/support. For additional information about how to use CA CSM, use the online help.

Installing Your Product Using Pax ESD or DVD

How to Install Your Product Using a Pax File

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

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

**How to Install a Product Using a Pax File**

1. Allocate and mount the file system (see page 39).
2. Acquire the product pax files (see page 41).
3. Create a product directory from the pax file (see page 47).
4. Copy the installation files to z/OS Data Sets (see page 48).
5. Prepare the SMP/E environment for a pax installation.
6. Run the installation jobs for a pax installation.
7. (Optional) Clean up the USS directory (see page 53).
8. Apply preventive maintenance (see page 54).

**USS Environment Setup**

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

- Receive product pax files from [http://ca.com/support](http://ca.com/support).
- Perform utility functions to unpack the pax file into MVS data sets that you can use to complete the product installation.
We recommend that you allocate and mount a file system that is dedicated to Pax ESD. The amount of space that you need for the file system depends on the following variables:

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

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

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

### Allocate and Mount a File System

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

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

This procedure describes how to perform the following tasks:

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

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

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

**Important!** USS commands are case-sensitive.
Follow these steps:

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

   - On a zFS, use the following sample:
     ```
     //DEFINE EXEC PGM=IDCAMS
     //SYSPRINT DD SYSOUT=* 
     //SYSUDUMP DD SYSOUT=* 
     //AMSDUMP DD SYSOUT=* 
     //SYSIN DD *
     DEFINE CLUSTER ( +
     NAME(your_zFS_data_set_name) +
     STORAGECLASS(class) +
     LINEAR +
     CYL(primary secondary) +
     SHAREOPTIONS(3,3) +
     )
     /*
     //FORMAT EXEC PGM=IOEAGFMT,REGION=0M,
     // PARM=('aggregate your_zFS_data_set_name -compat')
     //SYSPRINT DD SYSOUT=* 
     //SYSUDUMP DD SYSOUT=* 
     //STDOUT DD SYSOUT=* 
     //STDERR DD SYSOUT=* 
     //CEEDUMP DD SYSOUT=* 
     */
     
     - On an HFS, use the following sample:
       ```
       ```
       //ALCHFS EXEC PGM=IEFBR14
       //CAPAX DD DSN=yourHFS_data_set_name,
       // DISP=(NEW,CATLG,DELETE),UNIT=3390,
       // DSNTYPE=HFS,SPACE=(CYL,(primary,secondary,1))
       ```

The file system is allocated.

**Note:** Ensure that the zFS or HFS data set name that you use conforms to your data set naming conventions for USS file systems. If the allocation of the file system data set fails, it is because of environmental settings not allowing for the allocation. On an HFS, try using the ISPF 3.2 Data Set Utility to allocate your HFS data set.
2. Create a mount point for the file system. This example shows how to create a /CA/CAPAX directory in an existing directory, /u/maint. From the TSO OMVS shell, enter the following commands:

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

   Note: This document refers to this structure as yourUSSpaxdirectory.

   The mount point is created.

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

   - On a zFS, use the following sample:

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

   - On an HFS, use the following sample:

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

   The file system is mounted.

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

   chmod -R 775 /yourUSSpaxdirectory/

   Write access is granted.

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

---

**Acquire the Product Pax Files**

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

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

- **Download the product pax file from http://ca.com/support to your PC** (see page 42), and then upload it to your USS file system.
  
  If you download a zip file, you must unzip it before uploading to your USS file system.

- **Download the pax files from http://ca.com/support directly to your USS file system** (see page 43).

- **Download the pax file from the product DVD to your PC, and then upload the pax files to your USS file system** (see page 46).

This section includes the following information:

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

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

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

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

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

**Download Files to a PC Using Pax ESD**

You can download product installation files from [http://ca.com/support](http://ca.com/support) to your PC.

**Follow these steps:**

1. Log in to [http://ca.com/support](http://ca.com/support), and click Download Center.
   
   The Download Center web page appears.

2. Under Download Center, select Products from the first drop-down list, and specify the product, release, and gen level (if applicable), and click Go.
   
   The CA Product Download window appears.
3. Download an entire CA Technologies product software package or individual pax files to your PC. If you download a zip file, you must unzip it before continuing.

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

**Download Using Batch JCL**

You download a pax file from [http://ca.com/support](http://ca.com/support) by running batch JCL on the mainframe. Use the sample JCL attached to the PDF file as `CAtoMainframe.txt` (see page 45) to perform the download.

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

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

**Follow these steps:**

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

   **Note:** For multiple downloads, add files to a cart.

   The Download Method window opens.
7. Click FTP Request.

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

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

8. Select one of the following methods:

**Preferred FTP**

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

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

**Alternate FTP**

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

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

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

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

9. Submit the job.

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

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

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

```plaintext
//GETPAX JOB (ACCOUNTNO), 'FTP GET PAX ESD PACKAGE',
// MSGCLASS=X,CLASS=A,NOTIFY=&SYSUID

//*********************************************************************
//* This sample job can be used to download a pax file directly from  *
//* CA Support Online to a USS directory on your z/OS system.          *
//*
//* When editing the JCL ensure that you do not have sequence numbers *
//* turned on.                                                        *
//*
//* This job must be customized as follows:                          *
//* 1. Supply a valid JOB statement.                                 *
//* 2. The SYSTCPD and SYSFTPD JCL DD statements in this JCL may be   *
//*    optional at your site. Remove the statements that are not      *
//*    required. For the required statements, update the data set     *
//*    names with the correct site-specific data set names.           *
//* 3. Replace "Host" based on the type of download method.           *
//* 4. Replace "YourEmailAddress" with your email address.            *
//* 5. Replace "yourUSSpaxdirectory" with the name of the USS          *
//* directory used on your system for Pax ESD downloads.             *
//* 6. Replace "FTP Location" with the complete path                  *
//* and name of the pax file obtained from the FTP location          *
//* of the product download page.                                    *
//*********************************************************************

//GETPAX EXEC PGM=FTP,PARM='(EXIT TIMEOUT 120',REGION=0M
//SYSTCPD DD DSN=yourTCPIP.PROFILE.dataset,DISP=SHR
//SYSFTPD DD DSN=yourFTP.DATA.dataset,DISP=SHR
//SYSPRINT DD SYSOUT=*  
//OUTPUT DD SYSOUT=*  
//INPUT DD *

Host
anonymous YourEmailAddress
lcd yourUSSpaxdirectory
binary
get FTP_location
quit
/*
```
Download Files to Mainframe through a PC

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

**Follow these steps:**

1. Download the product file to your PC using one of the following methods:
   - **Pax ESD** (see page 42). If you downloaded a zip file, first unzip the file to use the product pax files.
   - DVD. Copy the entire product software package (or individual pax files) to your PC.

   The pax file resides on your PC.

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

2. Open a Windows command prompt.

   The command prompt appears.

3. Customize and enter the following FTP commands:

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

   **mainframe**

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

   **userid**

   Specifies your z/OS user ID.

   **password**

   Specifies your z/OS password.

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

   Specifies the location of the pax file on your PC.

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

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

paxfile.pax.Z

Specifies the name of the pax file to upload.

The pax file is transferred to the mainframe.

Create a Product Directory from the Pax File

The pax command performs the following actions:

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

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

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

Use the sample JCL that is attached to the PDF file as Unpackage.txt (see page 48) to extract the product pax file into a product installation directory.

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

Follow these steps:

1. Replace ACCOUNTNO with a valid JOB statement.
2. Replace yourUSSpaxdirectory with the name of the USS directory that you use for product downloads.
   
   The job points to your specific directory.
3. Replace paxfile.pax.Z with the name of the pax file.
   
   The job points to your specific pax file.
4. Submit the job.
   
   The job creates the product directory.

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

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

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

Copy Installation Files to z/OS Data Sets

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

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

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

   You have identified the product-specific installation details.

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

   The job is edited.

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

   Your view is of the product-specific directory.

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

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

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

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

6. Submit the UNZIPJCL job.

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

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

   Note: For more information, see the IBM SMP/E for z/OS Reference (SA22-7772).
Prepare the SMP/E Environment for a Pax Installation

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

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

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

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

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

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

**Follow these steps:**

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

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

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

   **Note:** The following steps include instructions to execute the EZTSEDIT macro each time you open a new SAMPJCL member. To edit all SAMPJCL members simultaneously, read and follow the instructions in the EZTAREAD member, and submit the EZTEDALL member.
2. Open the SAMPJCL member EZT1HOLD in an edit session and execute the EZTEDIT 
   macro from the command line.
   EZT1HOLD is customized.

3. Submit EZT1HOLD.
   This job downloads the error and FIXCAT HOLDDATA from http://ca.com/support.

4. Open the SAMPJCL member EZT1ALL in an edit session and execute the EZTEDIT 
   macro from the command line.
   EZT1ALL is customized.

5. Submit EZT1ALL.
   This job produces the following results:
   - The target and distribution data sets for your product are created.
   - Unique SMPLTS, SMPMTS, SMPSCDS, and SMPSTS data sets for this target zone 
     are created.

6. If your product requires a USS file system or if you want to install a feature of the 
   product that requires a USS file system, allocate and mount the file system:
   **Note:** You can customize the supplied HFS JCL to zFS, if your site requires it.
   a. Open the SAMPJCL member ccc2ALLU in an edit session and execute the 
      EZTEDIT macro from the command line.
      **Note:** All instances of ccc in this section indicate a three-character component 
      code based on the FMID.
      ccc2ALLU is customized.
   b. Submit ccc2ALLU.
      This job allocates your HFS or zFS data sets.
   c. Open the SAMPJCL member ccc3MKD in an edit session and execute the 
      EZTEDIT macro from the command line.
      ccc3MKD is customized.
   d. Submit ccc3MKD.
      This job creates all directories and mounts the file system.

7. Open the SAMPJCL member EZT2CSI in an edit session and execute the EZTEDIT 
   macro from the command line.
   EZT2CSI is customized.

8. Submit EZT2CSI.
   This job produces the following results:
   - The CSI data set is defined.
   - The SMPPTS and SMPLOG data sets are allocated.
Installing Your Product Using Pax ESD or DVD

The global, target, and distribution zones are initialized.

The DDDEF entries for your product are created.

The DDDEFS for the required SMP/E data sets are created.

9. If your product requires HFS or if you want to install a feature of the product that requires HFS, add the DDDEFS that are required for the file system to your SMP/E environment:
   a. Open the SAMPJCL member ccc3CSIU in an edit session and execute the EZTSEDIT macro from the command line.
      ccc3CSIU is customized.
   b. Submit ccc3CSIU.
      This job customizes the CSI by adding the DDDEFS associated with the directory.

Run the Installation Jobs for a Pax Installation

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

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

Follow these steps:
1. Open the SAMPJCL member EZT3RECD in an edit session, and execute the EZTSEDIT macro from the command line.
   EZT3RECD is customized.
2. Submit EZT3RECD to receive SMP/E base functions and error HOLDDATA.
   Your product is received and now resides in the global zone.
3. If an FMID was placed in error, download and receive PTFs (see page 54) from http://ca.com/support.
4. Open the SAMPJCL member EZT4APP in an edit session, and execute the EZTSEDIT macro from the command line.
   EZT4APP is customized.
5. Submit EZT4APP to apply SMP/E base functions with the CHECK option. If you find unresolved hold errors, we recommend that you note these errors and verify that resolving PTFs are applied before implementing products in production. Update the JCL to BYPASS the unresolved hold error IDs. After successful completion, rerun APPLY with the CHECK option removed.

Your product is applied and now resides in the target libraries.

6. Open the SAMPJCL member EZT5ACC in an edit session, and execute the EZTSEDIT macro from the command line.

EZT5ACC is customized.

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

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

**Clean Up the USS Directory**

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

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

- Pax file
- Product-specific directory that the pax command created and all of the files in it
- SMP/E RELFILEs, SMPMCS, and HOLDDATA MVS data sets
  These data sets have the HLQ that you assigned in the UNZIPIJCL job.

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

**Follow these steps:**

1. Navigate to your Pax ESD USS directory.

   Your view is of the applicable USS directory.

2. Delete the pax file by entering the following command:

   ```
   rm paxfile
   paxfile
   ```

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

   The pax file is deleted.
3. Delete the product-specific directory by entering the following command:

   `rm -r product-specific_directory`

   `product-specific_directory`
   Specifies the product-specific directory that the pax command created.
   The product-specific directory is deleted.

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

### Apply Preventive Maintenance

This section describes how you apply preventive management to your product.

### Receive Maintenance and Error HOLDDATA

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

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

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

**Note:** To review the CA Technologies mainframe maintenance philosophy, see your Best Practices Guide or visit the CA Data Center Management page.

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

1. Check the Download Center at [http://ca.com/support](http://ca.com/support) for PTFs that have been published since this release was created. If the base release was created recently, no PTFs will have been published yet. If PTFs exist, add published solutions for your product to your Download Cart, and click Checkout.

2. Specify that you want a complete package.
   
   When processing completes, a link appears on the Review Download Requests page. You also receive an email notification.

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

4. Run the CAUNZIP utility.
   
   CAUNZIP unzips the package of published solutions and creates an SMPNTS file structure that the SMP/E RECEIVE FROMNTS command can process. For sample JCL to run the utility that is located in yourHLQ.CAW0JCL(CAUNZIP), see the CA Common Services for z/OS CAUNZIP Administration Guide. After execution completes, the ZIPRPT data set contains the summary report. The summary report does the following:
   
   ■ Summarizes the content of the product order ZIP file.
   ■ Details the content of each data set and the z/OS UNIX files produced.
   ■ Provides a sample job to receive the PTFs in your order.

5. Review the sample job that is provided in the CAUNZIP output ZIPRPT file. Cut and paste the JCL into a data set, specify your SMP/E CSI on the SMPCSI DD statement and submit the job to receive the PTFs in your order.

6. Verify that you have the values from the base installation in the EZTSEDIT macro that was customized in the installation steps.

7. Open the SAMPJCL member EZT1HOLD in an edit session and execute the EZTSEDIT macro from the command line.
   
   **Note:** Update EZT1HOLD SAMPJCL to download the HOLDDATA file.

   EZT1HOLD is customized.

8. Submit EZT1HOLD.
   
   The job downloads the external HOLDDATA file.

