Quest ® Migrator for Notes to Exchange 4.18

Pre-Migration Planning Guide

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Quest Software Inc.
Attn: LEGAL Dept.
10801 N. Mopac Expressway
Building 3, Suite 400
Austin, TX 78759

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CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

IMPORTANT NOTE, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

Migrator for Notes to Exchange Pre-Migration Planning Guide
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About the Migrator for Notes to Exchange documentation

- About the Pre-Migration Planning Guide
- About the Migrator for Notes to Exchange documentation suite
- Other sources of information

About the Pre-Migration Planning Guide

This *Pre-Migration Planning Guide* was developed to help network administrators, consultants, analysts, and other IT professionals plan and prepare for migration projects using the Quest Migrator for Notes to Exchange (MNE) tools. The information in this document can serve as a checklist of the strategic and tactical issues that an organization must consider and accommodate before beginning a migration project.

About the Migrator for Notes to Exchange documentation suite

This *Pre-Migration Planning Guide* is one of several documents that explain various aspects of the Migrator for Notes to Exchange product. The complete documentation suite includes:

- ***Quick Start Guide:*** An orientation to the MNE's basic purposes, components and features, with a case study to illustrate typical usage. Also includes instructions for downloading and installing the software.
- ***Pre-Migration Planning Guide:*** A checklist of strategic and tactical issues that an organization must consider and accommodate before beginning a migration project. An appendix also documents known limitations of the migration process.
- ***Scenarios Guide:*** Descriptions of the most common migration scenarios—migrating to different target environments and for an array of other variables and preferences—with process instructions and flow charts that explain how to use Migrator for Notes to Exchange tools and features in each scenario.
- ***Administration Guide:*** Operational details, application notes and screen-by-screen field notes for the administrator components of Migrator for Notes to Exchange.
- ***Self-Service Desktop Migrator User Guide:*** Operating instructions, application notes and screen-by-screen field notes for the Self-Service Desktop Migrator (SSDM) component of Migrator for Notes to Exchange. The *SSDM User Guide* is provided as a separate PDF document so that an administrator can distribute it to any end users who run the per-desktop program.
- ***Program Parameters Reference:*** A listing of all Migrator for Notes to Exchange program parameters (and their valid values) in the Task Parameters and Global Defaults, and how to use them to control various program behaviors.
- ***Online Help:*** Context-sensitive field definitions and application notes for all of the MNE wizards and other component applications.

All these documents, except the *SSDM User Guide* are intended for network administrators, consultants, analysts, and any other IT professionals who install the product, use its tools, or contribute to migration project planning. The *Pre-Migration Planning Guide* and *Scenarios Guide* proved a more conceptual view of the product, while the

Administration Guide provides hands-on, screen-by-screen descriptions and field notes. The SSDM User Guide is intended for end users or administrators who use the Self-Service Desktop Migrator component.

NOTE: **Quest recommends** that administrators read the *Quick-Start Guide* and *Pre-Migration Planning Guide* (in that order), and the first chapter of the *Scenarios Guide*. You can use that information to prepare a detailed written Migration Plan before attempting the migration process.

When you are ready to begin the migration process, refer to the process instructions and notes in the *Scenarios Guide*, and the operational details in the *Administration Guide*.

Other sources of information

Visit our online community

The *Quest Migrator for Notes to Exchange & Coexistence Manager for Notes* community is an interactive online community dedicated to issues relating to:

- Migration of email, identity and applications to the Windows Exchange platform, either on-premises or hosted Exchange platforms like Microsoft 365—including migrations from Exchange, GroupWise, and Notes.
- Active Directory migrations.
- Migrations from Notes application and Exchange public folders to Sharepoint.
- Coexistence strategies and tools.

The community is designed to foster collaboration between Quest experts and users. It' is a place where you can:

- Learn about product releases and betas before anyone else.
- Get access to Quest product leaders and subject matter experts on migration and coexistence.
- Participate in discussion forums, share insights and ideas, and get common questions answered.

You can browse around the forums and the library at the Quest Migrator for Notes to Exchange & Coexistence Manager for Notes Community.

However, to take full advantage of the community, post new threads, respond to messages from others, and rate our documents and downloads, you can *Register Now*. If you already have a Quest account or are a member of another Quest community, *Sign in*. The *Sign in* and *Register Now* features are available from links on the Quest Communities home page at the Quest Communities home page.

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Introduction

- About Migrator for Notes to Exchange
- Configuration requirements and account permissions
- About Quest license keys

About Migrator for Notes to Exchange

Quest Migrator for Notes to Exchange (MNE) is a set of related software applications that facilitate a variety of migration strategies for organizations moving from a Domino server with Notes clients to an Exchange environment with Outlook clients or to hosted Exchange such as Microsoft 365 (Exchange Online).

Migrator for Notes to Exchange can:

- Extract user data from the Domino server to mailbox-enabled user accounts in Active Directory.
- Migrate mail, appointments, tasks, personal address books, personal distribution lists, and archives from the Notes environment to the Exchange environment and to Outlook Personal Folders (.pst) files.
- Set and remove mail-forwarding rules between Notes and Exchange to assure correct mail routing throughout the transition period.

MNE supports options that allow flexibility in devising and implementing suitable migration strategies for a variety of network configurations, circumstances, and preferences. For example, MNE supports common migration scenarios such as:

- Migration to a local (on-premises) Exchange server.
- Migration from Notes to Microsoft 365 (the *cloud*)
    - with provisioning to Microsoft 365 from existing local Active Directory (already synchronized to the local Domino directory).
    - with provisioning directly from the Domino directory to Microsoft 365.
- Offline migration in which Notes source data, previously extracted from Notes to NSF or PST files, is migrated directly to the Exchange target.

An administrator can migrate user data in batches of 100 or so users at a time in a series of migration runs, including user archives, if user archives reside in (or are moved to) a centralized location. Migration is most efficient if you can migrate the data for your entire user population in batches.

You can run the MNE Data Migration Wizard on multiple migration servers in parallel for different user groups simultaneously. This way, you can employ multiple migration servers to migrate a particular data volume in a single weekend, whereas you would need multiple weekends to migrate the same volume using a single workstation.

MNE also includes a per-desktop migration program, the Self-Service Desktop Migrator (SSDM), so individual users (or administrators acting on their behalf) can migrate their own mail, calendar data, personal address books (PABs), and archives. If user archives are not centrally accessible, or if some local circumstance makes batch migration impractical, the per-desktop program is simple enough that most end users can run it themselves.

For SSDM, encrypted mail are migrated using the per-user access credentials Notes ID. Some administrators might prefer to visit desktops individually to ensure a smooth transition for executives or for users who are uncomfortable attempting the tasks themselves.

An administrator can mix-and-match these strategies: migrating some users in batches, but migrating others individually at their desktops, while still other users can run the per-desktop tool themselves.

NOTE: As of MNE 4.18.0, the Data Migration Wizard supports Domino Automatic Decryption to run batch migration of user-encrypted data to Microsoft Exchange target. This feature requires using the Notes ID Vault to backup and restore each user's Notes ID.

This chapter explains the purpose and capabilities of Migrator for Notes to Exchange and explains the requirements for its operating environment.

Product components

Migrator for Notes to Exchange contains these primary components:

- **Migrator for Notes to Exchange:** A central console application that coordinates most administrator-driven tasks and features. The MNE console contains an assortment of specialized component applications, called wizards, that facilitate particular program features. In addition to wizards, the MNE console helps you monitor and manage most of the information pertaining to a migration project such as program defaults and server access credentials, locations of Notes/Domino source data, exported data from the Domino directory, and migration statistics.
- **Notes Migration Scheduling Application:** A separate command-line application that runs scheduled tasks. The program checks the SQL Server database to see whether any tasks have been scheduled to run since the last check and runs any tasks it finds.
- **Microsoft 365 Account Pooling Utility:** A utility that helps you manage a pooled collection of Microsoft 365 administrative accounts to handle the Microsoft-imposed throttling limits that can slow data transmission to Microsoft 365. Since the Microsoft throttling limitations are applied per administrative account, this utility coordinates multiple accounts to run simultaneously to multiply the throttled throughput rate by the number of accounts in the pool.
- **Self-Service Desktop Migrator (SSDM):** A separate application that end users can run (one user at a time) to migrate their own mail, PABs, and archives. An administrator can also run the Desktop Migrator on behalf of an end user, running under the user credentials.

  The SSDM user interface is available in English and French. The *SSDM User Guide* is available in English, and French. By default, the SSDM interface and help are displayed in the language specified in the operating system settings (language and locale). You can use the DisplayLanguage parameter to specify a language.
- **SSDM Scheduling Administration Utility:** A utility that lets an administrator regulate the end-user ability to run the Self-Service Desktop Migrator (SSDM) to avoid processing bottlenecks that can occur if too many users use the SSDM simultaneously.

The wizards that can be launched from Notes Migration Manager are:

- **NABs Discovery Wizard:** Searches the Notes/Domino server to locate all Notes NABs (Name and Address Books). The Directory Export Wizard and the Internet Domains Discovery Wizard extract critical directory data from the NABs which is read by the provisioning and migration wizards to perform their tasks.
- **Internet Domains Discovery Wizard:** Extracts all Internet domains it can find in the Notes NABs (Name and Address Books) found by the NABs Discovery Wizard. The domains are used to generate address aliases for all users so that Exchange can recognize and route the mail sent to old user addresses.
- **Directory Export Wizard:** Gathers user information from the Domino servers to create SQL data tables that is critical input for the MNE provisioning and migration wizards. You can perform the export task immediately following configuration or schedule the task to run at a later time.
- **Collection Wizard:** Lets you define the member contents of user and group collections. A *collection* is a batch of users or groups—a defined subset of users—to be migrated or groups to be provisioned. Provisioning, migration, and other functions are applied to collections of users and groups. The Collection Wizard defines the collections. You can add members to a collection by selecting objects from the SQL Server database, by importing the contents of a .tsv (tab-separated-values format) file, or both.

- **Groups Provisioning Wizard:** Defines a task that provisions the distribution groups (creates group objects) in local Active Directory, or in Microsoft 365, from a designated group collection and schedules the task to run at a specific time, or at a series of recurring times.
- **Notes Data Locator Wizard:** Defines a task that locates data files in the Notes source for a user collection, or gathers statistics from previously located data stores, and schedules the task to run at a specific time or at a series of recurring times.
- **Provisioning Wizard:** Provisions Notes users into Active Directory as mail-enabled objects. The wizard consolidates duplicate entities in AD by merging information from Exchange contacts into corresponding AD user accounts, and deletes the contacts to leave a single mail-enabled security object per user in AD. (Quest CMN Directory Connector generates the contacts during a directory update when corresponding objects already exist in AD.)
- **Send PAB Replicator Wizard:** Sends a special email form to users within a user collection that lets the users copy all their PABs (personal address books) to a centralized Notes server directory where the Data Migration Wizard can find and migrate them.
- **Data Migration Wizard:** Defines a task for all users within a user collection that can do the following:
  - Mailbox-enable Exchange accounts.
  - Migrate user data.
  - Update mail-forwarding rules.
  - Perform related Notes and Exchange administrative functions.

  Migrator for Notes to Exchange copies data from Notes as Unicode and inserts data into Exchange as Unicode. Any data that has a specific character set (MIME data) in the Notes source retains that character set after migration. The migration features do not convert MIME data into Unicode.
- **Self-Service Desktop Migration Statistics Collection Wizard:** Gathers migration statistics written by the Self-Service Desktop Migrator (SSDM) and loads the data into the SQL Server database to help you track migration project progress. The wizard can perform the data-gathering task immediately following its configuration or you can schedule the task to run at a later time.

Understanding key differences between Notes/Domino and AD/Exchange

The architecture and functionality are different between Notes/Domino and Active Directory/Exchange. Migration planners should understand the significant differences between the two environments:

- Exchange is more oriented to email and calendaring functions whereas Notes supports broader collaboration including mail-enabled work-flow applications and an internal scripting language that can be used for various functions including customized application development. Some of the functionality of Notes applications can be mimicked using SharePoint.
- Exchange relies on Active Directory for its members (the Global Address List) whereas Notes is its own directory.
- Notes uses individual files per user for different types of data, while Exchange uses a central mail database and address book. Only personal archives are separate files in Exchange.
- Notes lets you make data-file replicas, both locally and on the server.

In any migration, some features or data elements in the source environment will not have comparable counterparts in the target environment, and Notes-to-Exchange migrations are no exception. Appendix A of this guide provides a list of these Appendix A: Known limitations of the migration process.

Configuration requirements and account permissions

IMPORTANT: Hardware and software requirements for Migrator for Notes to Exchange (MNE) are documented in the *Release Notes* that accompany every release. Ensure that your environment meets the requirements before you install the product. MNE also requires certain configuration and account permissions *in addition to* the requirements documented in the *Release Notes*.

All computers must have network access.

Ensure that your environment meets the configuration requirements before you install the product.

- Domino server configuration
- Microsoft Exchange/AD environment configuration (on-premises Exchange)
- Account permissions for migration to Microsoft 365
- SQL server configuration
- Migrator for Notes to Exchange admin migration server configuration
- Server hosting the SSDM Scheduling Utility Web Service
- Other required directories

Domino server configuration

An account must be defined with administrative rights to the Domino server. You can use the administrative account created by Notes/Domino upon installation or create a new account and add it to the *LocalDomainAdmins* group.

Microsoft Exchange/AD environment configuration (on-premises Exchange)

This section applies only if you are migrating to a proprietary (on-premises) Exchange target. If you are migrating to hosted Exchange Online, skip to Account permissions for migration to Microsoft 365.

IMPORTANT: You must use different user accounts for the Exchange Account and the Active Directory Account. Do not use one account for both purposes. Using one account for both purposes results in conflicting mailbox permissions that prevents MNE from being able to access the Exchange mailboxes when migrating mailbox data.

Active Directory account

For an on-premises target, an Active Directory administrative account that is a member of the Exchange Organization Management role group must be configured with remote PowerShell enabled.

In the MNE console, you can automatically grant the required permissions to the specified Active Directory account. If you use the **Automatically grant permissions** option, MNE delegates Full Control permissions to the root of the target OUs and the permissions are inherited by all OUs, even the OUs that are added after initial configuration.

For either an on-premises or Microsoft 365 target with using the Microsoft AD synchronization tool, the account must be a domain user account with full access to the target Organizational Unit (OU). If contacts are to be merged with existing Active Directory user objects, the account must have full control of the OUs/containers in which the AD user objects and contacts currently reside. This ensures that MNE has sufficient access to properly join to the

merged user objects and prevents the creation of duplicate contacts.

Alternately, you could manually grant the permissions. To manually set AD container permissions in Exchange:

- Use PowerShell to assign the necessary permissions to the AD account using the following cmdlet (where <UserAcct> is the administrator SecurityPrincipalIdParameter):

  ```
  Add-RoleGroupMember 'Organization Management' -member <UserAcct>
  ```

  The account must be configured with remote PowerShell enabled using the following Exchange Shell command:

  ```
  Set-User <alias> -remotepowershellenabled $true
  ```

  ... where <alias> is the AD account to which you are granting access.

Other Active Directory configuration considerations

Table 1. Active Directory scenarios

To configure more than 1000 Organizational Units (OUs) in AD	An LDAP policy can be configured to accommodate more than 1000 OUs in Active Directory by adjusting the maximum items returned by the ADSI interface. See these Microsoft links for LDAP Policies.
If AD is configured for a resource forest and a user forest	In a resource forest, Migrator for Notes to Exchange (MNE) requires the standard permissions as described. In a user forest, MNE requires an account with read permissions to AD such as a domain user. MNE makes no changes to the user forest; it only performs searches.

Exchange account

An Exchange account must be configured to provide Exchange credentials from MNE that correspond to the MNE Exchange Information screens and must have Receive-As rights for each mailbox store.

