


sage 300
Construction and
Real Estate

Sage SQL Replicator 2.0

Setup Guide



Certified course
curriculum

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1 Prepare to implement Sage SQL Replicator

Overview

Sage SQL Replicator is a tool that copies your Sage 300 Construction and Real Estate data from the Pervasive data management system into a SQL Server database. The replicated data includes your Purchasing, Inventory, and Service Management data if you use those products.

Why is copying your data into SQL Server useful to you?

- In many cases, using the SQL Server data for reporting results in improved processing performance. When you generate Crystal reports in your on-premises Sage 300 Construction and Real Estate applications, you can use the **Use SQL** check box to switch the data source from the Pervasive data to the SQL Server data.
- Sage SQL Replicator lays the foundation for accessing your data through Sage Mobile solutions. It is required whether you use Sage Construction Central for Mobile Intelligence (Mobile Reports and Mobile Dashboards).

The replication process works in the background and it can continuously synchronize the Pervasive and SQL Server databases. This means you can work in the Sage on-premises and mobile solutions without interruption and always get up-to-the-minute information.

If there are databases for which continuous synchronization is not needed, you can specify when and how often to run the replication. In addition, you can select specific database tables to replicate.

This reference guide provides the setup and configuration needed to implement and use Sage SQL Replicator version 2.0. The material applies to system administrators or information technology specialists who will complete the server configuration tasks. You will follow the steps to:

1. Prepare for implementing Sage SQL Replicator.
2. Install SQL Server.
3. Install Sage SQL Replicator 2.0.
4. Configure Sage SQL Replicator and replicate the data.

If you are upgrading from an earlier version of SQL Replicator, follow the steps in these chapters:

- Chapter 3, “Install Sage SQL Replicator” on page 23.
- Chapter 4, “Configure and replicate data” on page 25.

In this chapter, you learn about preparing for the Sage SQL Replicator implementation.



NOTE: Sage SQL Replicator 2.0 is compatible with Sage 300 Construction and Real Estate version 20.1 and higher. If you are implementing an earlier version of Sage SQL Replicator for Sage 300 Construction and Real Estate versions 18.4 and lower, download the setup guide from the Product Documents web page.

Prepare to implement Sage SQL Replicator

Before implementing Sage SQL Replicator:

- Verify that your server configuration meets the recommended technical specifications.
- Evaluate whether you will use SQL Server Express or full SQL Server.
- Upgrade to Sage 300 Construction and Real Estate version 20.1 or higher.
- Ensure that the individual who will set up Sage SQL Replicator has the appropriate security permissions.

System requirement

Installing SQL Replicator to use with Sage 300 Construction and Real Estate adds to the demands on your server resources. Review the [20.1 technical specifications](#) documented in the Sage Knowledgebase to ensure that your server meets the recommended configuration in terms of the operating system and hardware.



NOTE: Solid State Drive (SSD) is required for the server if it hosts both Sage 300 Construction and Real Estate and SQL Server.

Microsoft SQL Server edition

SQL Replicator requires a dedicated instance of SQL Server which can be installed on the accounting server or on a different server. Later, in “2 Install SQL Server” on page 9, you will learn how to use the Sage SQL Installer to install and configure the instance.

SQL Server comes in different editions.

- SQL Server Express Edition is available at no additional cost—you can download it from Microsoft or let the Sage SQL Installer download it for you.
- SQL Server Standard Edition and SQL Server Enterprise Edition, both full SQL Server, are purchased separately.

Check with your IT vendor to determine which edition best suits your organization based on the features, the size of your database, and processing needs.

Please be aware that SQL Server Express Edition has limitations in terms of CPU and RAM usage—each database can be no larger than 10 GB. See this [Microsoft article](#) for more information. Even if the size of your Pervasive company folder is under 10 GB, it does not mean that you can use SQL Server Express. This is because the replication process adds views and indexes to the SQL Server database, increasing its size.

Is the size of your Pervasive data suitable for using SQL Server Express?

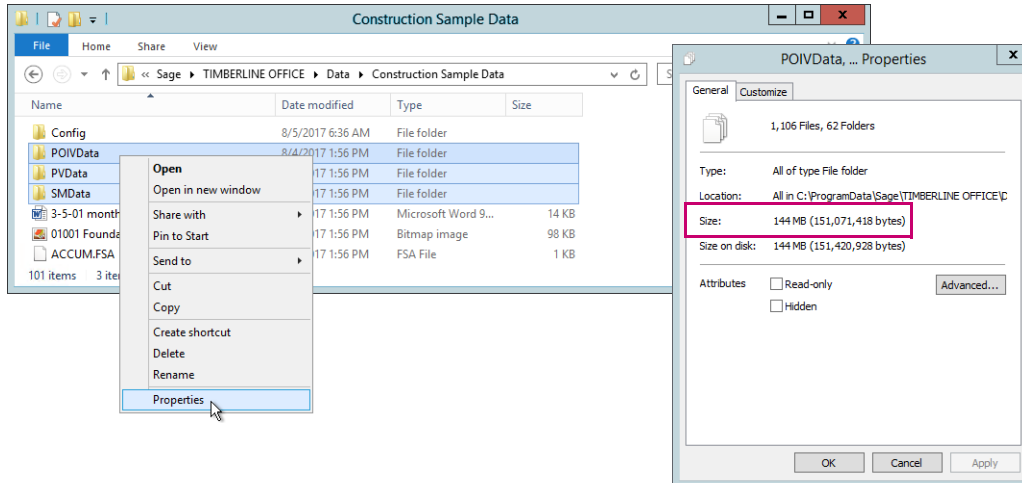
To check whether the size of your Pervasive data is suitable for using SQL Server Express, follow these steps:

1. On the accounting server, browse to the location of your Sage 300 Construction and Real Estate company folders.
2. Open the first company folder you want to replicate, and select the **POIVData**, **PVData**, and **SMDData** folders and make a note of the size of these three folders.



NOTE: You might not have all of these folders. The **POIVData** folder will only be present if you use Purchasing and Inventory. The **SMDData** will only be present if you use Service Management.

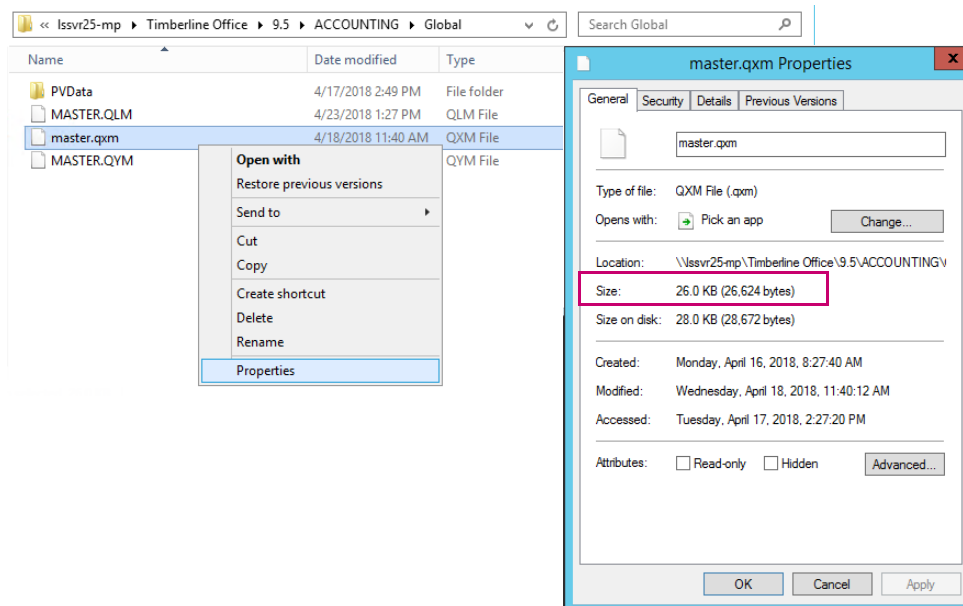
3. Right-click the selected folders and select **Properties**.



4. Next, browse to the location of the **MASTER_QXM** folder. This is in your installation directory, which is in the following location by default:

C:\ProgramData\Sage\TIMBERLINE OFFICE\9.5\Accounting\Global\PVData

5. Right-click the **MASTER_QXM** folder and select **Properties**.



6. Make a note of the size of the folder, and add it to the others.

(POI VData) + (PVData) + (SMDData) + (MASTER_QXM)

- If the total sum is under 6 GB, you can use SQL Server Express.
- If the total sum is greater than 6 GB, you must use full SQL Server (Standard Edition or Enterprise Edition).

