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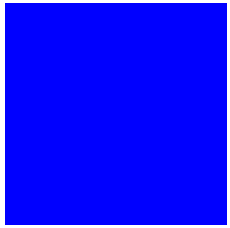

CIMS Chargeback

OpenVMS Installation and Getting Started Guide

Version 8.0.9

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Preface

As companies continue to integrate computer technology into their business operations, it becomes increasingly important to properly administer the IT function, particularly with respect to performance and cost. And the best way to control costs is to plan for them.

CIMS Chargeback is a comprehensive, flexible software solution that consolidates a wide variety of accounting data for multiple operating systems into a single file that may be accessed from either the mainframe or a workstation. Simply put, CIMS Chargeback is an essential component of an effective financial management system.

Philosophy

Originally developed in 1974, CIMS has focused on meeting the financial and resource reporting requirements of Information Services Departments. CIMS has evolved with corporate IT management requirements. Focused commitment to client service and support sets CIMS apart from competing products. Our goal is to provide the best chargeback and resource reporting software in the world at the lowest possible cost to our customers.

The CIMS Lab strongly believes in and executes the concept of continuous product improvement. Customers have access to CIMS product development personnel to ensure that customer feedback and other critical issues are incorporated into the next release of the product.

Contacting the CIMS Lab

You can contact us with any questions or problems you have. Please use one of the methods below to contact us.

For product assistance or information, contact:

USA & Canada, toll free	(800) 283-4267
International	(916) 783-8525
FAX	(916) 783-2090
World Wide Web	**www.cimslab.com**

Our Mailing Address is:

CIMS Lab, Inc.
3013 Douglas Blvd., Suite 120
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About This Guide

This guide explains how to install *CIMS for Open VMS*.

Ch. No.	Chapter Name	Content Description
1	*Preparing for Installation*	Provides an overview of this guide.
2	*Installing CIMS for OpenVMS on a Standalone System*	Discusses the installation process on a standalone system.
3	*Installing CIMS for OpenVMS on a Clustered System*	Discusses the installation process on a clustered system.
4	*Installing CIMS on a Mixed AXP and VAX Clustered System*	Discusses the installation process for a mixed AXP and VAX clustered system.
5	*CIMS for OpenVMS Files*	Discusses the contents of the various *CIMS for OpenVMS* directories.

Conventions

Some or all of the following conventions appear in this guide:

Symbol or Type Style	Represents	Example
Bold	a new term	...called a **source object**.
Alternate color	(online only) hotlinked cross-references to other sections in this guide; if you are viewing this guide online in PDF format, you can click the cross-reference to jump directly to its location	...see *Chapter 3, Data Migration*.
Italic	words that are emphasized	...the entry *after* the current entry...
	the titles of other documents	*CIMS for Open VMS User Guide*
	syntax variables	`COPY filename`
`Monospace`	directories, file names, command names, computer code	`&HIGHLVL.SRCLIB`
	computer screen text, system responses, command line commands	`Copy file? Y/N`
`Monospace bold`	what a user types	...enter `RUN APP.EXE` in the Application field

Symbol or Type Style	Represents	Example
▸	choosing a command from a cascading menu	File ▸ Import ▸ Object

`Highlighted Screen Text`	used to callout screen text on character- based screen captures. (When viewed online, the screen text will be blue.)	`Dataset....`
		`Product....`
		`Parmlib...`

Related Publications

As you use this guide, you might find it helpful to have these additional books available for reference:

- *CIMS for OpenVMS User Guide*
- *CIMS for OpenVMS Reference Guide*
- *CIMS for OpenVMS Messages Guide*

1

Preparing for Installation

This chapter provides an overview of CIMS Version V8.0.9 and explains the installation media contents and how you should prepare for installation.

Overview

CIMS Version V8.0.9 for OpenVMS is a major release to CIMS, the OpenVMS and UNIX Resource Management and Chargeback System, with the goal to:

- Support newer versions of VMS
- Add support for Oracle database
- Add new features and functionality to CIMS
- Improve the performance of CIMS
- Correct errors reported by users in V08.0
- Add flexibility to functionality already existing in V08.0
- Prepare for enhancements in future releases of CIMS

This document is intended to be an overview of the changes to CIMS for OpenVMS product and a guide for installing it on your OpenVMS system.

CIMS for OpenVMS version 8.0 is supported on VAX and AXP computers using OpenVMS from Digital Equipment Corporation. The distribution media is available on CD-ROM, 4mm DAT, 8mm cartridge and electronic distribution via the Internet.

Description of distribution on CD-ROM

The CD-ROM distribution media for CIMS OpenVMS version 8.0 contains the file ARSAP080.ZIP and two executables called UNZIPAXP.EXE and UNZIPVAX.EXE.

CD Distribution Media	Contents
ARSAP080.ZIP	The CIMS for OpenVMS distribution kit is made up of several VMS Backup savesets (ARSAP080.A through ARSAP08.I) that have been "zipped" into one "zip" file called ARSAP080.ZIP.
UNZIPAXP.EXE	UNZIPAXP.EXE is an executable used to unzip the ARSAP08.0 file on an ALPHA system.
UNZIPVAX.EXE	UNZIPVAX.EXE is an executable used to unzip the ARSAP08.0 file on an VAX system.

Description of distribution on CIMS web site

The distribution media at the CIMS web for OpenVMS version 8.0 contains the file ARSAP080.ZIP and two executables called UNZIPAXP.EXE and UNZIPVAX.EXE.

Internet Distribution	Contents
ARSAP080.ZIP	The CIMS for OpenVMS distribution kit is made up of several VMS Backup savesets (ARSAP080.A through ARSAP08.I) that have been "zipped" into one "zip" file called ARSAP080.ZIP.
UNZIPAXP.EXE	UNZIPAXP.EXE is an executable used to unzip the ARSAP08.0 file on an ALPHA system.
UNZIPVAX.EXE	UNZIPVAX.EXE is an executable used to unzip the ARSAP08.0 file on an VAX system.

Description of distribution on 4mm or 8mm cartridge

The distribution media on 4mm and 8mm cartridge contains the savesets ARSAP080.A through ARSAP080.I. The context of each saveset is explained in the next section.

Description of Media Savesets

The distribution media for CIMS for OpenVMS is a series of BACKUP saveset files. The contents of the tape include:

BACKUP Saveset	Contents
ARSAP080.A	ARSAP080.A is a BACKUP saveset file that contains the command file KITINSTAL.COM used by VMSINSTAL to install CIMS for OpenVMS on your system and other command files that will be placed in the ARSAP$COM directory. ARSAP080.A requires approximately 1,260 blocks if copied to disk.
ARSAP080.B	ARSAP080.B is a BACKUP saveset file that contains all the CIMS for OpenVMS examples to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$EXAMPLES:ARSAP080.B requires approximately 882 blocks if copied to disk.
ARSAP080.C	ARSAP080.C is a BACKUP saveset file that contains all the CIMS for OpenVMS FDL files to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$FDL:ARSAP080.C requires approximately 1,764 blocks if copied to disk.
ARSAP080.D	ARSAP080.D is a BACKUP saveset file that contains all the CIMS for OpenVMS documentation and help files to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$HELP:ARSAP080.D requires approximately 3,402 blocks if copied to disk.
ARSAP080.E	ARSAP080.E is a BACKUP saveset file that contains all the CIMS for OpenVMS library files to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$LIBRARY:ARSAP080.E requires approximately 16,758 blocks if copied to disk.

BACKUP Saveset	Contents
ARSAP080.F	ARSAP080.F is a BACKUP saveset file that contains all the AXP CIMS for OpenVMS object files to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$OBJECT:ARSAP080.F requires approximately 45,738 blocks if copied to disk.
ARSAP080.G	ARSAP080.G is a BACKUP saveset file that contains all the VAX CIMS object files to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$OBJECT:ARSAP080.G requires approximately 23,436 blocks if copied to disk.
ARSAP080.H	ARSAP080.H is a BACKUP saveset file that contains all the CIMS for OpenVMS deliverable source files to be copied into the directory assigned to the CIMS for OpenVMS logical ARSAP$SOURCE:ARSAP080.H requires approximately 945 blocks if copied to disk.
ARSAP080.I	ARSAP080.I is a BACKUP saveset file that contains the CIMS for OpenVMS Strings Definition files. ARSAP080.I requires approximately 126 blocks if copied to disk.
ARSAP080.J	ARSAP080.J is a BACKUP saveset file that contains the CIMS for OpenVMS UNIX Platform Distribution Definition File. ARSAP080.J requires approximately 126 blocks if copied to disk (this saveset is included only with 4mm and 8mm distributions).
ARSAP080.K	ARSAP080.K is a BACKUP saveset file that contains all the CIMS for OpenVMS UNIX platform distribution UU files that are copied into a directory you specify during the installation. ARSAP080.K requires approximately 200,000+ blocks if copied to disk. (This saveset is included only with 4mm and 8mm distributions.)

CIMS for OpenVMS V08.0.9 is distributed as a complete replacement of V07.0 and does not require or use any portion of your V07.0 distribution files. If you have V07.0 installed, the installation procedure updates your various CIMS for OpenVMS Parameter files to V08.0.9 format.

All installation documentation and non-standard distribution instructions assume that the distribution medium is on a CD-Rom. This distribution executes on any VAX processor running OpenVMS V5.0 or later or any AXP processor running OpenVMS V6.1 or later that has been licensed to run CIMS for OpenVMS.

Code within the CIMS for OpenVMS product verifies that the CPU is licensed and registered with the CIMS Lab. To enable CIMS for OpenVMS, you must install a License Product Authorization Key (PAK) during the initial CIMS for OpenVMS installation.

Preparing to Install V8.0.9

This section outlines the steps you should follow before installing V8.0.9. If you already have an earlier version of CIMS for OpenVMS installed on your system, the only migration path supported by CIMS for OpenVMS V8.0.9 is from CIMS for OpenVMS V7.0. Migrating from versions earlier than CIMS for OpenVMS Version 7.0 is not supported and requires you to install CIMS for OpenVMS Version 8.0.9 as an initial installation.

Before installing V8.0.9, you should:

- Familiarize yourself with V8.0.9 by reading this entire document, especially the installation sections
- Back up your system disk [optional]
- Have your License Product Authorization Key (PAK) available

While V8.0.9 does not interfere with and does not modify the OpenVMS system, any time you are installing new products or using the SYSTEM account, minor errors can become major mistakes. It is a good, precautionary measure to back up the system disk before you install any system product.

If you have the opportunity to do so, make a complete copy of your system disk as described in the DEC software installation guide for your processor.

- If CIMS for OpenVMS is not installed on the system disk or you decide not to back up your system disk, you should back up the CIMS for OpenVMS directories before installing CIMS for OpenVMS V8.0.9 so you can recover the previous version of CIMS for OpenVMS.
- Make sure you have enough disk space on the disk where you plan to install CIMS for OpenVMS. This installation needs about 60,000 blocks of free space. After installation it needs about 25,000 blocks, and you can delete unnecessary files, which will free up several thousand additional blocks.

- CIMS for OpenVMS Version V8.0.9 is installed using the VMSINSTAL command procedure documented in Chapter 3 of the *OpenVMS System Manager's Manual*. You should review this chapter if you have not used VMSINSTAL previously.
- If you are installing CIMS for OpenVMS Version V8.0.9 as an upgrade from a previous version, the installation command file assumes that the earlier version's CIMS for OpenVMS directories and files are located in the directories suggested by the CIMS Lab or the device and root directory specified by you at installation time.
- Depending upon your processor's speed and the particular path you choose within the CIMS for OpenVMS Installation Command File, it should take between 10 and 30 minutes at most sites to install CIMS for OpenVMS Version V8.0.9.

Creating a CIMS for OpenVMS Account

CIMS for OpenVMS is a system-level product that operates in conjunction with the OpenVMS operating system. Portions of the product require elevated privileges which are not normally granted to users. The database files, which store the resource utilization and chargeback statistics, are typically confidential information and should therefore be protected from casual access by the non-managerial user.

For these reasons, CIMS for OpenVMS is usually managed by the SYSTEM user account. You can set up a separate account specifically for operating CIMS for OpenVMS, but it is not required. If you create this separate account, use the following as a guideline:

```
Username:   ARSAP
Directory:  [ARSAP]
Device:     SYS$COMMON
UIC:        [1,210]
```

Privileges:

ALTPRI	GRPNAM	SETPRV
CMKRNL	GRPPRV	SYSNAM
DETACH	OPER	SYSPRV
EXQUOTA	PRMMBX	TMPMBX
GROUP	PSWAPM	WORLD

Quotas:

ASTLM=20	DIOLM=12	PGFLQUO=20480
BYTLM=30720	ENQLM=600	SHRFILLM=0
BIOLM =12	FILLM=20	TQELM=20
CPUTIME=0	JTQUOTA=2048	

The above quotas are minimum suggested values. Larger values should not impact OpenVMS system performance. Smaller values can inhibit proper CIMS for OpenVMS function.

We recommend the above default device and directory, SYS$COMMON:[ARSAP]. You can install CIMS for OpenVMS in any directory on any device that is always available during normal OpenVMS operation.

2

Installing CIMS for OpenVMS on a Standalone System

Installing CIMS for OpenVMS

This section describes the process of installing CIMS for OpenVMS on standalone or networked OpenVMS computer systems. If you are installing CIMS for OpenVMS on a clustered OpenVMS computer system, refer to *Chapter 3, Installing CIMS for OpenVMS on a Clustered System*.

Getting the Distribution Files

CIMS for OpenVMS is distributed in three ways:

- CD-Rom
- Web-site Download
- FTP

Distribution Files from CD-ROM

Allocate and mount the CD-ROM using the correct device name for your CD drive. The following is an example of allocating and mounting the CD-ROM (the CD-ROM device name is CIMS$DKB600 and the default directory is CIMSVOL0:[ARSAP]).

```
$ SHOW DEVICE
$ ALLOCATE CIMS$DKB600:
$ MOUNT/MEDIA=CDROM CIMS$DKB600: CIMS ARSAP
```

Copy the ARSAP080.ZIP, UNZIPAXP.EXE, and UNZIPVAX.EXE files from the CD-ROM to your default directory.

```
$ DIR CIMS$DKB600:[OPENVMS]
$ COPY CIMS$DKB600:[OPENVMS]ARSAP080.ZIP CIMSVOL0:[ARSAP]
$ COPY CIMS$DKB600:[OPENVMS]UNZIPVAX.EXE CIMSVOL0:[ARSAP]
$ COPY CIMS$DKB600:[OPENVMS]UNZIPAXP.EXE CIMSVOL0:[ARSAP]
```

Deallocate and dismount CD-ROM.

```
$ DEALLOCATE CIMS$DKB600:
$ DISMOUNT CIMS$DKB600:
```

Distribution Files from Web-site Download

CIMS for OpenVMS Distribution files can be retrieved from the Customer Area of the CIMS Lab web-site, www.cimslab.com. You will need an access password from CIMS Lab, Inc. to access the Customer Area of the web-site. Call CIMS Lab, Inc. at 1-800-283-4267 to obtain a Customer Area access password.

Distribution Files from FTP

To retrieve CIMS for OpenVMS distribution files

1 Contact the CIMS Lab to obtain your FTP Access Username and Password:

(800) 283-4267 US and Canada
(916) 783-8525 International
(916) 783-2090 Fax
support@cimslab.com via E-mail

2 ftp to ftp.cimslab.com

3 Change directory to OpenVMS:

```
ftp> cd openvms
```

4 Get the CIMS for OpenVMS distribution files:

```
ftp> bin
ftp> get aareadme.txt
ftp> get ARSAP080.ZIP
ftp> get UNZIPAXP.EXE (if you are installing on an alpha system)
```

5 Disconnect from the FTP site:

```
ftp> bye
```

To install CIMS for OpenVMS

1 The installation of CIMS for OpenVMS requires certain system privileges to create directories and execute privileged programs. If you have not already done so, log in using the SYSTEM account.

2. The installation of CIMS for OpenVMS is considerably faster if you copy the CIMS for OpenVMS Distribution Kit from the CD-Rom media to your disk. This step is optional and you can skip to the next section if you do not have enough disk space. You need at least 100,000 blocks of free space to copy the CIMS for OpenVMS Distribution Kit to your disk.

3. If the CIMS for OpenVMS Distribution was copied off the CD-ROM or downloaded off the internet, the ARSAP08.0.ZIP file must be unzipped in order to create the savesets. The following are examples of unzipping the ARSAP08.0 file on an ALPHA and VAX systems (for this example, we use CIMSVOL0:[ARSAP] as the directory where the distribution was copied):

   If on an AXP system,

   ```
   $ UNZIP:=$CIMSVOL0:[ARSAP]UNZIPAXP.EXE
   $ UNZIP ARSAP080.ZIP
   ```

   If on VAX system,

   ```
   $ UNZIP:=$CIMSVOL0:[ARSAP]UNZIPVAX.EXE
   $ UNZIP ARSAP080.ZIP
   ```

   The savesets ARSAP080.A through ARSAP080.I will be created in the directory CIMSVOL0:[ARSAP].

4. VMSINSTAL is the OpenVMS software installation command file used by most products that are installed on OpenVMS systems. The use of this command file is documented in Chapter 3 of the *OpenVMS System Manager's Manual*. The following commands start the CIMS for OpenVMS installation process:

   ```
   $ SET DEFAULT SYS$UPDATE
   $ @VMSINSTAL ARSAP080 MSA0:
   ```

   In the above command, replace *MSA0* with the name of your distribution device (where you plan to mount the CIMS for OpenVMS tape or the disk and directory if you copied the CIMS for OpenVMS Distribution Kit to disk).

