Oracle® Email

Migration Tool Guide

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Oracle Email Migration Tool Guide, Release 9.0.3

Part No. B10104-01

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Preface

This manual describes how to use the Oracle Email Migration Tool packaged with Oracle Collaboration Suite and provides information about the Migration Tool, the Migration Setup Wizard, and the tasks you perform to migrate e-mail systems to the Oracle Email component of Oracle Collaboration Suite.

This preface contains these topics:

- Audience
- Organization
- Related Documentation
- Conventions
- Documentation Accessibility

Audience

The *Oracle Email Migration Tool Guide* is intended for system administrators, e-mail administrators, and people involved in planning e-mail systems for organizations migrating users from Oracle eMail Server 5.2.x or Microsoft Exchange 5.0 and 5.5 to Oracle Email.

To use this document, you must have an understanding of Oracle e-mail server administration.

Organization

This document contains:

Chapter 1, "Introduction to Oracle Email Migration Tool"

Introduces the Migration Tool and provides an overview of the migration process.

Chapter 2, "Migration Planning and Using the Oracle Email Migration Tool"

Explains planning for migration and focuses on configuration, plug-ins, and routing reconfiguration planning.

Chapter 3, "Migration Tasks"

Describes pre-migration, migration, and post-migration tasks for e-mail.

Appendix A, "Plug-in Generated File Formats"

Provides file formats and examples of generated files including user-list, distribution lists, public aliases, shared folders, and server-side rules.

Appendix B, "API Architecture"

Provides guidelines for developing plug-ins to migrate other third party e-mail systems.

Related Documentation

For more information, see these Oracle resources in the Oracle Collaboration Suite Release 9.0.3 documentation set:

- *Oracle Collaboration Suite Administrator's Guide*

- *Oracle Collaboration Suite Installation Guide*

- *Oracle Collaboration Suite Release Notes*

- Check the Oracle Technology Network Web site for new and updated documentation.

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```
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```
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If you already have a username and password for OTN, then you can go directly to the documentation section of the OTN Web site at

```
http://otn.oracle.com/docs/index.htm
```

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```
http://tahiti.oracle.com
```

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- http://msdn.microsoft.com

Conventions

This section describes the conventions used in the text and code examples of this documentation set. It describes:

- Conventions in Text

- Conventions in Code Examples

- Conventions for Windows Operating Systems

Conventions in Text

We use various conventions in text to help you more quickly identify special terms. The following table describes those conventions and provides examples of their use.

Convention	Meaning	Example
Bold	Bold typeface indicates terms that are defined in the text or terms that appear in a glossary, or both.	When you specify this clause, you create an **index-organized table**.
Italics	Italic typeface indicates book titles or emphasis.	*Oracle9i Database Concepts* Ensure that the recovery catalog and target database do *not* reside on the same disk.
`UPPERCASE monospace (fixed-width) font`	Uppercase monospace typeface indicates elements supplied by the system. Such elements include parameters, privileges, datatypes, RMAN keywords, SQL keywords, SQL*Plus or utility commands, packages and methods, as well as system-supplied column names, database objects and structures, usernames, and roles.	You can specify this clause only for a `NUMBER` column. You can back up the database by using the `BACKUP` command. Query the `TABLE_NAME` column in the `USER_TABLES` data dictionary view. Use the `DBMS_STATS.GENERATE_STATS` procedure.
`lowercase monospace (fixed-width) font`	Lowercase monospace typeface indicates executables, filenames, directory names, and sample user-supplied elements. Such elements include computer and database names, net service names, and connect identifiers, as well as user-supplied database objects and structures, column names, packages and classes, usernames and roles, program units, and parameter values. **Note:** Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown.	Enter `sqlplus` to open SQL*Plus. The password is specified in the `orapwd` file. Back up the datafiles and control files in the `/disk1/oracle/dbs` directory. The `department_id`, `department_name`, and `location_id` columns are in the `hr.departments` table. Set the `QUERY_REWRITE_ENABLED` initialization parameter to `true`. Connect as `oe` user. The `JRepUtil` class implements these methods.
`lowercase italic monospace (fixed-width) font`	Lowercase italic monospace font represents placeholders or variables.	You can specify the `parallel_clause`. Run `Uold_release.SQL` where `old_release` refers to the release you installed prior to upgrading.

Conventions in Code Examples

Code examples illustrate SQL, PL/SQL, SQL*Plus, or other command-line statements. They are displayed in a monospace (fixed-width) font and separated from normal text as shown in this example:

