

Exchange 2003 to Exchange 2010 Migration – Part -2

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Microsoft®

Exchange Server

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Introduction

With the release of Exchange Server 2010, Microsoft has expanded the existing functionality and introduced new concepts. Exchange Server 2010 still provides organizations a robust messaging and collaboration platform while continuing to broaden their focus to enhance the feature set.

Exchange 2000/2003 cannot be “upgraded” to Exchange 2010. One must perform a migration. The process of moving from Exchange 2003 to Exchange 2010 or from Exchange 2007 to Exchange 2010 is often referred to as ‘upgrade’, but technically it is not. An upgrade occur in-place, that is, it involves taking an existing server and installing the newer version of the software on that server. The server installation process then performs whatever changes it needs to in order to convert the old software (and database) to the newest version.

This white paper describes the best practices for migrating to Exchange 2010.

About legacy exchange servers

We will use the phrase Legacy Exchange servers in this document to refer to the existing Exchange Server 2003 machines in your organization. This might cause a slight bit of cognitive dissonance for those of you used to thinking of Exchange 2000 or Exchange 5.5 servers as legacy servers.

X.400 connectors

X.400 connectors are done away with in Exchange 2010. With the decline and fall of X.400 as a messaging standard, almost all the X.400 connectors used in legacy Exchange organizations today are used to connecting the MTA service in Exchange 5.5 sites. Because you cannot have Exchange 5.5 sites and servers in an organization with Exchange 2010, you will need to remove these sites and connectors before beginning your upgrade. If you have a non-Exchange X.400 system that you connect to, maintain your legacy Exchange 2003 bridgehead servers until you can arrange some sort of alternate connection supported natively by Exchange 2010.

Foreign connectors

Foreign connectors are dramatically different in Exchange 2010. The new foreign connectors do not try to implement a specific non-SMTP protocol; instead, they require you to define a drop directory on the Hub Transport server or network file share. When messages are routed through this connector, they will be written to the drop directory and the remote gateway software can then pick them up and process them appropriately.

You will need to consider your current routing topology, especially if you have a single routing group in your legacy organization. By default, legacy Exchange servers route messages directly out of their local SMTP virtual server. This default Exchange 2003 behavior means that out of the box, Exchange 2003 servers directly attempt to deliver external messages based on DNS MX record lookups instead of forwarding messages to bridgehead servers. For many small organizations, this behavior is acceptable, and as a result many Exchange administrators never get around creating an SMTP connector and defining bridgehead servers for their organization.

If you are moving from Exchange Server 2007, by default there are no outbound SMTP connections until you create your first send connectors. These send connectors can be switched to use Exchange Server 2010 Hub Transport servers as their source servers.

When you install the first Exchange 2010 Hub Transport instance into your Exchange 2003 organization, it creates its own routing group and associated routing group connector. It also creates a default set of SMTP connectors that are enough to send and receive authenticated SMTP to/from other Exchange servers in the organization.

By default, Exchange Server 2010 does not have any send connectors to deliver email outside the organization. An Exchange 2010 server will rely on legacy SMTP connectors on Exchange 2003 or send connectors created on Exchange 2007 servers, if they exist.

To allow Exchange 2010 to deliver mail to the Internet, you have three solutions to choose from:

- Create an outbound SMTP send connector on your Exchange 2010 Hub Transport server. This may be suboptimal in some instances, but if you are already using an external mail gateway, you can simply configure Exchange 2010 to pass outbound mail to the appropriate Smart host.
- Deploy an Exchange 2010 Edge Transport server to handle your outbound traffic. If you are upgrading to Exchange 2010 to take advantage of its advanced message hygiene capabilities, we recommend this option; it gets your incoming and outgoing mail going through Exchange 2010 sooner rather than later.
- Create an SMTP connector with the default address space in your legacy Exchange organization before you begin installing Exchange 2010. This option has the advantage that it keeps mail flow in your organization going through a known and trusted set of bridgehead servers until you have your Hub Transport and Edge Transport servers configured and tested.

