

Quest® Migrator for GroupWise 4.7  
**Pre-Migration Planning Guide**



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**Legend**

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

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

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# About this guide

This *Pre-Migration Planning Guide* was developed to help you prepare for your organization's migration from Novell GroupWise to Microsoft Exchange, using Quest Migrator for GroupWise. These pages will familiarize you with Migrator for GroupWise's component tools, and explain many strategic and tactical planning issues that an admin must understand and accommodate prior to beginning any migration process.

The primary contents of this guide are divided into three chapters:

- **Chapter 1: Introduction:** A summary of what Migrator for GroupWise is designed to do, with brief descriptions of all of its component tools, and the hardware and software specifications required to run Migrator for GroupWise.
- **Chapter 2: Critical considerations:** Explanations of the most critical planning factors you need to understand and resolve as you begin to plan for a migration project. The choices you make here will determine how your migration will proceed—the tasks you will need to perform, and the tools you will need to use.
- **Chapter 3: Other strategic and tactical issues:** Explanations of other important planning factors to consider before you begin a migration process.

This *Guide* is intended for network administrators, consultants, analysts, and any other IT professionals who will use the product or participate in planning for a migration project.

The complexity of most migration projects makes planning, foresight and communications critical to a smooth migration. Quest therefore strongly recommends that all participants in the planning and execution of a migration project read all of this *Guide*, for a full understanding of the migration process and how several critical pre-migration choices will affect your migration project and outcome.

## Other Migrator for GroupWise documentation

This *Pre-Migration Planning Guide* is one of several documents that explain various aspects of Quest Migrator for GroupWise product. The complete documentation suite also includes

- **Quick Start Guide:** An orientation to the product's basic purposes and features, and to how its component tools are most typically used within the broader context of an overall migration project. Also includes instructions for downloading and installing the software.
- **Scenarios Guide:** Migration process instructions that show how Migrator for GroupWise tools and features can be used in a variety of migration scenarios—migrating to different target environments, with different preferences and under different circumstances.
- **Administration Guide:** Operating instructions, application notes and screen-by-screen field notes for the administrator components of Migrator for GroupWise.
- **Self Service Desktop Migrator (SSDM) User Guide:** Operating instructions, application notes and screen-by-screen field notes for the Self Service Desktop Migrator (SSDM) component of Migrator for GroupWise. The *SSDM User Guide* is provided as a separate document so that an administrator can distribute it to any end users who will run the per-desktop program.
- **Program Parameters Reference:** Detailed specifications for all of the program parameters (“INI” parameters) that you can use to fine-tune the behavior and performance of Migrator for GroupWise applications.
- **Online Help:** Context-sensitive field definitions and application notes for all of Migrator for GroupWise's component applications.

The Migrator for GroupWise *Quick Start Guide*, *Pre-Migration Planning Guide*, *Scenarios Guide* and *Administration Guide* are intended for network administrators, consultants, analysts, and any other IT professionals who will install the product, use its administrative tools, or contribute to migration project planning. The *SSDM User Guide* is intended for end users or administrators who will use the Self Service Desktop Migrator component.

To understand the capabilities and typical uses of Migrator for GroupWise, we strongly recommend that all administrators read the entire *Quick Start Guide*, and this entire *Pre-Migration Planning Guide*, and then browse the *Scenarios Guide* to see which scenario matches or is closest to your own needs and circumstances. These materials are designed both to familiarize you with Migrator for GroupWise features, and to help you devise a migration strategy and a written Migration Plan that suits the needs of your network configuration, your users, any institutional imperatives of your organization, and of course your own preferences.

You may then refer as needed to the Migrator for GroupWise component operating instructions, application notes, and per-screen field notes in the Migrator for GroupWise *Administration Guide*.

# Introduction

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- [Product components](#)
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## About Migrator for GroupWise

Quest Migrator for GroupWise is a set of related software applications designed to facilitate a variety of migration strategies for organizations moving from Novell GroupWise to Microsoft Exchange. The Quest applications are designed to work with two other Quest products, Migrator for NDS and Coexistence Manager for GroupWise (CMG), to provide a project-scale approach to overall migration planning and management. Migrator for GroupWise can:

- Extract user data from the GroupWise server to mailbox-enable user accounts in the Active Directory, and preserve users' current SMTP addresses in their new AD accounts.
- Migrate users' mail, appointments, tasks, personal address books, personal distribution lists and frequent contacts from the GroupWise environment to the Exchange environment or Outlook Personal Folders (.pst) files.
- Migrate users' archives from GroupWise to either Outlook .pst files, or the new server.
- Copy each user's GroupWise folder hierarchy into Exchange, and migrate the permissions that facilitate the sharing of folders.
- Set and remove mail-forwarding rules between GroupWise and Exchange to assure correct mail routing throughout the transition period.

In the most typical scenarios, an administrator uses the Migrator for GroupWise batch-migration program to migrate groups of dozens or hundreds of users at a time. But Migrator for GroupWise also contains a per-desktop migration program that lets an administrator visit individual desktops to perform migrations one user at a time, or end users can run the same per-desktop program to perform their own migrations. For that matter, an administrator can mix-and-match these strategies: migrating some users in batches, but others individually at their desktops, while still other users run the per-desktop tool themselves.

Migrator for GroupWise supports several such operational options that allow considerable flexibility in devising and implementing a suitable migration strategy for almost any set of circumstances and preferences.

## Product components

Migrator for GroupWise contains several related applications, which may be used in various combinations to accomplish a wide range of migration strategies:

- **Directory Exporter:** Extracts user data from the GroupWise directory to build four data files, which will provide necessary source data to other Quest applications.
- **AD Object Merge Tool:** Merges users' GroupWise addresses into AD security objects, to mail-enable the accounts. Also, if the program finds Exchange Contacts for users who also have AD accounts, the program merges some of the Contact attributes into the corresponding accounts, and then deletes the Contacts, to merge the pair into a single mail-enabled security object per user.
- **Addproxy Utility:** Automates the process of setting GroupWise proxy rights for migrating users. (Used only for administrator-driven migrations when resetting users' GroupWise passwords is impractical or otherwise inadvisable.)
- **Administrator-Driven Batch Migrator:** Used by an administrator to perform various combinations of these tasks for the users identified in a user-list .csv file:
  - Mailbox-enable Exchange accounts.
  - Change the GroupWise passwords for migrating users.
  - Specify users' visibility in the GroupWise directory.
  - Update mail-forwarding rules for groups of migrating users.
  - Migrate users' GroupWise data to Exchange.
  - Provision GroupWise public distribution lists (PDLs) in Active Directory.
  - Pool admin accounts when migrating to Office 365 using the Admin Account Pool Utility.
- **Admin Account Pool Utility:** Helps an administrator manage a "pool" of Office 365 admin accounts to improve migration throughput to Office 365 within the constraints of Microsoft throttling limitations.
- **Discovery.exe:** Pre-migration discovery tool that collects mailbox and archive information. This information is written to a csv file, and can be used to plan a migration.
- **Self Service Desktop Migrator (SSDM):** Used by end users, or by administrators on behalf of end users, to extract users' GroupWise data and migrate it to Exchange.
- **Log File Viewer:** Simplifies the viewing and interpretation of Quest program log files, which are generated by most Migrator for GroupWise components to document process errors and warnings.
- **Migrator for GroupWise Prerequisites Checker:** Scans the environment to determine whether it conforms to the system requirements for the Migrator for GroupWise applications. The Migrator for GroupWise Prerequisites Checker looks for required software and settings, connectivity, permissions, and access rights.

The Migrator for GroupWise *Administration Guide*, *Quick Start Guide* and *SSDM User Guide* provide complete operating instructions and applications notes for all of these Migrator for GroupWise components.



# System requirements

- [Account permissions and security considerations for migration to a proprietary Exchange target](#)
- [Account permissions for migration to Office 365](#)
- [Requirement specifications](#)
- [How to enable remote management on the Exchange server](#)

## Account permissions and security considerations for migration to a proprietary Exchange target

This section applies only if you are migrating to a proprietary Exchange target. If you are migrating to Office 365, skip ahead to [Account permissions for migration to Office 365](#).

Different organizations have different network security standards that determine the number and configuration of user accounts necessary to perform a migration. It is possible to configure a single migration admin account in Active Directory with all the necessary rights in both AD and Exchange to run a full migration. But many organizations prefer, and Quest recommends, not to concentrate so much administrative authority in a single account. The alternative is to configure two separate accounts, each with more restrictive access rights to perform different portions of the overall migration process: one account for access to Active Directory containers and data, and the other for access to Exchange mailboxes. We describe both approaches here.

