

PMDF Installation Guide OpenVMS Edition

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This document describes the installation and configuration of version 6.8 of the PMDF, PMDF-MTA, PMDF-MSGSTORE, PMDF-POPSTORE, and PMDF-TLS software on an OpenVMS system.

Revision/Update Information: This manual supersedes the V6.7 *PMDF Installation Guide, OpenVMS Edition*

Software Version: PMDF V6.8

Operating System and Version: OpenVMS Alpha V7.3-2 or later

OpenVMS I64 V8.2 or later

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1 Installing or Upgrading PMDF and PMDF Layered Products

This chapter contains procedures for installing or upgrading to version 6.8 of PMDF, PMDF-MTA, PMDF-MSGSTORE, PMDF-POPSTORE, and PMDF-TLS on an OpenVMS system.¹

You will be asked during the installation procedure what optional PMDF add-on layered products should be installed along with PMDF.

Note: The PMDF-MSGSTORE, PMDF-POPSTORE, and PMDF-TLS add-on products cannot be installed separately from the base PMDF kit. Note that PMDF-POPSTORE and PMDF-MSGSTORE are partially installed automatically with the base PMDF kit, although they cannot be used for more than a few sample users unless you have installed a separate license for the respective layered product.

You will need a Product Authorization Key (PAK) to activate each additional add-on layered product you install. However, you can install a PMDF layered product even if you do not have a PAK for it. In that instance, you will not be able to use that layered product until you have registered and loaded the correct PAK. If you do not install a layered product during the first installation, and later decide to add that particular product, you will have to re-install all the products you use again when you install the particular layered product for the first time.

1.1 What You Should Have

The PMDF distribution kit contains the distribution media and all necessary license PAKs. (You must have license for a layered product before you can install it.)

You can install any of the PMDF layered products, even if you do not have a PAK for it. However, you will not be able to use that layered product until you have registered and loaded the proper PAK. If you are upgrading PMDF, you can continue to use your old PAKs. Upgrading sites are only sent new PAKs when they renew their maintenance contracts.²

¹ The PMDF product that existed before September, 1994 was subdivided into two products: PMDF-MTA and PMDF-ACCESS. If you have a license PMDF, then you have all three products. PMDF-MTA is considered the base product. The other two products are add-ons.

² PMDF license PAKs use a release date, not a termination date. The release date prevents you from running newer versions of PMDF that were released after your maintenance contract expired. The PAKs do not prevent your current version of PMDF from running after your maintenance contract has expired. This is intentional.

Installing or Upgrading PMDF and PMDF Layered Products What You Should Have

1.1.1 Supported OpenVMS and Other Software Versions

This version of PMDF only operates under OpenVMS VAX V6.1 and later, OpenVMS Alpha V7.0 and later, and OpenVMS I64 V8.2 and later.

PMDF requires that HP Pascal RTL V5.0-15 or later (VAX), or V5.0-18 or later (Alpha), or V5.0-25 or later (I64) be installed on your system before you can install PMDF. Process Software has received permission from Hewlett-Packard Company to include the Pascal RTL for VAX and Alpha in the PMDF distribution kit. If RTL is not on your system, the PMDF installation procedure will install it automatically.

If you will be using TCP/IP-based components of PMDF (for example, the PMDF Service Dispatcher and all its services), then you must have a TCP/IP package installed and configured. The TCP/IP package must be one of the following:

- Hewlett-Packard Company's TCP/IP Services for OpenVMS (UCX) V4.0 or later. If you are using V4.1 of HP TCP/IP Services for OpenVMS (UCX), you must have "ECO 5" or later installed on your system.
- Process Software's MultiNet V3.4A or later, with all UCXDRIVER patches.
- Process Software's TCPware V5.0 or later.
- The Wollongong Group's Pathway V2.5.x or later, with all patches (in particular C82195).

There are also several important OpenVMS patches that you should obtain and install (if you have not done so already). The following OpenVMS patches will fix bugs which exist, regardless of whether or not you run PMDF.

Note: There are no patches required for OpenVMS I64, or for OpenVMS VAX and Alpha V7.2 or later. If you are running versions of OpenVMS VAX or Alpha earlier than V7.2, you should make sure you have installed the following patches.

See also the Process Software PMDF support web pages for the latest list of required operating system patches (<http://www.process.com/techsupport/pmdf.html>).

- CSCPAT VAXSYS01_062 (for VAX V6.2 systems), or CSCPAT VAXSHAD09_061 (for VAX 6.1 systems)

Sites that are using the cluster I/O cache with an OpenVMS VAX V6.1 or V6.2 system *anywhere* in the cluster could see corruption of shared files anywhere in the cluster. (CSCPAT VAXSYSA01_062 supersedes CSCPAT VAXSYS14_061.) The bugs impact files that see a high rate of open/update/close operations, such as the `mail.log_current`, and the PMDF queue cache database files.

- CSCPAT VAXRMS02_061 (for VAX systems, superseded by the VAXRMS04_061 patch).

These patches will fix a bug in the VMS callable CONVERT utility. This bug impacts files that are operated on by CONVERT/RECLAIM (such as users' `mail.mai` files when they use VMS MAIL's PURGE/RECLAIM command, or when users exit from VMS MAIL and have their wastebasket folder "auto-purged"). This bug also impacts PMDF's queue cache database.

Installing or Upgrading PMDF and PMDF Layered Products

What You Should Have

- The latest HSC and HSJ software
Sites that are using the cluster I/O cache and HSCs or HSJs could see some file corruption.
- ALPLIBRF08_070 (for Alpha/VMS V7.0)
This patch has no dependencies.
- VAXCDU01_061 (for OpenVMS VAX V6.1)
This patch fixes a size problem with a command table. Without this patch, you will encounter a %CDU-F-INTNODESPACE error when you attempt to install the new PMDF command line definitions. Consequently, PMDF will not run.
- ALPMAIL02_071 (for OpenVMS Alpha 7.1), or VAXMAIL02_062 (for OpenVMS VAX 6.2), or VAXMAIL02_071 (for OpenVMS VAX 7.1)
This patch fixes several callable MAIL bugs, including a callable MAIL bug that could result in lost e-mail message bodies. E-mail could be lost under the following circumstances:
 - * Two messages were delivered within a short period of time, and the first message is “large” (and it is stored in an external MAIL\$*.MAI file), and the second message is “small” (and it is stored in the main mail file).
Under these circumstances, the deletion of the “large” message could result in the deletion of the body of the “small” message. Even though the small message would still appear to be present in the mail file (as shown with a DIRECTORY command), the message body would no longer exist.
 - * The messages were copied to another folder, possibly by the PMDF IMAP server, or the PMDF FOLDER utility (which is used implicitly by certain DELIVER operations). Contact HP regarding the availability of patches for other versions of OpenVMS.
- Sites running OpenVMS VAX V6.2, or V7.0, or V7.1, or OpenVMS Alpha V7.1 should obtain and install the following patches:
 - VAXMAIL01_062 (superseded by the VAXMAIL02_062 patch)
 - VAXMAIL02_070, VAXMAIL01_071 (superseded by the VAXMAIL03_071 patch)
 - ALPMAIL02_070, or ALPMAIL01_071 (superseded by the ALPMAIL03_071 patch)These patches fix a number of callable MAIL bugs, including a problem of occasional access violations in MAILSHRP (which is called by PMDF MAIL and the PMDF POP server).

Note: This problem occurred primarily at sites that had many thousands of simultaneous mail users.

Contact HP regarding availability of such a patch for other versions of OpenVMS.

If appropriate, contact HP to obtain these patches. You should also check to see if there are even more recent patches that supersede those listed above. You should also ask HP for a list of recommended patches that you need to apply to your version of the operating system.

Installing or Upgrading PMDF and PMDF Layered Products

What You Should Have

1.1.2 Distribution Media

PMDF is distributed on a single CD-ROM containing a single VMSINSTAL installation kit for the PMDF product family: PMDF-MTA, PMDF-MSGSTORE, PMDF-POPSTORE, and PMDF-TLS.

CD-ROM distributions contain a standard OpenVMS file system with PMDF product save sets residing in the `[pmdf066.openvms]` directory.

Prior to installation or upgrade with VMSINSTAL, the CD-ROM should be inserted into a CD-ROM drive accessible to the system and mounted as follows:

```
$ MOUNT device pmdf066
```

where *device* is the OpenVMS device name of your CD-ROM drive.

Once mounted, use the VMSINSTAL installation procedure as documented below. For the location of the distribution volume in step 4 of Section 1.6, use the format

```
device:[pmdf066.openvms]
```

Please note that PMDF distributions are not compatible with the VMSINSTAL option G, which is sometimes used to move product save sets from distribution media to disk. If you choose to move PMDF product save sets from the distribution CD-ROM to disk, simply mount the CD-ROM and use the COPY command. For example:

```
$ MOUNT dka500: PMDF066
$ COPY/LOG dka500:[PMDF066.OPENVMS]*.* disk:[vmsinstal]
```

If you move PMDF product save sets to disk you can install from the on-disk copy by providing VMSINSTAL with the disk and directory (e.g., `disk:[vmsinstal]`) rather than a device name.

Note: While you can copy PMDF product save sets to disk, this is not required. As with any VMSINSTAL compatible product, PMDF can be installed directly from the distribution media.

You should read through this guide before beginning the installation of or upgrade to PMDF V6.8. Release notes (bug fixes and new features) for PMDF V6.8 can be found in the *PMDF V6.8 Release Notes*, visible at the Process Software web site.

1.1.3 Disk Space Requirements

Table 1–1 lists the disk space requirements for PMDF.

Table 1–1 Disk Space Requirements for PMDF

Product	Common	VAX	Blocks Required		Total
			ALPHA	I64	
PMDF	91686	123801	113391	188094	516972

Installing or Upgrading PMDF and PMDF Layered Products

What You Should Have

Table 1-1 (Cont.) Disk Space Requirements for PMDF

Product	Common	VAX	Blocks Required		Total
			ALPHA	I64	
PMDF-MSGSTORE	0	1537	1634	4134	7305
PMDF-TLS	0	30480	22587	35969	89036
Total:	91686	158947	141674	238223	630530

PMDF is no longer copied to the system disk during installation. This means that during installation very few files are resident on the system disk unless they are actually being installed there. PMDF only requires about 2,000 temporary blocks on the system disk as a result.

All these numbers assume that PMDF is installed in a new location and/or existing files are not purged during the installation. Much less space is needed when PMDF is installed on top of an existing copy and purging is enabled. However, it is not possible for the kit to determine the exact amount of space needed in this case, so the worst case is assumed.

The installation procedure checks to make sure that enough space is available and will not install PMDF if there is not enough room. PMDF can be “trimmed” after installation to use less space by selective deletion of unneeded programs. However, this can only be done after the entire package is installed.

PMDF should be installed on a disk with no disk quotas active (e.g., a system disk) if possible. If this cannot be done, a disk quota entry should be set up for PMDF’s UIC at this point in the installation. Use the PMDF server account UIC as described in Section 1.4.1. Be sure to give PMDF enough quota to handle large numbers of messages (10,000 free blocks or more is recommended).

1.1.4 System Parameters

If this is a new installation you would need at least 23000 free GBLPAGES and about 70 free GBLSECTIONS. The need for GBLPAGES is increased by the size of your compiled configuration file if a compiled configuration is used. VIRTUALPAGECNT might also need to be increased if you have a very large configuration.

Note that these numbers are only the best estimates available at press time. They can change from release to release. It would be better to err on the side of having too many free GBLPAGES and GBLSECTIONS than try to add the exact number each time.

PMDF servers normally run using the SYSTEM account and need an ENQLM of at least 400 and a FILLM of at least 200; so modify the quotas for your SYSTEM account if they are not already at or above these values. The SYSGEN parameters should also be modified so that PQL_MENQLM and PQL_DENQLM are at least 400 and PQL_MFILLM

Installing or Upgrading PMDF and PMDF Layered Products

What You Should Have

and PQL_DFILLM are at least 200, if they are not already at or above these values. These are dynamic parameters so no reboot is needed.

On OpenVMS VAX, as of version 6.0, PMDF requires significantly more page file and more page file quota than previous versions of PMDF: perhaps 20000 pages per PMDF process. Such processes include each Worker Process under the Dispatcher, as well as each channel job running in a Process Symbiont or batch queue. For instance, even on a system with very little message traffic at least a minimum of 150,000 block page file is likely required. A system with a basic PMDF configuration (allowing up to 5 each of SMTP, POP, IMAP, HTTP, and POPPASSD processes, and with four PMDF Process Symbiont queues) that is running full out (all processes active) might require a 600,000 block page file.

Page file requirements have not changed substantially on OpenVMS ALPHA.

1.2 Installations *Versus* Upgrades

The PMDF V6.8 installation procedure can be used to perform a new installation of PMDF V6.8, or to upgrade an existing PMDF release V3.1 or later. The installation procedure can also be used to reinstall PMDF V6.8 over an existing PMDF V6.8.

Important note for sites upgrading from PMDF V4.1 or earlier: Owing to directory structure changes made to PMDF, sites upgrading from releases prior to V4.2 must pay careful attention to the post installation tasks detailed in Section 1.7.

After PMDF is installed, use the automatic configuration generator to produce a configuration appropriate to your site. Use of the configuration generator is described in Chapter 3.

When installed on top of an existing copy of PMDF, any version since V3.1, the new version simply replaces the old one while leaving the previous configuration information intact.

1.3 Cluster Installations or Upgrades

The following sections give an overview of how PMDF can be installed and used in an OpenVMS cluster environment.

1.3.1 OpenVMS Cluster Installation

If you have a completely homogeneous OpenVMS cluster, that is, a single authorization file (SYSUAF), rightslist (RIGHTSLIST), mail profile (VMSMAIL_PROFILE), queue file (JBCSYSQUE or SYS\$QUEUE_MANAGER.*), and network database are shared across the OpenVMS cluster, installing PMDF is the same as on a single node. All individual host names are aliases for a single host, and should be rewritten to the local

Installing or Upgrading PMDF and PMDF Layered Products

Cluster Installations or Upgrades

host name. The automatic configuration generator is capable of building most of such a configuration automatically.

If you have a more heterogeneous OpenVMS cluster, especially one with multiple authorization files (SYSUAF), the simplest thing to do is install separate copies of PMDF for each homogeneous group of systems. In particular, multiple QUEUE, LOG, and TABLE directory areas will be needed. Other directories can be shared.

There is no great difficulty in installing PMDF in multiple locations. The startup command files will need to be moved to system specific areas once they have been created, but other than that the installation should require no unusual modifications. The command definitions for PMDF all use the PMDF_ROOT logical name to find needed files and as such separate DCLTABLES should not be needed.

1.3.2 Mixed Architecture Cluster Installation

The PMDF installation procedure installs the executables for the architecture of the system on which the installation is performed automatically; when installing PMDF for use in a mixed architecture cluster, answer YES to the installation question asking whether the other architecture executables should be installed also. If you are adding systems of a new architecture (that you didn't have before) to your cluster, you would need to install PMDF again on the new architecture(s) to get the new executables. As long as they still constitute a homogeneous OpenVMS cluster, they can share the same PMDF configuration and directory. The only difference as far as PMDF is concerned is the additional installation of the architecture-specific directories containing the executables and other files. This can be performed by running the `post_install.com` procedure on a system of each of the other architecture types, as the installation procedure will instruct you. The same is true in a heterogeneous mixed architecture OpenVMS cluster.

1.4 Preliminary Tasks for New Installations

There are several tasks that should be performed prior to installing PMDF for the first time. These tasks are outlined in the sections below.

1.4.1 Choosing a Server Account for PMDF

You should decide on a username for an account PMDF can use for its PhoneNet and DECnet activities, and for channel and system mailbox filtering. This account is used by such channels as a non-privileged context for running server objects. And the PMDF manager will need to authenticate with the PMDF account's password when modifying channel or system mailbox filters. The recommended username is "PMDF". Do *not* create or modify this account yourself; it will be set up for you during the installation process.

Installing or Upgrading PMDF and PMDF Layered Products

Preliminary Tasks for New Installations

The PMDF server account should be given a unique UIC of its own that it shares with no other account. Do not use the system UIC [1,4] or any of the implicitly privileged UICs (those UICs with a group number less than or equal to the SYSGEN parameter MAXSYSGROUP which typically has the decimal value 8, corresponding to the octal UIC group of [10,*]) for PMDF.

The PMDF server account will be non-privileged, with restricted access. If you have a PMDF account left over from a previous installation of PMDF you can continue to use the old account.

1.4.2 Choosing a User Account for PMDF

You must decide on a non-privileged account that PMDF can use when performing actions in response to user-specified data. Such actions include message delivery to files (e.g., bulletin board delivery), and the optional sequence numbers in mailing lists.

This account, referred to as the PMDF user account, should be given a unique group UIC number of its own that it shares with no other accounts. Do not use the system UIC [1,4] or any of the implicitly privileged UICs (those UICs with a group number less than or equal to the SYSGEN parameter MAXSYSGROUP which typically has the decimal value 8, corresponding to the octal UIC group of [10,*]) for the PMDF user account. The recommended username is "PMDF_USER". Do *not* create or modify this account yourself; it will be set up for you during the installation process.

The PMDF user account will be non-privileged, with all access disabled. If you have a PMDF user account left over from a previous installation of PMDF you can continue to use the old account.

Note: Before installation, there should be no PMDF or PMDF_USER SYSUAF entries, no [PMDF] or [PMDF_USER] rights identifiers, and no SYSUAF entries or rights identifiers assigned to any of the UICs in the two separate UIC groups you will be using for PMDF and PMDF_USER.

1.4.3 Selecting a Service Queue

PMDF submits jobs to handle message delivery and uses periodic jobs (jobs which reschedule themselves for execution each time they run) to handle retries and deferred delivery. An OpenVMS queue must be specified for these jobs to run in. PMDF expects to use a queue named MAIL\$BATCH. This queue must be either a batch queue or a queue handled by the PMDF Process Symbiont.

The installation procedure will prompt for the name of a queue to use as the default PMDF service queue. If you do not provide the name MAIL\$BATCH, the installation procedure will create a logical name MAIL\$BATCH pointing to the queue name you did provide.

Installing or Upgrading PMDF and PMDF Layered Products

Preliminary Tasks for New Installations

A dedicated queue for PMDF which executes at interactive priority (priority 4) with a small job limit (2 to 4) is recommended. Delivery of messages can be unacceptably slow if a low priority or heavily utilized queue is used. Note that PMDF channels can be configured to use queues other than the default queue. This is necessary when you have different networking products on different members of an OpenVMS cluster and want PMDF to serve them. PMDF channel programs must run on OpenVMS cluster members that support the channel's network interface.

You can improve PMDF message throughput by directing different channels to queues on different OpenVMS cluster members or by defining your PMDF default queue or channel queues as generic queues that feed multiple execution queues on different systems in an OpenVMS cluster. Note that there's no need to establish such a setup now; you can always grow to such a scheme later.

The jobs which are entered in this queue run under the SYSTEM account, so the queue can be protected against normal user submissions if desired.

1.5 Preliminary Tasks for Upgrades

You can elect to install PMDF on top of an existing version, or you might want to place it in a different directory tree. In either case, configuration information from your old installation is always preserved. If you elect to install PMDF in a different location, the old version is not touched, and it is your responsibility to copy over the necessary configuration files from the old version to the new one.

You should take time to familiarize yourself with how PMDF is currently set up on your system. In particular, you should know where PMDF is located on disk, the name, password, and UIC of any existing PMDF server or user accounts, and the structure of the PMDF service queue or queues, as well as any site-specific details of the previous installation.

Important: If you are upgrading from PMDF V5.1 or earlier, note that as of PMDF V5.2, the PMDF IMAP server supports hierarchical folders; as part of that support, IMAP users can no longer use the slash character, /, in normal folder names. So if you are upgrading from PMDF V5.1 or earlier, IMAP users with existing folder names containing the slash character will need to rename those folders using something other than IMAP, *e.g.*, using VMS MAIL or PMDF MAIL, in order to see the folders from IMAP. You might find the FIND_SLASHES program helpful for spotting (and optionally renaming) such folders. You might even want to run this program before upgrading PMDF, to convert folder names before upgrading PMDF.

FIND_SLASHES is a standalone image (not dependent on PMDF). It is distributed in the PMDF executable directory, PMDF_EXE:, or is also available for FTPing from the PMDF anonymous FTP site, ftp.process.com, (especially in case you want to fetch and run it before upgrading PMDF), located under the [.vms_mail_tools] directory.

When you run the FIND_SLASHES, you need READALL privilege to read the SYSUAF and everyone's mail files. It will scan through the SYSUAF and for each user find all folders in the user's default mail file. If a folder with a slash character, /, in the name is found, it will write a renamefolders.com DCL command file (in your current directory) which contains the MAIL commands necessary to rename the folders for all users. FIND_SLASHES *does not* execute the renamefolders.com DCL

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Preliminary Tasks for Upgrades

procedure automatically, so you can edit the procedure and customize it before running it.

Important: If you are upgrading from PMDF V4.1 or earlier, then owing to directory structure changes since made to PMDF, you must pay careful attention to the post installation tasks for upgrades detailed in Section 1.7.

1.5.1 Shutting Down PMDF for the Upgrade

If an older version of PMDF is currently up and running on your system, it should be shut down at this time as follows:

1. Advise your users that PMDF is being upgraded and not to use either the “IN%” facility in VMS MAIL or the send command in MultiNet MM, PMDF MAIL or PMDF Pine until after the upgrade is complete.
2. Issue the PMDF SHUTDOWN/CLUSTER command to shut down, cluster-wide, any detached PMDF processes; (this command is not necessary if you do not use PMDF’s IMAP server, do not use PMDF’s POP3 server, do not use the multithreaded TCP SMTP server, or any other services handled by the PMDF Service Dispatcher, and do not have any site-specific utilities based on the PMDF API, but it will not hurt to issue it in any case).
3. The PMDF queues (the directories under `PMDF_ROOT:[queue]`) should be empty before attempting an upgrade. If the queues are not empty and cannot be emptied conveniently at this time, you should move the files in the old queue to a safe place before performing the upgrade. Remember to note the subdirectory structure so you can restore the queue files to their appropriate subdirectories after the upgrade is complete.

The queue subdirectories and files from PMDF V3.1 or later are compatible with the current version of PMDF. If you elect to upgrade PMDF in place, messages in the queue subdirectories will be delivered by PMDF after the upgrade is completed and running. If, however, you are upgrading from a version of PMDF prior to V3.1, the directory structure of the queue has changed—messages are now stored in channel-specific subdirectories. The command file `PMDF_COM:convert_queue.com` can be used to move messages in `PMDF_ROOT:[queue]` to the proper subdirectories. This command file should only be used as a last resort; it is better to empty the queue entirely prior to upgrading if at all possible.

4. Any periodic PMDF service jobs should be deleted from the default `MAIL$BATCH` queue and all PMDF queues should be stopped.

If you are using the PMDF Process Symbiont, then `STOP/QUEUE/NEXT` your Process Symbiont execution queues. This will cause the queues, when you restart them after the upgrade, to begin using the new symbiont code which the upgrade procedure will have copied to `SYS$COMMON:[sysexec]`. The command file `SYS$STARTUP:PMDF_STOP_QUEUEES.COM` can be used to stop the queues.

5. Incoming PMDF traffic should be blocked during the upgrade. The easiest way to shut down PhoneNet is to allocate the terminal lines used by PhoneNet. If you use one of the various PMDF channels that connect to DECnet, NJE or some form of

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TCP/IP, you should take steps to prevent activity on these channels. The simplest thing to do is simply shut down all your networks for the duration of the installation.

Users of site-developed or third-party PMDF channels should take steps to block activity on these channels as well.

1.6 Step-By-Step Installation Instructions

The following discussion outlines the steps in the PMDF installation procedure. Refer to Chapter 2 for a sample installation dialogue.

1. Installation of PMDF should be done using the SYSTEM account to ensure that the necessary privileges are available to complete the installation. If you are not logged in as SYSTEM, do so now.
2. If this is your initial PMDF installation, register the appropriate license PAKs using the DCL LICENSE command or the `vmslicense.com` procedure located in the `SYS$UPDATE:` directory. You need a PAK for PMDF (PMDF or PMDF-MTA). If you will also be installing PMDF-MSGSTORE, PMDF-POPSTORE, or PMDF-TLS, then a PAK will also be required for each of those products.

If you already have existing PAKs, you should check to make sure they are valid for this release. Use the SHOW LICENSE command to check the release date of the existing PAKs, and make sure the date is later than release date of the new version.

