

InterMail[®]**Mx**

INSTALLATION GUIDE

Software Version 5.1

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Preface

Welcome to InterMail Mx!

The *InterMail Mx Installation Guide* contains information about installing InterMail Mx 5.1.

Intended Audience

This guide assumes that you are experienced with the UNIX operating system at a system administration level, and that you have an understanding of databases as well as of networking protocols and related technology.

Organization

This manual is organized as follows:

- Chapter 1, *Preparing for the Installation*, provides an overview of the preparations you need to make before you can install InterMail Mx.
- Chapter 2, *Installing InterMail Mx*, contains step-by-step procedures for installing InterMail Mx.
- Chapter 3, *Post-Installation Tasks*, discusses some of the tasks you will need to perform after InterMail Mx has been installed.

Conventions

Convention	Description	Example
\$ at the start of a string	An environment variable (set at the time of installation)	\$spoolDir
monospace type	<ul style="list-style-type: none"> • Commands • Directory and file names • Hostnames • Configuration keys and their values • Utility names 	<pre>imdbcontrol command cron utility Set this key to true.</pre>
<angle brackets> in a command	A required variable	imboxget <address>
[square brackets] in a command	An optional parameter	imctrl [-verbose]
(a vertical bar) between options in a command	Exclusive options, of which you can use only one	impwdhash -a [md5-po unix]
{braces} around options in a command	A list of options, one of which is required	immsgdelete {<msgID>... -all}
. . . (an ellipsis) after an optional entry in a command	An option for which you may have multiple entries	imbucketscreate [<cl...cn>]
boldface in an example	User input	venus% imservctrl stop

Related Documentation

This manual is one of a set. Other manuals in this set are:

- *InterMail Mx Reference Guide*, which contains background information about the InterMail servers and databases, configuration keys, management utilities, administrative utilities, APIs, and event messages.
- *InterMail Mx Operations Guide*, which provides instructions for the operation and administration of the InterMail system.
- *Integrated Services Directory User Guide*, which contains conceptual information about the Integrated Services Directory (ISD) architecture, configuration keys, directory schema, directory structure, and directory management utilities, as well as procedural information to help you customize the ISD.

- *InterMail Mx Upgrade Guide*, which provides instructions for upgrading from previous versions of the InterMail product.
- *InterMail Mx Migration Guide*, which provides instructions for migrating to InterMail from the Post.Office, Sendmail, and Netscape messaging products.

Questions and Comments

Your feedback is important to us! To suggest improvements or make comments on the content of this manual, please send e-mail to InterMail.Manual@Software.com.

1

Preparing for the Installation

This chapter discusses the preparations you need to make before you install the InterMail Mx product.

You typically install InterMail Mx in partnership with an installation specialist (or team of specialists) from your InterMail vendor. In addition, you typically worked with an InterMail architect before receiving the product to assess the needs of your site and to define a detailed, customized architecture for your InterMail system. This chapter discusses some of the tasks you will perform with your InterMail installation specialist to prepare for installing your system.

For information on the overall workings of an InterMail system and for details on the individual components and utilities, see the *InterMail Mx Reference Guide*, the *InterMail Mx Operations Guide*, and the *Integrated Services Directory User Guide*.

If you are migrating an existing messaging system to InterMail, see also the *InterMail Mx Migration Guide*.

This chapter contains information on the following topics:

- Prerequisites
- Pre-Installation Tasks

Prerequisites

Before you perform the tasks described in this chapter, you should have completed the following prerequisites:

- Site assessment

Before installing the InterMail software, you are likely to have worked with an InterMail architect (or architecture team) to assess your business overview, direction, and strategy, and the services required to meet your goals.

- Baseline InterMail architecture specification

A baseline InterMail architecture specification provides a detailed technical plan of the InterMail system to be deployed at your site, including such information as the number of host machines, the hardware and software required for the hosts, the InterMail configuration (for example, which servers and databases reside on which hosts), the messaging capacity, the storage requirements, the reliability features, the security features, and so forth.

Pre-Installation Tasks

This section discusses tasks you should perform before you install the InterMail software. The information in this section is not exhaustive, but it provides directions and suggestions to help you prepare for a smooth installation and for smooth operation of your InterMail system once it is running. You should work with your InterMail installation specialist to define the exact list of tasks that are appropriate for your site.

The tasks discussed in this section are organized into the following categories:

- Identifying Experts
- Preparing the Site
- Preparing the Hardware and Software
- Preparing for Operations
- Preparing for Software Development
- Preparing for Customer Support

You should define the experts as soon as possible, but you can perform the other tasks in any order (and you will probably perform some of them in parallel).

Identifying Experts

To ensure smooth installation and operation of your InterMail system you should identify individuals at your site who are experts in, or can become experts in, particular technologies. A single individual may be responsible for one or more of these roles. You will need the following experts:

- System administrator

This person understands the hardware platforms and the operating system to be used in the InterMail system.

- Network administrator

This person knows your network resources and how to configure, maintain, and expand them.

- Backup administrator
This person is responsible for the backup software and ensuring that backup and recovery operations are performed successfully. This role may belong to the system administrator, or it may be handled by a separate person or group.
- Messaging expert
This person understands the messaging needs of your business and understands your current messaging system (if one exists).
- Marketing expert
This person is responsible for packaging your message products for your customers and has information that affects the configuration settings for InterMail.
- InterMail expert
This person understands the InterMail system, including all the components and how they interact, how messages flow through the system, and how to use InterMail utilities.
- Oracle database administrator (DBA)
This person is fluent in database technology and is experienced with Oracle in particular.

You will also need to identify additional personnel, such as operations staff and possibly software developers. These personnel are discussed later in this chapter.

Preparing the Site

To prepare your site to host the InterMail messaging infrastructure, ensure that the physical needs such as power, floor space, and connectivity, are met.

Preparing the Hardware and Software

To prepare your hardware and software for the InterMail installation, you will need to perform tasks such as the following:

- Install the hardware.
Locate all the hardware, including host machines, storage devices, hubs, switches, cables, and connectors. Install the hardware, and ensure that the hardware has the correct firmware revisions.
- Set up disk storage.
You may install and configure your storage devices, or this may be the responsibility of your storage vendor.

- Install the operating system software.

Identify the version of the operating system required for this version of InterMail, plus any required patches. Install the operating system on the host machines.

To identify the appropriate operating system version and patch level required for InterMail, see the *InterMail Mx Release Notes*.

- Ensure correct kernel parameter settings.

You will work with your InterMail installation specialist to determine the correct kernel parameter settings for your hosts.

For example, you probably need to increase the maximum shared memory segment and semaphore size before you install an Oracle database on an InterMail host. An insufficient amount of shared memory or semaphores is the most common reason that an Oracle installation fails.

The Deployment Worksheet estimates the size of the shared memory segment that Oracle will need. (You likely completed this Excel spreadsheet when you planned your InterMail architecture, and you will review the worksheet values just before you begin your InterMail installation.) Oracle calls the shared memory segment for a database the System Global Area (SGA). Since the worksheet can only estimate the size of the SGA, you should set the `SHMMAX` parameter generously above the size estimated by the worksheet.

There are three kernel parameters related to semaphores:

- The kernel parameter `SEMMSL` dictates the maximum semaphore set size; set this parameter to at least 100.
- The parameter `SEMMNI` dictates the maximum number of sets available; set this parameter to 70.
- The parameter `SEMMNS` dictates the maximum number of semaphores available; set this parameter to a value that is significantly above 100 to ensure that Oracle and other processes do not encounter a semaphore shortage. A value of 400 is recommended.

For more information, see the “Tuning the SGA” tab of the Deployment Worksheet.

To make these changes, do the following:

- On Solaris systems, set the parameters in `/etc/system`.
- On HP-UX systems, use the `/usr/sbin/sadm` GUI administration tool.

- Install prerequisite software.

Install any supporting software, such as a journaling file system, volume manager, platform-specific high-availability software, and so forth. You do not need to install Oracle at this time; you will install it later as part of the InterMail installation.

- Prepare the network configuration.

To prepare your network, you should perform tasks such as the following:

- Define the hostnames for all of the network interface ports for each machine, plus any aliases.
- Identify how many IP addresses you need, and obtain those addresses.
- Define the DNS names for your machines.
- Assess where firewalls are needed.
- Define load-balancing requirements.
- Define and implement a procedure to ensure that the system time will be synchronized across the hosts in the InterMail configuration.

To ease disk space requirements, provide faster software copying, and allow parallel installation operations, you can establish one machine as a private NFS server for the InterMail installation software.

- Define and create the required administrative accounts.

Create the UNIX accounts you will need on each machine, such as a privileged management account, a non-privileged maintenance account, a system/network operations account, and so forth.

- Locate the InterMail software.

With your InterMail installation specialist, identify the version of InterMail that you will be installing and locate the software (on CD-ROM or on an FTP site, for example).

- Procure hardware for load generation.

Most sites test the InterMail installation before going into production mode. For this testing you need hardware to generate a messaging load that approximates the inbound e-mail and messaging retrieval traffic seen during peak usage hours.

- Set up a test lab.

Most sites set up a lab for testing post-production regression, product functionality, and third-party integration. It may be appropriate to set up your InterMail test lab and staging area on the software developers' private local area network (LAN), where it can be assigned its own test domain and Internet connectivity.

Preparing for Operations

To prepare your operations staff for the InterMail installation and deployment, you should perform tasks such as the following:

- Identify staff.
Identify people on the operations staff to learn the InterMail system and assume responsibility for InterMail operations tasks. Identify the appropriate training courses and documentation required.
- Define monitoring and reporting procedures.
Define the monitoring that will occur on the InterMail system and the reports that will be generated. Define policies for identifying issues detected by monitoring and define policies for handling reports.
For information on InterMail monitoring tasks and tools, see the *InterMail Mx Operations Guide*.
- Define backup and recovery procedures.
Define procedures for backing up InterMail data and define procedures for recovering lost data. For further information, see the *InterMail Mx Operations Guide*.
- Define procedures for managing service attacks.
Define the policies and procedures for dealing with various attacks on your messaging system. You should address relay rules, spam filtering rules, and so forth. For information on mail filtering, connection dropping, and related topics, see the *InterMail Mx Operations Guide*.
- Define security requirements and procedures.
Address security concerns in such areas as:
 - Installation: Remove non-essential servers and services from hosts that are connected to the Internet.
 - Access: Define who can access the consoles through the administrative network, through phone lines, and so forth.
 - Private namespace: Use non-routable IP addresses for internal hosts.For more information about security planning, see the *InterMail Mx Operations Guide*.
- Define access requirements for customer service representatives.
The customer service representatives at your site might need connectivity to the InterMail system, access to the log files, and so forth.
- Define failover procedures (if applicable).
If your site is implementing failover features, define the policies and procedures for handling failover situations.