### To divide permissions between two accounts

One account is configured for access to Active Directory containers and objects, corresponding to Migrator for GroupWise's *AD Information* screens. This account must be a domain user account with full access to the target OU. If the contacts will be merged with existing Active Directory user objects, the account must have full control of the OUs/containers where the AD user objects currently reside. This ensures Migrator for GroupWise has sufficient access to properly join to the merged user objects, and prevents the creation of duplicate contacts.

To Set AD Container Permissions in Exchange 2016, 2013, 2010 or Office 365:

Use PowerShell to assign necessary permissions to the AD and Enterprise admins, by this cmdlet:

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

... where <UserAcct> is the admin's *SecurityPrincipalIdParameter*.

The other account is configured to provide Exchange credentials from Migrator for GroupWise, corresponding to Migrator for GroupWise's *Exchange Information* screens, and must be configured with *Receive As* rights to each mailbox store. To set *Receive As* rights In Exchange 2016, 2013 or 2010, for *all* mail stores:

In PowerShell, type this command:

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

**Also, for Exchange 2016, 2013 or 2010:** This admin account must be configured with remote PowerShell enabled, by this Exchange Shell command:

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

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

## To combine all necessary permissions in a single account

**Remember:** This option applies only when migrating to a proprietary Exchange.

The single account will be used to login to the migration workstation and provide the Exchange server credentials and AD credentials as needed. In Active Directory, configure user access to AD containers and data by delegating permissions at the OU level:

- 1 If you don't already have a mailbox-enabled account for this purpose: Create a new AD user in any OU, and **Create an Exchange mailbox** housed on a target Exchange server (where user data will be migrated) for the user.
- 2 Use AD's Delegation of Control Wizard to delegate permissions *for each OU* that Migrator for GroupWise will touch:
  - a On the *Users or Groups* screen: **Add** the user, and click **Next**.
  - b On the *Tasks to Delegate* screen: Click **Create a custom task to delegate**, and click **Next**.
  - c On the *AD Object Type* screen: Select the radio button **Only the following objects in the folder**. Then select (mark checkboxes) **Contact objects**, **Group objects**, and **User Objects**. Finally, mark the checkboxes for both **Create selected objects in this folder** and **Delete selected objects in this folder**, and click **Next**.
  - d On the *Permissions* screen: Mark the **General** checkbox, and then mark the checkboxes for **Read**, **Write** and **Write All Properties**.
- 3 On each Exchange mailbox store to which the users are migrating, the account must be added to the security access control list with at least *Receive As* rights (as described for the two-account option above), and must be mailbox-enabled before any data can be migrated to it.

**i** | **IMPORTANT:** Do *not* establish OU access by simply adding the user to the *Domain Admins* group. It may seem like an easier method to achieve the same results, but *Domain Admins* explicitly denies the *Receive As* right, which is also required (see next step below) for this single-account approach.

**i** | **NOTE:** Exchange cannot send a free/busy query to an external (non-Exchange) server for a not-yet-migrated user who already has an Exchange mailbox. Exchange can direct such queries only to the user's Exchange mailbox. Our scenario procedures therefore do not create users' Exchange mailboxes until just prior to their migration. If you will not configure free/busy coexistence for your transition period, you could create Exchange mailboxes earlier in the process. See the Migrator for GroupWise *Scenarios Guide* for more information.

## Account permissions for migration to Office 365

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

Migrator for GroupWise automatically sets and removes most permissions needed for migration to Office 365. But you must manually set *account impersonation* for a Microsoft-hosted Exchange target. To set account impersonation:

- In Office 365 **Management | Users | Settings**, assign administrator permissions to the admin migration account, and this admin migration account must be granted full access permissions to all mailboxes that you migrate.

**i** | **TIP:** Please do not run the migration immediately after granting full access permissions to the admin migration account, until the permission synchronization, between the Azure AD database and the Exchange Online database, is fully complete. To make sure the synchronization is complete, click on one of the mailboxes you want to migrate in Outlook, and notice that the folder can be expanded.

- **Also:** The AD admin account must be configured with *Application Impersonation*, by this PowerShell cmdlet:

```
New-ManagementRoleAssignment -Role "ApplicationImpersonation" -User <userid>
```

## Requirement specifications

Migrator for GroupWise requires certain hardware and software prerequisites on the various machines associated with the overall migration project. These requirements are specified in the most recent RTM *Release Notes* that accompany the product in every release.

## How to enable remote management on the Exchange server

Run *winrm quickconfig* on the Exchange server, as shown below. These lines show your user input (in **bold**) in addition to the program output:

```
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>winrm quickconfig
WinRM already is set up to receive requests on this machine.
WinRM is not set up to allow remote access to this machine for management. The following changes must be made:
Create a WinRM listener on HTTP://* to accept WS-Man requests to any IP on this machine.
Enable the WinRM firewall exception.
Make these changes [y/n]? y
WinRM has been updated for remote management.
Created a WinRM listener on HTTP://* to accept WS-Man requests to any IP on this machine.
WinRM firewall exception enabled.
C:\Users\Administrator>_
```

## Critical considerations

- Develop a written migration plan
- Your migration scenario
- Before-and-after site configurations
- Discovery.exe
- Migration scale
- Provisioning Active Directory
- Coexistence
- End user communications
- Test and pilot migrations

### Develop a written migration plan

The migration of any enterprise is typically a complex process that requires careful planning and project management. Even a high-level summary checklist of necessary tasks can be quite long, and will expose a good number of details that must be addressed for a successful migration. The "choreography" in the sequence, timing, and coordination of tasks is also important.

The complexity of most migration projects makes planning and communications critical to a favorable outcome. Halfway through the process is no time to discover that a neglected detail or invalid assumption will cost your organization dozens or hundreds of hours of productivity, or cause unnecessary aggravation for end users. *Quest therefore recommends that you develop a comprehensive written migration plan before you begin any migration process.*

Developing a migration plan is a valuable exercise that will lead you to consider and accommodate all of the factors likely to affect your organization's migration. At a minimum your migration plan should address all of the topics (and topic categories) discussed in this chapter, and whatever topics in the next chapter may apply to your local circumstances.

### Your migration scenario

Virtually all migrations follow a similar *basic* process, with variations to accommodate each organization's circumstances and needs—what we collectively call a *scenario*. Your migration scenario determines much of the migration process and your necessary pre-migration preparations, so it is critical to define your scenario at or near the top of your written Migration Plan.

Most variations to the basic migration process are determined by:

- **Migration Destination** (the Exchange "target" type):
  - **Proprietary local Exchange network:** A *proprietary* Exchange environment is one whose hardware and software are wholly under the control of the migrating organization. Ordinarily this is a local Exchange network—on the same premises as the GroupWise source, or at least near enough

to use high-performance network cables for data transfer. But a proprietary Exchange server may be distant from the source—geographically and/or from a network perspective.

- **Office 365 ("the cloud"):** Microsoft's Office 365 is a *hosted* Exchange platform (also known as "the cloud"). Cloud computing is a service model in which the hardware and software are owned and controlled by a third party (Microsoft). Microsoft then sells, as a service, access to disk space and the Exchange/Outlook software features.
- **Pre-Migration State of Local Active Directory (if any):** Your organization may already have an Active Directory running for login and security purposes. Part of the migration process will depend on whether you do have an existing AD and, if so, on the state of any objects already provisioned in the local AD.
  - **If migrating to proprietary Exchange:** Do you already have Active Directory configured and, if so, in what state are any previously provisioned objects? (If the objects exist, are they already mail-enabled, mailbox-enabled, or neither?)
  - **If migrating to Office 365:** Will you maintain a local Active Directory— either temporarily to provision Office 365, or permanently? (One popular option is to provision first to a local AD, which can then be synchronized to Office 365.) Or will O365 be provisioned directly from GroupWise?

Different combinations of target types and states of an existing local AD (if any) produce an array of migration scenarios. The scenarios listed below cover almost all variations to a GroupWise-to-Exchange migration, and the Migrator for GroupWise *Scenarios Guide* describes them all, with suggested process instructions:

- **Migration to Proprietary Exchange:**
  - No objects yet exist in Active Directory.
  - AD objects exist, but are not mail-enabled or mailbox-enabled.
  - Offline migration—to proprietary but non-local Exchange.
- **Migration to Office 365:**
  - Provisioning O365 from local AD.
  - Provisioning O365 without local AD.