```
SELECT username FROM dba_users WHERE username = 'MIGRATE';
```

The following table describes typographic conventions used in code examples and provides examples of their use.

Convention	Meaning	Example
[]	Brackets enclose one or more optional items. Do not enter the brackets.	`DECIMAL (digits [ , precision ])`
{ }	Braces enclose two or more items, one of which is required. Do not enter the braces.	`{ENABLE	DISABLE}`
|	A vertical bar represents a choice of two or more options within brackets or braces. Enter one of the options. Do not enter the vertical bar.	`{ENABLE	DISABLE}` `[COMPRESS	NOCOMPRESS]`
...	Horizontal ellipsis points indicate either:	
	■ That we have omitted parts of the code that are not directly related to the example	`CREATE TABLE ... AS subquery;`
	■ That you can repeat a portion of the code	`SELECT col1, col2, ... , coln FROM employees;`
. . .	Vertical ellipsis points indicate that we have omitted several lines of code not directly related to the example.	
Other notation	You must enter symbols other than brackets, braces, vertical bars, and ellipsis points as shown.	`acctbal NUMBER(11,2);` `acct    CONSTANT NUMBER(4) := 3;`
Italics	Italicized text indicates placeholders or variables for which you must supply particular values.	`CONNECT SYSTEM/system_password` `DB_NAME = database_name`

Convention	Meaning	Example

UPPERCASE	Uppercase typeface indicates elements supplied by the system. We show these terms in uppercase in order to distinguish them from terms you define. Unless terms appear in brackets, enter them in the order and with the spelling shown. However, because these terms are not case sensitive, you can enter them in lowercase.	`SELECT last_name, employee_id FROM employees;`
		
		`SELECT * FROM USER_TABLES;`
		
		`DROP TABLE hr.employees;`

lowercase	Lowercase typeface indicates programmatic elements that you supply. For example, lowercase indicates names of tables, columns, or files.
	
	Note: Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown.
		`SELECT last_name, employee_id FROM employees;`
		
		`sqlplus hr/hr`
		
		`CREATE USER mjones IDENTIFIED BY ty3MU9;`

Conventions for Windows Operating Systems

The following table describes conventions for Windows operating systems and provides examples of their use.

Convention	Meaning	Example
Choose Start >	How to start a program.	To start the Database Configuration Assistant, choose Start > Programs > Oracle - *HOME_NAME* > Configuration and Migration Tools > Database Configuration Assistant.
File and directory names	File and directory names are not case sensitive. The following special characters are not allowed: left angle bracket (<), right angle bracket (>), colon (:), double quotation marks ("), slash (/), pipe (|), and dash (-). The special character backslash (\) is treated as an element separator, even when it appears in quotes. If the file name begins with \\, then Windows assumes it uses the Universal Naming Convention.	`c:\winnt"\"system32` is the same as `C:\WINNT\SYSTEM32`

Convention	Meaning	Example
`C:\>`	Represents the Windows command prompt of the current hard disk drive. The escape character in a command prompt is the caret (^). Your prompt reflects the subdirectory in which you are working. Referred to as the *command prompt* in this manual.	`C:\oracle\oradata>`

	The backslash (\) special character is sometimes required as an escape character for the double quotation mark (") special character at the Windows command prompt. Parentheses and the single quotation mark (') do not require an escape character. Refer to your Windows operating system documentation for more information on escape and special characters.	`C:\>exp scott/tiger TABLES=emp QUERY=\"WHERE job='SALESMAN' and sal<1600\"`
		
		`C:\>imp SYSTEM/`*`password`*` FROMUSER=scott TABLES=(emp, dept)`

HOME_NAME	Represents the Oracle home name. The home name can be up to 16 alphanumeric characters. The only special character allowed in the home name is the underscore.	`C:\> net start Oracle`*`HOME_ NAME`*`TNSListener`

Convention	Meaning	Example
ORACLE_HOME and *ORACLE_ BASE*	In releases prior to Oracle8*i* release 8.1.3, when you installed Oracle components, all subdirectories were located under a top level *ORACLE_HOME* directory that by default used one of the following names:	Go to the *ORACLE_BASE**ORACLE_ HOME*\rdbms\admin directory.
	■ C:\orant for Windows NT	
	■ C:\orawin95 for Windows 95	
	■ C:\orawin98 for Windows 98	
	This release complies with Optimal Flexible Architecture (OFA) guidelines. All subdirectories are not under a top level *ORACLE_HOME* directory. There is a top level directory called *ORACLE_BASE* that by default is C:\oracle. If you install the latest Oracle release on a computer with no other Oracle software installed, then the default setting for the first Oracle home directory is C:\oracle\orann, where nn is the latest release number. The Oracle home directory is located directly under *ORACLE_BASE*.	
	All directory path examples in this guide follow OFA conventions.	
	Refer to *Oracle9i Database Getting Starting for Windows* for additional information about OFA compliances and for information about installing Oracle products in non-OFA compliant directories.	

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```

Accessibility of Code Examples in Documentation   JAWS, a Windows screen reader, may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, JAWS may not always read a line of text that consists solely of a bracket or brace.

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1

Introduction to Oracle Email Migration Tool

This chapter provides an overview of the Oracle Email Migration Tool.

This chapter contains these topics:

- What Is the Oracle Email Migration Tool?
- Who Uses the Oracle Email Migration Tool?
- Overview of the Migration Process

What Is the Oracle Email Migration Tool?

E-mail migration is usually a tedious and intricate process. It requires migration of accounts, server-side rules, folders, e-mail messages, distribution lists, shared folders, public aliases, and Web Client address books, as well as changes to the Simple Mail Transfer Protocol (SMTP) routing. Migrating a large e-mail system with minimal downtime is a challenging task.

The Oracle Email Migration Tool facilitates migration of users to Oracle Email from Oracle eMail Server 5.2.1 and Microsoft Exchange 5.0 and 5.5.

For migration, a system administrator requires the following utilities:

- The base Migration Tool
- A plug-in developed specifically for the source e-mail server

> **Note:** There are plug-ins for Oracle eMail Server and Microsoft Exchange source e-mail systems packaged with the Migration Tool.

The plug-in communicates with the source e-mail system to extract data from the source message store, which it saves in a format understood by the Migration Tool. Once the required files are generated, the Migration Tool reads the files and migrates them to Oracle Email. The plug-in and the Migration Tool communicate through an API.

The logs generated by the Migration Tool are written to the `text.log` file located in the `log/migration/`*uniquenumber* directory where you unzip the `esmigration.zip` file.

> **See Also:**
> - Appendix B, "API Architecture" for information about APIs
> - "Installing the Migration Tool" on page 3-3 for directory information

Who Uses the Oracle Email Migration Tool?

The Migration Tool is designed specifically to migrate large mail systems, such as:

- Corporate installations that generally have a few thousand to hundreds of thousands of users with large mailboxes (tens to hundreds of megabytes).

- Internet service providers that generally have a large number of users (millions) with small mailboxes (a few hundred kilobytes).

Overview of the Migration Process

Migrating a mail system involves migrating account information and migrating data, and routing of new and future messages to the target Oracle Email server.

This section contains the following topics:

- Migrating Accounts
- Migrating Data

Migrating Accounts

The Migration Tool extracts account information, including user names, public aliases, distribution lists, and server-side rules from the source directory server or user profiles file and places it into the target Oracle Email system and the target Oracle Internet Directory, as shown in Figure 1–1.

Figure 1–1   Account Migration
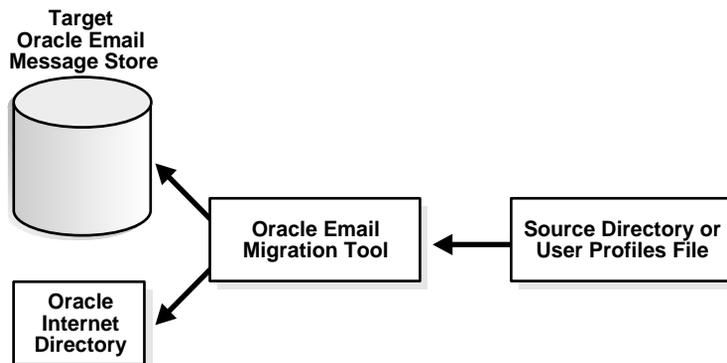
> **Note:**   The target Oracle Internet Directory and the source directory server can be the same or different servers.

Migrating Data

Migrating user data is a major part of migration and involves the most resources of the system on which the Migration Tool is installed. The following operations occur during data migration:

- Messages, folders, and shared folders are migrated

  For shared messages, the Migration Tool inserts one copy of a message into the database and provides a pointer for every recipient of the same message, as opposed to having a copy of the message sent to each recipient. This can potentially save an enormous amount of disk space that would otherwise be taken up by duplicate e-mail messages.

- Server-side rules are migrated

- Routing of new messages to Oracle Email

- Verification of successful migration

  > **See Also:** "Verifying Migration" on page 3-38 for more information about verification

The Migration Tool migrates data using either MBOX- or IMAP-based migration.

MBOX-Based Migration

If the source e-mail server does not support IMAP, as is the the case with Microsoft Exchange 5.0, the Migration Tool uses the plug-in to create MBOX files for each user in an MBOX directory. In the MBOX directory, messages that belong to a particular folder are successively appended to an MBOX file.

> **Note:** If the source e-mail server does not support IMAP, Oracle Corporation recommends selecting an MBOX-based migration.

The Migration Tool requests MBOX directory location information as input from the administrator into the Migration Setup Wizard. An overview of the process is shown in Figure 1–2.

Figure 1–2   Overview of the Mechanics of MBOX Based Migration
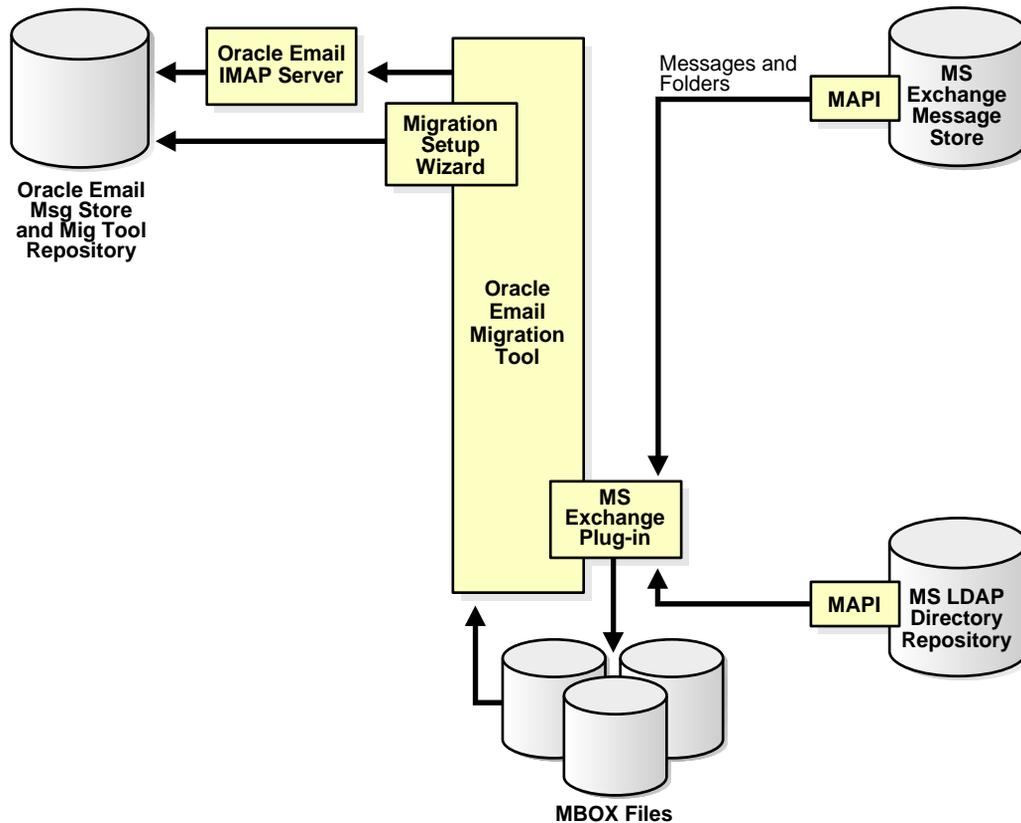
If your source e-mail system does not support IMAP, as is the case with Microsoft Exchange 5.0, the Migration Tool generates an MBOX file that you can store on an intermediate system before being migrated to Oracle Email.

> **See Also:**   "Step 1: Specifying Mail System Objects" on page 3-12 for information on selecting a migration option

You can choose to retain the user names from the source system, or direct the Migration Tool to generate new target user names based on rules you create.

> **See Also:**   "Step 8: Specifying New Account User Names" on page 3-24 for information on generating new target user names

IMAP-Based Migration

During an IMAP-based migration, the Migration Tool extracts the data from the source e-mail system message store and places it directly into the target e-mail system message store, as shown in Figure 1–3.

Figure 1–3   Overview of the Mechanics of IMAP Based Migration
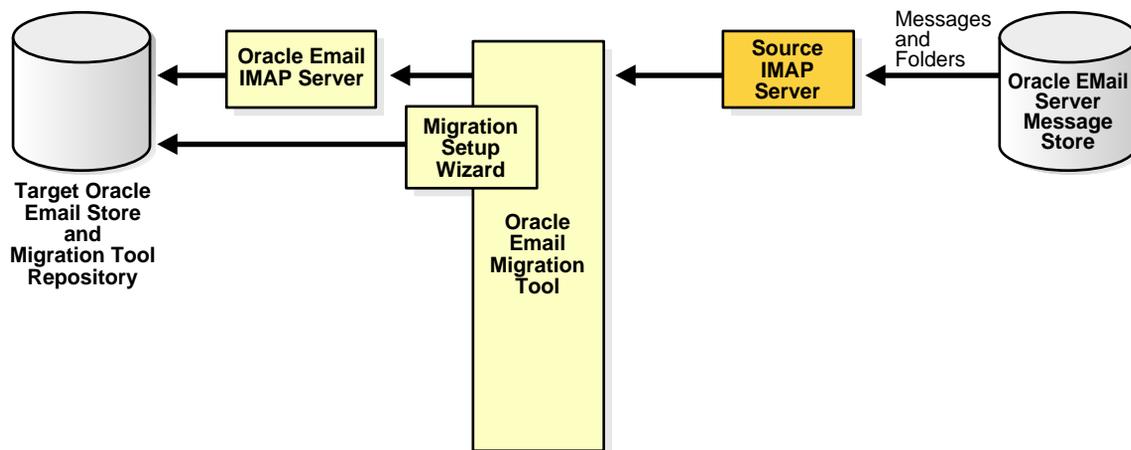
Note: MBOX-based migration can be used in an IMAP-supported source e-mail server to avoid source password requirements.

2

Migration Planning and Using the Oracle Email Migration Tool

This chapter provides migration planning information.

This chapter contains these topics:

- Requirements Before Migration
- System Requirements
- Configuration Planning
- Using the Oracle Email Migration Tool

Requirements Before Migration

Before starting a migration, at least one instance of Oracle Collaboration Suite and Oracle Internet Directory must be installed on the target system.

System Requirements

The Migration Tool can be run on either the source system, an intermediate system, or the target system. This section describes the following system requirements for the machine on which the Migration Tool is running:

- Memory
- Disk Space
- Network Bandwidth
- Microsoft Requirements
- Intermediate Storage of Data During Migration

Memory

The minimum memory requirement is 512 megabytes (MB) of random access memory (RAM).

Disk Space

The disk space requirement is:

- 300 MB for migrating 10 users concurrently from MBOX, assuming a quota of 20 MB for each user (including all the intermediate store files)
- 70 MB for migrating from IMAP

> **Note:** The Microsoft Exchange plug-in has a feature called Statistics Task that you can use to estimate your disk space requirements if you are migrating from a Microsoft Exchange source e-mail system. This feature is available after you install the Migration Tool.

> **See Also:** "Using Statistics Task to Estimate Disk Space Requirements (Optional)" on page 3-6 for information about using the Statistics Task feature

Network Bandwidth

The Migration Tool network bandwidth requirements are the same as those for IMAP4 clients, although, for high speed migrations, more bandwidth is required. Oracle Corporation recommends 100 megabits per second (Mbps).

> **Note:** Migration runs well on a local area network (LAN) with at least 10 Mbps.

Microsoft Requirements

Microsoft Outlook 97, Microsoft Outlook 98, or Microsoft Outlook 2000, and Microsoft Exchange Administrator must be installed on the machine where you want to generate the various files (such as user list, MBOX, and shared folders) if migrating from Microsoft Exchange to Oracle Email.

The following Microsoft Exchange Server Services must be configured and set up properly:

- Microsoft Exchange Internet Mail Service

- Microsoft Exchange Information Store

- Microsoft Exchange System Attendant

- Microsoft Exchange Event Service

- Microsoft Exchange Directory Service

Notes:

- If you are migrating from a Microsoft Exchange source e-mail system and running the Migration Tool on a machine other than the one upon which Microsoft Exchange is installed, ensure that Microsoft Outlook and Microsoft Exchange Administrator are installed on the machine from which you are running the Migration Tool.

- A user profile file cannot be generated from a machine where a Microsoft Exchange e-mail client is not installed.

Intermediate Storage of Data During Migration

During an MBOX based data migration, sufficient disk space must be available for intermediate storage to hold all of the e-mail of all the users being migrated together.

Note: The Migration Tool does not delete generated MBOX files.

See Also: *Oracle Collaboration Suite Installation Guide* for Oracle Email sizing guidelines

Configuration Planning

Configuration planning involves the following:

- Choosing the Migration Option

- Routing Reconfiguration Planning

- Supporting Different Character Sets

Choosing the Migration Option

Choose one of the following options for data migration:

- IMAP-based (IMAP to IMAP) migration for Microsoft Exchange 5.5 and Oracle eMail Server source e-mail systems

- MBOX-based (MBOX to IMAP) migration for Microsoft Exchange 5.0 source e-mail systems

> **Note:** MBOX based migration can also be used to migrate from Microsoft Exchange 5.5 source e-mail systems.

For each of these types of migrations, you can choose to retain your source system user names, or to have the Migration Tool generate new target user names on rules you create.

Routing Reconfiguration Planning

The mail system is always available to a user. Prior to migrating a user's data, the Migration Tool routes all of the user's new mail to Oracle Email. The user can still access old mail on the source account until data migration for the user is complete.

Once data migration is complete for a user, an e-mail notification is sent to the user's new account stating that migration is complete and that old and new e-mail can be accessed in the new Oracle Email account.

If you receive an **Unable to start directory services** error message from the Microsoft Exchange plug-in, the error is logged in the `..\log\msplugin_`*`username@source_domain`*`.log` file.