Permissions

If you are the individual who will set up Sage SQL Replicator, your Windows user name must:

- Have local administrative permissions on the machine where the SQL Server instance will be installed and also on the Sage 300 CRE Accounting server.
- Be associated with a Sage 300 CRE user with an **Application Administrator** role.
- Have the **sysadmin** role in SQL Server.
 - When you install the SQL Server instance for SQL Replicator, your Windows user name is automatically added to the **sysadmin** role. See “Install the SQL Server instance for SQL Replicator” on page 10.
 - After you install the instance, you can use SQL Server Management Studio to set up another user as the backup system administrator. See “Create a backup system administrator” on page 19.



NOTE: If you have the Canadian or Australian edition of Sage 300 Construction and Real Estate installed, Sage SQL Replicator requires a Windows user with the Region set to Canada or Australia. This enables the country-specific fields in Accounts Payable and Payroll to be replicated.

2 Install SQL Server

SQL Replicator requires a dedicated instance of SQL Server which you can install using the Sage SQL Installer, a tool that comes with your Sage software.

In this chapter, you learn:

- How to use the Sage SQL Installer to perform a Basic and an Advanced installation.
- The required configuration settings for the instance when you use the SQL Server Installation Center.
- How to use SQL Server Management Studio to create a backup system administrator for your SQL Server instance.

Before you proceed with the installation, make decisions on the following:

- Whether to install the SQL Server instance on your Sage 300 Construction and Real Estate accounting server or on a different server.
- If you will use SQL Server Express or full SQL Server. (See “Microsoft SQL Server edition” on page 6.)
- The file locations for the instance and the data. For improved performance, Sage recommends using solid state drives (SSD) to store the SQL data files.

Sage SQL Installer

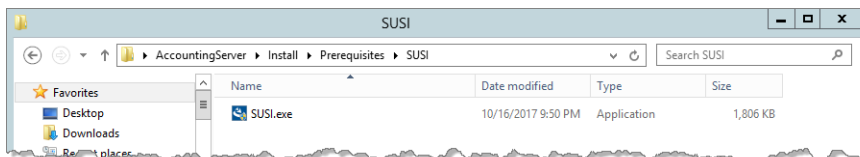
The Sage SQL Installer comes with Sage 300 Construction and Real Estate. If you are installing the SQL Server instance on another server (not the accounting server), install the Sage SQL Installer tool on that server.



WARNING: The Sage SQL Installer installs the SQL Server instance to work correctly with Sage SQL Replicator. We strongly recommend you use it to install SQL Server.

► To install the Sage SQL Installer on a remote server

1. In the extracted installation files for Sage 300 Construction and Real Estate, browse to this location:
AccountingServer\Install\Prerequisites\SUSI.



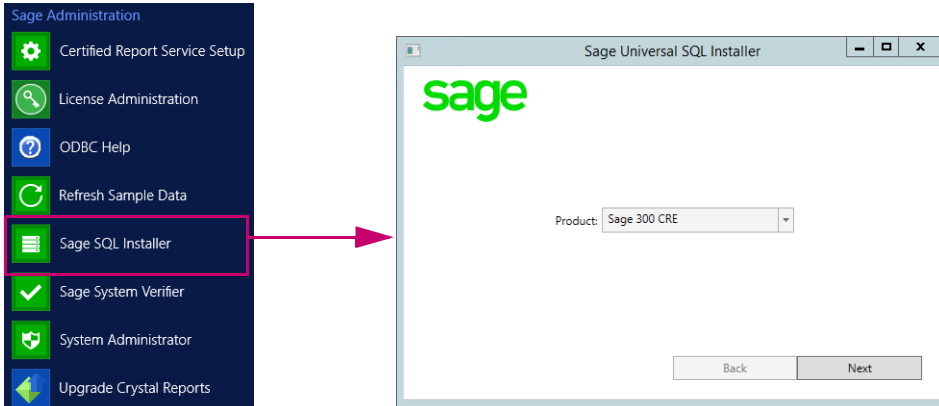
2. Copy the file **SUSI.exe** to the server on which you will install the SQL Server instance for SQL Replicator.
3. On the computer on which you will install SQL Server, double-click **SUSI.exe** to install the Sage SQL Installer.



NOTES: If you are installing the SQL Server instance on a remote server, there is an additional step for changing the service account name for running the SQL Server Database Engine service after the installation—see “Change the SQL Server Database Engine service account” on page 21.

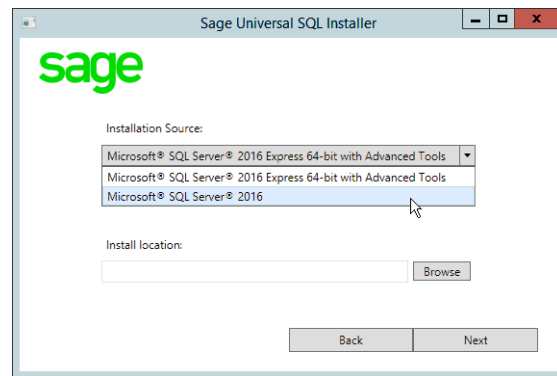
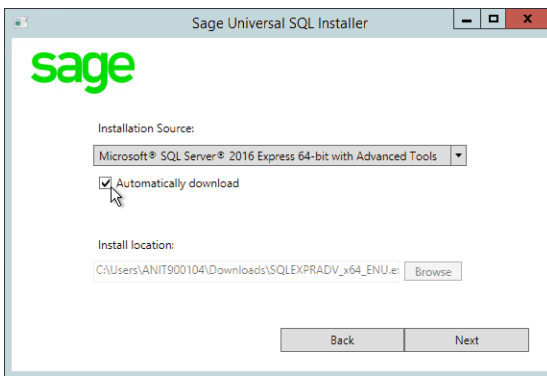
Install the SQL Server instance for SQL Replicator

1. Go to the computer on which the SQL Server Instance will be installed and log on as a user with local administrative permissions. During the installation, this Windows user will be added to the SQL Server **sysadmin** server role.
2. In the Windows Start menu, go to the **Sage Administration** group and click **Sage SQL Installer**.



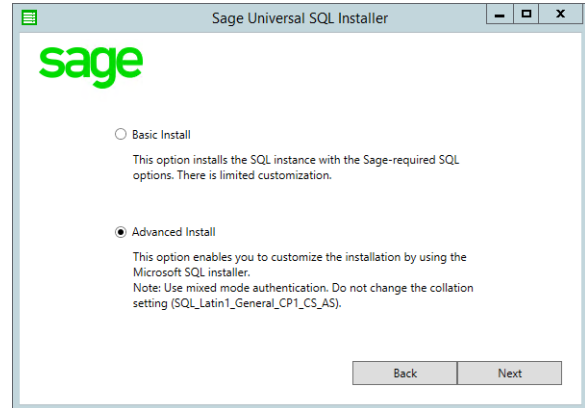
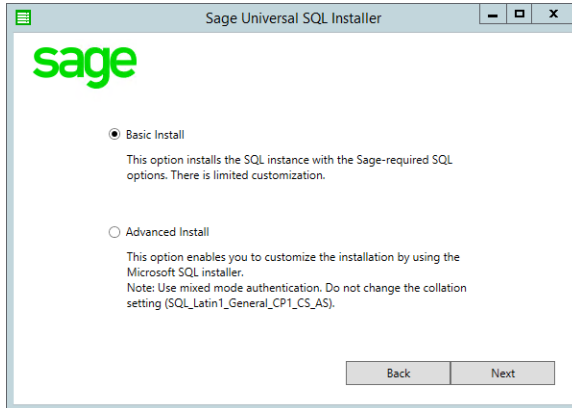
TIP: If you are installing the SQL Server instance on your Sage 300 Construction and Real Estate accounting server, you can also open **Sage SQL Installer** through **System Administrator**. In the Windows Start menu, go to the **Sage Administration** group, click **System Administrator**, and click the **Install SQL Express** button.