9. Open the SAMPJCL member EZT6RECH in an edit session and execute the EZTSEDIT macro from the command line.
   
   EZT6RECH is customized.

10. Submit EZT6RECH.
    
    The job receives the external HOLDDATA file.

11. (Optional) [Apply CA Recommended Service (CA RS) Maintenance](see page 56)
Apply and Accept Maintenance

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

Use this procedure to apply and optionally accept CA Technologies corrective maintenance.

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

**Follow these steps:**

1. Open the SAMPJCL member EZT7APYP in an edit session and execute the EZTSEDIT macro from the command line.
   
   EZT7APYP is customized.

2. Submit EZT7APYP.
   
   The PTFs are applied.

3. (Optional) Open the SAMPJCL member EZT8ACCP in an edit session and execute the EZTSEDIT macro from the command line.
   
   EZT8ACCP is customized.

4. (Optional) Submit EZT8ACCP.
   
   The PTFs are accepted.
   
   **Note:** You do not have to submit the job at this time. You can accept the PTFs according to your site policy.

Apply CA Recommended Service (CA RS) Maintenance

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

Use this procedure to apply CA RS maintenance as a part of managing preventive maintenance.

**Note:** To review the CA Technologies mainframe maintenance philosophy, see your *Best Practices Guide* or visit the [CA Data Center Management page](#).
Follow these steps:

1. Do the following:
   a. Determine which ASSIGN statements to download.
      ■ The yearly CA RS ASSIGN statements are stored in the following file:
        ftp.ca.com/pub/ASSIGNS/YEARLY/YEARyyyy.TXT
      ■ The monthly CA RS ASSIGN statements are stored in the following file:
        ftp.ca.com/pub/ASSIGNS/CARyyyyymm.TXT
   b. Open the SAMPJCL member EZT6CARS in an edit session, update EZT6CARS SAMPJCL to download ASSIGN statements from http://ca.com/support, and execute the EZTSEDIT macro from the command line.

   EZT6CARS is customized.

2. Submit EZT6CARS.

   The job downloads the CA RS ASSIGN statements.

3. Open the SAMPJCL member EZT6RECP in an edit session, manually add the data set that contains the ASSIGN statements to the SMPPTFIN DD, and execute the EZTSEDIT macro from the command line.

   EZT6RECP is customized.

4. Submit EZT6RECP.

   The job receives the external HOLDDATA file and CA RS ASSIGN statements.

5. Open the SAMPJCL member EZT7APYP in an edit session and execute the EZTSEDIT macro from the command line.

   EZT7APYP is customized.

6. Submit EZT7APYP.

   The PTFs are applied.

7. (Optional) Open the SAMPJCL member EZT8ACCP in an edit session and execute the EZTSEDIT macro from the command line.

   EZT8ACCP is customized.

8. (Optional) Submit EZT8ACCP.

   The PTFs are accepted.

   **Note:** You do not have to submit the job at this time. You can accept the PTFs according to your site policy.

**HOLDDATA**

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

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

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

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

**DB2BIND**
Indicates that DBRMs have changed and packages need to be rebound.

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

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

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

**DOC**
Indicates a documentation change with this SYSMOD.

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

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

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

**EXIT**
Indicates that changes delivered by this SYSMOD require reassembly of user exits.
EXRF
Indicates that the SYSMOD must be installed in both the Active and Alternate Extended Recovery Facility Systems.

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

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

MULTSYS
Apply this SYSMOD to multiple systems for either preconditioning, coexistence, or exploitation.

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

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

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

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

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

Download the external HOLDDATA from http://ca.com/support to a DASD file, and allocate the file to the SMPHOLD DD statement. To take care of the external HOLDDATA, receive it into your SMP/E environment. SMP/E receives the HOLDDATA from CA-supplied jobs.
You can find JCL to download the external HOLDDATA in your SAMPJCL member. Open EZT1HOLD in an edit session and execute the EZTSEDIT macro on the command line. Then, submit the JCL.

**Error HOLDDATA**

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

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

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

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

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

**FIXCAT HOLDDATA**

CA Technologies provides FIXCAT HOLDDATA to help identify maintenance that is required to support a particular hardware device, software, or function. Fix categories are supplied as SMP/E FIXCAT HOLDDATA statements. Each FIXCAT HOLDDATA statement associates an APAR and its related fixing PTF to one or more fix categories.
Chapter 7: Configuring Your Product

This section describes what you need to do to start CA Easytrieve.

This section contains the following topics:

How to Complete Configuration With CA CSM (see page 61)
How to Configure Without CA CSM (see page 61)
Best Practices for Configuration (see page 75)

How to Complete Configuration With CA CSM

The topics in this section describe the manual tasks that you perform when configuring your product using CA CSM.

The CA CSM configuration process includes all configuration tasks except for creation of the Printer Set Definition. You must create this module manually, regardless of whether you are using CA CSM to perform product configuration.

More information:

Printer Set Definition (see page 63)

How to Configure Without CA CSM

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

Create the Options Table and Update Its Settings

CA Easytrieve requires an EZOPTBL options table to execute successfully. You can create this table and update its settings by running two jobs provided in the CBAAJCL data set.

Notes:

- Follow these instructions if you installed the product from tape or using Pax-Enhanced ESD. CA CSM lets you perform this task through the Software Configuration Services (SCS) component.
- If you are upgrading from CA Easytrieve 6.4, you can optionally migrate your existing options table settings and Printer Set Definition to the current release.
Follow these steps:

1. Execute the JOB06OP1 job in the CBAAJCL data set.
   The options table is created and initialized. This job also assembles and link edits the EZTINI module, which contains the DSN of the options table file. The EZTINI module is required for CA Easytrieve program execution when the execution JCL does not contain an //EZOPTBL DD statement.

2. Update the settings in the options table by executing the JOB06OP2 job in the CBAAJCL data set.
   
   **Note:** Detailed instructions and information are provided in the member comments.

   The options table settings are updated.

More information:

- [SAMPJCL and CBAAJCL Contents](#) (see page 131)
- [Migrate Options Table Settings (from 6.4)](#) (see page 62)
- [Migrate Extended Reporting Printer Set Definition](#) (see page 64)

**Migrate Options Table Settings (from 6.4)**

If you are migrating from CA Easytrieve 6.4, you can optionally migrate your existing options table settings to the current release.

**Note:** Follow these instructions if you installed the product from tape or using Pax-Enhanced ESD. CA CSM lets you perform this task through the Software Configuration Services (SCS) component.

Follow these steps:

1. Execute the JOB06OP1 job in the CBAAJCL data set.
   The options table is created and initialized with default option settings.

2. Execute the MOV64OPT job in the CBAAJCL data set.
   Your existing options table settings are migrated to the current release.
Migrate Options Table Settings (within 11 versions)

If you are migrating from CA Easytrieve r11 sp3, r11 sp4, or r11.5 to CA Easytrieve r11.6, you can optionally migrate your existing options table settings to the current release.

**Note:** Follow these instructions if you installed the product from tape or using Pax-Enhanced ESD. CA CSM lets you perform this task through the Software Configuration Services (SCS) component.

**Follow these steps:**

1. Execute the JOB06OP1 job to create an r11.6 EZOPTBL.
2. Copy the r11 sp3, r11 sp4, or r11.5 EZOPTBL into the new one (via TSO).

Your existing options table settings are migrated to the current release.

**EZOPTBL Options Table Settings**

If you have set NEWFUNC to N (no) in your CA Easytrieve r11 EZOPTBL Options Table, you should copy your CA Easytrieve r6.4 Options Table module EZTPOPT into your r11.6 CBAALOAD in order to keep your 6.4 options.

To accomplish this, we recommend a TSO copy or run this job.

```
//jobcard
//STEP1 EXEC PGM=IEBCOPY
//CAILIB DD DISP=SHR,
//           DSN=your.ezt64.CAILIB
//ABAALOAD DD DISP=SHR,
//          DSN=your.r116.CBAALOAD
//SYSPRINT DD SYSOUT=*  
//SYSIN     DD *
COPY  INDD=CAILIB,OUTDD=CBAALOAD
SELECT MEMBER=((EZTPOPT,,R))
```

**Printer Set Definition**

If you use the Extended Reporting feature of CAEasytrieve, build the Printer Set Definition (PSD). The PSD contains the definitions for the extended printers used in the application programs.

If you are upgrading from the CA Easytrieve 6.4 release, you can migrate the existing PSD or create a new one.

If you are upgrading from an r11.x CA Easytrieve release, you do not need to migrate or create a PSD. All r11.x PSDs are compatible with the latest release.
More information:

- Migrate Extended Reporting Printer Set Definition (see page 64)
- Create Extended Reporting Printer Set Definition (see page 64)

Migrate Extended Reporting Printer Set Definition

If you are migrating from CA Easytrieve 6.4 and you use the Extended Reporting feature, you can optionally migrate your existing Printer Set Definition (PSD) to the current release.

**Note:** The 6.4 PSD is not compatible with the current CA Easytrieve release. You must migrate the existing 6.4 PSD or create a new one.

To migrate the Extended Reporting Printer Set Definition, execute the MOV64PSD job in the CBAAJCL data set.

The PSD is migrated to a new module that is compatible with this release and link edited.

Create Extended Reporting Printer Set Definition

If you are migrating from CA Easytrieve 6.4 and you use the Extended Reporting feature, you can create a new Printer Set Definition (PSD).

**Note:** The 6.4 PSD is not compatible with the current CA Easytrieve release. You must migrate the existing 6.4 PSD or create a new one.

To create the PSD, execute the JOB14PSD job in the CBAAJCL data set.

Activate the 6.4 Compatibility IDMS and IMS Interface Option

Activate the 6.4 Compatibility IDMS or IMS interface option when both of the following are true:

- You plan to use the 6.4 Compatibility feature to run your CA Easytrieve programs.
- Those programs access an IDMS database (not by using SQL) or IMS database.

To activate the 6.4 Compatibility option, execute the JOB0764L job in the CBAAJCL data set.

The JOB0764L job link edits the required IDMS and IMS stub modules into the EZTPA00 module in the target library (CBAALIB).
Create the DBCS Options Module

If you use the DBCS feature of CA Easytrieve, build the DBCS options module (PSIDBLOPT). This module contains the DBCS Code System definitions that are available for use in CA Easytrieve application programs.

To create the DBCS Options Module, execute the JOB13DBO job in the CBAAJCL data set.

The PSD is migrated to a new module that is compatible with this release and then link edited.

Activate the Oracle Interface Option

The Oracle interface lets you use CA Easytrieve to process data in an Oracle database by using SQL. If you use this feature, activate the Oracle interface option.

Note: This interface requires you to have the Oracle version of CA Pan/SQL installed and configured appropriately.

To activate the Oracle interface option, execute the JOB15ORA job in the CBAAJCL data set.

The JOB15ORA job link edits the ORASTBL module (from the Oracle SQLLIB) into the CA Easytrieve Compiler module (EZTCOM) and activates the Oracle interface.

Activate the SUPRA Interface Option

The SUPRA interface lets you use CA Easytrieve to retrieve information from a SUPRA database by invoking SUPRA as a preprocessor. The preprocessor acts as the Relational Data Manipulation Language (RDML) compiler, taking the place of the COBOL or PL/I preprocessor. The SUPRA preprocessor converts the RDML into CA Easytrieve source statements with an expanded CA Easytrieve program as the result.

If you plan to use this feature, activate the SUPRA interface option.
Follow these steps:

1. Execute the JOB10SUP job in the CBAAJCL data set.
   This job link edits the CSVILUVL module (from the SUPRA product library) into the target library (CBAALIB).

2. Enter your site-specific parameters in the EZTPSPRA macro, which is found in the JOB11SUA and JOB11SUB jobs in the CBAAJCL data set.
   **Note:** JOB11SUA installs the EZTPSPRA module without using SMP/E. JOB11SUB installs the module using SMP/E. Choose the job that uses your preferred installation method.

3. Execute the JOB11SUA or JOB11SUB job in the CBAAJCL data set.
   This job compiles and link edits the SUPRA preprocessor program (EZTPSPRA) into the target library (CBAALIB).

More information:

**EZTPSPRA Macro** (see page 67)
EZTPSPRA Macro

The EZTPSPRA macro executes when you execute JOB11SUA or JOB11SUB to install the SUPRA preprocessor. Add your site-specific settings to the parameters before executing the job.

This macro has the following format:

```
[ { YES } ]
%EZTPSPRA  SCHEMA  schema-name  [ OVERRIDE {     } ] +
[ { NO } ]

[ { YES } ]
[ FIELDS maxfields ] [ OPEN {     } ] +
[ { NO } ]

[ SCAN start-column THRU end-column ]
```

SCHEMA schema-name

Specifies the default name of the schema where the directory entries for the views to be accessed are located.

You can override the default schema-name at execution time by using a PARM on the job EXEC statement. This is helpful when multiple schemas are used.

There is no default schema-name.

Note: For a SUPRA JCL example, see the Programming Guide.

OVERRIDE (YES|NO)

YES

Overrides the schema-name when you execute the preprocessor.

NO

Ignores attempts to override the schema name. This is the default.

FIELDS maxfields

Specifies the maximum number of fields that can exist in a view included by the preprocessor.

If the number of fields in the view exceeds maxfields, an error message is printed and execution stops.

The specified value has an effect on the memory requirement when executing the preprocessor. Each field requires approximately 110 bytes of storage. Decreasing the value conserves memory. Increasing the value causes more memory to be used by the preprocessor.

Limits: 1 - 32767

Default: 250
OPEN \{YES \| NO\}

**YES**

Specifies that the preprocessor is to issue open and close functions for the directory files. This is the default.

**NO**

Indicates that the open function has been performed by a system task and the preprocessor is not to open and close the directory files.

**SCAN start-column THRU end-column**

**start-column**

Specifies the column number where the preprocessor starts to scan for input.

**Limits:** 1 - 80; must be less than *end-column*

**Default:** 1

**end-column**

Specifies the column number where the preprocessor stops scanning for input.

**Limits:** 1 - 80; must be greater than *start-column*

**Default:** 72

These values also control the columns used during code generation. Set these values in accordance with the SCANCOL option.

**Note:** To compile the SUPRA preprocessor, you must define the Options Table with SCAN=(1,72). If your option differs, rerun install Job 11 or assemble a temporary copy of the options table to be used for the compile of the SUPRA preprocessor.

