

SQL Server Installation and Upgrade Guide

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Contents

Introduction.....	5
Summary of changes.....	5
SQL Server overview.....	5
SQL Installer tool.....	6
Detailed procedures.....	10
Verifying your computer has a supported version of SQL Server software installed.....	10
Installing or upgrading SQL Server software using the SQL Install Helper.....	11
SQL Server 2019 software and SQL Server 2019 Express software installation and upgrade.....	12
Installing SQL Server 2019 or SQL Server 2019 Express software.....	13
Upgrading SQL Server software to SQL Server 2019 software or SQL Server 2019 Express.....	14
SQL Server 2017 software and SQL Server 2017 Express software installation and upgrade.....	15
Installing SQL Server 2017 software.....	16
Upgrading SQL Server software to SQL Server 2017 software or SQL Server 2017 Express software.....	18
Installing SQL Server 2017 Express software.....	19
SQL Server 2016 software and SQL Server 2016 Express software installation and upgrade.....	21
Installing SQL Server 2016 SP2 software.....	21
Installing SQL Server 2016 SP2 Express software.....	24
Applying service packs to SQL Server 2016 software or SQL Server 2016 Express software.....	26
Upgrading SQL Server software to SQL Server 2016 SP2 software or SQL Server 2016 SP2 Express software.....	27
SQL Server 2014 software installation and upgrade.....	28
Installing SQL Server 2014 SP3 software.....	28
Applying SP3 to SQL Server 2014 software.....	31
Upgrading SQL Server software to SQL Server 2014 SP3 software.....	33
SQL Server 2014 SP3 Express software installation and upgrade.....	34
Installing SQL Server 2014 SP3 Express software.....	34
Applying SP3 to SQL Server 2014 Express software.....	36
Upgrading SQL Server software to SQL Server 2014 SP4 Express software.....	37
SQL Server Reporting Services.....	38
Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017.....	39
Specific system requirements for the <i>Metasys</i> Advanced Reporting System.....	39
Configuring SQL Server Reporting Services.....	42
Installing Microsoft Report Viewer 2012 redistributable package.....	49
Verifying SQL Server Report Server configuration.....	50
SQL Server Reporting Services troubleshooting.....	51
Appendix: Reporting services language support for <i>Metasys</i> advanced reporting system.....	55
Adding language support for reporting services.....	55

Appendix: Installing SQL Server Management Studio..... 56
 Installing SQL Server Management Studio (SSMS)..... 56
Related documentation..... 56
Product warranty..... 57
Software terms..... 57
Patents..... 57
Contact information..... 57

Introduction

Use the following information to install or upgrade the editions of Microsoft® SQL Server® software currently supported by *Metasys*® system software. Use it as a guide and reference when installing or upgrading a *Metasys* software product that requires SQL Server software. Also included are instructions on how to use a special tool called the SQL Installer that we provide on the License Portal. Lastly, this document has details about how to configure SQL Server Reporting Services (SSRS) and how to add non-English language support for the *Metasys* Advanced Reporting System.

Summary of changes

The following information is new or revised:

- Added support for SQL Server® 2019 (64-bit).
- Removed support for SQL Server® 2012.
- Removed support for SQL Server Express® 2012.
- Metasys Advanced Reporting System and Energy Essentials does not support SQL Server 2019.
- The latest available version of the Open Data Server (ODS) is Release 10.1. The ODS is not available for upgrade to Metasys Release 11.0.

SQL Server overview

Metasys software can use the following editions of Microsoft SQL Server software:

Express Versions

- SQL Server® 2019 Express (64-bit) [link](#)
- SQL Server® 2017 Express with CU17 (64-bit) [link](#)
- SQL Server® 2016 Express with SP2 CU10 (64-bit) [link](#)
- SQL Server® 2014 Express with SP3 CU4 (64-bit) [link](#)

Full Versions

- SQL Server® 2019 (64-bit)
- SQL Server® 2017 with CU17 (64-bit) Standard or Enterprise (64-bit)
- SQL Server® 2016 with SP2 CU10 (64-bit) Standard or Enterprise (64-bit)
- SQL Server® 2014 with SP3 CU4 (64-bit) Standard or Enterprise (64-bit)

If your computer already has a version of SQL Server software installed that does not match any of these versions, use this document to help you upgrade the software to a supported version. To verify the edition, see [Verifying your computer has a supported version of SQL Server software installed](#). To install SQL Server software through the License Portal, see [SQL Installer tool](#).

Make sure that you match the version of SQL Server software with the correct version of your Microsoft Windows® operating system. For example, if you are using the Windows 7 64-bit operating system, use only a 64-bit version of SQL Server Express software. Also, if you want to upgrade to a 64-bit version of SQL Server from a 32-bit version of SQL Server, you need to replace the 32-bit operating system with a 64-bit version. This is known as an out-of-place upgrade.

Before installing any edition of SQL Server software, make sure you have installed Microsoft .NET Framework version 3.5.1 and Microsoft .NET Framework 4.7.2. This prerequisite is checked as part of the SQL Server software installation process.

If you must purchase a full edition of SQL software, you need the Microsoft SQL Server software installation media. For the Express editions of SQL Server software that are free, you can access the installation files from the Microsoft SQL Server download website. Direct links are provided in this document.

For the SQL Server Express software editions that we support, the installation also includes a background installation of SQL Server Compact 4.0 software. This software is not known to interfere with the *Metasys* system, so **do not** manually uninstall SQL Server Compact 4.0 software.

As part of the installation, the SQL Server Setup performs a system configuration check on your computer and indicates any potential installation problems. You must resolve all issues before continuing with the SQL Server software installation.

If you upgrade to a newer edition of SQL Server Express software, the same settings from the older version of SQL Server software are used, including the reuse of the existing SQL Server administrator (SA) and password, and the selection of Mixed Mode authentication. You cannot change these settings during the upgrade. In addition, the upgrade process prompts you to select the database instance you want to upgrade. Be sure to select the instance that is currently in use by the *Metasys* software.

If you install an edition of SQL Server Express software that does not include management tools, add the Microsoft SQL Server Management Studio after a successful installation of SQL Server software. You can obtain SQL Server Management Studio from the Microsoft SQL Server download website. For details, see [Appendix: Installing SQL Server Management Studio](#).

❶ **Note:** SQL Server 2014 Management Studio Express is not compatible with SQL Server 2016 Express.

For some SQL Server software installation settings, you may need to consult the customer's IT department to ensure compliance with its processes. In the absence of your IT department's input, use the settings indicated in this document. **However, during the SQL Server installation, you must select Mixed Mode authentication and select BUILTIN\Administrators as a SQL Server administrator.** When you specify SQL Server Authentication for the installation, enter a strong system SA password for the Microsoft SQL Server software. Create a Microsoft Corporation password that complies with the following guidelines: contains a combination of eight or more letters, numbers, and symbols.

❶ **Note:** *Metasys* does not support the use of the symbols &, <, >, and / as part of the SQL sa user password when used with SQL Authentication.

Your password should be difficult to guess, for example, does not exist in a dictionary, does not match the name of the user or a person, and changes often. For more information, see <http://www.microsoft.com>, or consult with the IT department if you have questions about SA passwords.

SQL Installer tool

To help you install or upgrade to any supported version of SQL Server software, we provide a tool called SQL Installer on the License Portal, see Figure 1. However, you cannot use the SQL Installer to apply a new Service Pack (SP) to an existing installation of SQL Server software. To apply a SP, refer to the appropriate upgrade section in this document. You also, cannot use the SQL Installer tool to install the SQL Server Reporting Services 2019 or 2017 installation program. For more information, see [Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017](#)

To use the SQL Installer to install a full version of SQL Server software (for example, SQL Server 2019 Standard edition), you need Microsoft SQL Server media. To use SQL Installer to install an express version of SQL Server software (for example, SQL Server 2019 Express), download the installation file from the Microsoft SQL Server Express website. We provide direct links in the SQL Server installation sections of this document.

- ④ **Note:** The SQL Installer tool is not compatible with SSEI files, such as the SQLServer201x-SSEI.exe. If you obtained an SSEI file, you must run it separately. Choose **Download Media**, then **Express**. This downloads the setup file which may be used with the SQL Installer tool, such as the SQLEXP_x64_ENU.exe.

The SQL Installer supports both unified ADS/ADX/ODS/OAS and split ADX installations, with or without the *Metasys* Advanced Reporting Services. If you have a split ADX with *Metasys* Advanced Reporting Services, first run the SQL Installer to put down the Database Engine Services component on the database server. Then, run the SQL Installer to put down the Reporting Services component on the web/application server. You may also use the SQL Installer to install SQL Server software on an SCT computer.

- ④ **Note:** The order of installation is not a strict requirement. Remember to configure the SQL Server Reporting Services (SSRS) component after installing each SQL instance and component. See [Configuring SQL Server Reporting Services](#).

The SQL Installer verifies that your computer has the prerequisites you need to install SQL Server, including Microsoft .NET Framework version 3.5 and Microsoft .NET Framework 4.7.2, and Windows Installer 5.0. An error message appears if a prerequisite is not present. Before you can continue, you need to install any missing software prerequisites.

Use the advanced mode in the SQL Installer to view the SQL Server command line options before you start the installation. You cannot edit this area of the screen to change the options. However, you can copy and paste them into a command window, edit the options, then run the installation at a command prompt. Use this method only if you are an advanced user who fully understands SQL Server software options.

As part of the installation, the SQL Installer may require you to select an instance name. If you are installing a **unified** ADS/ADX/ODS/OAS, a stand-alone SCT computer, or the database server of a split ADX, use the default instance name. If you are installing the web/application server of a **split** ADX, you **must** use the default instance name of MSSQLSERVER. The ADX installation and rename processes require the default instance name of MSSQLSERVER on the web/application server in order to ensure that SQL Server's Reporting Services feature runs correctly.

- **Important:** The latest available version of the ODS is Release 10.1. The ODS is not available for upgrade to *Metasys* Release 11.0.

The SA password that you specify in the SQL Installer window must follow the rules for Microsoft complex passwords. For more information about complex passwords, refer to the *Security Administrator System Technical Bulletin (LIT-1201528)*.

Figure 1 shows the SQL Installer tool and Table 1 describes its fields and selections. For instructions on how to use the SQL Installer to install a unified or split *Metasys* server, see [Installing or upgrading SQL Server software using the SQL Install Helper](#).

Figure 1: SQL Installer Window

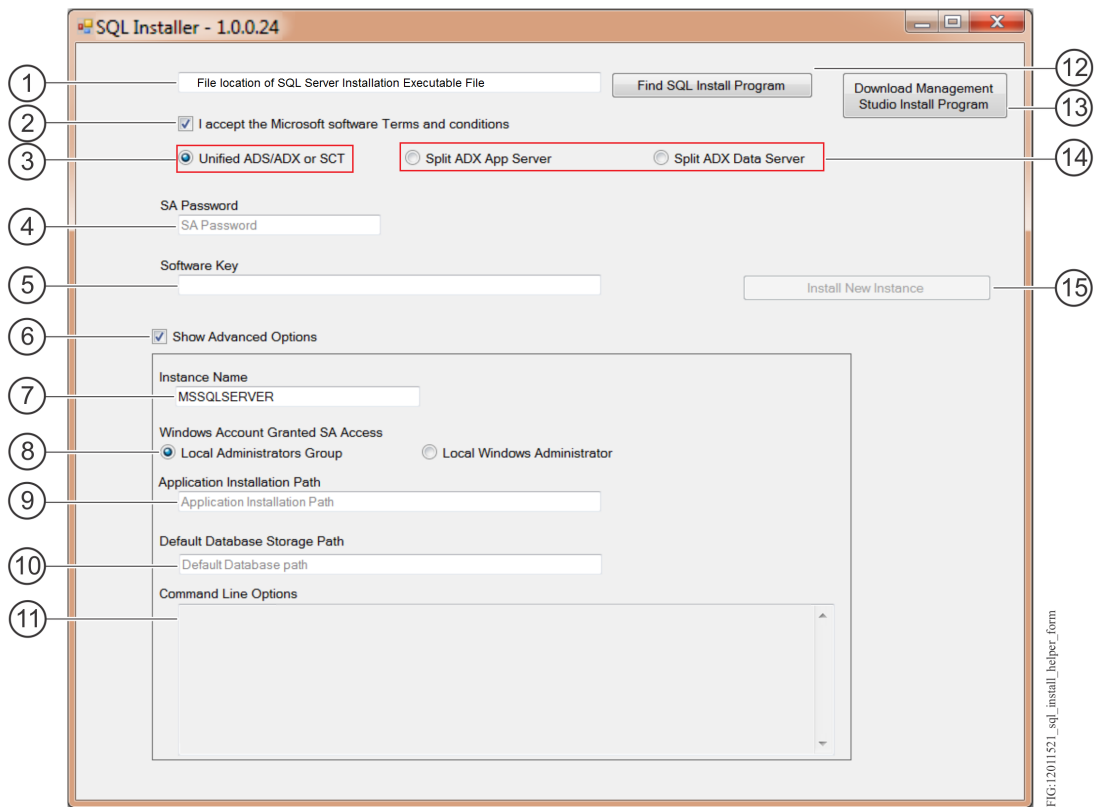


Table 1: Description of SQL Installer Window

Callout	Attribute	Action
1	<File Name Location>	Click Find SQL Install Program to enter the location of the SQL Server software installation or upgrade file. ① Note: If you are installing a full version of SQL Server, this file must be the setup.exe file located on the SQL Server media. If you install an Express version of SQL Server, this file must be the .exe file that you downloaded from the Microsoft Software Download Center website (for example, SQLEXPRESS_x64_ENU.exe).
2	<License Check Box>	Select the I accept the Microsoft software Terms and conditions check box.
3	Unified ADS/ADX or SCT	Select this option if you install an ADS, ADS-Lite, ODS, SCT, or unified ADX. This selection appears only for a new SQL Server installation.
4	SA Password	Specify a secure SA password for the SQL Server administrator account. This selection appears only for a new SQL Server installation.
5	Software Key	Enter the software license key required to activate SQL Server software, usually found on the media label. This selection appears only for a new SQL Server installation.

Table 1: Description of SQL Installer Window

Callout	Attribute	Action
6	Show Advanced Options	Select this check box to enable the advanced options editing window.
7	Instance Name	Specify a database instance name for SQL Server.
8	Windows Account Granted SA Access <ul style="list-style-type: none"> • Local Administrators Group • Local Windows Administrator 	For administrator rights to the SQL Server databases, select if you want the local Administrators group, or the local Windows Administrator user.
9	Application Installation Path	Indicate where you want to install the Reporting Services component of SQL Server, on the unified ADX, or the web/application server of a split ADX. Enter as a full path starting with the drive letter (for example, D:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER\Reporting Services). Leave this field blank for a unified ADX, ADS-Lite, ODS, or SCT computer if all SQL Server components are installed on the C: drive.
10	Default Database Storage Path	Indicate where you want to install the Database Engine Services component of SQL Server, on the unified ADX, or the database server of a split ADX. Enter as a full path starting with the drive letter (for example, D:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER). Leave this field blank for a unified ADX, ADS-Lite, ODS, or SCT computer if all SQL Server components are installed on the C: drive.
11	Command Line Options	Contains the full command-line options that reflect the dialog box selections you made. You cannot edit this area of the screen.
12	Find SQL Install Program	Click to open a browser window where you can select the location of the SQL Server installation or upgrade file. Select the appropriate SQL Server Setup executable file, for example <code>setup.exe</code> .