If an error occurs during data migration, the user's e-mail continues to be routed to the user's new account. If the Migration Tool fails to route the user, the migration fails.

Supporting Different Character Sets

See the *Oracle Collaboration Suite Administrator's Guide* for information about configuring the Oracle Email database to support different character sets.

Using the Oracle Email Migration Tool

The Migration Tool has various menu bar selections and methods for viewing information about users, source domains, batches, and migration status.

Initially, all menu selections except **Tools** > **Migration Setup** are disabled. You must run the Migration Setup Wizard at least once for the directory tree on the left side of the screen to be populated and the menu selections to be available.

The Migration Setup Wizard stores migration parameters in the database every time you run the wizard. The Migration Setup Wizard picks up the prior settings from the database each time it is run.

> **See Also:** "Task 3: Setting Up a Migration Session" on page 3-11 for information about the Migration Setup Wizard

This section contains the following topics:

- Overview of the Oracle Email Migration Tool Screen
- Displaying User, Domain, Batch, and Migration Status Information
- User States During Migration
- Tuning for Performance
- Viewing Log Files

Overview of the Oracle Email Migration Tool Screen

This section contains an overview of the Migration Tool screen.

This section contains the following topics:

- Migration Tool Screen Menu Selections
- Migration Tool Screen Fields

Migration Tool Screen Menu Selections

Figure 2–1 shows the menu selections on the Migration Tool screen.

Figure 2–1   Migration Tool Screen Menu Selections

- **File**: The File menu has only the **Exit** selection, which shuts down the Migration Tool. Any ongoing migrations are canceled. No rollback or state saving is performed.
- **Extract**: The Extract menu selections generate the following files in the Migration Tool `files` directory (except where noted):
  - **Users**: The `users.xml` file

> **Note:** `users.xml` is not extracted into the `files` directory. If you are extracting a user-list file for a domain called `oracle.com`, the file is generated in the `files/com/oracle` directory.

- – **Public aliases**: The `public_aliases.ldif` file
- – **Distribution lists**: The `distribution_lists.ldif` file
- – **Shared folders**: The `shared_folders.ldif` file
- – **User Profiles**: The `user_profiles.ldif` file
- **Batch**: The Batch menu has only the **Create** selection, which displays a screen in which you enter the type of batch that you want to create.

  See Also: "Task 6: Batching" on page 3-31 for more information about creating batches

- **Migrate**: The Migrate menu contains the following selections:
  - – **Create Users on Oracle**: Starts the migration of user accounts to the target Oracle Email server
  - – **Migrate Shared Folders**: Starts the migration of shared folders
  - – **Migrate Public Aliases**: Starts the migration of public aliases
  - – **Migrate Distribution Lists**: Starts the migration of distribution lists
  - – **Migrate User Data**: Starts the migration of user data
  - – **Pre**-**Migrate User Data**: Starts premigration of user data

    See Also: "Performing a Two-Phase Migration" on page 3-29 for more information about pre-migrating user data

  - – **Migrate Address Book**: Starts the migration of users' WebMail address books
  - – **Cancel Migration**: Cancels data migration. No rollback is performed and migration is terminated immediately
- **Tools**: The Tools menu contains the following selections:

- **Migration Setup**: Launches the Migration Setup Wizard. If the Migration Tool is being run for the first time or if you have cleared the migration parameters, this is the only menu selection enabled.

- **Load Users**: Loads user information into the migration repository for later retrieval

- **Modify User Details**: Displays a screen in which you enter the source user name for the user whose details you want to modify, and which contains fields for modifying the user's information

  Note: You can also select a user from the directory tree. Select the user and select **Tools** > **Modify User Details** to proceed with modifying the user's details.

- **Modify Migration Parameters**: Displays a screen in which you can edit various migration parameters

  See Also: Figure 3–10, "Modify Migration Parameters Screen" on page 3-27

- **Clear Migration Parameters**: Clears the migration parameters stored in the migration repository. The only menu option now enabled is **Migration Setup** to launch the Migration Setup Wizard.

- **Verify New Accounts**: Displays the Verification screen and gives information about an individual user's migration status by comparing the source and target accounts

  See Also: "Verifying Migration" on page 3-38 for more information about verification

- **Help**: The Help menu contains the following selections:
  - **Contents**: Displays the online help
  - **About**: Displays information about the release of the Migration Tool

Migration Tool Screen Fields

Figure 2–2 shows the right side of the Migration Tool screen when the **Migration View** node is selected.

Figure 2–2   Migration Tool Screen Fields
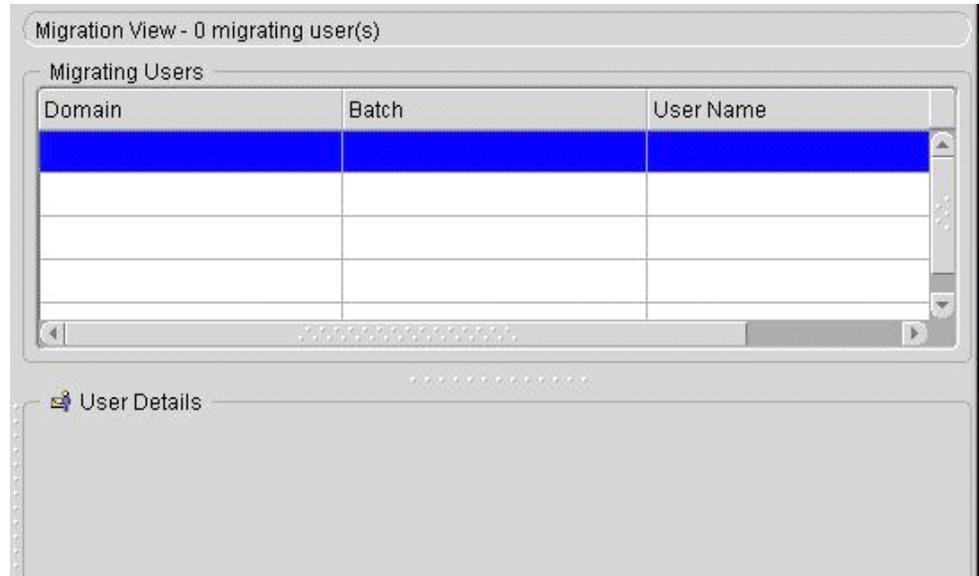
- The number of users currently migrating is displayed at the top of the section

- **Migrating Users**: Displays the **Domain**, **Batch**, and **User Name** of users that are in a current state of migration

- **User Details**: Displays user details of a user selected from the **User Name** column of the **Migrating Users** field

> **Note:**   When more than one Migration Tool instance runs against a single repository, each instance picks up users independently. The Migration View for a particular instance will show only the users that are being migrated by that instance in these two fields. Users listed in the directory tree might not be listed in the **Migrating Users** field. If you select a user from the directory tree and find that their status is **Migrating**, it means that the user is being migrated by another instance.

Displaying User, Domain, Batch, and Migration Status Information

You can display user, domain, batch, and migration status information using the Migration Tool screen. You can also edit the scheduled start time for migrating a batch using the Migration Tool screen.

This section contains the following topics:

- Viewing Domain, Batch, and User Information
- Displaying Source Domain Information and Migration Status
- Displaying Batch Information and Migration Status
- Displaying User Information and Status from the Directory Tree View

Viewing Domain, Batch, and User Information

You can expand the various nodes of the directory tree on the left side of the Migration Tool screen to display specific information.

- When you expand **MigrationView**, all the source domains display
- When you expand a domain, all the batches in the domain display
- When you expand a batch, all the users belonging to the batch display

Displaying Source Domain Information and Migration Status

All the domains on the source system you want to migrate are listed under **MigrationView** in the directory tree on the left side of the Migration Tool screen. To view the information and migration status for a particular source domain, as shown in Figure 2–3, select the source domain.

Figure 2–3   Migration Tool Screen with Source Domain Information Displayed
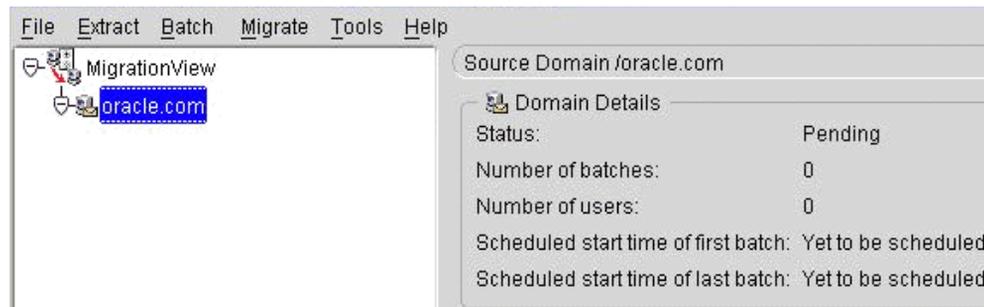
The following information displays:

- **Status** (Pending, Migrating, Done, or Failed)

- **Number of batches** in the domain

- **Number of users** in the domain

- **Scheduled start time of first batch**

- **Scheduled start time of last batch**

Displaying Batch Information and Migration Status

To monitor batch information, expand a domain to view the batches in the domain. Select a batch name to view information and migration status, as shown in Figure 2–4.

Figure 2–4   Migration Tool Screen with Batch Information Displayed
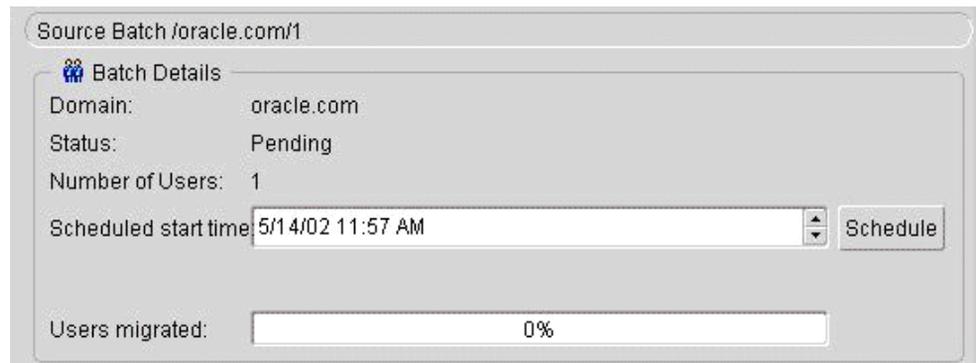
When you select a batch from the directory tree on the left side of the Migration Tool screen, the details for the selected batch display on the right side, showing the following information:

- **Domain** to which the batch belongs

- **Status** (Pending, Migrating, Done, or Failed)

- **Number of Users** in the batch

- **Scheduled start time** (you can edit the date and time field and click **Schedule** to save the changes)

- **Users migrated** (the percentage of users migrated)

> **Note:** If a single user in a batch fails to migrate, the entire batch is marked as **Failed** and must be rescheduled for migration. Users that migrated successfully are not migrated a second time.

> **See Also:** "Task 6: Batching" on page 3-31 for more information about batches

Displaying User Information and Status from the Directory Tree View
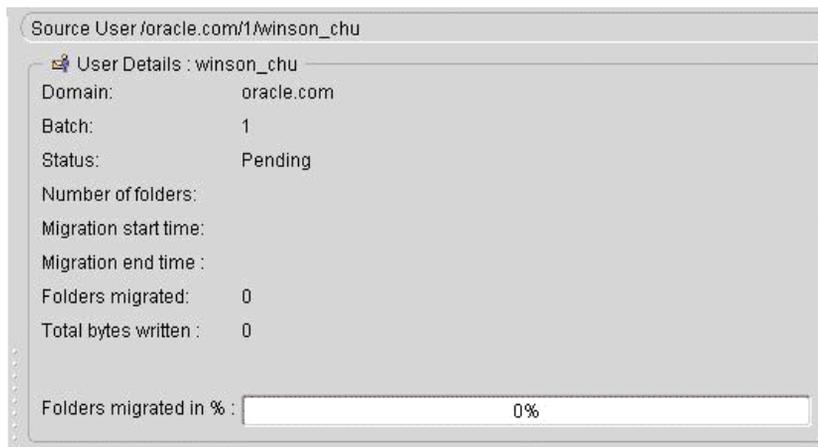
To view all the users belonging to a particular batch, expand the batch. To view a specific user's information and migration status, as shown in Figure 2–5, click their user name.

Figure 2–5 Migration Tool Screen with User Information Displayed

When you select a user from the directory tree on the left side of the Migration Tool screen, the details for the selected user display, showing the following information:

- **Domain** to which the user belongs
- **Batch** to which the user belongs
- **Status** (Pending, Migrating, Done, or Failed)
- **Number of folders**
- **Migration start time**

- **Migration end time**
- **Folders migrated**
- **Total bytes written**
- **Folders migrated in** % (the percentage of folders migrated)

> **Note:** If one folder fails to migrate, the user is marked as **Failed** and must be migrated again.

User States During Migration

A user is assigned one of the states shown in Table 2–1 during the data migration process.

Table 2–1 Migration States

State	Description
Pending	The user is yet to migrate
Migrating	The user is currently migrating
Done	The user was successfully migrated
Failed	The user's migration failed, for example, due to failure of routing or mail migration
	Failed users do not receive completion notifications

> **See Also:** "Displaying User, Domain, Batch, and Migration Status Information" on page 2-10 for information about viewing user states in the Migration Tool screen

Tuning for Performance

The read and write speeds are displayed at the bottom of the main Migration Tool screen. They indicate the performance of the Migration Tool.

You can increase or decrease the number of users migrating concurrently to optimize performance.

If you have two batches scheduled to migrate at times that overlap each other, the migration speed does not increase. The number of users that are migrated

concurrently is a fixed number specified by an administrator in the Migration Setup Wizard.

> **See Also:** "Step 2: Specifying Migration Options" on page 3-13 to change the number of concurrently migrating users

Viewing Log Files

Log files are generated in the log directory of the Migration Tool. Every run of the Migration Tool generates a new log file that an administrator can open in any text editor to view the contents. Log files should be viewed frequently throughout the migration process.

The logs should be viewed after each of the following tasks to ensure successful migration:

- Extraction of accounts, shared folders, public aliases, and distribution lists

  > **Note:** Any extraction failures of the Migration Tool are logged in the text.log file.

- Extraction of an MBOX file (Migration_default.log)

  > **Note:** When you select MBOX based migration, MBOX files are generated by the plug-in. View the Migration_default.log file for failed users. If you find that a user has failed, view the msplugin_*username*@*source_domain*.log file to find the error message logged by the plug-in application.

- Migration of data, accounts, shared folders, public aliases, and distribution lists
- Routing a user

3

Migration Tasks

This chapter provides information about migration tasks.

This chapter contains these topics:

- Administrator Responsibilities Before Migration
- Task 1: Starting the Migration Tool
- Task 2: Logging In to the Migration Repository
- Task 3: Setting Up a Migration Session
- Task 4: Migrating Users to Oracle Email
- Task 5: Extracting Mail System Objects from the Source System
- Task 6: Batching
- Task 7: Migrating Shared Folders
- Task 8: Migrating Public Aliases
- Task 9: Migrating Distribution Lists
- Task 10: Migrating WebMail Address Books
- Task 11: Migrating Data
- Post-Migration Administrator Responsibilities

Administrator Responsibilities Before Migration

> **Note:** At least one instance of Oracle Collaboration Suite, with the Email Server component, and Oracle Internet Directory must be installed on the target system prior to installing the Migration Tool.

This section contains the following topics:

- Configuring the Domain Name Server Entry
- IMAP Server Configuration
- Verifying Source and Target IMAP Server Ports
- Installing the Migration Tool
- Setting Up the Oracle eMail Server Plug-In
- Preparing for a Microsoft Exchange Migration

Configuring the Domain Name Server Entry

You must configure the DNS entry prior to beginning the migration process so that the target Oracle Email server is visible to the rest of the internet.

IMAP Server Configuration

The source IMAP servers should be suitably configured for a possibly large number of IMAP connections for concurrently migrating users. This includes database configuration for the source and target systems, if required.

The IMAP connection requirements are one connection per concurrent user on the source IMAP server and three connections per concurrent user on the target IMAP server.

To deploy message sharing in JMA based migrations, you must configure the IMAP server as follows:

1. Use the Oracle Enterprise Manager administrator pages to add the value `MigrationHeader=Message-ID` to the Process Flag IMAP server process parameter.

2. Restart the IMAP server prior to running the Migration Tool.

> **See Also:** *Oracle Email Administrator's Guide* for information about setting up process parameters on your IMAP server

Verifying Source and Target IMAP Server Ports

If you are performing an IMAP-based migration, verify that both the source and target IMAP servers are configured on port 143.

If you are performing an MBOX-based migration, verify that the target IMAP server only is configured on port 143.

> **See Also:** *Oracle Email Administrator's Guide* for target IMAP server configuration information

Installing the Migration Tool

The Migration Tool can be run on both Windows NT and UNIX platforms.

> **Note:**
>
> - All source Microsoft Exchange servers in the currently migrating site must stay up for the entire duration of the migration.
> - If you are migrating from a Microsoft Exchange source e-mail system and running the Migration Tool on a machine other than the one upon which Microsoft Exchange is installed, ensure that Microsoft Outlook and Microsoft Exchange Administrator are installed on the machine from which you are running the Migration Tool.

This section contains these topics:

- Setting Up JREHOME on UNIX
- Setting Up JREHOME on Windows NT

To install the Migration Tool:

1. Unzip the `esmigration.zip` file.

   For UNIX operating systems, enter the following:

   ```
   unzip esmigration.zip
   ```

For Windows NT operating systems, use WinZip to unzip and extract all files from the `esmigration.zip` file.

For either operating system, the following files and directories are created where you unzip the `esmigration.zip` file: `doc`, `help`, `log`, `files`, `bin`, `images`, `sql`, `config`, `lib`, and `esmsplugin.tar`.

2. Set up the `JREHOME` environment variable to point to the Java Runtime Environment (JRE) 1.3.1 directory.

Setting Up JREHOME on UNIX

To set up `JREHOME` on UNIX operating systems, do the following:

- For `C-Shell`, enter the following:

  ```
  setenv JREHOME directory_containing_JDK_131
  ```

- For `Korn-Shell`, enter the following:

  ```
  set JREHOME=/directory_containing_JDK_131
  export JREHOME
  ```

Setting Up JREHOME on Windows NT

To set up `JREHOME` on Windows NT operating systems, use a MS-DOS prompt to enter the following command:

```
set JREHOME=C:\directory_containing_JDK_131
```

Once the Migration Tool is installed, you must set up the appropriate plug-in for your source e-mail system.

Setting Up the Oracle eMail Server Plug-In

If your source e-mail system is Oracle eMail Server, you must provide domain configuration name (DCN) and node information to the `ES52Plugin.properties` file, located in the Migration Tool `bin` directory, as follows:

DCN Specification

Provide one line per source domain. The entry must indicate the domain's DCN and be in the form

```
oracle.mail.migration.plugin.es52.dcn.domain_name=hostname:port:SID:password
```

For example, if the source domain is `oracle.com` and the SID for the DCN is `db1`, which runs on host `h1` on port `1521`, and the `oo` account password is `oo`, the DCN entry is as follows:

```
oracle.mail.migration.plugin.es52.dcn.oracle.com=h1:1521:db1:oo
```

Nodes Specification

Provide one line per source node, in the form

```
oracle.mail.migration.plugin.es52.node.node_name=hostname:port:SID:password
```

For example, if the source node is `ESNODE` and the SID for the node is `db1`, which runs on host `h1` on port `1521`, and the `oo` account password is `oo`, the node entry is as follows:

```
oracle.mail.migration.plugin.es52.node.ESNODE=h1:1521:db1:oo
```

Preparing for a Microsoft Exchange Migration

If your source e-mail system is Microsoft Exchange 5.0 or 5.5, you must perform the following tasks:

- Creating an Administrator Profile Using Microsoft Outlook

- Ensuring that the MAPI Spooler Process is Running

- Using Statistics Task to Estimate Disk Space Requirements (Optional)

Creating an Administrator Profile Using Microsoft Outlook

If your source e-mail system is Microsoft Exchange, perform the following steps on the machine on which the source e-mail system is installed to create an administrator profile:

1. Ensure that Microsoft Outlook is installed on the machine and is operating correctly.

2. Create a profile using Microsoft Outlook.

    1. Select **Start** > **Settings** > **Control Panel** from the Windows NT task bar.

    2. Double-click the **Mail** icon.

    3. Click **Show Profiles...** > **Add...**.

    4. Select **Microsoft Exchange Server** and enter a name in the **Profile Name** field. Click **Next**.

5. Enter the name of the server in the **Microsoft Exchange Server** field.

6. In the **Mailbox** field, enter the name of an administrator.

3. Enter the profile information into the es_msplugin.ini file, which is available in the Migration Tool config directory. The format of the file is as follows:

```
profile_name=profile_name
password=password
```

For example, if the profile name is admin and the password is secret, the format of the file is:

```
profile_name=admin
password=secret
```

Ensuring that the MAPI Spooler Process is Running

If Microsoft Exchange is the source e-mail system, the MAPI spooler process must be running on the source system in order to extract the various files and perform routing.

To ensure that the MAPISP32.exe MAPI spooler process is running, bring up the Windows NT Task Manager. If the process is running, it appears in the list of processes.

To start the MAPI spooler process, double-click the executable in Windows Explorer.

> **Note:** If you do not have the MAPI spooler process, you can obtain the executable from Microsoft's Platform SDK that comes with the Microsoft Developer Network (MSDN) collection. Install the Platform SDK released April, 2000, or later.

Using Statistics Task to Estimate Disk Space Requirements (Optional)

To use Statistics Task to estimate disk space requirements, run it on the machine on which Microsoft Exchange is installed.

To run Statistics Task, enter the following command using the Windows NT command line:

```
msplugin.exe statistics_file=file_name user=user@domain
```

> **Note:** The *user@domain* can be any user on the Microsoft
> Exchange Server, not just an administrator.

Task 1: Starting the Migration Tool

To start the Migration Tool on UNIX operating systems, run the `migrate.sh`
script, located in the Migration Tool `bin` directory, by entering the following
commands:

```
cd bin
./migrate.sh
```

To start the Migration Tool on Windows NT operating systems, double-click the
`migrate.cmd` file, located in the Migration Tool `bin` directory, or enter the
following commands:

```
C:\> cd bin
C:\> .\migrate.cmd
```

The Migration Repository Login screen displays, shown in Figure 3–1.

This section contains the following topics:

- Starting Multiple Instances of the Migration Tool
- Configuring Migration Tool Parameters

Starting Multiple Instances of the Migration Tool

Multiple instances of the Migration Tool can be started if a situation warrants the
use of multiple instances, as is the case in the following situations:

- You can use multiple instances of the Migration Tool on one node to migrate
  more users concurrently
- You can use multiple instances of the Migration Tool to connect to many nodes
  to migrate several nodes in a multi-node setup

To start multiple instances of the Migration Tool, edit the following parameter
located in the `migrate.sh` file:

```
-Doracle.mail.migration.migrate.instance=unique_instance_name
```

For example, add the following two parameters to the `migrate.sh` file to start two
different instances on UNIX:

```
-Doracle.mail.migration.migrate.instance=inst1
-Doracle.mail.migration.migrate.instance=inst2
```

> **Notes:**
>
> - To recover a failed Migration Tool instance, restart it with `-Doracle.mail.migration.migrate.instance=`*unique_instance_name*, using the name of the failed instance. Users and batches that were migrating at the time of instance failure show the status **failed**. If more than one instance fails, they must all be re-run for complete recovery.
>
> - When more than one Migration Tool instance runs against a single repository, each instance picks up users independently.

Configuring Migration Tool Parameters

By editing parameters located in either the `migrate.sh` (on UNIX) or `migrate.cmd` (on Windows NT) file, you can do the following:

- Specify the number of connections in a pool created by each instance of the Migration Tool

- Specify a particular instance of the Migration Tool by name

- Set the Migration Tool to communicate to the source or target IMAP servers through a port number different from the default

- Choose how the Migration Tool migrates messages to the target Oracle Email system

- Disable message sharing for two-phase migration

Following are instructions for configuring Migration Tool parameters:

- Every instance of the Migration Tool creates a pool of connections to the database. You can specify the minimum and maximum numbers of connections by editing the following parameters:

  ```
  -Doracle.mail.migration.util.dbcache.min=1
  -Doracle.mail.migration.util.dbcache.max=2
  ```

  The values shown are default values.

Notes:

- Oracle Corporation recommends setting the maximum value to N, where N is the number of users migrating concurrently.

- If extra connections are needed after the maximum limit is reached, the Migration Tool still opens connections to the database. The extra connections immediately close when they are no longer required.

- If you plan to run more than one instance of the Migration Tool, you can name each instance, uniquely, by editing the following parameter:

```
-Doracle.mail.migration.migrate.instance=instance_name
```

The default value of `instance_name` is `default`. The instance name can also be passed as a command line parameter to `migrate.sh` or `migrate.cmd`.

- By default, the Migration Tool makes IMAP connections through port 143. If either the source or target IMAP server is set to a port other than 143, you can change it by editing the following parameters:

```
-Dmail.imap.port.source=port_number
-Dmail.imap.port.target=port_number
```

- Either Java Mail API (JMA) or Oracle Java Mail API (OJMA) can be used to append messages to the Oracle Collaboration Suite e-mail system.

When JMA is used, the IMAP server uses an append command to append the messages to the target folders. When OJMA is used, the Migration Tool bypasses the IMAP server and creates the message in the Oracle Collaboration Suite mail database.

To use OJMA, define the following parameter:

```
-Doracle.mail.migration.migrate.jmatype=oracle
```

Note: If OJMA is used, target passwords need not be specified.

Following is an example of a JRE command to run an instance of the Migration Tool called `myhost:1` with 1 GB heap and 50 database connections, using OJMA:

```
$JRE -Xms1024m -Xmx1024m
-Doracle.mail.migration.migrate.instance=myhost:1
-Doracle.mail.migration.util.dbcache.max=50
-Doracle.mail.migration.migrate.jmatype=oracle
oracle.mail.migration.migrate.Migrate
```

Once the parameters are configured, you can start a particular instance of the Migration Tool by entering the following command:
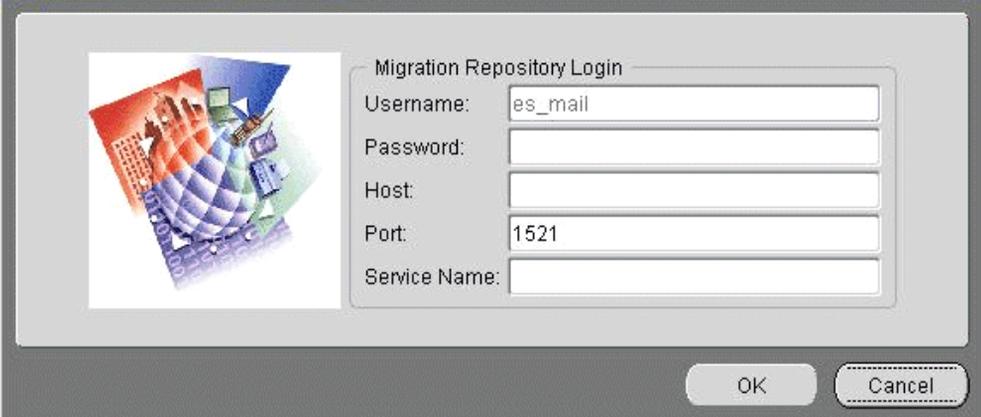
```
migrate.sh instance_name (on UNIX)
```

or

