



Installing Dell EMC OpenManage Essentials

This technical white paper describes the procedure to install OME.

Dell EMC Engineering
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Revisions

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June 2017	Initial release
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Executive summary

This technical white paper describes the process of installing, maintaining, and upgrading OME.

This technical white paper includes:

- Minimum hardware and software requirements
- Single-click prerequisites installation
- Remote database installation
- Program maintenance

What is OpenManage Essentials (OME)?

Dell EMC OME is a lightweight, web-based, one-to-many console that provides a comprehensive view of Dell EMC systems, devices, and components in an enterprise network.

For details, see www.delltechcenter.com/ome.

1.1

Minimum installation requirements

The following table lists the software, network, and system configurations required to install the OME.

Note: You must have system administrator privileges to install the OME.

Table 1 Recommended hardware

Minimum recommended Hardware	Large deployments	Large deployments	Large deployments	Medium deployments	Small deployments
Number of devices	Up to 8000	Up to 5500	Up to 2000	Up to 500	Up to 100
Type of system	Physical Machines/ Virtual Machines				
RAM	16 GB	8 GB	8 GB	6 GB	4 GB
Processors	16 cores total	8 cores total	8 cores total	4 cores total	2 cores total
Database	SQL Enterprise or Standard	SQL Enterprise or Standard	SQL Enterprise or Standard	SQL Express	SQL Express
Database location	Remote [b]	Remote [b]	Remote [b]	Local	Local
Hard drive	30 GB	20 GB	10 GB	10 GB	10 GB

- a. If you are not using SQL Express, limit the maximum memory usage to 2 GB which is less than the total system memory and disable the SQL analysis and report services.
- b. Install the remote database on a system that supports the recommended hardware for OME.

Note: The recommended hardware for OME on a domain controller is 8 GB RAM, 8 core processor, and a remote database.

Table 2 Software and network requirements

Particulars	Minimum requirements
Operating system	Microsoft Windows Server 2016 Standard and Datacenter Editions Microsoft Windows Server 2012 R2 Standard and Datacenter Editions Microsoft Windows Server 2012 Standard and Datacenter Editions Microsoft Windows Server 2008 R2 SP1 Standard and Datacenter Editions Note: OME version is supported only on 64-bit operating systems. The Wow64 component is required to run on a 64-bit operating system
Network	1 Gbps or higher
Web browser	Microsoft Internet Explorer 10 and 11 Mozilla Firefox 50 and 51
Database	Standard\Enterprise\Express Editions: Microsoft SQL Server 2008 R2 SP1 and above Express Editions: SQLEXPRESSOME instance with Microsoft SQL Server 2008 R2 SP1 and above Note: Only case-insensitive instance of SQL Server is supported. SQL Server 2014 SP2 Express is installed with OME.
User interface	Microsoft Silverlight version 5.1.50907
Microsoft .NET Framework	4.6.2
Microsoft Visual C++ Runtime	Runtime 14.0

Note: If the above mentioned Service Packs are not installed on Windows, the installation of OME in any of the methods such as typical, custom, and upgrade from previous version will be blocked. You should adhere to the above mentioned Service Packs of Windows for installing or upgrading OME.

Table 3 Minimum login privileges required for Microsoft SQL Server

Use cases	Minimum logic roles for SQL Server
Fresh OME installation: select the Typical installation option.	sysadmin access on the installed instance
Fresh OME installation: select the Custom installation option. An empty OME database is already present (locally or remotely) on the mentioned database server.	db_owner access on the OME database.
Fresh OME installation: select the Custom installation option, and no OME database found.	dbcreator access on the server.
Upgrading OME from an earlier version to the current version and an OME database is available (local or remote).	db_owner access on the OME database.

Note: If you select the **Custom install** option and do not enter credentials (irrespective of whether the Windows or SQL Authentication method is selected), the installation is considered as a Typical installation and “sysadmin” rights will be checked for the mentioned database server and database instance.

Table 4 Login roles

Role	Why does OME require this role during installation?
Sysadmin	During a Typical installation, OME requires this role to create a new SQL Server Login OMEService. This login is granted with dbcreator permission.
dbcreator	During a Custom installation, OME requires this role to create the OME database on the mentioned database server.
db_owner	The OME requires this role when it detects an existing OME database on the system. This role helps the OME to create/update the OME database objects on the existing database.

2

Installation procedure

This section describes the procedure to install OME.

2.1

Installation flowchart

This flowchart describes the OME installation steps followed during fresh installation:

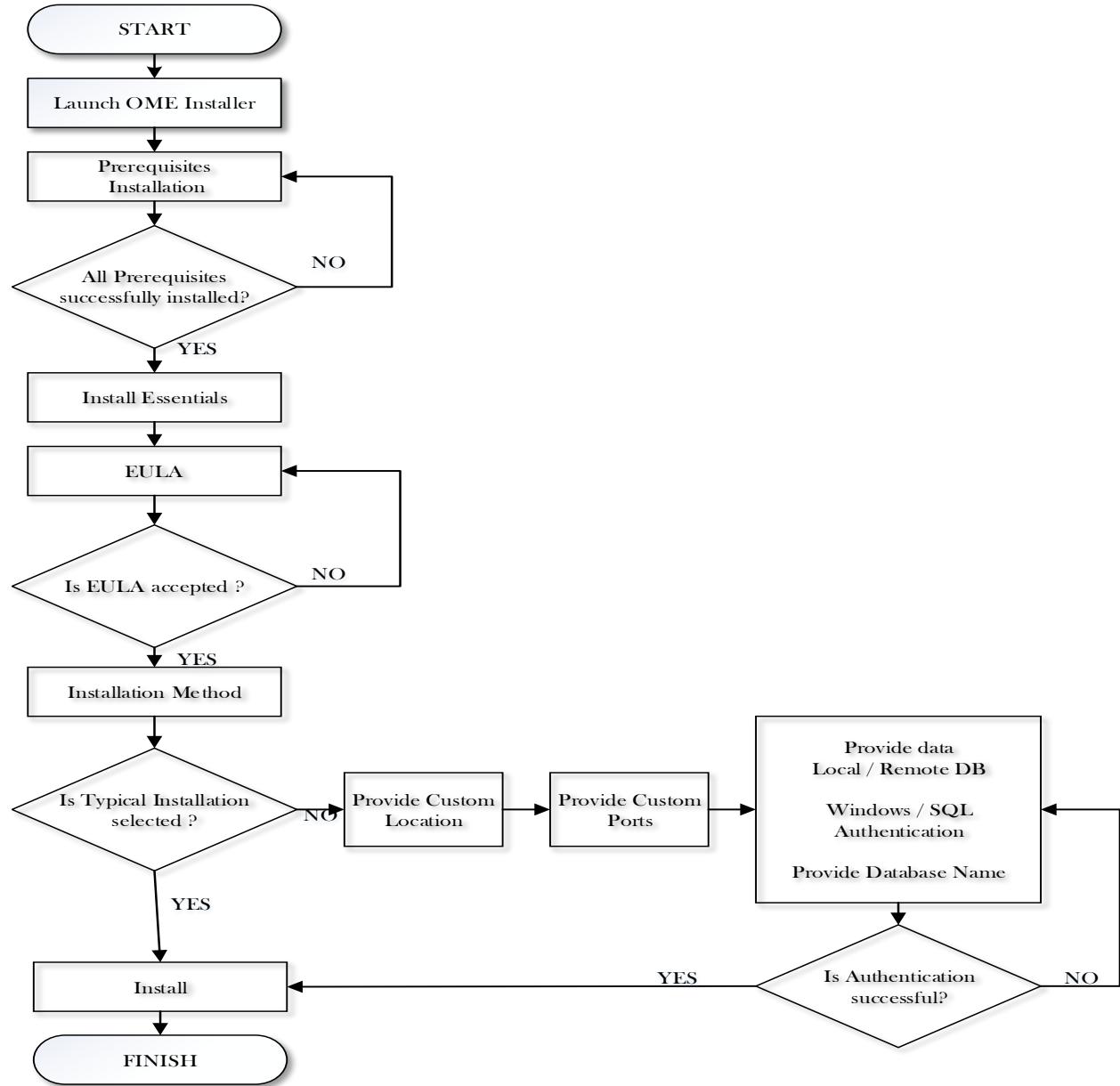


Figure 1 Newly installing OME on a server

2.2 Installing Dell EMC OME

1. Download the OME package from <https://delltechcenter.com/ome>, and extract the files to the local drive.
2. The **Autorun.exe** window is automatically started or you can manually launch the Autorun.exe.

