

**Oracle® Communications  
Billing and Revenue Management**

Email Manager

Release 7.5

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Oracle Communications Billing and Revenue Management Email Manager, Release 7.5

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# Preface

This book provides an overview of the Oracle Communications Billing and Revenue Management Email Manager.

## Audience

This book is intended for systems integrators, system administrators, database administrators, and other individuals who are responsible for installing and configuring Email Manager for BRM.

## Downloading Oracle Communications Documentation

Product documentation is located on Oracle Technology Network:

<http://docs.oracle.com>

Additional Oracle Communications documentation is available from the Oracle software delivery Web site:

<https://edelivery.oracle.com>

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## Document Revision History

The following table lists the revision history for this book.

Version	Date	Description
E16703-01	November 2011	Initial release.
E16703-02	May 2012	Minor formatting and text changes.

<b>Version</b>	<b>Date</b>	<b>Description</b>
E16703-03	August 2013	On HP-UX IA64, BRM 7.5 is certified as of BRM 7.5 Patch Set 5. Documentation added for HP-UX IA64.

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# Understanding Email Manager

This chapter provides an overview of the Oracle Communications Billing and Revenue Management (BRM) Email Manager.

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**Note:** Email Manager is an optional component, not part of base BRM.

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## About Email Manager

Email Manager integrates BRM with the UNIX sendmail mail transfer agent. Email Manager works in conjunction with sendmail to authenticate users to login into the email service and retrieve email. Email Manager also provides real-time authorization of incoming mail messages to determine whether email can be accepted by a user's account.

Email Manager runs on UNIX systems only.

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**Note:** Email Manager should not be confused with the Email *Data* Manager (**dm\_email**) component of the BRM system. Email Data Manager enables you to automatically send customer notifications and invoices via email.

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Email Manager is composed of two daemons:

- *PIN Popper* (the **popper** daemon), which provides real-time authentication.  
The `popper` daemon implements the POP3 protocol and supports several email formats including RFC-822, MIME, and SMIME.
- *PIN Mailer* (the **pin\_mailer** daemon), which provides real-time authorization.  
The `pin_mailer` daemon supports various mail protocols, including ESMTP and SMTP.

You configure email authentication and authorization by editing the related policy source code.

As with other BRM daemons, any number of PIN Popper and PIN Mailer daemons can run on any combination of computers. Each mail daemon requires a Connection Manager (CM), as shown in [Figure 1-1](#).

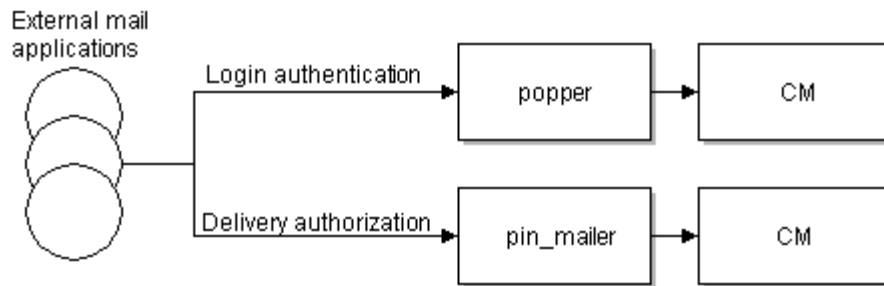
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**Note:** Email Manager doesn't support mailing to lists or mail forwarding.

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**Figure 1–1 Routing of External Mail Requests from PIN Popper and PIN Mailer to CM**

## Using sendmail with PIN Mailer

To use the PIN Mailer, you must edit the **sendmail** configuration file to forward mail through PIN Mailer. The **sendmail** configuration file is usually located in `/etc/mail/`. See "[Configuring the M4 Macro Files in sendmail](#)" for details on setting up this program.

## Configuring Email Service for an Account

You configure the following options for an Email service by using Customer Center:

- Which email server to use for an account
- Which path to use for the mailbox that stores a customer's email
- Maximum mailbox size (in bytes)
- Maximum size for each email message (in bytes)
- Maximum number of email messages

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**Note:** Your email service must enforce the configuration settings based on the information it receives in the email API.

