Microsoft Exchange Server 2013 Solution on Dell PowerEdge 730xd Servers with 5 GB mailbox for 2,500 users
Deployment Guide
Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.
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## Abbreviations

Table 1. Abbreviation and expansion table

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Expansion</th>
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</thead>
<tbody>
<tr>
<td>DIMM</td>
<td>Dual In-line Memory Module</td>
</tr>
<tr>
<td>NTFS</td>
<td>New Technology File System</td>
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<tr>
<td>OS</td>
<td>Operating System</td>
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<tr>
<td>PD</td>
<td>Physical Disk</td>
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<tr>
<td>RA</td>
<td>Reference Architecture</td>
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<tr>
<td>SAS</td>
<td>Serial Attached SCSI</td>
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<td>SCSI</td>
<td>Small Computer System Interface</td>
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<td>VD</td>
<td>Virtual Disk</td>
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<td>DAG</td>
<td>Data Availability Groups</td>
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<td>OWA</td>
<td>Outlook Web App</td>
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<td>ECP</td>
<td>Exchange Control Panel</td>
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<td>EMS</td>
<td>Exchange Management Shell</td>
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<td>EAC</td>
<td>Exchange Admin Center</td>
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Overview

This guide provides the guidelines to implement a 2,500 mailbox solution on Microsoft Exchange Server 2013, as specified in the current Microsoft Exchange 2013 on Dell PowerEdge R730xd - 2,500 5 GBMailboxes document. The guide also covers the hardware and software requirements to achieve sufficient compute and storage capacity for up to 2,500 Exchange mailboxes with a 5 GB mailbox for each user profile and up to 150 messages per mailbox per day. The solution uses Microsoft Exchange Server 2013 and is powered by two Dell PowerEdge R730xd servers.
Solution requirements

This section lists the hardware and software requirements for implementing the 2,500 mailbox solutions for Microsoft Exchange Server 2013 using PowerEdge R730xd servers.

<table>
<thead>
<tr>
<th>Component</th>
<th>Component details</th>
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<tbody>
<tr>
<td>Server</td>
<td>2X PowerEdge R730xd with sixteen 3.5 inch disk drives</td>
</tr>
<tr>
<td>CPU</td>
<td>2X Intel Xeon E5-2660v3 10 core processor per server</td>
</tr>
<tr>
<td>Memory</td>
<td>96 GB DDR4 (RDIMMS) per server</td>
</tr>
<tr>
<td>NIC</td>
<td>QLogic 57800 2x10Gb BT + 2x1Gb BT Network Daughter Card and QLogic 57810 Dual Port 10Gb Base-T network interface card (NIC)</td>
</tr>
<tr>
<td>RAID controller</td>
<td>PowerEdge RAID Controller H730P Mini</td>
</tr>
<tr>
<td>Internal storage</td>
<td>2X 1.2 TB SAS 2.5 inch disk drives. Located in the rear bay for the Operating System and application software.</td>
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<tr>
<td>capacity</td>
<td>16X 4 TB NL-SAS 3.5 inch disk drives. 12 disk drives are located in the front bay and 4 disk drives are located in the internal drive tray for Microsoft Exchange databases.</td>
</tr>
<tr>
<td>Network Fabric</td>
<td>2X Dell Networking N4064 10 GbE switches for LAN connectivity</td>
</tr>
<tr>
<td>Load balancer</td>
<td>KEMP load balancer</td>
</tr>
<tr>
<td>Operating system</td>
<td>Windows Server 2012 R2 Standard Edition</td>
</tr>
<tr>
<td>Application software</td>
<td>Microsoft Exchange Server 2013 Enterprise</td>
</tr>
</tbody>
</table>
Deploying Microsoft for Dell PowerEdge R730xd servers

Deployment workflow

Perform the following tasks to deploy Microsoft Exchange 2013 on the Dell PowerEdge R730xd servers.

2. Install and configure the Windows operating system. See Installing and configuring Microsoft Windows Server 2012 R2.
3. Install and configure the application software. See Installing and configuring Microsoft Exchange Server 2013.

Configuring components

This section describes how to configure the Dell PowerEdge R730xd servers.

Configuring BIOS

Prerequisites

NOTE: Hyper threading and CPU c-states have an impact on the CPU performance. Disabling hyper-threading and setting the system profile to “Performance” in the BIOS ensure uniform CPU utilization and is in line with the best practices.