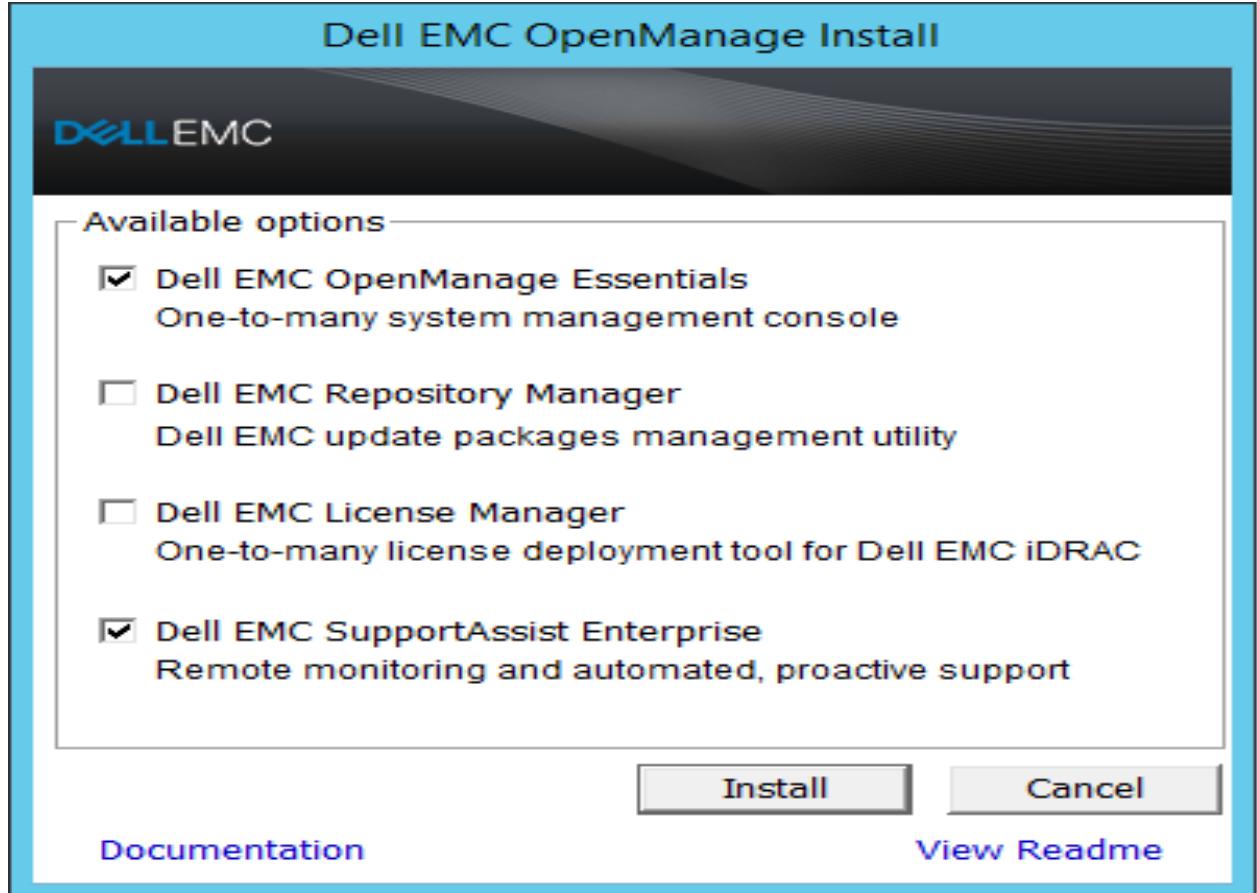


Figure 2 Dell EMC OpenManage Install page

3. Select the **Dell EMC OpenManage Essentials** check box and click **Install**. The **Dell EMC OpenManage Essentials Prerequisites** screen is launched.

Note:

- If you select the OME, Dell EMC Troubleshooting Tool will be installed along with it.
- If you directly launch the Setup.exe in the \windows\ManagementStation\ folder, the Dell EMC troubleshooting tool will not be installed along with the OME.

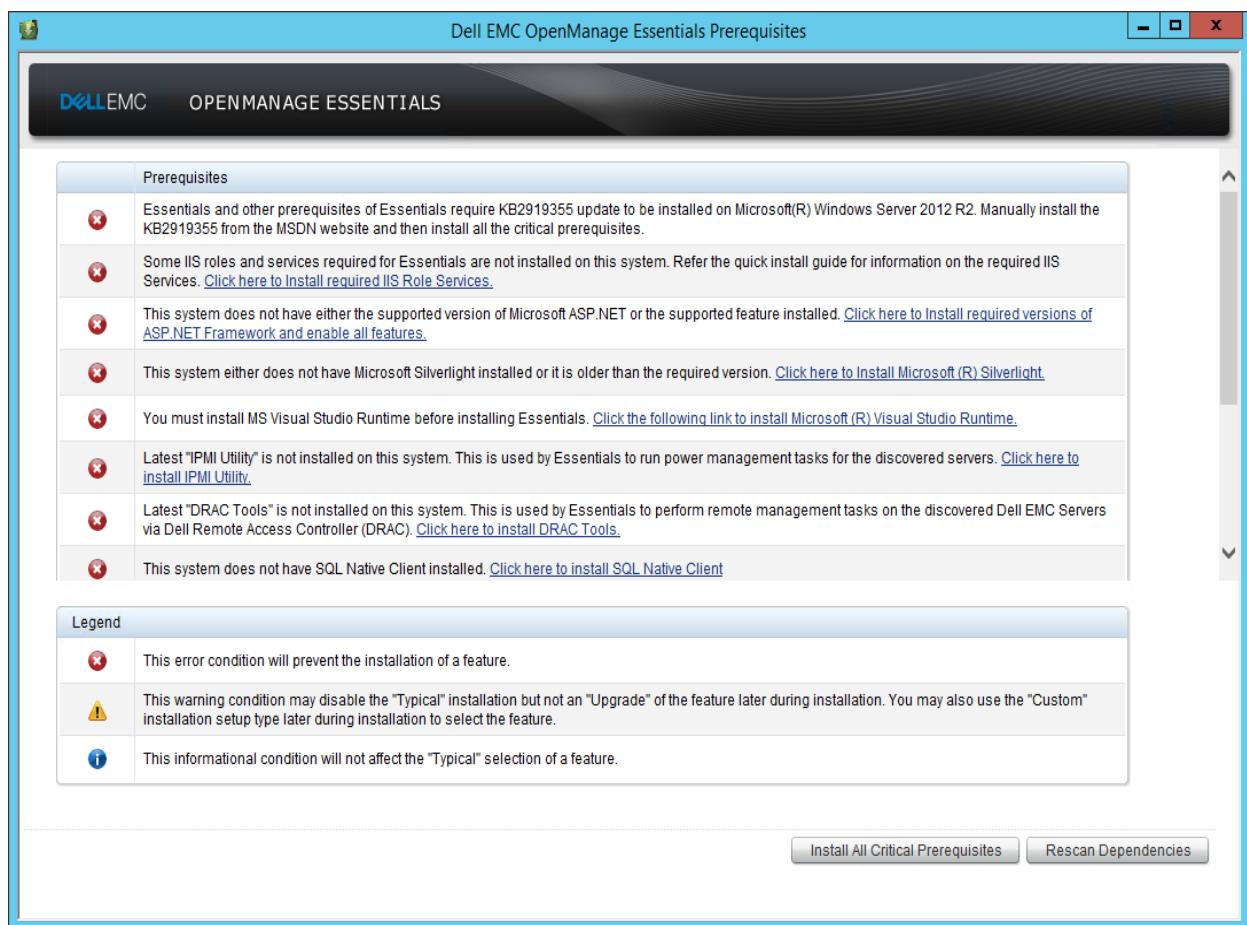


Figure 3 Dell EMC OpenManage Essentials Prerequisites page

2.3 Critical prerequisites

If a component required for OME installation is missing or the version is outdated, it will be displayed as a critical prerequisite on the **Dell EMC OpenManage Essentials Prerequisites** page. You will be able to install the OME only if all the critical requirements are met on your server.

The critical prerequisites:

- KB2919355
 - This pre-requisite is only for OME on Microsoft Windows 2012 R2. It is a set of 6 Microsoft KBs.
 - Other pre-requisites like Microsoft Visual Studio Runtime 14.0, .Net Framework 4.6.2, Microsoft Silverlight 4.6.2 require KB2919355 installation in the system
 - Download and install KB2919355 manually from MSDN before installing the other pre-requisites on Microsoft Windows 2012 R2
 - The missing prerequisites will not be installed by clicking Install All Critical Prerequisites, until the KB2919355 is installed and available in the OS. The following message is displayed: You must install KB2919355 before installing all other critical prerequisites.
- IIS 7.5/8

- Microsoft .NET 3.5 SP1
- ASP.NET 4.6.2
- Microsoft Silverlight 5.1.50907
- Microsoft Visual Studio® Runtime 14.0
- BMC Utilities 9.0.1
- DRAC Tools 9.0.1
- PowerShell 2.0
- TLS 1.1/1.2
 - With the latest iDRAC or CMC firmware (iDRAC >= 2.40.40.40, M1000e CMC >= 5.2, FX2 CMC >= 1.4, VRTX CMC >= 2.2), TLS 1.1 is the default communication protocol. Therefore, TLS 1.1 and TLS 1.2 must be enabled as default secure protocols in WinHTTP in the management station where OME is going to be installed.
 - Though this is not a critical prerequisite, it is required for OME to successfully discover and inventory the iDRACs and CMCS with latest firmware.
 - This prerequisite is only on Microsoft Windows 2008 R2 and Microsoft Windows 2012. In Microsoft Windows 2012 R2 and later versions, these protocols are enabled by default.

Note: The OME installation is not based on the Windows SNMP service. If the SNMP service is disabled or stopped, the installation will not be affected. If the SNMP Trap service is configured in manual mode and disabled, the Prerequisites window displays a warning prerequisite. If you ignore the warning and proceed with the installation, OME will not be able to receive SNMP traps/alerts.

To enable the SNMP traps or alerts reception functionality after installation:

1. Manually enable and start the Windows SNMP Trap service from Service Control Manager.
2. On OpenManage Essentials page, click **Preferences**→**Console Settings**.
3. Click **Restart Services**.

Note:

- If the SQL server is not available in the system, in which OME is being installed, a message with a link to install SQL Express is displayed.
- If you ignore this message, you will be prompted to install the OME on local or remote database while starting the installation.
- If you need to continue installing OME on the local database, select **Yes**. The SQL Express will be installed with the SQLEXPRESSOME instance name.
- If you need to install OME on the remote database, Select **No**. The installer will follow the Custom installation path, where you have to select the remote database for installing the OME.

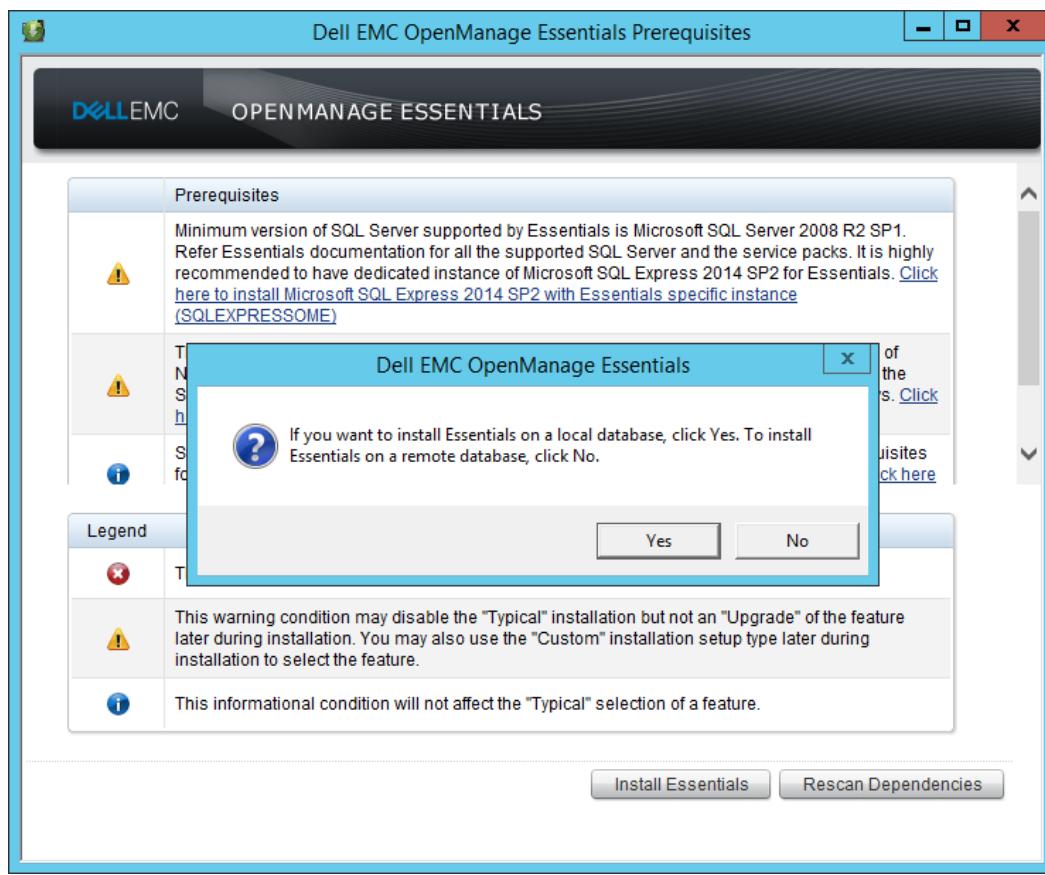


Figure 4 SQL server warning prerequisites page

2.3.1 Installing all critical prerequisites automatically

To install all the critical prerequisites automatically:

1. On the Dell EMC OpenManage Essentials Prerequisites page, click **Install All Critical Prerequisites**.
2. A reboot may be required, based on the configuration. The prerequisites installation will be resumed automatically after the reboot.
3. Disable the **User Access Control** to avoid issues with automatic resuming installation.

