



# Upgrade/Migrate To Exchange 2016

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# Introduction

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# Agenda

- ▶ Overview
- ▶ On Premise VS Cloud
- ▶ What's New for Exchange 2010
- ▶ What's New for Exchange 2013
- ▶ Exchange 2016 Features
- ▶ Upgrade to Exchange 2016
- ▶ Migration to Exchange 2016
- ▶ Removal of Legacy
- ▶ Summary

# Cloud VS Exchange

## Cloud

- No Exchange server
- Access from anywhere in the world
- No Outage but possible
- No Updates
- No Spam
- 24/7 support
- Free support tickets
- Data in Microsoft's hand
- Same platform for all

## On Premise

- Datacenter
- Outage worries
- Updates planning
- Spamming
- Cost on Microsoft licenses, training and support
- Data Protection
- Outage in your hand
- Data in your hand

# What's New Compare to Exchange 2010

<http://msexchangeeguru.com/2015/09/30/e2016-new-features-to-e2010/>

- 3 Datacenter DAG
- Auto Reseed
- New CAS and Transport Architecture
- Managed Availability and DLP
- Enhancement in In-place Archiving, retention and eDiscovery

# Comparison

## Exchange 2010

- EMC
- MBX+CAS+HT Role required
- RPC over HTTP
- Litigation Hold
- PF Database
- Manual Disaster Recovery to 2<sup>nd</sup> AD Site

## Exchange 2016

- EAC
- Only MBX Role required
- MAPI over HTTP and RPC over HTTP
- Document Collaboration and Site Mailbox
- SafetyNet
- AutoReseed
- 3 DC expanded Auto DAG
- Improved Litigation Hold + DLP
- PF Mailbox
- Managed Availability
- New Audit Mailbox

# What's New Compare to Exchange 2013

<http://msexchangeeguru.com/2015/09/27/e2016-new-features-to-e2013/>

- MAPI over HTTP – Default Protocol
- Document Collaboration
- Windows Server 2016 supported
- Support for Modern Authentication for Outlook
- Enhancement in In-place Archiving, retention and eDiscovery
- Outlook on the Web
- Office Online Server

# Exchange 2016 CU3 Features

- .Net Framework 4.6.2 will be supported – Only Windows 2016
- Read from Passive
- Windows Server 2016 Supported but not supported
- ISO mounted on localized versions of the operating system
- Server-wide off-line monitoring states has changed from pre-requisite analysis and pre-requisite installation to new Exchange binaries installation.
- <http://msexchange guru.com/2015/12/26/exchange-update-deployment-process/>
- Includes Latest Time zone support and security updates
- Updated view of Contact information & Skype for Business presence information



# Upgrade to Exchange 2016



Simply Run the setup, Select Upgrade and done  
-Customer Expectation

- There is nothing called upgrade from Exchange 2013 to 2016.
- It is always going to be migration.

# Migration to Exchange 2016

- **Discovery**
- **Remediation**
- **Design**
- **Deploy**
- **Mailbox Migration**
- **Public Folders Migration**
- **Remove Legacy**

# Coexistence

## Exchange 2010

- All Exchange 2010 role servers including Edge Transport should be SP3 RU11 or above.

## Exchange 2013

- All Exchange 2013 role servers including Edge Transport should be CU10 or above.

## Exchange 2007

- No Exchange 2007 should be there in the environment.

# Active Directory Prerequisite

- **Forest Functional Level should be windows 2008 or above**
- **Domain Functional Level should be windows 2008 or above**
- **All domain controllers should be windows 2008 or above**
- **All Active Directory Site should have at least one Windows 2008 Domain Controller with Global Catalog.**
- **64 bit Domain controller are recommended.**
- **Windows 2003 Domain Controller should be removed**

# Operating System and Resources

## Operation System

- Windows 2012 Standard or above
- For IP Less DAG, windows 2012 Standard R2 or above.
- IPv6 should be enabled with IPv4.

**Paging File: Physical RAM +10 MB. Maximum size of 32778MB**

## Memory:

- **Mailbox Role: Min 8GB and Max 96GB**
- **Edge Transport Role: Minimum 4GB and Max 96 GB**

## Processor:

- **x64 architecture-based computer with Intel processor.**
- **AMD processor that supports the AMD64 platform is supported**
- **Intel Itanium IA64 processors are not supported**

# Storage and Disk

## Disk Format:

- 64K cluster block size.
- System and Exchange Binary partition should be NTFS. Raid 1 is recommended.
- Database, Logs and content indexing partition should be ReFS.