The Migrator for GroupWise *Scenarios Guide* provides step-by-step process instructions for the most common migration scenarios. Migration by any scenario is still, basically, a GroupWise-to-Exchange migration, and the processes for all scenarios share certain steps in common. Since all migrations follow the same *basic* process, with just a few variations for different scenarios, we can generalize to present just two linear procedures that are suitable for virtually all scenarios. Of course each scenario has its own particular needs and procedural variations, and these are noted in the process instructions in the *Scenarios Guide*.

The *Scenarios Guide* also describes three special-case scenarios, any of which would occur in combination with one of the above-listed scenarios:

- **Offline Migration:** A proprietary Exchange server may reside at a physical location distant from the source environment (geographically and/or from a network perspective). An *offline migration* is a two-phase migration strategy in which the GroupWise source data is migrated first to a nearby intermediate storage medium, which can be physically transported to another location where you have a more favorable bandwidth connection to the Exchange server. The data is then migrated from the intermediate medium into Exchange.
- **Phase (Staged) Migration:** A phased-migration is a strategy by which users remain on the GroupWise server(s) throughout most of the transition period, receiving and sending mail and managing their calendars in GroupWise just as they always have, while their oldest data (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 volume of data remaining can be migrated relatively quickly, so that more users can be migrated together within a shorter window, typically in one final cutover weekend.
- **SSDM Silent Mode Migration:** The Migrator for GroupWise Self Service Desktop Migrator (SSDM) offers a *Silent Mode* configuration, commonly used to minimize end user involvement when SSDM is deployed, but while maintaining the flexibility and other benefits of a distributed migration.

Chapter 1 of the Migrator for GroupWise *Scenarios Guide* provides more information about these special-case scenarios.

**Quest strongly recommends** that all migration admins and others associated with a migration project read the entire first chapter of the Migrator for GroupWise *Scenarios Guide* to fully understand all of the basic migration scenarios. It is critical to identify and characterize your migration scenario at the outset of your planning, and to identify your scenario near the top of your written Migration Plan.

## Before-and-after site configurations

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

Draw a network map of the pre-migration GroupWise environment, showing:

- The locations, domain names and operating systems of all servers.
- The number of users and total data volume on each server.
- The bandwidths among the various nodes.

The network map should be a graphical 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, note also (but not necessarily on the same network map):

- How users were assigned to each server—by geographic location, or administrative entity, or some other scheme.
- The volume and locations of the various types of source data at each server—that is, 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 copied or moved to a centrally accessible location, or is located on user desktops.

If you are migrating to an on-premises proprietary Exchange environment, draw another network map to show your post-migration world: the locations and domain names of all Exchange servers, and the data capacity of each server. Then view the pre-migration and post-migration configuration maps side-by-side, and determine which users from which GroupWise servers will migrate to which Exchange servers. Your Migration Plan should include your before-and-after diagrams, and a table to document the before-and-after server assignments for each group of users to be migrated.

## Discovery.exe

*Discovery.exe* is a pre-migration discovery tool that collects mailbox and archive information. This valuable information is reported in a CSV file, and can be used to plan a migration. Command-line switches for *Discovery.exe* let you specify the types of information you want to capture, where you want it to be saved, and other program run options.

See the *Discovery.Exe* chapter of Migrator for GroupWise's *Administration Guide* for full instructions and application notes.

## Migration scale

The scale of a migration project is one factor in determining whether the organization will require email, directory and calendar coexistence during and/or after the transition period.

One aspect of migration scale is the processing time required to migrate data from GroupWise to Exchange. Important factors that affect migration processing time are data volume, network bandwidth, and the hardware available to migrate the data. The Admin-Driven Batch Migrator can be run on multiple migration servers running in parallel, to migrate multiple user groups simultaneously. In this way, you might employ six migration workstations

to migrate a particular data volume in a single weekend, whereas you may need six weekends to migrate the same volume via a single workstation.

Data "geography" and bandwidth are commonly significant factors affecting the *rate* of data migration and, as noted above, migration workstation hardware (memory, number and speed of CPUs, and disk speed) is also important. Actual throughput rates for the batch migrator program vary with the interplay of these relevant factors, but administrators typically report migration rates of 1 to 5 gigabytes per hour running 8–12 migration threads on a migration machine.

If the data to be migrated is distributed among servers in dispersed geographic locations, and if the bandwidth among these servers is not adequate, then the throughput rate will likely be at the lower end of that range. On the other hand, migration rates of 5 GB per hour and faster are common if the source data is centralized and the bandwidth is sufficient. Much higher rates have been reported under optimal conditions with high-performance workstation hardware.

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

**i** | **NOTE: If migrating to Office 365:** The estimation method described here is suitable for migration to a proprietary on-premises Exchange server, but migration to Microsoft's Office 365 entails additional factors that warrant special consideration, as explained in [Throughput to Office 365](#) below.

To estimate the total processing hours of a migration project, determine the estimated throughput *rate*. The estimated throughput rates in this table assume migration to a local, proprietary Exchange, at an optimum number of migration threads (simultaneous processes, configurable in Migrator for GroupWise), typically 8–12:

**Table 1: Estimated Throughput Rates (GB/hr)**

Bandwidth is ...	Data Distribution (percent of total data volume that is centralized)			
	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 then plug that rate 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 estimate the number of *processing* hours required for Migrator for GroupWise's batch migrator to migrate a particular volume of data under particular conditions, but remember there is much more to a migration project than just processing time. An administrator must also export directory data from GroupWise sources, provision users and distribution groups into Active Directory, define subset batches of users, and so forth. You should also allow time to review the Migrator for GroupWise programs' log files, and make any necessary adjustments to the configuration or process.

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's Help desk. You may find that a couple dozen instances of the batch-migration program 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 just a couple of weeks, you can expect that these other associated admin tasks will get easier and take less time as the project progresses. But these collateral

administrative tasks make it unwise to attempt a single-weekend migration if the estimated migration processing time exceeds 20 to 30 hours.

## Throughput to Office 365

Migration to Office 365 uses the Internet to transport data, which can result in less consistent and less reliable data throughput. In addition, Microsoft imposed new throttles in Office 365, which take effect when any account (including migration admin accounts) initiates more than two concurrent data streams.

Each migration thread in Migrator for GroupWise counts as one data stream, so Microsoft's throttle dramatically impacts performance when using more than 2 or 3 parallel migration threads. Quest migration apps ordinarily use 8 to 12 concurrent threads for standard migration machines, and even more threads for higher-end hardware.

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

Migrator for GroupWise includes an Account Pooling Utility that helps a migration administrator manage a pooled collection of Office 365 admin accounts, to sidestep Microsoft's 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. See the *Account Pooling Utility* chapter in Migrator for GroupWise's *Administration Guide*.

Note in particular that optimum throughput to Office 365 is achieved with only 2 to 4 migration threads per Migrator for GroupWise admin workstation (per Office 365 account), whereas the *Estimated Throughput Rates* table above assumes 8–12 threads per machine to a local Exchange target. Migrator for GroupWise's 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 setting will require local testing.

Migrator for GroupWise 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 Office 365 target. Use Migrator for GroupWise's "retry" features to minimize timeouts when data transmissions encounter network delays. In the Migrator for GroupWise *Program Parameters Reference*, see the entries for:

[GroupWise]	[Exchange]
RetryCount=<#>	WriteMessageTryCount=<#>
RetryDelay=<##>	WriteMessageRetryWait=<###>
	MessageRetryCount=<#>
	MAPIRetryWait=<##>
	MAPIErrorsToRetry=<#####>

Keep these factors in mind as you estimate the scale and timing of an Office 365 migration. The throttling within Office 365 will impact the per-machine throughput rates and should be considered during migration planning.

## Multi-workstation considerations

As noted above, Migrator for GroupWise programs can be run on multiple migration workstations running in parallel. This approach opens several strategic options that you should consider and document in your Migration Plan. One simple option for the batch-migration program is simply to assign different user batches to different migration workstations, and have each program run include all necessary admin and migration functions for the users in the batch.

The tasks performed by different Migrator for GroupWise components require access privileges for different servers: GroupWise vs. Exchange vs. Active Directory. Likewise, the different functions available within the batch-migration program require different access privileges, depending on the scope of their activities. For example, admin access to Exchange and AD would not be necessary to set mail-forwarding rules in GroupWise, but of course admin access rights in GroupWise would be required for that function. You might therefore consider setting up multiple workstations with different access privileges to different environments, and then define tasks and assign them to various workstations accordingly.



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

## Phased migration strategy

If your migration scale makes a single-weekend cutover impractical, a phased- migration approach may let you bypass the need for server coexistence and directory synchronizations. By this strategy, users remain on the GroupWise server(s) throughout most of the transition period, receiving and sending mail and managing their calendars in GroupWise just as they always have, while their oldest data (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 volume of data remaining can be migrated relatively quickly, so that larger numbers of users can be migrated together within a shorter window, typically in one final cutover weekend. Since Migrator for GroupWise migrates *copies* of GroupWise data (does not delete the originals), the older data is still available to users in GroupWise throughout the transition period.