To automatically grant Receive-As rights, you can select the **Automatically grant permissions** check box in the *Exchange Server* configuration screen. MNE grants permissions on the database container and the permissions are inherited by all databases, even the databases that are added after initial configuration.

To manually set Receive-As rights in on-premises Exchange for all mail stores, use the following PowerShell command (in one continuous line):

```
get-mailboxdatabase | add-adpermission -user <username> -extendedrights receive-as
```

IMPORTANT: Ensure that the Exchange account is **not** added to any administrative groups that have been explicitly denied access to the mail stores. These groups include Enterprise Admins, Domain Admins, and the Organization Management role.

If the Exchange account is added to any of these groups, MNE is prevented from connecting to the target mailboxes during the migration.

Account permissions for migration to Microsoft 365

This section applies if you are migrating to Microsoft 365. If you are migrating to on-premises Exchange, see the preceding sections for configuration requirements.

The Migration Administration account must have Full Access permission on the target mailbox during migration.

- To automatically grant Full Access rights to the MNE Admin User (or to the assigned Admin Pool Account) to access the target mailboxes during migration, you can select the **Automatically grant permissions** check box in the Exchange Server Configuration screen. However, the recommended method is to manually grant permissions before migration as described in the following bullet.
- To manually set Full Access rights in Microsoft 365 for the MNE Admin User to access the target mailboxes before migration, use the following MNE PowerShell command:

  Add-MNEMailboxAdminPermission

  You might also need to revoke the Full Access rights manually after migration by using the following MNE PowerShell command:

  Remove-MNEMailboxAdminPermission

IMPORTANT: When migrating to Microsoft 365, it is important to involve your IT security specialists early in the project planning to accommodate all the account permissions and configuration requirements that are unique to the hosted system.

Administrator Role	Migrator for Notes to Exchange performs many administrative tasks including creating new user accounts, resetting passwords, granting and revoking permissions, etc. To ensure that the Migration Administration account has the required access rights, assign the Migration Administration account to the Microsoft 365 Global Administrator role.
Migration to Microsoft 365 via Microsoft AD sync	The local AD server must have Exchange 2019 (RTM), Exchange 2016 (RTM), Exchange 2013 (RTM or SP1), or Exchange 2010 (SP1) schema extensions.
Migration from an MSP-hosted Notes source	The Managed Service Provider must provide the Notes ID file, manager access to all mailboxes in scope for the migration, and reader access to the NAB.

Best Practices for Microsoft 365 Multi-Geo tenants

For Microsoft 365 Multi-Geo tenants, the Administrator accounts used for migration must be in the same geographical region as the target mailboxes to avoid permission access issues due to GDPR compliance requirements.

SQL server configuration

SQL bulk import directory	The SQL bulk import directory (specified in the *SQL Server Configuration* screen of Notes Migration Manager) must be accessible to all migration servers and to the user that the SQL Server will “run as”.
Account permissions	Both Windows Authentication and SQL Authentication are supported. • When using Windows Authentication, the Windows user logged in to the migration server must be assigned the **dbcreator** server role to create the database and tables. The **bulkadmin** server role is also required to perform database bulk import using the specified bulk import directory. • When using SQL Authentication, the SQL user must be granted the server roles **dbcreator** and **bulkadmin** to perform required database operations using the specified bulk import directory. MNE uses the bulk import directory to improve program performance when importing data from the Domino directory. Permissions must be set so that the SQL Server can read and write to this directory. • When using Windows Authentication, the Windows user logged in to the migration server must be granted full read/write access to the bulk import directory. • When using SQL Authentication, the SQL user cannot be authenticated outside of the Database Engine. For MNE to perform a bulk import, the account used by the SQL server Database Engine must be granted permission to access the bulk import directory. **NOTE:** Once the **NME40DB** database is created and the tables are populated, the **dbcreator** server role assigned to either the Windows user or SQL user is no longer required. The **db_owner** role is sufficient and is automatically granted to the Windows or SQL user when **NME40DB** is created.
Workstation hardware	Must be a separate computer from the Exchange server but a member of the same domain as AD and Exchange. *Can* be a virtual machine, but a dedicated physical computer will likely yield better migration performance. Quest recommends that the SQL Server and the Migrator for Notes to Exchange admin migration server should be two separate computers.

Migrator for Notes to Exchange admin migration server configuration

User account permissions	**NOTE:** The user account used to run the MNE console must belong to the Local Administrators group. You can add the user account to Domain Admins group as the Domain Admins group belongs to the Local Administrators group by default.
Language	Migrator for Notes to Exchange requires the English-language edition OS/PowerShell on the admin workstation.
For all supported Windows servers	Data Execution Prevention (DEP) must be disabled in Windows system settings.
Locale	Upon migration, standard mail folders assume the names of their corresponding Outlook folders in the language associated with the Windows *Locale* setting of the admin migration server.
Parallel workstations	To accelerate large-scale migrations, Migrator for Notes to Exchange can be run on multiple migration servers running in parallel.

Order of installation	A migration requires a combination of tools developed by different vendors, all installed on a single admin workstation. The combination can cause compatibility problems on some computers. To minimize these conflicts, Quest recommends you install the applications (per specifications noted) in the following order: 1. Notes client 2. Outlook client 3. Windows Management Framework or MS PowerShell
Workstation hardware	Must be a separate computer from the Exchange server but a member of the same domain as AD and Exchange. *Can* be a virtual machine, but a dedicated physical computer will likely yield better migration performance. Quest recommends that the SQL Server and the Migrator for Notes to Exchange admin migration server should be two separate computers.
Required for all destination Exchange target types including Microsoft 365	Must have a directory with write/run permissions for the Administrator components of the MNE software and must have a directory with read/run permissions for the user components of the software. The 32-bit edition (only) of Outlook 2024, 2021, 2019 or 2016. The Outlook client must also conform to the Microsoft version requirements for the applicable Exchange target version. See the Exchange Server supportability matrix for details. The MAPI DLLs required to perform a migration must be those that are part of Outlook, ***not*** the downloadable Exchange "server" MAPI. *Before running any MNE admin application:* Antivirus software must be configured to ***not*** scan the MNE program files directory or *%temp%* directory, or can be temporarily turned off and restarted after the program runs. If an antivirus scan misinterprets an Migrator for Notes to Exchange temporary file as a threat, it will try to "clean" the file, which generates an error when the MNE program call fails. On the MNE server as the Administrator, launch **Windows PowerShell (x86)** on 64-bit OS or **Windows PowerShell** on 32-bit OS and run this command: Set-ExecutionPolicy -ExecutionPolicy RemoteSigned -Scope CurrentUser
Required for all on-premises target types	**For MAPI access:** Use PowerShell to set the RCAMaxConcurrency throttle policy value high enough to handle the number of migration threads (across all MNE servers) that will be connecting to any Exchange server at any point. **For EWS access:** Use PowerShell to set the EWSMaxConcurrency throttle policy value high enough to handle the number of migration threads (across all MNE Servers) that will be connecting to any Exchange server at any point in time.

Port assignments on Migrator for Notes to Exchange admin servers

For Microsoft 365 target, inbound (Microsoft 365 to Migrator for Notes to Exchange)	No inbound ports are required.
For Microsoft 365 target, outbound (Migrator for Notes to Exchange to Microsoft 365)	443 – PowerShell 443 – Outlook (RPC over HTTP/Outlook Anywhere) 80 – Autodiscover 443 - Autodiscover The ports should be open from source to * since Microsoft often changes the IPs of their servers.
For Exchange 2019 or Exchange 2016 target:	443 to MBX server - mail migration 80 & 443 to CAS server - autodiscover 3268 to GC - AD searches 389 to DC - AD writes 443 to CAS server - PowerShell 1352 to Domino - mail migration, directory extraction

End-user desktops (if running SSDM)

Any antivirus software must be configured to ***not*** scan the Migrator for Notes to Exchange program files directory or *%temp%* directory, or be temporarily turned off and restarted after the program runs. If an antivirus scan misinterprets an Migrator for Notes to Exchange temporary file as a threat, it will try to "clean" the file, and the SSDM program call would fail.

Server hosting the SSDM Scheduling Utility Web Service

ASP.net version 4.8 must be installed. If the SSDM Scheduling Web Service is running, you must change the .NET Framework version of the Application Pool used by the SSDM Scheduling Web Service to .NET 4.8.

Other required directories

Common application directory	The MNE applications and wizards need a directory that is accessible (read and write) to the administrative accounts that run the admin components and access source and target data and accounts, and that is shared (read only) to all users who will run the SSDM.
Shared log directory	The admin components need a shared log directory that is accessible (read and write) to the admin applications and wizards.
Shared desktop log directory	Optionally, a shared log directory for the log files generated by the SSDM is required with write access for all users who will run the SSDM.

Authentication

To migrate Notes data to Exchange, MNE must log on to the target mailbox and provide authentication credentials to Exchange. MNE supports multiple authentication mechanisms.

MNE selects the appropriate authentication mechanism automatically using information from the Exchange Autodiscover service. If MNE detects that Modern Authentication is enabled on the migration target, it uses Modern Authentication as the preferred mechanism. If Modern Authentication is not supported, MNE reverts to legacy mechanisms such as Windows Integrated or Basic authentication. Additional authentication details for the MNE Migration server are provided for each of the migration components in the following sections:

MNE Migration Server

The credentials provided when logging on to the mailbox are retrieved from the MNE configuration. The credentials consist of a user name and a password. These credentials are configured prior to the migration and are supplied programmatically to Exchange without any interactive logon during the migration.

- For on-premises Exchange migrations, the credentials are the Exchange account that was configured on the *Exchange Server page* of the MNE console.
- For Microsoft 365 migrations, the credentials may be from the Exchange Server page or they may be the credentials for an account from an Admin Account Pool.

Self-Service Desktop Migrator

The Self-Service Desktop Migrator (SSDM) is an interactive tool that allows end users to migrate their own data. Since this tool is interactive, the mailbox login can be interactive.

If Modern Authentication is selected as the authentication mechanism, a standard Modern Authentication logon window opens. The SSDM supports all Modern Authentication flows, including multi-factor authentication.

IMPORTANT: MNE only supports Modern Authentication when the end-user desktop has .Net runtime 4.5 or later installed. If this requirement is not met, MNE may be unable to log onto the target mailbox and the migration may fail.

If the SSDM selects Windows Integrated as the preferred authentication mechanism, the SSDM first attempts to log on to the target mailbox using the credentials of the logged on user. If this fails, or if Windows Integrated authentication is not enabled on the server, the SSDM prompts for the credentials to use for the logon using a standard credential dialog.

About Quest license keys

Migrator for Notes to Exchange is a metered-use product that runs only with the application of a valid license key. Quest Software sells license keys for specific numbers of users to be migrated, and a license key becomes invalid after the software has been used for the user limit. The same license is used for all functions of a particular user (provisioning, forwarding, migration, etc.) and the user license count increments the first time any program function is applied to each user. For example, when a user is issued a license, all components of the product can be run using that license. Also, users can re-migrate their accounts using the original licenses that they were issued. Re-migration does not require an additional license.

You can obtain your first or a subsequent license key by contacting your Quest sales representative.

The product will install without a license key, but will prompt you to apply a license key the first time you try to run the software. You are prompted to find and specify the license key file that Quest provided. Use the **Browse** feature to locate the file which will have a .dlv extension.

You can view your current license-key status by selecting **Help | About** in the MNE console, and you can also apply a new license key to extend your valid use of the product.

2

Critical considerations

- Develop a written Migration Plan
- Know your migration scenario
- Provisioning the target Active Directory
- Diagram before-and-after site configurations
- Migration scale
- Coexistence during the transition
- About Migrator for Notes to Exchange statistics
- Test and pilot migrations

Develop a written Migration Plan

An enterprise migration is a complex process that requires careful planning and project management. Even a high-level summary checklist of necessary tasks can be long and can expose many details to be addressed for a successful migration. The logistics of the sequence, timing, and coordination of tasks is also important.

The complexity of most migration projects makes planning, foresight, and communications critical to a smooth migration. Halfway through the migration process is no time to discover that a neglected detail or invalid assumption will cost hundreds of hours of user productivity, or cause unnecessary aggravation for end users. Quest recommends that you develop a comprehensive written Migration Plan before you start the migration process.

Developing a Migration Plan is a valuable exercise that leads you to consider and accommodate all the factors that affect an organization's migration. The first six sections of your Migration Plan should characterize your primary needs, environment, and strategies as explained in this chapter:

1. Migration Scenario
2. Provisioning Method
3. Before-and-After Site Configurations
4. Migration Scale
5. Coexistence During the Transition
6. Test and Pilot Migrations

After the first six sections, your Migration Plan should contain sections and subsections that describe suitable choices for all relevant topics in chapter 3 of this guide: Other strategic planning issues.

Know your migration scenario

Most migrations follow a similar *basic* process with variations to accommodate circumstances and needs—a migration *scenario*. It is critical that you understand and characterize your scenario before you begin migration planning because your scenario will influence the decisions about the processes and methods you use to accomplish the migration. Most variations to the basic process result from:

- **Migration Destination (Exchange target type)**:
  - **Proprietary (on-premises) Exchange network**

    A proprietary Exchange environment is one in which the hardware and software are under the control of the migrating organization. Ordinarily this is a local Exchange network—on the same premises as the Notes source, or near enough to use high-performance network cables. However, a proprietary Exchange target can also reside in a different location from the Notes source.
  - **Hosted Exchange platform (*the cloud*)**

    A hosted Exchange platform is one in which the hardware and software are owned and controlled by a third party. The hosting entity sells, as a service, access to disk space and the Exchange software features. This service model is also known as *cloud* computing. Most migrations to a hosted Exchange are to Microsoft 365 (Exchange Online).
- **Pre-Migration State of Existing Local Active Directory:** Part of the migration process depends on whether your organization already has local Active Directory running for login and security purposes and, if so, the state of any objects provisioned there.
  - ***If migrating to proprietary Exchange:*** Do you already have Active Directory up and running? If AD is already provisioned, are its objects already mail-enabled, mailbox-enabled, or neither?
  - ***If migrating to Microsoft 365:*** Will you use a proprietary local Active Directory to provision the hosted environment and, if so, will you keep the local AD active after the migration? This method of provisioning permits *single sign-on*, also called *identity federation*, so users can access Microsoft 365 services with the same credentials they use for local Active Directory. Alternatively, you could provision Microsoft 365 without local AD, by using Migrator for Notes to Exchange to provision Microsoft 365 directly from the Notes/Domino source.

  Your scenario and circumstances might point to a particular method of provisioning the target AD, or you may have a choice. See Provisioning the target Active Directory for information to help you determine how to provision the target AD.

Different combinations of target types and existing local AD can produce an array of migration scenarios. The *Migrator for Notes to Exchange Scenarios Guide* describes the combinations and explains the migration procedures for each:

- **Migration to Proprietary Exchange**
  - No existing Active Directory (or no AD objects yet exist).
  - AD objects in existing Active Directory.
- **Migration to Microsoft 365**
  - Provisioning Microsoft 365 from local Active Directory.
  - Provisioning Microsoft 365 directly from Notes/Domino source.

The *MNE Scenarios Guide* also describes three special scenarios that can occur in combination with one of the previously listed scenarios:

- **Offline Migration:** A strategy in which Notes source data, previously extracted from Notes, is migrated directly to the Exchange target. An offline strategy can be valuable if
  - Problematic bandwidth makes direct connection impractical (e.g., if the source and target servers are far apart—geographically and/or from a network perspective).

    - OR -
  - The Domino environment is managed by a third party that does not allow admin access.

- OR -

- A disaster scenario occurred in which the Domino server is destroyed but backup NSF files survive.

An offline migration can be accomplished by either of two approaches:

- Notes source data is saved to replica or otherwise-disconnected NSFs and the MNE Data Migration Wizard migrates from the NSF files directly to Exchange.
- The MNE Data Migration Wizard migrates Notes source data to PST files (rather than directly to an online Exchange target) and the PST files are imported into the Exchange target by another application. The MNE Migration Manager for PSTs would be a good choice for this purpose.

