

PMDF Installation Guide Solaris Edition

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This document describes the installation and configuration of version 6.2 of the PMDF-MTA, PMDF-DIRSYNC, PMDF-LAN, PMDF-MSGSTORE, PMDF-POPSTORE, PMDF-TLS, PMDF-X400, and PMDF-XGS software on a Solaris system.

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Software Version: PMDF-MTA V6.2, PMDF-DIRSYNC V6.2, PMDF-LAN V6.2, PMDF-MSGSTORE V6.2, PMDF-POPSTORE V6.2, PMDF-TLS V6.2, PMDF-X400 V6.2, PMDF-XGS V6.2

Operating System and Version: Solaris V2.6, 8, and 9 (SunOS 5.6, 5.8, and 5.9)

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1 Installing PMDF and PMDF layered products

This chapter presents the procedure for installing version 6.2 of PMDF-MTA, PMDF-DIRSYNC, PMDF-LAN, PMDF-MSGSTORE, PMDF-POPSTORE, PMDF-TLS, PMDF-X400, and PMDF-XGS on a Solaris system.

Note: PMDF is not supported on Solaris 7 systems.

If you are installing any PMDF add-on layered product *e.g.*, PMDF-DIRSYNC, PMDF-LAN, PMDF-X400, PMDF-XGP, PMDF-TLS, or PMDF-XGS, such product has been included with the base PMDF kit on your distribution media.

You will be asked during the installation procedure what optional packages should be installed along with PMDF. Note that an add-on layered product cannot be installed separately from the base PMDF kit. Although for each additional add-on layered product you will need an additional license in order to activate that layered product, you can install a layered product even if you do not currently have a license for it. You will not be able to use that layered product until you have installed the proper license for it.

1.1 What You Should Have

Prior to performing an installation or upgrade you should have received a PMDF distribution kit containing the distribution media and any necessary licenses. You can install any PMDF layered product even if you do not currently have a license for it: you just will not be able to use that layered product until you have installed the proper license.

1.1.1 Supported Solaris Versions

This version of PMDF-MTA, PMDF-DIRSYNC, PMDF-LAN, PMDF-TLS, PMDF-X400, and PMDF-XGS runs under Solaris versions 2.6, 8, and 9.

For Solaris V2.6 SPARC, you must install Sun patch 105181, revision -29 or later; for Solaris V2.6 x86, you must install Sun patch 105182, revision -29 or later. Without this patch, various PMDF utilities may abort with a “libthread panic: fault in libthread critical section” error.

For Solaris V2.6 SPARC, you must install Sun patch 105755, revision -10 or later; on Solaris V2.6 x86, you should install Sun patch 105756, revision -10 or later. This fixes several BIND server and resolver problems, one of which may lead to hangs in the TCP SMTP client.

Installing PMDF and PMDF layered products

What You Should Have

For Solaris V2.6, if you are using the Veritas File System you must be sure to be running (or upgrade to) VxFS 3.2.3. That fixes a bug in VxFS associated with UNIX domain sockets. Without this patch, the PMDF Dispatcher would be unable to start up properly, encountering a “comm_listen: bind Invalid argument” error.

1.1.2 Distribution Media

PMDF for Solaris is distributed on a single CD-ROM that contains Solaris, Tru64 UNIX, NT, and OpenVMS distributions of PMDF and all PMDF layered products. In particular, the distribution includes the complete PMDF for Solaris product family: PMDF-MTA, PMDF-DIRSYNC, PMDF-LAN, PMDF-MSGSTORE, PMDF-POPSTORE, PMDF-TLS, PMDF-X400, and PMDF-XGS. The CD-ROM is an ISO 9660 with Rockridge extensions CD-ROM, readable from many different platforms.

Prior to installation, the CD-ROM should be inserted into a CD-ROM drive accessible to the system. If the Solaris automounter has not been disabled, the CD-ROM will be automatically mounted by the system in `/cdrom/pmdf062`. If the automounter has been disabled, manually mount the CD-ROM as follows:

```
# cd /
# mount -o ro file-system directory
```

where *file-system* is the CD-ROM device, and *directory* is the location in the file tree at which to attach the newly mounted file-system. For example, if the target id of your CD-ROM device is 6 and you want to place the PMDF distribution files under `/cdrom`, you would issue the commands:

```
# cd /
# mount -o ro /dev/dsk/c0t6d0s0 /cdrom
```

Note that the PMDF packages for Solaris (SPARC) reside under the directory `/Solaris-SPARC/PMDF620` and the PMDF packages for Solaris (x86) reside under the directory `/Solaris-X86/PMDF620`. Thus the example above would result in the packages for Solaris (SPARC) being present under `/cdrom/Solaris-SPARC/PMDF620` and the packages for Solaris (x86) being present under `/cdrom/Solaris-X86/PMDF620`. If the automounter is used, the packages for Solaris (SPARC) will be present in `/cdrom/pmdf062/Solaris-SPARC/PMDF620`. and the packages for Solaris (x86) will be present in `/cdrom/pmdf062/Solaris-X86/PMDF620`.

The PMDF on-line documentation resides on the PMDF distribution CD-ROM under the directory `/documentation`,

Once mounted, use the `pkgadd` installation procedure as presented in Section 1.3. Or, if you move the PMDF product packages to disk, you can install PMDF from that on-disk copy similarly, specifying as the location argument to `pkgadd` the path to the packages' directory.

1.1.3 Disk Space Requirements

The disk space requirements for PMDF are listed in Table 1–1.

Table 1–1 Disk space requirements for PMDF for Solaris

Package Name	Kbytes Required	
	SPARC	x86
PMDFbase	30500	28900
PMDFdoc	36300	36300
PMDFlan	1300	1200
PMDFsync	2000	1800
PMDFtls	2400	2200
PMDFx400	5000	5000
PMDFxgs	200	200

Note that the `PMDFbase` package includes PMDF-MTA.

These disk space requirements apply to the partition on which you load the PMDF packages. You can use the `df` command to check total space and free space for the filesystems in which you want to have PMDF reside.

1.1.4 Filesystem Requirements

PMDF makes heavy use of UNIX file locks. Therefore acceptable performance requires that PMDF directories reside on a filesystem which is local to the system running PMDF. In particular, PMDF directories should *not* reside on a remote, NFS mounted filesystem.

1.1.5 Swap Space Requirements

For proper PMDF operation it is important to have your system configured with enough swap space. How much swap space will be required will depend upon what components of PMDF you are using and how heavily they are used; heavy POP or IMAP usage, for instance, will increase the swap space needed. Note that a typical general system tuning recommendation, regardless of PMDF, is to have swap space at least three times the amount of main memory.

For PMDF, at a minimum you should have at least 320 megabytes of swap space configured on Solaris SPARC or at least 250 megabytes on Solaris x86. On a PMDF system with more than minimal usage, better values would be more along the lines of at least 750 megabytes of swap space on Solaris SPARC or at least 500 megabytes on Solaris x86.

Installing PMDF and PMDF layered products

Preliminary Tasks for New Installations

1.2 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.

1.2.1 Check Your System's Shared Memory

PMDF uses shared memory to store some information for its own use. You need to ensure that your system's kernel tunable parameter `SHMMIN` value does not exceed 512 bytes, so that PMDF may successfully create small shared memory segments. That is, your `SHMMIN` value must be less than 513 bytes.

To check your system's value of `SHMMIN`, you may use the command:

```
# sysdef | grep SHM
```

If your system `SHMMIN` value is currently less than 513, then you do not need to do anything. Otherwise, if your system's `SHMMIN` value is greater than 512, then you need to lower it to a value no greater than 512 by putting the line

```
set shmsys:shminfo_shmmin=512
```

in your `/etc/system` file. You will then need to reboot in order for the new value to take effect.

1.2.2 Create PMDF and PMDFUSER Accounts

You must add two user accounts for PMDF to the system password file and specify (but not create) the accounts' home directories. Specify `pmdf` as the first username with `/pmdf/queue` as its home directory, and specify `pmdfuser` as the second username, also with `/pmdf/queue` as its home directory. Be sure that the user ids and group ids for the `pmdf` and `pmdfuser` accounts are distinct from each other and from those of any other accounts on your system.

To add these accounts, you may either use the `groupadd` and `useradd` utilities, making sure to specify but not create the home directories, as described in Section 1.2.2.1 below, or you may use the `/usr/ucb/vipw` utility to manually edit the system password file, `/etc/passwd`, and add the accounts, and then edit the system shadow file, `/etc/shadow`, similarly, as described in Section 1.2.2.2 below.

Installing PMDF and PMDF layered products

Preliminary Tasks for New Installations

1.2.2.1 Using GROUPADD and USERADD to Add the Accounts

This section describes how to use the `groupadd` and `useradd` utilities to add the required `pmdf` and `pmdfuser` accounts.

Issue the commands

```
# groupadd pmdf
# useradd -c "PMDF" -d /pmdf/queue -s /bin/sh -f 0 -e "" -g pmdf pmdf
# groupadd pmdfuser
# useradd -c "PMDF user" -d /pmdf/queue -s /bin/sh -f 0 -e "" -g pmdfuser pmdfuser
```

Then use the `passwd` command to set real passwords for the two new accounts.

1.2.2.2 Editing the /etc/passwd and /etc/shadow Files to Add the Accounts

This section describes how to use the `/usr/ucb/vipw` utility to manually edit the system password file, and add the required `pmdf` and `pmdfuser` accounts. Specify `/pmdf/queue` as the home directory for both accounts. Be sure that the user ids and group ids of the `pmdf` and `pmdfuser` accounts are distinct from each other and from those of any other accounts on your system.

Invoke `vipw` to manually edit the system password file. Upon saving the system password file, you will be prompted to also update the system shadow file, `/etc/shadow`, with entries for these accounts. (Note that in order to make system administration more manageable, it is usually recommended that shadow entries be added in exactly the same order as password entries.) Create entries for the `pmdf` and `pmdfuser` accounts in the system shadow file having arbitrary random strings in place of real passwords, save the system shadow file, and then use the `passwd` command to set real passwords for the two new accounts.

For example, if your system has no accounts with user id or group id 30 or 31, then an example of appropriate entries to add to `/etc/passwd` is:

```
pmdf:x:30:30:PMDF:/pmdf/queue:/bin/sh
pmdfuser:x:31:31:PMDF user:/pmdf/queue:/bin/sh
```

An example of appropriate initial entries for the system shadow file is:

```
pmdf:xxxxxxxxxxxxxxxx::::::::
pmdfuser:yyyyyyyyyyyyyy::::::::
```

Then use the `passwd` command to set real passwords for the two new accounts.

1.3 Step-by-Step Installation Instructions

1. If you have previously installed PMDF, you must shutdown the PMDF detached processes before attempting to reinstall or upgrade PMDF. Issue the command:

```
# pmdf shutdown
```

Installing PMDF and PMDF layered products

Step-by-Step Installation Instructions

2. If you have previously installed PMDF, you must first deinstall PMDF before attempting to reinstall or upgrade PMDF. To deinstall PMDF, see Section 1.6.
3. Installation of PMDF should be done by `root`. If you are not logged in as `root`, do so now.
4. If you are upgrading PMDF, you should check on your PMDF licenses and update them, if necessary, at this time. In particular, if you are upgrading from PMDF V5.2 or earlier, note that the format of PMDF license files has changed as of PMDF V6.0; you will need to obtain replacement licenses from Process Software if you have not already done so. (If this is your initial PMDF installation, instructions on initially installing PMDF licenses will be given in Section 1.5, Post-Installation Tasks for New Sites.) PMDF license information is stored in files with names of the form *product-name.license*, located in the PMDF table directory. You will have a separate license file for each PMDF product you have licensed for the system in question. For instance, a PMDF-MTA license would be stored in a file `/pmdf/table/PMDF-MTA-SUN.license` and look something like:

```
Issuer:Process
Authorization Number:auth-number
Product Name:PMDF-MTA-SUN
Producer:Innosoft
Product Release Date:November 2002
Product Token:token
Checksum:checksum
```

where *auth-number*, *token*, and *checksum* are specific to your own site's license. You should have received the correct license information for your system when you licensed PMDF, and new licenses for PMDF at renewal time. A PMDF-MTA system will need a PMDF-MTA-SUN license.

If you will also be installing any add-on layered product such as PMDF-LAN, then for each such layered product, an additional license will be required, named, *e.g.*, PMDF-LAN-SUN; note that such layered products can only be licensed and installed on a system already licensed for PMDF-MTA.

If you already have existing licenses, you should check to make sure that they are valid for this release. Check that the release date for each product, *i.e.*, that found on the fifth line of the file, is later than the release date of the new version of each PMDF product that you want to install.¹

New PMDF product licenses are issued when your maintenance contract is renewed, not when new versions of software are released. If you have received new PMDF licenses at your renewal time, you should register the new licenses. Edit the appropriate license file and enter the new license information.

Note that the `pmdf license -verify` utility may be used to check the validity of the syntax, data, and checksum of PMDF license files.

¹ PMDF licenses do not use a termination date; they instead use a release date. The release date merely prevents you from running newer versions of PMDF released after your maintenance contract has expired. The licenses do not prevent your current version of PMDF from running after your maintenance contract has expired. This is intentional.

Installing PMDF and PMDF layered products

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.

5. Begin the installation procedure by invoking the `pkgadd` command procedure as shown below:

```
# cd /
# pkgadd -d location
```

where *location* specifies the location of the appropriate PMDF packages. If you are installing the packages directly from CD-ROM and if volume management is not running, then you need to mount the distribution media first and then invoke the `pkgadd` command. For instance, assuming that the target id of the CD-ROM device is `6`, for a Solaris (SPARC) installation:

```
# cd /
# mount -o ro /dev/dsk/c0t6d0s0 /cdrom
# pkgadd -d /cdrom/Solaris-SPARC/PMDf620
```

Or for a Solaris (x86) installation:

```
# cd /
# mount -o ro /dev/dsk/c0t6d0s0 /cdrom
# pkgadd -d /cdrom/Solaris-X86/PMDf620
```

To stop the installation procedure at any time, use `[Ctrl/C]`. Note, however, that if the installation procedure is terminated forcibly via `[Ctrl/C]`, then any files created by the installation up to the point where `[Ctrl/C]` was pressed will not be deleted, and therefore you must delete any such files manually.

6. After `pkgadd` is invoked, you will be asked to select the package or packages to install. For instance, in a Solaris (SPARC) installation, you would see:

The following packages are available:

- | | | |
|---|----------|--|
| 1 | PMDfbase | PMDf Base Product V6.2
(sparc) 6.2 |
| 2 | PMDfdoc | PMDf Documentation V6.2
(sparc) 6.2 |
| 3 | PMDflan | PMDf LAN Product V6.2
(sparc) 6.2 |
| 4 | PMDfsync | PMDf Directory Synchronization Product V6.2
(sparc) 6.2 |
| 5 | PMDftls | PMDf TLS Product V6.2
(sparc) 6.2 |
| 6 | PMDfx400 | PMDf X.400 Product V6.2
(sparc) 6.2 |
| 7 | PMDfxgs | PMDf SNADS Gateway Product V6.2
(sparc) 6.2 |

Select package(s) you want to process (or 'all' to process all packages). (default: all) [?,??,q]: all

At this last prompt, you should enter the number or numbers of your selection, or

Installing PMDF and PMDF layered products

Step-by-Step Installation Instructions

enter `all` to select all packages. Multiple, nonsequential numbers should be entered separated by spaces, not by commas, *e.g.*, `1 3`; multiple, sequential numbers can either be entered separated by spaces or as a range, *e.g.*, `1-3`.

Note that the PMDF Base Product refers to PMDF-MTA; your selection should include option 1. To install PMDF-MTA alone, enter `1`; to install PMDF-MTA, PMDF-LAN, and the PMDF on-line documentation, enter `1-3`.

Note that you cannot install PMDF-DIRSYNC, PMDF-LAN, PMDF-TLS, PMDF-X400, PMDF-XGS, or the PMDF on-line documentation unless you are also concurrently installing or have already installed the PMDF Base Product.

You may enter `q` to quit the installation, or `?` to have a help message printed.

After you enter your selection, the `pkgadd` installation utility will print PMDF copyright information.

7. `pkgadd` will then ask you where to locate the `/pmdf` directory, with `pkgadd` displaying the following message:

```
PMDF will be installed in the directory '/pmdf'. If you
want to install it under some other directory, a symbolic
link will be created that links '/pmdf' to the directory
that you specify.
```

```
e.g.: If you specify '/opt/pmdf' as the directory, a directory
'/opt/pmdf' will be created and a symbolic link
will be created that links '/pmdf' to '/opt/pmdf'.
```

```
Under which directory will PMDF be installed: [?,q]
```

At this last prompt, you should enter your choice of where to locate the `/pmdf` directory. It is recommended that you locate the `/pmdf` directory under some directory other than the root directory since the root file-system is usually quite limited in size. Enter the directory name under which you want to locate the `/pmdf` directory; the `pkgadd` procedure will automatically create a symbolic link that links `/pmdf` to the directory that you specify.²

8. `pkgadd` will then ask if you want to relocate heavily accessed (and transient) PMDF files to a different filesystem.

Some PMDF subdirectories are likely to contain large numbers of transient files, such as queued messages and log files. If you like, this procedure will install these subdirectories to a different filesystem and create symbolic links to them.

² Note that manually relocating PMDF after installation is unsupported as it confuses the Solaris utilities `pkginfo`, `pkgrm`, and `pkgadd`, and may cause file system corruption upon subsequent use of such utilities. Specifically, if after installation to another area the PMDF tree is manually moved to `/pmdf`, where normally only a softlink to the actual PMDF area exists, then subsequently using `pkgrm` to remove the PMDF package, besides removing the entire PMDF tree (including site-supplied configuration files which one normally does *not* want removed), has also been observed in some cases on Solaris x86 to cause file system corruption. So be sure to carefully consider your choice of where to install PMDF now; if you later want to change the location, you will need to deinstall PMDF and then reinstall PMDF to the new location.

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e.g.: If you specify `/var/spool/pmdf` for transient PMDF files, the subdirectories `/var/spool/pmdf/queue`, `/var/spool/pmdf/log`, `/var/spool/pmdf/locks`, and `/var/spool/pmdf/tmp` and `/var/spool/pmdf/queue_cache` will be created and symbolic links created under `/pmdf`.

Would you like to relocate subdirectories of transient files [y,n,?,q]

If you would like to relocate these directories, answer y followed by `RETURN`. If so, the procedure will then ask:

Under which directory will these subdirectories be located: [?,q]

At this last prompt, you should enter your choice of where to locate the heavily accessed subdirectories.

9. After you select where to locate your selection of packages, the installation procedure will then begin checking package information. It will ask you whether to install certain files as setuid/setgid files. You must answer y meaning yes:

WARNING: There are files that need to be installed with setuid in order for PMDF to work correctly. Answer 'y' to the question later to install the programs as setuid/setgid files

Using `</>` as the package base directory.

Processing package information.

Processing system information.

9 package pathnames are already properly installed.

Verifying disk space requirements.

Checking for conflicts with packages already installed.

Checking for setuid/setgid programs.

The following files are being installed with setuid and/or setgid permissions:

```
/usr/opt/pmdf/bin/l_master <setuid root setgid mail>
/usr/opt/pmdf/bin/master <setgid uucp>
/usr/opt/pmdf/bin/msgstoremgr <setuid pmdf>
/usr/opt/pmdf/bin/pager <setgid uucp>
/usr/opt/pmdf/bin/pipe_master <setuid root setgid mail>
/usr/opt/pmdf/bin/pmdf <setuid pmdf>
/usr/opt/pmdf/bin/popmgr <setuid pmdf>
/usr/opt/pmdf/bin/profile <setuid pmdf>
/usr/opt/pmdf/bin/qm <setuid pmdf>
/usr/opt/pmdf/bin/send <setuid pmdf>
/usr/opt/pmdf/bin/sendmail <setuid pmdf>
/usr/opt/pmdf/bin/slave <setgid uucp>
/usr/opt/pmdf/bin/uucp_slave <setuid pmdf>
```

Do you want to install these as setuid/setgid files [y,n,?,q]

10. The installation procedure will next print a warning that the installation executes certain scripts as super-user, and asks if you want to continue. You must answer y meaning yes:

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This package contains scripts which will be executed with super-user permission during the process of installing this package.

Do you want to continue with the installation of <PMDFbase> [y,n,?]

After you answer yes, the installation procedure will begin installing each package you selected for installation in turn, printing informational messages as it does so.

11. Once it has finished installing all of the packages you selected, the installation procedure will ask if you want to install anything else:

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

Enter q to exit the installation procedure.

12. After the packages are installed, if you have been installing directly from the CD-ROM, you should unmount the distribution media. If volume management is running, you may use the `eject` command; otherwise, to unmount the distribution media use a command such as:

```
# umount /cdrom
```

1.4 Post-Installation Tasks for Upgrades

Note: If you are upgrading from PMDF v5.2 or higher, Process Software recommends using the script `/pmdf/bin/upgrade_all_dbs.sh` which simplifies the post-installation tasks. As in the past, you can perform these steps individually.

The script `/pmdf/bin/upgrade_all_dbs.sh` replaces steps 1 and 2.

1. If you are using a compiled configuration, you must recompile it after an upgrade of PMDF with the command:

```
# pmdf cnbuild
```

2. The format of the SleepyCat environment files has changed as of PMDF V6.2. The old files must be removed from the `/pmdf/table`, `/pmdf/table/queue_cache`, and `/var/tmp` directories. In each directory run

```
# rm __db.0*
```

3. The HTTP configuration file must be updated upon upgrading to PMDF V6.2. The HTTP configuration file is usually `/pmdf/table/http.cnf` on Solaris.

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/]`

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- replace `[PATH=/popstore_pwd/]` with `[PATH=/chnng_pwd/]`
4. As of PMDF V6.2, the global `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
```

5. If you are using the `pmdfcyrus` program to deliver to store, you should check the permission settings for the `/pmdf/bin/pmdfcyrus` image to make sure that they are still correct. The PMDF installation attempts to set the permissions properly when it updates the image. But if the permissions are not correct, you will need to reset them manually with the commands:

```
# chown cyrus-user /pmdf/bin/pmdfcyrus
# chmod 4755 /pmdf/bin/pmdfcyrus
```

where `cyrus-user` is whatever username was selected when installing Cyrus, typically `cyrus`.

6. If you are using the PMDF-LAN Lotus Notes channel or PMDF-XGS, be sure to upgrade the PMDF images used on the Lotus Notes server or XGS transport bridge system. These are OS/2 or NT PMDF images, available under the `/pmdf/other/` directory on the PMDF system, or available directly off the PMDF distribution CD-ROM under the `other` directory. Note that this is an ISO 9660 with Rockridge extensions CD-ROM, readable from many different platforms including OS/2 and NT.
 - a. For PMDF-XGS, shutdown all the PMDF-XGS processes on the transport bridge and then copy the respective files to the transport bridge system. Then restart the PMDF-XGS processes on the transport bridge system.
 - b. For a PMDF-LAN Lotus Notes channel, shut down the PMDF Lotus Notes Server Add-ins, using Lotus Notes server console commands such as `TELL PNGATECIN QUIT`, and `TELL PNGATECOUT QUIT` (or just `TELL PNGATEC QUIT` if you were using just the one Server Add-in). Then copy the new server Add-ins to the Lotus Notes server, and start them back up (e.g., `LOADPNGATECIN` and `LOAD PNGATECOUT`).
7. Start up the PMDF Job Controller and PMDF Service Dispatcher using the command:

```
# pmdf startup
```
8. If you also installed PMDF-DIRSYNC, PMDF-LAN, PMDF-MB400, PMDF-X400, or PMDF-XGS for the first time, then you should configure them now. Configuration instructions for PMDF-LAN may be found in Chapters 6 and 7; configuration instructions for PMDF-X400 may be found in Chapters 8 and 9; configuration instructions for PMDF-XGS may be found in Chapters 10 through 13.

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Post-Installation Tasks for Upgrades

1.4.1 Additional Post-Installation Tasks for Sites Upgrading from PMDF V6.0

Note: The script `/pmdf/bin/upgrade_all_dbs.sh` automates the following steps:

1. The format of the PMDF queue cache database has changed as of PMDF V6.1. from the formats used in PMDF V6.0 and earlier. Therefore, the PMDF queue cache database must be rebuilt, via the commands:

```
# rm /pmdf/table/queue_cache/*
# pmdf cache -synchronize
```

Note that it is a good idea to rebuild the PMDF queue cache database with the above commands after any upgrade of PMDF, including after minor interim releases.

Note: After an upgrade from PMDF V6.0, the following files can be safely deleted.

