

Quest® Migrator for GroupWise 4.7.1
Migration Scenarios 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 *Migration Scenarios Guide* was developed to help you prepare for your organization's migration from Novell GroupWise to Microsoft Exchange, using Quest Migrator for GroupWise. This *Guide* will familiarize you with Migrator for GroupWise's component tools, explain how those tools are typically used within the broader context of an overall migration project, and provide step-by-step instructions for how to prepare for migrations of various types, and how to migrate the data.

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.

Quest recommends that all readers read [Scenarios overview](#) completely, to orient themselves to the various processes and how they vary from one scenario to another. Then browse whichever of [Migration to a proprietary Exchange target](#) or [Migration to Office 365](#) applies to your migration target (migration to a proprietary Exchange or to Office 365). If you will also use Migrator for GroupWise's Self Service Desktop Migrator (SSDM), then read [SSDM \(per-desktop\) migration](#) too. The process instructions in [Migration to a proprietary Exchange target](#) or [Migration to Office 365](#) may then serve as a step-by-step checklist when actually performing the tasks they describe.

Other Migrator for GroupWise documentation

This *Migration Scenarios Guide* is just 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. Also includes instructions for downloading and installing the software.
- **Pre-Migration Planning Guide:** Critical considerations and other strategic and tactical issues that an organization must consider and accommodate before beginning a migration project.
- **Migration 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 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.
- **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 *Pre-Migration Planning Guide*, and then browse this *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*.

Scenarios overview

- [About Migrator for GroupWise scenarios and this Guide](#)
- [Offline migration](#)
- [Phased \(staged\) migration options](#)

About Migrator for GroupWise scenarios and this Guide

This *Guide* provides process instructions that show how Migrator for GroupWise is used within the broader context of a migration project. The processes described here include steps that are performed outside the scope of Migrator for GroupWise—within GroupWise and Exchange, and with coexistence tools like Quest CMG—because the sequence and interplay among the solutions and environments are important. Flow charts illustrate the correct sequences of steps for the most common scenarios.

Virtually all migrations follow a similar *basic* process, with variations to accommodate local circumstances and needs—what we collectively call a *scenario*. Most variations to the 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 reside at a physical location distant from the source environment (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 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 the cloud platform.) Or will the cloud AD 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. This *Guide* describes the most common of these, with suggested process instructions for each:

- **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

Note that Migrator for GroupWise cannot migrate to an Exchange target with AD objects that are already mail-enabled or mailbox-enabled.

Chapters 2 and 3 of this *Guide* provide step-by-step process instructions for migrations to, respectively, a proprietary Exchange and Office 365. 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 some steps are optional or conditional, depending on circumstances, and these are clearly marked within the instructions by these “Information” icons and notes:

i | **NOTE:** This step applies only if

Chapter 4 explains the admin activities and considerations for per-desktop migrations, which may occur with or without batch migrations, or may not occur at all—depending on your needs.

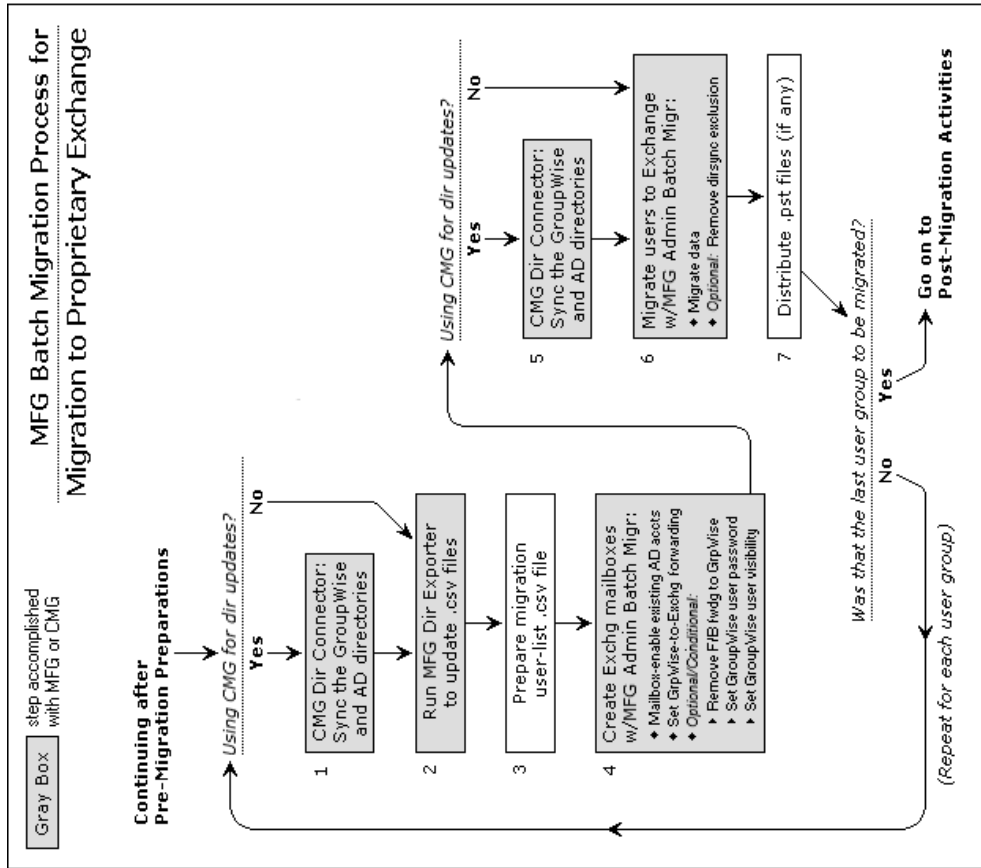
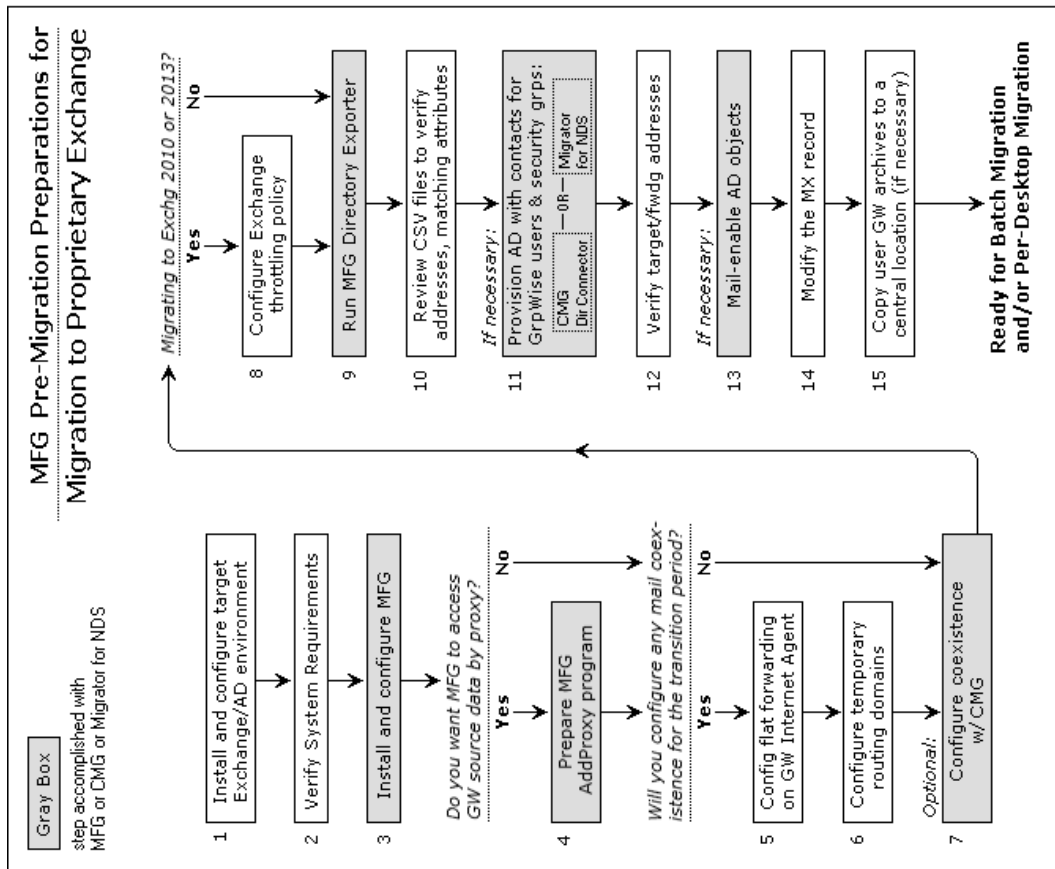
The end of this first chapter also describes two special-case scenarios, any of which would occur in combination with one of the above-listed scenarios:

- [Offline migration](#)
- [Phased \(staged\) migration options](#)

The Migrator for GroupWise pre-migration preparations and batch-migration processes are illustrated in flow charts on the next two pages (separate charts for a proprietary Exchange target vs. Office 365). The flow charts are presented here as an introductory overview to the process, and appear again as references with the pertinent process instructions in chapters 2 and 3.

The process instructions in this *Guide* are also meant to serve as summary checklists, so they do *not* include the more detailed information and screen-by-screen field notes for the Migrator for GroupWise component applications. Instead, these scenario procedures refer to those details within particular chapters and sections of the Migrator for GroupWise *Administration Guide*.

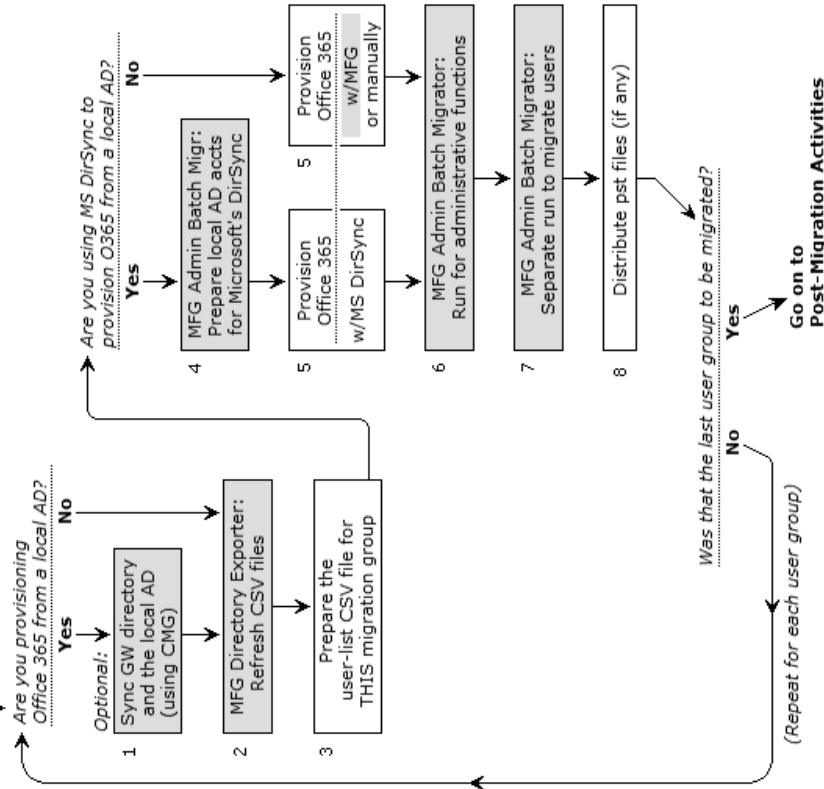
i | **NOTE:** Exchange (whether proprietary or Office 365) cannot send a free/busy query to GroupWise for a not-yet-migrated user if he/she already has an Exchange mailbox. Exchange can direct such queries only to the Exchange mailbox. For this reason, our scenario procedures do not create users’ Exchange mailboxes until just prior to their migration (part of the batch-migration process).
If you will not need free/busy coexistence for your transition period, you could create Exchange mailboxes earlier in the process, as part of the *Pre-Migration Preparations*—as long as you also set Exchange-to-GroupWise mail forwarding for not-yet-migrated GroupWise users during the transition.



MFG Batch Migration Process for Migration to Office 365

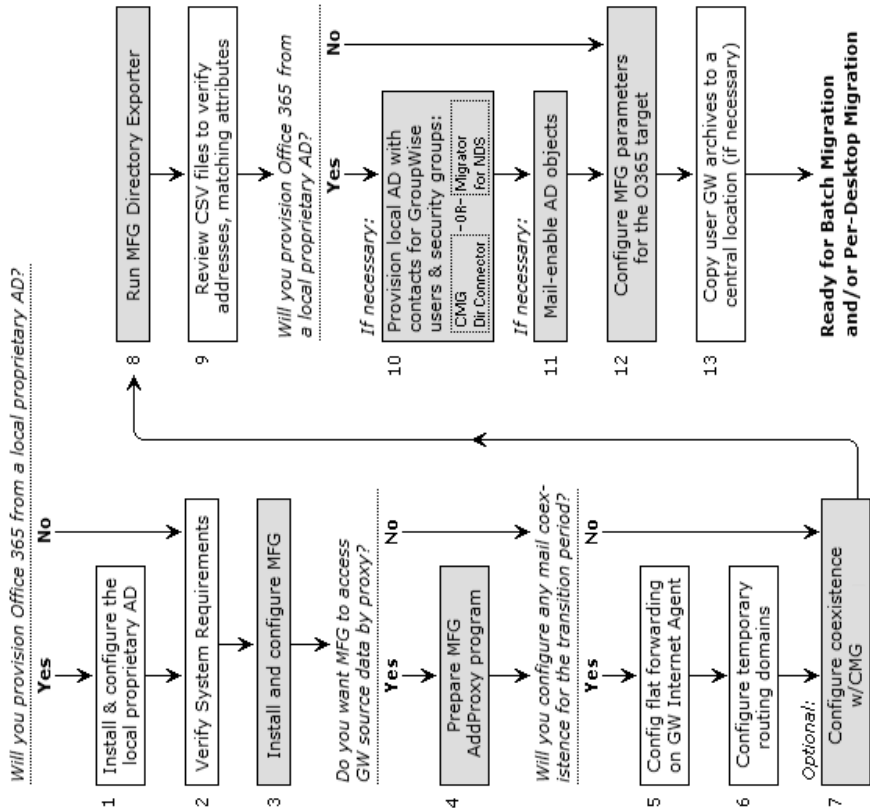
Gray Box step accomplished with MFG or CMG

Continuing after Pre-Migration Preparations



MFG Pre-Migration Preparations for Migration to Office 365

Gray Box step accomplished with MFG or CMG or Migrator for NDS



Offline migration

Migrator for GroupWise supports offline migrations—whereby a copy of the GroupWise Post Office data is shipped to a central location and then migrated from the central location into Exchange. An offline migration is useful if, for example, your source and target servers are physically far apart, and limited bandwidth and a large volume of mail make live data transmissions impractical. In this case you could copy the GroupWise postoffice to a portable large-capacity storage medium, then physically transport the medium to another location where you have—or can create—a more favorable bandwidth connection to the Exchange server.

"Offline migration" can refer to either a migration from the GroupWise source to an offline storage medium (without a direct connection to an Exchange target environment), or a migration from an offline copy of the Post Office to an Exchange target. The most common scenario is when a copy of the GroupWise Post Office is transferred prior to the migration, but migration to PST is also an option. For migrations to PST this means selecting PST as the target for all data types. This is done either in a Migrator for GroupWise program screen, or by these *gwmigapp.ini* parameter settings:

```
[General]
PABDest=PST
ServerMailDest=PST
ArchiveDest=PST
```

Also, the software may attempt to query and set information in the Exchange environment as part of the conversion process, but the attempt would return an error if there were no direct connection to an Exchange server. These actions can be disabled, however, with these settings in *gwmigapp.ini*:

```
[General]
ACLs=0
```

```
[Exchange]
ArchiveResolveAttendees=0
ServerMailResolveAttendees=0
```

These settings will allow a successful migration to PST without access to the target Exchange environment.

A more common approach to offline migration with GroupWise is migrating without a connection to the source GroupWise Post Offices, accomplished by migrating from a backup of the GroupWise Post Office data files. With this approach, two things must be configured prior to the Post Office backup:

- Migrator for GroupWise must be installed and allowed to establish itself as a *Trusted Application* within the GroupWise environment.
- The Post Office must be configured to both client/server *and* direct connections.

With these settings in place, a backup of the post office data can be taken and shipped (if required) to a central location for migration. Migrator for GroupWise is configured to connect directly to the backup files on a local file system for the migration.

This flexible approach is highly effective in low-bandwidth environments, and a variety of other scenarios.

Phased (staged) migration options

The term "phased migration" or "staged migration" refers to the process of pre-migrating or pre-populating data to target Exchange mailboxes prior to a final (or "cutover") migration. The staged migration may occur across the bandwidth or, in many cases, may be implemented in conjunction with the offline method described in the preceding section.