3. Leave **Sage 300 CRE** selected and click **Next**. A warning appears if your server doesn't meet the minimum hardware requirements. We don't recommend continuing unless your server meets all requirements.
4. Click **Next** if you are ready.
5. Select the **Automatically download** check box if you want the installer to download the latest version of SQL Express 2016 SP1 with Advanced Tools. If you already have the installation file, browse to its location. Alternately, if you have installation media for the Standard or Enterprise edition of SQL Server 2016 SP1, select **Microsoft SQL Server 2016** from the dropdown and browse to the installation file.



6. Click **Next**. In the next window, select the type of installation.

- **Basic Install** installs SQL Server and the default SQL file locations on the server's system drive (usually the C: drive). This option does not allow you to change any of the configurations for the instance.
- **Advanced Install** takes you to the Microsoft SQL Server's installation interface so that you can customize options as you move through the wizard. This is the recommended option if you use a SSD because you can specify the location of the instance root directory.

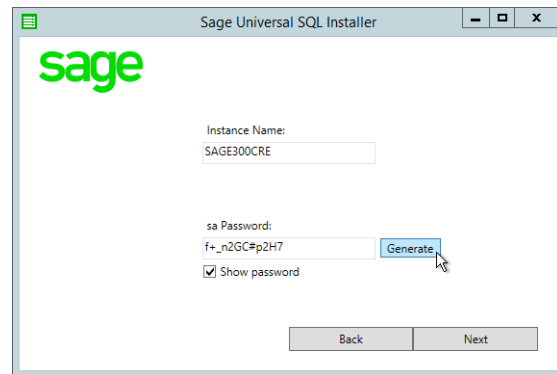
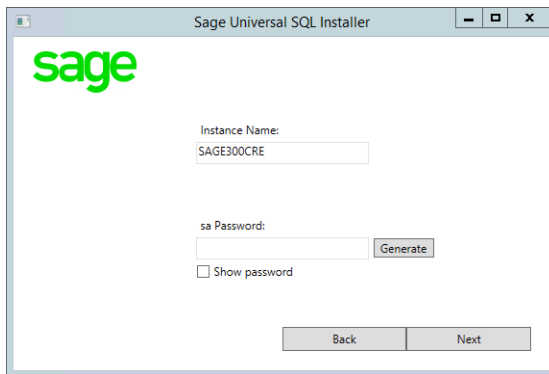


7. Click **Next**, and wait for the file to be downloaded (if you selected that option). The remaining steps depend on whether you selected the **Basic Install** or **Advanced Install** option.

8. When the installation is complete, you can install Microsoft SQL Server Management Studio as an option—see "Install SQL Server Management Studio" on page 19.

► Basic installation

1. The next window shows the name for the new instance. By default, this is **SAGE300CRE**, but you can change it.



2. Enter or generate a password for SQL Server's **sa** (administrative) user. In addition to **sa**, the Windows user name for the person currently logged in will be added to the **sysadmin** server role.



WARNING: Be sure to record the **sa** password and save it for your records.

3. Click **Next**, and wait while the installer creates and configures the SQL Server instance.

► Advanced installation

You are taken to Microsoft’s SQL Server’s installation wizard where you can change the prefilled default settings a Sage SQL Replicator instance in each of the configuration windows.



See “Install SQL Server using the Microsoft Installer,” on page 12 for detailed information about using the SQL Server Setup wizard.



WARNING: Using the Sage SQL Installer’s **Advanced** installation option, the server’s default collation is set at **SQL_Latin1_General_CP1_CS_AS**. Do not change this setting!

Install SQL Server using the Microsoft Installer

In some cases, you may want to install SQL Server yourself rather than allowing the Sage SQL Installer to install for you. To install an instance compatible with Sage SQL Replicator, follow these instructions.



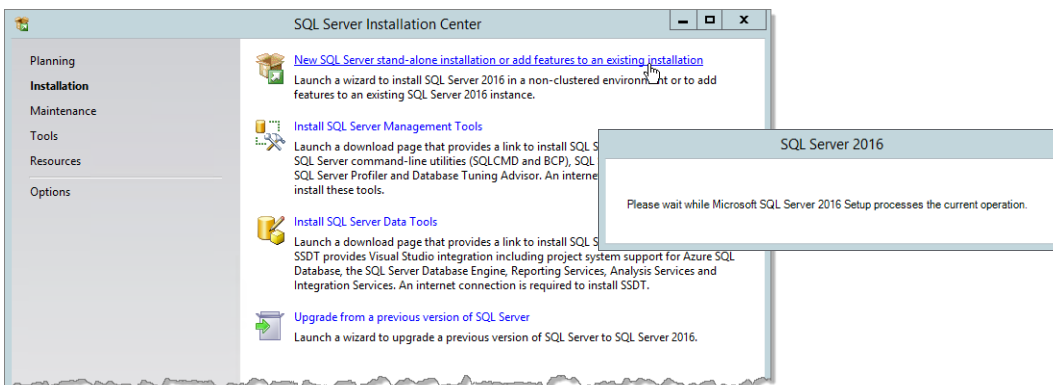
NOTE: If you are installing SQL Server using the **Advanced** option of the Sage SQL Installer, skip to step 4.

1. Log on to the computer on which you will install the SQL Server.
2. In the Windows Start menu, go to the **Microsoft SQL Server 2016 group** and open **SQL Server 2016 Installation Center**.

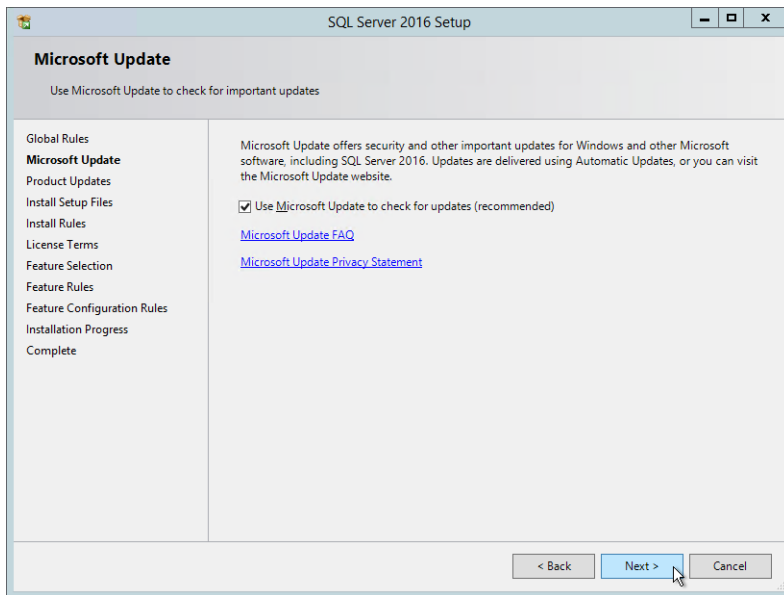


NOTE: If you used the Sage SQL Installer to download SQL Server Express (see step 5 of the topic Install the SQL Server instance for SQL Replicator on page 10), locate the file called SQLEXPRAADV_64_ENU.exe and double-click the file to extract the contents. When the files are extracted, open the folder location, and double-click **Setup.exe** to open the SQL Server Installation Center.

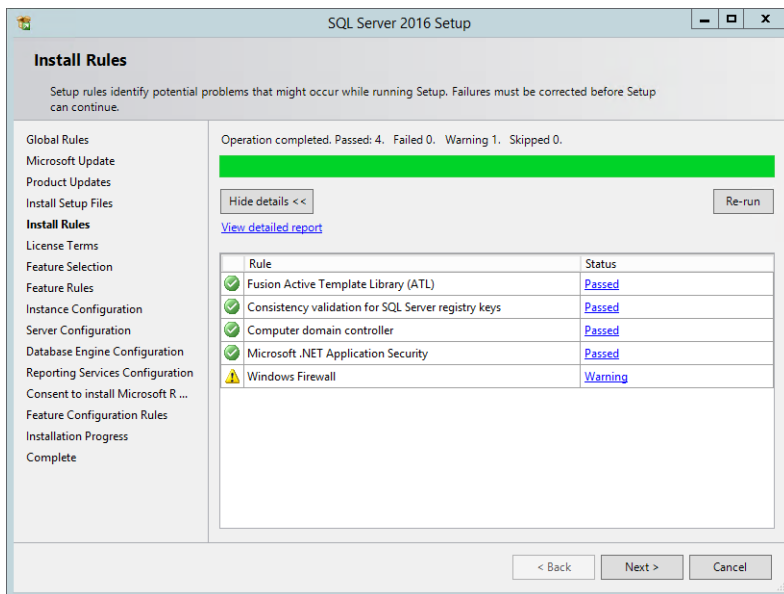
3. In the **SQL Server Installation Center** window, click **Installation** on the left, and then click the first option, **New SQL Server stand-alone ...** in the list. When prompted, provide the location for the installation media.



