COM for HP OpenVMS Installation Guide

July 2004

This document contains instructions for installing COM Version 1.4 for OpenVMS Alpha.

Revision/Update Information:	This document supersedes the COM for OpenVMS Installation Guide, Version 1.3.
Software Version:	COM Version 1.4 for HP OpenVMS
Operating System:	OpenVMS Alpha Version 7.3-1 or higher Microsoft Windows NT 4.0 SP5 or higher OR Microsoft Windows 2000 SP4 or higher

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Palo Alto, California

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Printed in the U.S.

ZK6539

This document was prepared using DECdocument, Version 3.3-1b.

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Preface

Related Documents

This document contains instructions on installing COM Version 1.4 for OpenVMS Alpha.

See the *COM, Registry, and Events for HP OpenVMS Developer's Guide* for information about using COM after you have installed the kit.

The *COM, Registry, and Events for HP OpenVMS Developer's Guide* is included in HTML, PDF, and PostScript format in the COM for OpenVMS kit in the [SYSHLP] directory, and is also available from the COM for OpenVMS website at the following location:

`http://h71000.www7.hp.com/openvms/products/dcom/`

For additional information about HP OpenVMS products and services, visit the following World Wide Web address:

`http://www.hp.com/go/openvms`

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`http://www.hp.com/go/openvms/doc/order`

1
Installing the COM for OpenVMS Kit

This chapter provides a list of the contents of the COM for OpenVMS kit, a list of prerequisite software, and preinstallation requirements. It also describes how to install COM for OpenVMS and includes postinstallation instructions.

1.1 Contents of the COM Version 1.4 for OpenVMS Kit

COM Version 1.4 for OpenVMS contains the following:

- Software
  - — COM for OpenVMS run-time libraries
  - — COM for OpenVMS MIDL compiler and header files
  - — COM for OpenVMS configuration utilities
  - — Active Template Library Version 3.0
  - — Sample applications
- Documentation
  - — *COM, Registry, and Events for HP OpenVMS Developer's Guide* (in PostScript, HTML, and PDF formats)

1.2 Prerequisites

The following software is required:

- For OpenVMS systems
  - — OpenVMS Version 7.3-1 or higher
  - — For Windows 2000 Interoperability:
    The most recent DCE$LIB_SHR.EXE (available from your support center).
  - — For COM for OpenVMS application development:
    Recommended: HP C++ Version 6.5 or higher
    Minimum requirement: Compaq C++ Version 6.0 or higher

    To build ATL applications on OpenVMS:
    Compaq C++ Version 6.2-016 or higher
  - — HP TCP/IP Services for OpenVMS Version 5.0 or equivalent
  - — HP Advanced Server for OpenVMS Version 7.3 or higher

    (HP Advanced Server for OpenVMS is not required if you are running COM for OpenVMS in unauthenticated mode.)

— Before installing COM for OpenVMS check that you have the required free global pages, global sections, and disk blocks. The following table lists the requirements.

Software	Global pages	Global sections	Disk blocks
COM for OpenVMS	11,000	27	34000
RPC Runtime	3,300	14	N/A

For Advanced Server requirements: See the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide*.
For TCP/IP requirements: See the *HP TCP/IP Services for OpenVMS Installation and Configuration* document.

- For Windows systems
  - — Windows NT 4.0 with Service Pack 5 or higher installed

    OR
  - — Windows 2000 with Service Pack 4 or higher installed
  - — Microsoft Visual C++ or Visual Basic (for Windows client development and information about MIDL compiler). See the Microsoft website for compiler version requirements.
  - — TCP/IP enabled (needed for OpenVMS connectivity)

1.3 Supported COM for OpenVMS Installations

The following sections describe COM Version 1.4 for OpenVMS installation and upgrade options.

Note

If you want to run COM Version 1.4 for OpenVMS in unauthenticated mode, see Appendix E in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

If you want to do this	Read this section
Install COM for OpenVMS on an OpenVMS standalone system for the first time.	Section 1.4
Install COM for OpenVMS on an OpenVMS Cluster system for the first time.	Section 1.6
Upgrade from earlier versions of COM for OpenVMS on an OpenVMS standalone system.	Section 1.5
Upgrade from earlier versions of COM for OpenVMS on an OpenVMS Cluster system.	Section 1.7

1.4 Installing COM for OpenVMS on an OpenVMS Standalone System

Use the following procedure:

1.4 Installing COM for OpenVMS on an OpenVMS Standalone System

1. Install OpenVMS Version 7.3-1 or higher. For this procedure, see the *OpenVMS Alpha Version 7.x Upgrade and Installation Manual.*
2. Install TCP/IP Services. For this procedure, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
3. Boot the installed system from the system disk.
4. Install COM Version 1.4 for OpenVMS. For this procedure, see Section 1.11.
5. Install HP Advanced Server for OpenVMS. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*
6. Configure TCP/IP Services (set up for startup and reboot); then start TCP/IP. You must configure the PWIP driver for HP Advanced Server for OpenVMS to use TCP/IP Services. For information about configuring TCP/IP, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
7. Configure the OpenVMS Registry as follows:
   - Run `REG$CONFIG.COM` to configure the OpenVMS Registry.
   - Edit the `SYLOGICALS.COM` file to define the `SYS$REGISTRY` logical as follows:

     ```
     $ DEFINE/SYSTEM SYS$REGISTRY directory-specification
     ```
8. Start OpenVMS Registry by running the `REG$STARTUP.COM` file.
9. If you want to run DCE, start DCE now.

   Note

   You do not need DCE to run COM for OpenVMS, but if your environment uses DCE, HP recommends that you start DCE now.

   For this procedure, see the *Compaq DCE Installation and Configuration Guide.*

   For more information about OpenVMS external authentication, see Section 5.1 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.
10. Configure HP Advanced Server for OpenVMS. You may need to reboot, depending on your system configuration. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*
11. Start HP Advanced Server for OpenVMS (set up for startup on reboot). For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*
12. Start the ACME server. Use the following command:

    ```
    $ @SYS$STARTUP:NTA$STARTUP_NT_ACME
    ```
13. Start RPC. Use the following command:

    ```
    $ @SYS$STARTUP:DCE$RPC_STARTUP.COM
    ```

14. Configure COM for OpenVMS. For this procedure, see Section 1.12 and Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

    - Populate the OpenVMS Registry. For this procedure, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 3 to populate the OpenVMS Registry database.
    - Create any OpenVMS and HP Advanced Server for OpenVMS accounts needed by the COM for OpenVMS Service Control Manager. For more information, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 8 to create the accounts.

15. Edit the SYS$MANAGER:SYLOGICALS.COM file and add the following line:

```
$ DEFINE DCOM$TO_BE_STARTED TRUE
```

16. Start COM for OpenVMS. For this procedure, see Section 1.13.

1.5 Upgrading COM for OpenVMS on an OpenVMS Standalone System

Note

Before you start, HP recommends that you disable any HP Advanced Server for OpenVMS, OpenVMS Registry, and layered product automatic startups so that these products do not start until you have upgraded COM for OpenVMS and its associated components.

Use the following procedure:

1. Edit the SYLOGICALS.COM file to stop the following products from starting:
    - OpenVMS Registry (comment the line DEFINE/SYSTEM REG$TO_BE_STARTED TRUE)
    - COM for OpenVMS (comment the line DEFINE DCOM$TO_BE_STARTED TRUE)
2. Edit the SYS$STARTUP:SYSTARTUP_VMS.COM file to stop the following products from starting:
    - HP Advanced Server for OpenVMS (comment the line @SYS$STARTUP:PWRK$STARTUP.COM).

If COM for OpenVMS is currently running, shut down COM for OpenVMS first, HP Advanced Server for OpenVMS (if running), and then the OpenVMS Registry.

Use the following procedure:

1. Upgrade to OpenVMS Version 7.3-1 or higher. For this procedure, see the *OpenVMS Alpha Version 7.x Upgrade and Installation Manual.*
2. If you need to upgrade TCP/IP, upgrade TCP/IP now. For this procedure, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
3. Boot the upgraded system from the system disk.
4. Upgrade COM for OpenVMS. For this procedure, see Section 1.11.

5. Install or upgrade HP Advanced Server for OpenVMS. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*
6. Start TCP/IP unless you have enabled TCP/IP to start on a reboot. For this procedure, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
7. Start the OpenVMS Registry unless you have enabled the OpenVMS Registry to start on a reboot.
8. If you want to run DCE, start DCE now.

   Note

   You do not need DCE to run COM for OpenVMS, but if your environment uses DCE, HP recommends that you start DCE now.