With this approach, a majority of the data can be pre-populated to the target mailboxes, which can reduce the amount of data that must be transferred during the final migration. Users remain active in GroupWise 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 (perhaps 90-95% or even more) is migrated to the new Exchange environment. After the older data has been migrated, the much smaller volume of data remaining can be migrated comparatively quickly, so that larger numbers of users (or all of them) can be migrated together within a shorter

window. 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.

i | **NOTE:** The sum of the processing times for the two migration phases will be slightly higher than if all data were migrated at once, since Migrator for GroupWise must read the date and message ID of every message to determine which ones satisfy the date filter. But the migration of the last 5-10% should still be much faster than migrating the entire data volume at once.

If a well-planned phased migration can condense the final cutover to a single weekend, the strategy may eliminate a need for coexistence. In our migration processes (chapters 2 and 3 of this *Guide*), we have flagged the steps you can skip for a no-coexistence migration.

A phased migration thus requires that you separate older mail from newer mail, and this can be accomplished by either of two methods:

- **Archives method:** End users archive almost all of their mail, to within the current week, and then the admin uses Migrator for GroupWise's Admin-Driven Batch Migrator to migrate the GroupWise archives to Exchange over a period of weeks. Then, after all archives have been migrated, the Batch Migrator can migrate all users to Exchange, with their remaining Post Office data.
- **Date filter method:** The Admin-Driven Batch Migrator lets you specify date limits and ranges for messages to be migrated—to migrate only messages timestamped on or after (or before) a certain date, or within a particular range of dates.

Note that Migrator for GroupWise contains *Smart Remigration* technology, so that already-migrated items are detected and not duplicated if they are inadvertently migrated again.

Either of these methods will separate older mail from newer mail, but note that the date-filter method can eliminate the need for end user participation.

End-user communications are critical in a phased migration, to ensure the users understand the migration schedules. Modifications and deletions made in GroupWise between the migration events may not be reflected in Exchange after the final migration.

In a phased-migration strategy, by either method, the Exchange accounts and mailboxes must be created to accept the migrated data before end users actually start using their Exchange mailboxes or calendars. You therefore must run the Batch Migrator at least twice for each user group:

- **First Pass:** to mailbox-enable user accounts on Exchange, set mail-forwarding rules on Exchange (to forward mail back to GroupWise until the users migrate), and migrate users' older data (archives, or date-filtered) to the new server; and then ...
- **Second Pass:** to migrate the remaining (newer) data to Exchange, and migrate the users themselves to the new server—by reversing the mail-forwarding rules (to forward mail from GroupWise to the new Exchange mailboxes).

i | **NOTE:** Date filters are applied only to mail and calendar items, and not to users' contacts. Contacts should therefore be selected for migration only in the second pass of a phased migration.

Users in this scenario will require continued access to their GroupWise mailboxes while the administrator migrates their older data, so they should keep their unique, secure passwords throughout the transition period. The program's access to GroupWise accounts should therefore be accomplished by some method other than by a common-value password. For an overview of the other methods, see *Method of Access to GroupWise User Data* in chapter 3 of the Migrator for GroupWise *Pre-Migration Planning Guide*.

Migration to a proprietary Exchange target

- [Pre-migration preparations](#)
- [Batch migration process](#)
- [Post-migration activities](#)

For our purposes, a *proprietary* Exchange environment is one whose hardware and software are wholly under the control of the migrating organization. A proprietary Exchange server typically is on the same premises as the GroupWise source, but might also be located at some other site.

Migration to a proprietary Exchange environment includes an array of "sub-scenarios" depending on whether the organization already has its Active Directory configured and, if so, whether any objects it may already contain are mail-enabled, or mailbox-enabled, or neither.

- 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.

An organization may have an existing Active Directory already in place, for login and security purposes. When user accounts already exist in an established AD for login and security purposes, Migrator for GroupWise can use these objects to preserve the same credentials and security currently in use within the environment,, but the objects must also be mail-enabled and mailbox-enabled before data can be migrated to their target mailboxes.

When mail-enabled user objects exist in Active Directory, the *Pre-Migration Preparations* include extra steps to verify objects' target/forwarding addresses (to ensure correct mail routing), and to create mailboxes for existing objects. When mailboxes already exist in Exchange, several of the optional steps in the *Pre-Migration Preparations* can simply be skipped.

Coexistence strategies also figure into the overall procedures. Most organizations' migration plans include some form of coexistence, which requires a few extra steps to configure.

In these traditional scenarios, Migrator for GroupWise tools are run by admin accounts that are configured with the necessary permissions for access to directories and user data in both the source and the target environments.

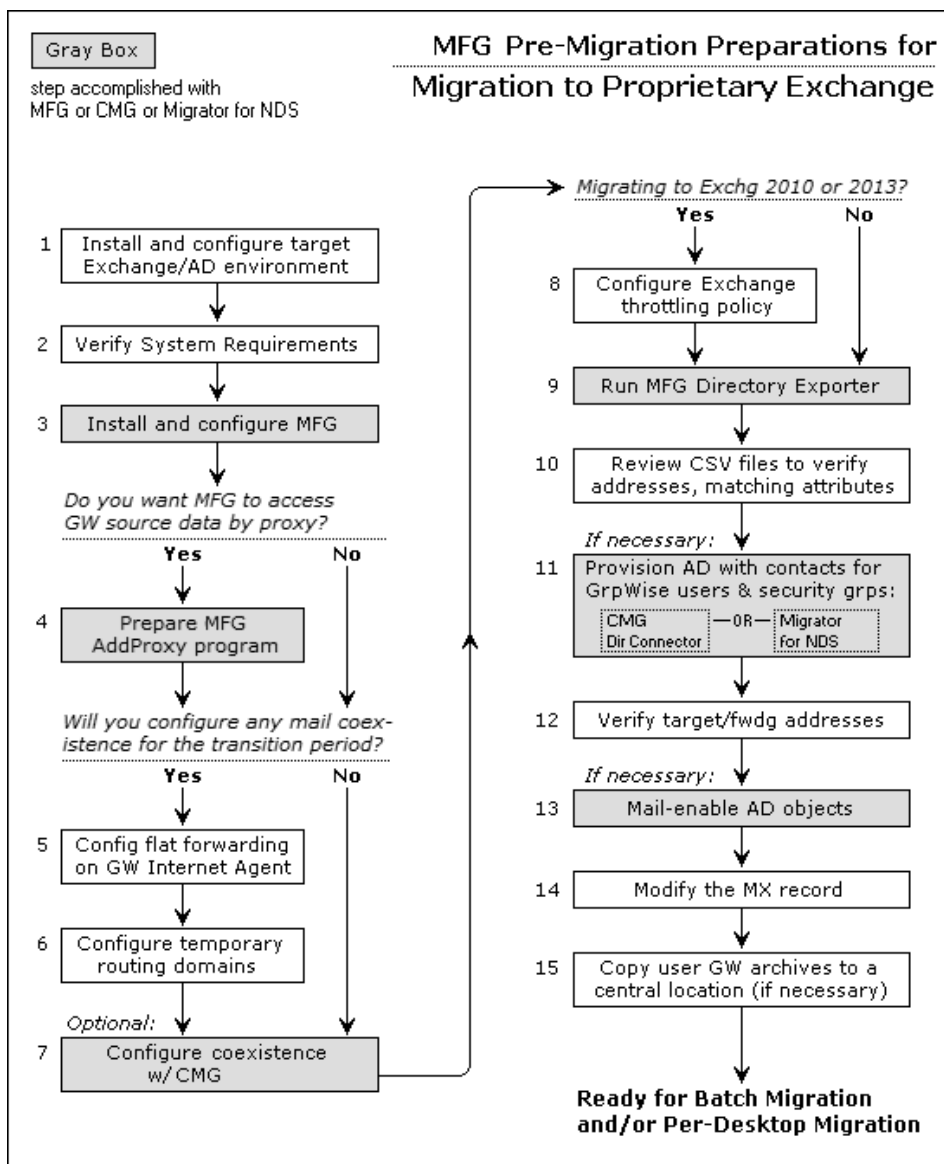
This chapter provides process instructions for this group of scenarios.

- i** **NOTE:** These procedures do not create users' Exchange mailboxes until just prior to their migration (in the [Batch migration process](#), per user batch), because Exchange is unable to send a free/busy query to GroupWise for a not-yet- migrated user who already has an Exchange mailbox. Exchange can direct such queries only to Exchange mailboxes. If you will not configure free/busy coexistence, you could create Exchange mailboxes earlier in the process, in these *Pre-Migration Preparations*—as long as you also set Exchange-to-GroupWise mail forwarding during the transition for not-yet-migrated GroupWise users.

Pre-migration preparations

Any migration scenario requires prior preparation of the source and target environments, configuration of admin accounts and a coexistence strategy, and preparation of the required software you will use as part of the migration process. These procedures can be complex because they include configuring necessary account permissions across separate environments, configuring applications running concurrently to facilitate the migration, and various other considerations. However, these tasks are typically performed once, before the first user group or first user is migrated, so they do not need to complicate the entire migration process.

The flow chart below illustrates these pre-migration preparations for migration to a proprietary Exchange target. Note that the step numbers in the flow chart correspond to the step numbers in the process instructions here.



Step 1: Install and configure your target Exchange environment

If you have not yet installed and configured your Exchange destination environment, do it now. Provisioning of Active Directory, if necessary, will occur later in this procedure.

Step 2: Verify that all system requirements are satisfied

All of the system requirements, including the necessary admin accounts and access privileges (see *System Requirements* in the Migrator for GroupWise *Quick Start Guide*) must be satisfied before you begin this process.

- IMPORTANT:** Remember that the Migrator for GroupWise migration profile on the admin workstation must **not** be configured for cached mode.

Step 3: Install and configure Migrator for GroupWise

Complete installation instructions are available in the *Getting Started* section of the Migrator for GroupWise *Quick Start Guide*, which is included with the product download and also is available on the Quest website.

It is also important to consider whether Migrator for GroupWise's Self Service Desktop Migrator (SSDM) component will be used as part of the migration strategy. If so, it should also be installed and configured.

Prepare *UsersToMigrate.csv* for mailbox-enabling with resource/user forest configuration (conditional)

- NOTE:** This substep applies only if your target AD is configured for a resource forest and a user forest, with corresponding user accounts.

For the Admin-Driven Batch Migrator to properly enable mailboxes, and to properly associate the resource accounts with the user accounts, you must configure parameters in *gwmigapp.ini*, and prepare (or verify) the per-user values in a column of the exported directory data. These preparations are necessary for the Batch Migrator to properly associate the resource accounts with the user accounts and properly enable mailboxes.

Before you begin, you must determine which column in the *UsersToMigrate.csv* file will correspond to which AD attribute, for the program to match corresponding user accounts in the resource forest and user forest. The column (*AdSearchCol*) and attribute (*AdAttribute*) are both specified in the [ActiveDirectory2] section of the *gwmigapp.ini* file.

- AdSearchCol:** The column in *UsersToMigrate.csv* whose values the program should search for each particular *AdAttribute* value, to match corresponding user accounts in the resource forest and user forest. Note that the column specified here and its per-user values must exist before the Admin-Driven Batch Migrator is run.

- IMPORTANT:** In the current Migrator for GroupWise version, this *AdSearchCol* parameter value must be set to *SearchKey2* for the mailbox-enabling process to succeed. The parameter default is *AdSearchCol=SearchKey2*.

- AdAttribute:** The AD attribute whose values the program should read in the *AdSearchCol* column of *UsersToMigrate.csv*, to match corresponding user accounts in the resource and user forests.

For example:

```
[ActiveDirectory2]
AdSearchCol=SearchKey2
AdAttribute=userPrincipalName
```

... tells the program to match AD objects with users such that the value of each AD object's *userPrincipalName* attribute matches the value of the corresponding user's *SearchKey2* column in *UsersToMigrate.csv*.

Configure these program parameters now, as part of this Migrator for GroupWise installation and configuration step. In the [ActiveDirectory2] section of the *gwmigapp.ini* file, set the appropriate parameter value for *AdAttribute*, as described above.

If you need to enter or edit the AdSearchCol column values:

Use Microsoft Excel (or another other csv-editing program) to enter or edit the contents of the column you designated as the *AdSearchCol* column.

Differentiate users sharing same name and Object ID but in different POs and domains (if necessary, for G-to-E mail forwarding)

MFG supports unambiguous GroupWise-to-Exchange mail forwarding for two users sharing the same name and Object ID, but residing in different Post Offices and different domains. This feature associates a particular Post Office/domain (in GroupWise) with its corresponding *IPAddress:port*. You can then configure as many of these associations as necessary to define a unique *IPAddress:port* for each GW Post Office/domain.

The associations are defined by parameters entered into the [GroupWise] section of *gwmigapp.ini*. For example, if:

- John Doe is in 192.168.0.1:1677, with an address of *jdoe@hokum.sitraka1.com*, and
- a different John Doe is in 192.168.0.2:1688 with an address of *jdoe@sitraka2.com*

... then you could define:

```
[GroupWise]
hokum_mail.hokum=192.168.0.1:1677
sitraka2_mail.sitraka2=192.168.0.2:1688
```

These settings would forward the mail for each John Doe (and any other user pairs sharing the same name and Object ID) to the appropriate target address in Exchange.

Step 4 (for proxy access only): prepare the AddProxy program to establish user proxies

- i** | **NOTE:** This step applies only if you want the Admin-Driven Batch Migrator to access user source data by proxy. If the program will access source data by password, or as a Trusted App, skip ahead to the next step.

For versions of GroupWise 6.5.x or higher, Migrator for GroupWise automatically establishes itself as a trusted application through the Trusted Application API. This feature is typically used for accessing the source mailboxes. If instead you require or prefer proxy access, Migrator for GroupWise includes a utility to automate the proxy configuration within GroupWise.

In that case, prepare Quest AddProxy program to establish proxy access to each user's account, and modify the network login script of your migrating users to run the AddProxy program when they next login. For complete instructions see the *AddProxy Utility* chapter in the Migrator for GroupWise *Administration Guide*.

Note that steps 5–6 are conditional steps that apply only if you intend to configure email coexistence during the migration. If you will migrate without email coexistence, skip ahead to step 7.

Step 5 (for email coexistence only): configure flat-forwarding on the GroupWise Internet Agent

- i** | **NOTE:** Steps 5–6 are conditional steps that apply only if you will configure some method of email coexistence during the migration—in which case this step is optional, but recommended. If you will migrate without email coexistence, skip ahead to step 7.

This step ensures traffic routed from GroupWise to Exchange during the transition period will appear from the original sender with the content inline—rather than from the user's GroupWise mailbox with an attachment. The GWIA configuration can be updated in *gwia.cfg*. Additional information is available in [this Novell article](#).

Step 6 (for email coexistence only): Configure temporary routing domains

- NOTE:** Steps 5–6 are conditional steps that apply only if you will configure some method of email coexistence during the migration—in which case this step is optional, but recommended. If you will migrate without email coexistence, skip ahead to step 7.

Whether implementing SMTP mail connectivity or complete coexistence using Quest CMG, most organizations use temporary SMTP domains to route traffic between GroupWise and Exchange. The routing domains may be subdomains of the primary domain (e.g., *gw.domain.com* and *ex.domain.com*) or completely separate SMTP domains. As long as they are unique to the respective mail systems, they will suffice for routing purposes.

- NOTE:** This procedure does not create users' Exchange mailboxes until just prior to their migration (in the [Batch migration process](#)). Inbound external mail would therefore never be routed to GroupWise, but mail coexistence does require a routing subdomain for GroupWise. Exchange-to-GroupWise routing will be necessary during the transition period to route internal mail sent from already-migrated Exchange users to not-yet-migrated GroupWise recipients.

If appropriate SMTP domains are not readily available, they should be created in DNS and added as acceptable domains/addresses in the respective mail systems. One should direct traffic to Exchange (for example, *ex.domain.com*). Mail sent to the GroupWise addresses of already-migrated users will be forwarded to the appropriate Exchange mailboxes using this domain. After configuring the new domain in DNS, configure Exchange to accept the SMTP domain and generate appropriate secondary SMTP addresses so all Exchange users will be able to receive mail at this domain. The other SMTP domain (e.g., *gw.domain.com*) can be used to route mail back to GroupWise for users that have not yet migrated. GroupWise must also be configured to accept mail to the new SMTP domain/address.

Step 7 (for coexistence only): Configure your coexistence strategy

- NOTE:** This step applies only if you will configure some method of email, directory and/or free/busy coexistence during the migration. If you will migrate without coexistence, skip ahead to step 8.

Configure your coexistence strategy:

- For SMTP mail routing:** Confirm the temporary routing domains created in the preceding step and verify routing between the two environments.
- For complete coexistence with Quest CMG:** Refer to the CMG documentation to install and configure the desired components (Directory Connector, Free/Busy Connector, and/or Mail Connector). If applicable, Directory Connectors should be created and run to update GroupWise and Active Directory with routing objects corresponding to the users in the other system (to establish complete directories).

- IMPORTANT:** If you already have existing mail-enabled objects in Active Directory, enable the *Migrator for GroupWise Compatability Mode* for the CMG Directory Connector(s) that will populate AD from GroupWise, to avoid duplicate entries in AD. The CMG Mail Connector and Free/Busy Connector can be configured similar to other scenarios. See the *CMG User Guide* for much more information.