**More information:**

Activate the SUPRA Interface Option (see page 65)

**Activate the TOTAL Interface Option**

The TOTAL interface lets you use CA Easytrieve to process data in a TOTAL database. If you plan to use this feature, activate the TOTAL interface option.

To activate the TOTAL interface option, execute the JOB12TOT job in the CBAAJCL data set.

The JOB12TOT job link edits the DATBAS module (from the TOTAL product library) into the target library (CBAALIB).
Assemble a User Requirements Table for the CA Datacom/DB Option

The CA Datacom/DB option lets you use CA Easytrieve to process data in a CA Datacom/DB database. If you plan to use this option, you must create at least one User Requirements Table (URT). Each URT is linked with a copy of ETDRVR, creating a module with a user-defined name.

Notes:
- For information about using the CA Datacom/DB option, see the Programming Guide.
- You can create multiple URTs. For more information about defining URTs, see the CA Datacom/DB Database and System Administration Guide.

Follow these steps:
1. Modify the JOB09URT job in the CBAAJCL data set:
   - Specify values for the tblnam, update, and usrinfo parameters in the CA Datacom/DB macros.
   - Specify a name for the link-edited URT in the MEMBER parameter of the PROC statement.
   - Specify the URT name on the LINKURT.SYSLIN DD statement by replacing urtname with the same value you specified in the MEMBER parameter.
   - (Optional) Modify the URTLIB parameter to specify the target library name. (The default target library specified in the SYSLMOD DD statement is CBAALOAD.)
2. Submit the job.
   The ASM step completes with a return code of 0.
   The LINKURT step completes with a return code of 4 and the following message:
  IEW2454W SYMBOL DBMSCBL UNRESOLVED
   The job assembles and link edits the URT.
Language Environment (LE) Considerations

When the CA Easytrieve runtime routines are installed, one module, (ETCOBSR), is statically link-edited with the LE runtime option overrides required by CA Easytrieve. These overrides are distributed in the form of an object module named ETLEOPTS. In the SMP/E JCLIN for the ETCOBRS module, you can see that ETLEOPTS is statically linked into module ETCOBSTR, (along with the ETCOBST module). If you require additional LE runtime option overrides for your CA Easytrieve jobs, you can add them in either of these ways:

- Change your LE runtime option installation defaults.
- Assemble the overrides into a CEEUOPT object file, and relink ETCOBSR including your new object file in place of ETLEOPTS.

If you assemble your own CEEUOPT, be sure to include the following LE runtime option overrides required by CA Easytrieve:

**TRAP=(OFF)**

Macro Libraries

The section provides additional information and the steps that must be executed for some of the macro interfaces.

Macro Library Storage

Macro statements are stored and maintained in a macro library. The MACTYPE entry in the CA Easytrieve options table (see the Option Tables appendix of the Language Reference Guide) specifies the macro library storage access method.

The types of access methods are listed below, (the letter under the macro library type is the corresponding value to be used for the MACTYPE option):

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panvalet(P)</td>
<td>Macros are stored in a CA Panvalet library and maintained through CA Panvalet utilities.</td>
</tr>
</tbody>
</table>
| PDS (OS/390 and z/OS only)(D) | Macros are stored in a Partitioned Data Set (PDS), and maintained through the operating system utilities and TSO.  
|                    | When creating the PDS macro library, specify the following dataset attributes:  
|                    | DCB=(RECFM=FB,RECL=80,BLKSIZE=nnnn)  
|                    | Where nnnn is any multiple of 80. |
Security

z/OS provides the capability, through program products such as CA ACF2 and CA Top Secret to secure the entire macro library against unauthorized access.

Unit Record Exits

CA Easytrieve provides the unit record exit routine capability, which permits all primary input and output to be processed by user-written exit routines.

A SYSIN exit routine provides primary compiler input when an exit name is specified in the selectable option SINXIT.

A SYSPRINT exit routine receives all primary output when an exit name has been specified in the selectable option SPRTXIT.

Note: For more information about the options table, see the User Guide.

Linkage Conventions

The exit routine is loaded at initiation, using the LOAD function of the operating system. When the exit routine is called, it uses a three-word (SYSIN/SYSIPT) or a four-word (SYSPRINT/SYSLST) parameter list.

You must code exit routines following all of the conventions described in the Programming Guide.

SYSIN Exit

The SYSIN exit routine is invoked at compile-time and allows for pre-processing of the source statements that are input to the compiler.

The SYSIN exit routine places the input record (80 bytes) into the data area pointed to by parameter one. Parameter two points to a one-word code that is always zero, except at end-of-file, when the exit sets the code to a binary 8.

Parameter three points to a two-word area. The first word is always binary 0. The second word is binary 0 on the first call to the exit and can be used by the exit to determine first time entry. The contents of the second word are not modified, thus providing the exit with an anchor for reentrant coding.
Sample SYSIN Exit Routine

The following is a sample SYSIN exit routine:

```
SINEXIT  CSECT
STM   14,12,12(13)          Save registers
LR    11,15                 Set base register
USING SINEXIT,11            Addressability
LA    14,0,(0,13)           CA Easytrieve save area
LA    13,MYSAVE             Exit save area
ST    13,8(0,14)            Chain forward
ST    14,MYSAVE+4           Chain backward
...                             ...
L     4,0(1)                Data area pointer
L     5,4(1)                Code area pointer
...                             ...
ENTRY1  NOP   ENTRY2                First time switch
OI    ENTRY1+1,X'FO'                Change to unconditional branch
OPEN  (SYSIN,INPUT)         Open file
...                             ...
ENTRY2  GET   SYSIN,(4)             Get record into data area
B     RETURN
...                             ...
ENTRY3  CLOSE SYSIN                 Close the file
LA    0,8                     No more input
ST    0,0(5)                 Indicate EOF
...                             ...
RETURN L     13,4(0,13)           CA Easytrieve save area
LM    14,12,12(13)       Restore EZT Registers
MVI   8(13),X'FF'           Indicate unused save area
SR    15,15                 Set zero return code
BR    14                    Return to CA Easytrieve
...                             ...
MYSAVE DC    18A(0)                   Exit save area
...                             ...
SYSIN  DCB   DISORG=PS,DDNAME=SYSIN,MACREF=GM, EODAD=ENTRY3,LRECL=80,RECFM=FB
...                             ...
END
```
**SYSPRINT Exit**

The SYSPRINT exit routine receives a pointer to the data to be printed in parameter one. The second parameter has a pointer to a one-word code, which always has the value of binary 4, except at end-of-file, when the exit is called with a code value of binary 8.

Parameter three points to a two-word area. The first word is binary 0 during compilation and binary 4 during execution. The second word is binary 0 on the first call to the exit and can be used by the exit to determine first time entry. The contents of the second word are not modified, thus providing the exit with an anchor for reentrant coding.

Parameter four points to a one-word area that contains the binary length of the print line (from the option LINESIZ + 1).

**Sample SYSPRINT Exit Routine**

The following is a sample SYSPRINT exit routine:

```
SPRTEXIT CSECT
STM 14,12,12(13)          Save registers
LR  11,15                  Set base register
USING SPRTEXIT,11          Addressability
LA  14,0,(13)              CA Easytrieve save area
LA  13,MYSAVE              Exit save area
ST  13,8,(14)              Chain forward
ST  14,MYSAVE+4            Chain backward
L   4,0(1)                 Data area pointer
L   5,4(1)                 Code area pointer
...
ENTRY1 NOP ENTRY2          First time switch
OI  ENTRY1+1,X’FO’         Change to unconditional branch
OPEN (SYSPRINT,OUTPUT)     Open file
...
ENTRY2 L 5,0(5)            Get code
CL 5,=F’8’                 Q.EOF yet
BE  ENTRY3                 ..YES, go close
...
PUT SYSPRINT,(4)           Print the line
B   RETURN
```
ENTRY3  CLOSE  SYSPRINT
RETURN  L  13,4,(13)  CA Easytrieve
        LM  14,12,12(13)  save area
        MVI  8(13),X'FF'
        SR  15,15  Indicate unused save area
        BR  14  Zero return code
        MYSAVE DC  18A(0)
        SYSPRINT DCB  DSORG=PS,DDNAME=SPRINT,MACRF=PM,
                       *  Return to CA Easytrieve
                       RECFM=FBA,LRECL=133
        END
Chapter 8: Best Practices for Configuration

This section contains the following topics:

- Setting the Optimal Storage Amount (see page 75)
- Using Link-Edit to Execute Production Programs (see page 76)
- Executing DB2 Programs as Statically Linked and Bound (see page 76)
- Debugging Programs (see page 76)
- Running Programs in New Function Mode (see page 77)
- Setting AMODE31 (see page 78)
- Using Reserved Words (see page 78)
- Using VSAM KSDS Instead of Large Tables (see page 78)
- Increasing Number of I/O Buffers (see page 79)
- Setting Global Options (see page 79)
- Using CA Easytrieve Simplified Design System (see page 80)
- Using the IDD Interface (see page 80)
- Automatically Generating SQL Field Definitions (see page 81)
- Creating an EZTINI File (see page 81)
- Using Macros (see page 81)
- Using Migration Utilities (see page 82)

### Setting the Optimal Storage Amount

We recommend that you set the maximum storage amount based on the following two parameters:

- Size of the programs that you compile or execute
- The product options that you want to implement

The optimal storage amount for you can vary from 256 KB to 640 KB, depending on the number of dynamically acquired storage areas, such as I/O buffers and operating system control blocks.

**Business Value:**

CA Easytrieve executes in as little as 192 KB of main storage in your z/OS. Setting an optimal storage amount for CA Easytrieve helps you save space in your z/OS.
Using Link-Edit to Execute Production Programs

We recommend using the link-edit method for executing production programs instead of the compile-and-go method. The compile-and-go method compiles and executes the programs in a single step, whereas the link-edit method results in a load module.

**Business Value:**

Using the link-edit method instead of the compile-and-go method provides enhanced performance capabilities. Load modules are less prone to unauthorized and inadvertent changes than source code. Also, compiling a program once reduces the number of resources required.

Executing DB2 Programs as Statically Linked and Bound

We recommend that you execute DB2 programs as statically linked and bound.

**Business Value:**

Although you can use static or dynamic program execution for DB2, production programs are better executed as statically linked and bound programs. These types of programs provide enhanced performance capabilities, low overhead, and individual database mapping for each program.

**Additional Considerations:**

Some SQL processing types are available for either static or dynamic execution but not for both.

Debugging Programs

You can use ABEXIT, SORTMSG, or other external debugging aids to debug your programs. We recommend that you use the default values provided in the Options Table for testing purposes.

If you encounter a problem, we may ask you to add the following to the JCL and send us the documentation:

```plaintext
//CAODESTOP DD DUMMY CA-OPT II & CA-SYMDUMP -- OFF
//IDIOFF   DD DUMMY IBM FAULT ANALYZER -- OFF
//ABNLIGNR DD DUMMY ABEND-AID -- OFF
//DUMBBENAN DD DUMMY DUMPMASTER -- OFF
//ESPIIBM DD DUMMY EYE-SPY -- OFF
//PSPOFF   DD DUMMY SOFTWORKS PERFORMANCE ESSENTIAL -- OFF
```
Follow to the first line of the CA Easytrieve program (if not already specified):

LIST ON MACROS

Add the following DEBUG programs (if not already specified):

PARM DEBUG (PMAP DMAP STATE XREF LONG) ABEXIT NO SORT (MSG(ALL))

**Business Value:**

You can reduce the turnaround time for a support issue by enabling these debugging aids for any documentation sent to CA Technologies.

**Additional Considerations:**

Generally, parameters that are useful for debugging are not the best choice when executing your program. They can add unnecessary overhead to the execution of production programs. For example, a snap dump (produced with ABEXIT SNAP) is ideal for debugging a 50C7 data exception ABEND. However, ABEXIT NO is a better choice to debug actual source code problems. The default values provided in the Options Table are ideal for testing purposes.

**Running Programs in New Function Mode**

Do the following to run programs in new function mode:

1. Set NEWFUNC to Y in the Options Table. The value Y is the default.
2. Compile and link the CA Easytrieve program by using CA Easytrieve r11.

**Business Value:**

Running programs in new function mode ensures adherence to the documented rules of the CA Easytrieve language and lets you take advantage of the new product features. For example, boundary checking of indexes and subscripts helps ensure data integrity and output validity.

**Additional Considerations:**

View running programs in compatibility mode as a temporary workaround for specific problems.
Setting AMODE31

We recommend that you set the AMODE31 option depending on your processing requirements as follows:

- If the CA Easytrieve programs are calling 31-bit subprograms, set AMODE31 to Y.
- If the CA Easytrieve programs are calling 24-bit subprograms, set AMODE31 to N. An override is available on the PARM statement by using CALL(AMODE24).
- If the CA Easytrieve programs are calling 24-bit subprograms and ENVIRONMENT(COBOL) is used, set AMODE31 to N and set the LE runtime options ALL31=(OFF),STACK=(,,BELOW).

**Business Value:**

If you do not set AMODE31 correctly, it can result in a SOC4 ABEND or undesired storage allocation below the 16 MB line.

Using Reserved Words

We recommend that you use unique, uncommon, and lowercase or mixed case words in your programs for naming the fields, files, or labels. CA Easytrieve uses uppercase, hyphenated, and common English words as reserved words. Avoid using such words because they can be added to the list of reserved words in future releases.

If you use reserved words, change them for your program to compile with the new release. See the Symbols and Reserved Words section in the CA Easytrieve Language Reference Guide, for more information.

Using VSAM KSDS Instead of Large Tables

We recommend using the VSAM KSDS files instead of tables with many entries.

**Business Value:**

Large tables require a larger REGION size as compared to the VSAM KSDS files. The VSAM KSDS files also let you work with variable record sizes and segmented data areas, which is not possible with tables.

**Additional Considerations:**

If the estimated number of table entries exceeds 32767, use the VSAM KSDS setting.
Increasing Number of I/O Buffers

We recommend that you specify the number of I/O buffers for each sequential file by using the BUFNO option. You can override the Options Table value through the BUFNO parameter of the FILE statement. The default BUFNO is 2. You can specify BUFNO from 0 to 255.