Table 1: Description of SQL Installer Window

Callout	Attribute	Action
13	Download Management Studio Install Program	<p>Click to access the Microsoft download page to download the latest version of SQL Server Management Studio (SSMS). SSMS is backward-compatible with all earlier versions of SQL Server.</p> <p>SQL Server 2016 and SQL Server 2016 Express do not install SQL Server Management Studio. Other SQL Server versions may not install SQL Server Management Studio. You must manually install SQL Server Management Studio, see Installing SQL Server Management Studio (SSMS). If you install a SQL Server software version that includes Management Tool software, you do not need to click this button.</p>
14	Split ADX App Server Split ADX Data Server	To install SQL Server on the web/application server, select Split ADX App Server . To install SQL Server on the database server, select Split ADX Data Server . These selections appear only for a new SQL Server installation. Do not make this selection for a unified ADX, ADS-Lite, OAS, ODS, or SCT computer.
15	Install New Instance or Upgrade Existing Instance	<p>To start the SQL Server software installation, click Install New Instance. To start the SQL Server software upgrade, click Upgrade Existing Instance.</p> <p>ⓘ Note: To switch between install and upgrade, you can tab out of the Instance Name field, or left-click the Command Line Options area</p>

Detailed procedures

Verifying your computer has a supported version of SQL Server software installed

- Open the SQL Server Configuration Manager tool.
 - ⓘ **Note:** If you do not see any version of Microsoft SQL Server on your computer, you do not have the required software. Follow the instructions in this document for installing a supported version of SQL Server software.
- In the left pane, select **SQL Server Services**. In the right pane, double-click the **SQL Server** instance name.
- Click the **Advanced** tab and scroll down to the **Version** row.
- If the version matches any of the listed version numbers, you have a supported version of SQL Server or SQL Server Express software. Verify that the version number is any one of the following or later versions:
 - 15.0.2000.5: SQL Server® 2019 (64-bit)
 - 14.0.3238.1: SQL Server® 2017 with CU17 (64-bit)
 - 13.0.5492.2: SQL Server® 2016 with SP2 CU10 (64-bit)
 - 12.0.6329.1: SQL Server® 2014 with SP3 CU4 (64-bit)

5. If the version **does not** match any of these version numbers or later, you need to either apply the required service pack or upgrade to a newer version of SQL Server or SQL Server Express software. Follow the instructions in the *SQL Server Install and Upgrade Installation Instructions (LIT-12012240)* for installing a supported version of SQL Server software.

Installing or upgrading SQL Server software using the SQL Install Helper

About this task:

As part of the SQL Server installation and upgrade process, SQL Server Setup checks the configuration of your computer and indicates any potential installation problems. For example, if you do not have the required version of Microsoft .NET Framework installed, SQL Server Setup reports an error. Also, if you try to upgrade an old version of SQL Server software that is not at the minimum service pack level, SQL Server Setup reports an error and cannot continue until you apply the required service pack update. You must resolve all issues before you continue with SQL Server software installation.

If you are installing SQL Server software without any previous versions of SQL Server software, go straight to Step 2.

1. If you are upgrading to a newer edition of SQL Server software, uninstall **all** *Metasys* software before you perform the upgrade. Also, make sure you retain all scheduled actions and keep all *Metasys* databases. After all *Metasys* software is uninstalled, go to the next step.
2. Obtain the SQL Server Software installation file.
 - ① **Note:** Use the links provided in the [SQL Server overview](#) for the Express Versions.
3. Using Windows Explorer or File Explorer, locate the SQL Server Software Installer folder.
4. Double-click the **SQLInstallHelper.exe** file. The SQL Installer dialog box appears.
 - ① **Note:** If you install SQL Server 2016, SQL Management Studio is not installed with the SQL Server software. Click **Download Management Studio Install Program**. Your default web browser opens this [Microsoft website](#). You must manually install SQL Server Management Studio. See [Installing SQL Server Management Studio \(SSMS\)](#). You can choose to install this software now or do so after installing SQL Server using the SQL Install Helper.
5. In the SQL Install Helper, click **Find SQL Install Program**. The Open dialog box appears.
6. Browse to the location of the installation or upgrade file for a supported version of SQL Server software.
7. Select the installation or upgrade file and click **Open**. The Microsoft Software License Terms window appears.
 - ① **Note:** The SQL Installer tool is not compatible with SSEI files, such as the SQLServer201x-SSEI.exe. If you obtained an SSEI file, you must run it separately. Choose **Download Media**, then **Express**. This downloads the setup file which may be used with the SQL Installer tool, such as the SQLEXP_x64_ENU.exe.
8. Click **Accept**. The Microsoft Software License Terms window closes and the **I accept the Microsoft software Terms and conditions** selection of the SQL Installer window is checked.
 - If you are installing or upgrading SQL Server software for a split ADX, skip straight to Step 9.
 - If you are installing or upgrading SQL Server software for a unified ADX and SCT, follow these steps:
 - a. Type a complex password for the SQL Server administrator (SA) user account in the SA password field.

- b. (Optional) To specify a database default instance, click **Show Advanced Options** and specify an instance name in the Instance Name field. If not specified, the SQL installer uses the default instance name.
 - c. Click **Install New Instance** (for installations) or **Upgrade Existing Instance** (for upgrades).
 - ⓘ **Note:** To switch between Upgrade and Install, you can tab out of the Instance Name field or left-click on the Command Line Options area.
 - d. Go to Step 9.
9. To install or upgrade SQL Server software for a split ADX:
- a. Select the split computer type: **Split ADX App Server** or **Split ADX Data Server**.
 - b. Type a complex SA password.
 - c. If you want to change any SQL Server installation defaults, such as the location where the software installs or the database instance name, click **Show Advanced Options**.
 - d. Specify an instance name. You must use **MSSQLSERVER** if you plan to install Reporting Services on the web/application server computer in a split ADX configuration.
 - e. If you are installing the web/application server, optionally specify the full pathname where you want to install SQL Server software. Leave this field blank to accept the default location.
 - f. If you are installing the database server, optionally specify the full pathname where you want to install SQL Server software. Leave this field blank to accept the default location.
 - g. Click **Install New Instance** (for installs) or **Upgrade Existing Instance** (for upgrades).

SQL Server software installation occurs in the background. Installation can take over 15 minutes to complete. No SQL Server Setup screens appear. When the process is finished, the message box **Install Succeeded** appears.

- ⓘ **Note:** You may be prompted to provide a location for temporary installation files, particularly if you are installing SQL Server Express.
10. Click **OK**.
 11. Restart the computer only if the SQL Installer prompts you to do so.
 - For a split ADX only, repeat the steps in this section to install the required SQL Server software components on the second server of the split system. Then, go to [Specific system requirements for the Metasys Advanced Reporting System](#) to configure Reporting Services on the web/application server of the split ADX.
 - If you plan to install the *Metasys Advanced Reporting System*, go to [Installing Microsoft Report Viewer 2012 redistributable package](#).

SQL Server 2019 software and SQL Server 2019 Express software installation and upgrade

Use the following information to install or upgrade to SQL Server 2019 or SQL Server 2019 Express software. For branch employees, refer to [Installing or upgrading SQL Server software using the SQL Install Helper](#).

Installing SQL Server 2019 or SQL Server 2019 Express software

Before you begin: The SQL Installer Tool does not support SQL Server 2019 or SQL Server 2017. These releases do not integrate SQL Server Reporting Services in their install process. You must run the SQL Server Reporting Services program separately. Metasys Advanced Reporting System and Energy Essentials does not support SQL Server 2019.

1. Run the SQL Server 2019 software `setup.exe` file.
 - ① **Note:** If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then restart the procedure.
2. In the **SQL Server Installation Center** window, click **Installation**.
3. In the right pane, click **New SQL Server stand-alone installation or add features to an existing installation**.
4. If required, in the **Product Key** window, enter the product key.
5. Read the license terms agreement, and select the **I accept the license terms** check box.
6. In the **Install Rules** window, a report indicates the status of prerequisite components. If any prerequisite fails, exit the installation and fix the issue before you continue. For more information, click the **Failed** cell. You can ignore any warnings at this stage. Click **Next**.
7. In the **Feature Selection** window, select the appropriate check boxes.
 - ① **Note:** There are more instance features and shared features available on SQL Server 2019 Standard than SQL Server 2019 Express. Select the features that best suit your requirements, but you must select the **Database Engine Services** for *Metasys*.

- To install SQL Server 2019 for a SCT computer, a unified ADX/ODS computer, or a split ADX data server computer, select the **Database Engine Services** check box.
8. In the **Instance Configuration** window, click **Default instance** (preferred), or click **Named instance**, and type the name of the instance you use with the *Metasys* software. Click **Next**.
9. In the **Server Configuration** window, complete the following steps:
 - a. Accept the default **Account Name** setting for all services shown.
 - b. In the **Collation** tab, verify that the following engine **SQL_Latin1_General_CP1_CI_AS** is in the **Database Engine** field.
10. In the **Database Engine Configuration** window, complete the following steps:
 - a. Click **Mixed Mode (SQL Server authentication and Windows authentication)**.
 - b. In the password fields, type a strong password for the SQL Server administrator (SA) user account. To comply with Microsoft password guidelines, see [SQL Server overview](#). Safeguard this user name and password. Without these credentials, you cannot maintain the database.
 - c. To permit the *Metasys* software to create SQL Server users using Windows authentication, you must specify the **BUILTIN\Administrators** account as a SQL Server administrator. In the **Specify SQL Server administrators area**, click **Add**.
 - d. In the **Select users or Groups** dialog box, click **Advanced**. A second **Select users or Groups** dialog box appears, click **Find Now**.
 - i. If the computer is not a member of a domain, in the **Search results**, select **Administrators**.

- ii. If the computer is a member of a domain, click **Locations** and select the location from the domain. Type **Administrators** in the **Enter the object name to select** box.
- iii. Click **Check Names**. The entry <Your computer name>\Administrators appears in the box. Make sure that the entry contains **Administrators** (plural), and not **Administrator** (singular). The entry **BUILTIN\Administrators** appears in the **Specify SQL Server Administrators** area.

ⓘ **Note:** If the customer's IT department is involved with the SQL Server software installation and does not permit the use of the **BUILTIN\Administrators** user, request that the IT department select a different SQL Server administrator user. Click **OK**, click **Next**.

11. SQL Server 2019 Standard only: In the **Ready to Install** window, read the summary report to ensure that the configuration contains everything you need before you click **Install**. If you have missed any components, click **Back**.
12. In the **Installation Progress** window, you see the installation progress bar. This part of the procedure can take over 15 minutes to complete. When the **Complete** window appears, you see a status update for each component you installed, and an install successful message. Click **Close**.
13. To enable communication protocols for the databases, start **SQL Server Configuration Manager**.
14. Expand **Sql Server Network Configuration**, and select **Protocols for MSSQLSERVER**.
15. In the right pane, complete the following steps:
 - a. Right-click **Named Pipes** and select **Enable**. Click **OK** to the warning message.
 - b. Right-click **TCP/IP** and select **Enable**. Click **OK** to the warning message.
16. Close the **Sql Server Configuration Manager**.

ⓘ **Note:** You must run the SQL Server Reporting Services installation program separately. For more information, see [SQL Server Reporting Services](#).

SQL Server 2019 does not install any management tools. You must manually install SQL Server Management Studio after you complete this procedure. For more information, see [Installing SQL Server Management Studio \(SSMS\)](#).

Upgrading SQL Server software to SQL Server 2019 software or SQL Server 2019 Express

About this task:

ⓘ **Note:** Metasys Advanced Reporting System and Energy Essentials does not support SQL Server 2019.

Use the following information to upgrade to any of the following versions of SQL Server software.

SQL Server Standard editions

- SQL Server 2017
- SQL Server 2016 SP2 or later
- SQL Server 2014 SP3 or later
- SQL Server 2012 SP4 or later

SQL Server Express editions

- SQL Server 2017 Express
- SQL Server 2016 Express
- SQL Server 2014 SP2 Express
- SQL Server 2012 SP4 Express

For more information on how to upgrade to SQL Server 2019, refer to the [Microsoft](#) documentation.

1. To upgrade a previous version of SQL Server to SQL Server 2019 Express software, click this [link](#), download and run SQLEXP_x64_ENU.exe.
 - ① **Note:** If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then restart the procedure.
2. In the **SQL Server Installation Center** window, click **Installation**.
3. In the right pane, click **Upgrade from a previous version of SQL Server**.
4. If required, in the **Product Key** window, enter the product key.
5. Read the license terms agreement, and select the **I accept the license terms** check box.
6. In the **Product Updates** window, a progress bar indicates the updates check.
7. In the **Upgrade Rules** window, a report indicates the status of prerequisite components. If any prerequisite fails, exit the installation and fix the issue before you continue. For more information, click the **Failed** cell. You can ignore any warnings at this stage.
8. In the **Select Instance** window, you see the names of the SQL Server instances currently installed. In the **Instance to upgrade** list, select the instance used by *Metasys* software, which is typically MSSQLSERVER. You cannot rename the database instance during an upgrade. Click **Next**. The upgrade skips the **Select Features**, and the **Feature Rules** windows, as you cannot select these options.
9. In the **Upgrade Progress** window, you see the installation progress bar. This part of the procedure can take over 15 minutes to complete. When the **Complete** window appears, you see a status update for each component you installed, and an install successful message.
10. To enable communication protocols for the databases, start **SQL Server Configuration Manager**.
11. Expand **Sql Server Network Configuration**, and select **Protocols for MSSQLSERVER**.
12. In the right pane, complete the following steps:
 - a. Right-click **Named Pipes** and select **Enable**. Click **OK** to the warning message.
 - b. Right-click **TCP/IP** and select **Enable**. Click **OK** to the warning message.
13. Close the **Sql Server Configuration Manager**.
 - ① **Note:** This version of SQL Server does not install any management tools. You must manually install SQL Server Management Studio after you complete this procedure. For more information, see [Installing SQL Server Management Studio \(SSMS\)](#).

SQL Server 2017 software and SQL Server 2017 Express software installation and upgrade

Follow these steps to install or upgrade to SQL Server 2017 or SQL Server 2017 Express software. For Branch employees, refer to [Installing or upgrading SQL Server software using the SQL Install Helper](#).

Installing SQL Server 2017 software

1. Run the SQL Server 2017 software installation file.
 - ⓘ **Note:** If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then start over with this procedure.
2. The Planning menu appears. In the right pane, several options are available. To begin, select **Installation** in the left pane.
3. Click **New SQL Server stand-alone installation or add features to an existing installation**. The Product Key window appears.
4. If required, enter the product key.
5. Click **Next**.
6. Read the License Terms agreement and then select the **I accept the license terms** check box.
7. Click **Next**.
8. Click **Install** to install the necessary product update files and setup support files. During this step, access to the Internet is required as SQL Server Setup must be online for installation updates.
9. Click **Next** to continue. A report appears that lists the results of a final Install Rules test. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the Failed cell. Any Warning report can be ignored at this point.
10. Click **Next**. The Feature Selection screen appears.
 - ⓘ **Note:** Some components may not be visible on the Feature Selection screen, depending on your configuration.
To install SQL Server 2017 for a SCT computer, a unified ADX/ODS computer, or a split ADX/ODS computer, select the **Database Engine Services** check box.
 - ⓘ **Note:** This version of SQL Server does not install any Management Tools. You must manually install SQL Server Management Studio after you complete this procedure, for more information, see [Installing SQL Server Management Studio \(SSMS\)](#). To install *Metasys* Advanced Reporting System, complete this procedure and then see [SQL Server Reporting Services](#).
11. Click **Next**.
12. Click **Default instance** (preferred) or click **Named instance** and type the name of the instance you are using with *Metasys* software.
 - ⓘ **Note:** You must use MSSQLSERVER if you plan to install Reporting Services on the web/application server in a split ADX configuration
13. Click **Next**.
14. Accept the default Account Name setting for all services shown on the Server Configuration screen. Verify the Collation tab lists **SQL_Latin1_General_CP1_CI_AS**. *Metasys* software requires this SQL Collation
15. Click **Next**.
16. Click **Mixed Mode (SQL Server authentication and Windows authentication)**. Specify a strong password for the SQL Server administrator (SA) user account and specify the **BUILTIN Administrators** account.
 - ⓘ **Note:** This screen does not appear on the web/application server of a split ADX with the *Metasys* Advanced Reporting System.

Microsoft Corporation recommends a complex password that contains eight or more letters, numbers, and symbols that cannot be guessed easily. Visit <http://www.microsoft.com> or consult with the IT department if you question about SA passwords.