Note: The installation may take approximately 35 minutes to complete.

SQL Server requirements include:

- Local Database:
To set up the OME on a local database, SQL Server 2008 R2/2012/2014/2016 Standard/Enterprise/Datacenter edition or SQL Server 2008 R2/2012/2014/2016 Express edition with SQLEXPRESSOME instance name must be installed. (Though it is a warning prerequisite).
- Remote Server:
If you have a database located on the remote server, SQL Server is not required on the local system.
- Version:
If the local system has SQL Server 2005/2008 installed, it is recommended to install SQL Server 2008 R2 or SQL Server 2012. The OME is not supported on SQL Server 2005 and 2008.
- Collation:
OME is supported only on a case-insensitive instance of SQL Server.

Note: MS SQL Server 2012 RC or Evaluation versions are not supported. The 'Always On Availability Groups' feature of SQL Server is not supported by the OpenManange Essentials database.

2.4 SQL server instance selection

Different instances of SQL Server will be selected by installing OME in different scenarios. Automatic instance selection is different when Express or Standard/Enterprise/Datacenter editions of SQL Server are installed on the local system. If the OME needs to be configured on the remote database, you can select any instance of SQL Server 2008 R2/2012/2014/2016 Standard / Enterprise / Datacenter / Express editions. To know more about the instance selection logic of the OME installer during typical install, see the following table:

Table 5 Local Database Instances Supported

SQL Version	SQL Edition	Instance Name	Prerequisite Status	Prerequisite Message	Required Action
None	None		Warning	No SQL found	Click to install
2005/2008	Standard/Enterprise/ Datacenter	Default	Warning	No supported SQL found	Click to install
		Custom Name	Warning	No supported SQL found	Click to install
2005/2008	Express	Default	Warning	No supported SQL found	Click to install
		Custom Name	Warning	No supported SQL found	Click to install
2008 R2/2012 /2014/2016	Standard/Enterprise/ Datacenter	Default/Custom Name	None	None	None
		SQLEXPRESSOME	None	None	None
2008 R2/2012 /2014/2016	Express	Default/Custom Name	Warning	No supported SQL found	Click to install
		SQLEXPRESSOME	None	None	None

3 Typical installation

This method involves installing OME by using the default settings.

To install OME by using typical installation method:

1. In the **Setup Type** page, select **Typical**.
2. In the **Ready to Install the Program** screen, click **Install**.

In the typical installation method:

- SQL Server Authentication is selected as the default method.
- The default SQL instance installed with SQL Server Standard/Enterprise/Datacenter edition is selected as the database server.
- The SQLEXPRESSOME instance will be selected only if Express edition of SQL Server is installed on the system. The other instance names are not supported in the Express editions of SQL Server (version 2008 R2 or later).
- If there is no default SQL instance, and multiple-named instances of SQL installed with the SQL Server Standard/Enterprise/Datacenter edition exists, the first-installed named instance will be selected as the database server.
- OME Database will be named as “OMEEssentials”.

4

Custom installation

This method is recommended for the following scenarios:

- Remote database installation
- Installing the OME by using Windows Authentication
- Required to use the non-default location and port settings

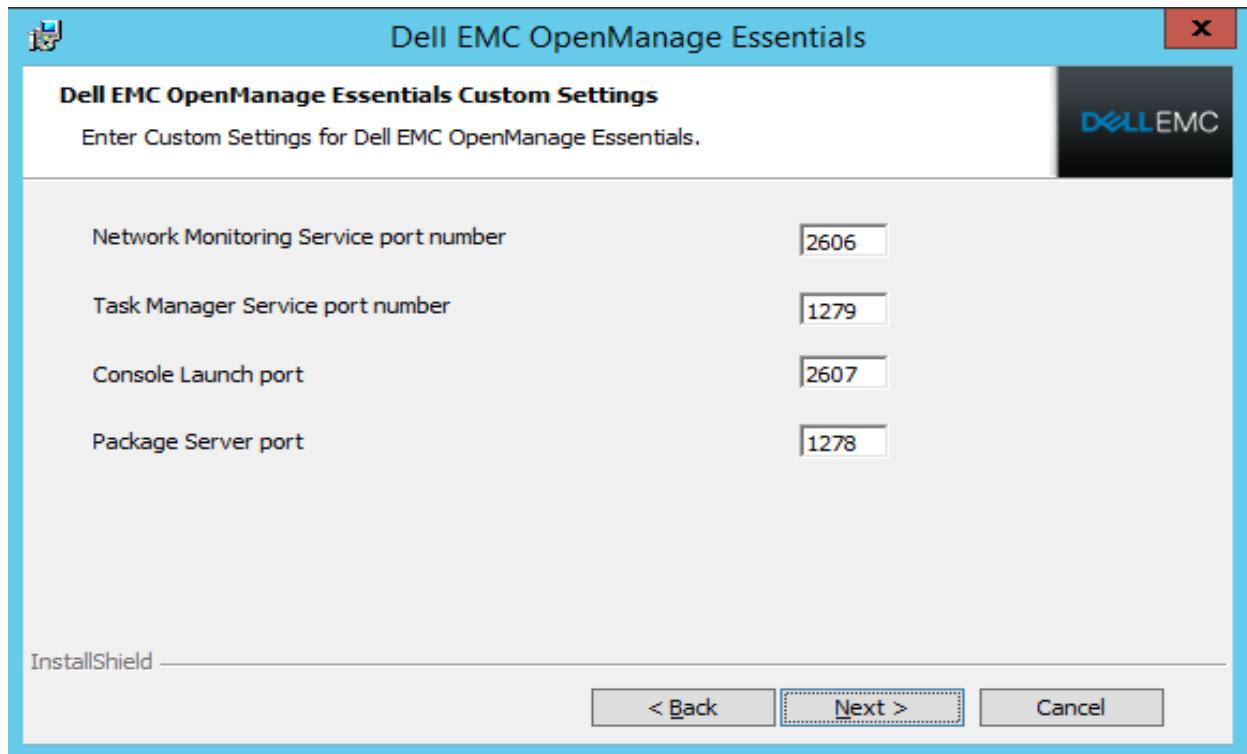


Figure 5 Port Settings

Table 6 Default port settings

Port number	Protocol	Port type	Maximum encryption level	Direction	Usage
1278	HTTP	TCP	None	In/Out	Web GUI
1279	Proprietary	TCP	None	In/Out	Scheduling tasks
2606	Proprietary	TCP	None	In/Out	Network
2607	HTTPS	TCP	128-bit SSL	In/Out	Web GUI

To set up the OME on the local database with multiple SQL Server instances, select the server from the Database Server list.

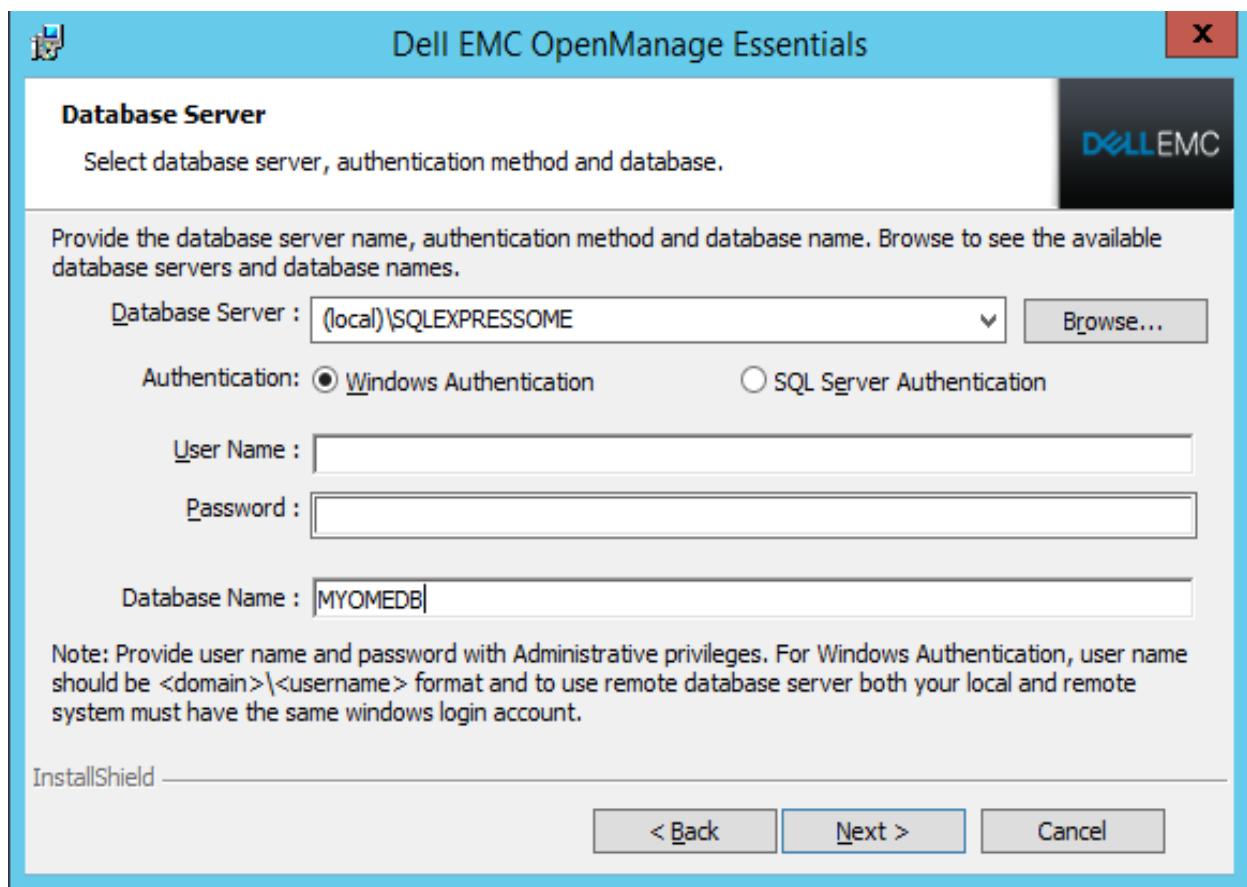


Figure 6 Database server window from the InstallShield Wizard

5

Remote database installation

To use the SQL server instance on the remote system, configure OME to use the SQL server instance on the remote system. Before setting up the OME database on the remote system, ensure that the following prerequisites are fulfilled:

- The network availability between the OME system and remote database system
- The SQL Server user has privilege to back up, create, and configure the database
- If you require to use SQL Authentication mode for remote database installation, ensure that the “SQL Server and Windows Authentication Mode” is enabled on the remote SQL Server
- TCP/IP is enabled on the remote system to avoid database connection issues

To set up the OME database on the remote system:

1. In the Database Server dialog box, click **Browse**.
2. In the Database Server box, select the remote system or enter the hostname and database instance.

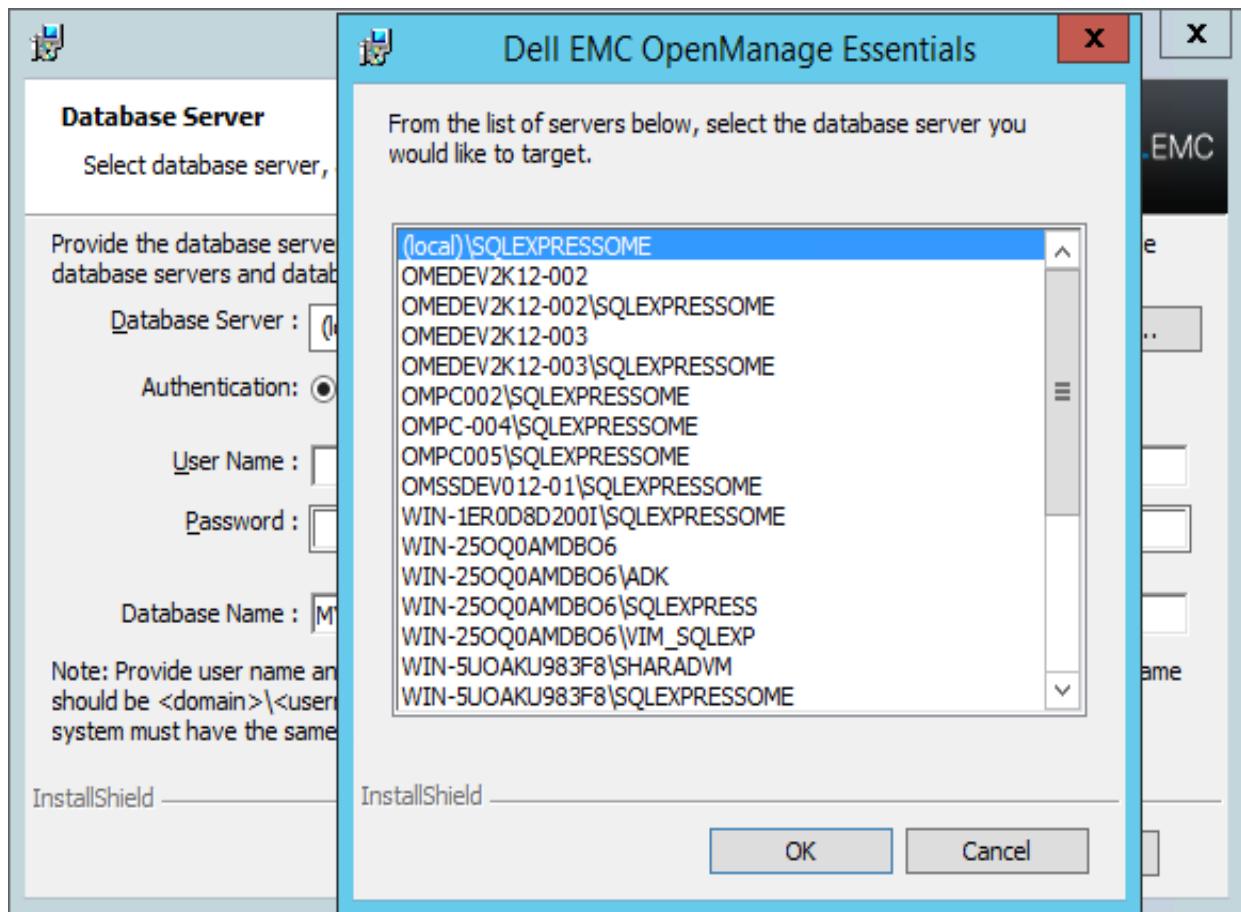


Figure 7 Browsing a remote database

Perform the installation by using any of the following authentication methods:

- Windows Authentication:

Windows login credentials are used to connect to the remote SQL Server. Use this method if the Windows login credentials of the remote system and the OME installation system are same.

- SQL Server Authentication:

Use this method if the Windows login credentials of the remote database system and the OME installation system are different.

Note: After you set up the OME database on the remote system, do not move the database. Else, the OME will stop working.

To install the OME by using the database name other than “OMEssentials”:

- In the Database server screen, type the new name in **Database Name**.
- You can also create a database in the SQL server and type the name of the created database in **Database Name**. In this scenario, the message will be displayed as shown in the screen shot here.

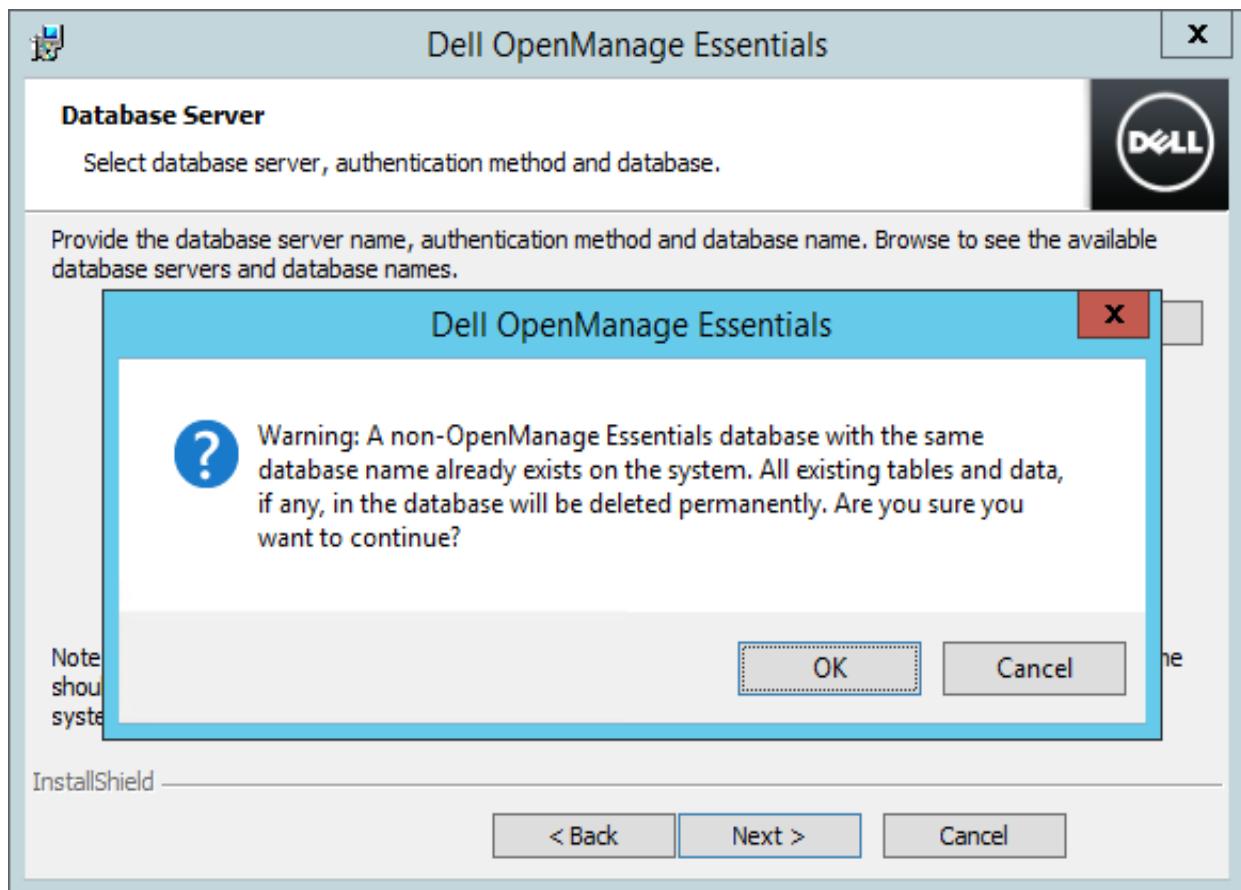


Figure 8 Warning about an existing Database

6 Installing OME on a domain controller

This section describes the procedure of installing OME on the domain controller.

6.1 Configuring managed service account

The following section describes the procedure for configuring and using managed service accounts for installing OME on the domain controller:

1. Click **Start→Administrative Tools**.
2. Select **Active Directory Users and Computers**.
3. In the left pane, right-click **Managed Service Account**→**New→User**.
4. Type the first name and logon name.
5. Type the password, reconfirm, and then click **Finish**.
6. Add the user to the **Domain Admin** and **Remote Desktop User** groups.
7. Log in to the system by using the same service account credentials.