- Define disaster recovery procedures.
Define procedures for recovering from disasters such as power failure, hardware failure, operator error, earthquake, flood, and so forth. Also determine the priority that is assigned to the messaging service in your site's overall disaster-recovery plan.
- Define change control procedures.
Define procedures for making changes to the production software.

Preparing for Software Development

Depending on your InterMail configuration, you may need software development resources. For example, if you have a custom billing system, a custom provisioning system, and custom Web pages for customer service, you may want to integrate such systems with InterMail using the InterMail APIs or command-line scripts.

Depending on your site requirements, you may need to do the following to prepare for software development:

- Identify software development resources.
Determine your needs for custom software development, and identify and train the necessary software development personnel.
- Establish network connectivity.
You may need to establish connectivity between your software developers' private local-area network and the InterMail system.

Preparing for Customer Support

To prepare for customer support:

- Prepare your customer support organization.
Make sure that you have personnel in your customer support organization who are prepared to support your messaging customers. Identify the appropriate training courses and documentation required.
In addition, define problem reporting and resolution procedures, including escalation procedures.
- Establish contact with your InterMail vendor's support organization.
Discuss the support procedures with your InterMail vendor. For example, your InterMail vendor might identify a customer support contact person from their company who is assigned specifically to your site. You might initiate additional steps at this point, such as establishing dial-in access to your InterMail system for the vendor's support contact.
In addition, define problem reporting and resolution procedures, including escalation procedures.

2

Installing InterMail Mx

Before you begin the installation, you should:

- Read and understand the information in this chapter.
- Identify which InterMail servers will run on which host machines.
- Complete the installation preparation tasks listed in Chapter 1.

This chapter describes how to install the InterMail Mx 5.1 messaging system. It contains the following sections:

- Installation Overview
- General Installation Tips
- Completing the Deployment Worksheet
- Performing Installation Tasks
- Troubleshooting

Installation Overview

The InterMail system can be installed on a variable number of host machines (hosts). You can install more than one component on the same host, and you can install more than one copy of some components, each on different hosts.

This section describes the order in which you must install components on hosts and describes the installation tasks themselves.

Order of Installation

Each InterMail installation is unique, and your particular circumstances will govern how and when you install InterMail on each host. However, you must perform the following operations, in the order specified:

1. Complete the Deployment Worksheet.
See “Completing the Deployment Worksheet” on page 13.
2. Create the Integrated Services Directory (ISD) database.
This step creates an empty database, ready for data. For the specific tasks required, see Table 1 on page 10.
3. Create one or more Message Store databases.
This step creates one or more empty databases, ready for data. For the specific tasks required, see Table 1 on page 10.
4. Install the Configuration server, and any other components that will run on that host.

If the host that runs the Configuration server also runs other InterMail servers, install those servers on the host as well. For the specific tasks required for each server, see Table 1 on page 10.
5. Install the Directory server, and any other components that will run on that host.

You are not required to install the Directory server right after the Configuration server, but it is suggested. If the Configuration server and the Directory server are on the same host, you will install them at the same time. The installation of the Directory server populates the ISD database.

If the host that runs the Directory server also runs other InterMail servers, install those servers on the host as well. For the specific tasks required to install each server, see Table 1 on page 10.
6. Install the other servers.

You can install the remaining servers on the remaining hosts in any order. For the specific tasks for each server, see Table 1 on page 10.

The following sections provide details about what is required to perform each of the above steps.

Determining the Installation Tasks for Each Database or Server

To install a given database or server, complete the tasks shown in Table 1. The numbered tasks are defined after the table.

Table 1: Installation tasks for databases and servers

Component	Tasks									
ISD database	1	2	3	4		6		8		
Message Store database	1		3				7	8		
Configuration server		2		4	5				9	

Table 1: Installation tasks for databases and servers (continued)

Component	Tasks									
Directory server		2		4	5			8	9	
Directory Cache server		2		4	5			8	9	
SNMP server		2		4	5				9	
Queue server		2		4	5				9	10
Message Transport Agent (MTA)		2		4	5				9	10
POP server		2		4	5				9	10
IMAP server		2		4	5				9	10
Message Store Server (MSS)	1	2	3	4	5			8	9	10
WebEdge server		2		4	5				9	10

The Manager server is not listed in the above table because it is required on all hosts and is installed automatically by the InterCore installation.

If you install more than one server on a host, perform the union of the tasks required for the servers. Do not perform a task more than once on a given host. For example, to install a Message Store database and an MSS on the same host, complete tasks 1, 2, 3, 4, 5, 7, 8, 9, and 10 on that host.

Each task is described in detail in its own section later in this chapter. The tasks are:

- “Task 1: Creating an Oracle User and Group” on page 13
- “Task 2: Creating an InterMail User and Group” on page 14
- “Task 3: Creating the Oracle User’s Directory” on page 15
- “Task 4: Creating the InterMail User’s Directory” on page 15
- “Task 5: Checking Port Assignments” on page 15
- “Task 6: Installing the ISD Database” on page 16
- “Task 7: Installing the Message Store Database” on page 19
- “Task 8: Configuring the SQLNet Parameter Files and Client” on page 23
- “Task 9: Installing InterCore” on page 25
- “Task 10: Installing InterMail” on page 34

Note: This guide uses `imail` and `oracle` for the names of the InterMail and Oracle users. You should use these default usernames and groups unless any of the following is the case:

- You have predefined site standards that require other names.
 - InterMail will be used in conjunction with servers that share resources with other applications.
 - You already have Oracle installed with a different user and group specification.
-

For a multi-host installation, you might want to modify the above installation scenario slightly by installing InterCore on all the hosts before installing InterMail on any of the hosts. This allows you to do the following before continuing with the rest of the InterMail installation:

- Test the connectivity of the networking hardware
- Identify any permission problems
- Test the connectivity of the InterMail Configuration server, Manager servers, Directory server, and Directory Cache servers

General Installation Tips

This section contains general hints and tips for doing an InterMail Mx 5.1 installation.

- Installation log files

If an error occurs during installation, look at the log information recorded in the following file (where `<task-name>` refers to the installation task or subcommand):

```
<install-directory>/tmp/<task-name>.out
```

The log file name will be something like `imconfget.out` or `checkOraclePermissions.out`. The installation typically deletes the log files if there are no errors.

- Scrolling windows

Execute installation commands from within a terminal window that has scroll bars and scrolling buffers that are at least 5 or 6 times the length of the window. You will also need other windows available besides the window in which you are executing the installation tasks.

- Defaults

The installation scripts attempt to determine values for installation options and questions by looking in files such as configuration files. You typically have the option of changing the values if they are inappropriate for your installation.

- Installation output

Capture the output of each installation task and store the output in a nonvolatile directory such as `/var/tmp`. Use `script` or another appropriate tool to capture the output.

Completing the Deployment Worksheet

The InterMail Deployment Worksheet, `deploymentworksheet.xls`, is an Excel spreadsheet consisting of a number of separate worksheets. This spreadsheet helps you determine the sizing requirements for the Oracle databases used in InterMail.

Copy the Deployment Worksheet from the Oracle directory on the InterMail product CD-ROM.

Enter the required information in all the worksheets, including the last one, which generates the `imoraparams.txt` text file that the InterMail installation procedure uses. Copy this file to each host where you will install an InterMail Oracle database (the ISD database or a Message Store database). Also copy this file to each host that does not have a database but that will run the Directory server, a Directory Cache server, or an MSS.

The worksheet contains instructions on how to use it, including comment text for certain cells. Cells that have comment text are indicated by a red triangle in the upper right corner.

Performing Installation Tasks

This section describes how to perform each of the installation tasks. See “Order of Installation” on page 9 for information on the order in which to perform these tasks.

Note: These processes assume that you are using a local password-file system. This document does not cover creating a new user and home directory using Network Information Service (NIS).

Task 1: Creating an Oracle User and Group

Before you begin, please note the following:

- Any NIS entries you are creating must match exactly those of the local password-file system entries. If they do not, InterMail will not function properly.
- The Oracle user and group names must not exist in any other groups.
- The Oracle user and group names must be the same on every host running InterMail.
- If you choose an Oracle group name other than `dba`, you need to relink Oracle using the Oracle installer (`orainst`).

- Neither the `imail` nor the `oracle` user should possess superuser/root privileges, as this may introduce unnecessary security risks.

To create the Oracle user and group (from an administrative account):

1. Create the new Oracle group. For example, use the following command:

```
groupadd -g 101 dba
```

The resulting group entry in `/etc/group` will look something like this:

```
dba::101:
```

2. Create the new Oracle user. For example, use the following command:

```
useradd -u 1000 -g dba -d /home/oracle -s /bin/csh oracle
```

The resulting user entry in `/etc/passwd` will look something like this:

```
oracle:x:1000:101:Oracle Account:/home/oracle:/bin/csh
```

When you create the Oracle password file entry, the default group ID for the Oracle user should match the ID for the `dba` group.

Task 2: Creating an InterMail User and Group

Before you begin, please note the following:

- Any NIS entries you are creating must match exactly those of the local password-file system entries. If they do not, InterMail will not function properly.
- The InterMail user and group names must not exist in any other groups.
- The InterMail user and group names must be the same on every host running InterMail.
- Neither the `imail` nor the `oracle` user should possess superuser/root privileges, as this may introduce unnecessary security risks.

