CA Explore® Performance Management for z/VM

Installation Guide
Version 5.0
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CA Technologies Product References

This document references the following CA Technologies products:

- CA VM:Secure™ for z/VM
- CA VM:Director™ for z/VM
- CA Mainframe VM Product Manager

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# Contents

## Chapter 1: Overview
- Audience ................................................................. 9
- Installation Process .................................................. 10
- Service Process .......................................................... 11

## Chapter 2: Preparing for Installation
- Hardware Requirements .............................................. 13
- Software Requirements ............................................... 13
- Resource Requirements ............................................... 13
- Concurrent Releases .................................................. 14

## Chapter 3: Installing Product Materials
- Installation Process Overview ......................................... 15
- Step 1. Plan Your Installation ........................................ 15
  - Step 1.1 Establish the CA Mainframe VM Product Manager Environment .................................................. 16
  - Step 1.2 Load Product Control Files and VMFINS PRODLIST ................................................................. 16
  - Step 1.3 Load and Generate the Planning Resource File ................................................................. 17
- Step 2. Allocate Product Resources ................................... 19
  - Allocating SFS Directories ............................................ 20
- Step 3. Install the Product Materials ................................. 20
- Step 4. Update the Software Inventory ............................... 21

## Chapter 4: Deploying the Product
- Deploying the Product for the First Time ............................ 23
  - Step 1. Define the Product Deployment .......................... 24
  - Step 2. Tailor the Product Deployment .......................... 25
  - Step 3. Allocate Resources for Production Use .................. 26
  - Step 4. Deploy the Product Materials ............................ 26
  - Step 5. Set up CP Monitor Facility ................................. 27
  - Step 6. Start CA Explore PM for z/VM and Initialize .......... 29
  - Step 7. Test CA Explore PM for z/VM ............................ 30
  - Step 8. Make the Product Available ............................... 32
- Deploying the Product for an Upgrade .............................. 33
  - Step 1. Redefine the Product Deployment ....................... 34
  - Step 2. Allocate Resources for Production Use ................ 35
Step 3. Deploy the Product Materials ................................................................. 35
Step 4. Back Out the Upgrade ........................................................................... 36
Step 5. Discard the Product Materials from the Older Release ....................... 37
Step 6. Make the Product Available .................................................................. 37

Chapter 5: Servicing Your Product .................................................................. 39
VMSES/E Service Overview .............................................................................. 39
Step 1. Prepare to Receive Service ................................................................. 40
  Step 1.1. Prepare the VMANAGER Administration User ID ............................. 41
  Step 1.2. Receive the documentation ............................................................. 41
  Step 1.3. [Optional] Merge the Alternate APPLY disk ................................. 42
Step 2. Receive the Service ................................................................................ 43
Step 3. Apply the Service .................................................................................. 44
Step 4. Update the Build Status Table ............................................................. 45
Step 5. Build Serviced Objects ......................................................................... 45
Step 6. Deploy Service to Production .............................................................. 46

Appendix A: References .................................................................................... 47
VMSES/E Facilities ......................................................................................... 47
VMSES/E Commands ...................................................................................... 47

Appendix B: Create Product Parameter File (PPF) Override ............................ 49
Step 1. Create a new $PPF override file. ......................................................... 50
Step 2. Allocate the SFS Directories ............................................................... 50
Step 3. Continue with the Product Installation ............................................... 51

Appendix C: Product Tags in VMSERVER NAMES File ..................................... 53

Appendix D: Allocating User ID Entries and Disk Space .................................. 55
Configuring the VMALLOC command processor ........................................... 55
Using the VMALLOC command processor ..................................................... 56
  Using VMALLOC with the DIRECTXA Command ........................................ 56
  Using VMALLOC with a Directory Manager Product .................................... 57
  Using VMALLOC Automatic Resource Allocation with CA VM:Secure or CA VM:Director ................................................................. 57

Appendix E: Collecting SQL Performance Data ............................................... 59
About SQL/DS Data Collection ...................................................................... 59
  Define the SQL/DS Data Collection Virtual Machine .................................. 59
Appendix F: (Optional) Starting and Stopping Data Collection

Starting Data Collection .......................................................... 65
Common Return Codes ............................................................. 66
Reconnecting to the CA Explore PM for z/VM Service Machine ...................... 67
Stopping Data Collection ........................................................... 67
Starting SQL/DS Data Collection .................................................. 68
    Reconnecting to the SQL/DS Data Collection Machine .................................. 69
Stopping SQL/DS Data Collection .................................................. 69

Appendix G: Optional tasks and set up procedures

Define Access to CA Explore PM for z/VM ....................................... 71
Customize CA Explore PM for z/VM ............................................... 71
    Specify the Number of Users to Monitor ............................................. 72
    EXPLRVM Command Format .......................................................... 72
    EXPLORE CONFIG file ................................................................. 74
    Modify Initialization Procedures ....................................................... 74
Removing the TAILOR EXPLORE Procedure ...................................... 75
(Optional) Provide Copies of Initialization Procedures ............................... 75
(Optional) Perform Control Block Mapping ........................................ 76
    Control Block Locations ............................................................... 76
    Select the Control Blocks to Map ..................................................... 77
    Mapping Control Blocks ................................................................. 77
    Rebuilding Maps ........................................................................... 78
(Optional) Set Up Security .................................................................. 79
    The User Security Exit ..................................................................... 79
    Exiting CA Explore PM for z/VM ....................................................... 79
    Writing a User Security Exit ............................................................ 80
    Sample Parameter List .................................................................... 80
    Sample User Security Exit ............................................................... 81
    Implementing a User Security Exit ...................................................... 81
Accessing and Exiting ........................................................................ 82
Chapter 1: Overview

This document describes how to install, deploy, and service the CA Explore PM for z/VM product.

This section contains the following topics:

[Audience](see page 9)
[Installation Process](see page 10)
[Service Process](see page 11)

Audience

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

- CP, CMS components
- VMSES/E procedures
- VM environment and installing software in this environment
- Your organization’s IT environment, processes, and procedures

You may need to work with the following personnel:

- Systems programmer, for CP and CMS definitions
- Storage administrator, for disk space allocation
- Security administrator, for establishing resource authorizations
Installation Process

The installation process is a series of steps which installs product materials and deploys a product instance from a distribution tape or a downloadable tape image envelope file. Following initial installation preparations, the product code is loaded to a staging area, where it can be serviced. Next, the product code is deployed either into a server virtual machine, or to a user accessible location for use. This allows a single copy of the code to be maintained in the staging area over time, and deployed to the various machines and runtime locations where the product code is accessed for execution.

The following steps describe the installation process:

1. Prepare for installation by ensuring that hardware, software, and security prerequisites are satisfied.

2. Install the product code for a specific product and version level.
   a. Retrieve informational files to determine the contents of the tape (or tape image file), and obtain the latest information about the product or products on the tape.
   b. Retrieve the resource requirements for a particular product. These requirements include user ID definitions and disk space allocations.
   c. Allocate disk space to hold the product materials, either on minidisks or Shared File System directories.
   d. Load the product code from the tape or tape image file. The code is loaded to a staging area where it can be updated with any needed fixes, without impacting running product servers.
   e. Update the build status table to complete the product code installation.

3. Deploy the product. This activity may occur many times for a single set of product code to create multiple executable instances of the product.
   a. Define the attributes for a product server virtual machine or a runtime code location. A default set of server attributes is provided in the product code, and is tailored, if needed, for a specific server instantiation.
   b. Allocate any needed server virtual machines and the associated disk space for the server.
   c. Copy the needed code and other files from the product staging area to where it will be used by a server or by an end user. The staging area may then be maintained and updated without impacting running server or user processing.
   d. Test the deployed product.
Service Process

The service process is a series of steps which installs updates to product materials and deploys a product instance from the updated materials. Following initial installation preparations, the product code is updated on the staging area created during initial installation. Next, the updated product code is deployed either into a server virtual machine or to a user accessible location for use.
Chapter 2: Preparing for Installation

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

This section contains the following topics:

Hardware Requirements (see page 13)
Software Requirements (see page 13)
Resource Requirements (see page 13)
Concurrent Releases (see page 14)

Hardware Requirements

This product requires a level of the z/VM licensed program which is currently supported by IBM. IBM specifies the hardware level of each computer system supported by each level of VM, and only those hardware levels are supported for running this product.

Software Requirements

The following software is required for installing this product:

- An installed VM system running a release of VM which is supported by IBM.
- An installed deployment of the CA Mainframe VM Product Manager system. See the CA Mainframe VM Product Manager Installation Guide for details on installing and configuring this facility.

Resource Requirements

All user ID characteristics, directory entry definitions, and disk space resources are defined in a PLANINFO report created by VMSES/E during the installation process, as described below. You must be prepared to allocate these resources during the installation procedure.
Concurrent Releases

You can install this release of CA Explore PM for z/VM and continue to use a deployed instance of an older release for your production environment. If you plan to continue to run a previous release, consider the following points:

Certain public files for this product, such as the product command MODULE, may only operate with a specific version of the product server. Take care to prevent product public files from one level from overlaying the same files from an earlier level of the product. You should keep such public files on different public disks or directories.
Chapter 3: Installing Product Materials

This section contains the following topics:

- Installation Process Overview (see page 15)
- Step 1. Plan Your Installation (see page 15)
- Step 2. Allocate Product Resources (see page 19)
- Step 3. Install the Product Materials (see page 20)
- Step 4. Update the Software Inventory (see page 21)

Installation Process Overview

The following is a brief description of the main steps in installing this product using VMSES/E.

1. Plan your Installation
   
   Use the VMFINS command to load several VMSES/E files from the product tape and to obtain product resource requirements.

2. Allocate Product Resources
   
   The information obtained from the previous step is used to allocate the appropriate minidisks (or SFS directories) and a user ID to own them. This set of disks contains the loaded product materials and is where the code is serviced. The allocation of resources used to deploy the product is described separately in the chapter Deploying the Product (see page 23).

3. Install the Product Materials
   
   Use the VMFINS command to load the product files from tape to the test BUILD and BASE minidisks/directories. VMFINS is then used to update the VM SYSBLDS file used by VMSES/E for software inventory management.

4. Update the Software Inventory
   
   Use the VMFINS command to update the software inventory to prepare the product materials for later service application by updating the Software Inventory status tables.