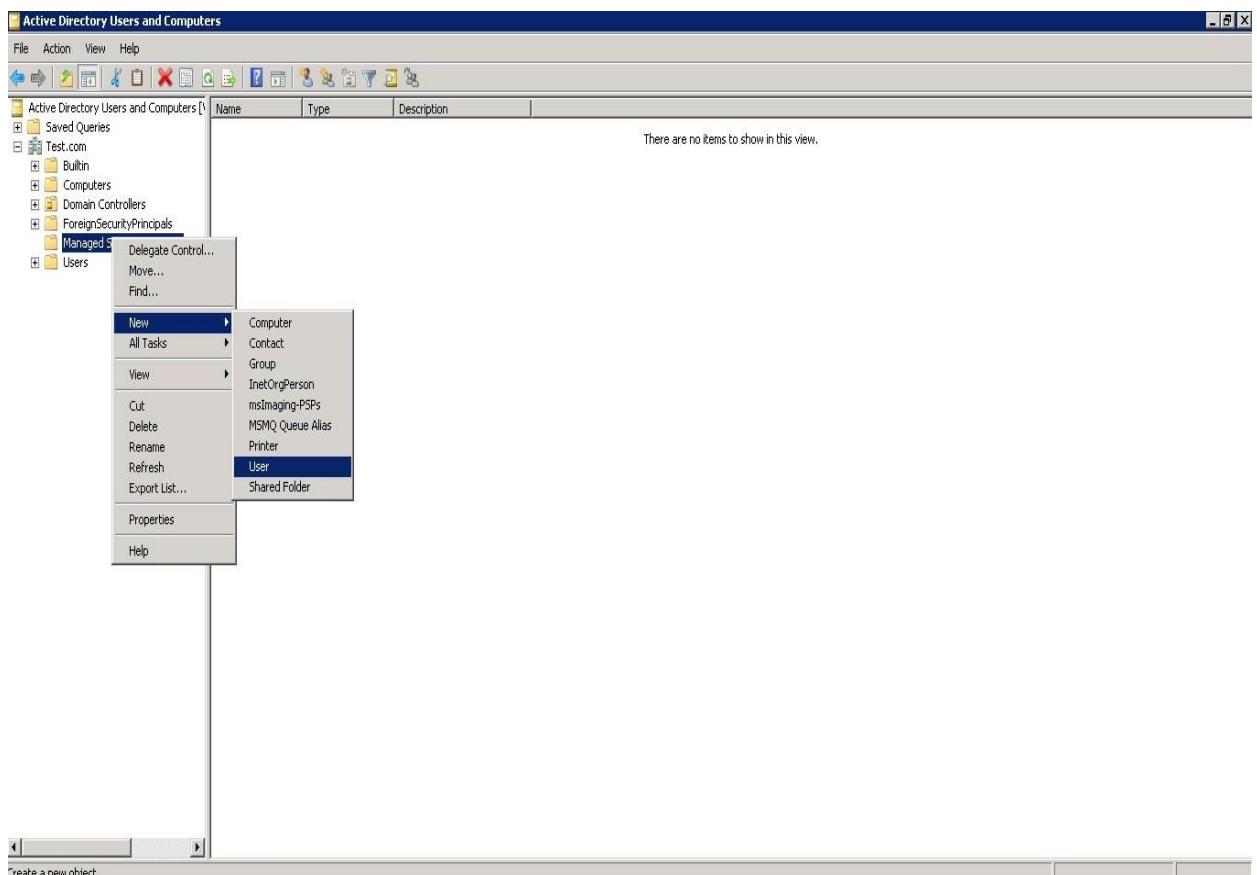


Figure 9 Manage Service Account

6.2 Configuring SQL Server on the domain controller

To configure the SQL Server on the domain controller:

- Install the Microsoft SQL Server manually.
- If SQL Server is installed on the local machine, the SQL Server Service must be configured to run by using the domain user account.

Note: The SQL Server Service will not start if you are using the default NETWORK SERVICE or LOCAL SYSTEM accounts.

To set up the service accounts to install or run SQL Server, follow the below steps:

1. Launch the SQL installer wizard.
2. Accept the license terms.
3. In the **Instance Configuration** wizard, select SQLEXPRESSOME as the named instance.
4. Navigate to the **Server Configuration** wizard is displayed.

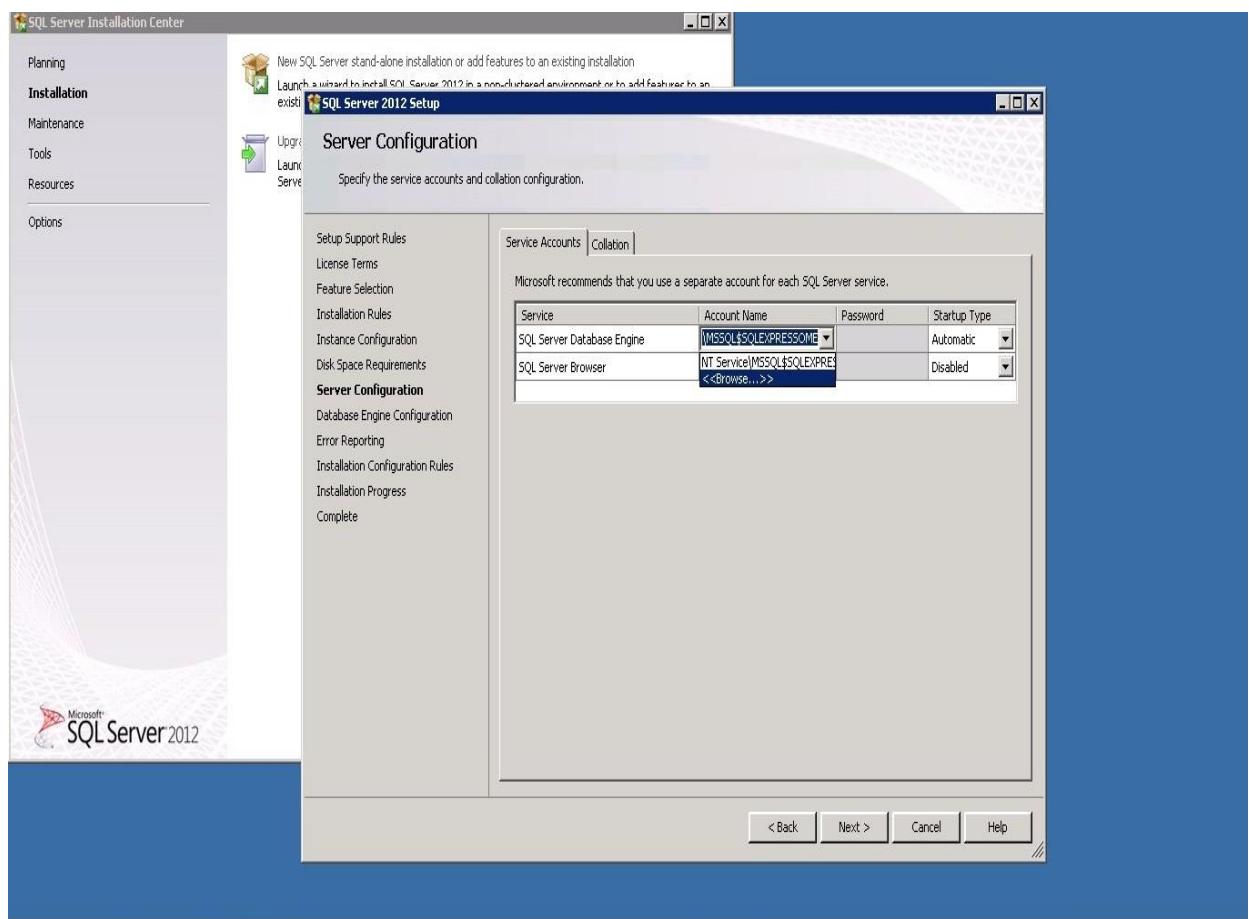


Figure 10 Configuring SQL server

5. In the **Account Name** box, select **Browse**.
6. Click **Advanced** and select **Find Now**.
7. In the **Account Name** box, select the user name, and then type the password.

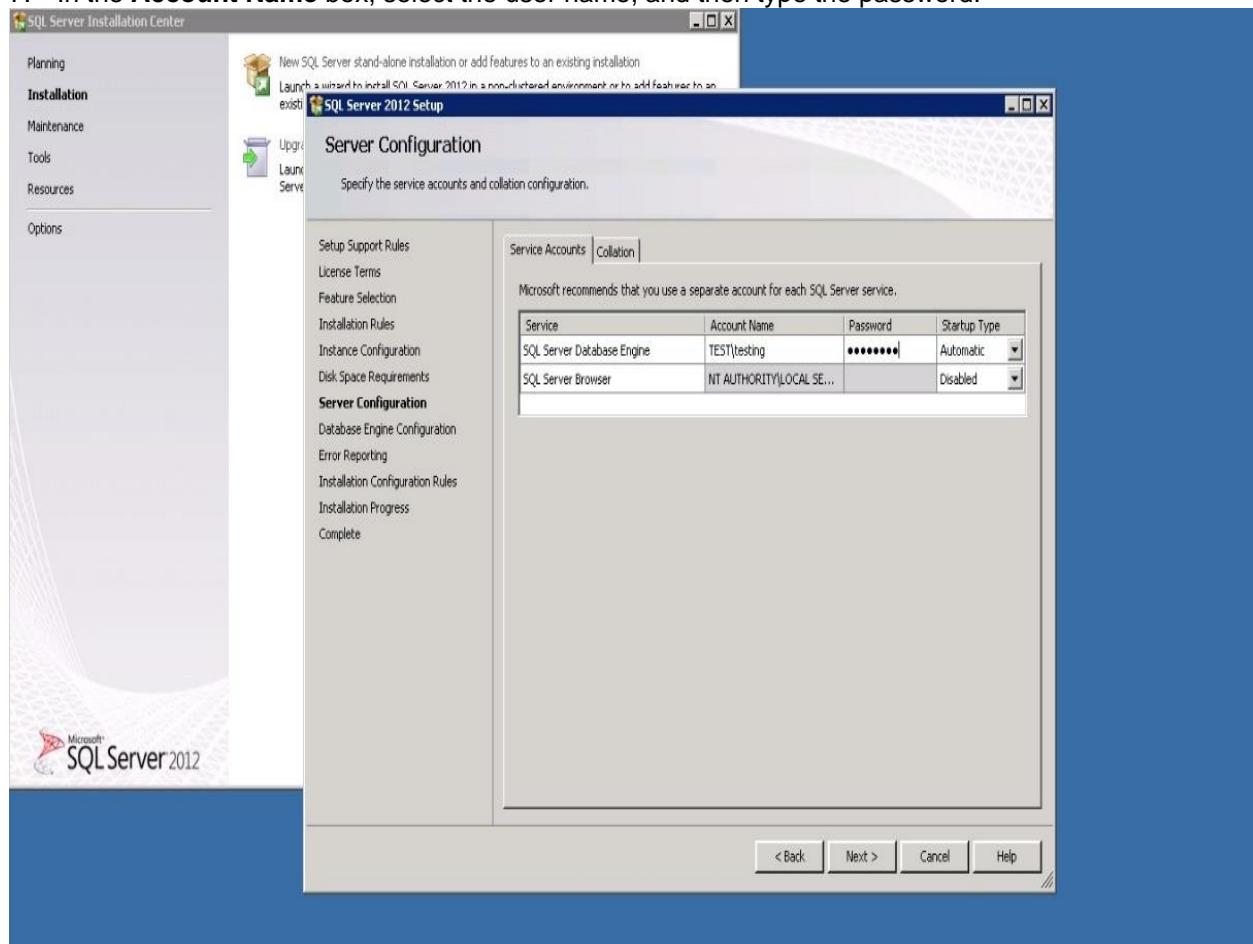


Figure 11 Providing credentials for the account

8. In **Database Engine Configuration** wizard, select **Mixed Mode**.
9. Type the password and complete the installation.