   For this procedure, see the *Compaq DCE Installation and Configuration Guide.*

   For more information about OpenVMS external authentication, see Section 5.1 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.
9. Configure HP Advanced Server for OpenVMS. You may need to reboot, depending on your system configuration. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*
10. Start HP Advanced Server for OpenVMS (set up for startup on reboot). For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*
11. Start the ACME server. Use the following command:

    ```
    $ @SYS$STARTUP:NTA$STARTUP_NT_ACME
    ```
12. Start RPC. Use the following command:

    ```
    $ @SYS$STARTUP:DCE$RPC_STARTUP.COM
    ```
13. See Appendix D in the COM, Registry, and Events for HP OpenVMS Developer's Guide for detailed information about upgrading from COM Version 1.0 for OpenVMS to COM Version 1.4 for OpenVMS.
14. Configure COM for OpenVMS. For this procedure, see Section 1.12 and Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.
    - Populate the OpenVMS Registry. For this procedure, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 3 to populate the OpenVMS Registry database.
    - Create any OpenVMS and HP Advanced Server for OpenVMS accounts needed by the COM for OpenVMS Service Control Manager. For more information, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 8 to create the accounts.
15. Edit the `SYLOGICALS.COM` file and add the following line:

    ```
    $ DEFINE DCOM$TO_BE_STARTED TRUE
    ```
16. Start COM for OpenVMS. For this procedure, see Section 1.13.

1.6 Installing COM for OpenVMS on an OpenVMS Cluster

Note

This cluster installation procedure assumes you are installing COM for OpenVMS on a single system disk.

Use the following procedure:

1. Install OpenVMS Version 7.3-1 or higher on all system disks as required. For this procedure, see the *OpenVMS Alpha Version 7.x Upgrade and Installation Manual.*
2. Install TCP/IP. For this procedure, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
3. Boot the installed system from the system disk.
4. Install COM Version 1.4 for OpenVMS. For this procedure, see Section 1.11.
5. Install HP Advanced Server for OpenVMS on this node in the cluster. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*

Note

You must install HP Advanced Server for OpenVMS on at least one Alpha node in the cluster. On the other nodes, you can either install HP Advanced Server for OpenVMS or select `External Authentication images (only)`.

6. Configure TCP/IP (set up for startup on reboot on each node) and start TCP/IP. You must configure the PWIP driver for HP Advanced Server for OpenVMS to use TCP/IP. For information about configuring TCP/IP, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
7. Configure the OpenVMS Registry:
   - Run `REG$CONFIG.COM` to configure the OpenVMS Registry. You need to configure the OpenVMS Registry only once for the cluster.
   - Set the `SYS$REGISTRY` logical to `DEFINE/SYSTEM` on every Alpha node in the cluster that will run the OpenVMS Registry server.
   - Edit the `SYLOGICALS.COM` file on every node in the cluster as follows:
     — If the cluster uses a single, cluster-common `SYLOGICALS.COM` file that is called by each node's `SYLOGICALS.COM` file, you do not need to make any changes.
     — On those nodes where you do not want the OpenVMS Registry server to run, add the following line to the `SYLOGICALS.COM` file:

```
$ DEFINE/SYSTEM REG$TO_BE_STARTED FALSE
```

     HP Advanced Server for OpenVMS requires that the OpenVMS Registry be running on a node in the cluster.

8. Configure DCE.

   Note

   You do not need DCE to run COM for OpenVMS, but if your environment uses DCE, HP recommends that you start DCE now.

   For this procedure, see the *Compaq DCE Installation and Configuration Guide.*

9. If you want to run DCE, start DCE now. You must configure DCE on each node on which you want to run DCE.

   For more information about OpenVMS external authentication, see Section 5.1 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

10. Configure and start HP Advanced Server for OpenVMS. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*

    If this node is running HP Advanced Server for OpenVMS, set up HP Advanced Server for OpenVMS for startup on reboot (edit the `SYS$MANAGER:SYSTARTUP_VMS.COM` file as necessary).

    If this node is not running HP Advanced Server for OpenVMS, edit the `SYLOGICALS.COM` file and define the `PWRK$ACME_SERVER` logical. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.* For more information about the `PWRK$ACME_SERVER` logical, see Table 8-2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

11. Start the ACME server. Use the following command:

    ```
    $ @SYS$STARTUP:NTA$STARTUP_NT_ACME
    ```

12. Start RPC. Use the following command:

    ```
    $ @SYS$STARTUP:DCE$RPC_STARTUP.COM
    ```

13. Configure COM for OpenVMS. For this procedure, see Section 1.12 and Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

    - Populate the OpenVMS Registry. For this procedure, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 3 to populate the OpenVMS Registry database. You need to populate the OpenVMS Registry only once in a cluster.
    - Create any OpenVMS and HP Advanced Server for OpenVMS accounts needed by the COM for OpenVMS Service Control Manager. For more information, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 8 to create the accounts. You need to create these accounts only once in a cluster.