Safeguard this user name and password. Without these credentials, you cannot maintain the database.

- **Important:** You must specify the **BUILTIN\Administrators** account as a SQL Server administrator to permit the *Metasys* software to create SQL Server users through Windows authentication. You add this account in the next step.

17. In the Database Engine Configuration screen, under the Specify SQL Server administrators:
 - a. Click **Add**. The Select Users or Groups dialog box appears.
 - b. Click **Advanced**. A second Select Users or Groups dialog box appears.
 - c. Click **Find Now**. If the computer is not a member of a domain, select **Administrators** in the Search results and click **OK**. If the computer is a member of a domain, click Locations and select the location from the domain. Type **Administrators** in the **Enter the object name to select** box.
 - d. Click **Check Names**. The entry **<Your Computer Name>\Administrators** appears in the box. Make sure the entry contains Administrators (plural), and not Administrator (singular).
 - e. Click **OK** to close the box. The entry **BUILTIN\Administrators** appears in the Specify SQL Server administrators section.
 - ⓘ **Note:** If the customer's IT department is involved with SQL Server software installation and does not permit the use of the BUILTIN\Administrators user, request that the IT department select a different SQL Server administrator user.
 - f. Click **Next**.
 - ⓘ **Note: Metasys Advanced Reporting Services ONLY:** If this screen does not appear (for example, on the database computer of a split ADX with *Metasys* Advanced Reporting System), go to the next step.
18. Click **Install and configure** if you are installing a unified ADX. Click **Install only** if you are installing Reporting Services on the web/application server of a split ADX.
19. Click **Next**.
20. An Installation Rules test runs. Verify that no tests fail. If a test failed, you need to exit the installation and correct the issue before continuing.
21. Click the **Failed cell** for more information.
22. Click **Next**. A summary screen appears with a list of your selections. Verify the list.
23. Click **Install** to begin.
24. SQL Server 2017 software installs as indicated by the Installation Progress screen. This part of the procedure can take over 15 minutes to complete. Wait until **Succeeded** appears in the Status column of each component.
25. When the installation is complete. Close all SQL Server installation windows.
26. Start SQL Server Configuration Manager. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.

27. In the right pane of the window, do the following:
 - a. Right-click Named Pipes and select Enable.
 - b. Click OK to the SQL Server software restart warning message that appears.
 - c. Right-click TCP/IP and select Enable.
 - d. Click OK to the warning message.
 - e. Close the SQL Server Configuration Manager

① **Note:** If you plan to install the *Metasys* Advanced Reporting System, first see [SQL Server Reporting Services](#).

Upgrading SQL Server software to SQL Server 2017 software or SQL Server 2017 Express software

The steps in this section apply to upgrading any of the following version of SQL Server software:

- SQL Server 2016
- SQL Server 2014
- SQL Server 2012
- SQL Server 2008 R2
- SQL Server 2008

For more information on upgrading to SQL Server 2017, refer to the [Microsoft documentation](#).

The steps in this section also apply to upgrading any of the following version of SQL Server Express software

- SQL Server 2017 Express
 - SQL Server 2016 Express
 - SQL Server 2014 Express
 - SQL Server 2012 Express
 - SQL Server 2008 R2 Express
 - SQL Server 2008
1. To upgrade a previous version of SQL Server to SQL Server 2017 Express software, click this [link](#), download and run SQLEXP_x64_ENU.exe.
 2. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server installation files that you downloaded.
 3. If a **User Access Control** dialog box prompts you for permission to make changes to the computer related to installing SQL Server 2016 software, click **Yes**. The message **Please Wait While SQL Server 2017 Setup processes the current operation** appears as the installation begins.
 4. The Planning menu is the first screen to appear. In the right pane, several options are available for you to explore. To continue, click **Installation** in the left pane. The selections in the right pane change.
 5. To begin installation, click the Upgrade from [SQL versions listed] option in the right pane of the screen. The License Terms screen appears.

6. In the License Terms screen, read the License Terms agreement and then click **I accept the license terms**. Click **Next**. The Install Setup Files screen appears, showing the download and installation progress of any necessary setup files.
7. A report may appear that lists the results of a setup support files test. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the **Failed** cell. (Warning reports can be ignored at this point.) Click **Next**.
8. The Select Instance screen appears, indicating the names of the SQL Server instances currently installed. Select the instance used by *Metasys* software, which is typically MSSQLSERVER. You cannot rename the database instance during an upgrade. Click **Next**. The Select Features screen is skipped because during an upgrade, you cannot select any additional features.
9. If the Feature Rules screen appears, the results of a Feature Rules test are given. Verify that no tests fail. If a test failed, you need to exit the installation and correct the issue before continuing. Click the **Failed** cell for more information. Click **Next**.
10. The Ready to Upgrade screen appears. Click **Upgrade**.
11. The Installation Progress screen appears as the SQL Server 2017 software installs. This part of the procedure can take over 15 minutes to complete. When **Setup process complete** appears above the progress bar, click **Next**. The Complete screen appears.
12. In the Complete screen, click **Close**.
13. Start SQL Server Configuration Manager.
14. Expand SQL Server Network Configuration and select Protocols for MSSQLSERVER.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
15. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select Enable. Click **OK** to the SQL Server software restart warning message that appears.
16. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click TCP/IP and select Enable. Click **OK** to the warning message.
17. Close SQL Server Configuration Manager.
18. Restart the computer only if the SQL Installer prompts you to do so.

For a split ADX only, repeat the steps in this section to install the required SQL Server software components on the second server of the split system. Then, go to [Specific system requirements for the Metasys Advanced Reporting System](#) to configure Reporting Services on the web/application server of the split ADX.

If you plan to install the Metasys Advanced Reporting System, see [Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017](#).

Installing SQL Server 2017 Express software

1. To install SQL Server 2017 Express software, click this [link](#) and download SQLEXP_x64_ENU.exe.
2. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server installation files that you downloaded. If a **User Account Control** dialog box appears, click **Yes**.
3. If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then start over with this procedure.
4. The Select an installation type window appears. Select **Custom**.

5. The Specify SQL Server media download target location window appears. Select a location for the media to download or keep the default location. Click **Install**. The Downloading install package windows appears. After the download completes, the window closes and the **Please wait while Microsoft SQL Server 2017 Setup processes the current operation** appears.
6. The Planning menu is the first screen to appear. In the right pane, several options are available. To begin, select **Installation** in the left pane.
7. Click **New SQL Server stand-alone installation or add features to an existing installation**
8. Read the License Terms agreement and then select the **I accept the license terms** check box. Click **Next**.
9. A report appears that lists the results of a final Install Rules test.
 - ⓘ **Note:** Your screen may look slightly different from this example. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the Failed cell. (Any Warning report can be ignored at this point.)
10. Click **Next**.
11. Select the **Database Engine Services** check box. Click **Next**.
12. Click **Named instance** and type **MSSQLSERVER** in the Named instance field. The Instance ID field fills in for you. MSSQLSERVER is the instance you are going to use with *Metasys* software. Click **Next**.
13. Accept the default Account Name setting for all services shown on the Server Configuration screen. Verify the Collation tab lists **SQL_Latin1_General_CP1_CI_AS**. Metasys software requires this SQL Collation. Click **Next**.
14. Click **Mixed Mode (SQL Server authentication and Windows authentication)**. Specify a strong password for the SQL Server administrator (SA) user account and specify the **BUILTIN\Administrators** account.
 - ⓘ **Note:**
 - Microsoft Corporation recommends a complex password that contains eight or more letters, numbers, and symbols that cannot be guessed easily. Visit <http://www.microsoft.com> or consult with the IT department if you question about SA passwords.
 - Safeguard this user name and password. Without these credentials, you cannot maintain the database.
 - **Important:** You must specify the **BUILTIN\Administrators** account as a SQL Server administrator to permit the Metasys software to create SQL Server users through Windows authentication. You add this account in the next step.
15. In the Database Engine Configuration screen, under the Specify SQL Server administrators section:
 - a. Click **Add**. The Select Users or Groups dialog box appears.
 - b. Click **Advanced**. A second Select Users or Groups dialog box appears.
 - c. Click **Find Now**. If the computer is not a member of a domain, select **Administrators** in the Search results and click **OK**. If the computer is a member of a domain, click **Locations** and select the location from the domain. Type **Administrators** in the **Enter the object name to select** box.

- d. Click **Check Names**. The entry <Your Computer Name>\Administrators appears in the box. Make sure the entry contains Administrators (plural), and not Administrator (singular).
 - e. Click **OK** to close the box. The entry **BUILTIN\Administrators** appears in the Specify SQL Server administrators section.
 - ⓘ **Note:** If the customer's IT department is involved with SQL Server software installation and does not permit the use of the BUILTIN\Administrators user, request that the IT department select a different SQL Server administrator user.
 - f. Click **Next**.
16. SQL Server 2017 Express software installs as indicated by the Installation Progress screen. This part of the procedure can take over 15 minutes to complete. Wait until **Succeeded** appears in the Status column of each component.
 17. Installation is complete. Close all SQL Server installation windows. This version of SQL Server does not install any Management Tools. You must manually install SQL Server Management Studio. After you complete this procedure, see [Installing SQL Server Management Studio \(SSMS\)](#).
 18. Start SQL Server Configuration Manager. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
 19. In the right pane of the window, do the following:
 - a. Right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Right-click **TCP/IP** and select Enable.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.

SQL Server 2016 software and SQL Server 2016 Express software installation and upgrade

Follow these steps to install or upgrade to SQL Server 2016 SP2 Software or SQL Server 2016 Express SP2 Software. For Branch employees, see [Installing or upgrading SQL Server software using the SQL Install Helper](#).

Installing SQL Server 2016 SP2 software

About this task:

1. Run the SQL Server 2016 SP2 software installation file.
 - ⓘ **Note:** If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then start over with this procedure.
2. The Planning menu appears. In the right pane, several options are available. To begin, select **Installation** in the left pane.
3. Click **New SQL Server stand-alone installation or add features to an existing installation**. The Product Key window appears.
4. If required, enter the product key.

5. Click **Next**.
6. Read the License Terms agreement and then select the **I accept the license terms** check box.
7. Click **Next**.
8. Click **Install** to install the necessary product update files and setup support files. During this step, access to the Internet is required as SQL Server Setup must be online for installation updates.
9. Click **Next** to continue. A report appears that lists the results of a final Install Rules test. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the Failed cell. Any Warning report can be ignored at this point.
10. Click **Next**. The Feature Selection screen appears.

- ⓘ **Note:** Some components may not be visible on the Feature Selection screen, depending on your configuration.

Make the appropriate selections using the following:

Database Engine Services:

- Required for the SCT computer
- Required for the unified ADX/ODS computer
- Required for the database server of a split ADX

Reporting Services - Native:

- Required for the unified ADX/ODS with the *Metasys* Advanced Reporting System
- Required for the web/application server of a split ADX with the *Metasys* Advanced Reporting System

- ⓘ **Note:** If you want the *Metasys* Advanced Reporting System, you must select **Reporting Services** now. It is not an available choice if you later apply a service pack.

This version of SQL Server does not install any Management Tools. You must manually install SQL Server Management Studio. After you complete this procedure, see [Installing SQL Server Management Studio \(SSMS\)](#).

11. Click **Next**.
12. Click **Default instance** (preferred) or click **Named instance** and type the name of the instance you are using with *Metasys* software.
 - ⓘ **Note:** You must use MSSQLSERVER if you plan to install Reporting Services on the web/application server in a split ADX configuration
13. Click **Next**.
14. Accept the default Account Name setting for all services shown on the Server Configuration screen. Verify the Collation tab lists **SQL_Latin1_General_CP1_CI_AS**. *Metasys* software requires this SQL Collation.
15. Click **Next**.
16. Click **Mixed Mode (SQL Server authentication and Windows authentication)**. Specify a strong password for the SQL Server administrator (SA) user account and specify the **BUILTIN\Administrators** account.
 - ⓘ **Note:** This screen does not appear on the web/application server of a split ADX with the *Metasys* Advanced Reporting System.

Microsoft Corporation recommends a complex password that contains eight or more letters, numbers, and symbols that cannot be guessed easily. Visit <http://www.microsoft.com> or consult with the IT department if you question about SA passwords.

Safeguard this user name and password. Without these credentials, you cannot maintain the database.

- ▶ **Important:** You must specify the **BUILTIN\Administrators** account as a SQL Server administrator to permit the *Metasys* software to create SQL Server users through Windows authentication. You add this account in the next step.
17. In the Database Engine Configuration screen, under the Specify SQL Server administrators section:
 - a. Click **Add**. The Select Users or Groups dialog box appears.
 - b. Click **Advanced**. A second Select Users or Groups dialog box appears.
 - c. Click **Find Now**. If the computer is not a member of a domain, select **Administrators** in the Search results and click **OK**. If the computer is a member of a domain, click **Locations** and select the location from the domain. Type **Administrators** in the **Enter the object name to select** box.
 - d. Click **Check Names**. The entry **<Your Computer Name>\Administrators** appears in the box. Make sure the entry contains Administrators (plural), and not Administrator (singular).
 - e. Click **OK** to close the box. The entry **BUILTIN\Administrators** appears in the Specify SQL Server administrators section.
 - ⓘ **Note:** If the customer's IT department is involved with SQL Server software installation and does not permit the use of the BUILTIN\Administrators user, request that the IT department select a different SQL Server administrator user.
 - f. Click **Next**.
 - ⓘ **Note: Metasys Advanced Reporting Services ONLY:** If this screen does not appear (for example, on the database computer of a split ADX with *Metasys* Advanced Reporting System), go to the next step.
 18. Click **Install and configure** if you are installing a unified ADX. Click **Install only** if you are installing Reporting Services on the web/application server of a split ADX.
 19. Click **Next**.
 20. An Installation Rules test runs. Verify that no tests fail. If a test failed, you need to exit the installation and correct the issue before continuing.
 21. Click the **Failed cell** for more information.
 22. Click **Next**. A summary screen appears with a list of your selections. Verify the list.
 23. Click **Install** to begin.
 24. SQL Server 2016 software installs as indicated by the Installation Progress screen. This part of the procedure can take over 15 minutes to complete. Wait until **Succeeded** appears in the Status column of each component.
 25. When the installation is complete. Close all SQL Server installation windows.
 26. Start SQL Server Configuration Manager. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.

27. In the right pane of the window, do the following:

- a. Right-click **Named Pipes** and select **Enable**.
- b. Click **OK** to the SQL Server software restart warning message that appears.
- c. Right-click **TCP/IP** and select **Enable**.
- d. Click **OK** to the warning message.
- e. Close the SQL Server Configuration Manager.

ⓘ **Note:** If you plan to install the *Metasys* Advanced Reporting System, go to [Installing Microsoft Report Viewer 2012 redistributable package](#).

Installing SQL Server 2016 SP2 Express software

About this task:

1. To install SQL Server 2016 SP2 Express software, click this [link](#) and download the file.
2. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server installation files that you downloaded. If a **User Account Control** dialog box appears, click **Yes**.
3. If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then start over with this procedure.
4. The Select an installation type window appears. Select **Custom**.
5. The Specify SQL Server media download target location window appears. Select a location for the media to download or keep the default location. Click **Install**. The Downloading install package windows appears. After the download completes, the window closes and the **Please wait while Microsoft SQL Server 2016 Setup processes the current operation** appears.
6. The Planning menu is the first screen to appear. In the right pane, several options are available. To begin, select **Installation** in the left pane.
7. Click **New SQL Server stand-alone installation or add features to an existing installation**.
8. Read the License Terms agreement and then select the **I accept the license terms** check box. Click **Next**.
9. A report appears that lists the results of a final Install Rules test.
ⓘ **Note:** Your screen may look slightly different from this example. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the Failed cell. (Any Warning report can be ignored at this point.)
10. Click **Next**.
11. Select the **Database Engine Services** check box. Click **Next**.
12. Click **Named instance** and type **MSSQLSERVER** in the Named instance field. The Instance ID field fills in for you. MSSQLSERVER is the instance you are going to use with *Metasys* software. Click **Next**.
13. Accept the default Account Name setting for all services shown on the Server Configuration screen. Verify the Collation tab lists **SQL_Latin1_General_CP1_CI_AS**. *Metasys* software requires this SQL Collation. Click **Next**.
14. Click **Mixed Mode (SQL Server authentication and Windows authentication)**. Specify a strong password for the SQL Server administrator (SA) user account and specify the **BUILTIN\Administrators** account.

