Exchange 2019 & 2016

Table of Contents

[Section 1: Installation Perquisites 2](#_Toc89420270)

[Section 2: Re-check Domain/Forest Functional Level 2](#_Toc89420271)

[Section 3: Software Requirements 2](#_Toc89420272)

[Section 4: Exchange 2019 Install 2](#_Toc89420273)

[Section 5: Microsoft Exchange Server Removal 2](#_Toc89420274)

[Section 6: Verify Exchange Installed Correctly 2](#_Toc89420275)

[Section 7: Exchange Server Page File 2](#_Toc89420276)

[Section 8: Exchange Server Editions & Product Key 2](#_Toc89420277)

[Section 9: Upgrade Exchange CU 2](#_Toc89420278)

[Section 10: Rename and/or Move Your Mailbox Database 2](#_Toc89420279)

[Section 11: Create Single & Bulk User Mailbox/s 2](#_Toc89420280)

[Section 12: Configure/Control Mailbox Database via Storage Quota 2](#_Toc89420281)

[Section 13: Import/Export Mailbox via PST File 2](#_Toc89420282)

[Section 14: Creating Distribution Groups 2](#_Toc89420283)

[Section 15: Creating a Resource Room Mailbox 2](#_Toc89420284)

[Section 16: Configure Internal and External URL’s 2](#_Toc89420285)

[Section 17: Configure HTTPS for Exchange 2](#_Toc89420286)

[Section 18: Reroute all URL entries for Exchange to HTTPS 2](#_Toc89420287)

[Section 19: Side Notes 2](#_Toc89420288)

[Section 20: Troubleshooting 2](#_Toc89420289)

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# Section 1: Installation Perquisites

1. MAKE SURE YOUR EXCHANGE MEMBER SERVER IS FULLY PATCHED!!
2. Minimum of 12GB of RAM for your Exchange Server.
   1. Recommended 16GB of RAM. (*Purely subjective depending on size of network*)
3. Match Exchange version with Windows Server OS versions.
   1. Ex: Exchange 2019 on Windows Server 2019.
4. Minimum of 50GB space for Exchange. (*Please give it way more than that!*)
5. All Domain Controllers must be running on Windows Server 2012 R2 or higher.
   1. Forest functional level must be on Windows Server 2012 R2 or higher.
6. Ensure your Microsoft Exchange server name is under 15 characters. If longer, exchange readiness check will fail.
7. The account that you use to install Exchange needs to be a member of the following groups:
   1. Domain Admins
   2. Enterprise Admins
   3. Schema Admins

# Section 2: Re-check Domain/Forest Functional Level

1. Primary Domain Controller à Active Directory Users and Computers à Right Click on your Domain site name à Properties à General Tab

# Section 3: Software Requirements

*Preparing Your Exchange 2019 Member Server. Please ensure you install the following software in this order.*

*You must obtain additional software outside of the traditional exchange iso file. You must download the following .NET Framework, Visual C++ Redistributable, and IIS URL Rewrite Module software. All software can be obtained via Microsoft website for free.*

1. Ensure **.NET Framework 4.8** is installed on Windows Server 2019.
   1. Windows Server 2019 1909 comes with .NET Framework 4.7.2
   2. To verify installation via Registry: HKLM\SOFTWARE\Microsoft\Net Framework Setup\NDP\v4\Full → Version
2. Ensure **Visual C++ Redistributable Packages 2012** and **2013** 64-bit are installed.
3. Ensure you install **IIS as a role** on your Microsoft Exchange Member Server.
   1. This is done so that you can install the latest **IIS URL Rewrite Module** software.
4. Ensure **Unified Communications Managed API 4.0** is installed.
   1. Bundled with Exchange 2019. Location: <ExchangeServer2019.iso>\UCMARedist\Setup.exe
      1. If you using Exchange 2016, ensure that you get UCMARedist folder from Exchange 2019 iso or Microsoft website.
5. Ensure Remote Server Administration Tool for Active Directory Domain Services is installed.
   1. Via PowerShell: “Install-WindowsFeature RSAT-ADDS”
6. Reboot Windows Server Member server.