New PAKs are issued when your maintenance contract is renewed, not when new versions of software is released. If you have received new PAKs at your renewal time, you should register the new PAKs. First delete or disable the old PAKs, then unload the old PAKs and load the new PAKs. For example, if you received a new PMDF PAK, do the following:

```
$ @SYS$UPDATE:vmslicense
.
.  [register the new PAK]
.
$ LICENSE DISABLE PMDF-productname/PRODUCER=INNOSOFT/AUTHORIZATION=xxx
$ LICENSE DELETE PMDF-productname/PRODUCER=INNOSOFT/AUTHORIZATION=xxx
$ LICENSE UNLOAD PMDF-productname/PRODUCER=INNOSOFT
$ LICENSE LOAD PMDF-productname
```

Where *PMDF-productname* is the name of the PMDF product, *e.g.*, PMDF-MTA, PMDF, PMDF-MSGSTORE, or PMDF-POPSTORE, *etc.*, and where *xxx* is the authorization number of the old PAK. The last two steps, LICENCE UNLOAD and LOAD must be done on all systems running PMDF and using the new PAKs.

3. Begin the installation or update procedure by invoking the VMSINSTAL command procedure as follows:

```
$ @SYS$UPDATE:vmsinstal
```

The following type of VMSINSTAL message displays:

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OpenVMS Alpha Software Product Installation Procedure V7.1

It is 5-JAN-2015 at 10:58.

Enter a question mark (?) at any time for help.

The first prompt asks you if you are satisfied with the backup of your system disk. If you are not satisfied with the backup of either the system disk or the disk on which PMDF is to be installed, exit VMSINSTAL at this point and perform the backup. Otherwise, press .

4. VMSINSTAL now requests the location of the PMDF installation kit.

* Where will the distribution volume be mounted:

Enter the device or directory name containing the installation kit and press .

5. VMSINSTAL now prompts for the name of the product to be installed.

* Products:

Enter **PMDF066** and press .

6. VMSINSTAL prompts for installation options.

* Options:

No options are needed; press .

7. Finally, if installing from CD-ROM, you are asked if the distribution CD-ROM is ready for mounting on the specified device.

* Are you ready:

Prepare the distribution CD-ROM for reading and enter **YES** followed by a when the volume is ready for mounting. This question will not appear when installing from disk.

The following messages are then displayed:

```
%MOUNT-I-MOUNTED, PMDF066 on _DDCU:
```

```
The following products will be processed:
```

```
    PMDF V6.8
```

```
Beginning installation of PMDF V6.8 at time
```

```
%VMSINSTAL-I-RESTORE, Restoring product saveset A...
```

8. The installation procedure asks if you have registered and loaded the Product Authorization Key:

```
Product:      PMDF-MTA, PMDF-ACCESS, or PMDF
Producer:     INNOSOFT
Version:      6.8
Release Date: date
```

* Does this product have an authorization key registered and loaded?

Type **YES** if you have already registered and loaded the PMDF license PAK. If you

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have not already registered and loaded the PMDF license PAK, then answer **NO** now. Do not attempt to install PMDF if you have not loaded your license PAKs. Do not upgrade PMDF if you do not have an appropriate PMDF license PAK. An appropriate license PAK will have a release date which is in the future. Any version of PMDF released *after* the release date of your PAK will not run.

9. The installation procedure displays the following prompt:

* Do you want to purge files replaced by this installation [YES]?

Type **NO** if you do not want to purge replaced files. Press **RETURN** or type **YES** if you want to purge files replaced by this installation of PMDF.

10. The next two questions ask you if you want to install the executables for the other architectures. For example if you are installing on VAX:

If you will be using PMDF on an OpenVMS Alpha system, then answer **YES** to the next question.

Install Alpha VMS executables as well as VAX VMS executables [NO]?

This causes the OpenVMS Alpha executables to be installed. Answer **NO** if you do not want to install OpenVMS Alpha support.

If you will be using PMDF on an OpenVMS I64 system, then answer **YES** to the next question.

Install I64 VMS executables as well as VAX VMS executables [NO]?

This causes the OpenVMS I64 executables to be installed. Answer **NO** if you do not want to install OpenVMS I64 support.

11. If this is a new installation of PMDF, you are prompted for the device and directory in which PMDF is to be installed:

* Enter the device and directory [SYS\$SYSDEVICE:[PMDF]]:

Press **RETURN** to install PMDF to a default location. The default will be the directory [PMDF] on the system disk if this is a new installation. Type the name of a different disk and directory if you do not want to install PMDF in the default location. Note that PMDF does not have to be installed on a system disk.

If this is an upgrade of PMDF, the following prompt appears:

```
----- Attention -----  
The logical name PMDF_ROOT is already defined.  
It refers to the directory directory-path  
-----
```

* Do you want to install the new files at that same location [YES]?

Press **RETURN** if you want to replace the old version of PMDF with this new version. If, instead, you want to install this new version of PMDF in a different directory tree, then answer **NO** and to the next prompt specify the name of a different disk or directory or both:

* Enter the device and directory [SYS\$SYSDEVICE:[PMDF]]:

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12. The installation procedure asks you for an account name to use as the PMDF server account name:

* Username for the PMDF server account [PMDF]:

You should configure a PMDF server account if you plan to use PhoneNet, PhoneNet over DECnet, SMTP over DECnet, or channel or system mailbox filtering. See Section 1.4.1 for further information.

13. The procedure asks if the PMDF server account already exists:

* Does this account already exist [NO]?

Type **YES** if your PMDF server account already exists, otherwise, press **RETURN** or type **NO**.

If the PMDF server account does not exist, the procedure prompts for a password and UIC for the new account to be created:

* Password for the PMDF server account:

* Numeric UIC for the PMDF server account [[375,1]]:

This special account should not be in the same UIC group as any other account on your system. Note that the procedure *will* display the password you enter at this time, so you should be careful to keep it secure.

At this time the procedure displays informational messages as the PMDF server account is created or modified.

14. The installation procedure asks you for an account name to use as the PMDF user account name:

* Username for the PMDF user account [PMDF_USER]:

15. The procedure asks if the PMDF user account already exists:

* Does this account already exist [NO]?

Type **YES** if your PMDF user account already exists, otherwise, press **RETURN** or type **NO**.

If the PMDF user account does not exist, the procedure prompts for a password and UIC for the new account to be created:

* Password for the PMDF user account:

* Numeric UIC for the PMDF user account [[374,1]]:

This special account should not be in the same UIC group as any other account on your system. Note that the procedure *will* display the password you enter at this time, so you should be careful to keep it secure.

At this time the procedure displays informational messages as the PMDF user account is created or modified.

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16. The installation procedure prompts for a default PMDF queue:

* Queue PMDF jobs should run in [MAIL\$BATCH]:

Press **RETURN** to accept the default MAIL\$BATCH, or type the name of another OpenVMS queue. The queue must be an OpenVMS batch queue or a PMDF Process Symbiont queue. The queue does not need to exist at this point; you will create it as part of the post installation procedures in Section 1.8. Note that this queue is only the default queue for PMDF. Other queues can be specified later on a per-channel basis.

17. The procedure prompts for the username to use for all PMDF job submissions:

* Username for PMDF service jobs [SYSTEM]:

You should accept the default username of SYSTEM unless your site does not allow SYSTEM batch access or you frequently disable your SYSTEM account. Note that any account you do specify does require full privileges, including full read/write access to the PMDF directory tree.

18. The installation procedure prompts for a default queue for batch jobs created by PMDF's DELIVER subsystem:

* Batch queue DELIVER jobs should run in [SYS\$BATCH]:

Press **RETURN** to accept the default SYS\$BATCH, or type the name of another OpenVMS batch queue. Note that this queue is only the default queue; users can specify an alternate queue in their mail.delivery files. This queue must be an OpenVMS batch queue; queues handled by the PMDF Process Symbiont are not suitable candidates for handling jobs created by DELIVER.

19. PMDF needs to know the local time zone. The installation prompts with:

* Current timezone for this site [default]:

The local time zone string should be a "standard" abbreviation describing the time zone used by your local system clock. If a PMDF time zone has been defined previously it will appear as the default in this question. The syntax of time zone abbreviations is described in detail in RFC 822. The most commonly used North American time zone abbreviations are given in Table 1–2.

Table 1–2 Commonly Used North American Time Zone Abbreviations

Time Zone	Abbreviation	Offset from GMT
Universal Time	GMT	+0000
Eastern standard time	EST	-0500
Eastern daylight time	EDT	-0400
Central standard time	CST	-0600
Central daylight time	CDT	-0500
Mountain standard time	MST	-0700

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Table 1–2 (Cont.) Commonly Used North American Time Zone Abbreviations

Time Zone	Abbreviation	Offset from GMT
Mountain daylight time	MDT	-0600
Pacific standard time	PST	-0800
Pacific daylight time	PDT	-0700

You can use a numeric offset from GMT if you want, expressed in the form *shmm*, where *s* is either “+” or “-”, *hh* is the hours offset, and *mm* is the minutes offset.

The time zone string is equated with the system logical `PMDF_TIMEZONE` which is declared within the command file `SYS$STARTUP:pmdf_startup.com`. Whenever you change your clock from standard to daylight savings time or vice versa, you will have to alter the definition of this logical by editing and reexecuting the file `SYS$STARTUP:pmdf_startup.com`.

Optionally, you can choose to specify `NONE` for the PMDF timezone, if your VMS system has time zone logicals defined. In this case, the `PMDF_TIMEZONE` logical is not set by `PMDF_STARTUP.COM` and PMDF will use the timezone specified by the system. PMDF looks for the following system logicals: first it looks for `SYS$LOCALTIME`, then if that is not defined, it looks for `SYS$TIMEZONE_DIFFERENTIAL` and `SYS$TIMEZONE_NAME`.

20. The installation asks if the `HELP` entry for the PMDF command is to be added to the system help library:

* Do you want a system help entry for the PMDF DCL command [YES]?

The default is to install the help entry in the system help library

21. The installation procedure displays the prompt:

* Do you want to have `PMDF_STARTUP.COM` run after the installation completes [YES]?

Press `RETURN` or type **YES** to execute the startup procedure automatically. Type **NO** to prevent the startup procedure from being executed by the installation. If you plan to run the automatic configuration generator after installing PMDF, be sure you accept this action or manually execute `SYS$STARTUP:pmdf_startup.com` before using the configuration procedure.

22. The installation procedure prompts for optional material:

* Do you wish to install `PMDF-TLS` [YES]?

* Do you wish to install the PMDF Message Store [YES]?

The mail RFC files will require 26570 blocks.

* Do you wish to install the mail RFC files [YES]?

The HTML format documentation will require 28493 blocks.

* Do you wish to install HTML format documentation [YES]?

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If you have purchased PMDF-TLS, PMDF-POPSTORE, or PMDF-MSGSTORE answer **YES** to install them now. (Note that PMDF-MSGSTORE and PMDF-POPSTORE are partially installed automatically with the base PMDF kit, though they allow only limited use unless separate PMDF-MSGSTORE or PMDF-POPSTORE licenses, respectively, are installed.) You will be asked if the license PAKs for PMDF-TLS, PMDF-POPSTORE, or PMDF-MSGSTORE are registered and loaded, and given a chance to exit the installation procedure if you have not already done so.

Copies of various e-mail related standards documents—useful reference materials for the Postmaster at your site—can be installed optionally.

Online documentation in HTML format can be installed.

23. The installation procedure continues with no further questions.

1.7 Post-Installation Tasks for Upgrades

The following is a list of tasks which must be completed following an upgrade installation of PMDF, PMDF-MTA, PMDF-MSGSTORE, PMDF-POPSTORE, and PMDF-TLS.

1. Run `post_install.com`:

If you are installing PMDF on multiple systems in a cluster with systems on different system disks (for example a mixed-architecture cluster), you should execute the `pmdf_com:post_install.com` procedure on one system for each distinct system disk, other than the one on which you installed PMDF.

2. Reinstall `dcltables.exe`:

For any other systems in the cluster, other than those that you did the installation on or you ran `post_install.com` on, the image `sys$library:dcltables.exe` must be reinstalled manually using the command:

```
$ INSTALL REPLACE SYS$LIBRARY:DCLTABLES.EXE
```

3. Run `pmdf_startup.com`:

The installation procedure replaces the old version of the file `pmdf_startup.com` in the `SYS$STARTUP` directory with a new version. (This is the procedure normally executed during system startup to define PMDF logicals and install PMDF images.)

If PMDF is running in a cluster, you should execute `pmdf_startup.com` on any other cluster members sharing this PMDF configuration to ensure that all such systems have current logical name definitions.

Note: The PMDF installation has no way to merge local changes made in an old `pmdf_startup.com` into the new version of this file. As such, the installation procedure preserves any existing `pmdf_startup.com` file as `pmdf_startup.old` so that changes can be retrofitted manually. It is far preferable, however, for

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Post-Installation Tasks for Upgrades

sites to refrain from adding private commands, logical definitions, *etc.*, to the `pmdf_startup.com` command procedure.

Rather than customizing `pmdf_startup.com` itself, which will be replaced when you upgrade PMDF, you can create a `PMDF_COM:pmdf_site_startup.com` procedure and put your site specific PMDF definitions in that file. When `pmdf_startup.com` executes, it checks for the existence of such a site-supplied `pmdf_site_startup.com` procedure and executes it, if it exists.

4. Run `pmdf cnbuild`:

If you use a compiled PMDF configuration, you must recompile and reinstall your PMDF configuration; *e.g.*:

```
$ PMDF CNBUILD
$ INSTALL REPLACE PMDF_CONFIG_DATA
```

You cannot copy over an old compiled configuration for use with PMDF V6.8; the compiled configuration format always changes with each new release of PMDF.

You need to reinstall the configuration image on any other cluster members running PMDF. If you use PMDF in a mixed architecture cluster, you need to recompile your configuration on a cluster member of each architecture type, so that all forms of the compiled configuration will be available for reinstallation.

5. Rebuild the queue cache database:

It is a good idea to rebuild the PMDF queue cache database after even minor dash upgrades.

```
$ PMDF CACHE/REBUILD
```

6. Run `pmdf_submit_jobs.com`:

The `pmdf_submit_jobs.com` command file created during the installation is used to resubmit PMDF service jobs after a system queue failure or initialization, or after the jobs have been deleted, as during the pre-installation steps. You must resubmit the PMDF periodic jobs now by issuing the command

```
$ @SYS$STARTUP:PMDF_SUBMIT_JOBS.COM
```

(Your system startup procedure should issue this command as well, so that the jobs will be submitted after a system reboot.)

Note: The PMDF installation has no way to merge local changes made in an old version of `pmdf_submit_jobs.com` into the new version of this file. Therefore, the installation procedure preserves any existing `pmdf_submit_jobs.com` file as `pmdf_submit_jobs.old` so that changes can be retrofitted manually. It is far preferable, however, for sites to refrain from adding private commands, logical definitions, *etc.*, to the `pmdf_submit_jobs.com` command procedure; instead, add them to the procedure which invokes `pmdf_submit_jobs.com`.

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7. Optionally generate a new configuration:

If you have performed an upgrade from a previous version of PMDF you can continue to use your existing configuration files. You might still run the configuration generator and compare the output with your old configuration. You can always redirect the output of the configuration generator utility to avoid overwriting your working configuration. In many cases, the automatically generated configuration will contain new rules and useful techniques you can apply to your own configuration.

8. If there were messages in your old queue created by an earlier version of PMDF, you can move them into the new PMDF queue at this time.

9. Perform image installation of any site-specific images:

`pmdf_startup.com` installs a number of images using the OpenVMS `INSTALL` utility. These images are listed in the file `pmdfimage.dat` in the `PMDF_COM:` directory. The `pmdfimage.dat` file is reserved for PMDF use and should not be modified.

Site-specific images can be installed by using the file `siteimage.dat` in the `PMDF_COM:` directory. `pmdf_startup.com` checks to see if this file exists and installs the images listed in it if it does exist. The `siteimage.dat` file has the same format as `pmdfimage.dat`. This format is simple—a file name is specified followed by the appropriate qualifiers for OpenVMS `INSTALL`. The file name must be separated from the qualifiers by at least one space or tab character.

The `siteimage.dat` file is not provided by the installation process; it must be created manually. If you have installed a new version of PMDF in a different location you should copy over any old `siteimage.dat` file you have previously built. Once you have built or copied over this file you can either re-run `pmdf_startup.com` to install the additional images it specifies or use this command:

```
$ PMDF INSTALL CREATE
```

In either case, the images specified by `pmdfimage.dat` are reinstalled. This will not hurt anything.

10. Update Pascal RTL (VAX and Alpha only):

Versions of the HP Pascal RTL (Run Time Library) earlier than V5.0-15 (VAX) or V5.0-18 (Alpha) were not fully thread-safe; PMDF's multithreaded SMTP server and multithreaded SMTP client were liable to exercise these problems. Hewlett-Packard Corporation has given Process Software permission to distribute an updated version of their Pascal RTL for VAX and Alpha. As of PMDF V5.0-6, the PMDF installation procedure will check the version of the Pascal RTL installed on the system on which you install PMDF, and will install an updated Pascal RTL, `pasrtl.exe` (VAX) or `pas$rtl.exe` (Alpha), if your system is running OpenVMS 6.1 or later and is using an older version of the RTL. This new version of the Pascal RTL will be included in the next releases of OpenVMS and HP Pascal for OpenVMS.

If you are running a shared PMDF configuration on a cluster, then note that the PMDF installation will only update the Pascal RTL on the node on which you perform the installation; you must separately update the Pascal RTL on any other system disks. (Sites running PMDF on a mixed architecture cluster or on a cluster with

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multiple system disks should note that `post_install.com` does *not* update the Pascal RTL; you must still update the Pascal RTL separately.) See Appendix A for details.

11. Configure components:

If you are using PMDF-MSGSTORE or PMDF-POPSTORE for the first time, then you should configure them now. Configuration instructions for PMDF-MSGSTORE and PMDF-POPSTORE can be found in Chapters 7 and 8.

12. Upgrade popstore:

Sites with existing popstore users who want to use the PMDF MessageStore should issue this command:

```
$ PMDF POPSTORE UPGRADE
```

to cause their popstore user account names to be properly modified for compatibility with PMDF MessageStore profiles.

13. Upgrade MAILSERV files:

If you are upgrading PMDF-MTA and use PMDF's MAILSERV facility you should update your site-specific MAILSERV help and index files to reflect the new version and new capabilities. Sample versions of these files are provided as the files `mailserv_help.sample` and `mailserv_index.sample`, respectively, in the `PMDF_TABLE:` directory. These files should be compared against their site-specific equivalents `help.txt` and `index.txt`, both located in the `PMDF_MAILSERV_FILES_DIR:[000000]` directory, and the site-specific files updated appropriately.

14. Perform additional version-specific steps:

If you are upgrading from any version prior to V6.2-1, you must perform the additional version-specific steps listed in the sections of this manual after this one.

15. Start up PMDF:

When all the above post-installation tasks have been completed (including all version-specific steps listed in the following sections), it is time to start PMDF back up:

- a. Start up the PMDF Dispatcher with the command

```
$ PMDF STARTUP DISPATCHER
```

- b. Start up the MAIL\$BATCH queue and any other PMDF queues. You can use the commands:

```
$ @SYS$STARTUP:PMDF_INIT_QUEUES.COM
```

```
$ @SYS$STARTUP:PMDF_START_QUEUES.COM
```

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1.7.1 Additional Post-Installation Tasks for Sites Upgrading from PMDF V6.1-1 or Earlier

1. The HTTP configuration file must be updated upon upgrading to PMDF V6.2 or later from PMDF V6.1-1 or earlier. The HTTP configuration file is usually `pmdf_table:http.cnf` on VMS.

This file can be updated by running the `pmdf configure dispatcher` utility, or by editing the `http.cnf` file manually.

The manual steps are as follows. Add the following three lines:

```
[PATH=/images/]  
GET=PMDF_HTTP_GET  
HIDDEN=1
```

Find the following lines and replace them as follows:

- replace `[PATH=/popstore_user/]` with `[PATH=/msps_user/]`
- replace `[PATH=/popstore_pwd/]` with `[PATH=/chnng_pwd/]`

2. As of PMDF V6.2, the global `pmdf.filter` file (`pmdf.filter` in the table directory) requires the `require` command, the same way that the channel and user filter files always have. If you have a global filter file that contains any of the following commands, you must add a `require` statement to the top of your filter file, which lists the commands that the filter file uses.

```
envelope  
fileinto  
reject  
vacation
```

1.7.2 Additional Post-Installation Tasks for Sites Upgrading from PMDF V5.2 or Earlier

1. The format of the PMDF queue cache database has changed (storage efficiency has been improved) since PMDF V5.2. If you are upgrading from PMDF V5.2 or earlier, you must rebuild your queue cache database using this command:

```
$ PMDF CACHE/REBUILD
```

2. As Web500 is no longer provided, you should remove any WEB500 service definition from your `dispatcher.cnf` file and any WEB500 path definition from your `http.cnf` file.

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1.7.3 Additional Post-Installation Tasks for Sites Upgrading from PMDF V5.1 or Earlier

1. If you were using the PMDF popstore in PMDF V5.1, note that to accelerate certain management functions (e.g., generating listings of user accounts, using wild cards in conjunction with account management commands), a database of user accounts was added as of PMDF V5.2. This database, referred to as the popstore user database, is located in the PMDF_POPSTORE_PROFILES:[000000] directory. This database is only used for management functions and does not in any way impact the performance of the popstore.

Sites using the popstore under PMDF V5.1 should issue this command:

```
$ PMDF POPSTORE X-BUILD-USER-DB
```

after upgrading. This command scans the profile directory tree and builds a user database.

Sites upgrading from V5.1 of the popstore should note that the popstore will continue to function without this command being issued. At issue is that some management operations will not function until this command is executed.

2. If you are upgrading from PMDF V5.1 and using the POP or IMAP server, be aware that some password handling changed as of PMDF V5.2:
 - a. As of PMDF V5.2, the POP and IMAP servers now check whether a user's password has expired, and will not allow authentication with an expired password. Check that your users do not have expired passwords.
 - b. The new, configurable authentication source control used as of PMDF V5.2 by, for instance, the POP and IMAP servers has default behavior that is intended to operate "naturally" and usually means no visible change to users. But a few users with less natural setups (for instance, non-popstore users who have PMDF password database entries different from their system password) can see a change in behavior. The current (PMDF V5.2 and later) behavior is preferable for most sites. But if you need to achieve the PMDF V5.1 behavior, you would need to configure the following. Use a PORT_ACCESS to segregate POP and IMAP connections into different rulesets, e.g.,

```
PORT_ACCESS
```

```
TCP | * | 110 | * | *          $YPOP-RULES
TCP | * | 143 | * | *          $YIMAP-RULES
```

Then you would need corresponding security configuration ruleset definitions of:

```
[RULESET=DEFAULT]
ENABLE=MSGSTORE/* , PASSDB/* , SYSTEM/*
!
[RULESET=POP-RULES]
ENABLE=MSGSTORE/* , PASSDB/CRAM-MD5 , PASSDB/APOP , SYSTEM/*
!
[RULESET=IMAP-RULES]
ENABLE=SYSTEM/*
```

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3. As of PMDF V5.2, the IMAP server supports hierarchical folders. As part of that support, IMAP users can no longer use the slash character, /, in normal folder names. If you are upgrading from PMDF V5.1 or earlier, IMAP users with existing folder names containing the slash character will need to rename those folders using something other than IMAP, *e.g.*, using VMS MAIL or PMDF MAIL, in order to see the folders from IMAP. You might find the FIND_SLASHES program helpful for spotting (and optionally renaming) such folders, as discussed in Section 1.5.
4. If you are upgrading from PMDF V5.1, note that as of PMDF V5.2 the LOG_CONNECTION PMDF option for controlling logging of connection information takes a bit-encoded value for specific controls rather than simply an on/off setting as in PMDF V5.1, so you might want to change your setting of this option; see the *PMDF System Manager's Guide* for a discussion of the current meanings of values for this option.
5. For sites upgrading from PMDF V5.1 using the PMDF Lotus Notes channel, if you have not already done so you must now switch to using the two independent Server Add-ins PNGATECIN and PNGATECOUT in place of the single PNGATEC Add-in originally released in PMDF V5.1: change the line in the Lotus Notes initialization file, notes.ini, defining server tasks from

```
ServerTasks= . . . ,PNGATEC
```

to

```
ServerTasks= . . . ,PNGATECIN ,PNGATECOUT
```

6. The old (obsolete as of PMDF V5.2) single threaded, package-specific PMDF TCP/IP channels, *e.g.*, MTCP, PTCP, UTCP, and WTCP channels, are no longer provided having been superseded by the newer, higher performance, multithreaded TCP/IP channel. If you were using those old channels, you will need to update your configuration to use the multithreaded TCP/IP channel instead; see Section 1.7.5 for a discussion of converting to use of the multithreaded TCP/IP channel.