VMSINSTAL performs some preliminary checking (whether you are using the SYSTEM account, whether you have DECNET running, and so forth).

a If DECNET is active or if there are any active processes, VMSINSTAL warns you and asks whether it is okay to continue anyway. CIMS for OpenVMS's installation does not interfere with DECNET nor the active processes, so answer YES.

b VMSINSTAL now asks if you are satisfied with the backup of your system disk. Answer YES, and VMSINSTAL continues. VMSINSTAL then asks whether you have loaded the distribution kit on the device specified.

5 You should now physically mount (load) the distribution media on the drive that is to be used by VMSINSTAL specified as the second parameter to the command file (MSA0: in our example above). When the unit is ready, answer the Are you ready? question from VMSINSTAL with YES.

VMSINSTAL now loads the ARSAP80.A saveset from the CIMS for OpenVMS distribution kit into a subdirectory it creates in the SYS$UPDATE directory and starts execution of the CIMS for OpenVMS Installation Command procedure (KITINSTAL.COM).

The CIMS for OpenVMS Installation command procedure performs some environment checking (such as making sure you are installing CIMS for OpenVMS on a supported version of OpenVMS, whether you are installing on a VAX or an AXP, that there is enough disk space to load the product, and so forth) and begins asking you questions about the installation of CIMS for OpenVMS Version 8.0.9.

6 It then asks questions about the installation of CIMS for OpenVMS Version 8.0.9:

a Do you want to install ARSAP on OpenVMS? [YES]. If you are installing CIMS on OpenVMS, answer YES. If you answer NO, you are given the opportunity to load all or specific CIMS for Platform files from the distribution media.

b Do you want to load the ARSAP for UNIX distribution? [NO]. If you have UNIX platforms for which you have licensed CIMS and you want to load any or all UNIX Platform files onto the OpenVMS system for later transfer to the UNIX platform, answer this question YES. You are prompted at a later time for the UNIX Platform files you want to load.

If you did not choose to install CIMS on OpenVMS, after you have loaded the desired UNIX Platform files, the installation command procedure completes.

7 If you chose to install CIMS on OpenVMS, you are asked Do you need to install any ARSAP for OpenVMS License PAK(s)? [YES].

If you are installing CIMS for the first time on this system, answer YES. If you have previously installed CIMS on this system and already have your CIMS License PAKs installed, you can answer NO.

8 You are then asked Are you installing ARSAP for OpenVMS for the first time on this system? [NO].

If you have never installed CIMS on the target computer system before or are not upgrading from Version 7.0, answer YES. If you answer YES, the following upgrade questions are skipped.

9 If you answered NO to the previous question and are on a VAX CPU, you are asked, Are you installing ARSAP for OpenVMS V8.0.9 as an upgrade from V7.0? [NO]. If you are on an AXP CPU, you do not get this question.

If you have CIMS for OpenVMS V7.0 installed on the target VAX CPU, answer YES to this question. This response causes the CIMS Installation Command procedure to upgrade the CIMS for OpenVMS V7.0 version to the updated CIMS for OpenVMS V8.0.9 automatically. Any files needing conversion are converted done automatically.

Or

If you answered NO to the previous question, you are asked, `Are you installing ARSAP for OpenVMS V8.0.9 as an upgrade from V8.0.9? [NO]`.

If you have CIMS for OpenVMS V8.0.9 installed on the target machine, answer YES. This response causes the CIMS for OpenVMS Installation Command procedure to upgrade the CIMS for OpenVMS V8.0.9 version to the updated CIMS for OpenVMS V8.0.9 automatically. This option is normally used after you have reported a software problem with CIMS for OpenVMS and the update you are installing fixes that problem.

If you answer NO, you see an error message and the installation terminates because there are no other upgrade options.

10 When you have chosen an installation option appropriate for your site, if CIMS for OpenVMS is currently installed and operational on the CPU upon which you are installing CIMS for OpenVMS, you are asked, `Can I stop ARSAP VOX.O? [YES]`.

The particular version of CIMS for OpenVMS displayed in this message depends on the version you are running. If you have CIMS for OpenVMS running on the target machine, answer YES. This response causes the CIMS for OpenVMS Installation Command procedure to execute the STOP_ARSAP command procedure. CIMS for OpenVMS cannot be running while it is being upgraded.

If you answer NO, the installation terminates.

11 You are asked the following question: `Do you want ARSAP for OpenVMS installed in SYS$COMMON:[ARSAP]? [YES]`

You can install CIMS for OpenVMS onto a disk and directory of your choice as long as the disk chosen is mounted at all times.

a Answer NO if you want to install CIMS for OpenVMS other than in SYS$COMMON:[ARSAP].

b When you answer YES to this question, the actual installation of CIMS on OpenVMS begins.

Note that if you answer `NO` to this question and you chose one of the upgrading options, the `CIMS` for `OpenVMS` Installation Command procedure assumes that `CIMS` for `OpenVMS` is currently installed in the specified directory.

If you answered `NO` to the previous question, you are prompted with `Enter target ARSAP for OpenVMS device and directory [SYS$COMMON:[ARSAP]`.

Converting the CIMS for OpenVMS Authorization File

If you are performing an upgrade installation, you might need to convert your CIMS for OpenVMS Authorization File. If so, you see explanatory text and you are asked whether you want to continue and what method of file conversion you want to use.

CIMS for OpenVMS provides two methods of performing this conversion: NORMAL or FAST.

The installation procedure calculates the approximate time necessary for both methods. The time calculated is based upon a very slow CPU and disk system, which means that it may have calculated a very long time compared to what it really takes on your system.

To convert the Authorization File

- Usually, you should choose the NORMAL method

  Or

  If you have a slow CPU and disk and a very large CIMS for OpenVMS Authorization File, choose FAST.

  Please note the FAST method requires the use of a scratch file. CIMS for OpenVMS calculates the approximate size of the file needed. You are asked to provide the name of a device to hold the scratch file created during the conversion should you choose the FAST method.

  When you respond to the prompt, the CIMS for OpenVMS Installation Command procedure then automatically loads and links CIMS for OpenVMS on your system. This normally takes between 10 and 30 minutes to complete and depends upon how busy your system is, how fast your processor is, and so forth.

Loading the CIMS for OpenVMS License PAKs

CIMS for OpenVMS uses License Product Authorization Keys (PAKs) to enable its use on a CPU. If you answered the earlier question, Do you need to install any ARSAP for OpenVMS License PAK(s)? with YES, then the installation procedure now prompts you for License PAK information.

The CIMS for OpenVMS Installation procedure invokes the ARSAP_INSTALL_PAK command procedure in the ARSAP$COM directory. This command procedure prompts you for required information from the CIMS for OpenVMS License PAK provided for the system on which you are installing CIMS for OpenVMS.

To load license PAKs

1. Enter each response exactly as it is on the License PAK. Be sure to preserve upper and lowercase designations.

   After prompting you for the licensed CPU information, the command procedure tries to load or register the License PAK. If it is successful, it asks whether you want to load another License PAK.

2. Answer YES or NO.

   If you answer YES, the program prompts you for the next License PAK information to load. If you answer NO, the CIMS for OpenVMS Installation Command procedure is complete and exit after displaying the resources consumed installing CIMS for OpenVMS.

Editing Procedures

CIMS for OpenVMS is now loaded onto your computer system. You now need to edit some procedures.

Modifying the System-Wide Login Command Procedure

You need to modify the System-Wide Login Command procedure (or set one up if it does not exist) to include the invocation of the CIMS Login Command procedure for each user during OpenVMS login.

To edit the system-wide Login Command procedure

1. Determine he System-Wide Login Command procedure's directory and name by examining the logical SYS$SYLOGIN:

```
$ SHOW LOGICAL SYS$SYLOGIN
“SYS$SYLOGIN” = “SYS$MANAGER:SYLOGIN.COM” (LNM$SYSTEM_TABLE)
```

2. Insert he following lines into this file at an appropriate point:

```
$IF F$SEARCH("ARSAP$COM:ARSAP_LOGIN.COM") -
    .NES. "" THEN -
   @ARSAP$COM:ARSAP_LOGIN
```

3. After editing the System-Wide Login Command procedure, be sure that everyone has access to it as well as access to the CIMS for OpenVMS Login Command procedure (world protection should be set to read and execution privileges).

4. Also be sure that the System-Wide Login Command File disables Ctrl-Y at the beginning of the procedure and enables Ctrl-Y at the end. If Ctrl-Y is not disabled, a user can defeat the CIMS for OpenVMS Login Command procedure by continually repeating Ctrl-Ys after he has entered his password.

Editing the System-Wide DECW Login Command Procedure

If you use X-terminals or workstations with Motif at your site, you need to modify the System-Wide DECW Login Command procedure (or set one up if it does not exist) to include the invocation of the CIMS for OpenVMS DECW Login Command procedure for each X-terminal user during OpenVMS login.

The System-Wide DECW Login Command procedure is the file DECW$SYLOGIN.COM in the SYS$MANAGER directory.

To edit the system-wide DECW Login Command procedure

1. Insert the following lines should be inserted into this file at an appropriate point:

```
$IF F$SEARCH("ARSAP$COM:ARSAP_DECW_LOGIN.COM").NES. "" THEN -
@ARSAP$COM:ARSAP_DECW_LOGIN
```

2. After editing the DECW System-Wide Login Command procedure, be sure that everyone has access to it as well as access to the CIMS for OpenVMS DECW Login Command procedure (world protection should be set to read and execution privileges).

Modifying the Site-Specific Startup Command Procedure

Modify the site-specific startup command procedure so that CIMS for OpenVMS will be started when the system reboots.

The site-specific startup command procedure has different names, depending upon the version of OpenVMS you are using. The site-specific startup command procedure file names are:

- SYS$MANAGER:SYSTARTUP_V5.COM when you are using OpenVMS Version 5 on a VAX system
- SYS$MANAGER:SYSTARTUP_VMS.COM when you are using OpenVMS Version 6 or 7 on a VAX system

- SYS$MANAGER:SYSTARTUP_VMS.COM when you are using OpenVMS on an AXP system

To modify the site-specific startup command procedure

1 Insert the following line into the file at an appropriate point:

```
$IF F$SEARCH("SYS$COMMON:[ARSAP.COM]START_ARSAP.COM")-
    .NES. "" THEN-
   @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

Note • For DECNET: If DECNET is installed, you must activate CIMS for OpenVMS after DECNET is started (place the above line after the @SYS$MANAGER:STARTNET line). Since the Start CIMS for OpenVMS Command procedure submits a batch job, you should insert it after commands that start and initialize your batch queues.

2 If you do not have CIMS for OpenVMS installed in the SYS$COMMON:[ARSAP] directory, you must modify the device and first-level directory definitions in the above line appropriately so that the Start CIMS for OpenVMS Command procedure executes each time the system is rebooted.

3 The Start CIMS for OpenVMS Command procedure supports two optional parameters. The first is a Storage Sampler flag. If it is not specified or is Y, the CIMS for OpenVMS Storage Sampling Batch Job is submitted to a batch queue. You can specify the batch queue to use by providing the second parameter as the queue. If you do not specify the queue, the SYS$BATCH queue is used.

Note • Under CIMS for OpenVMS Version 7.0, the first parameter was the queue and the second parameter was the flag.

Editing the System Shutdown Command Procedure

Modify the site-specific shutdown command procedure (SYS$MANAGER:SYSHUTDWN.COM) so that CIMS for OpenVMS can be brought to a logical shutdown.

To edit the System Shutdown Command procedure

- Insert the following line into the file at an appropriate point:

```
$IF F$LOGICAL("ARSAP$DATA") .NES. "" THEN -
    @ARSAP$COM:STOP_ARSAP
```

Tailoring CIMS for OpenVMS

The following sections briefly outline the steps to finish installing CIMS for OpenVMS on your system, namely the tailoring process.

Preparation

CIMS for OpenVMS's executable, data, and help directories are referenced by logicals that you must define before implementing the tailoring steps. In addition, you must install the GEJACRTL library, the ARSAPRTL library, and the CIMS for OpenVMS Shared Data Common must be installed.

To do this

- Start CIMS for OpenVMS as follows:

```
$ @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

  If you do not have CIMS for OpenVMS installed in the SYS$COMMON:[ARSAP] directory, you must modify the device and first level directory definitions in the above lines appropriately.

  CIMS for OpenVMS starts up on your system in a minimal mode, that is, most of the features and functionality of CIMS for OpenVMS are disabled. However, enough of CIMS for OpenVMS is enabled to let you begin tailoring CIMS for OpenVMS for your site.

Tailoring the CIMS for OpenVMS Storage Parameter File

The CIMS for OpenVMS Storage Parameter File contains flags and values that control CIMS for OpenVMS's monitoring and reporting of disk space at your site. The CIMS for OpenVMS SETUP Utility creates and maintains it.

The chapter titled *CIMS System-wide Parameters* in the *CIMS Chargeback OpenVMS Reference Guide* explains each CIMS for OpenVMS parameter and option concerning disk space.

Note that if you are upgrading CIMS for OpenVMS from an earlier version, the *old* CIMS for OpenVMS Storage Parameter File has been converted to the format used in CIMS for OpenVMS V8.0.9. You should review the converted CIMS for OpenVMS Storage Parameter File to verify that it contains parameters and options set appropriately for your environment.

To tailor the Storage Parameter File

1 To get a list of possible disk drives that you might want to monitor, use the SHOW DEVICE command. For example, if you know that all disk drives on your system begin with a D, then enter the following command.

```
$ SHOW DEVICE D
```

Or

If you have disk drives whose device names do not start with a D, you need to use similar commands to show them also. For example, Intergraph systems often have disk drives whose device names start with Z. To get a list of these disk devices, you would enter the following command.

```
$ SHOW DEVICE Z
```

2 Use the CIMS for OpenVMS SETUP Utility to add disk drives to be sampled by CIMS for OpenVMS to the CIMS for OpenVMS Storage Parameter File. You must add each disk drive you want CIMS for OpenVMS to monitor to this file.

For example, suppose you want to add the disk drive DKA200: to the CIMS for OpenVMS Storage Parameter File. Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/STORAGE DKA200:/SAMPLE
%SETUP-S-ADDED, _DKA200: record successfully added
SETUP> EXIT
$
```

Note that the device to be sampled is translated to its physical device name before being added to the CIMS for OpenVMS Storage Parameter File (which matches what the CIMS for OpenVMS STORAGE_SAMPLER Utility logs to the CIMS for OpenVMS Storage File).

Tailoring the CIMS for OpenVMS Parameter File

The CIMS for OpenVMS Parameter File contains flags and values that control the operation of CIMS for OpenVMS at your site. The CIMS for OpenVMS SETUP Utility creates and maintains it.

The chapters titled *CIMS System-wide Parameters* and *CIMS System-wide Options* in the *CIMS Chargeback OpenVMS Reference Guide* explain each CIMS for OpenVMS parameter and option.

Note that if you are upgrading CIMS for OpenVMS from an earlier version, there are new parameters and options. These new parameters and options are set to a delivered default and disabled unless you tailor them.

Use the SETUP Utility to tailor CIMS for OpenVMS system options to your needs. We recommend that you enable CIMS for OpenVMS options one at a time and observe their impact on your site's operations to verify that the option is accomplishing what you thought it would do for you. Invoke the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP>
```

Extensive on-line help is available for SETUP through the HELP command within the SETUP Utility, and the *CIMS Chargeback OpenVMS Reference Guide* has complete documentation on this utility.

You should read the chapters titled *CIMS System-wide Parameters* and *CIMS System-wide Options* in the *CIMS Chargeback OpenVMS Reference Guide* for a review of the parameters and options available and tailor them for your site.

Tailoring the CIMS for OpenVMS Queue Mapping File

The CIMS for OpenVMS Queue Mapping File is a CIMS for OpenVMS File used to implement an unlimited number of batch and print queues along with printer forms tracking. After you set it up to match your environment, this file contains an entry for each batch or print queue that you want to track.

The CIMS for OpenVMS SETUP Utility maintains the CIMS for OpenVMS Queue Mapping File. You don't need to add the queues manually since VMS_SELECT and LOGGER adds them whenever they encounter a queue without an entry in the CIMS for OpenVMS Queue Mapping File. Note however, that you cannot assign rates to a specific queue until it has been added to the CIMS for OpenVMS Queue Mapping File.

You can add the batch and print queue names on your system manually to the CIMS for OpenVMS Queue Mapping File by using the CIMS for OpenVMS SETUP Utility.

To get a list of possible queue names that you should add

- Enter the following command:

  ```
  $ SHOW QUEUE/ALL
  ```

  The resulting display shows all queues (batch and print) that have been set up on your system along with any jobs in the queues and their status. The displayed queue names are the candidate queues to be added to the CIMS for OpenVMS Queue Mapping File.

To add batch queues

- If you want to add a batch queue manually instead of letting CIMS for OpenVMS add it automatically, use the SETUP Utility as follows:

  ```
  $ RUN ARSAP$EXE:ARSAP_SETUP
  SETUP> ADD/QUEUE/BATCH batch-queue-name
  %SETUP-S-ADDED, QUEUE record successfully added
  SETUP> EXIT
  $
  ```

To add print queues

- If you want to add a print queue manually instead of letting CIMS for OpenVMS add it automatically, use the SETUP Utility as follows:

  ```
  $ RUN ARSAP$EXE:ARSAP_SETUP
  SETUP> ADD/QUEUE/PRINT print-queue-name
  %SETUP-S-ADDED, QUEUE record successfully added
  SETUP> EXIT
  $
  ```

If you plan to use the Forms Tracking option, then you need to add the printer forms (stock) information along with the print queue name into the CIMS for OpenVMS Queue Mapping File. You must add a printer/stock combination record into the CIMS for OpenVMS Queue Mapping File for each print queue and stock combination you have on your system.