- **Phased (Staged) Migration Options:** A phased migration strategy is one in which all but the most recent source data is "pre-migrated" to Exchange while users remain active in Notes. The remaining Notes data (a much smaller volume) can be migrated much faster—often all users can be migrated together in a final "cutover" migration. Users continue to receive and send mail and manage their calendars in Notes throughout the transition period while their older data is migrated to Exchange. If the final cutover can be accomplished in a single day or weekend, this strategy can eliminate the need for email, calendar, and free/busy coexistence.
- **Silent Mode Options:** A strategy to configure the MNE Self-Service Desktop Migrator (SSDM), the per-desktop migration application, to hide some or all of its screens and retrieve its required values from a configured .ini file, eliminating or minimizing any need for interaction with the end user.

Characterize your migration scenario in the first section of your Migration Plan.

Provisioning the target Active Directory

Different target types (a local Active Directory vs. Microsoft 365) require different provisioning methods. A local Active Directory can be provisioned directly from the Domino source using Migrator for Notes to Exchange tools in combination with Quest CMN Directory Connector (or some other directory synchronizing method). For Microsoft 365 you can use Microsoft AD sync tool to copy objects into the hosted AD from a local, proprietary AD (previously provisioned locally), or Migrator for Notes to Exchange tools can provision directly from Domino.

IMPORTANT: If you intend to configure free/busy coexistence between Domino and either a local proprietary Exchange or Microsoft 365, the timing of your provisioning task (within the overall migration process) will be affected by this known Exchange behavior:

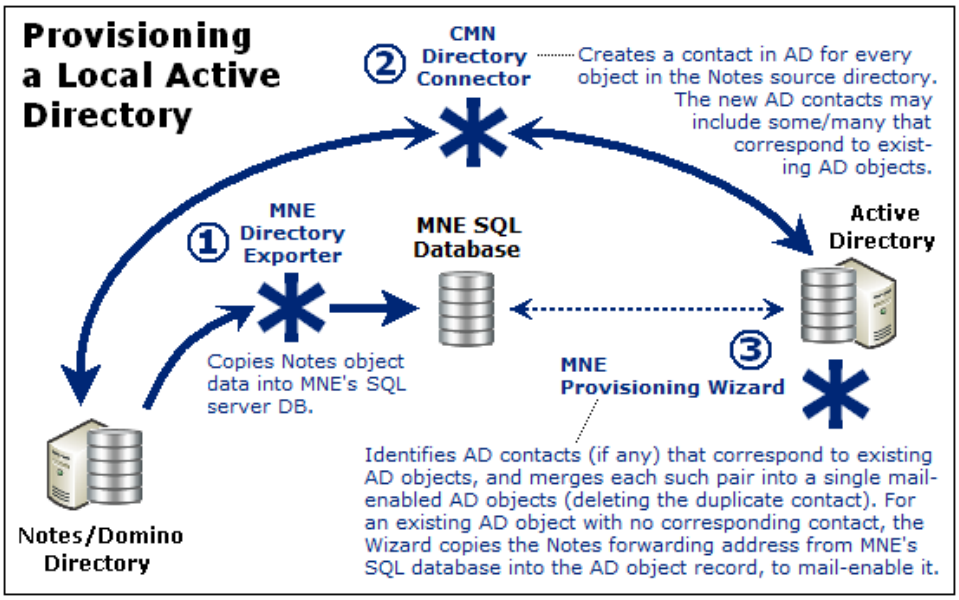
- Exchange cannot send a free/busy query to Domino for any user who has an Exchange mailbox. Exchange can direct such queries only to its own mailboxes.
- The significance and implications of this limitation depend on whether you are migrating to a proprietary AD or to Microsoft 365, as explained separately below.

Provisioning includes mail-enabling and/or mailbox-enabling the objects in the target AD. An Active Directory object is said to be *mail-enabled* when the AD object record contains a forwarding address to which mail can be routed (i.e., to the user Notes address). An object is said to be mail*box*-enabled when an Exchange mailbox is created for it.

Review the information that follows to determine your provisioning method, and note it in your Migration Plan.

Provisioning a local proprietary Active Directory

The MNE tools can provision Active Directory from the Domino source. The typical and most direct method to provision a local AD begins with an MNE directory export, followed by a directory update by the CMN Directory Connector, as illustrated.



Your organization may already have an Active Directory running for login and security purposes and, if so, Migrator for Notes to Exchange can synchronize the existing AD objects with the Domino objects and mail-enable the AD objects. In either case, this provisioning step is necessary before any users are migrated.

In many organizations the migrating users are already using AD security objects for network authentication prior to the migration project.Where Notes users already exist as user objects in Active Directory, the CMN Directory Connector (and other directory-update tools) will produce duplicate entities in AD. But MNE includes a Provisioning Wizard that can merge the contact information into the original AD object record and delete the contact, leaving a single mail-enabled object in Active Directory.

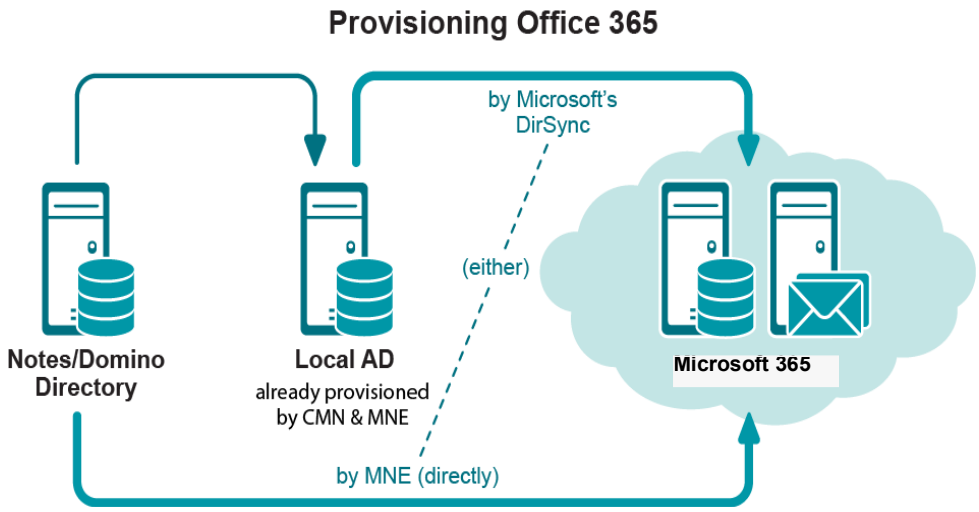
Other MNE wizards can mailbox-enable the AD accounts and provision groups in AD.

When provisioning a local Active Directory, be sure to provision all Notes users into AD as mail-enabled objects, with*out* Exchange mailboxes before you migrate the first user. Provisioning mail-enabled objects into AD will facilitate Exchange-to-Notes mail forwarding, to correctly route mail that arrives (or originates) in Exchange for not-yet-migrated Notes recipients. But Exchange mailboxes would disable Exchange-to-Notes free/busy queries: *Exchange cannot send free/busy queries to an external server for a user who already has an Exchange mailbox.*

This Exchange free/busy restriction becomes irrelevant if you defer creating user mailboxes until before their migration, several steps later. The standard scenario procedures (in chapter 2 of the *Migrator for Notes to Exchange Scenarios Guide*) follow this approach for provisioning local proprietary Active Directory.

Provisioning Microsoft 365

Your organization may already have a local Active Directory running for login and security purposes and, if so, the Microsoft AD sync tool can copy objects from local Active Directory to Microsoft 365. But even where no local AD is already in place, many administrators find it easiest to first configure and provision local "staging" AD, so they can provision Microsoft 365 from the local AD with the Microsoft AD sync tool.



Provisioning Microsoft 365 from local Active Directory makes *single sign-on*, and *identity federation* possible so your users can access Microsoft 365 services with the same corporate credentials (user name and password) they use for local Active Directory.

The local AD is provisioned the same way whether your ultimate destination is the local AD (see Provisioning a local proprietary Active Directory), or Microsoft 365 to be provisioned from the local AD.

If you prefer, you could use Migrator for Notes to Exchange tools to provision Microsoft 365 directly from the Domino source, or you could use Microsoft 365 online admin tools to provision manually—usually with some scripting to automate portions of the work.

However, Exchange-to-Notes mail forwarding requires mail-enabled objects in Microsoft 365. But an Exchange-to-Notes free/busy query (an Microsoft 365 user seeking free/busy info for a Notes user) requires that the Notes user ***not*** have an Exchange mailbox. (Exchange cannot send a free/busy query to an external server for a user who already has an Exchange mailbox. Exchange can send such queries only to its own mailboxes.)

To have both Exchange-to-Notes mail routing and Exchange-to-Notes free/busy queries during the transition period, you must:

- Provision *all* Notes users into Microsoft 365 as mail-enabled objects, but with*out* mailboxes, before the first users are migrated.

  - AND -

- Do ***not*** create user mailboxes until immediately before their migration (per user collection).

The Microsoft AD sync tool can provision mail-enabled objects from local Active Directory to Microsoft 365 with*out* simultaneously creating mailboxes, but other provisioning methods create Microsoft 365 mailboxes at the same time they create the mail-enabled user objects.

The Exchange free/busy restriction is irrelevant if you do not intend to configure free/busy coexistence. In that case, you can provision all users in all collections to the hosted AD in the *Pre-Migration Preparations*, to preserve Exchange-to-Notes mail-forwarding.

Consider these options before you begin the pre-migration preparations, and note your choices and methods in your Migration Plan.

Diagram before-and-after site configurations

Characterize the configuration of the organization servers, as they are now and as they will be after migration.

Draw a network map of the pre-migration Notes/Domino environment that shows the following information:

- Locations, domain names, and operating systems of all servers.
- Number of users and total data volume on each server.
- Bandwidths among the various nodes.

The network map is a graphic illustration to help migration planners visualize the relationships between the data volumes of the various servers and the inter-node bandwidths that connect them.

For each server show also (but not necessarily on the same network map):

- How users are assigned to each server—by geographic location, administrative entity, or some other scheme.
- The volume and locations of the various types of source data at each server—the volume (mega/gigabytes) of user mail, user archives and address books, and whether each type is located in a centrally accessible (server) location, or will be moved to a centrally accessible location, or is located on user desktops.

  NOTE: The MNE console includes a *View Summaries* feature that can report most of this information to help you assess the size and geography of your source environment.

- Which servers you expect to retain for ongoing post-migration coexistence—for example, to support Notes legacy applications.

Draw another network map to show your post-migration Exchange environment: the locations and domain names of all servers, and the data capacity of each server.

View the pre-migration and post-migration configurations side-by-side and determine which users from which Notes servers will migrate to which Exchange servers. Make a table to document these before-and-after server assignments for each group of users to be migrated.

Migration scale

The scale of a migration project is a critical planning factor because it determines whether an organization will require email, directory and calendar coexistence during the transition period. (Coexistence is explained in detail in a later section of this chapter.) The scale of a migration is determined primarily by the processing time required to move all of the data from Notes to Exchange. If the scale of your migration lets you move all of your users and their data from one environment to the other in a single weekend, you can probably get along without accommodations for coexistence. How do you assess your migration scale to determine whether you need coexistence?

The two most important factors that affect migration processing time are data volume, and the number of migration servers that will be used to migrate the data. Remember the Data Migration Wizard can be run on multiple migration servers running in parallel, applied to different user groups simultaneously. In this way, you might employ a half dozen migration servers to migrate a particular data volume in a single weekend, whereas you would need a half dozen weekends to migrate the same volume via a single workstation.

Data "geography" and bandwidth are the most significant factors affecting the *rate* of data migration, and migration server hardware (memory, number and speed of CPUs, and disk speed) is also important. Throughput rates for the Data Migration Wizard vary widely with the interplay of all relevant factors, but administrators typically report migration rates of 1 to 5 gigabytes per hour.

If the data to be migrated is distributed among servers in dispersed geographic locations and if the bandwidth among these servers is problematic, the throughput rate is likely to be at the lower end of the range. On the other hand, a migration rate of 5 GB per hour or faster is likely if the source data is centralized and the bandwidth is good. Much higher rates have been reported under optimal conditions with high-performance workstation hardware.

The chart that follows can help you estimate the throughput rate for your migration project. Remember that rates vary widely and you should not rely on these values as definitive. The chart does not account for hardware factors and your assessment of your own bandwidth is subjective and arbitrary. *You cannot reliably predict your throughput rate without experimenting in your environment with your data.*

NOTE: If migrating to Microsoft 365, the estimation method described is suitable for migration to a proprietary on-premises Exchange server, but migration to Microsoft 365 entails additional factors that warrant special consideration, as explained in the following section.

To estimate the total processing hours of a migration project, first determine the estimated throughput rate. The estimated throughput rates cited here assume that you are operating at an optimum number of migration threads (simultaneous processes), typically 8–12:

Estimated Throughput Rates (GB/hr)

	Data Distribution (percent of total data volume that is centralized)			
Bandwidth is ...	0-25%	25-50%	50-75%	75-100%
Very Good	3.3	4.2	5.1	6.0
Good	2.4	3.3	4.2	5.1
Fair	1.5	2.4	3.3	4.2
Poor	0.6	1.5	2.4	3.3

... and enter that value into this formula:

$$\text{Est Total Processing Hours} = \frac{\text{Total Data Volume (GB)} \;/\; \text{Estimated Throughput Rate}}{\text{Number of Migration Servers Running in Parallel}}$$

This formula will help you estimate the number of *processing* hours required for Quest Data Migration Wizard to migrate a particular volume of data under particular conditions, but remember there is much more to a migration project than processing time. An administrator must also export directory data from Notes sources, provision users and distribution groups into Active Directory, define collections of users and groups, and so forth. You should also allow time to review the Quest wizards' log files, to verify that the wizards' run parameters are appropriate and efficient, and to catch and correct any minor problems before they become major problems.

Per-desktop tasks such as installation of the Outlook client, and sometimes the migration of archives (separately, per-user) also must be figured into the plan, and you should also expect an increased demand on the organization Help desk. You may find that a couple dozen instances of the Data Migration Wizard running on parallel workstations can migrate thousands of users over a weekend, but you'll face a support nightmare on Monday morning if you haven't ramped up your Help desk staff to accommodate all of the likely calls from freshly migrated users.

For a longer-term migration that will span more than a couple of weeks, you can expect that the other associated admin tasks will get easier and take less time as the project progresses. But these collateral admin tasks make it unwise to attempt a single-weekend migration if the estimated migration processing time exceeds 20 to 30 hours.

Throughput to Microsoft 365

Migration to Microsoft 365 uses the Internet to transport data which can result in less consistent and unreliable migration throughput. Also, Microsoft imposes data throttling in Microsoft 365, which take effect when any account (including migration admin accounts) initiates more than two concurrent data streams.

Each migration thread in Migrator for Notes to Exchange counts as one data stream, so Microsoft's throttling dramatically impacts performance when using more than 2 or 3 parallel migration threads in a single account. Quest migration apps ordinarily use 8 to 12 concurrent threads for migration to local targets, and even more threads for higher-end hardware.

Internet bandwidth and Microsoft throttling are independent of Quest migration software and, to some extent, are inherent to a migration to Microsoft 365. But since Microsoft throttling is applied per admin account, you can run multiple admin accounts simultaneously, on separate machines, to mitigate the throttling limitations.

Migrator for Notes to Exchange includes an Account Pooling Utility that helps a migration administrator manage a pooled collection of Microsoft 365 admin accounts, to sidestep Microsoft throttling limits. This utility makes it much easier to coordinate multiple admin accounts to run simultaneously, to multiply the throttled throughput rate by the number of accounts in the pool. The Microsoft 365 Account Pooling Utility is documented in chapter 15 of Migrator for Notes to Exchange *Administration Guide*.