1.7.4 Additional Post-Installation Tasks for Sites Upgrading from PMDF V5.0 or Earlier

The following is a list of additional post-installation tasks that must be completed following an upgrade from V5.0 or earlier of PMDF or PMDF-MTA. Sites upgrading from PMDF V5.1 or later should skip this section.

1. The PMDF multithreaded Service Dispatcher now handles various services formerly handled by separate resident processes. If you are upgrading from PMDF V5.0 or an earlier version of PMDF and were previously using the multithreaded SMTP server (*i.e.*, TCP_* channels), or PMDF POP3 or IMAP servers, you must now configure the PMDF Service Dispatcher to handle these services. (You should have previously shut down the old servers as directed in Section 1.5.1.)

The PMDF CONFIGURE DISPATCHER utility generates a basic PMDF Service Dispatcher configuration. See Chapter 5 and Chapter 6 for a description and sample configuration of the PMDF Service Dispatcher.

If you are also using PMDF POP3 or IMAP servers, you should also run the PMDF CONFIGURE MAILBOX_SERVERS utility and then include the configuration file

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it generates into the basic PMDF Service Dispatcher configuration file. Note also that POP3 and IMAP server options are defined as of PMDF V5.1 via server option files (and in some case via options in the PMDF Service Dispatcher configuration file) rather than with logical names as in PMDF V5.0 and earlier. If you were previously using logical names to set certain options you should now instead set the corresponding options in the appropriate option file; see the *PMDF System Manager's Guide* for details.

You should add the command:

\$ PMDF STARTUP DISPATCHER

to your system startup procedure so that the Dispatcher will be started up automatically upon future system reboots.

Note: The commands PMDF STARTUP SMTP, PMDF STARTUP POP3, and PMDF STARTUP IMAP are all obsolete as of PMDF V5.1, having been subsumed by the PMDF STARTUP DISPATCHER command. If you have any such commands in your system startup, replace them with a single PMDF STARTUP DISPATCHER command.

2. PMDF-MTA includes a facility called DELIVER, which is an adjunct to VMS MAIL that makes it possible for incoming mail messages to be handled and processed automatically based on information provided in a user supplied file. DELIVER is now an integral part of PMDF and is not installed separately. If you are upgrading from a version of PMDF prior to PMDF V5.0-6, you might have been using an older, standalone version of DELIVER, and might have commands to set up DELIVER in your system startup command file. These commands should be removed.

You should change references to DELIVER% to IN% format. See the *PMDF System Manager's Guide* and the *PMDF User's Guide* for details on the integrated DELIVER component of PMDF.

3. To better support multiple architectures, PMDF's directory structure has been changed as of the V4.2 release. Most importantly, the former PMDF_ROOT:[exe] directory has been split into several directories, each referenced by a logical name. Upgrading sites that use SMTP servers, DECnet objects, UUCP, or any of the command procedures to start detached PMDF processes are impacted by these changes. Also, any site developed procedures which reference executables or command procedures in PMDF_ROOT:[exe] must be modified to use either PMDF_EXE: or PMDF_COM: to access, respectively, executables or command procedures which formerly resided in PMDF_ROOT:[exe].

The command procedure PMDF_COM:find_pmdf_root.com can be executed to help you locate any references to PMDF_ROOT:[exe]. This procedure checks many of the places where PMDF_ROOT:[exe] is likely to be used. However, it is not omniscient and can miss noticing some occurrences. Likely usages to check include:

DECnet objects (PhoneNet or SMTP over DECnet channels)

The definitions for PhoneNet and SMTP DECnet objects need to be modified. For PhoneNet over DECnet channels, use the commands:

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```
$ RUN SYS$SYSTEM:NCP
NCP> DEFINE OBJECT PMDF -
      FILE PMDF_COM:dn_slave.com
      ...
NCP> SET   OBJECT PMDF -
      FILE PMDF_COM:dn_slave.com
      ...
```

For SMTP over DECnet channels, use the commands:

```
$ RUN SYS$SYSTEM:NCP
NCP> DEFINE OBJECT PMDFSMTTP -
      FILE PMDF_COM:dsmtip_slave.com
      ...
NCP> SET   OBJECT PMDFSMTTP -
      FILE PMDF_COM:dsmtip_slave.com
      ...
```

Consult the appropriate “Installing PMDF As a Known Object” subsection in the DECnet Channels chapter of the *PMDF System Manager’s Guide*.

UUCP

Consult the section “Setting up the slave program” in the UUCP Channels chapter of the *PMDF System Manager’s Guide*. You will most likely have to change the rmail definition in UUCP_BIN:uuxqt_dcl.com to

```
rmail = "$PMDF_EXE:uucp_slave.exe"
```

after which you need to restart your UUXQT job so that it will see this change.

Command procedures

Command procedures such as `start_ucx_smtpd.com` and `start_fax_receive.com` should now be referenced via the `PMDF_COM:` logical. Update your system startup procedures accordingly.

Shareable image hooks

Logical name definitions for shareable image hooks (e.g., `PMDF_FAX_VALIDATE` and `PMDF_FAX_LOG_USAGE`) may need to be changed depending upon where you used to keep the actual shareable images. For instance, if you previously kept them in `PMDF_ROOT:[exe]`, then the logicals need to be changed to now use `PMDF_EXE:` instead of `PMDF_ROOT:[exe]`.

4. If you are upgrading from PMDF 4.1 or earlier and were using the queue to e-mail symbiont, then note that as of PMDF V4.2 the name of the symbiont image has been changed to `pmdf_q2email.exe` so that it can be clearly identified in the SYSEXE directory. You will need to modify the /PROCESSOR qualifier specifications in your startup procedure which initializes any queue to e-mail queues.
5. If you are upgrading from version 3.1 or earlier of PMDF, you must use the command procedure `PMDF_COM:convert_queue.com` to convert old queue entries produced by versions of PMDF prior to 3.2 to the current subdirectory format. (This new format was introduced with version 3.2 of PMDF.)

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1.7.5 Converting to Using the Multithreaded SMTP Server

If you are upgrading from an earlier version of PMDF and have been using one of PMDF's older single-threaded, TCP/IP-package-specific, TCP/IP channels, you must convert to using the new, higher performance multithreaded TCP/IP channel as the old single-threaded channels are no longer provided. The steps in converting to using the multithreaded SMTP server are as follows:

1. Modify your PMDF configuration file, `PMDF_TABLE:pmdf.cnf`, by converting any old `xtcp_*` channels to `tcp_*` channels. For instance, if you previously had channel definitions of

```
ptcp_local smtp single_sys mx
PTCP-DAEMON
```

```
ptcp_internal smtp single_sys mx
PTCP-INTERNAL
```

you should modify your configuration to be

```
tcp_local smtp single_sys mx
PTCP-DAEMON
```

```
tcp_internal smtp single_sys mx
PTCP-INTERNAL
```

2. If using a compiled PMDF configuration, recompile and reinstall it to get these configuration changes to take effect.
3. Disable the old single threaded, TCP/IP-package-specific, PMDF SMTP server, as discussed in more detail below.
4. Configure the PMDF Dispatcher, as described in Chapter 5 and Chapter 6.
5. When the Dispatcher is configured, start it with the command:

```
$ PMDF STARTUP DISPATCHER
```

Starting the Dispatcher starts the new, multithreaded SMTP server.

6. Note that if there are any old, existing processes on your system that have been submitting messages to the old `xtcp_*` channels, such old processes may continue to try to submit to the old channel until the old process terminates. So unless you are making this configuration change on a system that has no other users or processes, you need to keep an eye out for new message files appearing in the old `PMDF_QUEUE:[xtcp_*]` directories as long as the old processes continue to run. If you see any such message files showing up, then to get such messages delivered you need to manually move the message files to the corresponding new `PMDF_QUEUE:[tcp_*]` directories, making sure to change the filename slightly in the process (say from `*.00` to `*.01`), and issue the command:

```
$ PMDF CACHE/SYNCH
```

The messages will then get delivered the next time the PMDF periodic delivery job runs. Or if you want them to get an immediate delivery attempt, you can release the PMDF periodic delivery job which should be holding in the `MAIL$BATCH` queue.

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Disabling a PMDF UTCP SMTP server

To disable a previous PMDF UTCP channel's SMTP server, issue the commands:

```
$ UCX
UCX> DISABLE SERVICE SMTP
UCX> SET NOSERVICE SMTP
UCX> SET CONFIGURATION DISABLE SERVICE SMTP
UCX> EXIT
```

If your site was previously using the PMDF UCX_SMTPD dispatcher, you must also delete that process; it will have a process name of "UCX/PMDF server". Also remove any command from your system startup that starts up that process; *e.g.*, remove any commands such as:

```
$ @PMDF_COM:start_ucx_smtpd.com
```

Disabling a PMDF PTCP SMTP Server

To disable a previous PMDF PTCP's channel SMTP server, issue the commands:

```
$ RUN TCPWARE:netcu
NETCU REMOVE SERVICE 25 TCP
NETCU EXIT
```

Or if you are running Process Software TCPware V5.3, you can disable the SMTP server using the interactive configuration tool

```
$ @TCPWARE:CNFNET TCP
```

by answering NO to the question regarding using the SMTP server, along the lines of:

```
Do you want to use the SMTP Mail Transfer Agent?
```

When you have disabled the SMTP server native to Process Software TCPware, or a previous PMDF PTCP channel, TCPware should then be shutdown and restarted with the commands:

```
$ @TCPWARE:shutnet.com
$ @TCPWARE:startnet.com
```

If you have TCPware installed in a cluster environment you must restart TCPware on every node in the cluster to ensure that each node knows about the change.

Disabling a PMDF MTCP SMTP Server

To disable a previous PMDF MTCP channel's SMTP server, issue the commands:

```
$ MULTINET CONFIGURE/SERVERS
SERVER-CONFIG> DISABLE SMTP
SERVER-CONFIG> RESTART
SERVER-CONFIG> EXIT
```

If you have MultiNet installed in a cluster environment you must restart MultiNet on every node in the cluster to ensure that each node knows about the change.

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Disabling a PMDF WTCP SMTP Server

To disable a previous PMDF WTCP channel's SMTP server, edit the PathWay Access `servers.dat` database and comment out the SMTP service definition. For instance, such a commented out definition might appear as follows, if PMDF previously had been using a single threaded PathWay TCP/IP channel:

```
# SMTP
# service-name      SMTP
# program           PMDF_EXE:WTCP_SLAVE.EXE
# socket-type       SOCK_STREAM
# socket-options    SO_ACCEPTCONN | SO_KEEPAIVE
# socket-address    AF_INET , 25
# working-set      1024
# maxservers        4
# priority          4
# INIT              TCP_Init
# LISTEN            TCP_Listen
# CONNECTED        TCP_Connected
# SERVICE           Run_Program
```

Next, delete the `INET_SERVERS` process. Restart the `INET_SERVERS` process by issuing the command:

```
$ @TWG$TCP:[NETDIST.MISC]INETSERV.COM
```

1.8 Post-Installation Tasks for New Sites

The following is a list of tasks which must be completed following a first installation of PMDF, PMDF-MTA, PMDF-MSGSTORE, PMDF-POPSTORE, and PMDF-TLS.

1. Run `post_install.com`:

If you are installing PMDF on multiple systems in a cluster with systems on different system disks (for example a mixed-architecture cluster), you should execute the `pmdf_com:post_install.com` procedure on one system for each distinct system disk, other than the one on which you installed PMDF.

2. Reinstall `dcltables.exe`:

For any other systems in the cluster, other than those that you did the installation on or you ran `post_install.com` on, the image `sys$library:dcltables.exe` must be reinstalled manually using the command:

```
$ INSTALL REPLACE SYS$LIBRARY:DCLTABLES.EXE
```

3. Add `pmdf_startup.com` to system startup:

A command file, `pmdf_startup.com`, is created by the installation procedure and stored in the `SYS$STARTUP` directory. This command procedure is used to define PMDF logical names and install PMDF images.

Add the following command to your system startup command procedure:

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\$ @SYS\$STARTUP:pmdf_startup.com

The pmdf_startup.com procedure should be executed *before any networks are started*. If you want this command procedure to run as a SYSMAN startup task you can use the SYSMAN STARTUP ADD FILE command to enter it into the SYSMAN database. When using SYSMAN, you must ensure that pmdf_startup.com is executed early in the startup phase before any networks have been started.

There is no need to stop or shutdown your networks before executing pmdf_startup.com manually if you did not ask KITINSTAL to run pmdf_startup.com during the installation. Just be sure that the order of pmdf_startup.com and pmdf_submit_jobs.com and any commands to start networks and queues is correct in your system startup procedure so when the system reboots PMDF starts properly.

Rather than customizing pmdf_startup.com itself, which will be replaced when you upgrade PMDF, you can create a PMDF_COM:pmdf_site_startup.com procedure and put your site specific PMDF definitions in that file. When pmdf_startup.com executes, it checks for the existence of a site-supplied pmdf_site_startup.com procedure and executes it.

4. Compile the configuration:

If this is a new installation on an additional system clustered with a system already running PMDF, that is, a new installation on a system which will share a configuration with an already installed and running PMDF, then if you use a compiled PMDF configuration on the old PMDF system, you will want to install the compiled PMDF configuration on this new system. (If this is a system which will have its own PMDF configuration, this step does *not* apply.)

If the configuration you want to use is already compiled for the current PMDF version for the architecture (VAX, Alpha or I64) of the system you are newly installing on, you can simply install it with the command:

\$ INSTALL CREATE PMDF_CONFIG_DATA/OPEN/SHARED/HEADER

If the old PMDF system is of another architecture type, or if you are upgrading that old system as well as newly installing on the new additional system, then you will need to first generate a newly compiled configuration and then install it with the commands:

\$ PMDF CNBUILD

\$ INSTALL CREATE PMDF_CONFIG_DATA/OPEN/SHARED/HEADER

If PMDF is currently executing on the system, you must also restart it:

\$ PMDF RESTART DISPATCHER

5. Configure queues:

You must initialize and start a MAIL\$BATCH queue and optionally additional service queues for PMDF processing. Such queues can be regular batch queues or, as is recommended, PMDF Process Symbiont queues to cut down on process creation overhead. The queues must be initialized and started *before* the second command file mentioned above, pmdf_submit_jobs.com, is executed. Run the

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PMDF CONFIGURE QUEUES utility to generate queue initialization and queue start procedures suitable for your system; *e.g.*,⁴

\$ PMDF CONFIGURE QUEUES

This utility will create the following command files

```
SYS$STARTUP:PMDF_INIT_QUEUES.COM
SYS$STARTUP:PMDF_START_QUEUES.COM
SYS$STARTUP:PMDF_STOP_QUEUES.COM
SYS$STARTUP:PMDF_DELETE_QUEUES.COM
```

How many execution queues do you want? [4] **4**

Do you want all queues to run on this node *yournode*? [Y] **Yes**

Do you want to initialize the queues now? [Y] **Yes**

Do you want to start the queues now? [Y] **Yes**

where your DECnet node name will appear where *yournode* is shown above.

If you have PMDF-MTA licensed on multiple nodes in a cluster, you might want to have execution queues run on the multiple PMDF-MTA nodes for load balancing and redundancy.

The PMDF CONFIGURE QUEUES utility creates four files in the SYS\$STARTUP directory. `pmdf_init_queues.com` and `pmdf_start_queues.com` contain sample commands to initialize and start PMDF service queues, respectively; you can customize the queue initialization and start commands in those files, if you want. (The `pmdf_stop_queues.com` and `pmdf_delete_queues.com` procedures are provided for convenience in testing, but are generally not used in production setups.) If you want to use the default queue definitions generated by the PMDF CONFIGURE QUEUES utility, answer YES when asked if you want to initialize and start the queues now.

So that these queues will be properly initialized and started at system startup, you must add the commands to initialize and start the queues to your system startup procedure. In your system startup procedure, the queue initialization commands, *e.g.*, `pmdf_init_queues.com`, must be executed after `pmdf_startup.com` is executed, normally before networking packages PMDF employs have started. The queue start commands, *e.g.*, `pmdf_start_queues.com`, should generally be issued after

⁴ Using PMDF Process Symbiont queues significantly reduces process creation overhead in general. The commands to initialize and start a generic MAIL\$BATCH queue feeding four PMDF Process Symbiont execution queues would be

```
$ INITIALIZE/QUEUE/START/DEVICE=SERVER/NOENABLE_GENERIC -
  /PROCESSOR=PMDF_PROCESS_SMB/PROTECTION=(S:RWE,O:RWD,G:R,W:R) PMDF_1
$ INITIALIZE/QUEUE/START/DEVICE=SERVER/NOENABLE_GENERIC -
  /PROCESSOR=PMDF_PROCESS_SMB/PROTECTION=(S:RWE,O:RWD,G:R,W:R) PMDF_2
$ INITIALIZE/QUEUE/START/DEVICE=SERVER/NOENABLE_GENERIC -
  /PROCESSOR=PMDF_PROCESS_SMB/PROTECTION=(S:RWE,O:RWD,G:R,W:R) PMDF_3
$ INITIALIZE/QUEUE/START/DEVICE=SERVER/NOENABLE_GENERIC -
  /PROCESSOR=PMDF_PROCESS_SMB/PROTECTION=(S:RWE,O:RWD,G:R,W:R) PMDF_4
$ INITIALIZE/QUEUE/START/DEVICE=SERVER/GENERIC=(PMDF_1,PMDF_2,PMDF_3,PMDF_4) -
  /PROTECTION=(S:RWE,O:RWD,G:R,W:R) MAIL$BATCH
```

Or if you prefer to use a regular batch queue for PMDF processing, you can execute a command such as

```
$ INITIALIZE/QUEUE/START/BATCH/BASE_PRIORITY=4/JOB_LIMIT=4 MAIL$BATCH
```

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all networking packages PMDF employs have started, but must be issued *before* `pmdf_submit_jobs.com` is executed.

Details on PMDF Process Symbiont queues can be found in the *PMDF System Manager's Guide*.

6. Run `pmdf_submit_jobs.com`:

A second command file is created during the installation, `pmdf_submit_jobs.com`, is used to resubmit PMDF service jobs after a system queue failure or initialization. The procedure `pmdf_submit_jobs.com` must be executed by your system startup *after all networks are started and after the MAIL\$BATCH queue and other PMDF service queues have been initialized and started*. After initializing the MAIL\$BATCH queue as described in the previous step, execute the command

```
$ @SYS$STARTUP:pmdf_submit_jobs.com
```

and then add this command to your system startup procedure. Again, in your system startup procedure, this command procedure must be executed after executing `pmdf_startup.com` and after all PMDF service queues have been initialized and started. If you want this command procedure to run as a SYSMAN startup task, you can use the SYSMAN STARTUP ADD FILE command to enter it into the SYSMAN database. If using SYSMAN, be sure to execute `pmdf_submit_jobs.com` in a late startup phase, after your queues are started.

7. Generate a configuration:

Create PMDF's site specific configuration files using the automatic configuration generation utility. Refer to Chapters 3 and 4 (PMDF-MTA regular configuration), or to Chapters 9 and 10 (PMDF-MTA firewall configuration), for information, step-by-step procedures, and an example configuration.

8. Complete the configuration:

When you have generated an initial configuration, you should take whatever steps are needed to complete the configuration of PMDF. The automatic configuration generator produces a check list which details any additional steps required to complete the configuration of PMDF.

9. Remove DELIVER commands:

PMDF-MTA includes a facility called DELIVER, which is an adjunct to VMS MAIL that makes it possible for incoming mail messages to be handled and processed automatically based on information provided in a user supplied file. This integrated version of DELIVER obsoletes an older, standalone version of DELIVER that ran independently of PMDF. If your site had previously been using the older, standalone version of DELIVER, you might have commands to set up DELIVER in your system startup command file. These commands should be removed.

You should change references to DELIVER% to IN% format. See the *PMDF System Manager's Guide* and the *PMDF User's Guide, OpenVMS Edition* for details on the integrated DELIVER component of PMDF.

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10. Edit SYS\$SYLOGIN:

If you use the system login command procedure, SYS\$SYLOGIN, you probably do not want it to perform its normal action when the PMDF server account logs in. You can avoid this by putting the line:

```
$ IF F$EDIT(F$GETJPI("","USERNAME"),"TRIM") .EQS. "pmdfacct" THEN EXIT
```

at the beginning of the system login command procedure. *pmdfacct* is the name of the PMDF server account you previously selected.

11. Perform image installation of any site-specific images:

pmdf_startup.com installs a number of images using the OpenVMS INSTALL utility. These images are listed in the file *pmdfimage.dat* in the PMDF_COM: directory. The *pmdfimage.dat* file is reserved for PMDF use and should not be modified.

Site-specific images can be installed by using the file *siteimage.dat* in the PMDF_COM: directory. *pmdf_startup.com* checks to see if this file exists and installs the images listed in it if it does exist. The *siteimage.dat* file has the same format as *pmdfimage.dat*. This format is extremely simple—a file name is specified followed by the appropriate qualifiers for OpenVMS INSTALL. The file name must be separated from the qualifiers by at least one space or tab character.

In either case the images specified by *pmdfimage.dat* will be reinstalled, but this will not hurt anything.

12. Update Pascal RTL (VAX and Alpha only):

Versions of the HP Pascal RTL (Run Time Library) earlier than V5.0-15 (VAX) or V5.0-18 (Alpha) were not fully thread-safe; PMDF's multithreaded SMTP server and multithreaded SMTP client were liable to exercise these problems. Hewlett-Packard Corporation has given Process Software permission to distribute an updated version of their Pascal RTL for VAX and Alpha. As of PMDF V5.0-6, the PMDF installation procedure will check the version of the Pascal RTL installed on the system on which you install PMDF, and will install an updated Pascal RTL, *pasrtl.exe* (VAX) or *pas\$rtl.exe* (Alpha), if your system is running OpenVMS 6.1 or later and is using an older version of the RTL. This new version of the Pascal RTL will be included in the next releases of OpenVMS and HP Pascal for OpenVMS.

If you are running a shared PMDF configuration on a cluster, then note that the PMDF installation will only update the Pascal RTL on the node on which you perform the installation; you must separately update the Pascal RTL on any other system disks. (Sites running PMDF on a mixed architecture cluster or on a cluster with multiple system disks should note that *post_install.com* does *not* update the Pascal RTL; you must still update the Pascal RTL separately.) See Appendix A for details.

13. Configure components:

If you will be using PMDF-MSGSTORE or PMDF-POPSTORE, then you should configure them now. Configuration instructions for PMDF-MSGSTORE and PMDF-POPSTORE can be found in Chapters 7 and 8.

Installing or Upgrading PMDF and PMDF Layered Products

Post-Installation Tasks for New Sites

1.9 After Upgrading the OpenVMS Operating System

After an upgrade of the OpenVMS operating system, if the upgrade did not include a sufficiently up to date version of the HP Pascal RTL, then you will need to reinstall a newer version; see Appendix A for details.

After an upgrade of the OpenVMS operating system, you should issue the commands:

```
$ @PMDF_COM:link_username.com  
$ @PMDF_COM:link_pmdfaudshr.com
```

These will relink two PMDF images which have OpenVMS system symbol table dependencies (and thus will probably need to be relinked when you change major release version of OpenVMS).

2 PMDF-MTA Example Installation

Example 2-1 is a sample PMDF-MTA installation dialogue (using the VMSINSTAL utility). Before the installation started, the PMDF V6.8 product kit was copied from the PMDF distribution CD-ROM directory ([pmdf066.openvms]) to the DKA100:[000000] directory.

Remember that the values in this sample installation are for purposes of example only. Make sure you use values that are appropriate for your system when you perform the actual installation.

Note: Whenever possible, the installation supplies a default (which is enclosed in square brackets). If you want to accept the default value, press `RETURN`. Otherwise, enter the correct value.

Example 2-1 Example PMDF V6.8 Installation

```
$ @SYS$UPDATE:VMSINSTAL.COM
```

```
OpenVMS Alpha Software Product Installation Procedure V7.1
```

```
It is 5-JAN-2015 at 10:58.
```

```
Enter a question mark (?) at any time for help.
```

```
* Are you satisfied with the backup of your system disk [YES]? YES
```

```
* Where will the distribution volumes be mounted: DKA100:[000000]
```

```
Enter the products to be processed from the first distribution volume set.
```

```
* Products: PMDF066
```

```
* Enter installation options you wish to use (none): RETURN
```

```
The following products will be processed:
```

```
PMDF V6.8
```

```
Beginning installation of PMDF V6.8 at 10:59
```

```
%VMSINSTAL-I-RESTORE, Restoring product save set A ...
```

```
*-----*
|           |
| Installing PMDF Version 6.8 |
|           |
*-----*
```