The following DCL command SHOW QUEUE/FORMS displays form and stock information currently in effect on your system:

```
$ SHOW QUEUE/FORMS
```

The term *stock* refers to the paper physically placed in the printer. Stock is the OpenVMS term for printer forms. Stock and Printer forms are used interchangeably in this document. The singular term *form* refers to a user-definable format that prints on specified stock.

To add a print queue and stock combination

- If you want to add a print queue and stock combination manually instead of letting CIMS for OpenVMS add them automatically, use the SETUP Utility as follows. Note that it is assumed that the Forms Tracking Option is enabled.

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/PRINT print-queue-name/STOCK=stock-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

  If CIMS for OpenVMS encounters a print queue that does not have an associated stock record in the OpenVMS Accounting File written by the CIMS for OpenVMS Forms Tracking Option, and the Forms Tracking Option is enabled, CIMS for OpenVMS maps the resource statistics of that print queue and stock combination to the print queue and the Catch-All Stock. This condition occurs when processing accounting files that were generated when the CIMS for OpenVMS Forms Tracking option was not enabled.

  The Catch-All Stock parameter is defined in the CIMS for OpenVMS Parameter File. The Catch-All Stock parameter is delivered to you with a definition of DEFAULT.

To change the definition

- Use the /STOCK_CATCHALL qualifier within the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> DEFAULT/STOCK_CATCHALL=BOND
%SETUP-S-MODIFIED, NODE record successfully modified
SETUP> EXIT
$
```

Tailoring the CIMS for OpenVMS Rates File

The CIMS for OpenVMS Rates File is the CIMS for OpenVMS file that contains tables of rates that are to be applied to the user or project accounts when invoices or any other monetary figures are to be generated. Each table of rates is given a name that is entered into the rates name field in the CIMS for OpenVMS Authorization File for each user or project account.

For first time installations, the CIMS for OpenVMS Rates File is delivered with one rate table already defined, namely the DEFAULT_RATES rate table. The CIMS for OpenVMS Authorization File is initially delivered so that this rate table is used whenever a new user or project account is added to CIMS for OpenVMS's data base.

You might want to skip tailoring this file at this time unless you know the rates you want. The RATES Utility maintains the CIMS for OpenVMS Rates File.

To invoke the RATES Utility

- Use the following command:

```
$ RUN ARSAP$EXE:ARSAP_RATES
RATES>
```

  There is extensive on-line help available for the RATES Utility through the HELP command within the utility, and the *CIMS Chargeback OpenVMS Reference Guide* has complete documentation for the utility.

Tailoring the CIMS for OpenVMS Authorization File

The CIMS for OpenVMS Authorization File contains flags, parameters, and values pertaining to USERNAME and PROJECT accounts. The CIMS for OpenVMS AUTHORIZE Utility, which operates much like OpenVMS's AUTHORIZE Utility, creates and maintains this file.

For first time installations, the CIMS for OpenVMS Authorization File is delivered so that a minimal CIMS for OpenVMS system can operate without any modification or tailoring. You should read and use the *CIMS Chargeback OpenVMS Reference Guide* chapters titled *Project Accounting* and *User Accounting* for more information about the various options and parameters that are kept in this file.

Use the CIMS for OpenVMS AUTHORIZE Utility to tailor the Authorization File to your needs. We recommend that you enable user and project account options one at a time and observe their impact on the user's or project's operation and to verify that the option is accomplishing what you thought it would do for the account.

The following sections should assist you in adding User and Project Records to the CIMS for OpenVMS Authorization File.

Adding USER Records

ARSAP_LOGIN (called from the system login command procedure) automatically adds user accounts (records) to the CIMS for OpenVMS Authorization File. The new user account has the same setting as the DEFAULT user records settings.

To add user records

- Use the LOAD command within the AUTHORIZE Utility to add user records to the CIMS for OpenVMS Authorization File. You must include the /SYSUAF or /FILE qualifier when using the LOAD command to add user records:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> LOAD/USER/SYSUAF
ARSAP_UAF> EXIT
$
```

The /SYSUAF qualifier specifies that all the username accounts in the OpenVMS Authorization File should be added to the CIMS for OpenVMS Authorization File.

To add user accounts manually

- Use the AUTHORIZE Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD/USER WDOE
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> EXIT
$
```

Adding PROJECT Records

You can also use the LOAD command within the AUTHORIZE Utility to add PROJECT records to the CIMS for OpenVMS Authorization File. If the /PROJECT qualifier is not specified, /USER is assumed. You must use the /FILE qualifier when using the LOAD command to add project records.

To add project records

- Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> LOAD/PROJECT/FILE=PROJECTS.LIS
ARSAP_UAF> EXIT
$
```

The /FILE qualifier causes the LOAD command to find and open a text file. This file contains the project names (or usernames) to be added to the CIMS for OpenVMS Authorization File. The file should be organized so that only one project appears on each line.

Project accounts are not automatically added unless you disable all project validation methods, so you must add project accounts before you start CIMS for OpenVMS if you use the Project Accounting option with any kind of project validation.

There is extensive online help available for the AUTHORIZE Utility through the HELP command within AUTHORIZE. The *CIMS Chargeback OpenVMS Reference Guide* has complete documentation on this utility.

Setting Required Values

Setting Required User Quotas

All the users of the OpenVMS system execute some of the CIMS for OpenVMS programs. The following minimum quota values are required for all OpenVMS users where CIMS for OpenVMS is installed:

```
ENQLM = 20      FILLM = 10
```

If the user is going to log into the system using an X-Terminal, you must also set the following minimum quota value:

```
JTQUOTA = 2048
```

Use the OpenVMS AUTHORIZE Utility to set the ENQLM, FILLM and JTQUOTA values to the minimum values as specified above.

Setting Required User Privileges

- The CIMS for OpenVMS Administrator needs SYSPRV in order to run CIMS for OpenVMS utilities that are used to administer, process accounting data, and generate reports.
- All other users need NETMBX as a minimum.

Setting Required SYSGEN Parameter Values

When you start CIMS for OpenVMS, some images are installed for the following reasons:

- To reduce the overhead associated with invoking the images
- To reduce the memory requirements when more than one user is invoking one of the installed images
- To grant the user access to CIMS for OpenVMS files which the user would normally not have access

- To reduce the overhead of accessing the CIMS for OpenVMS Parameter File by all CIMS for OpenVMS utilities

CIMS for OpenVMS installed images are written so that the user has access only to his own information.

The Start CIMS Command procedure uses the OpenVMS INSTALL Utility to install the following images:

- ARSAP$RTL
- ARSAP$SHARED_COMMON
- ARSAP_DECW_LOGIN
- ARSAP_GPTBL
- ARSAP_LOGIN
- ARSAP_MYCOST
- ARSAP_SWITCH
- ARSAP_SUPER
- GEJAC$RTL

In order to ensure that there is sufficient room in the global page and the global section tables, the system SYSGEN parameters GBLPAGES (global pages) and GBLSECTIONS (global sections) must allow for CIMS for OpenVMS to use 1,498 on VAX or 2016 on AXP global pages and 26 on VAX or 15 on AXP global sections.

To display the number of global sections used and the number of global pages used and unused

- Enter the following commands:

```
$ INSTALL
INSTALL> LIST/GLOBAL
INSTALL> EXIT
$
```

The INSTALL Utility lists all known global sections, the number of global sections used, and the number of global pages used and unused.

To display the existing number of global sections available

- Enter the following commands:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> USE CURRENT
SYSGEN> SHOW GBLSECTIONS
SYSGEN> EXIT
$
```

The SYSGEN Utility displays the global sections data. The current maximum number of global sections is the first number.

CIMS for OpenVMS requires 1,498 global pages on VAX and 2,106 on AXP. If fewer than these global pages are unused, you can increase the number of global pages by deleting existing known images or by increasing the GBLPAGES system parameter with the SYSGEN Utility.

CIMS for OpenVMS requires 26 global sections on VAX and 15 on AXP. If all of the global sections are used (compare the number shown by SYSGEN with the number currently used as shown by INSTALL), you must increase the number of available global sections by deleting an existing global section or by increasing the GBLSECTIONS parameter with the SYSGEN Utility.

Note that neither GBLPAGES nor GBLSECTIONS are dynamic SYSGEN parameters. If you change either to accommodate CIMS for OpenVMS, you must reboot your system.

Starting CIMS for OpenVMS V8.0.9

To start CIMS for OpenVMS V8.0.9

- Execute the Start CIMS Command procedure as follows:

```
$ SET DEFAULT SYS$COMMON:[ARSAP.COM]
$ @START_ARSAP
```

  You must adjust the above SET command appropriately if the Start CIMS Command procedure is not located in SYS$COMMON:[ARSAP.COM].

Cleaning Up

You might no longer need several files after CIMS has been successfully installed. If you want to recover the disk space used by these files, refer to *Description of Media Savesets* on page 1-5 and delete the files you no longer need after reading the individual file descriptions.

In the event you need a file that you have deleted, you can reload it from the distribution kit.

3

Installing CIMS for OpenVMS on a Clustered System

Preparation

This section describes the process of installing CIMS on an OpenVMS clustered computer system.

Digital Equipment Corporation does not support cluster-wide accounting under OpenVMS. As a result, each CPU node maintains its own private copy of the accounting file that it generates and, unfortunately, the accounting file does not contain any information within it that reliably identifies which CPU node generated the data. Therefore, installing CIMS for OpenVMS on a cluster is slightly different than installing on a stand-alone CPU.

Note • Portions of CIMS must be installed on every CPU in the cluster, and every CPU node in the cluster must be licensed. CIMS will not function properly in a cluster unless it is installed and licensed on every CPU node in the cluster.

Getting the Distribution Files

CIMS for OpenVMS is distributed in three ways:

- CD-Rom
- Web-site Download
- FTP

Distribution Files from CD-ROM

Allocate and mount the CD-ROM using the correct device name for your CD drive. The following is an example of allocating and mounting the CD-ROM (the CD-ROM device name is CIMS$DKB600 and the default directory is CIMSVOL0:[ARSAP]).

```
$ SHOW DEVICE
$ ALLOCATE CIMS$DKB600:
$ MOUNT/MEDIA=CDROM CIMS$DKB600: CIMS ARSAP
```

Copy the ARSAP080.ZIP, UNZIPAXP.EXE, and UNZIPVAX.EXE files from the CD-ROM to your default directory.

```
$ DIR CIMS$DKB600:[OPENVMS]
$ COPY CIMS$DKB600:[OPENVMS]ARSAP080.ZIP CIMSVOL0:[ARSAP]
$ COPY CIMS$DKB600:[OPENVMS]UNZIPVAX.EXE CIMSVOL0:[ARSAP]
$ COPY CIMS$DKB600:[OPENVMS]UNZIPAXP.EXE CIMSVOL0:[ARSAP]
```

Deallocate and dismount CD-ROM.

```
$ DEALLOCATE CIMS$DKB600:
$ DISMOUNT CIMS$DKB600:
```

Distribution Files from Web-site Download

CIMS for OpenVMS Distribution files can be retrieved from the Customer Area of the CIMS Lab web-site, www.cimslab.com. You will need an access password from CIMS Lab, Inc. to access the Customer Area of the web-site. Call CIMS Lab, Inc. at 1-800-283-4267 to obtain a Customer Area access password.

Distribution Files from Web-site Download

CIMS for OpenVMS Distribution files can be retrieved from the Customer Area of the CIMS Lab web-site, www.cimslab.com. You will need an access password from CIMS Lab, Inc. to access the Customer Area of the web-site. Call CIMS Lab, Inc. at 1-800-283-4267 to obtain a Customer Area access password.

Distribution Files from FTP

To retrieve CIMS for OpenVMS distribution files

1 Contact the CIMS Lab to obtain your FTP Access Username and Password:

(800) 283-4267 US and Canada
(916) 783-8525 International
(916) 783-2090 Fax
support@cimslab.com via E-mail

2. ftp to ftp.cimslab.com
3. Change directory to OpenVMS:

```
ftp> cd openvms
```

4. Get the CIMS for OpenVMS distribution files:

```
ftp> bin
ftp> get aareadme.txt
ftp> get ARSAP080.ZIP
ftp> get UNZIPAXP.EXE (if you are installing on an alpha system)
```

5. Disconnect from the FTP site:

```
ftp> bye
```

Logging in Using the SYSTEM Account

To install CIMS for OpenVMS requires certain system privileges in order to create directories and execute privileged programs. If you have not already done so, log in using the SYSTEM account.

Shutting Down CIMS if CIMS Is Active

If you are installing CIMS for OpenVMS as an update to a previous version of CIMS for OpenVMS and CIMS is active on the cluster, you must stop CIMS on the cluster.

To stop CIMS on the cluster

- Use SYSMAN as follows:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT/CLUSTER
SYSMAN> DO @ARSAP$COM:STOP_ARSAP
SYSMAN> EXIT
$
```

Starting the Installation

VMSINSTAL is the OpenVMS software installation command file used by most products that are installed on OpenVMS systems. The use of this command file is documented in Chapter 3 of the *OpenVMS System Manager's Manual*.

To invoke VMINSTAL

1. The following commands start the CIMS for OpenVMS installation process:

```
$ SET DEFAULT SYS$UPDATE
$ @VMSINSTAL ARSAP080 HSC001$MFA0:
```

   In the above command, you should replace *HSC001$MFA0* with the name of your distribution device (where the CIMS for OpenVMS tape will be mounted or the disk and directory if you copied the CIMS for OpenVMS Distribution Kit to disk).

2 VMSINSTAL performs some preliminary checking (whether you are using the SYSTEM account, whether you have DECNET running, and so forth). If DECNET is active, or if there are any active processes, VMSINSTAL warns you and asks if it is okay to continue anyway. CIMS for OpenVMS's installation does not interfere with DECNET nor the active processes, so you should answer VMSINSTAL's question YES so that VMSINSTAL continues.

   VMSINSTAL then asks you whether you have loaded the distribution kit on the device specified.

3 You should now physically mount (load) the distribution media on the drive that is to be used by VMSINSTAL specified as the second parameter to the command file (HSC001$MFA0: in our example above). When the unit is ready, answer the Are you ready? question from VMSINSTAL with YES.

   VMSINSTAL now loads the ARSAP080.A saveset from the CIMS for OpenVMS distribution kit into a subdirectory it creates in the SYS$UPDATE directory and starts executing the CIMS for OpenVMS Installation Command procedure (KITINSTAL.COM).

   The CIMS for OpenVMS Installation Command procedure performs some environment checking (such as making sure you are installing CIMS for OpenVMS on a supported version of OpenVMS, whether you are installing on a VAX or an AXP, that there is enough disk space to load the product, and so forth) and begins asking you questions about the installation of CIMS for OpenVMS Version 8.0.9.

4 The first question is Do you want to install ARSAP on OpenVMS? [YES].

   If you are installing CIMS on OpenVMS, answer this question YES. If you answer NO, you are given the opportunity to load all or specific CIMS for UNIX Platform files from the distribution media.

5 The second question is `Do you want to load the ARSAP FOR UNIX distribution? [NO]`.

If you have `UNIX` platforms for which you have licensed the use of `CIMS` for `UNIX` and you want to load any or all `UNIX` Platform files onto the `OpenVMS` system for later transfer to the `UNIX` Platform, answer this question `YES`. If you do so, you are prompted at a later time for which `UNIX` Platform files you want to load.

If you did not choose to install `CIMS` on `OpenVMS`, after you have loaded the desired `UNIX` Platform files, the installation command procedure completes.

6 If you chose to install `ARSAP` on `OpenVMS`, you are asked, `Do you need to install any CIMS for OpenVMS License PAK(s)? [YES]`.

If you are installing `CIMS` for the first time on this system, you should answer `YES`.

Or

If you have previously installed `CIMS` on this system and already have your `CIMS` License `PAK`s installed, you can answer `NO`.

7 The next question is `Are you installing CIMS for the first time on this system? [NO]`.

If you have never installed `CIMS` on the target computer system before or do not wish to have the `CIMS` for `OpenVMS` Installation Command procedure install `CIMS` for `OpenVMS` automatically as an upgrade from a previous version of `CIMS`, you should answer `YES`. If so, the procedure skips the following upgrade questions.

8 If you answered `NO` to the previous question:

a If you are on a `VAX CPU`, you are asked, `Are you installing ARSAP for OpenVMS V8.0.9 as an upgrade from V7.0? [NO]`.

b If you are on an `AXP CPU`, this question is skipped.

If you have CIMS for OpenVMS V7.0 installed on the target VAX CPU, you should answer YES to this question. This response causes the CIMS for OpenVMS Installation Command procedure to automatically upgrade the CIMS for OpenVMS V7.0 version to the updated CIMS for OpenVMS V8.0.9. If any files need to be converted, it will be done automatically. Also, if you answer YES, the following upgrade question is skipped.

9 If you answered NO to the previous question, you are asked, `Are you installing ARSAP V08.0.9 as an upgrade from V08.0.9? [NO]`.

If you have CIMS for OpenVMS V8.0.9 installed on the target machine, you should answer YES. This response causes the CIMS for OpenVMS Installation Command procedure to upgrade the CIMS for OpenVMS V8.0.9 version to the updated CIMS for OpenVMS V8.0.9 automatically. You normally use his option when you have reported a software problem with CIMS and the update you are installing fixes that problem or you are installing your yearly update.

If you answer this question NO, you see an error message and the installation terminates since there are no other upgrade options.

10 You can install CIMS for OpenVMS onto a disk and directory of your choice as long as the disk chosen is mounted at all times. The question Answer NO to the question `Do you want ARSAP installed in SYS$COMMON:[ARSAP]? [YES]` if you want to install CIMS in a different location.

If you answer NO, you are prompted with `Enter target ARSAP for OpenVMS device and directory [SYS$COMMON:[ARSAP]]`.

If you answer YES to this question, the actual installation of CIMS on OpenVMS begins.