14. Edit the `SYLOGICALS.COM` file and add the following line:

    ```
    $ DEFINE DCOM$TO_BE_STARTED TRUE
    ```

15. Start COM for OpenVMS. For this procedure, see Section 1.13.

1.7 Upgrading COM for OpenVMS in an OpenVMS Cluster

Note

This cluster upgrade procedure assumes you are installing COM for OpenVMS on a single system disk.

Note

Before you start, HP recommends that you disable any HP Advanced Server for OpenVMS and layered products automatic startups so these products do not start until you have upgraded COM for OpenVMS and its associated components.

Use the following procedure:

1. Edit the `SYLOGICALS.COM` file to stop the following products from starting:
   - OpenVMS Registry (comment the line `DEFINE/SYSTEM REG$TO_BE_STARTED TRUE`)
   - COM for OpenVMS (comment the line `DEFINE DCOM$TO_BE_STARTED TRUE`)
2. Edit the `SYS$STARTUP:SYSTARTUP_VMS.COM` file to stop the following products from starting:
   — HP Advanced Server for OpenVMS (comment the line `@SYS$STARTUP:PWRK$STARTUP.COM`)

If COM for OpenVMS is currently running, shut down COM for OpenVMS first, HP Advanced Server for OpenVMS (if running), and then the OpenVMS Registry on all nodes in the cluster.

Use the following procedure:

1. Upgrade to OpenVMS Version 7.3-1 or higher on all required system disks. For this procedure, see the *OpenVMS Alpha Version 7.x Upgrade and Installation Manual.*
2. Upgrade TCP/IP. For this procedure, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
3. Boot the upgraded system from the system disk.
4. Upgrade to COM Version 1.4 for OpenVMS. For this procedure, see Section 1.11.
5. Upgrade HP Advanced Server for OpenVMS on this node in the cluster. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*

Note

You must install HP Advanced Server for OpenVMS on at least one Alpha node in the cluster. On the other nodes, you can either install

HP Advanced Server for OpenVMS or select `External Authentication images (only)`.

---

6. Configure TCP/IP (set up for startup on reboot on each node). You must configure the PWIP driver for HP Advanced Server for OpenVMS to use TCP/IP. For information about configuring TCP/IP, see the *HP TCP/IP Services for OpenVMS Installation and Configuration* manual or your TCP/IP supplier's documentation.
7. Configure the OpenVMS Registry as follows:
   - Run `REG$CONFIG.COM` to configure the OpenVMS Registry. You need to configure the OpenVMS Registry only once for the cluster.
   - Edit the `SYLOGICALS.COM` file on every node that will run the OpenVMS Registry server to define the `SYS$REGISTRY` logical. For example:

     ```
     $ DEFINE/SYSTEM SYS$REGISTRY cluster-visible-directory-specification
     ```

     Edit the `SYLOGICALS.COM` file on every node in the cluster as follows:
     — If the cluster uses a single, cluster-common `SYLOGICALS.COM` file that is called by each node's `SYLOGICALS.COM` file, you do not need to make any changes.
     — On those nodes where you do not want the OpenVMS Registry server to run, add the following line to the `SYLOGICALS.COM` file:

     ```
     $ DEFINE/SYSTEM REG$TO_BE_STARTED FALSE
     ```
8. Configure and start HP Advanced Server for OpenVMS. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.*

   If this node is running HP Advanced Server for OpenVMS, set up HP Advanced Server for OpenVMS for startup on reboot (edit the SYS$STARTUP file as necessary).

   If this node is not running HP Advanced Server for OpenVMS, edit the `SYLOGICALS.COM` file and define the `PWRK$ACME_SERVER` logical. For this procedure, see the *HP Advanced Server for OpenVMS Server Installation and Configuration Guide.* For more information about the `PWRK$ACME_SERVER` logical, see Table 8-2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.
9. Start the ACME server. Use the following command:

   ```
   $ @SYS$STARTUP:NTA$STARTUP_NT_ACME
   ```
10. Start RPC. Use the following command:

    ```
    $ @SYS$STARTUP:DCE$RPC_STARTUP.COM
    ```
11. See Appendix D in the COM, Registry, and Events for HP OpenVMS Developer's Guide for detailed information about upgrading from COM Version 1.0 for OpenVMS to COM Version 1.4 for OpenVMS.
12. Configure COM for OpenVMS. For this procedure, see Section 1.12 and Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.
    - Populate the OpenVMS Registry. For this procedure, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

Use option 3 to populate the OpenVMS Registry database. You need to populate the OpenVMS Registry only once in a cluster.