```
C:\migration\bin\> migrate instance_name (on Windows NT)
```

Task 2: Logging In to the Migration Repository

The Migration Tool creates a repository under the `es_mail` user schema on the Oracle Email database. If a repository already exists, the Migration Tool reuses it.

Figure 3–1   Migration Repository Login Screen

Specify the following information to log in to the migration repository:

- **Password**: The default password for the `es_mail` user is `es`.

- **Host**: Enter the host name of the machine on which the source e-mail server is installed.

- **Port**: Enter the port number on which the Oracle Net Services listener is running. The default port number 1521. If you use a different port number, enter the number.

- **Service Name**: Enter the SID where Oracle Collaboration Suite is installed.

After you enter the required information, click **OK**.

The Oracle Email Migration Tool screen displays.

Task 3: Setting Up a Migration Session

The Migration Setup Wizard collects details for the source and target domains; information for setting specific migration options; and notification of successful migration.

Select **Tools** > **Migration Setup** from the Migration Tool menu bar to start the Migration Setup Wizard and display the Welcome screen.

The following Migration Setup Wizard steps are described in this section:

> **Note:** All of the following steps are not required. The number of required steps is determined by choices made in Step 1.

- Step 1: Specifying Mail System Objects
- Step 2: Specifying Migration Options
- Step 3: Specifying Notifications
- Step 4: Specifying Mail Services
- Step 5: Specifying Source Directory Server Parameters
- Step 6: Specifying Target Directory Server Parameters
- Step 7: Specifying LDAP Attribute Mapping
- Step 8: Specifying New Account User Names
- Modifying Migration Parameters

Click **Next** to display the Mail System Objects screen, shown in Figure 3–2.

Step 1: Specifying Mail System Objects

Figure 3–2   Mail System Objects Screen

Specify the following information in the Mail System Objects screen:

- Select the source e-mail system from the **Select source mail system** drop-down list.

- Select each of the objects you want to migrate. Do not select an object if:

  – It does not exist on the source e-mail server

  – You do not want to migrate the object

After you finish entering the information, click **Next** to display the Migration Options screen, shown in Figure 3–3.

Step 2: Specifying Migration Options

Figure 3–3   Migration Options Screen

Specify the following information in the Migration Options screen:

- **Select the number of users you want to migrate concurrently**: Enter the number of users to be migrated concurrently by the Migration Tool.

  The number you choose here specifies the number of reader threads reading from an IMAP source. This number is the upward limit of users that can be migrated at the same time. For example, if you select 100 as the number of users you want to migrate concurrently, 100 users are migrated concurrently at any one time during the migration process.

  When you create batches for migration, the number of users in a batch is mutually exclusive of the number of users migrating concurrently. For example, if you create a batch of 500 users and select 100 as the number of users migrating concurrently, at most, 100 users at a time are migrated out of the batch of 500.

The number of concurrently migrating users you choose depends upon the resources at your disposal. The size of the number will greatly affect the speed and efficiency with which the Migration Tool performs its tasks, such that the larger the number the more resources will be consumed.

> **See Also:**
>
> - *Oracle Collaboration Suite Release Notes* for information about the number of users to migrate concurrently
> - "Creating Batches" on page 3-32 for more information about batches

- In the **Account Migration** section, choose as your information source either **LDAP Server** or **User Profiles File**.

  - If base accounts have not been created on the target e-mail system, check the **Create Base Accounts** box

  - Specify **User Quota** (in MB) by entering a number in the adjacent field

    ---
    Note: The user quota is applied system wide.

- In the **Mail Migration** section, select whether you want to perform an **IMAP-based** or **MBOX-based** migration

  ---
  Note: The Oracle eMail Server 5.2 Splug-in packaged with this release of the Migration Tool does not generate MBOX files.

  - **IMAP-based**: If your source e-mail system supports IMAP, the Migration Tool extracts the message information from the source e-mail system and places it directly into the target e-mail system

  - **MBOX-based**: If your source e-mail system does not support IMAP, as is the case with Microsoft Exchange 5.0, choose this option. Select the **Generate Mbox** box and use the **Browse** button to specify the **MBOX Directory Path** to where the MBOX files will be created.

    Although the MBOX option is chosen, the Migration Tool does not immediately extract the file to the target disk. Instead, the Migration Tool assumes that the extracted files are already on the disk in the specified location.

This feature is useful for extracting MBOX files from a Microsoft Exchange system, moving them to an intermediate store on another machine, and then loading the file into the target Oracle Email server.

Notes:

- MBOX is a common file-based mailstore format. The Migration Tool imports the information into the target e-mail system from the intermediate store.

- There must be sufficient space on the target disk to store all of the users' e-mail being migrated.

See Also: "Viewing Log Files" on page 2-14 for information on viewing the logs associated with MBOX file generation

– Select the **Enable Routing** box to enable routing of mail to the new user accounts.

Notes:

- If your source e-mail system is Microsoft Exchange and you select **Enable Routing**, a rule is created on the Microsoft Exchange server during each user migration to forward a copy of all future messages to the target e-mail system.

- If you choose to run a two-phase migration, do not select **Enable Routing**.

See Also: "Performing a Two-Phase Migration" on page 3-29 for more information about two-phase migration

- In the **Shared Folder Migration** section, enter the folder owner's source e-mail address.

When you finish entering the information, click **Next** to display the Notification screen, shown in Figure 3–4.

Step 3: Specifying Notifications

Figure 3–4   Notification Screen

Notifications are e-mail messages that inform users about migration events.

In the **Notification** section, select either **New Account Details**, **Migration Report**, or both.

> **Note:**   If you choose to run a two-phase migration, do not select either **New Account Details** or **Migration Report**.

> **See Also:**   "Performing a Two-Phase Migration" on page 3-29 for more information about two-phase migration

- When **New Account Details** is selected, after the account for the user is created on the target e-mail server, an e-mail is sent to the user's old e-mail account

notifying the user of their new user name, password, and IMAP and SMTP host names.

Click the **Customize** button to add header and footer notes to the notification.

■ When **Migration Report** is selected, the **Migration Report** section becomes active. You can choose to send an e-mail to either the user's target account, the administrator, or both, notifying them that the migration is complete and that the user can begin using the new account.

If you choose to send a migration report to the administrator, enter their target user ID in the **Administrator Email Address** field.

Click the **Customize** button to add header and footer notes to the notification.

■ Select the **Verify Migration** box to attach a verification report to the migration report at the end of every migration.

When this option is selected, the Migration Tool compares the SMTP message ID of every message that is present on the target account with the source account. A report is generated from this comparison and is sent as part of the Migration Report.

> **See Also:** "Verifying Migration" on page 3-38 for more information about migration verification

■ You can set a **Failed Message Limit** by entering a number in the adjacent field. If the number of failed messages exceeds the number you enter, migration reports are delivered to the administrator, only.

When you finish entering the information, click **Next** to display the Mail Services screen, shown in Figure 3–5.

Step 4: Specifying Mail Services

Figure 3–5   Mail Services Screen

Specify the following in the Mail Services screen:

- In the **Oracle eMail Server Mail Store** section, enter the distinguished name (DN) of the target mail store in the associated field.

- In the **Source and Target Domains** section, enter the following:

  > **Note:**   Depending on your selections in the previous steps, the following text boxes are enabled on an as-needed basis.

  – **Source Domain**: Enter the source domain name

  – **Target Domain**: Enter the target domain name to which the source domain maps

The data that belongs to a source domain is created on the target domain to which this source domain is mapped. For example, all objects belonging to both `us.oracle.com` and `uk.oracle.com` are created under `oracle.com`.

– **Source IMAP Host**: Enter the source IMAP host name (if you selected the **MBOX based** migration option in the previous step, this field does not appear)

– **Target IMAP Host**: Enter the target IMAP host name

– **Source LDAP DN**: Enter the LDAP DN for users on the source domain. If you have more than one domain, enter the LDAP DNs for all the domains. The Migration Tool looks for source account entries under the DN of the LDAP. Each domain has a separate DN.

> **See Also:** Your LDAP server documentation for information about DN representation

– **Target LDAP DN**: Enter the LDAP DN for the target Oracle Internet Directory on which all users of this domain are created, in the format `dc=oracle,dc=com`, for a domain called `oracle.com`. The Migration Tool creates base account entries under the DN of the LDAP entry. Each domain has a separate DN.

– **Target SMTP Host**: Enter the SMTP host of the target domain which listens for e-mail

---

> **Note:** The **Target SMTP Host** field will only be active when you choose to send out migration notifications or have the Migration Tool create routing rules.

– Click **More** to enter more domains

When you finish entering the information, click **Next** to display the Source Directory Server screen, shown in Figure 3–6.

Step 5: Specifying Source Directory Server Parameters

Figure 3–6   Source Directory Server Screen

Specify the following source LDAP server information in the Source Directory Server screen:

- **Host Name**: Enter the host name of the machine on which the source directory server is running

- **Port**: Enter the port number on which the source directory server is listening

 The default port number for LDAP is 389. Update the port number if your port number is different.

- **Directory Manager DN**: Enter the directory manager distinguished name

- **Directory Manager Password**: Enter the directory manager password

  Leave the **Directory Manager DN** and the **Directory Manager Password** fields empty if the source LDAP server supports anonymous login.

■ **Object class of e-mail user**: Enter the object class that identifies the schema of an e-mail user on the source LDAP server

> **See Also:** *Oracle Email Administrator's Guide* for more information about schema

When you finish entering the information, click **Next** to display the Target Directory Server screen, shown in Figure 3–7.

Step 6: Specifying Target Directory Server Parameters

Figure 3–7   Target Directory Server Screen

Specify the following target Oracle Internet Directory information in the Target Directory Server screen:

■ **Host Name**: Enter the host name of the machine on which the target directory server is running

■ **Port**: Enter the port number on which the target directory server is listening

The default port number for LDAP is 389. Update the port number if your port number is different.

- **Directory Manager DN**: Enter the directory manager distinguished name

- **Directory Manager Password**: Enter the directory manager password

When you finish entering the information, click **Next** to display the Username Generation screen shown in Figure 3–9.

> **Note:** Depending upon choices you made in previous steps, the next screen to display is the LDAP Schema Mapping screen, shown in Figure 3–8.

Step 7: Specifying LDAP Attribute Mapping

Figure 3–8   LDAP Schema Mapping Screen
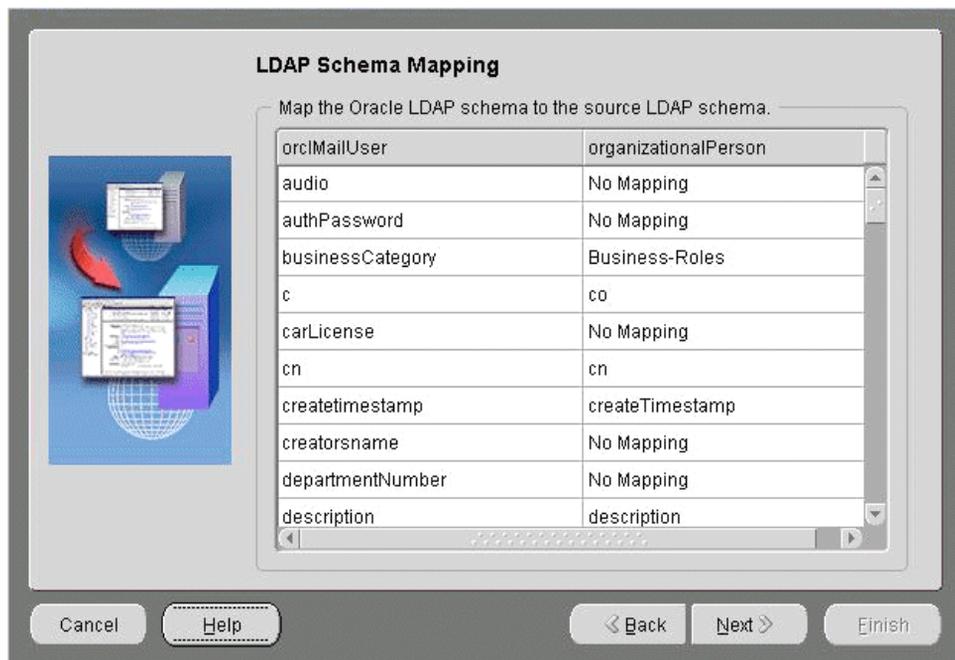
On Oracle Email, an e-mail account is described by the `orclperson` object class. This object class has some mandatory attributes you must map to source directory attributes. These mandatory attributes include:

- `cn`: Common Name
- `sn`: Last Name

Mandatory Attributes: Click the source attribute on the right to display a list of mapping choices and select the mapping that you want to update the source attribute.

Non-Mandatory Attributes: Attributes that are not mandatory on the target Oracle Internet Directory have the option **No Mapping** displayed in the right column. Click the drop-down list to display a list of attribute choices to which to map if you want to map a non-mandatory attribute.

> **Note:** You need only map these attributes once, because the Migration Tool saves the values for the subsequent batches.

When you finish entering the information, click **Next** to display the Username Generation screen, shown in Figure 3–9.

Step 8: Specifying New Account User Names

Figure 3–9   Username Generation Screen

Specify the following information in the Username Generation screen:

To generate new account user names, select one of the following choices from the **User Naming** section:

- **Retain old user names**: Specifies that the target user names remain the same as the source user names

- **Construct new user names**: Specifies that the Migration Tool generates the target user names

    If you choose to have the Migration Tool construct new user names, you must also supply the rules for user name generation in the **New User Name Construction** section.

    When supplying rules for new user name construction, you can choose to retain the first, middle, or last names, or any combination of the three. Select the appropriate **Yes** button to retain any of the three names.

You can also retain only part of a name by selecting the **Partial** button. Specify the number of characters you want to use in the **Number of characters to retain** field beneath each name.

You must also choose a separator character. To select a separator character, click the **Separate names with** drop-down list.

Notes:

- If a name is disabled, it was not mapped in the LDAP Schema Mapping screen.

- The values for first name, middle name, and last name are picked up from the source LDAP attributes that map to the given name, middle name, and surname `orclperson` attributes. You must provide this mapping in the LDAP Attribute Mapping screen.

- Target user names, if specified in the user-list, are used in all cases.

When you finish entering the information, click **Next**. The Summary screen displays. Click **Finish** to quit the Migration Setup Wizard and display the Oracle Email Migration Tool screen.

Resolving Account Name Conflicts

If the Migration Tool detects any duplicate target user names (also called name conflicts) when creating accounts in the target Oracle Internet Directory, it logs an error and does not create the duplicate account.

Duplicate target user name errors (name conflict errors) can only be avoided if user name generation rules are chosen so that unique target user names are generated.

To resolve name conflicts, perform the following steps:

1. Manually create the user with a unique name in Oracle Email.

2. Select **Tools** > **Modify User Details** to edit the information for that user.

3. Update the user's status to **Migrate User Data**.

When all accounts have been successfully created, proceed to creating batches and migrating user data.

See Also:

- "Creating Batches" on page 3-32

- "Task 11: Migrating Data" on page 3-36

Modifying Migration Parameters

Any changes you make take effect after you cancel and restart the migration.

You cannot modify migration parameters during the migration.

> **Note:**   If two or more instances of the Migration Tool are running against the same repository, all instances except one must be shut down before modifications to the migration parameters can proceed.

To modify migration parameters, do the following:

1. Select **Tools** > **Modify Migration Parameters** from the Migration Tool menu bar. The Modify Migration Parameters screen displays, as shown in Figure 3–10.

Figure 3–10   Modify Migration Parameters Screen

2. Modify the parameters.

3. Click **OK**.

Task 4: Migrating Users to Oracle Email

To migrate account information from the source directory server to Oracle Email, do the following:

1. Select **Extract** > **Users** from the Migration Tool menu bar to generate `users.xml`.

   > **Note:**   If you selected **User Profiles File** from the Migration
   > Options Screen, select **Extract** > **User Profiles**.

See Also:

- "Overview of the Oracle Email Migration Tool Screen" on page 2-6 for information about the location of the `users.xml` file

- Appendix A, "Plug-in Generated File Formats" for more information about user profile file formats

2. View the `text.log` file located in the `log/migration/`*`uniquenumber`* directory. Any errors that occur during account migration are logged in the `text.log` file as administrator error messages.