4. We strongly recommend that you select the option to **Use Microsoft Update to check for updates**. Click **Next**.

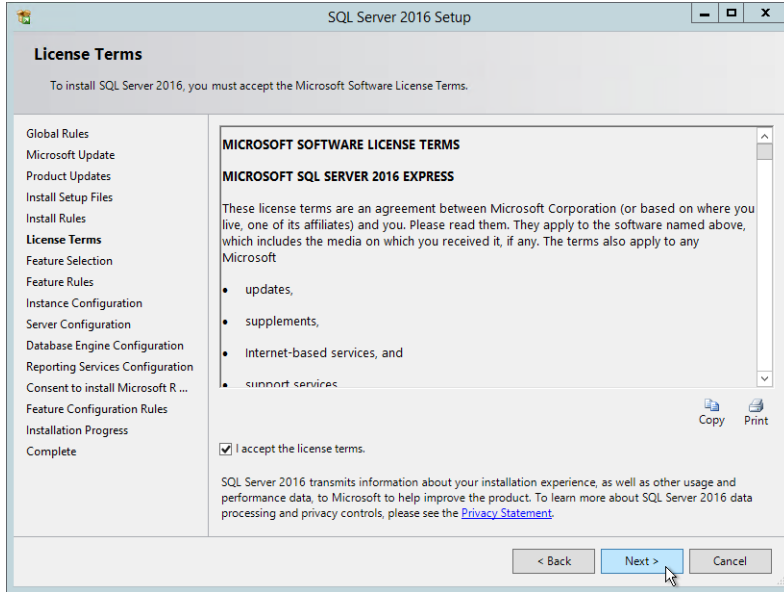


5. The next window shows the results of the setup rules check. You can ignore warnings about the firewall. If any elements of the check failed, you'll need to fix those issues before you can continue. Click **Next**.



6. In the **Installation Type** window, select to perform a new installation of SQL Server. Click **Next**.

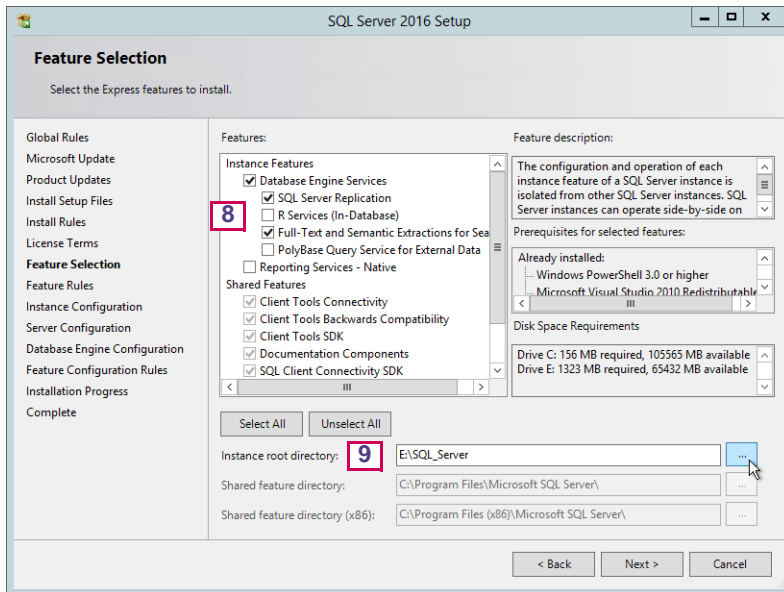
7. In the **License Terms** window, select **I accept the license terms**, and then click **Next**.



8. In the **Feature Selection** window, at a minimum you must select these check boxes. You can select others if you wish.

- **Database Engine Services**
- **SQL Server Replication**
- **Full-Text and Semantic Extractions for Search.**

9. You can change the **Instance root directory** to another local drive or location on your server if you wish. For optimal performance, Sage recommends using your SSD drive for the root directory.



10. Click **Next**.

11. In the **Instance Configuration** window, we recommend that you install a **Named instance** using the name **SAGE300CRE** but you can use a different name.



WARNING: Avoid using **Default instance**. Because your Sage software does not support sharing its instance with other SQL Server based software solutions, if you use the default instance, you will need to install other SQL based solutions to different instances.

Instance Name	Instance ID	Features	Edition	Version
SAGE_ESTIMATING	MSSQL12.SAGE_ES...	SQLEngine	Express	12.2.5000.0
<Shared Compon...		Conn, BC, SDK		13.0.14500.10
<Shared Compon...		SSMS		12.2.5000.0

12. Click **Next**.



WARNING: The settings in the next window are critical to installing a SQL Server instance that will work with SQL Replicator. Configure this window exactly as instructed.

13. In the **Server Configuration** window:

- On the **Service Accounts** tab, leave the default service accounts and options as they are.

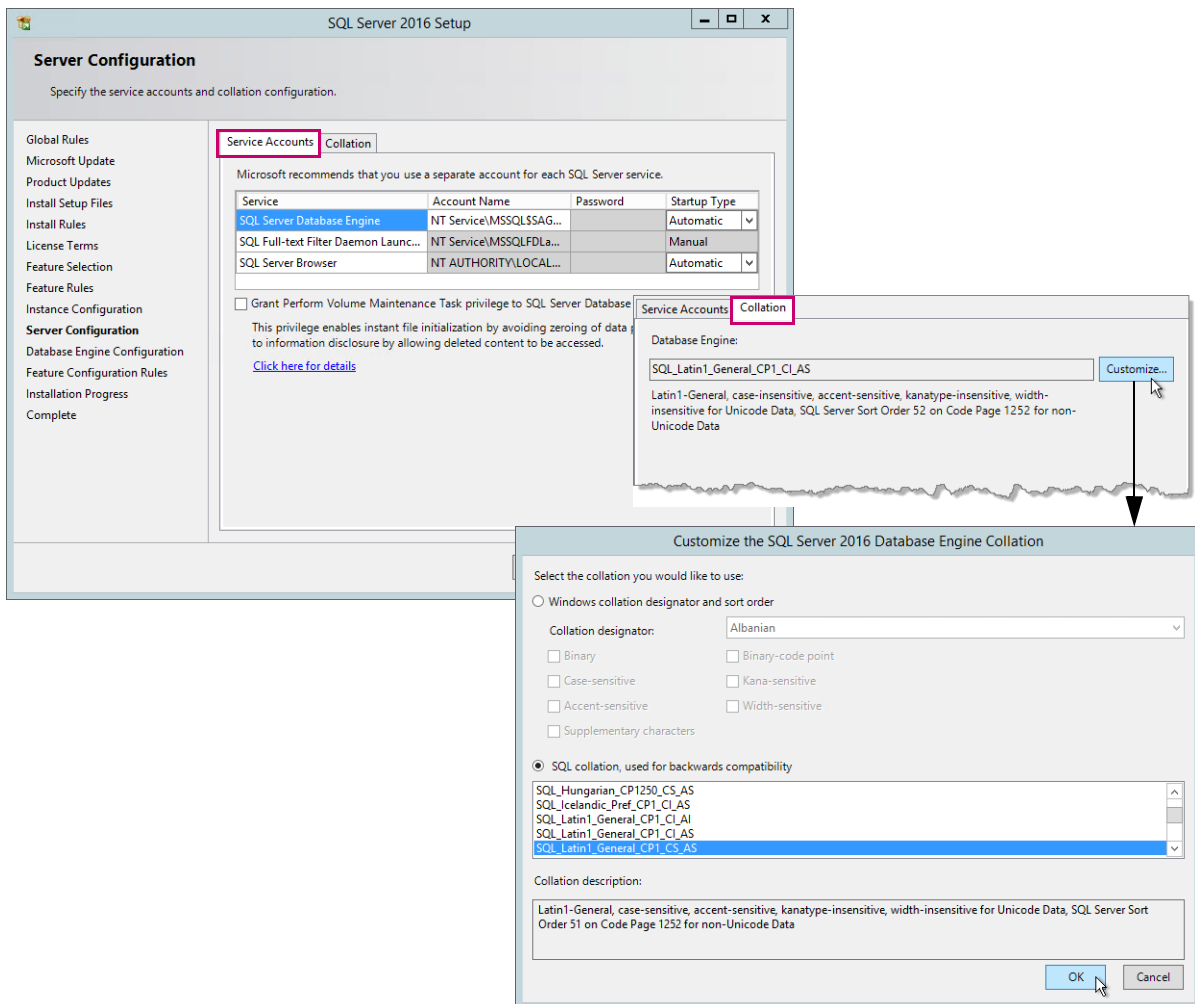


NOTE: If you are installing the SQL Server instance on a dedicated server, replace the virtual account as the **Account Name** for **SQL Server Database Engine** after completing the installation—see “Change the SQL Server Database Engine service account” on page 21.