This strategy is explained in chapter 1 of the Migrator for GroupWise *Scenarios Guide*.

# Provisioning Active Directory

Your organization may already have an Active Directory running for login and security purposes. Part of your migration process will depend on whether you already have a running AD and, if so, the state of any objects already provisioned there—whether they are mail-enabled, or mailbox-enabled, or neither. If you are migrating to Office 365, you can use Microsoft's DirSync tool to copy objects from a local AD.

Your choice of a provisioning method is critical to defining your migration scenario, which in turn determines the process you must follow to prepare for and perform the migration.

**i** | **NOTE:** Provisioning GroupWise resources and group (distribution lists) into AD entails some special consideration. Resources and groups often are provisioned separately from user objects. The provisioning of these objects is therefore described separately, in chapter 3. See [Migrating resources](#) and [Provisioning groups \(distribution lists\)](#) for more information.

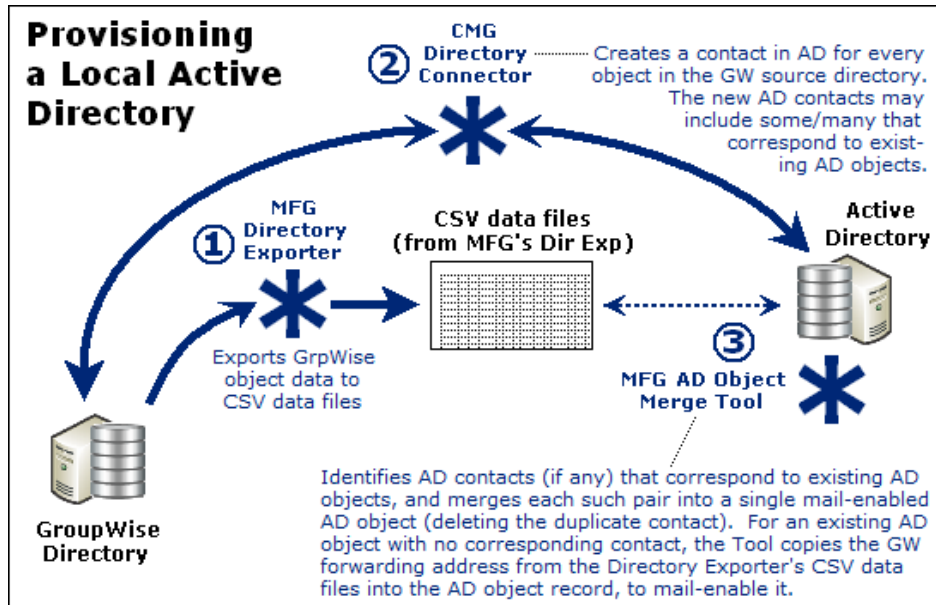
## Provisioning to a local Active Directory

Your existing NDS users and groups must be provisioned as security principals in your local Active Directory. Quest Coexistence Manager for Notes (CMG) or Migrator for NDS (separate Quest products, not part of Migrator for GroupWise) offers the most complete capabilities for this task, but other methods are also possible.

Quest Migrator for NDS copies data from NDS to create security objects in a local AD, or add NDS data to existing AD objects, but the AD objects are not mail-enabled by this process. Migrator for GroupWise's AD Object Merge Tool can then merge GroupWise source addresses into the corresponding AD accounts to mail-enable them. And finally, Migrator for GroupWise's Admin-Driven Batch Migrator mailbox-enables the accounts—creating the users' mailboxes in Active Directory.

**i** | **NOTE:** A *mail-enabled* Active Directory object is one with a mail-address attribute for an address outside the Exchange domain, so AD can forward the object's mail to its other address. A *mailbox-enabled* object is one that has an Exchange mailbox. An AD object that is mail-enabled but not also mailbox-enabled cannot receive mail in Exchange since it does not have an Exchange mailbox; it can only forward mail to an object's external forwarding address.

You could instead use Migrator for GroupWise's Admin-Driven Batch Migrator to provision Active Directory and create Exchange mailboxes directly from contact objects. This can be a valuable feature in environments where security principals do not already exist in AD, and Quest CMG is used to create routing contacts in AD. This approach is also useful for provisioning resource objects in some migrations. For more information, see the *MBoxFromContact* parameter in the Migrator for GroupWise *Program Parameters Reference*.



Migrator for GroupWise's AD Object Merge Tool can be used to consolidate duplicate objects in AD. For example, if migrating users already use Active Directory security objects for network authentication, some provisioning tools may create corresponding contacts in AD. In this case, the AD Object Merge Tool can (and should) be used prior to migration to consolidate such duplicates, to merge the contacts and existing security objects into a single mail-enabled object per user. This is described in more detail in chapter 3 of the Migrator for GroupWise *Administration Guide*.

## Provisioning to Office 365

**i** | **NOTE:** Office 365 supports synchronization of up to 20,000 objects. To synchronize more than 20,000 objects, contact Microsoft's Office 365 Support.

If you are migrating to Office 365 and will use Microsoft's DirSync to provision the hosted AD from a local AD, you can keep the local AD active after the migration for local login and security. For Office 365, this method of provisioning (only) permits *single sign-on*, also called *identity federation*, so users can access Office 365 services with the same corporate credentials (user name and password) they use for their local Active Directory environment.

Migrator for GroupWise does not require a local Active Directory or use of the Microsoft DirSync tool. Alternatively, you could provision Office 365 manually, by scripting, or by the Office 365 portal.

## Coexistence

*Coexistence* is the state of two or more independent mail systems when both are serving the same organization at the same time—for example, when some users have already migrated to a new mail system while others remain on the old system, 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.

You should therefore determine at the outset whether the scale of this 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.

Coexistence typically requires accommodations for these three elements:

- **Directory Coexistence:** Many 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 during the transition will introduce data inconsistencies between the source and destination servers, which may need to be reconciled during the migration process. Directory synchronization updates the contents of one directory to match the contents of another.
- **Email Coexistence:** Email coexistence requires mail routing throughout the transition period, when users will be distributed across multiple mail systems, and moving from server to server. 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 mail systems without having to know the migration status of other users. Forwarding rules must therefore be updated upon the migration of each user group.

**i** **NOTE:** Quest Migrator for GroupWise does not physically route email between the GroupWise and Exchange environments. Migrator for GroupWise can update mail-forwarding rules in GroupWise and Active Directory as users migrate from one to the other, to ensure proper routing throughout the migration. But the actual flow of mail is facilitated by some other mechanism—like Quest Coexistence Manager for GroupWise product.

SMTP mail routing alone does not preserve or compensate for substantial cross-platform losses in the fidelity of message contents, especially in messages that carry calendar data. Meeting invitations, acceptances, declines and cancellations are especially vulnerable to the differences between GroupWise and Exchange. Often the recipient client can display the pertinent 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 times, missing dates, or extraneous meetings, etc.—and will not detect or report the errors.

- **Calendar Free/Busy Coexistence:** The GroupWise and Exchange environments also implement calendar free/busy queries differently, making the availability status of users in the other system unavailable. Both applications need some help to reliably determine the free/busy status of users in the other environment.

## Coexistence tools and methods

Migrator for GroupWise supports coexistence facilitated by Quest Coexistence Manager for GroupWise (CMG) product, or by SMTP mail routing with no email remediation. Other tools may be available to facilitate certain coexistence functions, but CMG is developed specifically to work with Migrator for GroupWise, and contains three components to facilitate the three primary elements of coexistence.