Step 8 (for local Exchange 2013 or 2010 target only): configure throttling policy

- NOTE:** This step applies only for migrations to a local Exchange 2013 or 2010 environment, and is optional but recommended. If migrating to some other target, skip ahead to step 9.

Some migrations to Exchange 2013 or 2010 have achieved improved throughput using a custom throttling policy. This topic is discussed in greater detail in [this article: http://blog.tiensivu.com/aaron/archives/2010/11/C7.html](http://blog.tiensivu.com/aaron/archives/2010/11/C7.html).

Step 9: Run Quest Directory Exporter

Migrator for GroupWise's Directory Exporter extracts user and group data from the GroupWise environment and creates CSV data files that feed input data to other Migrator for GroupWise applications. Run the Directory Exporter to generate the necessary data files. For more information and operating instructions for the Directory Exporter program, see the *Directory Exporter* chapter in the *Migrator for GroupWise Administration Guide*.

Step 10: Review CSV files to verify attributes and matching attributes

The CSV data files generated by Directory Exporter provide critical input to other Quest programs, so it is important to verify that the information is accurate and properly formatted. This verification step also provides an opportunity to update addresses and other attributes as required before initiating migrations. For example, the content may be modified to facilitate the organization's consolidation to a new SMTP domain as part of the migration process.

It is also important to verify the matching criteria that will be used for the merge process later in this procedure. If Quest Migrator for NDS was (or will be) used to create security principals, the Migrator for NDS SQL database can be leveraged by Migrator for GroupWise to locate and update the user objects.

If mail-enabled users already exist in an existing Active Directory: Make sure the addresses listed in the *TargetAddress* and *TargetAlias* columns are appropriate. With existing mail-enabled users, Migrator for GroupWise will use the *TargetAddress* to locate the object for mailbox creation. The address in the *TargetAddress* of the CSV must therefore match a valid SMTP address on the target mail-enabled object. Also, the *TargetAlias* addresses will be applied as secondary/proxy addresses, so it is important to verify them before proceeding.

If Migrator for NDS is not used but AD objects still must be created, Migrator for GroupWise must still be able to match the exported GroupWise user records to the AD objects to perform some of its operations. If the AD objects must be merged or mail-enabled by Migrator for GroupWise, an attribute must be identified and/or populated into the CSV input files to establish a match between the GroupWise user and corresponding security principal in AD. The Directory Exporter extracts the *NDSUserName*, which commonly matches to the *SAMAccountName* in AD. If this is the case in your environment, simply copy the values from the *NDSUserName* column into the *SearchKey* column within the *UsersToMerge.csv* (or *UsersToMigrate.csv*). The resulting file can be used as the template to generate user lists for the merge and migration.

If alternate matching criteria are required, one of the additional attributes within *UsersToMerge.csv* can be used, or a match can be forced using the *SearchKey* column within the CSV. To force a match, a common approach is to export the existing objects from Active Directory and use the export file to populate the *SearchKey* column within the CSV. This may be done through macros or scripting, but sometimes requires manual intervention as well.

When the *SearchKey* column contains appropriate values for locating and merging the AD security objects, save the CSV file and use it as the template for creating lists of users for the merge and migration process.

Step 11: Provision AD with NDS users and groups

i | **NOTE:** This step applies only if security objects do not already exist in AD. If the security objects already exist in AD, skip ahead to the next step.

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

In a later step you may run Migrator for GroupWise's AD Object Merge Tool to mail-enable these accounts. Functional integration between the AD Object Merge Tool and CMG's Directory Connector or Migrator for NDS streamline this process.

You could also use Migrator for GroupWise's Admin 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 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*.

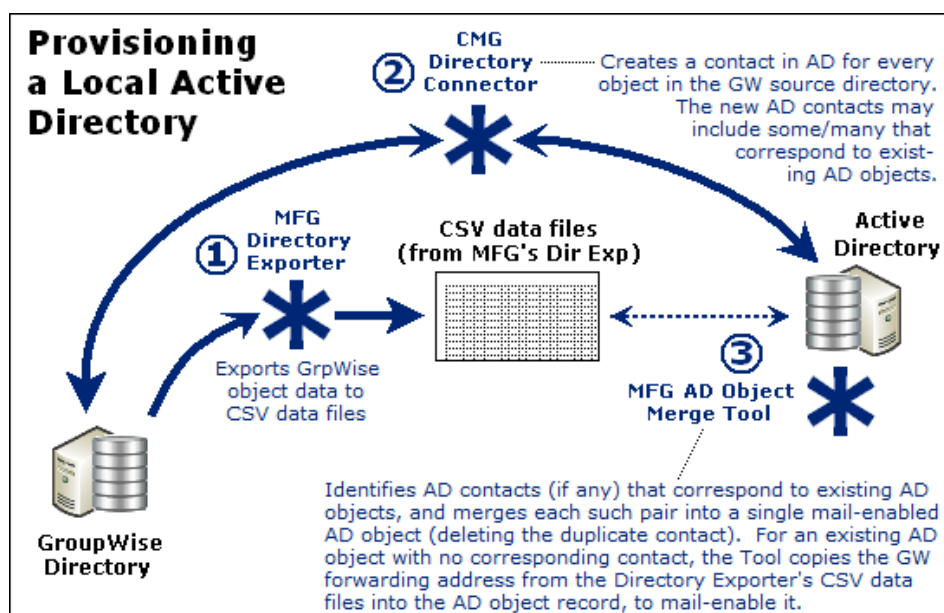
Step 12: Verify target/forwarding addresses

As Migrator for GroupWise migrates users to Exchange, new mailboxes will be created in Exchange for the migrating users. Migrated users will need to communicate with users still residing in GroupWise, and will rely on existing mail-enabled objects to do so. The routing address must therefore be verified and tested to ensure proper delivery back to the GroupWise environment.

Step 13: Mail-enable the Active Directory objects

NOTE: This step applies only if the security objects in AD are not yet mail-enabled. If the AD objects are already mail- or mailbox-enabled, skip ahead to step 14.

For Migrator for GroupWise to create mailboxes for the migration (in the [Batch migration process](#) below), the objects in Active Directory must be mail-enabled. If you are implementing full coexistence, there may now be two objects in Active Directory for each GroupWise user: the security principal, and the routing contact synchronized earlier in this procedure. In that case, run Migrator for GroupWise's AD Object Merge Tool to merge the objects into a single mail-enabled user object in Active Directory prior to the migration.



NOTE: Remember the difference between *mail*-enabling and *mailbox*-enabling. 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 AD object is one that has an Exchange mailbox. A mail-enabled AD object that is 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.

If contacts have not been added to AD in support of coexistence, the AD Object Merge Tool can still be used to mail-enable existing security principals. In this case, addresses and attributes are pulled from Migrator for GroupWise's CSV files to mail-enable objects rather than pulling information from contacts within AD.

The AD Object Merge Tool applies its functions to AD accounts identified in a CSV file specified during the program run. You can run the AD Object Merge Tool for the entire *UsersToMerge.csv* file (generated by the Directory Exporter and updated in earlier steps) to perform these functions for all users at once. Or you could use the *UsersToMerge.csv* file as a template to create subset lists of users. Keep the header row and any rows corresponding to users you want to include in the merge. Then save the file to a new name, still in CSV format.

The result of the merge process (under any of the above scenarios) is a single, mail-enabled user object. Any existing security credentials and routing are preserved. For more information about this process, see the *AD Object Merge Tool* chapter of the *Migrator for GroupWise Administration Guide*.



NOTE: You could also use Migrator for GroupWise's Admin 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 CMG is used to create routing contacts in AD. This feature is also useful for provisioning resource objects in some migrations. For more information, see the `MBoxFromContact=1` parameter setting in the Migrator for GroupWise *Program Parameters Reference*.

Step 14: When appropriate, modify the MX record

Modify the MX record to direct incoming external (Internet) mail to the Exchange server. With the forwarding capabilities of Migrator for GroupWise, the DNS modification actually can occur any time after the users' AD accounts have been mail-enabled—before, during or after the actual migration.

Many admins prefer to minimize change before and during the migration process, so they opt to do the routing updates after the migration is complete (as described in the [Post-migration activities](#) at the end of this chapter). Some admins prefer instead trying to minimize the "hops" in the forwarding route by modifying the DNS about halfway through the migration process.

Step 15 (if necessary): Copy users' archives to a centralized location

Migrator for GroupWise includes several options for migrating data that currently resides on users' workstations. One approach uses the Self Service Desktop Migrator (SSDM), a component of Migrator for GroupWise that offers an optional *Silent Mode* to minimize user interaction and impact. This approach is discussed in greater detail in chapter 4 ([SSDM \(per-desktop\) migration](#)) of this *Guide*.

Some scenarios, however, require central migration of GroupWise archives. Migrator for GroupWise's Admin-Driven Batch Migrator can be used to migrate GroupWise archives to Exchange (or to PSTs), but only if the program has access to the source archives. Typically, this means providing users access to a central share and having them copy their archives to this location prior to the migration. The Batch Migrator can also migrate archives from diverse, per-user locations, but only if you specify the location for each user in your user-list CSV file.

If this approach will be used for migrating archives, an appropriate location and process should be established. In addition, the approach and any end-user involvement should be communicated in advance of the migration.

Batch migration process

Migrator for GroupWise includes two migration engines:

- **Administrator-Driven Batch Migrator (Admin Batch Migrator)** performs administrative functions (e.g. mailbox creation, routing updates, etc.), provisions Public Distribution Lists, and migrates batches of users all together in a single program run.
- **Self Service Desktop Migrator (SSDM)** runs in memory on the local workstations and migrates content for one user. SSDM streamlines the process of migrating local content, reduces burden on the migration team, and offers a "Silent Mode" to minimize end user interaction and requirements. For more information on SSDM, see the [SSDM \(per-desktop\) migration](#) chapter later in this *Guide*.

Either application can be used independently for the entire data migration, or the two may be used together to meet a variety of project requirements.

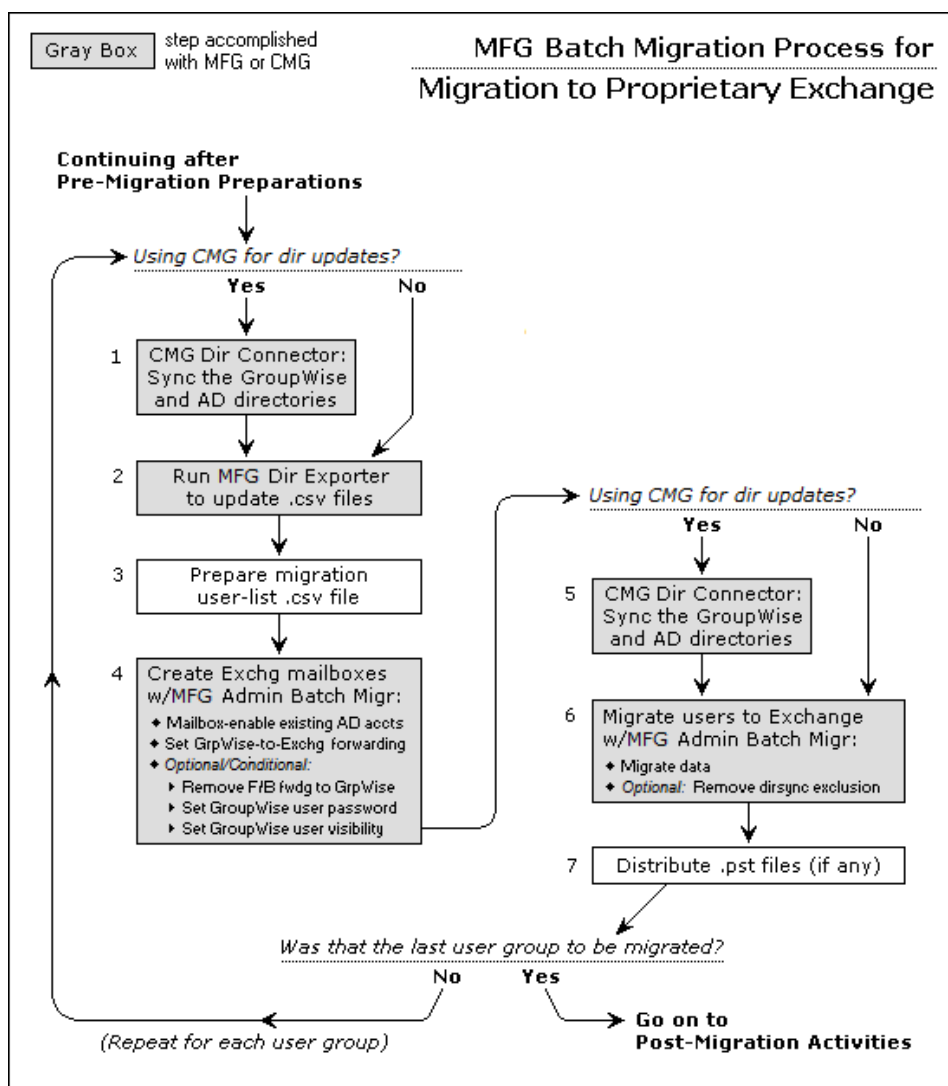
This section provides process instructions for a typical migration, in which an administrator performs the migrations for multiple groups (batches) of users with no user interaction. The batch-migration process varies depending on whether you are migrating to a proprietary Exchange or Office 365. In this chapter we describe batch migration to a local, proprietary Exchange target. (Planning and deployment for the per-desktop SSDM are described separately, in chapter 4: [SSDM \(per-desktop\) migration](#).)

The flow chart below summarizes the batch-migration process, and the step numbers in the flow chart correspond to the step numbers in the narrative process instructions that follow.

This batch-migration procedure is repeated for **each group** of users to be migrated, as shown by the looping arrow in the diagram below.

- i** | **IMPORTANT:** Do not begin this procedure until you have completed the [Pre-migration preparations](#), as described above.

- i** | **NOTE:** These procedures create users' Exchange mailboxes just prior to their migration (step 4 in this batch-migration process), because Exchange is unable to send a free/busy query to GroupWise for a not-yet-migrated user who already has an Exchange mailbox. Exchange can direct such a query only to the Exchange mailbox. If you will not configure *free/busy coexistence*, you could create Exchange mailboxes earlier in the process, as part of the *Pre-Migration Preparations*—as long as you also set Exchange-to-GroupWise mail forwarding for not-yet-migrated GroupWise users during the transition.



Step 1: Run Directory Connectors to update directories with recent changes

i | **NOTE:** This step applies only if Quest Coexistence Manager for GroupWise (CMG) is used for directory coexistence. If migrating without directory coexistence, skip to the next step below.

Many migration projects extend over a period of several weeks or months, so it is common for organizations to experience staff additions and departures during the transition period. Any directory changes that occur during the migration project may introduce data inconsistencies between the source and target environments, but these can be reconciled using CMG's Directory Connector.

Many admins configure CMG's Directory Connector to automatically run directory updates at scheduled intervals. But it may be useful to also initiate updates manually at this step in the process to ensure both directories are consistent before proceeding with the migration for this group.

Please refer to Quest CMG documentation for more information about the Directory Connector.

Step 2: Run Directory Exporter to update CSV Files with recent changes

Migrator for GroupWise's Directory Exporter extracts user and group information from GroupWise and populates CSV files that serve as input to the migration process. When user and group modifications occur in the GroupWise environment, it is important to run Directory Exporter again to update the contents of the CSV files. This ensures accurate input to the migration applications.

For more information about the Directory Exporter and how to use it, including screen-by-screen field notes, see the *Directory Exporter* chapter of the *Migrator for GroupWise Administration Guide*.

Step 3: Prepare a migration group user-list .csv file

Migrator for GroupWise's Admin-Driven Batch Migrator references a CSV file to determine the subset of users to migrate in the current migration group. Each time the Batch Migrator runs, it prompts for the particular CSV user-list file containing the users to whom the program should apply its functions.

Remember that Migrator for GroupWise's Directory Exporter creates a *UsersToMigrate.csv* file each time it runs, beginning in the *Pre-Migration Preparations* but also when refreshing user data as in step 2 above. The *UsersToMigrate.csv* contains records for *all* GroupWise users, but an administrator typically uses the Batch Migrator to migrate subset groups of a few dozen users at a time. (See *Grouping Users for Batch Migration* in chapter 3 of *Migrator for GroupWise's Pre-Migration Planning Guide* for information about determining the optimum size of user batches.) You can use the *UsersToMigrate.csv* file as a template to create subset user-list CSV files for the Migrator for GroupWise Batch Migrator. To prepare a user-list file, use Microsoft Excel to:

- 1 Open *UsersToMigrate.csv* and **Save As** a new CSV filename (for example, *migr01.csv* for your first migration group, or *migmktg.csv* for users in the Marketing Department). You must save the file in CSV format, not as an Excel Workbook or any other file type.
- 2 Edit the copy by deleting all user rows except those you want to include in this migration group.
- 3 Save the modified CSV file in CSV format under its new name.

i | **NOTE:** If either of the next two subtopics applies to your migration, it may be more efficient to make those modifications to the master *UsersToMigrate.csv* file (for the entire universe of users) before using that file as a template to create subset user-list files, as described above.