# Section 4: Exchange 2019 Install

1. Obtain/Mount your Microsoft Exchange 2019 iso file. (Please skip to step “a” below if on Exchange 2019)
   1. CMD (As Admin) à Change to your MS Exchange 2019 iso path à Type the following à “Setup.exe /IAcceptExchangeServerLicenseTerms /PrepareAD /OrganizationName:Raytheon”
      1. ***\*IMPORTANT\**** The accept exchange license terms command switch changed after September 2021 CU exchange updates. The command will be “Setup.exe /IAcceptExchangeServerLicenseTerms\_DiagnosticDataOff /PrepareAD /OrganizationName:Raytheon”, if your installing exchange that is older than that please use the first command that I gave.
2. **TSPS Hardened network!**
   1. You ***MUST*** grant the “***Exchange Servers***” AD group “**Manage Auditing and Security Logs**” right within a wining GPO policy setting for ***ALL Domain Controllers!***
      1. Run these commands in CMD (As Admin) and go to your DC’s gpo results.
         1. “gpupdate /force”
         2. “gpresult /h C:\GPOSettings.html /f”
      2. Look under the following see what GPO is winning.
         1. Computer Config à Policies à Windows Settings à Security Settings à Local Policies à User Rights Assignment à Manage Auditing & Security Logs
      3. Make adjustments to the correct GPO’s.
3. Disable Windows Defender Real-Time Protection on your Exchange server!
   1. Powershell ISE (As admin)
      1. “Set-MpPreference -DisableRealtimeMonitoring $true”
4. Launch the MS Exchange 2019 GUI installer.
   1. Check for Updates?
      1. Select “Don’t check for updates right now”.
   2. License Agreement
      1. Accept the terms.
   3. Recommended Settings
      1. Select “Don’t use recommended settings”; We don’t want to send any online solutions.
   4. Server Role Selection
      1. Select Mailbox role; This should automatically select the “Management tools” too.
      2. ***\*IMPORTANT\**** Make sure you select the “Automatically install Windows Server roles…” box to ensure that you install other features that are required to install Microsoft Exchange.
5. Installation Space and Location
   1. Exchange can’t be installed on the root of a drive. Ensure you create a parent folder on the drive you wish to install Exchange on. *ProTip:* *It is not recommended to install Microsoft Exchange on the OS drive.*
6. Malware Protection Settings
   1. Select “Yes” to disable malware scanning.
7. Exchange 2019 Install in progress! (*ETA ~30mins to 1hr*)
   1. Warning error! You might get something saying “Mitigation Service endpoint isn’t accessible…” this is trying to reach Microsoft cloud. Please ignore it!
   2. If you have installation errors, see the “Troubleshooting” section.
8. Once installation is complete, reboot your Exchange member server and then your Domain controller.
   1. Make sure to turn on Windows Defender Real-time Protection on your Exchange server!
      1. “Set-MpPreference -DisableRealtimeMonitoring $false”

# Section 5: Microsoft Exchange Server Removal

*This process will remove Exchange footprint from the Domain Controller and Active Directory. This doesn’t remove users and distribution groups.* *This process uses ADSI Edit. Use caution when modifying via ADSI Edit as changes are irreversible and can kill your entire directory. Ensure you are only deleting the paths as specified in this document.*

1. If working Exchange Server is up and functional. *(If not functional, proceed to step 2)*
   1. Uninstall exchange from the control panel.
      1. Some of the following steps may not be applicable if the Exchange member sever is functional.
2. Removing Exchange Server Attributes.
   1. From the domain controller, open ADSI Edit. In the left pane, right click ADSI Edit à Connect to à Connection Point à “Select a well-known naming context” à “**Configuration**” à Ok.
      1. Expand CN=Configuration,DC=<YourDomain>,DC=<YourTopLevelDomainàExpand CN=Services
      2. Right click CN=Microsoft Exchange → Delete. Select Yes to confirm deletion.
      3. Right click CN=Microsoft Exchange Autodiscover → Delete. Select Yes to confirm deletion.
      4. In the left pane, collapse the Configuration connection. Leave ADSI Edit open for the following steps.
3. Removing Exchange Server Security Groups and System Objects Attributes.
   1. In the left pane, right click ADSI Edit à Connect to à Connection Point à “Select a well-known naming context” à **Default naming context** → Ok.
      1. Expand DC=<YourDomain>,DC=<YourTopLevelDomain>.
      2. Right click OU=Microsoft Exchange Security Groups → Delete. Select Yes to confirm deletion.
      3. Right click CN=Microsoft Exchange System Objects → Delete. Select Yes to confirm deletion.
   2. Close ADSI Edit.
4. Removing automatic generated Exchange user accounts in Active Directory.
   1. Go to your Active Directory on your network.
      1. Expand the Users container.
      2. Delete the following users:
         1. DiscoverySearch Mailbox{GUID}
         2. Exchange Online-ApplicationAccount
         3. FederatedEmail.{GUID}
         4. Migration.{GUID}
         5. SystemMailbox{GUID}
   2. Close ADUC.
5. Removing Exchange Server computer object from Active Directory. ***(Situational)***