Notes:

- Microsoft Corporation recommends a complex password that contains eight or more letters, numbers, and symbols that cannot be guessed easily. Visit <http://www.microsoft.com> or consult with the IT department if you question about SA passwords.
- Safeguard this user name and password. Without these credentials, you cannot maintain the database.

► **Important:** You must specify the **BUILTIN\Administrators** account as a SQL Server administrator to permit the *Metasys* software to create SQL Server users through Windows authentication. You add this account in the next step.

15. In the Database Engine Configuration screen, under the Specify SQL Server administrators section:
 - a. Click **Add**. The Select Users or Groups dialog box appears.
 - b. Click **Advanced**. A second Select Users or Groups dialog box appears.
 - c. Click **Find Now**. If the computer is not a member of a domain, select **Administrators** in the Search results and click **OK**. If the computer is a member of a domain, click **Locations** and select the location from the domain. Type **Administrators** in the **Enter the object name to select** box.
 - d. Click **Check Names**. The entry **<Your Computer Name>\Administrators** appears in the box. Make sure the entry contains Administrators (plural), and not Administrator (singular).
 - e. Click **OK** to close the box. The entry **BUILTIN\Administrators** appears in the Specify SQL Server administrators section.
 - ⓘ **Note:** If the customer's IT department is involved with SQL Server software installation and does not permit the use of the BUILTIN\Administrators user, request that the IT department select a different SQL Server administrator user.
 - f. Click **Next**.
16. SQL Server 2016 Express software installs as indicated by the Installation Progress screen. This part of the procedure can take over 15 minutes to complete. Wait until **Succeeded** appears in the Status column of each component.
17. Installation is complete. Close all SQL Server installation windows. This version of SQL Server does not install any Management Tools. You must manually install SQL Server Management Studio. After you complete this procedure, see [Installing SQL Server Management Studio \(SSMS\)](#).
18. Start SQL Server Configuration Manager. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
19. In the right pane of the window, do the following:
 - a. Right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Right-click **TCP/IP** and select **Enable**.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.

Applying service packs to SQL Server 2016 software or SQL Server 2016 Express software

About this task:

We support SQL Server 2016 software with SP2 or SQL Server 2016 Express software with SP2. Use these steps to apply the service pack update to an older version of SQL Server 2016 or SQL Server 2016 Express software that is currently installed. If you do not have SQL Server 2016 software installed, go to [Installing SQL Server 2016 SP2 software](#). If you do not have SQL Server 2016 Express software installed, go to [Installing SQL Server 2016 SP2 Express software](#). Verify your version of SQL Server 2016 before running through this update.

This procedure applies to updating SQL Server 2016 software, or SQL Server 2016 Express software. Both SQL Server & SQL Express use the same SP2 file. For SQL Server 2016 SP2 and SQL Server 2016 SP2 Express software, click this [link](#) to download the file.

1. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server installation files that you downloaded. If a **User Account Control** dialog box appears, click **Yes**.
2. The SQL Server 2016 Update screen appears. Verify that all update rules pass before continuing. Click **Next**.
3. Read the end user license agreement and then select the **I accept the license terms** check box. Click **Next**.
4. The Select Features screen indicates the Instance ID that is ready to be updated. Click the **instance name** to refresh the Description fields. For an update, you cannot select any additional features. Click **Next**.
5. The SQL Server 2016 SP2 update checks to see if any required SQL Server files are in use. If you have SQL Server files in use when you install SP2, restart your computer after the installation is complete. Click **Next**.
6. SQL Server 2016 SP2 software is ready to update. Click **Update**. During the update, a progress screen indicates the status of the update. This part of the procedure can take up to 15 minutes to complete.
7. The update operation is complete. Click **Close**.
8. Start SQL Server Configuration Manager.
9. Expand SQL Server Network Configuration and select Protocols for MSSQLSERVER.
 - ① **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
10. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select **Enable**. Click **OK** to the SQL Server software restart warning message that appears.
11. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click **TCP/IP** and select **Enable**. Click **OK** to the warning message.
12. Close SQL Server Configuration Manager.
13. Restart the computer only if the SQL Installer prompts you to do so.

For a split ADX only, repeat the steps in this section to install the required SQL Server software components on the second server of the split system. Then, go to [Specific system requirements for the Metasys Advanced Reporting System](#) to configure Reporting Services on the web/application server of the split ADX.

If you plan to install the *Metasys Advanced Reporting System*, go to [Installing Microsoft Report Viewer 2012 Redistributable Package](#).

Upgrading SQL Server software to SQL Server 2016 SP2 software or SQL Server 2016 SP2 Express software

About this task:

The steps in this section apply to upgrading any of the following versions of SQL Server software:

- SQL Server 2014
- SQL Server 2012
- SQL Server 2008 R2
- SQL Server 2008

For more information on upgrading to SQL Server 2016 SP2, refer to the [Microsoft documentation](#). The steps in this section also apply to upgrading any of the following versions of SQL Server Express software:

- SQL Server 2012 SP2 Express
- SQL Server 2014 Express
- SQL Server 2008 R2 Express
- SQL Server 2008 Express

1. To upgrade SQL complete the following steps.
 - a. For upgrading SQL Server, run the SQL Server 2016 SP2 software installation file from provided media.
 - b. For upgrading SQL Express, click this [link](#), download and run SQLEXP_x64_ENU.exe.
2. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server installation files that you downloaded.
3. If a **User Access Control** dialog box prompts you for permission to make changes to the computer related to installing SQL Server 2016 software, click **Yes**. The message **Please Wait While SQL Server 2016 Setup processes the current operation** appears as the installation begins.
4. The Planning menu is the first screen to appear. In the right pane, several options are available for you to explore. To continue, click **Installation** in the left pane. The selections in the right pane change.
5. To begin installation, click the **Upgrade from [SQL versions listed]** option in the right pane of the screen. The License Terms screen appears.
6. In the License Terms screen, read the License Terms agreement and then click **I accept the license terms** Click **Next**. The Install Setup Files screen appears, showing the download and installation progress of any necessary setup files.
7. A report may appear that lists the results of a setup support files test. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the **Failed** cell. (Warning reports can be ignored at this point.) Click **Next**.
8. The Select Instance screen appears, indicating the names of the SQL Server instances currently installed. Select the instance used by *Metasys* software, which is typically MSSQLSERVER. You cannot rename the database instance during an upgrade. Click **Next**. The Select Features screen is skipped because during an upgrade, you cannot select any additional features.
9. If the Feature Rules screen appears, the results of a Feature Rules test are given. Verify that no tests fail. If a test failed, you need to exit the installation and correct the issue before continuing. Click the **Failed** cell for more information. Click **Next**.

10. The Ready to Upgrade screen appears. Click **Upgrade**.
11. The Installation Progress screen appears as the SQL Server 2016 software installs. This part of the procedure can take over 15 minutes to complete. When **Setup process complete** appears above the progress bar, click **Next**. The Complete screen appears.
12. In the Complete screen, click **Close**.
13. Start SQL Server Configuration Manager.
14. Expand SQL Server Network Configuration and select Protocols for MSSQLSERVER.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
15. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select **Enable**. Click **OK** to the SQL Server software restart warning message that appears.
16. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click **TCP/IP** and select **Enable**. Click **OK** to the warning message.
17. Close SQL Server Configuration Manager.
18. Restart the computer only if the SQL Installer prompts you to do so.
 - For a split ADX only, repeat the steps in this section to install the required SQL Server software components on the second server of the split system. Then, go to [Specific system requirements for the Metasys Advanced Reporting System](#) to configure Reporting Services on the web/application server of the split ADX.

If you plan to install the *Metasys* Advanced Reporting System, go to [Installing Microsoft Report Viewer 2012 Redistributable Package](#).

SQL Server 2014 software installation and upgrade

Follow these steps to install or upgrade to SQL Server 2014 software. For Branch employees, refer to [Installing or upgrading SQL Server software using the SQL Install Helper](#).

Installing SQL Server 2014 SP3 software

About this task:

1. Run the SQL Server 2014 SP3 software installation file.
 - ⓘ **Note:** If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then start over with this procedure.
2. The Planning menu is the first screen to appear. In the right pane, several options are available. To begin, select **Installation** in the left pane.
3. Click **New SQL Server stand-alone installation or add features to an existing installation**.
4. The Product Key window appears. If required, enter the product key. Click **Next**.
5. Read the License Terms agreement and then select the **I accept the license terms** check box. Click **Next**.
6. Click **Install** to install the necessary product update files and setup support files. During this step, access to the Internet is required as SQL Server Setup looks online for installation updates. If the computer does not have access to the Internet and Windows Update service, then you may get an error message. Click **Next** to continue.
7. A report appears that lists the results of a final Install Rules test. Your screen may look slightly different from this example. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the **Failed cell**. (Any Warning report can be ignored at this point.) Click **Next**.

8. A Setup Role selection screen appears that enables you to select a default installation of SQL Server Feature components. Click **SQL Server Feature Installation**. Click **Next**. The Feature Selection screen appears.

① **Note:** Some components may not be visible on the Feature Selection screen, depending on your configuration. Make the appropriate selections using the following:

Database Engine Services:

- Required for the SCT computer
- Required for the unified ADX/ODS computer
- Required for the database server of a split ADX

Reporting Services - Native:

- Required for the unified ADX/ODS with the *Metasys* Advanced Reporting System
- Required for the web/application server of a split ADX with the *Metasys* Advanced Reporting System

① **Note:** If you want the *Metasys* Advanced Reporting System, you must select **Reporting Services** now. It is not an available choice if you later apply a service pack.

Management Tools - Basic: Required

Management Tools - Complete: Required

Click **Next**.

9. Click **Default instance** (preferred) or click **Named instance** and type the name of the instance you are using with *Metasys* software. **You must use MSSQLSERVER if you plan to install Reporting Services on the web/application server in a split ADX configuration.** Click **Next**.
10. Accept the default Account Name settings for all services shown on the Server Configuration screen. Verify the Collation tab lists **SQL_Latin1_General_CP1_CI_AS**. *Metasys* software requires this SQL Collation. Click **Next**.

① **Note:** This screen does not appear on the web/application server of a split ADX with the *Metasys* Advanced Reporting System.
11. Click **Mixed Mode (SQL Server authentication and Windows authentication)**. Specify a strong password for the SQL Server administrator (SA) user account and specify the **BUILTIN\Administrators** account.

Microsoft Corporation recommends a complex password that contains eight or more letters, numbers, and symbols that cannot be guessed easily. Visit <http://www.microsoft.com> or consult with the IT department if you have questions about SA passwords. Safeguard this user name and password. Without these credentials, you cannot maintain the database.

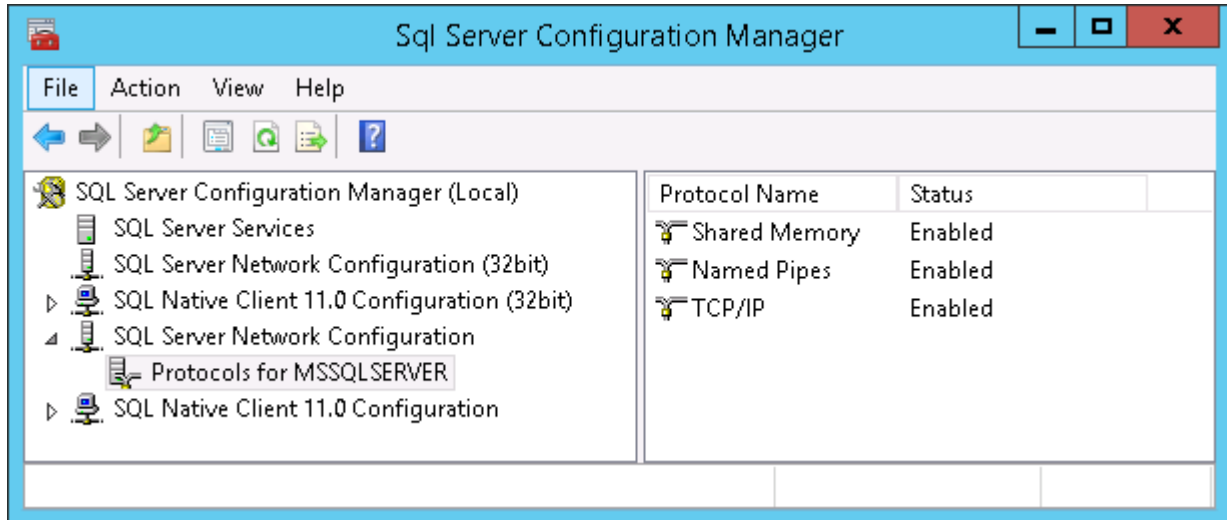
► **Important:** You must specify the **BUILTIN\Administrators** account as a SQL Server administrator to permit the *Metasys* software to create SQL Server users through Windows authentication. You add this account in the next step.
12. In the Database Engine Configuration screen, under the Specify SQL Server administrators section:
 - a. Click **Add**. The Select Users or Groups dialog box appears.
 - b. Click **Advanced**. A second Select Users or Groups dialog box appears.

- c. Click **Find Now**. If the computer is not a member of a domain, select **Administrators** in the Search results and click **OK**. If the computer is a member of a domain, click **Locations** and select the location from the domain. Type **Administrators** in the **Enter the object name to select** box.
- d. Click **Check Names**. The entry <Your Computer Name>\Administrators appears in the box. Make sure the entry contains Administrators (plural), and not Administrator (singular).
- e. Click **OK** to close the box. The entry **BUILTIN\Administrators** appears in the Specify SQL Server administrators section.
 - ⓘ **Note:** If the customer's IT department is involved with SQL Server software installation and does not permit the use of the BUILTIN\Administrators user, request that the IT department select a different SQL Server administrator user.
- f. Click **Next**.

Metasys Advanced Reporting Services Only:

- ⓘ **Note:** If this screen does not appear (for example, on the database server of a split ADX with the *Metasys* Advanced Reporting System), go to the next step.
13. Click **Install and configure** if you are installing a unified ADX. Click **Install only** if you are installing Reporting Services on the web/application server of a split ADX. Click **Next**.
14. SQL Server Setup runs an Installation Rules test. Verify that no tests fail. If a test failed, you need to exit the installation and correct the issue before continuing. Click the **Failed cell** for more information. Click **Next**.
15. A summary screen appears with a list of your selections. Verify the list. Click **Install** to begin.
16. SQL Server 2014 software installs as indicated by the Installation Progress screen. This part of the procedure can take over 15 minutes to complete. Wait until **Succeeded** appears in the Status column of each component.
17. Installation is complete. Close all SQL Server installation windows.
18. Start SQL Server Configuration Manager. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.

Figure 2: SQL Server Configuration Manager



19. In the right pane of the window, do the following:

- a. Right-click **Named Pipes** and select **Enable**.
- b. Click **OK** to the SQL Server software restart warning message that appears.
- c. Right-click **TCP/IP** and select **Enable**.
- d. Click **OK** to the warning message.
- e. Close the SQL Server Configuration Manager.

If you plan to install the *Metasys Advanced Reporting System*, go to [Installing Microsoft Report Viewer 2012 redistributable package](#).