```
Copyright (c) 2015 Process Software. All rights reserved.
```

```
The PMDF mark and all PMDF based trademarks and logos are trademarks
of Sun Microsystems, Inc. in the U.S. and other countries and are
used under license.
```

Example 2-1 Cont'd on next page

PMDF-MTA Example Installation

Example 2-1 (Cont.) Example PMDF V6.8 Installation

ALL RIGHTS RESERVED UNDER THE COPYRIGHT LAWS OF THE UNITED STATES

This licensed material is the valuable property of Process Software.
Its use, duplication, or disclosure is subject to the restrictions
set forth in the License Agreement.

Other use, duplication or disclosure, unless expressly provided for
in the license agreement, is unlawful.

Product: PMDF-MTA, PMDF-ACCESS, or PMDF
Producer: INNOSOFT
Version: 6.8
Release Date: 30-JAN-2015

* Does this product have an authorization key registered and loaded? **YES**

```
*****  
***          ***  
***  I M P O R T A N T  ***  
***          ***  
*****
```

Make sure you read the PMDF Installation Guide, OpenVMS Edition,
before proceeding with this installation. If you do not have a
copy of the installation guide, see the Process Software web site
at www.process.com, or contact Process Software technical support.

* [Press RETURN To Continue]:

* Do you want to purge files replaced by this installation [YES]? **YES**

Alpha VMS executables will be provided automatically by this installation.
The installations of VAX VMS or I64 VMS executables is optional.
Having all sets of executables on the same system causes no conflicts
in PMDF.

* Install VAX VMS executables as well as Alpha VMS executables [NO]? **NO**

* Install I64 VMS executables as well as Alpha VMS executables [NO]? **NO**

You will now be asked where you want the PMDF files to be
installed. The files will be stored in a directory tree of
your choice on the device and under the directory which you specify.
A system-wide logical name called PMDF_ROOT will be created by
the PMDF startup procedure to refer to this directory tree.

Enter the device and directory or rooted directory where the top level
PMDF tree should be.

e.g. DUA3:[PMDF]
or DUA0:[UTILS.MAILSTUFF.PMDF040]

or if the logical name UTIL_DIR: is a rooted logical pointing to
DUA0:[UTIL.PMDF.] you can use something like UTIL_DIR:[V33]

Note that you must NOT include the trailing "." as in a rooted
directory name here (it will be added when the root is defined).

* Enter the device and directory [SYS\$SYSDEVICE:[PMDF]]: **DKA0:[PMDF]**

Example 2-1 Cont'd on next page

Example 2-1 (Cont.) Example PMDF V6.8 Installation

This is a new installation of PMDF.

If you plan to use channel or system level mail filtering or use PhoneNet channels, or channels that use DECnet proxied transports (PhoneNet over DECnet or SMTP over DECnet) you will need a PMDF server account. Other channels do not require a special PMDF server account.

The server account name is usually PMDF... but you can use another name.

NOTE:

A disk quota entry must be manually created for the PMDF server account if one is needed. Failure to do so will make it impossible for nonprivileged users to send PMDF mail.

* Username for the PMDF server account [PMDF]: **PMDF**

* Does this account already exist [NO]? **NO**

* Password for the PMDF server account: *somepassword*

* Numeric UIC for the PMDF server account [[375,1]]: **[375,1]**

%PMDF-I-CREPMDFSACC, Creating PMDF server account

%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named PMDF.

%UAF-I-ADDMSG, user record successfully added

%UAF-I-RDBADDMSGU, identifier PMDF value: [000375,000001] added to rights data base

%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named PMDF.

%UAF-I-MDFYMSG, user record(s) updated

%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named PMDF.

%UAF-I-MDFYMSG, user record(s) updated

PMDF channel programs that perform proxied actions on behalf of users need a nonprivileged context to operate in. This context is provided by a special nonprivileged account. This PMDF user account should be in a group by itself to prevent unauthorized file access by group, and the UIC group should be outside of the system UIC group range.

The user account name is usually PMDF_USER... but you can use another name.

* Username for the PMDF user account [PMDF_USER]? **PMDF_USER**

* Does this account already exist [NO]? **NO**

* Password for the PMDF user account: *whateverpassword*

* Numeric UIC for the PMDF user account [[374,1]]? **[374,1]**

%PMDF-I-MODPMDFUACC, Creating PMDF user account

%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named PMDF_USER.

%UAF-I-ADDMSG, user record successfully added

%UAF-I-RDBADDMSGU, identifier PMDF_USER value: [000374,000001] added to rights data base

%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named PMDF_USER.

%UAF-I-MDFYMSG, user record(s) updated

%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named PMDF_USER.

%UAF-I-MDFYMSG, user record(s) updated

Example 2-1 Cont'd on next page

PMDF-MTA Example Installation

Example 2-1 (Cont.) Example PMDF V6.8 Installation

PMDF operates by submitting its service jobs to a VMS queue for processing. The queue can either be a standard VMS batch queue or a queue serviced with the PMDF process symbiont. Although the queue used can be controlled on a per-channel basis, in most cases a default queue is used. Enter the name of this default queue here.

- * Queue PMDF jobs should run in [MAIL\$BATCH]: **MAIL\$BATCH**

PMDF service jobs need to execute under a privileged username. This is normally SYSTEM. If you would prefer your PMDF service jobs to execute under a different privileged username, you can enter that username now.

- * Username for PMDF service jobs [SYSTEM]: **SYSTEM**

PMDF's integrated DELIVER subsystem causes PMDF to submit batch jobs on behalf of users with MAIL.DELIVERY files. Enter a default queue for these jobs to run in. Note that MAIL.DELIVERY files can specify the queue the job they create runs in as well as various queue parameters. Also note that the queues handled by the PMDF process symbiont can NOT be used to run the jobs created by nonprivileged users' MAIL.DELIVERY files.

- * Batch queue DELIVER jobs should run in [SYS\$BATCH]: **SYS\$BATCH**

PMDF needs to know the timezone for the site in order to fill in date-time lines in message headers. You may enter a timezone here which will be equivalenced to the system logical name PMDF_TIMEZONE for use by PMDF. If you do not specify a timezone, PMDF will use VMS system logicals to get the timezone, if your version of VMS supplies them.

- * Current timezone for this site [EST]: **EST**

PMDF provides an online HELP file that describes the PMDF command. You can elect to add this help entry to your system help library. The entry is available as the file PMDF_ROOT:[DOC]PMDF.HLP regardless of whether or not you elect to install it.

- * Do you want a system help entry for the PMDF DCL command [YES]? **YES**

- * Do you want to run PMDF_STARTUP.COM after the installation completes [YES]? **YES**

%VMSINSTAL-I-SYSDIR, This product creates system disk directory DKA0:[PMDF].

- * Do you wish to install PMDF-TLS [YES]? **YES**

Product: PMDF-TLS
Producer: INNOSOFT
Version: 6.8
Release Date: 15-JAN-2015

- * Do you wish to install the PMDF Message Store [YES]? **YES**

Product: PMDF-MSGSTORE
Producer: INNOSOFT
Version: 6.8
Release Date: 15-JAN-2015

- * Does this product have an authorization key registered and loaded? **YES**

Example 2-1 Cont'd on next page

Example 2-1 (Cont.) Example PMDF V6.8 Installation

The mail RFC files will require 36645 blocks.

* Do you wish to install the mail RFC files [YES]? **YES**

You have chosen to install the mail RFC files.

The HTML format documentation will require 43296 blocks.

* Do you wish to install HTML format documentation [YES]? **YES**

You have chosen to install the HTML format documentation.

%PMDF-I-NOMORQST, No further questions will be asked during the installation

%PMDF-I-PLEASEIGNORE, (Please ignore %CREATE-I-EXISTS informational messages)

%VMSINSTAL-I-SYSDIR, This product creates system disk directory PMDF\$INSTALL_ROT:[DOC.HTML].

%PMDF-I-RESTORE, Restoring product save set B ...

%PMDF-I-RESTORE, Restoring product save set C ...

%PMDF-I-RESTORE, Restoring product save set D ...

%VMSINSTAL-I-SYSDIR, This product creates system disk directory PMDF\$INSTALL_ROT:[OTHER].

%PMDF-I-RESTORE, Restoring product save set E ...

%PMDF-I-RESTORE, Restoring product save set G ...

```
*****  
***                               ***  
***   I M P O R T A N T   ***  
***                               ***  
*****
```

Upon completion of this installation, make sure you read the PMDF Installation Guide, OpenVMS Edition, and execute the Post-Installation Tasks, including:

- If this installation is being done on an OpenVMS cluster, you must do `INSTALL REPLACE SYS$LIBRARY:DCLTABLES` and then do `@SYS$STARTUP:PMDF_STARTUP.COM` on all nodes where PMDF is going to be used (you may use `SYSMAN` for these).
- Be sure that your system startup procedure includes `SYS$STARTUP:PMDF_STARTUP.COM` and `SYS$STARTUP:PMDF_SUBMIT_JOBS.COM`. `PMDF_STARTUP` should be run prior to starting any networks that PMDF is configured to run over (including DECnet).
- The format of compiled configurations changes with each release of PMDF. If this is an upgrade and you use a compiled configuration, you must recompile your compiled configuration:
 \$ PMDF CNBUILD
If you elect to start PMDF prior to executing this command you should:
 \$ INSTALL REPLACE PMDF_CONFIG_DATA
This command should be executed on every node where PMDF is started.
- If you are upgrading from a previous version of PMDF, then note that a new `PMDF_SUBMIT_JOBS.COM` is provided with this kit, so you should delete the periodic PMDF delivery job and PMDF Message Bouncer job in your PMDF queue and resubmit them by executing the command `@SYS$STARTUP:PMDF_SUBMIT_JOBS`

Example 2-1 Cont'd on next page

PMDF-MTA Example Installation

Example 2-1 (Cont.) Example PMDF V6.8 Installation

```
%PMDF-I-RESTORE, Restoring product save set I ...
%PMDF-I-CRTMPSTPRT, Creating temporary directories and setting file protections.
. .
%VMSINSTAL-I-SYSDIR, This product creates system disk directory  PMDF$INSTALL_RO
OT:[QUEUE].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory  PMDF$INSTALL_RO
OT:[LOG].
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
$ INSTALL CREATE PMDF_CHARSET_DATA /OPEN/HEADER/SHARED!350!1
$ INSTALL CREATE PMDF_COMMAND_DATA /OPEN/HEADER/SHARED!350!1
$ INSTALL CREATE PMDF_SHARE_LIBRARY /OPEN/HEADER/SHARED!1860!7
$ INSTALL CREATE PMDF_TLS_LIBRARY /OPEN/HEADER/SHARED
$ INSTALL CREATE PMDF_LDAPV3_LIBRARY /OPEN/HEADER/SHARED!151!2
$ INSTALL CREATE PMDF_X500_FORM /OPEN/HEADER/SHARED!531!3
$ INSTALL CREATE PMDF_CCSO_FORM /OPEN/HEADER/SHARED!488!3
$ INSTALL CREATE PMDF_USERNAME
$ INSTALL CREATE PMDF_PRIV_DISP /OPEN/HEADER/SHARED/PROT!25!4
$ INSTALL CREATE PMDF_EXE:FOLDER.EXE /PRIV=(SYSPRV,SYSLCK)/HEADER
$ INSTALL CREATE PMDF_EXE:PMDF.EXE /PRIV=(SYSPRV)/HEADER
$ INSTALL CREATE PMDF_EXE:UA.EXE /OPEN/HEADER/SHARED/PRIV=(SYSPRV,CMKRNL)
$ INSTALL CREATE PMDF_EXE:QM.EXE /OPEN/HEADER/SHARED/PRIV=(SYSPRV,CMKRNL,SYSLCK)
$ INSTALL CREATE PMDF_EXE:PINE.EXE /OPEN/HEADER/SHARED/PRIV=(SYSPRV,CMKRNL)!!1
$ INSTALL CREATE PMDF_EXE:SEND.EXE /PRIV=(SYSPRV,CMKRNL)
$ INSTALL CREATE PMDF_EXE:SUBMIT_MASTER.EXE /PRIV=(SYSPRV,CMKRNL)
$ INSTALL CREATE PMDF_EXE:IMAPD.EXE /OPEN/HEADER/SHARED
$ INSTALL CREATE PMDF_EXE:POP3D.EXE /OPEN/HEADER/SHARED
$ INSTALL CREATE PMDF_EXE:POPMGR.EXE /OPEN/HEADER/SHARED/PRIV=(SYSPRV,SYSLCK)
$ INSTALL CREATE PMDF_EXE:MRAPPSHAR_EMUL.EXE
$ INSTALL CREATE PMDF_EXE:MUAS$MRIF_SHR_EMUL.EXE
$ INSTALL CREATE PMDF_EXE:MRAXPSHAR.EXE
$ INSTALL REPLACE SYS$LIBRARY:PASS$RTL.EXE /OPEN/SHARED/HEADER!250!1
$ INSTALL REPLACE SYS$MESSAGE:PASS$MSG.EXE /OPEN/HEADER

%PMDF-I-LOADED, PMDF-MTA license is loaded
Creating PMDF counters detached process
%RUN-S-PROC_ID, identification of created process is 00000E19

Installation of PMDF V6.8 completed at 11:16

Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

Creating installation data file: VMI$ROOT:[SYSUPD]PMDF.VMI_DATA

Enter the products to be processed from the next distribution volume set.
* Products: 

VMSINSTAL procedure done at 11:17
$
```

3 Generating an Initial PMDF Configuration

This chapter describes how to use the PMDF automatic configuration generator to create an initial configuration for your system. In most cases, the configuration that is created by following these steps will not require further modification. However, if additional customization is required, or if some channels were not generated by PMDF CONFIGURE (for example, dial-up PhoneNet or DECUS UUCP channels), you will need to edit the configuration file manually.

Manual editing of the configuration file could also be required as your environment evolves. For example, as nodes or networks are added to your system, you might need to add rewrite rules or channel blocks to your `pmdf.cnf` file. In many cases, you might find it easier to rerun the configuration generator, entering different values to reflect the changes in your environment.

The web-based configuration utility maintains a history of the prior configuration session. If you want to reconfigure later, you can load that prior configuration session's data. (Click on the "Load" button on the main configuration screen.)

Similarly, the command line configuration utility saves a history of its execution in the `configure.history` file that is located in the PMDF table directory. When you run PMDF CONFIGURE again, you will be asked if you want the values in the history file to be the default values for the configuration.

Note: Be careful about deleting the history file. It could save you from entering the same information again. It might also prove useful to Process Software technical support, should you encounter problems.

3.1 Before You Begin

Before you run the automatic configuration generator, you should know about your network configuration, as well as what input needs to be supplied to the PMDF configuration utility.

Note: The PMDF configuration generator attempts to provide default values to the prompts. These defaults are picked up, whenever possible, from your system environment.

3.1.1 Network Configuration

The automatic configuration generator is capable of creating rewrite rules and channel blocks for the local system or OpenVMS cluster, as well as TCP/IP networks (and, in the case of the command line utility, DECnet networks) that are connected to the local system. You can have any or all of these networks on your system.

Generating an Initial PMDF Configuration Before You Begin

The command line PMDF configuration utility looks for these networks and tries to determine what you have. If PMDF CONFIGURE provides an incorrect default, or no default at all, you can override the default network type.

Note: PMDF CONFIGURE only discovers network packages that are running on the node where you are executing the procedure. If you are configuring PMDF on an OpenVMS cluster, you should run this procedure on a node that is running all your network packages. If your network packages are spread out across different nodes in your OpenVMS cluster, make sure to provide PMDF CONFIGURE with all your network packages, even though they might not show up by default.

If you want PMDF to use network facilities that are not all resident on a single member of your OpenVMS cluster, you will have to provide PMDF with access to an OpenVMS queue on *each* system that has a network facility that you want PMDF to use. After you generate your configuration file with the PMDF configuration utility (using either the web-based or command line version), you will need to add the `queue` channel keyword to the channel definitions for network facilities that are not accessible from your default PMDF service queue (normally MAIL\$BATCH). (See the *PMDF System Manager's Guide* for additional information on the `queue` channel keyword.)

3.1.2 Selecting a System Name

Before you configure PMDF, you should give some thought to what your official system name should be. This is not just a matter of picking a name for your system. If you want to communicate with systems on the Internet, your system needs to be registered as a member of some network domain. In order to be eligible for registration, you must have a connection to a system on the Internet that is able to perform name server functions for you.

If you are using PMDF in an isolated (non-Internet) application, you can pick any system name you want. However, remember that networks have a way of growing and becoming more visible. At some point in the future, you could regret a careless decision about naming conventions you made earlier. Try to pick a sane, sensible name that is appropriate for your users, system, and site.

In many environments, a system cannot be referred to by a single name. While this is undesirable, it is quite common. For example, a homogeneous OpenVMS cluster is usually configured for PMDF with a single official host name. However, each OpenVMS cluster member's name should be recognized as synonymous with the local host. Mail that originates from any node in the OpenVMS cluster will always be marked by PMDF as coming from the official host name (regardless of which node originated the message, or handled the network connection).

Many sites use a different name for DECnet than they do on the Internet. Again, a single name must be chosen as the official local host name. That name is usually the fully qualified Internet domain name. However, if you are not on the Internet, or if you are not using TCP/IP domain names, you could choose your DECnet name as the system name.

3.1.3 Authentication and Security

There are various contexts when users might need to authenticate themselves (supply a password). Some of these situations are:

- Using a POP or IMAP client to connect and read e-mail
- Setting up a personal mailbox filter
- Using SASL to send e-mail

PMDF supports performing authentication against various authentication sources, such as the SYSUAF (the PMDF password database), PMDF user profiles (PMDF MessageStore or PMDF popstore account profiles), or even an LDAP directory. The PMDF default (which allows authentication against any PMDF user profile, the PMDF password database, or SYSUAF passwords) is a good starting point for most sites. (See the *PMDF System Manager's Guide* for further information on PMDF authentication and security configuration.)

3.2 Using the PMDF-MTA Web-Based Configuration Utility

The web-based PMDF-MTA configuration utility subsumes the following command line utilities:

- `pmdf configure mta`
- `pmdf configure dispatcher`
- `pmdf configure mailbox_servers`
- `pmdf configure lan`

Process Software generally recommends that you use this configuration utility to generate a PMDF-MTA configuration. However, the command line utilities can be a useful alternative for sites who either find web configuration inconvenient, or who send e-mail over DECnet.

Note: If this is a new installation, make sure you follow the preliminary tasks for new installations that are described in Section 1.4. In particular, a PMDF-MTA license must be installed, and the PMDF account must be created before you can run the configuration utility.

The web-based configuration utility can be used to generate an initial configuration, or it can be used to generate a new configuration of an existing PMDF installation. If you are configuring multiple components (for example, MTA/SMTP and IMAP/POP servers), these components can either be configured at the same time, or they can be configured at different times.

Configuring components at the time same lets the configuration utility mesh some of the configuration files itself, thereby minimizing the number of post-configuration checklist tasks that you will need to perform. In particular, configuring IMAP/POP server use at the same time as the base MTA/SMTP configuration is often convenient.

Generating an Initial PMDF Configuration Using the PMDF-MTA Web-Based Configuration Utility

However, configuring components at different times might be more convenient for an initial installation.

If this is a new installation and PMDF is not running, initiate the web-based configuration utility according to the following:

1. Log in as either SYSTEM, or as the PMDF user.
2. Issue the following commands:

```
$ HTTP_SERVER == "$PMDF_EXE:HTTP_SERVER.EXE"  
$ HTTP_SERVER -S
```

The above commands start up the PMDF HTTP server in standalone mode, making the web-based configuration utility available.

Note: Sites that already have PMDF running do not need to issue the above commands when they want to re-run the configuration utility, as the PMDF HTTP server will already be running normally for them.

With JavaScript enabled, you can access the utility by pointing your web browser (using Netscape version 3.0 or later, or Microsoft Internet Explorer version 4.0 or later), to

```
http://localhost:7633/
```

where *localhost* is the TCP/IP name of your PMDF system. Select the “Configuration Utilities” link to begin the configuration.

Figure 3–1 is an example of the initial page that displays when you are running the PMDF HTTP server in standalone mode (before the PMDF configuration). Figure 8–1 is an example of the HTTP server main page that displays after you perform an initial PMDF configuration.

Each screen in the configuration utility has radio buttons, checkboxes, and/or text input fields. If you click on any of these fields, instructions for the field appear in the “Help” box at the bottom of the page.

Note: If you use of a full-screen web-browser window, you can avoid unnecessary vertical scrolling.

When you have made your selections and returned to the main configuration screen, select the “Generate” button, and then click on the the “Confirm” button (on the next page) to generate your configuration.

Review the checklist that is generated by the configuration, and take whatever additional steps are required.

Generating an Initial PMDF Configuration Using the PMDF-MTA Web-Based Configuration Utility

Figure 3–1 HTTP Server Standalone Main Page



Generating an Initial PMDF Configuration Using the Command Line Configuration Utility

3.3 Using the Command Line Configuration Utility

This section contains step-by-step procedures for using a command line utility (PMDF CONFIGURE MTA) to generate PMDF configuration files. (See to Chapter 4 for a sample PMDF-MTA configuration dialogue.)

You must configure PMDF from the SYSTEM account. If you are not logged in to that account, do so now.

Use the following procedure to use the PMDF CONFIGURE MTA command line utility to configure PMDF:

1. Use the following commands to begin the configuration:

```
$ SET DEFAULT PMDF_TABLE:  
$ PMDF CONFIGURE MTA
```

2. Enabled detailed output. (Unless you are very familiar with the configuration procedure, it is a good idea to print out detailed explanations of each prompt as the configuration progresses.)

3. At this point, the following prompt displays:

```
Do you want to use answers from the previous run as defaults?
```

Answer **Y** (yes) if you want values from the previous configuration to be the defaults for this configuration.

Note: All your answers to the prompts are logged in a file in the PMDF_TABLE directory. After the first configuration, PMDF CONFIGURE uses the answers to the previous run as the default answers.

You can use the backslash character, \, to clear a default answer.

4. Review the example configuration that is shown in Chapter 4. Parts of the sample site might be representative of your own network configuration. Since the sample configuration was run with detailed output enabled, the example answers might help you determine the answers you need to provide for your own site.

5. When you finish running the PMDF CONFIGURE utility, print the checklist file (PMDF_TABLE:pmdf.checklist).

Complete the configuration by following the steps outlined in the checklist.

6. If you have TCP/IP connectivity to other systems, you will need to configure the PMDF Dispatcher (which manages the PMDF SMTP server and other TCP/IP based services). See Chapter 5 and Chapter 6 for more information.

Generating an Initial PMDF Configuration Using the Command Line Configuration Utility

7. If this is your initial configuration of PMDF, the PMDF CONFIGURE MTA utility will ask if you want to invoke the PMDF CONFIGURE DISPATCHER utility at this time. Either enter **Y** (yes), to perform the Dispatcher configuration now, or **N** (no), to configure the Dispatcher later.

8. It is a good idea to test your PMDF configuration initially by sending mail through PMDF to yourself, or to someone else on your local machine. (Although PMDF is not really required to send mail locally, this is a good test of the configuration.) You can do this test by using the VMS MAIL utility to send a message in the following format