6.3

Configuring OME groups

After installing the OME on the domain controller:

- By default, the Domain Admins group is added as a member of the OmeAdministrators, OmePowerUsers and OmeUsers groups.
- Local windows user groups are not included in the OME roles.
- OMEAdministrators, OMEPowerUsers or OMEUsers privileges can be provided to the user or user groups by adding them to the OME windows groups.
- OMESiteAdministrators privileges can be provided by the OMEAdministrators through the Device Group Permission portal.

To add the users:

1. Navigate to **Local Users and Groups**→**Groups**.
2. Right-click **OmeAdministrators** and select **Add to Group**.
3. In the **Properties** window, click **Add**.
4. In the **Select Users** window, type the user name.
5. Click **Check Names** and click **Ok**. The user name appears in the Members list in the **Properties** window.
6. Click **Ok**.

Note: The users you are trying to add must belong to the built-in local administrators group. For more information, see <http://windows.microsoft.com/en-US/windows-vista/Add-a-user-account-to-a-group>.

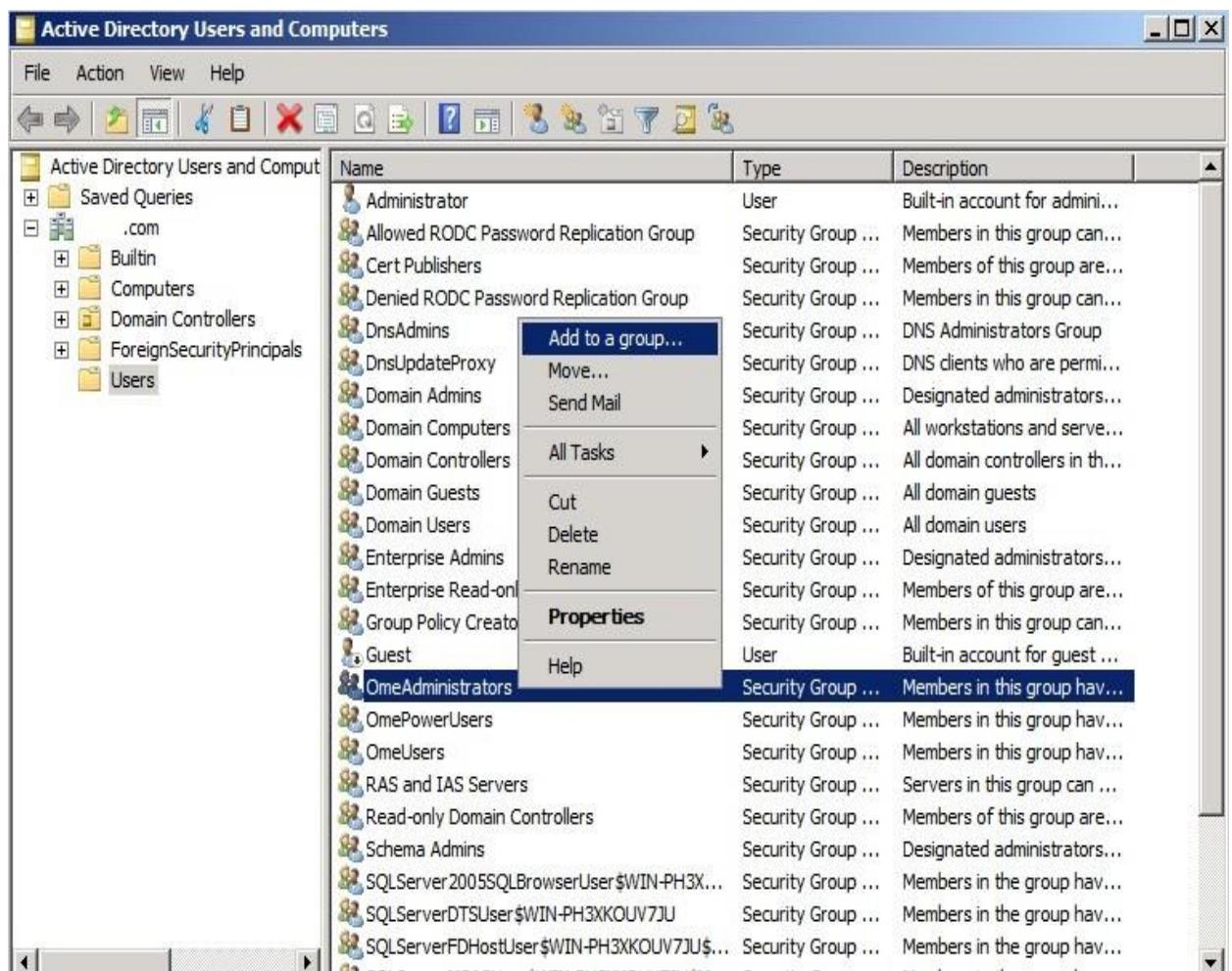


Figure 12 Adding users to OME groups

7 OME supporting utilities

This section describes the OME supporting utility tools.

7.1 Troubleshooting tool

The troubleshooting tool is installed with OME automatically.

This tool is used for troubleshooting the errors related to the supported device discovery and device connections.

If the earlier version of the troubleshooting tool exists on the system, it gets upgraded as part of the OME installation. For more information, see <http://en.community.dell.com/techcenter/systems-management/w/wiki/4172.dell-troubleshooting-tool>.

7.2 MIBImport utility

In the OME version 2.2 and later, MIB import functionality is integrated as part of the OME. If the earlier version of MIBImport utility exists on the system, it is uninstalled during the OME installation. For more information, see <http://en.community.dell.com/techcenter/systems-management/w/wiki/3570.openmanage-essentials-mib-import-utility>.

8

Upgrading OME version

The following figure displays the upgrade workflow:

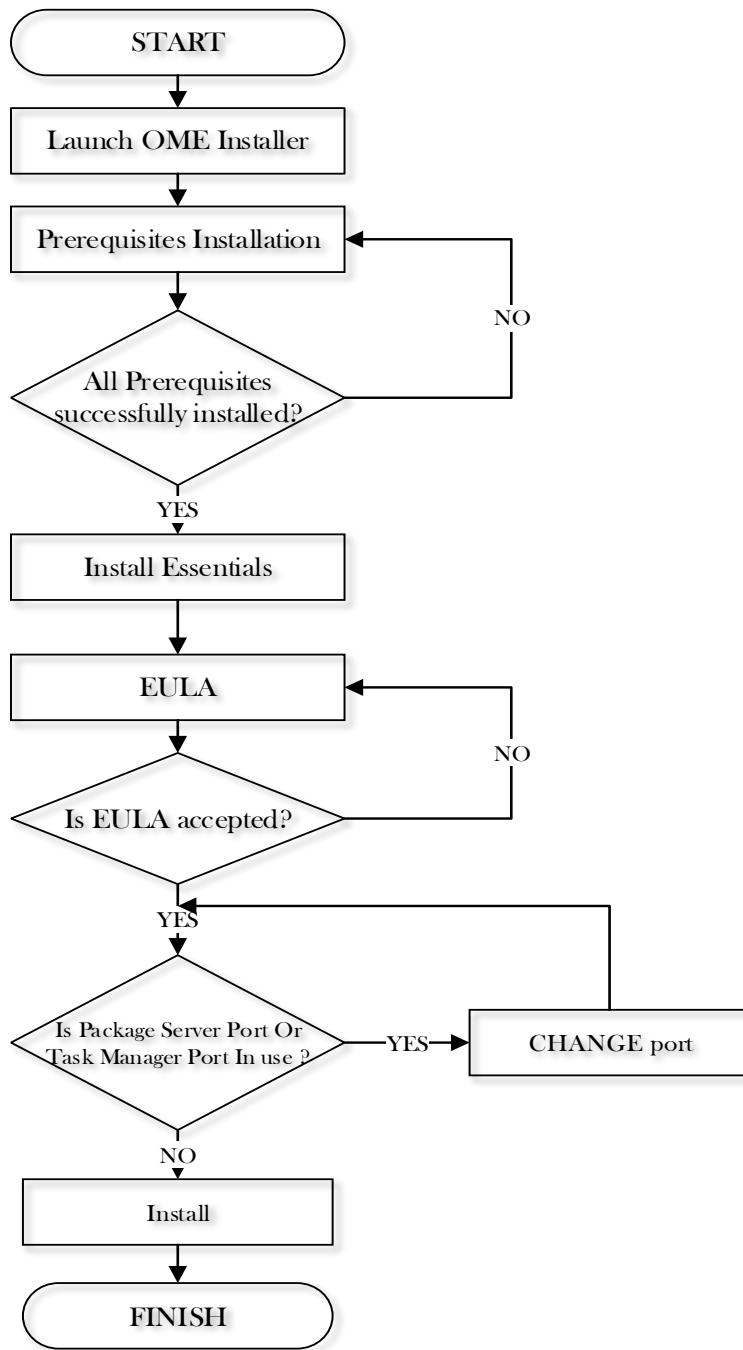


Figure 13 Upgrade workflow

The OME upgrade retains the previous version data during the upgrade process.

Note:

- You cannot upgrade directly from OME v1.0 (Beta Program), v1.0.1, or v1.1 to OME v2.4.0. You must first upgrade to v1.3 or 2.0 and then to v2.4.0.
- OME cannot be upgraded to v2.4.0 if the previous version is installed on a case-sensitive instance of SQL Server targeted on a remote server or if it is the only instance running on the local box. In case the database is installed locally and a supported case-insensitive SQL Server instance is also found on the local box, the Essentials database will be migrated to a case-insensitive SQL Server instance during the upgrade.
- After upgrading to OME v2.4.0, the CMC templates and scheduled deployment tasks that were created in versions prior to OME v2.3 will become unusable after the upgrade. You must recreate the templates and reschedule the deployment tasks after upgrading to OME v2.4.0.

