

12,500 Mailbox Solution using Exchange Server 2013 on Dell PowerEdge R730xd Servers and Dell Storage MD1400 enclosures 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

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

Overview

This guide provides the guidelines to implement a 12,500 mailbox solution on Microsoft Exchange Server 2013, as specified in the current [Microsoft Exchange 2013 on Dell PowerEdge R730xd and Dell Storage MD1400](#) document. The guide also covers the hardware and software requirements to achieve sufficient compute and storage capacity for up to 12,500 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 nine Dell PowerEdge R730xd servers and nine Dell Storage MD1400 enclosures.

Solution requirements

This section lists the hardware and software requirements for implementing a 12,500 mailbox solution for Microsoft Exchange Server 2013 using PowerEdge R730xd servers and Dell Storage MD1400 enclosures.

Component	Component details
Server	6X PowerEdge R730xd with sixteen 3.5 inch disk drives at the local site 3X PowerEdge R730xd with sixteen 3.5 inch disk drives at the remote site
External storage	6X Dell Storage MD1400 with twelve 3.5 inch NL-SAS disk drives per storage enclosure at the local site 3X Dell Storage MD1400 with twelve 3.5 inch NL-SAS disk drives per storage enclosure at the local site
CPU	2X Intel Xeon E5-2660v3 10 core processor per server
Memory	Up to 192 GB DDR4 RDIMMS per server
NIC	Broadcom NetXtreme II 57800S NDC and Broadcom 57810 PCIe add-on network interface card (NIC)
RAID controller	PowerEdge RAID Controller H730P Mini PowerEdge RAID Controller H830
Internal storage capacity	2X 1.2 TB SAS 2.5 inch disk drives. Located in the rear bay for the Operating System and application software. 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.
Network Fabric	2X Dell Networking N4064 10 GbE switches for LAN connectivity
Load balancer	KEMP load balancer
Operating system	Windows Server 2012 R2 Datacenter Edition
Application software	Microsoft Exchange Server 2013 Enterprise

Deploying Microsoft Exchange 2013 for Dell PowerEdge R730xd servers

This section outlines the complete deployment sequence of Microsoft Exchange Server 2013 on Dell PowerEdge R730xd servers.

Deployment workflow

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

1. Configure the Dell PowerEdge R730xd servers. See [Configuring components](#).
2. Deploy the Dell Storage MD1400 direct attached storage box. See [Deploying the Dell Storage MD1400](#).
3. Configure the Dell Storage MD1400. See [Configuring PERC H830](#).
4. Install and configure the Windows operating system. See [Installing and configuring Microsoft Windows Server 2012 R2](#).
5. 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 of 4 TB disk groups for Exchange database, one unconfigured 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.

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.
3. Press F2.
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 the 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:** The VD naming convention should be OS for the OS VD, VOL 1–7 for Exchange databases VD.
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 disks 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 hotspares for the internal storage are also configured to cover disk failure situations.

Deploying the Dell Storage MD1400 enclosure

Prerequisites

Turn off the host system and all the attached storage devices.

Steps

1. Connect one end of the SAS cable to Enterprise Management Module's (EMM) SAS connector on the Dell Storage MD1400 enclosure, and the other end to the SAS connector of the PERC H830 on the host system. Push the cable into the connector until it clicks into place.
2. Connect the power cables to the power supply units (PSU) and to the power source.
3. Power on the Dell Storage MD1400 enclosure.
4. Power on the host system.
5. Check the LED indicators on the front and back panels of the storage enclosure to ensure that all the hard drives and PSUs are functioning.

 **NOTE:** In a redundant configuration, the enclosure is connected to both the ports of the PERC H830 on the host system.

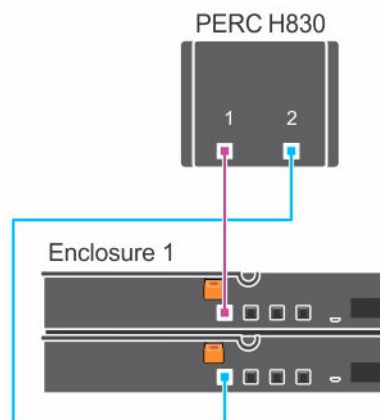


Figure 1. Cabling diagram showing the connection of the Dell Storage MD1400 to the PERC H830 controller

This completes the deploying of the Dell Storage MD1400 enclosure.

Configuring the PERC H830

This solution leverages five RAID1 volumes of 4 TB disk groups for Exchange database, one unconfigured disk for Restore LUN, and one disk as a Global Hot Spare.

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.

Steps

1. During host system bootup, press Ctrl+R after the BIOS screen is displayed.
2. Use the arrow keys to select the **PERC H830** adapter.
3. Press F2.
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 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. Use the arrow key to highlight a physical disk, and then press the spacebar or Enter to select the disk.
9. Select additional disks, if required.
10. Press Tab to move the cursor to **Basic Settings**.
11. Set the virtual disk size in the **VD Size** field.
The virtual disk size is displayed in GB.
12. Press Tab to access the **VD Name** field, and type a virtual disk name.
 **NOTE:** The VD naming convention should be VOL 8 - 12 for Exchange databases VD.
13. Press Tab to move the cursor to the **Advanced** settings.
14. Press the spacebar to make the settings active so that you can modify these settings.
15. An **X** is displayed next to **Advanced** settings. In the Advanced settings, ensure the following:
 - **Stripe Size** is set to 512 KB
 - **Read Policy** is set to **Read Ahead**
 - **Write Policy** is set to **Write Back**
 - **Disk Cache Policy** is set to **Disabled**
16. Select the **Initialize** option.
17. Press Tab to select **OK**.
18. Perform the following steps to create global hot spares using disk 11:
 - 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 **State** section.