Note in particular that optimum throughput is achieved with only 2–4 migration threads per Migrator for Notes to Exchange workstation (per Microsoft 365 admin account), whereas the *Estimated Throughput Rates* table above assumes 8–12 threads per machine to a local Exchange target. Migrator for Notes to Exchange Account Pooling Utility will likely help you recover much of the throughput lost to throttling, but a more accurate prediction of net throughput in your own scenario will require local testing.

Migrator for Notes to Exchange also offers several features to help you minimize timeouts when data transmission delays are encountered during a migration, which is more common when migrating to a remote, hosted target.

Keep these factors in mind as you estimate the scale and timing of an Microsoft 365 migration.

Multi-workstation considerations

As noted above, the wizards of Migrator for Notes to Exchange can be run on multiple migration servers running in parallel. This approach opens several strategic options that you should consider and document in your Migration Plan. One simple option for the Data Migration Wizard is to assign different user collections to different migration servers, and define each task to include all necessary admin and migration functions for a collection.

The tasks defined by different wizards require access privileges for different servers—Domino and Active Directory and Exchange—depending on the scope of their functions. Likewise, different admin operations in the Data Migration Wizard require different access privileges—for example, admin access to Exchange and AD would not be necessary to set mail-forwarding rules in Notes, but of course admin access rights in Notes would be required for that function. You might therefore consider setting up multiple workstations with different access privileges to different environments, and define tasks and assign them to various workstations accordingly.

The Set Task Schedule screen in some wizards lets you schedule a task to run on a particular workstation, or to run on *any* workstation. This workstation affinity option is offered for tasks created by:

- Directory Export Wizard
- Notes Data Locator Wizard
- Groups Provisioning Wizard
- Data Migration Wizard
- SSDM Statistics Collection Wizard

Consider how you might define and distribute various tasks to an array of differently configured migration servers to maximize the efficiency of your overall process, and document your strategy in your Migration Plan.

Phased migration strategy

Some administrators opt for a "phased" migration strategy, where users remain on the Domino server(s) throughout most of the transition period, while their oldest data (perhaps 90-95% or even more of the total) is migrated to the new Exchange environment. After the older data has been migrated, the proportionately smaller volumes of data remaining can be migrated relatively quickly, so that larger numbers of users can be migrated together within a shorter window. A phased-migration approach may save enough time in the final cutover phase to eliminate the need for coexistence (see next following section), where the migration scale would otherwise put a single-weekend migration out of reach.

A phased migration is a variation of the more typical scenario, requiring some extra considerations and a few extra steps, as explained in the *Phased Migration* topic in chapter 1 of the *Migrator for Notes to Exchange Scenarios Guide*.

Coexistence during the transition

Coexistence is the state of two or more independent servers when both are serving the same organization at the same time—for example, when some users have already been migrated to a new server while others remain on

the old server, awaiting migration. Coexistence introduces more complexity to a migration, and additional steps to the process. But for many organizations, some level of coexistence is essential for the continuity of critical business operations through the transition period of a migration.

An organization should therefore determine at the outset whether the scale of its migration project will permit a single-weekend or "phased" approach (as described above), or will require coexistence. Where coexistence is required, your written Migration Plan should specify the coexistence methods that best suit your needs.

For a Notes–Exchange coexistence, you likely will want to accommodate some combination (or all) of these primary issues:

- ***Directory Updates:*** Most migrating organizations experience staff additions, departures, transfers, and so forth during a transition period of at least several days, often weeks or even months. Any staff changes that occur while the migration is in process will introduce data inconsistencies between the source and destination servers, which you may need to reconcile during the transition. A directory update synchronizes the contents of one directory to match the contents of another. With Migrator for Notes to Exchange, a directory update is also used to help provision Active Directory with the objects in the Domino directory.
- ***Email Routing and Remediation:*** Email coexistence requires mail routing throughout the transition period, when users will be distributed across multiple mail systems. Inbound Internet mail must be directed to the correct server mailbox, and all users must be able to send mail to one another across all active servers without having to know the migration status of other users. Forwarding rules must therefore be updated upon the migration of each user collection.

  > **NOTE:** Quest Migrator for Notes to Exchange does not physically route email between Notes and Exchange. Migrator for Notes to Exchange can update mail-forwarding rules in Notes/Domino and AD/Exchange as users migrate from one environment to the other, to ensure proper routing throughout the migration. But the flow of mail is facilitated by some other mechanism, not by Migrator for Notes to Exchange.

  In addition to email routing, most organizations want some level of email remediation to compensate for cross-platform losses in the fidelity of message contents: attributes, attachments, calendar data, and so forth. Notes and Exchange environments offer similar email and calendar capabilities, but implement many features differently. Outlook therefore does not handle certain message types that originate in Notes, and vice versa.

  Meeting invitations, acceptances, declines, cancellations, and so forth are particularly vulnerable to losses in functionality, since calendar data is transmitted within email messages, but the data formats are different in Notes vs. Exchange. Often a recipient client can display pertinent calendar information correctly, but cannot perform the calendar updates that would have been automatic if the recipient and sender were using the same email system. Or sometimes the receiving client can perform automatic calendar updates, but introduces errors— incorrect dates or times, or missing or extraneous instances in recurring series, etc.
- ***Calendar Free/Busy Lookups:*** Full use of calendar features requires free/busy lookups that will find current data regardless of the servers where the meeting attendees reside. This is accomplished by free/busy synchronizations and queries between the Notes and Exchange free/busy databases.

While it is possible to route mail via SMTP addressing alone, this method offers no remediation for calendar data, or Notes "active mail," or for other email attributes, attachments and so forth. Most organizations will therefore want some tool to facilitate good coexistence between the Notes and Exchange environments. Migrator for Notes to Exchange is designed to complement the coexistence features of other tools, especially Quest's own Coexistence Manager for Notes (CMN).

Several coexistence topics appear over the next few pages, including an overview of Quest CMN. Your written Migration Plan should include a thorough description of your organization coexistence strategy: mail-routing method and configuration, planned accommodations for directory updates and email remediation and calendar free/busy lookups, and the software tool(s) you will use to implement your coexistence strategy.

IMPORTANT: If you will configure free/busy coexistence between Domino and either a local proprietary Exchange or Microsoft 365, the timing of your target provisioning (within the overall migration process) will be affected by this known Exchange limitation:

Exchange cannot send a free/busy query to Domino for any user who has an Exchange mailbox. Exchange can direct such queries only to its own mailboxes.

This is true with or without Quest CMN. The significance and implications of this limitation depend on whether you are migrating to a proprietary AD or to Microsoft 365. For more information see Provisioning Microsoft 365 earlier in this chapter.

Quest Coexistence Manager for Notes (CMN)

Coexistence Manager for Notes (CMN) is a separate Quest product designed to provide rich directory, email and calendar coexistence features between Notes and Microsoft Exchange (including Microsoft 365). To accommodate the three primary issues of a Notes–Exchange coexistence, CMN provides these three primary components:

- ***Directory Connector:*** Updates directory data between the Domino Directory and Active Directory, configurable for any number of servers.
- ***Mail Connector:*** Monitors SMTP traffic between Domino and Exchange to intercept and fix the incompatibilities inherent to certain message types and message contents and attachments. This email remediation service detects and converts in-transit messages as necessary, on the fly, to facilitate cross-platform functionality of most calendar functions, message attachments, and Notes rich-content mail features whereby messages can carry "live" or "active" functional content.
- ***Free/Busy Connector:*** Facilitates the exchange of calendar free/busy data between users in the two different environments. This sharing of free/busy data between Notes and Exchange makes possible automatic calendar updates for accepted meeting invitations, or when a user proposes a different day/time, or cancels, etc.

CMN is not a part of Migrator for Notes to Exchange, but may be purchased separately from Quest. For more information contact your Quest Sales representative.

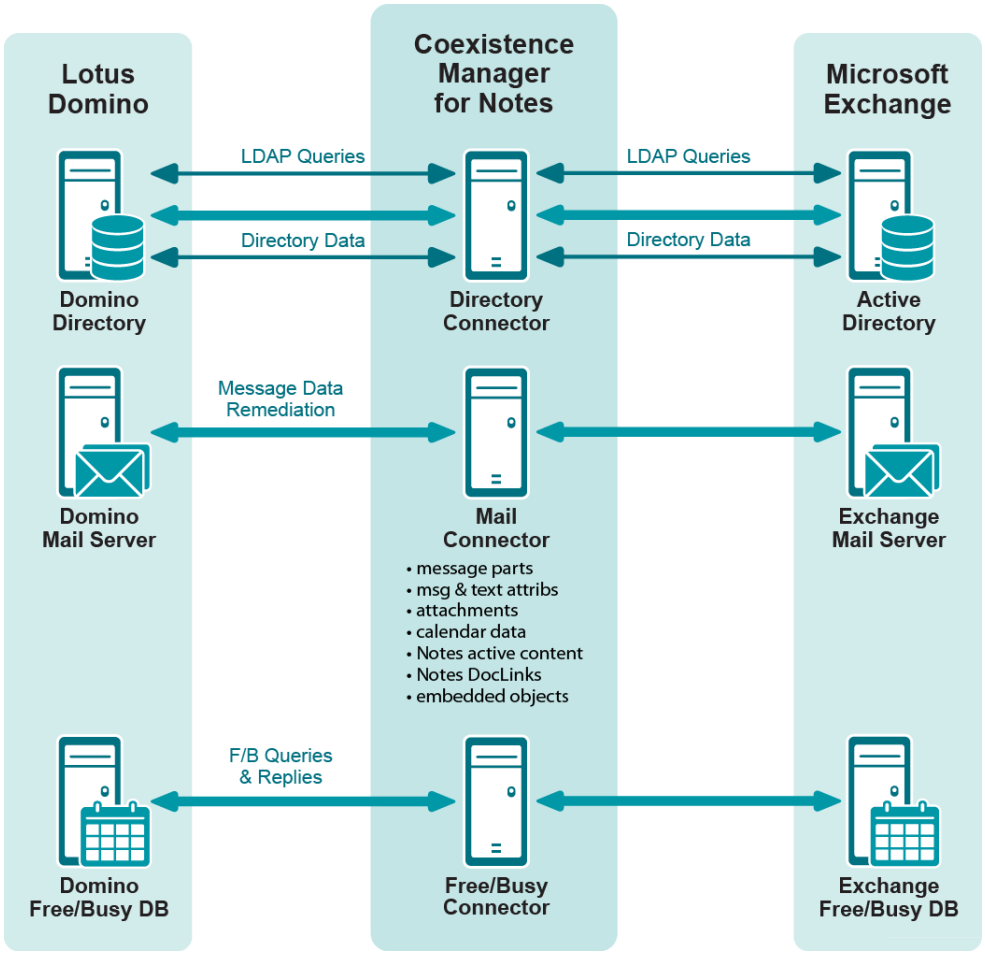
SMTP email routing

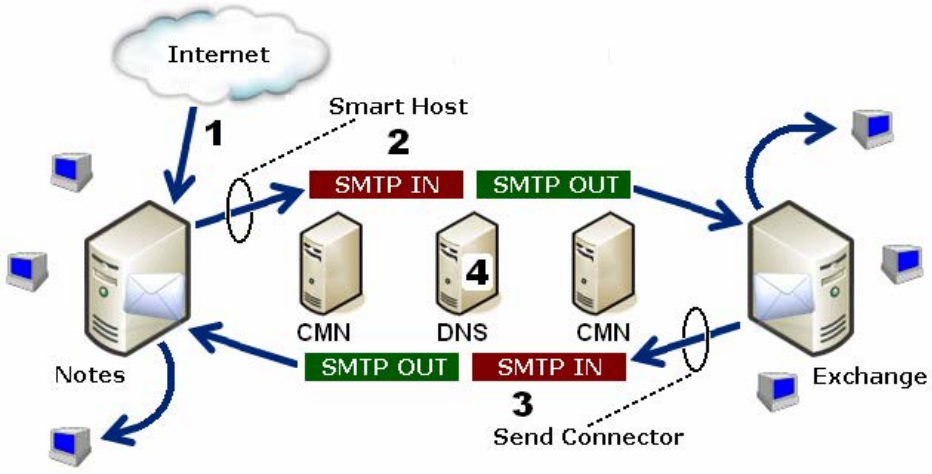
SMTP mail routing can be configured for either single-domain or multi-domain environments, as described separately below. In either case, Notes person documents and Active Directory object records are configured prior to migration to permit internal mail-routing during coexistence.

Single-namespace SMTP mail routing (within a single domain, by smart hosts)

Mail routing by SMTP addressing within a single domain is accomplished using smart hosts in both directions. Exchange can be configured to route mail to a smart host if Exchange determines the recipient is not in the local internet domain. Exchange routes such mail to the smart host, via the *targetAddress* attribute in the Active Directory object record. Meanwhile, Domino is configured to do the same thing in reverse for a recipient whose local internet domain address is not listed in any Domino person documents.

To configure smart-host SMTP routing with Quest's CMN, both smart hosts are configured to point to the CMN server. Within CMN, one set of SMTP IN and SMTP OUT queues is configured to accept mail from Domino and deliver it to the receiving Exchange server, while another set is configured to accept mail from Exchange and deliver it to Domino. Multiple CMN servers can be deployed for load balancing and redundancy. The CMN *User Guide* explains this scenario in more detail (see *Coexistence Mail Routing Basics* in chapter 3). And see also your Domino and Exchange documentation and online resources for more information about configuring smart hosts for those servers.





Multi-domain SMTP mail routing

Mail routing by multi-domain (subdomain) SMTP addressing is somewhat more complicated, but still straightforward to implement. By this method, Domino and Exchange are assigned different subdomains to differentiate the two internally (within your network) during the transition, so email can be routed between the two servers by SMTP addressing and your organization's DNS configuration.

For example, if your original domain is *domain.com*, assign a new *notes.domain.com* subdomain to the Domino server, and assign a new *exch.domain.com* subdomain to the Exchange server. When internal mail from other

Notes users arrives in the Notes accounts of already-migrated users, the mail can be forwarded to the appropriate Exchange mailboxes using the *exch.domain.co*m subdomain.

A subdomain routing method may introduce a risk that the assigned subdomain names will escape your organization internal communications, which in turn can cause bounce-backs on replies to those addresses. To prevent this, set the Notes forwarding address attribute to *user@subdomain@notesdomain*, which causes Domino to set the reply address for external email to the user's primary SMTP address (internet address field value).

About Notes 8.5 Compatibility Mode

Beginning with Notes version 8.5, a configuration called *Compatibility Mode* is offered to streamline iCalendar interoperability with other mail systems. This is accomplished by limiting the functionality within the Notes calendar to those functions that will be seamlessly supported by other mail systems. Some have wondered if Notes' Compatibility Mode might be a reasonable alternative to Quest CMN for calendar coexistence.

Quest acknowledges this configuration option may suffice for organizations that use only basic, simple calendar functions, but it will limit calendar functionality for all users. In the Notes documentation, it is conceded that, with Compatibility Mode, "you will not be able to update more than one repeating meeting instance at a time, use custom repeating meetings, or specify weekend rules for repeating meetings." A quick comparison shows Quest Coexistence Manager for Notes delivers a richer, higher-fidelity calendar coexistence without placing limitations on end users.

In addition to preserving a high level of calendar functionality, Quest CMN also processes Active Mail from Notes, converts DocLinks for use in Exchange, remediates other email incompatibilities, facilitates directory updates, and enables free/busy functionality between the two systems.

If you would like to see a more detailed comparison, please contact your Quest Sales representative.

Directory updates

If updates of coexisting directories is not a high priority, you can add and delete users and update user data in the Exchange environment (only), using Exchange administration software. Otherwise, if it is important to keep the two directories coordinated throughout the transition period, you can do that and also update the SQL Server database, as described in Appendix A of the Migrator for Notes to Exchange *Administration Guide* (see *How Do I Update Directory Data and Update the SQL Server Database?*).