Note • Note that if you answer NO to this question and you chose one of the upgrading options, the CIMS for OpenVMS Installation Command procedure assumes that CIMS for OpenVMS is currently installed in the specified directory.

Converting the CIMS for OpenVMS Authorization File

If you are performing an upgrade installation, you might need to convert your CIMS for OpenVMS Authorization Files. CIMS for OpenVMS provides two methods of performing this conversion: NORMAL or FAST.

CIMS for OpenVMS provides two methods of performing this conversion: NORMAL or FAST.

The installation procedure calculates the approximate time necessary for both methods. The time calculated is based upon a very slow CPU and disk system, which means that it may have calculated a very long time compared to what it really takes on your system.

To convert the Authorization File

- Usually, you should choose the NORMAL method

  Or

  If you have a slow CPU and disk and a very large CIMS for OpenVMS Authorization File, choose FAST.

  Please note the FAST method requires the use of a scratch file. CIMS for OpenVMS calculates the approximate size of the file needed. You are asked to provide the name of a device to hold the scratch file created during the conversion should you choose the FAST method.

  When you respond to the prompt, the CIMS for OpenVMS Installation Command procedure then automatically loads and links CIMS for OpenVMS on your system. This normally takes between 10 and 30 minutes to complete and depends upon how busy your system is, how fast your processor is, and so forth.

Loading the CIMS for OpenVMS License PAKs

CIMS for OpenVMS uses License Product Authorization Keys (PAKs) to enable its use on a CPU. If you answered the earlier question, Do you need to install any ARSAP for OpenVMS License PAK(s)? with YES, then the installation procedure now prompts you for License PAK information.

The CIMS for OpenVMS Installation procedure invokes the ARSAP_INSTALL_PAK command procedure in the ARSAP$COM directory. This command procedure prompts you for required information from the CIMS for OpenVMS License PAK provided for the system on which you are installing CIMS for OpenVMS.

To load license PAKs

1. Enter each response exactly as it is on the License PAK. Be sure to preserve upper and lowercase designations.

   After prompting you for the licensed CPU information, the command procedure tries to load or register the License PAK. If it is successful, it asks whether you want to load another License PAK.

2. Answer YES or NO.

   If you answer YES, the program prompts you for the next License PAK information to load. If you answer NO, the CIMS for OpenVMS Installation Command procedure is complete and exit after displaying the resources consumed installing CIMS for OpenVMS.

Creating CPU Node-specific Directories

For each CPU node in the cluster, CIMS for OpenVMS needs to maintain certain files on a per-node basis. These files are all referenced through the ARSAP$PRIVATE and the ARSAP$ERRORLOG logicals assigned by the Start CIMS for OpenVMS Command procedure.

For each CPU node in the cluster, the Start CIMS for OpenVMS Command procedure creates the following directories with an owner UIC of [1,210] if they do not already exist when CIMS for OpenVMS is started.

```
SYS$SPECIFIC:[ARSAP.DATA]
SYS$SPECIFIC:[ARSAP.ERRORLOG]
```

Editing Procedures

To edit the system-wide login command procedure

1. Upon completion of the VMSINSTAL, you must modify the System-Wide Login Command procedure (or set one up if it does not exist) to include the invocation of the CIMS for OpenVMS Login Command procedure for each user during OpenVMS login.

   Determine he System-Wide Login Command procedure's directory and name by examining the logical SYS$SYLOGIN:

   ```
   $ SHOW LOGICAL SYS$SYLOGIN
      "SYS$SYLOGIN" = "SYS$MANAGER:SYLOGIN.COM" (LNM$SYSTEM_TABLE)
   ```

2. Insert the following line into this file at an appropriate point:

   ```
   $IF F$SEARCH("ARSAP$COM:ARSAP_LOGIN.COM") -
       .NES. "" THEN -
       @ARSAP$COM:ARSAP_LOGIN
   ```

   If your System-Wide Login Command procedure is not *cluster-wide*, you must make the same modification to the System-Wide Login Command procedure for each CPU node in the cluster.

3. After editing the System-Wide Login Command File, be sure that everyone has access to it as well as to the CIMS for OpenVMS Login Command procedure (world protection should be set to read and execution privileges).

4 Also be sure that the System-Wide Login Command File disables Ctrl-Y at the beginning of the procedure and enables Ctrl-Y at the end. If Ctrl-Y is not disabled, a user can defeat the CIMS for OpenVMS login command procedure by continually repeating Ctrl-Ys after he has entered his password.

To edit the system-wide DECW login command procedure

1 If you use X-terminals or workstations with Motif at your site, you need to modify the system-wide DECW login command procedure (or set one up if it does not exist) to invoke the CIMS for OpenVMS DECW login command procedure for each X-terminal user during OpenVMS login.

The system-wide DECW login command procedure is the file DECW$SYLOGIN.COM in the SYS$MANAGER directory.

Insert he following lines should be inserted into this file at an appropriate point:

```
$IF F$SEARCH("ARSAP$COM:ARSAP_DECW_LOGIN.COM")-
    .NES. "" THEN @ARSAP$COM:ARSAP_DECW_LOGIN
```

2 After editing the DECW system-wide login command procedure, be sure that everyone has access to it as well as access to the CIMS for OpenVMS DECW login command procedure (world protection should be set to read and execution privileges).

To edit the system start-up command procedure

1 Modify the site-specific startup command procedure so that CIMS for OpenVMS will be started when the system reboots.

The site-specific startup command procedure has different names, depending upon the version of OpenVMS you are using. The site-specific startup command procedure file names are:

- SYS$MANAGER:SYSTARTUP_V5.COM when you are using OpenVMS Version 5 on a VAX system

- SYS$MANAGER:SYSTARTUP_VMS.COM when you are using OpenVMS Version 6 on a VAX system
- SYS$MANAGER:SYSTARTUP_VMS.COM when you are using OpenVMS on an AXP system

2 Insert the following line into the file at an appropriate point:

```
$IF F$SEARCH("SYS$COMMON:[ARSAP.COM]START_ARSAP.COM")-
    .NES. "" THEN-
    @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

Note • For DECNET: If DECNET is installed, you must activate CIMS for OpenVMS after DECNET is started (place the above line after the @SYS$MANAGER:STARTNET line). Since the Start CIMS for OpenVMS Command procedure submits a batch job, you should insert it after commands that start and initialize your batch queues.

3 If you do not have CIMS for OpenVMS installed in the SYS$COMMON:[ARSAP] directory, you must modify the device and first-level directory definitions in the above line appropriately so that the Start CIMS for OpenVMS Command procedure executes each time the system is rebooted.

4 The Start CIMS for OpenVMS Command procedure supports two optional parameters. The first is a Storage Sampler flag. If it is not specified or is Y, the CIMS for OpenVMS Storage Sampling Batch Job is submitted to a batch queue. You can specify the batch queue to use by providing the second parameter as the queue. If you do not specify the queue, the SYS$BATCH queue is used.

Note • Under CIMS for OpenVMS Version 7.0, the first parameter was the queue and the second parameter was the flag.

To edit the system shutdown command procedure

Modify the site-specific shutdown command procedure (SYS$MANAGER:SYSHUTDWN.COM) so that CIMS for OpenVMS can be brought to a logical shutdown.

- Insert the following line into the file at an appropriate point:

```
$IF F$LOGICAL("ARSAP$DATA") .NES. "" THEN -
    @ARSAP$COM:STOP_ARSAP
```

Tailoring CIMS for OpenVMS

The following sections briefly outline the steps to finish installing CIMS for OpenVMS on your system, namely, the tailoring process.

Preparation

CIMS for OpenVMS's executable, data, and help directories are referenced by logicals that you must define before implementing the tailoring steps. In addition, you must install the GEJACRTL library, the ARSAPRTL library, and the CIMS for OpenVMS Shared Data Common must be installed.

To do this

- Start CIMS for OpenVMS as follows:

```
$ @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

  If you do not have CIMS for OpenVMS installed in the SYS$COMMON:[ARSAP] directory, you must modify the device and first level directory definitions in the above lines appropriately.

  CIMS for OpenVMS starts up on your system in a minimal mode, that is, most of the features and functionality of CIMS for OpenVMS are disabled. However, enough of CIMS for OpenVMS is enabled to let you begin tailoring CIMS for OpenVMS for your site.

Tailoring the CIMS for OpenVMS Storage Parameter File

The CIMS for OpenVMS Storage Parameter File contains flags and values that control CIMS for OpenVMS's monitoring and reporting of disk space at your site. The CIMS for OpenVMS SETUP Utility creates and maintains it.

The chapter titled *CIMS System-wide Parameters* in the *CIMS Chargeback OpenVMS Reference Guide* explains each CIMS for OpenVMS parameter and option concerning disk space.

Note that if you are upgrading CIMS for OpenVMS from an earlier version, the *old* CIMS for OpenVMS Storage Parameter File has been converted to the format used in CIMS for OpenVMS V8.0.9. You should review the converted CIMS for OpenVMS Storage Parameter File to verify that it contains parameters and options set appropriately for your environment.

To tailor the Storage Parameter File

1. To get a list of possible disk drives that you might want to monitor, use the SHOW DEVICE command. For example, if you know that all disk drives on your system begin with a D, then enter the following command.

   ```
   $ SHOW DEVICE D
   ```

2. If you have disk drives whose device names do not start with a D, you need to use similar commands to show them also. For example, Intergraph systems often have disk drives whose device names start with Z. To get a list of these disk devices, you would enter the following command.

   ```
   $ SHOW DEVICE Z
   ```

3. Use the CIMS for OpenVMS SETUP Utility to add disk drives to be sampled by CIMS to the CIMS for OpenVMS Storage Parameter File. You must add each disk drive you want CIMS to monitor to this file.

For example, suppose you want to add the disk drive SNOOPY$DKA200: to the CIMS for OpenVMS Storage Parameter File. Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/STORAGE SNOOPY$DKA200:/SAMPLE
%SETUP-S-ADDED, _SNOOPY$DKA200: record successfully added
SETUP> EXIT
$
```

Note that the device to be sampled is translated to its physical device name before being added to the CIMS for OpenVMS Storage Parameter File (which matches what the CIMS for OpenVMS STORAGE_SAMPLER utility logs to the CIMS for OpenVMS Storage File).

Tailoring the CIMS for OpenVMS Parameter File

The CIMS for OpenVMS Parameter File contains flags and values that control the operation of CIMS for OpenVMS at your site. The CIMS for OpenVMS SETUP Utility creates and maintains it.

The chapters titled *CIMS System-wide Parameters* and *CIMS System-wide Options* in the *CIMS Chargeback OpenVMS Reference Guide* explain each CIMS for OpenVMS parameter and option.

Note that if you are upgrading CIMS for OpenVMS from an earlier version, there are new parameters and options. These new parameters and options are set to a delivered default and disabled unless you tailor them.

To tailor the Parameter File

1 Since you are installing CIMS for OpenVMS on a cluster, you must enable CIMS for OpenVMS Cluster Accounting support. Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> DEFAULT/ENABLE=CLUSTER
%SETUP-S-MODIFIED, NODE record successfully modified
SETUP> EXIT
```

2 Use the SETUP Utility to tailor CIMS for OpenVMS system options to your needs. We recommend that you enable CIMS for OpenVMS options one at a time and observe their impact on your site's operations to verify that the option is accomplishing what you thought it would do for you. Invoke the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP>
```

Extensive on-line help is available for SETUP through the HELP command within the SETUP Utility, and the *CIMS Chargeback OpenVMS Reference Guide* has complete documentation on this utility.

You should read the chapters titled *CIMS System-wide Parameters* and *CIMS System-wide Options* in the *CIMS Chargeback OpenVMS Reference Guide* for a review of the parameters and options available and tailor them for your site.

Tailoring the CIMS for OpenVMS Queue Mapping File

The CIMS for OpenVMS Queue Mapping File is a CIMS for OpenVMS File used to implement an unlimited number of batch and print queues along with printer forms tracking. After you set it up to match your environment, this file contains an entry for each batch or print queue that you want to track.

The CIMS for OpenVMS SETUP Utility maintains the CIMS for OpenVMS Queue Mapping File. You don't need to add the queues manually since VMS_SELECT and LOGGER adds them whenever they encounter a queue without an entry in the CIMS for OpenVMS Queue Mapping File. Note however, that you cannot assign rates to a specific queue until it has been added to the CIMS for OpenVMS Queue Mapping File.

You can add the batch and print queue names on your system manually to the CIMS for OpenVMS Queue Mapping File by using the CIMS for OpenVMS SETUP Utility.

To get a list of possible queue names that you should add

- Enter the following command:

```
$ SHOW QUEUE/ALL
```

  The resulting display shows all queues (batch and print) that have been set up on your system along with any jobs in the queues and their status. The displayed queue names are the candidate queues to be added to the CIMS for OpenVMS Queue Mapping File.

To add batch queues

- If you want to add a batch queue manually instead of letting CIMS for OpenVMS add it automatically, use the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/BATCH batch-queue-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

To add print queues

- If you want to add a print queue manually instead of letting CIMS for OpenVMS add it automatically, use the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/PRINT print-queue-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

  If you plan to use the Forms Tracking option, then you need to add the printer forms (stock) information along with the print queue name into the CIMS for OpenVMS Queue Mapping File. You must add a printer/stock combination record into the CIMS for OpenVMS Queue Mapping File for each print queue and stock combination you have on your system.

  The following DCL command SHOW QUEUE/FORMS displays form and stock information currently in effect on your system:

```
$ SHOW QUEUE/FORMS
```

The term *stock* refers to the paper physically placed in the printer. Stock is the OpenVMS term for printer forms. Stock and Printer forms are used interchangeably in this document. The singular term *form* refers to a user-definable format that prints on specified stock.

To add a print queue and stock combination

- If you want to add a print queue and stock combination manually instead of letting CIMS for OpenVMS add them automatically, use the SETUP Utility as follows. Note that it is assumed that the Forms Tracking Option is enabled.

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/PRINT print-queue-name/STOCK=stock-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

If CIMS for OpenVMS encounters a print queue that does not have an associated stock record in the OpenVMS Accounting File written by the CIMS for OpenVMS Forms Tracking Option, and the Forms Tracking Option is enabled, CIMS for OpenVMS maps the resource statistics of that print queue and stock combination to the print queue and the Catch-All Stock. This condition occurs when processing accounting files that were generated when the CIMS for OpenVMS Forms Tracking option was not enabled.

The Catch-All Stock parameter is defined in the CIMS for OpenVMS Parameter File. The Catch-All Stock parameter is delivered to you with a definition of DEFAULT.

To change the definition

- Use the /STOCK_CATCHALL qualifier within the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> DEFAULT/STOCK_CATCHALL=BOND
%SETUP-S-MODIFIED, NODE record successfully modified
SETUP> EXIT
$
```

Tailoring the CIMS for OpenVMS Rates File

The CIMS for OpenVMS Rates File is the CIMS file that contains tables of rates that are to be applied to the user or project accounts when invoices or any other monetary figures are to be generated. Each table of rates is given a name and this name is entered into the rates name field in the CIMS for OpenVMS Authorization File for each user or project account.

Enabling the CIMS for OpenVMS Cluster Accounting feature lets you define a separate rate table for each CPU node in the cluster for each user and project account. Since the CIMS for OpenVMS Authorization File is initially delivered to you for non-clustered systems, you must add a User Node Default Record and a Project Node Default Record to the CIMS for OpenVMS Authorization File for each CPU node in the cluster.

To add records

- Use the following commands to use the AUTHORIZE Utility, and for each CPU node in the cluster use the ADD command as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD /USER DEFAULT/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> ADD /PROJECT DEFAULT/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, PROJECT record successfully added
ARSAP_UAF> EXIT
$
```

  For first time installations, the CIMS for OpenVMS Rates File is delivered with one rate table already defined, namely the DEFAULT_RATES rate table. The CIMS for OpenVMS Authorization File is initially delivered so that this rate table is used whenever a new user or project account is added to CIMS.

  You can set up a separate rate table in the CIMS for OpenVMS Rates File for each CPU node in the cluster so that CPUs of different processor power can have different rates.

Since a user or project account can usually log on to any node in the cluster, you need a way of specifying user or project account rates for each node in the cluster. To do this, for each user or project account for which you want to have rates different from the default rates for the specific node he is on, you must specify to that account's node record the appropriate rate table.

Until the user or project account is accessed through logging onto the system and having the CIMS for OpenVMS LOGIN program run on his behalf, the user or project account can not have a node record in the CIMS for OpenVMS Authorization File. The node-specific rates table is kept in the user's or project's node record. If this record does not exist, you must create it.

To create a node record

- Use the following commands to start the AUTHORIZE Utility and use the ADD command as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD/USER user-name/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> ADD/PROJECT project-name/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, PROJECT record successfully added
ARSAP_UAF> EXIT
$
```

You might want to skip tailoring this file at this time unless you know the rates you want. The RATES Utility maintains the CIMS for OpenVMS Rates File.

To invoke the RATES Utility

- Use the following command:

```
$ RUN ARSAP$EXE:ARSAP_RATES
RATES>
```

There is extensive on-line help available for the RATES Utility through the HELP command within the utility, and the *CIMS Chargeback OpenVMS Reference Guide* has complete documentation for the utility.

Tailoring the CIMS for OpenVMS Authorization File

The CIMS for OpenVMS Authorization File contains flags, parameters, and values pertaining to USERNAME and PROJECT accounts. The CIMS for OpenVMS AUTHORIZE Utility, which operates much like OpenVMS's AUTHORIZE Utility, creates and maintains this file.

For first time installations, the CIMS for OpenVMS Authorization File is delivered so that a minimal CIMS for OpenVMS system can operate without any modification or tailoring. You should read and use the *CIMS Chargeback OpenVMS Reference Guide* chapters titled *Project Accounting* and *User Accounting* for more information about the various options and parameters that are kept in this file.