Step 1. Plan Your Installation

Follow these steps to obtain planning information for this product.
Step 1. Plan Your Installation

Step 1.1 Establish the CA Mainframe VM Product Manager Environment

Follow these steps to establish the CA Mainframe VM Product Manager environment:

1. Log on to the VMANAGER user ID to access the CA Mainframe VM Product Manager environment.

2. Make the installation tape or SERVLINK file available to the VMANAGER user ID:
   - If you are installing from tape, use your installation specific procedures or tape management system to mount the product installation tape and attach it to the VMANAGER user ID at virtual address 181.
   - If you are using a product envelope SERVLINK file, make it available on the VMANAGER A-disk or on any disk or SFS directory accessed as file mode C.

Note: The PROFILE EXEC on the VMANAGER user ID will access the disks or SFS directories needed for the CA Mainframe VM Product Manager environment as follows:
   - The work disk is accessed as file mode A.
   - The CA Mainframe VM Product Manager code is accessed as file mode B.
   - The VMSES CA Software Inventory disk is accessed as file mode D.
   - The CA Mainframe VM Product Manager database is accessed as file mode V.
   - The CA Mainframe VM Product Manager Common disk is accessed as file mode W.
   - The IBM VMSES system disk is accessed as file mode X.

Step 1.2 Load Product Control Files and VMFINS PRODLIST

The product control files include the following:
- Memo-to-Users file (MEMO)
- Product Parameter File (PPF)
- PRODPART file

The VMFINS PRODLIST contains a list of products on the installation tape or tape envelope file.
The VMFINS command loads the control files to the Software Inventory Disk and creates the VMFINS PRODLIST file on the A-Disk. VMFINS loads from either a physical product tape or from a downloaded tape envelope file.

Issue one of the following commands to install the product control files and create the VMFINS PRODLIST file:

- To load from an envelope file, enter the following:
  
  VMFINS INSTALL INFO ( NOMEMO ENV ZVEX050A

- To load from a physical tape, enter the following:
  
  VMFINS INSTALL INFO ( NOMEMO

**NOMEMO**

Specifies that the Memo-to-Users file is to be loaded, but VMSES/E will not issue a prompt to send it to the system printer. The CMS file type of this file is MEMO.

**ENV**

Indicates the value following this option keyword, which is the name of the envelope file for a specific product and release. For this release the CMS file name is ZVEX050A. The CMS file type of this file is SERVLINK.

### Step 1.3 Load and Generate the Planning Resource File

The planning resource file (PLANINFO) contains the planning information required to install the product. The VMFINS command with the PLAN option loads the necessary components from the tape or envelope file and generates the PLANINFO file.

Files may be loaded either to minidisks or to Shared File System (SFS) directories using the following commands:

- To load from an envelope file, enter the following:
  
  VMFINS INSTALL PPF ppfname component ( PLAN NOMEMO ENV ZVEX050A

- To load from a physical tape, enter the following:
  
  VMFINS INSTALL PPF ppfname component ( PLAN NOMEMO
**Step 1. Plan Your Installation**

**PPF**
Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the `ppfname` use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the `component` value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

**PLAN**
Creates a PLANINFO file. This file contains product requisites and resources required for the product (user IDs, minidisks, and SFS directories). PLAN does not generate, allocate, or commit any system resources.

**NOMEMO**
Specifies that the Memo-to-Users file is to be loaded, but VMSES/E will not issue a prompt to send it to the system printer. The CMS file type of this file is MEMO.

**ENV**
Indicates the value following this option keyword, which is the name of the envelope file for a specific product and release. For this release the CMS file name is ZVEX050A. The CMS file type of this file is SERVLINK.

During execution of the VMFINS command, you are prompted to create an override for the `ppfname` and `component` you specified.

VMFINS2601R Do you want to create an override for :PPF ZVEX050A EXPLORE :PRODID ZVEX050A%EXPLORE?
Enter 0 (No), 1 (Yes) or 2 (Exit)

Do one of the following:

- If you are accepting the default resource names and values, specify NO to the override prompt and skip to the next section.

- If you specify YES, you are presented with a panel for changing resource values such as disk owners, disk addresses, or SFS directory names. See the appendix Create Product Parameter File (PPF) Override (see page 49) for a sample of creating a PPF override.

**Note:** If you are not familiar with creating PPF overrides using VMFINS, you should review the Using the Make Override Panel section of the IBM VMSES/E Introduction and Reference before you continue.
Step 2. Allocate Product Resources

The VMFINS command in the previous section produces a report file containing a list of the resources needed to install and service the product. The file has the same CMS file name as the PPF file, and the file type is PLANINFO. It is created on the VMANAGER A-disk. Several alternative methods are available to allocate the needed user ID entry and disk space specified in the PLANINFO file.

In this step, disk space is allocated and owned by a VM user ID created specifically for one release of this product. The default user ID for this user is the same as the PPF CMS file name.

Disk space may be allocated either on minidisks or on Shared File System (SFS) directories. Minidisk space is often easier to setup, but is more complex to manage in that they need to be enlarged when more files are added during service. SFS directories provide more automatic space management, but need more time to setup initially.

**Note:** For more information about how the VMALLOC command is configured and used, see the appendix Allocating User ID Entries and Disk Space (see page 55), and then issue the command as described.

To create the product staging area user ID and allocate minidisk space, enter the following command:

```
VMALLOC PRODUCT ppfname component
```

**ppfname**

Specifies the CMS file name for the Product Parameter File for this specific version of the product. If you created a PPF override file, use its file name here. If you use the supplied PPF, its name is ZVEX050A.

**component**

Specifies the name of the component. Use the name EXPLORE for installing on minidisks. Use the name EXPLORESFS for installing on SFS.

Depending on the configuration described in the appendix Allocating User ID Entries and Disk Space (see page 55), you may have to perform additional steps to finish the allocation task using DIRECTXA or a Directory Manager product.
Allocating SFS Directories

An SFS Installation requires the following additional steps:

Enroll the user ZVEX050A in a SFS filepool using the CMS ENROLL command. This command may only be issued from a user authorized as an SFS Administrator for the filepool.

Create the necessary directories for user ZVEX050A with the CMS CREATE DIRECTORY command. The suggested fully qualified directory names are defined in the :DCL section of the EXPLORESFS component override section of the ZVEX050A PPF file.

Give the VMANager user ID WRITE and NEWWRITE access to those directories with the CMS GRANT AUTHORITY command.

Step 3. Install the Product Materials

Use the VMFINS command to load the product files from the installation media to the BUILD and BASE minidisks or SFS directories.

- To load from an envelope file, enter the following:
  
  VMFINS INSTALL PPF ppfname component ( ADD NOMEMO ENV ZVEX050A

- To load from a physical tape, enter the following:
  
  VMFINS INSTALL PPF ppfname component ( ADD NOMEMO

PPF

Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the ppfname use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the component value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

ADD

Loads the product materials onto disk areas. These materials will later be deployed to a product server for production use.

NOMEMO

Specifies that the Memo-to-Users file is to be loaded, but VMSES/E will not issue a prompt to send it to the system printer. The CMS file type of this file is MEMO.
Step 4. Update the Software Inventory

Update the software inventory to prepare the product materials for later service application by updating the Software Inventory status tables.

Enter the following command to update the software inventory:

```
VMFINS BUILD PPF ppfname component ( SERVICED
```

**PPF**

Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the `ppfname` use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the `component` value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

**SERVICED**

Specifies that the Software Inventory Status tables be built.
Chapter 4: Deploying the Product

If you previously installed the product using the stand-alone installation instructions, you must use the procedure in the section Deploying the Product for the First Time (see page 33) to deploy the product with the CA Mainframe VM Product Manager.

If you are upgrading an existing version of this product, which was installed using CA Mainframe VM Product Manager, you must use the procedure in the section Deploying the Product for an Upgrade (see page 33) to deploy the product.

If none of those situations apply, only then proceed with the procedure in the section Deploying the Product for the First Time (see page 23).

This section contains the following topics:
- Deploying the Product for the First Time (see page 23)
- Deploying the Product for an Upgrade (see page 33)

Deploying the Product for the First Time

The following is a brief description of the main steps in deploying an instance of this product by issuing CA Mainframe VM Product Manager commands. One installation of the product materials for a specific product version can be used to deploy multiple instances of the product. These instances might run on the same VM system, or on different VM systems at your installation.

1. Define the Product Deployment
   - Use the VMDEFINE command to establish a set of parameters for the deployment. These parameters include the server machine user ID and the target disks or directories to contain the product files used by the server or end user.

2. Tailor the Product Deployment
   - Follow the steps in this section to modify the default values for the allocation and deployment parameters established by the VMDEFINE command. Tailor the values to meet your requirements.

3. Allocate Resources for Production Use
   - Use the VMALLOC command to create any user IDs and allocate disk space needed for the product deployment. Server products need a server virtual machine and its own copy of the product code. A running server is protected from code changes made by service updates, because it has its own copy.
Deploying the Product for the First Time

4. Deploy the Product Materials
   Use the VMDEPLOY command to populate the product disk space from the installed product materials. Initial configuration files are created and the deployment is readied for its first use.

5. Start the Product
   Follow the steps in this section to bring up the deployed product server machine for the first time.

6. Test the Product
   Follow the steps in this section to perform initial testing of the deployed server virtual machine.

7. Make the Product Available
   This step describes how to place the deployed product into production use.

Step 1. Define the Product Deployment

The VMDEFINE command creates an entry in the VMSERVER NAMES file. Attributes for the deployment are defined as tags in this standard NAMES file. A set of initial attributes for a deployment is presented and may be updated during the definition phase.

To bring up the initial NAMES file modification screen, enter the VMDEFINE command. The format is:

```
VMDEFINE name ppfname component
```

**name**

Specifies the user ID of the product server machine to be created.

**ppfname**

Specifies the CMS file name for the Product Parameter File for this specific version of the product. If you created a PPF override file, use its file name here. If you use the supplied PPF, its name is ZVEX050A.

**component**

Specifies the name of the component. Use the name EXPLORE for installing on minidisks. Use the name EXPLORESFS for installing on SFS.
Step 2. Tailor the Product Deployment

The VMDEFINE command creates the entry and then enters a NAMES panel for you to view or modify the definitions. You may tailor the characteristics of the CA Explore PM for z/VM product server machine on the VMSERVER NAMES panel. Name panel usage is described in the IBM NAMES command documentation and HELP file. To change entries just overtype the values and press PF6 to change the entry. Press PF3 to exit the panel.

**Note:** For more information about the individual tag definitions for this NAMES entry, see the appendix "Product Tags in VMSERVER NAMES File."