## Storage:

Recommended a Jbod setup with AutoReseed in case of 2 or more mailbox servers.

# Supported Clients

- Outlook 2016
- Outlook 2013 SP1 or later with KB3020812
- Outlook 2010 SP2 with KB2956191 and KB2965295
- Outlook for Mac for Office 365
- Outlook for Mac 2011 or later
- MAPI/CDO clients are not supported
- Outlook 2007 is not supported
- Outlook for MAC 2008 EWS version is not supported

# Migration Remediation

- **Clients: Enabling Mapi over Http**
- **Load Balancer – If you were using windows NLB in Exchange 2013 CAS servers then Time to buy load balancer as there is no CAS role and NLB with Cluster does not work. We need cluster for DAG**
- **Current Exchange version update**
- **Update Active Directory**
- **Remove Windows 2003 DC**
- **Remove Exchange 2007 Servers**
- **Fix any other AD or Exchange issue.**



# Planning and Design

- Exchange Calculator input calculation
- Exchange Calculator 8.3 for CU3
- Storage Design
- AutoReseed Decision
- Jetstress
- Loadgen
- Wan Simulator - <http://wanem.sourceforge.net/>
- Bandwidth Calculation
- Exchange DAG design
- Do you need Office Online Server?
- Naming convention, Authentication
- CAS Bounded and Unbounded Namespace
- SSL Certificate and URLs – Keep separate Outlook anywhere url than 2010 CAS Array
- Design Database Preferences
- Port opening 443 for CAS
- Change management approval

# Prepare Active Directory

- Stop replication on the Schema Master

```
repadmin /options SchemaMasterDCName +DISABLE_OUTBOUND_REPL  
repadmin /options SchemaMasterDCName +DISABLE_INBOUND_REPL
```

- Prepare Active Directory Schema by running the following command

```
.\setup.exe /Prepareschema /IacceptExchangeServerLicenseTerms
```

- Start AD Replication on the Schema Master

```
repadmin /options SchemaMasterDCName -DISABLE_OUTBOUND_REPL  
repadmin /options SchemaMasterDCName -DISABLE_INBOUND_REPL
```

- Prepare Active Directory by running the following command

```
.\setup.exe /PrepareAD /IAcceptExchangeServerLicenseTerms /OrganizationName:orgname
```

- Prepare Active Directory Domain by running the following command

```
.\setup.exe /PrepareAllDomains /IAcceptExchangeServerLicenseTerms
```

# Deployment Prerequisite

- .Net Framework 4.5.2
- Management tools just need .Net Framework 4.5.2
- Microsoft Unified Communications Managed API 4.0 core Runtime 64bit
- Visual C++ Redistributable for Visual Studio 2015 – Only for Office Online Server
- Role and Feature

Exchange Server - Install-WindowsFeature AS-HTTP-Activation, Desktop-Experience, NET-Framework-45-Features, RPC-over-HTTP-proxy, RSAT-Clustering, RSAT-Clustering-CmdInterface, RSAT-Clustering-Mgmt, RSAT-Clustering-PowerShell, Web-Mgmt-Console, WAS-Process-Model, Web-Asp-Net45, Web-Basic-Auth, Web-Client-Auth, Web-Digest-Auth, Web-Dir-Browsing, Web-Dyn-Compression, Web-Http-Errors, Web-Http-Logging, Web-Http-Redirect, Web-Http-Tracing, Web-ISAPI-Ext, Web-ISAPI-Filter, Web-Lgcy-Mgmt-Console, Web-Metabase, Web-Mgmt-Console, Web-Mgmt-Service, Web-Net-Ext45, Web-Request-Monitor, Web-Server, Web-Stat-Compression, Web-Static-Content, Web-Windows-Auth, Web-WMI, Windows-Identity-Foundation

Office Online Server – Install-WindowsFeature Web-Server, Web-Mgmt-Tools, Web-Mgmt-Console, Web-WebServer, Web-Common-Http, Web-Default-Doc, Web-Static-Content, Web-Performance, Web-Stat-Compression, Web-Dyn-Compression, Web-Security, Web-Filtering, Web-Windows-Auth, Web-App-Dev, Web-Net-Ext45, Web-Asp-Net45, Web-ISAPI-Ext, Web-ISAPI-Filter, Web-Includes, InkandHandwritingServices, Windows-Identity-Foundation