```
__db_lock.share
__db_mpool.share
```

They may be located in `/pmdf/table`, `/pmdf/tmp`, `/tmp`, `/var/tmp`, or `/usr/tmp`.

2. UNIX sites which were using the popstore or MessageStore under PMDF V6.0 or earlier and which are upgrading to PMDF V6.1 or later must rebuild (or should build for the first time) the PMDF popstore/MessageStore user database since its format has changed.

As of PMDF V5.2, in order to accelerate certain management functions such as generating listings of user accounts, using wild cards in conjunction with account management commands, etc., a database of user accounts is used by the popstore and MessageStore. This database, referred to as the popstore or MessageStore user database, is located in the `/pmdf/user` directory on UNIX systems. This database is only used for management functions and does not in any way impact the performance of the popstore or MessageStore.

The PMDF popstore/MessageStore user database is located via the `PMDF_POPSTORE_USER_DATABASE` PMDF tailor file option, and is usually `/pmdf/user/userdb`. Sites upgrading from PMDF V5.2 or V6.0 must rebuild their existing popstore/MessageStore user database using the commands:

```
# rm /pmdf/user/userdb.*
# pmdf msgstore x-build-user-db
```

or

```
# rm /pmdf/user/userdb.*
# pmdf popstore x-build-user-db
```

Sites which were using the PMDF popstore under PMDF V5.1 and which are upgrading to PMDF V6.1 or later should create a popstore user database using the command:

```
# pmdf popstore x-build-user-db
```

after upgrading. This command will scan the profile directory tree and build a user database.

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3. The format of all PMDF SleepyCat databases has changed as of PMDF V6.1. You must convert all of these databases to the current format by using the `db_upgrade` utility. Note that `db_upgrade` changes the database in-place, so Process Software recommends making a backup copy first. For example:

```
# cd /pmdf/user
# cp forwarddb.db forwarddb.db.old
# /pmdf/bin/db_upgrade -s forwarddb.db
```

Note that the `-s` is required.

The `/pmdf/bin/finddb.sh` shell script may be used to attempt to detect the major PMDF databases. This utility constructs the appropriate `db_upgrade` commands to transform the old SleepyCat databases into the new format in the script `/pmdf/bin/convertdb.sh` which you can then check and run to do the `db_upgrade` commands.

Following is a partial list of possible SleepyCat database files in `/pmdf` directories with `.db` extensions:

- `/pmdf/table/aliasesdb.db`
- `/pmdf/table/domaindb.db`
- `/pmdf/table/from_x400.db`
- `/pmdf/table/generaldb.db`
- `/pmdf/table/profiledb.db`
- `/pmdf/table/reversedb.db`
- `/pmdf/table/to_x400.db`
- `/pmdf/user/forwarddb.db`
- `~/aliasesdb.db`
- `~/pmdf_profile.db`

Note: This ends the steps that are automated by `upgrade_all_dbs.sh`.

After successful completion of the `/pmdf/bin/upgrade_all_dbs.sh` procedure, you will need to complete the following post-installation steps as appropriate for your site.

Note that if you have additional PMDF databases on your system (for instance, users' own personal alias databases), then you will also need to convert those databases. Users wanting to convert their own personal alias database may do so with the commands:

```
% cp aliasesdb.db aliasesdb.db.old
% /pmdf/bin/db_upgrade -s aliasesdb.db
```

which will convert the `aliasesdb.db` file in place.

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1.4.2 Additional Post-Installation Tasks for Sites Upgrading from PMDF V5.2

The following is a list of additional post-installation tasks that must be completed following an upgrade from V5.2 of PMDF. Sites upgrading from PMDF V6.0 or later should skip this section.

Note: The following step is performed as part of the `/pmdf/bin/upgrade_all_dbs.sh` procedure. You can, of course, perform this step manually as in the past.

1. The underlying storage of all PMDF databases changed as of PMDF V6.0 from the format used in PMDF V5.2 and earlier. In particular, you must rebuild all PMDF crdb databases using the `pmdf crdb` command with any appropriate qualifiers to recreate the database from an input text file or convert the databases using the `pmdf convertdb` utility.

The `/pmdf/bin/findddb.sh` shell script may be used to attempt to detect the major PMDF databases. This utility constructs the appropriate `'pmdf convertdb'` command to transform the old crdb databases into the current format in the script `/pmdf/bin/convertdb.sh` which you can then check and run to do the `convertdb` command.

Following is a list of the possible crdb database files in `/pmdf` directories with `.dat`, `.idx`, `.pag`, and `.dir` extensions:

- `/pmdf/table/aliasesdb.*`
- `/pmdf/table/domaindb.*`
- `/pmdf/table/from_x400.*`
- `/pmdf/table/generaldb.*`
- `/pmdf/table/profiledb.*`
- `/pmdf/table/reversedb.*`
- `/pmdf/table/to_x400.*`
- `~/aliasesdb.*`
- `~/pmdf_profile.*`

Note: This ends the steps that are automated by `upgrade_all_dbs.sh`.

Note that if you have additional PMDF databases on your system (for instance, users' own personal alias databases), then you will also need to convert those databases. Users wanting to convert their own personal alias database may do so with the command:

```
% pmdf convertdb aliasesdb aliasesdb
```

which will create a new file `aliasesdb.db` that will replace in functionality the previous files `aliasesdb.dat` and `aliasesdb.idx`.

Also note that the base name (name sans file extension) of the PMDF password database has been changed from `pauth` to `passworddb`, so if your sites use the PMDF password database (not all sites do) be sure to use the new name when you are converting the password database.

1.4.3 Additional Post-Installation Tasks for Sites Upgrading from PMDF V5.1

The following is a list of additional post-installation tasks that must be completed following an upgrade from V5.1 of PMDF-MTA, PMDF-LAN, or PMDF-X400. Sites upgrading from PMDF V5.2 or later should skip this section.

1. Update configuration:

- a. V5.1 PMDF-X400 sites that were using the former MIME-CONTENT-TYPES-TO-X400 mapping table to control the mapping of MIME attachments to X.400 attachments should note that that mapping table became obsolete as of PMDF V5.2, having been superseded by the more general, MIME-TO-X400-CONTENT-TYPES mapping table. You must convert the name of the mapping table to the new name, and also include the new channel name argument on the left hand (pattern) side; the file `/pmdf/table/x400_mappings.sample` may provide a useful sample starting point.
- b. If you are using PMDF POP or IMAP servers, be aware that some password handling changed between PMDF V5.1 and PMDF V5.2. 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.

To achieve the PMDF 5.1 behavior, a `PORT_ACCESS` mapping would need to segregate POP and IMAP connections into different rulesets, *e.g.*,

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

and the security configuration file `security.cnf` would need corresponding 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/*
```

- c. The `LOG_CONNECTION` option for controlling logging of connection information is now not simply an on/off setting as in PMDF V5.1, but rather as of PMDF V5.2 is bit-encoded for more specific controls.
2. 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

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

to

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

3. The multithreaded PMDF POP3 and IMAP servers are handled by the PMDF Service Dispatcher. If you were previously using non-PMDF servers, or older PMDF singlethreaded servers running under the `inetd` daemon, then you must shut down your old servers before you can use the PMDF multithreaded servers. Before you can use the multithreaded POP3 or IMAP servers, you must also configure the Dispatcher to run the desired service. If you will be reconfiguring PMDF-MTA using the web-based configuration utility, the Dispatcher will be configured automatically. Otherwise, you may use the command line `pmdf configure dispatcher` utility (on a PMDF-MTA system) to configure the Dispatcher.

1.5 Post-Installation Tasks for New Sites

The following is a list of tasks which must be completed following a new installation of PMDF.

1. For an initial PMDF installation, load the appropriate PMDF license by entering your license information into the appropriate PMDF license file. PMDF license information is stored in files with names of the form `product-name.license`, located in the PMDF table directory. You will have a separate license file for each PMDF product you have licensed for the system in question. For instance, a PMDF-MTA license would be stored in a file named `/pmdf/table/PMDF-MTA-SUN.license`.

You should have received the correct license information for your system when you licensed PMDF. A PMDF-MTA system will need a PMDF-MTA-SUN license.

If you will also be installing any add-on layered product such as PMDF-LAN, then for each such layered product, an additional license will be required, named, *e.g.*, PMDF-LAN-SUN; note that such layered products can only be licensed and installed on a system already licensed for PMDF-MTA.

A PMDF license file has the format:

```
Issuer:Process
Authorization Number:auth-number
Product Name:product-name
Producer:Innosoft
Product Release Date:release-date
Product Token:token
Checksum:checksum
```

where `auth-number`, `token`, `release-date`, and `checksum` are specific to your PMDF license, and where `product-name` is a product name such as PMDF-MTA-SUN, PMDF-DIRSYNC-SUN, PMDF-LAN-SUN, PMDF-POPSTORE-SUN, PMDF-MSGSTORE-SUN, PMDF-XGS-SUN, PMDF-X400-SUN, or PMDF-TLS-SUN.

Check that the release date for each product, *i.e.*, the value on the fifth line of the file, is later than the release date of the current version of each PMDF product you have installed. PMDF licenses allow operation of PMDF software released before the

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license release date. New PMDF product licenses are issued when your maintenance contract is renewed, not when new versions of software are released.

2. PMDF documentation assumes that your UNIX shell process includes `/usr/bin` in the shell's search path, thereby making the `pmdf` command available in the form documented. If this is not the case, then you may either add `/usr/bin` to your shell's search path, or use the fully qualified command name, `/usr/bin/pmdf`.

3. Create PMDF's site specific configuration files using the automatic configuration generation utility; see Chapter 3. *e.g.*, for a PMDF-MTA system, issue the command:

```
# /pmdf/bin/http_server -s
```

and then point your web browser (Netscape version 3.0 or later, or Microsoft Internet Explorer version 4.0 or later), with JavaScript enabled, at

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

Refer to Chapters 3 and 5 (PMDF-MTA regular configuration), Chapters 14 and 15 (PMDF-MTA firewall configuration), for information, step-by-step procedures, and an example configuration.

4. Once you have generated an initial configuration, you should take whatever additional steps may be required 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. Make sure to look over this checklist file.

5. PMDF includes two shell scripts called `post.sh` and `return.sh` in the `/pmdf/bin` directory. You need to use `cron` to schedule two periodic jobs to run these shell scripts. It is recommended that the shell script `post.sh` be scheduled to run every four hours and that the shell script `return.sh` be scheduled to run at 30 minutes after midnight each day; however, you may want to schedule them differently according to the needs of your site. It is also suggested, particularly if your site includes multiple PMDF nodes, that you consider setting the minutes-after-the-hour offset at which the `post.sh` shell script runs to different values on different nodes to better balance mail flow.

Typical scheduling for such `cron` jobs can be established by issuing the commands:

```
# su pmdf
$ crontab /pmdf/table/cronjobs
$ exit
```

Note: If you want to set up site-specific `cron` entries manually, perform the following steps:

Become the `pmdf` user:

```
# su pmdf
```

Edit the `crontab` entries by using the following command:

```
$ crontab -e
```

Use the editor to add entries similar to the following:

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```
30 0 * * * /pmdf/bin/return.sh >/pmdf/log/return.log-~/pmdf/bin/unique_id` 2>&1
0 0,4,8,12,16,20 * * * /pmdf/bin/post.sh >/pmdf/log/post.log-~/pmdf/bin/unique_id` 2>&1
```

The first value in the second line, shown as 0 in the above example, is the minutes-after-the-hour offset. If you have multiple PMDF nodes, then this is a value that you might want to stagger between different nodes. For example, 0 on one node, 10 on a second node, 20 on a third node, *etc.* Also note the use of log files in the above. These log files can be useful in tracking down problems with the operation of `return.sh` and `post.sh`.

Make sure to exit from the `pmdf` user shell when you have finished adding these entries. For example,

```
$ exit
```

6. Replace the `sendmail` system startup script with PMDF's `pmdf` startup script. This may be performed by issuing the command:

```
# /pmdf/bin/symlink install
```

Note: In each of the directories `/etc/rc0.d`, `/etc/rc1.d`, and `/etc/rc2.d`, there are files whose names begin with either the letter “K” or the letter “S”, followed by a two-digit number, followed by a command name. Remove the links where this command name is `sendmail`, and create a corresponding link with `pmdf` substituted for `sendmail`, making sure to use the same initial letter and two-digit number.

For example, you might see links such as the following:

```
# ls -l /etc/rc0.d/*sendmail
-rwxr--r-- 4 root sys 1183 Oct 25 04:14 /etc/rc0.d/K57sendmail
# ls -l /etc/rc1.d/*sendmail
-rwxr--r-- 4 root sys 1183 Oct 25 04:14 /etc/rc1.d/K57sendmail
# ls -l /etc/rc2.d/*sendmail
-rwxr--r-- 4 root sys 1183 Oct 25 04:14 /etc/rc2.d/S88sendmail
```

In this case you would issue the following commands:

```
# rm /etc/rc0.d/K57sendmail
# rm /etc/rc1.d/K57sendmail
# rm /etc/rc2.d/S88sendmail
# cd /etc/rc0.d
# ln -s ../init.d/pmdf K57pmdf
# cd /etc/rc1.d
# ln -s ../init.d/pmdf K57pmdf
# cd /etc/rc2.d
# ln -s ../init.d/pmdf S88pmdf
```

In the example above, the first three commands remove the `sendmail` files, and the remaining commands create the corresponding `pmdf` links.

Note: The effect of the `/pmdf/bin/symlink` may be undone by issuing the command:

```
# /pmdf/bin/symlink backout
```

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7. When installing PMDF for the first time, or after an upgrade of the operating system if that upgrade installed a new version of `sendmail`, you must replace `sendmail` with PMDF's `sendmail`. First save the original `sendmail` by renaming it to `sendmail.org`, and then create a symbolic link that links `sendmail` to `/pmdf/bin/sendmail` as follows:

```
# mv /usr/lib/sendmail /usr/lib/sendmail.org
# ln -s /pmdf/bin/sendmail /usr/lib/sendmail
```

You should also kill any old, pre-PMDF `sendmail` processes which might exist and be accepting connections. This may also be necessary if an operating system upgrade starts up non-PMDF `sendmail` processes. (Note that killing such processes is not necessary after an upgrade of PMDF. Even after the first installation of PMDF or after an upgrade of the operating system, there will be no non-PMDF `sendmail` processes if the system has been rebooted and the previous post-installation tasks have been performed.)

To see if there are any such `sendmail` processes, issue the command:

```
# ps -ef | grep sendmail
```

If there are any such `sendmail` processes, you will see something similar to the following:

```
root 23913      1  0   Apr 05 ?           0:01 /usr/lib/sendmail -bd -q1h
```

You should kill any such processes using the `kill` command; *e.g.*,

```
# kill 23913
```

8. The multithreaded POP3 and IMAP servers are handled by the PMDF Service Dispatcher. If you were previously using non-PMDF servers then you must shut down your old servers before you can use the PMDF multithreaded servers. Before you can use the multithreaded POP3 or IMAP servers, you must also configure the Dispatcher to run the desired service. Dispatcher configuration is normally performed as part of the initial web-based PMDF-MTA configuration; see Chapters 3 and 5 for instructions and sample configurations of the Dispatcher. See Chapter 4 for instructions and Chapter 3 for an example of configuring the POP3 and IMAP servers.
9. Start up the PMDF Job Controller and PMDF Service Dispatcher using the command:

```
# pmdf startup
```
10. If you chose to install the PMDF on-line documentation, then the installation will have placed the HTML versions of the PMDF documentation under the `/pmdf/doc` directory. PMDF provides an HTTP server for serving out this documentation to Web browsers. To start up the PMDF HTTP server, the PMDF Service Dispatcher must be configured to handle the HTTP service, access to the HTTP server must be enabled, and then the Dispatcher must be started up (or restarted, if it was already running). The web-based PMDF-MTA configuration utility, discussed in Chapter 3 and Chapter 5, will automatically configure the PMDF Dispatcher.

Installing PMDF and PMDF layered products

Post-Installation Tasks for New Sites

11. If you have licensed any PMDF layered products, configure those layered products. For configuring PMDF-LAN, refer to Chapter 6 and Chapter 7. For configuring PMDF-X400, refer to Chapter 8 and Chapter 9. For configuring PMDF-XGS, refer to Chapter 10 to Chapter 13.
12. The PMDF installation installs man pages. If you want users to be able to use the `man -k` command in order to display a list of PMDF man pages, then you will need to manually issue the command:

```
# catman 1pmdf 8pmdf
```

Note that this command may take many minutes to complete.

In addition to adding the PMDF man pages to the man page index as described above, you should also add PMDF sections numbers to the `man.cf` file. That file will look something like:

```
#
# Default configuration file for the SUNWman on-line manual pages.
#
MANSECTS=1,1m,1c,1f,1s,1b,2,3,3c,3s,3x,3xc,3n,3r,3t,3xn,3m,3k,3g,3e,3b,
9f,9s, 9e,9,4,5,7,7d,7i,7m,7p,7fs,4b,6,1,n
```

You should add `1pmdf, 8pmdf` to the list of MANSECTS, so that the file is along the lines of:

```
#
# Default configuration file for the SUNWman on-line manual pages.
#
MANSECTS=1,1m,1c,1f,1s,1b,2,3,3c,3s,3x,3xc,3n,3r,3t,3xn,3m,3k,3g,3e,3b,
9f,9s,9e,9,4,5,7,7d,7i,7m,7p,7fs,4b,6,1,n,1pmdf,8pmdf
```

This will enable users to use commands such as `man pmdf_convertddb` instead of having to specify a section as `man 8pmdf pmdf_convertddb`.

1.6 Deinstalling PMDF

Deinstallation of PMDF deletes only those files present in the distribution kit. In particular, deinstallation will not remove files such as the PMDF configuration file, `/pmdf/table/pmdf.cnf`, and other such site-generated files, and thus you will not need to reconfigure PMDF after deinstalling and reinstalling or upgrading.

1.6.1 Step-by-Step Deinstallation Instructions

1. Deinstallation should be done by `root`. If you are not already logged in as `root`, do so now.
2. Move to the root directory:

```
# cd /
```

Installing PMDF and PMDF layered products

Deinstalling PMDF

3. Check what PMDF packages you currently have installed; *e.g.*,

```
# pkginfo | grep PMDF
application PMDFbase          PMDF Base Product
application PMDFdoc          PMDF Documentation
application PMDFlan          PMDF LAN Product
```

4. Use the `pkgrm` command to deinstall any PMDF packages, *e.g.*:

```
# pkgrm PMDFlan PMDFdoc PMDFbase
```

Note that multiple packages can be deinstalled at once by listing them separated by spaces on the `pkgrm` command line. You may use the `-n` switch if you do not want to be prompted regarding removal of each individual package, *e.g.*,

```
# pkgrm -n PMDFlan PMDFdoc PMDFbase
```

Note also that `PMDFbase` *must* be the last package deinstalled (if listing multiple packages on one line, list `PMDFbase` *last*) since the other packages depend upon it. Further, note also that such layered product packages as `PMDFlan`, `PMDFsync`, `PMDFx400`, `PMDFxgs`, and `PMDFdoc` cannot be used unless the `PMDFbase` package is installed.

5. If you are upgrading from PMDF V5.1-7 which had been previously installed in the directory literally named `/pmdf`, that is, if PMDF V5.1-7 had been installed in a `/pmdf` directory which was *not* a symbolic link to another directory, then you must perform a special step to properly deinstall PMDF before upgrading. This special step may also be necessary if you are upgrading from PMDF V5.1-4. (The normal deinstallation procedure is sufficient if upgrading from PMDF V5.1-9 or later. The normal deinstallation procedure is also sufficient if upgrading from PMDF V5.1-7 or PMDF V5.1-4 if PMDF had been installed in a different directory with a symbolic link to `/pmdf`.)

After performing the normal `pkgrm` command to deinstall all PMDF packages, you must then issue another `pkgrm` command on the `PMDFbase` package to complete its deinstallation.

For instance, a site that has the V5.1-7 `PMDFbase`, `PMDFlan`, and `PMDFdoc` packages installed would need to issue the commands:

```
# pkgrm PMDFlan PMDFdoc PMDFbase
# pkgrm PMDFbase
```

The deinstallation dialogue for such a site would look something like:

```
# pkgrm PMDFlan PMDFdoc PMDFbase
The following package is currently installed:
  PMDFlan          PMDF LAN Product V5.1-7
                   (sparc) 5.1-7

Do you want to remove this package? y
## Removing installed package instance <PMDFlan>
## Verifying package dependencies.
## Processing package information.
## Removing pathnames in class <none>
...lots of files...
```

Installing PMDF and PMDF layered products

Deinstalling PMDF

```
The following package is currently installed:
  PMDFdoc          PMDF Documentation
                   (sparc) 5.1-7

Do you want to remove this package? y

## Removing installed package instance <PMDFdoc>
## Verifying package dependencies.
## Processing package information.
## Removing pathnames in class <none>

...lots of files...

The following package is currently installed:
  PMDFbase        PMDF Base Product V5.1-7
                   (sparc) 5.1-7

Do you want to remove this package? y

## Removing installed package instance <PMDFbase>
## Verifying package dependencies.
## Processing package information.
## Removing pathnames in class <none>

...lots of files...

pkgrm: ERROR: unable to remove directory </>
## Updating system information.

Removal of <PMDFbase> partially failed.
# pkgrm PMDFbase

The following package is currently installed:
  PMDFbase        PMDF Base Product V5.1-7
                   (sparc) 5.1-7

Do you want to remove this package? y

## Removing installed package instance <PMDFbase>
(A previous attempt may have been unsuccessful.)
## Verifying package dependencies.
## Processing package information.
## Removing pathnames in class <none>
## Updating system information.

Removal of <PMDFbase> was successful.
```

The initial `pkgrm` command will not succeed in fully deinstalling `PMDFbase`. This is why the second command is required. (If PMDF is not fully deinstalled, then a subsequent attempt to install PMDF will not be complete; some new images will not be installed due to the presence of the old images.)

Installing PMDF and PMDF layered products After Upgrading the Solaris Operating System

1.7 After Upgrading the Solaris Operating System

After upgrading the Solaris operating system, you should perform steps 6, 7, and 9 of the post-installation tasks as described in Section 1.5; *i.e.*, remove `sendmail` files and create PMDF symbolic links in their place, replace `sendmail` with `/pmdf/bin/sendmail` and kill off any non-PMDF `sendmail` processes, and start the PMDF Job Controller and PMDF Service Dispatcher.

2 PMDF Example Installation

Example 2-1 shows a PMDF installation dialogue on a Solaris (SPARC) system using the `pkgadd` utility. In this example, the PMDF V6.2 distribution CD-ROM has been mounted and attached to the file tree at the location `/cdrom`, and the PMDF product kit is then being installed straight from the CD-ROM, *i.e.*, from `/cdrom/Solaris-SPARC/PMDF620`. All packages are installed.

If the CD-ROM was auto-mounted by volume management to the tree `/cdrom/pmdf062` then you would use the `pkgadd` utility to install the PMDF product kit from `/cdrom/pmdf062/Solaris-SPARC/PMDF620`.

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

Example 2-1 Example Installation

```
$ su - root
Password:
# cd /
# pkgadd -d /cdrom/Solaris-SPARC/PMDF620

The following packages are available:
 1  PMDFbase      PMDF Base Product V6.2
    (sparc) 6.2
 2  PMDFdoc       PMDF Documentation V6.2
    (sparc) 6.2
 3  PMDFlan       PMDF LAN Product V6.2
    (sparc) 6.2
 4  PMDFsync     PMDF Directory Synchronization Product V6.2
    (sparc) 6.2
 5  PMDFtls      PMDF TLS Product V6.2
    (sparc) 6.2
 6  PMDFx400     PMDF X.400 Product V6.2
    (sparc) 6.2
 7  PMDFxgs      PMDF SNADS Gateway Product V6.2
    (sparc) 6.2

Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]: all

Processing package instance <PMDFbase> from
</cdrom/Solaris-SPARC/PMDF620>

PMDF Base Product V6.2
(sparc) 6.2
```

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Example 2-1 Cont'd on next page

PMDF Example Installation

Example 2-1 (Cont.) Example Installation

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```
***** IMPORTANT NOTE FOR UPGRADES *****
*
* The format of SleepyCat environment files has changed since
* 6.1. You must delete all __db.* files. The http.cnf file also
* needs to be updated.
*
* If you are upgrading from PMDF 6.0 or earlier, you must also
* convert or rebuild all of your SleepyCat databases.
*
* See the installation guide "Post-Installation Tasks For
* Upgrades" section for a list of tasks which must be completed.
*
*****
```

Make sure you read the PMDF Installation Guide, Solaris 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.

Do you want to continue with the installation [y,n,?,g] **y**

PMDF will be installed in the directory '/pmdf'. If you want to install it under some other directory, a symbolic link will be created that links '/pmdf' to the directory that you specify.

e.g.: If you specify '/opt/pmdf' as the directory, a directory '/opt/pmdf' will be created and a symbolic link will be created that links '/pmdf' to '/opt/pmdf'.

Under which directory will PMDF be installed: [?,q] **/opt/pmdf**
Some PMDF subdirectories are likely to contain large numbers of transient files, such as queued messages and log files. If you like, this procedure will install these subdirectories to a different filesystem and create symbolic links to them.

e.g.: If you specify '/var/spool/pmdf' for transient PMDF files, the subdirectories '/var/spool/pmdf/queue', '/var/spool/pmdf/log', '/var/spool/pmdf/locks' and '/var/spool/pmdf/tmp' and '/var/spool/pmdf/queue_cache' will be created and symbolic links created under '/pmdf'.

Would you like to relocate subdirectories of transient files [y,n,?,q] **n**

Example 2-1 Cont'd on next page

Example 2-1 (Cont.) Example Installation

WARNING: There are files that need to be installed with setuid in order for PMDF to work correctly. Answer 'y' to the question later to install the programs as setuid/setgid files

Using </> as the package base directory.

```
## Processing package information.
## Processing system information.
  8 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.
```

The following files are being installed with setuid and/or setgid permissions:

```
/opt/pmdf/bin/l_master <setuid root setgid mail>
/opt/pmdf/bin/master <setgid uucp>
/opt/pmdf/bin/msgstoremgr <setuid pmdf>
/opt/pmdf/bin/pager <setgid uucp>
/opt/pmdf/bin/pipe_master <setuid root setgid mail>
/opt/pmdf/bin/pmdf <setuid pmdf>
/opt/pmdf/bin/popmgr <setuid pmdf>
/opt/pmdf/bin/profile <setuid pmdf>
/opt/pmdf/bin/qm <setuid pmdf>
/opt/pmdf/bin/send <setuid pmdf>
/opt/pmdf/bin/sendmail <setuid pmdf>
/opt/pmdf/bin/slave <setgid uucp>
/opt/pmdf/bin/uucp_slave <setuid pmdf>
```

Do you want to install these as setuid/setgid files [y,n,?,q] **y**

This package contains scripts which will be executed with super-user permission during the process of installing this package.

Do you want to continue with the installation of <PMDFbase> [y,n,?] **y**
Installing PMDF Base Product V6.2 as <PMDFbase>

```
## Installing part 1 of 1.
/etc/init.d/pmdf
/etc/pmdf_tailor
/opt/pmdf/bin/addressing
/opt/pmdf/bin/bitbucket
... lots more files...

/opt/pmdf/www/qm/qscan_first.txt
/opt/pmdf/www/qm/qscan_success.txt
/opt/pmdf/www/qm/state.txt
/usr/bin/pmdf <symbolic link>
[ verifying class <none> ]
/pmdf <<symbolic link>
[ verifying class <sym_link> ]
## Executing postinstall script.
```

Installation of <PMDFbase> was successful.

Processing package instance <PMDFdoc> from </cdrom/Solaris-SPARC/PMDF620>

Example 2-1 Cont'd on next page

PMDF Example Installation

Example 2-1 (Cont.) Example Installation

PMDF Documentation V6.2
(sparc) 6.2

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Using </> as the package base directory.

Processing package information.

Processing system information.

1 package pathname is already properly installed.

Verifying package dependencies.

Verifying disk space requirements.

Checking for conflicts with packages already installed.

Checking for setuid/setgid programs.

This package contains scripts which will be executed with super-user permission during the process of installing this package.

Do you want to continue with the installation of <PMDFdoc> [y,n,?] **y**

Installing PMDF Documentation V6.2 as <PMDFdoc>

Installing part 1 of 1.

/opt/pmdf/doc/html/doc.gif

/opt/pmdf/doc/html/index.html

...lots more files...

/opt/pmdf/doc/rfc/rfc977.txt

/opt/pmdf/doc/rfc/rfc987.txt

/opt/pmdf/www/doc <symbolic link>

/usr/man/man1pmdf <symbolic link>

/usr/man/man8pmdf <symbolic link>

[verifying class <none>]

Executing postinstall script.

Installation of <PMDFdoc> was successful.

Processing package instance <PMDFlan> from </cdrom/Solaris-SPARC/PMDF620>

PMDF LAN Product V6.2

(sparc) 6.2

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Example 2-1 Cont'd on next page

Example 2-1 (Cont.) Example Installation

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Using </> as the package base directory.

Processing package information.

Processing system information.

3 package pathnames are already properly installed.

Verifying package dependencies.

Verifying disk space requirements.

Checking for conflicts with packages already installed.

Checking for setuid/setgid programs.

Installing PMDF LAN Product V6.2 as <PMDFlan>

Installing part 1 of 1.

/opt/pmdf/bin/cc_master

/opt/pmdf/bin/cc_slave

/opt/pmdf/bin/ff_master

...lots more files...

/opt/pmdf/table/mhs_mappings.sample

/opt/pmdf/table/wpo_mappings.sample

[verifying class <none>]

Installation of <PMDFlan> was successful.