*Follow this section if your Exchange server is dead or being sanitized (decommissioned) after all other roles are removed for this server.*

* 1. Open Active Directory Users and Computers.
  2. Locate your Exchange Server computer. Default location: <YourDomain> à Computers.
  3. Right click on the Exchange Server computerà Delete. Select Yes to confirm deletion. Leave ADUC open for the following steps.

1. Removing Exchange Server record from DNS. ***(Situational)***
   1. Go to your Domain Controller and open DNS Manager.
   2. Expand Forward Lookup Zones à <YourDomain>. Note: If you had manually configured any Forward Lookup Zones for Exchange, delete them as well.
   3. Locate and delete your Exchange member server record. By default, it is the computer name of the Exchange server.

# Section 6: Verify Exchange Installed Correctly

1. Exchange setup log
   1. Go to “C:\ExchangeSetupLogs\ExchangeSetup.txt”.
      1. Look through logs to see if the setup went through correct from start to end.
2. Launch Exchange Management Shell (Start Menu)
   1. Input the following “Get-ExchangeServer | ft –AutoSize”
3. Website (Aka “*Exchange Admin Center*”)
   1. With any browser, type in the following: “https://localhost/ecp”

# Section 7: Exchange Server Page File

*Microsoft recommends that you don’t have your page file location located on the same disk as the system partition, Exchange database, and Exchange log files1. Please create another disk drive for the page file location on the VM. Below is how to change the page file location. Look at “Side note” section for creating a custom paging size. Microsoft now recommends the page file be 25% of what RAM your giving the Exchange server.*

1. Remove the default page file location.
   1. Control Panel à System à Advance System Settings à “Advance” tab à Performance Settings Section à Settings à “Advance” tab à Virtual memory section à Change… à Uncheck “Automatically manage paging file size…” setting à Select the default Page file location (C drive) à Select “No paging file” à Select “Set” 🡪 Select “Yes”.
2. Set new location on a different drive.
   1. Ensure you gave your Exchange member server another virtual drive for the new page file.
      1. I would give the drive 1 or 2GB’s more than what your calculated page file size as guided in section 19 #2 of this guide.
   2. In the same window, choose a different drive and click on “Custom size” entering your calculated swap page size in MB into “Initial size” and “Maximum size” and then click on “Set”. Lastly, reboot your Exchange member server.

# Section 8: Exchange Server Editions & Product Key

1. Exchange Editions.
   1. What is an Exchange database?
      1. A database that is in use for active mailboxes used by a user on the network.
         1. *ProTip: Microsoft recommends 1-2TB per database. The average email size is 75-100KB. Consider how many times emails get sent out per day per user. Otherwise, if the database grows too big and goes corrupt it might be non-repairable.*
   2. Enterprise Edition: Can scale up to 100 mounted databases per server.
   3. Standard Edition: Limited to five mounted databases per server.
2. Product Key Import.
   1. Exchange Admin Center (As mentioned in previous section)
      1. Servers (Left Panel)à Servers (Top) à Select your Exchange Server à Properties à General à Enter product key.
      2. Exit out of the Exchange Admin Center and go to your local member server “services” (aka “services.msc”) and restart “Microsoft Exchange Information Store” service.