# Deployment

- **Block .net 4.6.1 – Not required with CU3**
- **Configure Load Balancer**
- **Windows Update**
- **Install Exchange Server one by one**
- **Install Office Online Server – if required**
- **Install Certificate**
- **Configure DAG – if possible expand it to 3 datacenters with databases in 2 and 1 FSW**
- **Create databases**
- **Create Exchange 2016 Admin mailbox**
- **Configure Mapi over Http and outlook anywhere**
- **Configure IIS Redirection for HTTP to HTTPS**
- **For Exchange 2010 migration**
  - **New Offline Address Book**
  - **New Address Lists**
- **Configure Databases**
- **Configure URLs Except ActiveSync**
- **Configure SCP - AutoDiscoverServiceInternalURI**
- **Configure Backup**
- **Configure Anti-Virus Exclusions**
- **Configure Receive connector**
- **Move Transport Logs Folder**
- **Configure Office Online Server endpoint mailbox server or Org level –Org level should not be configure if E2013 is present**

# Pre Cut-Over Testing

- **Update host file to point your urls to the Exchange Server or the load balancer**
- **Ensure outlook versions are supporting “Mapi over Http” protocol**
- **Do the test mailbox migration of test users. Fix any issue.**
- **Test OWA and Outlook.**
- **Test the mailbox access, calendar, permissions and Public Folders**
- **Test OAB, GAL, Mail flow, Calendar Sharing**
- **Fix any issue**

# Cut-Over

## ➤ For Exchange 2010 only

- Update Email Address Policy
- Update Recipients
- Update ActiveSync Authentication

**BasicAuthEnabled \$False**

**WindowsAuthEnabled \$true**

## ➤ Update ActiveSync Authentication on Ex2016

**BasicAuthEnabled \$true**

**WindowsAuthEnabled \$true**

## ➤ Update ActiveSync URL

## ➤ Change the servers in the Send Connector

## ➤ Enable Outlook Anywhere in Exchange 2010

## ➤ Change Autodiscover and all url pointers to Exchange 2016 or Load Balancer (Mostly change the NAT on your firewall)

## ➤ Change Spam Guard to forward and receive emails from Exchange 2016

# Mailbox Migration

## Collect the attributes of all users

```
Get-mailbox -resultsize unlimited | Get-mailboxstatistics | select displayname,totalitemsize,totaldeleteditemsize | export-csv c:\temp\mailboxes.csv
```

- Also AD attribute

```
"mail","HomeMDB","mDBStorageQuota","mDBOverQuotaLimit","mDBOverHardQuotaLimit","publicDelegates","publicDelegatesBL","mailnickname","Targetaddress","ProxyAddresses","mDBUseDefaults"
```

- Move all room, user, arbitration and discovery Search mailboxes to Exchange 2016.

## Migration of mailboxes

- Simple command for one mailbox

- New-MoveRequest -id name -TargetDatabase Exchange 2016 Database Name

- Prepare all email address of the day in one csv file then run the below command. This will stop at 95%.

```
Get-Content c:\temp\Mig\filename.csv | New-MoveRequest -TargetDatabase "databasename" -SuspendWhenReadyToComplete
```

- Inform the user and complete the move

```
Get-MoveRequest | Resume-MoveRequest
```

- Update Address book policy with the Exchange 2016 Offline Address book.

## Recycle the following App pools

1. MExchangeAutodiscoverAppPool

2. MExchangeOWAAppPool

# Public Folders Migration – Only E2010

## Steps on Exchange 2010

### 1. Snapshot of the current Public Folders

- `Get-PublicFolder -Recurse | Export-CSV C:\PFMigration\Ex2010_PFStructure.csv`
- `Get-PublicFolder -Recurse | Get-PublicFolderStatistics | Export-CSV C:\PFMigration\Ex2010_PFStatistics.csv`
- `Get-PublicFolder -GetChildren | Get-PublicFolderClientPermission | Select-Object Identity,User -ExpandProperty AccessRights | Export-CSV C:\PFMigration\Ex2010_PFPerms.csv`

### 2. Preparation on Legacy Exchange server

- `Set-OrganizationConfig -PublicFoldersLockedForMigration:$false -PublicFolderMigrationComplete:$false`

### 4. Export public folder hierarchy from source into CSV file on Legacy Exchange

- `.\Export-PublicFolderStatistics.ps1 \\servername\path\filename.csv`
- `.\PublicFolderToMailboxMapGenerator.ps1 MailboxSize ImportFilePath ExportFilePath`