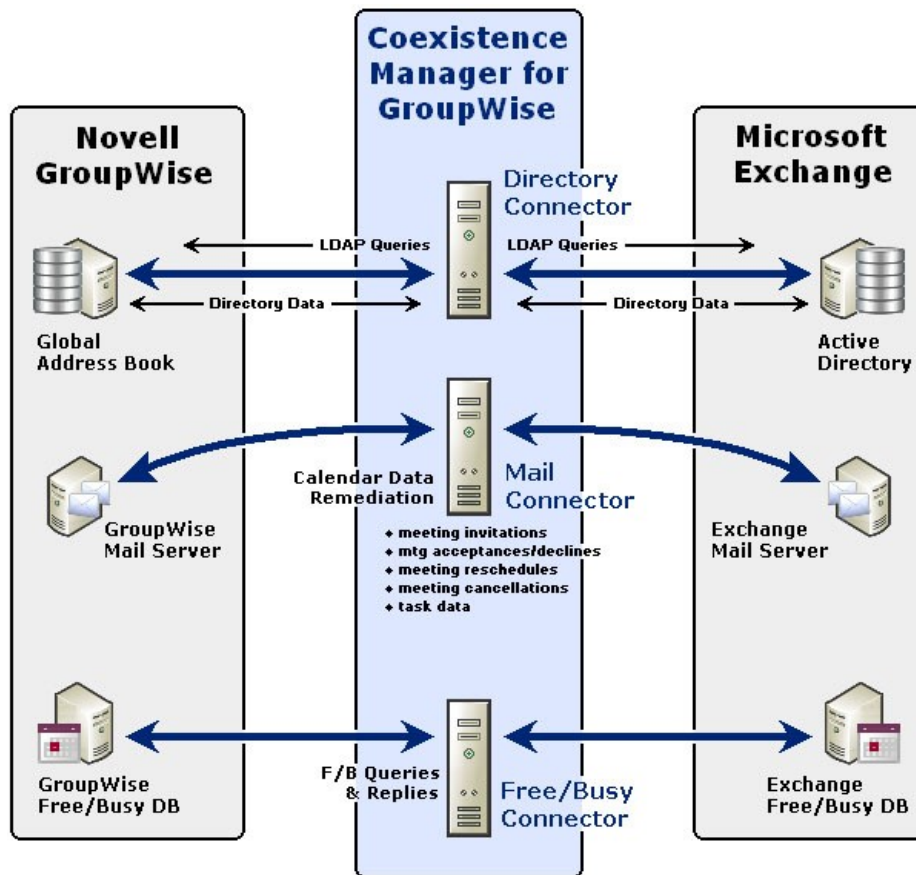
### Quest Coexistence Manager for GroupWise (CMG)

Quest Coexistence Manager for GroupWise (CMG) provides rich directory, email and calendar coexistence features between Novell GroupWise and Microsoft Exchange or Office 365.

To accommodate the three primary elements of a GroupWise–Exchange coexistence, CMG provides these three primary components:

- **Directory Connector (DC):** Updates directory data between Novell NDS/eDirectory and Active Directory, configurable for any number of servers.
- **Mail Connector (MC):** Remediates calendar-data emails to permit delivery of fully functional meeting invitations, acceptances/declines, reschedules and cancellations, and task data.
- **Free/Busy (F/B) Connector:** Facilitates lookups of calendar free/busy data between users in the two different environments.

The three CMG components are independent, but designed to work together in any combination to suit a broad range of coexistence needs.



## Mail and calendar coexistence by SMTP mail routing

If your organization prefers to not use Quest CMG for email routing, you can instead use SMTP routing with domain differentiation, but no email remediation, for that function. Since GroupWise and Exchange implement calendar features differently, and since the SMTP routing method simply relays messages without remediation, much calendar functionality is lost in messages routed by this method. Also, SMTP routing has no provision for calendar free/busy lookups.

By this method, the GroupWise and Exchange servers are assigned different domains or 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*, you could assign a new *gw.domain.com* subdomain to the GroupWise server, and assign a new *exch.domain.com* subdomain to the Exchange server. Then, when internal mail from other GroupWise users arrives in the GroupWise accounts of already-migrated users, the mail can be forwarded to the appropriate Exchange mailboxes using the *exch.domain.com* subdomain.

SMTP routing introduces the possibility of the internal domains or subdomains escaping your local environment. Since these domains typically are not listed in the external DNS, this can cause reply-ability issues for external recipients. Some organizations address this by using a gateway appliance to rewrite the internal domains as they pass out of the organization, or through user education.

By default, messages routed via SMTP forwarding from GroupWise to Exchange will appear from each user's GroupWise mailbox with the original message encapsulated in an attachment. The attachment is fully functional, but does require an Exchange recipient to open each item to determine the sender and take action. This default format also causes mail-reading problems on some mobile devices, so you may want to consider implementing Flat Forwarding on the GroupWise Internet Agent (GWIA) to solve these problems. More information on the Flat Forwarding option is available on Novell's website.

# Coexistence with multiple AD domains

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

- Server rights must be set to allow the Quest programs access to all of the various domain controllers.
- The AD Object Merge Tool and the Exchange administrative functions of Migrator for GroupWise's Admin-Driven Batch Migrator should be run against the primary AD domain controller, which is less likely to encounter latency errors (delays in directory synchronization among the various domain controllers and the Global Catalog).
- Check the run logs for the Admin-Driven Batch Migrator and AD Object Merge Tool. Errors in the log such as *Unable to create group* or *Unable to add group member* usually indicate latency problems, which can be resolved by simply waiting a few minutes and running the program again.

## End user 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. Your end users will 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 use the Self Service Desktop Migrator, they will also need the operating instructions for that application, and some admin guidance for how to use it for your purposes. The Migrator for GroupWise documentation suite includes a separate *SSDM User Guide* PDF that you may distribute to end users as needed.

Your Migration Plan should explain how and when you will deliver all of this information to your users. Many administrators compose one or more notification emails to deliver this sort of information, and send it to users prior to the migration. Some administrators also send another email to the new accounts as soon as they are migrated to the Exchange environment.

## 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 will accommodate the organization's requirements. A **test migration** uses *copies* of 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 Quest 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 make them representative of the total user population. Then run the migration for those users, just as you have defined the process in your Migration Plan. When the migration is complete, review the program log files for any errors or warnings. (Quest Log File Viewer application will help you view and interpret the program log file. See the *Log Viewer* chapter in the Migrator for GroupWise *Administration Guide* for more 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 their real data. The separate test environment ensures that no test process will touch the data or configurations of your production environment. If a test exposes any problems with your Migration Plan, you can amend the plan and then repeat the test by simply "dumping" the entire 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."

## Other strategic and tactical issues

- Desktop considerations
- Batch vs. per-desktop migration
- Grouping users for batch migration
- Method of access to GroupWise user data
- Migrating resources
- Provisioning groups (distribution lists)
- Migrating shared folders and address books, and proxy rights
- Migrating recurring appointments, tasks and reminder notes
- Migrating cached mailboxes
- Migrating from an older version of GroupWise
- Accommodating known limitations and other special circumstances
- Remigration

This chapter contains brief discussions of several topics that all admins should review, to prepare for making informed choices when developing a Migration Plan. Some of these topics may not apply to your organization, but most will, and these are things that migration planners need to understand and accommodate in the written Migration Plan.

**i** | **NOTE:** Think of this chapter as a checklist of factors to be considered, resolved and accounted for in your organization's Migration Plan.

## Desktop considerations

If user workstations will need Outlook installed or upgraded, you must determine before the first users are migrated how you will accomplish the installations or upgrades. There is a MAPI service that permits the use of Outlook to access GroupWise, but users in most organizations will be using the native GroupWise client. Remember that installing Outlook requires administrator privileges on end users' machines. You can use a configuration management program to distribute and install Outlook. New profiles can be defined during or after the Outlook installation.

If any of your users will need software installed, upgraded or reconfigured, your Migration Plan should note this as one phase of tasks to be performed, and should specify exactly what must be done for which users.

## Batch vs. per-desktop migration

The batch-migration program and the Self Service Desktop Migrator both can migrate the same types of data, so the overall migration will usually be more efficient if an administrator can use the batch-migration program to migrate all or most users in batches. A user batch typically numbers a hundred or so users, all migrated together in

a single program run. Your Migration Plan should specify whether you will migrate users in batches, or one at a time, or by some combination of the two.

Consider that Migrator for GroupWise's Administrator-Driven Batch Migrator program can migrate users' archives only if they reside in a single centralized location, or if the archive locations can be specified per user in the accompanying user-list .csv file. Batch migration may therefore require that users copy their archives to a central location if they are not currently stored on a network drive, or an admin may have to manually add the per-user archive locations to the .csv file prior to running the batch-migration program.

Alternatively, the Self Service Desktop Migrator can be used to migrate archives, one user at a time, after the batch-migration program has migrated the users' server-based data. If user archives are not centrally accessible, or if some other circumstance or preference makes batch migration impractical or inadvisable, the Self Service Desktop Migrator is simple and intuitive enough that most end users will be able to run it uneventfully.

Some administrators prefer to visit select desktops personally, running the Self Service Desktop Migrator on behalf of end users, to ensure a smooth transition for executives, or for some users who may be uncomfortable attempting the tasks themselves.

