

Making a smooth transition to Exchange Server 2016

Exchange Server 2016
migration guide

June 2016
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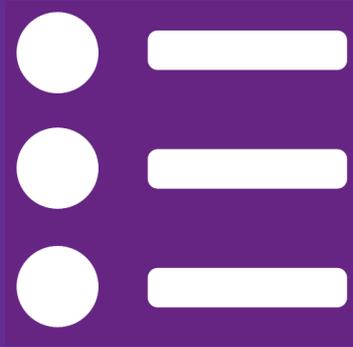


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Abstract

As [announced on Microsoft's Exchange Team Blog](#), the extended support phase for Exchange Server 2007 ends April 10, 2017. Since Microsoft will stop supporting Exchange Server 2007 soon, its users are bound to face the same question companies running Exchange 2003 and older have been asking for several years now: Migrate to a new email platform this year, or wait and hope for the best?

Doing nothing and keeping an old email server, despite the fact that it is no longer supported by the manufacturer, can be risky. On the other hand, the migration from a legacy Exchange Server directly to Exchange 2016 is a complex and time-consuming project that requires a lot of research.



The main purpose of this paper is to give you a wider overview of things that need to be taken into consideration when moving to Exchange 2016. We did our best to include as much information as possible that could help gain a better understanding of what complications may await you and what should be done to avoid them. We have also described one of the ways of migrating from an older editions of Exchange to Exchange 2016 that includes using our migration tool, CodeTwo Exchange Migration. Following this path will help you avoid one of the biggest problems related to migrating to Exchange 2016 – the need for a “double-hop” migration.

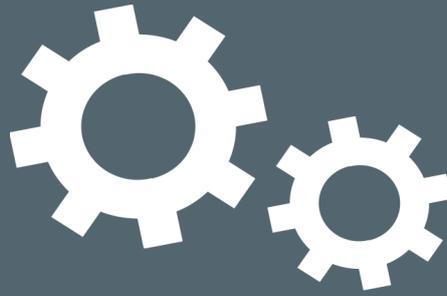


About CodeTwo



CodeTwo is a Microsoft Partner (Gold Application Development competency) and small and midmarket cloud solutions provider for IT professionals dealing with Exchange Server, Office 365 and Outlook. CodeTwo products streamline email management in areas such as: content and flow control, email signature administration, Exchange folder syncing, mailbox migrations and mailbox backups. In 2013 CodeTwo launched two migration tools for Exchange Server and Office 365, which have been acclaimed by such portals as MSEExchange.org and InfoWorld, and recommended by some of most recognized IT experts from all over the world.





Exchange 2016 - system and hardware requirements

Regardless if you are migrating from an older version of Exchange or performing a completely fresh installation of Exchange 2016, your environment has to meet the following software and hardware requirements:

Exchange 2016 network and software requirements

Domain controllers (one of the below):

- Windows Server 2012 R2 Standard or Datacenter
- Windows Server 2012 Standard or Datacenter
- Windows Server 2008 R2 Standard or Enterprise
- Windows Server 2008 R2 Datacenter RTM or later
- Windows Server 2008 Standard, Enterprise, or Datacenter

Active Directory forest functionality level:

- Windows Server 2008 or higher

DNS namespace:

- Contiguous
- Noncontiguous
- Single label domains
- Disjoint

[More information](#)

IPv6:

- Supported only if IPv4 is also installed and enabled

Operating system:

- Windows Server 2012 R2 Standard or Datacenter
- Windows Server 2012 Standard or Datacenter

Exchange 2016 Management tools (Exchange admin center and Exchange Management Shell) can be additionally used on 64-bit editions of Windows 10 and 8.1

NOTE: Exchange 2016 requires Windows Management Framework 4.0

.NET Framework:

- 4.5.2

IMPORTANT (updated 2016-06-06): Exchange 2016 **does not support** .NET Framework 4.6 or later. [Learn more...](#)

Outlook versions:

- Outlook 2016
- Outlook 2013
- Outlook 2010 with [KB2965295](#)
- Outlook for Mac for Office 365
- Outlook for Mac 2011

Exchange 2016 minimum hardware requirements

Processor:

- x64 architecture-based computer with Intel processor that supports Intel 64 architecture (formerly known as Intel EM64T)
- AMD processor that supports the AMD64 platform
- Intel Itanium IA64 processors not supported

Memory:

- Mailbox role: 8GB
- Edge Transport role: 4GB

Paging file size:

- The page file size minimum and maximum must be set to physical RAM plus 10MB, to a maximum size of 32778MB if you're using more than 32GB of RAM.