Processing package instance <PMDFsync> from </cdrom/Solaris-SPARC/PMDF620>

PMDF Directory Synchronization Product V6.2

(sparc) 6.2

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Example 2-1 Cont'd on next page

PMDF Example Installation

Example 2-1 (Cont.) Example Installation

```
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the license agreement, is unlawful.
Using </> as the package base directory.
## Processing package information.
## Processing system information.
    2 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

Installing PMDF Directory Synchronization Product V6.2 as <PMDFsync>

## Installing part 1 of 1.
/opt/pmdf/bin/cc2ldif
/opt/pmdf/bin/comma2ldif
...lots more files...

/opt/pmdf/bin/sync_ln_master
/opt/pmdf/bin/sync_ln_slave
[ verifying class <none> ]

Installation of <PMDFsync> was successful.

Processing package instance <PMDFtls> from </cdrom/Solaris-SPARC/PMDF620>

PMDF TLS Product V6.2
(sparc) 6.2

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Using </> as the package base directory.
## Processing package information.
## Processing system information.
    5 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

Installing PMDF TLS Product V6.2 as <PMDFtls>
```

Example 2-1 Cont'd on next page

Example 2-1 (Cont.) Example Installation

```
## Installing part 1 of 1.
/opt/pmdf/bin/tls_certdump
/opt/pmdf/bin/tls_certreq
/opt/pmdf/bin/tls_ciphers
/opt/pmdf/lib/libtls.so
[ verifying class <none> ]

Installation of <PMDFtls> was successful.

Processing package instance <PMDFx400> from </cdrom/Solaris-SPARC/PMDF620>

PMDF X.400 Product V6.2
(sparc) 6.2

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Using </> as the package base directory.
## Processing package information.
## Processing system information.
    3 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

Installing PMDF X.400 Product V6.2 as <PMDFx400>

## Installing part 1 of 1.
/opt/pmdf/bin/mime_to_x400
/opt/pmdf/bin/x400_domains-map
/opt/pmdf/bin/x400_master

...lots more files...

/opt/pmdf/table/x400_domains_driver.template
/opt/pmdf/table/x400_mappings.sample
[ verifying class <none> ]

Installation of <PMDFx400> was successful.

Processing package instance <PMDFxgs> from </cdrom/Solaris-SPARC/PMDF620>

PMDF SNADS Gateway Product V6.2
(sparc) 6.2

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```

Example 2-1 Cont'd on next page

PMDF Example Installation

Example 2-1 (Cont.) Example Installation

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Using </> as the package base directory.

Processing package information.

Processing system information.

2 package pathnames are already properly installed.

Verifying package dependencies.

Verifying disk space requirements.

Checking for conflicts with packages already installed.

Checking for setuid/setgid programs.

Installing PMDF SNADS Gateway Product V6.2 as <PMDFxgs>

Installing part 1 of 1.

/opt/pmdf/bin/snads_master

/opt/pmdf/bin/snads_slave

/opt/pmdf/lib/xgs_configure.tcl

[verifying class <none>]

Installation of <PMDFxgs> was successful.

The following packages are available:

- | | | |
|---|----------|--|
| 1 | PMDFbase | PMDF Base Product V6.2
(sparc) 6.2 |
| 2 | PMDFdoc | PMDF Documentation V6.2
(sparc) 6.2 |
| 3 | PMDFlan | PMDF LAN Product V6.2
(sparc) 6.2 |
| 4 | PMDFsync | PMDF Directory Synchronization Product V6.2
(sparc) 6.2 |
| 5 | PMDFtls | PMDF TLS Product V6.2
(sparc) 6.2 |
| 6 | PMDFx400 | PMDF X.400 Product V6.2
(sparc) 6.2 |
| 7 | PMDFxgs | PMDF SNADS Gateway Product V6.2
(sparc) 6.2 |

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]: **q**

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 created by following these steps will suffice without further modification. Additional customization will require manual editing of the configuration file.

Manual editing of the configuration file may also be required as your environment evolves. For example, as networks or gateways are added you may need to add rewrite rules or channel blocks to your `pmdf.cnf` file. In many cases you may find it easier to rerun the configuration generator supplying new answers reflecting the changes in your environment.

3.1 Before You Begin

Prior to running the automatic configuration generator, you should have a good idea of your network configuration and of what input needs to be supplied to the PMDF configuration generator. Note that the PMDF configuration generator will attempt to provide default values to its prompts. These defaults are picked up, whenever possible, from your system environment.

3.1.1 Selecting a System Name

You should give some thought as to what your official local host name should be prior to configuring PMDF. 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 will have 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 which is able to perform name server functions for you.

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

If you've already chosen a TCP/IP hostname, you might use that as your official local host name. Alternately, you could use a more generic e-mail hub name for your official local host name. Should you choose to do that, the PMDF configuration generator will also need to know your TCP/IP hostname. It will prompt for that, with a default answer, when asking about your TCP/IP network.

Generating an Initial PMDF Configuration Before You Begin

3.1.2 Authentication and Security

There are various contexts in which users may need to authenticate themselves (*i.e.*, supply a password): connecting to read their e-mail via a POP or IMAP client, setting up a personal mailbox filter, sending e-mail using SASL. PMDF supports performing such authentication against various authentication sources, such as `/etc/passwd`, the PMDF password database, PMDF user profiles (PMDF MessageStore or PMDF popstore account profiles), or even an LDAP directory. The PMDF default, allowing authentication against any of a PMDF user profile, the PMDF password database, or system login passwords, is usually 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 Web-based PMDF-MTA Configuration Utility

This section describes using the web-based PMDF-MTA configuration utility. This web-based utility subsumes the command line utilities `pmdf configure mta`, `pmdf configure dispatcher`, `pmdf configure mailbox_servers`, `pmdf configure lan`, and `pmdf configure xgs`. It is generally recommended to use the web-based configuration utility to generate a PMDF-MTA configuration, but the command line utilities may be a useful alternative for sites for whom web configuration is inconvenient.

If this is a new installation, be sure to follow the preliminary tasks for new installations described in Section 1.2. In particular, a PMDF-MTA license must be installed, and the `pmdf` account must be created, prior to running the configuration utility.

The web-based configuration utility may be used to generate an initial configuration, or may be used to generate a new configuration of an existing PMDF installation. If you will be configuring multiple components, *e.g.*, MTA/SMTP and IMAP/POP servers, these components may either be configured at the same time or may be configured at separate times. Configuring components at the same time allows the configuration utility to mesh some of the configuration files itself, minimizing the number of post-configuration checklist tasks 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. However, configuring components at separate times may be more convenient for an initial installation; in particular, getting the MTA component (with or without IMAP/POP servers) configured and tested before adding a PMDF-LAN or PMDF-XGS configuration is generally recommended.

If this is a new installation where PMDF is not already running, then the web-based configuration utility may be accessed as follows. Log in either as `root` or as the `pmdf` user. Then issue the command:

```
% /pmdf/bin/http_server -s
```

The above command starts the PMDF HTTP server up in standalone mode, to make the web-based configuration utility available. (Sites with PMDF already running do not need to issue the above command when they want to re-run the configuration utility, as the PMDF HTTP server will already be running normally for them.)

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

Then, using Netscape (version 3.0 or later) or Microsoft Internet Explorer (version 4.0 or later), with JavaScript enabled, connect to

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

where *localhost* is the TCP/IP name of your PMDF system, and then select the “Configuration Utilities” link.

Each screen in the configuration utility will have radio buttons, checkboxes and/or text input fields. If you click on any of these fields, instructions for the field will appear in the “Help” box at the bottom of the page. Note that use of a full-screen web-browser window on a display at least 800 x 600 will avoid unnecessary vertical scrolling.

Once you have made your selections and returned to the main configuration screen, select the “Generate” button, and on the next page the “Confirm” button to generate your configuration. Finally, a checklist of post-install items will be displayed.

3.3 Using the Command Line Configuration Procedure

This section presents a step-by-step procedure for generating your PMDF configuration files using the command line PMDF automatic configuration utility. Although typically PMDF-MTA configurations are instead generated using the web-based PMDF automatic configuration utility described in Section 3.2, there is also a command line `pmdf configure mta` utility that provides an alternative for PMDF-MTA configuration for sites for whom web configuration is inconvenient.

1. Configuration of PMDF should be done by `root` to ensure that the necessary privileges are available to create the configuration files. If you are not logged in as `root`, do so now.
2. Begin the configuration procedure by invoking the PMDF configuration utility as follows, assuming that you have `/usr/bin` in your search path:

```
# cd /pmdf/table
# pmdf configure mta
```

3. The configuration procedure will optionally print out detailed explanations of each prompt as it proceeds. Unless you are familiar with the procedure, you should enable the detailed output.
4. The answers to all the prompts are logged to a file in the `/pmdf/table` directory. After the first configuration, `pmdf configure` 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 may use the backslash character, `\`, to clear a default answer.

Generating an Initial PMDF Configuration Using the Command Line Configuration Procedure

5. If this is the first time that PMDF has been configured on this system, the configuration utility will ask if you would also like to configure the PMDF Dispatcher. (The PMDF Service Dispatcher is a resident process that listens for incoming TCP/IP connections on various ports and matches those incoming connection requests to various servers, *e.g.*, the multithreaded SMTP server, a POP3 server, an IMAP server, an HTTP server, *etc.* See *PMDF System Manager's Guide* for a more detailed discussion of the purpose and function of the PMDF Service Dispatcher.) You should answer YES.
6. If this is the first time that the Dispatcher has been configured, the utility will ask if you would also like to configure PMDF POP and IMAP mailbox servers.
7. Once you have completed running `pmdf configure`, type out or print out the checklist file, `/pmdf/table/pmdf.checklist` for an MTA configuration, and complete the configuration by following the steps outlined in the checklist.
8. Note that if this is your initial configuration of PMDF, the configuration utility will ask at the end of its other tasks whether you want to invoke the `pmdf configure dispatcher` utility at that time. You may either answer YES and perform the Dispatcher configuration then and there, or else answer NO and then configure the Dispatcher as a separate step subsequently, by issuing the command

```
# pmdf configure dispatcher
```

Note that if this is your initial configuration of the PMDF Service Dispatcher, the configuration utility will ask at the end of its other tasks whether you want to invoke the `pmdf configure mailbox_servers` utility at that time. You may either answer YES and perform the Mailbox Servers configuration then and there, or else answer NO and then configure the Mailbox Servers as a separate step subsequently. The Mailbox Servers are usually configured using the web-based configuration utility, as in the later portion of the example in Chapter 5. Alternatively, however, the Mailbox Servers may be configured on the command line via:

```
# pmdf configure mailbox_servers
```

4 Configuring PMDF POP and IMAP Mailbox Servers

The PMDF POP and IMAP servers are multithreaded and run under the control of the PMDF Dispatcher. The PMDF legacy mailbox POP server can serve out native BSD mailboxes or PMDF popstore mailboxes; the PMDF legacy mailbox IMAP server can serve out native BSD 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 allows choosing one or the other POP server and one or the other IMAP server. (PMDF supports running both POP servers, one of which must then be running on a non-standard port, and running both IMAP servers, one of which must then be running on a non-standard port, but such configurations are not generated by the configuration utility.)

The POP and IMAP servers may 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 to insert into the PMDF Dispatcher configuration, as well as basic PMDF POP and PMDF IMAP server configuration files. It also provides a checklist of the steps you need to take to complete the configuration of the PMDF POP and IMAP servers.

4.1 Before You Begin

Prior to running the PMDF Mailbox Servers configuration utility you must have installed PMDF-MTA on your system, and it is recommended that you also configure PMDF itself (and the PMDF Service Dispatcher, normally done automatically as part of the PMDF configuration) before configuring the PMDF POP and IMAP mailbox servers. Refer to Chapter 1 if you have not already installed and configured PMDF-MTA.

If you were previously using non-PMDF servers, or older PMDF singlethreaded servers running under the `inetd` daemon, then you will need to shut down such old servers before you can use PMDF's multithreaded servers. (Before configuring PMDF's servers is a convenient time to do this, although if you prefer you can wait until after you have configured PMDF's servers but before you try to start PMDF's servers.) Check your `/etc/inetd.conf` file; if it has any POP3 or IMAP services defined, that is, any lines such as

```
pop3    stream  tcp    nowait  root    ...
imap    stream  tcp    nowait  root    ...
```

you must remove those lines. After modifying your `inetd.conf` file, you should restart the `inetd` daemon by sending a `kill -1` signal to the `inetd` daemon.

Configuring PMDF POP and IMAP Mailbox Servers Before You Begin

The PMDF POP and IMAP mailbox servers configuration utility will prompt for several pieces of information. In particular, it will ask which POP and/or IMAP servers you want to run, and how many simultaneous POP connections and how many simultaneous IMAP connections you want to allow at your site, to which you will need to provide site-appropriate answers. For further questions, the configuration utility attempts to provide reasonable default values. You may want to mostly 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 answers geared for your site. Configuration questions will include the following:

- Whether you want to run the legacy mailbox POP server, or the MessageStore mailbox POP server, (or neither).
- Whether you want to run the legacy mailbox IMAP server, or the MessageStore mailbox IMAP server, (or neither).
- Whether you want to log POP and IMAP connections.
- Whether you want to run a POPPASSD server to support changing passwords from POP clients using the ad-hoc password changing mechanism used by, for instance, Eudora. Note that the POPPASSD protocol involves sending both the old and the new password “in the clear”, a point to be considered carefully when deciding whether or not to provide this service.
- Whether you want to enable PMDF’s password changing web CGI.
- If you select use of the MessageStore IMAP server or MessageStore POP server, the utility will also configure the PMDF MessageStore and PMDF popstore for you and will therefore present several configuration questions regarding the MessageStore and popstore. These questions will include the following.
 1. What is 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 of the form `user@msgstore.naples.example.com`, you would use the domain name `msgstore.naples.example.com` for the MessageStore.
 2. The local postmaster address.
 3. 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 grants unlimited storage quota.
 4. The default overdraft message storage quota to allow each user. This is the amount by which 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 you create.
 5. How many days to retain PMDF popstore messages, awaiting user download. If a user has not deleted a message after this limit, it is either deleted silently or returned to its originator as unread. To retain messages indefinitely, specify an age limit of 0.
 6. A special account name for posting to public folders in the MessageStore.

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

Configuring PMDF POP and IMAP Mailbox Servers

Before You Begin

- If you chose to run a POP server, there are a few POP server configuration questions, including:
 1. What is the maximum number of simultaneous POP connections you want to support on your system. Note that this is not the total number of users or even total number of POP users; rather, it is the maximum number of POP users whose POP clients will be connecting simultaneously. Also note that POP connections are typically brief: the POP client connects, downloads messages, and disconnects. Choose a number that will provide reasonable access for your users without overburdening your system resources.
 2. What is 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 tends to result in greater responsiveness for the individual connections, but the resulting need for more processes incurs greater system overhead. A moderate number of connections per process is usually best.
 3. Whether you want the server to support the POP3 UIDL command. The UIDL command permits POP clients to keep track of messages by an identifier. POP users who enable “leave mail on server” behavior typically appreciate having UIDL supported, as it can allow their client to keep track of which of the messages in their inbox they have actually already read. Sites that want to discourage “leave mail on server” behavior may want to disable UIDL support.
- If you chose to run an IMAP server, there are a few IMAP server questions, including:
 1. What is the maximum number of simultaneous IMAP connections you want to support on your system. Note that this is not the total number of users or even 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 may 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 will provide reasonable access for your users without overburdening your system resources.
 2. What is 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 tends to result in greater responsiveness for the individual connections, but the resulting need for more processes incurs greater system overhead. A moderate number of connections per process is usually best.

4.2 Using the Web-based POP and IMAP Mailbox Servers Configuration Utility

This section describes using the web-based POP and IMAP mailbox servers configuration utility, which may be used to configure mailbox servers for a PMDF-MTA system. A command line variant, `pmdf configure mailbox_servers`, is also available for sites for whom web configuration is not convenient. The web-based configuration utility may

Configuring PMDF POP and IMAP Mailbox Servers Using the Web-based POP and IMAP Mailbox Servers Configuration Utility

be used to generate an initial mailbox servers configuration, or may be used to generate a new mailbox servers configuration of an existing PMDF installation.

Using Netscape (version 3.0 or later) or Microsoft Internet Explorer (version 4.0 or later), with JavaScript enabled, connect to

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

where *localhost* is the TCP/IP name of your PMDF system—you should see a page such as shown in Figure 5-3—and then select the “Configuration” link; at this point you should see a page such as shown in Figure 5-4.

If your last use of the web-based PMDF configuration utility was to configure PMDF-MTA and your PMDF-MTA configuration has not been manually modified since then, you can “Load” your prior PMDF-MTA configuration session before beginning your mailbox servers configuration; or if you want to redo your PMDF-MTA configuration, you may start by doing so now; either will minimize the number of checklist tasks you will later need to perform. Otherwise, you may configure just the mailbox servers during this configuration sessions (and then perform checklist tasks to integrate your mailbox server configuration into your main PMDF-MTA configuration).

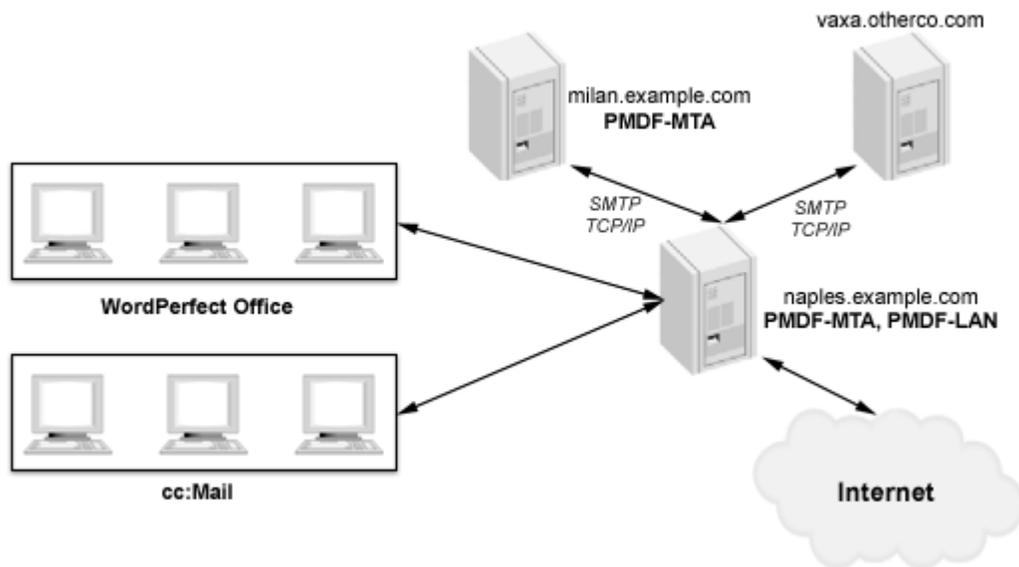
Click on the “Configure” button for IMAP/POP Servers to begin the configuration.

Refer to Chapter 5, specifically to Figures 5-9 through Figure 5-15, for a sample configuration session.

5 PMDF-MTA and POP/IMAP Example Configuration

Figure 5-4 through Figure 5-15 show a sample PMDF-MTA configuration session, including IMAP/POP server configuration, using the web-based configuration utility. The sample site EXAMPLE.COM has two Solaris nodes, `naples` and `milan`. The node `naples`, which has TCP/IP connections to the Internet and will be acting as a gateway for EXAMPLE.COM's cc:Mail and WordPerfect Office users, will be a PMDF-MTA and PMDF-LAN node. In addition, EXAMPLE.COM has agreed to act as a gateway for another company in town, OTHERCO.COM, and `naples` will be the node which routes mail for the OTHERCO.COM node `vaxa.otherco.com`. `milan`, which is an internal EXAMPLE.COM node not necessarily registered on the Internet, will be a PMDF-MTA node, routing all of its mail to EXAMPLE.COM's cc:Mail users, to EXAMPLE.COM's WordPerfect Office users, and to the Internet, by way of `naples`. PMDF-MTA has been installed on node `naples`.

Figure 5-1 Sample PMDF Site EXAMPLE.COM



Note that the sample configuration session shown in Figure 5-4 through Figure 5-14 only handles the base PMDF-MTA configuration with IMAP and POP mailbox servers; the connections to the PC-LAN users available using PMDF-LAN, *e.g.*, the connections to WordPerfect Office and cc:Mail, would remain to be performed, as described in Chapter 6 and demonstrated in Chapter 7.

PMDF-MTA and POP/IMAP Example Configuration

Whenever appropriate, the web-based configuration utility attempts to provide reasonable default answers. If you have previously run the web-based configuration utility, then you may use the “Load” button of the initial page, Figure 5–4, to load your previous session’s answers; those answers will then become the defaults for this new session. When you are satisfied with the answers on a given page, press the “Next” (or “Done”) button to continue the configuration.

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.

If this is an initial PMDF configuration where PMDF is not yet running, you will need to start up the PMDF HTTP server in standalone mode via the command (issued from the `root` or `pmdf` account):