About this task

Configure the BIOS setting as follows:

Steps

1. Press F2 to enter the system BIOS setup mode, and then click System BIOS.
2. Set System Profile Settings to Performance.
   
   NOTE: Ensure that the Logical Processor option is disabled.
3. Click Back, and then click OK to return to the main BIOS page.
4. Restart the server to activate the BIOS changes.
Configuring the PERC H730P Mini

This solution leverages internal storage of seven RAID1 volumes for Exchange database, one un-configured disk for Restore LUN, and one disk as a Global Hot Spare. The OS VD uses the two rear accessible 1.2 TB disk drives configured as a RAID1 array.

Prerequisites

NOTE: Microsoft’s Best Practices recommend that the size of elements within a RAID stripe be set to 512K for the best performance of Exchange Server 2013 databases.

About this task

NOTE: The 2,500 mailbox solution that offers 5 GB of storage per mailbox and uses sixteen 4 TB hard disk drives.

Steps

1. During host system bootup, press Ctrl+R after the BIOS screen is displayed.
2. Use the arrow keys to highlight the PERC H730 Mini adapter.
   A list of available options is displayed.
4. Select Create New VD and press <Enter>.
   The Create New VD screen is displayed. The cursor is on the RAID Level option.
5. Press <Enter> to display the possible RAID levels.

   NOTE: Select RAID level as RAID 1 for the OS, the database and its transaction logs.
6. Press the down arrow key to select a RAID level and press <Enter>.
7. Press <Tab> to move the cursor to the list of physical disks.
8. Select the two rear 1.2 TB physical disks for the OS VD and from the sixteen physical disks, use fourteen 4 TB front and internal physical disks for Exchange databases, one internal physical disk for the Restore LUN, and one internal physical disk for the Global Hot Spare
9. Use the arrow key to highlight a physical disk and press the spacebar or Enter to select the disk.
10. Select additional disks, if required.
11. Press Tab to move the cursor to the Basic Settings box.
12. Set the virtual disk size in the VD Size field.
    The virtual disk size is displayed in GB format.
13. Press <Tab> to access the VD Name field, and type a virtual disk name.

   NOTE:

14. Press Tab to move the cursor to the Advanced settings.
15. Press the spacebar to make the settings active so that you can change them.
    An X is displayed beside the Advanced settings. The settings are Stripe Size, Read Policy, Write Policy, and Disk cache Policy. Ensure that the Stripe Size is set to 512 KB, Read Policy is set to Read Ahead, Write Policy is set to Write Back and Disk Cache Policy is set to Disabled. Select the Initialize option.
16. Press Tab to select OK.
17. Perform the following steps to create global hot spares using disk 15:
   a. Press Ctrl+N to move to the PD Mgmt tab.
   b. Press the down-arrow key to select a physical disk that you want to set as a global hot spare.
   c. Press F2 to display a list of available actions.
d. Press the down-arrow key to select **Make Global HS** and press Enter.

   The physical disk is changed to a global hot spare. The status of the physical disk as a global hot spare is displayed under the heading **State**.

   **NOTE:** To replace a failed physical disk, global hot spares must use the same disk technology and must be equal or greater in size.

   The OS and Exchange DB VDs are now created. They can be discovered and managed from the operating system. The solution’s hot spares for the internal storage are also configured to cover disk failure situations.

### Configuring the Dell Networking N4064 switch

**About this task**

To configure the Dell Networking N4064 switch, perform the following steps:

**Steps**

1. Using the Serial Console, connect to the Dell Networking N4064 switch.
   
2. Access the switch through the serial console (CLI) using COM1 port and set at a Baud rate of 9600 bps.
   
   To access the console, connect one end of the serial cable to the console port on the N4064 switch, and the other end to the terminal server.

3. Open the switch console using the HyperTerminal (terminal emulator application).

<table>
<thead>
<tr>
<th>Switch 1</th>
<th>Switch 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure the hostname for the Dell Networking N4064 switch.</td>
<td></td>
</tr>
<tr>
<td>enable</td>
<td>enable</td>
</tr>
<tr>
<td>configure</td>
<td>configure</td>
</tr>
<tr>
<td>hostname N4064-S1</td>
<td>hostname N4064-S2</td>
</tr>
</tbody>
</table>

   Disable DCB which is set to enable by default.

   no dcb enable                     no dcb enable

   Configure Out-of-band (OOB) access.

   interface out-of-band              interface out-of-band
   ip address <ipaddress> <mask>      ip address <ipaddress> <mask>
   <gateway>                         <gateway>