# Section 9: Upgrade Exchange CU

*This section assumes you are only upgrading from a lower CU to a higher CU, and NOT from Exchange 2016 to Exchange 2019 as an example. Each Exchange CU upgrade is considered as a complete fresh install. You don’t need to install any previous CU’s beforehand. However, you do need to install the appropriate .NET Framework version before upgrading. Below is a matrix for that.*

**Exchange 2019**

|  |  |  |  |
| --- | --- | --- | --- |
| .NET Framework version | CU11 to CU4 | CU3, CU2 | CU1, RTM |
| 4.8 | Supported | Supported | Not Supported |
| 4.7.2 | Not Supported | Supported | Supported |

**Exchange 2016**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| .NET Framework version | CU22 to CU15 | CU14, CU13 | CU12, CU11 | CU10 | CU9, CU8 | CU7, CU6, CU5 | CU4, CU3 | CU2 |
| 4.8 | Supported | Supported | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported |
| 4.7.2 | Not Supported | Supported | Supported | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported |
| 4.7.1 | Not Supported | Not Supported | Supported | Supported | Supported | Not Supported | Not Supported | Not Supported |
| 4.6.2 | Not Supported | Not Supported | Not Supported | Not Supported | Supported | Supported | Supported | Not Supported |
| 4.6.1 | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported | Supported | Supported |
| 4.5.2 | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported | Not Supported | Supported | Supported |

1. Helpful reminders
   1. Any customized Exchange or Internet Information Server (IIS) settings you made in Exchange XML application configuration files on the Exchange server (for example, web.config files or the EdgeTransport.exe.config file) will overwrite when you install an Exchange CU. Be sure to save this information so you can easily re-apply the settings after the install.
   2. Ensure your Windows Member server is up to date.
   3. Upgrading anything related to Exchange via WSUS will **ONLY** apply security patches! Reminder upgrading to a higher CU is considered as a new Exchange install. Exchange updates will only appear in WSUS if “Products” & “Classifications” are selected properly in the WSUS options GUI.
2. Run Exchange in maintenance mode.
   1. Run the Exchange Management Shell. (As Admin)
      1. “Set-ServerComponentState -Identity "ExchangeServerName" -Component HubTransport -State Draining -Requester Maintenance”
         1. Ensure you stop everyone from sending messages.
      2. “Get-Queue” (*Optional*)
         1. This will check the transport queue and any emails still pending in the queues will have a delay in delivery until the server is taken out from maintenance mode.
      3. “Set-ServerComponentState "ExchangeServerName" -Component ServerWideOffline -State Inactive -Requester Maintenance”
      4. If your exchange has a load balancer or you don’t know please seek online assistance, otherwise ignore this.
      5. “Get-ServerComponentState "ExchangeServerName" | Select Component, State”
         1. ***\*Important\**** All components should show inactive EXCEPT “Monitoring” and “RecoveryActionsEnabled”
      6. **Reboot Exchange member server!**
3. .NET Framework upgrade
   1. Download the appropriate .NET Framework that is compatible with the Exchange CU you’re trying to jump to.
      1. Run as admin and install.
   2. The “mscorsvw.exe” process!

*When you upgrade/update .NET Framework a process will start in the background, it is doing other backend things to finish the update of .NET Framework and your Exchange CU upgrade will fail if this is still going on. This is bad because you have users without emails. Below is the process to speed it up. The end result will be the process no longer there in the task manager.*

* + 1. CMD (As Admin) à “tasklist /fi “STATUS eq Running” à Check if you see “mscorsvw.exe”, if not then skip this part and go to number 5.
    2. CMD (As Admin) à “%SystemRoot%\Microsoft.NET\Framewor64\v.#.#.###\Ngen.exe ExecuteQueyedItems
       1. If you don’t know where the path is you can use the registry to find the path. Look in Section 3 1b. In there look for “InstallPath”.
       2. The “mscorsvw.exe” process and the command to speed it up is heavy on the CPU. You can make it go faster depending on the amount of CPU’s you give the VM.