Required Tags

The tag names listed in this section are required tags. Although you are permitted to change the device numbers, we recommend that you use the standard device numbers. Do not remove any of the following tags:

- RUNTIME
- LOCAL
- LOGS

Removable Tags

The tag names listed in this section define values for minidisks that are allocated by default to hold an alternative and a previous version of the product materials. Having two or three sets of product code makes it easy to switch between product releases or Service Packs. If you do not want to define this disk space, insert a leading asterisk in the following tag value:

- ALTRUNTIME
- PREVRUNTIME

Commenting the values prompt that you must not define the minidisk during deployment.
Step 3. Allocate Resources for Production Use

The **ppfname** PLANINFO file produced during product materials installation contains the directory entries for user IDs created for each product deployment as well as a list of the disk space needed.

You defined the name of the product server virtual machine when you issued the VMDEFINE command in Step 1 above. You may have altered the definition to add optional product server disks. In this step, you combine the definition in the VMSERVER NAMES file with the product user ID configuration and disk size information from the PLANINFO file to create the defined server machine and allocate disk space for the product deployment.

For more information about how the VMALLOC command is configured and used, see the appendix [Allocating User ID Entries and Disk Space](#) (see page 55) and then issue the command as described.

Enter the following command to create the user ID and allocate disk space:

```
VMALLOC SERVER name
```

- **name**
  - Specifies the user ID of the product server machine to be deployed.

Depending on the configuration described in the appendix [Allocating User ID Entries and Disk Space](#) (see page 55), you may have to perform additional steps to finish the allocation task using DIRECTXA or a Directory Manager product.

Step 4. Deploy the Product Materials

The steps in this section create a usable product instance by copying the installed product build materials to the disk areas you allocated in the previous step.

Step 4.1. Copy Product Materials to Runtime Areas

Enter the VMDEPLOY command to verify the product server disks, create default configuration files, and copy product materials to the runtime disk space.

```
VMDEPLOY name INIT
```

- **name**
  - Specifies the user ID of the product server machine being deployed.
INIT

Specifies that a new server is being deployed. A set of default configuration files
and a startup PROFILE EXEC file are placed on the disk defined by the LOCAL tag in
the VMSERVER NAMES file entry. The disks defined on the DEPLOY tag are
populated with product materials.

Note: For more information about deploying optional Product Materials, such as HELP
files, see the CA Mainframe VM Product Manager Reference Guide.

Step 4.2. Enter LMP Statements

Follow the procedure in the CA Mainframe VM Product Manager Reference Guide to
define the LMP (License Management Program) key for this product.

Step 4.3 Establish Required Authorizations

If an External Security Manager product is used at your installation, establish the
required authorizations for the deployed user IDs. The following table shows the
authorizations needed by the default user IDs for this product.

<table>
<thead>
<tr>
<th>Deployed User ID</th>
<th>Required Authorizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPLORE</td>
<td>Read access to VMANAGER 0195 minidisk.</td>
</tr>
<tr>
<td></td>
<td>Read access to VMANAGER 01FF minidisk.</td>
</tr>
</tbody>
</table>

Step 5. Set up CP Monitor Facility

If you have already defined the CP Monitor Discontiguous Saved Segment (DCSS), you
need not redefine it to use CA Explore PM for z/VM, but you must review this step to
make sure.

In this step, you set up VM’s CP Monitor facility by defining a DCSS. The default name of
the DCSS is MONDCSS.

The CP Monitor is part of the VM operating system.

Note: For more information about setting up the CP Monitor, see the IBM Performance
manual for z/VM.

The following procedure for setting up the CP Monitor will meet the requirements of
most sites.
Deploying the Product for the First Time

Determining the DCSS Size

To set up the CP Monitor, you must determine the size of the DCSS. If you allocate a segment smaller than x'200' pages, the EXPLRVM Data Collection and Control program may fail to start.

Determining the DCSS Location

To determine where to allocate the DCSS, enter the following CP command to display the page ranges already in use:

```
CP QUERY NSS MAP ALL
```

**Note:** If you determine that a DCSS is already defined as MONDCSS or with a name of your choice, then you can proceed to step 5.

Defining the DCSS

Enter the DEFSEG command to define the DCSS. The DEFSEG command has the following format:

```
DEFSEG  MONDCS
        start end  SC  RSTD
```

**MONDCSS**

Defines the name of the DCSS. The name must be the same as you specified (in step 1c) in the NAMESAVE statement in the definition of the CA Explore PM for z/VM service machine.

**start end**

Defines the starting and ending pages of the DCSS, as calculated previously in this step.

**SC**

Defines a required code that allows CP to write to the segment and allows virtual machines to access it.

**RSTD**

Defines a code that restricts access to the segment to only those virtual machines having a NAMESAVE reference in their definitions.

Saving the DCSS

Enter the following command to save the DCSS. If you renamed the segment, substitute your name for MONDCSS.

```
SAVESEG MONDCSS
```
Step 6. Start CA Explore PM for z/VM and Initialize

The startup procedure verifies the accuracy of the virtual machine configuration.

To start CA Explore PM for z/VM

1. Log on to the CA Explore server.
   
The VMISTART Prompt panel displays with the following message:
   
   VMISTA845R *
   
   Do you want to start EXPLORE now?
   
   Please respond: < Yes | No | Help >
   
2. Select Yes.
   
   An initial screen displaying the various settings defined in the INITSERV file is displayed when CA Explore initializes.
   
3. Press Enter.
   
   The CA Explore main menu screen displays.

4. Clear LMP messages.
   
   Allow Explore to collect a few samples for a minute or so to display valid data on panels.
Step 7. Test CA Explore PM for z/VM

Using Menus and Commands

You can maneuver through CA Explore either by using the extensive menu system or by entering commands on the command line. Novice users can step through the menu system while experienced users who are familiar with the commands can access the panels directly.

Following are the menu options:

- Commands that you can enter on the command line to display a menu or a report panel. A command that begins with an asterisk (*) displays another menu.

- Input fields. You can overtype an option with another option or command and then press ENTER to execute it. The input field begins with the underscore character and continues to the last character in that string. On color terminals, the underscore is yellow and the remaining characters of the input field are green.

While you can enter any CA Explore command on the command line, many commands have a corresponding menu that you can display by entering the name of the command preceded by an asterisk (*). The command menu lists and describes a number of commonly used forms of the command so that you do not have to remember the command syntax or particular variable names.
Direct Command Output Examples

Here are a few examples of output obtained by issuing the following commands to display data directly:

**SYSPERF**

![SYSPERF Output](image1)

**DEG EXLORE**

![DEG EXLORE Output](image2)
By issuing various commands as shown above, you can verify that information is being returned without any errors.

### Step 8. Make the Product Available

After you finish installing and testing the product, you must make it available to your users before they can use it. For more information about making the product available to your users, see the chapter "Releasing Products to Users" in the *CA Mainframe VM Product Manager Reference Guide*. 
Deploying the Product for an Upgrade

The following is a brief description of the main steps in deploying an instance of this product by issuing CA Mainframe VM Product Manager commands. Use this process to deploy to a target user ID that is running a previous release of the same product. The procedure allows an easy transition to a new product release while preserving the ability to go back to the older release, if necessary.

**Important!** We recommend that you back up the product configuration files, program materials, and data files before upgrading the product.

1. **Redefine the Product Deployment**
   Use the VMSERVER command to update a set of parameters for the deployment. These parameters include the Product Parameter File (PPF) name, and possibly the target disks or directories to contain the product files used by the server or end user.

2. **Allocate Resources for Production Use**
   Use the VMALLOC command to update any user IDs and possibly modify the disk space needed for the product deployment. Some product minidisks may need to be enlarged for a new release.

3. **Deploy the Product Materials**
   Use the VMDEPLOY command to populate the product disk space from the installed product materials.

4. **Back Out the Upgrade**
   Follow the steps in this section to restore the previous release of the product, if necessary.

5. **Discard the Product Materials from the Older Release**
   Follow the steps in this section to discard the previous release of the product and release the disk space it occupied.
Step 1. Redefine the Product Deployment

The VMSERVER command displays an entry in the VMSERVER NAMES file. Attributes for the deployment are defined as tags in this standard NAMES file. A set of previously defined attributes for a deployment is presented and may be updated during the redefinition phase. In this step you will update the entry for a deployment to reflect attributes of the new product release.

To display the NAMES file modification screen, enter the VMSERVER command. The format is:

VMSERVER  name

name

Specifies the user ID of the product server machine to be updated.

A new product release is installed with a new Product Parameter File. You will update the PPF Name field on the screen by overtyping it.

For the first token, specify the CMS file name for the Product Parameter File for this specific version of the product. If you created a PPF override file, use its file name here. If you use the supplied PPF, its name is ZVEX050A.

For the second token, specify the component name EXPLORE for a minidisk installation or EXPLORESFS for a Shared File System installation.

After updates are made, press PF6 to change the entry. Press PF3 to exit the panel.

Note: For more information about the individual tag definitions for the NAMES file entry, see the appendix Product Tags in VMSERVER NAMES File (see page 53).
Step 2. Allocate Resources for Production Use

Retrieve the needed directory statements and minidisk definitions for the new release of CA Explore PM for z/VM from the product materials you previously loaded from the distribution media. The VMALLOC command must be setup first as described in the appendix Allocating User ID Entries and Disk Space (see page 55). In the simplest form, create or update a VMALLOC CONFIG file to add a device or volume record. Issue the following command to produce a directory entry:

```
VMALLOC SERVER name ( DIRECT

name

Specifies the user ID of the product server machine you are migrating.
```

Match the retrieved directory entry with your existing directory entry for the CA Explore PM for z/VM server, and upgrade your current definition to match the requirements for the new release of CA Explore PM for z/VM.

Step 3. Deploy the Product Materials

The steps in this section create a usable product instance by copying the installed product build materials to the disk areas you allocated in the previous step.

Step 3.1. Copy Product Materials to Runtime Areas

Enter the VMDEPLOY command to verify the product server disks, and copy product materials to the runtime disk space.

```
VMDEPLOY name [PRIMARY | ALTERNATE]

name

Specifies the user ID of the product server machine being deployed.
```

[PRIMARY | ALTERNATE]

PRIMARY

Copy to the product primary disk space. This value results in overwriting the deployed Product Materials from the older product release or version with the new release materials. We suggest that you backup all deployed minidisks before using this operand. Restoring the backup could be used to revert to the older release, if needed.
ALTERNATE

Copy to the alternate disk space location. This value retains your older product material deployment. Setting the Runtime Environment tag value in the VMSERVER NAMES file to PRIMARY or ALTERNATE causes that set of deployed disks to be used when the product server is next started. Testing the new release, or backing out to the old release just requires setting a new value for Runtime Environment and restarting the server.