- Click the **Collation** tab. The collation under **Database Engine** must be set to **SQL_Latin1_General_CP1_CS_AS**.
 - ◆ If you are not using the **Advanced** option of the Sage SQL Installer, you must click **Customize** and select the correct SQL collation.
 - ◆ If you are using the **Advanced** option of the Sage SQL Installer, the correct SQL collation is already selected by default.



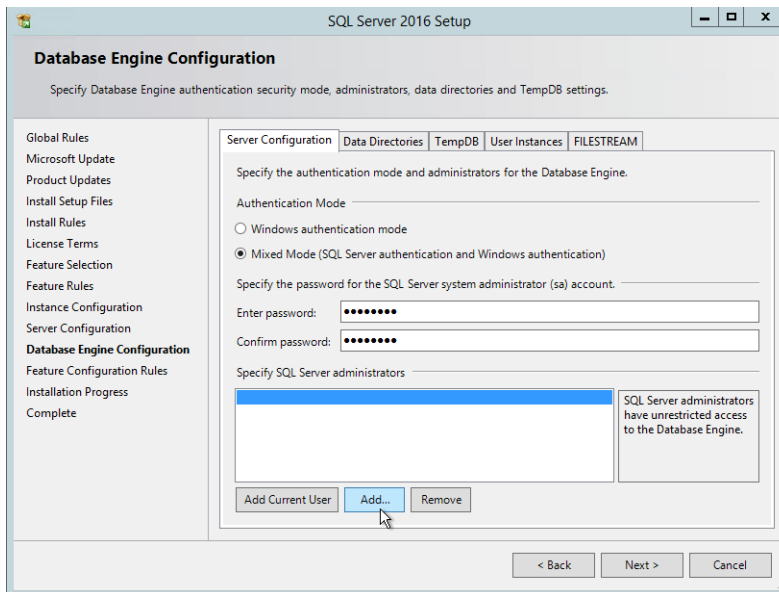
WARNING: **SQL_Latin1_General_CP1_CS_AS** is the required collation setting for Sage SQL Replicator. Note that the last characters are “CS_AS” which stands for “case-sensitive, accent-sensitive.”



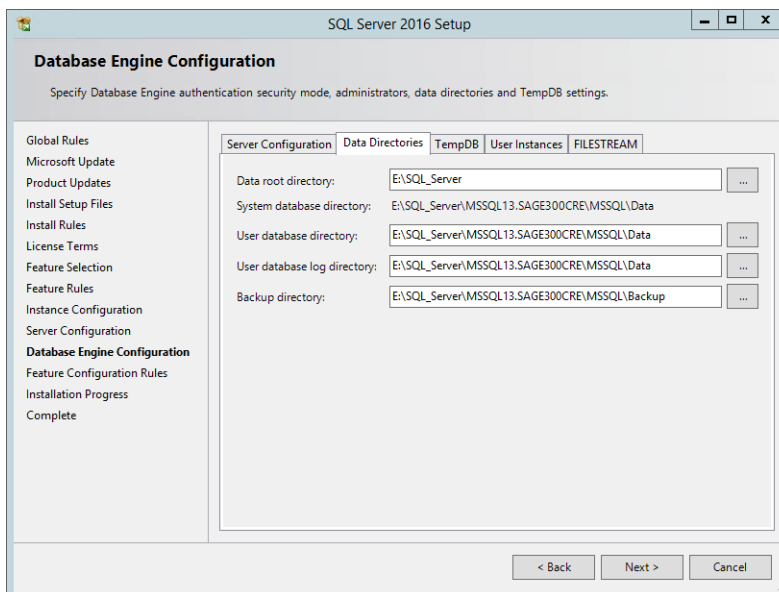
14. When you are finished with the **Server Configuration** window, click **Next**.

15. In the **Database Engine Configuration** window, you must select **Mixed Mode**. This mode is required for SQL Replicator.

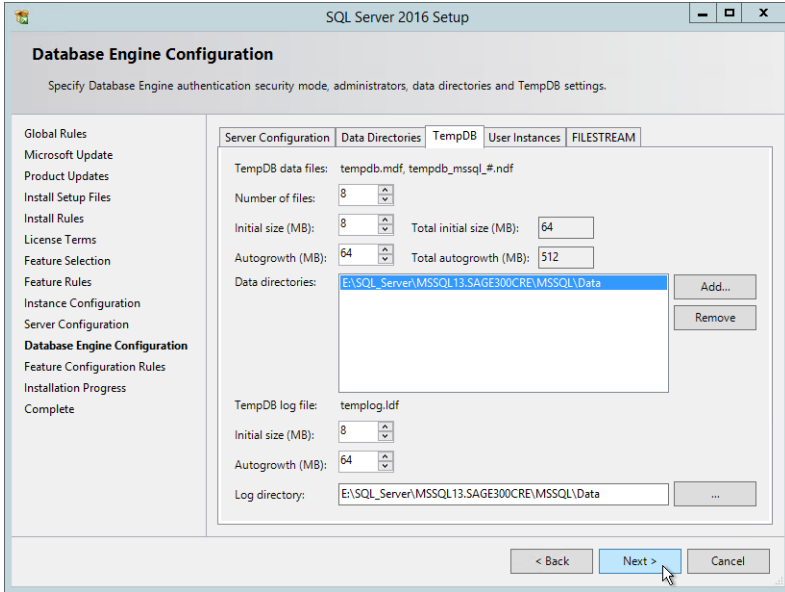
16. Enter and confirm a password for the administrator (**sa**) account.
17. The windows user logged in to the computer will be added automatically as an administrator. Click **Add** to add additional administrators.



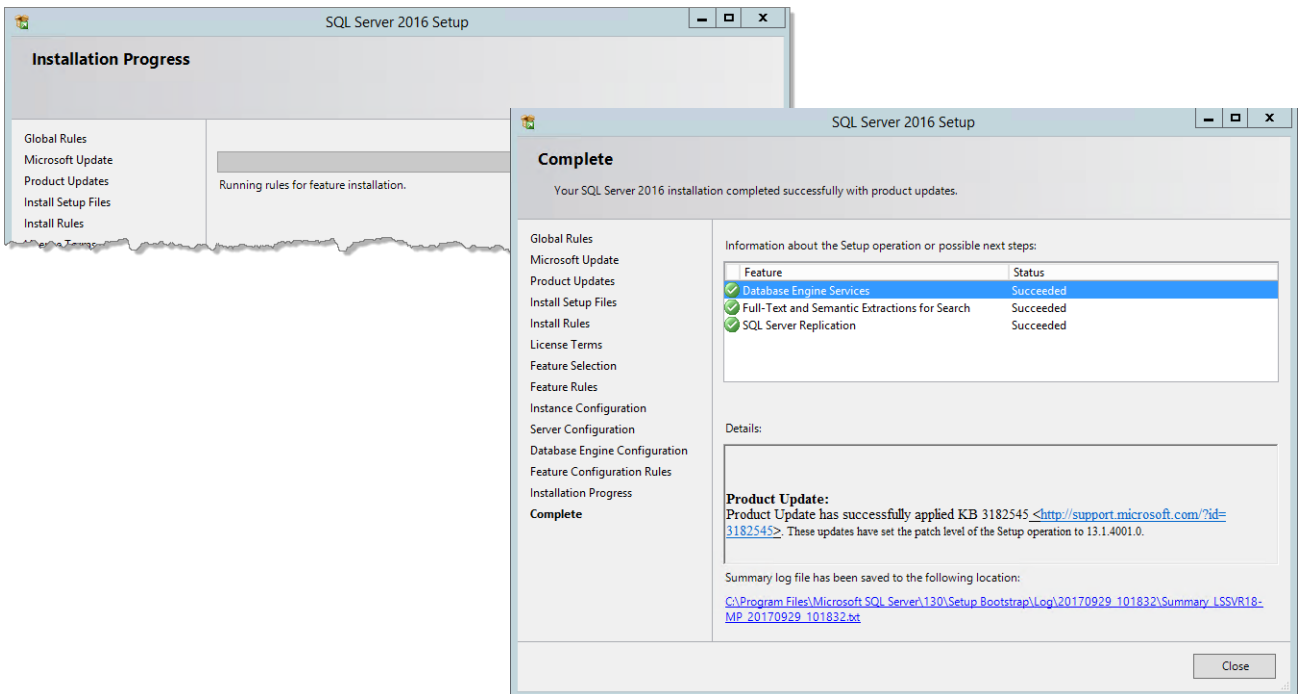
18. On the **Data Directories** tab, the default location reflects the **Instance root location** you selected in step 9. For optimal performance, use your SSD drive for these directories.