1. Your User account!
   1. Make sure that you are apart of the “Schema Admins” and “Enterprise Admins” domain group before you begin. Once you made the change on your account, you **MUST** relog off the Exchange member server.
2. Update your Exchange CU!
   1. ***\*IMPORTANT\**** If you noticed these commands are a little different from Section 4 #1a, the accept license terms command has changed after September 2021 CU’s for Exchange in general.
   2. Obtain/Mount your new Microsoft Exchange CU iso file.
      1. CMD (As Admin) à Change to your new MS Exchange 2019/2016 CU iso path à Type the following à “Setup.exe /IAcceptExchangeServerLicenseTerms\_DiagnosticDataOff /PrepareSchema”
      2. CMD (As Admin) à Change to your new MS Exchange 2019/2016 CU iso path à Type the following à “Setup.exe /IAcceptExchangeServerLicenseTerms\_DiagnosticDataOff /PrepareAD”
      3. CMD (As Admin) à Change to your new MS Exchange 2019/2016 CU iso path à Type the following à “Setup.exe /IAcceptExchangeServerLicenseTerms\_DiagnosticDataOff /Mode:Upgrade”
      4. **Reboot your Exchange member server.**
3. Take Exchange out of maintenance mode
   1. Run the Exchange Management Shell. (As Admin)
      1. “Set-ServerComponentState "ExchangeServerName" -Component ServerWideOffline -State Active -Requester Maintenance”
      2. “Set-ServerComponentState "ExchangeServerName" -Component HubTransport -State Active -Requester Maintenance”
      3. Health Check!
         1. “ Test-ServiceHealth "ExchangeServerName" ”
            1. Check if all services are running and set to True.
         2. “ Test-MAPIConnectivity -Server "ExchangeServerName" “
            1. Test and check if MAPI protocol is working and running.
         3. “ Get-MailboxServer "ExchangeServerName" | Select Name, DatabaseCopyAutoActivationPolicy ”
            1. Ensure this policy is “Unrestricted”, that is the default setting.

# Section 10: Rename and/or Move Your Mailbox Database

*On your fresh install of Exchange, you will get a generated mailbox database name, and you don’t want that. You want to rename it to something that is related to the network or whatever you like personally. Also, if you installed Exchange in the default location (On your OS disk, which you shouldn’t) and you want to move your database to another location for performance/organization/migration/troubleshooting purposes look here.*

*Rename your mailbox database*

1. Exchange Admin Center.
   1. Servers (Left panel) à databases à Select your mailbox database à Edit à General tab à Name à Input your desired name of the mailbox database à Save
2. *Notice!*
   1. If you go back to look at the properties of your database in the general tab after renaming and saving your database. In Database path field, it will still have your old name of the database there still.
      1. What you changed through the GUI is the name on the GUI, not the actual file name of the database. *Move your mailbox database!*
3. Default location of mailbox database is the following:
   1. “C:\Program Files\Microsoft\Exchange Server\V15\Mailbox”
4. *ProTip:* Not possible to move mailbox databases in the Exchange Admin Center. FYI.
5. Exchange Management Shell. (Start Menu)
   1. Get information.
      1. “Get-MailboxDatabase | fl name, edbfilepath, logfolderpath”
   2. Dismount mailbox database.
      1. “Dismount-database –Identity *mailDBname*”
   3. Move!
      1. “Move-DatabasePath –Identity *mailDBname* –EdbFilePath *driveletter:\Location\mailDBname.edb* –LogFolderPath *driverletter:\Location*
   4. Remount
      1. “Mount-Database –Identity *mailDBname*”

# Section 11: Create Single & Bulk User Mailbox/s

*This section you are creating mailboxes for domain accounts on the network one account at a time. Skip to number 2, if you want to create mailboxes in bulk if you have a high number of users that need an email.*

1. Exchange Admin Center.
   1. Recipients (Left panel) à Mailboxes (Top) à Click the “+” à User mailbox à Enter alias name à Click “Existing user” à Browse à Choose the user domain account à More Options à Mailbox database à Browse à Choose the correct database.
      1. *Proip1: The alias will be the unique name on the left side of the @ when they log in.*
      2. *ProTip2: I make you go to “More Options”, because I don’t know if you have more than one mailbox database. Ensure you put the mailbox in the correct database.*
2. Exchange Management Shell (*Run as admin*)
   1. Find the distinguished name of the OU that your users are located in.
      1. Windows Search bar à “Exchange Management Shell” à Run the following command to return the distinguished names of all OU’s.



* 1. Copy the OU distinguished name exactly and put it in the quotes of the next command.