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

Next steps

The Exchange DB VDs are now created. The Exchange DB VDs can be discovered and managed from the operating system. The solution's hot spares are also configured to cover disk failure scenarios.

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).

Switch 1	Switch 2
Configure the hostname for the Dell Networking N4064 switch.	
enable	enable
configure	configure
hostname N4064-S1	hostname N4064-S2
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> <gateway>	ip address <ipaddress> <mask> <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.	
username admin password <password> privilege 15	username admin password <password> privilege 15
Enable the switch ports.	
interface range tengigabitethernet all	interface range tengigabitethernet all
no shutdown	no shutdown
interface range fortygigabitethernet all	interface range fortygigabitethernet all
no shutdown	no shutdown
exit	exit

Switch 1	Switch 2
exit	exit
Save the configuration.	
copy running-config startup-config	copy running-config startup-config
y	y

Installing and configuring Microsoft Windows Server 2012 R2

This section describes the installation and configuration of Windows Server 2012 R2 for Exchange Server 2013.

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.



NOTE: Follow the same procedure to install the OS on the remaining eight servers.

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:
 - a. At the PowerShell prompt, run the following command to install the required server roles and features: `<Install-WindowsFeature AS-HTTP-Activation, Desktop-Experience, NET-Framework-45-Features, RPC-over-HTTP-proxy, RSAT-Clustering, RSAT-Clustering-CmdInterface, 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>. Press **Enter** to start the installation.



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 eight servers.

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.

Name	Server	Recovery	Replication Type
Mailbox Database 1943020564	BLRMBX1	False	None
Mailbox Database 1347528707	BLRMBX2	False	None
Mailbox Database 0209038692	BLRMBX3	False	None
Mailbox Database 1707407357	BLRMBX4	False	None
Mailbox Database 1604672634	BLRMBX5	False	None
Mailbox Database 0780712749	BLRMBX6	False	None
Mailbox Database 0884525113	AUSMBX2	False	None

Name	Server	Recovery	Replication Type
Mailbox Database 1790828222	AUSMBX1	False	None
Mailbox Database 1086472273	AUSMBX3	False	None

Rename the default databases

About this task

Based on the database layout, we need to rename the databases on servers hosted in Site A (for example BLR) 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 BLRMBX1).
 - 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 DB1 and click **Save**.
5. Repeat steps 2 to 4 to rename the remaining 5 databases on the remaining servers in the primary site (BLR).



NOTE: Rename the default mailboxes on the servers BLRMBX2, BLRMBX3, BLRMB4, BLRMBX5 and BLRMBX6 to DB2, DB3, DB4, DB5 and DB6 respectively.

Default mailbox database name	Server	New mailbox database name
Mailbox Database 1943020564	BLRMBX1	DB1
Mailbox Database 1347528707	BLRMBX2	DB2
Mailbox Database 0209038692	BLRMBX3	DB3
Mailbox Database 1707407357	BLRMBX4	DB4
Mailbox Database 1604672634	BLRMBX5	DB5
Mailbox Database 0780712749	BLRMBX6	DB6



NOTE: The default mailbox database name will be different from the examples used here.

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:



NOTE: Since DB1 is on BLRMBX1, you will have to logon to BLRMBX1 and run the command. Similarly, to move DB2, DB3, DB4, DB5 and DB6 logon to BLRMBX2, BLRMBX3, BLRMBX4, BLRMBX5 and BLRMBX6 respectively and run the command.

Steps

1. Move-DatabasePath -Identity DB1 -EdbFilePath "E:\Database\DB1\DB1.edb" -LogFolderPath "E:\Log\Log1"
2. Move-DatabasePath -Identity DB2 -EdbFilePath "E:\Database\DB2\DB2.edb" -LogFolderPath "E:\Log\Log2"
3. Move-DatabasePath -Identity DB3 -EdbFilePath "E:\Database\DB3\DB3.edb" -LogFolderPath "E:\Log\Log3"
4. Move-DatabasePath -Identity DB4 -EdbFilePath "E:\Database\DB4\DB4.edb" -LogFolderPath "E:\Log\Log4"
5. Move-DatabasePath -Identity DB5 -EdbFilePath "E:\Database\DB5\DB5.edb" -LogFolderPath "E:\Log\Log5"
6. Move-DatabasePath -Identity DB6 -EdbFilePath "E:\Database\DB6\DB6.edb" -LogFolderPath "E:\Log\Log6"

Delete the default databases at remote site

About this task

To delete the databases created during installing Exchange at Site B (AUS), identify the databases, then remove them by running these commands.

Steps

1. Run this command `Get-MailboxDatabase -Server <server name>` to identify the databases.
For example: `Get-MailboxDatabase -Server AUSMBX1`
2. Run this command `Remove-MailboxDatabase <Database Name>` to remove the databases.
For example: `Remove-MailboxDatabase "Mailbox Database 1790828222"`



NOTE: You must remove the database file located in the Default Exchange Directory from your servers manually if it exists.



NOTE: Run these commands on all three servers at Site B (AUS).

Creating, mounting, and verifying the Exchange databases

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



NOTE: Database layout is as shown in the diagram.