During the upgrade, OME v2.4.0 uses the previously installed OME settings. These options (Custom Path, Ports, database server settings, and so on) are not displayed during the upgrade. The installation settings and configuration for OME are displayed on the **Ready to install the Program** page.

8.1 Data migration during OME version upgrade

During the OME version upgrade:

- If the SQL Server instance selected by v2.4.0 and the SQL Server instance selected by the previous version of OME are different, the OME database will be migrated
- If the previous version of OME is installed on the remote database, the database will not be migrated. For details, see Table 7.

Example: If you have installed v1.3 on local SQL Server Express edition with instance name SQLEXPRESS, then v2.4.0 will target the SQLEXPRESSOME instance installed with the SQL Server Express edition version 2012 (installed as part of the prerequisite) for installing the database during the version upgrade. Data from v1.3 will be copied to the new database “OMEessentials” created on the SQLEXPRESSOME instance, which will be used by v2.4.0. The old “OMEessentials” database on the SQLEXPRESS instance will be retained and will not be deleted.

SQL Version	SQL Edition	Instance used for installing v1.0.1\ v1.1	Prerequisite Status	Prerequisite Message	Data Migration Required?
2005 / 2008	Standard / Enterprise / Datacenter	Default	Critical	No supported SQL found	Yes
		Custom Name	Critical	No supported SQL found	Yes
2005 / 2008	Express	Default	Critical	No supported SQL found	Yes

		Custom Name	Critical	No supported SQL found	Yes
2008 R2 / 2012 / 2014 / 2016	Standard / Enterprise / Datacenter	Default/Custom Name	None	None	No
		SQLEXPRESSOME	None	None	No
2008 R2 / 2012 / 2014 / 2016	Express	Default/Custom Name	Critical	No supported SQL found	Yes
		SQLEXPRESSOME	None	None	No

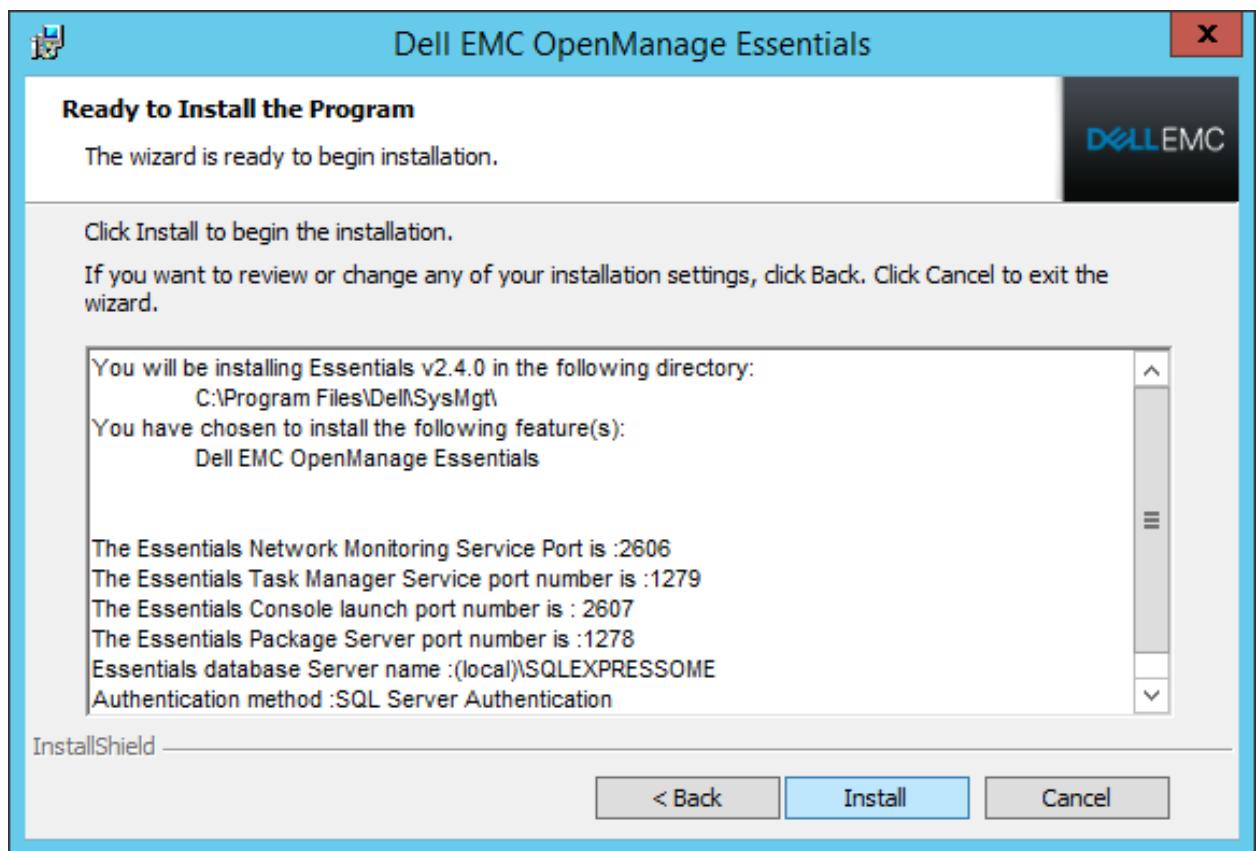


Figure 14 Ready to Install the Program screen

You are prompted to change the ports only if:

- The default Package Server Port 1278 is already in use or blocked.
- The default Task Manager Port 1279 is already in use or blocked.

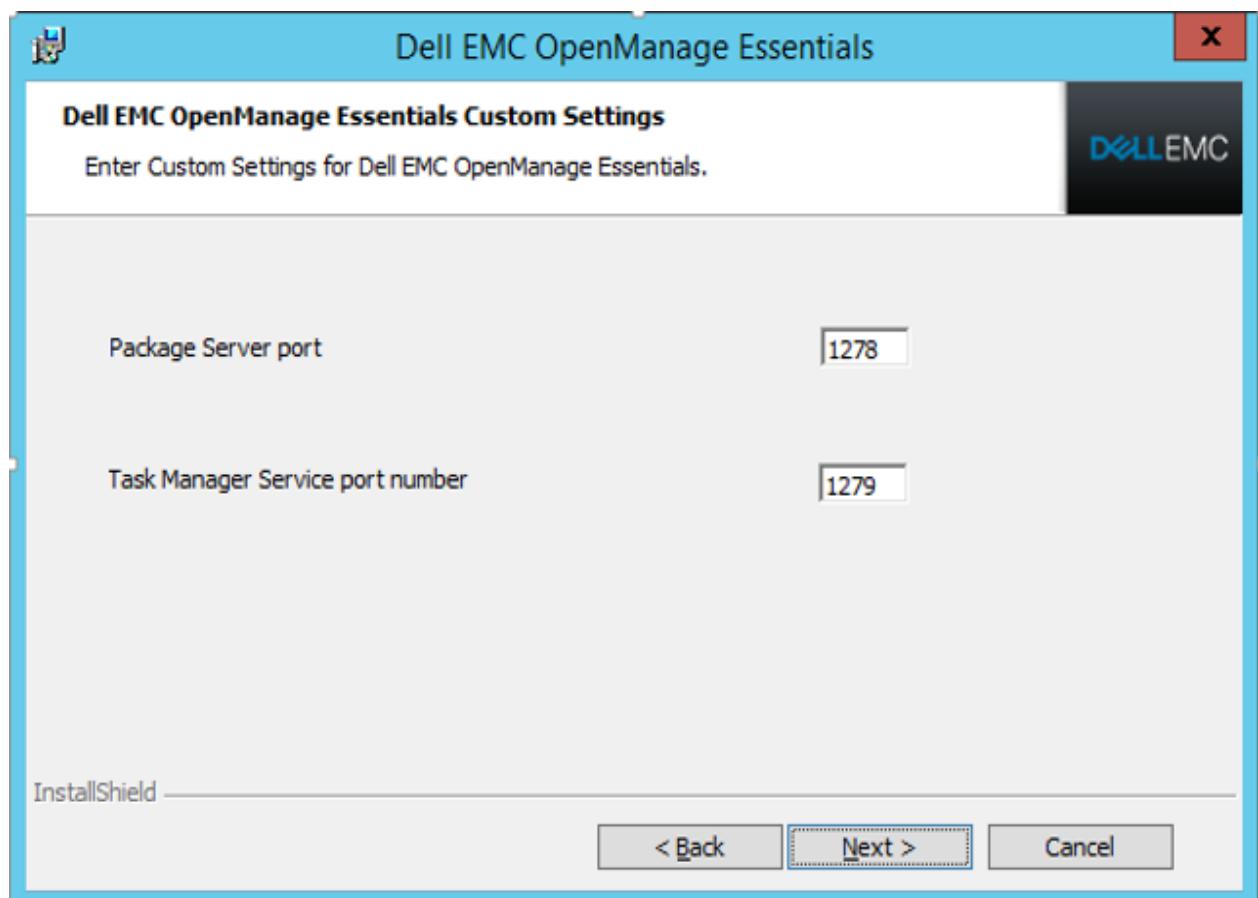


Figure 15 Custom settings (displayed only during the OME version upgrade process)

Uninstalling OME

To uninstall OME:

1. Navigate to **Control Panel → Programs and Features** and select **Dell EMC OpenManage Essentials**.
2. Click **Uninstall**.