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## Improving Performance by Using CM Proxy

To improve performance, configure PIN Popper and PIN Mailer to connect to a CM Proxy. CM Proxy provides a fast, unauthenticated CM connection that allows access to the database without a login. The CM proxy is approximately 75-80% faster than a regular CM connection.

For more information, see "Using CM Proxy to Allow Unauthenticated Log On" in *BRM System Administrator's Guide*.

## About the Email API

To authenticate the email login, the `PCM_OP_MAIL_LOGIN_VERIFY` opcode calls the `PCM_OP_ACT_FIND_VERIFY` opcode to read the `/service/email` storable class. To configure and restrict email, the `/service/email` class has a `PIN_FLD_SERVICE_EMAIL` substructure with the following fields:

- `PIN_FLD_MAIL_SERVER_ID` specifies an email server
- `PIN_FLD_PATH` specifies a path to email files
- `PIN_FLD_MAX_MBOX_SIZE` sets the maximum mailbox size



- PIN\_FLD\_MAX\_MSG\_SIZE sets the maximum message size
  - PIN\_FLD\_MAX\_MSG\_CNT sets the maximum message number
- BRM does not validate the information entered in these fields.



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## Installing Email Manager

This chapter explains how to install the Oracle Communications Billing and Revenue Management (BRM) Email Manager software.

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**Note:** Email Manager is an optional feature that requires a separate license.

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Before you read this document, you should be familiar with Email Manager. See ["About Email Manager"](#).

### System Requirements

Email Manager is available for HP-UX IA64, Linux, Solaris, and AIX operating systems. For information on disk space requirements for these operating systems, see "Disk Space Requirements" in *BRM Installation Guide*.

### Software Requirements

Before installing Email Manager, you must install:

- Third-Party software, which includes the PERL libraries and JRE required for installing BRM components. See "Installing the Third-Party Software" in *BRM Installation Guide*.
- BRM. See "Putting Together Your BRM System" in *BRM Installation Guide*.

### Installation Packages

Email Manager includes the following packages:

- **PINmaila** – the client application
- **PINmaild** – the client application source code
- **PINmailf** – the mail FM shared library

### Installing Email Manager

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**Note:** If you have already installed the product, features that are already installed cannot be reinstalled without uninstalling them first. To reinstall a feature, uninstall it and then install it again.

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To install Email Manager:

1. Download the software to a temporary directory (*temp\_dir*).

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**Important:**

- If you download to a Windows workstation, use **FTP** to copy the **.bin** file to a temporary directory on your UNIX server.
  - You must increase the heap size used by the Java Virtual Machine (JVM) before running the installation program to avoid "Out of Memory" error messages in the log file. For information, see "Increasing Heap Size to Avoid 'Out of Memory' Error Messages" in *BRM Installation Guide*.
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2. Go to the directory where you installed the Third-Party package and source the **source.me** file.

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**Note:** You must source the **source.me** file to proceed with installation; otherwise, "suitable JVM not found" and other error messages appear.

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Bash shell:

```
source source.me.sh
```

C shell:

```
source source.me.csh
```

3. Go to the *temp\_dir* directory and enter this command:

```
7.5.0_EmailMgr_platform_opt.bin
```

where *platform* is the operating system name.

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**Note:** You can use the **-console** parameter to run the installation in command-line mode. To enable a graphical user interface (GUI) installation, install a GUI application such as X Windows and set the **DISPLAY** environment variable before you install the software.

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4. Follow the instructions displayed during installation. The default installation directory for Email Manager is **opt/portal/7.5**.

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**Note:** The installation program does not prompt you for the installation directory if BRM or Email Manager is already installed on the machine and automatically installs the package at the *BRM\_Home* location.

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5. Go to the directory where you installed the Email Manager package and source the **source.me** file:

Bash shell:

```
source source.me.sh
```

C shell:

```
source source.me.csh
```

6. Go to the *BRM\_Home/setup* directory and run the **pin\_setup** script.

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**Note:** The **pin\_setup** script starts all required BRM processes.

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Your Email Manager installation is now complete.