### 7. Lock Legacy Exchange for final migration

- `Set-OrganizationConfig -PublicFoldersLockedForMigration:$true`

## Steps on Exchange 2016

### 3. Preparation on Exchange 2013 server: Delete any existing PF

- `Get-PublicFolderMigrationRequest | Remove-PublicFolderMigrationRequest -Confirm:$false`
- `Get-MailPublicFolder | where $_.EntryId -ne $null | Disable-MailPublicFolder -Confirm:$false`
- `Get-PublicFolder -GetChildren \ | Remove-PublicFolder -Recurse -Confirm:$false`
- `Get-Mailbox -PublicFolder | Remove-Mailbox -PublicFolder -Confirm:$false`

### 5. Create public folder mailboxes in Exchange 2013

- `New-Mailbox -PublicFolder MailboxName -HoldForMigration:$true -Database "2013DBName"`  
Create all as mentioned in the Mapgen file

### 6. Migration Request creation

- `"New-PublicFolderMigrationRequest -SourceDatabase (Get-PublicFolderDatabase -Server <Source server name>) -CSVData (Get-Content <Folder to mailbox map path> -Encoding Byte)"`

### 8. Complete the suspended migration by running below 2 cmdlet:

- `Set-PublicFolderMigrationRequest -Identity \PublicFolderMigration -PreventCompletion:$false`
- `Resume-PublicFolderMigrationRequest -Identity \PublicFolderMigration`



# Exchange 2010 or 2013 Removal

- Ensure all mailboxes has moved
- Ensure all Public Folders Data has been moved
- Shut down legacy servers for a week
- If Any issue comes bring them back and move this pointer to Exchange 2016
- Bring up the servers when ready to remove them
- Remove all Public Folder replicas else Public Folder Database will not be removed.
- Remove Exchange 2010 OAB and Exchange 2010 CAS Array
- Remove Exchange 2010/2013 Mailbox and Public folder databases(for 2010)
- Remove the Exchange legacy server from control panel uninstall.
- Remove IIS and any Data in the database disks.
- Most Important Question: Can we restore a backup after removing last Exchange?
- Recommendation: Keep Last Exchange server shutdown until we need to restore the backup of legacy version

# Cumulative Update 4 Released

- .Net Framework 4.6.2 will be supported – For Whole World
  - Currently 4.6.1 → Install Either CU4 or Install .Net 4.6.2 First.
  - Currently 4.5.2 → Install CU4 → Install .Net 4.6.2
  - March 2017CU will required .Net 4.6.2
- Windows 2016 IIS issue Fix with DAG has released – KB 3206632
  - Let me guess some questions:
    - Is it for windows server 2016 if yes then why it says windows 10?
      - Answer is in Applies to section.
    - Is it included in any Cumulative Update?
      - It is an operating system update so it can't be added to Exchange update.
    - What if I don't install this update?
      - Exchange setup will not work on windows 2016
- Modern Public Folders Indexing Fixed. – Move PF MBX to different DB
- Pre-Requisites only require “Media Foundation” instead of “Desktop Experience” – Applies to the new deployment
- Time Zone update will be included.
- Compose new email in OOTW – Oh what is OOTW?
  - All formatting controls will be in the message frame
- Exchange 2013 Cumulative Update 15 also released
- Exchange 2010 Service Pack 3 Update Rollup 16 also released
- Exchange 2007 Service Pack 3 Update Rollup 22 also released

# References

## What's New Blog Series

<http://msexchangeguru.com/2015/05/15/e2016allyouneed1/>

<http://msexchangeguru.com/2015/07/14/e2016allyouneed2/>

<http://msexchangeguru.com/2015/07/21/e2016allyouneed3/>

System Requirement and Prerequisite - <http://msexchangeguru.com/2015/10/09/e2016-srandpre/>

## Planning and Designing

<http://msexchangeguru.com/2013/07/30/exchange-2013-planning-and-design-guide/>

<http://msexchangeguru.com/2016/06/07/exch-proc-calc/>

Active Directory Preparation - <http://msexchangeguru.com/2015/10/09/e2016-adpreparation/>

## Installation

<http://msexchangeguru.com/2015/10/10/e2016-unattended-installation/>

<http://msexchangeguru.com/2015/08/24/exchange2016-installation/>

KB 3206632 - <https://support.microsoft.com/en-us/help/4004227/windows-10-update-kb3206632>

CU 4 Release Blog - <https://blogs.technet.microsoft.com/exchange/2016/12/13/released-december-2016-quarterly-exchange-updates/>

# Connections For More

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go raibh maith agat	Teşekkürler	धन्यवाद	Salamat Po	Cám ɔn	σας ευχαριστώ	Terima Kasih	Dank u Wel	Tack
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