## Grouping users for batch migration

If you intend to migrate any user data by batches, your Migration Plan should specify how you will group your users for migration. It is often helpful to migrate users in logical groups, related by business function or administrative entity, or by physical proximity (for example, one floor of a building), so users can support one another through the transition. The Migration Plan should also specify:

- **Number of Users Per Batch:** The optimum number of users per migration batch should correlate to the capacity of your organization's Help desk, since you can assume that the transition will stimulate increased demand for Help resources. Note also the per-user data volume on the server, the data geography (physical distribution) and bandwidth, and the capacities and configuration of the destination servers. Consider that the programs' log files will likely bloat to unwieldy sizes for batches much greater than 100 users if you ever need to set logging to verbose mode.

**i** | **NOTE:** The first few batches should be smaller than your expected optimum size, since these first groups will likely expose any unforeseen problems—before a larger group would generate correspondingly larger consequences.

- **Migration Scheduling:** Determine how you will schedule batches for migration. This is often just a matter of avoiding each group's critical dates on the calendar. For example, avoid disrupting finance and accounting staff at the beginning of the month when they are trying to close the books, and try not to distract sales staff near the end of a quarter when they are trying to meet their quotas. Many organizations migrate their IS or Help Desk staff first, since they are typically the most technical users and will likely help to support other users as the migration proceeds.

## Method of access to GroupWise user data

The Administrator-Driven Batch Migrator must have access to users' GroupWise accounts to migrate user data to the new Exchange environment. If you are migrating from GroupWise version 6.5 or higher, the migration program will use Novell's Trusted Application API feature to automatically register itself as a trusted application, and will then be able to migrate GroupWise user data without user passwords or proxy authorization. But if the source GroupWise version is earlier than 6.5, the Migrator for GroupWise programs will need to access users' GroupWise data either by password or by proxy, as described below.

The easiest way to provide access to GroupWise accounts (when necessary) is to have the program reset all migrating users' passwords, and then use the new known password values to login under each user's login identity. With this migration-by-password method, the batch-migration program can reset users' passwords before



accessing their GroupWise accounts. The program can reset all users' passwords to a single common value, or can set each user's password to a value that was previously entered in the user-list .csv file. Alternatively, you can set each user's password to a unique random string of characters.

If resetting passwords is impractical or otherwise inadvisable, Migrator for GroupWise also supports batch migrations by proxy (rather than by password). That is, the program can login to each user's account using the credentials of an admin account that has previously been authorized, by proxy, to access the user account. Migrator for GroupWise includes a utility called Addproxy that automates the process of establishing proxy rights for this purpose.

Your Migration Plan should specify which method you will use to access GroupWise user data. While Quest applications support both methods, the password-access method will almost always be more efficient. The proxy method affects the timing and complexity of a migration project because users cannot be migrated until they have granted the appropriate proxy rights to the administrator. Quest Addproxy program automates this process and can execute automatically from users' network login scripts, but the utility will run only upon each user's next login — which may not be a daily or even weekly occurrence for some users. The Addproxy utility automatically logs the successful procurement of proxy rights for each user, but the administrator must then review the list of user proxies to determine whose proxy rights remain outstanding, and then migrate those users separately at a later time.

Two other disadvantages of the proxy-access method are that resources cannot be migrated and mail-forwarding rules cannot be set or removed.

While the password-access method is preferred in most circumstances, some organizations will want to keep the GroupWise environment running and accessible for some time after the migration. In this case it would be unwise to standardize users' GroupWise passwords to a common, known value, which would leave their accounts vulnerable to unauthorized access by other users. The program's access to GroupWise accounts for the migration should therefore be accomplished by one of the other methods described above.

## Migrating resources

### Ownership and delegate rights

Migrator for GroupWise migrates GroupWise resources with ownership intact, so the resources' GroupWise owners will have *Full Access* rights to their resources in Exchange. Migrator for GroupWise also gives you the option of conferring *Calendar Delegate* rights to the GroupWise owners of migrated resource mailboxes in Exchange, so the owners can book their resources and approve booking requests for other users. This option is controlled by a boolean parameter in the [Exchange] section of *gwmigapp.ini*:

```
[Exchange]
MigrateResourceDelegation=1
```

The option is on (1) by default, but can be disabled by setting *MigrateResourceDelegation=0*.

### “Double-booking” resources

When a resource (conference room, AV equipment, and so forth) is migrated to Exchange, the resource also remains on the GroupWise server—that is, the GroupWise original is copied, not destroyed or altered. After migration the two resources exist independently of each other, so users who have not yet migrated to Exchange will interact only with the GroupWise resource, while migrated users will interact only with the Exchange/AD resource. This coexistence introduces the potential for "double-booking" resources, since users in Exchange have no way of knowing whether the corresponding resources in GroupWise may have been reserved by not-yet-migrated users, and vice-versa.

There is no easy or complete solution to this "double-booking" problem, but you should consider some options to mitigate its effects, and your Migration Plan should identify this strategy. The most popular options are:

- Migrate all resources to Exchange at the beginning, with the first user group, and tell all not-yet-migrated users that they may no longer request resources via GroupWise. In the meantime, designate an already-migrated user to serve as a Resource Coordinator in Exchange—to manually relay resource requests from GroupWise users to Exchange resources, and manually relay resources' replies back to the GroupWise users.



**NOTE:** Migrator for GroupWise cannot automatically create resource-type mailboxes in Exchange 2016, 2013 or 2010, although it can migrate data to resource mailboxes that already exist. Quest therefore recommends that you manually create AD resource mailboxes prior to migration.

- Defer the migration of all resources to the very end of the migration process, with (or after) the last users, and tell all migrated users that they may not request resources via Outlook until they are notified that the resources have been migrated to the Exchange environment. In the meantime, designate a not-yet-migrated user to serve as a Resource Coordinator in GroupWise—to manually relay resource requests from Exchange users to GroupWise resources, and manually relay resources' replies back to the Exchange users.
- If your resources are ordinarily allocated to certain groups of users (for example, a particular slide projector or a particular conference room is used only by users in a particular department, or on a particular floor), organize your user groups so that you migrate resources in the same groups with the users who use them. Or, if your resources are pooled to be available to larger groups of users, you could impose temporary limits on resource allocation as described above—divvying up your resources among different user groups, for the duration of the transition period—to make possible a coordinated migration of users and their resources together.
- If your organization can live without the resource reservation and coordination features for the duration of the migration period, you may simply accept the temporary loss of these features.

## Provisioning groups (distribution lists)

### Discrepancies between source and target groups

When a group is provisioned into AD, it also remains on the GroupWise server (that is, the GroupWise original is copied, not destroyed or altered), and after its 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 may be added and deleted during the transition period. You can re-run the Directory Exporter and then the Admin-Driven Batch Migrator to update the AD groups' membership lists with any changes entered into the GroupWise originals, but there is no practical mechanism for updating in the opposite direction, from AD back to GroupWise.

Since the only practical update path for groups is one-way, most organizations choose to defer provisioning their groups into AD until the very end of the transition—after all users have been migrated. This approach eliminates the need for periodic updates, and already-migrated users can address emails to groups defined in GroupWise the same (transparent) way they send emails to not-yet-migrated users. This approach also is likely to generate more traffic across the CMG Mail Connector (if you will use this tool for mail routing), which will increase as more and more group members migrate to Exchange.

Some admins may want to avoid that added burden on the CMG Mail Connector, but the alternative is to provision the groups into AD at the outset (or whenever). In that case you would have to choose between running frequent synchronizing updates throughout the transition period, or accepting inconsistencies between the GroupWise and AD groups. That is, you could re-run the Migrator for GroupWise Directory Exporter and then the Admin-Driven Batch Migrator to update the AD groups' membership lists. (The more current the AD group definitions, the less traffic will be passed through CMG.) It is also conceivable, depending on how groups are managed within a particular organization, that groups could be primarily maintained in AD, which would require a manual groups-updating procedure from AD back to GroupWise throughout the transition period.

Your Migration Plan should identify which of these strategies is best suited to your organization's needs and preferences.

### Maintaining group membership when merging

The Admin-Driven Batch Migrator can be told to add a user to a group if the corresponding Contact is already a member of the group. This feature is enabled/disabled by a boolean parameter in *gwmigapp.ini*.

[ActiveDirectory]  
MergeGrpMembership=0

The default (*MergeGrpMembership=1*) tells the program to add a user to a group if the corresponding Contact is a member of the group. The alternate setting (*MergeGrpMembership=0*) disables this feature.

## Migrating shared folders and address books, and proxy rights

A shared folder or address book in GroupWise can be migrated either to its owner (only) in Exchange, or to all of the users to whom the item was shared in GroupWise. Migrator for GroupWise's Admin-Driven Batch Migrator includes a screen on which you can enter your preferences. You can specify different choices for shared folders vs. shared address books.