```
IN%username
```

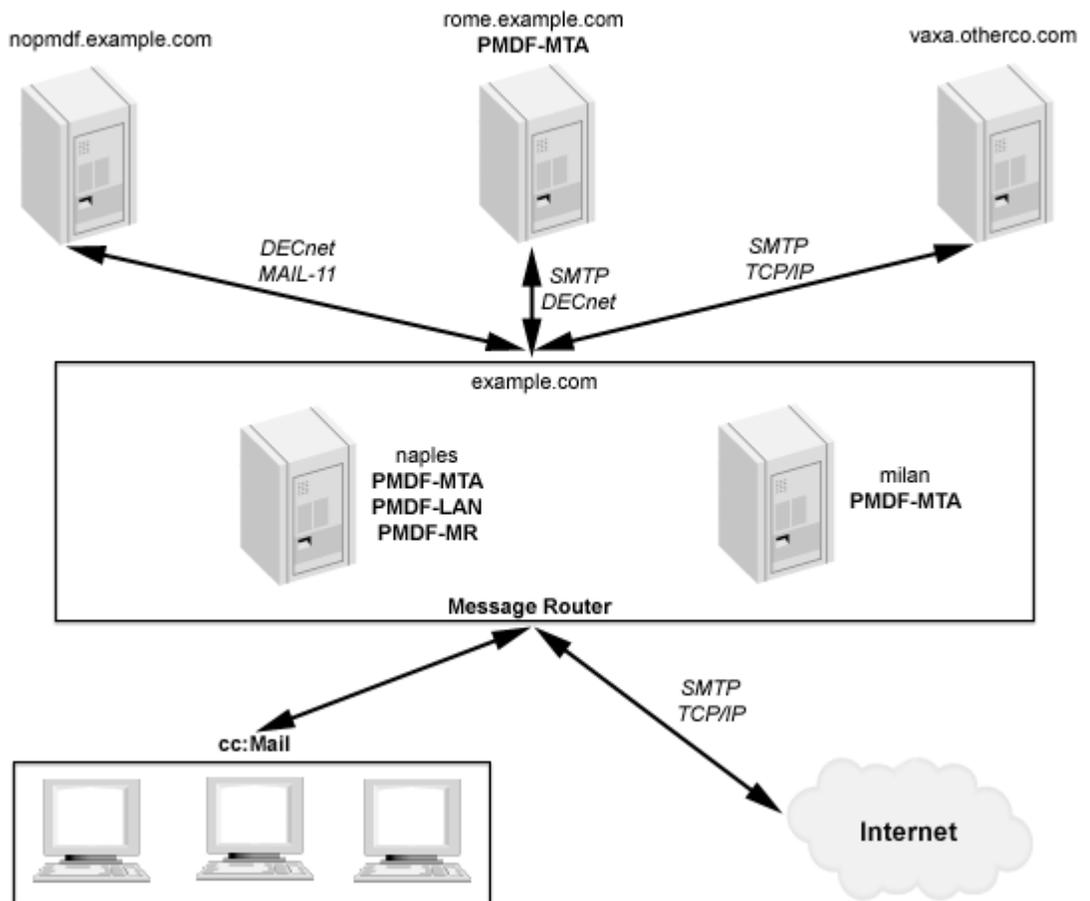

where *username* is a local username. PMDF should accept the message and deliver it quickly.

9. When local messages work, you can proceed to send messages off the system through your various networks. If the messages do not seem to be getting out, use the QM utility to examine the PMDF message queues to determine if the messages are stuck on your system. You can also examine log files in the PMDF_LOG: directory, which could help isolate network delivery problems. (See the chapter “Maintenance and Troubleshooting” in the *PMDF System Manager’s Guide* for additional information on tracking PMDF delivery problems.)

10. If everything appears to be functioning correctly, and if you have finished your configuration, you might want to use the PMDF CNBUILD utility to compile your configuration for increased performance. (See the *PMDF System Manager’s Guide* for more information.)

4 PMDF-MTA Example Configuration

Figure 4-1 Sample PMDF Site EXAMPLE.COM



Example 4-1 is a PMDF-MTA configuration dialogue that was generated using the command line configuration utility, PMDF CONFIGURE MTA. Example 4-2 is the corresponding checklist file.

The command line configuration utility was used for this example, rather than the web-based configuration utility, because it was assumed that the sample site, EXAMPLE.COM, needs to configure DECnet MAIL-11 connectivity.

PMDF-MTA Example Configuration

Note: A site that does not need to configure DECnet channels might find it more convenient to use the web-based configuration utility. (They could also configure IMAP/POP servers during the same web configuration session).

Specifics for the sample site, EXAMPLE.COM (shown in Figure 4–1), are:

- EXAMPLE.COM has a homogeneous two-node OpenVMS cluster, consisting of the nodes MILAN and NAPLES nodes.
- EXAMPLE.COM has additional non-clustered systems (NOPMDF and RABBIT).
- EXAMPLE.COM has connections to the Internet over TCP/IP.
- EXAMPLE.COM also communicates over TCP/IP with friends across town (at vaxa.otherco.com), who have not yet registered on the Internet.
- PMDF-MTA has been installed on NAPLES.
- The configuration is being performed on NAPLES (the PMDF-MTA system).
- NAPLES will run the MAIL\$BATCH queue, and handle all network connections.
- The NOPMDF and RABBIT nodes are both accessible from DECnet.
- The NOPMDF node does not have PMDF, so the DECnet MAIL-11 protocol over the DECnet transport will be used to exchange e-mail with that system.

Whenever possible, the installation supplies a default (which is enclosed in square brackets). If you want to accept the default value, press . Otherwise, enter the correct value. (You can use the backslash character, \, to clear a default answer.)

Remember that the values in this sample configuration are for purposes of example only. Make sure to use values that are appropriate for your system.

Example 4–1 Example PMDF-MTA Configuration

```
$ SET DEFAULT PMDF_TABLE:
```

```
$ PMDF CONFIGURE MTA
```

```
PMDF Configuration File Creation Utility, Version 6.8
```

```
This utility creates an initial PMDF configuration file  
(PMDF_TABLE:PMDF.CNF), an initial PMDF aliases file  
(PMDF_TABLE:ALIASES.), an initial PMDF security configuration file  
(PMDF_TABLE:SECURITY.CNF) and an initial PMDF mappings file  
(PMDF_TABLE:MAPPINGS.). Normally this is done just after  
PMDF has been installed. However, it is possible to run this  
procedure at any time.
```

```
For best results the various network products PMDF is going to be  
attached to should be installed and operational when this procedure  
is run. This is by no means required, but the defaults provided by  
this procedure cannot be selected intelligently without having  
various software packages available to interrogate.
```

Example 4–1 Cont'd on next page

Example 4-1 (Cont.) Example PMDF-MTA Configuration

Important note: No changes are made to existing PMDF configuration information until all questions have been answered. This utility can be aborted at any prompt by entering CTRL/C. The files output by this utility can optionally be redirected to a different location so they will have no impact on the existing PMDF configuration.

Do you wish to continue [Y]? **y**

Do you wish to have a detailed explanation printed before each question [N]? **y**

Part One: TCP/IP networking.

TCP/IP networking support:

- (0) No TCP/IP support
- (1) Generic multithreaded TCP/IP *requiring* UCX emulation

PMDF provides support for various VMS TCP/IP packages marketed by various vendors. Minimum supported versions are described in the documentation. PMDF uses UCX emulation, which can be a separate component to be enabled or installed. Answer 1 if you want support for SMTP over TCP/IP on your system. If no TCP/IP package is installed or if you don't want PMDF communicating with your TCP/IP package, enter 0 and press return.

Use which TCP/IP option [1]? **1**

Is your system set up to:

- (1) Do host lookups with MX records (name server required)
- (2) Do host lookups without MX records (name server required)
- (3) No name server; use TCP/IP package for host lookups

MX (Mail eXchange) records are special entries in the TCP/IP Domain Name Service database that redirect mail destined for systems not directly attached to the TCP/IP network to an intermediate gateway system that is directly attached.

If you are on the Internet, you should answer 1 as mandated by RFC1123 (Internet Host Requirements). Otherwise if your site has special requirements to ignore MX records then answer 2 if you have a name server available. Answer 3 if no name server is available.

Choose one of the above options [1]? **1**

This system has one or more names it is known by on TCP/IP. Enter the most 'official' of these names, preferably a name the system is registered under in the Domain Name System.

Name of this system on TCP/IP [NAPLES.EXAMPLE.COM]?

PMDF needs to know the IP addresses for all the interfaces used by TCP/IP on this system or homogeneous OpenVMS cluster. These addresses are needed so that PMDF can recognize domain literals references to this system. Such recognition is mandated by RFC1123.

Example 4-1 Cont'd on next page

PMDF-MTA Example Configuration

Example 4-1 (Cont.) Example PMDF-MTA Configuration

Enter each IP address separately in a.b.c.d format, pressing CR between each one. When you've entered them all just enter a CR by itself to end the list.

IP addresses for this system [RETURN if no more]? **12.34.56.7**

IP addresses for this system [RETURN if no more]? **12.34.56.8**

IP addresses for this system [RETURN if no more]?

Answer YES if this system is attached to the Internet via TCP/IP. Answer YES even if you have to go through a firewall.

Answer NO if this system is not attached to the Internet in this way. Note that a BITNET (NJE) or any other indirect connection to the Internet is not a real connection; answer NO if this is the only type of connection you have.

Is this system connected to the Internet via TCP/IP [N]? **y**

PMDF has the ability to automatically convert shortform names appearing on the right hand side of the at sign in an address into fully qualified domain names. These addresses are then routed to TCP/IP automatically. This convenience is especially appropriate when a system is only connected via TCP/IP and not via other networks. For example, if you were to specify a default domain of EXAMPLE.COM and the address USER@NAPLES was used, where SIGURD has no other special meaning, this address will be rewritten as USER@NAPLES.EXAMPLE.COM and routed via TCP/IP. Enter nothing if you don't want to have shortform addresses handled in this way.

Default domain to attach to shortform host names []? **example.com**

Answer YES if this system is behind a firewall and needs to route Internet mail to the firewall first. Answer NO if no such firewall exists or if this PMDF system is acting as the firewall.

Does this system need to route mail to a firewall [N]? **n**

PMDF needs to know about internal TCP/IP usage. For instance, this information is used to segregate incoming messages from internal vs. external sources. Your configuration file will automatically contain the rules necessary to reach external Internet domains, so it is not necessary to tell PMDF about external Internet systems.

If your site satisfies any of the following conditions:

- (+) POP or IMAP users,
- (+) other internal TCP/IP systems,
- (+) connect to non-Internet TCP/IP systems,

then you will need to answer YES. If you do answer YES, you will then be asked for the names of these systems or domains so that they can be added to your configuration and mappings files. Answer NO if there is no internal TCP/IP use.

Are there any internal or non-Internet systems reachable via TCP/IP [N]? **y**

Example 4-1 Cont'd on next page

Example 4-1 (Cont.) Example PMDF-MTA Configuration

TCP/IP networks typically provide access to one or more systems or entire domains. This should only include systems or domains that are accessible via TCP/IP; systems reachable via DECnet or NJE do not count. Enter each system or domain specification (e.g., system names such as 'doofus.company.com' or domains such as '.mycollege.edu') separately, pressing CR between each one. When you've entered them all just enter a CR by itself to end the list.

Internal system or domain reachable via TCP/IP [RETURN if no more]?

vaxa.otherco.com

Internal system or domain reachable via TCP/IP [RETURN if no more]?

PMDF needs to know the IP address of each internal system or subnet. For instance, this information is used to distinguish between internal and external systems for doing SMTP relay blocking. Enter each IP address separately in a.b.c.d, or a.b.0.0 or a.b.c.0 format, pressing CR between each one. When you've entered them all just enter a CR by itself to end the list.

IP addresses for your internal systems or network [RETURN if no more]? **12.55.6.7**

IP addresses for your internal systems or network [RETURN if no more]?

Part Two: DECnet connections

Answer YES if this system is attached to a DECnet network containing one or more remote nodes PMDF should provide access to. Answer NO if this host is not attached to such a network.

Is this system attached to any others using DECnet [Y]? **y**

Answer YES if one or more remote DECnet systems are running PMDF and are equipped with PhoneNet over DECnet (DN_) channels. Answer NO if no such systems exist.

Are any DECnet systems attached via PhoneNet over DECnet (DN_ channel) [N]? **n**

Answer YES if one or more remote DECnet systems are either running some mailer capable of doing SMTP over DECNET or are running PMDF and are equipped with SMTP over DECnet (DSMTP_) channels. Answer NO if no such systems exist.

Are any DECnet systems attached via SMTP over DECnet (DSMTP_ channel) [N]? **y**

Enter the DECnet name for a system attached by an SMTP over DECnet (DSMTP_) channel. This should be the name this system is listed under in NCP. Enter a CR if you have no more systems of this type to specify.

DECnet node name of a SMTP over DECnet system [RETURN if no more]? **RABBIT**

Enter the full domain name corresponding to the DECnet name you just entered. If the system has no name other than the DECnet name you just entered, simply enter the DECnet name again. Remember that if this name gets out to other sites they might not be able to reply to it if it is just a DECnet name

Example 4-1 Cont'd on next page

PMDF-MTA Example Configuration

Example 4-1 (Cont.) Example PMDF-MTA Configuration

Domain name corresponding to previous DECnet node name []?

rabbit.example.com

DECnet node name of a SMTP over DECnet system [RETURN if no more]?

PMDF's default handling of mail from DECnet-only nodes (remote DECnet systems reachable using normal MAIL-11 protocols, i.e. they are running DECnet and VMS MAIL without PMDF) is to cause the From: address to look like

USER%DECnetHOST@domain_name_of_system_running_PMDF

This format is reliable from both Internet and BITNET. You DO NOT have to enter such DECnet nodes into the PMDF configuration. If this is an acceptable solution, then answer NO.

If you want these DECNET nodes to have domain names for the outside world to see, i.e. you want to address these systems using the format

USER@DECnetHOST.itsdomain

AND you will be entering MX records for these domain names in your Domain Name Server, then answer YES.

Are there any DECnet systems reachable via regular MAIL-11 mail [Y]? **y**

Enter the DECnet name for a system attached via MAIL-11 over DECnet (i.e. VMS MAIL). This should be the name this system is listed under in NCP. Enter a CR if you have no more systems of this type to specify.

DECnet node name of a DECnet MAIL-11 system [RETURN if no more]? **NOPMDF**

Enter the full domain name corresponding to the DECnet name you just entered. This domain name should be entered into your domain name server as an MX record for mail to be reliable since this name will appear in the From: address of mail originating from this DECnet node.

Domain name corresponding to previous DECnet node name []?

nopmdf.example.com

DECnet node name of a DECnet MAIL-11 system [RETURN if no more]?

Part Three: Determining local host's name(s).

Enter the 'most official' name for this system. This should be the official domain name in most cases. This is the name that will appear in mail addresses on this system, among other things.

Official local host name [naples.example.com]? **example.com**

Enter the domain or subdomain your systems are part of, if there is one and it is consistent. For example, if your system's domain name is HMCVAX.EXAMPLE.COM, and in general all your systems are part of the .EXAMPLE.COM domain, enter '.EXAMPLE.COM'. If your system is not part of a domain or if your use of domain names is not consistent, just press CR.

Default domain or subdomain for this system/OpenVMS cluster []?

example.com

Example 4-1 Cont'd on next page

Example 4-1 (Cont.) Example PMDF-MTA Configuration

Enter the DECnet node name for the local host. This usually should be the actual node name and not the DECnet OpenVMS cluster alias.

DECnet node name for the local host [NAPLES]? **NAPLES**

Enter the SCS (OpenVMS cluster) node name for the local host.

SCS (OpenVMS cluster) node name for the local host [NAPLES]? **NAPLES**

Enter any aliases for the local host; these names are rewritten to the official local host name with rewrite rules.

Any other aliases for the local host [RETURN if no more]? **RETURN**

Enter YES if you want to include the other nodes in this OpenVMS cluster in this configuration. Enter NO if you do not. YES is an appropriate response in an entirely homogeneous OpenVMS cluster, NO can be appropriate in a heterogeneous OpenVMS cluster.

Include other OpenVMS cluster members in configuration [Y]? **y**

Enter a valid user@host type of address for the local Postmaster. This address will receive notifications of bounced or deferred mail as well as various other types of status and error reports. This address is also the one that will receive user queries about electronic mail.

A user@host style address for the local Postmaster [postmaster@naples.example.com]?

system@naples.example.com

Part Four: Security Configuration.

Enter YES if you would like to check passwords against LDAP source and NO if you do not.

Do you want to check passwords against LDAP [N]? **n**

Enter YES if you would like to check passwords against MessageStore/popstore user profiles, which is the fastest, and NO if you do not.

Do you want to check passwords against MessageStore/popstore user profiles [Y]? **y**

Enter YES if you would like to check passwords against PMDF password database and NO if you do not.

Do you want to check passwords against PMDF password database [Y]? **y**

Enter YES if you would like to check passwords against the operating system one (SYSUAF), and NO if you do not.

Do you want to check passwords against operating system [Y]? **y**

Enter YES if you would like to allow unprotected passwords for internal users and NO if you do not.

Do you want to allow unprotected password for internal users [Y]? **y**

Enter YES if you would like to allow unprotected passwords for external users and NO if you do not.

Do you want to allow unprotected password for external users [N]? **n**

Example 4-1 Cont'd on next page

PMDF-MTA Example Configuration

Example 4-1 (Cont.) Example PMDF-MTA Configuration

Enter YES if you would like to allow external users to submit mail using password and NO if you do not.

Do you want to allow external users to submit mail using password [Y]? **y**

Enter YES if you would like to support for pre-standard unprotected password submission used by Outlook Express and Netscape 4.0x and NO if you do not.

Do you want to support pre-standard password submission used by Outlook Express and Netscape 4.0x [N]? **n**

Part Five: Process and write files

Enter the name of the configuration file you want to have output. The default action is to produce a real configuration file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Configuration file to output [PMDF_ROOT:[TABLE]PMDF.CNF]?

Enter the name of the aliases file you want to have output. This file contains system-wide local address aliases PMDF will recognize; special aliases are required for proper operation of some channels. The default action is to produce a real alias file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue, or if you want to preserve an existing aliases file.

Alias file to output [PMDF_ROOT:[TABLE]ALIASES.]?

Enter the name of the mapping file you want to have output. The default action is to create a real mapping file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Mapping file to output [PMDF_ROOT:[TABLE]MAPPINGS.]?

Enter the name of the security configuration file you want to have output. The default action is to create a real security.cnf file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Security configuration file to output [PMDF_TABLE:SECURITY.CNF]?

This procedure generates a checklist file that contains the list of steps you must perform in order to complete your PMDF configuration. This procedure does **NOT** perform these steps itself; you must do them manually.

PMDF checklist file name [PMDF_ROOT:[TABLE]PMDF.CHECKLIST]?

All configuration questions have been answered.

Example 4-1 Cont'd on next page

Example 4-1 (Cont.) Example PMDF-MTA Configuration

This question gives you a last chance to change your mind before any files are written. Answer NO if you are not sure you want to generate the configuration you have specified. Answer YES if you do.

Do you wish to generate the configuration files [Y]? **y**

Generating the PMDF configuration file...

Generating the PMDF mappings file...

Generating the PMDF aliases file...

Generating the PMDF security configuration file...

Generating the PMDF checklist...

```
*****
*
*   To complete your PMDF configuration, carry out the steps
*   detailed in the checklist file PMDF_ROOT:[TABLE]PMDF.CHECKLIST;.
*
*****
```

Enter Yes if you want to see the checklist now. You can still type the file out later if you say No.

Do you want to see the checklist now [Y]? **n**

Enter YES if you would now like to configure the PMDF Dispatcher. If you answer NO, then you can configure it later with the command

```
$ PMDF CONFIGURE DISPATCHER
```

Configure the PMDF Dispatcher [Y]? **n**

```
$
```

Example 4-2 Example Checklist File for PMDF-MTA Configuration

```
$ TYPE PMDF_TABLE:pmdf.checklist
```

Checklist for completing the setup of your PMDF configuration.

Written by SYSTEM, 1-NOV-2012 13:08:50

This file was created by the PMDF configuration generator V6.8

- (1) If you have not already set up your MAIL\$BATCH queue or added the PMDF startup procedures to your system startup, then be sure to do so. Setting up MAIL\$BATCH is crucial to the operation of PMDF. Modifying the system startup can, of course, be done after you have verified the proper operation of PMDF. Refer to the "Post-Installation tasks" section of the first chapter of the PMDF Installation Guide & Release Notes.

Example 4-2 Cont'd on next page

PMDF-MTA Example Configuration

Example 4-2 (Cont.) Example Checklist File for PMDF-MTA Configuration

- (2) Setup the PMDF SMTP server. To do this consult the TCP/IP Channels chapter of the PMDF System Manager's Guide. To use the generic multithreaded TCP/IP, you need to disable any other SMTP server you are currently be running and also configure the PMDF Service Dispatcher with the command

```
PMDF CONFIGURE DISPATCHER
```

Note that all other steps outlined in the TCP/IP Channels chapter have been taken care of for you by the configure procedure.

- (3) Redefine the DECnet objects for PMDF using the new logical names for SMTP over DECnet,

```
$ RUN SYS$SYSTEM:NCP
NCP> DEFINE OBJECT PMDFSMTMP FILE PMDF_COM:DSMTMP_SLAVE.COM -
      NUMBER xxx USER pmdf_account PASSWORD password -
      ACCOUNT SYSTEM PROXY NONE
NCP> SET OBJECT PMDFSMTMP FILE PMDF_COM:DSMTMP_SLAVE.COM -
      NUMBER xxx USER pmdf_account PASSWORD password -
      ACCOUNT SYSTEM PROXY NONE
```

where xxx is an unused number which is agreed on by all nodes,

Or for DECnet OSI, the NCL commands:

```
$ RUN SYS$SYSTEM:NCL
NCL> CREATE SESSION CONTROL APPLICATION PMDFSMTMP
NCL> SET SESSION CONTROL APPLICATION PMDFSMTMP -
      ADDRESSES = {NAME = PMDFSMTMP, NUMBER =xxx}, -
      OUTGOING PROXY = FALSE, -
      INCOMING PROXY = FALSE, -
      NODE SYNONYM = TRUE, -
      IMAGE NAME = PMDF_COM:DSMTMP_SLAVE.COM, -
      USER NAME = "pmdf_account"
```

\$

5 Configuring the PMDF Service Dispatcher

The PMDF Service Dispatcher is a resident process that listens for incoming TCP/IP connections on various ports. The Dispatcher matches incoming connection requests to various servers (for example, the multithreaded SMTP server, a POP3 server, an IMAP server, an HTTP server, *etc.*). The PMDF Service Dispatcher, and the services it handles, can be run on a PMDF-MTA system. (See *PMDF System Manager's Guide* for a more detailed discussion of the purpose and function of the PMDF Service Dispatcher.)

This chapter describes how to use the PMDF Service Dispatcher command line configuration utility (PMDF CONFIGURE DISPATCHER). This utility generates a basic PMDF Service Dispatcher configuration file (`dispatcher.cnf`) in the `PMDF_TABLE` directory. This chapter also includes a checklist of the steps you need to take to complete the configuration of the PMDF Service Dispatcher.

Note: The web-based PMDF-MTA configuration utility automatically configures the Dispatcher. So, if you have already configured the Dispatcher with the web-based utility, you can skip this chapter.

5.1 Before You Begin

Before you can run the PMDF Service Dispatcher configuration utility, PMDF-MTA must already be installed on your system. Process Software recommends that you also configure PMDF before you configure the PMDF Service Dispatcher. If you have not already installed and configured PMDF-MTA, you should do so now. (See Chapter 1 for instructions.)

The PMDF Service Dispatcher configuration utility prompts you for several pieces of information including where (what port number) to run the PMDF HTTP server. The default answer supplied by the configuration utility is 7633, but you can enter a different port number if necessary.

5.2 Using the PMDF Service Dispatcher Configuration Utility

This section contains step-by-step procedures for using the PMDF CONFIGURE DISPATCHER utility to generate a basic PMDF Service Dispatcher configuration file. (See Chapter 6 for a sample configuration dialogue.)

You must configure the Service Dispatcher from the SYSTEM account. If you are not logged in to that account, do so now.

1. Begin the configuration of the Dispatcher by using the following commands:

```
$ SET DEFAULT PMDF_TABLE:  
$ PMDF CONFIGURE DISPATCHER
```

Configuring the PMDF Service Dispatcher

Using the PMDF Service Dispatcher Configuration Utility

2. Enable detailed output. (Unless you are very familiar with the configuration procedure, it is a good idea to print out detailed explanations of each prompt as the configuration progresses.)
3. Review the example configuration that is shown in Chapter 6. Parts of the sample site might be representative of your own network configuration. Since the sample configuration was run with detailed output enabled, the example answers might help you determine the answers that you need to provide for your own site.
4. When you finish running the PMDF CONFIGURE DISPATCHER utility, print the checklist file (`PMDF_TABLE:dispatcher.checklist`). Complete the configuration by following the steps outlined in the checklist.
5. If this is the initial configuration of the Dispatcher, the utility will ask if you want to configure the PMDF POP and IMAP mailbox servers.

6 PMDF Service Dispatcher Example Configuration

Example 6–1 is a sample configuration dialogue for configuring:

- The PMDF Service Dispatcher to handle the multithreaded SMTP server.
- An HTTP server to serve out PMDF documentation and forms.

Example 6–2 is the corresponding checklist file.

Remember that the values in this sample configuration are for purposes of example only. Make sure to use values that are appropriate for your system when you perform the actual configuration.

Note: Whenever possible, the configuration provides a default answer (which is enclosed in square brackets). If you want to accept the default value, press `RETURN`.

Example 6–1 Sample Dispatcher Configuration

```
$ PMDF CONFIGURE DISPATCHER
```

```
PMDF Dispatcher Configuration File Creation Utility, V6.8
```

```
This utility creates an initial PMDF Dispatcher configuration file
PMDF_TABLE:DISPATCHER.CNF and configuration file for the PMDF HTTP server
PMDF_TABLE:HTTP.CNF
```

```
* NOTE * that you must have a Process Software TCP/IP package or some other
TCP/IP package which supports UCX emulation for the Dispatcher to work.
```