- Create any OpenVMS and HP Advanced Server for OpenVMS accounts needed by the COM for OpenVMS Service Control Manager. For more information, see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide. Use option 8 to create the accounts. You need to create these accounts only once in a cluster.

13. Edit the SYLOGICALS.COM file and add the following line:

```
$ DEFINE DCOM$TO_BE_STARTED TRUE
```

14. Start COM for OpenVMS on a particular node. For this procedure, see Section 1.13.

1.8 Defining Shortcut Commands for COM for OpenVMS

COM for OpenVMS provides a command procedure that defines shortcut commands for many regular COM commands.

Add the following command to your login command procedure, or execute the command line after logging in:

```
$  @SYS$STARTUP:DCOM$DEFINE_COMMANDS.COM
```

SYS$STARTUP:DCOM$DEFINE_COMMANDS.COM defines the following commands:

```
$ DCOMSTA*RT    :== @SYS$STARTUP:DCOM$STARTUP.COM
$ DCOMSTO*P     :== @SYS$STARTUP:DCOM$SHUTDOWN.COM
$ DCOMSTOPN*O   :== @SYS$STARTUP:DCOM$SHUTDOWN.COM NOCONFIRM
$ DCOMSE*TUP    :== @SYS$STARTUP:DCOM$SETUP.COM
$ DCOMC*NFG     :== $SYS$SYSTEM:DCOM$CNFG.EXE
$ DCOMT*OOL     :== $SYS$SYSTEM:DCOM$TOOL.EXE
$ NTLOG*ON      :== $SYS$SYSTEM:NTA$LOGON.EXE
$ DCOMOUT       :== TYPE/PAGE SYS$MANAGER:DCOM$RPCSS.OUT
$ DCOMEV*ENTS   :== TYPE/PAGE SYS$MANAGER:DCOM$EVENTLOG.RPT
$ DCOMVER       :== $SYS$SYSTEM:DCOM$TOOL.EXE SHOW VERSION
$ DCOMER*ROR    :== $SYS$SYSTEM:DCOM$TOOL.EXE SHOW ERROR
```

1.9 Checking the COM for OpenVMS Version

With COM Version 1.3 or higher for OpenVMS, you can view the currently installed version of COM. To do so, invoke the following command:

```
$ DCOM$TOOL == "$DCOM$TOOL"
$ DCOM$TOOL SHOW VERSION
```

For more ways to use to the DCOM$TOOL Utility, see Section 7.6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

1.10 Understanding the COM for OpenVMS Environment

COM for OpenVMS relies on a number of interrelated servers (processes) and operating system images. In most cases, the servers start automatically when you restart the system. (Automatic startup requires that you have installed and configured each component and have made appropriate changes to the SYLOGICALS.COM file.) For more information about starting and configuring the servers, see Section 1.3.

Figure 1–1 shows the relationships and dependencies of the processes and operating system layers.