**Business Value:**
Specifying more buffers for a large sequential file permits your job to run faster.

**Additional Considerations:**
VFM and VSAM files do not use the BUFNO information.

Setting Global Options

We recommend that you set the global options through the Options Table (JOB06EOP).

**Business Value:**
Setting options globally eliminates the need to code the options in their specific area, saves programming time, reduces required knowledge, and lets you override certain options at run time.

Because the Options Table is now a file instead of a load module, you can create files that are specific to program groups and identified by the EZOPTBL DD in your JCL.

**Additional Considerations:**
You can also use the various local overrides that are available through various statements like PARM and REPORT.

**More Information:**
For more information about setting global options, see the *CA Easytrieve User Guide*. 
Using CA Easytrieve Simplified Design System

We recommend using CA Easytrieve Simplified Design System to develop and maintain your CA Easytrieve programs. CA Easytrieve Simplified Design System is a free tool that simplifies program development through the use of text editors, a report painting canvas, wizards, and business objects. Its intuitive visual interfaces help you through the steps necessary to create and maintain CA Easytrieve programs.

**Business Value:**

CA Easytrieve Simplified Design System generates complete programs and reduces or eliminates the need to code CA Easytrieve language statements. The just-in-time compiler in the text editor validates programs instantly, which ensures clean compiles on your target operating environment. The compiler saves programming time and simplifies the generation of complex applications, which increases productivity and lowers development costs. The compiler requires fewer mainframe resources and lets you generate and run CA Easytrieve programs without knowing the language.

**Additional Considerations:**

CA Easytrieve Simplified Design System lets you remotely submit programs and reports to run on any supported operating environment. CA Easytrieve Simplified Design System also provides you direct access to z/OS data sets and files, and lets you edit your mainframe programs.

**More Information:**

To obtain a download link for CA Easytrieve Simplified Design System, fill out the simple form at the CA Easytrieve product page on [http://ca.com/support](http://ca.com/support).

Using the IDD Interface

We recommend that you use the IDD interface instead of manually coding the definitions. The IDD interface automatically generates definitions for files, records, logical records, element records, and fields. The definitions are taken from the CA IDMS Integrated Data Dictionary.

**Business Value:**

The IDD interface greatly reduces the effort associated with database processing. The interface also provides relevant programming information, which saves time and spares the database administrator an interruption.
Automatically Generating SQL Field Definitions

We recommend automatically generating CA Easytrieve field definitions from the database catalog by using the SQL INCLUDE statement. The SQL INCLUDE statement names the SQL table or view for which column names and data types are obtained. The statement then defines the location at which the field definitions are generated. The SQL INCLUDE statement must precede any other SQL or SELECT statements and must be coded in the library section of your CA Easytrieve program.

Business Value:

Using the SQL INCLUDE statement for automatically generating CA Easytrieve field definitions eliminates the need to code host variable definitions in the library section of your program.

Creating an EZTINI File

We recommend that you create an EZTINI file with JOB06OP1.

Business Value:

Creating an EZTINI file lets you bypass the //EZOPTBL DD requirement.

Using Macros

We recommend that you use macros in your programs. Macros let you add and remove sections of code based on functionality. You can also add file and field names into macros. You can show macros inline or hide them to reduce the program size.

Business Value:

Using macros is an efficient and effective method for reusing code and reducing the coding time. Using macros is a better method than copying code within your program. Copying the entire existing programs may make their development easy but then programs are difficult to maintain and have excessive overhead.

Additional Considerations:

You can purchase toolkit macros, CA PanAudit Plus macros, and their related routines separately. These macros perform several time, date, and conversion functions and JIF layouts.
Using Migration Utilities

We recommend that you use the MOV64OPT and MOV64PSD migration utilities to migrate to r11.x.

Business Value:

Using the migration utilities helps reduce the time required to migrate the Options Table and printer set definitions.

Additional Considerations:

The MOV64OPT migration utility converts a 6.4 Options Table to r11.x. The MOV64PSD migration utility converts CA Easytrieve Plus 6.4 Extended Reporting Printer Definitions (EZTPXRPT load module) to CA Easytrieve r11.x. Both migration utilities are provided in CBAAJCL.
Chapter 9: Configuring Your System

This chapter describes how to configure CA Easytrieve for a UNIX, Linux for zSeries, and Windows command line-based system, or for a z/OS system.

This section contains the following topics:

Setting Environment Variables (see page 83)
Updating the Table (see page 87)

Setting Environment Variables

This section describes environment variables for UNIX, Linux for zSeries, and Windows only and provides examples.

Set PATH Variable

You may optionally add the directory where you installed CA Easytrieve to your system’s PATH variable. You should do this when you intend to execute a system executable from a command prompt. With PATH set, you can be current in a directory containing your source and execute the compiler, etc.

EZTPATH (UNIX and Linux for zSeries Only)

The EZTPATH environment variable defines the path to the components, options table, and alternate collating sequence files that you can use in CA Easytrieve.

In UNIX and Linux for zSeries, each directory defined in EZTPATH generates an L directive for link-editing.

EZTPATH must contain the directory where you installed CA Easytrieve. EZTPATH can also contain the directories where the Ingres or other database object libraries reside when these products are used. It can also contain additional directories to use customized options tables or alternate collating sequence files.

Examples

For Bourne and KORN shell, place EZTPATH in the .profile for the users who need access to CA Easytrieve. For example:

```
EZTPATH=path_name
export EZPATH
```
For C shell, place EZTPATH in the .login for the users who need access to CA Easytrieve. For example:

```bash
setenv EZTPATH path_name
```

The `path_name` should contain a list of directory names, separated by colons. For example, if CA Easytrieve is installed in /ezt/bin and you want to use the options table or alternate collating sequence table in the group directory /admin/ezt for Bourne and KORN shell users, enter the following:

```bash
EZPATH=/admin/ezt:/ezt/bin
export EZPATH
```

For C shell, enter the following:

```bash
setenv EZPATH /admin/ezt:/ezt/bin
```

To link a program that uses Ingres, C-ISAM, or other databases in UNIX and Linux for zSeries, you can add the directories that contain their shared or archived libraries to EZTPATH. For more information about each DBMS, see Compiling and Linking Your Program. In Windows, programs are not linked so this step is not required.

**Important!** CA Easytrieve always searches for the options table and alternate collating sequence tables in the current directory.

**Note:** If you place the options table or the alternate collating sequence table in the directory where you installed CA Easytrieve, the options table and alternate collating sequence table are deleted the next time you install CA Easytrieve into the same directory.

### EZTSQL (UNIX and Linux for zSeries Only)

The EZTSQL environment variable defines which SQL interface to use during a compile or link operation for a program using SQL facilities. Valid values are:

```
ingres
openingres
oracle
db2
odbc
```
EZTLIBS (UNIX and Linux for zSeries Only)

The EZTLIBS environment variable defines the libraries needed to resolve any unresolved references from CA Easytrieve to DBMSs. CA Easytrieve automatically adds its own libraries to the command that is passed to the linker. You must supply the libraries required to resolve all references to DBMSs (such as Ingres and Oracle).

The EZTLIBS variable should contain a list of libraries or object files, separated by spaces. CA Easytrieve adds the parameters, specified in EZTLIBS, to the end of the command passed to the linker. If you did not add the DBMS directory to EZTPATH, you should include an L directive to it in EZTLIBS.

For more information about each DBMS, see Compiling and Linking Your Program.

Examples

For Bourne and KORN shell, place EZTLIBS in the .profile for the users who need access to CA Easytrieve. For example:

```
EZTLIBS="-llib1 -llib2"
export EZTLIBS
```

For C shell, place EZTLIBS in the .login for the users who need access to CA Easytrieve. For example:

```
setenv EZTLIBS "-llib1 -llib2"
```

EZTOPTS (UNIX, Linux for zSeries, and Windows Only)

You can use an EZTOPTS environment variable to specify frequently used parameters for the ezt command. The ezt command reads command line parameters from the EZTOPTS environment variable and combines them with parameters specified on the ezt command line.

The syntax for the EZTOPTS environment variable is as follows:

```
[ pre-options ] [ | post-options ]
```

The values of pre-options are the command line parameters that ezt processes before the parameters specified on the command line. The values of post-options are options that are processed after the command line parameters. A vertical bar separates the two sets of parameters.
For example, using the C shell notation for setting environment variables, the following commands:

```
setenv EZTOPTS "-v | -I /usr/usr1/macros"
ezt -I /usr/usr1/test/macros browse.ezt
```

are equivalent to:

```
ezt -v -I /usr/usr1/test/macros browse.ezt -I /usr/usr1/macros
```

By placing the macro search directory /usr/usr1/macros after the vertical bar in EZTOPTS, you ensure that any macro directories specified on the command line are searched first. By placing the macro search directory before the vertical bar, CA Easytrieve searches /usr/usr1/macros before any macro directories specified on the command line.

For Windows, the recommended approach is to include this macro only within the Environment Manager. See Workbench Tools and Utilities for information.

**EZTDLLS (Windows Only)**

You can use an EZTDLLS environment variable to name a list of dynamic load libraries (DLLs) to be loaded when CA Easytrieve tries to locate dynamically-loaded user-written subroutines.

Setting this value as an environment variable establishes a global value. During application development, we recommend that you use the Environment Manager to control the location of dynamic libraries. See the following sections and Workbench Tools and Utilities for information.

**Operating System-Specific Variables in UNIX or Linux for zSeries**

Your operating system can use an environment variable to define the path list the loader uses to locate shared objects when an executable links with shared objects. This variable is typically named SHLIB_PATH (HP-UX), LIBPATH (AIX), LD_LIBRARY_PATH (Solaris or Linux for zSeries). For more information, see your operating system documentation.

During compilation, this variable must be set to the location of the CA Easytrieve compiler shared library: libeztcom.sl or libeztcom.so. During execution of a CA Easytrieve program, the variable must contain both the location of the CA Easytrieve runtime shared libraries and any other shared libraries that contain called programs.
Dynamic Control of the Windows Environment

Use the Environment Manager function to dynamically control environment variables. See Workbench Tools and Utilities for more information.

Updating the Table

To update the table, type site option keywords and their corresponding values. For each site option you want to update, you must supply a separate line with the keyword and its value. You can leave blank lines between input lines. A double slash (//) begins a comment. Comments terminate at the end of the line.

[KEYWORD {value}] [ // comment text]

Site Option Syntax

ETOLOAD requires as input a file containing card images that contain the options you want to update and their updated values. The following pages of this chapter show each Site Option, its internal name and the valid values. You should refer to those pages when specifying input to these options.

Each card image can update one (and only one) Site Option. Code the internal name of the option as the first word on the card image. Code the value, following at least one space on the card image.

Note: Some option values are case-sensitive on some platforms.

Several Site Option update card images are sampled below. The following are sample option cards.

ABEXIT   N
COMPNME  ABC COMPANY, INC.
DMAP     Y
LONGDTE  N
PMAP     N

Following the processing of the last input record, etopload writes all of the current options both to a listing and to an output file. The output file can be used at a later time to rebuild your site options after installing a new version of CA Easytrieve or if they happen to be destroyed.
Printer Profiles

To add or update a Printer Profile, use the following syntax examples. The explanation of the field on these definitions is presented later in this section.

**For System Printers**

PRINTER id S linesize pagesize class node userid EXTENDED-ID extid

For example:

PRINTER PRINT S 132 58 A RSCS SMITH

**For Terminal Printers**

PRINTER id T linesize pagesize form-feed eject-after eject-before + termid EXTENDED-ID extid

For example:

PRINTER PRINT T 80 58 N N N RMT1

**For File Output**

PRINTER id F linesize pagesize sysname EXTENDED-ID extid

For example:

PRINTER PRINT F 132 58 SYSPRINT

Create Options Table by Using the etopload Utility

The etopload utility creates and maintains an options table.

**Follow these steps:**

1. Enter the following on the command line:
   
   For UNIX and Linux for zSeries:
   
   etopload -b -l >ezoptbl.def</dev/null
   
   For Windows:
   
   etopload -b -l >ezoptbl.def<null
   
   This command invokes the etopload utility, which builds a default options table called EZOPTBL and produces a sequence of options in ezoptbl.def.

2. Specify the options by updating ezoptbl.def. For more information, see Updating the Table (see page 87).

3. Update the options table by typing the following command on the command line:
   
   etopload -b <ezoptbl.def
   
   This sequence of commands updates the options table in the current directory.
Command Line Syntax

Specify etopload as follows:

etopload [options] [path]

The valid options are:

- -b—If the site options table does not exist, create it. Otherwise, update it. Input is expected on stdin.
- -h—Displays help information.
- -l—Displays the site options table to stdout after all updates are applied.

The default is -h.

If the path is not specified, EZOPTBL is the default.

Submitting a Run of ETOLOAD Using JCL

This section describes how to update the CA Easytrieve options table on the mainframe using the ETOLOAD program through batch JCL.

There are two utility functions available for use with the batch update program, ETOLOAD. These utility functions are not necessary for updating an existing options table. To use these functions, the command would be specified for the SYSIN instead of the Options Update cards.

Create File

The Create File command rebuilds the site options with the default values supplied with CA Easytrieve.

follow these steps:

CREATEFILE

Read File

The Read File command reads the existing site options and writes the records to an output file. This output file can be used at a later time to rebuild your site options after installing a new version of CA Easytrieve or if your site options are destroyed.

follow these steps:

READFILE

READFILE must be the first record in the input file.
z/OS JCL Example

The following code is z/OS site option update JCL:

```
//jobname   JOB accounting.info
//UPDATE   EXEC PGM=ETOPLOAD
//STEPLIB  DD  DSN=EZT.loadlib,DISP=SHR
//SYSPRINT DD  SYSOUT=A
//OUTPUT   DD  SYSOUT=A
//EZOPTBL  DD  DSN=your.EASYTRIEVE.EZOPTBL,DISP=SHR,
//SYSUT2   DD  DISP=(,CATLG),DSN=EZT.option.output,
          // SPACE=(TRK,(1,1),RLSE),
//SYSIN    DD  *
  Site Option Update Cards
/*
/*
```

**Note:** The EZOPTBL DD statement must be specified while running an ETOPLOAD job. This is in contrast to when you are compiling or executing a CA Easytrieve program where the EZOPTBL DSN can be determined without the use of an EZOPTBL DD statement in the JCL.