   Configure telnet and webaccess.

   line telnet                        line telnet
   login authentication default      login authentication default
   exit                              exit
   ip http authentication local      ip http authentication local

   Configure the username and password.
Switch 1

username admin password <password>
privilege 15

Enable the switch ports.

interface range tengigabitethernet all
no shutdown
interface range fortygigabitethernet all
no shutdown
exit
exit

Switch 2

username admin password <password>
privilege 15

Enable the switch ports.

interface range tengigabitethernet all
no shutdown
interface range fortygigabitethernet all
no shutdown
exit
exit

Save the configuration.

copy running-config startup-config
y

Installing and configuring Microsoft Windows Server 2012 R2

This section describes the installation and configuration of Windows Server 2012 R2.

Installing Microsoft Windows Server 2012 R2

Prerequisites
Keep the Windows installation media ready to start the installation.

Steps
1. Follow the instructions in the Windows Setup wizard and click Next to go to the installation screen.
2. Click Install.
3. In the Windows Setup wizard, enter the product key to activate Windows.
4. Select the Windows Server 2012 R2 Datacenter (Server with a GUI) option.
5. In License Agreement, select I accept the terms in the license agreement and then click Next.
6. Select the Custom Install Windows only option.
7. Select Drive 0 Unallocated Space and click New.
8. Select the partition where you want to install the OS and click Next.
   An information box about Windows creating additional partitions for system files is displayed.
9. Click OK to continue.
   The Windows Setup wizard displays information about the partitions for your reference. Click Next.
   
   NOTE: The Windows Setup wizard gathers all the required information and proceeds with the installation.
10. Click Restart now to complete the installation of the OS.
11. In the **Settings** window, enter the user name and password for the built-in administrator account.

12. Click **Finish**.

**Next steps**
The Windows server installation is now complete. Enter the user name and password to sign in to the Windows server.

**Configuring Windows Server 2012 R2**

1. Set the **Time zone** on the server.
2. Attach the new server to the existing domain.
3. Format the disk drives for Exchange databases.

   **NOTE:** For both exchange database and log file volumes, ensure that the NTFS allocation unit size is set to 64 KB while formatting the disk drives.

**Installing and configuring Microsoft Exchange Server 2013**

**Installing prerequisite packages for Microsoft Exchange Server 2013**

**Prerequisites**
- All the procedures in this section require elevated permissions to install successfully.
- Keep the installation media ready to start the installation.
- Download [Unified Communications Managed API 4.0 Runtime](#).
- Download [Microsoft Office 2010 Filter Pack 64 bit](#).
- Download [Microsoft Office 2010 Filter Pack SP1 64 bit](#).
- Open **Command Prompt**.
- Start Windows PowerShell by performing any of the following steps:
  - On the Start screen, click **Windows PowerShell**.
  - From the desktop taskbar, click **Windows PowerShell**.
  - On the **Server Manager** page, right-click the entry for any managed server, and then click **Windows PowerShell**.

  **NOTE:** All the steps outlined in this section need to be performed only if you are installing Microsoft Exchange Server 2013 for the first time. The exception is the Active Directory preparation which has to be run once, only on the first server.

**Steps**

1. To prepare Active Directory, perform the following steps:

   **NOTE:** Active Directory preparation should be run **only** on the first server.

   a. At the PowerShell prompt, enter the following command: `Install-WindowsFeature RSAT-ADDS`. Press **Enter**.

      When the installation is complete, the status of the installation is displayed.

   b. In the command line window, navigate to the Exchange installation directory.

   c. At the command prompt, enter the following command: `setup /PrepareAD /OrganizationName: your organization name /IAcceptExchangeServerLicenseTerms`. Press **Enter**.
NOTE: your organization name should be replaced by your Exchange organization name.

When the installation is complete, the status of the installation is displayed.

2. To install Exchange Server 2013 prerequisites, perform the following steps:


   NOTE: The server needs to be restarted to successfully complete the installation of the server roles and features.

3. To install Unified Communications Managed API (UCMA) 4.0, launch the executable file that you saved and follow the instructions on the screen to accept the End-User License Agreement (EULA). The setup wizard will install all the necessary components.

4. To install Microsoft Office 2010 Filter Pack 64 bit, launch the executable file that you saved and follow the instructions on the screen to accept the End-User License Agreement (EULA). The setup wizard will install all the necessary components.