Note: For more information about the individual tag definitions for NAMES file entry, see the appendix Product Tags in VMSERVER NAMES File (see page 53).

Step 3.2. Enter LMP Statements

Follow the procedure in the CA Mainframe VM Product Manager Reference Guide to define the LMP (License Management Program) key for this product.

Step 4. Back Out the Upgrade

The steps in this section restore the previous release of the CA Explore PM for z/VM if that step becomes necessary.

To display the NAMES file modification screen, enter the VMSERVER command. The format is:

VMSERVER name

name

Specifies the user ID of the CA Explore PM for z/VM server.

The first step in this procedure documented how to update the entry in the VMSERVER NAMES file to define a new Product Parameter File. You updated the PPF Name field on the screen by overtyping it. Reverse that step to restore the field to its original contents.

If you deployed this new product release to the ALTERNATE disk space, you can direct the product to revert to using the PRIMARY disk space the next time it is started. Deploying to ALTERNATE space leaves the older release intact on the PRIMARY disks. Set the Runtime Environment tag value to PRIMARY and restart the server to bring back the old release of the product.

If you deployed the new product release to the PRIMARY disk space, you can repopulate that space with the older release product materials. Use the following format to enter the VMDEPLOY command to copy product materials to the runtime disk space.

VMDEPLOY name PRIMARY
name

Specifies the user ID of the product server machine being deployed.

PRIMARY

Copies product files to the product PRIMARY disk space. This value results in overwriting the upgraded Product Materials from the newer product release or version with the older release materials.

After the situation that required you to back out the upgrade is resolved, you can repeat the upgrade procedure from the beginning to re-install the upgrade.

Step 5. Discard the Product Materials from the Older Release

The steps in this section discard the previous release of the CA Explore PM for z/VM and releases the disk space it occupied when you have no further use for it.

Each release of a product is installed and maintained on minidisks or SFS directories owned by a unique user ID. For this release, that ID is ZVEX050A. Using your Director Manager product or procedures, simply remove the product specific user ID which was used by the older release. Use the VMSERVER command to make sure that no entry in the VMSERVER NAMES file still references the old product materials ID.

Step 6. Make the Product Available

After you finish upgrading and testing the product, you must make it available to your users before they can use it. For more information about making the product available to your users, see the chapter "Releasing Products to Users" in the CA Mainframe VM Product Manager Reference Guide.
Chapter 5: Servicing Your Product

This section provides information on how to perform service updates using VMSES/E.

This section contains the following topics:

VMSES/E Service Overview (see page 39)
Step 1. Prepare to Receive Service (see page 40)
Step 2. Receive the Service (see page 43)
Step 3. Apply the Service (see page 44)
Step 4. Update the Build Status Table (see page 45)
Step 5. Build Serviced Objects (see page 45)
Step 6. Deploy Service to Production (see page 46)

VMSES/E Service Overview

Service is a process that includes the following:

- Correcting a software problem
- Circumventing a software problem
- Adding function to a previously installed product

There are two basic types of service.

- Corrective service is intended to resolve a specific software defect. A corrective service tape or downloadable service envelope contains a specific Program Temporary Fix (PTF) for one specific problem, plus any requisite fixes.
- Preventive service is a collection of fixes as of a certain calendar date. It might contain all published PTFs, or some subset of them (for example, high impact fixes). The procedure for processing either type of service is identical, so the procedures below work for either type. In a collection of fixes, VMSES will ignore any fixes in the collection which have already been applied to your product materials.

Note: For more information about VMSES Service Process, see the chapter "Using VMSES/E for Service" in the IBM VMSES/E Introduction and Reference manual.
Servicing VMSES/E components consists of the following steps; each step is described in detail in later sections.

1. Prepare to Receive Service
   
   Load informational files from the PTF tape or envelope file. Establish the search order for working with the product code. Optionally, you may merge the alternate APPLY disk to the production APPLY disk to isolate the new service you are about to receive.

2. Receive the Service
   
   Load the product service from the PTF tape or envelope file, using the VMSES VMFREC command.

3. Apply the Service
   
   Define a new service level by applying the PTFs. The VMSES VMFAPPLY command validates the loaded PTFs before adding them to the maintenance level.

4. Update the Build Status Table
   
   Use the VMSES VMFBLD command with the STATUS option to update the Build Status Table.

5. Build Serviced Objects
   
   Use the VMSES VMFBLD command with the SERVICED option to build the serviced objects.

6. Deploy Service to Production
   
   Use the VMDEPLOY command to copy the serviced code to the production disks.

**Step 1. Prepare to Receive Service**

The *ppfname* used throughout these servicing instructions is ZVEX050A, which assumes you are using the PPF supplied for CA Explore PM for z/VM. If you have created your own PPF override file for the product, you must use your override file name instead of ZVEX050A. The *ppfname* must be used throughout the rest of this procedure, unless otherwise stated.
Step 1. Prepare to Receive Service

### Step 1.1. Prepare the VMANAGER Administration User ID

Log on to VMANAGER.

The PROFILE EXEC establishes the correct search order for applying service.

It is a good practice to create a backup copy of the current CA Explore PM for z/VM disks or SFS directories, which contain product materials. Save this backup until you have completed installing the service and you are confident that the service runs correctly.

Using your installation procedures, have the service tape mounted and attached to VMANAGER as 181. If you have an envelope (SERVLINK) file, make sure that it is available on the A-disk or any minidisk or SFS directory accessed as file mode C.

Setup the installed product materials access search order by issuing the VMFSETUP command as follows:

```
VMFSETUP ppfname component ( LINK
```

- **ppfname**: Specifies the value of the PPF filename. In most cases, use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, use the file name of your PPF override file.

- **component**: Specifies the name of the component. Use the name EXPLORE for installing on minidisks. Use the name EXPLORESFS for installing on SFS.

**Important**! The steps in the service application procedure assume that the product search order has been established before you begin the procedure. The search order is lost if disks are released manually, if CMS is restarted by the IPL command, or if you logoff and logon again. If the search order is lost at any time, re-establish it by issuing the VMFSETUP command before proceeding to the next VMFREC, VMFRMDSK, VMFAPPLY, or VMFBLD command.

### Step 1.2. Receive the documentation

- To load from an envelope file, enter the following:
  
  ```
  VMFREC INFO ( ENV envfilename
  ```

- To load from a physical tape, enter the following:
  
  ```
  VMFREC INFO
  ```

**INFO**

Specifies that the documentation, including the product service memo is loaded to the A-disk.
ENV

Indicates the value following this option keyword, which is the name of the envelope file for the service being applied. The CMS file type of this file is SERVLINK.

Check the receive message log ($VMFREC $MSGLOG) for warning and error messages. Use the PF5 key to show all status messages which identify the products with service.

VMFVIEW RECEIVE

Read the product memo file ZVEX050A MEMO for the latest information about this service.

Step 1.3. [Optional] Merge the Alternate APPLY disk

This step is optional. The APPLY string contains the files that define service levels. Before receiving new service, you may choose to consolidate service levels by merging previously processed service from the alternate APPLY disk to the production APPLY, where it is permanently stored. The merge operation provides a clean alternate APPLY disk for new service. Issue the VMFMRDSK command as follows:

VMFMRDSK ppfname component APPLY

ppfname

Specifies the value of the PPF filename. In most cases, use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, use the file name of your PPF override file.

component

Specifies the name of the component. Use the name EXPLORE for installing on minidisks. Use the name EXPLORESFS for installing on SFS.

If you merged your APPLY disks, review the merge message log ($VMFMRD $MSGLOG). If necessary, correct any problems before proceeding.

VMFVIEW MRD

Note: For more information about handling specific error messages, see the appropriate VM Messages and Codes publication, or use online HELP.
Step 2. Receive the Service

Receive the service for each service tape or electronic envelope you want to process. If you have multiple service tapes or envelopes to process, you may receive all of the service before applying and building it.

- To load from an envelope file, enter the following:
  
  VMFREC PPF ppfname component ( ENV envfilename

- To load from a physical tape, enter the following:
  
  VMFREC PPF ppfname component

**PPF**

Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the *ppfname* use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the *component* value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

**ENV**

Indicates the value following this option keyword, which is the name of the envelope file for the service being applied. The CMS file type of this file is SERVLINK.

Review the receive message log ($VMFREC $MSGLOG). If necessary, correct any problems before proceeding.

**VMFVIEW RECEIVE**

**Note:** For more information about handling specific error messages, see the appropriate VM Messages and Codes publication, or use online HELP.
Step 3. Apply the Service

Apply all received service. This command applies the service that you just received. The version vector table (VVT) is updated with all serviced parts and all necessary AUX files are generated on the alternate APPLY disk. You must review the VMFAPPLY message log if you receive a return code (RC) of a 4, as this may indicate that you have local modifications that need to be reworked.

To apply the service, enter the following command:

VMFAPPLY PPF ppfname component

PPF
Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the ppfname use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the component value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

Review the receive message log ($VMFREC $MSGLOG). If necessary, correct any problems before proceeding.

VMFVIEW APPLY

Note: For information about handling specific error messages, see the appropriate VM Messages and Codes publication, or use online HELP.
Step 4. Update the Build Status Table

To update the build status table, enter the following command:

VMFBLD PPF ppfname component ( STATUS

PPF

Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the ppfname use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the component value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

Use VMFVIEW to review the build status messages.

VMFVIEW BUILD

Step 5. Build Serviced Objects

To build the serviced objects, enter the following command:

VMFBLD PPF ppfname component ( SERVICED

PPF

Indicates the values following this keyword, and the values are the Product Parameter File (PPF) file name, followed by the name of a component defined in the PPF.

In most cases, to specify the ppfname use the name of the supplied PPF file for this release, which is ZVEX050A. If you have created a PPF Override file, as described below and in the appendix Create Product Parameter File (PPF) Override (see page 49), you specify the file name of your PPF override file.

For the component value, use EXPLORE for installing on minidisks. Specify EXPLORESFS for installing on Shared File System directories.

Review the build message log ($VMFBLD $MSGLOG). If necessary, correct any problems before proceeding.

VMFVIEW BUILD

Note: For information about handling specific error messages, see the appropriate VM Messages and Codes publication, or use online HELP.
Step 6. Deploy Service to Production

To deploy serviced product materials to production, enter the following VMDEPLOY command to copy serviced product materials to the runtime disk space.

```
VMDEPLOY name [PRIMARY | ALTERNATE]
```

`name` Specifies the user ID of the product server machine being deployed.