19. On the **TempDB** tab, you can add and remove files to store the **tempdb** database on an SSD drive if available.

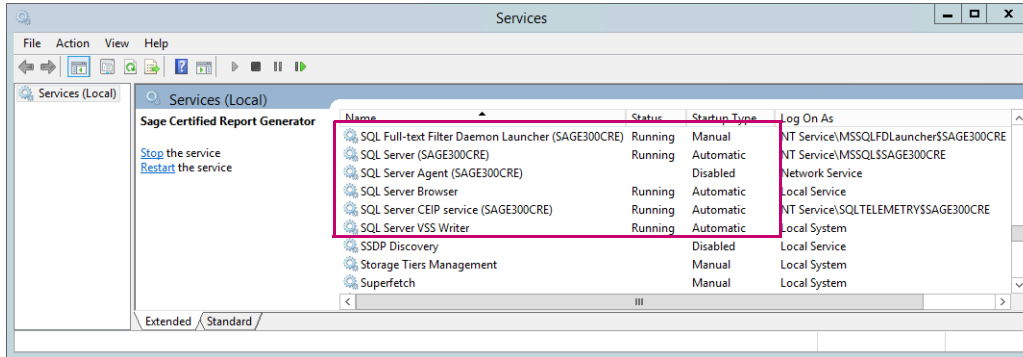


20. Click **Next**. The next window shows installation progress. When it is finished, click **Close**.



Important information about SQL Server

SQL Server is installed as a Windows service. If services related to SQL Server are stopped, SQL Replicator cannot replicate data.



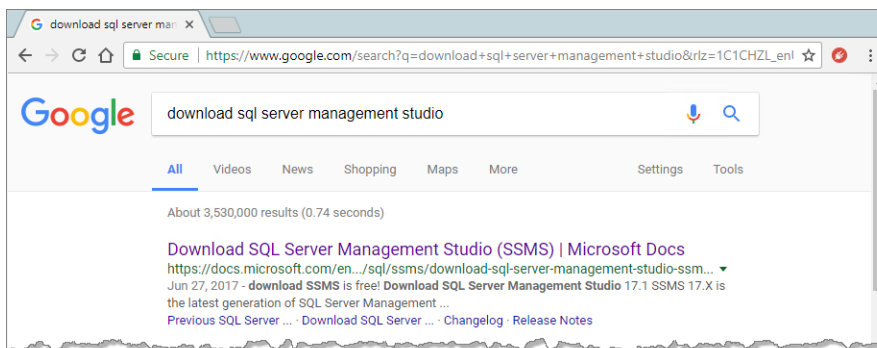
Install SQL Server Management Studio

SQL Server Management Studio is useful tool for configuring, managing, and administering all components within SQL Server. It is not installed as part of the database engine installation. We recommend that you download and install SQL Server Management Studio if it is not already installed on your server.



WARNING: This procedure will require you to restart your accounting server.

1. In your web browser search for “Download SQL Server Management Studio.”



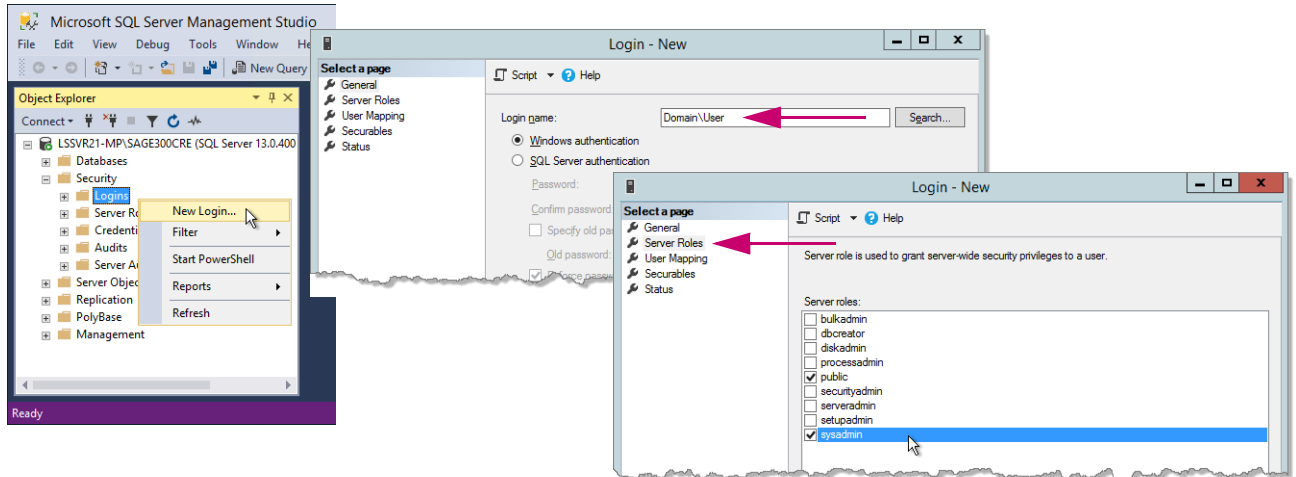
2. Click the link to the Microsoft page and download the program.
3. When the download is finished, double-click the file and follow the steps in the wizard to install SQL Server Management Studio. When the installation is finished, you'll be required to restart your server.

Create a backup system administrator

We recommend that you add a backup system administrator to your SQL Server instance. Your backup administrator should be set up as a user in Sage 300 Construction and Real Estate and linked to a Windows ID. This user should also have local administrative permissions on the accounting server.

1. When the server has re-started, open SQL Server Management Studio and log in to the Sage 300 Construction and Real Estate instance.
2. Under **Security**, right-click **Logins** and select **New Login**.
3. Next to **Login name**, enter the domain and Windows ID of your backup system administrator.

4. On the **Server Roles** page, select the **sysadmin** server role.



5. Click **OK** to save your changes and close the **Login - New** window.
6. Repeat these steps if this instance is on a different machine than the accounting server and you created a new Windows domain account as described on page 8.

Change the SQL Server Database Engine service account

If you installed the SQL Server instance to a dedicated server (not your Sage 300 CRE Accounting server), you should replace the virtual account used for running the SQL Server Database Engine service.



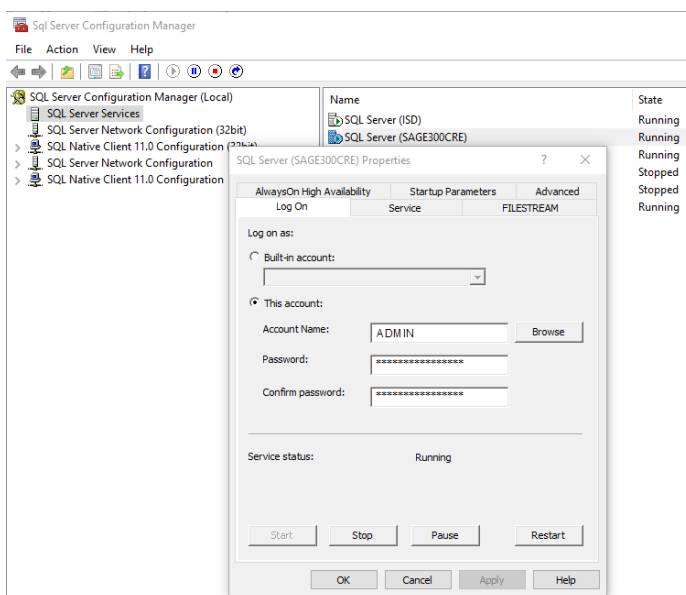
NOTE: Both the Sage SQL Installer and the Microsoft Installer installed the instance using the default virtual account for the SQL Server Database Engine service.