5. To install Microsoft Office 2010 Filter Pack SP1 64 bit, launch the executable file that you saved and follow the instructions on the screen to accept the End-User License Agreement (EULA). The setup wizard will install all the necessary components.

Restart the server to complete the installation of the prerequisite packages for Microsoft Exchange Server 2013.

Installing Microsoft Exchange Server 2013

Prerequisites

1. Keep the installation media ready to start the installation.
2. Navigate to the Microsoft Exchange Server 2013 installation media.

Steps

1. To start Microsoft Exchange Server 2013 Setup, select Setup.exe, and right-click Run as Administrator.
2. On the Check for Updates page, select whether you want Setup to connect to the Internet and download product and security updates. Click next.
3. The Introduction page gives additional guidance for the installation procedure. Review the content and click Next.
4. On the License Agreement page, if you agree to the license terms, I accept the license and click next.
5. On the Recommended Setting page, select Use recommended settings. Click next.
6. On the Server Role Selection page, select the Mailbox role, Client Access role, Management tools, and Automatically install Windows Server role and features that are required to install Exchange Server check boxes. Click next.
7. On the Installation Space and Location page, either accept the default installation location or click Browse to choose a new location with adequate storage space. Click next.
8. On the **Malware Protection Setting** page, choose whether to enable or disable malware scanning. Click **next**.

9. Once the readiness checks are complete on the **Readiness Checks** page, click **install** to start the installation.

10. The **Setup Progress** page shows the progress of the installation.

11. Once the installation is complete, the **Setup Completed** page appears. You can choose to launch the **Exchange Administration Center** by selecting the check box. Click **finish** to complete the installation.

12. Restart the server.

The Microsoft Exchange Server 2013 installation is now complete.

**NOTE:** Follow the same procedure to install Microsoft Exchange Server 2013 on the remaining server.

### Configuring Microsoft Exchange Server 2013

- Log in to **Exchange Admin Center** (EAC) in a browser that has Administrator privileges.
- All the commands in this section are to be run on **Exchange Management Shell** as an Administrator.

#### Install the product key for Microsoft Exchange Server 2013

To install the product key for Microsoft Exchange 2013, perform the following steps:

1. On the **Exchange admin center** page, select **servers** from the listing on the left side.
2. On the **servers** page, select the server from the list, and click **Enter Product Key** on the right side of the page under the server description.
3. On the **server details page** that is displayed, select **general** and enter a valid product key in the field provided. Click **save** to exit this page.
4. A **warning** appears informing you that the product key has been validated and that the product ID has been successfully created. Click **ok**.

   **NOTE:** Repeat steps 2 – 4 to install the product key on the remaining Microsoft Exchange Servers.

   **NOTE:** The updated information will not take effect until the **Information Store** has been restarted.

   The status description of the server will be updated to show **Enterprise Licensed**.

#### Identify the default databases

At the PowerShell prompt, enter the following command: `Get-MailboxDatabase`

The following table is a sample of the expected result.
### Rename the default databases

**About this task**

Based on the database layout, we need to rename the databases on the servers and move them to the appropriate location.

**Steps**

1. To rename databases, first login to the EAC.
2. Click **Servers** in the left pane.
3. Click on **databases**.
4. Select the database to you wish to rename (for example Mailbox Database 1943020564 which is active on first server MBX1).
   a. Click the Pencil icon.
   b. In the mailbox databases window, click **general** in the left pane.
   c. Type the new name of the database in the **Name** field, in this example is the name is DB01 and click **Save**.
5. Repeat steps 2 to 4 to rename the database on the second server.

**NOTE**: Rename the default mailbox on the server MBX2 to DB02.

### Move the default databases

**About this task**

To move the databases to appropriate location, logon to corresponding server where the database is stored and run the following commands:

**Steps**

1. `Move-DatabasePath -Identity DB01 -EdbFilePath "E:\Database\DB01\DB01.edb" -LogFolderPath "E:\Log\Log1"`
2. `Move-DatabasePath -Identity DB02 -EdbFilePath "E:\Database\DB02\DB02.edb" -LogFolderPath "E:\Log\Log2"`