[PRIMARY | ALTERNATE]

**PRIMARY**

Copy to the product primary disk space. This value results in overwriting the deployed Product Materials from the product release or version with the new serviced materials. We suggest that you backup all deployed minidisks before using this operand. Restoring the backup could be used to remove a level of service, if needed.

**ALTERNATE**

Copy to the alternate disk space location. This value retains your older product material deployment. Setting the Runtime Environment tag value in the VMSERVER NAMES file to PRIMARY or ALTERNATE causes that set of deployed disks to be used when the product server is next started. Testing the new service, or backing out to the old level just requires setting a new value for Runtime Environment and restarting the server.
Appendix A: References

This section contains the following topics:

VMSES/E Facilities (see page 47)
VMSES/E Commands (see page 47)

VMSES/E Facilities

This product is installed and serviced using the VMSES/E component of VM. VMSES/E is described in the IBM VMSES/E Introduction and Reference manual for your release of VM. VMSES/E provides the following:

- Commands to install Product Materials from a tape or downloadable tape image file
- Commands to receive service, apply service, and build serviced components
- A software inventory database that stores product status, Program Temporary Fixes (PTFs) which have been applied, and requisite relationships between products and fixes.

VMSES/E Commands

This section provides a brief description of VMSES commands and their purpose:

- VMFINS EXEC
  Retrieve product resource planning documents
  Install the product materials from a distribution media
  Delete previously installed products that are no longer used.

- VMFVIEW EXEC
  Review stored messages from previously issued commands

- VMFREC EXEC
  Receive Program Temporary Fixes from a distribution media

- VMFAPPLY EXEC
  Apply PTFs by resolving requisite relationships between fixes
■ VMFBLD EXEC
  Constructs usable forms from serviced parts
■ VMFSETUP EXEC
  Establishes a minidisk or Shared File System search order for one product version.
Appendix B: Create Product Parameter File (PPF) Override

This section provides information to help you create a product parameter file (PPF) override. The example used in this section shows how to change the shared file system (SFS) file pool where the product installation files reside.

You must never modify the product supplied ZVEX050A $PPF or ZVEX050A PPF files to change the file pool name or any other installation parameters. If the ZVEX050A $PPF file is serviced, the existing $PPF file will be replaced, and any changes to that file will be lost; by creating your own $PPF override, your updates will be preserved.

The following process describes changing the default file pool name, VMSYS, to NEWPOOL.

This section contains the following topics:

- **Step 1. Create a new $PPF override file.** (see page 50)
- **Step 2. Allocate the SFS Directories** (see page 50)
- **Step 3. Continue with the Product Installation** (see page 51)
Step 1. Create a new $PPF override file.

Create an override file either manually, using an editor, or use the Make Override Panel function when prompted by the VMFINS INSTALL command during product installation.

Create or modify the variable declarations area (:DCL) so it looks like the following sample.

************************************
* Explore - SFS install    *
************************************
:OVERLST. EXPLORESFS
:EXPLORESFS. EXPLORESFS ZVEX050A
:DCL. UPDATE
&LMODZ DIR NEWPOOL:ZVEX050A.LOCALMOD
&APPLX DIR NEWPOOL:ZVEX050A.APPLYALT
&APPLZ DIR NEWPOOL:ZVEX050A.APPLYPROD
&DRLTZ DIR NEWPOOL:ZVEX050A.DELTA
&BLSOZ DIR NEWPOOL:ZVM014A.TSYSTEM
&SAMPZ DIR NEWPOOL:ZVEX050A.SAMPLE
&BLS5Z DIR NEWPOOL:ZVEX050A.HELP
&BASIZZ DIR NEWPOOL:ZVEX050A.BASE
:EDCL.
:END.

If your $PPF override file was not created on the Software Inventory Minidisk at file mode letter D, then move the file to that disk. Compile your changes to create the usable PPF file from the $PPF file.

VMFPPF overname EXPLORESFS

overname

Defines the name of your override file.

Step 2. Allocate the SFS Directories

Use the ENROLL command to allocate an SFS file space for the owner of the directories and then issue a CREATE DIRECTORY command to create the directories named in your PPF Override file.

Allow the VMANAGER user ID to write into the directories by issuing the GRANT AUTHORITY command for each directory, with the attributes WRITE and NEWWRITE.

Note: For more information about the use and format of the commands ENROLL, CREATE DIRECTORY, and GRANT AUTHORITY, see IBM SFS documentation.
Step 3. Continue with the Product Installation

Restart the product installation in the chapter Installing Product Materials (see page 15) at step 1.3 by issuing the VMFINS command with the PLAN option. In that step, and in subsequent steps, use the name of your PPF Override file wherever the ppfname is present in the install commands.
Appendix C: Product Tags in VMSERVER NAMES File

This section lists the NAMES file tags used by the CA Explore PM for z/VM product. Default values for these tags are added when a NAMES entry is defined using the VM Product Manager VMDEFINE command.

You may alter these defaults during the deployment, when the screen created by VMDEFINE is displayed. After deployment, you may modify the entries in the NAMES file using the VMSERVER command from the VMANAGER user ID.

Note: For more information about the VMSERVER command, see the CA Mainframe VM Product Manager Reference Guide. For more information about NAMES processing, see the Usage Notes in the help panel that appears when the HELP NAMES command is issued.

<table>
<thead>
<tr>
<th>TAG Name</th>
<th>Definition of the Tag value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nick</td>
<td>Name of a CA Explore PM for z/VM product Server Virtual Machine (SVM)</td>
</tr>
<tr>
<td>PPFname</td>
<td>The Product Parameter File (PPF) and base component name associated with this product server. This tag is modified when upgrading to a newer product release.</td>
</tr>
<tr>
<td>Environment</td>
<td>‘primary’ or ‘alternate’ or ‘previous’</td>
</tr>
<tr>
<td></td>
<td>This tag is modified to select between three sets of deployed product disks. The selected set becomes active the next time the product is started. The deploy tag contains the tag names of disks defined as primary disks. The same tag names are prefixed by the string “alt” to form the names of the tags defining the alternate set of product disks. The same tag names are prefixed by the string “prev” to form the names of the tags defining the previous set of product disks.</td>
</tr>
<tr>
<td>Startcmd</td>
<td>Command to start the product server.</td>
</tr>
<tr>
<td>Prodname</td>
<td>Product identifier is a single token unique to each product. It must not be modified.</td>
</tr>
<tr>
<td>Deploy</td>
<td>List of tag names. Each tag defines a product minidisk, which will be populated by the VMDEPLOY command. You must not modify this tag value.</td>
</tr>
<tr>
<td>Runtime</td>
<td>Primary minidisk containing the code executed in the product server virtual machine.</td>
</tr>
<tr>
<td>Help</td>
<td>Minidisk containing the product HELP files</td>
</tr>
</tbody>
</table>
### Step 3. Continue with the Product Installation

<table>
<thead>
<tr>
<th>TAG Name</th>
<th>Definition of the Tag value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altruntime</td>
<td>Alternate version of the runtime disk. It usually contains files from a new release of the product or files with fixes applied.</td>
</tr>
<tr>
<td>Prevruntime</td>
<td>Previous version of the runtime disk. It usually contains files from a previous release of the product or versions of files before fixes were applied.</td>
</tr>
<tr>
<td>Local</td>
<td>A work disk accessed as file mode A</td>
</tr>
<tr>
<td>Logs</td>
<td>A minidisk that will hold the Explore log files</td>
</tr>
</tbody>
</table>
Appendix D: Allocating User ID Entries and Disk Space

Installing product materials and deploying product servers requires that CP User Directory Entries be created or updated, and that minidisk space be allocated. Performing these tasks depends on policies and procedures that are specific to your installation. The CA Mainframe VM Product Manager provides the VMALLOC command to assist you in performing these tasks.

This section contains the following topics:

Configuring the VMALLOC command processor (see page 55)
Using the VMALLOC command processor (see page 56)

Configuring the VMALLOC command processor

You issue the VMALLOC command to either generate the data you need to allocate these resources, or to actually perform the resource allocation task automatically.

The actions performed by the VMALLOC command depend on parameters you specify in an optional configuration file. To specify these parameters, create a VMALLOC CONFIG file on the CA Mainframe VM Product Manager configuration file disk, which is accessed as file mode V.

The following configuration file statements are supported:

**DEVTYPE [3390 | 3380 | 9336 | FB-512]**

This statement specifies MDISK Directory statements will be produced that define space in units of cylinders for Count Key Data (CKD) devices or 512-byte blocks for Fixed Block Architecture (FBA) devices.

**VOLUME volser**

This statement specifies MDISK Directory statements will be produced that define space to be allocated on a specific disk volume.
USE [VMSECURE | VMDIRECT]

This statement specifies that an already installed and operational CA VM:Secure or CA VM:Director product is available, and that it will be used to automatically allocate user ID entries and minidisk space. When this statement is specified, make sure that the following conditions are met:

1. The CA Mainframe VM Product Manager must have a copy of the appropriate VMSECURE or VMDIRECT MODULE file on an accessed minidisk or SFS directory. If your CA VM:Secure or CA VM:Director has another name, specify that name on the USE statement.

2. The CA VM:Secure or CA VM:Director server PRODUCT CONFIG file must contain a "PRODUCT VMSISERV VMANAGER" record to authorize the VMANAGER ID for automatic allocation.

3. An entry for VMANAGER must exist in the VMSECURE MANAGERS or VMDIRECT MANAGERS file

POOL poolname

This statement specifies that automatic allocation will use a specific disk sub-pool defined in the DASD CONFIG file of your CA VM:Secure or CA VM:Director server. The statement is ignored if the USE statement is not present.

Using the VMALLOC command processor

The VMALLOC command operates in one of two modes, depending on whether the "USE" configuration file statement is specified. Without it, VMALLOC generates an input file suitable for processing by the DIRECTXA command, or by a VM Directory Manager product. When "USE" is defined, VMALLOC calls CA VM:Secure or CA VM:Director to allocate the specified user ID and disk space.

The syntax of the command is given earlier, in the chapters where you use it.

Using VMALLOC with the DIRECTXA Command

You may add user ID entries and minidisk definitions to your USER DIRECT file and bring the changes online with the DIRECTXA command. See the IBM CP Planning and Administration Guide for your release of VM for details on creating user directory entries. VMALLOC generates a directory entry file on the A-disk for use as input to DIRECTXA.