Categories of Options

To help you find and maintain options, CA Easytrieve categorizes the options as follows:

- **Compiler Options**—General program compilation options. Includes listing options and compile-time debugging aids.
- **Execution Options**—General program execution options.
- **Environmental Options**—General environmental options.
- **Sort Options**—Options that control how sort uses storage and sort messages.
- **Mask Options**—Site-defined edit masks used for formatting numeric data.
- **International Options**—Options that customize CA Easytrieve for international use. Includes data and time display, currency symbol used, and decimal point character.
- **SQL Options**—Options that control SQL program compilation and execution.
- **IDMS Options**—Options that control CA IDMS processing.
- **Printer Profile Definitions**—Maintain the destinations to which CA Easytrieve routes report and message output.

Changes to options become effective at different times when executing previously compiled programs.
Options marked with CT (compile time) become effective at the time the program is compiled. Previously compiled programs are affected by a change in the option only when it is recompiled.

**Note:** Options marked with ET (execution time) become effective for subsequent executions of CA Easytrieve programs. You can only change ET options that the PARM statement overrode at compilation by updating the PARM statement and recompiling. For more information about options and when changes to each option become effective (compile or execution time), see Alphabetical Listing of Options.

### Compiler Options

This section describes the compiler options.

#### Source Statement Scan Columns

**Start Column (CT)**

```
SCANCOLS  nn
```

SCANCOLS establishes the starting column number scanned for CA Easytrieve source input.

**Limits:** 1 - 80. You cannot override this value during program compilation.

**Default:** 1

**End Column (CT)**

```
SCANCOLE  nn
```

SCANCOLE establishes the ending column number scanned for CA Easytrieve source input.

**Limits:** 1 - 80 and greater than SCANCOLS. You cannot override this value during program compilation.

**Default:** 72

#### Syntax Check Locator Symbols

**Warnings (CT)**

```
WARNSYM   x
```

WARNSYM specifies the symbol CA Easytrieve uses on warning messages to identify the word causing the flagged condition. Enter any single character.

You cannot override this value during program compilation.

**Default:** +
Errors (CT)

ERORSYM  X

ERORSYM specifies the symbol CA Easytrieve uses on error messages to identify the word causing the flagged condition. Enter any single character.

You cannot override this value during program compilation.

Default: $  

Zoned Numeric Sign (CT and ET)

ASCSIGN  {D|2|7|H}

ASCSIGN specifies which system to use to create zoned numeric fields. All systems are valid upon input. This option is only supported in Windows, UNIX, and Linux for zSeries environments. z/OS always uses the D value.

You cannot override this value during program compilation.

D  

Zoned numeric fields are in EBCDIC. The zone portion of a digit is a 0xF0 unless the digit is the last digit of a negative value. The zone portion of the last digit of a negative value is 0xD0.

2  

Zoned numeric fields are in ASCII. The zone portion of a digit is a 0x30 unless the digit is the last digit of a negative value. The zone portion of the last digit of a negative value is 0x20. This is the default.

7  

Zoned numeric fields are in ASCII. The zone portion of a digit is a 0x30 unless the digit is the last digit of a negative value. The zone portion of the last digit of a negative value is 0x70.

5  

Zoned numeric fields are in NETCOBOL ASCII format. The zone portion of a digit is a 0x30 unless the digit is the last digit of a negative or positive signed value. In those cases, the zone portion of the last digit will be: 0x50 for a negative value, or 0x40 for a positive value.
### Listing Control Options

#### Uppercase (CT)

**LISTUC \{Y|N\}**

LISTUC specifies whether the compilation listing is translated to uppercase characters. Usually, the source statements are printed as they are coded. Messages inserted into the program statements are in lowercase.

You cannot override this value during program compilation.

- **N**
  - Do not translate to uppercase. This is the default.

- **Y**
  - Translates to uppercase if printer does not support lowercase.

---

#### Zoned numeric fields are in ASCII. The zone portion of a digit is a 0x30 unless the digit is the last digit of a negative value. The zone portion of the last digit of a negative value is the ASCII translation of the EBCDIC negative digit. See the following table for values.

<table>
<thead>
<tr>
<th>Digit</th>
<th>EBCDIC</th>
<th>&quot;H&quot; ASCII</th>
<th>Display Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0xD0</td>
<td>0x7D</td>
<td>}</td>
</tr>
<tr>
<td>1</td>
<td>0xD1</td>
<td>0x4A</td>
<td>J</td>
</tr>
<tr>
<td>2</td>
<td>0xD2</td>
<td>0x4B</td>
<td>K</td>
</tr>
<tr>
<td>3</td>
<td>0xD3</td>
<td>0x4C</td>
<td>L</td>
</tr>
<tr>
<td>4</td>
<td>0xD4</td>
<td>0x4D</td>
<td>M</td>
</tr>
<tr>
<td>5</td>
<td>0xD5</td>
<td>0x4E</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>0xD6</td>
<td>0x4F</td>
<td>O</td>
</tr>
<tr>
<td>7</td>
<td>0xD7</td>
<td>0x50</td>
<td>P</td>
</tr>
<tr>
<td>8</td>
<td>0xD8</td>
<td>0x51</td>
<td>Q</td>
</tr>
<tr>
<td>9</td>
<td>0xD9</td>
<td>0x52</td>
<td>R</td>
</tr>
</tbody>
</table>
Data Map (CT)

**DMAP** {Y|N}

DMAP specifies whether CA Easytrieve produces a data map of the files and fields in the program as a result of a compilation.

You can override this value with PARM DEBUG DMAP.

- **N**
  - Suppresses the DMAP. This is the default.

- **Y**
  - Produces the data map.

Program Map (CT)

**PMAP** {Y|N}

PMAP specifies whether CA Easytrieve produces a program map of the program's generated code as a result of a compilation.

You can override this value with PARM DEBUG PMAP.

- **N**
  - Suppresses the PMAP. This is the default.

- **Y**
  - Produces the program map.

**Note:** PMAP Y and CLIST Y are mutually exclusive options.

Condensed Map (CT)

**CLIST** {Y|N}

CLIST specifies whether CA Easytrieve produces a condensed program map of the program's generated code as a result of a compilation.

You can override this value with PARM DEBUG CLIST.

- **N**
  - Suppresses the CLIST. This is the default.

- **Y**
  - Produces the condensed program map.

**Note:** CLIST Y and PMAP Y are mutually exclusive options.
Parms/Summary (CT)

LISTPRM {Y|N}

LISTPRM specifies whether CA Easytrieve produces a summary of the compilation. The summary contains the parms in effect during the compilation.

You can override this value with PARM LIST PARM.

N
  Suppresses the summary. This is the default.

Y
  Produces the summary.

Name Cross-Reference (CT)

XREF {L|S|N}

XREF specifies whether CA Easytrieve produces a name cross-reference of the compilation.

You can override this value with the DEBUG XREF parameter of the PARM statement.

N (no)
  Suppresses the XREF. This is the default.

L (long)
  Produces a long cross-reference that includes unreferenced names.

S (short)
  Produces a short cross-reference that only includes referenced names.

Company (CT)

COMPNME company name

COMPNME specifies the company name to center in the title area of the compilation listing.

You cannot override this value during program compilation.

Limits: maximum 50 characters of data

Default: COMPUTER ASSOCIATES, INC. FIELD INSTALLATION.
Syntax Control Options

Unavailable Fields (CT)

FLDCHK  {Y|N}

FLDCHK specifies whether CA Easytrieve validates data references to each field during execution. A data reference is invalid if a field was referenced in a file that has no active record. An invalid reference can cause a program check or a reference to invalid data.

Mike/Scott-Issue 18547344-1; Changed value FLDCHK to NOFLDCHK below.

You can override this value with PARM DEBUG NOFLDCHK.

Y

Validates references. This is the default.

N

Suppresses reference validation.

Macro Library Control Options

Number of Macro Libraries (CT, z/OS Only)

MAC#LIB  n

MAC#LIB specifies the number of CA Panvalet libraries to be searched if the CA Panvalet macro library support is used. This value is used as a suffix to the name specified by MACDDN.

Limits: 1-9. No override is available.

Default: 1

Thus, if:

MACDDN  = PANDD
MAC#LIB  = 2

In the JCL, two ddnames are:

PANDD1
PANDD2

Macro Library DDName (CT, z/OS Only)

MACDDN  xxxxxxxx

MACDDN indicates the ddname used by the standard CA Easytrieve macro library facilities to reference the desired macro library.

Limits: Up to 8 characters. If the MACTYPE option is P, (Panvalet), the MACDDN value can be no longer than 5 characters.

Default: PANDD
Macro Library Type (CT, z/OS Only)

Mike/Scott- Issue 20550681-1. Changed default from P to D option.

MACTYPE \texttt{x} \\
MACTYPE specifies the type of macro library support. \\
P \quad CA Panvalet. \\
N \quad None. \\
D \quad PDS. This is the default.

Macro Library Access Module (CT, z/OS Only)

MACMOD \texttt{modname} \\
When the MACTYPE is P the MACMOD \texttt{modname} can be specified to identify the interface routine. \\
\textbf{Default: PANMODI}

Other Options

New Functional Mode (CT, z/OS only)

NEWFUNC \{Y|N\} \\
The NEWFUNC option specifies whether to use the current version of Compiler or the release 6.4 (Compatibility Mode) Compiler to compile your CA Easytrieve programs. This option does not have any impact on link-edited CA Easytrieve application programs. \\
Setting NEWFUNC to Y compiles and runs your CA Easytrieve programs using the latest product release thereby providing all new functionality therein. This is the default. \\
Setting NEWFUNC to N Compiles and runs your CA Easytrieve programs using the compatibility mode of CA Easytrieve Plus. This feature provides you with more control over the process of moving your applications to CA Easytrieve r11.0 and above. \\
There is no PARM statement override. The default is Y.
SYSIN Exit Routine (CT, z/OS only)

SINXIT xxxxxxxx

SINXIT specifies the name of a user supplied SYSIN exit routine. The module name must be a valid program name. The SYSIN Exit Routine is called at Compile-time only to allow pre-processing of Compiler input source statements. More information on the SYSIN exit capability can be found in the CA Easytrieve Installation Guide in the "Unit Record Exits" section.

There is no PARM statement override. The default is no exit name.

Runtime Message ID (CT, z/OS only)

RUNSYM x

RUNSYM specifies the symbol CA Easytrieve uses on runtime messages to identify the word causing the condition being flagged. Type any single character.

You cannot override this value during program compilation. The default is @.

VSAM Updates (CT and ET, z/OS only)

UPDTVS {Y|N}

UPDTVS specifies whether or not VSAM file updates are allowed. The ability to update VSAM files is checked at different times depending on the FILE statement parameters specified. If SEQUENTIAL, INDEXED, or RELATIVE is specified on the FILE statement, the program is checked during execution. If VS is specified on the FILE statement, the program is checked during compilation.

CA Easytrieve checks the program at different times because SEQUENTIAL, INDEXED, and RELATIVE do not necessarily apply to VSAM files, and, therefore, these files cannot be checked until the program executes. Enter n to specify that VSAM file updates are not permitted. Enter y to specify that VSAM file updates are permitted. You cannot override this value during program compilation. The default is N.

The VS parameter of the FILE statement is maintained for syntax compatibility with older versions of CA Easytrieve.
Execution Options

AMODE31 (ET, z/OS only)

AMODE31 {Y|N}

Specifies the location of where memory is to be allocated during the execution of the CA Easytrieve application program. Storage allocation below the 16meg line is required if the CA Easytrieve application program calls (or uses as a FILE EXIT) a 24-bit subprogram.

You can override this value through PARM CALL(AMODE31 | AMODE24).

Y

Allows all possible memory allocations to be made above the 16meg line. This is the default.

N

Causes all possible memory allocations to be made below the 16 MB line.

BLOCK0 (ET, z/OS only)

BLOCK0 {N|D|P|A}

Specifies whether a system-determined block size is used for files that do not have logical record length and block size coded. A zero is passed to the operating system that determines the optimum block size. This feature should be used only if your operating system supports the use of the IBM system-determined block size. Override is through the BLOCKSIZE parameter of the FILE statement.

There is no PARM statement override.

N

Indicates that the system does not determine the block size for data sets. It must be specified through the JCL or FILE statement.

D

Indicates that the system determines the block size for disk and tape data sets. DSORG does not have to be coded in the JCL with this option.

P

Indicates that the system determines the block size for PRINTER data sets.

A

Indicates that the system determines the block size for disk, tape and PRINTER data sets.
Flow Table Size (ET)

**FLOWSIZ nnnn**

FLOWSIZ specifies the number of trace entries available for the FLOW option. The table of trace entries is used only when FLOW is set to Y. Each entry requires 2 bytes of storage. You can override this value with the DEBUG FLOWSIZ parameter of the PARM statement.

**Limits:** 1 - 4096

**Default:** 100

File Statistics (ET)

**LISTFIL {Y|N}**

LISTFIL specifies whether CA Easytrieve produces file statistics at the completion of each activity during execution. The statistics are written to STDERR.

You can override this value with PARM LIST FILE.

**Y**

Produces the statistics.

**N**

Suppresses the statistics. This is the default.

Save Statement Number (ET, z/OS only)

**STATE {Y|N}**

STATE specifies whether to maintain the statement number of the last statement executed. STATE or FLOW (see Trace Program Flow) must be set to Y for the last statement number to appear on execution-time diagnostics messages.

You can override this value through PARM DEBUG STATE.

**Y**

Saves the statement number. This is the default.

**N**

Does not save the statement number.
Check Storage Areas (ET, z/OS only)

STORCHK  {Y|N}

STORCHK specifies whether CA Easytrieve periodically validates acquired storage. This is usually done at the direction of CA Support to debug storage problems.

You cannot override this value during program execution.

Y
Checks storage areas.

N
Does not check storage areas. This is the default.

Trace Statement Flow (ET, z/OS only)

FLOW  {Y|N}

FLOW specifies whether CA Easytrieve traces statement execution. FLOW or STATE (see Save Statement Number) must be set to Y for the last statement number to appear in execution-time diagnostics messages.

You can override this value through PARM DEBUG FLOW.

Y
Saves the statement numbers in a table for display upon abnormal termination.

N
Does not save the statement numbers. This is the default.

Use Abend Exit (ET, z/OS only)

ABEXIT  {S|P|N}

ABEXIT specifies the type of processing that CA Easytrieve performs when a program abnormally terminates.