If you will access GroupWise data by proxy: You can use the CSV file generated by Migrator for GroupWise's AddProxy utility as your user-list file—modified if necessary to accommodate any special circumstances as noted below. The *AddProxy Utility* chapter of the *Migrator for GroupWise Administration Guide* explains how each successful run of the program, per user, generates a record of the user in a file, designated in your *addproxy.ini* file as the *SuccessLog*. This file thus contains a current list of all users who have granted the necessary proxy rights, and are thereby eligible for migration by proxy.

If you want to provision users to multiple Exchange mailstores

Some administrators want to provision users in the same user-list CSV file to two or more Exchange mailstores. The Admin-Driven Batch Migrator program supports this when separate destination mailbox stores are specified in the user-list CSV file. The *HomeMDB* column of the user-list CSV file can be used for this purpose.

The *HomeMDB* column specifies the Exchange mailbox store for each migrating user, and is used when mailbox-enabling users by the *Exchange Administrative Operations* of the Admin-Driven Batch Migrator. Example:

```
CN=Mailbox Store (MOBE),CN=First Storage Group,CN=InformationStore,CN=MOBE,CN=Servers,
CN=First Administrative Group,CN=Administrative Groups,CN=User,CN=Microsoft Exchange,
CN=Services,CN=Configuration,DC=Example,DC=com
```

Note that the Exchange admin credentials supplied to the Admin-Driven Batch Migrator must have sufficient rights to create mailboxes on the Exchange server(s) specified in this *HomeMDB* column. If the *HomeMDB* column is left blank, the value specified in Migrator for GroupWise's GUI will be used for the destination Exchange mailbox store.

Other optional modifications to the user-list CSV file

Review these circumstances and determine if any of them apply to your migration scenario:

- User archives are on a central accessible server, but in diverse directory subtrees. In this case, you will not be able to specify a single root directory for Migrator for GroupWise to search for the migrating users' archives. But you can specify a root search path for each user in the CSV file.
- PST files need to be created in different, separate directories, per user (for example, in each user's home directory).
- You want to migrate forwarding addresses from the GroupWise source.
- You want Migrator for GroupWise to change users' GroupWise passwords to a different, specific value for each user rather than to a single common value for all users, or to random strings of characters.

If any of these or similar circumstances apply in your migration, please see Knowledge Base solution #SOL14994 (via [Quest support portal](#)) for a description of the columns in the *UsersToMigrate.csv* file.

Step 4: Run Admin Batch Migrator to create mailboxes (and other administrative functions)

Before migrating data for any group of users, you must create destination mailboxes for them in Exchange. At this step, we run Migrator for GroupWise's Admin-Driven Batch Migrator twice: first for certain GroupWise and Exchange administrative functions (depending on your needs), and then again to create the mailboxes.

i **NOTE:** Some admins have reported latency issues when selecting all of these features together in a single run of the Admin-Driven Batch Migrator. Quest therefore recommends you run the program twice for this step, as described here.

In a typical scenario we select these features for the first run:

- GroupWise Administrative Operations:
 - **Set [GroupWise] user password (Optional/Conditional):** Modifying passwords is necessary only if the Trusted Application API is not a viable option due to GroupWise version or other considerations. Some organizations, however, prefer to change the GroupWise password for migrating users to encourage use of the Exchange environment.
 - **Set user visibility** in the GroupWise directory: The visibility setting is especially important when Quest CMG is used to update both directories with modifications. As mailboxes are created in Exchange for migrating users, you may also want to set the GroupWise visibility to *None* for the same user population. This eliminates the possibility of duplicate entries appearing in the GroupWise directory for migrated users after subsequent runs of the CMG Directory Connector. The timing of this operation should be coordinated with CMG's Exchange-to- GroupWise Directory Connector so that Exchange entries for migrated users are synchronized back to GroupWise shortly before or after the visibility change.

- Exchange Administrative Operations:
 - **Remove user free/busy forwarding to GroupWise** (*applies only if free/busy coexistence has been configured*): Free/busy forwarding to GroupWise will soon be unnecessary for the users in this group, since they will soon have Exchange mailboxes, and will then track their free/busy data in Outlook.

And then for the second run we select these features:

- GroupWise Administrative Operations:
 - **Set forwarding** from GroupWise to Exchange (for this user group): The GroupWise users in this group will have Exchange mailboxes after this run of the Batch Migrator. Inbound external mail may or may not have already been redirected to Exchange (optional in step 14 of the *Pre-Migration Preparations* above). But in any case GroupWise-to-Exchange routing is necessary during the transition period, to route internal mail sent from not-yet-migrated GroupWise users to these already-migrated Exchange recipients.
- Exchange Administrative Operations:
 - **Mailbox-enable existing Active Directory accounts.** Creates Exchange mailboxes for this group of migrating users.

See the *Administrator-Driven Batch Migrator* chapter in the *Migrator for GroupWise Administration Guide* for complete instructions and application notes for these features.

i **NOTE: For an Offline Migration (only):** After you run the Batch Migrator for these admin functions: Verify the GroupWise Post Office is configured to allow Direct Connections, and copy the Post Office data files to an intermediate storage location. Then, if using a portable storage medium, transport the medium to some location where you have a high-bandwidth connection between your Migrator for GroupWise workstation and the target Exchange server.

Step 5: Run CMG Directory Connectors to update directories with recent changes

i **NOTE:** This step applies only if you are using Quest CMG for directory coexistence. Otherwise, skip ahead to the next step.

When the AD records are updated and/or Exchange mailboxes are created (as in the preceding step), run the CMG Directory Connector to ensure both directories are current.

i **NOTE:** CMG's Directory Connector can be configured to automatically run directory updates at scheduled intervals. However, it is often useful to also run manual updates at this step in the process to ensure both directories are current before proceeding with the migration for this group.

Step 6: Run Admin Batch Migrator to migrate data

Run the Administrator-Driven Batch Migrator to migrate user data (mail, calendar, address books, archives, etc.) from GroupWise to Exchange for the users identified in the user-list csv file:

- On the *Select Operations* screen, mark the checkbox for **Migrate users**.
- If you are using Quest CMG for directory synchronizations, you should also **Remove directory synchronization exclusion** in this program run (on the *Exchange Administrative Operations* screen). This feature removes the attribute values (in AD) that exclude the users in this migration group from CMG dirsyncs in the Exchange-to-GroupWise direction. Removing the attribute will include these users in bidirectional dirsyncs—useful now that they will be migrated. For more information, see the `CmgExcludeFromDirSync=` parameter notes in *Migrator for GroupWise's Program Parameters Reference*.

See the *Administrator-Driven Batch Migrator* chapter of the *Migrator for GroupWise Administration Guide* for complete instructions and application notes.



NOTE: For an Offline Migration (only): In this step you migrate user data from the intermediate storage location (from step 4 above) into Exchange. The Admin Batch Migrator will read the intermediate copy as if it were the live GroupWise server, but the data must be identified and copied to a file system. On the *Specify GroupWise Login Information* screen: Select the *Direct Connection* option and specify the path to the Post Office data files.

Step 7: Distribute PST files (if any)

GroupWise data is migrated to individual Exchange mailboxes, Personal Archives or PST files based on selections made in the Batch Migrator program. If any data is migrated to PST files, the admin must either distribute the newly created PST files to users' desktops, or notify users of the locations of their new PST files (so each user can specify the location within his or her own local copy of Outlook).

Quest Admin Batch Migrator program names any new PST files by their associated User IDs, with incrementing numbers appended to the filename if more than one file is generated per User ID—for example, *Smith.pst*, *Smith-1.pst*, *Smith-2.pst*, and so forth.

When you are finished with this user group ...

Repeat these steps for each batch of migrating users until the entire user population is migrated. You may also integrate some of the [SSDM \(per-desktop\) migration](#) into this process, depending on your circumstances. When the last user batch migration is complete, proceed to the *Post-Migration Activities* (below) to complete the project.

Post-migration activities

These post-migration activities apply to migrations to a proprietary Exchange (either local or non-local). *Perform these tasks only after you have migrated the last user batch (by the Batch Migrator) or the last individual user (by the SSDM).*

Step 1: Provision public distribution lists in Exchange

Run Migrator for GroupWise's Admin-Driven Batch Migrator to provision GroupWise public distribution lists (PDLs) as Exchange distribution groups. The program reads a *GroupsToProvision.txt* data file, generated by the Directory Exporter, to provision PDLs in Exchange. If necessary, you can update PDL content and/or membership in the *GroupsToProvision.txt* file prior to provisioning the PDLs into AD.

PDLs are typically provisioned in Exchange separately, after users are migrated in the batch-migration process. For operating instructions and application notes, see the *Administrator-Driven Batch Migrator* chapter of the *Migrator for GroupWise Admin Guide*.

After your distribution lists are provisioned in Exchange, check the *Message Delivery Restrictions* settings for any Exchange group to which you want GroupWise users to be able to send messages. Any such Exchange group must be of the *universal distribution* type to be mail-enabled. To change the settings, beginning in the Exchange Management Console:

- 1 Select the group under **Recipient Configuration | Distribution Group**, then double-click the group you want to edit.
- 2 Click the **Mail Flow Settings** tab, and highlight **Message Delivery Restrictions**, then click **Properties** above.
- 3 Unmark the check box **Require that all senders are authenticated**.
- 4 **Save**, and then restart the MS Exchange transport service.

Step 2: Modify routing

Migrator for GroupWise is commonly used to automatically update mail forwarding in both systems to ensure proper routing during the migration. When the user and group migration is complete, routing can be permanently updated.

Depending on the specifics of the environment, this may involve modifying the MX record(s), updating routing tables, and/or firewall modifications. If you haven't yet redirected your inbound external mail to Exchange, do it now, since all users have now been migrated.

- i** | **NOTE:** Step 14 of the *Pre-Migration Preparations* explains that you can redirect your inbound mail to Exchange at any time after the users' AD accounts have been mail-enabled—before, during or after the actual data migration. Most organizations prefer to minimize change before and during the migration process, so they opt to do the routing updates after the migration is complete.

Step 3 (conditional/optional): Configure Quest Directory Connector for ongoing coexistence

- i** | **NOTE:** This step applies only if you intend to keep your GroupWise environment active for some period (or indefinitely) after your migration.

If you will keep the GroupWise environment up and running for a time, with an active GroupWise directory, you may want to configure Quest CMG Directory Connector to run recurring directory updates for as long as the GroupWise and Exchange environments coexist.

Step 4 (optional): Prepare for any future migration

- i** | **NOTE: Optional (But Recommended) Step:** Even if you are certain you will have no need for any future migration, this step is still a good precaution.

In preparation for the possibility of future migration requirements (e.g., archives), you may want to consider (either):

- Keep a GroupWise POA with a consolidated address book to help facilitate such activities. To migrate a GroupWise archive you must authenticate against a post office. If you have many post offices, you can run maintenance rules on the mailboxes to limit them to (for example) a day or less of email and then use ConsoleOne to move all the mailboxes to a single post office.
- Set the post office(s) to allow direct connections and establish Migrator for GroupWise as a Trusted Application. Then take backups of the post office(s). This would facilitate future migrations using the post office backups without requiring a live or virtual POA.

Step 5: Post-migration "cleanup"

If you will not need the GroupWise environment after the last user is migrated:

- 1 Verify the GroupWise server is inactive, and no longer receiving or processing mail traffic.
- 2 If you were using SMTP subdomains for mail coexistence: Delete the temporary *migrate.domain.com* MX domain. This is the temporary subdomain you created in the *Pre-Migration Preparations*, to support routing between GroupWise and Exchange during the transition. Now that all users have been migrated to Exchange and inbound traffic is routing directly to Exchange, the mail-forwarding rules and temporary subdomain should no longer be required.
- 3 After you have verified GroupWise is inactive, you may take a final backup and decommission the environment.

Migration to Office 365

- [Migration to Office 365](#)
- [Pre-migration preparations](#)
- [Batch migration process](#)
- [Post-migration activities](#)

Migration to Office 365

Migrator for GroupWise can be used to migrate to Microsoft's Office 365 ("the cloud"), but the admin accounts must be configured differently than when migrating to a local Exchange. This is because the hosted Office 365 services are shared resources controlled by an external hosting entity (Microsoft), so access to remote hosted mailboxes must be enabled by the hosting entity. Access to Office 365 must be set at the mailbox level using Remote PowerShell, as documented later in this chapter—see [Establishing permissions and access to Office 365](#).

Throttling and throughput

Office 365 introduced throttling on user connections, which impacts migration performance. The throttling is a per-user limitation that reduces capabilities after more than two connections by a single user (including the `<MigrationAdmin>` user). With previous versions of Exchange Online, migration throughput rates of 3-5GB/hr per machine were common. But Office 365 throttling reduces typical throughputs to 500MB/hr or less per machine.

Most Office 365 projects therefore require multiple migration machines (or virtual machines) running in parallel to achieve a practical throughput. Use a separate unique `<MigrationAdmin>` account for each machine, to overcome the limits imposed by Office 365 throttling. Also, each migration machine should be configured with fewer threads (2–4) to optimize throughput. More migration machines are therefore required for Office 365 migrations to achieve throughput rates comparable to those for other target platforms.

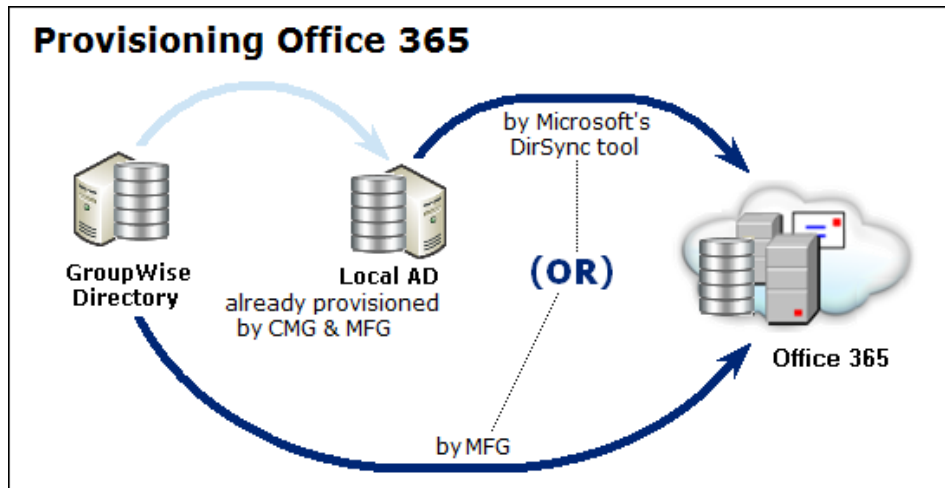
Also, migration to Office 365 uses the Internet to transport data, which is typically slower and less reliable than local network connections. Migrator for GroupWise offers several performance parameter settings that can minimize timeouts when data transmissions encounter network delays. These parameters are explained in the [Pre-migration preparations](#) below.

Provisioning and mailbox creation

Your organization may already have a local Active Directory running for login and security purposes. If so, Microsoft's Online Services DirSync tool can provision Office 365 with object data from the local AD. The DirSync tool also creates the O365 mailboxes as it creates the accounts. If you don't already have a local AD, you could install, configure and provision one from scratch, and then use the DirSync tool to provision Office 365.

Migrator for GroupWise and Quest Coexistence Manager for GroupWise (CMG—a separate Quest product, not included with Migrator for GroupWise) can automate object and group provisioning to a local AD. You could also provision the local AD with Migrator for GroupWise alone, or with Quest Migrator for NDS (another separate product).

Provisioning Office 365 from a local AD by Microsoft DirSync permits what Microsoft calls *single sign-on*, or *identity federation*, so your users can access Office 365 services with the same corporate credentials (user name and password) they already use for your existing local AD.



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 do not have a local AD, Migrator for GroupWise can provision Office 365 directly from the GroupWise source, and can also create the O365 mailboxes. Alternatively, you could provision Office 365 manually, by scripting, or by the Office 365 portal.

Coexistence with Office 365

Office 365 introduces new options for coexistence and hybrid deployments. These include identity and calendar federation options that can be leveraged for GroupWise projects.

Microsoft's Calendar Federation requires a local Exchange server, but enables bi-directional free/busy between Office 365 and local Exchange users, among other coexistence features. Quest CMG can also leverage this configuration to provide free/busy lookups with GroupWise users.

CMG can provide direct mail and free/busy coexistence between GroupWise and Office 365, and does not require a local Exchange server or Calendar Federation to support bi-directional free/busy queries. CMG's Directory Connector, however, does not support direct directory coexistence between GroupWise and Office 365. You may want to consider this reasonable workaround for GroupWise-to-Exchange free/busy coexistence:

- i** | **NOTE:** Provision Office 365 from a local AD, and establish a "two-step" directory coexistence between the two by:
- 1 configuring the CMG Directory Connector for bidirectional updates between GroupWise and the local Active Directory, and then
 - 2 configuring Microsoft's DirSync tool to synchronize the local AD with Office 365.

The combination of the two, running sequentially, would configure an effective directory coexistence between GroupWise and Office 365.

Access and security with an Office 365 target

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 Office 365 system.