MDISK statements are generated as comments which specify the required disk sizes in units of blocks of a specified block size. If you configure the DEVTYPE statement, sizes are given in units of cylinders or FBA 512-byte blocks. If you configure the VOLUME statement, the specified volume will appear in the generated MDISK statements.
Using VMALLOC with a Directory Manager Product

VMALLOC generates a directory entry file on the A-disk for use as input to a directory manager product, such as DIRMAINT from IBM, CA VM:Secure, or CA VM:Director. See the relevant product manuals for details on adding user IDs and minidisk space with these products.

MDISK statements are generated as comments which specify the required disk sizes in units of blocks of a specified block size. If you configure the DEVICE statement, sizes are given in units of cylinders or FBA 512-byte blocks. If you configure the VOLUME statement, the specified volume will appear in the generated MDISK statements.

Using VMALLOC Automatic Resource Allocation with CA VM:Secure or CA VM:Director

If either of these CA directory manager products is installed and the "USE" parameter is configured, then VMALLOC calls the CA Directory Manager product directly to allocate the needed user ID entries and disk space.
Appendix E: Collecting SQL Performance Data

About SQL/DS Data Collection

SQL/DS data collector (EXPSQLDC) in CA Explore PM for z/VM is an optional SQL/DS performance monitoring agent. If you do not want to collect SQL performance data then you can ignore this appendix. The SQL Data Collector does the following:

- Runs in a dedicated CMS virtual machine (referred to as the SQL/DS data collection machine).
- Sends SQL/DS performance data to the VM service machine using IUCV.

The SQL/DS data collector collects performance data only when a CA Explore PM for z/VM service machine is connected to the SQL/DS data collection machine with IUCV. This prevents unnecessary calls to the database server machine and reduces overhead.

Define the SQL/DS Data Collection Virtual Machine

This section explains the tasks you need to perform to define the SQL/DS data collection machine.

Prior to taking this step, you must have defined and deployed the CA Explore PM for z/VM service machine. The definition of the SQL/DS data collection machine contains a link to the service machine’s runtime disk.

**Note:** For more information about defining the service machine, see Step 1 in Installing CA Explore PM for z/VM.

Define the SQL Data Collector in the VM Directory

To define the SQL/DS data collection machine, you add entries to the VM directory. If you are not sure how to update the system directory, see the IBM manual *Planning and Administration*.

The following is a sample definition of the SQL/DS data collection machine. Information that you must supply is shown in italicized, lowercase letters. An explanation of each entry follows.

```plaintext
USER EXPSQLDC password 6M 16M BEG
ACCOUNT nnnnnnnn
IUCV ALLOW
```
USER userid password 6M 16M BEG

Replace userid and password with the logon ID and password you want to assign to the SQL/DS data collection machine. The default user ID is EXPSQLDC.

The operand 6M specifies the size of the SQL/DS data collection machine. For most users, a 6M virtual machine is adequate. If data collection fails due to inadequate storage, you must increase the virtual machine size.

The operand 16M specifies the maximum amount of storage that can be defined using the Define Storage CP command. The default is 1M, which is not compatible with the recommended IPL size of 6M. You should specify at least 8M for this optional operand.

ACCOUNT name

This statement is optional. If used, name should be replaced with an appropriate accounting name.

IUCV ALLOW

This statement is required. It permits any virtual machine to connect to the SQL/DS data collection machine.

IUCV dbname

This statement is required.

For z/VM systems replace dbname with the name of the SQL/DS database that is to be monitored.

IPL CMS

This statement is required. It causes SQL/DS performance data collection to start when the SQL/DS data collection machine is logged on.

CONSOLE 009 3215

This statement is required.

SPOOL 00C 2540 READER A

This statement is optional.
SPOOL 00D 2540 PUNCH A
This statement is optional.

SPOOL 00E 1403 A
This statement is optional.

LINK MAINT 190 190 RR
This statement is required. It defines a link to the CMS 190 disk. If a user other than
MAINT owns the CMS 190 disk, change MAINT to the proper user ID.

LINK MAINT 19D 19D RR
This statement is required in order to access the CMS help facility. It defines a link
to the CMS 19D disk. If a user other than MAINT owns the CMS 19D disk, change
MAINT to the proper user ID.

LINK MAINT 19E 19E RR
This statement is required. It defines a link to the CMS 19E disk. If a user other than
MAINT owns the CMS 19E disk, change MAINT to the proper user ID.

LINK sqlserver 195 195 RR
This statement is required. It defines a link to the SQL/DS production disk. Replace
sqlserver with the user ID of the virtual machine where you run the SQL/DS
database server.

LINK EXPLORE 192 2EE RR
This statement is required. It defines a link to the CA Explore PM for z/VM service
machine’s 192 disk. This link is required because most of the software that collects
SQL/DS data remains on the service machine’s 192 disk.

MDISK 191 dev strt cyls vol M ALL
This statement is required. It defines the 191 disk for the SQL/DS data collection
machine. Replace the variable information as follows:

  dev
  The device type.

  strt
  The starting cylinder number on the real disk where the minidisk resides.

  cyls
  The number of cylinders the minidisk should contain. The required minimum is
  1 cylinder. Additional space may be required if you want to place other files on
  the minidisk.

  Vol
  The volume serial number of the real disk where the minidisk resides.
Install the SQL/DS Data Collection Software

The Data Collection Module EXPSQLDC must be regenerated with the latest version of the ARIRVSTC TEXT file that must be loaded on the sqlserver 195 disk. Send this TEXT file to the VMANAGER user ID.

Step 1. Rebuild and Deploy the EXPSQLDC Module

Log onto the VMANAGER userid and obtain the ARIRVSTC TEXT file you sent to the A-disk. Then execute the following steps.

To rebuild and deploy the EXPSQLDC Module

1. Setup VMANAGER to work with Explore using the following command:
   
   VMFSETUP ZVEX050A EXPLORE (LINK

2. Issue the following command to place the TEXT file on the LOCALMOD disk:

   VMFREPL ARIRVSTC TEXT ZVEX050A EXPLORE = TEXT A ($SELECT LOGMOD LX050 OUTMODE LOCALMOD

3. Rebuild and deploy the EXPSQPDC MODULE by executing the steps in Servicing Your Product starting at Step 5. Build Serviced Objects.

Step 2. Install the SQL Data Collector

1. Log onto the SQL/DS data collection machine.

2. Enter the following command to access the CA Explore PM for z/VM service machine's 191 disk:

   ACCESS 2EE 0

3. Enter the following command to run the ESQLINST program, which copies the PROFILE EXEC for the SQL/DS data collector to the 191 disk of the SQL/DS data collection machine:

   ESQLINST

4. Enter the following commands to run the S Q LINIT program, which initializes files on the SQL/DS data collection machine to make it ready to communicate with the SQL/DS database server:

   ACCESS 195 Q
   SQLINIT DBNAME(dbname)
5. Replace *dbname* with the SQL/DS database name.

6. If you want to begin SQL/DS data collection right now, enter the following command:
   
   ```
   IPL CMS
   ```
   
   We recommend that the SQL/DS data collection machine be added to the list of virtual machines automatically logged on when VM is IPLed.
   
   The SQL/DS data collection machine must be started after the SQL/DS database server.
Appendix F: (Optional) Starting and Stopping Data Collection

This section explains how to start and stop CA Explore PM for z/VM data collection and CA Explore PM for z/VM’s SQL/DS data collection.

This section contains the following topics:
- Starting Data Collection (see page 65)
- Common Return Codes (see page 66)
- Reconnecting to the CA Explore PM for z/VM Service Machine (see page 67)
- Stopping Data Collection (see page 67)
- Starting SQL/DS Data Collection (see page 68)
- Stopping SQL/DS Data Collection (see page 69)

Starting Data Collection

CA Explore PM for z/VM’s data collection, except for the collection of SQL/DS data, is performed by the EXPLORE service machine.

To start CA Explore PM for z/VM automatically whenever VM is IPLed, add the VM service machine to the list of AUTOLOGed user Ids. The CA Explore PM for z/VM service machine should normally be left running disconnected.

To manually start CA Explore data collection

1. IPL CMS in the service machine.
   The PROFILE EXEC placed on the EXPLORE service machine’s A-disk during the install procedure contains commands that should automatically start CA Explore data collection at IPL.

2. You will be presented with a message asking if you want to start Explore now. Select one from the following options:

   YES
   Initializes Explore using the parameters defined in the EXPLORE CONFIG file and starts the service machine.

   NO
   Places you at the CMS ready prompt and Explore is not initialized.
**Help**

Places you in the Installation and Maintenance Help Facility.

**Note:** If the service machine’s PROFILE EXEC does not contain commands that automatically start CA Explore data collection at IPL, proceed to the next step below.

3. From the CMS Ready Prompt enter PROFRUN or issue the EXPLRVM command.

The only reason that one might want to initialize Explore with the EXPLRVM command with version 5.0 is to override some of the parameters defined in the EXPLORE CONFIG file.

**Note:** For information about the format of the EXPLRVM command, see Appendix G. The same parameters defined for EXPLRVM also apply to the EXPLORE CONFIG file as control lines.

---

**Common Return Codes**

If CA Explore PM for z/VM ends soon after starting, check the return code. Possible return codes are as follows.

**Note:** The return code displayed is not reliable if CA Explore PM for z/VM abends. If it abends with a program check, contact Technical Support.

<table>
<thead>
<tr>
<th>Return Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal return (The QUIT command was issued.)</td>
</tr>
<tr>
<td>4</td>
<td>The CA Explore PM for z/VM virtual machine is too small.</td>
</tr>
<tr>
<td>8</td>
<td>An invalid product code was specified, or your product code has expired.</td>
</tr>
<tr>
<td>20</td>
<td>EXPLORE, EXPLRVM, or EXPLREVW is already active on this virtual machine.</td>
</tr>
<tr>
<td>44</td>
<td>The Monitor DCSS could not be found.</td>
</tr>
<tr>
<td>128</td>
<td>Invalid operands were specified with the EXPLRVM command.</td>
</tr>
</tbody>
</table>
Reconnecting to the CA Explore PM for z/VM Service Machine

The CA Explore PM for z/VM service machine and the SQL data collector are normally run in a disconnected state. We recommend that they be left disconnected for normal operation. If it is necessary to issue commands directly on the service machine, you may use the following procedure to reconnect it:

**To reconnect the SQL data collector to the CA Explore PM for z/VM service machine**

1. Log on to the VM service machine.
2. If a CP READ status message is displayed (at the lower right corner of the screen) after the RECONNECTED message (which is displayed in the upper left part of the screen, a few lines from the top), then type B and press ENTER.
3. Press ENTER when the RUNNING status message is displayed.
4. Press PA2 when the MORE… status message is displayed.
5. When the Data Collection And Control screen is displayed, you may shut down the service machine, or issue other commands, as necessary.