If you have existing legacy Exchange servers configured with mail hygiene solutions, this is probably what you're going to want to select for the short term.

Best practices - planning and preparing for migration

Organizations move to Exchange 2010 for a variety of reasons

- To take advantage of the new features described above.
- To consolidate and reduce the number of servers in your organization.
- To replace a version of Exchange Server that is no longer supported.
- To replace a different messaging system (such as Lotus Notes or Novell GroupWise), or to move to an Exchange Online solution.

But regardless of the reasons for your migration, careful planning and preparation are crucial to the success of your project.

If you have an Exchange Server 2007 deployed today and are happy with your current environment, your planning process may be as simple as determining which hardware to purchase for your servers and storage. Once you have decided on the appropriate hardware, you simply deploy the hardware, and then move mailboxes and replicate public folders between the servers.

If you are unhappy with your current Exchange 2007 deployment or have an Exchange 2003 (or earlier version, or a non-Exchange based) environment, the planning process is more complex. For pre-Exchange 2007 environments, special care needs to be given to the routing environment; Exchange 2010, like Exchange 2007, relies upon the Active Directory Sites and Subnets configuration for routing, instead of the routing groups used by Exchange 2000 and Exchange 2003.

In general, the following steps are critical to the pre-migration process:

- Conduct a thorough discovery and analysis of your current environment.
- Archive older, rarely accessed data from active mailbox databases to a secure, reliable messaging archive before the migration.
- Carefully analyze public folders.

The following sections provide recommended best practices for each of these steps.

Understanding and documenting your current environment

While some organizations are meticulous about documenting their environments over a period of time, many do neglect documentation. Sometimes it is because they are busy or because they feel documentation is unnecessary. But accurate documentation is critical to good migration planning. It ensures that knowledge about the environment (such as how things are configured and why certain design and configuration decisions were made) is not lost when due to staff turnover.

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Best practices for documenting your environment

Best practices for documenting your environment include careful examination of the following.

- Network
- Windows and Active Directory infrastructure
- Current Exchange infrastructure
- Other messaging systems
- Third-party tools and utilities

Network

Little things about the underlying network can have a big impact on Exchange Server. For example, a network interface card (NIC) set to auto detect the network speed instead of to a static value can prevent Outlook clients from connecting to the Exchange server consistently. While cached mode in later versions of Outlook has reduced the impact of this type of configuration, tracking down this type of issue can be time-consuming and unintuitive. Therefore, carefully documenting your network is an important part of pre-migration planning.

Windows and Active Directory Infrastructure

Without Windows and Active Directory present in the environment, Exchange cannot be installed. Ensuring that your domain controllers (DCs) are running at the necessary functional level and that adequate numbers of Global Catalog (GC) servers exist can help make your Exchange 2010 deployment go more smoothly. While the formal recommendation from Microsoft is one GC CPU per four Exchange CPUs, many organizations now make every DC a GC within their environment. Unless your organization has legitimate and unchangeable reasons for not making this change, it is best to follow that example and make all DCs GCs.

Current Exchange Infrastructure

Even though you have already decided to move to Exchange 2010, it is still wise to document your current Exchange infrastructure to understand any limitations you face and help you determine the best path forward.

Other messaging systems

Not every organization is migrating from an existing Exchange organization to Exchange Server 2010. Migrations to Exchange from other messaging systems, such as Lotus Notes and GroupWise, and even simple SMTP-based systems, happen every day.

Third-Party Tools and Utilities

One thing that many organizations love about Exchange Server is the rich third-party toolsets that are available to help, support and enhance Exchange. While third-party tools are heavily used in many organizations, they can be overlooked during a migration. Ensure that you have inventoried each third-party tool in use and determined its ability to function with Exchange Server 23 2010 prior to beginning any migration process.

Archiving to help smooth migrations

Every change in Exchange Server 2010 compounds the problem of the growth of messaging data. All prior versions of Exchange use single instance storage (SIS) to save disk space, but in Exchange Server 2010, the database tables are restructured and SIS is no longer retained across mailboxes or mailbox databases.