Disk space:

- At least 30 GB on the drive on which you install Exchange
- An additional 500 MB of available disk space for each Unified Messaging (UM) language pack that you plan to install
- 200 MB of available disk space on the system drive
- A hard disk that stores the message queue database on with at least 500 MB of free space.

Drive:

- DVD-ROM drive, local or network accessible

Screen resolution:

- 1024 x 768 pixels or higher

File format:

Disk partitions formatted as NTFS file systems, which applies to the following partitions:

- System partition
- Partitions that store Exchange binary files or files generated by Exchange diagnostic logging

Disk partitions containing the following types of files can be formatted as ReFS:

- Partitions containing transaction log files
- Partitions containing database files
- Partitions containing content indexing files



Tools in spotlight

- [Microsoft Exchange Server Deployment Assistant](#)
- [Exchange Server Role Requirements Calculator](#)
- [Microsoft Exchange Server Jetstress Tool](#)
- [Microsoft Assessment and Planning Toolkit](#)



Migration to Exchange 2016 - step by step walkthrough

Since Microsoft doesn't support the co-existence of Exchange 2003 or 2007 and Exchange 2016, mailbox migrations from these editions to the latest iteration of Exchange are quite complicated. It doesn't mean, however, that the administrator can't do something to make it more seamless and less time-consuming. There are basically two options that are possible in this scenario:

- Carrying out the [double hop migration](#), with Exchange 2010/2013 pre-installed first
- Moving users' mailboxes between forests (cross-forest migration) with a 3rd party migration tool

Because the first option requires additional work and resources, we are going to focus on the second scenario, which makes it far easier.

The 3rd party tool used in our example will be [CodeTwo Exchange Migration](#).



CodeTwo Exchange Migration



The program is designed to enable easy inter- and cross-forest migrations of Exchange Server mailboxes. It copies all mailbox data between Exchange Server installations using EWS (Exchange Web Services). Owing to its graphical user's interface, no PowerShell commands need to be executed during the migration.

CodeTwo Exchange Migration also comes with additional tools, such as the mailbox Automatch feature, migration Scheduler, mailbox data filters and EX-to-SMTP email address converter, that make the entire migration process even more seamless.

More information, together with full pricing details can be found on the program's official website: www.codetwo.com/exchange-migration/

I Pre-migration activities

Before you install and configure CodeTwo Exchange Migration make sure that your environment (both [Source](#) and [Target](#) server) is prepared for migration.

Below you will find the list of key points to be considered:

STEP 1 Prepare a clean target Exchange environment in a new Active Directory forest

The following points need to be revised:

- Accepted Domains
- Send/receive Connectors
- Servers' Certificates
- Default Email Address Policy
- Internal/External URL's

[Learn more](#)

STEP 2 (Optional) Enable a two-way trust relationship between the forests

Learn more about creating a forest trust on [Windows Server 2003](#) and on [Windows Server 2008](#)

This step is not necessary but recommended. Trust setup process will most likely reveal any issues you would otherwise find only during the actual migration and of course, it is better to address those before starting the migration. Secondly, setting up a trust makes it easier to configure CodeTwo software (see II Migration Process, step 2).

* Please note that setting the trust relationship doesn't apply to SBS based environments.

STEP 3 Configure mailflow between the source and the target server

- Configure SMTP Connector on [Exchange 2003](#) or [Exchange 2007](#)
- Configure Send and Receive Connectors on Exchange 2016 (default Receive Connector is typically created during Exchange Server installation process).

STEP 4 Prepare domain accounts on the Target server

- Migrate domain accounts between the Active Directory forests. You may do it automatically using [Active Directory Migration Tool](#) (ADMT) or create the accounts manually in the target forest. If you choose the manual approach please bear in mind that the accounts' data like permissions' resources will not be migrated.
- Create mailboxes in the target environment, either manually or [using Prepare-MoveRequest.ps1 script](#).

Important: Please be aware that for each user included in the migration, you must have mailbox-enabled user ready in the target environment prior to migration.

STEP 5

Make sure that the Target server's Administrator belongs to the appropriate AD group, has permissions on users mailboxes and has his mailbox correctly configured.

1. Check if the Administrator belongs to the **Organization Management** group:
 - Open the Exchange Management Shell on the target server and enter **Import-Module ActiveDirectory** script
 - Then execute **Get-ADPrincipalGroupMembership**
2. Check the Administrator's impersonation rights on users mailboxes
[Learn more on how to configure the impersonation rights](#)
3. Check that the Administrator's mailbox is configured and activated

STEP 6

Verify permissions of the software user and target server admin's account.