## What's Next?

See "[Configuring Email Manager and sendmail](#)".

## Uninstalling Email Manager

To uninstall Email Manager, run the *BRM\_Home/uninstaller/EMailMgr/uninstaller.bin*.



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## Configuring Email Manager and sendmail

This chapter describes how to set up the Oracle Communications Billing and Revenue Management (BRM) Email Manager and **sendmail**. To set up the Email Manager and **sendmail**, you might need to configure the following:

- PIN Popper
- PIN Mailer
- **sendmail** configuration file

For information about editing configuration files, see "Using Configuration Files to Connect and Configure Components" in *BRM System Administrator's Guide*.

### Configuring the PIN Popper

To configure the PIN Popper, you must perform the following tasks:

- [Modifying the PIN Popper Configuration File](#)
- [Configuring the PIN Popper Startup](#)

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**Note:** PIN Popper is based on QPopper (version 2.53) from Qualcomm. Support information for QPopper is located on the QPopper support Web site. Direct all support questions to this site.

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### Modifying the PIN Popper Configuration File

The default location for the PIN Popper configuration file is *BRM\_Home/apps/popper/pin.conf*.

[Table 3-1](#) displays the PIN Popper entries:

**Table 3-1** PIN Popper Entries

Entry	Use	Description
<b>domain</b>	Optional	The default mail domain for this system. By default, the BRM system stores email logins as <i>user@domain</i> . Some popper clients only pass in the <i>user</i> part of an email name. For most cases, this entry adds a default domain that the popper appends to the user name.
<b>mailuser</b>	Required	The UNIX login name used by the PIN Popper. The default is <b>pin</b> . This entry is stored in the system password file.
<b>maildir</b>	Required	The directory where users' mail files are stored.

**Table 3–1 (Cont.) PIN Popper Entries**

Entry	Use	Description
<b>workdir</b>	Optional	The directory where temporary mail files are stored. The default is <b>maildir</b> .

## Configuring the PIN Popper Startup

The PIN Popper program should be run as one of the standard Internet services which are controlled by **inetd** server process on your BRM server. See the **inetd(1M)** manual page in your UNIX system documentation for details.

1. To start the **popper** daemon on your system, add the following line to your **/etc/inetd.conf** file:

```
pop3 stream tcp nowait root BRM_Home/bin/popper
```

---

**Note:** This line differs from the Qualcomm installation procedure. (The PIN Popper is based on the Qualcomm QPopper.)

By default, PIN Popper is compiled with DEBUG turned on. You can add tracing, but the output log can quickly use a large amount of memory. Add the following switches to your **/etc/inetd.conf** file for tracing:

```
BRM_Home/bin/popper -s
pop3 stream tcp nowait root BRM_Home/bin/popper BRM_Home/bin/popper
-s -d -t /var/portal/7.5/popper/popper.log
```

---

**Note:** To compile popper with DEBUG turned off, remove the **-enable-debugging** option from the following line in the popper Makefile in the **BRM\_Home/source/apps/popper** directory to remove tracing capabilities:

```
sh configure --enable-servermode --enable-debugging
```

2. Verify that the **/etc/services** file on your system has a **pop3** entry. This entry assigns a port on your system (port 110 is standard) to the popper service.
3. If your services file doesn't contain a **pop3** entry, add the following line to the file:

```
pop3 110/tcp
```

4. To force **inetd** to reread the configuration file, send a **SIGHUP** signal to the **inetd** process.

```
kill -hup <inetd processID>
```

All connections to port 110 of your system cause **inetd** to spawn a **popper** process to handle each connection.

## Verifying Your PIN Popper Setup

When setup is complete, **inetd** starts the PIN Popper automatically each time a connection is made to the **pop3** port on your system.



To verify that the PIN Popper has started, use **telnet** to connect to the **pop3** port on your system and verify that the popper responds. The following line indicates a successful connection:

```
telnet <host> 110 +OK QUALCOMM Pop server derived from UCB (version
2.1.4-R3)...starting
```

## Configuring the M4 Macro Files in sendmail

The directory structure that **sendmail** uses for example configuration code are designed to use a post-V7 version M4 macro processor.