To create the InterMail user and group (from an administrative account):

1. Create the new InterMail group. For example, use the following command:

```
groupadd -g 250 imail
```

The resulting group entry in `/etc/group` will look something like this:

```
imail::250:
```

2. Create the new InterMail user. For example, use the following command:

```
useradd -u 30000 -g imail -G dba -d/home/imail -s /bin/csh imail
```

The resulting user entry in `/etc/passwd` will look something like this:

```
imail:x:30000:250:InterMail common user:/home/imail:/bin/csh
```

3. Add the new InterMail user to the Oracle group in `/etc/group`. The resulting user entry in `/etc/group` will look something like this:

```
dba:101:imail
```

Task 3: Creating the Oracle User's Directory

To create the Oracle user's directory:

1. Set user to root:

```
su
```

2. Create a new Oracle home directory and set the correct permissions and ownerships:

```
mkdir -p /<OracleHome>
chmod 775 /<OracleHome>
chown <OracleUser> /<OracleHome>
chgrp <OracleGroup> /<OracleHome>
```

For example:

```
mkdir -p /home/oracle
chmod 775 /home/oracle
chown oracle /home/oracle
chgrp dba /home/oracle
```

Task 4: Creating the InterMail User's Directory

To create the InterMail user's directory:

1. Set user to root:

```
su
```

2. Create a new InterMail home directory, and set the correct permissions and ownerships:

```
mkdir -p /<InterMailHome>
chmod 775 /<InterMailHome>
chown <ImailUser> /<InterMailHome>
chgrp <ImailUser> /<InterMailHome>
```

For example:

```
mkdir -p /home/imap
chmod 775 /home/imap
chown imap /home/imap
chgrp imap /home/imap
```

Task 5: Checking Port Assignments

The InterMail installation procedure configures servers using numerous port numbers. Some ports are standard and not subject to modification. Some, such as the SMTP, POP, and IMAP ports, are well-known ports that are defined in RFC specifications and should not be changed. Other servers in InterMail do not use well-known ports. The defaults for these ports have been specifically chosen to avoid conflict with port numbers used for common UNIX applications (such as X servers).

Although precautions have been taken to eliminate port conflicts, you should check `/etc/services` for system port assignments, then review any third-party applications running on the hosts on which InterMail will be installed to ensure that

there are no conflicts. By default, the InterMail installation starts selecting ports at port 5000 and uses up to 20 ports on a host that is running all the servers.

SSL

If you choose to use the InterMail Secure Socket Layer (SSL) server authentication for the POP and MTA servers, the installation script will prompt you for additional port numbers for the SSL POP and SSL MTA servers. These are well-known ports, so you you should accept the port numbers as assigned by the script.

Failover Groups

If a host is identified as a member of a failover group, InterMail requires that all servers installed on the hosts in the failover group have unique port numbers. If you assign the hosts to the failover group correctly, InterMail ensures that the port numbers are unique within the failover group. Unique port numbers enable any server to fail over and run on any other machine in the failover group with no port conflicts.

Task 6: Installing the ISD Database

This task uses the `imorainstall` script to install the Oracle database software and the InterMail Directory schema.

To install the ISD database:

1. Change to the Oracle user:

```
su - oracle
```
2. Create a log to record this installation:

```
script <LogName>
```
3. Set your directory to the location of the Oracle installation files. It is important to run the `imorainstall` that shipped with this version of InterMail.
4. Do not uncompress or untar the Oracle installation files; `imorainstall` will do it.
5. Define the environment variables used by the Deployment Worksheet, such as `ORA_SYSTEM`, if you are using the Deployment Worksheet. For example:

```
source setupEnvVar
```

The `setupEnvVar` file is a template file that is provided with InterMail in the `oracle` directory. You can customize and run this file if you are using `csh`.
6. Run `imorainstall` and respond to the following prompts:

ISD Database Installation Prompt	Response
Select a menu item (1 to 11): [11]	2 to install a new Directory database

ISD Database Installation Prompt	Response
<p>...</p> <p>Pausing... [Hit enter to continue]</p>	<p>Read the accompanying text and then press Return.</p> <p>This prompt appears a number of times during this script.</p>
<p>...</p> <p>Enter "Install Source" directory: [<path>]</p>	<p>The path of imorainstall and the Oracle installation tar files</p> <p>If you changed to this directory before running imorainstall, as directed above, the correct path should be displayed in square brackets and you can just press Return.</p>
<p>Please verify the installation configuration...</p> <p>-----</p> <p>...</p> <p>Do you accept these settings? (Yes/No/Quit) [Yes]</p>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings • quit to stop the installation procedure <p>For more information on these settings, see "Oracle Installation Configuration Settings" on page 38.</p>
<p>There are two ways to proceed.</p> <p>...</p> <p>Install using values saved from the Deployment Worksheet? (Y/N) [yes]</p>	<p>Y</p> <p>Choosing N installs a preconfigured ISD database that is not suitable for most production environments.</p>
<p>The "Output to Install" sheet in the Deployment Worksheet is used to create a file containing data for input to the InterMail Oracle installation.</p> <p>Please enter the name of this file [<path>/imoraparams.txt]</p>	<p>The location of the imoraparams.txt file generated by the Deployment Worksheet</p>
<p>...</p> <p>Relink Oracle now? (Y/N) [yes]</p>	<p>Y</p> <p>Do not answer N unless you are certain that Oracle does not require relinking.</p>
<p>...</p> <p>Checking for missing directories in any user-specified pathnames...</p> <p>The directory <path> does not exist.</p> <p>Create <path>? (Yes/No/Quit) [Yes]</p>	<p>Y</p> <p>This message does not always appear. If you see this message, respond Yes.</p>

ISD Database Installation Prompt	Response
<pre>... Creating InterMail database; this will take a significant amount of time... ... InterMail database creation completed. Verifying schema objects... ... Finished preparing database for hot backups. Pausing... [Hit enter to continue]</pre>	<p>You will see a number of messages. Read the accompanying text and press Return when instructed.</p>
<pre>Would you like a schema report generated? (Yes/No/Quit) [Yes]</pre>	<p>Y</p>
<pre>Enter file name for report [<path>]</pre>	<p>A name and location for the report file</p>
<pre>... Select a menu item (1 - 11) [11]</pre>	<p>11 to quit</p> <p>If this prompt displays without preceding errors, the first part of the ISD database installation has been completed successfully.</p>

7. Change to the Oracle home directory. For example:

```
cd /home/oracle
```

8. Enter:

```
source .cshrc
```

9. Change to the Oracle /oraInst directory. For example:

```
cd /service/oracle/8.0.5/oraInst
```

10. Set user to root:

```
su
```

11. Set the values for the ORACLE_HOME and ORACLE_SID variables.

- For example, in the sh shell:

```
ORACLE_HOME=/service/oracle/8.0.5
ORACLE_SID=IMD510
```

- For example, in the csh shell:

```
setenv ORACLE_HOME /service/oracle/8.0.5
setenv ORACLE_SID IMD510
```

12. Run the `root.sh` script.

- For example, in the `sh` shell:

```
PATH=$PATH:{ORACLE_HOME}/bin
export ORACLE_HOME ORACLE_SID PATH
${ORACLE_HOME}/orainst/root.sh
```

- For example, in the `cs` shell:

```
./root.sh
```

13. Respond to the following prompts:

ISD Database Installation Prompt	Response
Running Oracle8 root.sh script... The following environment variables are set as: ORACLE_OWNER= oracle ORACLE_HOME= <path> ORACLE_SID= <SID-value> Are these settings correct (Y/N)? [Y]:	<ul style="list-style-type: none"> • Y if the settings are correct • N to change settings
Enter the full pathname of the local bin directory [<path>]:	The path for the Oracle bin directory. For example: /service/oracle/8.0.5/bin
Checking for "oracle" user id... ORACLE_HOME does not match the home directory for oracle. Okay to continue? [N]:	Y This does not affect the installation. Type Y and press Return.
Please raise the ORACLE owner's ulimit as per the IUG.	You can ignore this message.
Leaving common section of Oracle8 root.sh.	This message indicates that the ISD directory installation has been completed.

14. Enter `exit` twice, once to leave superuser and once to finish the logging script.

The installation procedure generates SQL scripts that are used to create the database. You should keep these SQL scripts for future reference.

Task 7: Installing the Message Store Database

To install a Message Store database:

1. Change to the Oracle user:

```
su - oracle
```

2. Create a log to record this installation:

```
script <LogName>
```
3. Set your directory to the location of the Oracle installation files. It is important to run the `imorainstall` that shipped with this version of InterMail.
4. Do not uncompress or untar the Oracle installation files; `imorainstall` will do it.
5. Define the environment variables used by the Deployment Worksheet, such as `ORA_SYSTEM`, if you are using the Deployment Worksheet. For example:

```
source setupEnvVar
```

The `setupEnvVar` file is a template file that is provided with InterMail in the `oracle` directory. You can customize and run this file if you are using `csh`.

If you installed the ISD database on this same host, you may not need to repeat this step.
6. Run `imorainstall` and respond to the following prompts:

Message Store Database Installation Prompt	Response
Select a menu item (1 to 11): [11]	1 to install a new Message Store database
... Pausing... [Hit enter to continue]	Read the accompanying text and then press Return. This prompt appears a number of times during this script.
... Enter "Install Source" directory: [<path>]	The path of <code>imorainstall</code> and the Oracle installation tar files If you changed to this directory before running <code>imorainstall</code> , as directed above, the correct path should be displayed in square brackets and you can just press Return.
Please verify the installation configuration... ----- ... Do you accept these settings? (Yes/No/Quit) [yes]	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings • quit to stop the installation process For more information on these settings, see "Oracle Installation Configuration Settings" on page 38.
There are two ways to proceed. ... Install using values saved from the Deployment Worksheet? (Y/N) [yes]	Y Choosing N installs a preconfigured Message Store database that is not suitable for most production environments.