Public folder considerations

In many organizations, public folders have been neglected instead of managed and administrators would prefer to ignore their existence. While this approach may work in the short term, there are often users who rely upon the public folder infrastructure and value its data.

If your organization is migrating to Exchange 2010 from an earlier version of Exchange, it is simple to move data to the new Exchange 2010 servers. Simply add replicas of the public folders you want to replicate to the new servers, and then wait for the folders to contain the same data. But before you move any public folder data, take time to determine which public folders in your organization are actual-

Best practices for migrating to exchange server 2010

Whether you are migrating from an earlier version of Exchange Server or from a legacy platform such as Lotus Notes or Novell GroupWise, the migration process involves a number of steps.

- Deploying the new Exchange Server 2010 infrastructure
- Deploying Outlook 2010 (or Outlook 2007) client software
- Establishing co-existence with the existing infrastructure
- Directory synchronization
- Public folder replication
- Free/Busy synchronization for calendar data
- Mailbox migration

(includes calendars, tasks, personal address books, archives, etc.)

- Outlook profile updates
- Decommissioning original servers

Some of the steps involved in a migration are straightforward, while others involve a lot of planning and testing prior to making any changes to the existing environment.

Migration to new server hardware

Many organizations planning to replace Exchange 2003 are just about ready for an Exchange server hardware refresh. If you have new servers, here are the services that need to be transitioned:

(One can roughly follow this order)

- Transitioning Outlook Web App, POP3, IMAP4, and Exchange ActiveSync to Exchange Server 2010 Client Access servers
- Messaging routing (Internet inbound/outbound) as well as routing between routing groups handled by Exchange Server 2010
- Hub Transport servers
- Replicating public folders to Exchange Server 2010 Mailbox servers
- Moving mailboxes to Exchange Server 2010 Mailbox servers
- Transitioning Anti-spam services to Edge Transport services (optional)
- Deploying Unified Messaging and other new features.

Exchange 5.5 Migrations

Unfortunately, like with Exchange 2000 there is no direct upgrade or migration path from Exchange 5.5 to Exchange Server 2010. You have options, but they are by no means simple or cheap.

If you have a small number of users and only one or two locations, you might consider “leapfrogging” through Exchange 2003. This means that you perform a migration to Exchange 2003 and then shortly thereafter perform another migration to Exchange Server 2010. This leapfrog process might be the smoothest transition for most users. It ensures that public folders, shortcuts, folder rules, permissions delegations, and Outlook profiles do not need modification. If you have the extra server hardware and you can use Exchange Server 2003 licenses temporarily, this is a good approach. However, it means that you must endure the pain of the Active Directory Connector (ADC) that synchronizes data between the Exchange 5.5 directory and the Active Directory.

The other approach is to use a third-party migration utility such as the Quest Software Exchange Migration Wizard. Although third-party tools usually represent a significant cost, for larger organizations these utilities can ensure a smooth transition if one is migrating from Exchange 5.5 or performing an Inter-organization migration

Do not deploy new features during migrations

Do not deploy new features of Exchange Server 2010 while you are still migrating mailboxes.

The exception to this is features such as database availability groups that are deployed at the server level. DAGs can be configured and tested before the first mailbox is ever moved. A good rule of thumb is to avoid deploying any feature that will require additional user support or training. Such features distract the help desk and the migration team from getting the migration completed in a timely fashion.

Considering messaging connectors

Another area to consider as we are getting ready to upgrade to Exchange 2010 is connectors. In legacy Exchange organizations, you have four basic types of connectors - routing group connectors, SMTP connectors, X.400 connectors and other foreign connectors to specialized messaging systems such as Lotus Notes and Novell GroupWise.

Routing group connectors

Routing group connectors still exist in Exchange 2010 but are meant solely as a means of interoperability with legacy Exchange servers. They will be naturally phased out as you convert your Exchange infrastructure over to Exchange 2010, decommission your legacy Exchange servers and remove the legacy administrative and routing groups from your organization.