```
# /pmdf/bin/http_server -s
```

Once the PMDF HTTP server is running, either in standalone mode for a new installation or on a previously configured PMDF system, then to access the web-based configuration utility you must point your web browser at the appropriate URL. Using Netscape (version 3.0 or later) or Microsoft Internet Explorer (version 4.0 or later), with JavaScript enabled, connect to

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

where *localhost* is the TCP/IP name of your PMDF system. If this is a configuration for an initial PMDF installation with the PMDF HTTP server running in standalone mode, you will then see a screen such as shown in Figure 5–2; if this is a configuration (or re-configuration) on a system with PMDF already running, you will then see a screen such as shown in Figure 5–3. To begin the configuration, select the “Configuration Utilities” link from the HTTP server main page as shown in Figure 5–3.

5.1 MTA/SMTP Configuration

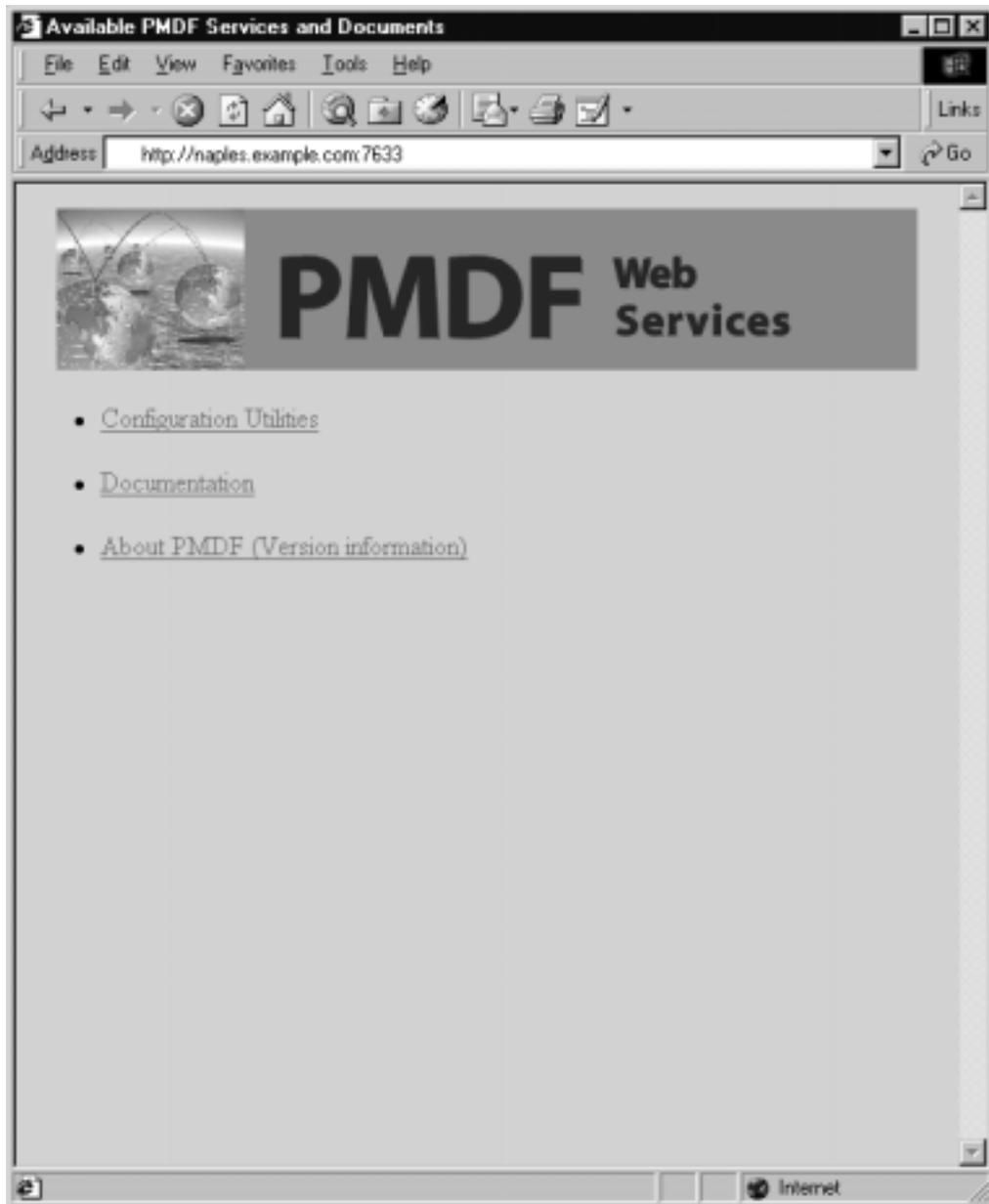
Figure 5–4 shows the initial page displayed by the PMDF HTTP server when run in standalone mode (`/pmdf/bin/http_server -s`).

Figure 5–5 shows the regular initial page displayed by the PMDF HTTP server, once PMDF has been initially configured. So if you are reconfiguring an existing PMDF, this is the sort of display you would see.

PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5–2 HTTP Server Standalone Main Page



PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5-3 HTTP Server Main Page

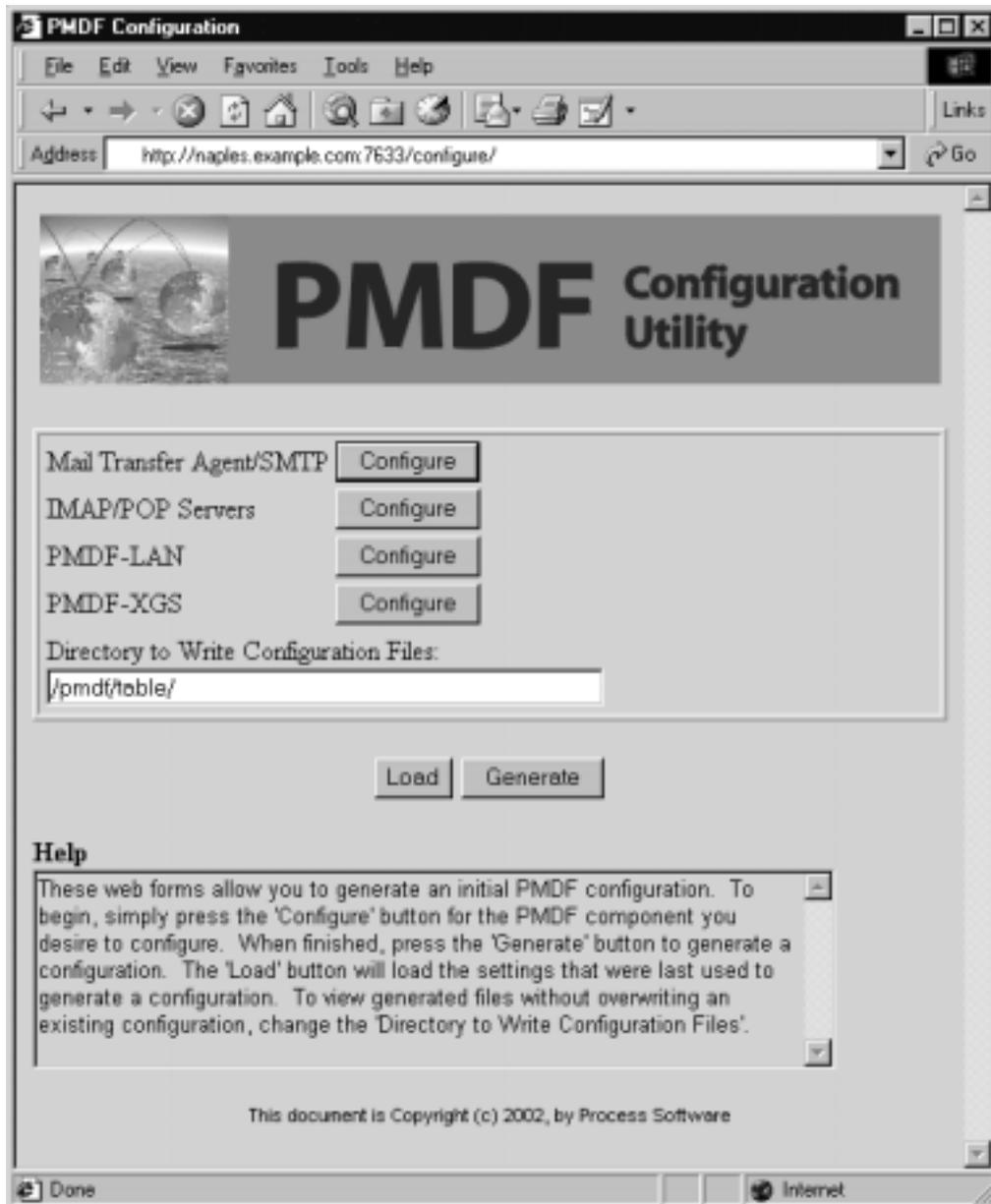


PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5-4 shows the PMDF web-based configuration utility main menu, as seen at the beginning of a configuration session. The utility will write files generated during configuration to the directory shown in the “Directory to Write Configuration Files”. The default is `/pmdf/table`, the live configuration directory. If you want to experiment with configuration rather than generate live files, you may specify an alternate directory.

Figure 5-4 Configuration Main Page



PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5-5 shows the first page of the PMDF-MTA/SMTP configuration component, which asks for information about the local host (the system running PMDF).

Figure 5-5 PMDF-MTA/SMTP Configuration, Local Host Information

The screenshot shows a web browser window titled "MTA - Local Host Information" with the address bar set to "http://naples.example.com:7633/configure/". The page features a header with a globe icon and the text "PMDF Configuration Utility". Below the header, there are two text input fields: "Name of this System on TCP/IP:" with the value "naples.example.com" and "Domain Name for Local Channel:" with the value "naples.example.com".

The "Aliases for the Local Host:" section contains a list box with "localhost" and "naples" (the latter is selected). To the right of the list box is a "Alias for the Local Host:" text input field. Below the list box is a "Delete" button. To the left of the input field is a "<< Add" button.

The "IP Addresses for Local Host:" section contains a list box with "192.168.1.1". To the right of the list box is an "IP Address:" text input field. Below the list box is a "Delete" button. To the left of the input field is a "<< Add" button.

At the bottom of the form area, there are two buttons: "Main" and "Next >>".

A "Help" section at the bottom contains a text box with the following text: "Enter the IP addresses for all the interfaces used by TCP/IP on this system. These addresses are needed so that domain literal references to this system can be identified. Such recognition is mandated by RFC1123." There is a small icon to the right of the text box.

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

PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5-6 shows the second page of the PMDF-MTA/SMTP configuration component, which asks for information about any other “internal” systems.

Figure 5-6 PMDF-MTA/SMTP Configuration, Local Network Information

The screenshot shows a web browser window titled "MTA - Local Network Information" with the address bar showing "http://naples.example.com:7633/configure/". The page features the PMDF Configuration Utility logo and a navigation menu (File, Edit, View, Favorites, Tools, Help). The main content area is divided into three sections:

- If Routing Internet Mail to a Firewall:** Includes input fields for "Domain Name of Firewall:" and "IP Address of Firewall:".
- Internal System Domains and Domain Names:** A list box contains "example.com" and "vexa.otherco.com". It includes "Add" and "Delete" buttons and an "Internal System Domains:" input field.
- Internal System IP Sub-Networks and Addresses:** A list box contains "192.168.1.*". It includes "Add" and "Delete" buttons and an "Internal System IP:" input field.

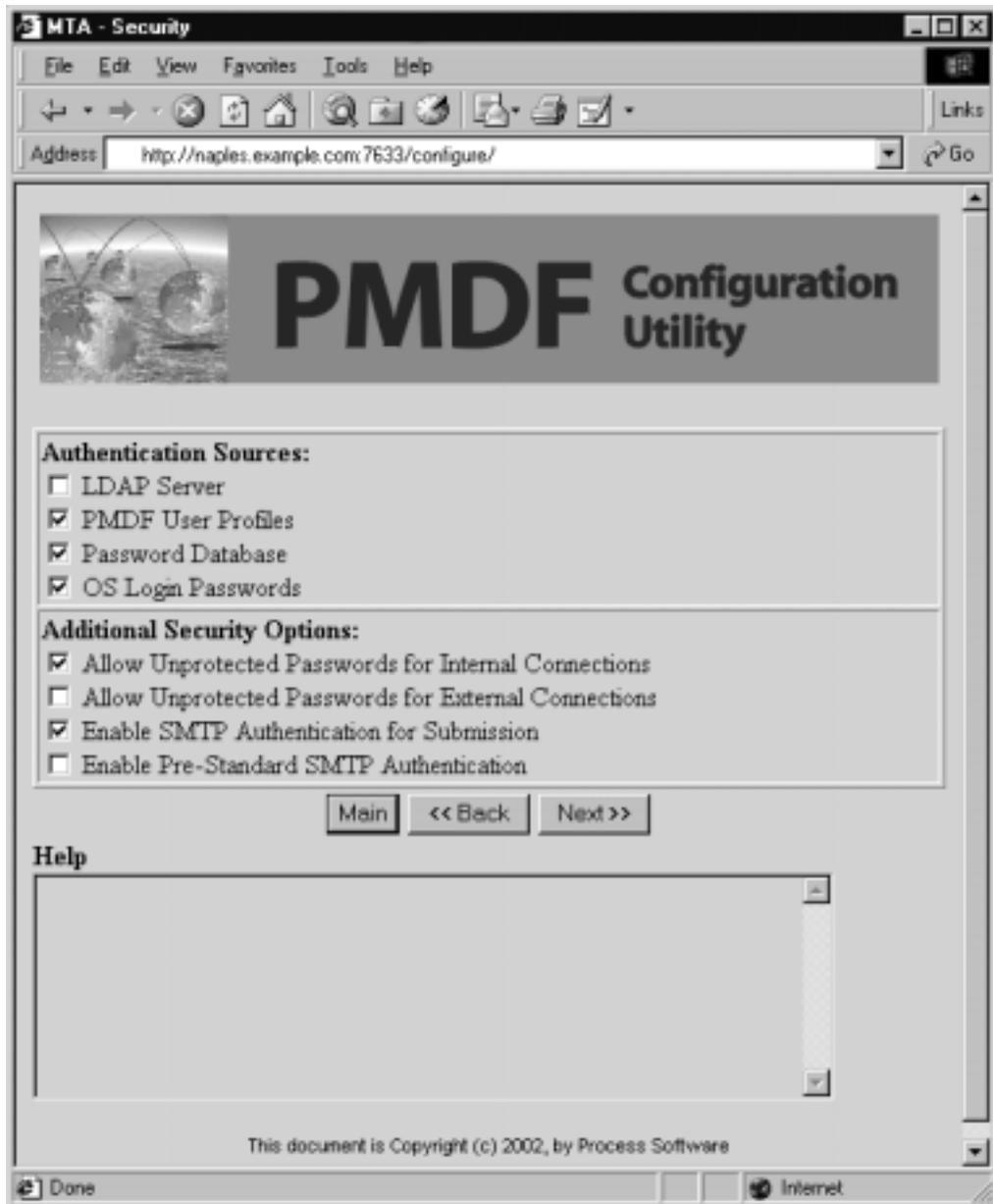
At the bottom, there are "Main", "<< Back", and "Next >>" buttons, and a "Help" section with a text area containing instructions: "Enter the IP addresses and IP sub-network(s) for hosts internal to your domain. This should include all hosts where users are permitted to run mail clients which submit mail via SMTP without authentication. Use IP addresses in a.b.c.d notation (where a, b, c and d are numbers), or an IP subnet in". The status bar at the bottom shows "Done" and "Internet".

PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5-7 shows configuring which authentication sources PMDF will check against when verifying passwords (as for IMAP or POP connections, if IMAP or POP servers are later configured, or for mailbox filter authentication, or for SMTP SASL authentication by clients submitting messages to PMDF), and whether to configure to allow SMTP AUTH (SASL) use.

Figure 5-7 PMDF-MTA/SMTP Configuration, Security Information

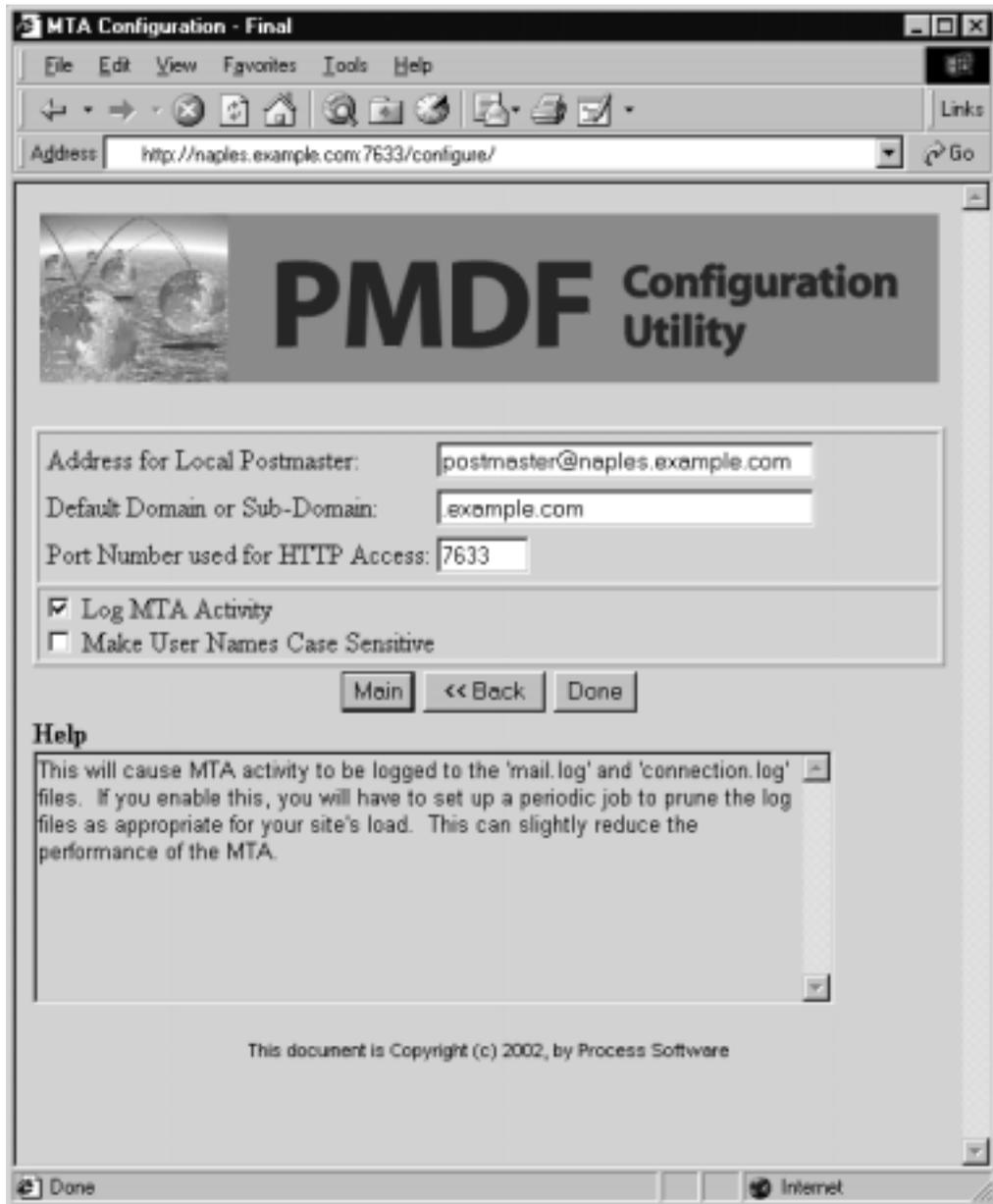


PMDF-MTA and POP/IMAP Example Configuration

MTA/SMTP Configuration

Figure 5-8 shows the final page of entering PMDF-MTA/SMTP configuration information. Clicking on the “Done” button on this page will return you to the PMDF configuration utility main page, as shown in Figure 5-9.

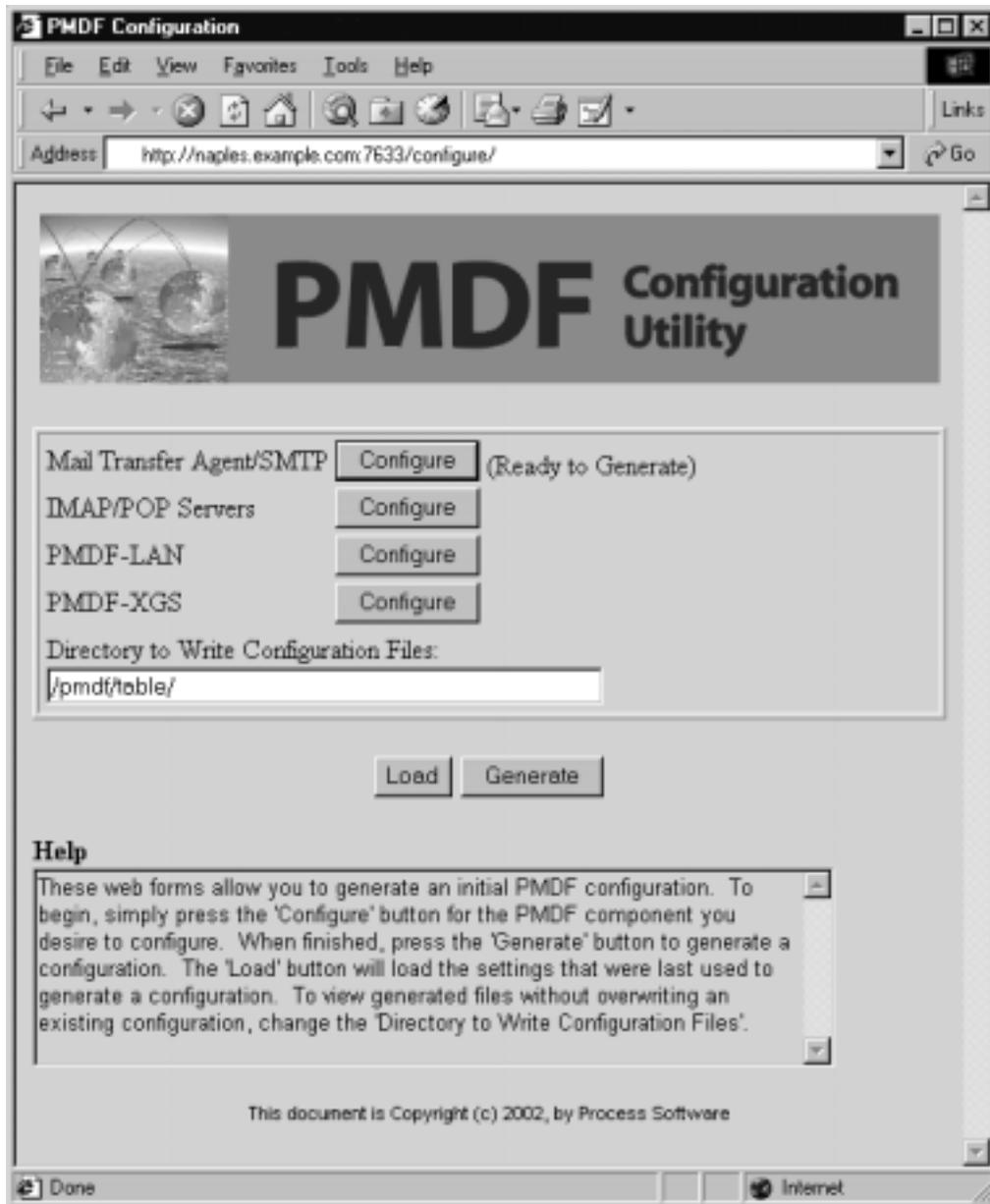
Figure 5-8 PMDF-MTA/SMTP Configuration, Final Details Page



PMDF-MTA and POP/IMAP Example Configuration MTA/SMTP Configuration

Figure 5-9 shows the configuration utility main menu, after entering configuration information for the MTA/SMTP component. At this point you may either generate just the main MTA configuration files by clicking the “Generate” button, or you may select another component to also configure at this time. For instance, clicking the IMAP/POP Servers “Configure” button will continue the configuration, as shown in Figure 5-10 through Figure 5-15 following.

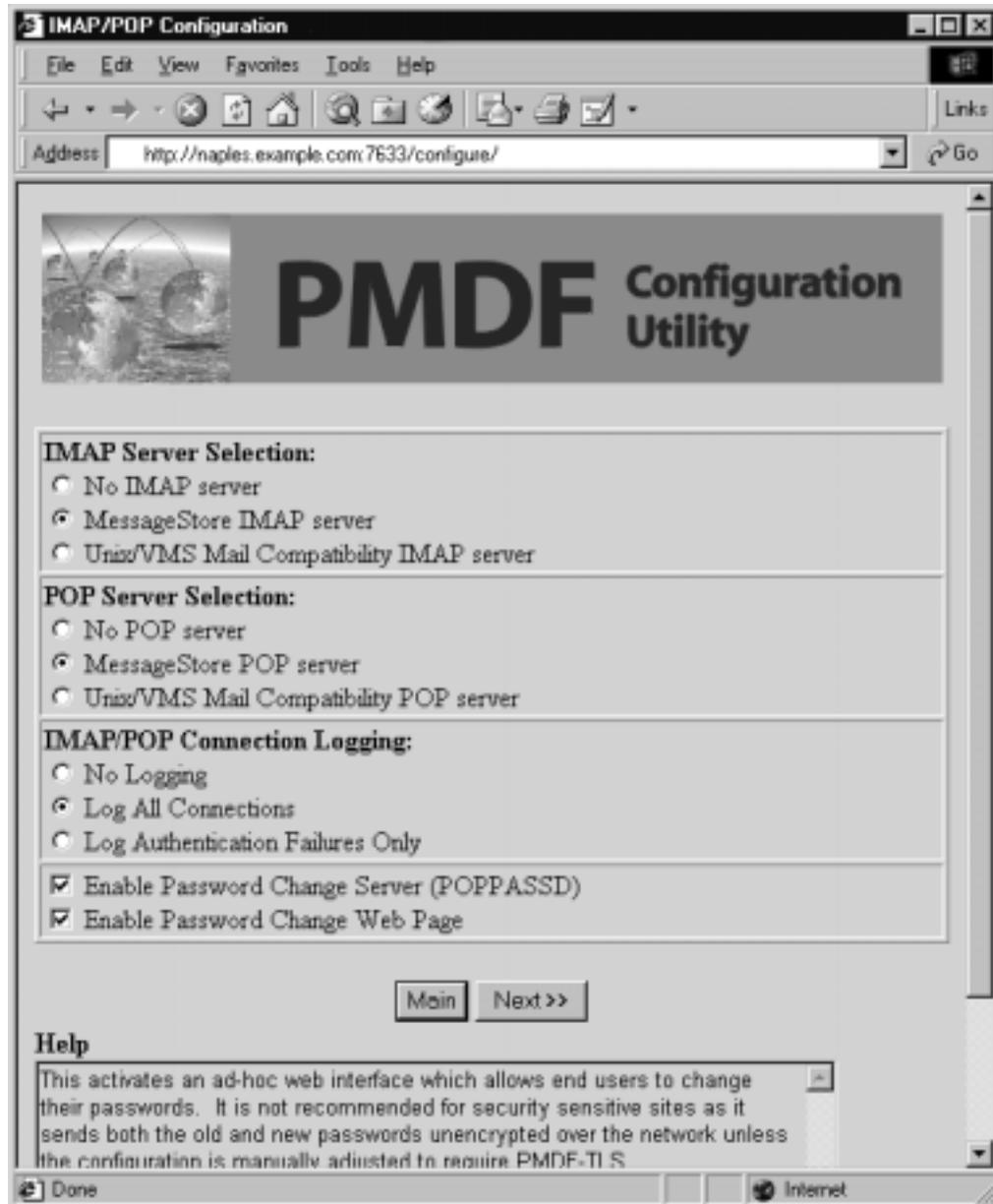
Figure 5-9 Configuration Main Page, MTA Configuration Entered



5.2 IMAP/POP Server Sample Configuration

Figure 5–10 shows the first screen of the IMAP/POP Servers configuration component.

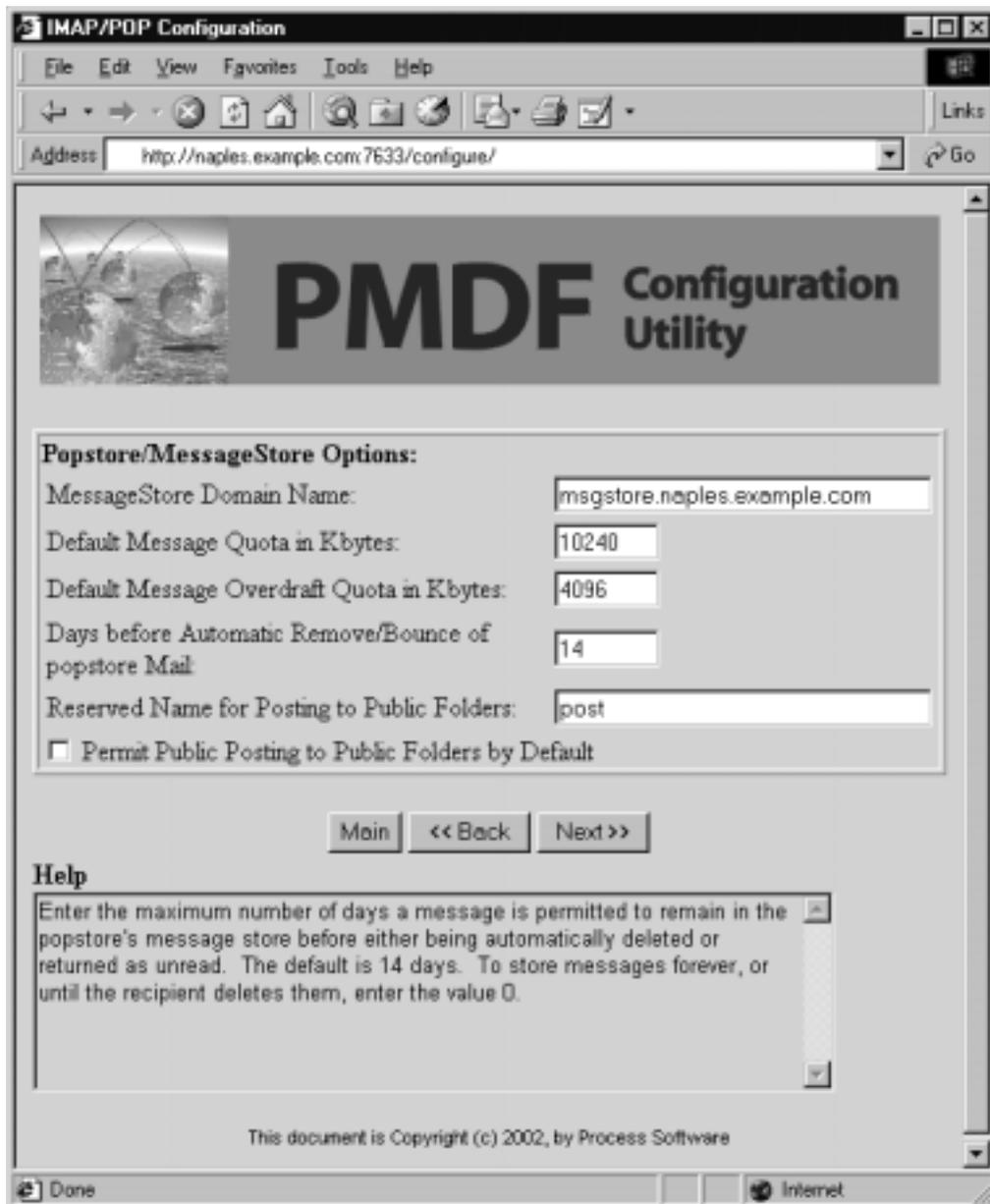
Figure 5–10 IMAP/POP Configuration, Select Servers



PMDF-MTA and POP/IMAP Example Configuration

IMAP/POP Server Sample Configuration

Figure 5-11 IMAP/POP Configuration, popstore/MessageStore Information



The screenshot shows a web browser window titled "IMAP/POP Configuration" with the address bar displaying "http://naples.example.com:7633/configure/". The main content area features the "PMDF Configuration Utility" logo and a section titled "Popstore/MessageStore Options:". This section contains 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), and "Reserved Name for Posting to Public Folders" (post). There is also an unchecked checkbox for "Permit Public Posting to Public Folders by Default". Below the options are "Main", "<< Back", and "Next >>" buttons. A "Help" section provides instructions for the "Days before Automatic Remove/Bounce" field. The footer includes a copyright notice for Process Software and a status bar with "Done" and "Internet" indicators.

IMAP/POP Configuration

File Edit View Favorites Tools Help

Address Go

PMDF Configuration Utility

Popstore/MessageStore Options:

MessageStore Domain Name:

Default Message Quota in Kbytes:

Default Message Overdraft Quota in Kbytes:

Days before Automatic Remove/Bounce of popstore Mail:

Reserved Name for Posting to Public Folders:

Permit Public Posting to Public Folders by Default

Main << Back Next >>

Help

Enter the maximum number of days a message is permitted to remain in the popstore's message store before either being automatically deleted or returned as unread. The default is 14 days. To store messages forever, or until the recipient deletes them, enter the value 0.

This document is Copyright (c) 2002, by Process Software

Done Internet

PMDF-MTA and POP/IMAP Example Configuration

IMAP/POP Server Sample Configuration

Figure 5-12 IMAP/POP Configuration, Server 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 header with a globe image and the text "PMDF Configuration Utility". Below the header, there are two sections of configuration options:

- IMAP Server Options:**
 - Maximum Concurrent IMAP Sessions to Allow:
 - Maximum Concurrent IMAP Sessions per Process:
- POP Server Options:**
 - Maximum Concurrent POP Sessions to Allow:
 - Maximum Concurrent POP Sessions per Process:
 - Disable the UIDL command for POP3

At the bottom of the configuration area, there are three buttons: "Main", "<< Back", and "Done". Below these buttons is a "Help" section with a text box containing the following text:

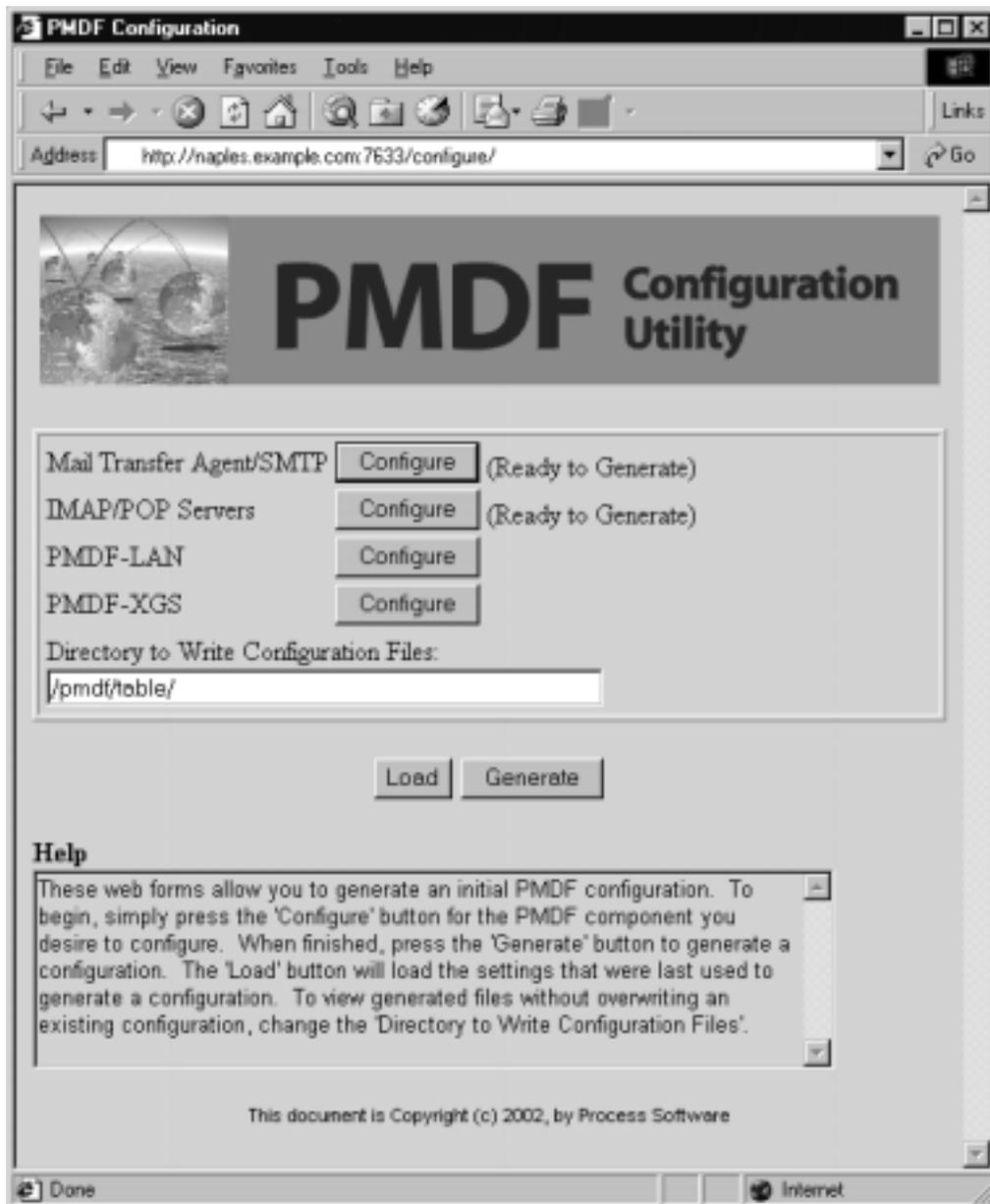
Enter the maximum number of connections you want to support concurrently on your system. Each IMAP user would normally have several connections when connected to the server, and some may last hours or days.

At the very bottom of the page, there is a copyright notice: "This document is Copyright (c) 2002, by Process Software". The browser's status bar at the bottom shows "Done" and "Internet".

PMDF-MTA and POP/IMAP Example Configuration

IMAP/POP Server Sample Configuration

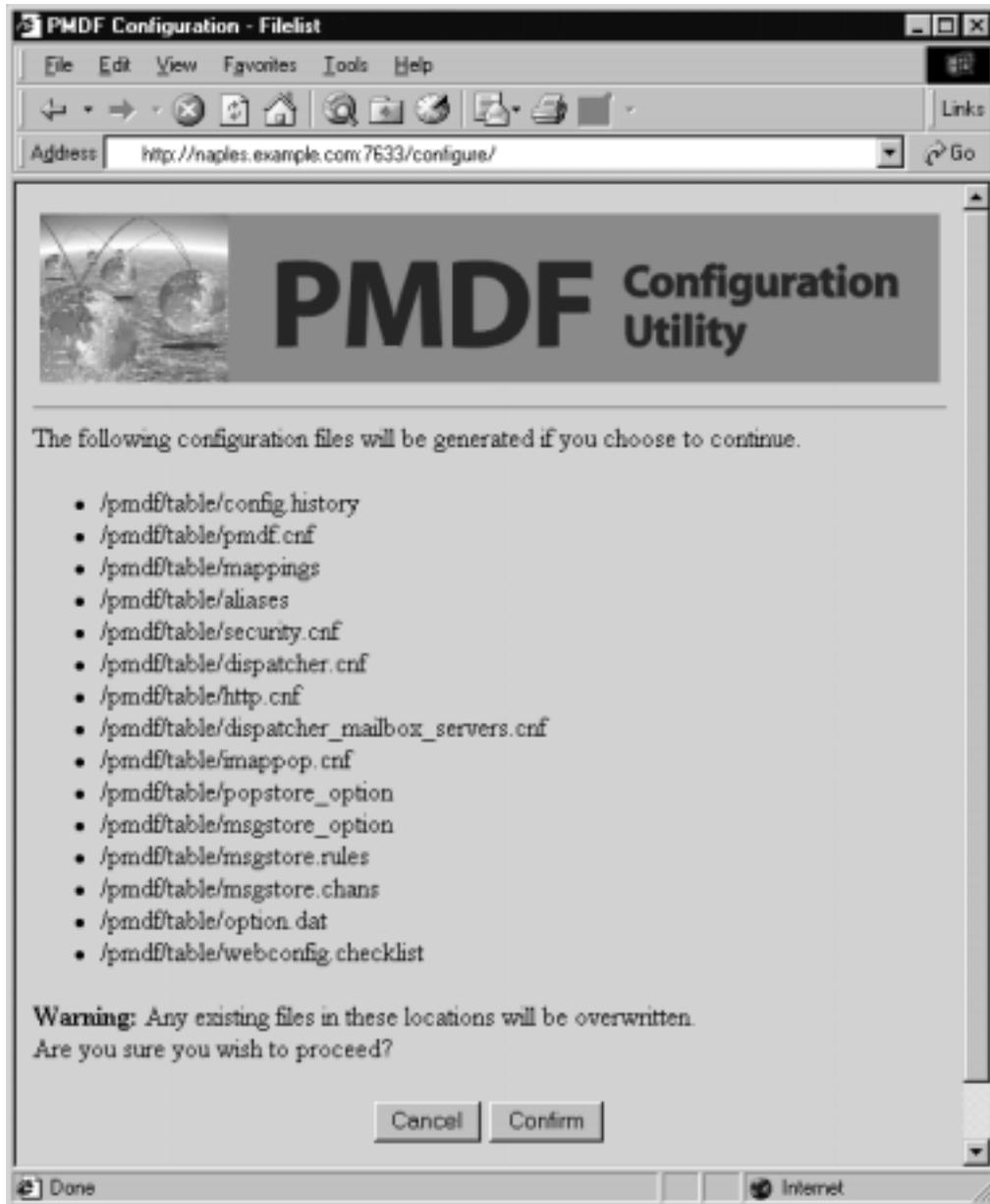
Figure 5-13 Configuration Main Page, MTA and IMAP/POP Configurations Entered



PMDF-MTA and POP/IMAP Example Configuration

IMAP/POP Server Sample Configuration

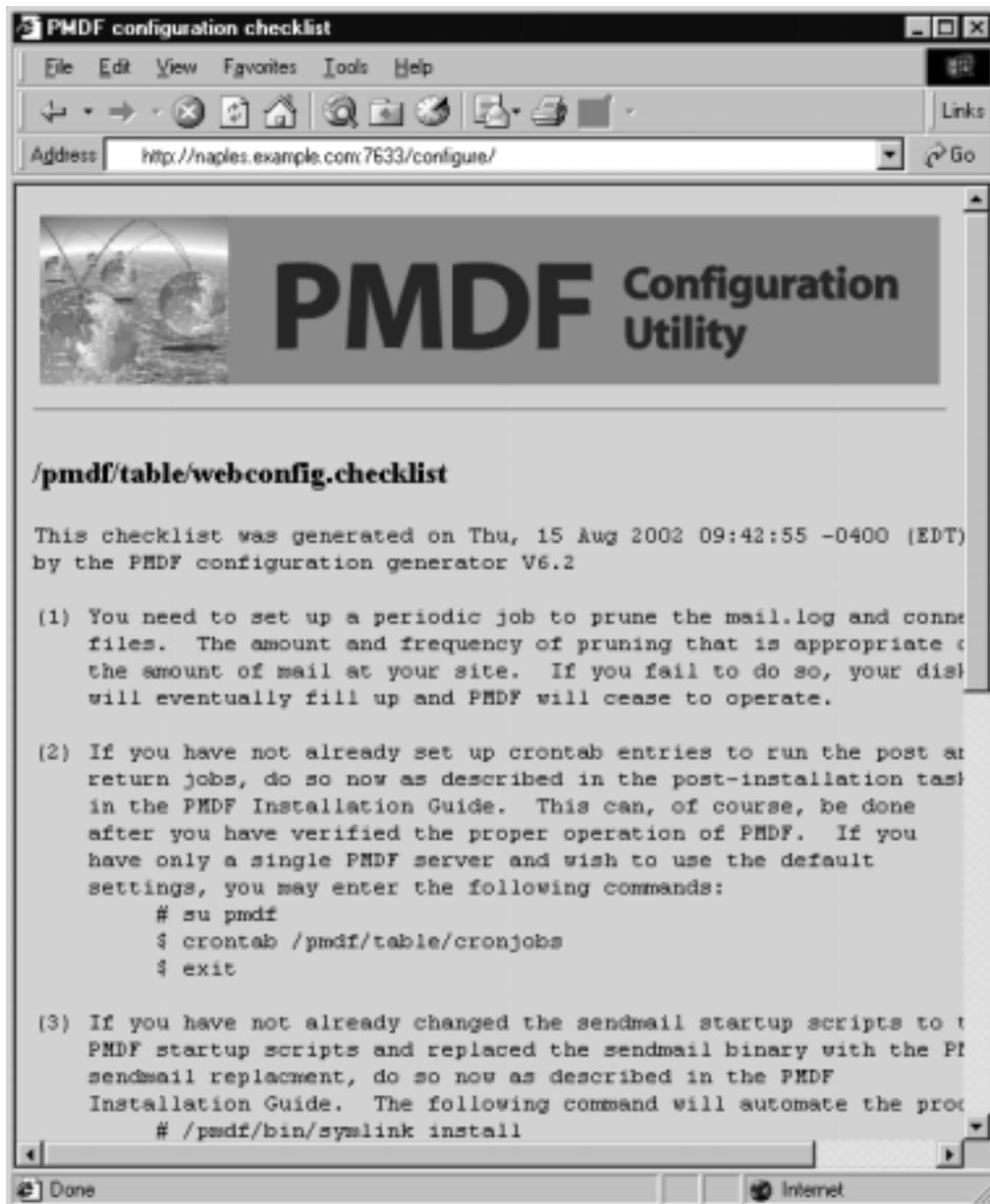
Figure 5-14 Generate Files



PMDF-MTA and POP/IMAP Example Configuration

IMAP/POP Server Sample Configuration

Figure 5-15 MTA and IMAP/POP Checklist File



6 Generating an Initial PMDF-LAN Configuration

This chapter describes how to use the PMDF-LAN configuration utility to configure PMDF-LAN; that is, it describes how to modify a basic PMDF-MTA configuration to also include PMDF-LAN's PC-LAN channels.

Additional manual modifications to your configuration files may be required as your environment evolves.

6.1 Before You Begin

Prior to running the PMDF-LAN configuration utility you must have installed PMDF-MTA with PMDF-LAN support and have configured PMDF-MTA, including configuration of the PMDF Service Dispatcher (normally configured by the web-based PMDF-MTA configuration utility as part of the base MTA/SMTP configuration). Refer to Chapter 1 through Chapter 5 if you have not already installed and configured PMDF-MTA.

The PMDF-LAN configuration utility will prompt for several pieces of required information. Although the utility will attempt to provide default values to its prompts for a few of the more general questions, providing correct answers to the more specific questions requires some knowledge of the PC-LAN setup at your site. You should be prepared to provide answers to these questions. Knowing the correct values to answer usually requires coordinating with whomever does the PC-LAN management at your site. If that person is not you, check with them to find out current values, and impress upon them that any future changes in these values will need to be coordinated with you: unilateral changes in the PC-LAN setup will break the mail gateway.

In particular, you will need to be prepared with answers to the following questions.

- Which channels you want to configure: *e.g.*, cc:Mail, Lotus Notes, Microsoft Mail, WordPerfect Office (Groupwise), Novell MHS, or some group of these.
- Any names that the PC mail system has for itself; *e.g.*, domain name for Lotus Notes, network and post office names for Microsoft Mail, domain and post office names for WordPerfect Office, or workgroup name for MHS based systems.

If you will be configuring a cc:Mail, Microsoft Mail, WordPerfect Office (Groupwise), or Novell MHS channel, or some group of these, you will also need to be prepared with answers to the following question.

- What method will be used to share or move files between the LAN and the PMDF system. You may want to refer to the initial sections of the PMDF-LAN chapter of the *PMDF System Manager's Guide* for a description of several possible approaches. Note that if you will be using file serving software for the PMDF system to store the PC-LAN mail system files on your PMDF disk, then it is best to use a directory outside of the PMDF directory structure for the PC-LAN message files, in order to

Generating an Initial PMDF-LAN Configuration Before You Begin

allow file protections to best be used, and so as not to create conflicts with PMDF's own directory structure.

If you will be configuring a Lotus Notes channel, you will also need to be prepared with answers to the following questions.

- Two port numbers on which the PMDF Service Dispatcher will listen for communications from the PMDF Notes Gateway Service Add-ins. These numbers must match those the PMDF Notes Gateway Service Add-ins are configured to use (in the Lotus Notes server initialization file).
- The IP address of the Lotus Notes server.

6.1.1 Selecting Pseudo Domain Names

You should give some thought as to the pseudo domain names to associate with PC-LAN mail post offices. Particularly if you are using PMDF in an isolated (non-Internet) application, you may pick any pseudo domain names that you want; indeed, if you set up a system of centralized naming, *e.g.*, with PMDF's facilities along such lines, the particular pseudo domain names assigned may be largely invisible even if you are part of a larger network. However, you should remember that networks have a way of growing and becoming more visible and at some point in the future you may regret a careless decision about naming conventions you made earlier. Try to pick a sane, sensible name which is appropriate to your users, system, and site, and which, even if you do not currently expect it to be visible to users, would be acceptable if it were visible.

Your PMDF system has a name associated with it. In addition, PC-LAN mail systems often have their own, internal name for the post office and "network" or "domain" or "workgroup" of which they are a part. If your PC mail system is located on a server, that server may itself have a name. Some combination of these names is usually appropriate. Suppose your PMDF system is `naples.example.com`, and your WordPerfect Office (GroupWise) post office considers itself to be the HQ postoffice in the EXAMPLE WordPerfect Office domain, and the post office files are stored on a Novell file server named WIDGETS. Reasonable possibilities for the name of the pseudo domain associated with that WordPerfect Office post office might be `wpo.example.com`, `wpo.naples.example.com`, `wpo.widgets.example.com`, `hq.naples.example.com`, `hq.example.example.com`, or `hq.widgets.example.com`. The best choice for your site might depend upon factors such as: whether you have or anticipate having multiple WordPerfect Office post offices; if so, whether you expect the post offices to reside on the same server, and whether such servers will be accessed from the same Solaris system or from multiple systems; and whether the important distinguishing feature of these users is that they are "WordPerfect Office users", or whether it is that they are "HQ users".

Generating an Initial PMDF-LAN Configuration Using the Web-based PMDF-LAN Configuration Utility

6.2 Using the Web-based PMDF-LAN Configuration Utility

This section describes using the web-based PMDF-LAN configuration utility. A command line variant, `pmdf configure lan`, is also available for sites for whom web configuration is not convenient. The web-based configuration utility may be used to generate an initial PMDF-LAN configuration, or may be used to generate a new configuration of an existing PMDF-LAN installation.

Using Netscape (version 3.0 or later) or Microsoft Internet Explorer (version 4.0 or later), with JavaScript enabled, connect to

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

where *localhost* is the TCP/IP name of your PMDF system—you should see a page such as shown in Figure 5-3—and then select the “Configuration Utilities” link; at this point you should see a page such as shown in Figure 5-4.

If your last use of the web-based PMDF configuration utility was to configure PMDF-MTA and your PMDF-MTA configuration has not been manually modified since then, you can “Load” your prior PMDF-MTA configuration session before beginning your PMDF-LAN configuration; or if you want to redo your PMDF-MTA configuration, you may start by doing so now; either will minimize the number of checklist tasks you will later need to perform. Otherwise, you may configure just PMDF-LAN during this configuration sessions (and then perform checklist tasks to integrate your PMDF-LAN configuration into your main PMDF-MTA configuration).

Click on the “Configure” button for PMDF-LAN to begin the configuration.

7 PMDF-LAN Example Configuration

Figure 7-1 through Figure 7-7 show a sample PMDF-LAN configuration using the web-based PMDF-LAN configuration utility. Example 7-1 shows a corresponding sample checklist file. The sample site EXAMPLE.COM is as described in Chapter 5. PMDF-LAN has been installed on node `naples`, and the configuration is being performed on `naples`.

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

PMDF-LAN Example Configuration

Figure 7-1 shows the initial page, where you tell PMDF which types of PC-LAN mail systems you want to connect to.

Figure 7-1 PMDF-LAN Configuration, Initial Page

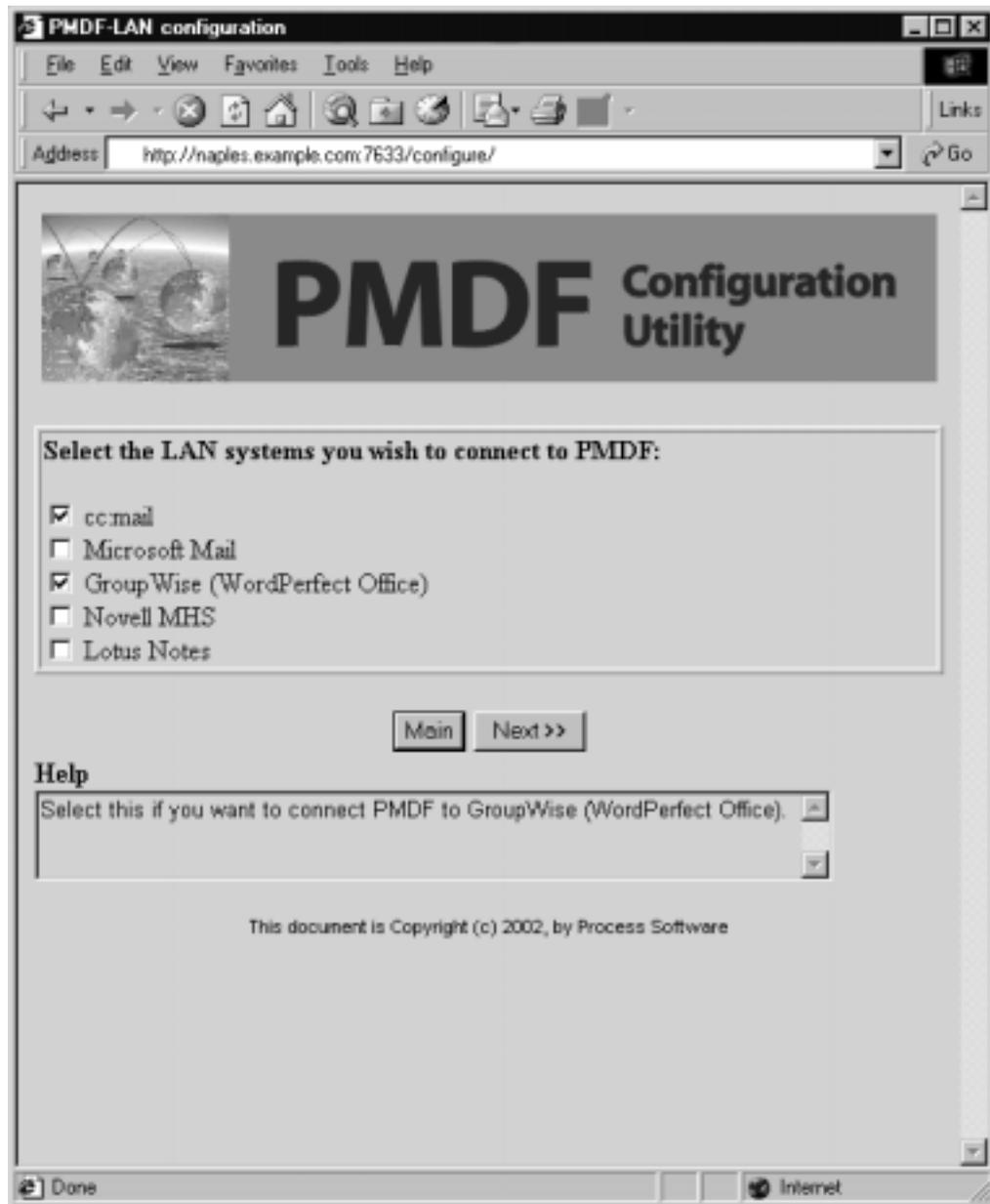


Figure 7-2 shows the cc:Mail connection configuration page.

Figure 7-2 PMDF-LAN Configuration, cc:Mail

The screenshot shows a web browser window titled "PMDF-LAN - cc:Mail" with the address bar containing "http://naples.example.com:7633/configure/". The main content area features a header with a globe icon and the text "PMDF Configuration Utility". Below the header is a configuration form with the following fields:

Domain Name to Assign to cc:Mail:	<input type="text" value="ccmail.example.com"/>
PMDF Gateway Post Office Name to Assign to cc:Mail:	<input type="text" value="PMDF"/>
Name of the cc:Mail File to Input to PMDF:	<input type="text" value="/usr/ccmail/ccmail.exp"/>
Name of the cc:Mail File PMDF will Output:	<input type="text" value="/usr/ccmail/ccmail.imp"/>
Name of the cc:Mail Undeliverable File to Input to PMDF:	<input type="text" value="/usr/ccmail/ccmail.und"/>
Eight-Bit Character Set that is Used by cc:Mail:	<input type="text" value="ibm850"/>

Below the form are three buttons: "Main", "<< Back", and "Next >>".

Help

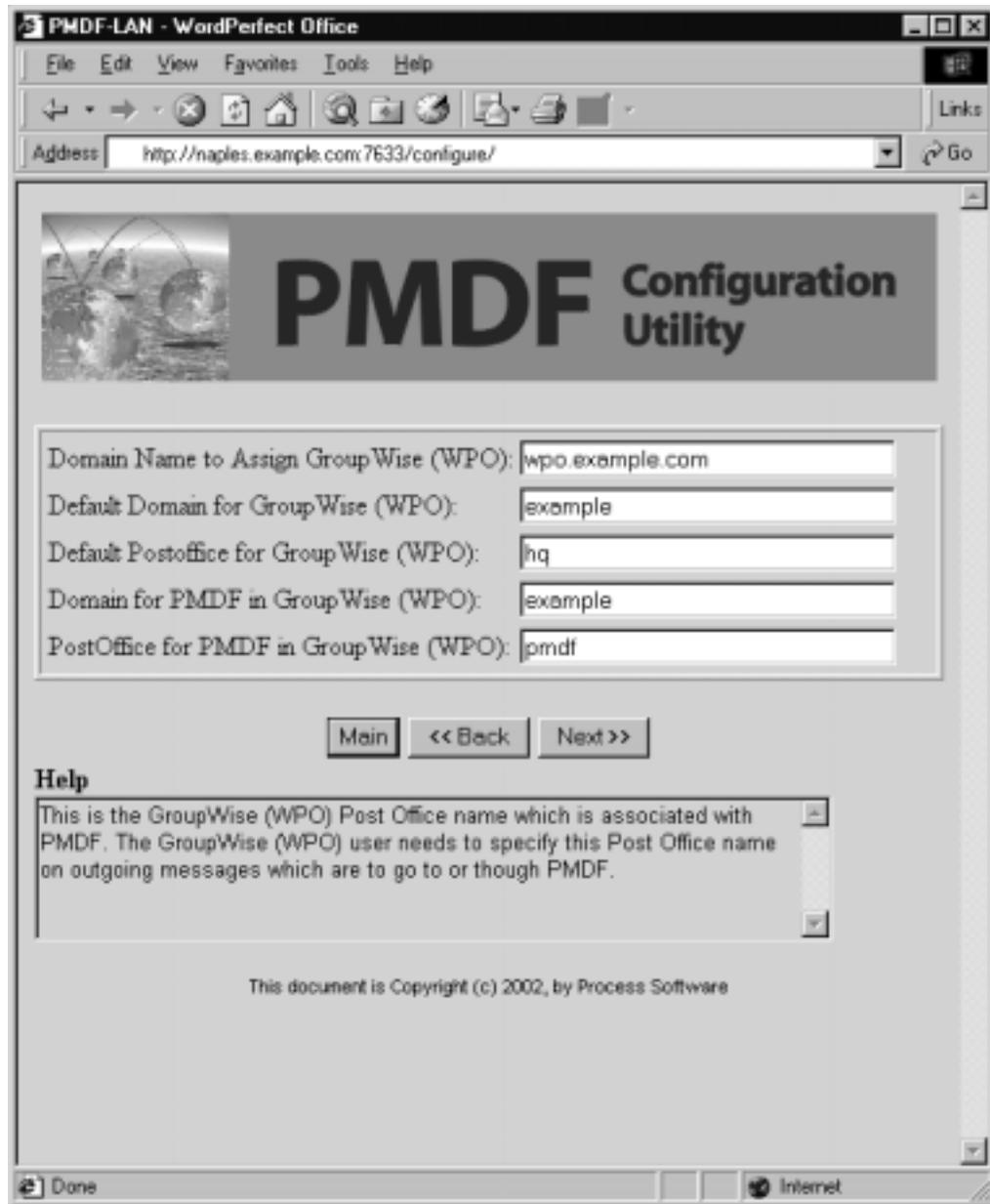
Accented vowels and other special characters are represented using any of a variety of eight bit character sets. In order to properly handle such characters, PMDF needs to know the eight bit character that your PC LAN mail system uses. In the US on DOS and OS/2, the IBM437 character set is commonly used. Internationally, the IBM850 character set is commonly used. Or many other eight bit character sets can also be used. If you know the eight bit character set your PC LAN mail system uses, enter it here. Otherwise, you may leave this question blank and instead manually add the proper charset8 marking to your configuration later, at such a time as you

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

PMDF-LAN Example Configuration

Figure 7-3 and Figure 7-4 show configuring the GroupWise (WPO) connection.

Figure 7-3 PMDF-LAN Configuration, GroupWise (WPO) Addressing

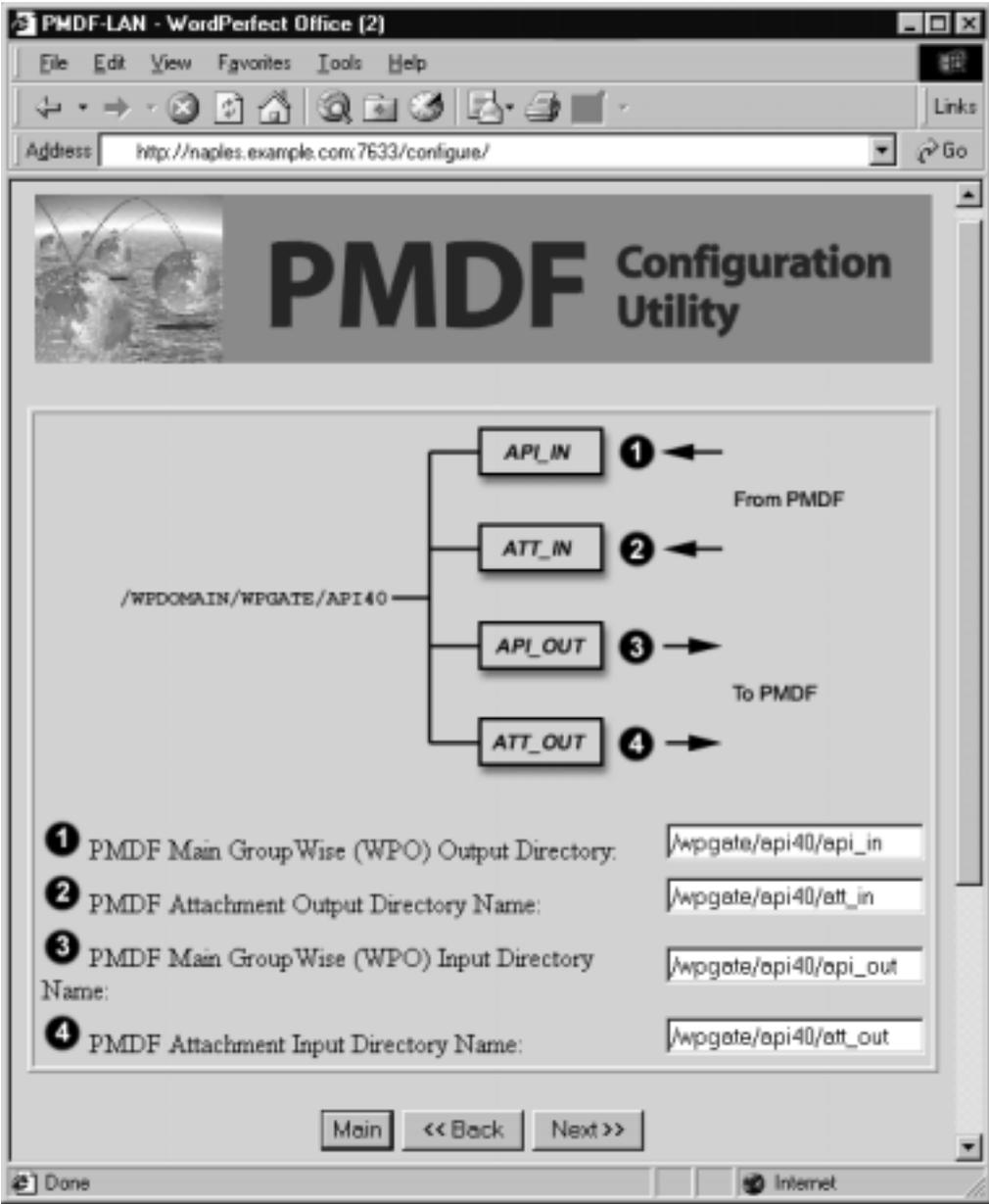


The screenshot shows a web browser window titled "PMDF-LAN - WordPerfect Office" with the address bar containing "http://naples.example.com:7633/configure/". The main content area features the "PMDF Configuration Utility" header with a globe icon. Below the header is a form with five input fields for GroupWise (WPO) configuration:

Domain Name to Assign GroupWise (WPO):	wpo.example.com
Default Domain for GroupWise (WPO):	example
Default Postoffice for GroupWise (WPO):	hq
Domain for PMDF in GroupWise (WPO):	example
PostOffice for PMDF in GroupWise (WPO):	pmdf

Below the form are three buttons: "Main", "<< Back", and "Next >>". A "Help" section follows, containing a text box with the following text: "This is the GroupWise (WPO) Post Office name which is associated with PMDF. The GroupWise (WPO) user needs to specify this Post Office name on outgoing messages which are to go to or through PMDF." At the bottom of the page, a copyright notice reads: "This document is Copyright (c) 2002, by Process Software". The browser's status bar at the bottom shows "Done" and "Internet".

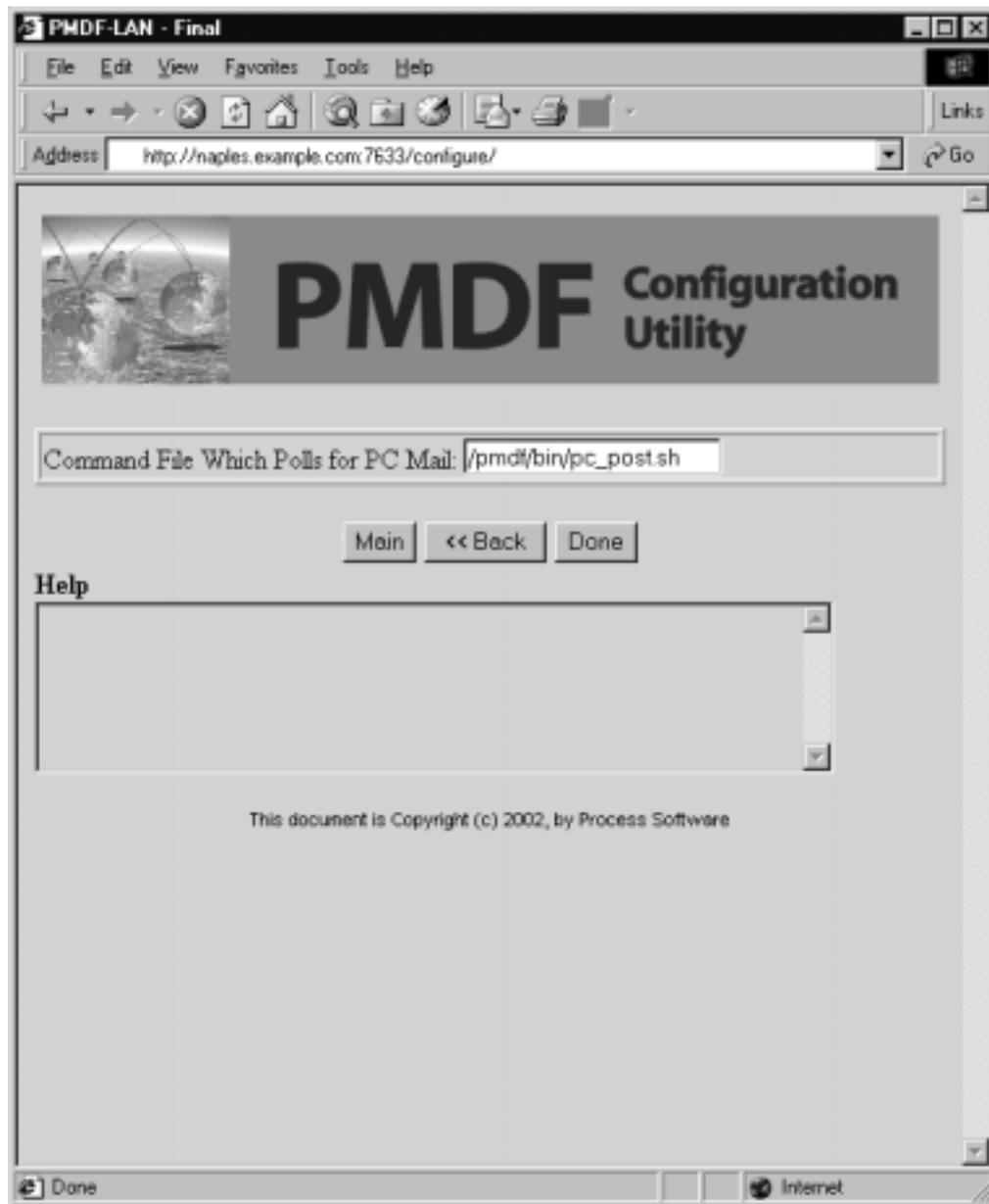
Figure 7-4 PMDF-LAN Configuration, GroupWise (WPO) Directories



PMDF-LAN Example Configuration

PMDF-LAN uses a periodic job to poll for the presence of messages incoming to PMDF from the PC-LAN mail systems. Figure 7-5 shows configuring the script for this job.

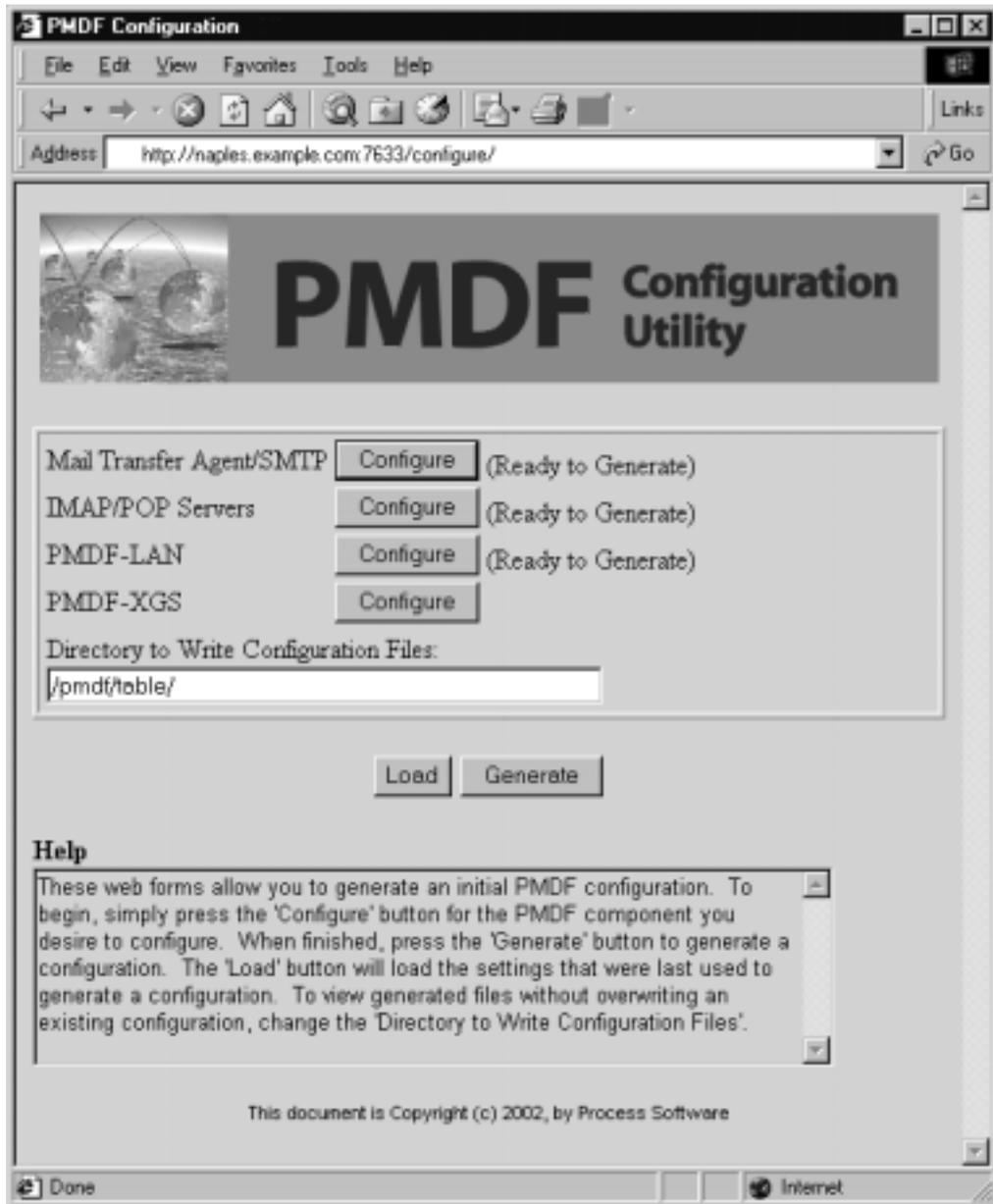
Figure 7-5 PMDF-LAN Configuration, pc_post Polling File



PMDF-LAN Example Configuration

Figure 7-6 shows the configuration utility main menu, after entering the PMDF-LAN configuration information. At this point you may click “Generate” to generate PMDF-LAN configuration files, or you may choose to also configure another component.

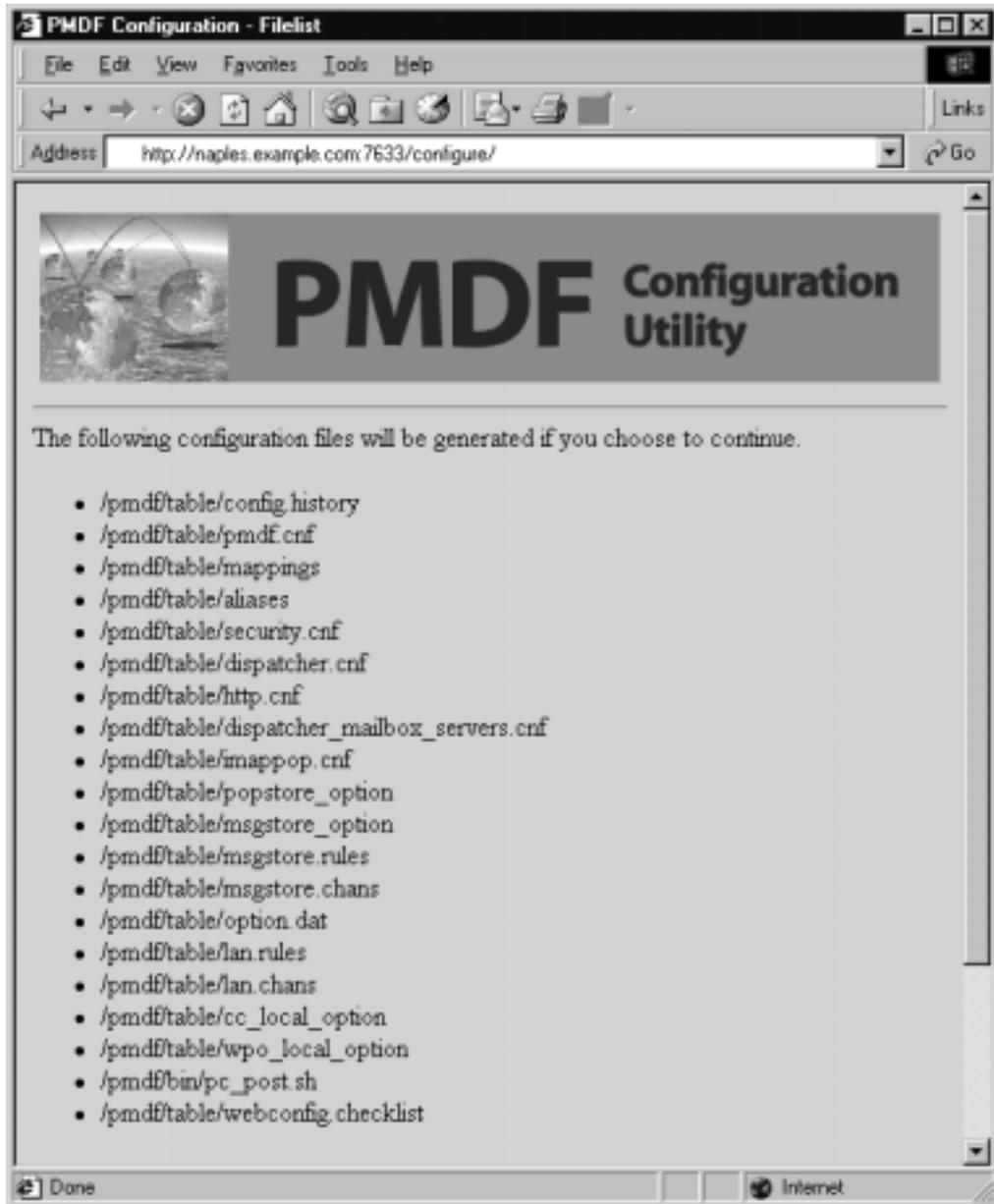
Figure 7-6 PMDF-LAN Configuration, Ready to Generate



PMDF-LAN Example Configuration

Figure 7-7 is where you can choose to go ahead and actually write out configuration files corresponding to your previous configuration input.

Figure 7-7 PMDF-LAN Configuration, Generate Files



Finally, Example 7-1 shows the checklist file that the configuration utility will generate, describing additional steps to complete your configuration.

Example 7-1 Example Checklist File for PMDF-LAN Configuration: cc:Mail and WordPerfect Office

cat pmdf/table/webconfig.checklist

- (1) You have configured PMDF-LAN 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 PMDF-LAN: "/pmdf/table/lan.rules" and "/pmdf/table/lan.chans".
- (2) There is a shell script file called /pmdf/bin/pc_post which will do the PC polling. You need to submit this shell script file to cron as instructed by the comments in that file.

For cc:Mail,

- (3) Create the post office "PMDF" in cc:Mail. This is done by simply entering its name into the Mail directory with P for its location.
- (4) Make sure the directory containing the files /usr/ccmail/ccmail.exp /usr/ccmail/ccmail.imp, /usr/ccmail/ccmail.und is created and writeable by both PMDF and the PC side.
- (5) Copy /pmdf/other/dos/delay.exe to a directory where the PC can see it. This program can be used to introduce delays between running the import/export utilities.
- (6) You need to set up a batch job on a PC to run IMPORT/EXPORT programs with the following basic (example) commands:

```
:loop
m:\ccadmin\import file/hex <CCMAILPO> <admin_password> m:\ccdata
m:\ccadmin\export file/hex format/fan PMDF <admin_password> m:\ccdata
delay 5min
goto loop
```

The above example assumes M: to be the drive where your ccmail files are and that you are using the default names ccmail.imp, ccmail.exp and ccmail.und for importing and exporting. <admin_password> is the administrator password to cc:Mail. <CCMAILPO> is assumed to be the name of your cc:Mail post office; you need to substitute your actual cc:Mail postoffice name where <CCMAILPO> is shown. Please see the cc:Mail import/export manual for more details on the format of the command.

- (7) For proper handling of attachments, you should consider enabling mappings such as those demonstrated in the sample file /pmdf/table/cc_mappings.sample. To enable these mappings, cut and paste the contents of the sample file into the /pmdf/table/mappings file.

For WordPerfect Office

- (8) Make sure PMDF is defined as a gateway in WordPerfect Office, with the WPO domain of example and post office of pmdf

Example 7-1 Cont'd on next page

PMDF-LAN Example Configuration

Example 7-1 (Cont.) Example Checklist File for PMDF-LAN Configuration: cc:Mail and WordPerfect Office

- (9) Make sure the gateway subdirectories in WordPerfect Office are created, i.e. the ATT_IN, API_IN, ATT_OUT and API_OUT directories should be created as viewed from Solaris:
- ```
/usr/wpgate/api40/att_out/,
/usr/wpgate/api40/api_out/,
/usr/wpgate/api40/att_in/ and
/usr/wpgate/api40/api_in/ respectively.
```
- (10) Make sure you run the WordPerfect Office's Connectivity Server on a PC, which will import/export the messages.
- (11) For proper handling of attachments, you should consider enabling mappings such as those demonstrated in the sample file /pmdf/table/wpo\_mappings.sample. To enable these mappings, cut and paste the contents of the sample file into the /pmdf/table/mappings file.

For eight bit character set handling

- (12) Add a CHARSET-CONVERSION mapping table to your mappings file to convert between the eight bit character sets in use at your site and those commonly used on the Internet. For example,

CHARSET-CONVERSION