Use the CIMS for OpenVMS AUTHORIZE Utility to tailor the Authorization File to your needs. We recommend that you enable user and project account options one at a time and observe their impact on the user's or project's operation and to verify that the option is accomplishing what you thought it would do for the account.

The following sections should assist you in adding User and Project Records to the CIMS for OpenVMS Authorization File.

Adding USER Records

ARSAP_LOGIN (called from the system login command procedure) automatically adds user accounts (records) to the CIMS for OpenVMS Authorization File. The new user account has the same setting as the DEFAULT user record's settings.

To add user records

- Use the LOAD command within the AUTHORIZE Utility to add USER records to the CIMS for OpenVMS Authorization File. You must include the /SYSUAF or /File qualifier when using the LOAD command to add user records:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> LOAD/USER/SYSUAF
ARSAP_UAF> EXIT
$
```

The /SYSUAF qualifier specifies that all the username accounts in the OpenVMS Authorization File should be added to the CIMS for OpenVMS Authorization File.

To add user accounts manually

- Use the AUTHORIZE Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD/USER WDOE
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> EXIT
$
```

Adding PROJECT Records

You can also use the LOAD command within the AUTHORIZE Utility to add PROJECT records to the CIMS for OpenVMS Authorization File. If the /PROJECT qualifier is not specified, /USER is assumed. You must use the /FILE qualifier when using the LOAD command to add project records.

To add project records

- Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> LOAD/PROJECT/FILE=PROJECTS.LIS
ARSAP_UAF> EXIT
$
```

The /FILE qualifier causes the LOAD command to find and open a text file. This file contains the project names (or usernames) to be added to the CIMS for OpenVMS Authorization File. The file should be organized so that only one project appears on each line.

Project accounts are not automatically added unless you disable all project validation methods, so you must add project accounts before you start CIMS for OpenVMS if you use the Project Accounting option with any kind of project validation.

There is extensive online help available for the AUTHORIZE Utility through the HELP command within AUTHORIZE. The *CIMS Chargeback OpenVMS Reference Guide* has complete documentation on this utility.

Setting Required Values

Setting User Values

To set CIMS for OpenVMS required user quotas

- Use the OpenVMS AUTHORIZE Utility to set the ENQLM, FILLM and JTQUOTA values to the following minimum values:

  a All the users of the OpenVMS system execute some of the CIMS for OpenVMS programs. Set he following minimum quota values for all OpenVMS users where CIMS for OpenVMS is installed:

  ```
  ENQLM = 20    FILLM = 10
  ```

  b If the user is going to log into the system using an X-Terminal, you must also set the following minimum quota value:

  ```
  JTQUOTA = 2048
  ```

To set CIMS for OpenVMS Required User Privileges

- Set the following user privileges

  a The CIMS for OpenVMS Administrator needs SYSPRV in order to run CIMS for OpenVMS utilities that are used to administer, process accounting data, and generate reports.

  b All other users need NETMBX as a minimum.

Setting CIMS for OpenVMS Required SYSGEN Parameter Values

When you start CIMS for OpenVMS, some images are installed for the following reasons:

- To reduce the overhead associated with invoking the images
- To reduce the memory requirements when more than one user is invoking one of the installed images

- To grant the user access to CIMS for OpenVMS files which the user would normally not have access
- To reduce the overhead of accessing the CIMS for OpenVMS Parameter File by all CIMS for OpenVMS utilities

CIMS for OpenVMS installed images are written so that the user has access only to his own information.

The Start CIMS Command procedure uses the OpenVMS INSTALL Utility to install the following images:

- ARSAP$RTL
- ARSAP$SHARED_COMMON
- ARSAP_DECW_LOGIN
- ARSAP_GPTBL
- ARSAP_LOGIN
- ARSAP_MYCOST
- ARSAP_SWITCH
- ARSAP_SUPER
- GEJAC$RTL

In order to ensure that there is sufficient room in the global page and the global section tables, the system SYSGEN parameters GBLPAGES (global pages) and GBLSECTIONS (global sections) must allow for CIMS for OpenVMS to use 1,498 on VAX or 2016 on AXP global pages and 26 on VAX or 15 on AXP global sections.

To display the number of global sections used and the number of global pages used and unused

- Enter the following commands:

```
$ INSTALL
INSTALL> LIST/GLOBAL
INSTALL> EXIT
$
```

The INSTALL Utility lists all known global sections, the number of global sections used, and the number of global pages used and unused.

To display the existing number of global sections available

- Enter the following commands:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> USE CURRENT
SYSGEN> SHOW GBLSECTIONS
SYSGEN> EXIT
$
```

The SYSGEN Utility displays the global sections data. The current maximum number of global sections is the first number.

CIMS for OpenVMS requires 1,498 global pages on VAX and 2,106 on AXP. If fewer than these global pages are unused, you can increase the number of global pages by deleting existing known images or by increasing the GBLPAGES system parameter with the SYSGEN Utility.

CIMS for OpenVMS requires 26 global sections on VAX and 15 on AXP. If all of the global sections are used (compare the number shown by SYSGEN with the number currently used as shown by INSTALL), you must increase the number of available global sections by deleting an existing global section or by increasing the GBLSECTIONS parameter with the SYSGEN Utility.

Note that neither GBLPAGES nor GBLSECTIONS are dynamic SYSGEN parameters. If you change either to accommodate CIMS for OpenVMS, you must reboot your system.

Starting CIMS for OpenVMS V8.0.9

To start CIMS for OpenVMS V8.0.9

- Execute the Start CIMS command procedure as follows:

```
$ SET DEFAULT SYS$COMMON:[ARSAP.COM]
$ @START_ARSAP
```

  You must adjust the above SET command appropriately if the Start CIMS command procedure is not located in SYS$COMMON:[ARSAP.COM].

Cleaning Up

You might no longer need several files after CIMS has been successfully installed. If you want to recover the disk space used by these files, refer to *Description of Media Savesets* on page 1-5 and delete the files you no longer need after reading the individual file descriptions.

In the event you need a file that you have deleted, you can reload it from the distribution kit.

4

Installing CIMS on a Mixed AXP and VAX Clustered System

Overview

This section describes the process of installing CIMS on a mixed AXP and VAX OpenVMS clustered computer system.

Digital Equipment Corporation does not support cluster-wide accounting under OpenVMS. As a result, each CPU node maintains its own private copy of the accounting file that it generates, and, unfortunately, the accounting file does not contain any information within it that reliably identifies which CPU node generated the data. Therefore, installing CIMS for OpenVMS on a cluster is slightly different from installing on a standalone CPU.

Note • Portions of CIMS for OpenVMS must be installed on every CPU in the cluster and every CPU node in the cluster must be licensed. CIMS for OpenVMS does not properly function in a cluster unless it is installed and licensed on every CPU node in the cluster.

In addition, installing CIMS on a mixed AXP and VAX cluster is slightly different from installing on an AXP or a VAX only cluster. Essentially, you must install CIMS twice, once on an AXP node and once on a VAX node. The following sections detail this process.

Installing CIMS on a VAX Node

Getting the Distribution Files

CIMS for OpenVMS is distributed in three ways:

- CD-Rom
- Web-site Download
- FTP

Distribution Files from CD-ROM

Allocate and mount the CD-ROM using the correct device name for your CD drive. The following is an example of allocating and mounting the CD-ROM (the CD-ROM device name is CIMS$DKB600 and the default directory is CIMSVOL0:[ARSAP]).

```
$ SHOW DEVICE
$ ALLOCATE CIMS$DKB600:
$ MOUNT/MEDIA=CDROM CIMS$DKB600: CIMS ARSAP
```

Copy the ARSAP080.ZIP, UNZIPAXP.EXE, and UNZIPVAX.EXE files from the CD-ROM to your default directory.

```
$ DIR CIMS$DKB600:[OPENVMS]
$ COPY CIMS$DKB600:[OPENVMS]ARSAP080.ZIP CIMSVOL0:[ARSAP]
$ COPY CIMS$DKB600:[OPENVMS]UNZIPVAX.EXE CIMSVOL0:[ARSAP]
$ COPY CIMS$DKB600:[OPENVMS]UNZIPAXP.EXE CIMSVOL0:[ARSAP]
```

Deallocate and dismount CD-ROM.

```
$ DEALLOCATE CIMS$DKB600:
$ DISMOUNT CIMS$DKB600:
```

Distribution Files from Web-site Download

CIMS for OpenVMS Distribution files can be retrieved from the Customer Area of the CIMS Lab web-site, www.cimslab.com. You will need an access password from CIMS Lab, Inc. to access the Customer Area of the web-site. Call CIMS Lab, Inc. at 1-800-283-4267 to obtain a Customer Area access password.

Distribution Files from FTP

To retrieve CIMS for OpenVMS distribution files

1 Contact the CIMS Lab to obtain your FTP Access Username and Password:

(800) 283-4267 US and Canada
(916) 783-8525 International
(916) 783-2090 Fax
support@cimslab.com via E-mail

2. ftp to ftp.cimslab.com

3. Change directory to OpenVMS:

```
ftp> cd openvms
```

4. Get the CIMS for OpenVMS distribution files:

```
ftp> bin
ftp> get aareadme.txt
ftp> get ARSAP080.ZIP
ftp> get UNZIPAXP.EXE (if you are installing on an alpha system)
```

5. Disconnect from the FTP site:

```
ftp> bye
```

To install CIMS on a VAX node

It doesn't matter whether you install CIMS first on an AXP or a VAX node. For documentation purposes, we are assuming that you are installing on a VAX processor first.

1. Log in using the SYSTEM account on a VAX node.

   Use the SYSTEM account because installing CIMS for OpenVMS requires certain privileges in order to create directories and execute programs.

2 Copy the distribution kit to disk.

The installation of CIMS for OpenVMS is considerably faster if you copy the CIMS for OpenVMS Distribution Kit from the tape media to your disk. This step is optional and you can skip to the next section if you do not have enough disk space (you need at least 100,000 blocks of free space to copy the CIMS for OpenVMS Distribution Kit to your disk).

3 Shut down CIMS for OpenVMS if CIMS for OpenVMS is Active

If you are installing CIMS as an update to a previous version of CIMS for OpenVMS and CIMS is active on the cluster, you must stop CIMS on the cluster. Use SYSMAN as follows:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT/CLUSTER
SYSMAN> DO @ARSAP$COM:STOP_ARSAP
SYSMAN> EXIT
$
```

4 Invoke the VMSINSTAL Command File

VMSINSTAL is the OpenVMS software installation command file used by most products that are installed on OpenVMS systems. The use of this command file is documented in Chapter 3 of the *OpenVMS System Manager's Manual*. The following commands start the CIMS for OpenVMS installation process:

```
$ SET DEFAULT SYS$UPDATE
$ @VMSINSTAL ARSAP080 HSC001$MFA0:
```

In the above command, replace *HSC001$MFA0* with the name of your distribution device (where the CIMS tape should be mounted or the disk and directory if you copied the CIMS for OpenVMS Distribution Kit to disk).

5 VMSINSTAL performs some preliminary checking (whether you are using the SYSTEM account, whether you have DECNET running, and so forth). If DECNET is active, or if there are any active processes, VMSINSTAL warns you and asks if it is okay to continue anyway. CIMS for OpenVMS 's installation does not interfere with DECNET nor the active processes, so answer VMSINSTAL's question YES so that VMSINSTAL continues.

6 VMSINSTAL then asks you whether you have loaded the distribution kit on the device specified.

You should now physically mount (load) the distribution media on the drive that is to be used by VMSINSTAL specified as the second parameter to the command file (HSC001$MFA0: in our example above). When the unit is ready, answer the Are you ready? question from with YES.

VMSINSTAL now loads the ARSAP080.A saveset from the CIMS for OpenVMS distribution kit into a subdirectory it creates in the SYS$UPDATE directory and starts execution of the CIMS for OpenVMS Installation Command Procedure (KITINSTAL.COM).

The CIMS for OpenVMS Installation command procedure performs some environment checking (such as making sure you are installing CIMS for OpenVMS on a supported version of OpenVMS, whether you are installing on a VAX or an AXP, that there is enough disk space to load the product, and so forth) and begins asking you questions about the installation of CIMS for OpenVMS Version 8.0.9.

7 The first question is `Do you want to install ARSAP on OpenVMS? [YES]`.

If you are installing CIMS on OpenVMS, answer YES. If you answer NO, you are given the opportunity to load all or specific CIMS for UNIX Platform files from the distribution media.

8 The second question is `Do you want to load the ARSAP for UNIX distribution? [NO]`.

If you have Unix platforms for which you have licensed the use of CIMS and you want to load any or all Unix Platform files onto the OpenVMS system for later transfer to the Unix platform, answer YES. If you answer YES, you are prompted at a later time for the Unix Platform files you want to load.

If you do not choose to install CIMS on OpenVMS, after you have loaded the desired Unix Platform files, the installation command procedure completes.

9 If you chose to install ARSAP on OpenVMS, you are asked `Do you need to install any CIMS for OpenVMS License PAK(s)? [YES]`.

If you are installing CIMS for OpenVMS for the first time on this system, answer YES. If you have previously installed CIMS on this system and already have your CIMS for OpenVMS License PAKs installed, answer NO.

10 The next question is, `Are you installing ARSAP for the first time on this system? [NO]`.

If you have never installed CIMS for OpenVMS on the target computer system before or do not want to have the CIMS Installation Command Procedure install CIMS for OpenVMS as an upgrade from a previous version of CIMS, you should answer YES. If you answer YES, the following upgrade questions are skipped.

11 If you answered NO to the previous question

- If you are on a VAX CPU, you asked `Are you installing ARSAP for OpenVMS V08.0.9 as an upgrade from V07.0? [NO]`.
- If you are on an AXP CPU, this question is skipped.

12 If you have CIMS for OpenVMS V07.0 installed on the target VAX CPU, answer YES to this question. This response causes the CIMS for OpenVMS Installation Command Procedure to upgrade the CIMS for OpenVMS V07.0 version to the updated CIMS for OpenVMS V08.0.9 automatically. Files are converted automatically. Upgrading from CIMS for OpenVMS V08.0.9

13 If you answered NO to the previous question, you are asked `Are you installing ARSAP for OpenVMS V08.0.9 as an upgrade from V08.0.9? [NO]`.

If you have CIMS for OpenVMS V08.0.9 installed on the target machine, answer YES. This response causes the CIMS for OpenVMS Installation Command Procedure to upgrade the CIMS for OpenVMS V08.0.9 version to the updated CIMS for OpenVMS V08.0.9. You use this option normally after you have reported a software problem with CIMS and the update you are installing fixes that problem or you are installing your yearly update.

If you answer NO, you see an error message and the installation terminates because there are no other upgrade options.

14 You can install CIMS for OpenVMS onto a disk and directory of your choice as long as the disk chosen is mounted at all times by all of the AXP and VAX CPUs in the mixed cluster.

If you want to install CIMS other than in SYS$COMMON:[ARSAP], you should answer NO to the question Do you want ARSAP installed in SYS$COMMON:[ARSAP]? [YES].

If you answer NO to this question, you are prompted by Enter target CIMS device and directory [SYS$COMMON:[ARSAP]].

If you answer YES, the actual installation of CIMS on OpenVMS begins.

Note • Note that if you answer NO to this question and you chose one of the upgrading options, the CIMS for OpenVMS installation command procedure assumes that CIMS is currently installed in the specified directory.

Converting the CIMS for OpenVMS Authorization File

If you are performing an upgrade installation, you might need to convert your CIMS for OpenVMS Authorization files. CIMS for OpenVMS provides two methods of performing this conversion: NORMAL or FAST.

CIMS for OpenVMS provides two methods of performing this conversion: NORMAL or FAST.

The installation procedure calculates the approximate time necessary for both methods. The time calculated is based upon a very slow CPU and disk system, which means that it may have calculated a very long time compared to what it really takes on your system.

To convert the Authorization File

- Usually, you should choose the NORMAL method

  Or

  If you have a slow CPU and disk and a very large CIMS for OpenVMS Authorization File, choose FAST.

  Please note the FAST method requires the use of an "scratch file". CIMS for OpenVMS calculates the approximate size of the file needed. You are asked to provide the name of a device to hold the scratch file created during the conversion should you choose the FAST method.

  When you respond to the prompt, the CIMS for OpenVMS Installation Command procedure then automatically loads and links CIMS for OpenVMS on your system. This normally takes between 10 and 30 minutes to complete and depends upon how busy your system is, how fast your processor is, and so forth.

Loading the CIMS for OpenVMS License PAKs

CIMS for OpenVMS uses License Product Authorization Keys (PAKs) to enable its use on a CPU. If you answered the earlier question, Do you need to install any ARSAP for OpenVMS License PAK(s)? with YES, then the installation procedure now prompts you for License PAK information.

The CIMS for OpenVMS installation procedure invokes the ARSAP_INSTALL_PAK command procedure in the ARSAP$COM directory. This command procedure prompts you for required information from the CIMS for OpenVMS License PAK provided for the system on which you are installing CIMS for OpenVMS.

To load license PAKs

1 Enter each response exactly as it is on the License PAK. Be sure to preserve upper and lowercase designations.

After prompting you for the licensed CPU information, the command procedure tries to load or register the License PAK. If it is successful, it asks whether you want to load another License PAK.

2 Answer YES or NO.

If you answer YES, the program prompts you for the next License PAK information to load. If you answer NO, the CIMS for OpenVMS Installation Command procedure is complete and exit after displaying the resources consumed installing CIMS for OpenVMS.

You should load all of your AXP and VAX node CIMS for OpenVMS PAKs at this time.

Creating CPU Node-specific Directories

For each CPU node in the cluster, CIMS for OpenVMS needs to maintain certain files on a per-node basis. These files are all referenced through the ARSAP$PRIVATE and the ARSAP$ERRORLOG logicals assigned by the Start CIMS for OpenVMS command procedure.

For each CPU node in the cluster, the Start CIMS for OpenVMS command procedure creates the following directories with an owner UIC of [1,210] if they do not already exist when CIMS for OpenVMS is started.