```
Do you wish to continue [Y]? y
```

```
Do you wish to have a detailed explanation printed before each question [N]? y
```

```
Enter the port number on which the PMDF HTTP server should listen
for incoming connections.
```

```
What port number do you want the PMDF HTTP server to use [7633]? RETURN
```

```
Enter the name of the configuration file for the Dispatcher.
```

```
PMDF Dispatcher configuration file name [PMDF_TABLE:DISPATCHER.CNF]? RETURN
```

```
Enter the name of the configuration file for the HTTP server.
```

```
PMDF HTTP server configuration file name [PMDF_TABLE:HTTP.CNF]? RETURN
```

```
This procedure generates a checklist file that contains the list of
steps you must perform in order to complete your PMDF configuration.
This procedure does *NOT* perform these steps itself; you must do
them manually.
```

```
PMDF checklist file name [PMDF_TABLE:DISPATCHER.CHECKLIST]? RETURN
```

Example 6–1 Cont'd on next page

PMDF Service Dispatcher Example Configuration

Example 6-1 (Cont.) Sample Dispatcher Configuration

This question gives you a last chance to change your mind before any files are written. Answer NO if you are not sure you want to generate the configuration you have specified. Answer YES if you do.

Do you wish to generate the configuration files [Y]? **y**

Generating the file PMDF_TABLE:DISPATCHER.CNF

Generating the file PMDF_TABLE:HTTP.CNF

Generating the checklist file, PMDF_TABLE:dispatcher.checklist

```
*****
*
*   To complete your PMDF configuration, carry out the steps
*   detailed in the checklist file PMDF_TABLE:dispatcher.checklist.
*
*****
```

Enter Yes if you want to see the checklist now. You can still type the file out later if you say No.

Do you want to see the checklist now [Y]? **n**

Enter YES if you would now like to configure the PMDF POP and/or IMAP servers. If you answer NO, then you can configure them later with the command

```
    $ PMDF CONFIGURE MAILBOX_SERVERS
```

Configure the POP and IMAP servers [Y]? **n**

Example 6-2 Sample Dispatcher Configuration Checklist File

```
$ type pmdf_table:dispatcher.checklist
```

```
Checklist for completing the setup of your PMDF Service Dispatcher
```

```
Written by SYSTEM, 1-Nov-2012 11:25:52
```

```
This file was created by the PMDF configuration generator V6.8
```

- (1) If you did not configure PMDF to use the multithreaded SMTP server already, then you need to reconfigure it before the PMDF Service Dispatcher is started.

Your TCP/IP and VMS must be of the minimum version described in the PMDF System Manager's manual.

- (2) You have to start a new Dispatcher or restart the currently running Dispatcher for the new configuration to take effect. The following command is to be issued on each node:

```
    pmdf startup dispatcher
or
    pmdf restart dispatcher
```

Example 6-2 Cont'd on next page

PMDF Service Dispatcher Example Configuration

Example 6–2 (Cont.) Sample Dispatcher Configuration Checklist File

- (3) The dispatcher needs to be started in your system startup file with the command

```
pmdf startup dispatcher
```

- (4) The Dispatcher configuration includes a definition for the PMDF HTTP server. The PMDF HTTP server can serve out PMDF documentation, general PMDF operation monitoring information, and statistics on the Dispatcher's own operation, and allows for web-based access to PMDF popstore management, and user mailbox filters.

All access to the PMDF HTTP server is disabled unless an HTTP_ACCESS mapping table is in use; access can be generally or selectively enabled via this mapping table. The PMDF-MTA configuration utility generates an HTTP_ACCESS mapping table allowing access to "internal" systems. See the PMDF System Manager's Guide for details on the use of that mapping table. Alternatively or in addition, if there is a PMDF HTTP server capability that you do not want to utilize at all, you might prefer to remove that entire section from the HTTP server configuration file, PMDF_TABLE:HTTP.CNF. See the PMDF System Manager's Guide for details on the format of this file.

7 Configuring PMDF POP and IMAP Mailbox Servers

The PMDF POP and IMAP servers are multithreaded, and they run under the control of the PMDF Dispatcher. The servers can serve out the following mailboxes:

- The PMDF legacy mailbox POP server can serve out VMS MAIL mailboxes, or PMDF popstore mailboxes.
- The PMDF legacy mailbox IMAP server can serve out VMS MAIL mailboxes.
- The PMDF MessageStore mailbox POP server can serve out PMDF MessageStore mailboxes, and PMDF popstore mailboxes.
- The PMDF MessageStore IMAP server can serve out PMDF MessageStore mailboxes.

The PMDF mailbox servers configuration utility lets you choose either POP server, and either IMAP server.

Note: PMDF supports running both POP servers (one server must be running on a non-standard port), and both IMAP servers (one server must also be running on a non-standard port). However, these configurations are not generated by the configuration utility.

The POP and IMAP servers can run on a PMDF-MTA system.

This chapter describes how to use the PMDF Mailbox Servers configuration utility. This utility generates definitions for POP and IMAP servers. These definitions are inserted into:

- The PMDF Dispatcher configuration.
- PMDF POP and PMDF IMAP server configuration files.

7.1 Before You Begin

Before you run the PMDF Mailbox Servers configuration utility, you must install PMDF-MTA on your system. It is recommended that you also configure PMDF, as well as the PMDF Service Dispatcher, before you configure the PMDF POP and IMAP mailbox servers. (See Chapters 1, 2, and 3 if you have not already installed and configured PMDF-MTA. See Chapters 5 and 6 if you have not already configured the PMDF Service Dispatcher.

If you were previously using non-PMDF servers, you will need to shut down the old servers before you can use PMDF's multithreaded servers.

Note: The best time to do this is before you configure PMDF's servers. However, you can wait until after you have configured PMDF's servers. (See the *PMDF System Manager's Guide* for a discussion about this.)

Configuring PMDF POP and IMAP Mailbox Servers Before You Begin

The PMDF POP and IMAP mailbox servers configuration utility prompts you for several pieces of information, including which POP and/or IMAP servers you want to run, as well as the number of simultaneous POP and IMAP connections you want to allow at your site. You will need to provide site-appropriate answers. For some of the questions, the configuration utility provides reasonable default values. You might want to take the default answers the first time you configure, and then later, after observing the actual POP and IMAP usage at your site, reconfigure with values that are appropriate for your site.

Configuration questions include the following:

- Whether you want to run the legacy mailbox IMAP server, or the MessageStore mailbox IMAP server, or neither server.
- Whether you want to run the legacy mailbox POP server, or the MessageStore mailbox POP server, or neither server.
- Whether you want to log IMAP and POP connections.
- Whether you want to run a POPPASSD server to support changing passwords from POP clients who are using the adhoc password changing mechanism (for example, Eudora).

Note: The POPPASSD protocol involves sending both the old and the new password “in the clear.” Consider this point carefully when you are deciding whether or not to provide this service.

- Whether you want to enable PMDF’s password changing web CGI.

If you choose to run a MessageStore IMAP or POP server, the utility will also configure the PMDF MessageStore and PMDF popstore for you. Therefore, you will be asked some additional questions, including:

- The pseudo domain name assigned to the MessageStore. This is the domain name which will be used to address mail to PMDF MessageStore users. For instance, if you want MessageStore users to have addresses in the form `user@msgstore.example.com`, you would use the domain name `msgstore.example.com` for the MessageStore.
- The local postmaster address.
- The default primary message storage quota to allow each user. The `default` account is granted this quota. When you create user accounts, they will be given this primary quota, unless you specify a different quota. A primary quota value of 0 means unlimited storage quota.
- The default overdraft message storage quota to allow each user. This is the amount that users are allowed to exceed their primary quota.¹ The `default` account is granted this overdraft quota, which is then used as a default setting for user accounts that you create.
- The number of days to retain PMDF popstore unread messages. If a user has not either downloaded or deleted a message after this limit, the message will either be deleted silently, or returned to its originator as unread. If you want to retain messages indefinitely, specify an age limit of 0.
- A special account name for posting to public folders in the MessageStore.

¹ The utility of an overdraft quota is explained in the *PMDF MessageStore & popstore Manager’s Guide*.

Configuring PMDF POP and IMAP Mailbox Servers

Before You Begin

If you choose to run an IMAP server, you will be asked some additional questions, including:

- The maximum number of simultaneous IMAP connections you want to support on your system.

Note: This is not the total number of users, or even the total number of IMAP users. Rather, it is the maximum number of simultaneous IMAP connections. Some IMAP clients make (and keep open) more than one connection to the server. So the number of simultaneous IMAP connections can be higher than the number of simultaneous IMAP users.

Unlike POP connections, IMAP connections tend to be long lasting—the IMAP client connects and stays connected as the IMAP user reads and moves messages between folders.

Choose a number that provides reasonable access for your users, without overburdening your system resources.

- The maximum number of connections you want to allow per server process. To support a given number of simultaneous connections, there is a tradeoff between the number of processes used, and the number of connections handled per process. Fewer connections per process tend to result in greater responsiveness for the individual connections. However, the resulting need for more processes incurs greater system overhead. It is recommended that you choose a moderate number of connections per process.
- How often to check for new mail. (The legacy mailbox IMAP server continually checks for the new mail. This checking incurs overhead.)

If you choose to run a POP server, you will be asked some additional questions, including:

- The maximum number of simultaneous POP connections you want to support on your system.

Note: This is not the total number of users, or even the total number of POP users. Rather, it is the maximum number of POP users who will be connecting simultaneously.

POP connections are usually brief—the POP client connects, downloads messages, and disconnects.

Choose a number that provides reasonable access for your users, without overburdening your system resources.

- The maximum number of connections you want to allow per server process. To support a given number of simultaneous connections, there is a tradeoff between the number of processes used, and the number of connections handled per process. Fewer connections per process tend to result in greater responsiveness for the individual connections. However, the resulting need for more processes incurs greater system overhead. Process Software recommends you choose a moderate number of connections per process.
- Whether you want the server to support the POP3 UIDL command.

Configuring PMDF POP and IMAP Mailbox Servers Before You Begin

The UIDL command lets POP clients use an identifier to keep track of messages. POP users who enable “leave mail on server” behavior typically appreciate having UIDL supported, as this lets their client keep track of which messages in their inbox have actually been read. Sites that want to discourage “leave mail on server” behavior should disable UIDL support.

- For the legacy mailbox POP server (POP access to the VMS MAIL mailbox), whether you want messages read via POP to be moved to the MAIL folder automatically. Note that POP clients can only access the NEWMAIL folder. So if a message gets moved to the MAIL folder, the POP client can no longer access it. But leaving read messages in the NEWMAIL folder causes the NEWMAIL folder to bloat, and causes the POP server to perform more work.
- For the legacy mailbox POP server (POP access to the VMS MAIL mailbox), whether the server should estimate the size of messages rather than determining their exact sizes. Such estimation allows the server to respond much more quickly in the case of users who have a lot of messages in the NEWMAIL folder, as the server does not have to read all of the messages to determine their exact sizes.

7.2 Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

This section describes how to use the web-based POP and IMAP mailbox servers configuration utility to configure mailbox servers for a PMDF-MTA system. This utility can be used to generate an initial mailbox servers configuration, or it can be used to generate a new mailbox servers configuration of an existing PMDF installation.

With JavaScript enabled, point your browser (using Netscape version 3.0 or later, or Microsoft Internet Explorer version 4.0 or later) to

```
http://localhost:7633/
```

where *localhost* is the TCP/IP name of your PMDF system. At this point, you should see a screen similar to the one shown in Figure 8–1. Select the “Configuration Utilities” link. At this point, you should see a screen similar to the one shown in Figure 8–2.

If your last use of the web-based PMDF configuration utility was to configure PMDF-MTA, and your PMDF-MTA configuration has not been modified manually since then, you can load your prior PMDF-MTA configuration session before you begin your mailbox servers configuration. If you want to redo your PMDF-MTA configuration, you can start by doing so now. Otherwise, you can configure just the mailbox servers during this configuration session. (Both options will minimize the number of checklist tasks you will need to do later.)

Note: If you to just configure the mailbox servers, you will have to do the checklist tasks to integrate your mailbox server configuration into your main PMDF-MTA configuration.

Click on the “Configure” button for IMAP/POP Servers to begin the configuration. (See Section 8.2 for a sample configuration session.)

Configuring PMDF POP and IMAP Mailbox Servers

Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

7.3 Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

This section presents a step-by-step procedure for generating basic PMDF POP and IMAP Mailbox Servers configuration files using the PMDF CONFIGURE MAILBOX_SERVERS utility. Refer to Section 8.1 for a sample configuration dialogue.

1. Configuration of the PMDF POP and IMAP Mailbox Servers should be done using the SYSTEM account to ensure that the necessary privileges are available to create the configuration file. If you are not logged in on SYSTEM, do so now.
2. Begin the configuration procedure by invoking the PMDF Mailbox Servers configuration utility as follows:

```
$ SET DEFAULT PMDF_TABLE:  
$ PMDF CONFIGURE MAILBOX_SERVERS
```

3. The configuration procedure will optionally print out detailed explanations of each prompt as it proceeds. Unless you are conversant with the procedure, enable the detailed output.
4. Closely examine the example configuration presented in Example 8-1: the example was run with detailed prompting enabled, and will prepare you for the answers you need to provide for your own site.
5. Once you have completed running the PMDF CONFIGURE MAILBOX_SERVERS utility, type out or print the PMDF_TABLE:MAILBOX_SERVERS.CHECKLIST file and complete the configuration by following the steps outlined in the checklist.

8 POP and IMAP Mailbox Servers Example Configurations

8.1 Example Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

Example 8-1 shows configuring the PMDF POP3 and IMAP mailbox servers.

Whenever appropriate, each prompt supplies a default answer which is enclosed within square brackets. Simple pressing return, `[RETURN]`, selects the default answer.

Remember that the values entered in this sample are for purposes of example only. Be sure to use the values appropriate for your system when you perform the actual configuration.

Example 8-1 Sample PMDF CONFIGURE MAILBOX_SERVERS dialogue

```
$ pmdf configure mailbox_servers
PMDF mailbox servers configuration utility, V6.8

This utility creates the following files
PMDF_TABLE:DISPATCHER_MAILBOX_SERVERS.CNF
PMDF_TABLE:POP3D.CNF           if native mail file is selected
PMDF_TABLE:IMAPD.CNF           if native mail file is selected
PMDF_TABLE:IMAPPOP.CNF         if MessageStore or popstore is selected
PMDF_TABLE:MSGSTORE.CHANS      if MessageStore or popstore is selected
PMDF_TABLE:MSGSTORE.RULES      if MessageStore or popstore is selected
PMDF_TABLE:MSGSTORE_OPTION.    if MessageStore or popstore is selected
PMDF_TABLE:POPSTORE_OPTION.    if MessageStore or popstore is selected

Do you wish to continue [Y]? [RETURN]
Do you wish to have a detailed explanation printed before each question [N]? YES

Enter YES if you want to use a POP3 server in PMDF.
Enter NO if you do not want any POP3 server at all.

Do you wish to run a POP3 server [Y]? [RETURN]
POP server

(1) Native VMS MAIL mail files and popstore
(2) MessageStore and popstore

There are currently two POP servers in PMDF:
Choosing (1) will select the POP server which serves out
native VMS MAIL mail files or popstore messages depending on
if the user has an account in popstore. The POP3
server looks for user account in popstore first; if user does
not have a popstore account, then his native VMS MAIL mail
file is served out. This allows you to migrate POP3 only users
to the more efficient popstore.
```

Example 8-1 Cont'd on next page

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

Example 8-1 (Cont.) Sample PMDF CONFIGURE MAILBOX_SERVERS dialogue

popstore is optimized for POP3 access. MessageStore is optimized for IMAP, but also can be used for POP. Native mail is not optimized for either POP or IMAP. If most of your users only use POP, then we recommend you choose (1) and put users in popstore. If most of your users use IMAP, then we recommend you use MessageStore, and put your users in MessageStore while specifying each as either a POP or IMAP user. Choose (2) to use MessageStore for your POP users also.

What do you want to use with this server [1]? **2**

Enter the maximum number of connections you want to support concurrently on your system. Each POP3 user would normally have one connection when they connect to the server.

MAXIMUM concurrent POP3 connections you want supported on this system [25]?

Enter the maximum number of connections you want to support concurrently for each POP server process.

MAXIMUM concurrent POP3 connections to allow per server process [5]?

Enter YES if you want to turn on support for the POP3 command UIDL.

Do you want the POP3 server to support the UIDL command [Y]?

Enter YES if you want to use an IMAP server in PMDF.
Enter NO if you do not want any IMAP server at all.

Do you wish to run an IMAP server [Y]?

IMAP server

- (1) Native VMS MAIL mail files
- (2) MessageStore

There are currently two IMAP servers in PMDF:
Choosing (1) will select the IMAP server which serves out native VMS MAIL mail files
Choosing (2) will select the IMAP server which serves out the mail in the MessageStore.

MessageStore is optimized for IMAP but also can be used for POP. Native mail is not optimized for either POP or IMAP. If you wish to serve out both native mail and MessageStore, you have to run the two servers on different ports, and you have to configure it manually. This procedure does not produce such a configuration for you. Choose the one you want to have on the standard IMAP port, and add the other one manually later to your dispatcher_mailbox_servers.cnf file. It is easier to choose the MessageStore and manually add the native mail than vice versa.

What do you want to use with this server [1]? **2**

Enter the maximum number of connections you want to support concurrently on your system. Each IMAP user would normally have several connections when connected to the server, and some may last hours or days.

MAXIMUM concurrent IMAP connections you want to support on this system [25]?

Example 8-1 Cont'd on next page

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

Example 8–1 (Cont.) Sample PMDF CONFIGURE MAILBOX_SERVERS dialogue

Enter the maximum number of connections you want to support concurrently per IMAP server process.

MAXIMUM concurrent IMAP connections to allow per server process [5]?

Enter YES if you want to log POP and/or IMAP connection information in the PMDF mail.log_current file.

Do you wish to log connections [N]? **YES**

Enter the domain name to associate with the msgstore; e.g., msgstore.example.com.

Domain name corresponding to MessageStore/popstore []? **msgstore.example.com**

Enter the default message quota in Kbytes where 1 Kbyte is 1024 bytes. Users may not receive new mail messages when their current storage usage is at or exceeds the sum of their message quota and message overdraft quota. A message quota of zero conveys unlimited storage quota.

Default message quota in Kbytes [10240]?

Enter the default message overdraft quota in Kbytes where 1 Kbyte is 1024 bytes. The overdraft quota is the amount by which users may exceed their account quota.

Default message overdraft quota in Kbytes [512]?

Enter the name to reserve for posting to public folders, so that sending to "post+foo" will go into that "Public Folders/foo" if permissions permit,

Name to reserve for posting to public folders [post]?

Enter YES if you wish to permit public posting to public folders by default, and NO if you do not.

Should public folders default to permit public posting [Y]?

Enter the name of the file for the Mailbox Servers to be included in the Dispatcher configuration.

PMDF Mailbox Servers configuration file name [PMDF_TABLE:DISPATCHER_MAILBOX_SERVERS.CNF]?

Enter the name of the POP/IMAP server configuration option file.

IMAP/POP server for the MessageStore configuration option file name [PMDF_TABLE:IMAPPOP.CNF]?

Enter the name of the MessageStore/popstore channel definition file.

MessageStore channel definitions file name [PMDF_TABLE:MSGSTORE.CHANS]?

Enter the name of the MessageStore/popstore rewrite rules file.

MessageStore rewrite rules file name [PMDF_TABLE:MSGSTORE.RULES]?

Enter the name of the MessageStore channel option file.

MessageStore/popstore channel option file name [PMDF_TABLE:MSGSTORE_OPTION.]?

Example 8–1 Cont'd on next page

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

Example 8-1 (Cont.) Sample PMDF CONFIGURE MAILBOX_SERVERS dialogue

Enter the name of the popstore channel option file.
(It is used by the MessageStore also.)

popstore option file name [PMDF_TABLE:POPSTORE_OPTION.]?

>>> WARNING WARNING WARNING <<<
WARNING: If you have popstore accounts which were created with
USERNAME_STYLE other than 3 (including all popstore accounts created
by versions prior to PMDF 6.0), then running this configuration
utility could make those accounts inaccessible. Please see Sections
1.3.1 and 3.3 of the MessageStore and popstore Manager's Guide for
information on the USERNAME_STYLE option.

>>> WARNING WARNING WARNING <<<

This procedure generates a checklist file that contains the list of
steps you must perform in order to complete your PMDF configuration.
This procedure does **NOT** perform these steps itself; you must do
them manually.

PMDF checklist file name [PMDF_TABLE:MAILBOX_SERVERS.CHECKLIST]?

This question gives you a last chance to change your mind
before any files are written. Answer NO if you are not sure
you want to generate the configuration you have specified. Answer
YES if you do.

Do you wish to generate the configuration files [Y]?

Generating the file PMDF_TABLE:dispatcher_mailbox_servers.cnf...

Generating the file PMDF_TABLE:IMAPPOP.CNF...

Generating the file PMDF_TABLE:MSGSTORE.RULES...

Generating the file PMDF_TABLE:MSGSTORE.CHANS...

Generating the file PMDF_TABLE:MSGSTORE_OPTION....

Generating the file PMDF_TABLE:POPSTORE_OPTION....

Spawning a subprocess to create a default user account...

popstore "default" user account successfully created

Generating the checklist file, PMDF_TABLE:MAILBOX_SERVERS.CHECKLIST...