SMTP connectors

SMTP connectors provide connections to external SMTP-speaking systems and the Internet. In Exchange 2010, connectors are divided into two types - receive connectors which are configured on a per-server basis and send connectors which are configured and maintained throughout the organization. As with the routing group connectors, these legacy SMTP connectors will be phased out as you move your message-routing functions off your legacy Exchange servers to your new Exchange 2010 Hub Transport and Edge Transport servers.

Microsoft makes some specific recommendations on the order in which you should install the various roles. Technically, you can install your roles in any order you like. However, following Microsoft's a recommendation allows you to minimize the deployment of new server hardware and get the most reuse value from your existing servers if that is a major consideration in your upgrade plans.

Microsoft's recommended order ensures that as each role is installed it can locate the prerequisite role it depends on for proper functioning. You do not, however, have to install all instances of a particular role before beginning to deploy instances of the next role. You can always go back and install additional instances of any role as you scale up a site.

Client access servers

The Client Access role should be the first Exchange 2010 instance you install into a legacy Exchange organization. The reason for this is simple, once you actually have mailboxes on Exchange 2010 servers and your users attempt to access them using any protocol other than MAPI over RPC, you will need to have an Exchange 2010 Client Access instance to provide that protocol access. The Exchange 2010 Client Access role can also provide access to legacy Exchange 2003 or 2007 mailboxes. This potentially allows you to switch client and web protocol access to Exchange 2010 and decommission your legacy front-end servers. This will depend on the client version, protocols in use, mailbox version, and whether or not you are configured to proxy or redirect OWA requests to legacy versions.

In smaller organizations, it is common to deploy the Client Access, Hub Transport, and Mailbox roles on the same physical server. In fact, this is the standard Exchange 2010 installation option when you use the GUI setup.

When you are determining the number of Client Access instances you need, remember that you must have at least one Client Access instance in each Active Directory site where you will have an Exchange 2010 mailbox. Although any Client Access instance can answer an incoming request, if the requested resource is on a Mailbox server that is not in the same site as the initial Client Access instance, it will redirect the request to an available Client Access instance in the Mailbox server's Active Directory site.

This role is mandatory in an Exchange 2010 organization even if you do not plan to support Outlook Web App, ActiveSync, POP, or IMAP clients. Outlook MAPI clients must use the Microsoft Exchange RPC Client Access service to access mailbox data; Outlook 2007/2010 use the Client Access server for Autodiscover as well as accessing free/busy information and downloading the offline address book.

Hub Transport servers

The Hub Transport role is the next logical role to install. Under the new Exchange 2010 architecture, Mailbox servers are no longer responsible for transporting messages directly. This task is now handled by the Hub Transport role. Likewise, all SMTP traffic with other routing groups and external systems is routed through Hub Transport instances. Even if you installed Exchange 2010 Mailbox servers first, they would literally be unable to communicate with any other Exchange servers until an Exchange 2010 Hub Transport instance is installed in the same site. If multiple Hub Transport instances are available in the same site, Exchange 2010 will automatically load-balance SMTP traffic across the available instances.

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When you are planning the number of Hub Transport instances you need, remember that you must have at least one Hub Transport instance in each Active Directory site where you will have an Exchange 2010 Mailbox server. As messages are routed to recipients in the organization, the Hub Transport instance that is processing the message looks up the mailbox data in Active Directory. If the mailbox is in the same site, the Hub Transport instance will directly pass the message along; if the recipient's mailbox is in a different site, the Hub Transport instance will transmit the message to an available Hub Transport instance in the recipient's Active Directory site. The Hub Transport role is mandatory in an Exchange 2010 organization.

Mailbox servers

After you have suitable Client Access and Hub Transport roles in a given site, you can start deploying the Mailbox role. Until you have mailboxes hosted on Exchange 2010, the advanced features of Exchange 2010, such as Unified Messaging, cannot be used.

When moving mailboxes to Exchange 2010 Mailbox servers, use ONLY the Exchange 2010 Exchange Management Console Mailbox Move Wizard or the Exchange Management Shell Move-Mailbox cmdlet. In particular, do not use the wizard in legacy versions of Exchange or you could break the mailboxes.