Applying SP3 to SQL Server 2014 software

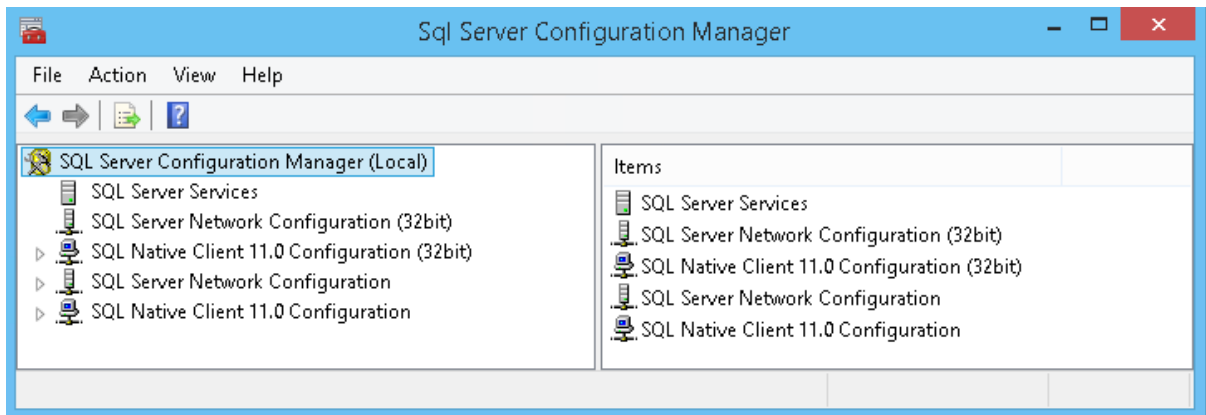
About this task:

① **Note:** We support SQL Server 2014 software with SP3. Use these steps to apply the SP3 update to an older version of SQL Server 2014 software that is currently installed. If you do not have SQL Server 2014 software installed, go to [Installing or upgrading SQL Server software using the SQL Install Helper](#).

1. To apply SP3 to SQL Server 2014 software, click this [link](#) and download the file.
2. To extract the files to a temporary location on your hard disk and begin the update, double-click the installation files that you downloaded.
3. Click **Yes** if a User Account Control dialog box prompts you for permission to make changes to the computer related to installing SQL Server 2014 SP3 software. The message **Please Wait While SQL Server 2014 Setup processes the current operation** may appear as the installation begins.
4. The SQL Server 2014 Update screen may appear. Verify that all update rules passed before continuing. Click **Next**.
 - ① **Note:** If any rule fails, click the **Failed** cell for more information. Exit the update and fix the issue before continuing.
5. Read the end user license agreement and then select the **I accept the license terms** check box. Click **Next**.

6. The Select Features screen indicates the Instance ID that is ready to be updated. Click the **instance name** to refresh the Description fields. For an update, you cannot select any additional features. Click **Next**.
7. The SQL Server 2014 SP3 update checks to see if any required SQL Server files are in use. If you have SQL Server files in use when you install SP3, restart your computer after the installation is complete. Click **Next**.
8. SQL Server 2014 SP3 software is ready to update. Click **Update**. During the update, a progress screen indicates the status of the update. This part of the procedure can take up to 15 minutes to complete.
9. The update operation is complete. Click **Close**.
10. Start the SQL Server Configuration Manager.

Figure 3: Starting SQL Server Configuration Manager



11. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
12. In the right pane of the window, do the following:
 - a. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click **TCP/IP** and select **Enable**.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.
13. Restart the computer only if the SQL Installer prompts you to do so.

For a split ADX only, repeat the steps in this section to install the required SQL Server software components on the second server of the split system. Then, go to [Specific system requirements for the Metasys Advanced Reporting System](#) to configure Reporting Services on the web/application server of the split ADX. If you plan to install the *Metasys Advanced Reporting System*, go to [Installing Microsoft Report Viewer 2012 redistributable package](#).
14. Close this window and return to the wizard overview steps.

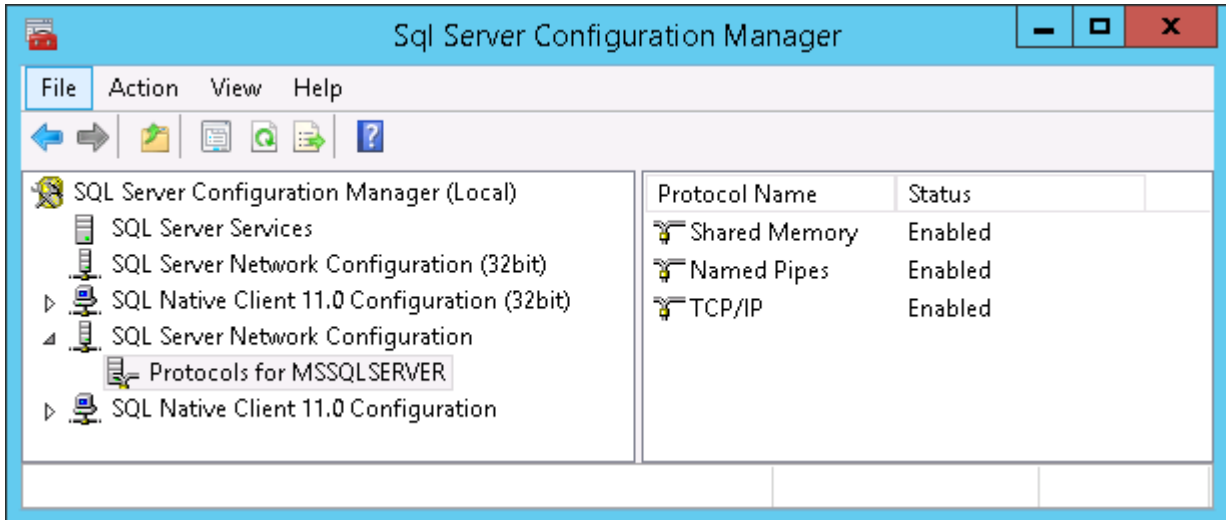
Upgrading SQL Server software to SQL Server 2014 SP3 software

About this task:

The steps in this section apply to upgrading any of the following versions of SQL Server software:

- SQL Server 2012
 - SQL Server 2008 R2
 - SQL Server 2008
 - SQL Server 2005
1. Run the SQL Server 2014 SP3 software installation file.
 2. Click **Yes** if a User Access Control dialog box prompts you for permission to make changes to the computer related to installing SQL Server 2014 software. The message **Please Wait While SQL Server 2014 Setup processes the current operation** appears as the installation begins.
 3. The Planning menu is the first screen to appear. In the right pane, several options are available for you to explore. To continue, click **Installation** in the left pane. The selections in the right pane change.
 4. To begin installation, click **Upgrade from SQL Server 2005, SQL Server 2008, SQL Server 2008 R2 or SQL Server 2012** in the right pane of the screen. The License Terms screen appears.
 5. In the License Terms screen, read the License Terms agreement and then click **I accept the license terms**. Click **Next**. The Install Setup Files screen appears, showing the download and installation progress of any necessary setup files.
 6. A report may appear that lists the results of a setup support files test. If any prerequisite fails, you need to exit the installation, and fix that issue. For more information, click the **Failed** cell. (Warning reports can be ignored at this point.) Click **Next**.
 7. The Select Instance screen appears, indicating the names of the SQL Server instances currently installed. This figure below is an example.
 8. Select the instance used by *Metasys* software, which is most likely MSSQLSERVER. You cannot rename the database instance during an upgrade. Click **Next**. The Select Features screen is skipped because during an upgrade, you cannot select any additional features.
 9. If the Feature Rules screen appears, the results of a Feature Rules test are given. Verify that no tests fail. If a test failed, you need to exit the install and correct the issue before continuing. Click the **Failed** cell for more information. Click **Next**.
 10. The Ready to Upgrade screen appears. Click **Upgrade**.
 11. The Installation Progress screen appears as the SQL Server 2014 software installs. This part of the procedure can take over 15 minutes to complete. When **Setup process complete** appears above the progress bar, click **Next**. The Complete screen appears.
 12. In the Complete screen, click **Close**.
 13. Open the SQL Server Configuration Manager.

Figure 4: SQL Server Configuration Manager



14. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ⓘ **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
15. In the right pane of the window, do the following:
 - a. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click **TCP/IP** and select **Enable**.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.
 - ⓘ **Note:** If you need to upgrade another SQL Server instance, go to Step 4 and rerun the upgrade process. If you do not need to upgrade another instance, installation is complete.

SQL Server 2014 SP3 Express software installation and upgrade

Follow these steps to install or upgrade to SQL Server 2014 Express SP3 software. For Branch employees, refer to [Installing or upgrading SQL Server software using the SQL Install Helper](#).

Installing SQL Server 2014 SP3 Express software

About this task:

1. To install SQL Server 2014 SP3 Express software, click this [link](#) and download the file.
2. To extract the files to a temporary location on your hard disk and begin the install, double-click the SQL Server installation files that you downloaded.
3. If you do not have a required prerequisite, a box appears and indicates what is missing. Click **OK**, install the missing prerequisite, and then start over with this procedure.
4. The Planning menu is the first screen to appear. In the right pane, several options are available for you to explore. To begin, click **Installation** in the left pane.

5. Click **New SQL Server stand-alone installation or add features to an existing installation**.
6. Read the License Terms agreement and then select the **I accept the license terms** check box. Click **Next**.
7. Click **Install** to install the necessary product update files and setup support files. During this step, access to the Internet is required as SQL Server setup looks online for installation updates. If the computer does not have access to the Internet and Windows Update service, then you may get an error message. You can ignore the error message and skip the step of obtaining SQL Server updates. Click **Next** to continue.
8. A report appears that lists the results of a final Setup Support Rules test. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the **Failed** cell. (Any Warning report can be ignored at this point.) Click **Next** to continue.
9. Select the **Database Engine Services** and **Management Tools - Basic** check boxes. Click **Next**.
10. Click **Named instance** and type **MSSQLSERVER** in the Named Instance field. The Instance ID field fills in for you. MSSQLSERVER is the instance you are going to use with *Metasys* software. Click **Next**.
11. Accept the default Account Name settings for all services shown on the Server Configuration screen. Verify the Collation tab lists **SQL_Latin1_General_CP1_CI_AS**. *Metasys* software requires this SQL Collation. Click **Next**.
12. Click **Mixed Mode** and define a strong password for the SQL Server administrator (SA) user account. Specify the **BUILTIN\Administrators** account.

Microsoft Corporation recommends a complex password that contains eight or more letters, numbers, and symbols and that cannot be guessed easily. Visit www.microsoft.com or consult with the IT department if you have questions about SA passwords.

Safeguard this user name and password pair. You cannot maintain the database without it.

► **Important:** You must specify the BUILTIN\Administrators account as a SQL Server administrator to permit the *Metasys* software to create SQL Server users through Windows authentication. You add this account in the next step.
13. On the Database Engine Configuration window, under the Specify SQL Server administrators section:
 - a. Click **Add**. The Select Users or Groups dialog box appears.
 - b. Click **Advanced**. A second Select Users or Groups dialog box appears.
 - c. Click **Find Now**. If the computer is not a member of a domain, select **Administrators** in the Search results and click **OK**.

If the computer is a member of a domain, click **Locations** and select the location from the domain. Type **Administrators** in the **Enter the object names to select** box.
 - d. Click **Check Names**. The entry <Your Computer Name>\Administrators appears in the box. Make sure the entry contains Administrators (plural), and not Administrator (singular).
 - e. Click **OK** to close the box. The entry **BUILTIN\Administrators** appears in the Specify SQL Server administrators section.

❗ **Note:** If the customer's IT department is involved with SQL Server software installation and does not permit the use of the BUILTIN\Administrators user, request that the IT department select a different SQL Server administrator user.

- f. Click **Next**.
14. SQL Server 2014 SP3 Express software installs as indicated by the Installation Progress screen. This part of the procedure can take over 15 minutes to complete.
15. The Complete screen appears. Verify that each component reports a successful installation. Click **Close**.
16. Start SQL Server Configuration Manager.
17. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ① **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER. In the right pane of the window, do the following:
 - a. Right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Right-click **TCP/IP** and select **Enable**.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.

Applying SP3 to SQL Server 2014 Express software

About this task:

- ① **Note:** We support SQL Server 2014 SP3 Express software. You must apply SP3 if you installed the initial release of SQL Server 2014 Express software.
 1. To apply SP3 to SQL Server 2014 Express software, click this [link](#) and download the file.
 2. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server files that you downloaded.
 3. If a **User Access Control** dialog box prompts you for permission to make changes to the computer related to installing SQL Server 2014 software, click **Yes**. The message **Please Wait While SQL Server 2014 Setup processes the current operation** appears as the installation begins.
 4. The SQL Server 2014 Update screen appears. Verify that all update rules passed before continuing. If any rule fails, click the **Failed** cell for more information. Exit the update and fix the issue before continuing. Click **Next**.
 5. Read the End User License agreement and then select the **I accept the license terms** check box. Click **Next**.
 6. The Select Features screen indicates the Instance ID that is ready to be updated. Click the **instance name** to refresh the Description fields. During an upgrade, you cannot select any additional features. Click **Next**.
 7. The SQL Server 2014 SP3 update checks to see if any required SQL Server files are in use. If you have SQL Server files in use when you install SP3, you must restart your computer after the installation is complete. Click **Next**.
 8. SQL Server 2014 SP3 software is ready to update. Click **Update**. During the update, a progress screen indicates the status of the update. This part of the procedure can take up to 15 minutes to complete.
 9. The update operation is complete. Click **Close**.
 10. Start the SQL Server Configuration Manager.
 11. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ① **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.

12. In the right pane of the window, do the following:
 - a. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click **TCP/IP** and select **Enable**.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.
13. Delete the service pack file you saved to your computer.

Upgrading SQL Server software to SQL Server 2014 SP4 Express software

About this task:

The steps in this section apply to upgrading any of the following versions of SQL Server software:

- SQL Server 2012 Express
 - SQL Server 2008 R2 Express
 - SQL Server 2008 Express
 - SQL Server 2005 Express
- ① **Note:** If SQL Server Management Studio is installed on your computer, uninstall it before you upgrade, then install an updated version of the tool after you install SQL Server 2014 Express software.
1. To upgrade a previous version of SQL Server Express to SQL Server 2014 SP3 Express, click this [link](#), download and run SQLEXPRTWT_x64_ENU.exe.
 2. To extract the files to a temporary location on your hard disk and begin the update, double-click the SQL Server installation files that you downloaded.
 3. If a **User Access Control** dialog box prompts you for permission to make changes to the computer related to installing SQL Server 2014 software, click **Yes**. The message **Please Wait While SQL Server 2014 Setup processes the current operation** appears as the installation begins.
 4. The Planning menu is the first screen to appear. In the right pane, several options are available for you to explore. To continue, click **Installation** in the left pane. The selections in the right pane change.
 5. To begin installation, click **Upgrade from SQL Server 2005, SQL Server 2008, SQL Server 2008 R2, or SQL Server 2012** in the right pane of the screen. The License Terms screen appears.
 6. In the License Terms screen, read the License Terms agreement and then click **I accept the license terms**. Click **Next**. The Setup Support Files screen appears.
 7. In the Setup Support Files screen, click **Install** to install the necessary support files.
 8. A report appears that lists the results of this setup support files test. If any prerequisite fails, you need to exit the installation and fix that issue. For more information, click the **Failed** cell. (Warning reports can be ignored at this point.) Click **Next**.

9. The Select Instance screen appears, indicating the names of the SQL Server instances currently installed. The example is of a SQL Server 2012 SP2 Express software instance. Select the instance used by *Metasys* software, which is most likely MSSQLSERVER. You cannot rename the database instance during an upgrade. Click **Next**. The Select Features screen appears.
10. The Select Features screen may appear to indicate the Instance ID that is ready to be upgraded. During an upgrade, you cannot select any additional features. Click **Next**. The Feature Rules screen appears.
11. A Feature Rules test is run. Verify that no tests fail. If a test failed, you need to exit the installation and correct the issue before continuing. Click the **Failed** cell for more information. Click **Next**. The Installation Progress screen appears.
12. The Installation Progress screen appears as the SQL Server 2014 Express software installs. This part of the procedure can take over 15 minutes to complete. When **Setup process complete** appears above the progress bar, click **Next**. The Complete screen appears.
13. From the Start menu, select **Programs or All Programs > Microsoft SQL Server 2014 > Configuration Tools > SQL Server Configuration Manager**.
14. Expand SQL Server Network Configuration and select **Protocols for MSSQLSERVER**.
 - ① **Note:** If you have a different named instance, that name appears instead of MSSQLSERVER.
15. In the right pane of the window, do the following:
 - a. Verify that Named Pipes is set to Enabled. If it is Disabled, right-click **Named Pipes** and select **Enable**.
 - b. Click **OK** to the SQL Server software restart warning message that appears.
 - c. Verify that TCP/IP is set to Enabled. If it is Disabled, right-click **TCP/IP** and select **Enable**.
 - d. Click **OK** to the warning message.
 - e. Close the SQL Server Configuration Manager.