### Creating the Exchange databases

1. To create the remaining Exchange databases, perform the following steps:

**NOTE**: Database layout is as shown in the diagram.
Figure 1. Exchange databases

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Active</th>
<th>Server</th>
<th>MBX1</th>
<th>MBX2</th>
<th>MBX3</th>
<th>MBX4</th>
<th>MBX5</th>
<th>MBX6</th>
<th>MBX7</th>
<th>MBX8</th>
<th>MBX9</th>
<th>MBX10</th>
<th>MBX11</th>
<th>MBX12</th>
<th>MBX13</th>
<th>MBX14</th>
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</thead>
<tbody>
<tr>
<td>DB1</td>
<td></td>
<td>MBX1</td>
<td>1</td>
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<td>DB2</td>
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<td>MBX2</td>
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</tbody>
</table>

1. New-MailboxDatabase DB3 -Server MBX1 -EdbFilepath "F:\Database\DB3\DB3.edb" -LogFolderPath "F:\Log\Log3"
2. New-MailboxDatabase DB4 -Server MBX2 -EdbFilepath "F:\Database\DB4\DB4.edb" -LogFolderPath "F:\Log\Log4"
3. New-MailboxDatabase DB5 -Server MBX1 -EdbFilepath "G:\Database\DB5\DB5.edb" -LogFolderPath "G:\Log\Log5"
4. New-MailboxDatabase DB6 -Server MBX2 -EdbFilepath "G:\Database\DB6\DB6.edb" -LogFolderPath "G:\Log\Log6"
5. New-MailboxDatabase DB7 -Server MBX1 -EdbFilepath "H:\Database\DB7\DB7.edb" -LogFolderPath "H:\Log\Log7"
6. New-MailboxDatabase DB8 -Server MBX2 -EdbFilepath "H:\Database\DB8\DB8.edb" -LogFolderPath "H:\Log\Log8"
7. New-MailboxDatabase DB9 -Server MBX1 -EdbFilepath "I:\Database\DB9\DB9.edb" -LogFolderPath "I:\Log\Log9"
8. New-MailboxDatabase DB10 -Server MBX2 -EdbFilepath "I:\Database\DB10\DB10.edb" -LogFolderPath "I:\Log\Log10"
9. New-MailboxDatabase DB11 -Server MBX1 -EdbFilepath "J:\Database\DB11\DB11.edb" -LogFolderPath "J:\Log\Log11"
10. New-MailboxDatabase DB12 -Server MBX2 -EdbFilepath "J:\Database\DB12\DB12.edb" -LogFolderPath "J:\Log\Log12"
11. New-MailboxDatabase DB13 -Server MBX1 -EdbFilepath "K:\Database\DB13\DB13.edb" -LogFolderPath "K:\Log\Log13"
12. New-MailboxDatabase DB14 -Server MBX2 -EdbFilepath "K:\Database\DB14\DB14.edb" -LogFolderPath "K:\Log\Log14"

2. Restart the Microsoft Exchange Information Store service on all the servers after adding new mailbox databases.

Mounting and verifying the Exchange databases

1. Mount the databases by running the command Get-MailboxDatabase | Mount-Database in the Exchange Management Shell (EMS).
2. To verify that the databases are mounted, run this command Get-MailboxDatabase -Status | select name,mounted in EMS.
3. Assign Offline Address Book for the new databases by running this command Get-MailboxDatabase | Where {$_._OfflineAddressBook -eq $null} | Set-MailboxDatabase -OfflineAddressBook "\Default Offline Address Book"
4. Assign the mailbox quota for:
   a. by running this command Get-MailboxDatabase | Set-MailboxDatabase -IssueWarningQuota 4.5gb -ProhibitSendQuota 4.75gb -ProhibitSendReceiveQuota 5gb
Configuring the Virtual Directories

About this task
In the Exchange Management Shell, configure the following Virtual Directories to allow clients to connect to the new server from the intranet, you also need to configure the internal domains or URL's on the Client Access server’s virtual directories, and then configure your private domain name service (DNS) records.