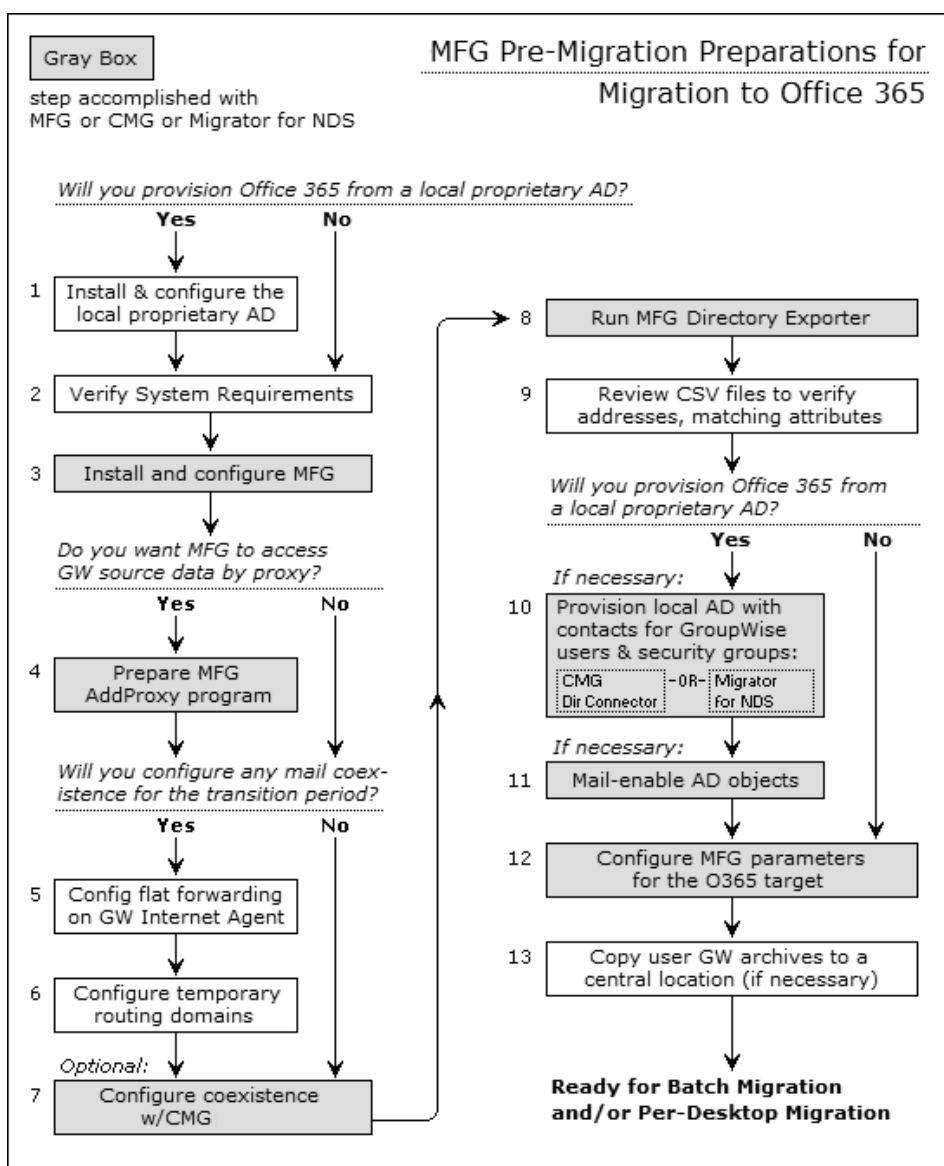
Pre-migration preparations

Any migration scenario requires prior preparation of the source and target environments, configuration of admin accounts and a coexistence strategy, and preparation of the required software you will use as part of the migration process. These procedures can be complex because they include configuring necessary account permissions across separate environments, configuring applications running concurrently to facilitate the migration, and various other considerations. However, these tasks are typically performed once, before the first user group or first user is migrated, so they do not need to complicate the entire migration process.

The flow chart below illustrates these pre-migration preparations for migration to Microsoft's Office 365. Note that the step numbers in the flow chart correspond to the step numbers in the process instructions here.

i **NOTE:** This procedure does not create users' Office 365 mailboxes until just prior to their migration (in the [Batch migration process](#), per user batch), because O365 is unable to send a free/busy query to GroupWise for a not-yet-migrated user who already has an O365 mailbox. Office 365 can direct such a query only to its own O365 mailbox.

If you will not configure free/busy coexistence, you could create Office 365 mailboxes earlier in the process, as part of these *Pre-Migration Preparations*— as long as you also set Exchange-to-GroupWise mail forwarding during the transition for not-yet-migrated GroupWise users.



- i** | **NOTE:** Automated synchronization of user credentials between a local AD and Office 365 is supported only if O365 is provisioned by Microsoft's Online Services DirSync tool copying from a local Active Directory.

Step 1: Install and configure local Active Directory

- i** | **NOTE:** This step applies only if you will provision Office 365 from a local proprietary AD.

If you have not yet installed and configured your local Active Directory, do it now. Provisioning of Active Directory, if necessary, will occur at a later step.

If you will use Microsoft's DirSync tool to provision Office 365 from the local AD, you should also install the DirSync tool at this time. See Microsoft's documentation for details, and note that the DirSync tool may reside on the admin's Migrator for GroupWise migration server if the Migrator for GroupWise computer also conforms to the DirSync tool's requirements, which include:

- OS must be 32-bit Windows Server 2003 Standard SP2, **or** 2003 R2 Standard SP2. (Both Migrator for GroupWise and the DirSync tool support other server versions, but the two listed here are the only versions supported by both.)
- The computer must be joined to the AD forest you plan to synchronize, and must be able to connect to all other domain controllers for all the domains in your forest. (A *forest* is one or more AD domains that share the same class and attribute definitions, site and replication information, and forest-wide search capabilities.)

If the Migrator for GroupWise workstation does not meet those requirements, the DirSync tool must be installed on a different computer.

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

Step 2: Verify all system requirements are satisfied

All of the system requirements, including the necessary admin accounts and access privileges (see *System Requirements* in the Migrator for GroupWise *Quick Start Guide*) must be satisfied before you begin this process.

- i** | **IMPORTANT:** Remember that the Migrator for GroupWise migration profile on the admin migration server must **not** be configured for cached mode.

Step 3: Install and configure Migrator for GroupWise

Complete installation instructions are available in the *Getting Started* section of the Migrator for GroupWise *Quick Start Guide*, which is included with the product download and also is available on the Quest website.

It is also important to consider whether Migrator for GroupWise's Self Service Desktop Migrator (SSDM) component will be used as part of the migration strategy. If so, it should also be installed and configured.

Differentiate users sharing same name and Object ID but in different POs and domains (if necessary, for G-to-E mail forwarding)

MFG supports unambiguous GroupWise-to-Exchange mail forwarding for two users sharing the same name and Object ID, but residing in different Post Offices and different domains. This feature associates a particular Post Office/domain (in GroupWise) with its corresponding *IPaddress:port*. You can then configure as many of these associations as necessary to define a unique *IPaddress:port* for each GW Post Office/domain.

The associations are defined by parameters entered into the [GroupWise] section of *gwmigapp.ini*. For example, if:

- John Doe is in 192.168.0.1:1677, with an address of *jdoe@hokum.sitraka1.com*, and
- a different John Doe is in 192.168.0.2:1688 with an address of *jdoe@sitraka2.com*

... then you could define:

```
[GroupWise]
hokum_mail.hokum=192.168.0.1:1677
sitrika2_mail.sitrika2=192.168.0.2:1688
```

These settings would forward the mail for each John Doe (and any other user pairs sharing the same name and Object ID) to the appropriate target address in Exchange.

Step 4: Prepare AddProxy program to establish user proxies

i | **NOTE:** This step applies only if you want the Admin-Driven Batch Migrator to access user source data by proxy. If the program will access source data as a Trusted App, or by password, skip ahead to the next step.

For versions of GroupWise 6.5.x or higher, Migrator for GroupWise automatically establishes itself as a trusted application through the Trusted Application API. This feature is typically used for accessing the source mailboxes. If instead you require or prefer proxy access, Migrator for GroupWise includes a utility to automate the proxy configuration within GroupWise.

In that case, prepare Quest AddProxy program to establish proxy access to each user's account, and modify the network login script of your migrating users to run the AddProxy program when they next login. For complete instructions see the *AddProxy Utility* chapter in the Migrator for GroupWise *Administration Guide*.

Step 5: Configure flat-forwarding on GroupWise Internet Agent

i | **NOTE:** Steps 5–6 are conditional steps that apply only if you will configure email coexistence during the migration—in which case these steps are optional, but recommended. If you will migrate without email coexistence, skip ahead to step 7.

This step ensures traffic routed from GroupWise to Exchange during the transition period will appear from the original sender with the content inline—rather than from the user's GroupWise mailbox with an attachment. The GWIA configuration can be updated in *gwia.cfg*. Additional information is available in [this Novell article](#).

Step 6: Configure temporary routing domains

i | **NOTE:** Steps 5–6 are conditional steps that apply **only if** you will configure some method of email coexistence during the migration—in which case these steps are optional, but recommended. If you will migrate without email coexistence, skip ahead to step 7.

Whether implementing SMTP mail connectivity or complete coexistence using Quest CMG, most migrating organizations use temporary SMTP domains to route traffic between GroupWise and Exchange. The routing domains may be subdomains of the primary domain (e.g., *gw.domain.com* and *ex.domain.com*) or completely separate SMTP domains. As long as they are unique to the respective mail systems, they will suffice for routing purposes.

i | **NOTE:** This procedure does not create users' Office 365 mailboxes until just prior to their migration (in the [Batch migration process](#), per user batch). With this approach, inbound external mail would never be routed to GroupWise, but mail coexistence does require a routing subdomain for GroupWise. Exchange-to-GroupWise routing will be necessary during the transition period to route *internal* mail sent from already-migrated Exchange users to not-yet-migrated GroupWise recipients.

If appropriate SMTP domains are not readily available, create them in DNS. One should direct traffic to Office 365 (for example, *ex.domain.com*). Mail sent to the GroupWise addresses of already-migrated users will be forwarded to the appropriate O365 mailboxes using this domain. After configuring the new domain in DNS, configure Office 365 to accept the SMTP domain and generate appropriate secondary SMTP addresses so all O365 users will be

able to receive mail at this domain. The other SMTP domain (e.g., *gw.domain.com*) can be used to route mail back to GroupWise for users that have not yet migrated. GroupWise must also be configured to accept mail to the new SMTP domain/address.

Step 7: Configure coexistence strategy

- i** | **NOTE:** This step applies only if you will configure some method of email, directory and/or free/busy coexistence during the migration. If you will migrate without coexistence, skip ahead to step 8.

Configure your coexistence strategy:

- **For SMTP mail routing:** Confirm the temporary routing domains created in the preceding step and verify routing between the two environments.
- **For coexistence with Quest CMG:** Refer to the CMG documentation to install and configure the desired components (Directory Connector, Free/Busy Connector, and/or Mail Connector). If applicable, Directory Connectors should be created and run to update GroupWise and Active Directory with routing objects corresponding to the users in the other system (to establish complete directories).

Remember that CMG's Directory Connector does not support direct directory coexistence between GroupWise and Office 365. You may want to consider this "two-step" workaround if you intend to use Microsoft's DirSync to provision Office 365 from a local AD:

- i** | **NOTE:** To establish a "two-step" directory coexistence between GroupWise and Office 365:
- 1 Configure the CMG Directory Connector for bidirectional updates between GroupWise and the local Active Directory.
 - 2 Configure Microsoft's DirSync tool to synchronize the local AD with Office 365.
- The combination of the two, running sequentially, would configure an effective directory coexistence between GroupWise and Office 365.

Step 8: Run Quest Directory Exporter

Migrator for GroupWise's Directory Exporter extracts user and group data from the GroupWise environment and creates CSV data files that feed input data to other Migrator for GroupWise applications. Run the Directory Exporter to generate the necessary data files. For more information and operating instructions for the Directory Exporter program, see the *Directory Exporter* chapter in the *Migrator for GroupWise Administration Guide*.

Step 9: Review CSV files to verify addresses and matching attributes

The CSV data files generated by Migrator for GroupWise's Directory Exporter provide critical input to other Quest programs, so it is important to verify that the information is accurate and properly formatted. This verification step also provides an opportunity to update addresses and other attributes as required before initiating migrations. For example, the content may be modified to facilitate the organization's consolidation to a new SMTP domain as part of the migration process.

It is particularly important to verify the matching criteria that will be used for the merge process later in this procedure. If Quest Migrator for NDS was (or will be) used to create security principals, the Migrator for NDS SQL database can be leveraged by Migrator for GroupWise to locate and update the user objects.

If mail-enabled users already exist in a local Active Directory: Make sure the addresses listed in the *TargetAddress* and *TargetAlias* columns are appropriate. With existing mail-enabled users, Migrator for GroupWise will use the *TargetAddress* to locate the object for mailbox creation. The address in the *TargetAddress* of the CSV must therefore match a valid SMTP address on the target mail-enabled object. Also, the *TargetAlias* addresses will be applied as secondary/proxy addresses, so it is important to verify them before proceeding.

If Migrator for NDS is not used but AD objects still must be created, Migrator for GroupWise must still match the exported GroupWise user records to the AD objects to perform some of its operations. If the AD objects must be merged or mail-enabled by Migrator for GroupWise, an attribute must be identified and/or populated into the CSV

input files to establish a match between the GroupWise user and corresponding security principal in AD. The Directory Exporter extracts the *NDSUserName*, which commonly matches to the *SAMAccountName* in AD. If this is the case in your environment, simply copy the values from the *NDSUserName* column into the *SearchKey* column within *UsersToMerge.csv* (or *UsersToMigrate.csv*). Then use the resulting file as the template to generate user lists for the merge and migration.

If alternate matching criteria are required, one of the additional attributes within *UsersToMerge.csv* can be used, or a match can be forced using the *SearchKey* column within the CSV. To force a match, a common approach is to export the existing objects from Active Directory and use the export file to populate the *SearchKey* column within the CSV. This may be done through macros or scripting, but sometimes requires manual intervention as well.

When the *SearchKey* column contains appropriate values for locating and merging the Active Directory security objects, save the CSV file and use it as the template for creating lists of users for the merge and migration process.

Step 10: Provision local AD with NDS users and groups

i | **NOTE:** This step applies only if you will provision Office 365 from a local AD, and if the migrating users do not already exist as security objects in AD. Otherwise, skip ahead to step 12.

i | **NOTE:** Automated synchronization of user credentials between a local AD and Office 365 is supported only if Office 365 is provisioned from a local AD by Microsoft's Online Services DirSync tool.

Microsoft's Online Services DirSync tool can provision Office 365 with object data from a local AD server. To provision Office 365 with Microsoft's DirSync, the existing NDS users and groups must already be provisioned as security principals in the local Active Directory.

Quest CMG or Migrator for NDS (separate Quest products, not part of Migrator for GroupWise) can automate object and group provisioning into the local AD. Quest CMG Directory Connector or Migrator for NDS offers the most complete capabilities for provisioning a local AD, but other methods are possible.

i | **NOTE:** If you already have existing mail-enabled objects in a local Active Directory but plan to use CMG's Directory Connector to populate the local AD from GroupWise, enable the Directory Connector's *Migrator for GroupWise Compatibility Mode* to avoid duplicate entries in AD. The CMG Mail Connector and Free/Busy Connector can be configured similar to other scenarios. See the *CMG User Guide* for much more information.

In the next step below you may run Migrator for GroupWise's AD Object Merge Tool to mail-enable these accounts. Functional integration between the AD Object Merge Tool and CMG's Directory Connector or Migrator for NDS streamline this process.

Step 11: Mail-enable local Active Directory objects

i | **NOTE:** This step applies only if you will provision Office 365 from a local AD, and the objects in the local AD are not yet mail-enabled.

For Microsoft's DirSync or Migrator for GroupWise to create Office 365 mailboxes (in the [Batch migration process](#) below), the objects in the local Active Directory must be mail-enabled. If you are implementing full coexistence, there may now be two objects in Active Directory for each GroupWise user: the security principal, and the routing contact synchronized in the preceding step of this procedure. In that case, run Migrator for GroupWise's AD Object Merge Tool to merge the objects into a single mail-enabled user object in the local Active Directory prior to the migration.

If contacts have not been added to the local AD in support of coexistence, the AD Object Merge Tool can still be used to mail-enable existing security principals. In this case, addresses and attributes are pulled from Migrator for GroupWise's CSV files to mail-enable objects rather than pulling information from contacts within AD.



NOTE: Remember the difference between *mail*-enabling and *mailbox*-enabling. 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 the other address. A *mailbox*-enabled AD object is one that has an Exchange mailbox. A mail-enabled AD object that has no Exchange mailbox cannot receive mail in Exchange; it can only forward mail to an object's external forwarding address.

The AD Object Merge Tool applies its functions to AD accounts listed in a CSV file specified during the program run. You can run the AD Object Merge Tool for the entire *UsersToMerge.csv* file (generated by the Directory Exporter and updated in earlier steps) to perform these functions for all users at once. Or you could use the *UsersToMerge.csv* file as a template to create subset lists of users. Keep the header row and any rows corresponding to users you want to include in the merge. Then save the file to a new name, still in CSV format.