[Table 3–2](#) shows the files and subdirectories under the configuration directory of the **sendmail** configuration file.

**Table 3–2 Files and Subdirectories for Sendmail Configuration File**

File	Description
README	Configuration instruction file.
m4	General support routines that are not normally changed.
cf	Configuration files. The files have .mc suffixes, and must be run through M4 macro processor. The resulting files each have a .cf suffix.
ostype	Definitions describing a particular operating system type. These files should always be referenced using the OSTYPE macro in the .mc file.
domain	Definitions describing a particular domain, referenced using the DOMAIN macro in the .mc file. These definitions are site dependent (see <a href="#">Table 3–4</a> ).
mailer	Descriptions of mailers. These descriptions are referenced using the MAILER macro in the .mc file (see <a href="#">Table 3–5</a> ).
sh	Shell files used when building the .cf file from the .mc file in the cf subdirectory.
feature	These files hold special orthogonal features. They should be referenced using the FEATURE macro.
hack	Local hacks. These can be referenced using the HACK macro.
siteconfig	Site configuration information, such as tables of locally connected UUCP sites.

## Installing M4 Macro Files

You can enforce that your site-specific customizations to **sendmail** always use **M4** files. If you've always used M4 files or you are configuring the **sendmail** configuration file for the first time, do the following:

1. Copy your M4 files to the appropriate **cf** subdirectories in the **sendmail** build directory hierarchy.
2. Run the M4 macro processor in the **cf** subdirectory as described in the **README** file.  
A new **cf** file is created.
3. Save a copy of your **sendmail** configuration file as a backup file. Copy the new **cf** file as your **sendmail** configuration file.

If you have **sendmail** installed and site-specific changes have been made directly to the **sendmail** configuration file, you have two options:

- Edit the **sendmail** configuration file. To edit the **sendmail** configuration file, see ["Using the PIN Mailer with sendmail"](#).
- Run M4 by using the following instructions.

To run M4:

1. Make a copy of the **cf** subdirectory tree at the same location as the **cf** directory, for example, **mycf**.
2. Remove all files from the **cf**, **domain**, **feature**, **hack**, **mailer**, **ostype**, and **siteconfig** subdirectories in **mycf** that are not referenced by your M4 files.
3. Copy your M4 files into the appropriate subdirectories in **mycf**.
4. Run the M4 macro processor in the **cf** subdirectory.

If the M4 processor can't find a file it needs, it reports an error. Copy the required file from the **/cf** directory. Once all files are available, M4 creates a new **cf** file.

5. Save a copy of your **sendmail** configuration file as a backup file. Copy the specific segments from the generated **.cf** file into your customized **sendmail** configuration file.

## Testing sendmail

First, test the operation of **sendmail** without Email Manager. If there are no problems during the test, proceed to test the integration of Email Manager with **sendmail**.

## Configuration Instructions and Example Files

The **README** file shipped with the **sendmail** source files includes instructions for configuring the M4 macro files.

The Email Manager includes three example configuration files located in the *BRM\_Home/apps/pinapps/examples/m4* directory:

- **cf/portal-example.m4**
- **mailer/portal-example.m4**
- **domain/portal-example.m4**

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**Note:** These files can't be used without modification.

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[Table 3–3](#) describes the **cf/portal-example.mc** file.

**Table 3–3** *cf/portal-example.mc*

Entry	Description
VERSIONID('@(#)portal-example.mc 1.0 (Portal Software, Inc.) 06/08/1999')	Signature written to the <b>sendmail</b> configuration file.
OSTYPE(solaris2)dnl	Referring to <b>../ostype/solaris2.m4</b> . Change to match your implementation.
DOMAIN(portal-example)dnl	Referring to <b>../domain/portal-example.m4</b> . Change to match your implementation.
MAILER(portal-example)dnl	Referring to <b>../mailer/portal-example.m4</b> . Change to match your implementation.

**Table 3–3 (Cont.) cf/portal-example.mc**

Entry	Description
LOCAL_RULE_0	Add the following lines to the end of ruleset 0 to invoke pinmail as the local mailer when the address is resolved to user@domain.
R\$*<@>\$* \$#pinmail \$: \$1<@>\$2	### local mailer. The three parts are separated by tab characters.