* 1. Verify that the mailboxes have been created in Exchange Admin Center à Mailboxes

# Section 12: Configure/Control Mailbox Database via Storage Quota

*As users send and receive emails on your network the database on the backend starts to grow. In result, you want to set quotas for your end users, so that the database is more manageable on local disk. Whether that is repairing, saving space, or moving over your mail databases to a new Microsoft Exchange server. Lastly, this is not for per user, but for the whole mail database.*

1. Exchange Admin Center.
   1. Servers (Left Panel) à Databases à Choose your mailbox database à Edit à Limits (left side)

# Section 13: Import/Export Mailbox via PST File

*There will be several reasons why you would want to import or export someone mailbox. Below are the instructions to perform this action. By Default, you won’t have permissions to import and/or export any pst files into or out of Microsoft Exchange. You can use this option to migrate mailboxes per user, or you can migrate entire mailbox databases as described in Section 8.*

1. Exchange Admin Center.
   1. Permissions (Left Panel) à Admin roles à Select Organization Management à Edit (Pencil) à Under “Roles” Add a new rule à Select Mailbox Import Export à Add à Under Members make sure you’re doing it for your account à Save à You MUST Relog into Exchange Admin Center.
2. Create Folder on your network to hold the PST files.
   1. Edit share and permissions.
      1. Right click folder à Properties àSharing Tab à Advance Sharing à Permissions à Add “Exchange Trusted Subsystem” & “Authenticated Users” à For both groups check the “Change” box à Apply & Ok
3. Exchange Admin Center
   1. Recipients (Left panel) à Mailboxes à Click on a user mailbox à Click the 3 dots à Export to a PST file à Next à Enter the shared pst export folder path with a name and file extension. Ex: [\\server\foldername\username.pst](file:///\\server\foldername\username.pst)

# Section 14: Creating Distribution Groups

*Distribution groups are designed to email a collection of user mailboxes on the network using only one mailbox.*

1. Exchange Admin Center.
   1. Recipients (Left Panel) à Groups à Click the “+” à Distribution Group
      1. Display Name: A name to a distribution mailbox, so that users can type it to the “To:” or “CC:” lines of an email message.
      2. Alias: Used to generate the email address of the group.
      3. Organizational unit: By creating this distribution group it will create an object in Active Directory in the “Users” OU by default. It is best practice to create a custom OU to store these AD objects.
      4. Owners: Leave the administrator as the only owner. IT will manage the distribution group.
      5. Members: Uncheck “Add group owners as members”. IT doesn’t want this. Otherwise, add in your email accounts for the distribution.
         1. Closed: Only allow the group owner to approve or remove members from the distribution group.

# Section 15: Creating a Resource Room Mailbox

*A resource room mailbox is a mailbox that can be assigned to physical location. For example, you can give a conference room a mailbox so that users can reserve rooms for meetings. Using Microsoft Exchange, an email will be sent to the resource room mailbox to reserve the room for a set time.*

1. Exchange Admin Center.
   1. Recipients (Left Panel) à resources à Click the “+” à Room mailbox
      1. Room Name: Name that will appear in the address book.
      2. Alias: A Nickname to a resource room mailbox, so that users can type it to the “To:” or “CC:” lines of an email message.
      3. Organizational unit: By creating this resource room mailbox it will create an object in Active Directory in the “Users” OU by default. It is best practice to create a custom OU to store these AD objects.
      4. Location/Phone/Capacity: Self-explanatory.
      5. More Options: Make sure you choose the correct mailbox database.
   2. Booking Delegates (*Optional*)
      1. By default, Accepting/declining request happen automatically. But, by going to the properties of the resource room mailbox you assign to “Booking Delegates” you can assign a user who can approve or decline users for the room.
   3. Booking options (*Optional*)
      1. Configure how meetings get set-up/configure. Ex: Allow someone to schedule a reoccurring meeting.

# Section 16: Configure Internal and External URL’s

*This is with the assumption that you already have your Exchange member server joined into the domain with a valid IP address, subnet mask, etc. Also, ensure that your Exchange server has a forward and reverse host record entry already made in your DNS. Additionally, this is completely optional this provides no real security benefit but to make the URL easy to remember for yourself and users when they access your exchange internally and externally. Also, this will hide the exchange server name from externally users.*