SQL Server Reporting Services

If you plan to install the *Metasys* Advanced Reporting System, first complete the following tasks:

- Install SQL Server Reporting Services. For more information, see [Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017](#).
- Address specific system requirements, see [Specific system requirements for the Metasys Advanced Reporting System](#).
- Configure SQL Server Reporting Services, see [Configuring SQL Server Reporting Services](#).
- Verify the SQL Server Reporting Services configuration, see [Verifying SQL Server Report Server configuration](#).
- Install Microsoft Report Viewer 2012, for more information, see [Installing Microsoft Report Viewer 2012 redistributable package](#).

Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017

Before you install the reporting services, see the following table to ensure that your software location is correct for your specific configuration.

- ① **Note:** Metasys Advanced Reporting System and Energy Essentials does not support SQL Server 2019.

Table 2: Reporting services for different configurations

	Unified configuration	Split configuration
SQL Server database engine software	Host computer	Database computer
Server software	Host computer	Web or application computer

1. Launch the **SQL Server Installation Center** program.
2. On the left pane, click **Installation**.
3. On the right pane, click the **Install SQL Server Reporting Services** link.
4. On the Microsoft web page, click the **SQL Server 2019 Reporting Services** link. Download and run the installation file.
5. Run the **Microsoft SQL Server 2019 Reporting Services** executable file.
6. On the **Welcome** page, click **Reporting Services**. Click **Next**.
7. On the **Choose an edition to install** page, in the **Enter the product key** field, type a product key. Click **Next**.
8. On the **Review the license terms** page, read and click the **I accept the license terms** check box. Click **Next**.
9. On the **Install Database Engine** page, select the **Install Reporting Services only** option. Click **Next**.
10. On the **Specify an install location** page, select a custom install location, or accept the default and click **Install**. The progress bar indicates the installation status. Click **Next**.
11. On the **Setup completed** page, to confirm the installation was successful, select the **Configure manually and customize settings** option, and click **Configure report server**. When the **Report Server Configuration Manager** launches, if the **Report Server Connection** dialog box does not automatically appear, you do not have **SQL Server Reporting Services** successfully installed. If it does appear, click **Cancel**. For information on troubleshooting, see [SQL Server Reporting Services troubleshooting](#)

- ① **Note:** To configure the report server, see [Configuring SQL Server Reporting Services](#).

Specific system requirements for the Metasys Advanced Reporting System

About this task:

If your system is a split ADX using a web or application server or uses Reporting Services that were added to a previous installation of SQL Server software, complete these steps:

1. Create a new SQL Server software user for the *Metasys* Advanced Reporting System. For a split ADX, create the user on the web or application server. See [Creating a new SQL Server user](#).

2. Configure the SQL Server Reporting Services software. See [Configuring SQL Server Reporting Services](#).

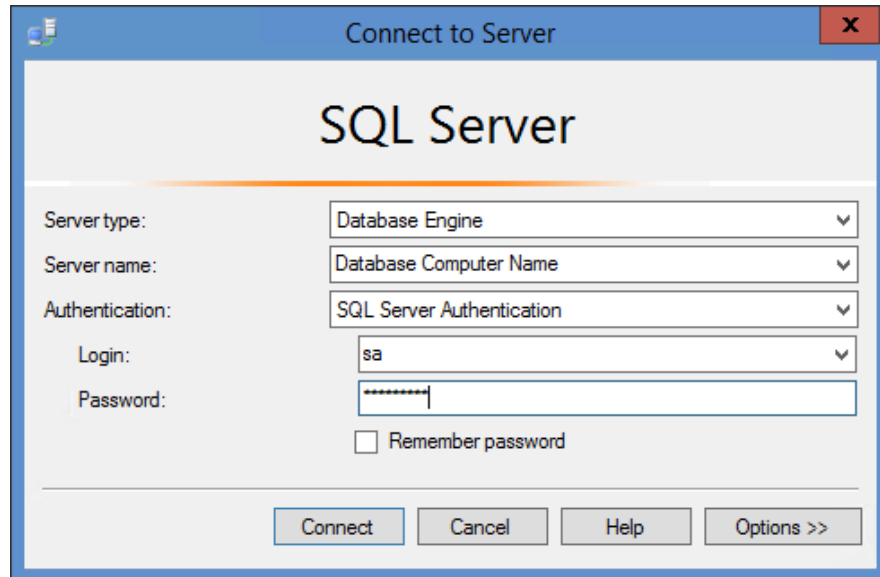
This section uses Microsoft software default values in many cases. These settings are sufficient for LAN network security. For advanced users who want enhanced network security not presented in this section, refer to <http://www.microsoft.com>

Creating a new SQL Server user

About this task:

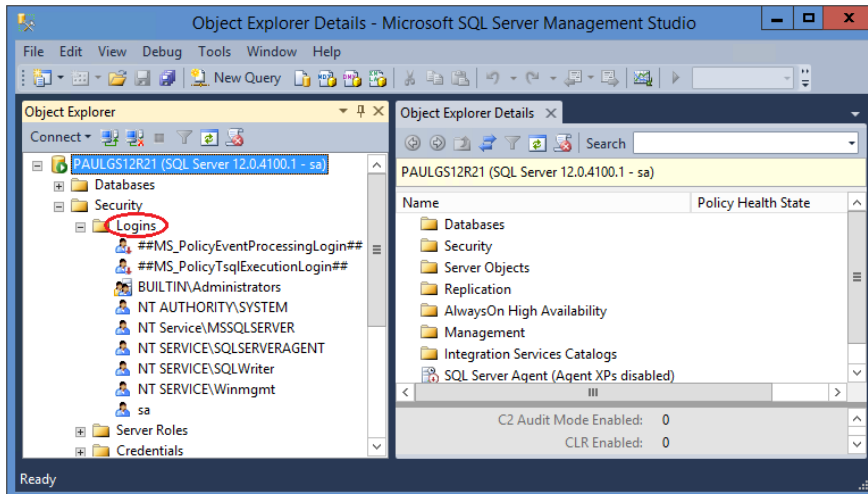
1. Start SQL Server Management Studio for your version of SQL Server software.

Figure 5: SQL Server Management Studio Login



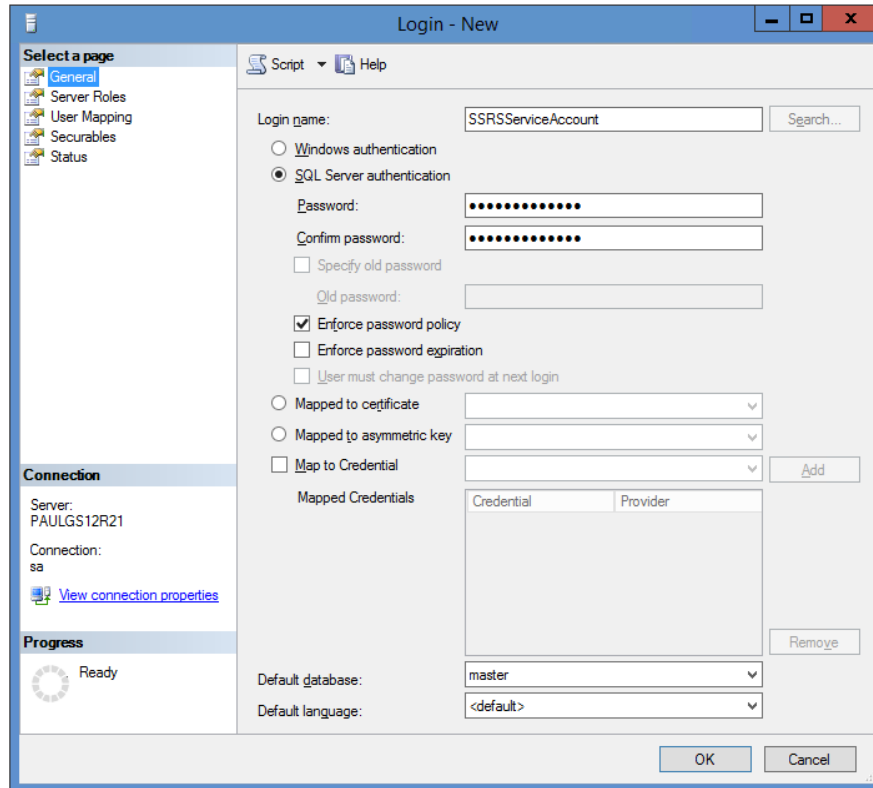
2. Enter the following:
 - **Server type:** Database Engine
 - **Server name:** This is the name of the database server (not the web/application server). If you are using a SQL Server instance other than MSSQLSERVER, include the SQL Server instance name in this format: `computername\instancename`.
 - **Authentication:** SQL Server Authentication
 - **Login:** existing SQL Server sa login (or another valid SQL Server login)
 - **Password:** existing SQL Server password for sa user (or another valid SQL Server password)
3. Click **Connect**.
4. Press **F7** if the Object Explorer Details window in the right pane does not appear.

Figure 6: SQL Server Management



5. In the tree in the left pane, under the database server, expand the **Security** folder and **Logins** folders.
6. Right-click the **Logins** folder and select **New Login**.
7. Check the SQL Server authentication method. Configure the parameters for the new SQL Server user according to your company policies and preferences. We offer the following recommendations:
 - Specify **SSRSServiceAccount** as the new user name.
 - Use a complex password for the SSRSServiceAccount user.
 - Make sure the **Enforce password expiration** is cleared.
 - Keep the **Enforce password policy** selection selected.

Figure 7: Connectivity Confirmed



8. Click **OK**. The new user is created.
9. Close all windows.
10. Go to [Configuring SQL Server Reporting Services](#).

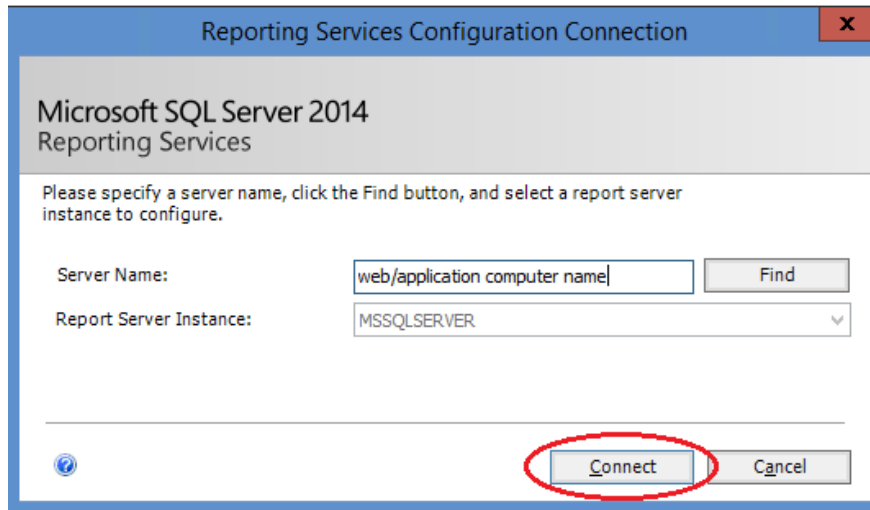
Configuring SQL Server Reporting Services

About this task:

Follow these steps to start the SQL Server Reporting Services Configuration Manager.

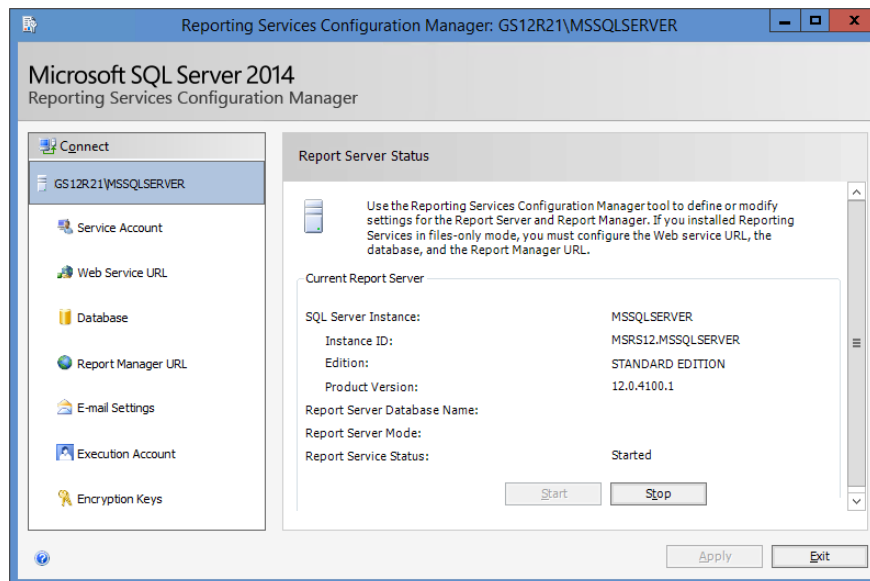
1. Start **Report Server Configuration Manager**. The **Report Server Configuration Connection** dialog box appears.
 - ① **Note:** If the **Report Server Configuration Connection** dialog box does not appear, you do not have **SQL Server Reporting Services** installed. For more information see [Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017](#)
2. In the **Server Name** field, click **Find** to navigate to the appropriate server.
3. In the **Report Server Instance** field, select the correct SQL Server software instance name. Click **Connect**.

Figure 8: Instance selection



4. In the **Report Server Status** pane, verify **Started** is in the **Report Service Status** entry.

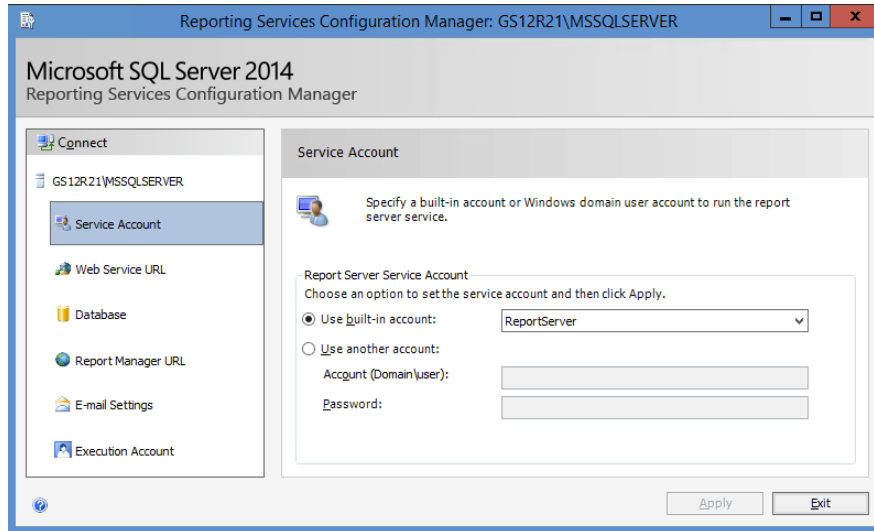
Figure 9: Report Server Status



5. In the left pane, click **Service Account**. Verify **Virtual Service Account** is in the **Use built-in account** field and click **Apply**. The outcome of the action appears in the **Results** window.