Database Name	Active Server	Local Site (BLR)						Remote Site (AUS)		
		BLRMBX1	BLRMBX2	BLRMBX3	BLRMBX4	BLRMBX5	BLRMBX6	AUSMBX1	AUSMBX2	AUSMBX3
DB1	BLRMBX1	1	2					3		
DB2	BLRMBX2		1	2					3	
DB3	BLRMBX3			1	2					3
DB4	BLRMBX4				1	2		3		
DB5	BLRMBX5					1	2		3	
DB6	BLRMBX6	2					1			3
DB7	BLRMBX1	1		2				3		
DB8	BLRMBX2		1		2				3	
DB9	BLRMBX3			1		2				3
DB10	BLRMBX4				1		2	3		
DB11	BLRMBX5	2				1			3	
DB12	BLRMBX6		2				1			3
DB13	BLRMBX1	1			2			3		
DB14	BLRMBX2		1			2			3	
DB15	BLRMBX3			1			2			3
DB16	BLRMBX4	2			1			3		
DB17	BLRMBX5		2			1			3	
DB18	BLRMBX6			2			1			3
DB19	BLRMBX1	1				2		3		
DB20	BLRMBX2		1				2		3	
DB21	BLRMBX3	2		1						3
DB22	BLRMBX4		2		1			3		
DB23	BLRMBX5			2		1			3	
DB24	BLRMBX6				2		1			3
DB25	BLRMBX1	1					2	3		
DB26	BLRMBX2	2	1						3	
DB27	BLRMBX3		2	1						3
DB28	BLRMBX4			2	1			3		
DB29	BLRMBX5				2	1			3	
DB30	BLRMBX6					2	1			3
DB31	BLRMBX1	1	2					3		
DB32	BLRMBX2		1	2					3	
DB33	BLRMBX3			1	2					3
DB34	BLRMBX4				1	2		3		
DB35	BLRMBX5					1	2		3	
DB36	BLRMBX6	2					1			3
DB37	BLRMBX1	1		2				3		
DB38	BLRMBX2		1		2				3	
DB39	BLRMBX3			1		2				3
DB40	BLRMBX4				1		2	3		
DB41	BLRMBX5	2				1			3	
DB42	BLRMBX6		2				1			3
DB43	BLRMBX1	1			2			3		
DB44	BLRMBX2		1			2			3	
DB45	BLRMBX3			1			2			3
DB46	BLRMBX4	2			1			3		
DB47	BLRMBX5		2			1			3	
DB48	BLRMBX6			2			1			3
DB49	BLRMBX1	1				2		3		
DB50	BLRMBX2		1				2		3	
DB51	BLRMBX3	2		1						3
DB52	BLRMBX4		2		1			3		
DB53	BLRMBX5			2		1			3	
DB54	BLRMBX6				2		1			3
DB55	BLRMBX1	1					2	3		
DB56	BLRMBX2	2	1						3	
DB57	BLRMBX3		2	1						3
DB58	BLRMBX4			2	1			3		
DB59	BLRMBX5				2	1			3	
DB60	BLRMBX6					2	1			3
DB61	BLRMBX1	1	2					3		
DB62	BLRMBX2		1	2					3	
DB63	BLRMBX3			1	2					3
DB64	BLRMBX4				1	2		3		
DB65	BLRMBX5					1	2		3	
DB66	BLRMBX6	2					1			3
DB67	BLRMBX1	1		2				3		
DB68	BLRMBX2		1		2				3	
DB69	BLRMBX3			1		2				3
DB70	BLRMBX4				1		2	3		
DB71	BLRMBX5	2				1			3	
DB72	BLRMBX6		2				1			3

Figure 2. Exchange database layout

- New-MailboxDatabase DB7 -Server BLRMBX1 -EdbFilePath "F:\Database\DB7\DB7.edb" - LogFolderPath "F:\Log\Log7"
- New-MailboxDatabase DB8 -Server BLRMBX2 -EdbFilePath "F:\Database\DB8\DB8.edb" - LogFolderPath "F:\Log\Log8"
- New-MailboxDatabase DB9 -Server BLRMBX3 -EdbFilePath "F:\Database\DB9\DB9.edb" - LogFolderPath "F:\Log\Log9"
- New-MailboxDatabase DB10 -Server BLRMBX4 -EdbFilePath "F:\Database\DB10\DB10.edb" - LogFolderPath "F:\Log\Log10"
- New-MailboxDatabase DB11 -Server BLRMBX5 -EdbFilePath "F:\Database\DB11\DB11.edb" - LogFolderPath "F:\Log\Log11"