Coexistence with multiple AD domains

Server access rights, email routing, and calendar coexistence will need some special attention in a coexistence when the destination environment contains multiple AD domains. In this case, your Migration Plan should note:

- Server rights must be set to allow the Notes Migration Manager and its wizards to access all of the various domain controllers.
- The Provisioning Wizard and Groups Provisioning Wizard should be run against the primary AD domain controller, which is less likely to encounter latency errors (delays in directory updates among the various domain controllers and the Global Catalog).
- Be sure to check the run logs for the AD Provisioning Wizard and Groups Provisioning Wizard. Errors in the log such as:

  Unable to create group....
  Unable to add group member....

  ... usually indicate latency problems, which can be resolved by waiting a few minutes and running the wizard again.

About Migrator for Notes to Exchange statistics

The MNE Notes Migration Manager and several of the MNE wizards report data statistics: sizes of message stores, data volumes migrated, and so on. This data can be valuable to migration administrators in planning a migration, in monitoring migration progress, and in assessing the performance of particular migration strategies and methods.

When reporting data volumes at various stages of the migration process, MNE qualifies these numbers by specifying reported values as *Compressed* or *Uncompressed*. Notes, Exchange, and MNE measure data volumes in different ways, and compress data using different methods, which makes meaningful comparisons and analysis difficult when the numbers are unqualified. For example, a 283 MB NSF file may become 2.3 GB as migrated by Migrator for Notes to Exchange, and upon migration the target Exchange mailbox can be 439 MB. Some administrators suspect data losses when the differences are entirely due to different methods of measuring data volumes at different stages of the migration process.

To eliminate much of that confusion, Migrator for Notes to Exchange notes whether its various reported values are *Compressed* or *Uncompressed*:

- *Compressed:* Size of the raw data that Migrator for Notes to Exchange reads from Notes, consisting of the size of the original message and headers, and the compressed size of file attachments. (Notes compresses file attachments, but not the messages themselves.)
- *Uncompressed:* Size of the data after Migrator for Notes to Exchange converts it to RTF, plus its headers, and also the uncompressed size of file attachments.

Migrator for Notes to Exchange logs the sizes of objects as they are exported with the Notes API, and the sizes of uncompressed file attachments. These qualified values provide a more meaningful measure of how much raw data Migrator for Notes to Exchange is reading and processing, and should help with migration time estimates. These reporting methods support good estimates derived by comparing the *Compressed* data rate to the size of the source NSF files.

Test and pilot migrations

Any full-scale production migration should be preceded by test and pilot migrations, to confirm that your Migration Plan and procedures can accommodate the organization's requirements. A ***test migration*** uses real users and real data in a segregated test environment, or dummy users and dummy data in your live production environment. A ***pilot migration*** uses a small portion of real users and real data in the live production environment.

In either case—a test or pilot migration—the data to be migrated should be a representative sample of the production data, and the test or pilot migration should be run with the MNE applications set for the same configuration and process options that you intend to use for the production migration. Select test or pilot users whose usage and data types represent the total user population. Run the migration for those users as you have defined the process in your Migration Plan. When the migration is complete, review the program log files for errors or warnings. (The Quest Log File Viewer application helps you view and interpret the program log file. See the *Log File Viewer* chapter of the *Migrator for Notes to Exchange Administration Guide* for information.)

Quest recommends that you use both test and pilot migrations:

1. Perform one or more ***test*** migrations in a separate test environment, migrating test *copies* of real users and real data. The separate test environment ensures that no test process will "touch" the data or configurations in your production environment. If a test exposes problems with your Migration Plan, you can amend the plan and repeat the test by "dumping" the test environment and recreating it from scratch.
2. When you are confident that your test migrations have sufficiently refined your Migration Plan, perform a ***pilot*** migration for 20 to 30 users in your production environment to verify that your plan is satisfactory for your "real world."

Implications of test and pilot migrations on license counts

Any test or pilot migration can be repeated as often as necessary at no cost to your production license key since remigrations do not count in the metered use of a production license. MNE applications recognize already-migrated users and do not count them toward your license limit so you can repeat a test or pilot multiple times to refine your Migration Plan, and each user in the test is counted only once.

Implications of test and pilot migrations on statistics

MNE applications collect migration statistics through any test or pilot migration and save the statistics in the SQL Server database. These test statistics are included with the real production statistics if you let them remain in the database when the production migration runs begin.

In many cases the volume of the test statistics compared to the production statistics is so small as to be negligible. However, if you want to reset the statistics to zero, you can erase the migration server, including the SQL Server database (which contains the statistics), and reinstall the software from scratch. This approach will also erase all your MNE application configuration settings which you must recreate after reinstallation.

IMPORTANT: Since your tests have determined your optimal configuration settings, print a copy of your configuration settings before you erase the migration server.

To print a copy of your configuration settings:

1. In MNE console, select **File | Edit Global Default Settings**.
2. Print the Global Default Settings text from the Notepad application.
3. Close Notepad.

You can reenter the Global Default Settings when you reinstall the software.

3

Other strategic planning issues

- Data retention
- Desktop considerations
- Batch vs. per-desktop migration
- Location of Notes user data
- Migrating personal address books
- Migrating resources
- Migrating Notes groups (distribution lists)
- Migrating folder ACLs and delegation (send on behalf of) rights
- Migrating DocLinks
- Migrating Notes "Active Mail"
- Migrating encrypted data
- Migrating delayed delivery mail
- Migrating Notes attachments
- Migrating mail-In databases
- Migrating to Exchange personal archive mailboxes
- Migrating from Notes with Symantec E-Vault
- Migrating to Exchange configured with a CAS array
- Accommodating known limitations and other special circumstances
- End-user education and communications

Data retention

IMPORTANT: Consult your organization's data retention policies and regulatory compliance requirements before performing migrations. Full backups of the original source data, to be retained post migration, may be required to ensure regulatory compliance. This particularly for cases where source data would be modified prior to migration (e.g. personal contacts or folders) or where data is modified during migration (e.g. *To* email address for repliability).

Desktop considerations

If Outlook is to be installed or upgraded on user workstations, you must determine how to accomplish the installations or upgrades *before* the first users are migrated. In most organizations, users have the native Notes client and must have Outlook installed. However some organizations might have a MAPI service that permits Microsoft Outlook to access Domino.

To install Outlook, you need administrator privileges on the end user computers. You could use a configuration management program to distribute and install Outlook at sites where necessary. New profiles can be defined during or after the Outlook installation.

Batch vs. per-desktop migration

Both the MNE Data Migration Wizard and the Self-Service Desktop Migrator (SSDM) can migrate the same types of data. Migration is usually more efficient if an administrator can use the Data Migration Wizard to migrate all or most users in batches called *user collections*. A user collection typically contains a hundred or so users all migrated together in a single run. Your migration plan should specify whether you will migrate users in batches, one at a time, or using some combination of the two.

The Data Migration Wizard can migrate the user archives only if they reside in a single centralized location, or if the archive locations are specified (per user) in the SQL Server database. Batch migration can require that users copy their archives to a central location if the archives are not currently stored on a network drive, or an administrator can manually add the per-user archive locations to the Migrator for Notes to Exchange SQL database before running the Data Migration Wizard.

Alternatively, the Self-Service Desktop Migrator (SSDM) can be used to migrate archives, one user at a time, after the Data Migration Wizard has migrated the server-based data for a user collection. If user archives are not centrally accessible, or if some other local circumstance makes batch migration impractical, the SSDM is simple enough that most end users can run it.

Some administrators prefer to visit select desktops personally, running the SSDM on behalf of end users to ensure a smooth transition for executives or for users who are uncomfortable running the tasks themselves.

If you intend to migrate any user data using user collections, your Migration Plan should list the requirements and preferences for the following aspects of user grouping:

- ***Grouping Method:*** Determine how to group your users for migration. It is helpful to migrate users in logical groups, grouped by business function or administrative entity, or by physical proximity, so users can support each other through the transition.
- ***Optimum Number of Users Per Collection:*** The optimum number of users for a migration collection depends on the per-user data volume on the source server, data geography (physical distribution), bandwidth, and capacities and configuration of the destination servers. The number of users per collection should also correlate to the capacity of your organization's Help desk since the transition will likely increase demand for Help resources. The log files generated by the wizards can bloat to unwieldy sizes for collections much greater than 100 users if you need to set logging to verbose mode.

  > **NOTE:** The first few collections should be smaller than your expected optimum size since the first groups will likely expose any problems before a larger collection might generate correspondingly larger consequences.

- ***Migration Scheduling:*** Determine how you will schedule collections for migration. Scheduling is often a matter of avoiding the critical dates for each user collection. For example, finance and accounting staff should not be disrupted at the beginning of the month when they are trying to close the books. Similarly, sales staff prefer no interruptions near the end of a quarter when they are attempting to meet their quotas. Many organizations migrate their IS or Help Desk staff first, since they are typically the most savvy users and can help to support other users as the migration proceeds.

Location of Notes user data

The Notes Data Locator Wizard can locate data files in the Notes source for a particular user collection, and can be set to locate data by type (mail vs. PABs vs. archives) in any combination. The wizard can find data in a variety of locations in the Notes/Domino source environment, and prompts you to specify which locations to include in its search:

- ***Access by replicas on server:*** Looks for user data in replicas that have been uploaded to a specific location on a server. For this option the administrator account specified on the Notes Login Information screen must be listed as a manager on all NSF files to be migrated. When the MNE PAB Replicator is used, the administrator account is automatically added as a manager when users copy their PABs to the server.
- ***Access by file system, in specified directories:*** Looks for user data in a particular directory subtree. This option requires that all migrating users be logged off and their NSF files be closed at the time they are migrated.
- ***Location specified by a column in the SQL Server database:*** Determines the location of user data by looking in a column of the SQL Server database. The database table must be prepared with these values before the program is run.

The Data Migration Wizard also offers this fourth option for PABs (only):

- ***PABs contained within server mail files:*** Looks for the user PABs in the user mail files on the Domino server—a useful option when users with iNotes web access have their address books stored in their mail database files. The PAB can be migrated either via the Domino server or by file system access. If you are using the Domino server method, the administrator account specified on the Notes Login Information screen must be listed as a manager on all NSF files to be migrated. If file system access method is used, all users must be logged off and their NSF files closed at the time they are migrated.

The Data Migration Wizard can read source mail files from multiple paths in a single program run. The exported user data from Notes Person Documents include fields that identify the server and path where each mail file resides.

Since the various location options carry different prerequisites and implications for migration strategy, consider the implications and make your choices before you run the Notes Data Locator Wizard.

Domino Server Running on AS400, AIX, Unix, or Solaris

If a source Domino server is running on an AS400, AIX, Unix, or Solaris server, the wizards can directly access NSF files only if:

- The source files are copied or replicated to a Windows-based file system.

  - OR -

- The administrator provides a mechanism or program that permits browsing of the non-Windows data system.

If any Domino source in your network is running on a non-Windows server, and you want the wizards to address NSF files directly, your Migration Plan should specify your method of access to the source data.

Migrating personal address books

The Notes user PABs (personal address books) typically are stored locally (per user) but can also reside with the mailfile, or on a server. MNE includes a PAB Replicator Wizard that can send an email form to users to automate the task of copying their PABs to a centralized Notes server directory where the Data Migration Wizard can find and migrate them.

The Data Migration Wizard can migrate PABs by any of the four methods listed in the preceding section of this chapter, Location of Notes user data.

Migrating resources

Notes/Domino resource management is different than comparable features in Exchange, but MNE can map these features in a way that mimics the settings and behaviors in Notes. After migration, an Exchange administrator can use the capabilities of Exchange to refine the resource restrictions that were set in Notes.

Each Notes resource is configured with an *Owner Restrictions* setting that defines who is authorized to request a resource, accept or reject a request, book a request, and approve (confirm) a booking. The five *Owner Restrictions* settings are listed in the following table with descriptions of how the settings affect resource access in Notes and in Exchange after migration (if you choose to migrate this information).

In Exchange, access to a resource is determined by a longer list of specific conditions, each of which is permitted or denied independently as part of the resource configuration. Also, what Notes calls a resource *owner* corresponds to what Exchange calls a *delegate*, and MNE migrates Notes resource owners and behaviors on that basis.

Table 1. Notes to Exchange Conversions

Notes *Owner Restrictions* set to:	Resource Management Behavior in Notes/Domino	Migration to Exchange, and Post-Migration Behavior	AutoAccept enabled for:
None	No owner is assigned to the resource, and anyone can reserve it.	The calendar attendant and resource booking attendant are enabled on the mailbox. Anyone can book the resource. Parameter set to *[Exchange] SetResourceToAutoAccept=1*	all
Owner Only	Any user can request the resource but all requests are forwarded to a designated resource owner who must approve resource requests.	Make the Notes owner a delegate. Only the delegate can book the resource and approve booking requests from other users. Delegates can also be assigned full-access permissions to the resource mailbox Optional parameter set to *[Exchange] GrantResourceOwnerFullAccess=1*	owners (delegates)
Specific People	A list identifies users who are authorized to access the resource. Only specified users can request and book resources.	Add specific people to *BookInPolicy* list and disable booking for others. Only people in the designated list can book the resource.	specific people
Auto-processing	A resource request is AutoAccepted if the request comes from a designated owner, or from someone on a list of users authorized to access the resource. Other users can also request the resource but only an owner can approve the bookings.	Same as *Owner Only*, plus a list of users approved to book in policy. Only people in designated list can book the resource via autoprocessing; all others require a delegate approval.	owners (delegates) and specific people
Disable Reservations	The resource accepts and books requests from anyone, but allows conflicts.	Same as *None*, but the resource allows conflicts (effectively no booking policy). Anyone can book the resource at any time; conflicting bookings are allowed.	all

The Directory Export Wizard captures the owners and the authorized-access users of Notes resources and the Notes *Owner Restrictions* settings. The Data Migration Wizard can migrate this information when it migrates the resources. The directory export always captures the information but its migration to Exchange is an option that is enabled or disabled by a boolean program parameter in the [Exchange] section of the MNE Task Parameters and Global Defaults:

MigrateResourceDelegation=<#>

This feature is off by default (*MigrateResourceDelegation=0*). To migrate the resource owners and authorized-access users and the associated resource-access permissions, set *MigrateResourceDelegation=1*.

A related MNE boolean parameter (also in the [Exchange] section) lets you optionally add resource-owner permissions to migrated resource delegates in Exchange:

GrantResourceOwnerFullAccess=<#>

This feature also is off by default (*MigrateResourceDelegation=0*). To add resource-owner permissions to migrating resource delegates, set:

GrantResourceOwnerFullAccess=1.

NOTE: This feature requires MigrateResourceDelegation=1, as described. The wizard ignores the GrantResourceOwnerFullAccess=<#> parameter if MigrateResourceDelegation=0.

Resource types

Exchange 2010 and later permit the differentiation of resources into three types: *Room*, *Equipment,* and *Online Meeting*. The Directory Export Wizard copies the resource type designations from Domino into the object records in the SQL database, and the Provisioning Wizard provisions the objects into Active Directory with the type designations intact.

Logistic considerations for resource migration

In a common scenario, Active Directory security objects are already created for all users and resources, and a dirsync creates mail-enabled AD contacts that correspond to existing security objects. The Provisioning Wizard merges the contact information (including resource types) into the existing security objects and deletes the contacts, leaving a single mail-enabled security object in AD per user or resource. After the merge process has created mail-enabled security objects, the Data Migration Wizard can mailbox-enable the objects.

If a resource appears in a collection, but no corresponding security object or contact resides in AD, the Provisioning Wizard can be configured to overlook the missing entities. You enable or disable this feature is using a check box on the *Choose the Container for User Objects* screen:

[ ] Create new objects for recipients that do not already exist in Active Directory

Select the check box to create a new mail-enabled object in AD when none is found to correspond with a user (resource) in the collection. Leave the check box clear to disable the feature. Any new objects are created in the container specified by the User Container text box (on the *Choose the Container for User Objects* screen).