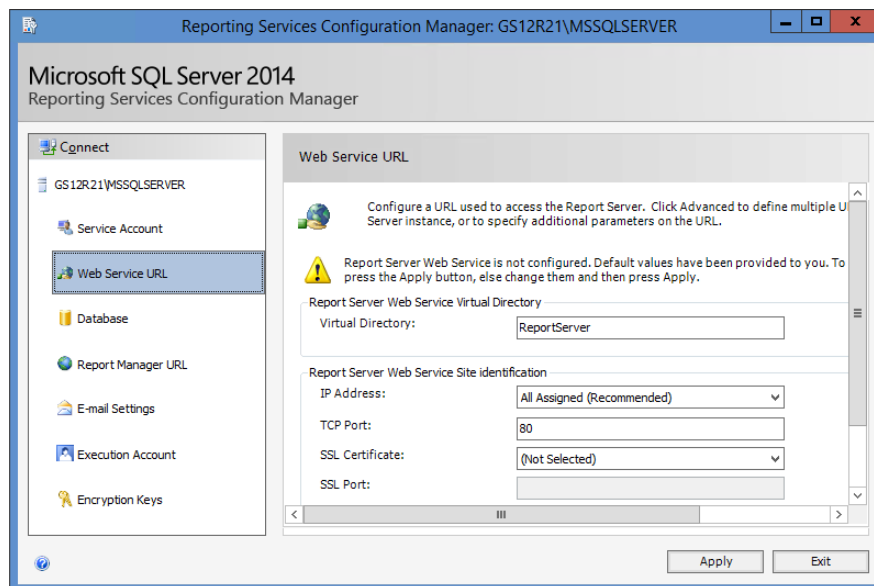
ⓘ **Note:** SQL 2019 uses a Virtual Service Account in place of ReportServer.

Figure 10: Service Account



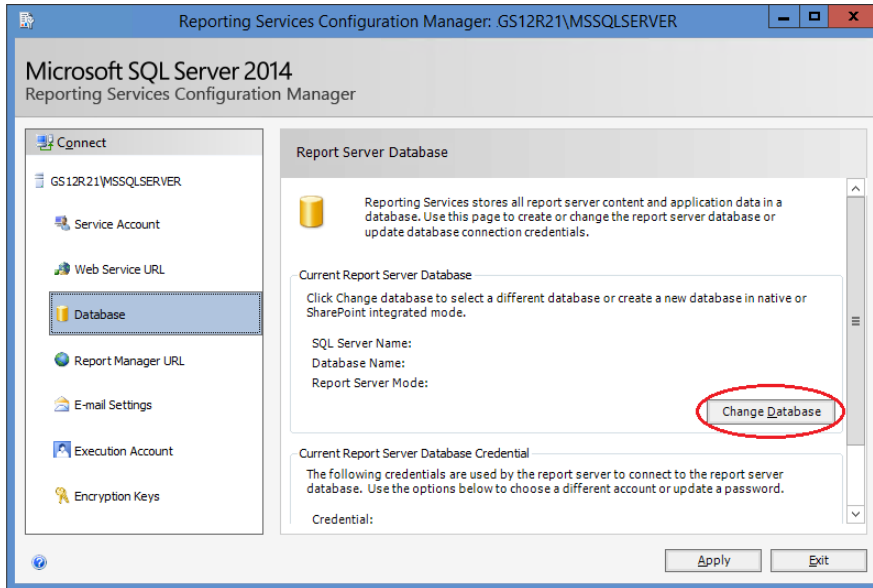
6. In the left pane, click **Web Service URL**. The warning icon indicates that the report server Web Service is not yet configured.

Figure 11: Web Service URL



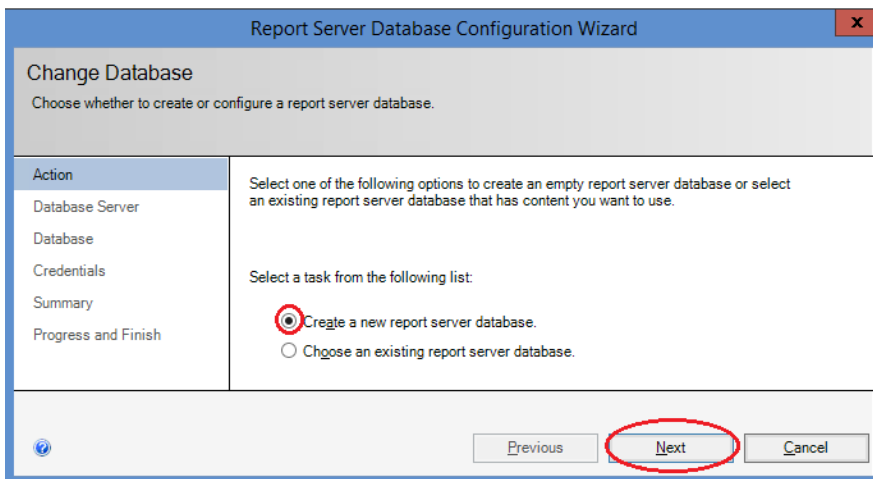
7. Verify **ReportServer** is in the **Virtual Directory** field, accept the default values, and click **Apply**. The outcome of the action appears in the **Results** window.
8. In the left pane, click **Database**.

Figure 12: Report Server Database



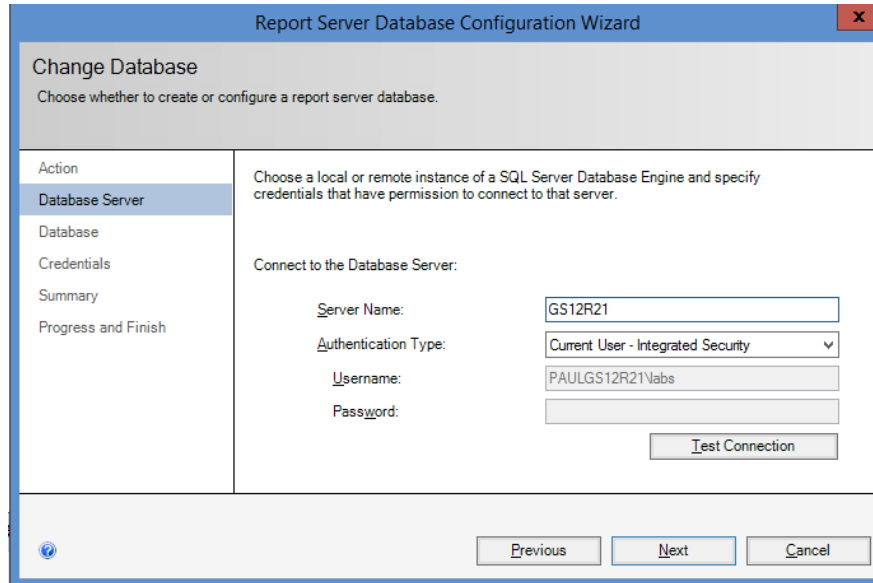
9. In the right tab, click **Change Database**.

Figure 13: Change Database



10. In the **Action** tab, select **Create a new report server database**. Click **Next**.

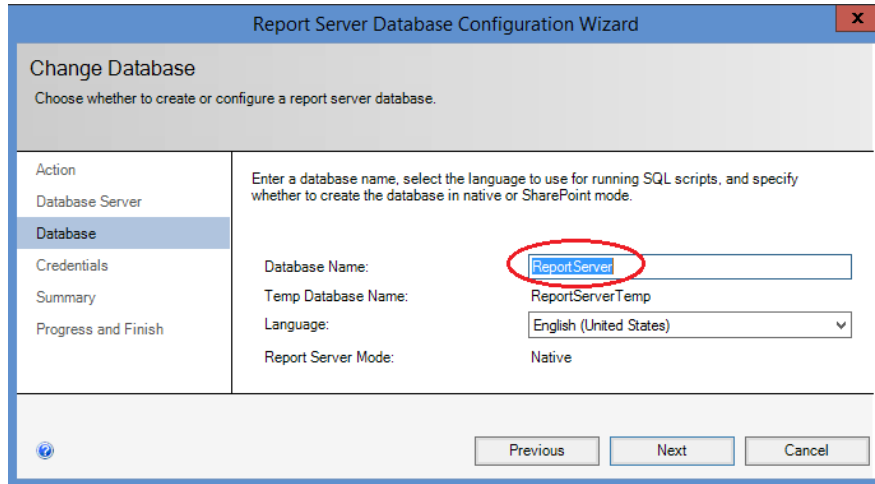
Figure 14: Database Server Connection



11. In the **Database Server** tab, complete the following:
 - a. In the **Server Name** field, type the name of the unified ADX server, or the database server if this is a split ADX. If you are using a SQL Server named instance other than MSSQLSERVER, add the SQL Server instance name in this format: **computername \instancename**.
 - b. From the **Authentication Type** list, select one of the following:
 - **Current User - Integrated Security** if you logged in to the computer with the Administrator account. The Username and Password fields are dimmed.
 - **SQL Server Account** if you logged in to the computer with a user in the Administrative group. This selection is required on the web or application server of a split ADX with the *Metasys* Advanced Reporting System.
 - c. If you selected SQL Server account, specify the username and password for the SQL server administrator (sa) account.
 - d. Click **Next**.

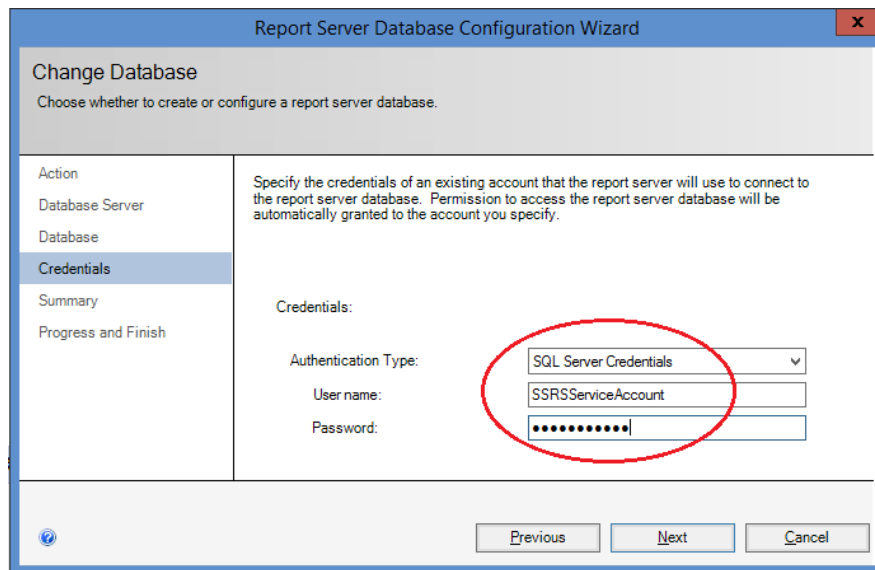
12. In the **Database** tab, complete the following: (Figure 15):
 - a. Specify **ReportServer** is in the **Database Name** field. If you use a SQL Server named instance other than MSSQLSERVER, add the instance name to the database name in this format:
ReportServer_<instancename>.
 - b. Select **Native** for the Report Server Mode.
 - c. Click **Next**.

Figure 15: Specify Database Name



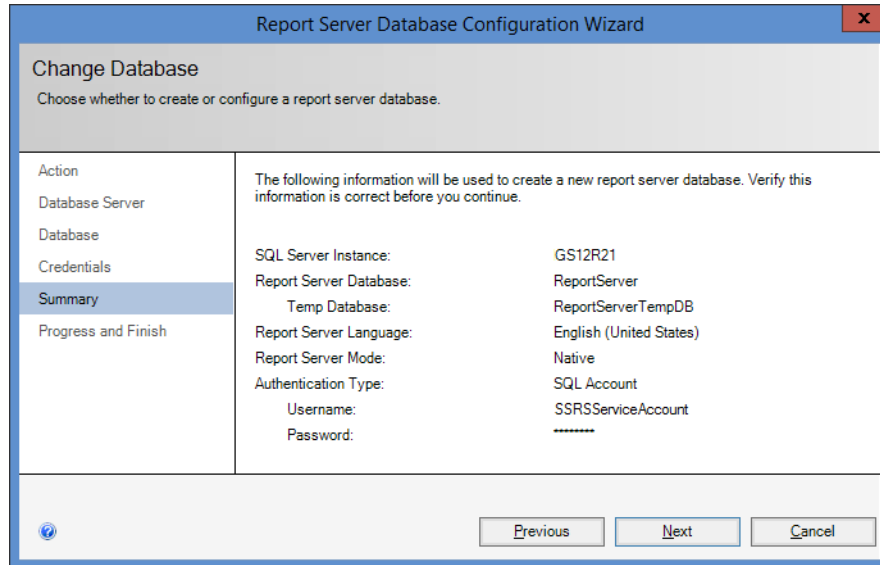
13. In the **Credentials** tab, complete the following:
 - a. From the **Authentication Type** list, select **SQL Server Credentials**.
 - b. In the **Username** and **Password** fields, type the user name and password you created in Step 4 of [Creating a new SQL Server user](#). (The recommended user name is SSRSServiceAccount). For a split configuration, type the appropriate SA account and password.

Figure 16: Credentials Dialog Box



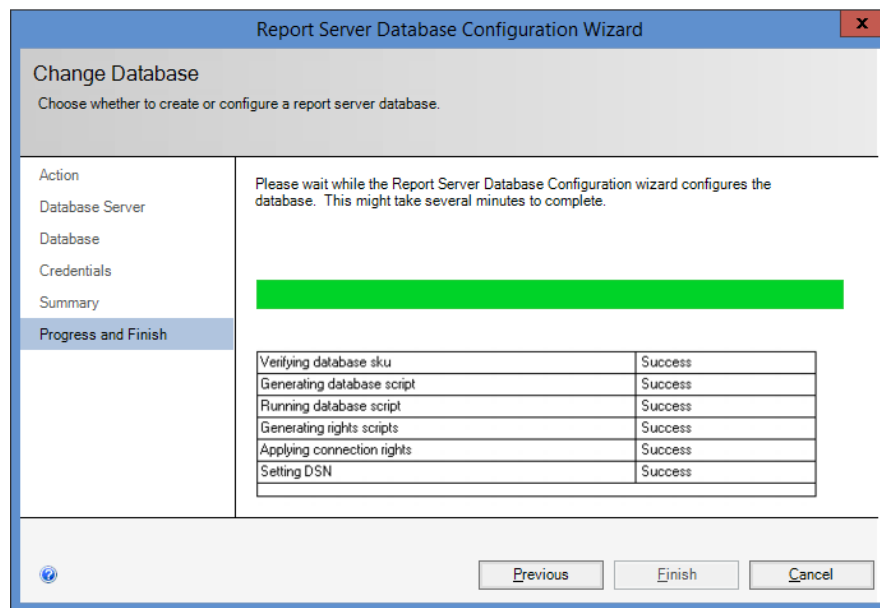
14. Click **Next**. Review the summary details, and click **Next** to create a new report server database.

Figure 17: Database Confirmation



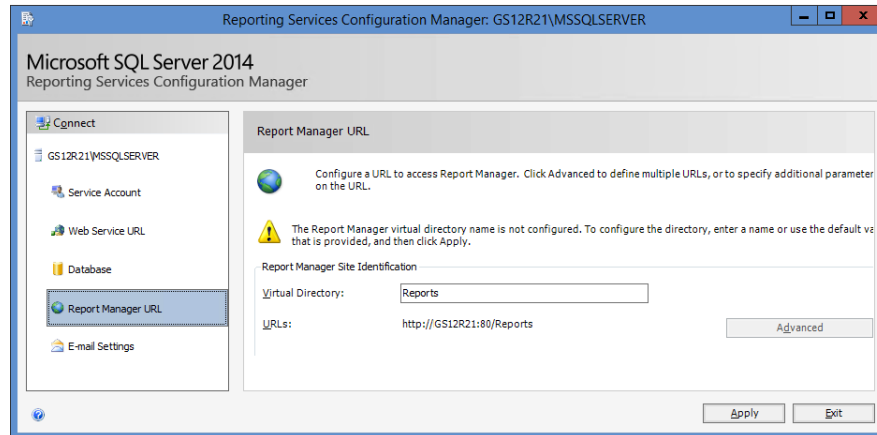
15. The configuration process begins and completes in a few minutes. Make sure the result for each configuration step is a success. If any configuration is not successful, go to <http://msdn.microsoft.com/en-us/library/ms159135.aspx> for Reporting Services troubleshooting.
16. Click **Finish** on the completion screen. The configured Report Server Database screen appears.