```
SYS$SPECIFIC:[ARSAP.DATA]
SYS$SPECIFIC:[ARSAP.ERRORLOG]
```

Editing Procedures

To edit the system-wide login command procedure

1. When the VMSINSTAL Command File has completed, you must modify the system-wide login command procedure (or set one up if it does not exist) to invoke the CIMS for OpenVMS Login command procedure for each user during OpenVMS login.

   Determine the system-wide login command procedure's directory and name by examining the logical SYS$SYLOGIN:

   ```
   $ SHOW LOGICAL SYS$SYLOGIN
      "SYS$SYLOGIN" = "SYS$MANAGER:SYLOGIN.COM" (LNM$SYSTEM_TABLE)
   ```

2. Insert the following line into this file at an appropriate point:

   ```
   $IF F$SEARCH("ARSAP$COM:ARSAP_LOGIN.COM")  .NES. "" THEN -
   @ARSAP$COM:ARSAP_LOGIN
   ```

   If your system-wide login command procedure is not cluster-wide, you need to make the same modification to the system-wide login command procedure for each CPU node in the cluster.

3. After editing the System-Wide Login Command File, be sure that everyone has access to it as well as to the CIMS for OpenVMS login command procedure (world protection should be set to read and execution privileges).

4. Also be sure that the System-Wide Login Command File disables Ctrl-Y at the beginning of the procedure and enables Ctrl-Y at the end. If Ctrl-Y is not disabled, a user can defeat the CIMS for OpenVMS login command procedure by continually repeating Ctrl-Ys after he has entered his password.

To edit the system-wide DECW login command procedure

1 If you use X-terminals or workstations with Motif at your site, you need to modify the system-wide DECW login command procedure (or set one up if it does not exist) to invoke the CIMS for OpenVMS DECW login command procedure for each X-terminal user during OpenVMS login.

The system-wide DECW login command procedure is the file DECW$SYLOGIN.COM in the SYS$MANAGER directory. Insert the following lines should be inserted into this file at an appropriate point:

```
$IF F$SEARCH("ARSAP$COM:ARSAP_DECW_LOGIN.COM")-
    .NES. "" THEN
    @ARSAP$COM:ARSAP_DECW_LOGIN
```

2 After editing the DECW system-wide login command procedure, be sure that everyone has access to it as well as access to the CIMS for OpenVMS DECW login command procedure (world protection should be set to read and execution privileges).

To edit the system start-up command procedure

1 For each CPU node in the cluster, modify its site-specific startup command procedure so that CIMS for OpenVMS starts when the system reboots.

The site-specific startup command procedure has different names, depending upon the version of OpenVMS you are using. The site specific startup command procedure file names are:

- SYS$MANAGER:SYSTARTUP_V5.COM - if you are using OpenVMS Version 5 on a VAX system
- SYS$MANAGER:SYSTARTUP_VMS.COM - if you are using OpenVMS Version 6 on a VAX system
- SYS$MANAGER:SYSTARTUP_VMS.COM - if you are using OpenVMS on an AXP system

Insert the following line into the file at an appropriate point:

```
$IF F$SEARCH("SYS$COMMON:[ARSAP.COM]START_ARSAP.COM")-
    .NES  "" THEN-
    @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

If you do not have CIMS for OpenVMS installed in the SYS$COMMON:[ARSAP] directory, you must modify the device and first-level directory definitions in the above line appropriately so that the Start CIMS for OpenVMS command procedure executes each time the system is rebooted.

Note • Under CIMS for OpenVMS Version 7.0, the first parameter was the queue and the second parameter was the flag.

Note • If DECNET is installed, you must activate CIMS for OpenVMS after DECNET is started (place the above line after the @SYS$MANAGER:STARTNET line). Because the Start CIMS for OpenVMS command procedure submits a batch job, it should be inserted after commands that start and initialize your batch queues.

To edit the system shutdown command procedure

- For each CPU node in the cluster, modify the site-specific shutdown command procedure (SYS$MANAGER:SYSHUTDWN.COM) so that CIMS for OpenVMS can be brought to a logical shutdown. Insert the following line into the file at an appropriate point:

```
$IF F$LOGICAL("ARSAP$DATA") .NES. "" THEN -
    @ARSAP$COM:STOP_ARSAP
```

Tailoring CIMS for OpenVMS

The following sections will briefly outline the steps to finish installing CIMS for OpenVMS on your system, namely the tailoring process.

Preparation

CIMS for OpenVMS 's executable, data, and help directories are referenced by logicals that need to be defined before you perform the tailoring steps. In addition, you must install the GEJACRTL library, the ARSAPRTL library, and the CIMS for OpenVMS Shared Data Common.

To prepare for tailoring

1. Start CIMS as follows:

```
$ @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

2. If you do not have CIMS installed in the SYS$COMMON:[ARSAP] directory, modify the device and first-level directory definitions in the above lines appropriately.

   CIMS for OpenVMS starts up on the VAX node in a minimal mode; that is, most of the features and functionality of CIMS for OpenVMS are disabled. However, enough of CIMS for OpenVMS is enabled to let you begin tailoring CIMS for your site.

Tailoring the CIMS for OpenVMS Storage Parameter File

The CIMS for OpenVMS Storage Parameter File contains flags and values that control CIMS' monitoring and reporting of disk space at your site. It is created and maintained by the CIMS for OpenVMS SETUP Utility.

The chapter titled *CIMS System-wide Parameters* in the *CIMS Chargeback OpenVMS Reference Guide* explains each CIMS parameter and option relating to disk space.

Note that if you are upgrading CIMS from an earlier version, the *old* CIMS for OpenVMS Storage Parameter File will have been converted to the format used in CIMS for OpenVMS V08.0.9. You should review the converted CIMS for OpenVMS Storage Parameter File to verify that it contains parameters and options set as appropriate for your environment.

To tailor the Storage Parameter File

1. To get a list of possible disk drives that you might want to monitor, use the SHOW DEVICE command. For example, if you know that all disk drives on your system begin with a D, enter the following command:

   ```
   $ SHOW DEVICE D
   ```

2. If you have disk drives whose device names do not start with a D, you need to show them also with similar commands. For example, Intergraph systems often have disk drives whose device names start with Z. To get a list of these disk devices, enter the following command:

   ```
   $ SHOW DEVICE Z
   ```

3. Use the CIMS for OpenVMS SETUP Utility to add disk drives to be sampled by CIMS to the CIMS for OpenVMS Storage Parameter File. You must add each disk drive you want CIMS to monitor to this file.

For example, suppose you want to add the disk drive SNOOPY$DKA200: to the CIMS for OpenVMS Storage Parameter File. The following commands do this:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/STORAGE SNOOPY$DKA200:/SAMPLE
%SETUP-S-ADDED, _SNOOPY$DKA200: record successfully added
SETUP> EXIT
$
```

Note that the device to be sampled is translated to its physical device name before being added to the CIMS for OpenVMS Storage Parameter File, which matches what the CIMS for OpenVMS STORAGE_SAMPLER utility logs to the CIMS for OpenVMS Storage File.

Tailoring the CIMS for OpenVMS Parameter File

The CIMS for OpenVMS Parameter File contains flags and values that control the operation of CIMS at your site. The SETUP Utility creates and maintains it.

The chapters titled *CIMS System-wide Parameters* and *CIMS System-wide Options* in the *CIMS Chargeback OpenVMS Reference Guide* explain each CIMS parameter and option.

Note that if you are upgrading CIMS from an earlier version, there are new parameters and options. These new parameters and options are set to a delivered default and disabled unless you tailor them.

To tailor the Parameter File

1 Because you are installing CIMS on a cluster, you must enable CIMS Cluster Accounting support. Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> DEFAULT/ENABLE=CLUSTER
%SETUP-S-MODIFIED, NODE record successfully modified
SETUP> EXIT
```

2 Use the SETUP Utility to tailor CIMS system options to your needs. We recommend that you enable CIMS options one at a time to observe their impact on your site's operations and to verify that the option is accomplishing what you thought it would do for you. Invoke the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP>
```

Note that there is extensive online help available for SETUP through the HELP command in the SETUP Utility, and the *CIMS Chargeback OpenVMS Reference Guide* has complete documentation on this utility.

You should read the chapter titled *CIMS System-wide Parameters* and *CIMS System-wide Options* in the *CIMS Chargeback OpenVMS Reference Guide* for a review of the parameters and options available and tailor them for your site.

Tailoring the CIMS for OpenVMS Queue Mapping File

The CIMS for OpenVMS Queue Mapping File is a CIMS for OpenVMS file used to implement an unlimited number of batch and print queues along with printer forms tracking. After it is set up to match your environment, this file contains an entry for each batch or print queue that you want to track.

The SETUP Utility maintains the CIMS for OpenVMS Queue Mapping File. You don't need to add the queues manually since VMS_SELECT and LOGGER will add them whenever they encounter a queue without an entry in the CIMS for OpenVMS Queue Mapping File. Note, however, that you cannot assign rates to a specific queue until it has been added to the CIMS for OpenVMS Queue Mapping File.

You can add the batch and print queue names on your system manually to the CIMS for OpenVMS Queue Mapping File by using the SETUP Utility.

To get a list of possible queue names that you should add

- Enter the following command:

```
$ SHOW QUEUE/ALL
```

The resulting display shows all queues (batch and print) that have been set up on your system along with any jobs in the queues and their status. The displayed queue names are the candidate queues to be added to the CIMS for OpenVMS Queue Mapping File.

To add batch queues

- If you want to add a batch queue manually instead of letting CIMS for OpenVMS add it automatically, use the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/BATCH batch-queue-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

To add print queues

- If you want to add a print queue manually instead of letting CIMS for OpenVMS add it automatically, use the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/PRINT print-queue-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

If you plan to use the Forms Tracking option, then you need to add the printer forms (stock) information along with the print queue name into the CIMS for OpenVMS Queue Mapping File. You must add a printer/stock combination record into the CIMS for OpenVMS Queue Mapping File for each print queue and stock combination you have on your system.

The following DCL command SHOW QUEUE/FORMS displays form and stock information currently in effect on your system:

```
$ SHOW QUEUE/FORMS
```

The term *stock* refers to the paper physically placed in the printer. Stock is the OpenVMS term for printer forms. Stock and Printer Forms are used interchangeably in this document. The singular term *form* refers to a user-definable format that prints on specified stock.

To add a print queue and stock combination

- If you want to add a print queue and stock combination manually instead of letting CIMS for OpenVMS add them automatically, use the SETUP Utility as follows. Note that it is assumed that the Forms Tracking Option is enabled.

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> ADD/QUEUE/PRINT print-queue-name/STOCK=stock-name
%SETUP-S-ADDED, QUEUE record successfully added
SETUP> EXIT
$
```

  If CIMS for OpenVMS encounters a print queue that does not have an associated stock record in the OpenVMS Accounting File written by the CIMS for OpenVMS Forms Tracking Option, and the Forms Tracking Option is enabled, CIMS for OpenVMS maps the resource statistics of that print queue and stock combination to the print queue and the Catch-All Stock. This condition occurs when processing accounting files that were generated when the CIMS for OpenVMS Forms Tracking option was not enabled.

  The Catch-All Stock parameter is defined in the CIMS for OpenVMS Parameter File. The Catch-All Stock parameter is delivered to you with a definition of DEFAULT.

To change the definition

- Use the /STOCK_CATCHALL qualifier within the SETUP Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_SETUP
SETUP> DEFAULT/STOCK_CATCHALL=BOND
%SETUP-S-MODIFIED, NODE record successfully modified
SETUP> EXIT
$
```

Tailoring the CIMS for OpenVMS Rates File

The CIMS for OpenVMS Rates File is the CIMS file that contains tables of rates that are to be applied to the user or project accounts when invoices or any other monetary figures are to be generated. Each table of rates is given a name and this name is entered into the rates name field in the CIMS for OpenVMS Authorization File for each user or project account.

Enabling the CIMS for OpenVMS Cluster Accounting feature lets you define a separate rate table for each CPU node in the cluster for each user and project account. Since the CIMS for OpenVMS Authorization File is initially delivered to you for non-clustered systems, you must add a User Node Default Record and a Project Node Default Record to the CIMS for OpenVMS Authorization File for each CPU node in the cluster.

To add records

- Use the following commands to use the AUTHORIZE Utility, and for each CPU node in the cluster use the ADD command as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD /USER DEFAULT/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> ADD /PROJECT DEFAULT/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, PROJECT record successfully added
ARSAP_UAF> EXIT
$
```

  For first time installations, the CIMS for OpenVMS Rates File is delivered with one rate table already defined, namely the DEFAULT_RATES rate table. The CIMS for OpenVMS Authorization File is initially delivered so that this rate table is used whenever a new user or project account is added to CIMS.

  You can set up a separate rate table in the CIMS for OpenVMS RATES File for each CPU node in the cluster so that CPUs of different processor power can have different rates.

Since a user or project account can usually log on to any node in the cluster, you need a way of specifying user or project account rates for each node in the cluster. To do this, for each user or project account for which you want to have rates different from the default rates for the specific node he is on, you must specify to that account's node record the appropriate rate table.

Until the user or project account is accessed through logging onto the system and having the CIMS for OpenVMS LOGIN program run on his behalf, the user or project account can not have a node record in the CIMS for OpenVMS Authorization File. The node-specific rates table is kept in the user's or project's node record. If this record does not exist, you must create it.

To create a node record

- Use the following commands to start the AUTHORIZE Utility and use the ADD command as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD/USER user-name/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> ADD/PROJECT project-name/NODE=nodename-
_ARSAP_UAF> /RATES_NAME=node-rate
%AUTHORIZE-S-ADDED, PROJECT record successfully added
ARSAP_UAF> EXIT
$
```

You might want to skip tailoring this file at this time unless you know the rates you want. The RATES Utility maintains the CIMS for OpenVMS Rates File.

To invoke the RATES Utility

- Use the following command:

```
$ RUN ARSAP$EXE:ARSAP_RATES
RATES>
```

There is extensive online help available for the RATES Utility through the HELP command within the utility, and the *CIMS Chargeback OpenVMS Reference Guide* has complete documentation for the utility.

Tailoring the CIMS for OpenVMS Authorization File

The CIMS for OpenVMS Authorization File contains flags, parameters, and values pertaining to USERNAME and PROJECT accounts. The CIMS for OpenVMS AUTHORIZE Utility, which operates much like OpenVMS's AUTHORIZE Utility, creates and maintains this file.

For first time installations, the CIMS for OpenVMS Authorization File is delivered so that a minimal CIMS for OpenVMS system can operate without any modification or tailoring. You should read and use the *CIMS Chargeback OpenVMS Reference Guide* chapters titled *Project Accounting* and *User Accounting* for more information about the various options and parameters that are kept in this file.

Use the CIMS for OpenVMS AUTHORIZE Utility to tailor the Authorization File to your needs. We recommend that you enable user and project account options one at a time and observe their impact on the user's or project's operation and to verify that the option is accomplishing what you thought it would do for the account.

The following sections should assist you in adding User and Project Records to the CIMS for OpenVMS Authorization File.

Adding USER Records

ARSAP_LOGIN (called from the system login command procedure) automatically adds user accounts (records) to the CIMS for OpenVMS Authorization File. The new user account has the same setting as the DEFAULT user record's settings.

To add user records

- Use the LOAD command within the AUTHORIZE Utility to add user records to the CIMS for OpenVMS Authorization File. You must include the /SYSUAF or /FILE qualifier when using the LOAD command to add user records:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> LOAD/USER/SYSUAF
ARSAP_UAF> EXIT
$
```

The /SYSUAF qualifier specifies that all the username accounts in the OpenVMS Authorization File should be added to the CIMS for OpenVMS Authorization File.

To add user accounts manually

- Use the AUTHORIZE Utility as follows:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> ADD/USER WDOE
%AUTHORIZE-S-ADDED, USER record successfully added
ARSAP_UAF> EXIT
$
```

Adding PROJECT Records

You can also use the LOAD command within the AUTHORIZE Utility to add PROJECT records to the CIMS for OpenVMS Authorization File. If the /PROJECT qualifier is not specified, /USER is assumed. You must use the /FILE qualifier when using the LOAD command to add project records.

To add project records

- Use the following commands:

```
$ RUN ARSAP$EXE:ARSAP_AUTHORIZE
ARSAP_UAF> LOAD/PROJECT/FILE=PROJECTS.LIS
ARSAP_UAF> EXIT
$
```

The /FILE qualifier causes the LOAD command to find and open a text file. This file contains the project names (or usernames) to be added to the CIMS for OpenVMS Authorization File. The file should be organized so that only one project appears on each line.

Project accounts are not automatically added unless you disable all project validation methods, so you must add project accounts before you start CIMS for OpenVMS if you use the Project Accounting option with any kind of project validation.

There is extensive online help available for the AUTHORIZE Utility through the HELP command within AUTHORIZE. The *CIMS Chargeback OpenVMS Reference Guide* has complete documentation on this utility.

Setting Required Values

Setting User Values

To set CIMS for OpenVMS required user quotas

- Use the OpenVMS AUTHORIZE utility to set the ENQLM, FILLM and JTQUOTA values to the following minimum values:

  a All the users of the OpenVMS system execute some of the CIMS for OpenVMS programs. Set he following minimum quota values for all OpenVMS users where CIMS for OpenVMS is installed:

  ```
  ENQLM = 20    FILLM = 10
  ```

  b If the user is going to log into the system using an X-Terminal, you must also set the following minimum quota value:

  ```
  JTQUOTA = 2048
  ```

To set CIMS for OpenVMS Required User Privileges

- Set the following user privileges

  a The CIMS for OpenVMS Administrator needs SYSPRV in order to run CIMS for OpenVMS utilities that are used to administer, process accounting data, and generate reports.

  b All other users need NETMBX as a minimum.