- f. New-MailboxDatabase DB12 -Server BLRMBX6 -EdbFilePath "F:\Database\DB12\DB12.edb" - LogFolderPath "F:\Log\Log12"
- g. New-MailboxDatabase DB13 -Server BLRMBX1 -EdbFilePath "G:\Database\DB13\DB13.edb" - LogFolderPath "G:\Log\Log13"
- h. New-MailboxDatabase DB14 -Server BLRMBX2 -EdbFilePath "G:\Database\DB14\DB14.edb" - LogFolderPath "G:\Log\Log14"
- i. New-MailboxDatabase DB15 -Server BLRMBX3 -EdbFilePath "G:\Database\DB15\DB15.edb" - LogFolderPath "G:\Log\Log15"
- j. New-MailboxDatabase DB16 -Server BLRMBX4 -EdbFilePath "G:\Database\DB16\DB16.edb" - LogFolderPath "G:\Log\Log16"
- k. New-MailboxDatabase DB17 -Server BLRMBX5 -EdbFilePath "G:\Database\DB17\DB17.edb" - LogFolderPath "G:\Log\Log17"
- l. New-MailboxDatabase DB18 -Server BLRMBX6 -EdbFilePath "G:\Database\DB18\DB18.edb" - LogFolderPath "G:\Log\Log18"
- m. New-MailboxDatabase DB19 -Server BLRMBX1 -EdbFilePath "H:\Database\DB19\DB19.edb" - LogFolderPath "H:\Log\Log19"
- n. New-MailboxDatabase DB20 -Server BLRMBX2 -EdbFilePath "H:\Database\DB20\DB20.edb" - LogFolderPath "H:\Log\Log20"
- o. New-MailboxDatabase DB21 -Server BLRMBX3 -EdbFilePath "H:\Database\DB21\DB21.edb" - LogFolderPath "H:\Log\Log21"
- p. New-MailboxDatabase DB22 -Server BLRMBX4 -EdbFilePath "H:\Database\DB22\DB22.edb" - LogFolderPath "H:\Log\Log22"
- q. New-MailboxDatabase DB23 -Server BLRMBX5 -EdbFilePath "H:\Database\DB23\DB23.edb" - LogFolderPath "H:\Log\Log23"
- r. New-MailboxDatabase DB24 -Server BLRMBX6 -EdbFilePath "H:\Database\DB24\DB24.edb" - LogFolderPath "H:\Log\Log24"
- s. New-MailboxDatabase DB25 -Server BLRMBX1 -EdbFilePath "I:\Database\DB25\DB25.edb" - LogFolderPath "I:\Log\Log25"
- t. New-MailboxDatabase DB26 -Server BLRMBX2 -EdbFilePath "I:\Database\DB26\DB26.edb" - LogFolderPath "I:\Log\Log26"
- u. New-MailboxDatabase DB27 -Server BLRMBX3 -EdbFilePath "I:\Database\DB27\DB27.edb" - LogFolderPath "I:\Log\Log27"
- v. New-MailboxDatabase DB28 -Server BLRMBX4 -EdbFilePath "I:\Database\DB28\DB28.edb" - LogFolderPath "I:\Log\Log28"
- w. New-MailboxDatabase DB29 -Server BLRMBX5 -EdbFilePath "I:\Database\DB29\DB29.edb" - LogFolderPath "I:\Log\Log29"
- x. New-MailboxDatabase DB30 -Server BLRMBX6 -EdbFilePath "I:\Database\DB30\DB30.edb" - LogFolderPath "I:\Log\Log30"
- y. New-MailboxDatabase DB31 -Server BLRMBX1 -EdbFilePath "J:\Database\DB31\DB31.edb" - LogFolderPath "J:\Log\Log31"
- z. New-MailboxDatabase DB32 -Server BLRMBX2 -EdbFilePath "J:\Database\DB32\DB32.edb" - LogFolderPath "J:\Log\Log32"
- aa. New-MailboxDatabase DB33 -Server BLRMBX3 -EdbFilePath "J:\Database\DB33\DB33.edb" - LogFolderPath "J:\Log\Log33"
- ab. New-MailboxDatabase DB34 -Server BLRMBX4 -EdbFilePath "J:\Database\DB34\DB34.edb" - LogFolderPath "J:\Log\Log34"
- ac. New-MailboxDatabase DB35 -Server BLRMBX5 -EdbFilePath "J:\Database\DB35\DB35.edb" - LogFolderPath "J:\Log\Log35"
- ad. New-MailboxDatabase DB36 -Server BLRMBX6 -EdbFilePath "J:\Database\DB36\DB36.edb" - LogFolderPath "J:\Log\Log36"
- ae. New-MailboxDatabase DB37 -Server BLRMBX1 -EdbFilePath "K:\Database\DB37\DB37.edb" - LogFolderPath "K:\Log\Log37"

af. New-MailboxDatabase DB38 -Server BLRMBX2 -EdbFilePath "K:\Database\DB38\DB38.edb" - LogFolderPath "K:\Log\Log38"

ag. New-MailboxDatabase DB39 -Server BLRMBX3 -EdbFilePath "K:\Database\DB39\DB39.edb" - LogFolderPath "K:\Log\Log39"

ah. New-MailboxDatabase DB40 -Server BLRMBX4 -EdbFilePath "K:\Database\DB40\DB40.edb" - LogFolderPath "K:\Log\Log40"

ai. New-MailboxDatabase DB41 -Server BLRMBX5 -EdbFilePath "K:\Database\DB41\DB41.edb" - LogFolderPath "K:\Log\Log41"

aj. New-MailboxDatabase DB42 -Server BLRMBX6 -EdbFilePath "K:\Database\DB42\DB42.edb" - LogFolderPath "K:\Log\Log42"

ak. New-MailboxDatabase DB43 -Server BLRMBX1 -EdbFilePath "L:\Database\DB43\DB43.edb" - LogFolderPath "L:\Log\Log43"

al. New-MailboxDatabase DB44 -Server BLRMBX2 -EdbFilePath "L:\Database\DB44\DB44.edb" - LogFolderPath "L:\Log\Log44"

am. New-MailboxDatabase DB45 -Server BLRMBX3 -EdbFilePath "L:\Database\DB45\DB45.edb" - LogFolderPath "L:\Log\Log45"