Table 3–4 describes the `mailer/portal-example.m4` file.

**Table 3–4 mailer/portal-example.m4**

Entry	Description
VERSIONID('@(#)portal-example.m4 1.0 (Portal Software, Inc.) 06/08/1999')	Signature written to the <code>sendmail</code> configuration file.
ifdef('PIN_MAILER_PATH',, `define('PIN_MAILER_PATH', BRM_ Home/bin/pin_mailer)')	Set the value from the environment. If no value is found, set the value to the default location of the <code>pin_mailer</code> executable.
ifdef('PIN_MAILER_FLAGS',, `define('PIN_MAILER_FLAGS', DEFbIS)') ifdef('PIN_MAILER_ARGS',, `define('PIN_MAILER_ARGS', pin_mailer \$u)')	If these values aren't set in the environment, set them to reasonable values. See " <a href="#">Configuring the PIN Mailer</a> " for details.
define(`_LOCAL_', ifdef(`confLOCAL_ MAILER', confLOCAL_MAILER, `pinmail'))	Defines the mailer.
Mpinmail, P=PIN_MAILER_PATH, F=PIN_MAILER_FLAGS, A=PIN_ MAILER_ARGS	Set up Pin Mail as the local mailer using the values of these variables.

Table 3–5 describes the `domain/portal-example.m4` file.

**Table 3–5 domain/portal-example.m4**

Entry	Comments
VERSIONID('@(#)portal-example.mc 1.0 (Portal Software, Inc.) 06/08/1999')	Signature written to the <code>sendmail</code> configuration file.
define(`confFORWARD_PATH', `\$/.forward.\$w:\$z/.forward')dnl define(`confCW_FILE', `~o /etc/sendmail.cw')dnl define(`confDONT_INIT_GROUPS', True)dnl	Redefine M4 variables for use in your feature files.
FEATURE(redirect)dnl FEATURE(use_cw_file)dnl FEATURE(stickyhost)dnl	Refer to your M4 feature files located in <code>../feature</code> .

## Configuring the PIN Mailer

For PIN Mailer configuration, you'll have to find and edit a configuration file.

## Using the PIN Mailer with sendmail

You must edit the **sendmail** configuration file on your system (typically `/etc/mail/sendmail.cf`) by doing the following:

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**Note:** Before editing the **sendmail** configuration file, read "[Configuring the M4 Macro Files in sendmail](#)".

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- Add a mailer definition line to the *Mailer Definitions* section of your **sendmail** configuration file. For example:

```
Mpinmail, P=BRM_Home/bin/pin_mailer, F=DEFb1S, A=BRM_Home/bin/pin_mailer $u
Mpinmail, P=BRM_Home/bin/pin_mailer, F=DEFb1SA/|, S=10/30, R=20/40, A=BRM_
Home/bin/pin_mailer $u
```

- Add a line to define the behavior for parsing an email address before sending it to the PIN Mailer. For example:

```
R$*<@>$* $#pinmail $: $1<@>$2
```

---



---

**Note:** There is a tab between **R\$\*<@>\$\*** and **\$#pinmail**.

---



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Table 3–6 describes the flags in the mailer definition line (F=DEFb1S):

**Table 3–6** *Flags in Mailer Definition*

Flag	Description
D	PIN Mailer requires a <b>Date:</b> header (usually not required).
E	Change the extra <b>From</b> to <b>&gt;From</b> .
F	PIN Mailer requires a <b>From:</b> header.
b	Add a blank line at the end of a message if needed.
l	PIN Mailer is local.
S	Do not reset <b>userid</b> .

This replaces any other mail delivery agent entries, and requires that all addresses are converted to `user@domain` format before being sent to the mail delivery agent. **sendmail** then forks a **pin\_mailer** each time a **sendmail** connection is made and mail to `user@domain` is processed.

For information on starting and stopping BRM daemons, see "Starting and Stopping the BRM System" in *BRM System Administrator's Guide*.