If you choose to migrate copies to all users who had rights to an item in GroupWise, the program will migrate a complete copy for each user, and the multiple copies will become independent of one another upon migration. That is, any changes made to User A's copy will apply only to User A's copy, and not to User B's or any other user's independent copy.

If you choose to migrate shared folders only for the owner, Migrator for GroupWise can recreate the access rights in Exchange, so that the migrated item will be re-shared with the same users who had access to it in GroupWise. If no predefined Exchange access level corresponds exactly to the access level in the source, Migrator for GroupWise assigns a combination of discrete rights (some combination of *Folder Visible*, *Read Full Details*, *Create Items*, *Delete All*, etc.) to a customized permissions level that appears in the Exchange Properties as "Custom."

If you choose to migrate shared folders for their owners only, but do not choose to recreate the GroupWise permissions in Exchange, Migrator for GroupWise will simply leave the items accessible only to their owners.

**i** | **NOTE: Note:** When migrating shared folders and making them visible to shared recipients in Outlook: The parent folders' permissions are modified to add "folder visible" for those users, for all future new folders created under the common root.

Migration of shared address books works much the same as for shared folders. You can migrate a separate copy for each user who had access in GroupWise, or migrated one copy only to the owner. And if you migrate just one copy to the owner, you can tell Migrator for GroupWise to recreate the access rights in Exchange.

Finally, Migrator for GroupWise can migrate GroupWise proxy rights to the corresponding delegate rights in Exchange.

**i** | **NOTE:** Remigration by Migrator for GroupWise resets previously migrated delegate rights.

For each of the three types—shared folders and address books, and migrated proxy rights—Migrator for GroupWise offers the option to generate merged notification emails to users, explaining how they can access their items.

Your Migration Plan should specify whether and how you will migrate access rights to shared folders, shared address books, and proxy/delegate rights.

## Migrating recurring appointments, tasks and reminder notes

Migrator for GroupWise preserves recurring events (appointments, tasks and reminder notes) as a recurring series in Exchange. This functionality is unique to Migrator for GroupWise.

Invitations and updates leaving GroupWise do not include the recurrence rules (if any), so Migrator for GroupWise includes advanced technology to generate a matching recurrence rule. A rule/pattern is required to preserve the recurrence "link" between meeting instances in Exchange.

Novell's algorithm for generating unique calendar identifiers is proprietary. These unique identifiers must match in order to properly process updates, cancellations and responses. Since these identifiers cannot be generated outside the GroupWise system, some limitations may exist when processing updates and cancellations initiated in Exchange for appointments created in GroupWise.

Despite this limitation, the recurrence rule technology within Migrator for GroupWise provides a vastly improved end-user experience during and after a migration to Exchange.



**NOTE:** Other limitations are also inherent to this process:

- When a GroupWise user creates a custom recurring task with random dates (no discernible pattern), the individual task instances may migrate to Outlook as separate unrelated items, rather than as parts of a single task.
- The creator/organizer of a recurring reminder note may not appear as a recipient/attendee in the reminder note, and in that case the reminder is not added to the organizer's calendar. The organizer can manually add him/herself, but GroupWise does require or suggest that. If the organizer is not included among the attendees, the replies of other attendees will trigger "*meeting is not in the Calendar*" notices to the organizer.
- Recurring appointments and reminder notes that were deleted prior to migration will still appear on an attendee's Outlook calendar if he/she happens to open the *Delete Items* folder.

## Migrating cached mailboxes

Before migrating a cached mailbox, make sure the user has connected recently to synch any recent changes. A GroupWise cached mailbox is like a cached Outlook mailbox in that both the server and the client should contain a copy of everything. The client works against its local copy, and synchronizes in the background with the server.

To migrate a caching mailbox, first login to the GroupWise client with the caching mailbox option selected. (Migrator for GroupWise will connect to GroupWise by the method the GroupWise client last used.) Then migrate the same as any other GroupWise mailbox. (This is true of both the Admin Batch Migrator and the SSDM.)

## Migrating from an older version of GroupWise

Migrator for GroupWise does not support GroupWise versions earlier than 6.0. If you want to migrate to Exchange from an earlier version of GroupWise, you must perform a two-step migration with an intermediate server running a later version of GroupWise:

- 1 Establish a GroupWise server of a supported version on a new machine.
- 2 Use Novell GroupWise upgrade tools to migrate your users and their data from the original pre-6.0 GroupWise server to the new, supported-version GroupWise server.
- 3 Decommission the original pre-6.0 GroupWise server.
- 4 Establish a new Exchange server, either on a new machine or on the computer that previously hosted the pre-6.0 GroupWise server.
- 5 Migrate from the new, supported-version GroupWise server to the new Exchange server.

# Accommodating known limitations and other special circumstances

Review the [Known limitations of the migration process](#) (Appendix A of this *Guide*), and determine how you will accommodate any that apply to your organization. Most or all may be insignificant to you, while some may require more elaborate strategies or work-arounds to mitigate their effects.

Identify any other aspects of the configuration that will require variations or extensions to the typical migration processes described in chapters 2 and 3 of the Migrator for GroupWise *Scenarios Guide*, and that are not already discussed among these strategic planning issues. Quest applications offer operational options that permit considerable flexibility in devising and implementing a suitable migration strategy wherever the circumstances of a given site require a non-standard approach. For information and help with any non-standard scenarios, please contact your Quest sales representative.

## Remigration

The Admin-Driven Batch Migrator and SSDM can detect if a GroupWise source item has been previously migrated, and if so will not create a duplicate item in Exchange. This feature can operate in either of two modes, determined by a boolean program parameter in the [Exchange] section of *gwmigapp.ini* (for the batch migrator program) and/or *gwdtapp.ini* (for SSDM):

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

... where the parameter value is a single digit, 0 or 1:

- **0 (Update mode):** If the program detects a duplicate message in Exchange, the message will be deleted in Exchange and then remigrated from the GroupWise source.
- **1 (default):** If the program detects a duplicate message in Exchange, the GroupWise source will not be migrated, leaving the previously migrated copy in Exchange.

### Notes:

- **Items moved in GroupWise:** An item moved to a different folder in GroupWise after it has been migrated will be regarded by Migrator for GroupWise as a new item, so any subsequent migration of the item will proceed as a first-time migration rather than a remigration. The originally migrated item will remain in Exchange in its original location, so a subsequent migration will generate a duplicate in Exchange. The *RemigrateMode* parameter would have no effect in this case, since Migrator for GroupWise regards the subsequent migration as a new, first-time migration.
- **Items deleted in GroupWise:** An item that is deleted in GroupWise after it has been migrated will remain in Exchange. Since a deletion in GroupWise is actually a "move" (to the Trash folder), any subsequent migration will generate a duplicate item in the Exchange Deleted Items folder—the same as for "moved" items as described above. Again, the *RemigrateMode* parameter would have no effect, since Migrator for GroupWise regards the subsequent migration as a new, first-time migration.
- **Items changed in GroupWise:** When an item is changed in GroupWise after it has been migrated (e.g., updated date/time/subject of an appointment), the *RemigrateMode* parameter determines how any remigration will proceed. By default (*RemigrateMode=1*), the previously migrated copy is left in Exchange and the changed item will not be migrated. In update mode (*RemigrateMode=0*) however, Migrator for GroupWise detects the previously migrated copy in Exchange, deletes it as an earlier (obsolete) duplicate, and then remigrates the updated source item.

# Known limitations of the migration process

Most of the known limitations of any migration process are due to feature inconsistencies between the source and target environments. GroupWise and Exchange offer similar features, but their implementations differ, and sometimes a feature in one environment is simply not offered in the other. Sometimes a migration tool can remediate these differences, but sometimes the differences are so great as to make remediation impossible or impractical.