an. New-MailboxDatabase DB46 -Server BLRMBX4 -EdbFilePath "L:\Database\DB46\DB46.edb" - LogFolderPath "L:\Log\Log46"

ao. New-MailboxDatabase DB47 -Server BLRMBX5 -EdbFilePath "L:\Database\DB47\DB47.edb" - LogFolderPath "L:\Log\Log47"

ap. New-MailboxDatabase DB48 -Server BLRMBX6 -EdbFilePath "L:\Database\DB48\DB48.edb" - LogFolderPath "L:\Log\Log48"

aq. New-MailboxDatabase DB49 -Server BLRMBX1 -EdbFilePath "M:\Database\DB49\DB49.edb" - LogFolderPath "M:\Log\Log49"

ar. New-MailboxDatabase DB50 -Server BLRMBX2 -EdbFilePath "M:\Database\DB50\DB50.edb" - LogFolderPath "M:\Log\Log50"

as. New-MailboxDatabase DB51 -Server BLRMBX3 -EdbFilePath "M:\Database\DB51\DB51.edb" - LogFolderPath "M:\Log\Log51"

at. New-MailboxDatabase DB52 -Server BLRMBX4 -EdbFilePath "M:\Database\DB52\DB52.edb" - LogFolderPath "M:\Log\Log52"

au. New-MailboxDatabase DB53 -Server BLRMBX5 -EdbFilePath "M:\Database\DB53\DB53.edb" - LogFolderPath "M:\Log\Log53"

av. New-MailboxDatabase DB54 -Server BLRMBX6 -EdbFilePath "M:\Database\DB54\DB54.edb" - LogFolderPath "M:\Log\Log54"

aw. New-MailboxDatabase DB55 -Server BLRMBX1 -EdbFilePath "N:\Database\DB55\DB55.edb" - LogFolderPath "N:\Log\Log55"

ax. New-MailboxDatabase DB56 -Server BLRMBX2 -EdbFilePath "N:\Database\DB56\DB56.edb" - LogFolderPath "N:\Log\Log56"

ay. New-MailboxDatabase DB57 -Server BLRMBX3 -EdbFilePath "N:\Database\DB57\DB57.edb" - LogFolderPath "N:\Log\Log57"

az. New-MailboxDatabase DB58 -Server BLRMBX4 -EdbFilePath "N:\Database\DB58\DB58.edb" - LogFolderPath "N:\Log\Log58"

ba. New-MailboxDatabase DB59 -Server BLRMBX5 -EdbFilePath "N:\Database\DB59\DB59.edb" - LogFolderPath "N:\Log\Log59"

bb. New-MailboxDatabase DB60 -Server BLRMBX6 -EdbFilePath "N:\Database\DB60\DB60.edb" - LogFolderPath "N:\Log\Log60"

bc. New-MailboxDatabase DB61 -Server BLRMBX1 -EdbFilePath "O:\Database\DB61\DB61.edb" - LogFolderPath "O:\Log\Log61"

bd. New-MailboxDatabase DB62 -Server BLRMBX2 -EdbFilePath "O:\Database\DB62\DB62.edb" - LogFolderPath "O:\Log\Log62"

be. New-MailboxDatabase DB63 -Server BLRMBX3 -EdbFilePath "O:\Database\DB63\DB63.edb" - LogFolderPath "O:\Log\Log63"

- bf. New-MailboxDatabase DB64 -Server BLRMBX4 -EdbFilePath "O:\Database\DB64\DB64.edb" -LogFolderPath "O:\Log\Log64"
 - bg. New-MailboxDatabase DB65 -Server BLRMBX5 -EdbFilePath "O:\Database\DB65\DB65.edb" -LogFolderPath "O:\Log\Log65"
 - bh. New-MailboxDatabase DB66 -Server BLRMBX6 -EdbFilePath "O:\Database\DB66\DB66.edb" -LogFolderPath "O:\Log\Log66"
 - bi. New-MailboxDatabase DB67 -Server BLRMBX1 -EdbFilePath "P:\Database\DB67\DB67.edb" -LogFolderPath "P:\Log\Log67"
 - bj. New-MailboxDatabase DB68 -Server BLRMBX2 -EdbFilePath "P:\Database\DB68\DB68.edb" -LogFolderPath "P:\Log\Log68"
 - bk. New-MailboxDatabase DB69 -Server BLRMBX3 -EdbFilePath "P:\Database\DB69\DB69.edb" -LogFolderPath "P:\Log\Log69"
 - bl. New-MailboxDatabase DB70 -Server BLRMBX4 -EdbFilePath "P:\Database\DB70\DB70.edb" -LogFolderPath "P:\Log\Log70"
 - bm. New-MailboxDatabase DB71 -Server BLRMBX5 -EdbFilePath "P:\Database\DB71\DB71.edb" -LogFolderPath "P:\Log\Log71"
 - bn. New-MailboxDatabase DB72 -Server BLRMBX6 -EdbFilePath "P:\Database\DB72\DB72.edb" -LogFolderPath "P:\Log\Log72"
2. Restart the Microsoft Exchange Information Store service on all the servers after adding new mailbox databases.
 3. Mount the databases by running the command Get-MailboxDatabase | Mount-Database in the Exchange Management Shell (EMS).
 4. To verify that the databases are mounted, run this command Get-MailboxDatabase -Status | select name,mounted in EMS.
 5. 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"
 6. Assign the mailbox quota 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: Set-OwaVirtualDirectory "BLRMBX1\owa (Default Web Site)" -ExternalUrl https://mail.exchange.lab/owa -InternalUrl https://mail.exchange.lab/owa



NOTE: This command can be used to set the directory on all exchange servers by changing the server name. For example, change BLRMBX1 to BLRMBX2 to set the directory on the server named BLRMBX2.