## PIN Mailer Configuration File

The default location for the PIN Mailer configuration file is `BRM_Home/apps/pin_mailer/pin.conf`.

### Sample PIN Mailer pin.conf File

```
# @(#)pin_conf 6 Sun Sep 12 21:07:55 1999 # Sample pin.conf file for PIN's Mailer
(Version 7.5)
# (see pin_conf() manpage for format discussion)
- napcm_ptrip<hostname>11960
- userid0.0.0.1 /service/pcm_client 1
```

```

- nap login_type      1# type 1 is with password
- nap login_name      <name>.<db_no> # e.g.: loginname.0.0.0.1
- nap login_pw        <password>
- pin_mail domain     <mail_domain_name>
- pin_mail mailuser   pin
- pin_mail maildir    /var/mail
- pin_mail workdir    BRM_Home/apps/pin_mailer
- pin_mail logfile    /var/portal/7.5/pin_mailer/pin_mailer.pinlog
- pin_mail loglevel   2

```

## Common Connection Entries

Table 3–7 describes the common connection entries used in the **pin.conf** file. For more information, see "Using Configuration Files to Connect and Configure Components" in *BRM System Administrator's Guide*.

**Table 3–7 Common Connection Entries**

Entry	Use	Description
<b>cm_ptr</b>	Required	Pointer to the CM/CMMP
<b>userid</b>	Required	Database number
<b>login_type</b>	Required	Login type, with or without a password
<b>login_name</b>	Required	Login name
<b>login_pw</b>	Required	Login password

Table 3–8 describes the PIN Mailer entries used in the **pin.conf** file.

**Table 3–8 Pin Mailer Entries**

Entry	Use	Description
<b>mailuser</b>	Required	The UNIX login name used by the PIN Mailer. The default is pin. This entry is stored in the system password file.
<b>maildir</b>	Required	The directory where users' mail files are stored.
<b>workdir</b>	Optional	The working directory for the mail system, that is, the PIN Mailer portion of the mail system.
<b>logfile</b>	Required	The full path name for the <b>logfile</b> . The default is <b>/var/portal/7.5/pin_mailer/pin_mailer.pinlog</b> .
<b>loglevel</b>	Optional	The error reporting level. The default value logs all errors regardless of type.

## Starting PIN Mailer

When configuration is complete, PIN Mailer is started automatically as needed by your system's **sendmail** daemon.

## Customizing Email Manager

The Email Manager opcodes perform two functions:

- To authorize logins, Email Manager uses the PCM\_OP\_MAIL\_LOGIN\_VERIFY opcode. See "[Customizing Email Login Authorization](#)".
- To authorize mail delivery, Email Manager uses the PCM\_OP\_MAIL\_DELIV\_VERIFY opcode. See "[Customizing Email Delivery Authorization](#)".

## Customizing Email Login Authorization

To authorize logins, Email Manager uses the PCM\_OP\_MAIL\_LOGIN\_VERIFY opcode. This opcode calls the PCM\_OP\_ACT\_FIND\_VERIFY opcode, and specifies that the authorization request is for an email service login.

The PCM\_OP\_ACT\_FIND\_VERIFY opcode calls the PCM\_OP\_ACT\_POL\_SPEC\_VERIFY opcode, which authorizes the login. You can use the PCM\_OP\_ACT\_POL\_SPEC\_VERIFY opcode to customize how the login is authorized.

By default, the authentication checks the following:

- Login name.
- Password.
- Credit balance is equal to or greater than 0.

## Customizing Email Delivery Authorization

To authorize email delivery, Email Manager uses the PCM\_OP\_MAIL\_DELIV\_VERIFY opcode. This opcode calls the PCM\_OP\_ACT\_FIND\_VERIFY opcode, and specifies that the authorization request is for an email delivery.

The PCM\_OP\_ACT\_FIND\_VERIFY opcode calls the PCM\_OP\_ACT\_POL\_SPEC\_VERIFY opcode, which authorizes the mail delivery. You can use the PCM\_OP\_ACT\_POL\_SPEC\_VERIFY opcode to customize how the mail delivery is authorized.

By default, the authentication checks if the email service is active.