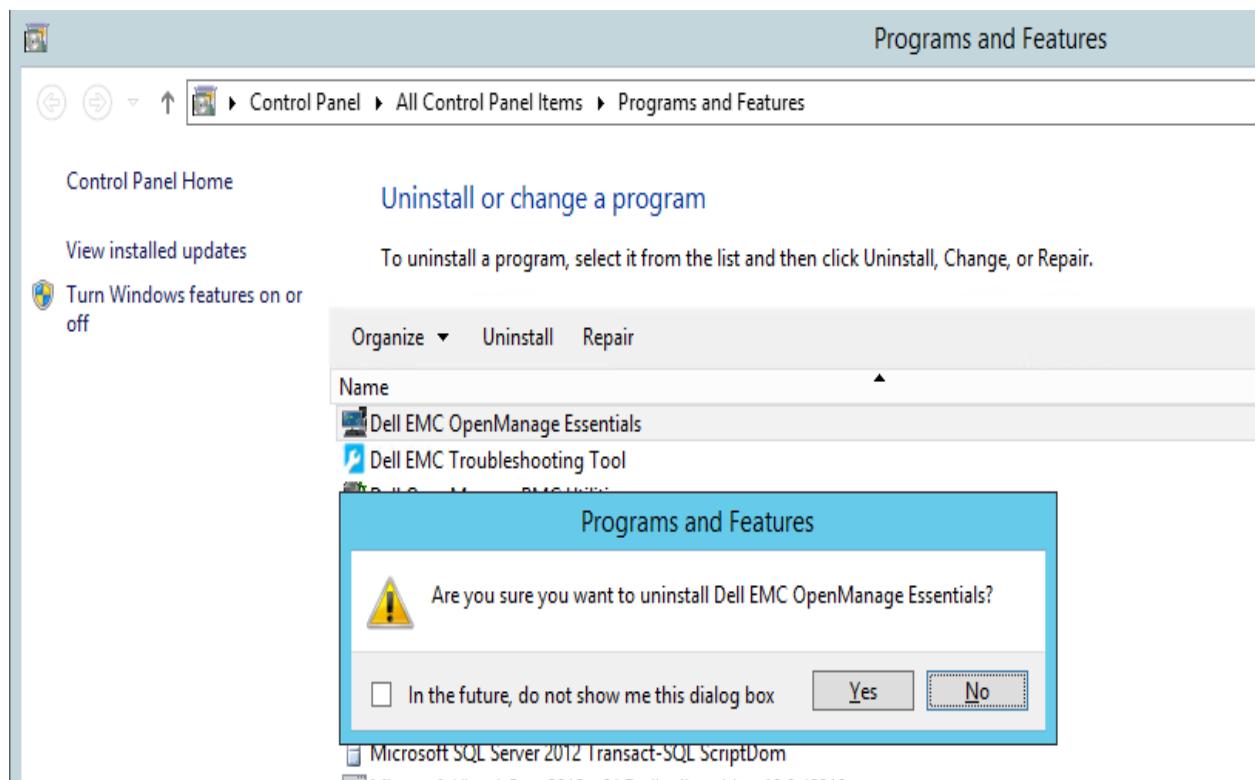


Figure 16 Uninstalling OME

Note:

- Because Dell EMC SupportAssist Enterprise functionality is based on OME, you must uninstall Dell EMC SupportAssist Enterprise, and then uninstall OME.
- Uninstalling OME does not remove the Troubleshooting Tool, which must be uninstalled separately. The database with the same or later version will be retained after uninstalling OME.
- OME uninstallation lets you retain the database. You can use the database again with the same version or after upgrading to the later version of OME.

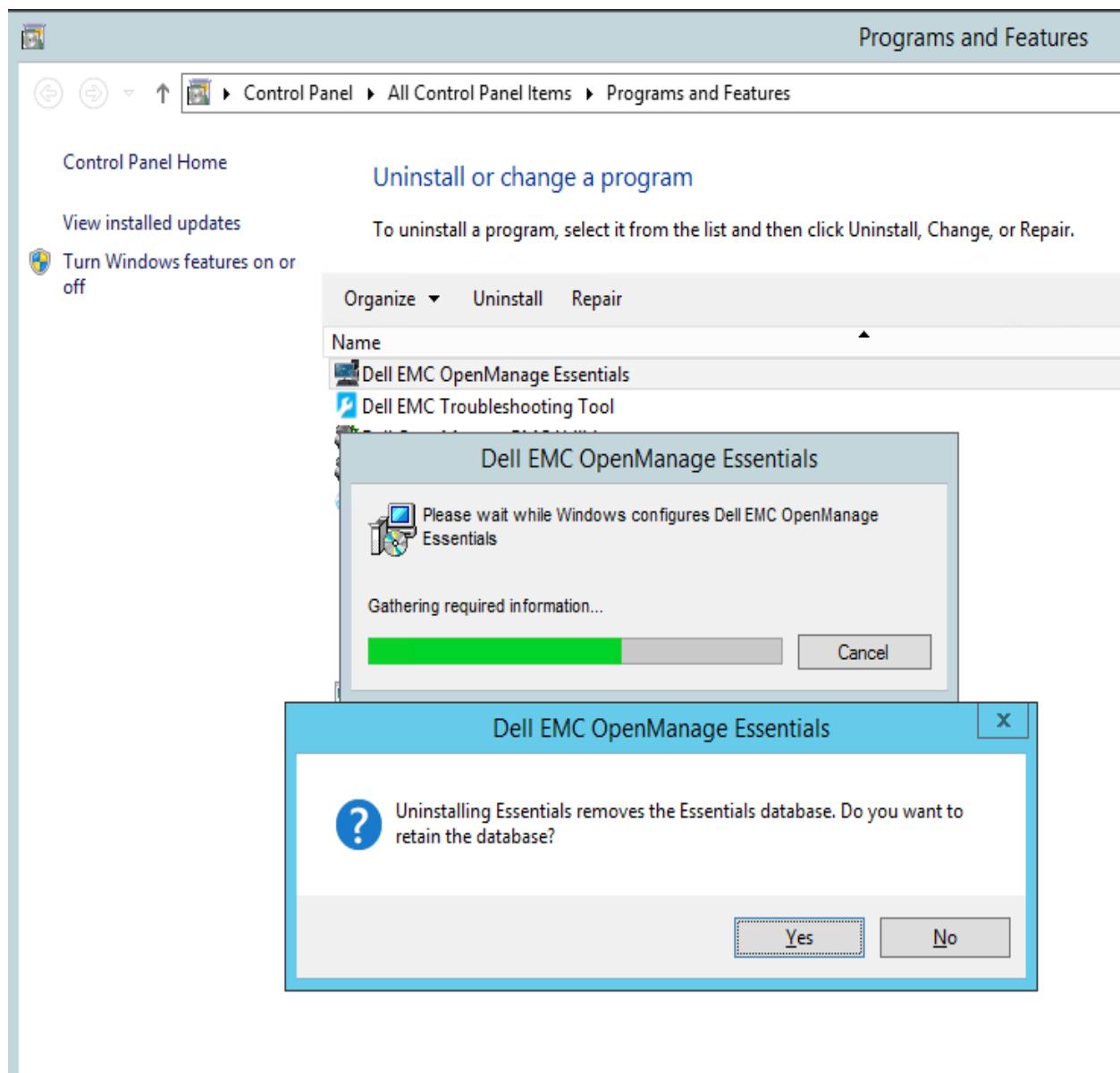


Figure 17 Retain database option during uninstallation

10 Program maintenance

You can restore OME by going to the program maintenance window.

If the installation drive or folder is corrupted or if you have accidentally deleted the OME installed files, perform the following to restore OME:

1. In the **Program Maintenance** screen, select **Repair**.
2. Click **Next**. This allows you to recreate a database (fresh database) or use an existing one (if you already have the database files).

Note: If the OME database is corrupted, it is recommended to recreate the database during OME restoration or reinstall a new OME instance.

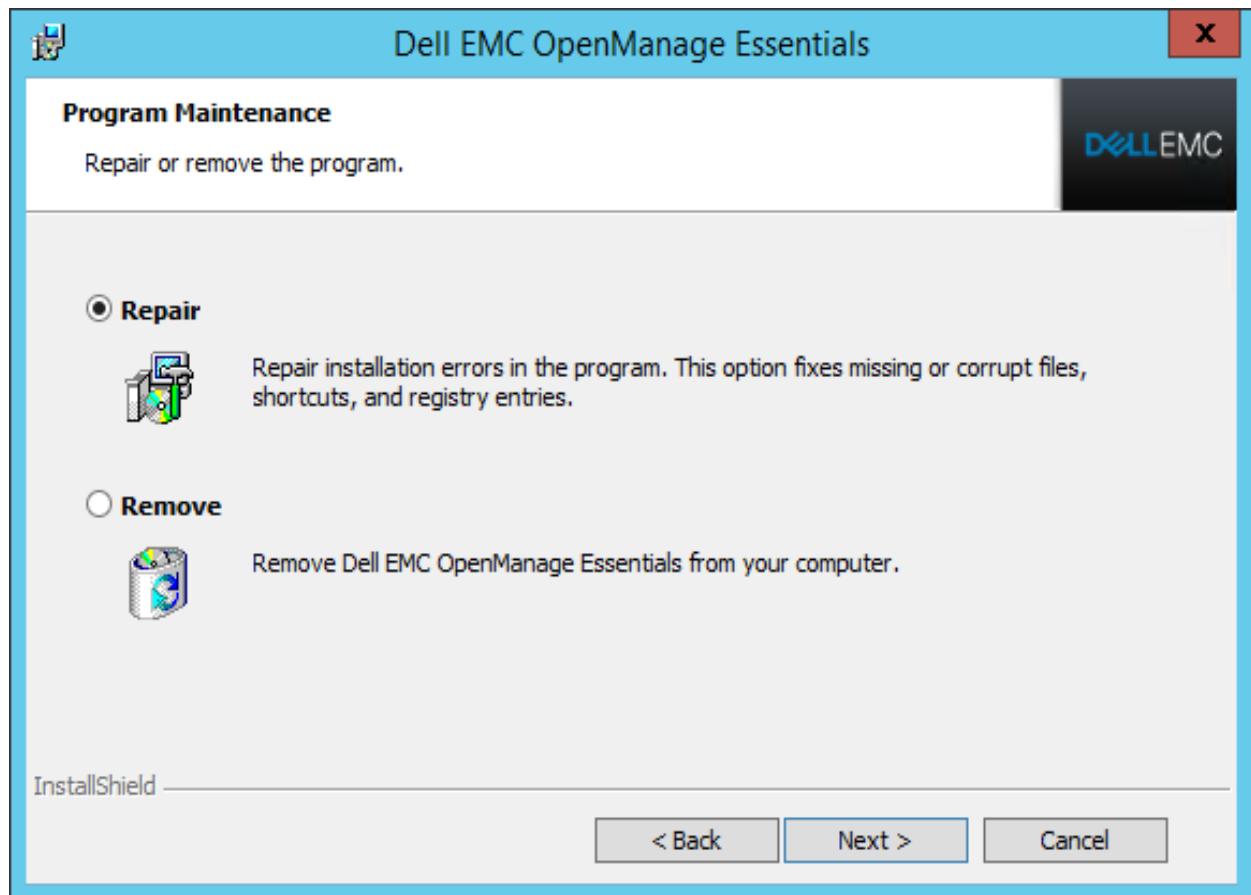


Figure 18 Program maintenance

11 Additional resources

To know more about OME, see www.delltechcenter.com/ome.

12 Conclusion

OME is an easy-to-install and one-to-many console which simplifies systems management with features such as single-click prerequisites installation. Also, it allows Remote Database installation.