Figure 1–1 Interrelationships Among Processes and Layers

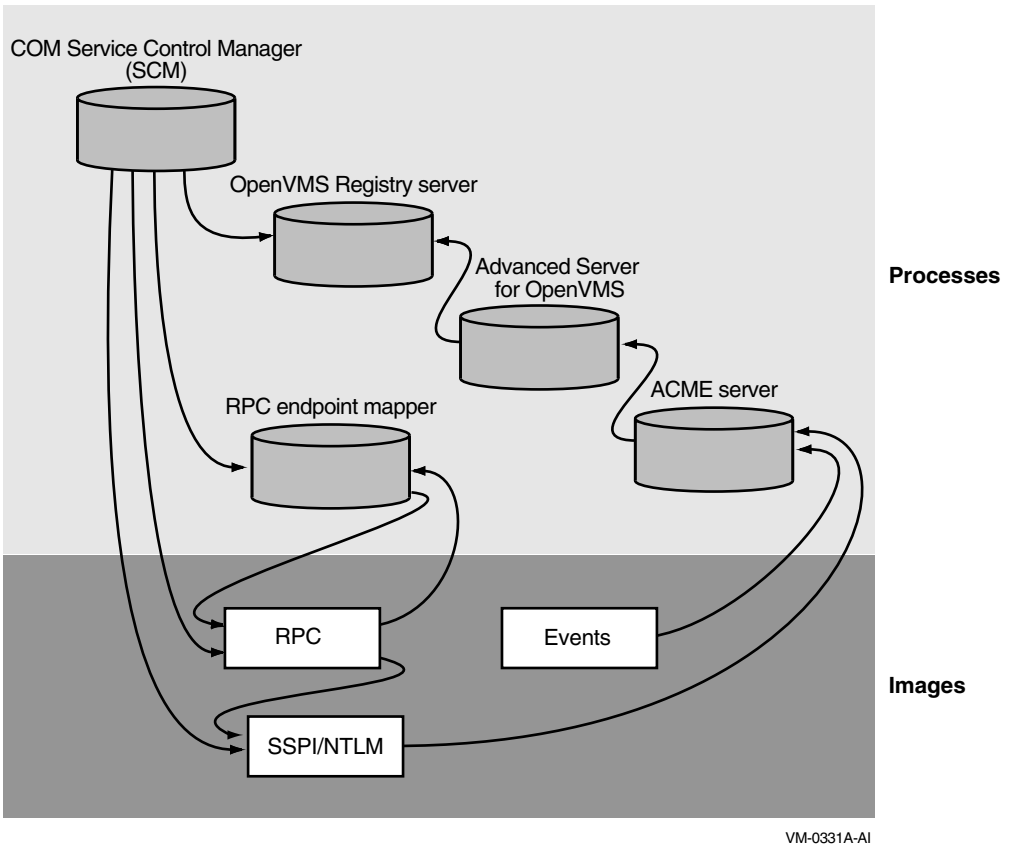

Table 1–1 lists the process names and maps each name to its corresponding server.

Table 1–1 Process Name to Server Name Mapping

Process name	Server name	For more information
DCOM$RPCSS	COM for OpenVMS Service Control Manager (SCM)	Section 1.10.1
REGISTRY_ SERVER	OpenVMS Registry server	Section 1.10.2
PWRK*xxx*	HP Advanced Server for OpenVMS server (multiple processes)	Section 1.10.3
ACME_SERVER	ACME server	Section 1.10.4
DCE$DCED	RPC endpoint mapper	Section 1.10.5

The following sections list and describe the servers and the layers.

1.10.1 COM for OpenVMS Service Control Manager (SCM)

The COM for OpenVMS Service Control Manager enables COM for OpenVMS.

Process name: DCOM$RPCSS

Requires: OpenVMS Registry, OpenVMS (RPC and SSPI/NTLM layers)

Required by: COM applications

Configured by: DCOM$SETUP. See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

Started by: DCOM$SETUP, option 4. See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

Shutdown procedure: DCOM$SETUP, option 5. See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

1.10.2 OpenVMS Registry Server

The OpenVMS Registry server manages the OpenVMS Registry database.

Process name: REGISTRY_SERVER

Requires: None.

Required by: COM for OpenVMS, HP Advanced Server for OpenVMS

Configured by: REG$CONFIG.

Started by: REG$STARTUP. See Section 13.3.1 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

Shutdown procedure: SET SERVER REGISTRY_SERVER/EXIT. For more information, see Section 13.4 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

1.10.3 HP Advanced Server for OpenVMS Server

The HP Advanced Server for OpenVMS server enables OpenVMS to act as a Windows NTLM domain controller.

The ACME server requires the PWRK$MSV1_0_ACMESHR ACME agent image to talk with the local or remote PWRK$LMSRV process.

Requires: OpenVMS Registry

Required by: ACME server

Configured by: PWRK$CONFIG

Started by: PWRK$STARTUP

Shutdown procedure: PWRK$SHUTDOWN

For more information, see the *HP PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*.

1.10.4 ACME Server

The ACME server controls the granting of credentials.

Process name: ACME_SERVER

Requires: HP Advanced Server for OpenVMS

Required by: OpenVMS (RPC and SSPI/NTLM layers) and OpenVMS Events

Started:

- Automatically when COM for OpenVMS is started
- You can also start the ACME server manually by entering the following command:

```
$ @SYS$STARTUP:NTA$STARTUP_NT_ACME
```

Shutdown procedures (both are valid):

```
$ SET SERVER ACME /CANCEL /EXIT

$ SET SERVER ACME /DISABLE /CANCEL
$ SET SERVER ACME /ENABLE=(NAME=VMS)
```

For more information, see Section 8.3.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

1.10.5 RPC Endpoint Mapper

The RPC endpoint mapper controls authentication and security.

Process name: DCE$DCED

Requires: RPC image

Required by: COM for OpenVMS Service Control Manager, RPC image

Started by: OpenVMS

Shutdown procedure: Use the following command procedure:

```
$ @SYS$STARTUP:DCE$RPC_SHUTDOWN.COM
```

For more information, see the *Compaq DCE Installation and Configuration Guide*.