You can override this value through the ABEXIT parameter of the PARM statement.

S (Snap)
Tells CA Easytrieve to intercept any program checks and produce an Error Analysis Report. This is the default.

P (nosnap)
Performs the same function as S except that the CA Easytrieve storage areas are not dumped.

N (No)
Indicates that CA Easytrieve should not process any program checks.
Maximum Table Entries (ET, z/OS only)

TBLMAX nnnnn

TBLMAX specifies the maximum number of entries for a table that is loaded from an external file (not instream). If the value you specify for TBLMAX is excessively high, then the total amount of storage required for CA Easytrieve is inflated. If the value is too low, then CA Easytrieve issues a diagnostic message when the file is loaded.

You can override this value through the TABLE parameter of the table FILE statement for particularly large tables.

**Limits:** 0 - 32767. You should specify a value that is adequate for 90-95% of the tables used.

**Default:** 256

**Note:** Although this option is still accepted, it is ignored and reserved for future use.

Maximum Field Size (ET, z/OS only)

FLDMAX nnnnn

FLDMAX specifies the maximum size for a working storage field or a file buffer permitted at compile time. The compiler generates a syntax error if the total size of a working storage field (field length multiplied by number of occurrences) exceeds this value. The value for FLDMAX is specified in kilobytes (K). The actual value used is eight bytes smaller than the number of kilobytes specified to allow for storage header information.

**Limits (TSO):** maximum 32767 (K)

**Default (TSO):** 16000K

Empty VSAM File Error (ET, z/OS only)

MTVSERR {Y|N}

The setting of this option determines how an empty input VSAM file is to be handled.

**Y**

The CA Easytrieve I/O system treats an empty VSAM input file as an I/O error condition. This will cause the immediate abnormal termination of the program.

**N**

An empty VSAM input file to be handled as though it is at End-Of-File. This is the default.
DLI Updates (ET, z/OS only)

UPDTDLI {Y|N}

UPDTDLI specifies whether the DLI update function codes DLET, ISRT, or REPL are allowed on the DLI statement. No override is available.

Default: N

SYSPRINT Exit (ET, z/OS only)

SPRTXIT modname

Specifies the name of a user-supplied SYSPRINT/SYSLST exit routine. The modname must be a valid program name. More information on the SYSPRINT/SYSLST exit capability can be found in the "Unit Record Exits" section in the Installation Guide manual.

Default: blank (no exit name)

Update IDD with compilation stats

UPDTIDD={YES|NO}

Specifies if the dictionary is to be updated with program compilation statistics.

YES

Override is available through the RETRIEVE parameter on the IDD NAME statement.

NO

No override is available. This is the default.

Note: Although this option is still accepted, it is ignored and reserved for future use.

Environmental Options

Number of Seq I/O Buffers (ET, z/OS only)

BUFNO nnn

BUFNO specifies the number of I/O buffers for each sequential file. VFM and VSAM files do not use this information.

Limits: 0 - 255.

Default: 2

You can override this value through the BUFNO parameter of the FILE statement.
Environment COBOL (ET, z/OS only)

ENVIRON  {N|C}

ENVIRON establishes whether to establish the COBOL Language Environment (LE) prior to calling any subprograms. The environment is established prior to the PROGRAM activity or each JOB activity that contains a CALL statement or accesses a FILE EXIT. The environment is terminated after the activity for which it was established.

You can override the value using the ENVIRONMENT parameter of the PARM, PROGRAM, or JOB statement.

For more information about ENVIRONMENT COBOL, see the Subprograms chapter in the CA Easytrieve Programming Guide.

N  
No environment is established. This is the default.

C  
The COBOL environment is established.

Work Data Set Prefix (ET, z/OS only)

WKDSNPF  xxx

WKDSNPF specifies the three-character prefix used for all CA Easytrieve internal work files. It must be three characters that are valid as a file name prefix. A user-specified name cannot begin with this prefix.

You cannot override this value during program compilation.

Default: EZT

Use Report Workfiles (CT, z/OS only)

WORKFILE  {Y|N}

WORKFILE specifies whether Report work files are to be used to store intermediate Reporting data.

You can override this value through the WORKFILE parameter of the PARM statement.

N  
VFM files are used to store intermediate Reporting data. This is the default.

Y  
Temporary sequential disk files are used to store intermediate Reporting data.
Report Work Files Space (ET, z/OS only)

WORKFSPA  nnn

WORKFSPA specifies the number of cylinders that are to be allocated to each Report work file.

You can override this value through the WORKFILE parameter of the PARM statement or by coding Report work file DD statements in the JCL that executes the CA Easytrieve program.

Default: 20

VFM Overflow Device (ET, z/OS only)

VFMDEV {DISK|MEMORY}

VFMDEV specifies the device type of the CA Easytrieve Virtual File Manager (VFM) overflow file.

You can override this value through the VFM parameter of the PARM statement.

DISK

Overflows to disk. This is the default.

MEMORY

Overflows to main memory.

VFM Core Storage (ET, z/OS only)

VFMSpac  nnnn

VFMSpac specifies the maximum amount of storage used by the CA Easytrieve Virtual File Manager (VFM) for its buffer pool.

If CA Easytrieve is executed in a partition of 256K or greater, you should specify a value that is 25 percent to 40 percent of the total partition space:

- For a 256K partition, a value of 64K is suggested.
- For a 1M partition, a value of 400K is suggested.

You can override this value through the VFM parameter of the PARM statement.

Default: 64

Limits: 6 - 4096
Standard Output Destination ID (ET)

STDOUT  destination id

STDOUT specifies the destination ID to which output is routed when a display or report is issued to the default system output device (SYSPRINT). The value you specify for STDOUT must be the destination ID of a valid printer profile definition.

You cannot override this value during program compilation.

Default: TERMINAL

Note: For more information, see the Printer Profiles (see page 123) and Using the Configuration Manager.

Standard Error Destination ID (ET, z/OS only)

STDERR  destination id

STDERR specifies the destination ID to which error messages are routed when CA Easytrieve issues runtime error messages. The value you specify for STDERR must be the destination ID of a valid printer profile definition.

You cannot override this value during program compilation.

Default: TERMINAL

Note: For more information, see the Printer Profiles (see page 123) and Using the Configuration Manager.

Report Destination ID (ET, z/OS only)

PRINTID  destination id

PRINTID specifies the destination ID to which output is routed when the Report Display Facility prints a report. PRINTID is also used when a report is routed to the originating terminal through the STDOUT option and no terminal is active. The value you specify for PRINTID must be the destination ID of a valid printer profile definition.

You cannot override this value during program compilation.

Default: PRINTER. If the profile definition for PRINTID routes output to the originating terminal, an error occurs.
**Message Destination ID (ET, z/OS only)**

**MSGID  destination id**

MSGID specifies the destination ID to which output is routed when the Report Display Facility prints an Error Analysis Report. MSGID is also used when an Error Analysis Report is routed to the originating terminal using the STDERR option, but no terminal is active. The value you specify for MSGID must be the destination ID of a valid printer profile definition.

You cannot override this value during program compilation.

**Default:** PRINTER. If the profile definition for MSGID routes output to the originating terminal, an error occurs.

**Sort Options**

**Use Alternate Sequence (ET)**

**ALTSEQ  {Y|N}**

ALTSEQ specifies whether to use an alternate collating sequence table for the sort process. The name of the table is contained in the Alternate Sequence Table (ALTSEQ) option. This option is used primarily where the English alphabet is not used.

You can override this value with the SORT parameter of the PARM statement.

**Y**

Defines that CA Easytrieve uses an alternate sequence table.

**N**

Suppresses the table. This is the default.

**Alternate Sequence Table (ET)**

**ALTSEQ  xxxxxxxxx**

ALTSEQ specifies the name of an alternate collating sequence table for the sort process. The table is used when you specify Y for the ALTSEQ option, described previously, or when your program contains a PARM SORT (ALTSEQ YES) statement.

Enter up to eight characters specifying the name of a module containing the alternate collating table.

You can override this value with the SORT parameter of the PARM statement.

**Default:** EZTPAQTT
Sort Program Name (ET, z/OS only)

SORTNAME  xxxxxxxx

SORTNAME specifies the sort program on your operating system. Type up to eight characters specifying a valid program accessible to CA Easytrieve.

You cannot override this value during program compilation.

Default: SORT

Sort Use Available Storage (ET, z/OS only)

SORTMAX  {Y|N}

SORTMAX specifies the maximum amount of storage that the sort program is allowed to use.

You can override this value through the SORT MEMORY parameter of the PARM statement.

SORTMAX works in conjunction with the SORTSIZ parameter as follows:

<table>
<thead>
<tr>
<th>SORTMAX</th>
<th>SORTSIZE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>16-4096</td>
<td>Specifies the amount of storage (in kilobytes) CA Easytrieve can use. If the number specified for SORTSIZ exceeds the amount of storage available, the amount available is used.</td>
</tr>
<tr>
<td>Y</td>
<td>0</td>
<td>This is the default. Specifies the sort can use all available storage (MAX).</td>
</tr>
<tr>
<td>Y</td>
<td>16-4096</td>
<td>This is the default. Specifies the amount of storage (in kilobytes) released after the MAX amount has been reserved.</td>
</tr>
</tbody>
</table>

Maximum Sort Storage Size (ET, z/OS only)

SORTSIZ  mnnn

SORTSIZ specifies the maximum amount of storage that the sort program is allowed to use. SORTSIZ works in conjunction with the SORTMAX parameter.

You can override this value through the SORT MEMORY parameter of the PARM statement.

Limits: 0, 16 - 4096

Default: 0

Note: See the description of SORTMAX for an explanation of how to set this option.
### Amount Released After Sort (ET, z/OS only)

**SORTRLS nnnn**

SORTRLS specifies the amount of free storage to be made available after the sort program is invoked. This space may be required when the input or output file is controlled by an exit and the exit needs to allocate storage (as by opening a file).

You can override this value through the SORT parameter of the PARM statement.

**Limits:** 0 - 1024

**Default:** 0

### Fast Sort (ET, z/OS only)

**FASTSRT {Y|N}**

FASTSRT specifies whether the sort program handles all of the I/O. This option applies only to sort programs that support extended parameter lists and the fast sort feature.

You cannot override this value during program compilation.

- **Y**
  - Uses the fast sort interface.

- **N**
  - Uses standard sort interface. This is the default.

### Number of Work Areas (ET, z/OS only)

**NUMWORK nn**

NUMWORK specifies the number of work areas used by the sort.

You can override this value through the SORT WORK parameter of the PARM statement or the WORK parameter of the SORT statement.

**nn**

- Specifies the number of work areas used by the sort.
  - **Default:** 3
    - 1 - 31—A number in this range tells the sort program to dynamically allocate this number of work data sets.
    - 0—Specifies that the data sets are not dynamically allocated and must be defined in DD statements. If your operating system does not support dynamic allocation of data sets, this field must be zero.
Sort Work Device Type (ET, z/OS only)

SORTWRK  xxxx

SORTWRK specifies the sort work device type for sort programs that dynamically allocate their sort work data sets. Type any specific or generic device name that is valid for your operating system.

You can override this value through the SORT parameter of the PARM statement.

Default: SYSDA

DDNAME for Sort Messages (ET, z/OS only)

SORTPRT  xxxx

SORTPRT specifies a valid DDNAME for sort messages.

You cannot override this value during program compilation.

Default: SYSOUT

Route Sort Messages (ET, z/OS only)

SORTMSR  {P|C}

SORTMSR specifies the routing of sort messages.

You can override this value through the SORT parameter of the PARM statement.

Note: This option is ignored if you specify D for the SORTMSG option, described next.

P (Printer)

Routes sort messages to the printer. This is the default.

C (Console)

Writes sort messages to the console.
Level of Message Output (ET, z/OS only)

SORTMSG {D|N|A|C}

SORTMSG specifies which messages are output from your sort program. You can override this value through the SORT parameter of the PARM statement.

D (Default)
   Outputs the level of messages specified when the sort program was installed. This is the default.

A (All)
   Outputs all messages.

N (No)
   Does not output messages.

C (Critical)
   Outputs critical messages only.

Report Options

Date Used on Reports (CT)

LONGDTE {Y|N}

LONGDTE specifies whether SYSDATE or SYSDATE-LONG is the default date that appears on TITLE 01 on reports. You can override this parameter through the LONGDATE or SHORTDATE parameters of the REPORT statement. The override is applicable only to report output, not to the compiler listing.

Y
   Displays SYSDATE-LONG on reports and the compile listing.

N
   Displays SYSDATE on reports and the compile listing. This is the default.

Note: Also see the DATE and DATESEP options.
Characters on a Line (CT)

**LINESIZ nnn**

LINESIZ specifies the default length of a report line, excluding the carriage control character.

- **LINESIZ is used:**
  - When a report is routed to the default system output device, SYSPRINT
  - When a report is routed to PRINTER and no LINESIZE parm is specified in the FILE statement or REPORT statement
  - To define the length of the compiler output lines

You can override this parameter through the LINESIZE parameter of the REPORT statement or a PRINTER FILE statement. The override is applicable only to report output, not to the compiler listing.

**Limits:** 80 - 255

**Default:** 132

Lines on a Page (CT)

**PAGESIZ nnnnn**

PAGESIZ specifies the maximum length of a logical report page. This is the value compared by LINE statements for end of page. This value also defines the page size of the compiler listing lines.

- **PAGESIZ is used:**
  - You can override this value with the PAGESIZE parameter of the REPORT or FILE statement.

**Limits:** 1 to 32767

**Default:** 58

Display Page Size (CT)

**DISPPAGE nnnnn**

DISPPAGE specifies the maximum print length of a report page for the DISPLAY statement. This is the value compared by DISPLAY statements for end of page.

- **DISPPAGE is used:**
  - You can override this value through the PAGESIZE (display-page-size) parameter of the REPORT or FILE statement.

**Limits:** 0 - 32767

**Default:** 0 (DISPLAY statements are not tested for end of page)
Lines to Skip before Detail (CT)

**SKIP nnn**

SKIP specifies the number of blank lines inserted before each LINE 01 is printed, except for the first LINE 01 after a page heading.

You can override this value with the SKIP parameter of the REPORT statement.