1. Go to your DNS server and open DNS via Server manager.
   1. Create a “New Zone” in your Forward Lookup Zones section.
      1. Hit “Next” with default settings until the zone name section.
      2. Name your **Zone name**. Normally, this can be the domainName.com or something different.
      3. Dynamic Update: Click on “Do not allow dynamic updates”.
         1. We will be manually inputting all the records ourselves for this zone.
   2. Within your newly created zone in Forward Lookup Zones.
      1. Create a “New Alias (CNAME)” by right clicking on zone.
         1. **Alias Name**: Type in a name for your URL. (*This will be the friendly URL name that the users will type to get to type emails on the network.*)
         2. Fully qualified domain name: Click and browse for your Exchange server host record that was previously done before this whole section.
         3. Make sure you can ping your AliasName.ZoneName.com after creation.
2. Log into your Exchange Admin Center.
   1. Servers (Left panel) à Virtual directories (Top panel) àClick on the wrench icon à Click on the “+” à Select your Exchange Server à Click on “add” button à Ok
      1. Within the same window, at the bottom field enter your AliasName.ZoneName.com made previously on your DNS. Save and close.
   2. Go back to Servers (Left panel) à Virtual directories (Top panel)
      1. Do the following before both “owa” and “ecp” default websites. Ensuring that each default website is ending with the correct “owa” and “ecp” at the end of the friendly name of the URL.
         1. Under the “General tab” ensure that “Internal URL” and “External URL” have the AliasName.ZoneName.com that you create previously and hit save.
         2. If you get an error talking about scripts, ensure that you make the custom URL is a trusted site within Microsoft IE or edge.

# Section 17: Configure HTTPS for Exchange

*This section assumes you already installed a Certificate Authority role within your network and the root CA cert is installed onto your exchanged server. This will enable HTTPS for your Exchange website. You* ***MUST*** *have a shared UNC folder on in any location with everyone group having full control (Makes things easier). You can relocation the request and cert to another location afterwards when you’re done.*

1. Exchange Admin Center.
   1. Go to servers (left panel) à Certificates (Top panel) à Click on “+”
      1. Create a request for a certificate from a certification authority. (*You don’t want self-sign certificate*)
      2. Input a friendly name for your certificate. (*This friendly name isn’t part of the cert; instead, it is used to identify the certificate*)
      3. Don’t request a wild card unless you have another domain in your forest.
      4. Click browse, select your exchange member server to store your cert request on (*locally*).
      5. Select “Exchange Web Services (Intranet)”; highlight it and continue.
      6. Continue until you can specify information about your organization.
      7. Save the certificate request file (*.req*) in your shared UNC folder.
         1. Example: \\EXCH01\C$\SharedUNCFolder\FileName.req
            1. ***\*IMPORTANT\*:*** If you come across an error at this part, it’s because of two reasons.

One, ensure you include the drive letter and an “$” continuing the folder path.

Two, folder security permissions. Ensure your account and “Exchange Trusted Subsystem” group has full control. To make things simpler, you can just only put the “Everyone” group.

1. Go to your Certificate Authority server. (*This assumes you have Certificate Authority Web Enrollment*)
   1. Go to and open your certificate request file path and copy all text within it.
   2. Open any internet browser and go to your CA server request website.
      1. Example: http://<CAFriendlyName>/certsrv
   3. Click “Request a certificate” à “Advance Certificate request” à Submit a certificate request by using a base-64-encoded… à Paste your previously copied text into “Saved request” field à Submit 🡪 Download certificate (*DER encoded*).
      1. ***\*IMPORTANT\*:*** If you don’t get a “Certificate Issued” page, and your still at the submittal page where you enter in your text and doesn’t go anywhere, you must try another browser. (*Don’t use old IE*)
   4. (\****Situational\****) Go to and open your Certificate Authority in Server Manager.
      1. This step is only done if setup your CA on your network where you must manually approve the request and issued certs.
         1. Go to Pending Requests container and find your Exchange cert request.
         2. Right click your request à All Tasks à Issue
2. Go back into your Exchange server.
   1. Go to your CA request website.
      1. Select “View the status of a pending certificate request” and click on your recently saved request.
      2. Download your new certificate to your shared UNC folder.
         1. You can either select “DER” or “Based-64-encoded” (*Either will work*).
   2. Go to your Exchange Admin Center.
      1. Servers à Certificate à Select the friendly name created in step 1 à Click “Complete” (Right panel)
         1. Import new certificate (*.CER*) from your shared UNC folder.
            1. Example: \\EXCH01\C$\SharedUNCFolder\FileName.cer

***\*IMPORTANT\****: If you come across an error at this part, it’s because of three reasons.

One, you did not enter the same path as before when you did the request.

Two, ensure you include the drive letter and an “$” continuing the folder path.