Figure 18: Completion Window



17. In the left pane, click **Web Portal URL**.

Figure 19: Web Portal URL



18. The warning icon indicates that the Report Manager virtual directory name is not yet configured. In the **Virtual Directory** field, accept the default value or type a name, and click **Apply**. The outcome of the action appears in the **Results** window.

① **Note:** The configuration of SQL Server software for the *Metasys* Advanced Reporting System is complete.

Installing Microsoft Report Viewer 2012 redistributable package

About this task:

① Notes:

- This component is required for the *Metasys* Advanced Reporting System if SQL Server 2019, SQL Server 2017, SQL Server 2016, or SQL Server 2014 software is used. Install this component **after** you have installed the SQL Server software.
- During Report Viewer installation, you may receive a message that CLR Types for SQL Server 2012 are missing. To add this prerequisite, download the Microsoft System CLR Types for Microsoft SQL Server 2012 at this location: <http://go.microsoft.com/fwlink/?LinkID=239644>. Run the **SQLSysClrTypes.msi** file on your computer to install the required components.

To install Microsoft Report Viewer 2012 Redistributable Package:

1. Go to <https://www.microsoft.com/en-gb/download/confirmation.aspx?id=35747>.
2. Click **Download**.
3. Double-click **ReportViewer.msi** once the download is complete.
4. Click **Run** to start the installation. If a message appears that tells you that an earlier version of this product has been detected, click **Yes** to upgrade the existing installation. The Microsoft Report Viewer 2012 Runtime window appears.
5. Click **Next** to continue. The End-User License Agreement window appears.
6. Click the option to accept the terms of the license agreement. Click **Next**.
7. Click **Install** to begin the installation.
8. Click **Finish** when the Setup Complete window appears.

Verifying SQL Server Report Server configuration

About this task: Use this section if you have SQL Server software and SQL Server Reporting Services installed on your computer. To verify that the installation is correct, complete the following steps:

- ① **Note:** This procedure uses SQL Server 2019 but the steps are similar for other editions of SQL Server Reporting Services.
- 1. Start **Report Server Configuration Manager**. The **Report Server Configuration Connection** dialog box appears.
 - ① **Note:** If the **Report Server Configuration Connection** dialog box does not appear, you do not have installed **SQL Server Reporting Services**. For more information see [Installing SQL Server Reporting Services for SQL Server 2019 and SQL Server 2017](#)
- 2. In the **Report Server Instance** field, select the correct instance name. Click **Connect**.
- 3. In the **Report Server Status** pane, verify **Started** is in the **Report Service Status** entry. If not, click **Start**.
- 4. In the left pane, click **Web Service URL**.
 - a. In the **Report Server Web Service Virtual Directory** area, verify that a virtual directory appears in the **Virtual Directory** field. If any warning icons appear, address the issues. If you used a named instance other than SSRS, the instance name is in either of these formats: `Reports$instanceName` or `Reports_instanceName`.
 - b. In the **Report Server Web Service URLs** area, click the **URLs** hyperlink.
- 5. Windows web browser launches the **SQL Server Reporting Services** web page. The version shown depends on, which edition of SQL Server you installed. If you see **Microsoft SQL Server Reporting Services Version 15.x.xxx.xxx** on the web page, the web service URL configuration is successful
 - ① **Note:**
 - This window may take up to 30 seconds to appear.
 - If a prompt for a user name and password appears, type the administrator credentials, and click **OK**, or exit the web browser and relaunch the browser as an administrator. You can also avoid the prompt if you log in to the computer using the administrator user account.
 - If the report server window does not appear, or appears with an error, this indicates the configuration for the report server is incorrect. For more information, refer to the SQL Server Reporting Services troubleshooting section in *SQL Server Installation and Upgrade Guide (LIT-12012240)*.
- 6. In the left pane, click **Database**.
- 7. In the right pane, in the **Current Report Server Database** area, verify that values appear in the **Report Server Database** area and no warning icon appears is visible.
- 8. In the left pane, click **Web Portal URL**. Verify a virtual directory name is visible and no warning icon appears. Windows web browser launches the **SQL Server Reporting Services** web page.
 - a. To launch the web portal URL, click the URL link.
 - b. If you see the **SQL Server Reporting Services** home page, the configuration is correct.

Note:

- This window may take up to 30 seconds to appear.
- If a prompt for a user name and password appears, type the administrator credentials, and click **OK**, or exit the web browser and relaunch the browser as an administrator. You can also avoid the prompt if you log in to the computer using the administrator user account.
- If the report server window does not appear, or appears with an error, this indicates the configuration for the report server is incorrect. For more information, refer to the SQL Server Reporting Services troubleshooting section in *SQL Server Installation and Upgrade Guide (LIT-12012240)*.

Report services are configured and running correctly, to configure SQL Server Reporting Services for Metasys Advanced Reporting System, see [Specific system requirements for the Metasys Advanced Reporting System](#).

SQL Server Reporting Services troubleshooting

Use this section to help you troubleshoot SQL Server Reporting Services. For additional troubleshooting information related to SQL Server Reporting Services, go to <http://msdn.microsoft.com/en-us/library/ms159135.aspx>.

Table 3: SQL Server Reporting Services Troubleshooting

Problem	Solution
<p>One of the following messages appears when you are browsing to <code>http://localhost/reportserver</code> OR <code>http://localhost/reports</code>:</p> <p>Cannot find the server or DNS error.</p> <p>The page cannot be found.</p> <p>The report server is not responding.</p>	<p>Note:</p> <ul style="list-style-type: none"> • Make sure you are verifying SQL Server Reporting Services on the correct computer. In a split ADX, this computer is the web/application server. • Also, if you are using a SQL Server named instance other than MSSQLSERVER, use a web address that includes the suffix <code>_instancename</code>, where <code>instancename</code> is the SQL Server instance name. For example: <code>http://localhost/ReportServer?ThisInstance</code> <code>http://localhost/ReportServer_ThisInstance</code> <p>Start the Reporting Services Configuration Manager. This tool is located under the program group for your edition of SQL Server software (for example, Microsoft SQL Server 2014 > Configuration Tools > SQL Server Reporting Services Configuration Manager). Verify that each component is configured properly. For details, see Verifying SQL Server Report Server configuration.</p>
<p>When you attempt to verify that SQL Server Reporting Services is running, the following message appears (where 20xx is 2016, 2014, or 2012):</p> <p><SQL Server 20xx error text>Service unavailable:</p> <p>http error 503, the service is unavailable</p>	<p>To resolve this error, follow these steps:</p> <ol style="list-style-type: none"> 1. In Control Panel, select System and Security > Administrative Tools > Computer Management. The Computer Management window appears. 2. In the left pane, expand Local Users and Groups. Select Groups. 3. Under Group names, double-click the SQLServerReportServerUser group. 4. Add the SERVICE and NETWORK SERVICE user accounts to this group. When added, they appear as NT AUTHORITY\SERVICE and NT AUTHORITY\NETWORK SERVICE. 5. Restart Reporting Services using the Reporting Services Configuration Manager.

Table 3: SQL Server Reporting Services Troubleshooting

Problem	Solution
<p>When you attempt to verify that SQL Server Reporting Services is running, you are presented with a Windows Security login prompt.</p>	<p>Enhanced security in the browser is preventing you from loading the page. Run the Internet Explorer web browser as an administrator (right-click the Internet Explorer icon, select Run or Run as Administrator). Then, try to load the Reporting Services page.</p> <p>If the Reporting Services page still does not appear, log in to the operating system with the Administrator account and run the Internet Explorer web browser as an administrator. When the Windows Security login prompt appears, enter Administrator as the user name and the Administrator's password. Wait for the Reporting Services page to appear.</p> <p>If the Reporting Services page still does not appear, turn off IE Enhanced Security for the server operating system by following these steps:</p> <ol style="list-style-type: none"> 1. Start Server Manager. 2. On the Server Manager window, click Local Server. 3. In the right column, set the parameter IE Enhanced Security Configuration to Off.
<p>When you attempt to verify that SQL Server Reporting Services is running, you see this message:</p> <pre>The report server has encountered a configuration error. (rsServerConfigurationError)</pre>	<p>The Reporting Services log file contains the error No DSN present in configuration file. A database connection to Reporting Services has not been created. Start the Reporting Services Configuration Manager. This tool is located under the program group for your edition of SQL Server software (for example, Microsoft SQL Server 2014 > Configuration Tools > SQL Server Reporting Services Configuration Manager). Perform the steps in Specific system requirements for the Metasys Advanced Reporting System.</p>

Table 3: SQL Server Reporting Services Troubleshooting

Problem	Solution
<p>When you attempt to verify that SQL Server Reporting Services is running, a scripting error occurs.</p>	<p>Enhanced security in the browser is preventing you from loading the page. Add the computer as a trusted site. For example, if the computer is called ADX-01, add http://ADX-01 to the list of trusted sites under security options for the browser.</p> <p>Alternatively, turn off IE Enhanced Security for the server operating system by following these steps:</p> <ol style="list-style-type: none"> 1. Start Server Manager. 2. On the Server Manager window, click Local Server. 3. In the right column, set the parameter IE Enhanced Security Configuration to Off.
<p>You configured SQL Server Reporting Services, but you cannot connect to http://localhost/reportserver or http://localhost/reports.</p>	<p>Make sure you are verifying SQL Server Reporting Services on the correct computer. In a split ADX, this computer is the web/application server.</p> <p>Also, if you are using a SQL Server named instance other than MSSQLSERVER, use a web address that includes the suffix _instancename, where instancename is the SQL Server instance name. For example: http://localhost/ReportServer?ThisInstance http://localhost/ReportServer_ThisInstance.</p> <p>Lastly, on a split ADX, the Reporting Services Database Setup/Database Connection might not be configured properly. See Verifying SQL Server Report Server configuration.</p>
<p>When you have the Reporting Configuration Manager open for SQL Server software, and make a change under Service Manager, the following Backup Encryption Key dialog box appears:</p>	<p>The backup encryption key is not used by <i>Metasys</i> software. However, to satisfy Reporting Services configuration, click the browse button (...), specify a file name for the encryption key, and click OK. Specify a password for the file and click OK.</p>
<p>You are installing SQL Server software with Reporting Services, but the Install the native mode default configuration option is unavailable.</p>	<p>This problem may occur when SQL Server software is already installed on the ADX and you install the software again to add Reporting Services.</p> <p>To resolve this problem, follow these steps:</p> <ol style="list-style-type: none"> 1. Complete the installation. 2. Configure Reporting Services manually. See Specific system requirements for the Metasys Advanced Reporting System.

Appendix: Reporting services language support for Metasys advanced reporting system

The *Metasys* Advanced Reporting System displays reporting information in languages other than United States English when you install the correct language support for the ADX/ODS computer and you define a language in your Security Administrator System profile. This functionality is the same as using a non-English language on the ADX/ODS without the reporting system.

In addition to the language file installation and profile change for a non-English ADX/ODS, you also must download several supporting components to translate the main **Toolbar**, **Report Toolbar**, and **Report is being generated** message that appears in the Report screen. The supporting components are available for the following languages:

- Chinese (Simplified)
- Chinese (Traditional)
- French
- German
- Italian
- Japanese
- Korean
- Spanish

If you are installing a split ADX, perform the steps in this section on the web/application server only.

You can perform these steps before or after you install the ADX/ODS software with the *Metasys* Advanced Reporting System. If you do not follow this procedure, some of the menus and options do not appear in the desired language.

Adding language support for reporting services

1. Using a supported web browser, browse to the Microsoft Download Center website: www.microsoft.com/downloads
2. Download the language-specific Microsoft Report Viewer Language Pack from the Microsoft Download Center website for your particular version of SQL Server software by following these steps:
 - a. For SQL Server 2016, SQL Server 2014, or SQL Server 2012 software, use the Search field to look for **Microsoft Report Viewer 2012 Language Pack**.
 - b. After you click **Search**, select the appropriate Microsoft Report Viewer Language Pack for your version of SQL Server software.
 - c. On the Microsoft Report Viewer Language Pack page, select a language from the Select Language drop-down list box.
 - d. Click **Download**. The page now appears in the language you selected in Step c.
 - e. Click **Download** and save the file to a location on your computer. The language pack that downloads matches the language you selected in Step c.
 - f. Run the downloaded file to install the language pack.
 - g. Repeat Step c through Step f for any service packs (if available) and any other languages you want to support.
 - h. Restart the computer.

3. If the computer has the ADX/ODS software installed, log in to the *Metasys* Advanced Reporting System with the credentials of a non-English user.
If the computer does not have the ADX/ODS software installed, come back to this section after the ADX/ODS is installed to perform the verification step (Step 4).
4. Verify the language appears correctly in the reporting system main **Toolbar** and **Report Toolbar**. Also verify the **Report is being generated** message that appears in the Report screen is in the desired language.
 - ① **Note:** For content to appear in a language other than English, you also must have the correct language files on the ADX/ODS and the language defined in the non-English user's Security Administrator System profile. These requirements are the same for an ADX/ODS without the reporting system.

Appendix: Installing SQL Server Management Studio

Follow the steps in this section to install Microsoft SQL Server Management Studio for SQL Server 2019, SQL Server 2019 Express, SQL Server 2017, SQL Server 2017 Express, SQL Server 2016, SQL Server 2016 Express, SQL Server 2014 Express software, or SQL Server 2012 Express software. Skip this section if you already have a version of SQL Server Management Studio installed that works with your version of SQL Server software.

Installing SQL Server Management Studio (SSMS)

About this task:

- ① **Note:** If you have installed a version of SQL Server 2016 or SQL 2016 Express software, Management Tools are not installed automatically.
1. Go to <https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms>.
 2. Download SQL Server Management Studio.
 3. Using Windows File Explorer, browse to the download location of SQL Management Studio. Double-click on **SSMS-Setup-ENU.exe** and select **Run as Administrator**.
An Open File - Security Warning dialog box may appear, click **Run** to permit the installation to continue. A User Access Control dialog box may appear. Click **Yes** to proceed.
 4. Click **Install**. A progress screen appears. After installation is complete, you may be prompted to restart.
 5. Click **Restart**.
After restart, SQL Server Management Studio is available for use.

Related documentation

Use the following table to find documents that are related to SQL Server installation and upgrades.

Table 4: Related Documentation

For More Information On	See Document
Installation and Upgrade of: <ul style="list-style-type: none"> • Application and Data Server (ADS) • Extended Application and Data Server (ADX) • <i>Metasys</i> Advanced Reporting System • <i>Metasys</i> UI • <i>Metasys</i> for Validated Environments (MVE) 	<i>Metasys Server Installation and Upgrade Guide (LIT-12012162)</i>
Installation and Upgrade of ADS-Lite	<i>Metasys Server Lite Installation and Upgrade Instructions (LIT-12012258)</i>
Installation and Upgrade of the Open Data Server (ODS)	<i>ODS Installation and Upgrade Guide (LIT-12011945)</i>
Installation and Upgrade of the Open Application Server (OAS)	<i>Open Application Server (OAS) Installation and Upgrade Guide (LIT-12013222)</i>
Installation of <i>Metasys</i> Offline Mode UI	<i>Metasys UI Offline Installation Instructions (LIT-12011952)</i>
Installation and Upgrade of SCT	<i>SCT Installation and Upgrade Instructions (LIT-12012067)</i>
Installation and Upgrade of the Controller Configuration Tool (CCT)	<i>CCT Installation Instructions (LIT-12011529)</i>
Installation and Upgrade of Energy Essentials	<i>Energy Essentials Installation Instructions (LIT-12011539)</i>

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information, and other terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

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