Message Store Database Installation Prompt	Response
<p>The "Output to Install" sheet in the Deployment Worksheet is used to create a file containing data for input to the InterMail Oracle installation.</p> <p>Please enter the name of this file [<path>/imoraparams.txt]</p>	<p>The path of the imoraparams.txt file</p>
<p>Oracle has already been installed, reinstall Oracle files?</p>	<p>You will see this prompt if Oracle is already installed on this host because, for example, the ISD database resides on this host. In that case, answer No.</p>
<p>...</p> <p>Relink Oracle now? (Y/N) [yes]</p>	<p>Y</p> <p>Do not answer N unless you are certain that Oracle does not require relinking.</p>
<p>...</p> <p>Checking for missing directories in any user-specified pathnames...</p> <p>The directory <path> does not exist.</p> <p>Create <path>? (Yes/No/Quit) [Yes]</p>	<p>Y</p> <p>This message does not always appear. If you see this message, respond Yes.</p>
<p>...</p> <p>Creating InterMail database; this will take a significant amount of time...</p> <p>Running Oracle scripts to create system views for IMM510_1...</p> <p>...</p> <p>InterMail database creation completed.</p> <p>Verifying schema objects...</p> <p>...</p> <p>Finished preparing database for hot backups.</p> <p>Pausing... [Hit enter to continue]</p>	<p>You will see a number of messages. Read the accompanying text and press Return when instructed.</p>
<p>Would you like a schema report generated? (Yes/No/Quit) [yes]</p>	<p>Y</p>
<p>Enter file name for report [<path>]</p>	<p>A name and location for the report file</p>
<p>...</p> <p>Select a menu item (1 - 11) [11]</p>	<p>11 to quit</p> <p>If this prompt displays without preceding errors, the first part of the Message Store database installation has been completed successfully.</p>

7. Change to the Oracle home directory. For example:

```
cd /home/oracle
```

8. Enter:

```
source .cshrc
```

9. Change to the Oracle /oraInst directory. For example:

```
cd /service/oracle/8.0.5/oraInst
```

10. Set user to root:

```
su
```

11. Set the values for the ORACLE_HOME and ORACLE_SID variables.

- For example, in the sh shell:

```
ORACLE_HOME=/service/oracle/8.0.5
ORACLE_SID=IMD510
```

- For example, in the csh shell:

```
setenv ORACLE_HOME /service/oracle/8.0.5
setenv ORACLE_SID IMM510_1
```

12. Run the root.sh script.

- For example, in the sh shell:

```
PATH=$PATH:{ORACLE_HOME}/bin
export ORACLE_HOME ORACLE_SID PATH
${ORACLE_HOME}/oraInst/root.sh
```

- For example, in the csh shell:

```
./root.sh
```

13. Respond to the following prompts:

Message Store Database Installation Prompt	Response
Running Oracle8 root.sh script... The following environment variables are set as: ORACLE_OWNER= oracle ORACLE_HOME= <path> ORACLE_SID= <SID-value> Are these settings correct (Y/N)? [Y]:	<ul style="list-style-type: none"> • Y if the settings are correct • N to change settings
Enter the full pathname of the local bin directory.	The path for the Oracle bin directory. For example: /service/oracle/8.0.5/bin

Message Store Database Installation Prompt	Response
Checking for "oracle" user id... ORACLE_HOME does not match the home directory for oracle. Okay to continue? [N]:	Y This does not affect the installation.
Please raise the ORACLE owner's ulimit as per the IUG.	You can ignore this message.
Leaving common section of Oracle8 root.sh.	This message indicates that the Message Store database installation has been completed.

14. Enter `exit` twice to leave superuser and to finish the logging script.

The installation procedure generates SQL scripts that are used to create the database. You should keep these SQL scripts for future reference.

Task 8: Configuring the SQLNet Parameter Files and Client

There are two methods of configuring the SQLNet parameter files or client:

- Using the Deployment Worksheet. This is the preferred method.
- Using the command line. This is an alternative method.

This section describes both methods.

Note: In Oracle 8, SQLNet is called Net 8.

Typically, the Directory server (`imdirserv`) runs on the host where the Directory database is installed, and you install the SQLNet parameter files on this host (`imorainstall` option 3). If the database and the server are on separate hosts, install the SQLNet parameter files on the host with the Directory database (`imorainstall` option 3), and install the SQLNet client on the host with the Directory server (`imorasintall` option 7).

Similarly, if an MSS runs on a host with a Message Store database, you install the SQLNet parameter files on this host. If the database and the server are on separate hosts, install the SQLNet parameter files on the host with the database and install the SQLNet client on the host with the server.

Using the Deployment Worksheet

This procedure installs a subset of Oracle that lets InterMail servers connect to an Oracle database.

To configure the SQLNet parameter files or client:

1. Change to the Oracle user:

```
su - oracle
```

2. Create a log to record this installation:

```
script <LogName>
```

3. Define the environment variables used by the Deployment Worksheet, such as ORA_SYSTEM. For example:

```
source setupEnvVar
```

The `setupEnvVar` file is a template file that is provided with InterMail in the `oracle` directory. You can customize and run this file if you are using `csch`.

If you installed the ISD database or a Message Store database on this host, you may not need to repeat this step.

4. Locate and run `imorainstall`.

Note: `imorainstall` must be run from the directory that contains the Oracle `.tar` files.

5. Respond to the following prompts:

SQLNet Configuration Prompt	Response
Select a menu item (1 - 11) [11]	3 to configure the SQLNet parameter files on a host that contains a Message Store database or a Directory database 7 to configure the SQLNet client on a host that does not contain a Message Store database or a Directory database
... Pausing... [Hit enter to continue]	Read the accompanying text and then press Return. This prompt appears a number of times during this script.
... Enter "Install Source" directory: [<path>]	The path of <code>imorainstall</code> and the Oracle installation tar files
Please verify the installation configuration... ... Do you accept these settings? (Yes/No/Quit) [yes]	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings • quit to stop the installation process
The "Output to Install" sheet in the Deployment Worksheet is used to create a file containing data for input to the InterMail Oracle installation. Please enter the name of this file [<path>/imoraparams.txt]	The name and location of the <code>imoraparams.txt</code> file

SQLNet Configuration Prompt	Response
... Identify this host by its number (1 to <n>) from the list above: [1]	The number that identifies the current host
Is this host named <HostName>? (Yes/No/Quit) [Yes]	Y, unless the host has a different name
Do you wish to configure tnsnames.ora now via method (1)?	Y, unless you do not have or do not want to use the values in the imoraparams.txt file. For help on using the other method, see "Using the Command Line" on page 25.
... The command completed successfully Started Oracle Sql*Net listener LISTENER successfully. ... Select a menu item (1 - 11) [11]	11 to quit

6. Enter `exit` to finish the logging script.

Using the Command Line

If some difficulty prevents SQLNet from being configured through the Deployment Worksheet, you can configure it manually as follows:

1. Change to the Oracle user:

```
su - oracle
```

2. Create a SQLNet Listener, specifying the Oracle home directory, database instance, and fully qualified hostname with domain. For example:

```
createListenerConfig /service/oracle/8.0.5 IMD510 sea.software.com
```

3. Create a SQLNet instance, specifying the Oracle home directory, database instance, and fully qualified hostname with domain. For example:

```
createSqlNetInstance /service/oracle/8.0.5 IMD510 sea.software.com
```

4. Start the Listener by entering `lsnrctl start`.

Task 9: Installing InterCore

The InterCore installation package installs the following servers:

- Configuration server
- Directory server
- Directory Cache server

- Manager server
- SNMP server

To install InterCore:

1. Create a log to record the InterCore installation:

```
script /<temp_directory>/<file_name.log>
```

For example:

```
script /var/tmp/InterCoreInstall.log
```

2. Create a temporary directory on the local host, and copy the `InterCore.tar.Z` file from the installation medium to this temporary directory. Change your working directory to the temporary directory.

3. Uncompress and untar the `InterCore.tar` file:

– On a Solaris host:

```
tar xvf InterCore.tar
```

– On a non-Solaris host:

```
tar xvf InterCore.tar iminstall
```

4. Set the user to root:

```
su
```

5. Do one of the following:

– On a Solaris host, run `pkgadd`:

```
pkgadd -d . InterCore
```

– On a non-Solaris host, run `iminstall`:

```
./iminstall
```

On a non-Solaris host, you will be prompted for a temporary directory into which the tar file can be expanded.

6. Respond to the following prompts:

InterCore Installation Prompt	Response
<p>InterCore will be installed with the following settings:</p> <pre> Logical Host Name <host-name> This host's DNS Domain Name software.com InterCore Unix username <username> InterCore Unix groupname <group> InterCore install directory <path> InterCore home directory <path> Do you accept these settings? (Yes/No/Quit) [yes]</pre>	<ul style="list-style-type: none"> • Press Return to accept the settings. • Enter no to change one or more of the settings. • Enter quit to stop the installation process. <p>If your InterMail username is not imail, you may be prompted for information before you see this display.</p>
<p>The Configuration server (imconfserv) must be installed on the first InterMail system, and only there. The Configuration server must be running before subsequent installations are performed.</p> <p>Will the imconfserv run here? (Yes/No) [no]</p>	<ul style="list-style-type: none"> • Yes if the Configuration server will run on this host • No if the Configuration server is running on another host

InterCore Installation Prompt	Response
<pre> What is the imconfserv port on <host>? [<port>] What is the imconfserv administrative port on <host>? [<port>] Where would you like to start searching for available port numbers? [<port>] Would you like the config server running after the installation is complete? (Yes/No) [yes] Config Server Configuration ===== Config Server will run on this host? yes Config Server Port: <port#> Config Server Administration-Port: <port#> Port search starting port number: <port#> Leave Config Server running post- install: yes Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<p>On the first host, which runs the Configuration server, you answered Yes to the previous question and therefore will see these prompts. Enter the port numbers as requested. You should leave the Configuration server running after the installation is complete.</p>
<pre> What is the name of the InterCore host running imconfserv? What is the imconfserv port on <host>? [<port>] What is the imconfserv administrative port on <host>? [<port>] Where would you like to start searching for available port numbers? [<port>] Config Server Configuration ===== Config Server will run on this host? no Config Server runs on host: <host> Config Server Port: <port#> Config Server Administration-Port: <port#> Port search starting port number: <port#> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<p>On the second through last hosts, which do not run the Configuration server, you will see these prompts. Enter the name of the host running the Configuration server and the port numbers, as requested.</p>