```
! Convert character sets cc_* <-> l, and cc_* <-> tcp_*
IN-CHAN=cc_*;OUT-CHAN=l;CONVERT Yes
IN-CHAN=cc_*;OUT-CHAN=tcp_*;CONVERT Yes
IN-CHAN=l;OUT-CHAN=cc_*;CONVERT Yes
IN-CHAN=tcp_*;OUT-CHAN=cc_*;CONVERT Yes
IN-CHAN=cc_*;OUT-CHAN=l;IN-CHARSET=ibm850 OUT-CHARSET=iso-8859-1
IN-CHAN=cc_*;OUT-CHAN=tcp_*;IN-CHARSET=ibm850 OUT-CHARSET=iso-8859-1
IN-CHAN=l;OUT-CHAN=cc_*;IN-CHARSET=iso-8859-1 OUT-CHARSET=ibm850
IN-CHAN=tcp_*;OUT-CHAN=cc_*;IN-CHARSET=iso-8859-1 OUT-CHARSET=ibm850
```

---

---

## 8 Generating an Initial PMDF-X400 Configuration

This chapter describes how to use the PMDF-X400 configuration utility. The configuration produced by this utility provides support for interchanging messages with a single remote X.400 MTA. If support for multiple MTAs is required you should first configure and test PMDF-X400 with a single MTA. The steps required to add support for additional MTAs are described in the *PMDF System Manager's Guide*.

A history of the configuration run is saved in the file `x400_configure.history` in the PMDF table directory when you run the `pmdf configure x400` utility. When you run `pmdf configure x400` 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 may prove useful to technical support should you encounter problems.

---

### 8.1 Before You Begin

Prior to running the PMDF-X400 configuration utility you must have installed PMDF-MTA with PMDF-X400 support and have configured PMDF-MTA. Refer to Chapters 1–5 if you have not already installed and configured PMDF.

You must also have a network transport supported by PMDF-X400 installed and configured. PMDF-X400 on Solaris supports transport over TCP/IP in accordance with RFC 1006 (which specifies a method for implementing the OSI upper layers over a TCP/IP transport), as described in the *PMDF System Manager's Guide*.

The `pmdf configure x400` utility will prompt for several pieces of required information. You should be prepared to provide the following:

- The domain name for the PMDF-X400 gateway. This is the domain name that originators on the PMDF side of the gateway will use to direct messages through PMDF-X400.
- The X.400 Originator-Recipient name, or ORname, for your PMDF-X400 gateway. This consists of the various fields of an X.400 address that remote X.400 users will specify when they originate messages intended for recipients that are reachable on the PMDF side of your PMDF-X400 gateway. Whenever PMDF-X400 receives a message from another X.400 MTA, ORnames containing these fields will be recognized and passed to PMDF for further delivery.

The ORname fields that may be specified are, in order:

1. Country
2. Administrative Mail Domain
3. Private Mail Domain

## Generating an Initial PMDF-X400 Configuration Before You Begin

4. Organization
5. up to four Organizational Units

The Country field must be specified; all other fields are optional.

- The Selector portion of the OSI Presentation Address used to distinguish an incoming network connection intended for PMDF-X400. You should supply a Presentation Selector, PSEL, Session Selector, SSEL, and Transport Selector, TSEL.

Do not enter the local Network Service Access Point, or NSAP, portion of the address, as that will be determined automatically.

Transport level connection requests to the TSEL you provide here will be directed to PMDF-X400. In addition, you will need to provide remote MTAs with these selectors as well as your Network Server Access Point, or NSAP, before they will be able to initiate connections to PMDF-X400.

- MTA information for both the remote X.400 MTA and the local PMDF-X400 MTA. Information which is required consists of:
  - Transfer mode. Determines whether PMDF-X400 should use 1988 Normal mode, 1988 X.410 mode, or 1984 mode with this remote MTA.
  - Local MTA address. You must provide the Selector portion of the OSI Presentation address used by PMDF-X400 to identify itself when connecting to the remote MTA. For 1984 or 1988 X.410 transfer modes, the configuration utility will provide by default the local TSEL specified previously. For 1988 Normal mode, the configuration utility will provide by default all three Selectors specified previously. Use the default unless you know that the other MTA can only recognize some other address for PMDF-X400.
  - Local MTA name and password. These will be sent by PMDF-X400 any time that a network connection with the other MTA is established. The connection may be rejected if the name and password do not match what the other MTA is expecting to see.
  - Remote MTA address. This is the OSI Presentation address PMDF-X400 is to use when connecting to the remote X.400 MTA. For 1988 Normal mode, you must provide the complete PSAP (Presentation Service Access Point), consisting of PSEL, SSEL, TSEL, and NSAP (Network Service Access Point). For 1988 X.410 or 1984 transfer modes, you need only provide a TSAP (Transport Service Access Point), consisting of a TSEL and NSAP. See the PMDF-X400 chapter of the *PMDF System Manager's Guide* for more information on the accepted forms of Presentation address.

**Note:** The NSAP address specified must be acceptable to your TCP/IP stack; PMDF-X400 depends upon the transport layer to interpret the address and make the network connection. In other words, your TCP/IP must have been configured to know how to reach the address.

- Remote MTA name and password. These will be provided by the remote MTA when a network connection is established between the two. PMDF-X400 may reject the connection if the name and password do not match.

Your local MTA information will need to be shared with the administrator of the remote MTA before any network connection can be established. In addition, the remote MTA administrator will need to know the NSAP address of your PMDF-X400

# Generating an Initial PMDF-X400 Configuration Before You Begin

gateway. See the PMDF-X400 chapter of the *PMDF System Manager's Guide* for further details on local and remote MTA information.

---

## 8.2 Using the Configuration Utility

This section presents a step-by-step procedure for generating your PMDF-X400 configuration files using the `pmdf configure x400` utility. Refer to Chapter 9 for a sample configuration dialogue.

1. Configuration of PMDF-X400 should be done by `root` to ensure that the necessary privileges are available to create the configuration files. If you are not logged in as `root`, do so now.
2. Begin the configuration procedure by invoking the PMDF-X400 configuration utility as follows, assuming that you have `/usr/bin` in your search path:

```
cd /pmdf/table
pmdf configure x400
```

3. The configuration procedure will optionally print out detailed explanations of each prompt as it proceeds. Unless you are familiar with the procedure, enable the detailed output.
4. The answers to all the prompts are logged to a file in the `/pmdf/table` directory. After the first configuration, `pmdf configure x400` can use the answers to the previous run as the default answers.
5. Closely examine the example configuration presented in Chapter 9. The sample dialogue should be analogous to your own network configuration. In addition, the example was run with detailed prompting enabled, and will prepare you for the questions you need to answer for your own site.

The sample site continues the example presented in Figure 5-1, adding an X.400 gateway to the `naples` system.

6. Once you've completed running the `pmdf configure x400` utility, type out or print the `/pmdf/table/x400.checklist` file and complete the configuration by following the steps outlined in the checklist.
7. Test out your configuration initially using the `pmdf test -channel x400` command, as described in the PMDF-X400 Chapter of the *PMDF System Manager's Guide*. Once your configuration is able to successfully connect to the remote MTA you can test further by sending mail to an X.400 recipient. X.400 address formats are described in the *PMDF System Manager's Guide* and *PMDF User's Guide, UNIX Edition*.
8. If messages do not seem to be getting out, then use the `ls` utility to check whether they are stuck in either of the `/pmdf/queue/x400_to_mime` or `/pmdf/queue/x400_local` directories. Examination of log files in the `pmdf/log` directory will help isolate gateway delivery problems. See the sub-section Debugging and Tracing MTA Connections in the PMDF-X400 chapter of the *PMDF System Manager's Guide* for additional assistance with X.400 specific problems.

See the section Maintenance and Troubleshooting in the *PMDF System Manager's Guide* for additional information on tracking general PMDF delivery problems.

## Generating an Initial PMDF-X400 Configuration Using the Configuration Utility

9. If everything appears to be functional, and you have completed your configuration of PMDF-X400 for the present, you may want to compile your configuration for increased performance. Use the `pmdf cnbuild` utility. See the *PMDF System Manager's Guide* for more information.

## 9 PMDF-X400 Example Configuration

Example 9–1 configures a PMDF-X400 gateway at EXAMPLE.COM on node `naples`, and Example 9–2 shows a corresponding checklist file. This is the same sample site pictured in Figure 5–1 and configured in Chapter 5.

In this example, EXAMPLE has added an X.400 gateway to the fictional service provider GALACTIMAIL. Prior to configuring PMDF-X400, EXAMPLE has been assigned an X.400 address consisting of:

|                        |              |
|------------------------|--------------|
| Country:               | US           |
| Administrative Domain: | GALACTIMAIL  |
| Private Domain:        | EXAMPLE Corp |
| Organization:          | HQ           |

EXAMPLE and the management of the remote X.400 MTA have coordinated the use of MTA information and network addresses. They will be using X.400 1988 Normal transfer mode over RFC 1006 TCP/IP transport. The relevant parameters on which they've agreed are:

| Parameter              | EXAMPLE's PMDF-X400 MTA | GALACTIMAIL's MTA |
|------------------------|-------------------------|-------------------|
| Presentation Selector: | "MTA"                   | "BIG"             |
| Session Selector:      | "MTA"                   | "BUCKS"           |
| Transport Selector:    | "PMDF-X400"             | "X400"            |
| NSAP (TCP/IP) Address: | 192.168.1.1             | 192.168.5.1       |
| MTA Name:              | naples                  | galactimail       |
| MTA Password:          |                         | secret            |

Note that EXAMPLE is using an empty password string for their PMDF-X400 MTA which will be specified to PMDF-X400 using empty double-quotes. In this example, the other MTA name and password strings do not require quoting. The MTA name and password strings are case-sensitive and should be entered exactly as expected by both MTAs.

Remember that the values used 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.

Whenever appropriate, each prompt supplies a default answer which is enclosed within square brackets. Simply pressing return, `[RETURN]`, selects the default answer. In this example configuration no answer has had to be specified to many of the prompts since the defaults are usually sufficient.

# PMDF-X400 Example Configuration

## Example 9-1 Example PMDF-X400 configuration

---