Steps
1. To configure **OWA Virtual Directory**, use this command:
   a. For MBX1: Set-OwaVirtualDirectory “MBX1\owa (Default Web Site)” -ExternalUrl https://mail.exchange.lab/owa -InternalUrl https://mail.exchange.lab/owa
   b. For MBX2: Set-OwaVirtualDirectory “MBX2\owa (Default Web Site)” -ExternalUrl https://mail.exchange.lab/owa -InternalUrl https://mail.exchange.lab/owa
2. To configure **ECP Virtual Directory**, use this command:
   a. For MBX1: Set-EcpVirtualDirectory “MBX1\ecp (Default Web Site)” -ExternalUrl https://mail.exchange.lab/ecp -InternalUrl https://mail.exchange.lab/ecp
   b. For MBX2: Set-EcpVirtualDirectory “MBX2\ecp (Default Web Site)” -ExternalUrl https://mail.exchange.lab/ecp -InternalUrl https://mail.exchange.lab/ecp
3. To configure **OAB Virtual Directory**, use this command:
   a. For MBX1: Set-OabVirtualDirectory “MBX1\oab (Default Web Site)” -ExternalUrl https://mail.exchange.lab/oab -InternalUrl https://mail.exchange.lab/oab
   b. For MBX2: Set-OabVirtualDirectory “MBX2\oab (Default Web Site)” -ExternalUrl https://mail.exchange.lab/oab -InternalUrl https://mail.exchange.lab/oab

Configure Exchange Web Services and Microsoft Server ActiveSync

Prerequisites
Log in to EAC to perform the following steps

About this task
To configure the Exchange Web Services (EWS) and the Microsoft Server ActiveSync (Default Web Site) URL, perform the following steps:

Steps
1. To configure the EWS, click **server** in the left pane of the EAC.
   a. Click **virtual directories** from the tab on the top of the page.
   b. Double click **EWS (Default Web Site)** for each server.
   c. In the **EWS (Default Web Site)** page, enter the **Internal URL and External URL** in the space provided. Click **save** to exit the page.

   ❧ **NOTE:** Perform this procedure for the second Exchange server.

2. To configure the Microsoft Server ActiveSync (Default Web Site) URL, click **server** in the left pane of the EAC.
   a. Click **virtual directories** from the tab on the top of the page.
   b. Double click **Microsoft-Server-ActiveSync (Default Web Site)** for each server.
   c. On the **Microsoft-Server-ActiveSync (Default Web Site)** page, enter the **Internal URL and External URL** in the space provided. Click **save** to exit the page.

   ❧ **NOTE:** Perform this procedure for the second Exchange server.
Set Autodiscover and OutlookAnywhere

1. In the Exchange Management Shell, to set the **Autodiscover** URL, use this command:
   a. For MBX1: `Set-ClientAccessServer -Identity MBX1 -AutoDiscoverServiceInternalUri https://autodiscover.exchange.lab/Autodiscover/Autodiscover.xml`
   b. For MBX2: `Set-ClientAccessServer -Identity MBX2 -AutoDiscoverServiceInternalUri https://autodiscover.exchange.lab/Autodiscover/Autodiscover.xml`

2. In the Exchange Management Shell, to set **OutlookAnywhere** use this command:
   a. For MBX1: `Get-OutlookAnywhere -Server MBX1 | Set-OutlookAnywhere -ExternalHostname mail.exchange.lab -DefaultAuthenticationMethod NTLM -ExternalClientsRequireSsl $true`
   b. For MBX21: `Get-OutlookAnywhere -Server MBX2 | Set-OutlookAnywhere -ExternalHostname mail.exchange.lab -DefaultAuthenticationMethod NTLM -ExternalClientsRequireSsl $true`

Creating a Send Connector

About this task
To send mail outside your domain, you need to create a Send connector.

Steps
1. In the EAC, navigate to **Mail flow → Send connectors**, and then click Add +.
2. In the **New send connector** wizard, specify a name for the send connector and then select **Internet** for the **Type**. Click **Next**.
3. Verify that **MX record associated with recipient domain** is selected, which specifies that the connector uses the domain name system (DNS) to route mail. Click **Next**.
4. Under **Address space**, click +. In the **Add domain** window, ensure that SMTP is listed as the **Type**. For **Fully Qualified Domain Name (FQDN)**, enter *, which indicates that this send connector applies to messages addressed to any domain. Click **Save**.
5. Make sure **Scoped send connector** is not selected and then click **Next**.
6. For **Source server**, click +. In the **Select a server** window, select a Mailbox server that will be used to send mail to the Internet through the Client Access server and click +. After you have selected the server, click +. Click **OK**.
7. Click **Finish**.
   Once you have created the Send connector, it appears in the Send connector list.

Creating and configuring the Database Availability Group (DAG)

About this task
As the file share witness server is not an Exchange server, some additional permissions are required. The Exchange Trusted Subsystem group in Active Directory must be added to the local Administrators group on the server. The file share witness also requires that the File Server feature be installed.