In the latter case, we characterize the issue as a "known limitation"—seemingly inherent to the process, and therefore unlikely to be resolved in a future Migrator for GroupWise release. Known limitations of the migration process facilitated by the current release of Quest Migrator for GroupWise are:

- The Directory Exporter will not add given names and surnames to existing user records in csv data files that were created by prior runs of the Directory Exporter from versions 3.5.1.41 and earlier—before the Directory Exporter collected given names and surnames. Therefore, if you have already run the Directory Exporter from one of those earlier versions and want to re-run it now, be sure to first delete the *userstomigrate.csv* and *addresstranslation.csv* files, so your next run of the Directory Exporter will re-create them from scratch. The Directory Exporter ignores user data for users who already appear in a previously generated csv file, so would not update a user record to add the two new fields, but will create a new csv file (with the two new columns) if it can't find a previously generated one.
- An Migrator for GroupWise migration server running Windows Server 2012 cannot set GroupWise-to-Exchange forwarding from a GroupWise 2012 server with a GroupWise 2012 client. This appears to be a limitation of the GroupWise Object API on Windows Server 2012.
- When connecting to the domain database via a UNC path (not a mapped drive), two new drives will be mapped every 1000 users, and eventually the export will crash when it is unable to map any more drives. *This is a known environmental limitation of Novell's software.*
- In GroupWise 6.5 and higher, PABs do not migrate when using the proxy mode of access to source data.
- The SSDM cannot migrate archives if the GroupWise client is running in cached mode. If your users will be migrating archives, they should verify they are not running in cached mode before starting the SSDM.
- 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 Batch Migrator 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.
- The formatting of non-UTF-8 text in a message body is lost when the *ExportRTF* parameter is set to 0 (default), but UTF-8 characters do not migrate if *ExportRTF*=1. The *ExportRTF* parameter determines whether Migrator for GroupWise will migrate RTF message bodies.
- A message attachment with Japanese characters in the filename, originating in GroupWise 6.5.7 or earlier, may lose its file extension upon migration. While this appears to not be a problem in versions later than 6.5.7, the GroupWise API in the older versions appears to inconsistently generate attachment filenames.
- Migrated messages that have been shared to a proxy recipient do not show the name of the user who shared the message, or sometimes mistakenly show the proxy recipient as the user who shared the message. This appears to be caused by a limitation in the GroupWise API.
- Signatures within message bodies migrate, but GroupWise signature templates do not.

- When migrating a copy of shared folders, and SkipCountByFolder=1 (default), shared folders do not migrate and part of the shared-folder notification message (subject only, body left blank) appears in the folder.
- GroupWise automatically creates mail links for SMTP addresses found in plain text messages, but the links are lost when the messages are migrated to Exchange.
- For Contacts in personal address books, Migrator for GroupWise does not migrate the attributes for multiple IM names.
- In Exchange ACLs, users who have not yet been mailbox-enabled in Exchange are identified (in ACLs) by their cryptic GroupWise UIDs instead of by their recognizable displayNames. This phenomenon is temporary; after a user is migrated, he/she is identified by displayName.
- Migrator for GroupWise does not migrate the *My Subject* field on the *Personalize* tab of a message.
- Some GroupWise messages that show no recipients when opened in an Outlook mail client connected to the source GroupWise server, may cause a program error or fail to migrate. This appears to be caused by an issue in the GroupWise API.
- Document references do not migrate from a GroupWise 6.5.4 client source. This limitation seems to apply only to version 6.5.4.
- The drop-down list box of AD containers shows only containers that are OUs, but AD containers that are CNs do not appear in the list. For example, *ou=objects,dc=domain,dc=com* appears in the list, but *cn=users,dc=domain,dc=com* does not.
- A message containing a calendar invitation to a weekly meeting/event is removed from the Sent folder if the user uses the Close **[X]** button to close the item window without accepting or declining it.
- When a GroupWise user creates a custom recurring task with random dates (no discernible pattern), the individual task instances may migrate to Outlook as separate unrelated items, rather than as parts of a single task.
- The creator/organizer of a recurring reminder note may not appear as a recipient/attendee in the reminder note, and in that case the reminder is not added to the organizer's calendar. The organizer can manually add him/herself, but GroupWise does require or suggest that. If the organizer is not included among the attendees, the replies of other attendees will trigger "*meeting is not in the Calendar*" notices to the organizer.
- Recurring appointments and reminder notes that were deleted prior to migration will still appear on an attendee's Outlook calendar if he/she happens to open the *Delete Items* folder.
- A deferred-delivery message created by a GroupWise user for an Exchange recipient appears twice (duplicated) in the recipient's Inbox if the sender is migrated before the delivery date/time. Since a user's GroupWise source data remains in GroupWise after migration, GroupWise sends the original message upon the deferred-delivery date/time, and then Exchange also sends its migrated copy of the message.
- The *DisplayName* of a contact may not migrate correctly from a GroupWise source with the French-language GroupWise client installed.
- One or more parentheses in a message Sender name will distort the Sender's *DisplayName* in Outlook when the message is migrated. This appears to be a bug in the GroupWise API. For a Sender "Smith (Dave)" or "Smith (Dave)" the *DisplayName* resolves to "Dave". For a Sender "Smith (" the *DisplayName* resolves to the recipient's *DisplayName* instead of the Sender's.

## Summary of features and capabilities

GROUPWISE FEATURE	EXCHANGE FEATURE	Migrated?
<b>Messages</b>	<b>Email Messages</b>	
Email Delivered receipt	Email Delivered receipt	Yes
Return Notification when opened	Email Read receipt	Yes
Return Notification when deleted	Email Deleted without being read notice	Yes
Non-delivery report	Non-delivery report	Yes
Importance — High/Low	Importance — High/Low	Yes
Sensitivity — Concealed/Private	Private Message	Yes
Categories (colors)	Categories (colors)	Yes
Signature	Signature (Signatures within message bodies migrate, but GroupWise signature templates do not.)	Yes
Sent Items	Sent Items	Yes
Delayed Delivery	Deferred Delivery	Yes
Work in Progress Items	Drafts	Yes
Routing Slips		No (No match in Exchange.)
Messages that have been forwarded multiple times — as text	Messages that have been forwarded multiple times — as text	Yes
Messages that have been forwarded multiple times — as attachment	Messages that have been forwarded multiple times — as attachment	Yes
HTML	HTML (Hyperlinks, text, and graphics display in the message body.)	Yes
<b>Folders</b>	<b>Folders</b>	
Shared Folder	Additional Folder	Yes
Secondary Folder	Additional Folder	Yes
Access Control Lists	Additional Folder	Yes
<b>Attachments</b>	<b>Attachments</b>	
File attachment	File attachment	Yes
HTML document	HTML attachment	Yes
Object attachment	Object attachment	Yes
<b>Other Message Types</b>		
Phone Message	Email Message (converted to mail msg)	Yes
Phone Message— Concealed/Private	Private Email Message	Yes
Reminder Note	All-Day Event or (optionally) Task	Yes
Reminder Note with Attachment	All-Day Event or (optionally) Task	Yes
Reminder Note — Concealed/Private	Private Event or Task	Yes
Discussion Note	Outlook Posted Message (converted to mail msg)	Yes
Discussion Note — Concealed/Private	Private Posted Message	Yes
<b>Appointments</b>	<b>Meeting Requests</b>	
Appointment Accepted/Declined/Tentative	Meeting Accepted/Declined/Tentative (Shows invitees, but no tracking of acceptance status.)	No
Appointment Request Read	Meeting Request Read	Yes
Appointment Request Delivery	Meeting Request Delivery	Yes
Appointment Reminder times	Meeting Reminder times	Yes
Appointment with Attachments	Calendar Attachments	Yes
Recurring Appointments	Meetings (multiple, separate) (Migrate as series of separate, individual appointments.)	Yes



Appointment Sensitivity — Private ..... Private Meeting Request ..... Yes

**Tasks ..... Tasks**

Simple Tasks ..... Simple Tasks ..... Yes  
 Task with Attachment ..... Task with Attachment ..... Yes  
 Sensitivity — Concealed/Private ..... Private Task ..... Yes

**Frequent Contacts ..... Contacts**

Person ..... Contact ..... Yes  
 Personal Groups (DL) ..... Contact ..... Yes  
 Public Groups (DL) ..... Contact ..... Yes  
 Resource ..... Contact ..... Yes  
 Organization ..... Contact ..... Yes

**Other ..... Other**

Personal Address Book ..... Personal Address Books ..... Yes  
 Novell GroupWise Address Book ..... Global Address List ..... No  
 (Object references not valid within Exchange.)  
 Shared Folders ..... Yes  
 Mail, Calendar Proxies ..... Mail, Calendar Proxies ..... Yes  
 External Entities ..... Custom Recipient Object ..... No  
 (No Directory Synchronization between the two systems.)  
 Rules ..... Rules ..... No  
 Filters ..... Filters ..... No  
 Comments (when a GroupWise user accepts or declines an appointment, note, or task, he/she can enter comments) ..... Yes  
 Documents in GroupWise document library ..... Yes  
 Public Distribution Lists ..... Misc ..... Yes

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## Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at <https://support.quest.com>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request.
- View Knowledge Base articles.
- Sign up for product notifications.
- Download software and technical documentation.
- View how-to-videos.
- Engage in community discussions.
- Chat with support engineers online.
- View services to assist you with your product.

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