The Mailbox role is mandatory in an Exchange 2010 organization.

Edge Transport servers

The Edge Transport server role can be deployed once you have a Hub Transport instance in your organization. Since the Edge Subscription process is initiated and controlled by Hub Transport instances, the Edge Transport servers should not be part of the same Active Directory forest as the rest of the Exchange organization, because there are no requirements for site affinity. The Edge Transport role must be placed on its own physical server and cannot be co-located with any other roles.

The Edge Transport role is designed to be placed in perimeter networks with limited connectivity to the internal network. Although there are no requirements for where you place the Edge Transport server, for best performance it should be placed so that it has a low-latency, high-bandwidth connection to the Internet, as well as one or more Hub Transport instances, through the appropriate firewalls.

Unified messaging servers

This is probably the last role to deploy in your organization. It requires working Hub Transport and Mailbox instances in the organization. It also requires a Hub Transport instance to be placed in the same Active Directory site that the Unified Messaging server will be placed in. This Hub Transport instance will transmit messages created by the Unified Messaging server instance to recipient mailboxes in the organization. Depending on the number of recipients and the hardware configuration, you can combine the Unified Messaging role with any (or all) of the Client Access, Hub Transport or Mailbox roles on the same physical server.

The Unified Messaging role is, of course, optional. For your users to make use of the Unified Messaging functionality, you must have sufficient Enterprise Client Access Licenses (CALs) for those users.

Management consoles

As you install Exchange 2010 on your servers, you may or may not wish to install the sixth role — the management tools. You can instead place the management tools role on a separate server or workstation and use it as a management console. One slight road bump for the Exchange 2010 management tools is that 32-bit versions of these are not available. Therefore, users must either be running Windows Vista x64 or Windows 7 x64. The other option for remote administration is to install the tools on a terminal server and allow the administrators to perform management tasks via terminal server. You cannot install the legacy Exchange 2003 System Manager on an Exchange 2010 server. Legacy versions of Exchange are not supported on 64-bit Windows and the IIS SMTP component required by the legacy System Manager would conflict with the Exchange 2010 transport components.

So, under what conditions would you want to have the legacy System Manager Management console available for your users?

- You still have existing legacy Exchange servers during the duration of your transition.
- You have legacy Exchange servers with features that are not supported in Exchange 2010. As long as you use these features, you will need to keep the legacy System Manager.
- You have public folders in your organization. Though you can manage them using the Exchange Management Shell or the Public Folder Management Console, it is frankly easier to do it using the System Manager. If you have a large public folder infrastructure, we would say that keeping the System Manager is mandatory, unless of course, you do not value your sanity. Please note that Exchange 2010 does not support WebDAV so the Exchange System Manager must have an Exchange 2003 or Exchange 2007 public folder store to which it connects.

About the move mailbox feature

In legacy versions of Exchange, the creation of user accounts and provisioning of Exchange features all take place with extensions to the Active Directory Users and Computers MMC snap-in. In Exchange 2010, you can only use the management tools to provision existing users or create new mail-enabled objects. You may be tempted to continue using the Active Directory Users and Computers MMC snap-in to provision mailboxes and other recipients on your Exchange 2010 servers. However, these recipients are in mixed mode and cannot use most of the new Exchange 2010 features until you use the Exchange 2010 management tools to update them. When you move mailboxes to an Exchange 2010 Mailbox server using the Exchange 2010 Management Console's New Local Move Request Wizard or New-MoveRequest cmdlet, the user object is automatically upgraded

Coexistence

As you proceed with your Exchange 2010 upgrade, you will almost certainly have a period of time during which your Exchange 2010 servers will be required to coexist with legacy Exchange. During this time, there are several points you should consider.