Make sure that the Administrator, who runs the migration, has appropriate permissions on the Source server. Furthermore, make sure that the Target Server Admin, whose credentials are used, has proper access rights to the Target server's EWS service and that his mailbox is not hidden from the Exchange address lists.

Verify the following:

1. Domain Admins membership
2. Organization management membership of the target server Administrator
3. Access to the Target server's EWS service using IP or a Domain Name, e.g. **https://[Exchange_IP]/EWS/Exchange.asmx** or **https://[Exchange_Name]/EWS/Exchange.asmx**
4. If a Client connects to EWS from the outside of the local network he needs to have the external EWS URL correctly configured:
 - Open Exchange Management Shell on the target server and check if the ExternalUrl is defined: **Get-WebServicesVirtualDirectory | fl**
 - If there's no address in the ExternalUrl line it needs to be defined. Execute the following script: **Get-WebServicesVirtualDirectory | Set-WebServicesVirtualDirectory -ExternalUrl https://[Target server's internet name]/EWS/Exchange.asmx**

STEP 7

Adjust the EWS Throttling settings and change the maximum size limit of sent mail to decrease the time of migration processing

1. To speed up the migration process, change Throttling settings on target Exchange by following these steps:
 - Open the Exchange Management Shell (EMS) on the target server.
 - Execute the following cmdlet to check your current throttling policies: **Get-ThrottlingPolicy | fl**
 - Create a new throttling policy: **New-ThrottlingPolicy CodeTwoPolicy**
 - Reconfigure the new policy settings the way it does not limit the migration:

Set-ThrottlingPolicy CodeTwoPolicy -RCAMaxConcurrency Unlimited -EWSMaxConcurrency Unlimited -EWSMaxSubscriptions Unlimited -CPAMaxConcurrency Unlimited -EwsCutoffBalance Unlimited -EwsMaxBurst Unlimited -EwsRechargeRate Unlimited

Read more about changing throttling policies in [Exchange 2016](#) on Technet.

- Change the **<mailbox name>** to the one used by CodeTwo software and execute the cmdlet to assign the newly created policy to it:
Set-Mailbox "<mailbox name>" -ThrottlingPolicy CodeTwoPolicy

However, if any software still reports errors related to inaccessibility of the Exchange, you may consider assigning the policy for all mailboxes in your organization

Set-ThrottlingPolicy "CodeTwoPolicy" -ThrottlingPolicyScope Organization

Throttling policies changes are applied immediately.

2. To allow migration of big items, change message size limits on target Exchange by following these steps:

Be aware that here mentioned settings are applied globally - it is not possible to limit them to particular mailboxes or group of users.

Applying the changes might affect some of your services that also rely on them, for example, EWS-based email clients can stop working. Consider those changes as temporary ones that you will revert at the end. We therefore, recommend to backup any files you are about to modify prior to actually changing them.

In the instructions below we have used a value of 100MB (102400 in KB and 104857600 in Bytes) as an example. You can modify them to suit your needs

- Log on to your target MS Exchange Server CAS role machine.
- Go to your EWS settings file path:
%PROGRAMFILES%\Microsoft\Exchange Server\<version-number>\ClientAccess\exchweb\ews
- Open the file **Web.config** with notepad or other text editor.
- Locate all **maxReceivedMessageSize** occurrences in the file and change their values to **104857600**. Be aware that you must not change the default values of **maxReceivedMessageSize** for **UM LegacyMessageEncoderSoap11Element** bindings, as per MS instructions [linked here](#).
- Locate section **<system.webserver>** and in subsection **<security>** you will find the below key which **<value>** must be set to **104857600**:
<requestLimits maxAllowedContentLength="<value>" />
- Save and close the file.
- Open the Exchange Management Shell (EMS).
- To change the maximum received message size in Transport Service execute the following PowerShell Cmdlet in the EMS:
Set-TransportConfig -MaxReceiveSize 100MB
- Restart the machine and you are good to go

Aside from the above we also recommend to modify your send and receive connectors maximum message size settings and maximum send size setting in Transport Service to avoid situation in which

users have their big emails in mailboxes but cannot forward them to anyone. To change these settings use the Exchange Management Shell (EMS):

- Check your connectors names and current settings:
Get-SendConnector | Format-List -Property Identity, MaxMessageSize
Get-ReceiveConnector | Format-List -Property Identity, MaxMessageSize
- Set the limits to suit your needs:
Set-TransportConfig -MaxSendSize 100MB
Set-SendConnector -Identity "<Your Send Connector Name>" -MaxMessageSize 100MB
Set-ReceiveConnector -Identity "<Your Receive Connector Name>" -MaxMessageSize 100MB