NOTE: Use this *Create new objects* feature only if no corresponding contact or resource object already exists in AD. If an AD resource object exists without a corresponding contact, the wizard will mail-enable the existing object.

Bidirectional resource booking

The Quest Coexistence Manager for Notes (CMN) product includes a Mail Connector that supports resource booking in both directions during the transition period of a migration. In earlier releases CMN did not support Notes user booking of Exchange resources, and that limitation introduced a "double booking" problem that administrators addressed by migrating all resource objects at the end after all the users had been migrated. Now that CMN supports bidirectional resource booking, you can migrate resources whenever you like.

Exchange users can book Domino resources by sending requests to the resource original Notes addresses. Domino acts on the request in its reservations database the same as if it had come from a Notes user.

Notes-to-Exchange resource booking is typically accomplished by one of two methods:

- ***To support free/busy inquiries with N-to-E resource booking:*** Deletes the Domino resource and uses the CMN Directory Connector to create a forwarding contact to replace it—to route resource requests to the corresponding resource object in Active Directory.
- ***If free/busy is not required:*** Notes-to-Exchange resource booking can be achieved by mail forwarding, where the resource in Domino is configured to forward its mail (resource requests) to the corresponding resource object in AD. (MNE can automatically configure this mail-routing when it migrates the resource.)

The best practice for resource migration is using one of the two methods described here. If you do not intend to configure the CMN Free/Busy Connector, you can migrate resource objects in the same collections with the users who use them (or whenever most of the users who use them are migrated).

Migrating Notes groups (distribution lists)

Groups, which include distribution lists, are exported from the Domino directory by the MNE Directory Export Wizard so they can be provisioned correctly in Active Directory. Since the only data associated with a group is its member list, group migration consists of provisioning the group in Active Directory. MNE includes a Groups Provisioning Wizard that can provision groups in AD from a designated group collection.

When a group is provisioned into AD, it also remains on the Domino server (the Notes/Domino original is copied, not destroyed or altered), and after migration the two groups exist independently of each other. This coexistence introduces the potential for discrepancies between the two group membership lists as group members can be added and deleted during the transition period. You can re-run the Directory Export Wizard and the Groups Provisioning Wizard to update the AD groups' membership lists with any changes entered into the Notes/Domino originals, but there is no practical mechanism for updating in the opposite direction, from AD back to Notes.

Since the only practical update path for groups is one-way, Notes to Active Directory, most organizations wait until all users are migrated before provisioning groups into AD. This approach eliminates the need for periodic updates, and already-migrated users can address emails to Notes/Domino groups the same (transparent) way they send emails to not-yet-migrated users.

Your Migration Plan should specify whether you intend to use this "groups last" strategy or some other approach.

Migrating folder ACLs and delegation (send on behalf of) rights

By default, the Data Migration Wizard and Self-Service Desktop Migrator (SSDM) both preserve ACL information, including calendar and task folder ACLs, as they migrate Notes source data to Exchange. To disable this feature, you can set *ACLs=0* in the [General] section of Task Parameters or Global Defaults (for the Data Migration Wizard), or in the *notesdtapp.ini* file (for the Desktop Migrator).

IMPORTANT: For delegates and ACLs to migrate properly:

- The ACL/Delegates' mailboxes in Exchange must be mailbox-enabled.
- The AD profiles for users receiving migrated ACL information in Outlook must be enabled in AD. (If the user cannot log on to Outlook, MNE cannot migrate the ACL data.) If you inadvertently migrate users who are not enabled in AD, you can remigrate with *RemigrateMode=0* to replace the previous data (without ACLs) with new copies of the same data *with* ACLs.

A few other notes about migrating ACLs and Delegation Rights:

- MNE maps the Notes Delegate permissions to Exchange so that, if no permission level in Exchange corresponds exactly to the Notes Delegate permission level, Exchange assigns the next lower level. This prevents a case in which a non-exact match yields a higher level of permissions in Exchange than was allowed in the Notes source. For example, if a Notes Delegate with access level *Editor* is authorized to *Delete owned document* but not to *Delete any document*, Exchange assigns the Delegate to the *Author* level in Exchange.
- Migrator for Notes to Exchange migrates the Delegates and ACLs of all folders involved in the migration.
- Exchange does not assign the non-specific *Custom* access level but assigns the defined, more specific access level that is closest to the original Notes level without exceeding any Notes permissions.

Migrating root folder permissions

Permissions on each folder in Exchange are configured to grant equivalent access, depending on the type of content being migrated to the folder. In addition to configuring permissions on folders where content is being

migrated, MNE also configures permissions on the mailbox root folder. Although the root folder does not contain any content, the permissions on this root folder affect how folders in the mailbox can be accessed by other users using Outlook. You can use the parameter [Exchange] RootFolderAclMode to control how permissions are migrated to the root folder. The allowed values of this parameter are discussed in the following sections.

[Exchange] RootFolderAclMode=0

This setting directs MNE to not migrate permissions to the root folder at all. Permissions are only set on the content folders. Without permissions on the root folder, users can access content only by directly opening a folder using the Outlook Open user folder feature. This feature only supports so called “well-known folders”, such as the Inbox, Calendar, Contacts, etc.

Use this setting to limit access to well-known folders.

NOTE: Permissions are still configured on custom folders. It can be difficult to access custom folders with no permissions configured on the root folder, but do not assume that it is impossible to do so.

[Exchange] RootFolderAclMode=1

This setting directs MNE to limit permissions on the root folder to the Folder Visible right. The Folder Visible right grants users the right to view properties of the folder as well as inspect the folder for subfolders that the user can access. Users who have read access to content of any sort in Notes are migrated to the root folder in Exchange with the Folder Visible right.

With permissions granted on the root folder, users can access content by adding the mailbox to their Outlook profile, which allows the root of the mailbox to be listed on the Outlook Folder Pane. This makes it easier to explore the content of the mailbox, enabling users to access more folders than the well-known folders.

In Exchange, when a folder is created, it is initialized using the permissions of its parent folder. As a result, when using this setting, any folders that are created directly under the mailbox root after the migration has completed are initialized with Folder Visible rights only. If the folder is intended to contain mail content, users who have access to the content of other mail folders may not have access to the content within this new folder.

Conversely, users who have access to calendar data, but not mail data, are able to navigate the folder structure within this new folder (but not see the contents of the folder), because those users will have been granted the Folder Visible right.

Use this setting to allow users to navigate through all migrated content to which the user had access in Notes without automatically granting access to folders that are created directly under the root folder after the migration has completed.

[Exchange] RootFolderAclMode=2

This setting directs MNE to configure permissions on the root folder identically to all other mail folders (such as the Inbox).

This configuration allows users with access to mail to access content by adding the mailbox to their Outlook profile, allowing the root of the mailbox to be listed on the Outlook Folder Pane. This makes it much easier to explore the content of the mailbox, enabling users to access more folders than the well-known folders. Users who have access to calendar data, but not mail, can only access the calendar folder by directly opening the calendar using Outlook Open user folder feature.

As previously discussed, any new folders that are created directly under the root inherit their permissions from the root folder. As a result, new mail folders that are created after the migration have their permissions granted exactly the same as all other mail folders.

Use this setting to allow for new mail folders to be configured the same as other mail folders. It is acceptable for users with calendar access only to open the calendar folder directly through Outlook.

[Exchange] RootFolderAclMode=3

This setting combines the previous two settings (1 & 2). Users who have access to mail content in Notes have identical access granted to the root folder. Users who have access to calendar data, but not mail data, are granted Folder Visible rights on the root folder.

This configuration allows users with access to content of any kind to access the mailbox by adding it to their Outlook profile, allowing the root of the mailbox to be listed on the Outlook Folder Pane. This simplifies access for all users who have been granted some kind of access to the Notes mail file.

As previously discussed, any new folders that are created directly under the root inherit their permissions from the root folder. Any new folders that are created at the root of the mailbox after the migration contain the permissions necessary to allow users with access to mail content to access the content of this new folder.

Users who have access to calendar data, but not mail data, are able to navigate the folder structure within this new folder (but not see the contents of the folder), because those users have been granted the Folder Visible right.

Use this setting if simplicity of access is of paramount importance, while ensuring that the content of new mail folders can be accessed by users with access to mail content. It is acceptable that users with access to calendar data can view the folder structure of newly created folders (but not their content).

NOTE: This setting is the default setting for the `RootFolderAclMode` parameter

How remigrations affect folder ACLs and delegate (Send on Behalf of) rights

MNE uses a component for writing migrated data to Exchange with the MAPI over HTTP protocol. This component replaces the MAPI library provided by Microsoft Outlook. When migrating using the MNE MAPI/HTTP library, remigrations can be influenced using the `[Exchange] RemigrateMode` parameter as described in the following topic.

[Exchange] RemigrateMode=1 or 2

Permissions for individual users are added to the folder permission table in Exchange if a permission for the user on that folder does not currently exist. Permissions are never removed from or overwritten on the Exchange folder.

Users who have the Send on Behalf of permission in Notes but who do not currently have the permission in Exchange are granted the access in Exchange. Users who have the Send on Behalf of permission in Exchange but who do not have the permission in Notes do not have their Send on Behalf of rights revoked. Users with the rights in both are not affected.

In summary, permissions in Notes are merged with the permissions configured on the folder in Exchange, with any conflicts handled by giving preference to the permissions configured on the Exchange folder.

[Exchange] RemigrateMode=0

Permissions for individual users are added to the folder permission table in Exchange if a permission for the user on that folder does not currently exist. Permissions are never removed from the Exchange folder. However, if the user does have permissions already configured on the folder in Exchange, it is overwritten.

Users who have the Send on Behalf of permission in Notes who do not currently have the permission in Exchange are granted the access in Exchange. Users who have the Send on Behalf of permission in Exchange who are not explicitly listed in Notes do not have their Send on Behalf of rights revoked. However users that are explicitly denied Send on Behalf of permission in Notes have their rights revoked in Exchange. Users with the rights in both are not affected.

In summary, permissions in Notes are merged with the permissions configured on the folder in Exchange, with any conflicts handled by giving preference to the permissions configured on the Notes mail file.

Migrating with the legacy Outlook MAPI library

If MNE cannot migrate data using the MNE MAPI over HTTP library, it migrates data to Exchange using the legacy Outlook MAPI library. When migrating with the Outlook MAPI library, permissions on the Exchange mailbox folder as well as the list of users who have the Send on Behalf of right are always entirely replaced. Any permissions that may have been migrated by previous migrations or added by users before the remigration takes place are overwritten.

Migrating calendar ACLs and delegation rights

Migrator for Notes to Exchange's Data Migration Wizard offers an assortment of options for mapping some Notes access levels to Exchange, for calendar and to-do items. Specifically, the *No Access* and the *Depositor* access levels are mapped as shown in the following table, for selected *Read Public* and *Write Public* Notes permissions. Mapping depends on values set for NME Parameters `[Notes] MapDefaultAclToReviewer` and `[Notes] ElevateCalendarAuthorACLtoEditor`.

The Data Migration Wizard can also migrate Notes' "send on behalf of" delegation rights. Delegation rights are useful when one user wants to let another user have access to his or her Outlook Calendar, to generate meeting invitations and accept/decline invitations from others, as is common in a boss-secretary relationship. Notes delegation rights correspond to the *publicDelegates* property in Active Directory. Migration of delegation rights is enabled by default, but can be disabled by setting *PublicDelegates=0* in the [General] section of the Global Defaults or Task Parameters.

Read Public	**Write Public**	Migrator for Notes to Exchange **Parameter Settings** (defaults are shown here in red)	**Exchange Calendar / ToDo Access Rights**
No	[— — — — — — — — any combination — — — — — — — —]		No Access
Yes	No	MapDefaultAclToReviewer=0 ElevateCalendarAuthorACLtoEditor=0	No Access
		MapDefaultAclToReviewer=0 ElevateCalendarAuthorACLtoEditor=1	Reviewer
		MapDefaultAclToReviewer=1 ElevateCalendarAuthorACLtoEditor=0 or 1	Reviewer
	Yes	MapDefaultAclToReviewer=0 ElevateCalendarAuthorACLtoEditor=0	No Access
		MapDefaultAclToReviewer=0 or 1 ElevateCalendarAuthorACLtoEditor=1	Editor
		MapDefaultAclToReviewer=1 ElevateCalendarAuthorACLtoEditor=0	Author

Migrating DocLinks

Notes DocLinks can be migrated in any of four forms:

- **NOTES links** (default): This option requires the Notes client to be installed and running on end users' desktops to facilitate the rendering of the Notes document.
- **Notes .NDL attachment:** This option requires the Notes client to be installed and running on end users' desktops to facilitate the rendering of the Notes document.
- **HTML links to your Domino webserver:** A DocLink migrated as an HTML link will not require the Notes client on the user desktop, and will instead open into a web browser if iNotes is enabled.

  NOTE: This *Domino webserver* option is incompatible with an Offline migration, since Migrator for Notes to Exchange cannot connect to an offline Domino server to perform the DocLink translation.

- **HTML links to your SharePoint Server:** A SharePoint server link will point to a document on a separate SharePoint server. This requires that you have Notes Migrator for SharePoint (formerly "Proposion Portal format"). If you select this SharePoint option, you must also specify:

- **Site Address:** URL to these documents on the SharePoint server.

Your Migration Plan should specify the destination format for migrated Notes DocLinks. The choice of destination format is controlled by a selection on the *Specify How To Migrate Notes DocLinks* screen, within the Data Migration Wizard. By default, DocLinks are migrated to Exchange as NOTES links.

Migrating Notes "Active Mail"

Migrator for Notes to Exchange can detect and convert Notes rich-content features whereby messages carry "live" or "active" functional content for things such as:

- Stored forms (created in Notes with *Store form in document*).
- Embedded buttons, hotspots, collapsible sections, etc.
- Native Notes encryption.
- Unsupported rich-text elements (e.g., tabbed tables).

These features, called *Active Mail,* are normally lost or degraded when migrated to Exchange due to the differences between the mail platforms. However, Migrator for Notes to Exchange—both the Data Migration Wizard and the SSDM—can detect and process Active Mail content to preserve its functionality.

Migrator for Notes to Exchange encapsulates Active Mail functionality within an NSF file attachment. Assuming a Notes client is still installed on the migrated user Outlook computer, and the NSF file type is associated (in Windows) with the Notes client application, the Outlook user can double-click the icon to open the attached NSF file in Notes with the fully functional Active Mail content in view.

Active Mail processing is an optional feature that is disabled by default, but can be enabled by a check box on the *Specify Data to Migrate* screen in the Data Migration Wizard:

[✓] Migrate mail data.

[✓] Migrate email messages.
[✓] Migrate Active Mail [Configure]
[ ] Migrate calendar data.
[ ] ...

In the SSDM, you can enable the feature by setting program parameters in the *notesdtapp.ini* file. These settings are described in chapter 4 of the *Migrator for Notes to Exchange Scenarios Guide* — see the topic *How to customize the SSDM*.

In the *Specify Data to Migrate* screen, click **Configure** (next to the check box) to specify your preferences for the Active Mail features. (The dialog box options are described in the *Migrator for Notes to Exchange Administration Guide*, chapter 10, for the *Specify Data to Migrate* screen and in the online help).

Part of the configuration requires that you specify a filename and location for a **Notification message**—a file that contains a text string that MNE inserts at the top of the body of any migrated message containing Active Mail. MNE installs a default file named *ActiveMailNotificationMessage.txt* to the installation directory, but you can specify a different filename and/or folder.

The Notification message text file must be UTF-8 encoded and must contain a placeholder, called *$ActiveMailAttachment$*, that MNE replaces with the Active Mail NSF attachment when the message is migrated. Since the contents of this file become part of an RTF body, characters such as "\", "{", and "}" must be escaped with a leading "\" (so they become, respectively, "\\", "\{", and "\}").