Setting CIMS for OpenVMS Required SYSGEN Parameter Values

When you start CIMS for OpenVMS, some images are installed for the following reasons:

- To reduce the overhead associated with invoking the images
- To reduce the memory requirements when more than one user is invoking one of the installed images

- To grant the user access to CIMS for OpenVMS files which the user would normally not have access
- To reduce the overhead of accessing the CIMS for OpenVMS Parameter File by all CIMS for OpenVMS utilities

CIMS for OpenVMS installed images are written so that the user has access only to his own information.

The Start CIMS Command procedure uses the OpenVMS INSTALL Utility to install the following images:

- ARSAP$RTL
- ARSAP$SHARED_COMMON
- ARSAP_DECW_LOGIN
- ARSAP_GPTBL
- ARSAP_LOGIN
- ARSAP_MYCOST
- ARSAP_SWITCH
- ARSAP_SUPER
- GEJAC$RTL

In order to ensure that there is sufficient room in the global page and the global section tables, the system SYSGEN parameters GBLPAGES (global pages) and GBLSECTIONS (global sections) must allow for CIMS for OpenVMS to use 1,498 on VAX or 2016 on AXP global pages and 26 on VAX or 15 on AXP global sections.

To display the number of global sections used and the number of global pages used and unused

- Enter the following commands:

```
$ INSTALL
INSTALL> LIST/GLOBAL
INSTALL> EXIT
$
```

The INSTALL Utility lists all known global sections, the number of global sections used, and the number of global pages used and unused.

To display the existing number of global sections available

- Enter the following commands:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> USE CURRENT
SYSGEN> SHOW GBLSECTIONS
SYSGEN> EXIT
$
```

The SYSGEN Utility displays the global sections data. The current maximum number of global sections is the first number.

CIMS for OpenVMS requires 1,498 global pages on VAX and 2,106 on AXP. If fewer than these global pages are unused, you can increase the number of global pages by deleting existing known images or by increasing the GBLPAGES system parameter with the SYSGEN Utility.

CIMS for OpenVMS requires 26 global sections on VAX and 15 on AXP. If all of the global sections are used (compare the number shown by SYSGEN with the number currently used as shown by INSTALL), you must increase the number of available global sections by deleting an existing global section or by increasing the GBLSECTIONS parameter with the SYSGEN Utility.

Note that neither GBLPAGES nor GBLSECTIONS are dynamic SYSGEN parameters. If you change either to accommodate CIMS for OpenVMS, you must reboot your system.

Installing CIMS on an AXP Node

CIMS for OpenVMS cannot be executing on the any node in the mixed cluster while CIMS is being installed on an AXP node in the mixed cluster.

If CIMS is active on any node in the mixed AXP or VAX cluster (and it is if you have just completed the VAX setup), do the following on all nodes with CIMS active:

```
$ @ARSAP$COM:STOP_ARSAP
$
```

To install CIMS on a AXP node

1. Log out on the VAX node and log in using the SYSTEM account on an AXP node in the mixed cluster. Use the SYSTEM account because installing CIMS for OpenVMS requires certain privileges to create directories and execute programs.

2. Invoke the VMSINSTAL Command File.

   VMSINSTAL is the VMS software installation command file used by most products that are installed on OpenVMS systems. This command file is documented in Chapter 3 of the *OpenVMS System Manager's Manual*. The following commands start the CIMS installation process:

   ```
   $ SET DEFAULT SYS$UPDATE
   $ @VMSINSTAL ARSAP080 HSC001$MFA0:
   ```

   Replace *HSC001$MFA0* with the name of your distribution device (where the CIMS tape should be mounted).

   VMSINSTAL performs some preliminary checking (whether you are using the SYSTEM account, whether you have DECNET running, and so forth).

   If DECNET is active, or if there are any active processes, VMSINSTAL warns you and asks if it is okay to continue anyway.

3 CIMS for OpenVMS 's installation does not interfere with DECNET nor the active processes, so answer YES so that VMSINSTAL continues. VMSINSTAL then asks you if you have loaded the distribution kit on the device specified.

4 You should now physically mount (load) the distribution media on the drive to be used by VMSINSTAL specified as the second parameter to the command file (*HSC001$MFA0:* in our example above).

5 When the unit is ready, answer the "Are you ready?" question with YES.

VMSINSTAL now loads the ARSAP080.A saveset from the CIMS for OpenVMS distribution kit into a subdirectory it creates in the SYS$UPDATE directory and starts execution of the CIMS for OpenVMS Installation Command Procedure (KITINSTAL.COM).

The CIMS for OpenVMS installation command procedure performs some environment checking (such as making sure you are installing CIMS on a supported version of OpenVMS, whether you are installing on a VAX or an AXP, that there is enough disk space to load the product, and so forth) and begin asking you questions about the installation of CIMS for OpenVMS Version 8.0.9.

6 The first question is `Do you want to install ARSAP on OpenVMS? [YES]`.

Answer YES.

7 The second question is `Do you want to load the ARSAP for UNIX distribution? [NO]`.

Answer NO.

8 Because you are installing CIMS on OpenVMS, you are asked `Do you need to install any ARSAP for OpenVMS License PAK(s)? [YES]`.

Answer NO (you already did this when you installed CIMS on a VAX node in the mixed cluster).

9 The next question is `Are you installing ARSAP for the first time on this system? [NO]`.

You should answer `YES` even if you aren't installing `CIMS` for the first time on your `AXP`. If you are upgrading from `V07.0` or `V08.0.9`, you have already converted and updated the `CIMS` data files when you installed `CIMS` on the `VAX CPU`.

10 You can install `CIMS` for `OpenVMS` onto a disk and directory of your choice as long as the disk chosen is mounted at all times. Answer NO to `Do you want ARSAP installed in SYS$COMMON:[ARSAP]? [YES]` if you want to install `CIMS` other than in `SYS$COMMON:[ARSAP]`.

- If you answer `YES`, the actual installation of `CIMS` on `OpenVMS` begins.
- If you answer `NO`, you are prompted by `Enter target ARSAP device and directory [SYS$COMMON:[ARSAP]]`.

Note • You should enter the same device and directory for which you installed `CIMS` for `VAX` in the mixed `VAX` and `AXP` cluster.

Editing Procedures

To edit the system-wide login command procedure

1 If your `VAX` and `AXP` nodes in the cluster share the same system-wide login command procedure, you can skip this step because you performed this procedure when you installed `CIMS` earlier on a `VAX` node.

Otherwise, when the `VMSINSTAL` command file completes, you must modify the system-wide login command procedure (or set one up if it does not exist) to invoke the `CIMS` for `OpenVMS` login command procedure for each user during `OpenVMS` login.

Examine the logical SYS$SYLOGIN to determine the system-wide login command procedure's directory and name:

```
$ SHOW LOGICAL SYS$SYLOGIN
   "SYS$SYLOGIN" = "SYS$MANAGER:SYLOGIN.COM" (LNM$SYSTEM_TABLE)
```

2 Insert the following line into this file at an appropriate point:

```
$IF F$SEARCH("ARSAP$COM:ARSAP_LOGIN.COM") -
    .NES. "" THEN -
    @ARSAP$COM:ARSAP_LOGIN
```

If your system-wide login command procedure is not cluster-wide, you need to make the same modification to the system-wide login command procedure for each CPU node in the cluster.

3 After editing the System-Wide Login Command File, be sure that everyone has access to it as well as to the CIMS for OpenVMS login command procedure (world protection should be set to read and execution privileges).

4 Also be sure that the system-wide login command file disables Ctrl-Y at the beginning of the procedure and enables Ctrl-Y at the end. If Ctrl-Y is not disabled, a user can defeat the CIMS for OpenVMS login command procedure by continually repeating Ctrl-Ys after he has entered his password.

To edit the system-wide DECW login command procedure

1 If your VAX and AXP nodes in the cluster share the same system-wide DECW login command procedure, you can skip this section because you performed this step when you installed CIMS earlier on a VAX node.

Otherwise, if you use X-terminals or workstations with Motif at your site, you need to modify the system-wide DECW login command procedure (or set one up if it does not exist) to invoke the CIMS for OpenVMS DECW login command procedure for each X-terminal user during OpenVMS login.

The system-wide DECW login command procedure is the file DECW$SYLOGIN.COM in the SYS$MANAGER directory. Insert the following lines into this file at an appropriate point:

```
$ IF F$SEARCH("ARSAP$COM:ARSAP_DECW_LOGIN.COM")-
.NES. "" THEN -
@ARSAP$COM:ARSAP_DECW_LOGIN
```

2 After editing the DECW system-wide login command procedure, be sure that everyone has access to it as well as access to the CIMS for OpenVMS DECW login command procedure (world protection should be set to read and execution privileges).

To edit the System Start-up Command Procedure

1 If your VAX and AXP nodes in the cluster share the same system start-up command procedure, you can skip this section because you performed this step when you installed CIMS earlier on a VAX node.

Otherwise, for each CPU node in the cluster, modify its site-specific startup command procedure so that CIMS starts when the system reboots.

The site-specific startup command procedure has different names, depending upon the version of OpenVMS you are using. The site-specific startup command procedure file names are:

- SYS$MANAGER:SYSTARTUP_V5.COM - when you are using OpenVMS Version 5 on a VAX system
- SYS$MANAGER:SYSTARTUP_VMS.COM - when you are using OpenVMS Version 6 on a VAX system
- SYS$MANAGER:SYSTARTUP_VMS.COM - when you are using OpenVMS on an AXP system

Insert the following line into the file at an appropriate point:

```
$IF F$SEARCH(SYS$COMMON:[ARSAP.COM]START_ARSAP.COM-
    .NES. "" THEN-
    @SYS$COMMON:[ARSAP.COM]START_ARSAP
```

2 If you do not have CIMS for OpenVMS installed in the SYS$COMMON:[ARSAP] directory, you must modify the device and first-level directory definitions in the above line appropriately so that the Start CIMS for OpenVMS command procedure executes each time the system is rebooted.

Note • Under CIMS for OpenVMS Version 7.0, the first parameter was the queue and the second parameter was the flag.

Note • If DECNET is installed, CIMS for OpenVMS must be activated after DECNET is started. (Place the above line after the @SYS$MANAGER:STARTNET line). Because the Start CIMS for OpenVMS command procedure submits a batch job, you should insert it after commands that start and initialize your batch queues.

To edit the system shutdown command procedure

- If your VAX and AXP nodes in the cluster share the same system shutdown command procedure, you can skip this section because you performed this step when you installed CIMS earlier on a VAX node.

  Otherwise, for each CPU node in the cluster, modify the site specific shutdown command procedure (SYS$MANAGER:SYSHUTDWN.COM) so that CIMS for OpenVMS can be brought to a logical shutdown. Insert the following line into the file at an appropriate point:

```
$IF F$LOGICAL("ARSAP$DATA") .NES. "" THEN -
    @ARSAP$COM:STOP_ARSAP
```

Setting Required Values

To set CIMS for OpenVMS required user quotas

- If you do not have a shared OpenVMS Authorization File, use the OpenVMS AUTHORIZE Utility to set the ENQLM, FILLM and JTQUOTA values to the following minimum values:

  a All users of the OpenVMS system execute some of the CIMS for OpenVMS programs. Set he following minimum quota values for all OpenVMS users where CIMS for OpenVMS is installed:

  ```
  ENQLM = 20      FILLM = 10
  ```

  b If the user is going to log into the system using an X-Terminal, you must also set the following minimum quota value:

  ```
  JTQUOTA = 2048
  ```

To set CIMS for OpenVMS Required User Privileges

- Set the following user privileges

  a The CIMS for OpenVMS Administrator needs SYSPRV in order to run CIMS for OpenVMS utilities that are used to administer, process accounting data, and generate reports.

  b All other users need NETMBX as a minimum.

Setting CIMS for OpenVMS Required SYSGEN Parameter Values

When you start CIMS for OpenVMS, three images are installed for the following reasons:

- To reduce the overhead associated with invoking the images
- To reduce the memory requirements when more than one user is invoking one of the installed images
- To grant the user access to CIMS files which the user would normally not have access

- To reduce the overhead of accessing the CIMS for OpenVMS Parameter File by all CIMS for OpenVMS utilities

CIMS for OpenVMS installed images are written so that the user has access to only his own information.

The Start CIMS command procedure uses the OpenVMS INSTALL Utility to install the following images:

- ARSAP$RTL
- ARSAP$SHARED_COMMON
- ARSAP_DECW_LOGIN
- ARSAP_GPTBL
- ARSAP_LOGIN
- ARSAP_MYCOST
- ARSAP_SWITCH
- ARSAP_SUPER
- GEJAC$RTL

In order to ensure that there is sufficient room in the global page and the global section tables, the system SYSGEN parameters GBLPAGES (global pages) and GBLSECTIONS (global sections) must allow for CIMS for OpenVMS to use 1,498 on VAX or 2016 on AXP global pages and 26 on VAX or 15 on AXP global sections.

To display the number of global sections used and the number of global pages used and unused

- Enter the following commands:

```
$ INSTALL
INSTALL> LIST/GLOBAL
INSTALL> EXIT
$
```

The INSTALL Utility lists all known global sections, the number of global sections used, and the number of global pages used and unused.

To display the existing number of global sections available

- Enter the following commands:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> USE CURRENT
SYSGEN> SHOW GBLSECTIONS
SYSGEN> EXIT
$
```

The SYSGEN Utility displays the global sections data. The current maximum number of global sections is the first number.

CIMS for OpenVMS requires 2,016 global pages. If fewer than 2,016 global pages are unused, you can increase the number of global pages by deleting existing known images or by increasing the GBLPAGES system parameter with the SYSGEN Utility.

CIMS for OpenVMS requires 15 global sections. If all the global sections are used (compare the number shown by SYSGEN with the number currently used as shown by INSTALL), you must increase the number of available global sections by deleting an existing global section or by increasing the GBLSECTIONS parameter with the SYSGEN Utility.

Note that neither GBLPAGES nor GBLSECTIONS are dynamic SYSGEN parameters. If you must change either to accommodate CIMS for OpenVMS, you must reboot your system.