```
cd /pmdf/table
pmdf configure x400
```

PMDF-X400 Configuration Utility, Version 6.2

This utility creates an initial pair of databases for mapping PMDF's 822-style addresses to X.400 addresses and back again. Only minimal mappings are created; no attempt is made to create a complete domain name to ORname mapping of the type specified in RFC1327. Note that this is a limitation of this configuration procedure only; the database is quite capable of supporting such a sophisticated mapping.

Important note: No changes are made to existing PMDF-X400's database information until all questions have been answered. This utility can be aborted at any prompt by entering a CTRL/C. The files output by this utility may optionally be redirected to a different location so they will have no impact on the existing PMDF-X400 databases.

You have a history file from a previous run of the configure utility.

Do you want to use answers from the previous run as defaults [N]? **N**

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

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

Enter the most widely used domain name that corresponds to your local host. Normally this is the official channel host name associated with PMDF's local channel.

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

A standard domain-style host name is used to refer to the gateway from the Internet/822 side. X.400 addresses then appear relative to this gateway on the Internet/822 side. For example, if you choose a domain name like X400.EXAMPLE.COM for the gateway, an address of the form /C=US/ADMD=MCI/PRMD=DEC/S=Doe/@X400.EXAMPLE.COM might be used from the Internet/822 side to send messages to an X.400 user. The choice of the X400.domain format is a common one. Be sure that the name you choose is within a domain or subdomain that you have administrative authority over. Also be sure to choose a name that is NOT currently in use.

Domain name for the X.400 gateway [x400.naples.example.com]?

**x400.naples.example.com**

Enter the ORname components that serve to identify messages to be processed by this MTA. User-specific fields should not be specified.

---

**Example 9-1 Cont'd on next page**

## Example 9-1 (Cont.) Example PMDF-X400 configuration

---

ORname stem for the local PMDF MTA

Enter a ISO3166 two character alphabetic country code.

Country [US]? **US**

Optionally enter an Administration Domain Name (ADMD).

Administration Domain []? **GALACTIMAIL**

Optionally enter a Private Domain Name (PRMD).

Private Domain []? **EXAMPLE Corp**

Optionally enter an Organization name (O).

Organization []? **HQ**

Optionally enter 1-4 Organization Unit names (OU). You will be prompted for each one separately; press RETURN when there are no more Organizational Units to specify.

Organizational Unit []?

Enter the Presentation Address that PMDF-X400 should use to receive incoming X.400 RTS network connections. You should supply a Presentation Selector, PSEL, Session Selector, SSEL, and Transport Selector, TSEL.

Do not enter your Network Service Access Point, or NSAP, address as that will be determined automatically.

Transport level connection requests to the TSEL you provide here will be directed to PMDF-X400. In addition, you will need to provide remote MTAs with these selectors as well as your Network Server Access Point, or NSAP, before they will be able to initiate connections to PMDF-X400.

Hit RETURN for more:

Supported Selector formats are:

| Type         | Syntax                       | Example     |
|--------------|------------------------------|-------------|
| string       | "<printable-string>"         | "PMDF-X400" |
| numeric      | #<decimal-number>            | #591        |
| octet-stream | '<hexadecimal-byte-string'>H | '353931'H   |

You must enter all three selectors, and you must separate them with / characters, in the order:

PSEL / SSEL / TSEL

For example: "MTA"/"MTA"/"PMDF-X400"

Presentation Address for PMDF-X400 ["MTA"/"MTA"/"PMDF-X400"]?

You will now be asked to provide the information required to set up connections to a single remote MTA. This configuration procedure currently only generates configurations that connect to a single remote MTA. Configurations that connect to multiple MTAs are supported but must be built manually.

MTA connection information...

---

Example 9-1 Cont'd on next page

# PMDF-X400 Example Configuration

## Example 9-1 (Cont.) Example PMDF-X400 configuration

---

Enter the X.400 Transfer Mode to be used with this MTA. Valid responses are 1988-NORMAL, 1988-X410, and 1984. If 1984 is chosen, messages will be downgraded to 1984 X.400 and 1984 Reliable Transfer Service will be used. If 1988-X410 is chosen, messages will comply with 1988 X.400, but 1984 RTS will be used. If 1988-NORMAL is chosen, messages will comply with 1988 X.400 and 1988 RTSE.

Transfer mode for this MTA [1988-NORMAL]?

Enter the Presentation Address that's used to identify the local system when connecting to the remote MTA. You should use the default provided unless the remote MTA specifically requires some other address. Do not enter the Network Service Access Point, or NSAP, address at this point, enter only the selector portion of the address.

Note that if 1984 or 1988-X410 transfer mode has been chosen, only the Transport Selector, TSEL, is used here.

Local MTA address ["MTA"/"MTA"/"PMDF-X400"]?

Enter the MTA name that your system should use to identify itself when connecting to the remote MTA. This string is transferred as part of connection setup.

Local MTA name []? **naples**

Enter the password that your system should use to identify itself when connecting to the remote MTA. This string is transferred as part of connection setup.

Local MTA password []? ""

Enter the complete Presentation Address associated with the remote MTA. PMDF-X400 will connect to this address when transferring messages to the remote MTA.

If using 1984 or 1988-X410 transfer modes, then you must enter only a single Transport Selector, or TSEL. If using 1988-NORMAL mode you must enter all three selectors, and you must separate them with / characters. Finally, you must also include the Network Service Access Point, or NSAP for the remote MTA. Separate the NSAP from the selectors using a / character, in the order:

PSEL / SSEL / TSEL / NSAP

Some examples:

1984 RFC-1006 (TCP): "X400"/Internet=111.222.3.4  
1984 CONS (X.25) : "X400"/NSAP=49004008002B1D161521  
1984 CLNS : "X400"/NSAP=49004008002B1D161521

1988 RFC-1006 (TCP): "MTA"/"MTA"/"X400"/Internet=111.222.3.4  
1988 CONS (X.25) : "MTA"/"MTA"/"X400"/NSAP=49004008002B1D161521  
1988 CLNS : "MTA"/"MTA"/"X400"/NSAP=49004008002B1D161521

Remote MTA address []? **"BIG"/"BUCKS"/"X400"/Internet=142.168.5.1**

---

**Example 9-1 Cont'd on next page**

## Example 9-1 (Cont.) Example PMDF-X400 configuration

---

Enter the MTA name that you expect the remote MTA to return. This string is transferred as part of connection setup.

Remote MTA name []? **galactimail**

Enter the password that you expect the remote MTA to return. This string is transferred as part of connection setup.

Remote MTA password []? **secret**

The PMDF address of the local PostMaster is used when blank addresses (which are allowed in RFC822 but not in X.400) are encountered that must be converted into X.400 addresses. Please enter a full domain address for the local PostMaster. Do not use shortform host names since there is no guarantee that the address will be interpreted in the context where the shortform name is valid.

RFC822 address of local PostMaster []? **postmaster@naples.example.com**

Enter the name of the file to which the text form of the PMDF to X.400 mapping should be written. This file will be created automatically by this configuration procedure. Any old versions of the file will be superseded.

PMDF to X.400 mapping text file [/pmdf/table/to\_x400.txt]?

Enter the name of the file to which the text form of the X.400 to PMDF mapping should be written. This file will be created automatically by this configuration procedure. Any old versions of the file will be superseded.

X.400 to PMDF mapping text file [/pmdf/table/from\_x400.txt]?

This procedure generates an options file that contains X.400 connection information, addresses, MTA names, and passwords. This file is read by the gateway as it initializes and provides the information needed to establish connections to a remote X.400 MTA. WARNING: This file contains password information and should be protected against world read access!

Gateway options file [/pmdf/table/x400\_local\_option]?

Enter the name of the file to contain the database form of the PMDF to X.400 mapping. This file will be created automatically by this configuration procedure. Any old versions of the file will be superseded. This file name must agree with the TO\_X400\_DATABASE channel option or with the PMDF\_TO\_X400\_DATABASE tailor file option for it to be actually used by the gateway.

PMDF to X.400 mapping database [/pmdf/table/to\_x400]?

Enter the name of the file to contain the database form of the X.400 to PMDF mapping. This file will be created automatically by this configuration procedure. Any old versions of the file will be superseded. This file name must agree with the FROM\_X400\_DATABASE channel option or with the PMDF\_FROM\_X400\_DATABASE tailor file option for it to be actually used by the gateway.

X.400 to PMDF mapping database [/pmdf/table/from\_x400]?

---

Example 9-1 Cont'd on next page

# PMDF-X400 Example Configuration

## Example 9-1 (Cont.) Example PMDF-X400 configuration

---

Enter the name of the file to contain the PMDF configuration rewrite rules created by this procedure. This file should subsequently be included in your PMDF configuration file.

Rewrite rules text file [/pmdf/table/x400.rules]?

Enter the name of the file to contain the channel block definition for the PMDF-X400 channels. This file will be created automatically by this configuration procedure. Any old versions of the file will be superseded.

Channel definitions text file [/pmdf/table/x400.chans]?

PMDF-X400 requires the presence of an isoentities file.  
This procedure will create the appropriate file.

PMDF-X400 ISOENTITIES file name [/pmdf/table/isoentities]?

PMDF-X400 requires the presence of an isomacros file.  
This procedure will create the appropriate file.

PMDF-X400 ISOMACROS file name [/pmdf/table/isomacros]?

PMDF-X400 requires the presence of an isotailor file.  
This procedure will create the appropriate file.

PMDF-X400 ISOTAILOR file name [/pmdf/table/isotailor]?

PMDF-X400 requires the presence of an ISOSERVICES file.  
This procedure will create the appropriate file.

PMDF-X400 ISOSERVICES file name [/pmdf/table/isoservices]?

This procedure generates a checklist file that contains the list of actions you must perform in order to make the PMDF-X400 gateway operational. This procedure does *\*NOT\** perform these operations itself; you must do them manually.

PMDF-X400 checklist file name [/pmdf/table/x400.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]? **YES**

Generating PMDF to X.400 mapping text file...  
PMDF to X400 mapping text file is complete.

Generating X400 to PMDF mapping text file...  
X.400 to PMDF mapping text file is complete.

Generating the rewrite rules file...  
Rewrite rules file is complete.

Generating the channel definitions file...  
Channel definitions file is complete.

---

**Example 9-1 Cont'd on next page**

## Example 9-1 (Cont.) Example PMDF-X400 configuration

---

```
Generating the isoentities file...
isoentities file is complete.

Generating the isomacros file...
isomacros file is complete.

Generating the isotailor file...
isotailor file is complete.

Generating the isoservices file...
isoservices file is complete.

Generating the setup checklist...
Checklist file is complete.

Converting the PMDF to X.400 mapping text file to a database...
Entries converted: 21
Entries too long to fit: 0
PMDF to X.400 mapping conversion is complete.

Converting the X.400 to PMDF mapping text file to a database...
Entries converted: 108
Entries too long to fit: 0
X.400 to PMDF mapping conversion is complete.

Generating options file...
Options file is complete.

*
* To complete your PMDF-X400 configuration, carry out the steps
* detailed in the setup checklist /pmdf/table/x400.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
#
```

---

## Example 9-2 Example checklist file for PMDF-X400 configuration

---

```
cat x400.checklist

Checklist for setting up your PMDF-X400 gateway.
Written by root, Oct 17 17:56:52 EST 2002
This file was created by the PMDF-X400 configuration generator V6.2

(1) The rewrite rules for PMDF-X400 have been written out
to a file. You can simply include this file in your
configuration by adding the line
```

---

Example 9-2 Cont'd on next page

# PMDF-X400 Example Configuration

## Example 9-2 (Cont.) Example checklist file for PMDF-X400 configuration

---

```
</pmdf/table/x400.rules
```

to the rewrite rules section of your pmdf.cnf file; it should be added before any general TCP/IP rewrite rules (e.g., .COM, .EDU, etc.).

Note: You may find the lines

```
!
! Rewrite rules for PMDF-X400
!
!</pmdf/table/x400.rules
```

around the middle of your PMDF.CNF file. In this case, merely uncomment the line "!</pmdf/table/x400.rules" and, if necessary, change the file name so that it reads

```
!
! Rewrite rules for PMDF-X400
!
</pmdf/table/x400.rules
```

- (2) The channel definitions for PMDF-X400 have been written out to a file. You can simply include this file in your configuration by adding the line

```
</pmdf/table/x400.chans
```

to the very end of your PMDF.CNF file; it should be preceded by a single blank line.

Note: You may find the lines

```
!
! PMDF-X400 channels
!
!</pmdf/table/x400.chans
```

towards the end of your PMDF.CNF file. In this case, merely uncomment the "!</pmdf/table/x400.chans" line and, if necessary, change the file name so that it reads

```
!
! PMDF-X400 channels
!
</pmdf/table/x400.chans
```

- (3) You can start PMDF-X400 listening for incoming connections now with the command:

```
pmdf startup x400
```

Upon system startup, the standard PMDF startup procedures will take care of starting up PMDF-X400.

---

**Example 9-2 Cont'd on next page**

## Example 9–2 (Cont.) Example checklist file for PMDF-X400 configuration

---

(4) PMDF-X400 is capable of converting between various types of X.400 body parts (attachments) and MIME attachment types. You should consider enabling such attachment handling. Sample mappings may be found in the file /pmdf/table/x400\_mappings.sample. To enable these mappings, paste the contents of the sample file into the /pmdf/table/mappings file.

That's all!

#

---



---

# 10 Installing and Configuring the PMDF-XGS Transport Bridge Component

This chapter describes the procedure for installing the PMDF-XGS transport bridge component. The PMDF-XGS transport bridge component runs on a transport bridge system and connects the actual PMDF-MTA/PMDF-XGS system on one side with the SNADS world on the other side; it converts between TCP/IP message packets when communicating with the PMDF-MTA/PMDF-XGS system and SNADS distributions when communicating with the SNADS side. For instructions on installing PMDF-XGS itself on the PMDF-MTA system, see Chapter 1; for a description and example of configuring PMDF-XGS on the PMDF-MTA/PMDF-XGS system, see Chapter 12 and Chapter 13.

The PMDF-XGS transport bridge component is included on the PMDF distribution CD-ROM. This is an ISO standard CD-ROM readable from many different platforms, including Solaris, OS/2, and NT.

For more details on the purpose and operation of programs on the PMDF-XGS transport bridge, and on its various configuration options, see *PMDF System Manager's Guide*.

---

## 10.1 Step-by-Step Installation and Configuration Instructions on OS/2

The following discussion outlines the steps in the PMDF-XGS transport bridge component installation and configuration on OS/2. Refer to Chapter 11 for a sample installation and configuration dialogue.

1. Insert the PMDF distribution CD-ROM into a drive accessible from the OS/2 transport bridge system.

2. Execute the `install.cmd` program by issuing the command

```
CD-ROM-drive: \other\os2\install.cmd
```

where *CD-ROM-drive* is the drive for the CD-ROM reader.

3. The installation procedure will then ask where you want to install the PMDF-XGS transport bridge programs:

```
Where do you want the code installed [C:\XGS]?
```

Enter the drive and directory where you would like to install the PMDF-XGS transport bridge programs. You may enter `RETURN` if you would like to install these programs in the default location, `C:\XGS`. The installation procedure will then install the programs in the location you specified, printing informational messages as it does so.

# Installing and Configuring the PMDF-XGS Transport Bridge Component

## Step-by-Step Installation and Configuration Instructions on OS/2

4. After installing these programs, the installation procedure will then begin prompting for configuration options. Closely examine the sample installation and configuration presented in Chapter 11. The sample configuration dialogue should be analogous to your own network setup and required PMDF-XGS transport bridge configuration. When appropriate, the configuration questions will present default answers; you may enter `[RETURN]` to accept a default answer.

5. The first configuration question is:

The active components need to introduce themselves to the SNMP control process on some TCP/IP port.

What port is to be used [9990]?

Enter the port number that the `sendsrv` and `recvsrv` programs should use to report SNMP information.

6. The installation and configuration procedure will then ask:

The control process needs an SNMP community name to register the Gateway MIB.

What community name is going to be used [public]?

Enter the SNMP community name you want to use.

7. The next configuration question will ask how many processes to use to communicate with the PMDF-MTA/PMDF-XGS system. One process is generally sufficient, though some sites may choose to enable additional processes for performance reasons.

One or more SNADS receive processes may be configured

How many receive processes should be run [1]?

Enter the number of processes you want to use.

8. The configuration procedure will next ask:

The receive processes need to connect to the PMDF MTA

What is the TCP/IP hostname of the machine running PMDF?

Enter the TCP/IP name of the PMDF-MTA/PMDF-XGS system.

9. The configuration procedure will then ask:

What port is the SNADS receive process on the PMDF machine listening on  
Port number [9993]?

Enter the TCP/IP port number on which the PMDF Service Dispatcher on the PMDF-MTA/PMDF-XGS system will be configured to listen for connections from the PMDF-XGS transport bridge.

# Installing and Configuring the PMDF-XGS Transport Bridge Component

## Step-by-Step Installation and Configuration Instructions on OS/2

10. The configuration procedure will next ask:

What is the SNADS name of the Gateway?

Enter the SNADS name which the SNADS nodes will be configured to use for the PMDF-XGS transport bridge. Note that as any SNADS distributions sent to the PMDF-XGS transport bridge will be passed through to the PMDF-MTA/PMDF-XGS system itself. Thus although the transport bridge is often given its own SNADS name, it is actually possible to use the same SNADS name for the PMDF-XGS transport bridge as for the PMDF-MTA/PMDF-XGS system itself. (Using the same name means one less name that the SNADS nodes must be configured to know.)

11. The configuration procedure will next ask what is the maximum size of document that you want the PMDF-XGS transport bridge to accept for passing through:

What is the maximum document size to be accepted by the Gateway [10000000]?

Enter the maximum document size you want to allow. Unless you have particular reasons for limiting document size, there is usually no reason not to allow a very large size here.

12. The PMDF-XGS transport bridge programs can write logging information to the syslog daemon on the system of your choice. The configuration procedure will ask which system that should be:

What is the TCP/IP host name of the syslog host [localhost]?

Enter the system to whose syslog daemon you want the PMDF-XGS transport bridge programs to write any logging output.

13. The PMDF-XGS transport bridge programs can optionally save copies of the SNADS distributions (messages) that pass through it. The configuration procedure will ask to what directory to save such copies:

What directory is to be used to store captured SNADS distributions [.\capture]?

Enter the name of the directory in which you want to save copies of SNADS distributions.

14. The PMDF-XGS transport bridge uses a separate SNADS send process for each SNADS node to which it connects *directly*, or in other words, to which it is directly adjacent. Note that any number of SNADS nodes may be connected by routing through a single SNADS node directly adjacent to the PMDF-XGS transport bridge. A decision to configure multiple SNADS nodes to be directly adjacent to the PMDF-XGS transport bridge is usually a matter of administrative convenience or performance. If you are configuring for the first time, you may want to begin by configuring only one directly adjacent SNADS node. The configuration procedure will now ask how many SNADS send processes, each corresponding to a different directly adjacent SNADS node, you want to configure:

# Installing and Configuring the PMDF-XGS Transport Bridge Component

## Step-by-Step Installation and Configuration Instructions on OS/2

There may be several SNADS send processes. Each listens on a separate port and is typically used to send to a different SNADS node.  
What port number should the first SNADS send process use [9994]?

Enter the port number that the first SNADS send process should use. The configuration procedure will then ask about any additional SNADS send processes you may want to configure:

What port number should the next SNADS send process use?  
(press enter to end)

Enter another port number for each additional SNADS send process you want to configure. Entering `[RETURN]` with no port number will terminate this dialogue.

15. The PMDF-XGS transport bridge installation and configuration procedure will now complete with no further questions. Using your configuration answers, it creates a file `xgs.cmd` that you must execute to start up the PMDF-XGS transport bridge programs. This file should also be shadowed to the transport bridge system's "Startup" folder so that it will be autostarted.
16. If you have not yet configured the SNADS nodes to know about the PMDF-XGS transport bridge and the PMDF-MTA/PMDF-XGS system, you must do so; see the *PMDF System Manager's Guide* for details. If you have not yet installed and configured PMDF-XGS on the PMDF-MTA system, you must do that also; see Chapter 1 for installation instructions and see Chapter 12 and Chapter 13 for configuration instructions and a sample configuration dialogue.

---

## 10.2 Step-by-Step Installation and Configuration Instructions on NT

The following discussion outlines the steps in the PMDF-XGS transport bridge component installation and configuration on NT (x86). Refer to Chapter 11 for a sample installation and configuration dialogue.

1. Insert the PMDF distribution CD-ROM into a drive accessible from the NT (x86) transport bridge system.
2. Create a directory where you want the code installed, and move to it as the current directory; for instance:

```
C:\>md xgs
C:\>cd xgs
```

3. Copy the program files from the PMDF distribution CD-ROM to this directory; for instance:

```
C:\xgs>copy CD-ROM-drive:\other\nt-x86\xgs*.*
```

where *CD-ROM-drive* is the drive for the CD-ROM reader.

# Installing and Configuring the PMDF-XGS Transport Bridge Component

## Step-by-Step Installation and Configuration Instructions on NT

4. Execute the `config.bat` program by issuing the command:

```
C:\xgs>config.bat
```

5. The configuration procedure will then ask how many processes to use to communicate with the PMDF-MTA/PMDF-XGS system. One process is generally sufficient, though some sites may choose to enable additional processes for performance reasons.

```
One or more SNADS receive processes may be configured
How many receive processes should be run [1]?
```

Enter the number of processes you want to use.

6. The configuration procedure will next ask:

```
The receive processes need to connect to the PMDF MTA
What is the TCP/IP hostname of the machine running PMDF?
```

Enter the TCP/IP name of the PMDF-MTA/PMDF-XGS system.

7. The configuration procedure will then ask:

```
What port is the SNADS receive process on the PMDF machine listening on
Port number [9993]?
```

Enter the TCP/IP port number on which the PMDF Service Dispatcher on the PMDF-MTA/PMDF-XGS system will be configured to listen for connections from the PMDF-XGS transport bridge.

8. The configuration procedure will next ask:

```
What is the SNADS name of the Gateway?
```

Enter the SNADS name which the SNADS nodes will be configured to use for the PMDF-XGS transport bridge. Note that any SNADS distributions sent to the PMDF-XGS transport bridge will be passed through to the PMDF-MTA/PMDF-XGS system itself. Thus although the transport bridge is often given its own SNADS name, it is actually possible to use the same SNADS name for the PMDF-XGS transport bridge as for the PMDF-MTA/PMDF-XGS system itself. (Using the same name means one less name that the SNADS nodes must be configured to know.)

9. The configuration procedure will next ask what is the maximum size of document that you want the PMDF-XGS transport bridge to accept for passing through:

```
What is the maximum document size to be accepted by the Gateway [10000000]?
```

Enter the maximum document size you want to allow. Unless you have particular reasons for limiting document size, there is usually no reason not to allow a very large size here.

# Installing and Configuring the PMDF-XGS Transport Bridge Component

## Step-by-Step Installation and Configuration Instructions on NT

10. The PMDF-XGS transport bridge programs can write logging information to the syslog daemon on the system of your choice. The configuration procedure will ask which system that should be:

What is the TCP/IP host name of the syslog host []?

Enter the system to whose syslog daemon you want the PMDF-XGS transport bridge programs to write any logging output.

11. The PMDF-XGS transport bridge uses a separate SNADS send process for each SNADS node to which it connects *directly*, or in other words, to which it is directly adjacent. Note that any number of SNADS nodes may be connected by routing through a single SNADS node directly adjacent to the PMDF-XGS transport bridge. A decision to configure multiple SNADS nodes to be directly adjacent to the PMDF-XGS transport bridge is usually a matter of administrative convenience or performance. If you are configuring for the first time, you may want to begin by configuring only one directly adjacent SNADS node. The configuration procedure will now ask how many SNADS send processes, each corresponding to a different directly adjacent SNADS node, you want to configure:

There may be several SNADS send processes. Each listens on a separate port and is typically used to send to a different SNADS node.

What port number should the first SNADS send process use [9994]?

Enter the port number that the first SNADS send process should use. The configuration procedure will then ask about any additional SNADS send processes you may want to configure:

What port number should the next SNADS send process use?  
(press enter to end)

Enter another port number for each additional SNADS send process you want to configure. Entering RETURN with no port number will terminate this dialogue.

12. The PMDF-XGS transport bridge installation and configuration procedure will now complete with no further questions. Using your configuration answers, it creates a file `xgs.bat` that you must execute to start up the PMDF-XGS transport bridge programs. This file should also be shadowed to the transport bridge system's "Startup" folder so that it will be autostarted.
13. If you have not yet configured the SNADS nodes to know about the PMDF-XGS transport bridge and the PMDF-MTA/PMDF-XGS system, you must do so; see the *PMDF System Manager's Guide* for details. If you have not yet installed and configured PMDF-XGS on the PMDF-MTA system, you must do that also; see Chapter 1 for installation instructions and see Chapter 12 and Chapter 13 for configuration instructions and a sample configuration dialogue.

---

# 11 PMDF-XGS Transport Bridge Example Installation and Configuration

Example 11-1 shows the installation and configuration of the PMDF-XGS transport bridge component on the OS/2 system known as bridge.example.com (at the TCP/IP level from the PMDF side) and PMDF (as a pseudo-SNADS node from the SNADS side) at the example.com site pictured in Figure 13-1.

Example 11-2 shows a similar installation and configuration on an NT PMDF-XGS transport bridge system. The example assumes that the CD-ROM drive is drive D:.

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 11-1 Example PMDF-XGS OS/2 transport bridge installation and configuration

---

```
[D:\other\os2\xgs] install.cmd
PMDF / SNADS server installation

Where do you want the code installed [C:\XGS]? C:\XGS

[D:\other\os2\xgs]xcopy *.* c:\xgs

Source files are being read...
D:\other\os2\xgs\astr32.dll
D:\other\os2\xgs\appcfns.dll
D:\other\os2\xgs\config.cmd
D:\other\os2\xgs\cpicapc.dll
D:\other\os2\xgs\diaprf32.dll
D:\other\os2\xgs\gds32.dll
D:\other\os2\xgs\install.cmd
D:\other\os2\xgs\readme
D:\other\os2\xgs\recvsrv.exe
D:\other\os2\xgs\sendsrv.exe
D:\other\os2\xgs\xcontrol.exe

11 file(s) copied.