Migrating encrypted data

Notes encrypted mail can be migrated by either the MNE Data Migration Wizard or the Self-Service Desktop Migrator (SSDM), but each method has its own advantages and disadvantages:

- In MNE 4.17 and earlier releases, the Data Migration Wizard (batch migrator) cannot decrypt messages because decryption requires per-user access credentials that usually are unavailable to the wizard. The

wizard can migrate encrypted mail as Active Mail (see Migrating Notes "Active Mail"), but the messages are encapsulated and migrated in their encrypted state. On the Exchange side the user must use a local copy of Notes to decrypt the message contents.

- As of MNE 4.18.0, the Data Migration Wizard now supports Domino Automatic Decryption to run batch migration of user-encrypted data to Microsoft Exchange. This feature requires using the Notes ID Vault to backup and restore each user's Notes ID. When automatic decryption is used, messages encrypted in Domino are migrated decrypted, and their message sensitivity property is set to "Private" by default. For more information, see **UseIDVaultOTFDecryption** in the [Notes] section in the *Program Parameters Reference Guide* and also see the MNE 4.18 Release Notes.
- The SSDM can apply individual user credentials to decrypt Notes messages as they are migrated, but this method leaves the migrated messages unencrypted in the Exchange mailboxes.

NOTE: The batch-migrating Data Migration Wizard can migrate encrypted messages as Active Mail for user collections, but the messages can be decrypted on the Exchange side only by users running local copies of Notes. The SSDM can decrypt Notes messages and migrate them unencrypted to Exchange, but can only be applied to a single user's mail at a time and the migrated messages remain unencrypted on the Exchange side.

NOTE: Encrypted mail in Notes is not decrypted before it is migrated to Exchange. Encrypted mail in Notes is kept in an encrypted state and decrypted as it is migrated. *At no time is encrypted mail left in a decrypted state in Notes.* Even after the mail is migrated the encrypted email left in Notes remains in an encrypted state.

Alternatively, the Data Migration Wizard can be configured to *not* migrate encrypted messages as Active Mail (as described in Migrating Notes "Active Mail" above), and in that case will migrate an encrypted message's unencrypted portions, and skip the encrypted portions, inserting a text notice in the message body to explain that the encrypted portions could not be migrated.

In most organizations, only the sender or recipient of an encrypted message is authorized to access the encrypted portion, and the wizard does not know the credentials unless the admin account running the wizard happens to be the sender or recipient of the encrypted message. It is possible, but uncommon, for an environment to be configured with broader or even universal access to the encrypted portions of encrypted messages and the wizard can freely migrate encrypted messages in their entirety, without using the Active Mail features. However, more likely, credential access is more restrictive and the wizard can migrate the encrypted portions of encrypted messages only through Active Mail processing.

Organizations that opt to use the SSDM to migrate encrypted messages typically do so after batch-migrating most everything else with the Data Migration Wizard. In any case, two related Migrator for Notes to Exchange program parameters let you tell the wizard how to handle encrypted messages:

- Migrate encrypted messages and attempt to migrate the encrypted portions, and (if access credentials are known) migrate the encrypted portions; or
- Migrate encrypted messages and attempt to migrate the encrypted portions, and (if credentials are unknown) skip the encrypted portions and insert text notices into the message bodies explaining that the encrypted portions could not be migrated; or
- Migrate encrypted messages, but do not attempt to migrate the encrypted portions; or
- Do not attempt to migrate any portion of an encrypted message.

These options are set independently for server and archive data, by different combinations of the *MigrateEncryptedMessages* and *SkipEntireEncryptedMessage* parameters, in the [ServerData] and [ArchiveData] sections (respectively) of Migrator for Notes to Exchange Task Parameters and Global Defaults. For more information these parameters, see the associated entries in the Migrator for Notes to Exchange *Program Parameters Reference*.

Users that have been migrated by the bulk migrator, where the automatic decryption feature of the Data Migration Wizard was not used, may have Encrypted Data either skipped or migrated. Those users should run the Self-Service Desktop Migrator to migrate their own encrypted data. If you do not use On the Fly decryption, the Data Migration Wizard does not migrate encrypted messages, thus it will substitute placeholder messages for encrypted messages in your users' Exchange mailboxes. The Self-Service Desktop Migrator (SSDM) replaces the placeholder messages with the real messages as it decrypts and migrates them. (The SSDM can do the same

thing for encrypted messages that the Data Migration Wizard has processed as Active Mail, replacing the encapsulated-encrypted messages with the real messages as it decrypts and migrates them.)

The placeholder message content is configurable. If you set up a share for your users with an SSDM configured to migrate the Mail file for your users, you can add the location to this package along with instructions for migrating encrypted messages. For more information see “How Do I Customize the Placeholder Message ... for Encrypted Messages?” in Appendix A of the *Migrator for Notes to Exchange Administration Guide.*

Migrating delayed delivery mail

As of Domino 10, Domino supports scheduling email to be sent at a future date and time. In this case, mail could still be in the Domino queue to be delivered after migration.

If you plan to shut down the Domino server after migration, you should send an message to your users before the migration date instructing them not to schedule email delivery after the Domino server shut down date. Emails scheduled for delivery after the Domino server is shut down date will not be delivered.

Also, you should ensure that forwarding addresses are configured for all migrated users, even the last batch of users that are migrated, so that scheduled emails can be forwarded correctly to Exchange or Microsoft 365.

MNE creates a DeferredEmails.tsv log file in the MNE or SSDM log folder. This file lists the deferred emails that are marked for delivery after a specific date which is configured in INI file. For information about setting the date used to include emails in the log file, see the setting [General] DeferredMailDate=<mm/dd/yyyy> in the *Program Parameter Reference Guide*.

This TSV file contains following columns:

- Sender
- ToRecipients
- CcRecipients
- Subject
- DateSent
- DeliveryDate

The DeferredEmails.tsv file exists only if there are emails which were scheduled to be delivered after the date set in the [General] DeferredMailDate parameter. If the DeferredEmails.tsv file exists, it means there are delayed delivery (deferred) emails. You must decide whether to defer the date that the Domino server is to be shut down or notify the senders that these emails must be resent from Outlook.

Migrating Notes attachments

The Domino/Notes environment can be configured to handle message attachments by saving only one copy of the attachment on the Domino server, and making the single attachment available to the sender and all recipients. This *Domino Attachment and Object Service* (DAOS) is transparent to end users and can save some storage space compared to the alternate method: replicating the attachment for each recipient. However, DAOS tends to slow down migration speed. If speed is critical, the replicated attachments method is preferred.

Migrator for Notes to Exchange will find and migrate Notes attachments saved by either method. For multiple Outlook recipients, an attachment will be replicated for each recipient.

Migrating oversized attachments to Microsoft 365

When migrating messages to Microsoft 365, the Data Migration Wizard does not migrate message attachments if the attachment size exceeds the limit as defined in the **[Filter] AttachSize** settings. Instead, a placeholder attachment file is created with text that indicates the original attachment cannot be migrated due to the size limit. This action is to handle various limits set for Exchange Online, especially the message limits such as the attachment size limit (maximum file size of a single attachment) and the message size limit (including attachments). For details, see Exchange Online limits.

To successfully migrate these messages and their attachments, even if an attachment size exceeds the limit, MNE can migrate message attachments as files to a mailbox user's dedicated OneDrive store. The user must have a license service plan and the OneDrive store must already be provisioned. By effectively decreasing the overall message size, this option provides alternative storage for large message attachments outside of Exchange Online.

When defining the **[Filter] AttachSize** settings, it is recommended that you use the default message attachment size, which is 25,088 KB for Microsoft 365 targets. Most inline or embedded attachments for Rich Text Format (RTF) or HTML format messages will be smaller than this limit and will be migrated as attachments in Exchange, resulting in the best user experience for migrated messages with Outlook or OWA clients.

Before you migrate mailbox data with the feature to **migrate oversized attachments** enabled, it is recommended that you run the following PowerShell command to provision the OneDrive stores for all the users in the user collection:

Initialize-MNEOneDriveUserCollection

This command is available in Quest.MNE.PowerShell module that is installed on the migration server.

For more information about the **Migrate oversized attachments** option, see the chapter titled “Exchange Server Configuration: Migrating to Microsoft 365” in the *Migrator for Notes to Exchange Administration Guide*.

Migrating mail-In databases

Mail-in databases in Notes work like shared folders in Outlook—as a repository for items that can be accessed by multiple users. Migrator for Notes to Exchange migrates Notes mail-in databases like resources. The Directory Export Wizard recognizes mail-in databases as distinct from other (user) mailboxes, and identifies them as "mail-in database"s in the MNE console, in the **Object Type** column of the **Objects found** table.

When migrating a mail-in database, verify that the source address in the TSV file matches the name associated with the mail-in database folder to be migrated. The name can be verified in the Notes admin account under the *Mail-In Database* section. The mail-in database will be matched up using either of:

- **SourceAddress:** The Notes address for the resource.
- **TargetAddress:** The SMTP address of the target account in Exchange.

Note that the application does not perform a lookup in the names.nsf file, but instead looks for the matching address in the mail-in-database NSF file.

NOTE: The Data Migration Wizard will set forwarding on a mail-in database if it is told to do so, by setting the **ForwardingAddress** attribute in Notes’ Document Properties for the mail-in database.

Migrating mail-in DB owners

Migrator for Notes to Exchange's Directory Export Wizard captures the owner of a Notes mail-in database, and the Data Migration Wizard can migrate the owner's identity when it migrates the mail-in DB. The Directory Export Wizard captures these owner identities in any case, but their migration to Exchange is an option that is enabled or disabled by a boolean program parameter in the [Exchange] section of Task Parameters and Global Defaults:

```
[Exchange]
MigrateMailInDBOwner=<#>
```

By default (*MigrateMailInDBOwner=1*), the wizard will migrate the identity of mail-in database owners. To disable this feature, set *MigrateMailInDBOwner=0*.

Migrating to Exchange personal archive mailboxes

Migrator for Notes to Exchange lets you choose a migration destination within Exchange for each of the three primary data types to be migrated: archives, address books, and server-based data. Each type can be migrated to: the user server-mail mailboxes, or to user .pst files, or to user personal-archive (server-based) mailboxes.

Personal archives were introduced in Exchange 2010 and allow a user keep archived items in a separate mailbox where they are more secure and accessible than in .pst files.

The personal archives mailbox is one of three destination options in the MNE Data Migration Wizard, on the *Select Destinations for Migrated Data* screen in the **Destination** drop-down lists. The Destination of each data type—Archives, Address books, and Server-based data—is set independently.

The Data Migration Wizard can also automate creation of the personal archive mailboxes if they do not already exist in Exchange. On the *Specify Exchange Mailbox Information* screen, you can select the **Enable Exchange 2010 or later Personal Archive** check box to create the personal archive mailboxes.

In the SSDM, the migration destination is not selectable in the GUI, but is controlled by three pairs of parameters in the [General] section of the *notesdtapp.ini* file. See *Configure Data Destinations for Different Data Types* in chapter 4 of the *Migrator for Notes to Exchange Scenarios Guide* for details.

You can specify a language for personal archive folder names using the `[General] LanguageCode` parameter. See the *Programming Parameters Reference* guide.

Migrating from Notes with Symantec E-Vault

When migrating from a Notes environment with Symantec E-Vault, Exchange propagation issues can interfere with Migrator for Notes to Exchange setting custom attributes when the destination mailbox has never been accessed by Outlook or by the migration application.

One work-around is to first run a "dummy" migration (e.g., use a date filter where date > 1/1/2100) to open all the target mailboxes before running the real migration.

Migrating to Exchange configured with a CAS array

Migration to an Exchange environment configured with a CAS array requires a few extra steps. See the topic *How Do I Migrate to an Exchange Environment with a CAS Array?* in Appendix A of the *Migrator for Notes to Exchange Administration Guide*,

Accommodating known limitations and other special circumstances

Review the Appendix A: Known limitations of the migration process in this guide, and determine how to accommodate the limitations that apply to your organization. Many might be insignificant while others may require more elaborate strategies or work-arounds to mitigate their effects.

Identify any aspects of the configuration that require variations or extensions to the Typical Migration Process as described in the *Migrator for Notes to Exchange Scenarios Guide*. Quest applications offer many options that permit flexibility in devising and implementing a suitable migration strategy when circumstances require a non-standard approach. For information and help with non-standard scenarios, contact your Quest sales representative.

End-user education and communications

End-user communications is a critical but often neglected element of a smooth migration. A user communications plan should be a central component of your migration planning to facilitate early and continuous communications with end users. The end users need to know:

- When and how they will be migrated.
- How the migration will affect them.
- What tasks will be required of them to complete the migration.
- What their login credentials will be on the new Exchange server.
- How to use Outlook and Exchange (end-user training).

If your end users will be using the Self-Service Desktop Migrator (SSDM) application, they also need to know the location of the program file, how to prepare their desktops, and how to run the program.

Your Migration Plan should therefore explain how and when you will deliver this information to your users. Many admins compose a notification email to send to users prior to the migration. Some administrators also like to send another email to the new accounts as soon as they are migrated to the Exchange environment. The Data Migration Wizard contains features that can generate personalized (mail-merge) emails to your end users for this purpose. You can tell the wizard to generate and send these messages at any time before, during or after migration. Typically an admin sends at least two messages to each collection's users immediately upon completion of that collection migration:

- one to their Notes mailboxes to let them know they've been migrated, and to provide their new Exchange/Outlook login credentials; and
- one to their Outlook mailboxes, welcoming them to Exchange and providing links to instructions and tips for using their new Exchange/Outlook tools.

NOTE:

- End users should be advised to check and resolve (accept or decline) any pending meeting invitations, changes to existing meetings, and other calendar items—i.e., items that have been received but not yet accepted or declined. If these sorts of items are migrated before they are resolved, they may not generate the desired results in the migrated content.
- Alarm settings for repeating appointments do not migrate if the first appointment in the series pre-dates the migration. The appointments do migrate, but users should be reminded to reset their alarms.
- Outlook applies its own junkmail filters to migrated mail, which can cause some non-junk items to be routed to the Outlook Junk Email folder. Users should review their post-migration Junk email folders, and retrieve any items that Outlook may have mistakenly sent there.
- ***If migrating to Exchange 2010 or later with Outlook 2010 clients:*** The migration of users within contact lists can trigger false *Invalid Address* warnings to end users due to a change in the way Outlook 2010 stores its nickname cache (compared to earlier versions). The messages are delivered, but Outlook warns recipients that it cannot verify the user addresses.

  This issue can generate user calls to the Help desk, although an administrator could preempt user concerns by sending this information with the article link to all users, either as a separate email, or as part of the *Welcome to Exchange* email that the MNE Data Migration Wizard can send.

For more information, see “How Do I Send Pre- or Post-Migration Notification Emails to End Users?” in Appendix A of the *Migrator for Notes to Exchange Administration Guide,* and the notes for the *Configure Mail-Merge Messages to Migrating Users* screen in chapter 10 of the *Administration Guide*.

Appendix A: Known limitations of the migration process

- Directory export limitations
- Other non- or partial migration issues
- Other Data Migration Wizard issues
- SSDM issues
- Admin Account Pooling issues
- Post-migration issues
- Miscellaneous issues
- Microsoft 365 issues

Most of the limitations of any migration process are due to inconsistencies between the source and target environments. Features that are available in the Notes/Domino environment cannot be migrated to a target environment that does not offer the same or comparable features. Other limitations are due to feature incompatibilities where similar features are available in both the source and target environments, but their implementations are so different that the migration is impractical.

While every effort is made to determine the specific limitations of a migration process, so that these are available for planning, communications and support, it is possible that there may be unknown limitations. These can occur in particular with changes to source or target system versions and in the case of email migrations for any data generated by third party system changes. Where previously unknown limitations in the data migration are found these would be reviewed to determine if the item can be resolved and migrated, but it should be noted that these may result in a new known limitation.

Known limitations of the Migrator for Notes to Exchange migration process are listed in the following sections.