2. To configure **ECP Virtual Directory**, use this command: Set-EcpVirtualDirectory "BLRMBX1\ecp (Default Web Site)" -ExternalUrl https://mail.exchange.lab/ecp -InternalUrl https://mail.exchange.lab/ecp



NOTE: This command can be used to set the directory on all exchange servers by changing the server name. For example, change BLRMBX1 to BLRMBX2 to set the directory on the server named BLRMBX2.

3. To configure **OAB Virtual Directory**, use this command: `Set-OabVirtualDirectory "BLRMBX1\oab (Default Web Site)" -ExternalUrl https://mail.exchange.lab/oab -InternalUrl https://mail.exchange.lab/oab`

 **NOTE:** This command can be used to set the directory on all exchange servers by changing the server name. For example, change BLRMBX1 to BLRMBX2 to set the directory on the server named BLRMBX2.

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.
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 remaining eight Exchange servers.

 **NOTE:** Perform this procedure for the remaining eight Exchange servers.

Set Autodiscover and OutlookAnywhere

1. In the Exchange Management Shell, use this command: `Set-ClientAccessServer -Identity BLRMBX1 -AutoDiscoverServiceInternalUri https://autodiscover.exchangelab.com/Autodiscover/Autodiscover.xml` to set the **Autodiscover** URL.

 **NOTE:** This command can be used to set the **Autodiscover** URL on all exchange servers by changing the server name. For example, change BLRMBX1 to BLRMBX2 to set the **Autodiscover** URL on the server named BLRMBX2.

2. In the Exchange Management Shell, use this command: `Get-OutlookAnywhere -Server BLRMBX1 | Set-OutlookAnywhere -ExternalHostname ail.exchange.lab -DefaultAuthenticationMethod NTLM -ExternalClientsRequireSsl $true` to set **OutlookAnywhere**.

 **NOTE:** This command can be used to set **OutlookAnywhere** on all exchange servers by changing the server name. For example, change BLRMBX1 to BLRMBX2 to set **OutlookAnywhere** on the server named BLRMBX2.

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`

The following table is a sample of the expected result.

Name	EdbFilePath	LogFolderPath
DB1	E:\Database\DB1\DB1.edb	E:\Log\Log1
DB2	E:\Database\DB2\DB2.edb	E:\Log\Log2
DB3	E:\Database\DB3\DB3.edb	E:\Log\Log3
DB4	E:\Database\DB4\DB4.edb	E:\Log\Log4
DB5	E:\Database\DB5\DB5.edb	E:\Log\Log5
DB6	E:\Database\DB6\DB6.edb	E:\Log\Log6
DB7	F:\Database\DB7\DB7.edb	F:\Log\Log7
DB8	F:\Database\DB8\DB8.edb	F:\Log\Log8
DB9	F:\Database\DB9\DB9.edb	F:\Log\Log9
DB10	F:\Database\DB10\DB10.edb	F:\Log\Log10
DB11	F:\Database\DB11\DB11.edb	F:\Log\Log11
DB12	F:\Database\DB12\DB12.edb	F:\Log\Log12
DB13	G:\Database\DB13\DB13.edb	G:\Log\Log13
DB14	G:\Database\DB14\DB14.edb	G:\Log\Log14
DB15	G:\Database\DB15\DB15.edb	G:\Log\Log15
DB16	G:\Database\DB16\DB16.edb	G:\Log\Log16
DB17	G:\Database\DB17\DB17.edb	G:\Log\Log17
DB18	G:\Database\DB18\DB18.edb	G:\Log\Log18
DB19	H:\Database\DB19\DB19.edb	H:\Log\Log19
DB20	H:\Database\DB20\DB20.edb	H:\Log\Log20
DB21	H:\Database\DB21\DB21.edb	H:\Log\Log21
DB22	H:\Database\DB22\DB22.edb	H:\Log\Log22
DB23	H:\Database\DB23\DB23.edb	H:\Log\Log23
DB24	H:\Database\DB24\DB24.edb	H:\Log\Log24

Name	EdbFilePath	LogFolderPath
DB25	I:\Database\DB25\DB25.edb	I:\Log\Log25
DB26	I:\Database\DB26\DB26.edb	I:\Log\Log26
DB27	I:\Database\DB27\DB27.edb	I:\Log\Log27
DB28	I:\Database\DB28\DB28.edb	I:\Log\Log28
DB29	I:\Database\DB29\DB29.edb	I:\Log\Log29
DB30	I:\Database\DB30\DB30.edb	I:\Log\Log30
DB31	J:\Database\DB31\DB31.edb	J:\Log\Log31
DB32	J:\Database\DB32\DB32.edb	J:\Log\Log32
DB33	J:\Database\DB33\DB33.edb	J:\Log\Log33
DB34	J:\Database\DB34\DB34.edb	J:\Log\Log34
DB35	J:\Database\DB35\DB35.edb	J:\Log\Log35
DB36	J:\Database\DB36\DB36.edb	J:\Log\Log36
DB37	K:\Database\DB37\DB37.edb	K:\Log\Log37
DB38	K:\Database\DB38\DB38.edb	K:\Log\Log38
DB39	K:\Database\DB39\DB39.edb	K:\Log\Log39
DB40	K:\Database\DB40\DB40.edb	K:\Log\Log40
DB41	K:\Database\DB41\DB41.edb	K:\Log\Log41
DB42	K:\Database\DB42\DB42.edb	K:\Log\Log42
DB43	L:\Database\DB43\DB43.edb	L:\Log\Log43
DB44	L:\Database\DB44\DB44.edb	L:\Log\Log44
DB45	L:\Database\DB45\DB45.edb	L:\Log\Log45
DB46	L:\Database\DB46\DB46.edb	L:\Log\Log46
DB47	L:\Database\DB47\DB47.edb	L:\Log\Log47
DB48	L:\Database\DB48\DB48.edb	L:\Log\Log48