The result of the merge process (under any of the above scenarios) is a single, mail-enabled user object corresponding to each object copied from GroupWise. Any existing AD security credentials and routing are preserved. For more details, see the *AD Object Merge Tool* chapter of the Migrator for GroupWise *Administration Guide*.

Step 12: Configure Migrator for GroupWise parameters for Office 365

Migration to Office 365 uses the Internet to transport data, which is typically slower and less reliable than local network connections. Migrator for GroupWise offers several features to minimize timeouts when a migration encounters data transmission delays. These features are enabled/disabled and configured by parameters in Migrator for GroupWise's *ini* configuration files, as described below.

Configure mandatory parameter for Office 365 licensing

The Admin-Driven Batch Migrator reads a mandatory program parameter to get the two-character *Usage Location* code that Microsoft requires for its Office 365 licenses (per [this Microsoft article](#)). Be sure to set this value, in Migrator for GroupWise's *gwmigapp.ini*, before you try to License users:

```
[Exchange]
O365UsageLocation=<xx>
```

The parameter value is a two-letter keyword, which must conform to the standardized values listed for [ISO 3166-1-alpha-2](#).

SetUserAccountControl and UserAccountControl parameters

In *adobjmerge.ini*: If you will use Migrator for GroupWise to create user objects in a proprietary local AD server, use a text editor to add (or edit) these parameter settings:

```
[Active Directory]
SetUserAccountControl=1
UserAccountControl=512
```

Watchdogminutes parameter

In *gwmigapp.ini*: Set the *watchdogminutes* parameter to 30:

```
[General]
watchdogminutes=30
```

This specifies the number of minutes of inactivity the Admin-Driven Batch Migrator will wait within a program run before concluding that the connection has encountered a fatal error, and aborting the process. Migration to Office 365 typically generates more process timeouts than migration to a local server. This can become particularly problematic when migrating many large messages (usually due to large attachments). Setting *watchdogminutes=30* makes the program more forgiving of connection issues when migrating to an O365 target. The default value of 15 is better suited to migration to a local server, where shorter and higher-quality transmission paths make timeouts less common.

If you still encounter timeouts with `watchdogminutes=30`, you could disable the feature by setting `watchdogminutes=0`. However, this setting should be used with caution because it tells the program to wait indefinitely for activity (rather than reporting that a fatal error has occurred after some period of time).

MAPI error-retry features for Migrator for GroupWise-Exchange connections

Migrator for GroupWise lets you configure the Admin-Driven Batch Migrator to retry MAPI calls that return errors typically associated with network latency or poor bandwidth. Such errors are rare when migrating to a local Exchange server, but can become more common when migrating to Office 365. This feature lets you control MAPI retries when certain errors are encountered. The feature is configured by these program parameters in the [Exchange] section of `gwmigapp.ini`:

```
MessageRetryCount=3
MAPIRetryWait=30
MAPIErrorsToRetry=80040115
```

This example shows the parameters set at their default values. At these settings, the program will retry 3 times, at 30-second intervals, for MAPI error 80040115 only. If the error persists through all retry attempts, the program will note the error in the log, skip the current message property or element, and move on to process the next item. Depending on your setting for **Log level** (on the *Specify Run Information* screen), the program's retry attempts may appear in the program logs with no other documented error or warning.

Note that the `MAPIErrorsToRetry=` parameter may contain multiple error codes, separated by commas, as in this example:

```
MAPIErrorsToRetry=8004010F,80040115
```

This example would tell the program to retry a MAPI call that returns either the feature-default error 80040115 or another error 8004010F. In most cases, the default error 80040115 alone should be sufficient.

Message-level retry feature for Migrator for GroupWise-Exchange connections

You can also configure the Admin-Driven Batch Migrator to retry the migration of an entire message when errors occurring in the connection to the target platform cause a message to fail. This feature can complement the MAPI-error retry feature (above), which permits retries at the error level. If a MAPI error remains unresolved after the specified number of retry attempts, Migrator for GroupWise notes the error in its log and resumes processing with the next element or property of the message. If an error causes an entire message to fail, these message-level retry parameters provide control over the retry processing of an entire message:

```
[Exchange]
WriteMessageTryCount=3
WriteMessageRetryWait=60
```

This example tells the program to try as many as 3 times (if the first 2 attempts fail), waiting 60 seconds between attempts. The defaults are `WriteMessageTryCount=1` and `WriteMessageRetryWait=30`, which tell the program to try a message only once (and not retry at all).

Error-retry feature for Migrator for GroupWise-GroupWise connections

This feature lets you configure the Admin-Driven Batch Migrator to retry the migration of an entire message when an error occurs in the connection to the GroupWise server. (The other message-level retry feature, described above, does the same thing for errors that occur between Migrator for GroupWise and the target Exchange platform.) If a GroupWise-Migrator for GroupWise connection error causes an entire message to fail, these message-retry parameters let you tell the program to retry processing the entire message, from the beginning, at specified intervals, through a specified number of iterations:

```
[GroupWise]
RetryCount=3
RetryDelay=30
```

The `RetryCount=` parameter tells the program how many times to retry to migrate a message (if not successful on the first attempt), at intervals specified by `RetryDelay=` (in seconds). The defaults, `RetryCount=3` and `RetryDelay=30`, tell the program to retry three times (four total tries), at intervals of 30 seconds. If a message fails again on the last attempt, the program notes the failure in its log and resumes processing with the next message.

Step 13 (if necessary): Copy users' archives to a centralized location

Migrator for GroupWise offers several options for migrating data that resides on users' workstations. One approach uses the Self Service Desktop Migrator (SSDM), a component of Migrator for GroupWise that offers an optional *Silent Mode* to minimize user interaction and impact. This approach is discussed in greater detail in chapter 4 of this *Guide*.

Some scenarios, however, require central migration of GroupWise archives. Migrator for GroupWise's Admin Batch Migrator can migrate GroupWise archives to Exchange (or to PSTs), but only if the program has access to the source archives. Typically, this means providing users access to a central share and having them copy their archives to this location prior to the migration. The Batch Migrator can also migrate archives from diverse, per-user locations, but only if you specify the location for each user in your user-list CSV file.

If this approach will be used for migrating archives, an appropriate location and process should be established. In addition, the approach and any end-user involvement should be communicated in advance of the migration.

Step 14: Prepare for Office 365 Wave 15 throttling

To better address the PowerShell Runspace throttling introduced in O365 Wave 15, your organization should submit a request to Microsoft to ease the PowerShell throttling restrictions. The tenant admin must open a service request with Microsoft and reference *Bemis Article: 2835021*. The Microsoft Product Group will need this information:

- tenant domain (*tenant.onmicrosoft.com*)
- version of Exchange (in this case, for Wave 15)
- number of mailboxes to be migrated
- number of concurrent admin accounts to be used for the migration
- number of concurrent threads to be used
- number of Runspaces to be created per minute*
- proposed limit (*powershellMaxTenantRunspaces*, *powershellMaxConcurrency*, etc.), and the number to which to increase the limit*

* For the last two items in this list, take the total number of threads across all migration machines and add a buffer, because it is difficult to predict the timing of the Runspace initiation. It is best to assume that all potential Runspaces could be created within a minute, so the values for both items should probably both be submitted as the total number.

When you have completed these *Pre-Migration Preparations*, continue with the *Batch Migration Process* below.

Batch migration process

Migrator for GroupWise includes two migration engines:

- **Administrator-Driven Batch Migrator (Admin Batch Migrator)** performs administrative functions (e.g. mailbox creation, routing updates, etc.), provisions Public Distribution Lists, and migrates batches of users all together in a single program run.
- **Self Service Desktop Migrator (SSDM)** runs in memory on the local workstations and migrates content for one user. SSDM streamlines the process of migrating local content, reduces burden on the migration team, and includes a "Silent Mode" to minimize end user interaction and requirements. For more information on SSDM, see chapter 4 ([SSDM \(per-desktop\) migration](#)) of this *Guide*.

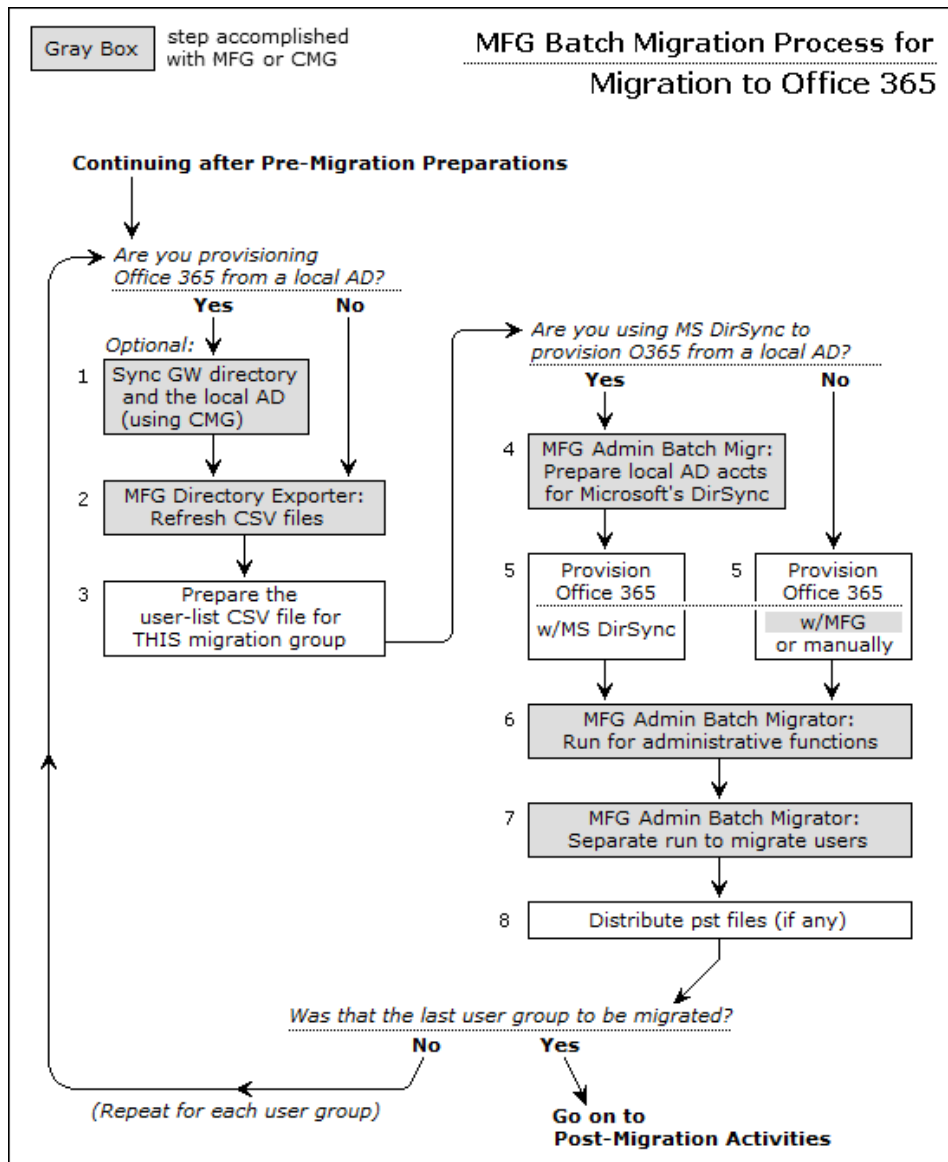
Either application can be used independently for the entire data migration, or the two may be used together to meet a variety of project requirements.

This section provides process instructions for a typical migration to Office 365, in which an administrator performs the migrations for multiple groups (batches) of users with no user interaction. Planning and deployment for the per-desktop SSDM are described separately, in chapter 4: [SSDM \(per-desktop\) migration](#).

The flow chart below summarizes the batch-migration process for an Office 365 target. The step numbers in the flow chart correspond to the step numbers in the narrative process instructions that follow.

This batch-migration procedure is repeated for **each group** of users to be migrated, as shown by the looping arrow in the flow chart.

i | **NOTE:** Do not begin this procedure until you have completed the [Pre-migration preparations](#), in the preceding section of this chapter.



Step 1: Run Directory Connectors to sync the GroupWise directory and the local AD

i | **NOTE:** This step applies only if you will use Microsoft's DirSync tool to provision Office 365 from a local AD. If provisioning by some other method, skip to the next step below.

CMG's Directory Connector can be configured to automatically run directory updates at scheduled intervals between GroupWise and the local AD. But many admins also update the directories at this step of the process to ensure both directories are current before proceeding with the migration for this group.

Many migration projects extend over a period of several weeks or months, so migrating organizations often experience staff additions and departures during the transition period. Any directory changes that occur while the migration is in-process may introduce data inconsistencies between GroupWise and the local AD, but these can be reconciled using CMG's Directory Connector. See Quest CMG documentation for full details.

Step 2: Run Directory Exporter to refresh CSV files with recent changes

Migrator for GroupWise's Directory Exporter extracts user and group information from GroupWise and populates CSV files that serve as input to the migration process. When user and group modifications occur in the GroupWise environment, it is important to run Directory Exporter again to update the contents of the CSV files. This ensures accurate input to the migration applications.

For more information about the Directory Exporter and how to use it, including screen-by-screen field notes, see the *Directory Exporter* chapter of the *Migrator for GroupWise Administration Guide*.

Step 3: Prepare a migration group user-list CSV file

Migrator for GroupWise's Admin-Driven Batch Migrator references a CSV file to determine the subset of users to migrate in the current migration group. Each time the Batch Migrator runs, it prompts for the particular CSV user-list file containing the users to whom the program should apply its functions.

Remember that Migrator for GroupWise's Directory Exporter creates a *UsersToMigrate.csv* file each time it runs, beginning in the *Pre-Migration Preparations* but also when refreshing user data as in step 2 above. The *UsersToMigrate.csv* contains records for *all* GroupWise users, but an administrator typically uses the Batch Migrator to migrate subset groups of a few dozen users at a time. (See *Grouping Users for Batch Migration* in chapter 3 of *Migrator for GroupWise's Pre-Migration Planning Guide* for information about determining the optimum size of user batches.) You can use the *UsersToMigrate.csv* file as a template to create subset user-list CSV files for the Migrator for GroupWise Batch Migrator. To prepare a user-list file, use Microsoft Excel to:

- 1 Open *UsersToMigrate.csv* and **Save As** a new CSV filename (for example, *migr01.csv* for your first migration group, or *migmktg.csv* for users in the Marketing Department). You must save the file in CSV format, not as an Excel Workbook or any other file type.
- 2 Edit the copy by deleting all user rows except those you want to include in this migration group.
- 3 Save the modified CSV file in CSV format under its new name.

If you will access GroupWise data by proxy: You can use the CSV file generated by Migrator for GroupWise's AddProxy utility as your user-list file—modified if necessary to accommodate any special circumstances as noted below. The *AddProxy Utility* chapter of the *Migrator for GroupWise Administration Guide* explains how each successful run of the program, per user, generates a record of the user in a file, designated in your *addproxy.ini* file as the *SuccessLog*. This file thus contains a current list of all users who have granted the necessary proxy rights, and are thereby eligible for migration by proxy.

Optional Modifications to the user-list CSV file:

i | **NOTE:** If any of the *Optional Modifications* listed here applies to your migration, it will usually be more efficient to make those modifications to the master *UsersToMigrate.csv* file (for the entire universe of users) before using that file as a template for subset user-list files, as described above.

Review these circumstances and determine if any of them apply to your migration scenario:

- User archives are on a central accessible server, but in diverse directory subtrees. In this case, you will not be able to specify a single root directory for Migrator for GroupWise to search for the migrating users' archives. But you can specify a root search path for each user in the CSV file.
- PST files need to be created in different, separate directories, per user (for example, in each user's home directory).
- You want to migrate forwarding addresses from the GroupWise source.
- You want Migrator for GroupWise to change users' GroupWise passwords to a different, specific value for each user rather than to a single common value for all users, or to random strings of characters.

If any of these or similar circumstances apply in your migration, please see the article titled [Which columns are required and which can be added or modified in the CSV user list?](#) in the Migrator for GroupWise Knowledge Base.

Step 4: Prepare local AD accounts for Microsoft's DirSync

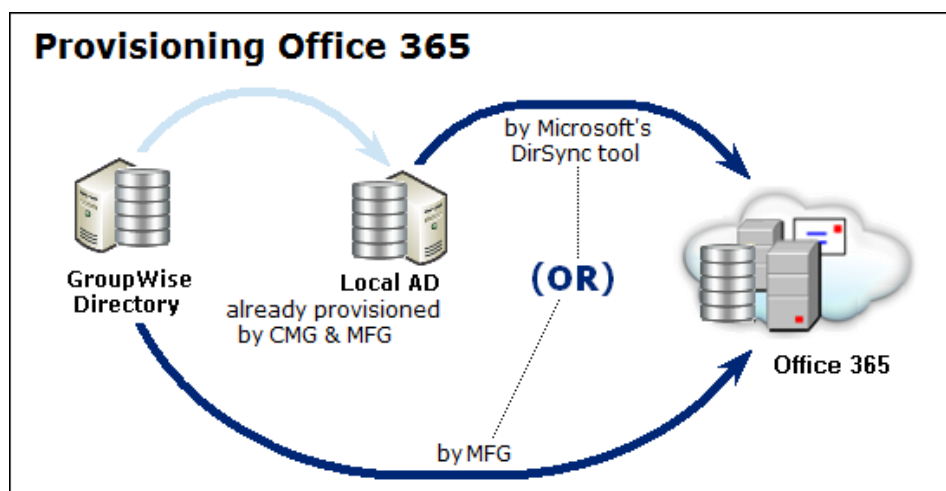
NOTE: This step applies only if you are using Microsoft's DirSync tool to provision Office 365 from a local AD. If provisioning by some other method, skip ahead to step 5.