Directory export limitations

- ***Directory catalogs are not exported.*** The Directory Export Wizard does not export Notes directory catalogs.
- **Dynamic members of auto-populated groups do not migrate.** The Directory Export Wizard exports only the manager member of a Notes auto-populated (dynamic) group and not the dynamic members.

Other non- or partial migration issues

- ***The Highlighted text RTF format does not migrate from Notes 7 or higher.*** Other RTF formats, however, do migrate from Notes 7 or higher.
- ***Archives on CD-ROM cannot be migrated.*** An attempt to migrate a user archive from a CD-ROM will generate this error:

ERROR: [4648-33-114-00000102]
Issue in determining design class of 'D:\nameswes.nsf'
NSFDbOpen: Cannot write or create file (file or disk is read-only)

User archive NSF files *can* be migrated from a hard drive via the file system, but cannot be migrated from a CD-ROM. If you want to migrate an archive on a CD-ROM, copy the NSF file to the migration server hard drive and migrate via the file system.

- ***Page breaks, sections, horizontal rules, and computed text within a message do not migrate.***
- ***Image resources do not migrate:*** Image resources (inserted in a Notes message by **Create**|**Image Resource**) do not migrate.
- ***OLE attachments do not migrate.*** But an OLE object can be migrated when embedded within the body of a message.
- ***Notes rules do not migrate.*** Notes mail rules, which let individual users tell Notes how to process their incoming messages, do not migrate to Exchange except for out-of-the-office rules.
- ***Outlook reminder pop-ups appear for migrated but unprocessed meetings that occurred in the past.*** Outlook displays its pop-up meeting reminder dialog box for a migrated meeting that is scheduled for a date/time in the past if the meeting was unprocessed when it was migrated. In this scenario, Outlook also adds the unprocessed meeting to the user's calendar, and marks it as *tentative*. *This is native Outlook/ Exchange behavior.*
- ***Broadcast meetings are migrated as regular meetings.*** The Notes feature *Do Not Receive Responses From Invitees*, which makes a meeting invitation "broadcast-only," does not migrate to Exchange.
- ***Cancelled meeting instances do not migrate.*** Migrator for Notes to Exchange does not migrate cancelled meeting instances, even though Notes may retain them.
- ***ACL for disabled Notes user may migrate due to latency:*** A propagation delay in Notes may cause the ACL for a disabled Notes user to inadvertently be migrated when the migration occurs soon after the user is disabled. In this case the user will appear with a cryptic name such as *NT- User: S-1-5-21-12354667*. When the user is re-enabled in AD, after some propagation delay, the user will appear normally in the Outlook ACL.
- ***Notes tasks that are not started and overdue in Notes migrate to Exchange as not started, but are not designated as overdue.*** *This is due to a known limitation of Outlook.*
- ***A stationery folder migrates, but stationery is migrated as mail.***
- ***Stationery dates do not migrate.*** When Notes stationery is migrated to Exchange, the date associated with the stationery becomes the day-and-time of migration.
- ***Signature templates do not migrate:*** The Data Migration Wizard and SSDM migrate signatures that occur in messages, as parts of the messages, but do not migrate Notes signature templates. End users who want to use automatic signatures in Outlook will have to create them in Outlook after they have been migrated.
- ***Message recall-ability does not migrate:*** A message originating in Notes and migrated to Exchange/Outlook cannot be recalled from the Exchange/Outlook environment.
- ***The prevent-copying attribute of a message in Notes is not preserved upon migration.*** The message itself is migrated, however.
- ***Request update messages are not migrated.*** A Notes user who has been invited to a meeting or assigned a task can request information—a feature that sends a special Notes message back to the originator. These "request update" messages do not migrate.
- ***Attachments to contacts do not migrate.***
- ***Custom alert text assigned to a Notes reminder is not migrated.*** A Notes user can create a calendar entry (a meeting, reminder, or so forth), and in the Remind Me feature may create or edit a customized message to be displayed with the reminder. When you migrate this data, the text is lost because there is no comparable feature in Outlook.
- ***A contact's briefcase items do not migrate.*** The briefcase folder of a personal contact may contain attachments and comments, but the contents of the briefcase folder do not migrate.

- ***Customized field labels in Notes PAB entries do not migrate.*** Any contents of such a field *will* migrate, to whatever field in Exchange corresponds to the original field label in Notes, but the customized label does not migrate.
- ***Dates of draft items do not migrate.*** A draft item (no content in To, From, Subject, body) will migrate from Notes to Exchange, but the date associated with the draft becomes the day-and-time of migration.
- ***Table borders do not appear in some target client platforms.*** The table borders of tables that appeared normally in the Notes source do not appear when migrated to some versions or OWA (Outlook Web Access) and Android. Tables appear normally, however, with their borders, in Outlook 2010 and most other target client platforms.
- **Meeting updates are not supported between Notes and Outlook in some cases.** When a recurrence pattern for a series of meetings is supported in Notes but not supported in Outlook, and when the organizer OR attendee, but not both, has been migrated, some updates/cancellations/responses for single occurrences will not work.
- ***"Private" meeting created in DWA isn't private after migration:*** The "private" status of a meeting created in Domino Web Access is not preserved upon migration. Migration does, however, preserve the "private" status of a meeting that was created by a local Notes client.
- ***Meeting invitee tracking is not accurate in some cases after migration to Exchange:*** If a meeting is scheduled in Notes and a Notes invitee accepts the invitation after migration to Exchange, invitee tracking is not accurate in Exchange. There will be two entries, one that is correct, and one that is not. The one that is not will say "no response".
- ***ACLs:*** ACLs can only be added for groups on mail folders if the group is a security group.
- ***Display name of migrated rooms:*** After the calendar of a room resource is migrated to Exchange, and forwarding is set from Notes to Exchange, if you book the resource in Notes, the name of the room can appear to be changed. Due to the forwarding and a limitation on the way Notes parses addresses, the room will be referred by the left-hand side of the forwarding address and not the canonical name.
- ***All migrated bullets look the same on ANSI Japanese systems:*** On ANSI Japanese systems, the Notes RTF exporter exports any bullet character as a Unicode • "BULLET", so all bullet characters in migrated messages appear the same, regardless of their appearance in Notes. (Migrator for Notes to Exchange uses Notes to export RTF from messages.)
- ***Recurrence Rules:*** Some recurrence rules that conform to the iCalendar specification in Domino Notes are not properly migrated if they are not supported in Microsoft Exchange. For example, monthly recurring meetings with multiple dates or days are converted to weekly recurring meeting because Exchange does not support monthly recurrence with multiple dates or days.

Other Data Migration Wizard issues

- ***Exchange provides no tracking info for invitation received in Notes but accepted post-migration in Exchange.*** Notes is unable to associate an accepted meeting invitation with a meeting organized in Notes, if the invitation was originally received in Notes, but not accepted until the recipient had migrated to Exchange.
- ***Message subjects truncated:*** Messages with subjects longer than 4096 characters cause MNE to stop processing a mailbox at that message. MNE truncates longer subjects to 4096 characters. Meanwhile, Outlook truncates any message subject longer than 255 characters to 255 characters. A message subject longer than 4096 characters is truncated twice during migration: once by MNE to 4096 characters, and again by Outlook to 255 characters.
- ***Duplicate messages from multiple Notes locations:*** MNE does not filter duplicate messages that it finds in different locations in the Notes environment. For example, a message that has been deleted in Notes might appear in Exchange if it had not been processed by the server so that it also occurred in some other Notes locations.
- ***Hidden-contact AD forwarding option does not work in Exchange 2010 or later:*** The AD forwarding option to create a hidden contact and attach it as the alternate recipient of the mailbox (set by *[General]*

Forwarding- Method=0), does not work in Exchange 2010 or later. *This appears to be a limitation of Exchange.*

- ***A Created object within a Notes message appears twice (duplicated) after migration to Outlook.***
- ***Notes user-created folders are migrated to Outlook system folders.*** A user-created folder in Notes that has the same name as an Outlook system folder migrates to the corresponding Outlook system folder. Meanwhile, a Notes system folder migrates to its equivalent Outlook system folder. For example, the Notes system "Sent" folder and any user-created folder in Notes named "Sent Items" would both be migrated to the Outlook "Sent Items" folder.
- ***When migrating only iNotes contacts, the Notes Mail Files screen does not appear, so you cannot choose to migrate via the server or the file system.*** The program will run via file system if that's what you chose for your last migration, unless you go into the Task Parameters or INI file and change it.
- ***Possible problem with Symantec E-Vault migration:*** When migrating from a Notes environment with Symantec E-Vault, Exchange propagation issues may interfere with Migrator for Notes to Exchange setting custom attributes when the destination mailbox has never been accessed either by Outlook or by the migration application. One simple workaround would be to first run a "dummy" migration (e.g., use a date filter where date > 1/1/2100) to open all the target mailboxes before running the real migration.

SSDM issues

Outlook Personal Archive folder must be open to receive migrated items via SSDM when using Outlook MAPI

By default, migration via SSDM is performed with the newer MNE MAPI/HTTP library (provided .Net 4.5 or later is installed). If an end user wants to use the SSDM to migrate items to an Exchange Personal Archive using Outlook MAPI, the user must first open the Personal Archive folder in Outlook before running the SSDM.

SSDM Migration to Microsoft 365 fails due to invalid ADAL credentials if using Outlook MAPI

By default, migration via SSDM is performed with the newer MNE MAPI/HTTP library (provided .Net 4.5 or later is installed). If an end user is migrating using Outlook MAPI, the SSDM uses a MAPI OpenMsgStore call to open the MAPI profile's default mailbox before migration. If Outlook has been enabled using the Active Directory Authentication Library (ADAL) and the ADAL credentials are stored in the cache, MAPI authentication is performed using the ADAL cached credentials. If the cached ADAL credentials are not valid, the MAPI login fails and there is no prompt for credential entry.

When this scenario occurs, the SSDM migration summary window indicates “Migrated 0 objects with two errors and 0 warning(s) from your mail file”. The **Error Report Log** contains the following errors:

```
Error: [8874-94-20-8004011D]Unable to open the MAPI profile's default mailbox.
IMAPISession::OpenMsgStore():
MAPI error 8004011D

Error: Microsoft Exchange is not available. Either there are network problems
or the Exchange server is down for maintenance.
```

Resolution: Remove the ADAL credentials from the Credential Manager

1. Click **Start > Control Panel | User Accounts | Credential Manager**.
2. Select **Windows Credentials**.
3. Locate the set of credentials that has **MicrosoftOfficeXX_Data:ADAL** in the name and expand the corresponding folder.

4 Click **Remove from Vault**.

5 Repeat step 3 and 4 for any additional sets of credentials that have the word **MicrosoftOfficeXX_Data:ADAL** in the name.

6 Restart Outlook.

7 You are prompted for the sign in credentials for your email account.

Admin Account Pooling issues

When running Migrator for Notes to Exchange in a federated Microsoft 365 environment, the Admin Account Pooling Utility cannot use a federated domain.

Post-migration issues

- ***Outlook archiving of migrated messages is delayed.*** Outlook archiving is not applied to migrated messages within the age range set for auto-archiving because Outlook determines message age by Last Modified time, which it updates to the migration date/time upon migration. Since all migrated messages become zero days old as soon as they are migrated, and Outlook won't let the Data Migration Wizard reset that property to its true pre-migration date/time, the Outlook archiving feature skips the messages until they have "re-aged" to the archive age (typically 30 days) following migration, at which time *all* of the migrated messages will be archived.
- ***Changes to some migrated appointments may produce duplicates.*** Some instances of meetings scheduled in Outlook with a Notes attendee and updated prior to the Notes attendee's migration to Exchange, may appear twice in the attendee's Outlook calendar if further updates occur after the attendee is migrated to Exchange.
- ***Outlook cannot add a logon-disabled account to an ACL list.*** This is a limitation of Microsoft Exchange, not of Migrator for Notes to Exchange.

Miscellaneous issues

- ***MAPI bug prevents connection to on-premises Exchange if migrating using Outlook MAPI:*** A known MAPI bug in Server 2008 R2 and later, may prevent Migrator for Notes to Exchange from connecting to an on-premises Exchange server if the Region and Language Format is set to Japanese. The same bug also prevents a user from creating new Outlook profiles using Exchange auto-discovery. The bug can be avoided if the sorting method for Japanese format is changed from default XJIS to Radical\Stroke. This change lets Migrator for Notes to Exchange create new profiles and subsequently migrate mail, but should have no other effect on the migration process. This issue does not occur when using the newer MNE MAPI/HTTP library to migrate data.
- **Encrypted mail migrated by MNE or SSDM is not re-encrypted.** Encrypted mail can be migrated via the Self-Service Desktop Migrator (SSDM) or by using Automatic Decryption feature, but is not re-encrypted in Exchange/Outlook.
- ***Groups cannot be added to security groups in mixed mode.*** When provisioning distribution groups to a server running mixed mode and creating security groups instead of distribution lists, an attempt to add a group to the security group will fail and generate an error to the program log.
- ***PAB Replicator template option "SyncAndCopyToMailFile" merges multiple Notes address books into single Outlook Contacts folder.*** The address books are merged even if the administrator leaves the **Merge into folder...** check box clear (Data Migration Wizard, *Specify Data for Migration* screen). To migrate multiple address books to separate folders in Outlook, use the *CopyToServer* template option in

the PAB Replicator Wizard, and leave the **Merge into folder...** check box clear in the Data Migration Wizard.

- ***Unexpected results may occur in Outlook/OWA if an unprocessed meeting notice is migrated.*** End Users should be advised to process calendar items in Notes prior to migration.
- ***Migrator for Notes to Exchange will not migrate corrupt source data*** or data that cannot be processed by the HCL Notes Application Processing Interface (API). Source data must be in a healthy state for migration. Any maintenance or remediation should be completed prior to migration using HCL Notes/Domino processes such as Fixup.
    - Calendar notices (acceptances / declines / updates / cancellations) that do not have a main meeting to be applied to (orphaned calendar documents) will not be migrated.
    - Also, fields in Notes which do not have a corresponding field in Outlook will not be migrated.
- ***Litigation hold and retention policies*** may reduce throughput speed if enabled during mailbox migration.

Microsoft 365 issues

- ***Migrator for Notes to Exchange cannot support a secure proxy that requires explicit authentication***, although Migrator for Notes to Exchange works fine with secure proxies that rely on Windows domain trust. This limitation is caused by multiple Microsoft APIs and components that cannot be configured to supply authentication credentials to a proxy. Microsoft does not recommend connecting to Microsoft 365 via proxies that use destination-based filtering (see this Microsoft link). Migrator for Notes to Exchange should work fine with a non-domain-trust authentication proxy with exceptions added to satisfy the Microsoft requirements, since all Microsoft components will bypass proxy without authentication. But Migrator for Notes to Exchange must conform to the Microsoft requirements.
- ***If migrating to Microsoft 365 with directory coexistence:*** An object that is synced to Microsoft 365 with *proxyAddresses* will lose the *proxyAddresses* upon the next sync if the UPN is changed to match the Microsoft 365 login—which disables mail routing from Domino to Exchange.
- ***Provisioning nested groups into Microsoft 365:*** Microsoft's AD sync tool must be run twice to completely provision nested Notes groups (i.e., Group A contains Group B) in Microsoft 365.
- ***Group delegates do not migrate to Microsoft 365:*** When migrating Notes mail-in databases to Microsoft 365 with an on-premises Active Directory, group delegates in Notes do not appear in the O365 delegations list. This appears to be a limitation of Microsoft 365.

About us

Quest Software creates technology and solutions that build the foundation for enterprise AI. Focused on data management and governance, cybersecurity and platform modernization, Quest helps organizations address their most pressing challenges and make the promise of AI a reality. Around the globe, more than 45,000 companies including over 90% of the Fortune 500 count on Quest Software. For more information, visit www.quest.com or follow Quest Software on X (formerly Twitter) and LinkedIn.

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