Starting CIMS for OpenVMS V08.0.9

To start CIMS for OpenVMS V08.0.9

Execute the Start CIMS for OpenVMS command procedure on each CPU node in the cluster as follows:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT/CLUSTER
SYSMAN> DO @SYS$COMMON:[ARSAP.COM]START_ARSAP
SYSMAN> EXIT
$
```

You must adjust the above Start CIMS for OpenVMS command procedure's directory appropriately if the Start CIMS for OpenVMS command procedure is not located in SYS$COMMON:[ARSAP.COM].

Cleaning Up

You might no longer need several files after CIMS has been successfully installed. If you want to recover the disk space used by these files, refer to *Description of Media Savesets* on page 1-5 and delete the files you no longer need after reading the individual file descriptions.

In the event you need a file that you have deleted, you can reload it from the distribution kit.

5

CIMS for OpenVMS Files

There are many files in the CIMS for OpenVMS product. You need some of them only during installation or when you must rebuild some portion of CIMS for OpenVMS. Other files are optional. This section describes the files on the distribution kit as well as files created during the installation process and indicate whether they can be deleted.

Files in ARSAP$COM Directory

The ARSAP$COM directory contains command files used in compiling, linking, starting, stopping, resubmitting, and loading CIMS for OpenVMS.

File	Description
ARSAP_DECW_ LOGIN.COM	The CIMS for OpenVMS DECW login command procedure is executed by the System-Wide DECW login command procedure by every X-terminal session logging onto the computer system. It defines some CIMS logicals and executes the CIMS for OpenVMS DECW_LOGIN utility. You cannot delete this file.
ARSAP_INSTALL_ PAK.COM	The CIMS for OpenVMS Install License PAK command procedure is executed by VMSINSTAL during CIMS installation when you request a license PAK. You can also use it after CIMS has been installed and started to load or modify CIMS license PAKs.
ARSAP_LOGIN.COM	The CIMS for OpenVMS Login command procedure is executed through the System-Wide login command procedure by every user logging onto the computer system. It defines some CIMS symbols and executes the CIMS for OpenVMS LOGIN utility. You cannot delete this file.
ARSAP_LOGOUT.COM	You have the option to execute the CIMS for OpenVMS logout command procedure when a user logs off the computer system. You can delete this file if it is not being used.
ARSAP_STORAGE_ SAMPLER.COM and IS_ARSAP_STORAGE_ SAMPLER_ON_ QUEUE.COM)	The CIMS for OpenVMS storage sampling command procedures perform the disk space sampling process. Storage data collection is usually performed through a batch process. You cannot delete these files.

File	Description
GEJAC.COM	The GEJAC command procedure file is used to compile and link the CIMS for OpenVMS product. It is also used to compile, link, and maintain user written CIMS for OpenVMS routines. If you need to conserve space, you can delete GEJAC.COM.
LINK_ORACLE.COM	The CIMS Link Oracle command procedure is used to link ARSAP Oracle. If you need to conserve disk space and you don't have Oracle for OpenVMS installed, you can delete LINK_ORACLE.COM.
SETUP_DB_TEMPLATE .COM	The CIMS Setup Database Template command procedure is used to design a template that users can use to pass special environment variables to pass to the detached process. If you need to conserve disk space and you don't have Oracle for OpenVMS installed, you can delete SETUP_DB_TEMPLATE.COM.
START_ARSAP.COM and START_ARSAP1.COM	The Start CIMS for OpenVMS command procedures are executed whenever you start CIMS. It defines some CIMS symbols and logicals and inserts the disk sampling procedure into the batch queue. You cannot delete this file.
START_DATABASE .COM	The CIMS Start Database command procedure is used to start an Oracle detached process. If you need to conserve disk space and you don't have Oracle for OpenVMS installed, you can delete START_DATABASE.COM.
STOP_ARSAP.COM	The Stop CIMS for OpenVMS command procedure file is executed through the system-wide shutdown command procedure each time the system is shutdown or any other time CIMS is stopped. It undefines all CIMS logicals, stops execution of the Real-Time Accounting Option images if Real-Time Accounting was enabled, and deletes the disk sampling procedure from the batch queue. You cannot delete this file.
STOP_DATABASE.COM	The CIMS Stop database command procedure is used to stop an Oracle detached process. If you need to conserve disk space and you don't have Oracle for OpenVMS installed, you can delete STOP_DATABASE.COM.

Files in ARSAP$DATA Directory

The ARSAP$DATA directory contains the CIMS for OpenVMS data files. Generally, files with an extension of .SYS are active CIMS for OpenVMS files, and files with an extension of .DAT are recreated when accounting information is reduced in preparation for reporting. There are exceptions to this, and you must not delete the .DAT files indiscriminately.

File	Description
A_TERMINALS.DAT	The CIMS for OpenVMS Terminal Collapsing File for UNIX contains definitions of those terminals who are to be collapsed into a single terminal name (usually with an asterisk). The file is an ASCII file and you can edit it with any text editor. A typical line in the file might contain ftp*, which would cause all terminals names that begin with ftp to be written to the terminal record ftp*. You should not delete this file.
ARSAP_A1_MAP.SYS	The CIMS for OpenVMS ALL-IN-1 Mapping File contains information used by the CIMS for OpenVMS ALL-IN-1 option to determine the meters that belong to a specific meter group. You cannot delete this file.
ARSAP_ACTIVITY.SYS	The CIMS for OpenVMS Activity File is used by the LOGIN and SWITCH utilities to support PROJECT accounting. It is also used by the ACTIVITY utility to generate daily brief user and project session reports. You cannot delete this file.
ARSAP_AUDIT.SYS	The CIMS for OpenVMS Audit File contains the audit data generated by the VMS_SELECT utility with the AUDIT command. The AUDIT utility uses this file to generate reports. This file is optional and generated only when you want to generate session-level detail reports.

File	Description
ARSAP_CAPACITY.SYS	The CIMS for OpenVMS Capacity File contains the CIMS for OpenVMS Capacity Planning database generated by the VMS_SELECT utility with the CAPACITY command. The CAPACITY_REPORT utility uses it to generate capacity planning reports. This file is optional and is generated only when you want to generate capacity planning reports.
ARSAP_DATABASE_BASE_MAP.SYS	The CIMS for OpenVMS Database Mapping File is used by the RESOURCE_REPORT, AUDIT, INVOICES, NT_SELECT and UNIX_SELECT utilities to support the DATABASE accounting feature. You cannot delete this file.
ARSAP_HOLIDAY.SYS	The CIMS for OpenVMS Holiday File contains the holidays defined by the CIMS administrator. You cannot delete this file.
ARSAP_IMAGE.SYS	The CIMS for OpenVMS Image File contains the CIMS for OpenVMS Image Reporting database generated by the VMS_SELECT utility with the IMAGE command. The IMAGE_REPORT utility uses it to generate image accounting reports. This file is optional and generated only when you want to generate image accounting reports using the IMAGE_REPORT utility.
ARSAP_IMAGE_MAP.SYS	The CIMS for OpenVMS Image Mapping File contains information used by the CIMS for OpenVMS Selective Image Accounting option to determine the images that should be monitored, as well as information about the images that belong to a specific software package. The CIMS for OpenVMS Proprietary Software Chargeback option and RATES Utility also use this file. You cannot delete this file.
ARSAP_ODB_INSTANCE_MAP.SYS	The CIMS for OpenVMS ODB Instance Mapping File is used by the SETUP, RESOURCE_REPORT, AUDIT, VMS_SELECT and INVOICES utilities to support the DATABASE accounting feature. You cannot delete this file.

File	Description
ARSAP_ODB_USER_MAP.SYS	The CIMS for OpenVMS ODB User Mapping File is used by the SETUP, RESOURCE_REPORT, AUDIT, VMS_SELECT, UNIX_SELECT, NT_SELECT and INVOICES utilities to support the DATABASE accounting feature. You cannot delete this file.
ARSAP_PROJECT_PATTERN.SYS	The CIMS for OpenVMS Project Pattern File contains project patterns used by the CIMS for OpenVMS SUPER utility. This file is required when the SUPER option is enabled.
ARSAP_QUEUE_MAP.SYS	The CIMS for OpenVMS Queue Mapping File contains mappings of print and batch queues to indexes used in various CIMS for OpenVMS files. You cannot delete this file.
ARSAP_RATES.SYS	The CIMS for OpenVMS Rates File contains USER and PROJECT account rate tables. You cannot delete this file.
ARSAP_RECURRING_CHARGES.SYS	The CIMS for OpenVMS Recurring Charges File contains the recurring charge items that are to be posted to the CIMS for OpenVMS Supplemental Charges File periodically. This file is required when the CIMS for OpenVMS Supplemental Charges option is enabled.
ARSAP_RESOURCE_MAP.SYS	The CIMS for OpenVMS Resource Mapping File contains resource codes and their descriptions used in implementing the CIMS user-defined resource feature. You cannot delete this file.
ARSAP_SETUP.SYS	The CIMS for OpenVMS Parameter File contains CIMS for OpenVMS system flags and parameters. You cannot delete this file.
ARSAP_STATISTICS.DAT	The merged CIMS for OpenVMS Statistics File is created during the data reduction and merging phase of CIMS report generation. It contains USER and PROJECT accounting statistical information. It is a mandatory file for the CIMS reporting programs, but you can delete it after you have generated the reports

File	Description
ARSAP_STATISTICS.SYS	The intermediate CIMS for OpenVMS Statistics File contains USER and PROJECT account statistics from the OpenVMS Accounting files. The VMS_SELECT or LOGGER utilities generate this file. If CIMS for OpenVMS 's Real-Time Accounting option is enabled, you cannot delete this file.
ARSAP_STORAGE.SYS	The CIMS for OpenVMS Storage File contains the disk space information for USER and PROJECT accounts collected and logged by the STORAGE SAMPLER Utility. You cannot delete this file. You should create a new file periodically to save disk space and processing time.
ARSAP_STORAGE_ MAP.SYS	The CIMS for OpenVMS Storage Mapping File contains mappings of UICs and OpenVMS identifiers to USER or PROJECT accounts. The file is not mandatory but the MERGE and STORAGE_UPDATE utilities use it to determine to whom the disk space should be allocated. You cannot delete this file.
ARSAP_STORAGE_ PARAMETER.SYS	The CIMS for OpenVMS Storage Parameter File contains the disk drives to be monitored by CIMS. You cannot delete this file.
ARSAP_SUPER.SYS	The CIMS for OpenVMS Super File contains user accounts that have been defined as Super Users. This file is required when the SUPER option is enabled.
ARSAP_SUPER_ PATTERN.SYS	The CIMS for OpenVMS Super Pattern File contains user account patterns. This file is required when the SUPER option is enabled.
ARSAP_SUPPLEMENTAL_ CHARGES.SYS	The CIMS for OpenVMS Supplemental Charges File contains the miscellaneous charges, payments, and adjustments when the CIMS for OpenVMS Supplemental Charges option is enabled. It is mandatory only when you have enabled the CIMS for OpenVMS Supplemental Charges option.

File	Description
ARSAP_SWITCH.SYS	The CIMS for OpenVMS Switch File is used by LOGIN and SWITCH utilities to support PROJECT accounting. You cannot delete this file.
ARSAP_SYNONYM.SYS	The CIMS for OpenVMS Synonym File contains synonym names for projects. This file is optional unless project accounting and the use of synonyms are enabled.
ARSAP_TERMINAL.SYS	The CIMS for OpenVMS Terminal File contains accounting information accumulated on a terminal-by-terminal basis. This file is mandatory only when the Terminal Accounting option is enabled.
ARSAP_TERMINAL_ COLLAPSING.DAT	The CIMS Terminal Collapsing File for OpenVMS contains definitions of those terminals that are to be collapsed into a single terminal name (usually with an asterisk). and you can edit it with any text editor. A typical line in the file might contain WSA*, which would cause all terminals names that begin with WSA to be written to the terminal record WSA*. You should not delete this file.
ARSAP_TERMINAL_ PARAMETER.SYS	The CIMS for OpenVMS Terminal Parameter File contains terminal parameter information by terminal. It is mandatory only when the CIMS for OpenVMS Terminal Accounting option is enabled.
ARSAP_UAF.SYS	The CIMS for OpenVMS Authorization File contains USER and PROJECT account flags and parameters. You cannot delete this file.
ARSAP_VALIDATE.SYS	The CIMS for OpenVMS Validation File contains user and project name associations used to implement the user/project validation method. It is mandatory when the CIMS for OpenVMS Project Validation option is enabled.

File	Description
IPS_P_DEFINITIONS .DAT	This is a standard text file that you can edit using a text editor. The file contains plot queue names currently being used. As new plot queues are added to your system, you must enter them into this file. If the Intergraph Tracking option is not enabled, you can delete this file.
PLOT_UNITS.DAT	This is a standard text file containing on separate lines the plot dimension that can be in use at a particular site. The line contains a user-supplied factor that normalizes a statistic for a plot job to an equivalent statistic in the declared dimension. If the Intergraph Tracking option is not enabled, you can delete this file.

Files in ARSAP$ERRORLOG Directory

The ARSAP$ERRORLOG directory contains the CIMS for OpenVMS error log files generated by certain CIMS utilities.

CIMS for OpenVMS Intercept Error Log Files

The CIMS for OpenVMS Intercept Error Log files (ARSAP_INTERCEPT.ERR and ARSAP_INTERCEPT.LOG) contain information from the CIMS for OpenVMS INTERCEPT Utility logged by Intercept including error messages and tracebacks for problems not handled by Intercept. These files should not be deleted until they have been reviewed.

CIMS for OpenVMS Logger Error Log Files

The CIMS for OpenVMS Logger Error Log files (ARSAP_LOGGER.ERR and ARSAP_LOGGER.LOG) contain information from the CIMS for OpenVMS LOGGER Utility logged by Logger including error messages and tracebacks for problems not handled by Logger. These files should not be deleted until they have been reviewed.

CIMS for OpenVMS Snapshot Error Log Files

The CIMS for OpenVMS Snapshot Error Log files (ARSAP_SNAPSHOT.ERR and ARSAP_SNAPSHOT.LOG) contain information from the CIMS for OpenVMS SNAPSHOT Utility logged by Snapshot including error messages and tracebacks for problems not handled by Snapshot. These files should not be deleted until they have been reviewed.

CIMS for OpenVMS ODB Database Error Log Files

The CIMS for OpenVMS ODB Database Error log files (ARSAP_ODB_DATABASE.ERR and ARSAP_ODB_DATABASE.LOG) contain information from CIMS for OpenVMS DATABASE Utility logged by the Database detached process. These include all error messages and tracebacks for problems not handled by the DATABASE Utility.

Files in ARSAP$EXAMPLES Directory

The files in this directory are example command procedures and programs to assist you in writing custom command procedures and programs for your site. They are not intended to be anything other than examples.

Files in ARSAP$EXE Directory

The ARSAP$EXE directory contains files that are the executable images portion of the CIMS product. All these files are mandatory and you cannot delete them.

Note that there are two ARSAP$EXE directories in mixed AXP and VAX clusters. The AXP nodes have their ARSAP$EXE pointed to the directory that contain executables for AXP, and the VAX nodes have their ARSAP$EXE pointed to the directory that contain executables for VAX nodes.

Files in ARSAP$FDL Directory

The ARSAP$FDL directory contains the ARSAP FDL files that CIMS utilities use to create CIMS data files. Do not alter any of these files.

File	Description
ARSAP_SUPER.FDL	The CIMS for OpenVMS Super FDL File contains the FDL definitions used to create the CIMS for OpenVMS Super File. It is mandatory only when you have enabled the CIMS for OpenVMS Super option.

File	Description
ARSAP_SUPPLEMENTAL_CHARGES.FDL	The CIMS for OpenVMS Supplemental Charges FDL File contains the FDL definitions used to create the CIMS for OpenVMS Supplemental Charges File. It is mandatory only when you have enabled the CIMS for OpenVMS Supplemental Charges option.
ARSAP_SWITCH.FDL	The CIMS for OpenVMS Switch FDL File contains the FDL definitions used to create the CIMS for OpenVMS Switch File. It is mandatory only when you have enabled the CIMS for OpenVMS Project Accounting option.

Files in ARSAP$HELP Directory

The ARSAP$HELP directory contains files that are the help libraries portion of the CIMS product for all the various CIMS utilities. You should consider these files mandatory, but you could delete them.

Files in ARSAP$LIBRARY Directory

The ARSAP$LIBRARY directory contains object and text libraries that are not specific to a CIMS utility delivered with the CIMS product. In addition, it contains INVOICES format definition files used to define the format of the output of INVOICES. You should not delete these files.

Files in ARSAP$OBJECT Directory

The ARSAP$OBJECT directory contains files that are the objects portion of the CIMS for OpenVMS product. These object libraries are used when you relink a CIMS utility. All these files are optional and are good candidates to delete after the product is successfully installed. You can recover approximately 19,000 blocks on VAX and 40,000 blocks on AXP processors by removing these files.

Files in ARSAP$PRIVATE Directory

The ARSAP$PRIVATE directory contains files that cannot be shared with other CPU nodes in a cluster environment. The directory must be in the CPU node's SYS$SPECIFIC directory structure.

File	Description
ARSAP_RECOVER.SYS	The CIMS for OpenVMS Recovery File contains accounting information used to recover accounting data if the computer system crashes. This file is required for the CIMS product to operate correctly and you cannot delete it when the CIMS for OpenVMS Accounting Crash Recovery option is enabled.
ARSAP_SWITCH.SYS	The CIMS for OpenVMS Switch File contains information used by CIMS when a user account changes (switches) projects without logging off. You cannot delete this file.

Files in ARSAP$SOURCE Directory

The CIMS Lab distributes selected source modules of CIMS for OpenVMS as part of the CIMS for OpenVMS distribution kit so you can customize CIMS from within the CIMS product.

CIMS for OpenVMS RTL Library Sources

Source code of selected CIMS for OpenVMS RTL routines are in the ARSAPRTL.TLB source library. The modules included are:

- ARSAP$CALCULATE_MEMORY_DEMAND - FORTRAN source code of routine that calculates the memory demand statistic for the VMS_SELECT and LOGGER utilities.
- ARSAP$CALC_UNIX_MEMORY_DEMAND - FORTRAN source code of routine that calculates the memory demand statistic for the CIMS for OpenVMS UNIX_SELECT Utility.

- ARSAP$CALCULATE_SHIFT_QUEUE_NUM - FORTRAN source code of routine used by the utilities LOGGER and VMS_SELECT that calculates the shift or queue number slot for the user or project files.
- ARSAP$CUSTOM_PROJ_VALIDATION - FORTRAN source code of the routine used by ARSAP$GET_PROJECT that validates the project from within a batch or interactive job if the project validation method is set to CUSTOM.
- ARSAP$GET_PROJECT - FORTRAN source code of the routine used by LOGIN and SWITCH that gets the project from within a batch or interactive job.
- ARSAP$GET_PROJECT_PARTS - FORTRAN source code of the routine used by CIMS for OpenVMS to allow for multi-level project prompting.
- ARSAP$IDLE_PROCESS - FORTRAN source code of the routine used by SNAPSHOT to determine if a process is idle.
- ARSAP$TEST_IF_VALID_PROJ - FORTRAN source code of the routine used by CIMS for OpenVMS to determine the validity of the characters used in a project name.
- ARSAP$TEST_IF_VALID_WILDPROJ - FORTRAN source code of the routine used by CIMS for OpenVMS to determine the validity of the characters used in a wildcarded project name.

CIMS for OpenVMS INVOICES Utility Sources

Source code of selected CIMS for OpenVMS INVOICES Utility routines are in the ARSAP_INVOICES.TLB source library. The modules included are:

- INVCE_EXTERNAL_ERRORS.CMN - FORTRAN source code of CIMS for OpenVMS INVOICES Utility error messages declaration for inclusion in FORTRAN code for utility.
- INVCE_GLOBAL_VARIABLES.CMN - source code of CIMS for OpenVMS INVOICES Utility global variables declaration for inclusion in FORTRAN code for utility.

- INVCE_PASS5.FOR - FORTRAN source code of CIMS for OpenVMS INVOICES PASS5.FOR routine.
- INVCE_SORT_DEFINITIONS.CMN - FORTRAN source code of CIMS for OpenVMS INVOICES Utility sort variable declarations for inclusion in FORTRAN code for utility.

Files in ARSAP$STRINGS Directory

The ARSAP$STRINGS directory contains string definition files used by CIMS utilities for string definitions when displaying text on the screen or writing text to an output file. Using these files, you can define your own output. This is especially useful for customizing CIMS with non-English text.

File	Description
ARSAP_SETUP_STRINGS.TXT	The CIMS for OpenVMS SETUP Strings File contains string definitions that the CIMS for OpenVMS SETUP Utility uses when displaying reports to the screen or to an output file. You cannot delete this file.
ARSAP_AUTHORIZE_STRINGS.TXT	The CIMS for OpenVMS Authorize Strings File contains string definitions that the CIMS for OpenVMS AUTHORIZE Utility uses when displaying reports to the screen or to an output file. You cannot delete this file.