For a remote SQL Server instance, the SQL Server Database Engine service should run with the built-in Network Service account or a Domain Service account that:

- Exists on your Sage 300 CRE Accounting server.
- Has the proper permissions to the Sage 300 CRE company folders you plan to replicate and to the **TIMBERLINE OFFICE** share folder (this share folder is on your Sage 300 CRE Accounting server, and installed to ProgramData\Sage by default).

Use these steps to change the SQL Server Database Engine service account:

1. On the dedicated server where the SQL Server instance is installed, open SQL Server Configuration Manager.
2. Locate the service called **SQL Server (SAGE300CRE)**—the text in parenthesis is the name of your instance. Right-click on this service and select **Properties**.
3. On the **Log On** tab, select **This account**, and enter the **Account Name** and **Password** for the Domain Service account (preferably one without password expiration restrictions) or the built-in Network Service account.

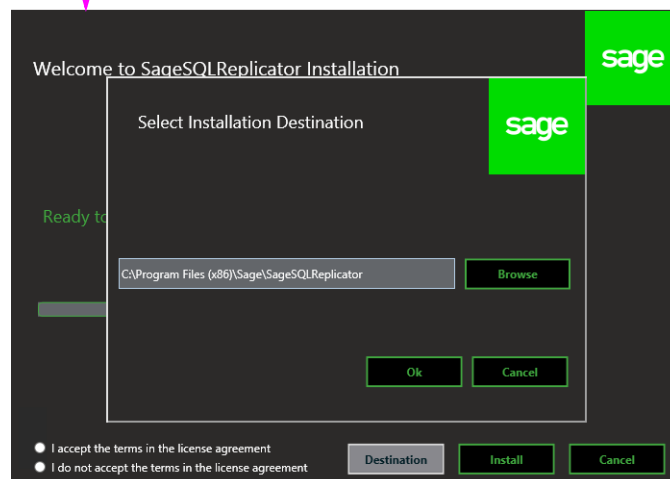
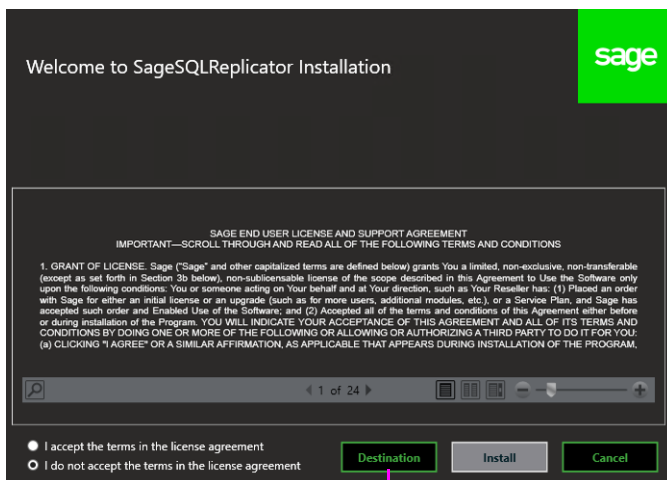


3 Install Sage SQL Replicator 2.0

Starting in Sage 300 CRE 20.1, there is an additional separate install for SQL Replicator which is required for replicating data.

► To install SQL Replicator 2.0

1. Download the file called **SageSQLReplicator.exe** and run the installation on your Sage 300 CRE Accounting server. You must be logged on to the server with local administrative permissions.
2. In the Welcome screen, accept the terms of the license agreement and indicate where to install the files.
 - The default location is **C:\Program Files (x86)\Sage\SageSQLReplicator**. If you accept the default location, click **Install** to begin the installation.
 - To specify a location to install the files, click **Destination** and enter the path. Click **Install** to begin the installation.



3. A message appears when the installation is finished.

4 Configure and replicate data

In this chapter, you learn:

- How to configure the settings for data replication.
- How to monitor the status and progress of the replication.
- Which Windows services are required for SQL Replicator.
- How to ensure that schema changes in the Pervasive database are updated in the SQL database.

Before you proceed, decide on the following:

- Which company database to replicate.
- Whether to replicate all the database tables for a company. If only certain tables are needed, make a note of which ones.
- Whether you want the replication to occur continuously. If using scheduled replications, make a note of when the process starts each day.

In addition, we recommend that you complete the following preparations before replicating the data:

- Use **File Tools** to remove any non-core transaction files (also referred to as “dummy files”) from your company data folder. See [Sage Knowledgebase article 96052](#).
- Use the Sage 300 CRE utility called **File Doctor** to check for corrupt records in the databases that you plan to replicate. Sage SQL Replicator does not replicate tables with corrupt records. To find out how to use **File Doctor**, see [Sage Knowledgebase article 20400](#).



WARNING: If you are already using Sage SQL Replicator, you must stop the replication process before running **File Tools** or **File Doctor**.

- Identify all the users who need access to the SQL data, and add them to Sage 300 CRE **Security Administration** with the appropriate permissions. For more information, see “Security” on page 37.

Sage SQL Replicator configuration and settings

Before you replicate data, you must configure the replication settings. These controls are in **System Administrator** (in the **System Administration** group). The steps are explained in the next sections, and include:

1. Creating the SQL Replicator configuration database.
2. Creating a company configuration database for each company you want to replicate.
3. Using **Configuration Manager** to define which database tables to replicate and how often the replication occurs.



NOTE: Even if you have replicated your data using an earlier version of Sage SQL Replicator, you must complete steps 1 and 2 to update the configuration databases.

SQL Replicator configuration database

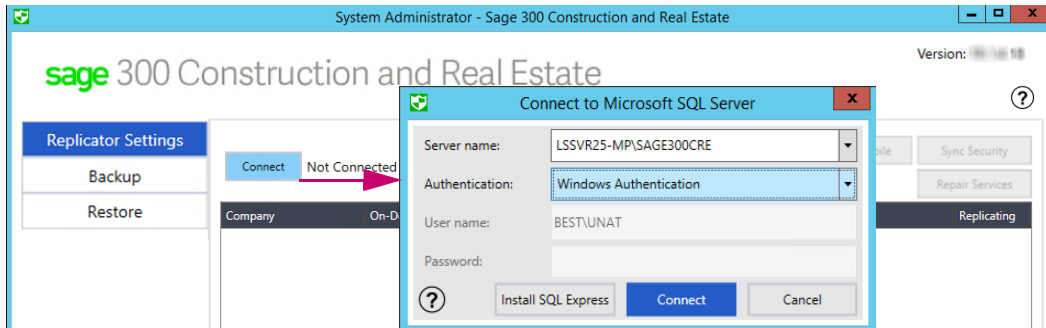
1. Log on to the Sage 300 Construction and Real Estate accounting server as a user with local administrative permissions. The Windows user name must also have the **sysadmin** role in SQL Server.



NOTE: The user who used Sage SQL Installer to install the SQL Server instance is automatically assigned the **sysadmin** role.

2. On the Windows Home page, go to the **Sage Administration** group and click **System Administrator**.
3. In the **Log On** window, you must enter the credentials for a Sage 300 Construction and Real Estate user that has the **Application Administrator** role.