[D:\other\os2\xgs\]c:
[D:\other\os2\xgs\]cd c:\xgs
PMDF / SNADS server configuration tool
configuring control element
```

---

Example 11-1 Cont'd on next page

# PMDF-XGS Transport Bridge Example Installation and Configuration

## Example 11-1 (Cont.) Example PMDF-XGS OS/2 transport bridge installation and configuration

---

The active components need to introduce themselves to the SNMP control process on some TCP/IP port.

What port is to be used [9990]? **9990**

The control process needs an SNMP community name to register the Gateway MIB.

What community name is going to be used [public]? **public**

One or more SNADS receive processes may be configured

How many receive processes should be run [1]? **1**

The receive processes need to connect to the PMDF MTA

What is the TCP/IP hostname of the machine running PMDF?

**naples.example.com**

What port is the SNADS receive process on the PMDF machine listening on

Port number [9993]? **9993**

What is the SNADS name of the Gateway? **PMDF**

What is the maximum document size to be accepted by the Gateway [10000000]? **10000000**

What is the TCP/IP host name of the syslog host [localhost]? **localhost**

What directory is to be used to store captured SNADS distributions [.\capture]?

**.\capture**

There may be several SNADS send processes. Each listens on a separate port and is typically used to send to a different SNADS node.

What port number should the first SNADS send process use [9994]? **9994**

What port number should the next SNADS send process use?

(press enter to end)

make sure that c:\xgs is added to the LIBPATH path in config.sys

[C:\other\os2\xgs]

---

## Example 11-2 Example PMDF-XGS NT transport bridge installation and configuration

---

```
C:\>md xgs
```

```
C:\>cd xgs
```

```
C:\xgs>copy D:\other\nt-x86\xgs*.*
3 file(s) copied
```

```
C:\xgs>config.bat
```

```
PMDF / SNADS server configuration tool
```

---

Example 11-2 Cont'd on next page

# PMDF-XGS Transport Bridge Example Installation and Configuration

## Example 11-2 (Cont.) Example PMDF-XGS NT transport bridge installation and configuration

---

```
One or more SNADS receive processes may be configured
How many receive processes should be run [1]? 1
The receive processes need to connect to the PMDF MTA
What is the TCP/IP hostname of the machine running PMDF?
naples.example.com
What port is the SNADS receive process on the PMDF machine listening on
Port number [9993]? 9993
What is the SNADS name of the Gateway? PMDF
What is the maximum document size to be accepted by the Gateway
[10000000]? 10000000
What is the TCP/IP host name of the syslog host []? localhost
There may be several SNADS send processes. Each listens on a separate port
and is typically used to send to a different SNADS node.
Only one is needed. Just press enter to finish the list

What port number should the first SNADS send process use [9994]? 9994
What port number should the next SNADS send process use?
C:\xgs>
```

---



---

# 12 Configuring PMDF-XGS

This chapter describes how to use the PMDF-XGS configuration utility. The configuration produced by this utility provides support for interchanging messages with any number of SNADS nodes routed through a single “adjacent” SNADS node, that is, using a single SNADS channel. If you want to use multiple SNADS channels, for instance because you have disjoint collections of SNADS nodes, you should first configure and test PMDF-XGS connecting to one set of SNADS nodes. The steps to add additional SNADS channels are described in the *PMDF System Manager’s Guide*.

---

## 12.1 Before You Begin

Prior to running the PMDF-XGS configuration utility you must have installed PMDF-MTA with PMDF-XGS support. It is also strongly recommended that you have configured PMDF-MTA. Refer to Chapters 1–5 if you have not already installed and configured PMDF.

The PMDF-XGS configuration utility will prompt for several pieces of required information. You should be prepared to provide the following:

- The name by which the PMDF system will be known on the SNADS side. Each SNADS node must be configured to know about this name, so this name choice should be coordinated with whomever is going to do the configuration of the SNADS nodes, if that is a person other than yourself. Note that SNADS names cannot exceed eight characters.
- The names by which the PMDF-XGS transport bridge system will be known; it will be known by a TCP/IP name from the PMDF-MTA/PMDF-XGS side, and by a SNADS name from the SNADS side. Again note that each SNADS node must be configured to know the SNADS name of the PMDF-XGS transport bridge so this name choice should be coordinated with the person configuring the SNADS nodes. (As the PMDF-XGS transport bridge passes *all* SNADS distributions handed over by the SNADS side to the PMDF-MTA/PMDF-XGS system, one possibility is to give the PMDF-XGS transport bridge the same SNADS name as that used for the PMDF-MTA/PMDF-XGS system itself.)
- The TCP/IP port numbers that the PMDF-XGS transport bridge programs expect to use when communicating with the PMDF system, as configured in the `xgs.cmd` script on the PMDF-XGS transport bridge. These values are normally configured during the PMDF-XGS transport bridge installation; see Chapter 10 for details and Chapter 11 for an example.
- The SNADS name of the SNADS node immediately adjacent to the PMDF-XGS transport bridge, that is, the SNADS node through which all the SNADS distributions will be routed. You must know the SNADS REN name; providing the SNADS RGN name also is generally optional, although in some SNADS networks explicitly specifying the RGN name may provide a performance improvement.

# Configuring PMDF-XGS

## Before You Begin

- You will also be asked to assign a domain name to that SNADS node; this domain name is the name that will be used from the PMDF-MTA/PMDF-XGS system side to address the SNADS node. If you want to let other SMTP hosts send to the SNADS node through PMDF-XGS, then you will need to add an MX record to the DNS for the domain associated the SNADS node, so pick a suitable domain name.
- The SNADS name (REN) of every other SNADS node accessible through this gateway, and domain names of your choosing to associate with each such additional SNADS node.
- The domain names of any systems on the PMDF side for which the SNADS side will be configured to know the (truncated to eight characters, if longer) host name.

---

## 12.2 Using the Web-based PMDF-XGS Configuration Utility

This section describes using the web-based PMDF-XGS configuration utility. A command line variant, `pmdf configure xgs`, is also available for sites for whom web configuration is not convenient. The web-based configuration utility may be used to generate an initial PMDF-XGS configuration, or may be used to generate a new configuration of an existing PMDF-XGS installation.

Using Netscape (version 3.0 or later) or Microsoft Internet Explorer (version 4.0 or later), with JavaScript enabled, connect to

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

where *localhost* is the TCP/IP name of your PMDF system—you should see a page such as shown in Figure 5-3 – and then select the “Configuration Utilities” link; at this point you should see a page such as shown in Figure 5-4.

If your last use of the web-based PMDF configuration utility was to configure PMDF-MTA and your PMDF-MTA configuration has not been manually modified since then, you can “Load” your prior PMDF-MTA configuration session before beginning your PMDF-XGS configuration; or if you want to redo your PMDF-MTA configuration, you may start by doing so now; either will minimize the number of checklist tasks you will later need to perform. Otherwise, you may configure just PMDF-XGS during this configuration sessions (and then perform checklist tasks to integrate your PMDF-XGS configuration into your main PMDF-MTA configuration).

Click on the “Configure” button for PMDF-XGS to begin the configuration.

---

# 13 PMDF-XGS Example Configuration

Figure 13-2 through Figure 13-4 show an example of configuring a PMDF-XGS gateway at EXAMPLE.COM on node `naples`, and Example 13-1 shows a corresponding checklist file. The sample site EXAMPLE.COM, shown in Figure 13-1, has a PMDF mailhub system, `naples`, as well as an additional PMDF-MTA system `milan`, and has PC-LAN based cc:Mail users and WordPerfect Office users connected through PMDF-LAN and considered to be in the domains `ccmail.example.com` and `wpo.example.com`, respectively. EXAMPLE.COM also has connections to the Internet over TCP/IP. EXAMPLE.COM has an OS/2 system, with TCP/IP name `bridge.example.com` and SNADS name PMDF, that will act as the transport bridge between the SNADS side and the PMDF side. EXAMPLE.COM's SNADS nodes are BLUE, INDIGO, AZURE, and LAPIS, which will be known as `blue.example.com`, `indigo.example.com`, `azure.example.com`, and `lapis.example.com`, respectively, to the non-SNADS (*e.g.*, Internet) world.

For this example, PMDF-MTA, PMDF-LAN, and PMDF-XGS have been installed on `naples`. PMDF-MTA and PMDF-LAN have been configured previously, during a separate configuration session on `naples`. The SNADS nodes have been configured to know about the PMDF-XGS transport bridge and the `naples` system. The PMDF-XGS transport bridge component has been installed and configured on the transport bridge system, and is using the default TCP/IP ports for communicating with the PMDF system `naples`.

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.

# PMDF-XGS Example Configuration

Figure 13-1 Sample PMDF-XGS Site EXAMPLE.COM

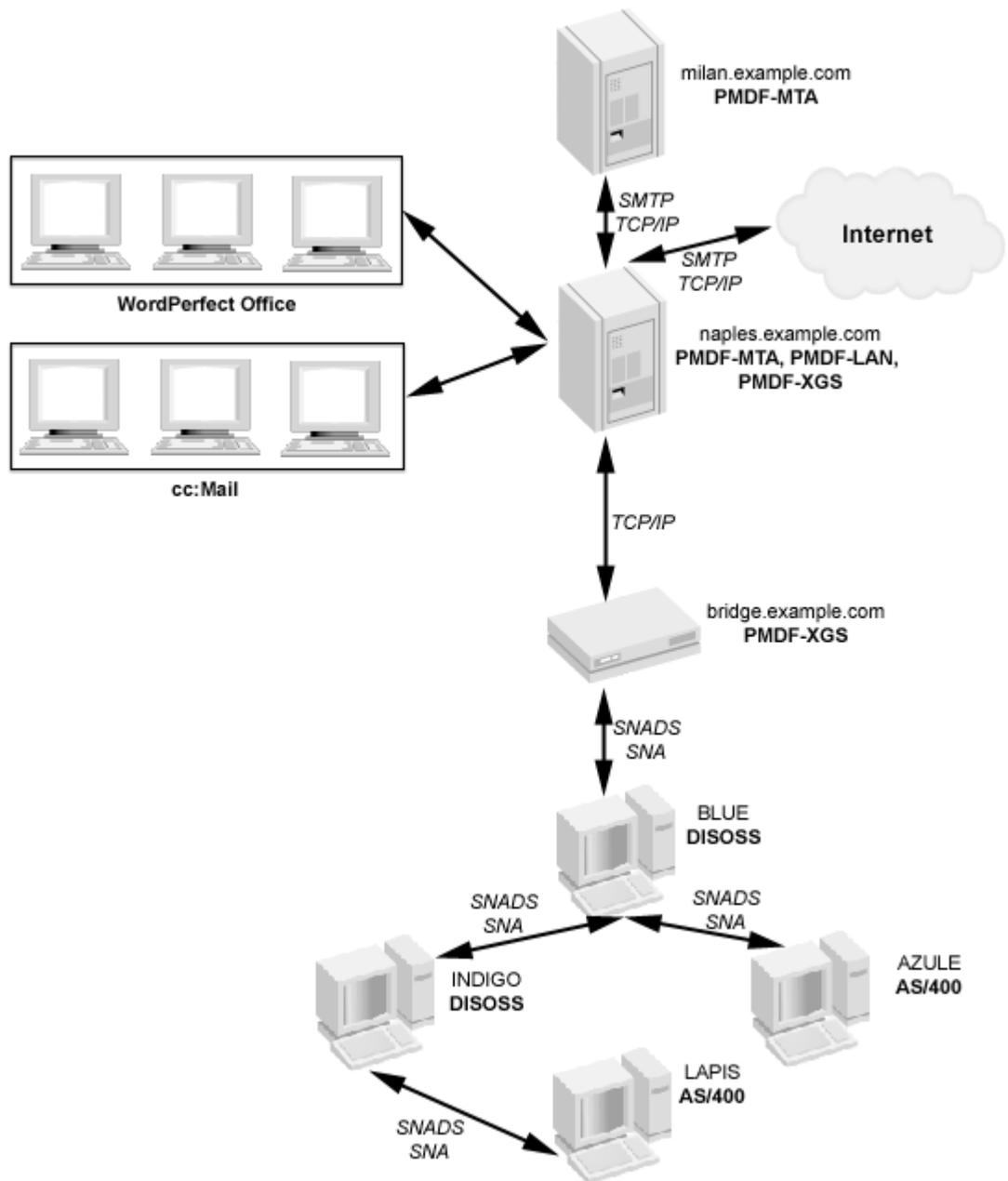


Figure 13-2 PMDF-XGS Configuration, Gateway Systems

**PMDF-XGS Configuration**

File Edit View Favorites Tools Help

Address  Go

---

## PMDF Configuration Utility

---

|                                                              |                                                 |
|--------------------------------------------------------------|-------------------------------------------------|
| SNADS Name of this PMDF System:                              | <input type="text" value="NAPLES"/>             |
| TCP/IP Name of the System Acting as the Transport Bridge:    | <input type="text" value="bridge.example.com"/> |
| SNADS REN Name of the System Acting as the Transport Bridge: | <input type="text" value="PMDF"/>               |
| REN Name of the SNADS System Immediately Adjacent to Bridge: | <input type="text" value="BLUE"/>               |
| RGN Name of the SNADS System Immediately Adjacent to Bridge: | <input type="text"/>                            |
| Domain Name Corresponding to SNADS System:                   | <input type="text" value="blue.example.com"/>   |
| TCP/IP Port Number snads_master Sends To:                    | <input type="text" value="9994"/>               |
| TCP/IP Port Number snads_slave Listens On:                   | <input type="text" value="9993"/>               |

**Help**

Enter the TCP/IP port number the snads\_slave program on the PMDF system should listen to for incoming connections from the OS/2 or NT system, i.e. from the recvsrv component. This should be a non-privileged port (preferably in the range 49152-65535) not used by other applications.

Done
Internet

# PMDF-XGS Example Configuration

Figure 13-3 PMDF-XGS Configuration, Additional Systems

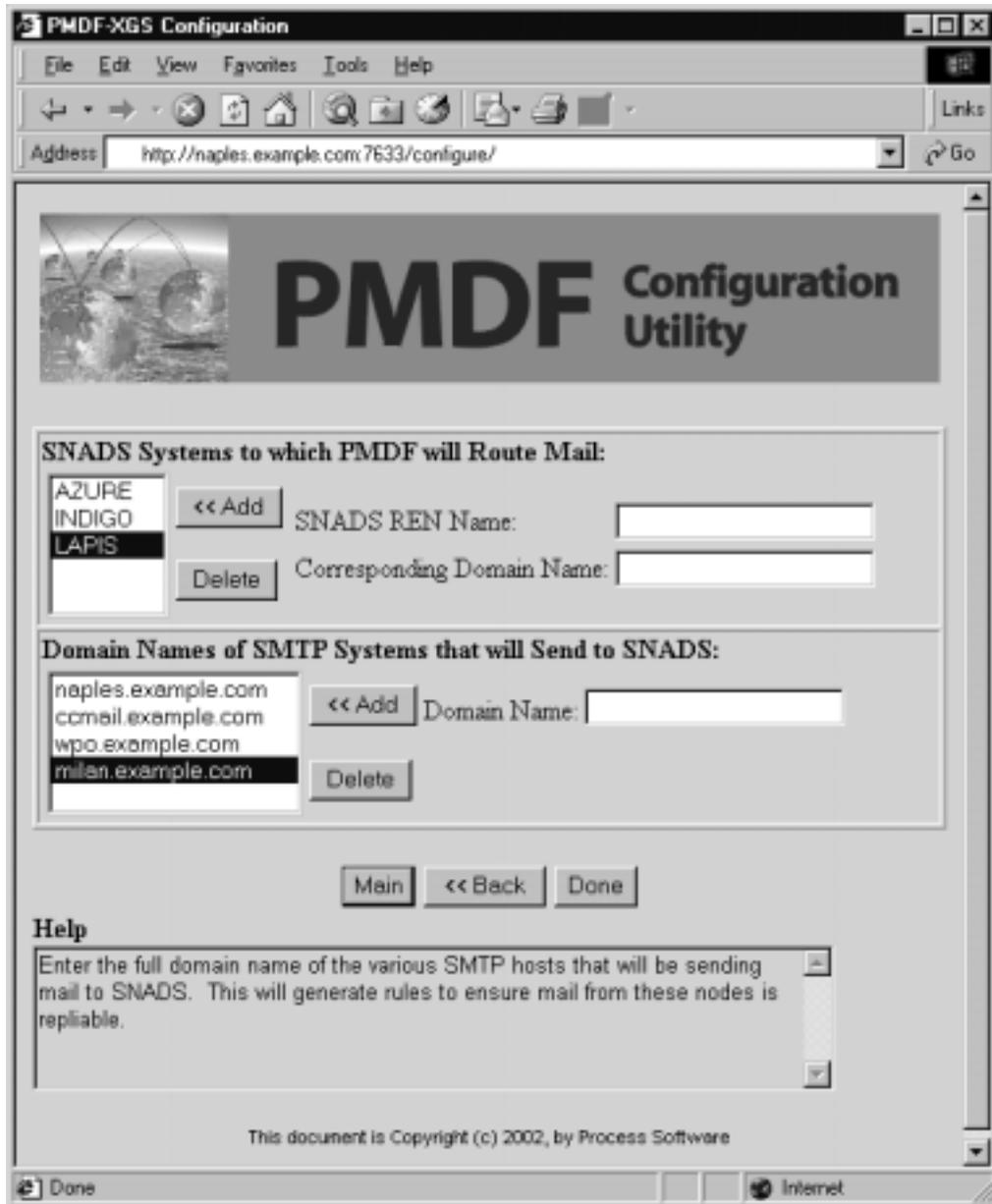


Figure 13-4 PMDF-XGS Configuration, Generate Files



# PMDF-XGS Example Configuration

## Example 13-1 Example checklist file for PMDF-XGS configuration

---

```
cat /pmdf/table/webconfig.checklist
```

(1) You have configured PMDF-XGS 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 PMDF-XGS:  
`/pmdf/table/xgs.rules` and `/pmdf/table/xgs.chans`.  
You also have to verify that the dispatcher configuration file `/pmdf/table/dispatcher.cnf` includes the definitions for PMDF-XGS:  
`/pmdf/table/dispatcher_xgs.cnf`.

(2) If you don't have an addressing channel already, then you should read the addressing channel documentation in the PMDF System Manager's manual, and set up an addressing channel. You would also probably want to add an alias in your aliases file so SNADS users can address to this alias easily by sending to that alias, e.g., `mailman@NAPLES`. In the aliases file add the corresponding alias entry as:

```
mailman: mailman@addressing
```

where `addressing` has a rewrite rule to rewrite to your addressing channel.

(3) Any changes to existing configuration files won't be seen until you restart the Dispatcher with the command

```
pmdf restart dispatcher
```

(4) On the transport bridge, you need to create the file `xgs.cmd` containing something which looks like the following 3 lines in the directory where PMDF-XGS is installed, normally `c:\xgs`

```
start xcontrol
```

```
start sendsrv 9994 ...
```

```
start recvsrv pmdf-system-tcp/ip-name 9993 PMDF ...
```

(5) If you have not done so already, be sure to install the PMDF-XGS gateway software on the transport bridge PMDF and follow the instructions on configuring both the transport bridge and the SNADS system(s).

---

---

# 14 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 may also be required as your environment evolves. For example, as nodes or networks are added you may need to add rewrite rules or channel blocks to your `pmdf.cnf` file. In many cases you may 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 may prove useful to technical support should you encounter problems.

---

## 14.1 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 may 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 may 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 may 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 may 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 may 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

---

## 14.2 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 15 for a sample configuration dialogue.

1. Configuration of PMDF should be done by `root` to ensure that the necessary privileges are available to create the configuration files. If you are not logged in as `root`, do so now.
2. Begin the configuration procedure by invoking the `pmdf configure firewall` utility as follows, assuming that you have `/usr/bin` in your search path:

```
cd /pmdf/table
pmdf configure firewall
```

3. The configuration procedure will optionally print out detailed explanations of each prompt as it proceeds. Unless you are familiar with the procedure, enable the detailed output.
4. Closely examine the example configuration presented in Chapter 15. 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.
5. Once you're 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.
6. If you have purchased and installed the optional PMDF-LAN, PMDF-X400, or PMDF-XGS gateway for use on this firewall, you will need to run their configuration procedures after configuring PMDF with the `pmdf configure firewall` utility.

7. Test out your configuration initially by sending mail from the firewall system to someone on an internal system. Using the PMDF `pine` utility, send a message to an address of the form

```
username@domain
```

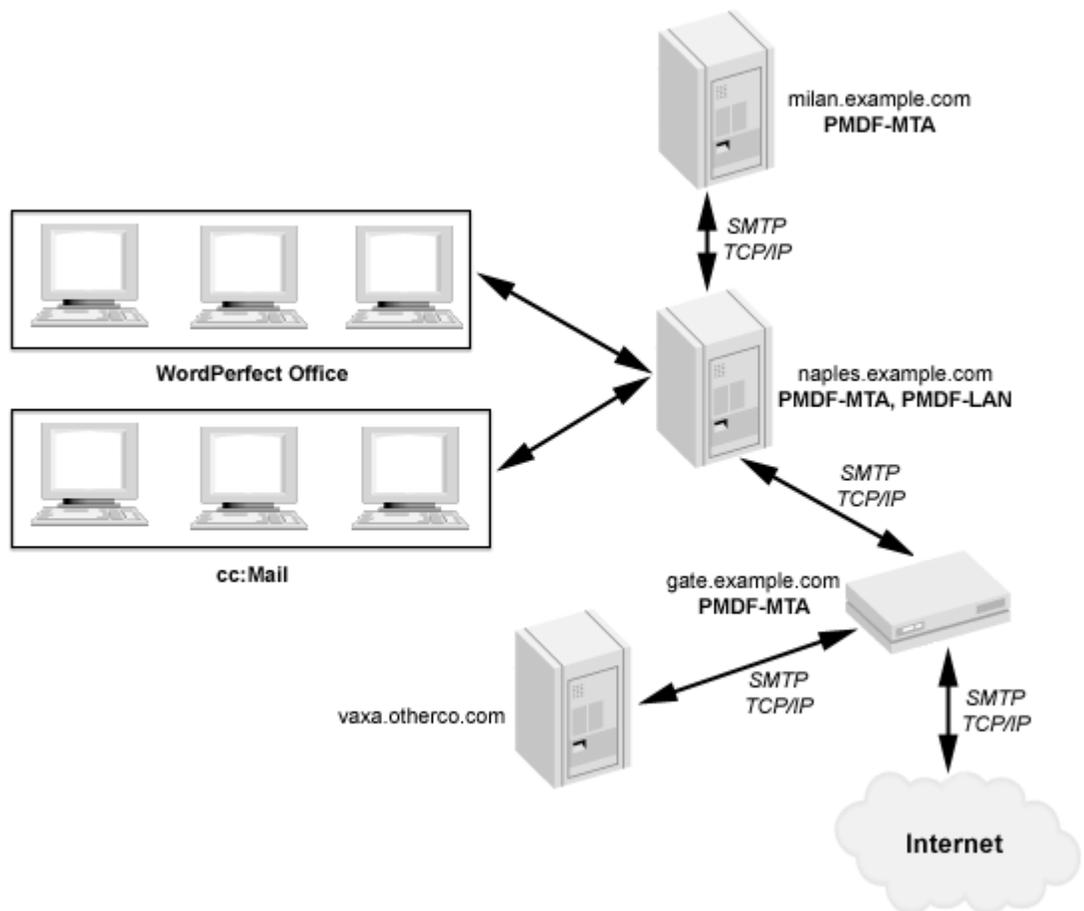
where *username@domain* is a valid address. PMDF should accept the message and send it off the firewall system.

## 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, check the subdirectories in the `/pmdf/queue` area or use the `pmdf cache -view` utility to check whether the messages is stuck in the PMDF message queues on your system. Examination of log files in the `/pmdf/log` directory may 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 may want to compile your configuration for increased performance. Use the `pmdf cnbuild` utility. See the *PMDF System Manager's Guide* for more information.

# 15 E-mail Firewall Example Configuration

Figure 15-1 Sample PMDF Site EXAMPLE.COM



Example 15-1 shows a sample configuration of PMDF-MTA as an e-mail firewall using the `pmdf configure firewall` utility, and Example 15-2 shows a corresponding checklist file. The sample site EXAMPLE.COM, first introduced in Figure 5-1, 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 15-1. 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 is assumed to have been reconfigured using the `pmdf configure mta` 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 in Example 15–1, the firewall system is informed about the domains and IP addresses of the internal systems with which it may expect to communicate directly, `naples.example.com` (assumed to have IP addresses 192.168.1.1 and 192.168.1.8), `milan.example.com` (assumed to have IP address 192.168.1.2), 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 192.168.50) is also considered here to be behind the firewall.

(Actually, since the `milan.example.com` system is a PMDF-MTA system currently configured to route all of its mail through the PMDF-MTA system `naples.example.com`, the `gate.example.com` system does not need to know about `milan.example.com` for the network setup as pictured. However, it does no harm to inform `gate.example.com` about `milan.example.com` now in case `milan.example.com` were to be reconfigured in the future to direct messages directly to `gate.example.com` itself, instead of by way of `naples.example.com`.)

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 `naples.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 may use the backslash character, `\`, to clear a 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.

# E-mail Firewall Example Configuration

## Example 15-1 Example PMDF-MTA configuration as a firewall

---

```
cd /pmdf/table
pmdf configure firewall
```

PMDF Internet Firewall Configuration File Creation Utility, V6.2

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.

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 may 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 [none]? **.example.com**

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]?

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.

---

Example 15-1 Cont'd on next page

# E-mail Firewall Example Configuration

## Example 15-1 (Cont.) Example PMDF-MTA configuration as a firewall

---

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 [root@gate.example.com]? **root@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. 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]? **192.168.1.1**

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.

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

---

**Example 15-1 Cont'd on next page**

## Example 15-1 (Cont.) Example PMDF-MTA configuration as a firewall

---

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.

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.

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]?

**naples.example.com**

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

**milan.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]?

**192.168.1.1**

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]?

**192.168.0.0**

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]?

---

Example 15-1 Cont'd on next page

# E-mail Firewall Example Configuration

## Example 15-1 (Cont.) Example PMDF-MTA configuration as a firewall

---

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 CLAREMONT.EDU and the address USER@SIGURD was used, where SIGURD has no other special meaning, this address will be rewritten as USER@SIGURD.CLAREMONT.EDU 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 PMDF-MTA system acting as a mailhub. Enter NO otherwise.

Are all internal messages routed to a PMDF-MTA mailhub [N]? **y**

Enter the fully qualified TCP/IP name of the PMDF-MTA system

Enter TCP/IP name of the mailhub []? **naples.example.com**

Part Four: 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 15-1 Cont'd on next page

# E-mail Firewall Example Configuration

## Example 15-1 (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 Five: 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**

PMDF can use the IDENT protocol to look up the identity of the user making the SMTP connection, and insert the information into the Received: headers of the message. Only useful if the remote system has the IDENT server. This offers some hope of tracking down forged mail with SMTP.

Do you wish to enable identtcp [N]? **n**

As a firewall, you may 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 Six: Process and write files

Enter the name of the configuration file you wish to have output. The default action is to produce a real configuration file; you may wish 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 wish 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 may wish to choose another file name if you are not sure you have properly answered all the questions in the preceding dialogue, or if you wish to preserve an existing aliases file.

Alias file to output [/pmdf/table/aliases]?

---

**Example 15-1 Cont'd on next page**

# E-mail Firewall Example Configuration

## Example 15–1 (Cont.) Example PMDF-MTA configuration as a firewall

---

Enter the name of the PMDF option file you wish to have output. The default action is to produce a real PMDF option file; you may wish 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]?

Enter the name of the mapping file you wish to have output. The default action is to create a real mapping file; you may wish 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 wish to have output. The default action is to create a real security.cnf file; you may wish 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 may wish 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...

---

**Example 15–1 Cont'd on next page**

## Example 15-1 (Cont.) Example PMDF-MTA configuration as a firewall

---

```
Generating the PMDF option file...

Generating the PMDF security configuration file...

Generating the PMDF firewall configuration checklist file...

*
* 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 may configure it later with the command

 # pmdf configure dispatcher

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

---

## Example 15-2 Example checklist file for firewall configuration

---

```
cat /pmdf/table/firewall.checklist
Checklist for completing the setup of the PMDF firewall configuration.
Written by root, Oct 15 12:55:48 EST 2002
This file was created by the PMDF configuration generator V6.2

(1) Be sure to configure the PMDF Dispatcher, using the
 command:

 pmdf configure dispatcher

(2) Make sure to perform the remaining post-installation
 tasks as described in the PMDF Installation Guide &
 Release Notes.
```

---



---

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