**Limits:** 0 - 255 or PAGESIZ, whichever is smaller

**Default:** 0

Lines to Skip after Title (CT)

**TITLSKP nnn**

TITLSKP specifies the number of blank lines to insert between the last title line and the first heading line (or the first data line if NOHEADING is specified).

You can override this value with the TITLESKIP parameter of the REPORT statement.

**Limits:** 0 - 255 or PAGESIZE, whichever is smaller

**Default:** 3

Number of Spaces between Fields (CT)

**SPACE nnn**

SPACE specifies the number of spaces to insert between fields specified on the TITLE and LINE statements.

You can override this value with the SPACE parameter of the REPORT statement.

**Limits:** 0 to the value of LINESIZ minus 2

**Default:** 3

Spread Columns as Far as Possible (CT)

**SPREAD {Y|N}**

SPREAD specifies whether each line item (column) of a report is separated as far as possible from adjacent line items.

You can override this value with the SPREAD parameter of the REPORT statement.

Y

Spreads the items.

N

Keeps the items separated by the minimum space specified in the SPACE option of the REPORT statement. This is the default.
Additional Positions for Summed Fields (CT)

SUMSPAC  \( n \)

SUMSPAC specifies the number of additional print positions to reserve for printing summed fields in a report. The additional space prevents an overflow condition when the summed field exceeds its defined size.

You can override this value with the SUMSPACE parameter of the REPORT statement.

**Limits:** 0 - 9

**Default:** 3

Size of TALLY Field (CT)

TALYSIZ  \( nn \)

TALYSIZ specifies the size of the TALLY field in digits.

The value of SUMSPAC is added to TALYSIZ to determine the effective size of the printed field. Using the defaults for SUMSPAC and TALYSIZ, the effective size of TALLY is five digits.

You can override this value with the TALLYSIZE parameter of the REPORT statement.

**Limits:** 1 - 18

**Default:** 2

Print Control Fields on Detail Lines (CT)

DTLCTL  \{F|E|N\}

DTLCTL specifies the method of printing the value of control fields on detail lines in a control report.

You can override this value using the DTLCTL parameter of the REPORT statement.

Valid values are:

**F (First)**

Prints all control fields on the first detail line at top-of-page and after each break. This is the default.

**E (Every)**

Prints control fields on every detail line.

**N (None)**

Does not print control fields on detail lines.

**Note:** For more information about this option, see the DTLCTL parameter of the REPORT statement in the *CA Easytrieve Language Reference Guide* and the *CA Easytrieve Programming Guide*. 
Print Control Fields on Summary Lines (CT)

SUMCTL  {A|H|T|N}

SUMCTL specifies how control fields are printed on the summary lines in a control report.

You can override this value through the SUMCTL parameter of the REPORT statement.

Valid values are:

A (All)
  Prints all control fields on all total lines.

H (Hiar)
  Prints control fields in hierarchical order on total lines. This is the default.

T (Tag)
  Tags each summary line with the control field.

N (None)
  Does not print control fields on the summary lines.

Note: For more information about this option, see the SUMCTL parameter of the REPORT statement in the CA Easytrieve Language Reference Guide and the CA Easytrieve Programming Guide.

Number of Labels Across (CT)

ACROSS  nnn

ACROSS specifies the number of labels to print across the print line.

Limits: 1 - 127

Default: 4

Number of Lines on a Label (CT)

DOWN  nnn

DOWN specifies the number of lines in each label.

Limits: 1 to the value of PAGESIZ

Default: 6

Print Positions on a Label (CT)

LABLSIZ  nnn

LABLSIZ specifies the number of print positions on a label.

Limits: 1 to the value of LINESIZ

Default: 30
New Page for Every Label (CT)

NEWPAGE {Y|N}

NEWPAGE specifies whether to skip to the top of the next page for each new label.

Default: N

Mask Options

Mask (CT and ET)

USERMSK x 'mask-literal'

You can use a mask ID in the MASK parameter of the DEFINE or ROW statement to identify a mask used in a CA Easytrieve program.

x

Valid values: A through Y

Note: Using letters at the end of the alphabet avoids conflicts with programmer-coded masks, as programmers typically choose letters at the beginning of the alphabet.

mask-literal

Describes the mask as it would be defined in a CA Easytrieve field definition.

Note: For information about coding CA Easytrieve masks, see the MASK parameter in the CA Easytrieve Language Reference Guide.

International Options

Date Format (ET)

DATE {M|D|Y}

DATE specifies the format of the date placed at the top of the compiler listing and stored in the system defined SYSDATE and SYSDATE-LONG fields. Valid values are:

M (Month)

MM/DD/YY format. This is the default.

D (Day)

DD/MM/YY format.

Y (Year)

YY/MM/DD format.

Note: Also see DATESEP.
Date Separator Character (ET)

DATESEP x

DATESEP specifies the character that separates the month, day, and year of the date placed at the top of the listing and stored in the system defined field SYSDATE.

You cannot override this value during program compilation.

Default: a slash (/)

Time Separator Character (ET)

TIMESEP x

TIMESEP specifies the character that separates the hours, minutes, and seconds of the time placed at the top of the listing and stored in the system defined field SYSTIME.

You cannot override this value during program compilation.

Default: a colon (:)

Currency Symbol (CT)

MONEY x

MONEY specifies the single character currency symbol used as the floating currency symbol in print edit masks.

You cannot override this value during program compilation.

Default: a dollar sign ($)

Word Used for PAGE (CT)

PAGEWRD xxxxxxxx

PAGEWRD specifies the spelling for the English word PAGE for non English language sites. The specified word replaces the word PAGE in the first title line of each report and at the top of each page of the CA Easytrieve compiler output listing.

You cannot override this value during program compilation.

Limits: 1 - 10 characters

Default: PAGE
Word Used for FINAL (CT)

FINALWRD xxxxxxxxxx

FINALWRD specifies the spelling for the English word FINAL for non-English language sites. The specified word replaces the word FINAL in the annotation for the final total line when the TAG subparameter is used in a CA Easytrieve report.

You cannot override this value during program compilation.

**Limits:** 1 to 10 characters

**Default:** FINAL

Word Used for TOTAL (CT)

TOTALWRD xxxxxxxxxx

TOTALWRD specifies the spelling for the English word TOTAL for non-English language sites. The specified word replaces the word TOTAL in the annotation for the total lines when the TAG subparameter is used in a CA Easytrieve report.

You cannot override this value during program compilation.

**Limits:** 1 to 10 characters

**Default:** TOTAL

Thousands Separator Character (CT)

SEPOTTH x

SEPOTTH specifies the character that separates the thousands place in numeric fields.

You cannot override this value during program compilation.

**Default:** a comma (,)

Decimal Separator Character (CT)

SEPOTDC x

SEPOTDC specifies the character that separates the decimal places in a numeric field.

You cannot override this value during program compilation.

**Default:** a decimal point (.)
SQL Options

SQL Syntax (CT)

SQLSYNTX {F|P|N}

SQLSYNTX specifies the type of syntax checking to perform on the SQL statements. Valid values are:

F (Full)

Fully syntax checks SQL statements using the facilities of the underlying DBMS. FULL syntax checking results in the SQL statement undergoing a dynamic prepare. This is the default.

P (Partial)

Checks SQL statements for valid keywords. No connection is made to the DBMS unless an INCLUDE statement is coded for an SQL table. PARTIAL does not permit the program to execute until it has undergone FULL syntax checking.

N (None)

Performs PARTIAL syntax checking.

Subsystem ID (CT)

SSID subsystem-id

SSID specifies the name of the subsystem (Ingres, SYBASE, or DB2 database name or ODBC data source name) to use for compilation and execution.

You can override this value through the SSID parameter of the PARM statement.

Blank

No default subsystem specified. This is the default.

SSID

All programs using this option execute with a specific subsystem.

Note: SSID is required for Ingres or SYBASE either through the PARM statement or this option. Mainframe DB2 subsystems can also be obtained from the DB2 system default module DSNHDECP. Non-mainframe subsystems can be obtained from the ID in the DB2DBDFT environment variable. Windows ODBC data sources can be obtained through a connection dialog if not supplied through the PARM statement or this option.
PAN/SQL Prefix (ET, z/OS only)

PANSQxxxx

PANSQ specifies the prefix of the CA Pan/SQL modules. If your environment requires that the modules be renamed, you can do so by specifying a new prefix. You must then rename the CICS CA Pan/SQL modules in your loadlib.

You cannot override this value during program compilation.

**Default:** DQSPS

**Note:** See the CA Pan/SQL Getting Started guide for more changes.

Access Module/Pan (CT, z/OS only)

PREPNMe xaaaaaa

PREPNME specifies the default name of the access module or access plan to be created for the SQL/DS or CA Datacom/DB with SQL databases.

You can override this value through the PREPNME parameter of the PARM statement.

**Default:** EASYPLUS

**Note:** Avoid using the default and specify a unique name for each user program.

Bind (CT, z/OS only)

BIND {A|S|D}

BIND specifies the default DB2 bind used.

You can override this value through the BIND parameter of the PARM statement.

**Blank**

No default value specified. This is the default.

**A**

Either STATIC-ONLY or DYNAMIC used.

**S**

STATIC-ONLY used.

**D**

DYNAMIC used.
IDMS Options

Duplicate CALC Record Keys (CT, z/OS only)

CALCDUP {Y|N}

CALCDUP specifies whether CALC records with duplicate keys are to be retrieved for the IDMS RETRIEVE statement.

You can override this value with the DUPS/NODUPS parameter of the RETRIEVE statement.

Y
Indicates that root records with the same tickler file key are returned.

N
Indicates that only the first of the duplicate records is returned. This is the default.

IDMS Update Allowed (CT and ET, z/OS only)

UPDTIDM {Y|N|C|R}

UPDTIDM specifies whether or not IDMS statements that update the database (CONNECT, DISCONNECT, ERASE, MODIFY, STORE) are permitted during syntax check and execution operations.

Y
Indicates that update functions are permitted.

N
Indicates that update functions are not permitted. This is the default.

C
Indicates that update functions are permitted at compile time only.

R
Indicates that update functions are permitted at runtime only.

IDD Updated with Program Compilation Stats (CT, z/OS only)

UPDTIDD {Y|N}

UPDTIDD specifies whether the dictionary is to be updated with program compilation statistics.

Y
Override is through the RETRIEVE parameter on the IDD NAME statement.

N
No override is available. This is the default.
IDD FILE Version (CT, z/OS only)

VERFILE {HIGHEST|LOWEST|nnnn}

VERFILE specifies the version of the non-database file that you want to retrieve. You can override this version with the VERSION parameter of the IDD FILE statement.

HIGHEST

This is the default.

LOWEST

nnnn

Indicates specific version number.

IDD RECORD Version (CT, z/OS only)

VERREC {HIGHEST|LOWEST|nnnn}

VERREC specifies the version of the record that you want to retrieve. You can override this version with the VERSION parameter of the IDD RECORD statement.

HIGHEST

This is the default.

LOWEST

nnnn

Indicates specific version number.

IDD SCHEMA Version (CT, z/OS only)

VERSCHM {HIGHEST|LOWEST|nnnn}

VERSCHM specifies the version of the schema owning the subschema that you want to retrieve. You can override this version with the VERSION parameter of the ID SUBSCHEMA statement.

HIGHEST

This is the default.

LOWEST

nnnn

Indicates specific version number.
IDDCOMP Field Type (CT, UNIX only)

IDDCOMP {B|I}

IDDCOMP specifies the field type to generate for a CPMP type field from the IDD. Valid values are:

B

Indicates a mainframe binary format. This is the default.

I

Indicates an integer field type.

Printer Profile Definition

Use Printer Profiles to maintain the destinations to which CA Easytrieve routes report and message output. For more information, see the STDOUT, STDERR, PRINTID, and MSGID options.

Field descriptions follow.

Destination ID

Displays the destination ID of the definition being added or maintained. It is taken from the Environmental Options panel. You cannot change it here.

Printer Type

Specifies the type of destination to which output is routed. Valid values are:

S (System)

Specifies that this is a system printer to be dynamically directed to the operating system spooling system. When you type s, CA Easytrieve uses only the values specified for the For System Printers fields.

T (Terminal)

Specifies that this is a terminal printer. When you type t, CA Easytrieve uses only the values specified for the For Terminal Printers fields.

F (File)

Specifies that output routed to this destination is to be written to a file. When you type f, CA Easytrieve uses only the values specified for the For File Output field.

Note: This option is not valid in CICS. If used, an execution error occurs.
### Line Size

Specifies the default number of characters in a print line routed to this destination. This number does not include the carriage control character.

The valid range is 72 to 204 for TERMINAL and SYSTEM printers. For FILE printers the valid range is 72 to 255. The default is 132.

You can override this value through the LINESIZE parameter of the REPORT statement for reports routed to this destination, or through the LINESIZE parameter of the FILE statement for TERMINAL PRINTER files.

### Page Size

This field specifies the default number of print lines for a report page routed to this destination. The valid range is 1 to 32767. The default is 58.

You can override this value through the PAGESIZE parameter of the REPORT statement for reports routed to this destination, or with the PAGESIZE parameter of the FILE statement for TERMINAL PRINTER files.

### Extended ID

This field specifies the extended reporting printer name as defined in the Printer Set Definition. See Create or Modify a Printer Set Definition for more information.

### For System Printers

Use these fields when the Printer type for this destination is S (System).

- **Class**
  
  Specifies the spool class for the output. The default is A.

- **Node**
  
  Specifies the destination location for the output. This is usually a local or remote printer device name or a network node name. The default is blank.

- **Userid**
  
  Specifies the userid of the recipient of the printed output. The default is blank.

### For Terminal Printers

Use these fields when the Printer type for this destination is T (Terminal).

- **Terminal Id**
  
  Specifies the name of the destination terminal. Blank routes the output to the originating terminal. The z/OS output can be viewed using the Report Display Facility. In TSO and CMS as well as in non-mainframe environments, this field must be blank. The default is blank.

  **Note:** Do not specify the originating terminal for a PRINTID or MSGID destination. This causes printed output to be returned to the Report Display Facility.
Use Form Feed

Specifies whether CA Easytrieve uses a form feed character to start a new page. Type y to use the formfeed character. Type n to indicate that the formfeed character cannot be used to start a new page. The default is N.