Name	EdbFilePath	LogFolderPath
DB49	M:\Database\DB49\DB49.edb	M:\Log\Log49
DB50	M:\Database\DB50\DB50.edb	M:\Log\Log50
DB51	M:\Database\DB51\DB51.edb	M:\Log\Log51
DB52	M:\Database\DB52\DB52.edb	M:\Log\Log52
DB53	M:\Database\DB53\DB53.edb	M:\Log\Log53
DB54	M:\Database\DB54\DB54.edb	M:\Log\Log54
DB55	N:\Database\DB55\DB55.edb	N:\Log\Log55
DB56	N:\Database\DB56\DB56.edb	N:\Log\Log56
DB57	N:\Database\DB57\DB57.edb	N:\Log\Log57
DB58	N:\Database\DB58\DB58.edb	N:\Log\Log58
DB59	N:\Database\DB59\DB59.edb	N:\Log\Log59
DB60	N:\Database\DB60\DB60.edb	N:\Log\Log60
DB61	O:\Database\DB61\DB61.edb	O:\Log\Log61
DB62	O:\Database\DB62\DB62.edb	O:\Log\Log62
DB63	O:\Database\DB63\DB63.edb	O:\Log\Log63
DB64	O:\Database\DB64\DB64.edb	O:\Log\Log64
DB65	O:\Database\DB65\DB65.edb	O:\Log\Log65
DB66	O:\Database\DB66\DB66.edb	O:\Log\Log66
DB67	P:\Database\DB67\DB67.edb	P:\Log\Log67
DB68	P:\Database\DB68\DB68.edb	P:\Log\Log68
DB69	P:\Database\DB69\DB69.edb	P:\Log\Log69
DB70	P:\Database\DB70\DB70.edb	P:\Log\Log70
DB71	P:\Database\DB71\DB71.edb	P:\Log\Log71

Name	EdbFilePath	LogFolderPath
DB72	P:\Database\DB72\DB72.edb	P:\Log\Log72

Adding database copies in database availability group

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 BLRMBX2 -ActivationPreference 2
2. Add-MailboxDatabaseCopy -Identity DB1 -MailboxServer AUSMBX1 -ActivationPreference 3
3. Add-MailboxDatabaseCopy -Identity DB2 -MailboxServer BLRMBX3 -ActivationPreference 2
4. Add-MailboxDatabaseCopy -Identity DB2 -MailboxServer AUSMBX2 -ActivationPreference 3
5. Add-MailboxDatabaseCopy -Identity DB3 -MailboxServer BLRMBX4 -ActivationPreference 2
6. Add-MailboxDatabaseCopy -Identity DB3 -MailboxServer AUSMBX3 -ActivationPreference 3
7. Add-MailboxDatabaseCopy -Identity DB4 -MailboxServer BLRMBX5 -ActivationPreference 2
8. Add-MailboxDatabaseCopy -Identity DB4 -MailboxServer AUSMBX1 -ActivationPreference 3
9. Add-MailboxDatabaseCopy -Identity DB5 -MailboxServer BLRMBX6 -ActivationPreference 2
10. Add-MailboxDatabaseCopy -Identity DB5 -MailboxServer AUSMBX2 -ActivationPreference 3
11. Add-MailboxDatabaseCopy -Identity DB6 -MailboxServer BLRMBX1 -ActivationPreference 2
12. Add-MailboxDatabaseCopy -Identity DB6 -MailboxServer AUSMBX3 -ActivationPreference 3
13. Add-MailboxDatabaseCopy -Identity DB7 -MailboxServer BLRMBX3 -ActivationPreference 2
14. Add-MailboxDatabaseCopy -Identity DB7 -MailboxServer AUSMBX1 -ActivationPreference 3
15. Add-MailboxDatabaseCopy -Identity DB8 -MailboxServer BLRMBX4 -ActivationPreference 2
16. Add-MailboxDatabaseCopy -Identity DB8 -MailboxServer AUSMBX2 -ActivationPreference 3
17. Add-MailboxDatabaseCopy -Identity DB9 -MailboxServer BLRMBX5 -ActivationPreference 2
18. Add-MailboxDatabaseCopy -Identity DB9 -MailboxServer AUSMBX3 -ActivationPreference 3
19. Add-MailboxDatabaseCopy -Identity DB10 -MailboxServer BLRMBX6 -ActivationPreference 2
20. Add-MailboxDatabaseCopy -Identity DB10 -MailboxServer AUSMBX1 -ActivationPreference 3
21. Add-MailboxDatabaseCopy -Identity DB11 -MailboxServer BLRMBX1 -ActivationPreference 2
22. Add-MailboxDatabaseCopy -Identity DB11 -MailboxServer AUSMBX2 -ActivationPreference 3
23. Add-MailboxDatabaseCopy -Identity DB12 -MailboxServer BLRMBX2 -ActivationPreference 2
24. Add-MailboxDatabaseCopy -Identity DB12 -MailboxServer AUSMBX3 -ActivationPreference 3
25. Add-MailboxDatabaseCopy -Identity DB13 -MailboxServer BLRMBX4 -ActivationPreference 2
26. Add-MailboxDatabaseCopy -Identity DB13 -MailboxServer AUSMBX1 -ActivationPreference 3
27. Add-MailboxDatabaseCopy -Identity DB14 -MailboxServer BLRMBX5 -ActivationPreference 2
28. Add-MailboxDatabaseCopy -Identity DB14 -MailboxServer AUSMBX2 -ActivationPreference 3
29. Add-MailboxDatabaseCopy -Identity DB15 -MailboxServer BLRMBX6 -ActivationPreference 2
30. Add-MailboxDatabaseCopy -Identity DB15 -MailboxServer AUSMBX3 -ActivationPreference 3
31. Add-MailboxDatabaseCopy -Identity DB16 -MailboxServer BLRMBX1 -ActivationPreference 2
32. Add-MailboxDatabaseCopy -Identity DB16 -MailboxServer AUSMBX1 -ActivationPreference 3
33. Add-MailboxDatabaseCopy -Identity DB17 -MailboxServer BLRMBX2 -ActivationPreference 2