STEP 8

Installation of components required to install CodeTwo Exchange Migration on the Source server (the installation wizard will guide you through this process)

1. WIC (Windows Imaging Component, required on Windows XP and Windows Server 2003)
 - [Windows Server 2003 \(x86\)](#)
 - [Windows Server 2003 \(x64\)](#)
2. [MAPI CDO](#) (MAPI Client and Collaboration Data Objects, required on any system except for Windows Server 2003 and other systems with coexisting MS Outlook x86 older than version 2016)
3. .NET 4.0 (required on any system, might be already installed)
[Learn more](#)
4. .NET 2.0 SP1 (required on Windows XP and Windows Server 2003)
[Learn more](#)
5. WIC (Windows Imaging Component, required on Windows XP and Windows Server 2003)
 - [Download Windows Management Framework Core](#) (WinRM 2.0 and Windows PowerShell 2.0) for Windows XP and Vista, Windows Server 2003 and 2008
 - Newer Windows releases (Windows 7 or higher, Windows Server 2008 R2 or higher) already have PowerShell 2.0 (or higher) built-in.
 - Small Business Server 2008 (SBS2008) users might stumble upon a problem with installing PowerShell. See our [Knowledge Base article on that](#).

STEP 9

Installation and activation of CodeTwo Exchange Migration

The program needs to be installed and activated on a machine within the Source server domain.

- Please note that it is recommended to install the migration tool directly on the Source server.
- Make sure you meet the [system requirements](#) prior to [installing](#) the software.

Migration process

The steps below will guide through the correct configuration of CodeTwo Exchange Migration:

STEP 1

Connect to the Source server

Once the program's installation is completed, you will see the **Dashboard view**. Click **Create a new migration job** link on **How to start** tile. You will encounter a wizard which allows you to configure connection to your [On-premises Exchange Server](#), which will be used as the source of the migration. You need to go through those steps:

- **Service account** - in this step, the program creates a service responsible for accessing mailboxes selected for migration. As the service works under the Administrator's MAPI profile, enter the Administrator's email address and password. Note that this user needs to belong to Domain Admins group. By default, the currently logged Administrator's email address is filled automatically. However, you can change it by clicking Browse and selecting another user's email address from the picker.
- **Connection method** - there you can allow the program to automatically recognize the Exchange Server located within your network or select it manually from the picker.
- **Configuration** - this step configures your source server connection based on the entered settings.

If all data has been correctly entered, the Source server mailboxes should be listed later

[Learn more about troubleshooting the Source server connection settings](#)

STEP 2

Continue the job configuration to set the Target connection

After successfully configuring the Source connection, **Create migration job wizard** will open. Set the name of the job and hit Next to define the [Target server](#) connection on the very next step:

- From the **Target server** combo box select **Add new target connection...** and wait until next wizard opens.
- On the step **Server connection** choose either **Autodiscover Exchange Server** (default option) to automatically find the proper Target server or configure the connection manually.
- **Admin's credentials** - specify the UPN of the Target server Administrator and its password. If you opted to configure a trust relationship between forests (see I Pre-migration activities, Step 2) you can click the **Browse** button to user AD user picker. Next, enter the Admin's credentials and move on to **Configuration**.

[UPN](#) (User Principal Name) is an internal account name of a user in an email address format.

- **Configuration** - this process configures the target server connection based on the entered settings.
 - a) Once the configuration is completed there should be no errors under the three following points. However, if any errors appear please consult the [Learn more](#) sections describing the most common configuration mistakes.
 - b) Now is the time to test the Administrator's impersonation rights on the chosen Target mailbox. Under the **Test** button provide the Active Directory user's e-mail address and hit **Test**. If your rights have been successfully granted, you will be notified about that.

STEP 3

Define which mailboxes should be migrated and bind them with the Target mailboxes

The **Mailboxes** step allows you to include or exclude mailboxes using multiple filters. You may, for example, include all users' mailboxes from a particular Organizational Unit or Active Directory group. By default program includes All users along with the Public Folders as it is a most common scenario. Choose the mailboxes you want to migrate and proceed to the next step.

Matching the Source with the Target mailbox can be done in two ways: automatically via the built-in [Automatch](#) feature or manually.

1. **Automatch** - this mechanism automatically matches the Source mailboxes with the corresponding target mailboxes based on users' first and last names.
 - While configuring the job for the first time, the **Automatch all mailboxes in this job** is the only option available. If you need to Automatch only particular ones, complete the wizard, select desired mailboxes and click **Automatch** on the ribbon.
 - When you have selected all options, click **Automatch now**. The progress and the report will be visible in the bottom part of the window.
 - In case the results do not meet your requirements, you can click **Undo**, change the settings and repeat the procedure.