- If you have multiple routing group connectors with legacy Exchange routing groups, especially so that there are multiple paths between a legacy Exchange routing group and the Exchange 2010 routing group, you must suppress the propagation of minor state version changes in link state. Link state is not used by Exchange 2010, but the presence of multiple paths can cause message routing loops in the legacy Exchange servers.
- Legacy Exchange servers use the X-EXCH50 SMTP extension to pass Exchange-specific properties with message data within the organization. Although Exchange 2010 no longer uses this connection, any routing group connectors created with legacy routing groups in the organization are automatically configured to support this extension. If you have a multiple-forest configuration where Exchange 2010 and legacy Exchange servers are communicating but in separate forests, you must enable this extension manually.
- The Edge Transport role can be used as a smart host for an Exchange 2003 organization without requiring the Active Directory preparation steps. However, because Edge Transport cannot synchronize with a legacy Exchange organization, you lose much of the advanced functionality that it offers.
- The Unified Messaging role cannot offer services for recipients whose mailboxes are on Exchange 2003 servers.
- Finding the tools necessary to perform the migration based on your needs
- Moving mail data between two systems
- Moving directory data between two systems
- Maintaining directory synchronization and messaging between two systems during some period of interoperability
- Ensuring that email flows correctly between the email systems during the transition
- Figuring out how and when to transition services such as public folders, MX records, mobile phones and web mail

Choosing the right tools

When you're planning a migration, it is important to pick the right tools to help you create accounts, move data, synchronize directories, create forwarders and perform other migration tasks. Naturally, the most powerful and flexible of these tools are all provided by third parties rather than by Microsoft. However, Microsoft does provide some basic tools that you can use to perform Exchange 2003 to Exchange Server 2010 migration.

New-MoveRequest cmdlet

The Exchange 2010 New-MoveRequest cmdlet has options that allow you to migrate mailbox data from a separate Exchange 2003, 2007, or 2010 organization, and it will even create a disabled account for you if one does not exist.

ExMerge and Import-Mailbox Cmdlet

If you have a small number of users (fewer than 50), you might opt to export all their mail out from their old mail server using a tool like ExMerge (or even Outlook, and then use the Exchange 2010 Import-Mailbox cmdlet to import mail data from these PST files into the user's new mailbox. This is a basic solution, but it saves you from having to get to know the New-MoveRequest cmdlet, and you still get to move your user's mail data. Keep in mind, though, that if you use this method you will lose things like folder rules and delegates that users have assigned to their folders.

Exchange 2003 Mail Migration Wizard

Exchange 2003 has an awesome migration utility called the Mail Migration Wizard that exports mail from Exchange 5.5, Exchange 2000, Exchange 2003, cc: Mail, Lotus Notes, and other mail systems. Exchange 2010 has no such tool, unfortunately. If you think you might need such functionality, you will need to install this tool on an Exchange 2003 server. If you are building a brand-new Exchange 2010 organization, you will need to install an Exchange 2003 server before you install your first Exchange 2010 server. Then you can migrate the mail temporarily to Exchange 2003 and move it on to Exchange 2010. This process may be more trouble than it is worth, and you may find it worthwhile to invest in a third-party migration tool.

Third-Party tools

If you have more than a few hundred users, a lot of public folder data, very large mailboxes or if you will need to maintain some level of interoperability between your old Exchange 2003 or Exchange 2007 system and your new Exchange 2010 system for a long period of time (longer than a few weeks), you should consider a third-party tool. These are often a tough sell after an organization has invested a lot of money in a new mail system, but they can make your migration much easier and allow for better, long-term interoperability.

Maintaining interoperability

During either a true migration or a transition migration from one messaging system to another, the period of interoperability is always one of the biggest headaches. One of the first factors we always want to take into consideration when faced with an InterOrganization

About the Author



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10 years of IT experience, including 4 years of experience in Active Directory, 2.5 years in Exchange, Lync 2013 and Hyper V. He has worked in different roles such as System Analyst, Senior System Analyst, Team Lead and now as a Tech Lead. Past key projects that he worked includes, Exchange migrations, Designing and deploying Lync 2013 and Server Virtualization using Hyper V. He is certified MCITP Enterprise Admin (Windows Server) and certified Citrix Xen Mobile Admin.

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