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- [illegible]

122.Add-MailboxDatabaseCopy -Identity DB61 -MailboxServer AUSMBX1 -ActivationPreference 3
 123.Add-MailboxDatabaseCopy -Identity DB62 -MailboxServer BLRMBX3 -ActivationPreference 2
 124.Add-MailboxDatabaseCopy -Identity DB62 -MailboxServer AUSMBX2 -ActivationPreference 3
 125.Add-MailboxDatabaseCopy -Identity DB63 -MailboxServer BLRMBX4 -ActivationPreference 2
 126.Add-MailboxDatabaseCopy -Identity DB63 -MailboxServer AUSMBX3 -ActivationPreference 3
 127.Add-MailboxDatabaseCopy -Identity DB64 -MailboxServer BLRMBX5 -ActivationPreference 2
 128.Add-MailboxDatabaseCopy -Identity DB64 -MailboxServer AUSMBX1 -ActivationPreference 3
 129.Add-MailboxDatabaseCopy -Identity DB65 -MailboxServer BLRMBX6 -ActivationPreference 2
 130.Add-MailboxDatabaseCopy -Identity DB65 -MailboxServer AUSMBX2 -ActivationPreference 3
 131.Add-MailboxDatabaseCopy -Identity DB66 -MailboxServer BLRMBX1 -ActivationPreference 2
 132.Add-MailboxDatabaseCopy -Identity DB66 -MailboxServer AUSMBX3 -ActivationPreference 3
 133.Add-MailboxDatabaseCopy -Identity DB67 -MailboxServer BLRMBX3 -ActivationPreference 2
 134.Add-MailboxDatabaseCopy -Identity DB67 -MailboxServer AUSMBX1 -ActivationPreference 3
 135.Add-MailboxDatabaseCopy -Identity DB68 -MailboxServer BLRMBX4 -ActivationPreference 2
 136.Add-MailboxDatabaseCopy -Identity DB68 -MailboxServer AUSMBX2 -ActivationPreference 3
 137.Add-MailboxDatabaseCopy -Identity DB69 -MailboxServer BLRMBX5 -ActivationPreference 2
 138.Add-MailboxDatabaseCopy -Identity DB69 -MailboxServer AUSMBX3 -ActivationPreference 3
 139.Add-MailboxDatabaseCopy -Identity DB70 -MailboxServer BLRMBX6 -ActivationPreference 2
 140.Add-MailboxDatabaseCopy -Identity DB70 -MailboxServer AUSMBX1 -ActivationPreference 3
 141.Add-MailboxDatabaseCopy -Identity DB71 -MailboxServer BLRMBX1 -ActivationPreference 2
 142.Add-MailboxDatabaseCopy -Identity DB71 -MailboxServer AUSMBX2 -ActivationPreference 3
 143.Add-MailboxDatabaseCopy -Identity DB72 -MailboxServer BLRMBX2 -ActivationPreference 2
 144.Add-MailboxDatabaseCopy -Identity DB72 -MailboxServer AUSMBX3 -ActivationPreference 3

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:

1. Run the command `Get-ExchangeServer` cmdlet in the Exchange Management Shell.
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 DB07 is active on MBX3, the status on the right pane shows that DB07 is **Active Mounted**.
 - b. In order to activate a passive copy of DB07 on MBX1, click DB07, then click **Activate** under DB07\MBX1 (Passive Healthy).
 - c. A **warning** page is displayed, reconfirming the request to activate DB07 on MBX3. Click **yes**.
 - d. Once the activation process is complete click **close**.
In the right pane, the status of DB07 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

- [PowerEdge R730xd Rack Server technical details](#)
- [Dell Storage MD1400](#)
- [Dell PowerEdge RAID Controller H730P](#)
- [Dell PowerEdge RAID Controller H830](#)
- [Microsoft Exchange 2013 on Dell PowerEdge R730xd and Dell Storage MD1400](#)
- [The Exchange Solution Reviewed Program \(ESRP\)](#)
- [PowerEdge R730xd and Dell Storage MD1400 12,500 Mailbox Resiliency Exchange 2013 Storage Solution](#)
- [Database Availability Groups](#)