3. Select **Tools** > **Load Users** from the Migration Tool menu bar to load `users.xml` into the repository.

4. Select **Migrate** > **Create Users on Oracle** from the Migration Tool menu bar to create user accounts in the target Oracle Internet Directory.

5. View the `text.log` file located in the `log/migration/`*`uniquenumber`* directory. Any errors that occur during account migration are logged in the `text.log` file as administrator error messages.

> **See Also:** *Oracle Collaboration Suite Administrator's Guide* for descriptions of error messages

If a user's data in the user-list file causes account migration of this user to fail, you can modify the user's details and attempt to remigrate the batch after editing.

To modify user details, do the following:

1. Select **Tools** > **Modify User Details** from the Migration Tool menu bar. The Modify User Details screen displays, shown in Figure 3–11.

> **Note:** You can also select a user from the directory tree, select **Tools** > **Modify User Details**, and proceed with modifying the user's details.

Figure 3–11   Modify User Details Screen

2. Select the user's source domain from the **Domain** drop-down list.

3. Enter the source user name in the **Userid** field.

4. Click **Search** to populate the fields with the user's information.

5. Edit the field entries.

6. Update the migration status by choosing from the list of choices in the **Status** drop-down list.

7. Click **OK**.

Performing a Two-Phase Migration

Because migration of user accounts and messages involves transferring large amounts of data and is, therefore, time consuming, users must be transferred from the old system to the new in the least possible amount of time.

The migration tool provides a two-phase migration option to achieve these conflicting goals that transfers messages from the old system to the new Oracle system in two phases.

This section contains the following topics:

- Phase I: Pre-Migration
- Phase II: User Migration

Phase I: Pre-Migration

All users' messages from the source system are written into into the target Oracle Email system. User accounts, however, are not actually populated with messages, nor are their folders created. In this phase all the message bodies will be transferred into the Oracle Email system. This is typically done in the background over several days while users continue to use their old accounts.

To start pre-migration, do the following:

1. Ensure that user accounts have been created on the target Oracle Email system.

2. Ensure that message routing has been disabled.

> **See Also:** "Step 2: Specifying Migration Options" on page 3-13 for more information about message routing

3. Select **Migrate** > **Pre-Migrate User Data** from the Migration Tool menu bar.

Phase II: User Migration

In Phase II, the Migration Tool takes advantage of the message sharing capability of Oracle Email to quickly populate users' folders with the messages that were transferred in the first phase.

This phase typically involves only minimal housekeeping updates to the e-mail store and folder creation, and can be done over a weekend. During Phase II, the following operations are performed:

- Any new messages that users receive between Phase I and Phase II are transferred to the target user account
- Any messages that users delete in the interim will not appear in the target users' accounts
- Any new folders that users create in the interim are transferred to the target users' account
- Any folders that users have deleted in the interim will not appear in the target users' account

Follow the procedures in "Task 11: Migrating Data" on page 3-36 to perform the Phase II of migration.

> **Notes:**
>
> - For best results Phase II should be performed as quickly as possible after Phase I is complete.
>
> - When you perform a two-phase migration, all batches will be migrated during both phases. It is not possible to selectively migrate specific batches during two-phase migration.
>
> - Phase II of the migration can be performed at any time because it is the typical migration approach.

Task 5: Extracting Mail System Objects from the Source System

1. If you chose to migrate shared folders, select **Extract** > **Shared folders** from the Migration Tool menu bar to generate the `shared_folders.ldif` file in the `files` directory.

2. If you chose to migrate public aliases, select **Extract** > **Public aliases** from the Migration Tool menu bar to generate the `public_aliases.ldif` file in the `files` directory.

3. If you chose to migrate distribution lists, select **Extract** > **Distribution lists** from the Migration Tool menu bar to generate the `distribution_lists.ldif` file in the `files` directory.

4. View the `text.log` file located in the `log/migration/`*uniquenumber* directory. Any errors that occur during mail system object extraction are logged in the `text.log` file as administrator error messages.

Task 6: Batching

Once users are created, you must group them into batches for migration.

This section contains the following topics:

- Creating Batches
- Viewing Users in a Batch

Creating Batches

Using the Migration Tool, you can create a batch either by designating the number of users for each batch or by creating a custom batch.

Batch creation is done on a domain basis.

To create a batch by domain, do the following:

1. Expand the **Migration View** node on the directory tree on the left side of the Migration Tool screen.

2. Select the appropriate domain.

3. Select **Batch** > **Create Batches**. The Create Batches screen displays, as shown in Figure 3–12.

Figure 3–12   Create Batches Screen

4. Create batches using one of the following methods:
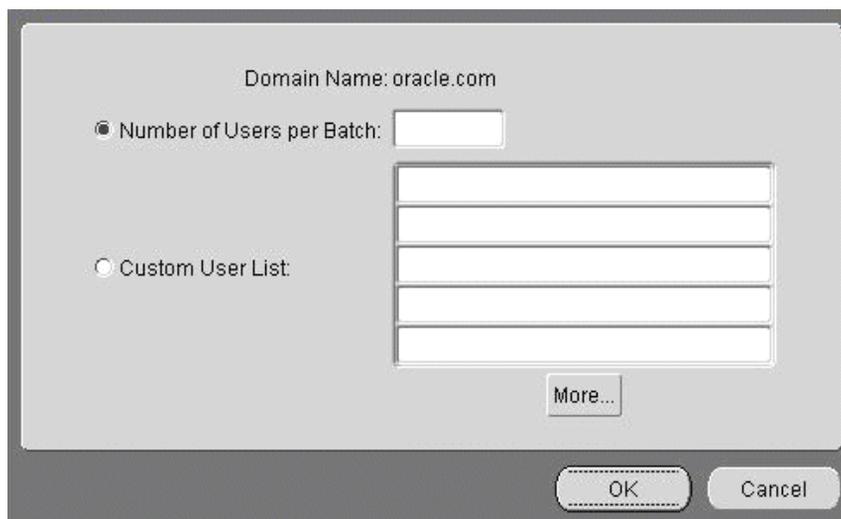
   - Select **Number of users per batch** and enter the number of users you want in each batch in the adjacent field. For example, if you have 100 users and specify 5 users in each batch, 20 batches are created.

   - Select **Specify users for batch** to create a custom batch. Enter the source user names for the custom batch. If you need to enter more user names, click **More** for more fields.

After you create the batches, you can view them by expanding the domain node on the Migration Tool screen to display all the batches in the domain.

> **See Also:** "Task 11: Migrating Data" on page 3-36 for information about scheduling batches for migration

Viewing Users in a Batch

To view users in a batch, expand the domain node and the batch node to view the users in the batch, as shown in Figure 2–5, "Migration Tool Screen with User Information Displayed".

Task 7: Migrating Shared Folders

Prior to migrating shared folders, ensure that the following tasks are complete:

- All user accounts have been migrated
- You have generated the shared folders file

  > **See Also:** "Task 5: Extracting Mail System Objects from the Source System" on page 3-31 to generate the shared folder file

To migrate shared folders, do the following:

1. Select **Migrate** > **Migrate Shared Folders** from the Migration Tool menu bar to create the shared folders on the target e-mail server. The Shared Folder Migration Status screen displays.
2. When 100% displays, indicating the migration is complete, click **OK**.
3. View the text.log file located in the log/migration/*uniquenumber* directory. Any errors that occur during shared folder migration are logged in the text.log file as administrator error messages.

   > **See Also:** Oracle9*i*AS Unified Messaging Administrator's Guide for descriptions of error messages

To cancel migration of shared folders, click **Cancel** on the status dialog that displays when you start to migrate mail objects.

Note: If you cancel migration of shared folders, rollback does not occur and you can safely restart migration. The e-mail objects that were created before you canceled migration are not re-created when migration is recommenced. Migration continues from the point where it was canceled.

Task 8: Migrating Public Aliases

Prior to migrating public aliases, ensure that the following tasks are complete:

- All user accounts have been migrated

- You have generated the public aliases file

    See Also: "Task 5: Extracting Mail System Objects from the Source System" on page 3-31 to generate the public aliases file

To migrate public aliases, do the following:

1. Select **Migrate** > **Migrate Public Aliases** from the Migration Tool menu bar to create the public aliases on the target e-mail server. The Public Alias Migration Status screen displays.

2. When 100% displays, indicating the migration is complete, click **OK**.

3. View the `text.log` file located in the `log/migration/`*`uniquenumber`* directory. Any errors that occur during public aliases migration are logged in the `text.log` file as administrator error messages.

    See Also: Oracle9*i*AS Unified Messaging Administrator's Guide for descriptions of error messages

To cancel migration of public aliases, click **Cancel** on the status dialog that displays when you start to migrate mail objects.

Note: If you cancel migration of public aliases, rollback does not occur and you can safely restart migration. The e-mail objects that were created before you canceled migration are not recreated when migration is recommenced. Migration continues from the point where it was canceled.

Task 9: Migrating Distribution Lists

Prior to migrating distribution lists, ensure that the following tasks are complete:

- All user accounts have been migrated

- You have generated the distribution lists file

    See Also: "Task 5: Extracting Mail System Objects from the Source System" on page 3-31 to generate the distribution lists file

There are two phases to distribution list migration:

1. All distribution lists are created.

2. The distribution lists are populated with users.

The status bar displays immediately, and shows progress when distribution lists are being populated with users. For example, when the status bar shows that 50% of the distribution lists have been migrated, it means all of the distribution lists have been created and 50% of the distribution lists have been populated with users.

To migrate distribution lists, do the following:

1. Select **Migrate** > **Migrate Distribution Lists** from the Migration Tool menu bar to create the distribution lists on the target e-mail server. The Distribution List Migration Status screen displays.

2. When 100% displays, indicating the migration is complete, click **OK**.

3. View the `text.log` file located in the `log/migration/`*`uniquenumber`* directory. Any errors that occur during distribution list migration are logged in the `text.log` file as administrator error messages.

    See Also: Oracle9*i*AS Unified Messaging Administrator's Guide for descriptions of error messages

To cancel migration of distribution lists, click **Cancel** on the status dialog that displays when you start to migrate mail objects.

> **Note:** If you cancel migration of distribution lists, rollback does not occur and you can safely restart migration. The e-mail objects that were created before you canceled migration will not be recreated when migration is recommenced. Migration continues from the point where it was canceled.

Task 10: Migrating WebMail Address Books

> **Note:** WebMail Address Book migration is available only for Oracle eMail Server to Oracle Email migrations. This migration can be run only for users using the 5.2.1 WebMail client.

The Migration Tool can migrate the private address books created by users using their Oracle eMail Server 5.2.1 WebMail clients. Migration of the WebMail address book of each user involves migrating both the private aliases and private distribution lists that users have.

Prior to migrating address books, ensure that all user accounts have been migrated.

To migrate WebMail address books, do the following:

1. Select **Migrate** > **Migrate Address Book** from the Migration Tool menu bar. The Address Book Migration Status screen displays.

2. When 100% displays, indicating the migration is complete, click **OK**.

3. View the text.log file located in the log/migration/*uniquenumber* directory. Any errors that occur during address book migration are logged in the text.log file as administrator error messages.

   > **See Also:** Oracle9*i*AS Unified Messaging Administrator's Guide for descriptions of error messages

To cancel migration of address books, click **Cancel** on the status dialog that displays when you start to migrate address books.

> **Note:** If you cancel migration of address books, rollback does not occur and you can safely restart migration. The address book objects that were created before you canceled migration are not recreated when migration is recommenced. Migration continues from the point where it was canceled.

Task 11: Migrating Data

Prior to migrating data you must schedule your batches for migration.

To schedule a start time for batch migration, do the following:

1. Select a batch from the directory tree in the Migration Tool screen (see Figure 2–4 on page 2-11).

2. In the **Scheduled Start Time** field, select either the date or the time and edit it by using the **Up** and **Down** arrows. The date is in MM/DD/YY format and the time is in HH:MM format.

> **Note:** You can schedule multiple batches to migrate in parallel by scheduling them to start at the same time.

3. After you complete your updates, click **Schedule** for the updated schedule to take effect.

> **See Also:** Figure 2–4, "Migration Tool Screen with Batch Information Displayed"

> **Note:** Even if you do not make changes to the schedule, you must click **Schedule** for the batch to be scheduled. If you do not click **Schedule**, the users are not scheduled for migration.

To start data migration, select **Migrate** > **Migrate User Data** from the Migration Tool menu bar.

To cancel migration, select **Migrate** > **Cancel Migration** from the Migration Tool menu bar.

View the `text.log` file located in the `log/migration/`*uniquenumber* directory. Any errors that occur during data migration are logged in the `text.log` file .

> **Note:** If a single user in a batch fails, the batch will be marked as failed. To reschedule the batch for migration, select the failed batch from the Migration Tool screen, edit the Scheduled Start Time field, and click **Schedule**. Once a batch is rescheduled, the users that failed are reverted to the pending state and the batch is picked up again for data migration when the scheduled migration time occurs. Only users that have failed to migrate are migrated. Users that have been successfully migrated will not be remigrated.

Post-Migration Administrator Responsibilities

Upon completion of migration, the administrator must perform the following tasks:

- Changing the MX Record
- Verifying Migration

Changing the MX Record

You must change the mail exchanger (MX) record in order to redirect e-mail to the new system.

Verifying Migration

You can verify migration of individual users' accounts and data using one of several methods of comparison. This helps the administrator to verify the validity of the overall migration, and is also helpful to support personnel when users complain of discrepencies in their accounts.

> **Notes:**
>
> - The verifier can be used only for users who have successfully migrated.
> - The verifier is not available for MBOX-based migration.

To access the Verification screen shown in Figure 3–13, select **Tools** > **Verify New Accounts** from the Migration Tool menu bar.

Figure 3–13   Verification Screen

1. Enter the user IDs of users you want to verify in the **Users To Be Verified** field.

   You can populate the **Users To Be Verified** field using the search feature. The search feature enables you to search for specific users by entering user name, domain, or batch in the adjacent field. Click **Search**.

   The results of your search display in the **Search Results** field. Select the users you want to verify and click the **Right Arrow** button to populate the **Users To Be Verified** field.

2. Select from one of the following verification options:

   > **Note:**   Each option verifies that all folders in an individual user's account have been created on the target e-mail system, and compares different message information between the source and target e-mail systems.

   - **Message Count**: Compares the message counts in the folders to verify that they match

   - **Message IDs**: Compares the SMTP message IDs to verify that they match

- **Message Header**: Compares the message headers to verify that they match

- **Entire Message**: Compares the message bodies of every message to verify that they match

---

Note: If you choose either the **Message Header** or **Entire Message** verification option while migration is proceeding, migration process is slowed considerably.

---

3. Enter the address of the recipient of the verification reports in the **Administrator Email ID** field.

Shutting Down Microsoft Exchange Servers

You can shut down the Microsoft Exchange servers upon completion of migration only after you determine that you no longer need routing rules set up on the source e-mail system.

In cases where you have multiple Microsoft Exchange servers, you can move users from whichever machine they reside, to one single machine as their data is migrated to Oracle Email.

See Also: Microsoft Exchange documentation for information about moving users from one machine to another

A

Plug-in Generated File Formats

In this appendix are the following sample LDIF and XML file formats:

- User-List File Format (XML)
- Distribution List File Format (LDIF)
- Public Aliases File Format (LDIF)
- Shared Folder File Format (LDIF)
- Rules File Format (XML)

User-List File Format (XML)

Following is the syntax of a user-list file in XML format:

```
?xml version="1.0" encoding="UTF-8" ?>
<!ELEMENT userlist (user*)>
<!ELEMENT user EMPTY>
<!ATTLIST user sourceimapuserid CDATA #REQUIRED sourceimappasswd CDATA #IMPLIED
            sourceimapserver CDATA #IMPLIED targetimapuserid CDATA #IMPLIED
              targetimappasswd CDATA #IMPLIED targetimapserver CDATA #IMPLIED
            targetdomain CDATA #IMPLIED mailstore CDATA #IMPLIED
              quota CDATA #IMPLIED>
```

For IMAP-based migration, the `sourceimapuserid` and `sourceimappasswd` attributes are mandatory. For MBOX-based migration, only the `sourceimapuserid` attribute is mandatory.

Sample user-list file for two users:

```
<userlist>
<user
sourceimapuserid="TEST1"
sourceimappasswd="WELCOME"
/>
<user
sourceimapuserid="TEST2"
sourceimappasswd="WELCOME"
/>
</userlist>
```

The values for all other attributes are provided using the Migration Setup Wizard. For any user, if the administrator does not want to use the default values, specific values can be provided using the specified format.

Distribution List File Format (LDIF)

The distribution list file that the plug-in generates is in the following format:

```
dn: cn= dl1
cn:dl1
objectclass:  top
objectclass: groupofuniquenames
objectclass:  orclMailGroup
orclmgprfc822mailmember: user1@acme.com
orclmgprfc822mailmember: user2@acme.com
```

```
mail:dl1@acme.com
uniquemember: dl200@acme.com
uniquemember: dl300@acme.com
uniquemember: dl400@acme.com

dn: cn= dl2
cn:dl2
objectclass:  top
objectclass: groupofuniquenames
objectclass:  orclMailGroup
orclmgprfc822mailmember: user4@acme.com
orclmgprfc822mailmember: user3@acme.com
mail:dl2@acme.com
uniquemember: xd1500@acme.com
uniquemember: xd1400@acme.com
```

The `mail` attribute contains the fully qualified name of the distribution list. The Migration Tool expects the name in the format `dlname@targetdomain`.

The `orclmgprfc822mailmember` attribute is the fully qualified e-mail address of the user to whom this distribution list belongs. The Migration Tool expects the name in the format `source_imap_userid@sourcedomain`.

The `uniqumember` attribute contains the sub distribution lists of this distribution list. The Migration Tool expects the name in the format `dlname@sourcedomain`.

Public Aliases File Format (LDIF)

The public alias information that the plug-in generates is in the following format:

```
dn:cn=alias1
name:alias1@acme.com
cn:alias1
orclmailemail:user1@acme.com
objectclass:top
objectclass:orclMailAlias

dn:cn=alias2
name:alias2@acme.com
cn:alias3@acme.com
orclmailemail:user2@acme.com
objectclass:top
objectclass:orclMailAlias

dn:cn=alias3
```

```
name:alias3@acme.com
cn:alias3
orclmailemail:user3@acme.com
objectclass:top
objectclass:orclMailAlias
```

The `name` attribute contains the fully qualified name of the alias. The Migration Tool expects the name in the format `aliasname@sourcedomain`.

The `orclmailemail` attribute is the fully qualified e-mail address of the user for whom this alias is created. The Migration Tool expects the name in the format `source_imap_userid@sourcedomain`.

Shared Folder File Format (LDIF)

The shared folder file generated by the plug-in contains information about shared folders that are being migrated.

```
dn: cn=/pubfol
objectclass: top
objectclass: orclMailFolder
orclmailaci: user2@acme.com a l r p d i w
orclmailaci: user4@acme.com l r p
owner: user1@acme.com
cn:/pubfol
orclIsSharedFolder: false

dn: cn=/shfol
objectclass: top
objectclass: orclMailFolder
orclmailaci: user2@acme.com a l r p d i w
orclmailaci: user4@acme.com l r p
owner: user1@acme.com
cn:/shfol
orclIsSharedFolder: true
```

The `cn` attribute contains the name of the shared folder. The Migration Tool expects the name in the format `/foldername`.

The `orclmailaci` attribute contains ACI information. The Migration Tool expects the user name of the ACI in the format `source_imap_userid@sourcedomain`.

The `orclIsSharedFolder` attribute has a `false` value if the folder is a public folder.

The `orclMailStore` attribute contains the distinguished name of the target mail store on which the shared folder is to be created.

The `owner` attribute contains the fully qualified mail address of the owner of the shared folder. The Migration Tool expects the name in the format `source_imap_userid@sourcedomain`.

User Profile File Format (LDIF)

If your source directory information comes from user profile files, instead of an LDAP directory, use the following format:

```
dn: cn=user_given_name,dc=oracle,dc=com
cn: user_given_name
mail: username@acme.com
title:title
telephoneNumber:telephone_number
homePhone:telephone_number
sn:surname
st:state
physicalDeliveryOfficeName:physical_delivery_address_of_office
manager:user's_manager
ou:organizational_unit
o:organization
secretary:name_of_secretary
postalAddress:postal_delivery_address
```

The only mandatory attributes are `mail` and `sn`. Mail is expected in the format `sourceuserid@sourcedomain`.

Rules File Format (XML)

A rule consists of two parts: a set of conditions to be met, and actions to be performed when at least one of the set of conditions is met. The set of conditions is evaluated until a true condition in the set is encountered. Rules are identified by their actions. If multiple actions are to be carried out when a certain condition is true, then multiple rules must be defined sharing the same set of conditions.

A condition is a combination of simple clauses. A clause is a simple relational operation between a message attribute and a scalar constant value. For example, a clause can be "message size is greater than 10 Kb".

Condition evaluation is implemented as a short-circuit `AND` operation upon all clauses, which fails upon encountering the first failed clause.

A rule list is a list of rules that apply when a message is delivered to a user's inbox.
A rule begins with the tag `<rule>` and ends with the tag `</rule>`. A condition
begins with the tag `<condition>`, as shown in the following example rule in XML
format:

```
<account qualifiedName="user_rules" ownerType="user">
 <rulelist event ="deliver">
 <rule  visible= "yes" active= "yes" description = "exchusr1" >
   <condition>
    <attribute tag="rfc822from"/>
    <operator op="contains"/>
    <operand> EXCHUSR1 </operand>
   </condition>
  <action>
   <command  tag= "moveto"/>
   <parameter>/pvtfldr1 </parameter>
  </action>
 </rule>

 </rulelist>
</account>
```

Following is the XML format for specifying a server-side rule:

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- an account contains multiple rulelists -->
<!ELEMENT account (rulelist*)>
<!ATTLIST account name NMTOKEN #REQUIRED
                  ownerType (user|system|domain) "user">
<!-- a rulelist is associated with an event and a list of rules -->
<!ELEMENT rulelist (rule+)>
<!ATTLIST rulelist event (relay|reception|deliver|flagchange|move|copy|
 queuing|expunge|expire) #REQUIRED>
<!-- a rule consists of an optional condition and a list of actions.
     a rule can be visible, hidden, activated or disabled -->
<!ELEMENT rule (condition?, action+)>
<!ATTLIST rule visible (yes|no) "yes"
       active (yes|no) "yes"
       description CDATA #IMPLIED>
<!-- conditions are either attribute comparisons (leaf conditions),
     sub conditions (parenthesis) or external procedure calls -->
<!ELEMENT condition ((attribute, operator, operand*)
    |condition+|procCall|inBody)>
<!ATTLIST condition negation (yes|no) "no">
<!ATTLIST condition junction (and|or) "and">
```

```
<!-- attributes are message properties, param is for extended header and flag-->
<!ELEMENT attribute EMPTY>
<!ATTLIST attribute name (rfc822from|rfc822to|rfc822cc|rfc822date|
                          rfc822subject|rfc822replyto|sendhost|sender|
                          recipients|message_id|receiveddate|
                          contenttype|charset|xpriority|messagesize|
                          xheader|folder|flag|overquota|rulestatus)
                          #REQUIRED
                    param CDATA #IMPLIED>
<!-- operators -->
<!ELEMENT operator EMPTY>
<!ATTLIST operator op (equal|greaterthan|lessthan|lessequal|
                       greaterequal|in|stringequal|isnull|
                       startswith|endswith|contains|between|istrue)
                       #REQUIRED
                  caseSensitive (yes|no) "no">
<!-- operands custom data -->
<!ELEMENT operand (#PCDATA)>
<!-- procCall is external condition call -->
<!ELEMENT procCall (#PCDATA)>
<!-- inBody is content related match condition -->
<!ELEMENT inBody (#PCDATA)>
<!-- actions may have parameters-->
<!ELEMENT action (command, parameter*)>
<!ELEMENT command EMPTY>
<!ATTLIST command name (pass|reject|suspend|discard|forward|
                        bcc|moveto|copyto|setprop|notify|reply|
                        replyall|break|sign|verify|decrypt|
     encrypt|enqueue|call) #REQUIRED>
<!ELEMENT parameter (#PCDATA)>
```

B

API Architecture

This appendix contains information about the architecture of an API that communicates with a third party plug-in.

Any plug-in that is to work with the Migration Tool must support the following interface:

```
public interface PluginInterface
{
    public boolean doTask(String taskName, String taskArgs[]) throws
    PluginException;
    public String getVersion();
    public void init() throws PluginException;
    public void cleanUp();
}
```

The `getVersion` method must return the version number of the plug-in.

The `init` method must contain any initialization code.

The `cleanUp` method must contain any cleanup code.

The Migration Tool passes a command string and an argument array to the `doTask` method. The values that the command string and argument array must contain for different commands are listed in Table B–1.

Table B–1   Parameter Values for doTask Method

Parameters for the doTask Method	Operation
command = "User_list" arg[0]= "file=*file_name*" arg[1]="domain=*domain name*"	The plug-in generates a user-list file for a specific domain in the specified file
command = "User_profiles" arg[0]="file=*file_name*" arg[1]="domain=*domain_name*"	The plug-in generates an LDIF file of all users on the source system
command = "Mbox_files" arg[0] = "user=*m_sourceuname*" arg[1] = "mbox_dir=*m_mboxDir*"	The plug-in generates an MBOX file for the user in the specified directory
command = "User_rules" arg[0] = "user=*sourceuname*" arg[1] = "dir=*m_rulesDir*"	The plug-in generates the rules XML file for the specified user in the specified rules directory
command = "Shared_folders" arg[0] = "file=*file_name*" arg[1] = "shared_folder_mbox_ dir=*mboxdir*"	The plug-in generates the shared folder file in the standard format in the specified file. MBOX files for the shared folder are generated in the `shared_folder_mbox_dir`.

Table B–1   Parameter Values for doTask Method

Parameters for the doTask Method	Operation
`command = "Distribution_lists"` `arg[0] = "file=`*file_name*`"`	The plug-in generates the distribution list file in the standard format in the specified file
`command = "Public_aliases"` `arg[0] = "file=`*file_name*`"`	The plug-in generates the list of public aliases in the specified file in the standard format

Any developer writing a plug-in should ensure that the plug-in accepts the above set of parameters. Various parameters on the command line are separated by a single space.

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