Stopping Data Collection

If you are using CA Explore PM for z/VM’s resource control facility, you must terminate resource control before stopping CA Explore data collection.

**Note:** For information about terminating resource control, see the *Real-Time and Flashback User’s Guide*.

Data collection should normally be left running all of the time, except when it is necessary to perform maintenance, or to shut down the VM system itself.

**To terminate data collection**

1. From the Data Collection and Control screen on the CA Explore PM for z/VM service machine, issue the following command:
   
   `QUIT`

2. In an emergency, the real-time data collection service machine may be terminated with the following command:
   
   `CP FORCE`

**Note:** Using CP FORCE in an emergency prevents normal termination of Explore facilities such as the logging facility and the Resource Control facility.
Starting SQL/DS Data Collection

AUTOLOG the SQL/DS data collection machine. The commands necessary to automatically start SQL/DS data collection were placed in the PROFILE EXEC by the successful execution of the ESQLINST exec.

Do one of the following to manually start the SQL/DS data collector:

- IPL CMS in the SQL/DS data collection machine
- On the CMS command line while logged on to the SQL/DS data collection machine, enter EXPSQLDC

The EXPSQLDC command has the following format:

```
EXPSQLDC [SCAN nn] [DBUSERS nnnnn] [ACTIVE]
```

**SCAN nn**

Defines the data sampling interval, in minutes.

- **Limits:** 1 to 60 minutes
- **Default:** 2 minutes

**DBUSERS nnnnn**

Defines the maximum number of user connections (pseudo agents) to monitor. The default is to calculate this number dynamically at initialization time from SQL/DS connection data.

- **Limits:** 1 to 99,999 users

**ACTIVE**

Specifies that SQL/DS data collection is to be performed whether or not a CA Explore PM for z/VM data collector is connected with IUCV. Use of this parameter will cause SQL/DS data collection to impose unnecessary overhead on the database server if the SQL/DS data collection machine does not have an IUCV connection to the CA Explore PM for z/VM service machine.
Reconnecting to the SQL/DS Data Collection Machine

The SQL/DS data collection machine is normally run in a disconnected state. We recommend that it be left disconnected for normal operation. The SQL/DS data collector does not support any user interface. If it is necessary to issue commands directly from the SQL/DS data collection machine, use the following procedure to reconnect it.

To reconnect the SQL/DS data collection machine
1. Log on to the SQL/DS data collection machine.
2. If a CP READ status message is displayed (at the lower right corner of the screen) after the RECONNECTED message (which is displayed in the upper left part of the screen, a few lines from the top), type B and press ENTER.
3. Press ENTER when the RUNNING status message is displayed.
4. Press CLEAR if the MORE status message is displayed.

Stopping SQL/DS Data Collection

To stop SQL/DS data collection, enter the following command while logged on to the SQL/DS data collection machine:

EXPQUIT
Appendix G: Optional tasks and set up procedures

This section contains the following topics:

Define Access to CA Explore PM for z/VM (see page 71)
Customize CA Explore PM for z/VM (see page 71)
(Optional) Perform Control Block Mapping (see page 76)
(Optional) Set Up Security (see page 79)
Accessing and Exiting (see page 82)

Define Access to CA Explore PM for z/VM

In this step, you can provide access to all the users of CA Explore PM for z/VM.

Copy the EXPLORE EXEC to a disk automatically accessible by all users. If you want all CMS users to have access to the CA Explore PM for z/VM flashback subsystem, copy the EXPLREVW EXEC to a disk accessible by all users.

Customize CA Explore PM for z/VM

You can skip this step if all of the following apply:

■ You have fewer than 85 VM users, including service machines and guest operating systems.
■ You have fewer than 300 DASD and tape devices.
■ You prefer to modify CA Explore PM for z/VM's initialization procedures after installation is complete or do not want to modify initialization procedures at all.
■ You prefer to provide users with private copies of valid initialization procedures, example INITUSER EXPLORE fm, after installation is complete or do not want to provide users with private copies of initialization procedures.

To customize CA Explore PM for z/VM

1. Modify the VM profile to specify the number of users on your system.
2. Specify the number of devices to be monitored.
3. Modify the Explore user interface initialization procedures to meet your needs (optional).
Specify the Number of Users to Monitor

If you have 85 or more VM users, service machines, and guests, use the following steps to determine the number of VM users CA Explore PM for z/VM will monitor.

**To specify the number of users to monitor**

1. Edit the EXPLORE CONFIG file on the service machine's A disk and add the following control line after the DCSSNAME MONDCSS line:

   ```
   USERS nn
   ``

   **nn**

   Defines the number

2. Specify a value 15% to 25% greater than the maximum number of users who are ever on your VM system (as indicated by CP QUERY USERS) for the USERS parameter.

   Optionally, use the INCLUDE or EXCLUDE command to limit the number of users monitored. This reduces EXPLORE monitoring overhead. If you do this, you may reduce the value of the USERS parameter accordingly.

   **Note:** For information about the EXCLUDE and INCLUDE commands, see the Real-Time and Flashback User's Guide.


   Your changes will be effective the next time the EXPLORE service machine is IPLed.

**More information:**

EXPLRVM Command Format (see page 72)

EXPLORE CONFIG file (see page 74)

**EXPLRVM Command Format**

The EXPLRVM command has the following format

```
EXPLRVM ([USERS nn] [AUTO nn] [TERM ccuu] [MODE fm] [DMODE fm] [LMODE fm] [SMODE fm] [VMODE fm] [BUF nn] [DCSSNAME name])
```

**USERS nn**

Defines the maximum number of users that will be monitored.

**Default:** 100

**AUTO nn**

Defines the maximum number of automatic command table entries.

**Default:** 50
TERM ccuu

Defines the address of the dedicated terminal used by CA Explore PM for z/VM.

**Default:** CMS console

Using a dedicated terminal is not recommended because some CMS facilities are unavailable to dedicated terminals. The recommended method is to use the CMS console, which is the default. To use the CMS console, do not use this operand with the EXPLRVM command.

MODE fm

Defines the CMS filemode to be used for all CA Explore PM for z/VM log files and work files except for the CP Monitor format log file, which is always written to the A disk.

DMODE fm

Defines the filemode for the DLOG LOG file.

LMODE fm

Defines the filemode for the EXPLORE LOG file.

SMODE fm

Defines the filemode for the SEEK command work file.

VMODE fm

Defines the filemode for the VLOG LOG file.

BUF nn

Defines the size of screen and VMCF buffers. The minimum size is 65,536.

**Default:** 131,072 (128k)

The same size must be specified for the EXPLORE and EXPLCMND commands, using optional patch 4. For information about applying optional patches, see the chapter "Patches, Fixes, and Maintenance."

DCSSNAME name

Defines a user assigned MONDCSS name. The default name can be changed by the user during startup.

**Default:** MONDCSS

EXPSTART

This EXEC is called by VMISTART to start the EXPLORE server after reading the "pseudo" CONFIG files to determine the appropriate startup parameters to pass to EXPLRVM.
EXPLORE CONFIG file

The EXPLORE CONFIG file is populated with the parameters that could be included in the EXPLRVM command. At a minimum, the EXPLORE CONFIG file includes the DCSSNAME MONDCSS parm as a default.

If a different DCSSNAME is being used for your installation then the name will be changed here.

XEDIT can be used to update any control parameters in the EXPLORE CONFIG file that are EXPLRVM parms.

Following is an example of the default EXPLORE CONFIG file:

```
**********************************************************************
* The following implements pseudo ACCESS record that will be updated *
* with the vdevno from the LOGS record of the VMSERVER NAMES file.   *
* ACCESS LOGS 1D0 B                                             *
* The following specifies the *MONITOR DCSS name to use.            *
* DCSSNAME MONDCSS                                              *
* * * End of File * * * * * * * * * * * * * * * * * * * * * * * * * *
```

The other parameters as outlined in the EXPLRVM command can also be specified in the EXPLORE CONFIG file.

Modify Initialization Procedures

You can further optionally customize CA Explore PM for z/VM by altering the initialization procedures for its components. CA Explore PM for z/VM uses the following initialization procedures. These will be loaded on the service machine’s 192 disk and accessed as D. This disk is read only. To modify any of these files, they should be copied to the 191 A-disk and modified in this disk. This will also prevent them from being overwritten when maintenance is applied or when new service packs are installed.

**INITSERV EXPLORE**

The service machine initialization procedure. Basic security is also established with this procedure, as described in the section Set Up Security. This procedure executes each time CA Explore PM for z/VM data collection is started.

**INITUSER EXPLORE**

The initialization procedure for CA Explore PM for z/VM’s real time interface for CMS users.

**INITREVVW EXPLORE**

The initialization procedure for CA Explore PM for z/VM’s flashback subsystem.
**INITCMND EXPLORE**

The initialization procedure for CA Explore PM for z/VM's command interface.

**INITHIST EXPLHIST**

The initialization procedure for CA Explore PM for z/VM's history reporting program EXPLHIST.

**CONNECT SQL userid**

The initialization command for CA Explore PM for z/VM's SQL/DS data collection machine.

**Note:** For information about customizing initialization procedures, except INITHIST EXPLHIST, see the *Real-Time and Flashback User's Guide*. For information about EXPLHIST, see the *Batch Reporting Guide*.

It is *not* necessary to customize initialization procedures at this point. Customization can be performed at any time.

You might, however, want to remove the AUTO ADD statement for the TAILOR EXPLORE procedure, which sets some sample warning thresholds, from the distributed INITSERV EXPLORE file (INITSERV EXPLORE is the initialization procedure for EXPLORE data collection).

**Removing the TAILOR EXPLORE Procedure**

If you do not want CA Explore PM for z/VM to execute TAILOR EXPLORE, remove the AUTO ADD statement from INITSERV EXPLORE.

**(Optional) Provide Copies of Initialization Procedures**

If you want to allow users to customize the EXPLORE user interface, Flashback subsystem, or History Reporting subsystem, you can place copies of any of the initialization procedures, except INITSERV EXPLORE, on their A disks. For example, you can provide them with private copies of INITUSER EXPLORE and INITREVW EXPLORE into which they can place their own customizations.
(Optional) Perform Control Block Mapping

Take this step if you want to be able to display the contents of CP or CMS control blocks from CA Explore PM for z/VM. The following commands are affected:

- FORMAT
- VMDBK
- RDEVBLOK

This section provides procedures to create maps of CP and CMS control blocks, and display their contents using the CA Explore PM for z/VM FORMAT command.

CA Explore PM for z/VM creates a map for a CP or CMS control block by reading the member of the MACLIB where the control block is defined. A member can contain one or more control blocks. You can create maps for all the control blocks in a MACLIB, or you can create maps for the control blocks in specified members of a MACLIB.

Control Block Locations

Depending on the version of VM, the location and number of control blocks may vary. Check the following MACLIBs to determine the control blocks present and their locations:

<table>
<thead>
<tr>
<th>MACLIB Name</th>
<th>z/VM Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPPSI</td>
<td>S disk or MAINT’s 490 disk</td>
</tr>
<tr>
<td>HCPOM1</td>
<td>MAINT’s 193 or 493 disk</td>
</tr>
<tr>
<td>HCPOM2</td>
<td>MAINT’s 193 or 493 disk</td>
</tr>
<tr>
<td>HCPGPI</td>
<td>S disk or MAINT’s 490 disk</td>
</tr>
</tbody>
</table>

Depending on the version of VM, the location and number of control blocks may vary. The list of control blocks, which we suggest you map, does not contain any CMS control blocks. If you want to find and map control blocks in the CMS macro libraries, use the CMS FILELIST command to display all MACLIBs on the S disk:

FILELIST * MACLIB S

MACLIBs whose names begin with the characters CMS or DMS contain native CMS control blocks. MACLIBs whose names begin with the characters OS contain control blocks used by CMS OS simulation.
Select the Control Blocks to Map

For each MACLIB for which you elect to map control blocks, decide whether you are going to map all control blocks or selected control blocks.

**Note:** We recommend that you initially map only the following control blocks. Each of these control blocks is contained in a separate MACLIB member. If you choose to map additional control blocks, remember that a corresponding amount of additional disk space is required for the resultant map files.

<table>
<thead>
<tr>
<th>z/VM MACLIB</th>
<th>Control Block Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPPSI</td>
<td>HCPPFXPG</td>
</tr>
<tr>
<td>HCPOM1</td>
<td>HCPPLSBK</td>
</tr>
<tr>
<td></td>
<td>HCRPRDEV</td>
</tr>
<tr>
<td></td>
<td>HCPSRMBK</td>
</tr>
<tr>
<td></td>
<td>HCPSYSCM</td>
</tr>
<tr>
<td></td>
<td>HCPVDEV</td>
</tr>
<tr>
<td></td>
<td>HCPVMDBK</td>
</tr>
</tbody>
</table>

Mapping Control Blocks

For each MACLIB for which you have elected to map control blocks, do one of the following:

- Create maps of all control blocks in the MACLIB.
- Create maps of selected control blocks in the MACLIB.

**All Control Blocks**

To create maps of all the control blocks in every member of a MACLIB, execute the EXPLMAP exec by entering the following command from CMS on the CA Explore PM for z/VM service machine:

```
EXPLMAP maclib [filemode]
```

Replace maclib with the filename of the MACLIB library, and replace filemode with the CMS disk where the output maps will reside. The default filemode is A.
Selected Control Blocks

To create maps of all control blocks in a single member from a MACLIB library, execute the EXPLBEXC exec by entering the following command from CMS on the CA Explore PM for z/VM service machine:

```
EXPLBEXC maclib member [filemode]
```

The parameters for the EXPLBEXC exec are as follows:

- **maclib**
  - Defines the filename of the MACLIB library.

- **member**
  - Defines the name of the member in the library. If the member contains only one control block, the member name is usually the control block name prefixed with HCP.

- **filemode**
  - Defines the CMS disk where the output maps will reside.
  - **Default:** A

The following examples provide sample commands for z/VM:

- To map all of the CMS control blocks, issue the following commands:
  - EXPLMAP DMSOM
  - EXPLMAP DMSGPI

- To map all of the CP control blocks listed in the table above, issue the following commands:
  - EXPLBEXC HCPPSI HCPPFXPGMAP
  - EXPLBEXC HCPPOM1 HCPRLSBK
  - EXPLBEXC HCPPOM1 HCPPDEV
  - EXPLBEXC HCPPOM1 HCPPRMIBK
  - EXPLBEXC HCPPOM1 HCPPYSCM
  - EXPLBEXC HCPPOM1 HCPVDEV
  - EXPLBEXC HCPPOM1 HCPVMDBKMAP

**Note:** All mapping output will be written to the 191 A-disk.

Rebuilding Maps

The contents of a MACLIB can be updated each time you perform VM maintenance. If you change any member in the library, you must rebuild its maps to receive the updated information.
(Optional) Set Up Security

By default, CA Explore PM for z/VM does not restrict the use of any CA Explore PM for z/VM command, except the RSCTL command. Take this step if you want to restrict the commands that can be issued.

In this step, you do one or both of the following:

- Implement basic security by adding ENABLE and DISABLE commands to the CA Explore PM for z/VM procedure INITSERV EXPLORE A0. Instructions for using these commands are given in the Real-Time and Flashback User’s Guide.
- Create a user security exit. Writing a user security exit requires that you know the assembler language. Instructions for creating a user security exit are given in the following sections.

The User Security Exit

The user security exit in CA Explore PM for z/VM allows checking of VM commands requested through the CMS interface. All commands requested through the CMS interface are logged in the VLOG LOG file. If the user exit denies a request, this is also logged.

Before a request is passed to the user security exit, it must first pass basic security as defined by the ENABLE and DISABLE commands. No SVCs should be embedded in the user security exit. If the user security exit does take a program check, CA Explore PM for z/VM will attempt recovery. The user security exit will not be disabled, no matter how many program checks occur.

The entry point of the security exit must be called EXPUSER1.

Exiting CA Explore PM for z/VM

Use the EXIT command to terminate the following components of CA Explore PM for z/VM:

- Real time interface
- CMS command interface
- Flashback subsystem

The EXIT command invokes a REXX procedure. If issued from the service machine, the EXIT command disconnects but does not terminate data collection and logging. Specify:

EXIT
Writing a User Security Exit

The user security exit must be written in assembler. On entry, the contents of the registers are as follows:

<table>
<thead>
<tr>
<th>Register</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Address of the parameter list</td>
</tr>
<tr>
<td>R13</td>
<td>Address of the save area</td>
</tr>
<tr>
<td>R14</td>
<td>Return address</td>
</tr>
<tr>
<td>R15</td>
<td>Entry address of the security exit</td>
</tr>
</tbody>
</table>

On return, if R15 is equal to 0, CA Explore PM for z/VM executes the command; if R15 is not equal to 0, CA Explore PM for z/VM denies the request. CA Explore PM for z/VM ignores any changes to the parameter list and all registers except R15.

Sample Parameter List

You can copy the following sample parameter list from the CMS file EXPARMS COPY A1:

```
PARMLIST DSECT
USERID   DS   CL8          Requester ID
DATE     DS   OCL8
MONTH    DS   CL2
          DS   C
DAY      DS   CL2
          DS   C
YEAR     DS   CL2
TIME     DS   OCL8
HOURS    DS   CL2
          DS   C
MINUTES  DS   CL2
          DS   C
SECONDS DS   CL2
DAYOFWK  DS   X            Binary day of week
DAYLNG   DS   X            Binary length of name of day
DAYNAME  DS   CL9          Name of day
COMMAND  DS   CL8          CA Explore for VM command
OPERAND1 DS   CL8          Operands
OPERAND2 DS   CL8          *
OPERAND3 DS   CL8          *
OPERAND4 DS   CL8          *
OPERAND5 DS   CL8          *
OPERAND6 DS   CL8          *
```
Sample User Security Exit

A sample user security exit is provided as the CMS file EXPUSER1 ASSEMBLE. The following example contains a security exit that limits use of EXPLORE from Monday to Friday from 8 A.M. to 6 P.M:

```
EXPUSER1 CSECT
  USING *,12
  USING PARMLIST,1
  LR 12,15 COPY BASE REGISTER
  SLR 15,15 SET RETURN CODE
  CLI DAYOFWK,1 Q/SUNDAY
  BE REJECT YES REJECT
  CLI DAYOFWK,7 Q/SATURDAY
  BE REJECT YES REJECT
  CLC HOURS,=C'08' Q/BEFORE 8 A.M.
  BL REJECT YES REJECT
  CLC HOURS,=C'17' Q/AFTER 5:59.59 P.M.
  BH REJECT YES REJECT
  BR 14 RETURN REQUEST OK
REJECT LA 15,1 SET DENY FLAG
  BR 14 RETURN REJECT REQUEST
  LTQRG
PARMLIST DSECT
  *
  *
  *
  *
  END
```

Implementing a User Security Exit

To implement a user security exit
1. Write and assemble the user security exit.
2. Logon to the VMANAGER machine.
3. Place the text deck EXPUSER1 TEXT on the VMANAGER machine’s A-disk.
4. Setup VMANAGER to work with Explore using the following command:

```bash
VMFSETUP ZVEX050A EXPLORE (LINK)
```

5. Issue the following command to place the TEXT file on the LOCALMOD disk:

```bash
VMFREPL EXPUSER1 TEXT ZVEX050A EXPLORE = TEXT A ($SELECT LOGMOD LX050 OUTMODE LOCALMOD
```

6. Rebuild the EXPSYS MODULE (and any other object that has pending service) by issuing:

```bash
VMFBLD PPF ZVEX050A EXPLORE (SERVICED)
```

7. IPL the CA Explore PM for z/VM service machine.

8. Start EXPLRVM.

The user security exit is now activated.

---

**Accessing and Exiting**

CA Explore PM for z/VM provides the real time interface to give CMS users full screen displays similar to the display for the service machine. To activate this interface in CMS machines, use the EXPLORE command, which is explained below.

CMS users can also use the CMS command interface, which lets you see the display for a single EXPLORE command, or issue an EXPLORE command from an exec, without having to enter the real time interface. This method of accessing CA Explore PM for z/VM, the EXPLCMND program, is explained in the *Real-Time and Flashback User’s Guide*.

To access CA Explore PM for z/VM’s real time interface, your CMS session must have read access to the service machine’s 192 or runtime disk, usually the D disk. Enter the following command to access the real time interface:

```bash
EXPLORE
```

The Real Time Main Menu is displayed when you first enter the real time interface. To return to this menu from another panel, enter the following command on the command line:

```bash
*MAIN
```

or

```bash
*MENU
```
Exiting the Data Collection Service Machine

To exit the Explore machine from this user interface enter the following command:

EXIT