InterCore Installation Prompt	Response
<p>Do you want to set up Failover Groups? (Yes/No) [no]</p>	<ul style="list-style-type: none"> • yes to set up failover groups for your system • no if you are not using failover groups
<p>The installation will be set up to run the following servers on <current-host>:</p> <p style="padding-left: 2em;">The Manager server... required</p> <p style="padding-left: 2em;">The Configuration server... <running/remote></p> <p style="padding-left: 2em;">The SNMP server... <yes/no></p> <p style="padding-left: 2em;">The Master Directory Server... <yes/no></p> <p style="padding-left: 2em;">The DirCache Server... <yes/no></p> <p>Do you accept these settings? (Yes/No/Quit) [yes]</p>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings • quit to stop the installation process <p>If you enter no, the procedure asks individually whether each server will run on this host.</p>
<p>...</p> <p>The servers which you have selected to be run will be set up as follows:</p> <p style="padding-left: 2em;">Manager server ...</p> <p style="padding-left: 2em;">=====</p> <p style="padding-left: 2em;">immgrserv port is <port#></p> <p style="padding-left: 2em;">immgrserv administrative port is <port#></p> <p>Do you accept these settings? (Yes/No/Quit) [yes]</p>	<p>For each server that will run on this host, the script asks you to confirm the settings.</p> <p>For each server, enter:</p> <ul style="list-style-type: none"> • yes if the settings are correct • no to change settings
<p style="padding-left: 2em;">SNMP configuration</p> <p style="padding-left: 2em;">=====</p> <p style="padding-left: 2em;">SNMP monitoring is enabled for InterCore servers on this host: <yes or no></p> <p>Do you accept these settings? (Yes/No/Quit) [yes]</p>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings <p>If you want SNMP monitoring enabled on this host, the monitoring setting should be yes.</p>
<p>Master Directory Server (imdirserv) ...</p> <p style="padding-left: 2em;">=====</p> <p>What is the imdirserv RME port? [<port#>]</p>	<p>You will see this prompt on the Directory server host.</p> <p>(If the Directory server does not run on this host, skip ahead to the prompts for the Directory Cache server (imdircachserv) configuration.)</p> <p>In response to this prompt, enter the RME port number. Take the default port number, or specify an appropriate port of your choosing.</p>

InterCore Installation Prompt	Response
What is the imdirserv LDAP port? [<code><port#></code>]	The LDAP port number This is typically the main provisioning port, the port through which the Directory server fields LDAP requests.
What is the imdirserv administrative port? [<code><port#></code>]	The administrative port number This port is used to shut down the server or query the server for status.
What is the Root DN for the directory? [<code>cn=root</code>]	The LDAP root distinguished name (DN) This is the root of the directory tree.
What is the LDAP Root Password for the directory? [<code><string></code>]	The LDAP root password This password allows master administrative access to the LDAP tree. It is a randomly generated string that will be stored in the Configuration database. You may want to change this password and make note of it. (You can find this password later in the Configuration database, if necessary.)
What is the Oracle Database username that InterCore will use? [<code><username></code>] What is the Oracle Database password that InterCore will use? [<code><string></code>]	The InterMail username and password for connecting to the Directory database
What is the Oracle Database connection string that InterCore will use? [<code>IMD510</code>]	The TNS name of the Directory database The default is <code>IMD510</code> . You can specify a different string, but the limit is 8 characters.
Initialize the Master Directory in the Oracle DB? (Yes/No) [<code>yes</code>]	<ul style="list-style-type: none"> • Yes to direct the installation to initialize the Oracle database with a new LDAP tree • No if this is not necessary
Create the Administration (postmaster, mail-daemon, etc.) Accounts? (Yes/No) [<code>yes</code>]	<ul style="list-style-type: none"> • Yes to direct the installation to create the postmaster, imail, and mailer-daemon accounts • No if this is not necessary
Deliver mail for the Admin Accounts to which host? [<code><current-host></code>]	The name of a host that will run an MSS You see this prompt only if you answered Yes to the question about initializing the Directory database.

InterCore Installation Prompt	Response
<p>NOTE: For more information about allocations, see the InterMail documentation for the Directory. Also note that the default, or a custom, allocation scheme may be loaded at a later time.</p> <p>Load Default Allocation Scheme? (Yes/No) [no]</p>	<ul style="list-style-type: none"> • Yes to load the default allocation scheme • No otherwise
<p>What is your Organization/Company Name?</p>	<p>The name of your company. For example: Acme Messaging, Inc.</p> <p>You see this prompt only if you answered Yes to the question about initializing the Directory database.</p>
<pre> ... Master Directory Server ... ===== imdirserv RME port: <port#> imdirserv LDAP port: <port#> imdirserv Administrative port: <#> LDAP Root DN: <string> LDAP Root Password: <string> default BindDN: <string> default BindPassword: <string> Oracle Database Userinfo: <string> Oracle Connection String: <SID> Initialize Oracle Directory DB: <y/n> Create Administrative Accounts: <y/n> Delivery Host for Admin Accounts: <host-name> Do you accept these settings? (Yes/No/Quit) [yes] </pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings <p>The default BindDN and BindPassword settings are the same as for root initially but can be modified later. The indicated server or component (such as imdirserv, C API, imdbcontrol) uses these LDAP credentials by default. Before the administrative infrastructure is installed, non-root values for these settings are meaningless.</p>

InterCore Installation Prompt	Response
<pre> Configuration of Local Directory Cache server (imdircachserv) ===== imdircachserv RME port <port#> imdircachserv LDAP port is <port#> imdircachserv administrative port is <port#> Create imdircachserv DB file <yes or no> ...Dir Cache Servers for this host ===== imdircachserv host(s) <hostnames> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<p>You will see this information on hosts that run a Directory Cache server. Enter:</p> <ul style="list-style-type: none"> • yes if the settings are correct • no to change settings <p>If you want to specify additional Directory Cache servers for this host, enter No and specify the additional servers when prompted.</p>
<pre> Directory Cache server (imdircachserv) configuration ===== What is the name of this host's primary Directory Cache server? Is there an additional Directory Cache server for this host? (Yes/No) [no] Configuration of Directory Cache servers for this host ===== imdircachserv host(s) <hosts> Do you accept these settings? (Yes/ No/Quit) [yes] </pre>	<p>You will see this information on hosts that do not run a Directory Cache server.</p> <p>Enter the name of the host with a Directory Cache server that will be the primary imdircachserv for this host.</p> <p>If you are configuring additional Directory Cache servers for this host, list them as well.</p> <p>Then enter:</p> <ul style="list-style-type: none"> • yes if the settings are correct • no to change settings
<pre> Directory Oracle configuration ===== \$ORACLE_HOME <path> \$TNS_ADMIN <path> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<p>You will see this prompt on hosts that run the Directory server or a Directory Cache server. Enter:</p> <ul style="list-style-type: none"> • yes if the settings are correct • no to change settings <p>For more information, see “Oracle Installation Configuration Settings” on page 38.</p>

InterCore Installation Prompt	Response
<p>Directory Oracle configuration ===== Oracle information is not configured for this host.</p> <p>NOTE: Based on which servers are configured to run on this host, Oracle is not required to be configured.</p> <p>However, if Oracle or the Oracle SQLNet client is installed on this host you may configure the Oracle information at this time to provide convenient access to your Oracle database from this host.</p> <p>Do you accept these settings? (Yes/ No/Quit) [yes]</p>	<p>You will see this information on hosts that do not run the Directory server or a Directory Cache server.</p> <p>The first message indicates that Oracle information for the Directory database is not configured on this host. Since neither the Directory server nor a Directory Cache server is configured to run on this host, Oracle does not need to be configured for the Directory database.</p> <p>If you have Oracle installed on this host for a Message Store database, you will configure those Oracle settings later, during the InterMail portion of the installation.</p> <p>In response to the prompt, enter:</p> <ul style="list-style-type: none"> • Yes if you do not need to configure Oracle at this time, based on the information above • No to change the settings
<p>The following files are already installed on the system and are being used by another package: <list-of-files></p> <p>Do you want to install these conflicting files [y,n,?,q]</p>	<p>You should see this message only during an upgrade installation.</p> <p>If you see this message, InterMail was previously installed on this host. Press Return until the file list is done and then enter Y in response to the follow-on prompt.</p>
<p>The following files are being installed with setuid and/or setgid permissions: <list-of-files></p> <p>Do you want to install these setuid/ setgid files [y,n,?,q]</p>	<p>Y</p> <p>This prompt appears only on Solaris platforms.</p>
<p>This package contains scripts which will be executed with super-user permission during the process of installing this package.</p> <p>Do you want to continue with the installation of <InterCore> [y,n,?]</p>	<p>Y</p> <p>This prompt appears only on Solaris platforms.</p>

7. The installation script displays various messages as it finishes installing InterCore. When installation is complete, the script displays the following message:

```
To run this installation of InterCore software, login as
"imail" and make sure that either:
  '<imail-path>/cshrc', or
  '<imail-path>/profile'
is used to initialize your shell's environment. This sets the
InterCore environment variable and appends <imail-path>/bin
to the command PATH.
```

```
Installation of <InterCore> was successful.
```

8. Enter `exit` twice to leave superuser and to finish the logging script.

Task 10: Installing InterMail

The InterMail installation package installs one or more of the following servers on a host:

- Queue server
- MTA
- POP server
- IMAP server
- Message Store Server (MSS)
- WebEdge server

To install InterMail:

1. Create a log to record the InterMail installation:

```
script /<temp_directory>/<file_name.log>
```

For example:

```
script /var/tmp/InterMailInstall.log
```

2. Create a temporary directory on the local host, and copy the `InterMail.tar.Z` file from the installation medium to this temporary directory. Uncompress the file. Change your working directory to the temporary directory.

3. Untar the `InterMail.tar` file:

– On a Solaris host:

```
tar xvf InterMail.tar
```

– On a non-Solaris host:

```
tar xvf InterMail.tar iminstall
```

4. Set the user to root:

```
su
```

5. On a non-Solaris host, clear the JAVA_HOME environment variable, to prevent conflicts. For example, in `csh`:

```
unsetenv JAVA_HOME
```

Or, from `sh`:

```
unset JAVA_HOME
```

6. Start the InterMail installation:

- On a Solaris host, run `pkgadd`:

```
pkgadd -d . InterMail
```

- On a non-Solaris host:

Run `iminstall`:

```
./iminstall
```

You will be prompted for a temporary directory into which the tar file can be expanded.