If your local Active Directory still includes any objects that you do *not* want copied to Office 365, remove them now. The DirSync you will perform in the next step below will copy *all* user objects from the local server.

Run Migrator for GroupWise's Admin-Driven Batch Migrator to prepare the accounts in your local AD for provisioning into Office 365 by Microsoft's DirSync tool. On the Batch Migrator's *Exchange Administrative Operations* screen, mark the checkbox for **Prepare local Active Directory accounts for MS DirSync**.

Step 5: Provision Office 365

Microsoft's DirSync tool can provision Office 365 and create the O365 mailboxes from a proprietary local AD. If you will provision Office 365 this way, you have already provisioned the local AD (in the [Pre-migration preparations](#) above). If you will not have a local AD, Migrator for GroupWise can provision Office 365 directly from the GroupWise source, and would also create the O365 mailboxes. Alternatively, you could provision Office 365 manually, by scripting or by the Office 365 portal.



The *Establishing Permissions and Access* topic below applies to all methods of provisioning Office 365. Read this topic, and then continue with the instructions for your chosen provisioning method.

Establishing permissions and access to Office 365

Access to Microsoft's Office 365 must be set at the mailbox level through Remote PowerShell. To do so, you must first establish a Remote PowerShell session:

1 Open up a PowerShell 2.0 command prompt.

2 Get your Office 365 credentials:

```
$Credential = Get-Credential
```

3 Create the remote PowerShell session:

```
$Session = New-PSSession -Credential $Credential -AllowRedirection  
-ConnectionUri https://ps.outlook.com/PowerShell -Authentication Basic  
-ConfigurationName Microsoft.Exchange
```

4 Import your PowerShell session:

```
Import-PSSession $Session
```

Note: You may receive an error that says a script cannot be executed. If you haven't yet set your ExecutionPolicy you may also need to change it to RemoteSigned:

```
Set-ExecutionPolicy RemoteSigned
```

After establishing the session, you can issue Exchange commands to Office 365. For example, to establish permissions for the migration admin account(s) to facilitate data migration:

```
Add-MailboxPermission <user1> -User <MigrationAdmin> -AccessRights FullAccess
```

... where *<user1>* is a migrating user, and *<MigrationAdmin>* is one of the accounts used for migration in the environment. This command must be run for each migrating mailbox, so scripting will be helpful for larger migrations.

To provision Office 365 with Microsoft DirSync tool

Refer to Microsoft's documentation to copy the objects in your local Active Directory to Office 365. This DirSync also creates the Office 365 mailboxes. Then go on to step 6.

To provision Office 365 with Quest Migrator for GroupWise

Run Migrator for GroupWise's Admin-Driven Batch Migrator to create the O365 accounts and mailboxes. On the *Exchange Administrative Operations*, select:

- **Create Office 365 accounts:** Creates new Office 365 mailboxes and sets user properties for users in the current user-list CSV file. Migrator for GroupWise can provision the O365 objects directly from GroupWise, and create the O365 mailboxes. This feature can be valuable where security principals do not already exist in a local AD. This approach is also useful for provisioning resource objects in some migrations. For more information, see the *MBoxFromContact=1* parameter notes in the *Migrator for GroupWise Program Parameters Reference*.
- **Remove user free/busy forwarding to GroupWise:** Removes forwarding of CMG free/busy queries to the GroupWise server for the users in the current batch. Now that these users will have Exchange mailboxes, future free/busy queries must be routed to their Exchange mailboxes.

See the *Admin-Driven Batch Migrator* chapter or the *Migrator for GroupWise Administration Guide* for more information, with screen-by-screen field notes.

i **TIP:** Some admins report network latency issues when creating Office 365 accounts in the same program run with other admin functions. Quest therefore recommends you select only the two options shown above for this run of the Admin-Driven Batch Migrator. You can then run the program again (next step below) to select other appropriate admin features for this user group.

Step 6: Run Migrator for GroupWise's Admin Batch Migrator for administrative functions

Before actually migrating this group of users (next step below), most organizations should run the Admin-Driven Batch Migrator to perform certain administrative functions that are appropriate for their scenarios.

- i** **TIP:** Some admins report network latency issues when trying to migrate users in the same program run with the admin features listed below. Quest therefore recommends that you not **Migrate users** in this run of the Admin-Driven Batch Migrator. Instead, you can run the program again (next step below) to perform the actual data migration for this user group.

On the *GroupWise Administrative Operations* screen, select any number and combination of these features that are appropriate to your circumstances:

- **Set [GroupWise-to-Exchange] forwarding:** Now that the users in this batch are being migrated, any mail for them that arrives in GroupWise must be forwarded to their new Office 365 mailboxes.
- **Set [GroupWise] user password:** Changes users' GroupWise passwords to new values (specified in a later program screen). *Select this option only if you will use passwords to access GroupWise user data for the migration.* Some organizations prefer changing GroupWise passwords to encourage use of the new Office 365 environment.
- **Set user visibility [in the GroupWise directory]:** This feature lets you specify the scope of users' visibility in the GroupWise directory. User visibility determines whether Quest CMG Directory Connector will be able to synchronize the GroupWise account into AD.

CMG's Directory Connector does not support direct coexistence between GroupWise and Office 365, but you could configure a reasonable workaround as described in step 7 of the [Pre-migration preparations](#) above. In that case, set **Set user visibility** to *None*, to facilitate CMG directory updates between GroupWise and the local AD.

If you used Microsoft DirSync to provision Office 365, and if the current user-list CSV file contains any GroupWise resources, then also select this feature on the *Exchange Administrative Operations* screen:

- **Set Office 365 resource capacity:** This creates Office 365 mailboxes for GroupWise resources, since Microsoft's DirSync tool does not provision resources. The program will read (from the local AD) the capacities of all resource objects in the user-list CSV file, and copy that data to the corresponding new object records in Office 365.

In any case, most organizations should also select this admin feature, also in the *Exchange Administrative Operations*:

- **Remove user free/busy forwarding to GroupWise:** Removes forwarding of CMG free/busy queries to the GroupWise server for the users in the current batch. (Now that these users will have Exchange mailboxes, future free/busy queries must be routed to their Exchange mailboxes.)

See the *Admin-Driven Batch Migrator* chapter or the *Migrator for GroupWise Administration Guide* for more information, with screen-by-screen field notes.

Step 7: Migrate data

Run the Admin-Driven Batch Migrator again to migrate user data (mail, calendar, address books, archives, etc.) from GroupWise to Office 365 for the users identified in the user-list CSV file. In the *Select Operations* screen, select **Migrate users**.

If you have configured Quest CMG Directory Connector for a "two-step" directory coexistence (as described in the preceding step for **Set user visibility**), you can now run the Batch Migrator one more time for this user group, to select this feature from the *Exchange Administrative Operations* screen:

- **Remove directory synchronization exclusion:** Removes the attribute values (in the local AD) that exclude the users in this migration group from CMG dirsyncs in the Exchange-to-GroupWise direction. Removing the attribute will include these users in bidirectional dirsyncs—useful now that they will be migrated. For more information, see the *CmgExcludeFromDirSync=* parameter notes in *Migrator for GroupWise's Program Parameters Reference*.



IMPORTANT: In this scenario, this feature **must** be selected in a separate run of the Admin Batch Migrator because Migrator for GroupWise cannot address two different targets in the same program run. (The dirsync exclusion feature must be applied to your local AD, whereas the **Migrate users** feature migrates data to Office 365.)

Since CMG's Directory Connector does not support direct dirsyncs with Office 365, the sync-exclusion feature (and its removal) will be useful only if you have configured a "two-step" coexistence.

See the *Administrator-Driven Batch Migrator* chapter of the *Migrator for GroupWise Administration Guide* for more information.

Step 8: Distribute PST files (if any)

GroupWise data is migrated to the individual Exchange mailboxes or PST files based on selections made within Migrator for GroupWise's Batch Migrator program. If any data has been migrated to PST files, the administrator must either:

- Notify users of the locations of their new PST files (so each user can specify the location within his or her own desktop copy of Outlook); **or**
- Distribute the newly created PST files to users' desktops.

Migrator for GroupWise's Admin-Driven Batch Migrator names any new PST files by their associated User IDs, with incrementing numbers appended to the filename if more than one file is generated per User ID—for example, *Smith.pst*, *Smith-1.pst*, *Smith-2.pst*, and so forth.

When you are finished with this batch ...

Repeat these steps for each batch of migrating users until the entire user population is migrated. You may also integrate some of the *Pre-Migration Preparations* into this process, depending on your circumstances. When you have migrated the last user batch, proceed to the *Post-Migration Activities*.

Post-migration activities

These post-migration activities apply to migrations to Office 365. *Perform these tasks only after you have migrated the last user batch (by the Admin Batch Migrator) or the last individual user (by the SSDM).*

Step 1: Provision public distribution lists in Exchange

Run Migrator for GroupWise's Administrator-Driven Batch Migrator to provision GroupWise public distribution lists (PDLs) as Exchange distribution groups. The program reads a *GroupsToProvision.txt* data file, generated by the Directory Exporter, to provision PDLs into Office 365. If necessary, you can update PDL content and/or membership in the *GroupsToProvision.txt* file prior to provisioning the PDLs into Active Directory.

PDLs are typically provisioned in Office 365 separately, after users are migrated in the batch-migration process. For more information and field notes, see the *Administrator-Driven Batch Migrator* chapter of the *Migrator for GroupWise Administration Guide*.

After your distribution lists are provisioned into Office 365, check the *Message Delivery Restrictions* settings for any Exchange (Office 365) group to which you want GroupWise users to be able to send messages. Any such Exchange group must be of the *universal distribution* type to be mail-enabled. To change the settings, beginning in the Office 365 *Exchange admin center*:

- 1 Select **recipients** (in the navigation bar at left), and then **groups**. Then select and double-click the *Distribution group* you want to edit.
- 2 Click the **delivery management** tab, and select the radio button for *Sender inside and outside of my organization*.

Repeat these steps for each Office 365 distribution group whose members you want to be able to receive messages from GroupWise senders.

Step 2: Modify routing

Most migration admins use Migrator for GroupWise to automatically update forwarding in both systems to ensure proper routing to migrated users and those still using GroupWise. When the user and group migration is complete, routing can be permanently updated.

Depending on the specifics of the environment, this may involve modifying the MX record(s), updating routing tables, and/or firewall modifications. Redirect incoming external (Internet) mail to the Office 365 domain instead of the GroupWise environment.

- i** | **NOTE:** Since Migrator for GroupWise is able to update routing in both environments, it is also possible to modify inbound routing earlier in the migration process. However, most organizations prefer to minimize change before and during the migration process, so they opt to do the routing updates after the migration is complete.

Step 3 (conditional/optional): Configure Microsoft DirSync for ongoing directory coexistence

- i** | **NOTE:** This step applies only if you used Microsoft's DirSync tool to provision Office 365, **and** only if you will keep the local AD in addition to Office 365. For any other configuration, skip ahead to step 4.

Refer to Microsoft's documentation to configure the Microsoft Online Services DirSync tool for regularly scheduled synchronizations between your local, proprietary Active Directory and Office 365. Remember that you might also configure a "two-step" coexistence between GroupWise and Office 365—as described above in step 6 of the *Batch Migration Process*, for the **Set user visibility** feature.

Step 4 (optional): Prepare for any future migration

- i** | **NOTE: Optional (But Recommended) Step:** Even if you are certain you will have no need for any future migration, this step is still a good precaution.

In preparation for the possibility of future migration requirements (e.g., archives), you may want to consider (either):

- Keep a GroupWise POA with a consolidated address book to help facilitate such activities. To migrate a GroupWise archive you must authenticate against a post office. If you have many post offices, you can run maintenance rules on the mailboxes to limit them to (for example) a day or less of email and then use ConsoleOne to move all the mailboxes to a single post office.
- Set the post office(s) to allow direct connections and establish Migrator for GroupWise as a Trusted Application. Then back up the post office(s). This would facilitate future migrations using the post office backups without requiring a live or virtual POA.

Step 5: Post-migration "cleanup"

To "clean up" after the last user has been migrated:

- 1 Verify the GroupWise server is inactive. Make sure that the GroupWise server is no longer receiving or processing mail traffic.
- 2 *If you were using SMTP mail coexistence (with or without Quest CMG):* Delete any temporary routing MX domains (e.g., *migrate.domain.com*). This is the temporary subdomain you created in the *Pre-Migration Preparations* to support routing between GroupWise and Office 365 during the transition. Now that all users have been migrated to Office 365 and inbound traffic is routing directly to Office 365, the mail-forwarding rules and temporary subdomain should no longer be required.

- 3 *If you no longer need the GroupWise environment:* After you have verified GroupWise is inactive, you may take a final backup and decommission the environment.

SSDM (per-desktop) migration

- [Why and when to use the SSDM](#)
- [Before running the SSDM](#)
- [Did it work?](#)
- [Customizing the SSDM](#)

Why and when to use the SSDM

Batch migrations and per-desktop migrations are performed using different migration engines, both included with Migrator for GroupWise. This chapter describes administrator planning and deployment of Migrator for GroupWise's per-desktop Self Service Desktop Migrator (SSDM). For batch migration (multiple users at a time, performed by an administrator), see the *Batch Migration* sections of the preceding chapters: [Migration to a proprietary Exchange target](#) and [Migration to Office 365](#).

The SSDM is used by an end user, or by an administrator on behalf of an end user, to extract a single user's GroupWise data and migrate it to Exchange. Depending on your circumstances and preferences, you may choose to migrate some or all of your users one at a time, from each user's desktop, using the SSDM. For example, some administrators prefer the per-desktop tool to migrate user archives when the archives reside on users' individual workstations, where that option seems easier than prepping the user-list .csv file with per-user values for the locations of all the local archives.

Migrator for GroupWise's SSDM provides a distributed migration option, which runs in memory on the user's workstation. SSDM runs from a share, offers an optional *Silent Mode* to minimize end user interaction, and does not install anything locally. These features can eliminate the need for desktop visits by the admin during or after the migration, although an admin can run the SSDM at user desktops if he/she chooses, perhaps selectively for only some users. The per-desktop migration option can be used for a portion of the migration (e.g., for local archives) or to migrate all of a user's data: the Exchange mailbox, PST files, or both.

Migrator for GroupWise's Self Service Desktop Migrator is intuitive enough that many end users will be able to run it in interactive mode. However, some migration admins prefer to have more control over the migration options and minimize end user interaction. This can be accomplished by customizing the SSDM configuration, in advance, to enforce settings and eliminate choices and screens in accordance with a particular migration strategy. These customization options are fully described in the [Customizing the SSDM](#) section later in this chapter.

Before running the SSDM

Verify all of the *Pre-Migration Preparations* are complete before the first desktop migration is performed (see the *Pre-Migration Preparations* sections of the preceding chapters: [Migration to a proprietary Exchange target](#) or [Migration to Office 365](#)). The pre-migration tasks are performed just once prior to the data migration. Also, an update of the CSV data files may be necessary if any users have joined or left the organization since the last run of the Directory Exporter.



IMPORTANT: Important Notes About the SSDM:

- Verify that all users have access to the share containing *gwdtapp.exe* (the SSDM program file) and the *AddressTranslation.csv* and *AddressTranslation.bin* files. SSDM requires access to the address translation files, generated by the Migrator for GroupWise Directory Exporter, to convert addresses in messages, address books, and calendar content.
- 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.
- When a Quest license key is updated, Migrator for GroupWise's Directory Exporter must be re-run to register the updated license with the SSDM.

If you want to run the SSDM with App-V

The SSDM must be sequenced in with the Outlook virtual application package. The SSDM cannot be sequenced separately, nor can it access a local Outlook install directly. The GroupWise client must be installed locally or also sequenced in with the Outlook package.

Also, you must edit the OSD file for *gwdtapp.exe*. Find:

```
<VM VALUE="Win32">  
<SUBSYSTEM VALUE="windows"/>  
</VM>
```

... and change the parameter value from *windows* to *console*.

Distribution of SSDM program and user communications

Before users can run the SSDM, they will need access to the program directory. The most common methods of distribution are:

- Share the directory that is created during the Migrator for GroupWise installation and updated by the Directory Exporter.
- Copy the contents of this directory to another location and share the new location. If the *AddressTranslation.csv* and *AddressTranslation.bin* files have been updated by Directory Exporter, you must also copy these files to the new directory.
- Burn the contents of the end-user directory to a CD. Remember, if the *AddressTranslation.csv* and *AddressTranslation.bin* files have been updated, any such CD must be replaced with a new version containing the updated versions of those files.
- Modify users' login scripts to automatically launch the SSDM. In this case the SSDM program and address-translation data files still must be accessible to end users, as noted above.