Steps
1. Start **Computer Management** by right clicking on the Windows logo button or from **Administrative Tools**.
2. Navigate to **Computer Management** in the left pane listed under **Local Users and Groups** and click **Groups**.
3. Double click the **Administrators** profile.
4. Click **Add** to add **Exchange Trusted Subsystem** to the list of members. Click **Apply** to save and exit this page.
5. Run this command: `Add-WindowsFeature FS-FileServer at the prompt in Windows PowerShell.`

   **NOTE:** Ensure that **File and Printer Sharing** is allowed through the firewall.
Configuring networks for Exchange 2013 Database Availability Groups

About this task
Configure networks for Exchange 2013 Database Availability Groups by performing the following steps.

Steps
1. **Pre-Staging the Cluster Name Object (CNO)**
   The CNO is simply a computer account object in Active Directory.

   Create a new computer object with the name that you intend to give to your DAG. Then disable the computer account.

2. Log in to the Domain Controller and open Active Directory Users and Computers snap-in.
3. Right-click **Computers** and choose **New → Computer**. Ensure that you have enabled advanced features in **Active Directory Users and Computers**.

4. On the **New Object - Computer** screen, type the Computer name. The computer name should be the same as the DAG name, because we are creating the DAG. Click **OK** to save.

5. Right-click the computer account and click **Disable Account**. The computer icon changes to indicate that this computer is now disabled.

6. Open properties of this new computer account. Select **Security** tab. Under **Groups or user names**, click **Add**.

7. Add Mailbox server into the space provided to **Enter the object names to select** and click **OK**

8. Select computer account and give **Full control** in the **Permission** list box. Click **OK**.

Creating Database Availability Groups

About this task
To create Database Availability Groups (DAG), perform the following steps

Steps
1. In the **EAC**, navigate to **Servers → Database Availability Groups** and click the + icon to create a new DAG.

2. In the **new database availability group** page, fill in the details for the **DAG name**, **Witness server**, **Witness directory and IP address** (if available). Click **Save**.

   **NOTE:** The name of DAG must match the CNO object created in Active Directory. Under witness server, type the FQDN of Witness Server. Under witness directory, type the location of the shared folder. You can configure the DAG IP or leave it blank, leaving it blank will get IP from DHCP server if the DHCP server is configured. The DAG IP is actually assigned to DAG name and the DAG name will be resolved to assigned/DHCP IP address.

Adding Member servers to the Database Availability Groups

About this task
After the Database Availability Groups (DAG) has been created it still does not contain any members. These will be added in the next steps.

Steps
1. To open the DAG member management page, double click the new DAG or highlight the new DAG and click the manage icon.

2. On the **manage database availability group membership** page, click the + icon. The **Select Server** page appears.

3. Select all the servers listed and click the add, click ok to save and exit the page.

4. On the **manage database availability group membership** page, the selected servers will be listed in the **MEMBER SERVERS** list box.
5. After clicking **Save**, **Windows Failover Clustering** components will be installed in each DAG members. Click **close** once the installation is complete.

You can view the DAG information which includes the member servers and witness server by selecting the DAG name and viewing the information in details pane.

**Verifying the database and log folder paths**

**About this task**
Perform the following steps to ensure that all the databases and log files are stored in the desired location.

**Steps**
At the PowerShell prompt, enter the following command: Get-MailboxDatabase | select name,edbfilepath,logfolderpath

<table>
<thead>
<tr>
<th>Name</th>
<th>EdbFilePath</th>
<th>LogFolderPath</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB1</td>
<td>E:\Database\DB1\DB1.edb</td>
<td>E:\Log\Log1</td>
</tr>
<tr>
<td>DB2</td>
<td>E:\Database\DB2\DB2.edb</td>
<td>E:\Log\Log2</td>
</tr>
<tr>
<td>DB3</td>
<td>F:\Database\DB3\DB3.edb</td>
<td>F:\Log\Log3</td>
</tr>
<tr>
<td>DB4</td>
<td>F:\Database\DB4\DB4.edb</td>
<td>F:\Log\Log4</td>
</tr>
<tr>
<td>DB5</td>
<td>G:\Database\DB5\DB5.edb</td>
<td>G:\Log\Log5</td>
</tr>
<tr>
<td>DB6</td>
<td>G:\Database\DB6\DB6.edb</td>
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<td>DB8</td>
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<tr>
<td>DB13</td>
<td>K:\Database\DB13\DB13.edb</td>
<td>K:\Log\Log13</td>
</tr>
<tr>
<td>DB14</td>
<td>K:\Database\DB13\DB14.edb</td>
<td>K:\Log\Log14</td>
</tr>
</tbody>
</table>

**Adding database copies in database availability group for the 8,000 mailbox solutions**

**About this task**
To add database copies in database availability group run the following commands in Exchange Management Shell.