Three, folder security permissions. Ensure your account and “Exchange Trusted Subsystem” group has full control. To make things simpler, you can just only put the “Everyone” group.

* + 1. Double click your completed certificate.
       1. Select “Services” à select all options (*SMTP, IMAP, POP, IIS*) only à Save.
          1. Select “Yes” when warning prompts to overwrite old certificate.

1. Within your Exchange Server access IIS manager tool from Server Manager.
   1. Select Exchange server instance à Restart service (Right panel)
2. ***\*Note\*:*** Within the Exchange Certificate GUI, if your newly import cert says “Invalid” that means you didn’t install the root CA cert.

# Section 18: Reroute all URL entries for Exchange to HTTPS

1. Within your Exchange IIS manager.
   1. Remove the “required SSL” setting from the default website.
      1. Click on “Default website” (Left panel) à Open “SSL settings” (Middle panel) à Uncheck and select “Ignore”.
   2. Restore the “Require SSL” setting to some virtual directories.
      1. Do it for the following directories: Autodiscover, ecp, EWS, and Microsoft-Server-ActiveSync.
   3. Configure default website to redirect to the “/owa” virtual directory.
      1. Select the Default web site à Ensure “Features View” (Bottom of page) is selected à Open “HTTP Redirect”.
         1. Checkmark “Redirect requests to this destination” and under enter “/owa”.
         2. Redirect Behavior section.
            1. Checkmark “Only redirect requests to content…” option.
            2. Status code: Found (302)
   4. Remove settings from some virtual directories.
      1. You must uncheck “Redirect requests to this destination” and “Only redirect requests to content in this directory…” on the follow virtual directories ensuring “/owa” is written in the field.
         1. API, Autodiscover, ecp, ews, mapi, Microsoft-Server-ActiveSync, OAB, owa, and Powershell, rpc.
   5. Restart IIS service.

# Section 19: Side Notes

*This is purely side notes that I have included that don’t necessarily go anywhere. I have referenced this section in my installation notes.*

1. Outlook Client Install.
   1. If you want the Outlook application to work, you need to have the client point towards a valid default gateway.
2. Custom paging file size.

Microsoft now recommends that there is no need for adding the “10” MB to the page file allocation, but I will leave it in for reference. They want you to add 25% of the total RAM you’re installing onto the Exchange server.

* 1. Binary conversion.
     1. Convert your total amount of RAM (GB) to binary MB format.
        1. Example: 32GB of RAM = 32768 MB (Binary number)
        2. Example: 16GB of RAM = 16384 MB (Binary number)
        3. Example: 12GB of RAM = 12288 MB (Binary number)
  2. Formula.
     1. x + 10MB = a
        1. x = The amount of RAM given to your Exchange server VM in MB binary format.
        2. The numeric number “10” is constant and doesn’t change. It is the MB binary format.
        3. a = Your total amount in MB to give your page file size.

# Section 20: Installing Domain Certificate Authority

*This section is designed to install and configure a Certificate Authority onto your environment, so that you can enable HTTPS with your Exchange server. This work will be done on your domain controller.*

1. Go to your domain controller.
   1. Add/install Certification Authority as a role onto your domain controller.

# Section 21: Troubleshooting

Q: Why can’t I start the Exchange Management Shell and/or why does it error out?

A: You MUST install the RSAT tools via PowerShell (as admin). “Install-WindowsFeature RSAT-ADDS”

Q: I installed my certificate for TLS and my clients and/or I are using Firefox and I still get the certificate error.

A: By default, within Firefox a security setting is set so that Firefox doesn’t trust the Windows Certificate Store. Please go to <https://adhocsec.com/control-firefox-ca-gpo/> for guidance.

Q: During Installation, Exchange installer errors out!

A: Many things can lead to Exchange installer not properly installing for your environment. Please check the following:

1. Ensure the “Exchange Servers” group has the “Manage Auditing and Security Logs” policy applied to the Exchange member server.
2. Ensure IPv6 setting is enabled via GUI and registry.
3. Ensure Windows firewall is not blocking any Exchange ports.
4. Ensure “Microsoft Exchange Active Directory Topology” service is on and running before running the installer.
5. Check if DNS record of Exchange is valid and pingable via friendly name and IP address.
6. Clear out DNS cache for your Exchange member server via cmd