1.10.6 RPC and SSPI/NTLM Layers

The RPC and SSPI/NTLM layers provides remote procedure call and Windows-style authentication on OpenVMS.

Process name: n/a (part of OpenVMS operating system)

Requires: OpenVMS, ACME server

Required by: COM for OpenVMS

Started by: OpenVMS

Shutdown procedure: n/a

1.10.7 OpenVMS Events

The Events layer provides Windows-style event logging on OpenVMS.

Process name: n/a (part of OpenVMS operating system)

Requires: ACME server

Required by: COM for OpenVMS

Started by: OpenVMS

Shutdown procedure: n/a

For more information, see Chapter 15 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

1.11 Installing COM for OpenVMS

The COM for OpenVMS installation kit contains a single POLYCENTER Software Installation utility file. The name of the kit is DEC-AXPVMS-DCOM-V0104--1.PCSI. You must install the COM for OpenVMS files on an OpenVMS Alpha system. Please check the prerequisites before installing the kit. See Section 1.2.

To install COM for OpenVMS, invoke the POLYCENTER Software Installation utility using the following command:

```
$ PRODUCT INSTALL DCOM /SOURCE=device:[directory]
```

For *device*:[*directory*], specify the device name and directory location of the kit, respectively.

MIDL compiler license no longer required

The COM for OpenVMS MIDL compiler no longer requires the DCOM-MIDL license.

Example 1–1 shows a sample installation.

Example 1–1 Sample COM for OpenVMS Installation

```
$ product install dcom/source=disk:[directory]

The following product has been selected:
    DEC AXPVMS DCOM V1.4                  Layered Product

Do you want to continue? [YES]

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

DEC AXPVMS DCOM V1.4

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Do you want the defaults for all options? [YES]

    The following software is required to run COM for HP OpenVMS

      - HP OpenVMS Alpha V7.3-1 or later
        * Includes DCE RPC and OpenVMS Registry
          (The most recent DCE$LIB_SHR.EXE available is
           required for interoperating with Windows 2000.)
      - HP TCP/IP Services V5.0 or later for HP OpenVMS (or equivalent product)
      - HP Advanced Server V7.3 or later for HP OpenVMS

    Do you want to continue? [YES]

Do you want to review the options? [NO]

Execution phase starting ...

The following product will be installed to destination:
    DEC AXPVMS DCOM V1.4                  DISK$FINALKES:[VMS$COMMON.]

Portion done:
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%

The following product has been installed:
```

1.12 COM for OpenVMS Postinstallation Procedures

After you install the COM for OpenVMS kit, do the following:

1. Verify that the OpenVMS Registry is running. (See Chapter 13 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.)
2. Verify that the HP Advanced Server for OpenVMS is running. (See Section 1.10.3 for the HP Advanced Server for OpenVMS process names.)
3. Verify that the ACME server is running. (See Section 1.10.4 for the name of this process.)
4. Verify that the RPC daemon is running. (See Section 1.10.5 for the name of the process.)
5. Populate the OpenVMS Registry with the required COM for OpenVMS keys and values using the `DCOM$SETUP` utility, option 3. (See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.) You must do this only once in an OpenVMS Cluster.
6. Configure the DCOM$RPCSS account using the `DCOM$SETUP` utility, option 8. (See Section 6.2.1 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.) You must do this only once in an OpenVMS Cluster.
7. Start COM for OpenVMS using the `DCOM$SETUP` utility, option 4. (See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.) You must do this on every node in an OpenVMS Cluster.
8. If you want COM for OpenVMS to start automatically when the system reboots, modify the `DEFINE DCOM$TO_BE_STARTED` line in the `SYLOGICALS.COM` file. (See Section 1.13.1.) You must do this on every node in an OpenVMS Cluster.
9. Configure COM for OpenVMS security. See Chapter 5 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.

1.13 Starting COM for OpenVMS (COM for OpenVMS Service Control Manager)

Use the following command to start COM for OpenVMS:

```
$ @SYS$STARTUP:DCOM$STARTUP
```

Alternately, you can run `DCOM$SETUP` and choose option 4. (See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.)