```
*****
*
*   To complete your PMDF configuration, carry out the steps
*   detailed in the checklist file PMDF_TABLE:MAILBOX_SERVERS.CHECKLIST.
*
*****
```

Enter YES if you want to see the checklist now. You can still type
the file out later if you say NO.

Do you want to see the checklist now [Y]?

Checklist for completing the setup of your PMDF POP and IMAP servers

Written by SYSTEM, 16-Nov-2011 13:23:51

This file was created by the PMDF configuration generator V6.8

Example 8-1 Cont'd on next page

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Command Line Configuration Utility

Example 8–1 (Cont.) Sample PMDF CONFIGURE MAILBOX_SERVERS dialogue

- (1) Be sure to shutdown any POP/IMAP servers currently running, and if they were not running under the PMDF Dispatcher, you should disable them using whatever method is appropriate for them so they won't interfere the next time the system reboots.
 - (2) Uncomment the line in the file PMDF_DISPATCHER_CONFIG which looks like:

```
!<PMDF_TABLE:dispatcher_mailbox_servers.cnf
```

so that it looks like:

```
<PMDF_TABLE:dispatcher_mailbox_servers.cnf
```
 - (3) Uncomment the lines in the file PMDF_TABLE:HTTP.CNF for popstore and/or MessageStore cgi if you want to enable web-based access to MessageStore/popstore User Interface, popstore Administration, and/or MessageStore Administration.
 - (4) Changes to existing configuration files won't be seen until you restart the Dispatcher with the command

```
pmdf restart dispatcher
```

for your node only, or

```
pmdf restart/cluster dispatcher
```

for all nodes in the cluster
 - (5) If you want the SMTP/POP/IMAP connections to be logged to a different file other than the mail.log_current file, then set

```
SEPARATE_CONNECTION_LOG=1
```

```
LOG_CONNECTION=3
```

in the PMDF option file, option.dat.
-

8.2 Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

This screen shows the PMDF HTTP server main page. Select the “Configuration Utilities” link to begin the PMDF configuration session.

Figure 8–2 through Figure 8–7 show a sample PMDF mailbox servers configuration session using the web-based IMAP/POP mailbox servers configuration utility, and Example 8–2 shows a corresponding sample checklist file. The sample site EXAMPLE.COM is as described in Figure 4–1.

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

Figure 8–1 HTTP Server Regular Main Page

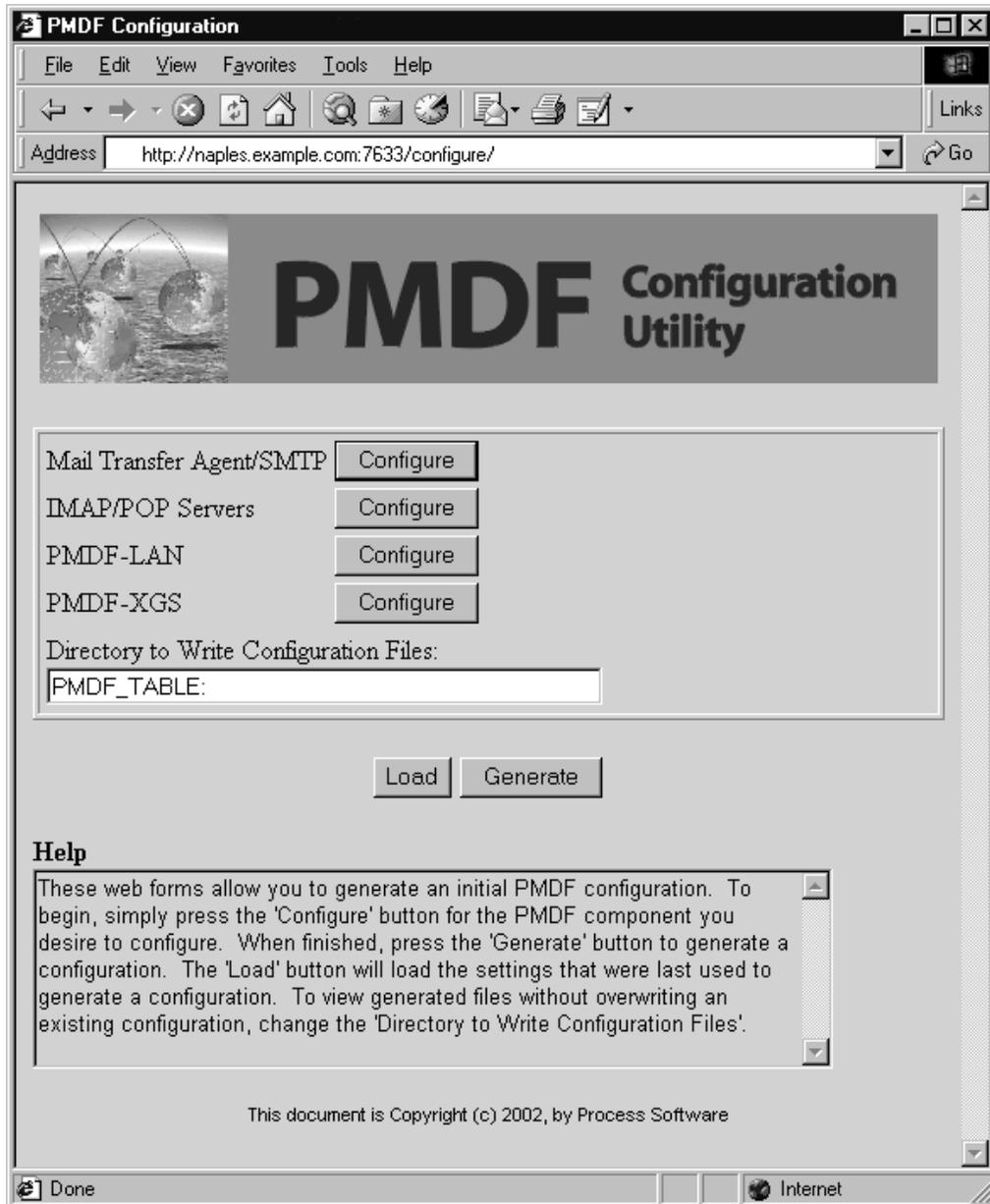


Remember that the values in this sample are for purposes of example only. Be sure to use the values appropriate for your system when you perform the actual configuration.

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

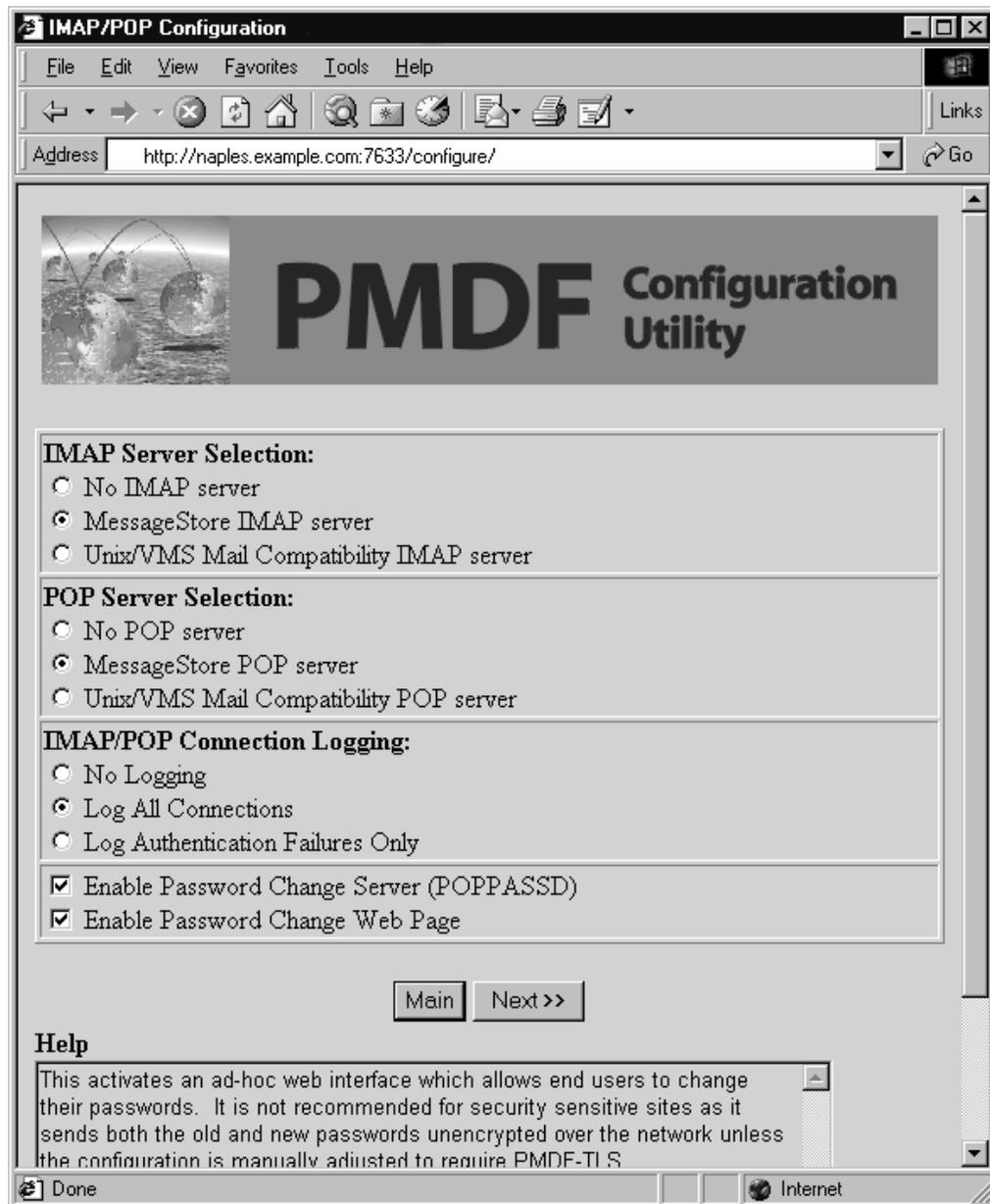
Figure 8-2 Configuration Main Page



POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

Figure 8-3 IMAP/POP Configuration, Select Servers



POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

Figure 8-4 IMAP/POP Configuration, popstore/MessageStore information

The screenshot shows a web browser window titled "IMAP/POP Configuration". The address bar contains "http://naples.example.com:7633/configure/". The main content area features a banner for "PMDF Configuration Utility" with a background image of a globe. Below the banner is a section titled "Popstore/MessageStore Options:" containing several configuration fields:

- MessageStore Domain Name: msgstore.naples.example.com
- Default Message Quota in Kbytes: 10240
- Default Message Overdraft Quota in Kbytes: 4096
- Days before Automatic Remove/Bounce of popstore Mail: 14
- Reserved Name for Posting to Public Folders: post
- Address for Local Postmaster: system@naples.example.com
- Permit Public Posting to Public Folders by Default

Navigation buttons include "Main", "<< Back", and "Next >>". A "Help" section is located at the bottom, containing a text box with the following text:

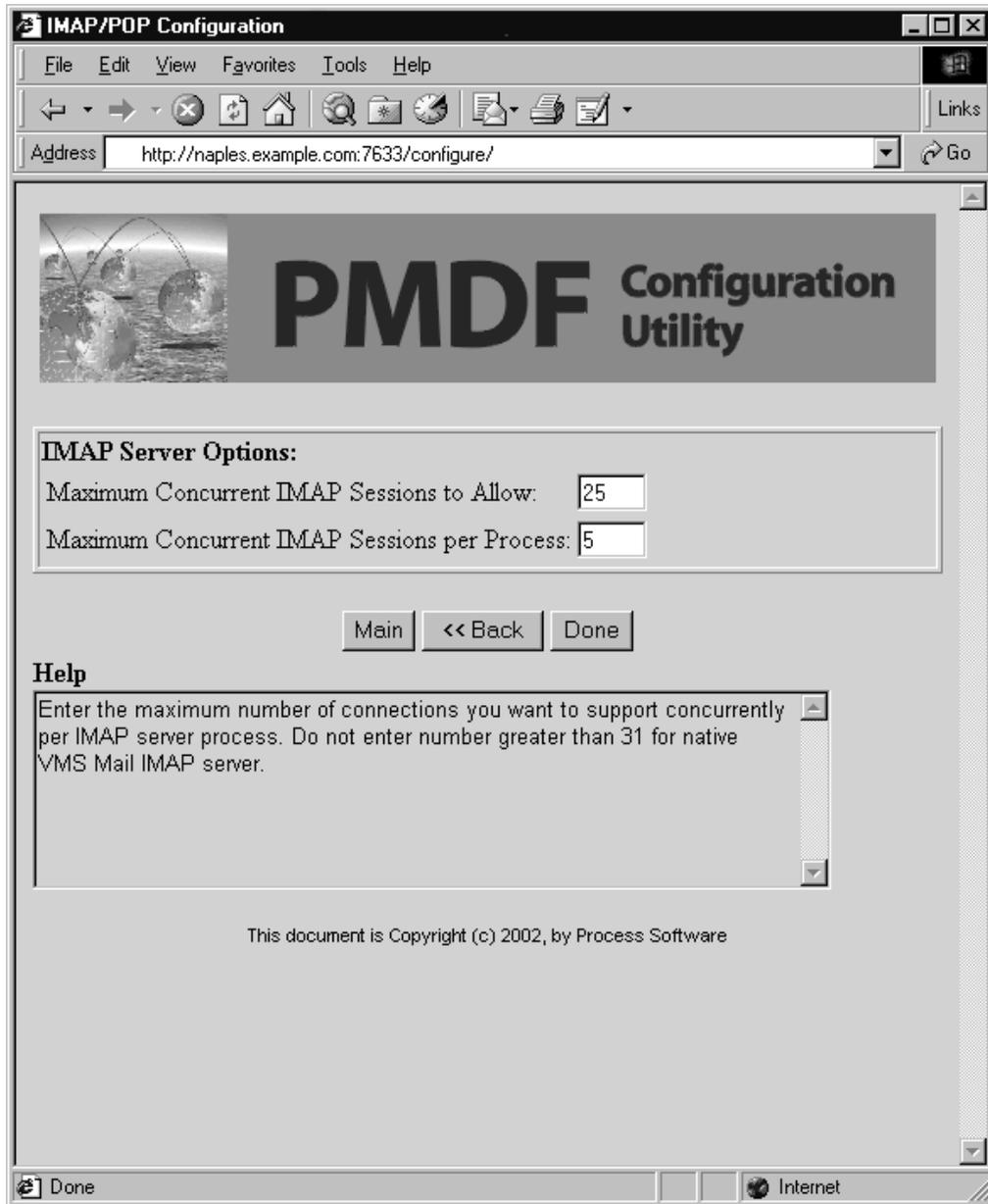
Enter a valid user@host type of address for the local Postmaster. This address will receive notifications of bounced or deferred mail as well as various other types of status and error reports. This address is also the one that will receive user queries about electronic mail. If this is a MessageStore address, then you will be prompted for a password later if it is necessary to create an account.

The browser's status bar at the bottom shows "Done" and "Internet".

POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

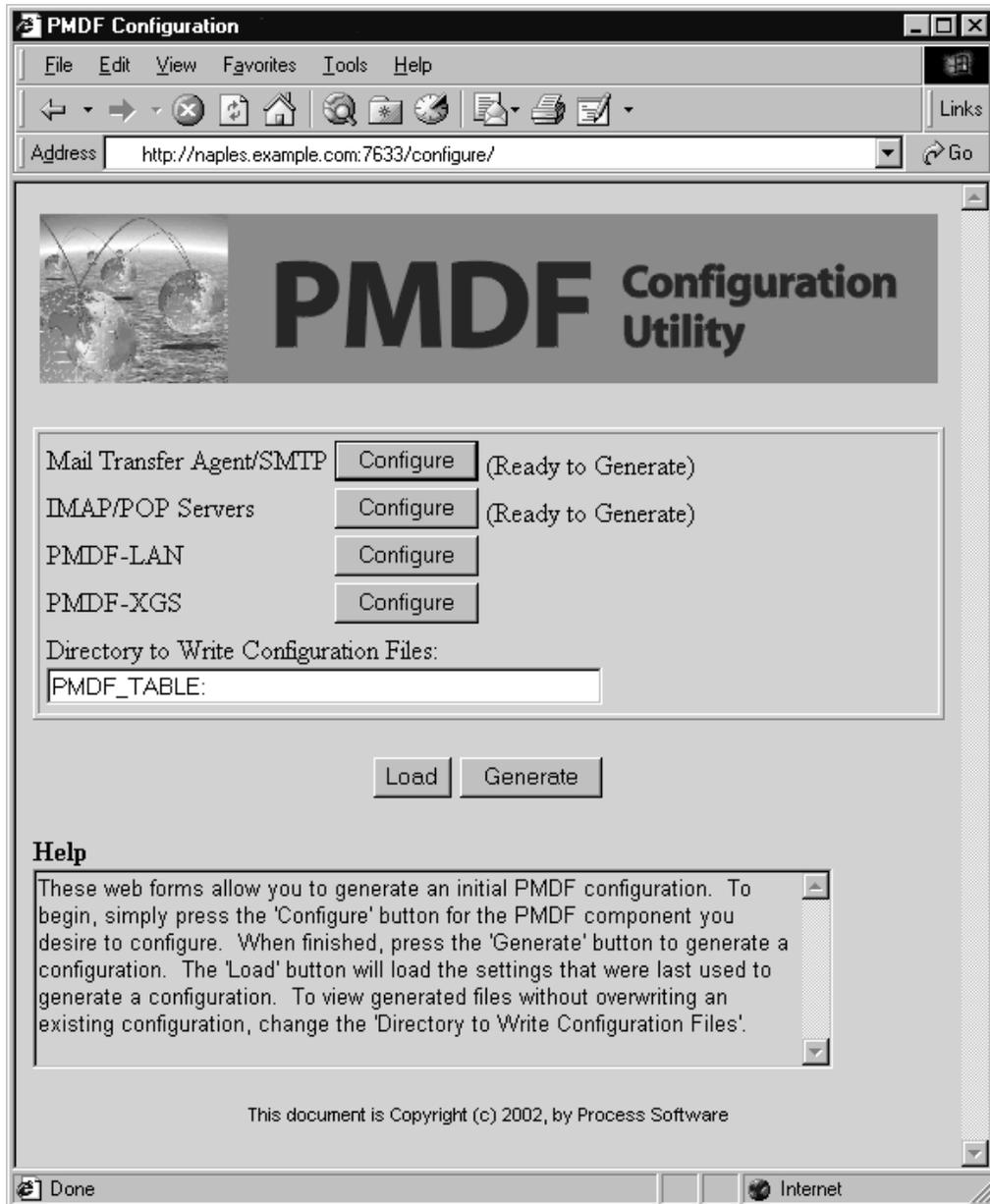
Figure 8-5 IMAP/POP Configuration, Server Information



POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

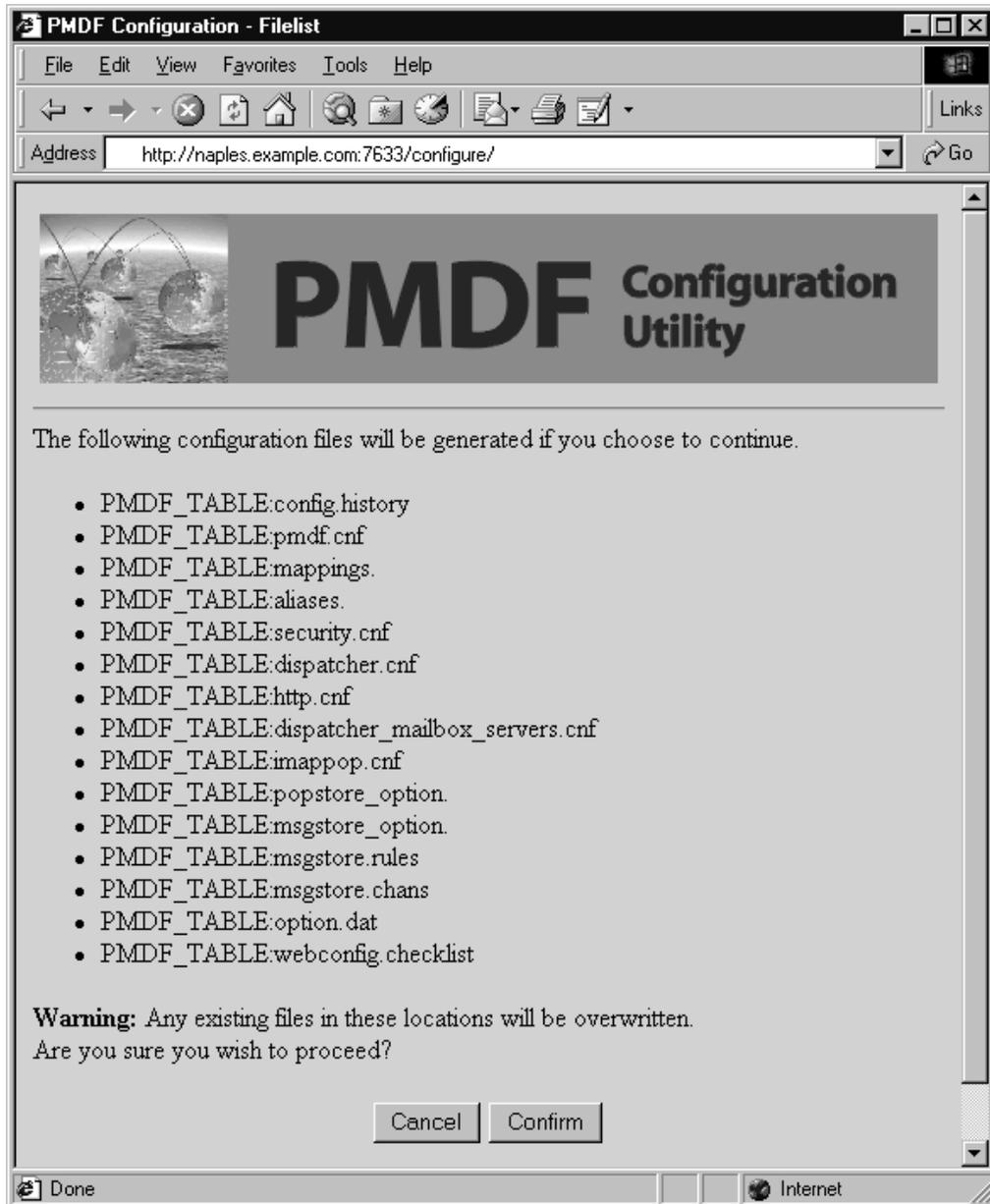
Figure 8-6 Configuration Main Page, IMAP/POP Configuration Entered



POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

Figure 8–7 Generate Files



POP and IMAP Mailbox Servers Example Configurations

Example Using the POP and IMAP Mailbox Servers Web-Based Configuration Utility

Example 8–2 Sample Mailbox Servers Configuration Checklist File

\$ TYPE PMDF_TABLE:mailbox_servers.checklist

This checklist was generated on Mon, 1 Nov 2012 14:36:17 -0800 (PST)
by the PMDF configuration generator V6.8.

- (1) You have configured the MessageStore separately from the MTA. Therefore you have to verify that the MTA configuration file "PMDF_TABLE:PMDF.CNF" includes the rewrite-rules and channel definitions for the MessageStore / popstore:
"PMDF_TABLE:MSGSTORE.RULES" and "PMDF_TABLE:MSGSTORE.CHANS".
 - (2) You need to set up a periodic job to prune the mail.log and connection.log files. The amount and frequency of pruning that is appropriate depends on the amount of mail at your site. If you fail to do so, your disk will eventually fill up and PMDF will cease to operate.
 - (3) With the number of IMAP sessions you plan to support, you need to make sure 603000 additional blocks of pagefile are available. Note this number is a theoretical maximum; most systems will never need this unless the servers are all serving out the maximum size message at the same time to the maximum number of clients.
 - (4) If you have not already set up your MAIL\$BATCH queue or added the PMDF startup procedures to your system startup, then be sure to do so. Setting up MAIL\$BATCH is crucial to the operation of PMDF. Modifying the system startup can, of course, be done after you have verified the proper operation of PMDF. Refer to the "Post-Installation tasks" section of the first chapter of the PMDF Installation Guide.
 - (5) If you have previously installed a POP and/or IMAP server from another vendor, you will have to uninstall it prior to using PMDF's servers.
 - (6) Any changes to existing configuration files cannot be seen until you restart the Dispatcher with the command:
\$ PMDF RESTART DISPATCHER
for your node only, or
\$ PMDF RESTART/CLUSTER DISPATCHER
for all nodes in the cluster
-

9 Configuring PMDF-MTA to Act as an E-mail Firewall

This chapter describes how to use the `PMDF CONFIGURE FIREWALL` utility to create an initial configuration for use on an e-mail firewall system. In many cases the configuration created by following these steps will suffice for a firewall system without further modification. Additional customization, for instance, implementing centralized naming on the e-mail firewall, the addition of some channels such as UUCP channels or PhoneNet channels not generated by the utility, implementation of address-specific e-mail access controls, implementation of mail storm or denial or service safeguards, or hooking in a virus scanner via the PMDF conversion channel, will require manual editing of the configuration files.

Manual editing of the configuration files can also be required as your environment evolves. For example, as nodes or networks are added you might need to add rewrite rules or channel blocks to your `pmdf.cnf` file. In many cases you might find it easier to rerun the configuration generator supplying new answers reflecting the changes in your environment.

A history of the configuration run is saved in the file `firewall_configure.history` in the PMDF table directory when you run the `PMDF CONFIGURE FIREWALL` utility. When you run `PMDF CONFIGURE FIREWALL` again, you will be prompted as to whether the answers from the history file should be used as default answers. The history file should not be deleted casually, as it could save you from typing the same answers over again, and might prove useful to technical support should you encounter problems.

9.1 Before You Begin

First, before concerning yourself with the setup of e-mail control and restrictions, *i.e.*, an e-mail firewall, you should have a basic Internet firewall setup in place, *i.e.*, TCP/IP level controls in place for functions such as FTP access and remote login access. E-mail is generally much less of an overall security concern than such lower level access issues.

Next, you should consider establishing e-mail policies for your site, taking the next step along the lines of the general security policies you presumably considered and established when setting up your Internet firewall. For instance, depending upon your site, you might want to have explicit policies regarding mail spoofing, the sending of harassing e-mail, list subscriptions, the sending of virus-infected PC executable programs, the use of e-mail for personal business, *etc.*

What is appropriate policy for your site will depend upon your site's goals and needs and what can be reasonably expected from your users. *Your greatest aid in good e-mail security, as in other security, is users who are educated as to your policies and committed to implementing them.* With the tightest security procedures in the world, if your users do not understand the reasons for your policies and practices or find them overly burdensome, sooner or later some users will disregard or circumvent them.

Configuring PMDF-MTA to Act as an E-mail Firewall Before You Begin

Then gather any information you will need to provide as input to the firewall configuration utility. Prior to running the automatic configuration generator, you should have a good idea of your network configuration. Note that `PMDF CONFIGURE FIREWALL` will attempt to provide default values to its prompts. These defaults are picked up, whenever possible, from your system environment.

The *PMDF System Manager's Guide* discusses issues to consider and approaches that can be used to implement an effective e-mail firewall. Either before or after running the firewall configuration utility, you might want to look over the description contained there to better understand the details of your firewall configuration and what additional features beyond those generated automatically by the firewall configuration utility you might want to implement.

In particular, note that in a firewall configuration you usually want the PMDF firewall system to have a good idea of the names or domains and IP numbers of all of your internal systems. In a regular PMDF configuration, PMDF is generally not configured to make much if any distinction between “internal” and “external” addresses and messages; as long as the address is a valid address, PMDF will handle the message. However, one of the fundamental features of a firewall configuration tends to be a desire to distinguish between “internal” and “external” addresses and messages; this requires that you provide PMDF with more information as to just which addresses, system and domain names, and IP numbers are to be considered “internal” versus “external”.

Another issue to consider is how regularly e-mail system maintenance checks will be performed on a firewall system.

For instance, Internet domains are required to have a postmaster address which accepts mail. Therefore you must have a postmaster address “on” (at least apparently) the firewall system. Since a postmaster address is the one address that must always be able to accept mail, it is usually wise to have postmaster mail delivered as simply and directly as possible to some account, without forwarding or additional network or mail system hops that present additional possible points of failure. However, in the case of a firewall which will be operating essentially unattended for long periods of time, some sites might decide to forward postmaster mail to an account on a different system; if you choose to do this, be sure to forward the mail over a reliable connection, not subject to frequent or unexpected failures, and do keep in mind that an interruption in this connection can lead quickly to mail system problems.

Another issue related to maintenance of the firewall system is logging. PMDF has detailed logging which can be enabled. Such logging can be useful in gathering message traffic statistics and in tracking down problems. However, if you enable such logging, you should also have a plan for periodically logging on to the firewall system to check on and truncate, or save to tape, or delete, as you prefer, the PMDF cumulative log file. PMDF never does anything with the `mail.log` itself, other than continue to append to it.

Configuring PMDF-MTA to Act as an E-mail Firewall Using the Firewall Configuration Utility

9.2 Using the Firewall Configuration Utility

This section presents a step-by-step procedure for generating your PMDF firewall configuration files using the PMDF firewall configuration utility, `PMDF CONFIGURE FIREWALL`. Refer to Chapter 10 for a sample configuration dialogue.

1. Configuration of PMDF should be done using the `SYSTEM` account to ensure that the necessary privileges are available to create the configuration files. If you are not logged in as `SYSTEM`, do so now.
2. Begin the configuration procedure by invoking the `PMDF CONFIGURE FIREWALL` utility as follows:

```
$ PMDF CONFIGURE FIREWALL
```

3. The configuration procedure will optionally print out detailed explanations of each prompt as it proceeds. Unless you are conversant with the procedure, enable the detailed output.
4. The answers to all the questions are logged to a file in the `PMDF_TABLE:` directory. After the first configuration, `PMDF CONFIGURE FIREWALL` can use the answers to the previous run as the default answers. The utility will ask:

```
Do you want to use answers from the previous run as defaults?
```

Answer `YES` if you want to have your previous answers presented as default answers. You can use the backslash character, `\`, to clear a default answer.

5. Closely examine the example configuration presented in Chapter 10. Parts of the sample site are probably representative of your own network configuration. In addition, the example was run with detailed prompting enabled, and will prepare you for the answers you need to provide for your own site.
6. Once you have completed running the `PMDF CONFIGURE FIREWALL` utility, type out or print the `PMDF_TABLE:firewall.checklist` file and complete the configuration by following the steps outlined in the checklist.
7. Test out your configuration initially by sending mail from the firewall system to someone on an internal system. Using the `VMS MAIL` utility, send a message to an address of the form

```
IN%"username@domain"
```

where `username@domain` is a valid address. PMDF should accept the message and send it off the firewall system.

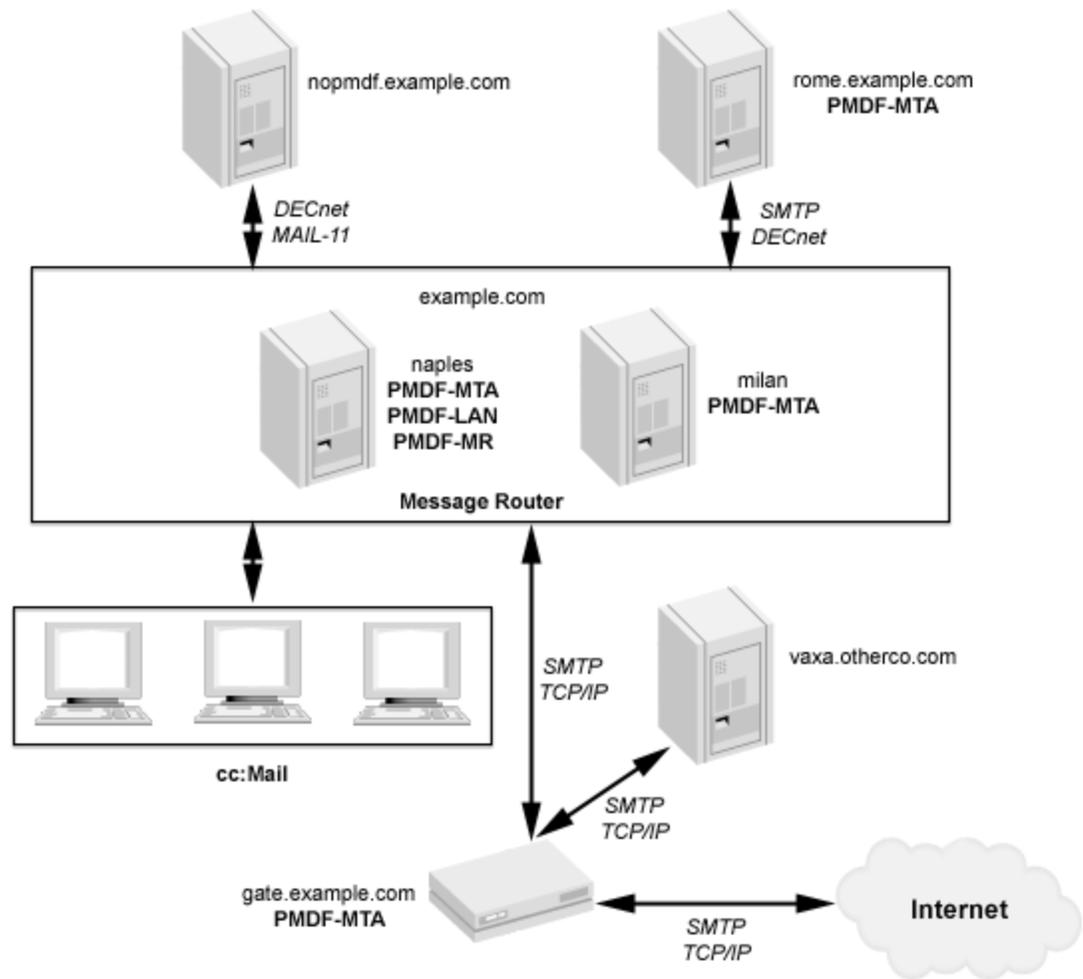
Configuring PMDF-MTA to Act as an E-mail Firewall Using the Firewall Configuration Utility

8. If messages do not seem to be getting out, use the QM utility to examine the PMDF message queues and see if the messages are stuck on your system. Examination of log files in the PMDF_LOG: directory can help isolate network delivery problems. See the section *Maintenance and Troubleshooting* in the *PMDF System Manager's Guide* for additional information on tracking PMDF delivery problems.

9. If everything appears to be functional, and you have completed your configuration for the present, you might want to compile your configuration for increased performance. Use the PMDF CNBUILD utility. See the *PMDF System Manager's Guide* for more information.

10 E-mail Firewall Example Configuration

Figure 10-1 Sample PMDF Site EXAMPLE.COM



Example 10-1 shows a sample configuration of PMDF-MTA as an e-mail firewall using the PMDF CONFIGURE FIREWALL utility, and Example 10-2 shows a corresponding checklist file. The sample site EXAMPLE.COM, first introduced in Figure 4-1, is now assumed to have added another node, gate.example.com, that sits between the PMDF-MTA mailhub system naples.example.com and the Internet, as shown in Figure 10-1. The gate.example.com system will not have any users, except for the system manager who will log on periodically to check for postmaster messages, etc.

E-mail Firewall Example Configuration

The naples.example.com system, also known as merely example.com, is assumed to have been reconfigured using the PMDF CONFIGURE utility to route all messages to the Internet out by way of gate.example.com, e.g., by answering:

```
Does this system need to route mail to a firewall [N]? YES  
Domain name for firewall system []? gate.example.com
```

Note that the firewall system is informed about the domains and IP addresses of the internal systems with which it can expect to communicate directly, example.com (also known as naples.example.com, assumed to have IP address 192.168.1.1), milan.example.com (assumed to have IP address 192.168.1.8), and more generally is told that any IP number in the subnet 192.168.1.0 should be assumed to be internal. The non-example.com domain otherco.com (assumed to correspond to the subnet 192.168.5.0) is also assumed to be behind the firewall.

The firewall configuration utility asks a question about stripping off certain tracking headers. This can be an issue for sites that are concerned about exposing internal system names in those tracking headers. (Note that stripping Received: and Message-ID: headers should be avoided unless absolutely necessary, since they provide important information used, for instance, in detecting and short-circuiting mail loops, for detecting forged messages, and for correlating messages when questions or problems arise.) In particular, in a setup such as that shown for the sample example.com site, which has an internal PMDF mailhub system example.com as well as the PMDF firewall system gate.example.com, note that there is a much better solution than complete trimming of such headers; configuration options on the PMDF mailhub and PMDF firewall systems can be used to control what names appear in such headers generated by PMDF in the first place. And problematic headers appearing in messages that originated elsewhere but that pass through either PMDF system can often be handled with more fine tuned approaches as they pass through the PMDF system.

Whenever appropriate, each prompt also supplies a default answer which is enclosed within square brackets. Simply pressing return, `[RETURN]`, selects the default answer. You can use the backslash character, `\`, to clear a default answer.

Remember that the values in this sample are for purposes of example only. Be sure to use the values appropriate for your system when you perform the actual configuration.

Example 10-1 Example PMDF-MTA Configuration as a Firewall

```
$ PMDF CONFIGURE FIREWALL
```

```
PMDF Internet Firewall Configuration File Creation Utility, V6.8
```

```
This utility creates an initial PMDF configuration file  
(PMDF_TABLE:PMDF.CNF), an initial PMDF aliases file  
(PMDF_TABLE:ALIASES.), an initial PMDF security configuration file  
(PMDF_TABLE:SECURITY.CNF), an initial PMDF mappings file  
(PMDF_TABLE:MAPPINGS.) and an initial PMDF option file  
(PMDF_TABLE:OPTION.DAT) for a system acting as an E-mail firewall  
on the Internet.
```

Example 10-1 Cont'd on next page

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

For best results the various network products PMDF is going to be attached to should be installed and operational when this procedure is run. This is by no means required, but the defaults provided by this procedure cannot be selected intelligently without having various software packages available to interrogate.

Important note: No changes are made to existing PMDF configuration information until all questions have been answered. This utility can be aborted at any prompt by entering CTRL/C. The files output by this utility can optionally be redirected to a different location so they will have no impact on the existing PMDF configuration.

Do you wish to continue [Y]? **y**

Do you wish to have a detailed explanation printed before each question [N]? **y**

Part One: Determining local host's name(s).

Enter the 'most official' name for this system. This should be the official domain name in most cases. This is the name that will appear in mail addresses on this system, among other things.

Official local host name of the firewall [GATE.EXAMPLE.COM]?

gate.example.com

Enter the domain or subdomain your systems are part of, if there is one and it is consistent. For example, if your system's domain name is HMCVAX.EXAMPLE.COM, and in general all your systems are part of the .EXAMPLE.COM domain, enter '.EXAMPLE.COM'. If your system is not part of a domain or if your use of domain name is not consistent, just press CR.

Default domain or subdomain for this system/OpenVMS cluster [none]?

example.com

Enter the DECnet node name for the local host. This usually should be the actual node name and not the DECnet OpenVMS cluster alias.

DECnet node name for the local host [GATE]? **GATE**

Enter the SCS (OpenVMS cluster) node name for the local host.

SCS (OpenVMS cluster) node name for the local host [GATE]? **GATE**

Enter any aliases for the local host; these names are rewritten to the official local host name with rewrite rules.

Any other aliases for the local host [RETURN if no more]? **RETURN**

Enter YES if you want to include the other nodes in this OpenVMS cluster in this configuration. Enter NO if you do not. YES is an appropriate response in an entirely homogeneous OpenVMS cluster, NO can be appropriate in a heterogeneous OpenVMS cluster.

Include other OpenVMS cluster members in configuration [Y]? **n**

Example 10-1 Cont'd on next page

E-mail Firewall Example Configuration

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

This firewall system either routes all mail addressed to your internal domains to some internal system; or mail addressed to the firewall go to users who logged on the firewall system. Enter Yes if you have users on the firewall system, or No if all mail is routed somewhere else.

Are there mail users on this firewall system [N]? **n**

Enter a valid user@host type of address for the firewall Postmaster. Depending on your needs, this address can be on a system different from the firewall system.

This address will receive notifications of bounced or deferred mail as well as various other types of status and error reports. This address is also the one that will receive user queries about electronic mail.

A user@host style address for the local Postmaster [SYSTEM@gate.example.com]?

system@gate.example.com

Part Two: The external TCP/IP networking.

This system has one or more names it is known by on TCP/IP.

Enter the most 'official' of these names, preferably a name the system is registered under in the Domain Name System.

Name of this system on TCP/IP [GATE.EXAMPLE.COM]? **gate.example.com**

PMDF needs to know the IP addresses for all the interfaces used by TCP/IP on this system or homogeneous OpenVMS cluster. These addresses are needed so that PMDF can recognize domain literals references to this system. Such recognition is mandated by RFC1123.

Enter each IP address separately in a.b.c.d format, pressing CR between each one. When you've entered them all just enter a CR by itself to end the list.

IP addresses for this system [RETURN if no more]? **192.168.1.10**

IP addresses for this system [RETURN if no more]?

Part Three: Internal TCP/IP connections

PMDF needs to know about internal TCP/IP usage. For instance, this information is used to segregate incoming messages from internal vs. external sources. Your configuration file will automatically contain the rules necessary to reach external Internet domains, so it is not necessary to tell PMDF about external Internet systems.

If your site satisfies any of the following conditions:

- (+) POP or IMAP users,
- (+) other internal TCP/IP systems,
- (+) connect to non-Internet TCP/IP systems,

then you will need to answer YES. If you do answer YES, you will then be asked for the names of these systems or domains so that they can be added to your configuration and mappings files. Answer NO if there is no TCP/IP use behind this firewall.

Example 10-1 Cont'd on next page

E-mail Firewall Example Configuration

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

Are there any internal systems reachable via TCP/IP [Y]? **y**

Is this firewall system set up to lookup the internal systems by:

- (1) Doing host lookups with MX records (name server required)
- (2) Doing host lookups without MX records (name server required)
- (3) No name server; using TCP/IP package for host lookups

MX (Mail eXchange) records are special entries in the TCP/IP Domain Name Service database that redirect mail destined for systems not directly attached to the TCP/IP network to an intermediate gateway system that is directly attached.

If your TCP/IP package is configured to use a name server which includes MX records for your internal systems, you should answer 1; this is the most common case. Otherwise if you have the internal systems in your name server but have a special requirement to ignore MX records for internal systems, then answer 2. Answer 3 if the internal systems can not be found by name server lookups and instead can only be seen by doing host table lookups.

Choose one of the above options [1]? **1**

TCP/IP networks typically provide access to one or more systems or entire domains. This should only include systems or domains that are accessible via TCP/IP inside your firewall; systems reached through DECnet or NJE do not count.

Enter each system or domain specification (e.g. system names such as 'brandnew.company.com' or domains such as '.mycompany.com') separately, pressing CR between each one. When you've entered them all just enter a CR by itself to end the list.

Internal system or domain reachable via TCP/IP [RETURN if no more]?

example.com

Internal system or domain reachable via TCP/IP [RETURN if no more]?

naples.example.com

Internal system or domain reachable via TCP/IP [RETURN if no more]? **example.com**

Internal system or domain reachable via TCP/IP [RETURN if no more]? **.otherco.com**

Internal system or domain reachable via TCP/IP [RETURN if no more]?

PMDF needs to know the IP address of each internal system or subnet.

For instance, this information is used to distinguish between internal and external systems for doing SMTP relay blocking.

Enter each IP address separately in a.b.c.d, or a.b.0.0 or a.b.c.0 format, pressing CR between each one. When you've entered them all just enter a CR by itself to end the list.

IP addresses for your internal system or network [RETURN if no more]? **192.168.1.7**

IP addresses for your internal system or network [RETURN if no more]? **192.168.1.8**

IP addresses for your internal system or network [RETURN if no more]? **192.168.1.0**

IP addresses for your internal system or network [RETURN if no more]? **192.168.5.0**

IP addresses for your internal system or network [RETURN if no more]?

PMDF has the ability to automatically convert shortform names appearing on the right hand side of the at sign in an address into fully qualified domain names. These addresses are then routed to TCP/IP automatically. This convenience is especially

Example 10-1 Cont'd on next page

E-mail Firewall Example Configuration

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

appropriate when a system is only connected via TCP/IP and not via other networks. For example, if you were to specify a default domain of EXAMPLE.COM and the address USER@NAPLES was used, where NAPLES has no other special meaning, this address will be rewritten as USER@NAPLES.EXAMPLE.COM and routed via TCP/IP. Enter nothing if you don't want to have shortform addresses handled in this way.

Default (internal) domain to attach to shortform host names [none]?
example.com

Enter YES if all messages to your internal systems are to be routed via a (preferably) PMDF-MTA system acting as a mailhub. Enter NO otherwise.

Are all internal messages routed to a mailhub [N]? **y**

Enter the fully qualified TCP/IP name of the mailhub system.

Enter TCP/IP name of the mailhub []? **example.com**

Part Four: Internal DECnet connections

Answer YES if this system is attached to DECnet network containing one or more remote nodes PMDF should provide access to. Answer NO if this host is not attached to such a network.

Is this system attached to any others using DECnet [Y]? **n**

Part Five: Security Configuration.

Enter YES if you would like to allow external users to submit mail using password and NO if you do not.

Do you want to allow authenticated external users to relay mail [Y]? **y**

Enter YES if you would like to check passwords against LDAP source and NO if you do not.

Do you want to check passwords against LDAP [N]? **n**

Enter YES if you would like to check passwords against MessageStore/popstore user profiles, which is the fastest, and NO if you do not.

Do you want to check passwords against MessageStore/popstore user profiles [Y]? **y**

Enter YES if you would like to check passwords against PMDF password database and NO if you do not.

Do you want to check passwords against PMDF password database [Y]? **y**

Enter YES if you would like to check passwords against the operating system one (e.g. /etc/passwd), and NO if you do not.

Do you want to check passwords against operating system [Y]? **y**

Enter YES if you would like to allow unprotected passwords for internal users and NO if you do not.

Do you want to allow unprotected password for internal users [Y]? **y**

Enter YES if you would like to support for pre-standard unprotected password submission used by Outlook Express and Netscape 4.0x and NO if you do not.

Example 10-1 Cont'd on next page

E-mail Firewall Example Configuration

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

Do you want to support pre-standard password submission used by Outlook Express and Netscape 4.0x [N]? **n**

Part Six: Customizations

If you want to log message traffic through this system, then answer YES. Turning on logging would create log files in your PMDF log directory - mail.log_current, mail.log_yesterday and mail.log. It is your responsibility to archive/delete the mail.log file periodically or these files can consume your disk space.

Do you wish to enable message logging [N]? **n**

As a firewall, you might want to eliminate the names of internal nodes from outgoing mail. PMDF can selectively trim off possible header lines which contain such information. If you choose to trim off the headers, the following will be eliminated from mail outgoing on the external tcp channel:

Received:
X400-Received:
MR-Received:
Message-id:

Do you wish to get rid of all *received: headers for outgoing mail [Y]? **n**

Part Seven: Process and write files

Enter the name of the configuration file you want to have output. The default action is to produce a real configuration file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Configuration file to output [PMDF_TABLE:PMDF.CNF]?

Enter the name of the aliases file you want to have output. This file contains system-wide local address aliases PMDF will recognize; special aliases are required for proper operation of some channels. The default action is to produce a real alias file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue, or if you want to preserve an existing aliases file.

Alias file to output [PMDF_TABLE:ALIASES.]?

Enter the name of the PMDF option file you want to have output. The default action is to produce a real PMDF option file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Option file to output [PMDF_TABLE:OPTION.DAT]?

Example 10-1 Cont'd on next page

E-mail Firewall Example Configuration

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

Enter the name of the mapping file you want to have output. The default action is to create a real mapping file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Mapping file to output [PMDF_TABLE:MAPPINGS]?

Enter the name of the security configuration file you want to have output. The default action is to create a real security.cnf file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

Security configuration file to output [PMDF_TABLE:security.cnf]?

Enter the name of the option file for the incoming TCP/IP channel. The default action is to create a real channel option file; you might want to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue.

(Incoming) tcp channel option file to output [PMDF_TABLE:TCP_LOCAL_OPTION]?

This procedure generates a checklist file that contains the list of steps you must perform in order to complete your PMDF configuration. This procedure does *NOT* perform these steps itself; you must do them manually.

PMDF checklist file name [PMDF_TABLE:FIREWALL.CHECKLIST]?

All configuration questions have been answered.

This question gives you a last chance to change your mind before any files are written. Answer NO if you are not sure you want to generate the configuration you have specified. Answer YES if you do.

Do you wish to generate the configuration files [Y]? **y**

Generating the PMDF configuration file...

Generating PMDF_TABLE:TCP_LOCAL_OPTION

Generating the PMDF mapping file

Generating the PMDF aliases file...

Generating the PMDF option file...

Generating the PMDF security configuration file...

Generating the PMDF firewall configuration checklist file...

Example 10-1 Cont'd on next page

Example 10-1 (Cont.) Example PMDF-MTA Configuration as a Firewall

```
*****
*
*   To complete your PMDF configuration, carry out the steps
*   detailed in the checklist file PMDF_TABLE:FIREWALL.CHECKLIST.
*
*****

Enter Yes if you want to see the checklist now. You can still type
the file out later if you say No.

Do you want to see the checklist now [Y]? n

Enter YES if you would now like to configure the PMDF Dispatcher.
If you answer NO, then you can configure it later with the command

    $ PMDF CONFIGURE DISPATCHER

Configure the PMDF Dispatcher [Y]? n

$
```

Example 10-2 Example Checklist File for Firewall Configuration

```
$ TYPE PMDF_TABLE:firewall.checklist
Checklist for completing the setup of the PMDF firewall configuration.
Written by SYSTEM, 1-NOV-2012 13:54:13
This file was created by the PMDF configuration generator V6.8

(1) If you have not already set up your MAIL$BATCH queue or added
the PMDF startup procedures to your system startup, then be sure
to do so. Setting up MAIL$BATCH is crucial to the operation of
PMDF. Modifying the system startup can, of course, be done after
you have verified the proper operation of PMDF. Refer to the
"Post-Installation tasks" section of the first chapter of the
PMDF Installation Guide & Release Notes.

(2) Setup the PMDF SMTP server. To do this consult the TCP/IP
Channels chapter of the PMDF System Manager's Guide.
To use the generic multithreaded TCP/IP, you need to disable
any other SMTP server you are currently be running and also
configure the PMDF Service Dispatcher with the command

PMDF CONFIGURE DISPATCHER

Note that all other steps outlined in the TCP/IP Channels chapter
have been taken care of for you by the configure procedure.
```

A Updated HP Pascal Run Time Library (VAX and Alpha)

Versions of the HP Pascal RTL (Run Time Library) earlier than V5.0-15 (VAX) or V5.0-18 (Alpha) were not fully thread-safe; PMDF's multithreaded SMTP server and multithreaded SMTP client were liable to exercise these problems.

Hewlett-Packard Company has given Process Software permission to distribute an updated version of their Pascal RTL for VAX and Alpha. As of PMDF V5.0-6, the PMDF installation procedure will check the version of the Pascal RTL installed on your system and will install an updated Pascal RTL, `pasrtl.exe` (VAX) or `pas$rtl.exe` (Alpha), if your system is running OpenVMS 6.1 or later and is using an older version of the RTL. This new version of the Pascal RTL is included in OpenVMS 6.1 and later.

If you are running a shared PMDF configuration on a cluster, then note that the PMDF installation will only update the Pascal RTL on the node on which you perform the installation; you must separately update the Pascal RTL on any other system disks. (Sites running PMDF on a mixed architecture cluster or on a cluster with multiple system disks should note that `post_install.com` does *not* update the Pascal RTL; you must still update the Pascal RTL separately.) The PMDF installation creates a file `PMDF_COM:pasrtl_upd050.a`. Copy that file to the other systems which need an updated Pascal RTL and then on such systems issue the command:

```
$ @SYS$UPDATE:vmsinstal PASRTL_UPD050
```

telling the installation procedure the location where you put the copy of the file `PMDF_COM:pasrtl_upd050.a`.

This updated Pascal RTL can be installed on any OpenVMS 6.1 or later system, and you might in fact want to do so. Note that this updated Pascal RTL is compatible with older RTLs, so if you link programs on a system with the updated RTL, the resulting executable can still run on systems that do not have the updated RTL installed.

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