7. Respond to the following prompts:

InterMail Installation Prompt	Response
What is the Unix username that InterMail will use? [imail]	The InterMail username If you installed InterCore with the default username, the script does not display this prompt.
InterMail will be installed with the following settings: InterMail Unix username <user-name> InterMail Unix groupname <group-name> Logical Host Name <host-name> InterMail install directory <path> InterMail home directory <path> Do you accept these settings (Yes/No/Quit) [yes]?	<ul style="list-style-type: none"> • yes if the settings are correct • quit to stop the installation process These values were taken from the <code>config.db</code> file that was created during the InterCore installation. If any of these values are incorrect, follow the instructions that the script displayed before it listed the settings.
The installation will be set up to run the following servers on "<host-name>": The Queue Server... <yes/no> The Message Transport Agent... <yes/no> The POP Server... <yes/no> The IMAP Server... <yes/no> The Message Store Server... <yes/no> The WebEdge Server... <yes/no> Do you accept these settings (Yes/No/Quit) [yes]?	<ul style="list-style-type: none"> • yes if the settings are correct • no to change the settings If you enter <code>no</code> , the procedure asks individually whether each server will run on this host. If none of these servers will run on this host, you still need to continue with the InterMail installation. The installation performs other actions besides installing these servers.

InterMail Installation Prompt	Response
<pre> ... The servers which you have selected to run will be set up as follows: MTA configuration ===== MTA spool directory is <path> MTA SMTP port is (normally 25) <port> MTA administrative port is <port#> MTA Default Domain <domain-name> SSL Operation supported <yes-or-no> SSL SMTP port is (normally 465) 465 Certificate file: <file-with-path> Queue server host(s): <host-list> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<p>The script displays settings for each server that you requested to have run on this host. Typically, only a subset of the servers will run on a given host.</p> <p>For each server, enter:</p> <ul style="list-style-type: none"> • yes if the settings are correct • no to change the settings
<pre> queue server configuration ===== queue server port is <port#> queue server administrative port is <port#> queue server journal directory <path> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings
<pre> POP configuration ===== POP3 port is (normally 110) <port#> POP administrative port is <port#> SSL Operation supported <yes/no> SSL POP3 port is (normally 995) <port#> Certificate file: <file-with-path> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings
<pre> IMAP configuration ===== IMAP4 port is (normally 143) <port#> IMAP administrative port is <port#> SSL Operation supported <yes/no> SSL IMAP port is (normally 993) <port#> Certificate file: <file-with-path> Do you accept these settings? (Yes/No/ Quit) [yes] </pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings <p>Typically, you should not change the port settings.</p>

InterMail Installation Prompt	Response
<pre>WebEdge configuration ===== On which port will WebEdge run? [80]</pre>	<p>Press Return to accept the default.</p>
<pre>What is the administrative port for the WebEdge server? [8080]</pre>	<p>Press Return to accept the default.</p>
<pre>What is the administrative password WebEdge will use?</pre>	<p>Enter a password. Make note of this password, because it is not stored in the Configuration database (so you cannot look it up there later).</p>
<pre>WebEdge configuration ===== WebEdge server port is (normally 80) <port#> WebEdge administrative port is <port#> WebEdge administrative password <string> Do you accept these settings? (Yes/No/ Quit) [yes]</pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings
<pre>MSS configuration ===== MSS message files directory <path> Number of message file directories on level 1 <default-is-10> Number of message file directories on level 2 <default-is-10> Number of message file directories on level 3 <default-is-10> MSS journal directory <path> MSS uses SQL*Net to connect to Oracle <yes/no> MSS port configurations: ===== No. of ports <num> Base port <port#> Base Admin port <port#> ===== MSS Oracle user/password <user/pswd> MSS Oracle connection string <IMM510_1> MSS Oracle SQL context count <count> Do you accept these settings? (Yes/No/ Quit) [yes]</pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings <p>If the MSS runs on the same host as the Message Store database, do not use SQL*Net to connect to Oracle. If the MSS is on a different host from the Message Store database, you must use SQL*Net.</p>

InterMail Installation Prompt	Response
<pre>Mail Store Server Oracle configuration ===== \$ORACLE_HOME <path> \$TNS_ADMIN <path> Do you accept these settings? (Yes/ No/Quit) [yes]</pre>	<ul style="list-style-type: none"> • yes if the settings are correct • no to change settings
<pre>The following files are already installed on the system and are being used by another package: <list-of-files> Do you want to install these conflicting files [y,n,?,q]</pre>	<p>You should see this message only during an upgrade installation.</p> <p>If you see this message, InterMail was previously installed on this host. Press Return until the file list is done, and then enter Y in response to the follow-on prompt.</p>
<pre>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 <InterMail> [y,n,?]</pre>	<p>Y</p> <p>This prompt only appears on Solaris platforms.</p>

8. At the end of the installation, the script displays the following information:

```
To run InterMail software, login as "<username>" and make sure that
either /<imail-path>/cshrc or /<imail-path>/profile is used to
initialize your shell's environment. This sets the INTERMAIL
environment variable and appends /<imail-path>/bin to the command
PATH.
```

```
Creating directory: ...
...
```

```
Installation of <InterMail> was successful.
```

9. Enter `exit` twice to leave superuser and to finish the logging script.

Continue installing on other host machines. When you have completed your installations on all your hosts, see Chapter 3 for post-installation tasks.

Oracle Installation Configuration Settings

This section provides further information on the installation configuration settings that the `imorainstall` script displays when you install the ISD database or a Message Store database

Setting	Explanation
InterMail Oracle username	The InterMail username (not the Oracle username). Every Oracle database has its own usernames and passwords that are independent of the usernames and passwords of the operating system. This is the username that InterMail uses to log in to the database.
Oracle SYSTEM password	An administrative password used independently of InterMail's support for Oracle. Any name can be chosen for this password, but be sure to remember it. InterMail usually does not need this password.
Oracle SYS password	The Oracle system administrator password.
Base installation directory	The directory in which the Oracle database-creation SQL scripts and installation log files are stored. For example: <code>/service/oracle</code>
ORACLE_HOME	The directory where the Oracle files, binaries, and libraries are installed. For example: <code>/service/oracle/8.0.5</code>
TNS_ADMIN	An environment variable required when SQL*Net is used to connect to an Oracle database. For example: <code>/service/oracle/8.0.5/network/admin</code> This variable controls where Oracle looks for configuration files for connecting through SQL*Net.
Installation source directory	The source directory of the installation media. For example: <code>/service/oracle</code>

Setting	Explanation
Scratch directory for temporary installation files	<p>The location to which the installation procedure should write temporary files. These files are removed after the installation procedure is complete.</p> <p>The installation procedure requires a minimum of 40 MB of scratch space to untar the Oracle files.</p>
“oracle” user home directory	<p>The directory in which the Oracle installation creates or replaces <code>.cshrc</code> and <code>.profile</code> files that set up the environment for the new database. For example:</p> <pre data-bbox="899 705 1068 730">/home/oracle</pre>
Service instance	<p>The number of the Message Store database you are installing.</p> <p>The installation procedure uses this number when it creates the Message Store database name (also known as the System ID or <code>ORACLE_SID</code>).</p> <p>When you install the ISD database, the installation procedure automatically supplies an appropriate service instance.</p>
Database instance name (<code>ORACLE_SID</code>)	<p>The name of an Oracle database, also called the System ID or SID. This name is also the connection string used for Oracle.</p> <p>Because this name is recorded in each of the database’s files, changing it after installation requires significant effort.</p> <p>You can choose your own instance names. By default, the ISD database name is <code>IMD510</code> and a Message Store database name is <code>IMM510_<#></code>, where <code><#></code> is the service instance.</p> <p>Note: This value is limited to 8 characters.</p>

Troubleshooting

This section describes some problems that can occur during an InterMail installation and provides information to help solve these problems.

The problems discussed in this section include the following:

- SNMP Installation Problems
- Failed Database Installation
- Need to Restart InterCore or InterMail Installation

If an error occurs during installation, look at the log information recorded in the following file:

```
<install-directory>/tmp/<task-name>.out
```

You should capture the output of your installation tasks using a tool like `script`. Such output files are very helpful for tracking down installation problems.

SNMP Installation Problems

This section describes potential SNMP installation problems.

Solaris 2.6 Port Conflict

An SNMP agent is included in the Solaris 2.6 operating system. It uses port 161, which is one of the ports the InterMail SNMP server defaults to. If you intend to use the InterMail SNMP server, you'll need to change either the InterMail or the Solaris SNMP port settings.

The InterMail SNMP ports can be changed in the `config.db` through the `snmpRequestPort` and `snmpTrapPort` settings.

Turning On SNMP After Installing InterMail

If you choose not to activate the InterMail SNMP server during the installation but decide to activate it afterwards, you'll need to manually set the `/*/common/masterAgentHost` configuration key.

Failed Database Installation

This section describes how to handle the following problems with database installation:

- Insufficient Shared Memory or Semaphores
- Need to Deallocate Shared Memory Segments
- Omission of Reserved Accounts

When it detects a failure, the `imorainstall` utility typically shuts down the database before terminating. You must ensure that the database is shut down before you delete any of the files created during the failed installation.

To check whether the database is shut down, enter the following command (where <oracle-SID> represents the Oracle ID for the database such as IMD510):

```
ps -ef | grep <oracle-SID> | grep -v grep
```

If any processes are listed, the database is not shut down. Shut down the database by running:

```
$ORACLE_HOME/bin/shutdownDB <oracle-SID>
```

Insufficient Shared Memory or Semaphores

A common reason that Oracle installations fail is because the operating system kernel configuration does not provide sufficient shared memory or semaphores.

The following errors indicate insufficient shared memory:

```
ORA-02814, "Unable to get shared memory"  
ORA-02815, "Unable to attach shared memory"  
ORA-09877, "sstascre: shmget error, unable to get a shared memory  
segment."  
ORA-09878, "sstascre/sstasat: shmat error, unable to attach tas write  
page"
```

The following errors indicate insufficient semaphores:

```
ORA-02721, "osnsemnit: cannot create semaphore set"  
ORA-07250, "spcre: semget error, unable to get first semaphore set."  
ORA-07251, "spcre: semget error, could not allocate any semaphores."  
ORA-07252, "spcre: semget error, could not allocate semaphores."  
ORA-07279, "spcre: semget error, unable to get first semaphore set."  
ORA-07339, "spcre: maximum number of semaphore sets exceeded."
```

For information on setting appropriate values for the kernel parameters related to shared memory and semaphores, see “Preparing the Hardware and Software” on page 3.