You must tell your users where the SSDM program file is, and provide operating instructions for how to run it. Typically, an administrator will send an email to migrating users with a link to the SSDM program—at some network location accessible to all users—so each user can simply click the link in the email to launch the program.

If users will run SSDM in interactive mode, you should also include a copy of the Self Service Desktop Migrator *User Guide* (in PDF format), which explains how to operate the per-desktop program from the end user's point of view. You may either copy the PDF file to a public-access folder and link to it from the same email that announces the SSDM program to your users, or simply add it to the email as an attachment.

Migrating from a cached GroupWise mailbox

The SSDM will access the GroupWise client in whatever mode the client was last run. To migrate from a cached mailbox, the user must first login to the GroupWise client in cached mailbox mode, then close the client and start MFG's SSDM.

Did it work?

To verify an SSDM run for any given user, check the user's Outlook folders to see if his/her mail migrated as it should have, and to see if the user is now receiving new mail in his/her Exchange mailbox.

If a user does not appear to be migrated (after running the SSDM)

The next section of this chapter explains how to make some of the SSDM's screen displays "silent"—that is, invisible to the end user. In that case, ordinarily the *gwdtapp.ini* file is further modified to provide to the program whatever information the "silent" screen would otherwise collect from the user. But if the program can't find that information in the .ini file, and if the screen that ordinarily collects it has been hidden, the function will fail and the user's data will not be fully migrated. This is a likely cause of any failed or incomplete single-user migration if the *gwdtapp.ini* file has been modified to make one or more screens "silent."

Customizing the SSDM

Migrator for GroupWise's Self Service Desktop Migrator is intuitive enough that many end users will be able to run it in interactive mode. However, some migration admins prefer to have more control over the migration options and minimize end user interaction. This can be accomplished by customizing the SSDM configuration, in advance, to enforce settings and eliminate choices and screens in accordance with a particular migration strategy. For example, if an administrator intends to migrate users' server mail and address books in batches using Admin-Driven Batch Migrator and only use Self Service Desktop Migrator for local archives, SSDM can be customized to migrate only archives and not offer the additional options that are ordinarily offered in the program.

These program customizations are optional, accomplished by manipulating certain parameters in the *gwdtapp.ini* file, as described in the topics below:

- [Providing program entry values in gwdtapp.ini](#)
- [Hiding entire screens from the user](#)
- [Hiding certain user choices on the Specify Data for Migration screen](#)

If you leave those parameters at their default values, the Desktop Migrator simply runs in its default mode, displaying all screens and all options.

Some elements of the SSDM program flow can also be controlled by command-line switches, appended to the program command when the Desktop Migrator is executed. These command-line switches, and how they interact with pertinent INI-file parameters, are described at the end of this chapter, in the topic [Command-line switches for running the SSDM in silent mode](#).

Silent mode options

The SSDM offers an optional *silent mode* of operation. Silent mode is commonly used to minimize end user involvement when SSDM is deployed, while maintaining the flexibility and other benefits of a distributed migration. When silent mode is configured, the migration team configures the application in advance within the *gwdtapp.ini*

files to determine what will migrate, the target for each migrated data type, and the filters and other configuration elements for the migration. For example:

```
[General]
MigratePAB=0
MigrateServerMail=0
MigrateArchives=1
ArchiveDest=Server
ArchiveDestServerArchive=1
```

... tells SSDM to migrate only the end user's archives and to place the migrated data in the user's Personal Archives.

The SSDM application is typically installed and configured in a shared directory, and a link to the *gwdtapp.exe* file is sent to users so they can launch the application independently. Multiple configurations can be established in advance of the migration to meet the needs of a variety of user types, and separate links can be distributed so that different users launch different configurations of the application.

Various degrees of the *silent* option can be configured depending on the flexibility and control you want to provide to the user community. However, it is commonly configured to run as "silently" as possible—which means users can complete their migrations simply by entering their GroupWise credentials.

The remaining sections of this chapter explain how command-line switches and parameters in the *gwdtapp.exe* file can be used to configure silent-mode operation. The pertinent INI file parameters are also documented in the *Migrator for GroupWise Program Parameters Reference*.

Providing program entry values in *gwdtapp.ini*

If the SSDM is configured to skip certain screen displays, the program must have some other way to obtain the information that would otherwise be collected from fields on those screens. The SSDM can read and/or infer some entry values from the operating environment—from the Windows Registry and Outlook's initialization files, etc.—and some values can be specified by command-line switches (see [Command-line switches for running the SSDM in silent mode](#) below). But some values can also be provided by parameters in the *gwdtapp.ini* file.

When an entry value is specified in the INI file, the value will appear as the default if the corresponding screen and option appear in the program run, or will simply be the prevailing value if the screen and option do **not** appear.

Choices in the *Specify Data for Migration* screen

Any or all of the migration choices in the *Specify Data for Migration* screen can be specified in *gwdtapp.ini* by these parameters:

[General]	[ArchiveData]
MigrateArchives=1	MigrateTrashFolder=1
MigrateServerMail=1	
MigratePAB=1	[ServerData]
MigrateFreqContacts=1	MigrateTrashFolder=1

A parameter value of 1 sets the option to "yes" (the data type will be migrated if the screen does not appear), or sets the associated checkbox to be marked by default. A value of 0 sets the option to "no," or sets the associated checkbox to be unmarked by default.

If a feature is disabled by *AppDoesXxxx=0* (see [Hiding certain user choices on the Specify Data for Migration screen](#) below), the corresponding *MigrateXxxx=* parameter will be ignored. On the other hand, if *AppDoesXxxx=1* in silent mode (*MigrateWhat=silent*), the program will automatically set the corresponding *MigrateXxxx=* parameter to 1. (Although if *MigrateWhat=show* or *=skip*, the *AppDoesXxxx=* setting has no effect on the *MigrateXxxx=* parameter.)

The most common use of these parameters is to provide entry values when SSDM is configured to skip the *Specify Data* screen—by *MigrateWhat=skip* or *MigrateWhat=silent* (see [Hiding entire screens from the user](#) below).

Outlook Profile in the *Select Profile* screen

If SSDM finds more than one eligible Outlook profile on the user's computer, or doesn't find any, the program displays a *Select Profile* screen to prompt the user to designate the profile to be converted. If one and only one eligible Outlook profile is found on the user's computer, the program will simply assume it is the correct profile to convert, and the *Select Profile* screen will not appear.

The per-desktop program can be configured to skip the *Select Profile* screen, but in that case the program must be able to determine the correct Outlook profile to convert. The user's Outlook profile can be specified in the [General] section of *gwdtapp.ini* by:

```
[General] SelectedProfile=<ProfileName>
```

Alternatively, the user's Outlook profile can be specified by appending the */tgtprofile* switch to the Desktop Migrator on the command line, when the program is executed. (See [Command-line switches for running the SSDM in silent mode](#) near the end of this chapter for more information about this and other command-line switches.)

Specifying the user's Outlook profile in the INI file will be useful only if:

- all users who will run the program with that INI file will have the same profile name (e.g., some generic name like "My Profile," although each user's profile resides on the user's own local workstation and is independent of other users' profiles);
— OR —
- a different INI file is prepared for each individual user's run of the per-desktop program, so that individual profile names can be specified.

Remember too that the program will not need this *ProfileName* value if one and only one eligible profile will be found on each user's workstation.

Archive Destination Folder in the *Specify Directory for Migrated Archive* screen

The destination folder (path) for the user's migrated archive can be specified in the [General] section of *gwdtapp.ini* by:

```
[General] SelectedPstDir=<path>
```

... where *<path>* is the full UNC or mapped-drive path (without filename) relative to the user's computer.

This value, if necessary in a particular program run, would otherwise be specified in the *Specify Directory* screen.

The default for this parameter is the Outlook Default Directory, which the program can determine from its operating environment. This parameter is therefore necessary only if you want users' migrated archives to go somewhere other than the Outlook Default Directory.

Filter conditions in the *Select Date and Size Filters* screen

The SSDM lets you specify date limits and ranges for messages to be migrated—to migrate only messages timestamped on or after (or before) a certain date, or within a particular range of dates. You can also specify a maximum size limit for attachments. These date and size filters can be specified during a program run on the *Select Date and Size Filters* screen, but that screen is hidden by default (see the *AskFilter=* parameter in the next section below) and the filters may instead be defined by these parameter settings in the [Filter] section of *gwdtapp.ini*:

```
[Filter]
AttachSize=<####>
FirstMailDate=<mm/dd/yyyy>
LastMailDate=<mm/dd/yyyy>
FirstCalDate=<mm/dd/yyyy>
LastCalDate=<mm/dd/yyyy>
```

The *AttachSize* value is numeric, in kilobytes. Date filters for mail and calendar items are set independently, as shown above (two different pairs of parameters). For either the mail or calendar filter, the two date parameter values must be entered in the eight-digit, slash-separated form shown above, with a zero preceding any single-digit month or day. The defaults for all four parameters are null, so no filtering will occur.

Hiding entire screens from the user

The SSDM program can be customized to make some of its screen displays "silent"—that is, invisible to the end user—or to skip a screen conditionally, making it visible only if the program cannot find the information it needs either from the operating environment or elsewhere in the *gwdtapp.ini* file. The display option for each screen can be set to one of these three parameter values in the [Screens] section of the *gwdtapp.ini* file:

- **show:** The screen will appear in every program run.
- **skip:** The screen will appear only if the program cannot read or infer the associated information either from the operating environment, or from other parameters within the *gwdtapp.ini* file.
- **silent:** The screen will not appear in any program run. The information that would otherwise be collected by the screen can instead be provided by other parameters in *gwdtapp.ini*, and/or can be read or inferred from the operating environment. But if the program cannot determine the necessary information, the function will fail and the user's data will not be fully migrated. (This is a likely cause of any failed or incomplete single-user migration if the INI file has been modified to make one or more screens "silent.")

The show, skip or silent mode can be applied to each of the program screens by setting parameter values in the [Screens] section of *gwdtapp.ini* for:

<u>Parameter</u>	<u>Screen Name (in Title Bar)</u>	<u>Default</u>
[Screens] Welcome=	Welcome	show
[Screens] MigrateWhat=	Specify Data for Migration	show
[Screens] Profile=	Select Profile	skip
[Screens] PstDir=	Specify Directory for Migrated Archive	show
[Screens] Summary=	Selection Summary	show
[Screens] Progress=	Migrating Data	show
[Screens] Finished=	Migration Report	show

The visibility of the *Select Date and Size Filters* screen is set by a boolean parameter in a different section:

```
[General]
AskFilter=[#]
```

The default (*AskFilter=0*) tells the SSDM to not show the *Select Date and Size Filters* screen. To use date filters with the SSDM, you may need to register the *mscal.ocx* file.

The visibility of two other screens can **not** be set or changed in *gwdtapp.ini*:

- **Login to Your GroupWise Account** (occurs between the *Specify Data* and *Select Profile* screens): The *GroupWise Login* screen cannot be skipped or silent, because no migration is possible without the user's login credentials.
- **Enter Password** (occurs between the *Selection Summary* and *Migrating Data* screens): This Microsoft prompt for the user's Exchange login credentials *may* appear if the Outlook profile is configured to require login credentials.

Both of these values can, however, be specified by command-line switches when the Desktop Migrator program is executed. See [Command-line switches for running the SSDM in silent mode](#) near the end of this chapter for more information about these and other command-line switches.

Hiding certain user choices on the *Specify Data for Migration* screen

The default display of the *Specify Data for Migration* screen lets the user migrate any combination of three types of user data: server mail, archives and personal address books (PABs). But some administrators prefer to offer only one or two of these options. Three boolean parameters in *gwdtapp.ini*, in the [General] section, control whether these options will appear in the screen:

```
AppDoesArch=  
AppDoesMail=  
AppDoesPabs=
```

For each parameter, the default value 1:

- Makes the corresponding option visible to the user on the *Specify Data for Migration* screen.
- Sets the corresponding *MigrateXxxx=* parameter to 1 (see [Choices in the Specify Data for Migration screen](#) above) when in silent mode—that is, if *MigrateWhat=silent*. Although if *MigrateWhat=show* or *=skip*, the *AppDoesXxxx=* setting has no effect on the corresponding *MigrateXxxx=* parameter.

A setting of *AppDoesXxxx=0*:

- Makes the option invisible (unavailable to the user) on the screen.
- Masks the portions of the *Welcome* and *Migration Report* screens that pertain to the hidden option.
- Disallows the migration of that data type regardless of other parameter settings elsewhere in the INI file (i.e., would override *MigrateXxxx=1*).

If a parameter is left unspecified in the INI file, the corresponding option **will** appear on the screen.

Note that these parameters do **not** set the marked-vs-unmarked status of the corresponding checkboxes, although those status settings can be controlled by other parameters (see [Providing program entry values in gwdtapp.ini](#) above).

When the program is configured to display only one of the three options in *Specify Data for Migration*, the lone option will appear without a checkbox, so a user cannot turn off the associated function by deselecting the checkbox.

For example: to migrate archives only

In the introduction to this section we mentioned the example of migrating users' server mail and address books in batches, and then using the SSDM to migrate user archives (only). Since the per-desktop program will be used to migrate archives only, the admin wants to hide the other migration options (server mail and PABs) from the user, and moreover wants to streamline the rest of the user interface to minimize its demands on the users' attention.

To accomplish this in the *gwdtapp.ini* file:

```
[General]  
AppDoesMail=0  
AppDoesPabs=0  
MigrateArchives=1  
  
[ArchiveData]  
MigrateTrashFolder=1  
  
[Screens]  
Welcome=skip  
MigrateWhat=skip  
Profile=skip  
PstDir=skip  
Summary=skip  
Progress=skip  
Finished=show
```

These parameters will configure the Desktop Migrator to run like this:

- **Welcome Screen:** Will not appear, because *Welcome=skip* and no user entries are requested on this screen.

- **Specify Data for Migration:** Will not appear, because *MigrateWhat=skip*, and *AppDoesMail=0* and *AppDoesPabs=0*, and the program will obtain its necessary archive-migration orders from *MigrateArchives=1* and *MigrateTrashFolder=1*.
- **Login to Your GroupWise Account:** Will appear in every program run.
- **Select Profile Screen:** Will not appear if the program finds one and only one eligible Outlook profile on the user's workstation. Otherwise, will be necessary to prompt the user to designate the profile.
- **Specify Directory for Migrated Archive:** Will not appear, assuming the Outlook Default Directory is the preferred archive destination folder for every user. (If not, then specify a valid path for *SelectedPstDir=* under [General], or change *PstDir=skip* to *PstDir=show*.)
- **Selection Summary:** Will not appear, because *Summary=skip* and no user entires are requested on this screen.
- **Enter Password** (for Exchange): May or may not appear, per user, depending on whether the user's profile is configured to require these credentials.
- **Migrating Data:** Will not appear, because *Progress=skip* and no user entires are requested on this screen.
- **Migration Report:** Will appear in every program run, since *Finished=show*.

So, omitting the skipped screens, and assuming that each user will have one and only one Outlook profile, and that we want user archives migrated to their Outlook Default Directories, the program's screen sequence will be:

- 1 **Login to Your GroupWise Account:** Will appear in every program run.
- 2 **Enter Password** (for Exchange): May or may not appear, per user, depending on whether the user's profile is configured to require these credentials.
- 3 **Migration Report:** Will appear in every program run, since *Finished=show*.

Command-line switches for running the SSDM in silent mode

The SSDM can be customized to skip certain screens, or even to hide **all** screens—to run in a true "silent mode," requiring no entries or other intervention from the end user. Whenever the program is configured to skip a screen display, the program must have some alternate method of obtaining the information it would otherwise collect from fields on the screen.

The program can read or infer some entry values from the operating environment—from the Windows Registry and Outlook's initialization files—and some values can be specified by parameters in the *gwdtapp.ini* file. But some values can also be provided by command-line switches appended to the program command when the SSDM is executed. For example:

```
gwdtapp /silent /userid AbeLincoln /pass 4score ....
```

In the below list of all available switches for the *gwdtapp* command, note that the */silent* switch is the only one that does *not* carry an argument:

- **/silent:** Enforces a true "silent" run of the program—for no screen displays at all. The program will note errors in its log and may abort if it requires input data that is not made available via other switches (see below) or INI-file parameters, and that cannot be inferred from the operating environment.
- **/userid <UserID>:** The user's GroupWise UserID.
- **/pass <GWPassword>:** The password associated with the UserID cited above.
- **/tgtprofile <ProfileName>:** The Outlook profile that you want to migrate—the one into which your GroupWise server data, archive and/or personal address books should be placed.
- **/tgtpass <OutlookPassword>:** The password associated with the target Outlook profile cited above.
- **/tgtdomain <DomainName>:** The domain name of the target Exchange mail server.
- **/tgtuser <ADUserName>:** The AD user name associated with the Outlook profile cited above.

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