⚠️ **WARNING**: The Information Store Service needs to be restarted on all Exchange servers after adding new mailbox databases is completed.

**Steps**
1. Add-MailboxDatabaseCopy -Identity DB1 -MailboxServer MBX2 -ActivationPreference 2
2. Add-MailboxDatabaseCopy -Identity DB2 -MailboxServer MBX1 -ActivationPreference 2
3. Add-MailboxDatabaseCopy -Identity DB3 -MailboxServer MBX2 -ActivationPreference 2
4. Add-MailboxDatabaseCopy -Identity DB4 -MailboxServer MBX1 -ActivationPreference 2
5. Add-MailboxDatabaseCopy -Identity DB5 -MailboxServer MBX2 -ActivationPreference 2
6. Add-MailboxDatabaseCopy -Identity DB6 -MailboxServer MBX1 -ActivationPreference 2
7. Add-MailboxDatabaseCopy -Identity DB7 -MailboxServer MBX2 -ActivationPreference 2
8. Add-MailboxDatabaseCopy -Identity DB8 -MailboxServer MBX1 -ActivationPreference 2
10. Add-MailboxDatabaseCopy -Identity DB10 -MailboxServer MBX1 -ActivationPreference 2
11. Add-MailboxDatabaseCopy -Identity DB11 -MailboxServer MBX2 -ActivationPreference 2

This completes the configuration of Microsoft Exchange 2013.

Load Balancing Exchange

In a test environment, a KEMP Virtual LoadMaster (Vers:7.1-26-15) was used to load balance the Exchange infrastructure.

Prerequisites

NOTE: Customers can use their existing load balancing solution to load balance Exchange.

Steps

1. Log in to the KEMP admin console and go to Virtual Services → View/Modify Services → Add New.
2. Type the IP address for the service in the Virtual Address field. Enter the port, protocol, and service name and click Add this Virtual Service.
3. Ensure that Force L7 check box is selected, but the L7 Transparency check box is clear.
4. Since Exchange 2013 does not require persistence anymore, make sure that the Persistence Options is set to None.
5. For the load method/Scheduling method, select Round-Robin.

   NOTE: Under Real Servers, configure the health checks. Make sure the KEMP LoadMaster set to use HTTPS protocol. This together with Checked Port: 443 and URL: “/owa”. Click the Set URL button to save the settings.

6. Click the Add New ... button under Real Servers. Add your Exchange 2013 Client Access servers (or multi role client access/mailbox servers). When all servers are added, click the Back button.
7. When the configuration is complete, press the Back button.

   The services should then show up as green if the protocols are available.

   NOTE: Ensure that the virtual service IP address of the load balancer has a DNS entry made in the DNS server.

Next steps

This completes the configuration of the KEMP load balancer.
Verifying the deployment

To verify that Exchange 2013 is installed successfully, perform any of the following steps:

   A list of all Exchange 2013 server roles that are installed on the specified server is displayed.
2. Review the setup log file created during the setup process.
3. Access Outlook WebApp (OWA) by typing the URL in the browser, and send a few test mails.
4. Try activating passive copies of one or two DBs. If the activation is successful, the DAG functionality is as expected.
   a. In EAC, navigate to servers → databases.
      For example, if DB01 is active on MBX1, the status on the right pane shows that DB01 is Active Mounted.
   b. In order to activate a passive copy of DB01 on MBX1, click DB01, then click Activate under DB01\MBX1 (Passive Healthy).
   c. A warning page is displayed, reconfirming the request to activate DB01 on MBX1. Click yes.
   d. Once the activation process is complete click close.
      In the right pane, the status of DB01 is shown as Passive Resynchronizing or Passive Healthy.
Additional Resources

Dell Services and Dell certified channel partners provide consulting solutions to help customers plan, deploy and manage even the most advanced and complex Microsoft Exchange Server configurations.
Appendix

- Microsoft Exchange 2013 on Dell PowerEdge R730xd - 2,500 5 GB Mailboxes
- PowerEdge R730xd Rack Server technical details
- Dell PowerEdge RAID Controller H730P
- The Exchange Solution Reviewed Program (ESRP)
- Database Availability Groups