Need to Deallocate Shared Memory Segments

If installation of either the ISD database or Message Store database is aborted, you may not be able to install the Oracle database correctly until shared memory segments have been deallocated.

This section describes two methods for deallocating shared memory. If the first one fails, try the second one.

To deallocate shared memory using ShutdownDB:

1. Shut down the Oracle instance, and make sure that no other Oracle instances are running.
2. Run shutdownDB <instance> from the Oracle directory, where <instance> is the offending Oracle instance. For example:

```
cd $ORACLE_HOME/bin  
shutdownDB IMD510
```

If this is not successful, enter the following commands:

```
cd $ORACLE_HOME/bin
svrmgrl
connect internal
shutdown immediate (or, shutdown abort)
```

You are now ready to reinstall the ISD database or Message Store database.

To deallocate shared memory by killing Oracle processes and shared memory segments:

1. Shut down the Oracle instance, and make sure that no other Oracle instances are running.
2. As the Oracle user, check to see which Oracle processes are running:


```
cd - oracle
ps -aef | grep oracle
```
3. Use `kill-9` to kill all of the processes listed in the `ps` output.
4. As `root`, display the Oracle shared memory segments (`m`) and semaphores (`s`) in use by issuing a UNIX `ipcs` command:

```
su - root
ipcs
```

The output might look something like this:

```
IPC status from <running system> as of Tue Apr 7 12:16:26 1998
Message Queue facility not in system.
Shared Memory
m          0 0x0ddd0251 --rw-r----- oracle dba
m          1 0x0ddd0248 --rw r----- oracle dba
m 1002 00000000 --rw-rw---- imail imail

Semaphores:
s          0 00000000 --ra-r----- oracle dba
s          1 00000000 --ra-r----- oracle dba
```

5. Change to the user indicated in the code above, and use `ipcrm -m` and `ipcrm -s` to remove the shared memory segments and semaphores. For example:

```
su - oracle
ipcrm -m 0
ipcrm -m 1
ipcrm -s 0
ipcrm -s 1
su - imail
ipcrm -m 1002
```

You are now ready to reinstall the ISD database or Message Store database.

Omission of Reserved Accounts

During the InterCore and/or InterMail installation scripts, if the reserved accounts—`imail`, `root`, `mailer-daemon`, and `postmaster`—have not been created, the

`imservctrl start` or `imctrl start` command may report an error that Oracle has failed to update account information. This is because InterMail tried to synchronize the local account information with the Directory Cache database, but no account information existed. This is typical, and will be corrected as soon as accounts are provisioned.

Need to Restart InterCore or InterMail Installation

If you need to restart the installation of InterCore or InterMail, you must first delete the previous package files. Execute these commands:

```
su
cd /var/sadm/pkg
rm -rf InterCore
rm -rf InterMail
```

On Solaris platforms, it is recommended that you use the above commands and that you not use `pkgrm` to remove the package files.

3

Post-Installation Tasks

This chapter discusses tasks that you should perform after you install InterMail but before you launch your production environment.

This chapter does not discuss InterMail configuration or system maintenance. For information on these subjects, see the *InterMail Mx Operations Guide*.

If the commands and syntax in this chapter are unfamiliar to you, see the command syntax, usage, and options descriptions in the *InterMail Mx Reference Guide*.

This chapter contains the following sections:

- Logging On to the System
- Checking the InterMail Environment
- Taking Directory Snapshots
- Starting and Stopping Servers
- Pinging Servers and Checking Processes
- Testing Message Flow
- Sending Mail from a Non-MTA Host
- Using the EMANATE Utilities in SNMP

Logging On to the System

The first task in testing the InterMail installation is to log on to the system as the InterMail user. On each host in the system, follow these steps:

1. Change to the InterMail user you created during the installation. For example:

```
su - imail
```
2. Check the home directory by issuing a `pwd` command. The directory indicated should be the InterMail directory you created during the installation.

3. Check the Oracle installation directory and user by becoming the Oracle user and repeating steps 1 and 2. The home directory indicated should be the Oracle directory you created during the installation.

Checking the InterMail Environment

After logging on, you are ready to check the InterMail environment. In the installation process, InterMail created `.cshrc` (C shell profile) and `.profile` (Bourne shell profile) resource files. These files provide InterMail with basic information about environment variables such as the path to the InterMail home directory, InterMail binaries, shared library files, the Oracle home directory, and Oracle binaries. When you log on to the system, InterMail reads the environment variables contained in one of these files.

You can use the `cat .cshrc` command in the InterMail home directory to view these variables. Following is an example of a `.cshrc` file:

```

setenv INTERMAIL /voll/icemail
setenv PERLHOME /voll/icemail/perl
setenv SR_LOG_DIR /voll/icemail/log
setenv SR_AGT_CONF_DIR /voll/icemail/snmp
setenv SR_MGR_CONF_DIR /voll/icemail/snmp
setenv EMANATE_HOME /voll/icemail/bin
setenv SR_SNMP_TEST_PORT 40161
setenv SR_TRAP_TEST_PORT 40162
setenv NLSPATH $INTERMAIL/lib/nlslib/%L/%N.cat
setenv ORACLE_HOME /voll/oracle/8.0.5
setenv TNS_ADMIN /voll/oracle/8.0.5/network/admin
setenv ORACLE_USERINFO imail/icemail
setenv PATH ${INTERMAIL}/bin:${INTERMAIL}/lib:${ORACLE_HOME}/
bin:${INTERMAIL}/pe
rl/bin:/sbin:/usr/sbin:/usr/bin:/usr/sadm/install/bin:.
setenv SR_LOG_DIR /voll/icemail/log
setenv SR_AGT_CONF_DIR /voll/icemail/config
setenv SR_MGR_CONF_DIR /voll/icemail/config
setenv TCL_LIBRARY $INTERMAIL/lib/tcl
setenv NLSPATH $INTERMAIL/lib/nlslib/%L/%N.cat
setenv PERL5LIB /voll/icemail/perl/lib/perl5/sun4-solaris/5.003:/voll/icemail/
perl/l
ib/perl5:/voll/icemail/perl/lib/perl5/site_perl/sun4-solaris:/voll/icemail/
perl/lib/
perl5/site_perl:.
setenv ORACLE_USERINFO imail/icemail
setenv ORACLE_DB_SERVICE IMD510
setenv ORACLE_SID IMD510
setenv EPC_DISABLED TRUE
setenv PATH
${INTERMAIL}/bin:${ORACLE_HOME}/bin:${PERLHOME}/bin:/usr/bin:/sbin:/usr/
sbin
:/usr/bin:/usr/sadm/install/bin:.
setenv LD_LIBRARY_PATH
/opt/SUNWspro/lib:${ORACLE_HOME}/lib:${INTERMAIL}/lib:
setenv MANPATH /usr/share/catman:/usr/share/man:/usr/catman:/usr/
man:${INTERMAIL}/man:${PERLHOME}/man
umask 007
if( $?prompt ) then
set filec=true
set history=50
stty erase \_ intr \^c kill \^u eof \^d susp \^z echoe echok
set prompt='saturn:imail5_1_0% '
endif

```

Taking Directory Snapshots

After installing InterMail, create a record of all directories and associated permissions as they were installed. For this operation, use the following command to create a list of all files in “long” format so that the structure and file permissions for all InterMail directories will be shown:

```
ls -lR > <filename>
```

Repeat this step on all host machines in the system, as well as in the `$ORACLE_HOME` directory.

Taking snapshots of InterMail directories has two important benefits:

- It helps with troubleshooting, should permissions on files change due to unforeseen circumstances or operator error.
- It reveals the exact structure of the Message File system. This is important, because if the Message File system is lost or corrupted, you will need to re-create it exactly.

Note: With few exceptions, the permissions for all directories and files in the InterMail system should be `imail` for user and group.

Starting and Stopping Servers

After logging on to the InterMail system and checking the environment, you are ready to start the InterMail servers. This can be accomplished in one of two ways: through `imservctrl` for a local host, or through `imctrl` for local and remote hosts. This section describes the use of `imservctrl` on a local host.

- To start InterMail servers on the local host, enter:

```
$INTERMAIL/lib/imservctrl start
```

You will see messages about servers being started. Watch for any failures.

To confirm that the servers are running, you can issue a `ps -aef | grep imail` command.

- To stop InterMail servers on the local host, enter:

```
$INTERMAIL/lib/imservctrl stop
```

When you run the `imservctrl stop` command, InterMail stops each server process on the local host, lists the process ID for each, and removes all information in the `$INTERMAIL/tmp` directory that is specific to the running session that was just stopped.

To confirm running processes, issue a `ps -aef | grep imail` command to ensure that no processes are remaining after InterMail has been stopped:

```
venus% ps -aef | grep imail
imail  5062  5060  0 14:36:43 pts/3    0:01 -csh
imail  4879  4877  0 10:00:09 pts/1    0:01 -csh
```

For more information on the `imservctrl` and `imctrl` commands, see the *InterMail Mx Operations Guide* and the *InterMail Mx Reference Guide*.

When you have finished testing how to start and stop servers, start all the servers and continue with the tasks in the rest of this chapter.

Pinging Servers and Checking Processes

The `imservctrl` command starts all servers on the local host in the required order. It also reports the status of all servers that have been started. If you need a more detailed view of server status, use `imservdisplay`, ping the servers, or check the InterMail processes. These tasks are described below.

Using `imservdisplay`

Use the `imservdisplay` command to display the status of servers and any log entries that have been written since the server was started. For example:

```
venus% imservdisplay
Monitoring InterMail modules: imapserv imconfserv imdirscacheserv
imdirserv immgrserv imqueueserv mss mta popserv webedge

MessageStore Report:
-----
    Oracle Version: InterMail 4.1.0
    Number of Messages: 0
    Number of Mailboxes: 1

imapserv Report:
-----
    Note: ProcFound: imapserv process Found as PID: 4735.
    Note: ServerPing: imapserv responded to version query ...
    ...

imconfserv Report:
-----
    Note: ProcFound: imconfserv process Found as PID: 4524.
    ...
```

Pinging Servers

In addition to using `imservdisplay` to see whether servers are running, it is helpful to ping InterMail servers to see their response times. You can specify parameters to ping specific servers, or you can ping all the servers by issuing the command with no parameters.