Page Eject After

Type y to eject a page at the end of each report. Type n for no page eject. The default is N.

Page Eject Before

Type y to eject a page at the beginning of each report. Type n for no page eject. The default is N.

For File Output

Use this field when the Printer type for this destination is F (File).

SYSNAME

Associates output with an external data set. Valid values are determined by your operating environment as follows:

- CMS—Up to eight characters specifying a FILEDEF name.
- TSO—Up to eight characters specifying a DD name.
- CICS—SYSNAME is invalid in CICS. If used, an execution error occurs.
- Non-mainframe—Up to eight characters specifying a File Description String. This name will be used as the physical file name unless an environment variable exists by this name. In this case, the value of the variable names the physical file name or device.

Examples: The following are valid examples of environment variables:

SYSPRINT=c:\data\myapp.rpt
SYSPRINT=\mynet\printer1

For example, to route the output to the DD statement or environment variable SYSPRINT, type sysprint in the SYSNAME field. The default is blank.
# Alphabetical Listing of Options

The following table provides an alphabetical listing of options. Each option shows when the option value is read and used from the Options table. Execution Time signifies that you can change the option after compiling a link-edited program and the new option takes effect during subsequent execution. Compile Time signifies that either the option only has effect during the compilation or its value is bound into link-edited modules and not affected by changes until recompiled.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Effective at Compile Time</th>
<th>Effective at Execution Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABEXIT</td>
<td>Use Abend Exit</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ACROSS</td>
<td>Number of labels across</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ALTSEQ</td>
<td>Alternate sequence table</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ALTSEQU</td>
<td>Use alternate sequence</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>AMODE31</td>
<td>Allocate storage above 16meg line</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ASCSIGN</td>
<td>Zoned numeric format</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BIND</td>
<td>DB2 BIND</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>BLOCK0</td>
<td>Sets usage of system-determined blocksize</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>BUFNO</td>
<td>Number of Sequential I/O Buffers (TSO and CMS only)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>CALCDUP</td>
<td>Duplicate CALC record keys</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CLIST</td>
<td>Condensed map</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>COMPNME</td>
<td>Company</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DATE</td>
<td>Date format</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DATESEP</td>
<td>Date separator character</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DISPPAGE</td>
<td>Display page size</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DMAP</td>
<td>Data map</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DOWN</td>
<td>Number of lines on a label</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DTLCTL</td>
<td>Print control fields on detail lines</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ENVIRON</td>
<td>Specify the default execution environment</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ERRORSYM</td>
<td>Error message symbol</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
<td>Effective at Compile Time</td>
<td>Effective at Execution Time</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------</td>
<td>---------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>FASTSRT</td>
<td>Fast sort</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>FINALWRD</td>
<td>Word used for FINAL</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>FLDCHK</td>
<td>Unavailable fields</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>FLDMAX</td>
<td>Maximum field size</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>FLOW</td>
<td>Trace statement flow</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>FLOWSIZ</td>
<td>Number of trace entries</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>IDDCOMP</td>
<td>IDD COMP field type</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LABELSIZ</td>
<td>Print positions on a label</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LINESIZ</td>
<td>Characters on a line</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LISTPRM</td>
<td>Parms/summary</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LISTFIL</td>
<td>File Statistics</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LISTUC</td>
<td>Uppercase</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LONGDTE</td>
<td>Use SYSDATE-LONG on reports</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MACHLIB</td>
<td>Number of CA Panvalet libraries to be searched if MACTYPE is P</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MACDDN</td>
<td>Ddname of macro library</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MACMOD</td>
<td>Name of the interface routine when MACTYPE is P</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MACTYPE</td>
<td>Type of macro library support</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MONEY</td>
<td>Currency symbol</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MSGID</td>
<td>Message destination ID</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MTVSERR</td>
<td>Empty VSAM input file is an I/O error</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NEWFUNC</td>
<td>Selects compiler mode of operation</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NEWPAGE</td>
<td>New page for every label</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NUMWOR</td>
<td>Number of work areas</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PAGESIZ</td>
<td>Lines on a page</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PAGEWRD</td>
<td>Word used for PAGE</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PANSQL</td>
<td>CA Pan/SQL prefix</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
<td>Effective at Compile Time</td>
<td>Effective at Execution Time</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------</td>
<td>---------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>PMAP</td>
<td>Program map</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PREPNME</td>
<td>Access module/plan</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PRINTID</td>
<td>Report destination ID</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>RUNSYM</td>
<td>Runtime</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SCANCOLE</td>
<td>End column</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SCANCOLS</td>
<td>Start column</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SEPODTC</td>
<td>Decimal separator character</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SEPOTTH</td>
<td>Thousands separator character</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SINXIT</td>
<td>SYSIN Exit Routine name</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SKIP</td>
<td>Lines to skip before detail</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTMAX</td>
<td>Sort use available storage</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTMSG</td>
<td>Level of message output</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTMSR</td>
<td>Route sort messages</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTNANE</td>
<td>Sort program name</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTPRT</td>
<td>DDNAME for sort messages</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTRLS</td>
<td>Amount released after sort</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTSZL</td>
<td>Maximum sort storage size</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SORTWRK</td>
<td>Sort work device type</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SPACE</td>
<td>Number of spaces between fields</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SPREAD</td>
<td>Spread columns as far as possible</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SPRTXIT</td>
<td>SYSPRINT Exit module name</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SQLSYNTX</td>
<td>Type of syntax checking for SQL</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SSID</td>
<td>Database name</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>STATE</td>
<td>Save statement number</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>STDERR</td>
<td>Standard error destination ID</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>STDOUT</td>
<td>Standard output destination ID</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>STORCHK</td>
<td>Check storage areas</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
<td>Effective at Compile Time</td>
<td>Effective at Execution Time</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------</td>
<td>---------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>SUMCTL</td>
<td>Print control fields on summary lines</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SUMSPAC</td>
<td>Additional positions for summed fields</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TALYSIZ</td>
<td>Size of TALLY field</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TBLMAX</td>
<td>Maximum table entries</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TIMESEP</td>
<td>Time separator character</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TITLSKP</td>
<td>Lines to skip after title</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TOTALWRD</td>
<td>Word used for TOTAL</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>UPDTDLI</td>
<td>DLI updates</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UPDTIDD</td>
<td>Update IDD with compilation stats</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>UPDTIDM</td>
<td>CA IDMS updates allowed</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>UPDTV5</td>
<td>VS updates</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>VERFILE</td>
<td>IDD FILE version</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>VERREC</td>
<td>IDD RECORD version</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>VERSCHM</td>
<td>IDD SCHEMA version</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>VFMDEV</td>
<td>VFM overflow device</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>VFMSpac</td>
<td>VFM core storage (CICS only)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>USERMSK</td>
<td>Mask identifier</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>WARNSYM</td>
<td>Warning message symbol</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WKDSNPF</td>
<td>Work data set prefix</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WORKFILE</td>
<td>Use Report Workfiles instead of VFM</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WORKFSPA</td>
<td>Number of cylinders for each Report Workfile</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>XREF</td>
<td>Compile cross-reference</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
## Appendix A: SAMPJCL and CBAAJCL Contents

The SAMPJCL and CBAAJCL data sets contain the jobs used to install and configure CA Easytrieve from tape or when using pax-enhanced ESD. SAMPJCL contains the file allocation and SMP/E RECEIVE, APPLY, and ACCEPT jobs. CBAAJCL contains all other jobs. CBAAJCL is populated when you run the SMP/E jobs.

**Important!** Do not modify and run JCL members from previous service packs, because they can corrupt the installation.

The following table shows the installation jobs and related TSO macros provided in SAMPJCL. The Task # column indicates the order in which they are processed.

<table>
<thead>
<tr>
<th>Task #</th>
<th>Name (SAMPJCL)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EZTSEDIT</td>
<td>Edit macro used to customize the product installation JCL. Update member and store in SYSPROC library.</td>
</tr>
<tr>
<td>2</td>
<td>EZTEDALL</td>
<td>Optional REXX EXEC to customize all jobs at once. Execute after updating the EZTSEDIT macro.</td>
</tr>
<tr>
<td>3</td>
<td>EZT1ALL</td>
<td>Allocates product and SMP/E data sets.</td>
</tr>
<tr>
<td>4</td>
<td>EZT2CSI</td>
<td>Creates and customizes SMP/E CSI.</td>
</tr>
<tr>
<td>5</td>
<td>EZT3RECT</td>
<td>SMP/E receive of base functions from tape.</td>
</tr>
<tr>
<td>6</td>
<td>EZT3RECD</td>
<td>SMP/E receive of base functions from DASD.</td>
</tr>
<tr>
<td>7</td>
<td>EZT4APP</td>
<td>SMP/E apply of base functions.</td>
</tr>
<tr>
<td>8</td>
<td>EZT5ACC</td>
<td>SMP/E accept of base functions.</td>
</tr>
<tr>
<td></td>
<td>EZT6RECP</td>
<td>SMP/E receive of downloaded PTFs from DASD.</td>
</tr>
<tr>
<td></td>
<td>EZT7APYP</td>
<td>SMP/E apply of downloaded PTFs.</td>
</tr>
<tr>
<td></td>
<td>EZT8ACCP</td>
<td>SMP/E accept of downloaded PTFs.</td>
</tr>
</tbody>
</table>
The following table shows the configuration jobs to be run after the installation jobs. JOB06OP1 is always required. Run the other jobs only if you use the CA Easytrieve feature associated with that job.

<table>
<thead>
<tr>
<th>Name (CBAAJCL)</th>
<th>Description</th>
</tr>
</thead>
</table>
| JOB06OP1       | Creates and initializes a CA Easytrieve options table.  
|                | **Note:** This job is always required. |
| JOB06OP2       | Updates specific settings in the CA Easytrieve options table. |
| JOB0764L       | Links CA Easytrieve compatibility library link edits (only necessary when using IMS or IDMS feature with NEWFUNC=N set in the options table). |
| JOB08DEM       | Executes CA Easytrieve program to verify installation and create the sample personnel file. |
| JOB09URT       | Compiles and links the User Requirements Table (URT) for the CA Datacom/DB option. |
| JOB10SUP       | Link edits the SUPRA interface module. |
| JOB11SUA       | Installs the EZTPSPRA module for the SUPRA interface without SMP/E. |
| JOB11SUB       | Installs the EZTPSPRA module for the SUPRA interface through SMP/E. |
| JOB12TOT       | Link edits the TOTAL interface module. |
| JOB13DBO       | Build the DBCS Code System definition module (only necessary if you use the DBCS feature). |
| JOB14PSD       | Builds the Extended Printer Set definition module (only necessary if you use the Extended Reporting feature). |
| JOB15ORA       | Activates Oracle support by linking the Oracle ORASTBL member into the CA Easytrieve compiler. |

The following table shows the utility jobs and example members provided in CBAAJCL. These members are used for processing that can be unrelated to product installation.

<table>
<thead>
<tr>
<th>Name (CBAAJCL)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASM64OPT</td>
<td>Provides JCL job to update the values of the options table provided with the CA Easytrieve Plus 6.4 compatibility library.</td>
</tr>
<tr>
<td>EXISTCSI</td>
<td>Provides instructions for installing into an existing CSI.</td>
</tr>
<tr>
<td>EZTDB2</td>
<td>Provides sample JCL to create and link a static IBM DB2 plan.</td>
</tr>
<tr>
<td>EZTPAQTT</td>
<td>Provides alternate sort sequence table Assembler source file.</td>
</tr>
<tr>
<td>Name (CBAAJCL)</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>MOV64OPT</td>
<td>Provides JCL job to migrate the options table settings to the current release options table.</td>
</tr>
<tr>
<td>MOV64PSD</td>
<td>Provides JCL Job to migrate the 6.4 Printer Set Definition.</td>
</tr>
<tr>
<td>PDLMODEL</td>
<td>Provides examples of printer definitions to use as models for your own printer definitions.</td>
</tr>
<tr>
<td>PERSNL</td>
<td>Provides sample PERSNL macro.</td>
</tr>
<tr>
<td>SAM1HTML</td>
<td>Provides HTML reporting example.</td>
</tr>
<tr>
<td>SAM2HTML</td>
<td>Provides HTML reporting example.</td>
</tr>
<tr>
<td>SSIDTBL</td>
<td>Provides job to create SSID table for Multi CA Easytrieve DB2 Option feature.</td>
</tr>
<tr>
<td>SUM1HTML</td>
<td>Provides HTML reporting example.</td>
</tr>
<tr>
<td>SUM2HTML</td>
<td>Provides HTML reporting example.</td>
</tr>
</tbody>
</table>
Appendix B: Installing CA Easytrieve When Packaged With CA Common Services

Starting with CA Common Services release 14.1, CA Easytrieve is packaged with CA Common Services (CCS) as a separate product with a separate installation process. The installation process is the same as installing a fully licensed copy of CA Easytrieve. You can install the product using CA CSM or Pax-Enhanced ESD, or you can install it from tape.

This CA Easytrieve product is the same as the fully licensed product. If you have an active CA Easytrieve license, you do not need to install the copy that is packaged with CCS. All CA Easytrieve functionality is available. If you do not have an active license, install the copy that is packaged with CCS. Product functionality is restricted to running CA Easytrieve reporting jobs that are distributed with other CA products.

Note: If you have a valid CA Easytrieve LMP key, then you have an active license.

Follow these steps:

1. Install CA Easytrieve for z/OS (see page 29).
   
   Note: If you have the CA Common Services product library in the Linklist, add the CA Easytrieve CBAALOAD library to the Linklist.

2. Create the options table and update its settings (see page 61).
   
   Notes:
   
   ■ Before you execute the JOB06OP2 job, modify it to specify NEWFUNC N. This setting configures the options table to use the release 6.4 compiler. We recommend using this setting to minimize the possibility of compatibility issues with applications that were developed using CA Easytrieve release 6.4.
   
   ■ No other configuration is necessary because CCS does not require full CA Easytrieve functionality.
3. Download and install the following PTFs, which add the required CCS functionality to CA Easytrieve. These PTFs are available at http://ca.com/support:
   - RO42229 (which also requires RO34536)
   - RO42230
   - RO42231

   Note: We recommend that you also download and install any other PTFs that are available.

   CA Easytrieve is installed and ready to use. If other CA products require additional CA Easytrieve configuration, those products include the necessary configuration instructions.