The COM for OpenVMS Service Control Manager can be in one of the following states: initializing/running or not started. Depending on the COM for OpenVMS Service Control Manager state, you will see one of the following messages:

- If the COM for OpenVMS Service Control Manager is running on this node, the system reports that the process is already active:

  `DCOM Service Control Manager daemon (DCOM$RPCSS) is active [pid=`*xxxxxxxx*`]`

  If the COM for OpenVMS Service Control Manager is initializing on this node, the system reports that the process is already active:

  `DCOM Service Control Manager daemon (DCOM$STARTUP-**) is active [pid=`*xxxxxxxx*`]`

- If the COM for OpenVMS Service Control Manager is not started on this node, the system starts COM for OpenVMS as follows:

```
The OpenVMS Registry server is already started on this node.

         ***  DCOM system startup procedure  ***

 Starting DCOM Service Control Manager daemon ( "DCOM$STARTUP-**" ) . . .
 After initialization, the daemon will use process name "DCOM$RPCSS" . . .

%RUN-S-PROC_ID, identification of created process is xxxxxxxx

          ***  DCOM startup successful  ***

     ***  DCOM Startup Procedure Complete  ***
```

1.13.1 Starting COM for OpenVMS Automatically after a Reboot

HP recommends that you modify the SYS$MANAGER:SYLOGICALS.COM command file to control COM for OpenVMS startup.

OpenVMS includes a revised SYLOGICALS.TEMPLATE file that includes new startup commands for COM for OpenVMS and related components. Review the ''Coordinated Startup'' section of this template file and add the appropriate information to your existing startup files.

To have COM for OpenVMS start automatically when the system boots, copy the following line to your SYLOGICALS.COM file, uncomment the line, and make sure it is set to TRUE:

```
$ DEFINE DCOM$TO_BE_STARTED TRUE
```

If you do not set COM for OpenVMS to start automatically when the system boots, you can start COM for OpenVMS using the DCOM$SETUP OpenVMS COM Tools menu, option 4 (see Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide).

1.14 Shutting Down COM for OpenVMS (COM for OpenVMS Service Control Manager)

Use the following command to shut down COM for OpenVMS:

```
$ @SYS$STARTUP:DCOM$SHUTDOWN
```

Alternately, you can run DCOM$SETUP and choose option 5. (See Section 6.2 in the COM, Registry, and Events for HP OpenVMS Developer's Guide.)

The COM for OpenVMS Service Control Manager can be in one of the following states: stopped, running, or initializing. Depending on the COM for OpenVMS Service Control Manager state, you will see one of the following messages:

- If the COM for OpenVMS Service Control Manager is stopped on this node, the system reports that there is nothing to shut down:

```
         ***  DCOM system shutdown procedure  ***

    There is no active DCOM$RPCSS daemon on this system.

      ***  DCOM Shutdown Procedure Complete  ***
```

- If the COM for OpenVMS Service Control Manager is running on this node, the system shuts down the process as follows:

```
        ***  DCOM system shutdown procedure  ***

************************** Warning ********************************
***  Stopping the DCOM Service Control Manager daemon (DCOM$RPCSS)
***  Active DCOM applications will no longer be operational.

Do you want to proceed with this operation (YES/NO/?) [N]?
```

Enter Y to continue with the shutdown procedure.

Note

For information about suppressing this confirmation step, see Section 1.14.1.

The system displays the following messages:

```
   Terminating DCOM Service Control Manager daemon (DCOM$RPCSS) . . .

        ***  DCOM shutdown successful  ***

     ***  DCOM Shutdown Procedure Complete  ***
```

- If the COM for OpenVMS Service Control Manager is initializing on this node, the system shuts down the process as follows:

```
        ***  DCOM system shutdown procedure  ***

************************** Warning ********************************
***  Stopping the DCOM Service Control Manager daemon (DCOM$RPCSS)
***  Active DCOM applications will no longer be operational.

Do you want to proceed with this operation (YES/NO/?) [N]?
```

  Enter Y to continue with the shutdown procedure. The system displays the following messages:

```
   Terminating DCOM Service Control Manager daemon (DCOM$STARTUP-**) . . .

        ***  DCOM shutdown successful  ***

     ***  DCOM Shutdown Procedure Complete  ***
```

1.14.1 Suppressing the DCOM$SHUTDOWN Confirmation Request

You can suppress the DCOM$SHUTDOWN command confirmation request by specifying the NOCONFIRM parameter. Use the following command:

```
$ @SYS$STARTUP:DCOM$SHUTDOWN NOCONFIRM
```

The system displays the following shutdown messages without prompting you to confirm the shutdown:

```
        ***  DCOM system shutdown procedure  ***

   Terminating DCOM Service Control Manager daemon (DCOM$RPCSS) . . .

        ***  DCOM shutdown successful  ***

     ***  DCOM Shutdown Procedure Complete  ***
```