If there are any Target mailboxes that have not been matched automatically, you need to link them manually. Otherwise, they will not be migrated.

2. **Manual matching**

- If you chose this option, skip to Step 4 to complete the wizard and then come back here.
- On the Mailboxes list, hit **Click to match target** button for a desired mailbox. Then, either select the appropriate target mailbox from the list or type in the SMTP address.
- Click **OK** to confirm your decision. You must repeat the procedure for unmatched mailboxes.

If the Target server mailboxes are not listed please ensure that the connection has been established using the FQDN name, and the trust relationship is configured correctly. For further information, please consult [this article](#).

STEP 4 Customize all necessary aspects of the migration job

You may configure the following additional options:

- **Scheduler** - allows you to set the job to be automatically started in desired period of times, so you do not have to control it manually.
- **Time filter** - is used to exclude items that are older or newer than a particular date.
- **Folder filter** - may completely exclude specific folders from the migration process
- **Address rewrite** - enables automatic conversion of EX addresses to the SMTP equivalents. This option needs to be enabled if you are performing cross-domain migration; otherwise you will not be able to reply to messages containing EX addresses.
- **Concurrency** - provides an option to define how many mailboxes should be migrated at same time. This number should correspond to the [number of logical processors](#).

STEP 5 Start the migration

Simply click **Start** on the ribbon to begin the migration.

The migration processing time depends on several different factors, e.g. the number of mailboxes and items, the speed of internet connection, EWS Throttling settings. We have published more details [here](#).

STEP 6 Check if the number of migrated items in the Target mailboxes matches the Source server mailboxes

If you notice any missing items in the Target mailbox restart the migration using the [Rescan](#) feature.

Important: Please be aware that the program does not migrate some specific folders at all. Those are i.e. Sync Issues or ones created while putting a mailbox on a litigation hold.

If any problems appear during the migration process they will be indicated on the dashboard, pointed on the reports and logged in the log files. Check out the software's [diagnostics](#).

STEP 7 Check if there are any new items in the Source mailbox after migration

Once the migration is finished and you have noticed that some new items appeared in the migrated Source mailbox, just restart the migration using the [Rescan](#) feature. Please keep in mind that the Rescan feature uploads only new items, not changed ones.



Post-migration cleanup

Once the migration is completed please follow the points below:



STEP 1

MX records

Change MX records with your domain registrar to enable mail flow to new servers instead of the old ones. Please note that this process may take several hours.

If any new items appear in a source mailbox while the MX records are being changed, it is possible to migrate them after the records' migration process is completed. It can be done using [Rescan](#) feature.



STEP 2

The previous domain

Disconnect the previous domain and Exchange Servers.

If you have any problems with disconnecting your domain please consult your Domain Provider.



Troubleshooting:

- ✓ For troubleshooting information, refer to our [Knowledge Base](#).
- ✓ For additional resources, refer to [Frequently Asked Questions](#) or [contact us](#).

Still have questions? Please contact us:

CodeTwo experts will help you solve technical problems with CodeTwo Exchange Migration for free.

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Exchange 2016 migration checklist

Use the checklist below to carry out a cross-forest migration from Exchange 2007 (or 2003) to Exchange 2016, using a 3rd party migration tool, such as CodeTwo Exchange Migration.

Step	Activity	Check?
Pre-migration activities		
1	Prepare a clean Exchange 2016 environment in a new Active Directory forest	
2	Enable the two-way trust relationship between the forests	
3	Configure mail flow between the Source and the Target server	
4	Prepare domain accounts on the Target Server	
5	Configure the Administrator's account on the target server (group membership, admin's permissions, enabled mailbox)	
6	Make sure that the Target server's Administrator belongs to the appropriate AD group, has permissions on users mailboxes and has his mailbox correctly configured	
7	Verify permissions of the software user and target server admin's account	
8	Adjust the EWS Throttling settings and change the maximum size limit of sent mail to decrease the time of migration processing	
9	Install components required to install CodeTwo Exchange Migration on the Source server (the installation wizard will guide you through this process)	
10	Install and activate CodeTwo Exchange Migration	
Migration process		
1	Connect to the Source server	
2	Connect to the Target server	
3	Define which mailboxes should be migrated and bind them with the Target mailboxes	
4	Customize all necessary aspects of the migration job	
5	Start migration	
6	Check if the number of migrated items in the Target mailboxes matches the Source server mailboxes	
7	Check if there are any new items in the Source mailbox after migration	
Post-migration cleanup		
1	Change MX records to enable mail flow to new servers.	
2	Disconnect the previous domain and Exchange Servers.	