For example:

```
venus% imservping 1 5 mss
Thu Feb 17 10:03:18 2000. imservping: (Info) mss.1 responded
Thu Feb 17 10:03:18 2000. imservping: (Info) mss.2 responded
Thu Feb 17 10:03:18 2000. imservping: (Info) mss.3 responded
...
venus% imservping
Thu Feb 17 12:11:53 2000. imservping: (Info) webedge responded
Thu Feb 17 12:11:53 2000. imservping: (Info) mss.1 responded
Thu Feb 17 12:11:53 2000. imservping: (Info) mss.2 responded
Thu Feb 17 12:11:53 2000. imservping: (Info) mss.3 responded
Thu Feb 17 12:11:53 2000. imservping: (Info) mss.4 responded
Thu Feb 17 12:11:53 2000. imservping: (Info) imapserv responded
Thu Feb 17 12:11:53 2000. imservping: (Info) imconfserv responded
Thu Feb 17 12:11:53 2000. imservping: (Info) immgrserv responded
...
```

Note: It is recommended that you check server response times by modifying the time intervals that `imservping` uses to check the server.

Checking InterMail Processes

After pinging servers, check the time/date stamp of InterMail server processes by issuing a `ps -aef | grep imail` command:

```
venus% ps -aef | grep imail
    imail  446      1  0   Mar 18 ?        0:44 /voll/imail/lib/mss.1 -db
    imail  629      1  0   Mar 18 ?        0:19 /voll/imail/lib/imapserv
    imail 5042    4879  0 13:41:38 pts/1    0:00 grep im
    imail  354      1  0   Mar 18 ?        1:01 /voll/imail/lib/imconfserv
    imail 4879    4877  0 10:00:09 pts/1    0:01 -csh
    imail  523      1  0   Mar 18 ?        3:47 /voll/imail/lib/mta
    imail  499      1  0   Mar 18 ?        1:19 /voll/imail/lib/imqueueserv
    imail  413      1  0   Mar 18 ?        2:36 /voll/imail/lib/
imdircacheserv
    imail  392      1  0   Mar 18 ?        0:09 /voll/imail/lib/immgrserv
    root   369      1  0   Mar 18 ?        0:01 /voll/imail/lib/snmpdm -
aperror
    imail  581      1  0   Mar 18 ?        0:23 /voll/imail/lib/popserv
```

If the time/date stamp does not reflect the latest time servers were started, this may indicate that a process ID remains, in which case it needs to be manually removed (with `kill -9 <pid>`). Once the process has been removed, restart the affected server using the `imservctrl start <server>` command.

Checking the Databases

At this point, assuming that all servers are running and can be contacted, you are ready to check the operation of the Integrated Services Directory (ISD) and Message Store databases.

To check the operation of each database, use the following procedure:

1. Set user to Oracle.

```
su - oracle
```

2. Run the following command, where <OracleSID> is the Oracle system ID for the database:

```
showDB <OracleSID>
```

For example:

```
showDB IMD510
```

The default SID for the ISD database is IMD510 and the default SID for the first Message Store database is IMM510_1. Your SIDs will be different if you specified custom SIDs during installation.

3. To confirm that the database is running and that the Listener is running and configured correctly, enter:

```
tnsping <OracleSID>
```

For example:

```
venus% tnsping IMM510_1
TNS Ping Utility for Solaris: Version 8.0.5.0.0 - Production on
08-MAR-00 16:30:08
(c) Copyright 1997 Oracle Corporation. All rights reserved.
Attempting to contact
(ADDRESS=(PROTOCOL=TCP)(Host=venus)(Port=1521))
OK (90 msec)
```

Testing Message Flow

To ensure that the InterMail message flow is working properly, follow these steps:

1. Create test accounts.
2. Synchronize the ISD and the Directory cache.
3. Check message delivery.
4. Check message storage.
5. Check message retrieval.

This section describes these steps in detail.

Creating Test Accounts

Create two test accounts using the `imdbcontrol CreateAccount` command. For example:

1. Create `testuser01`:

```
imdbcontrol CreateAccount testuser01 venus 12345 testuser01
testuser01 clear software.com A S
```

2. Create `testuser02`:

```
imdbcontrol CreateAccount testuser02 venus 23456 testuser02
testuser02 clear software.com A S
```

Synchronizing the ISD and Directory Cache

To make sure that the Directory cache has up-to-date information about the accounts you just created, do the following:

1. Shut down the Directory Cache server:

```
$INTERMAIL/lib/imservctrl stop imdircacheserv
```

2. Run `imdirsinc`:

```
$INTERMAIL/lib/imdirsinc
```

3. Restart the Directory Cache server:

```
$INTERMAIL/lib/imservctrl start imdircacheserv
```

Repeat these steps on each host in your system that runs a Directory Cache server.

Checking Message Delivery

To check message delivery, `telnet` to port 25 on the Message Transport Agent (MTA), log in as `testuser01`, and send a message to `testuser02` as follows:

```
venus% telnet 0 25

Trying 0.0.0.0...
Connected to 0.
Escape character is '^]'.
220 venus.software.com ESMTP server (InterMail vM5.01.00.00 201-246) ready
Thu, 17 Feb 2000 12:29:33 -0800
MAIL FROM: testuser01@software.com
250 Sender <testuser01@software.com> Ok
RCPT TO: testuser02@software.com
250 Recipient <testuser02@software.com> Ok
DATA
354 Ok Send data ending with <CRLF>.<CRLF>
This is a test.
.
250 Message received: 19980319023730.ACQ28442@software.com
quit
```

In the `telnet` command, 0 indicates the current host. If you are connecting to a remote host, specify the hostname instead of 0.

After the message has been created and sent, you can check the `mta.log` file to view events related to this test transaction.

Checking Message Storage

After a message has been successfully delivered to `testuser02`, check to make sure that message storage is functioning properly by listing the contents of `testuser02`'s INBOX. For example:

```
venus% imfolderlist testuser02@software.com -all
Account testuser02@software.com, Message Store -2,
Folder /INBOX contains 1 message(s):
0:From: <testuser01@software.com>
0:Date: Thu, 17 Feb 2000 18:34:57 -0800
0:Message-Id: <19980325023730.ACQ28442@software.com >
```

Checking Message Retrieval

After confirming that a test message has been successfully delivered and stored, check message retrieval. You can do this from a POP client, from an IMAP client, or from any host using Telnet, whichever is appropriate for your configuration.

To test retrieval using Telnet on the POP port, telnet to the POP port and log in as `testuser02`:

```
venus% telnet 0 110

Trying 0.0.0.0...
Connected to 0.
Escape character is '^]'.
+OK InterMail POP3 server ready.
user testuser02
+OK please send PASS command
pass testuser02
+OK testuser02 is welcome here
retr
... <message is displayed> ...
```

To test retrieval using Telnet on the IMAP port, telnet to the IMAP port and log in as testuser02:

```
venus% telnet 0 143

Trying 0.0.0.0...
Connected to 0.
Escape character is '^]'.
* OK IMAP4 server (InterMail vM.5.01.00.00 201-249) ready Thu, 17 Feb 2000
16:33:19 -0800 (PST)
1 login testuser02 testuser02
1 OK LOGIN completed
2 select inbox
* 1 EXISTS
* OK [UIDVALIDITY 952561915] UIDs valid
* FLAGS (\Answered \Flagged \Deleted \Draft \Seen)
* OK [PERMANENTFLAGS (\* \Answered \Flagged \Deleted \Draft \Seen)]
Permanent flags
* 1 RECENT
2 OK [READ-WRITE] SELECT completed
3 fetch 1:* rfc822.header
* 1 FETCH (RFC822.HEADER {432}
Return-Path: <testuser01@software.com>
Received: from [127.0.0.1] by venus.software.com

(InterMail vM.5.01.00.00 201-249) with SMTP
id <20000309003145.AAA1867.venus.software.com@[127.0.0.1]>
for <testuser02@software.com>; Thu, 17 Feb 2000 16:31:45 -0800

Message-Id: <20000309003145.AAA1867.venus.software.com@[127.0.0.1]>
Date: Thu, 17 Feb 2000 16:31:54 -0800
From: <testuser01@software.com>

)
3 OK FETCH completed
4 list "" *
* LIST () "/" "INBOX"
* LIST () "/" "SentMail"
* LIST () "/" "Trash"
4 OK LIST completed
5 fetch 1:1 rfc822
... <message is displayed> ...
6 logout
* BYE IMAP4 server terminating connection
6 OK LOGOUT completed
```

When you telnet to the IMAP port, each command you enter must be preceded by a sequence number or character. You can use the same number or character for each command, but it is useful to use different numbers to associate responses with commands because the responses from this port are asynchronous.

In the above example:

- The first command logs in to the testuser02 account. The first occurrence of testuser02 in the command is the e-mail name, and the second occurrence is the password you created for that account.
- The second command selects the INBOX folder.
- The third command lists all the headers in the current folder.

- The fourth command lists all the folder names.
- The fifth command fetches the first message in the current folder.

Sending Mail from a Non-MTA Host

To send mail from a host that is not running an MTA server, install and configure the InterMail `sendmail` program as follows (replace the text in angle brackets with the appropriate site-specific information):

```
su -
cd /usr/lib
mv sendmail sendmail.original
cd $INTERMAIL/bin
cp sendmail /usr/lib
cat > /etc/sendmail.conf <<EOF
SmartHost=<mta-host>
DomainName=<domain-name>
EOF
```

Note: The above example assumes that the original `sendmail` program is in `/usr/lib`.

Using the EMANATE Utilities in SNMP

To use the EMANATE utilities, such as `getbulk`, in SNMP mode you must create a `~imail/snmp/mgr.cnf` file for your installation. This file is customer-specific and does not affect third-party SNMP clients. Enter the `man mgrcnf` command from your InterMail user account to view a man page for this file.

A

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