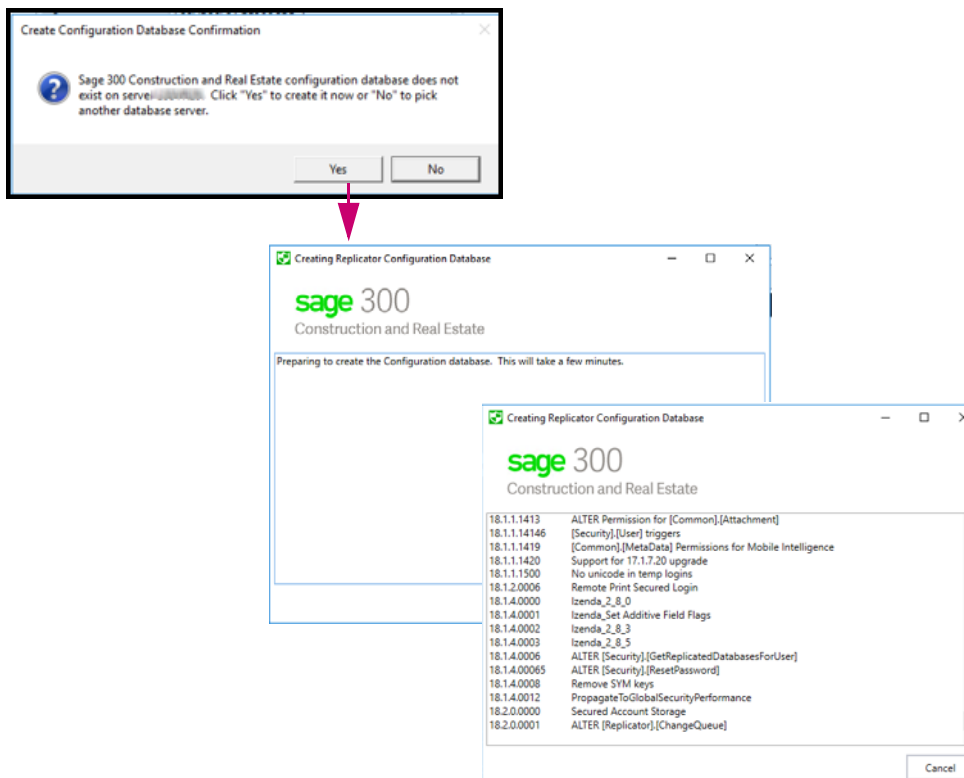
4. If the connection window does not open, click **Replicator Settings** to go to that tab, and then click **Connect**.
 - In the box next to **Server name**, select the name of the instance that you created—see page 10.
 - For **Authentication**, select **Windows Authentication**. Your Windows domain and user name are automatically entered for the **User name**.
 - Click **Connect**.



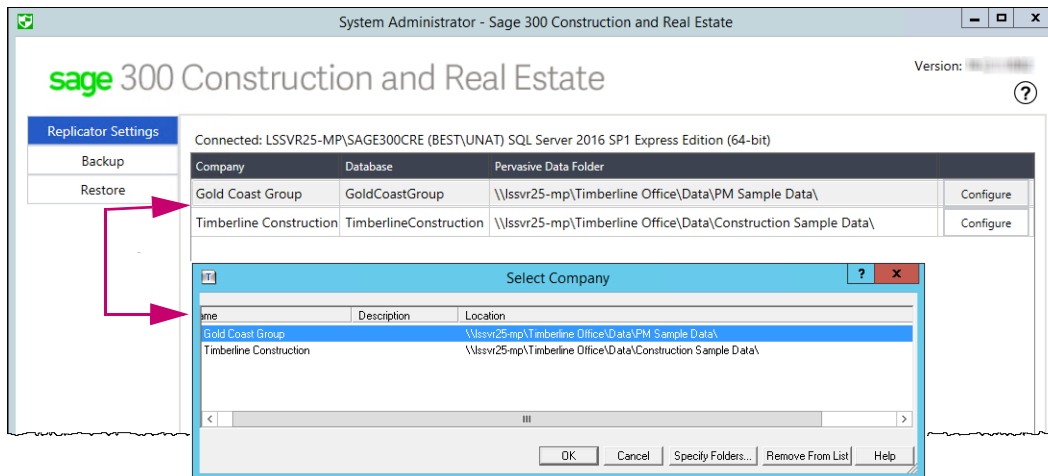
5. If you have never replicated your data before, you are prompted to create the SQL Replicator configuration database. Click **Yes**. This creates the **SageCREGlobalConfiguration** and the **Izenda** databases in the SQL Server instance. The **Izenda** database is used for Mobile Dashboards.



NOTE: The prompt to create the configuration database does not appear if these databases already exist (from using an earlier version of SQL Replicator) and do not require any updates.



6. When finished, the **Replicator Settings** tab shows the list of companies in your **Open Company** list.



7. If you will access the data through Sage Construction Central for Sage Mobile services, click **Link to Mobile**.



NOTE: Your mobile website will be available once the initial replication is finished.

Next, you create the company configuration database for each company that you want to replicate—continue to the next topic to learn this.

Company configuration database

1. On the **Replicator Settings** tab of **System Administrator**, locate the first company that you want to replicate and click **Configure**.
2. If you have never replicated the data for this company, the **Create Configuration Database Confirmation** message appears. Click **Yes**—this creates a database named after this company in the SQL Server instance.



NOTE: The prompt to create the company configuration database does not appear if the database already exists in the SQL Server instance (from an earlier version of SQL Replicator). When you click **Configure**, it will automatically apply upgrade scripts if needed.

You can click **View Logs** to open the **Sage LogViewer** to view the detailed actions. If you need to print out the log later, note the location of where these log files are stored in the title bar of the **Sage LogViewer** window.

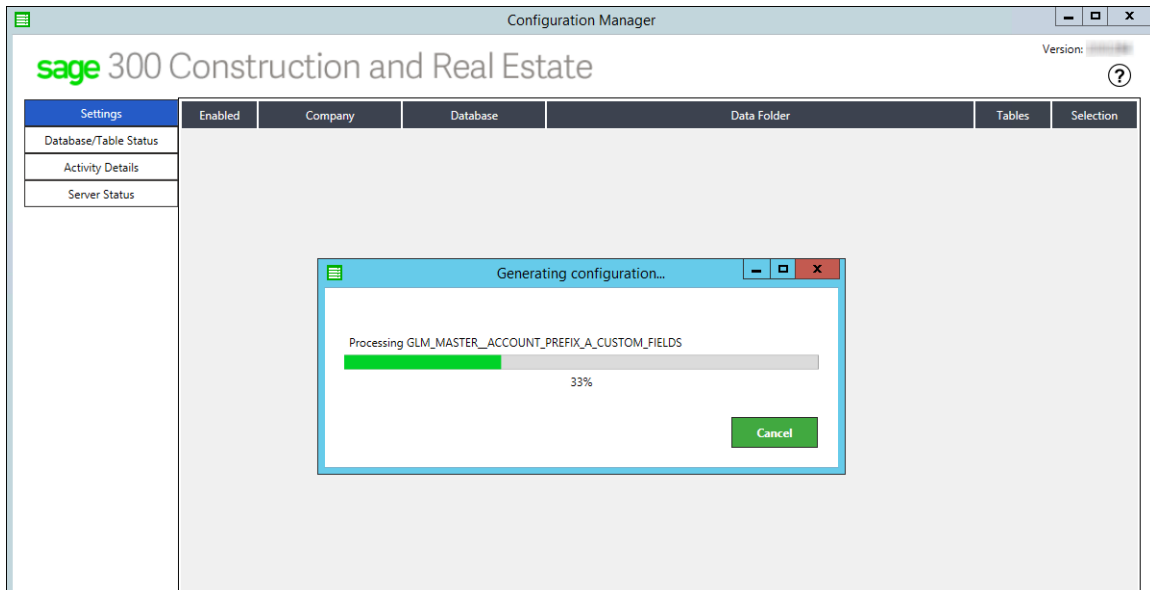
The screenshot shows the 'System Administrator - Sage 300 Construction and Real Estate' interface. On the left, the 'Replicator Settings' tab is active, showing a table with columns for Company, Database, and Persuasive Data Folder. Two rows are visible: 'Gold Coast Group' and 'Timberline Construction'. The 'Timberline Construction' row is highlighted, and a 'Configure' button is visible next to it. A 'Create Configuration Database Confirmation' dialog box is overlaid on the table, asking 'The SQL database TimberlineConstruction has not yet been created. Create now?' with 'Yes' and 'No' buttons. A pink arrow points from the 'Yes' button to a second window titled 'Creating Replicator Company Database'. This window shows the 'sage 300 Construction and Real Estate' logo and a list of detected versions from 17.1.3.1176 to 17.1.3.1324. A 'View Logs' button is at the bottom, with a pink arrow pointing to the 'Sage LogViewer' window. The title bar of the log viewer shows the file path: 'C:\Users\Public\Documents\GlobalSettings\SageReplicator\11304 - 132284388595422667.slg'. The log viewer displays a table of log entries with columns for Id, Time, Thread, Type, and Data. The entries show 'Upgrading company database' for 'TimberlineConstruct'.

Id	Time	Thread	Type	Data
335	2020-09-11 10:22:24.324970 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct
336	2020-09-11 10:22:24.593273 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct
337	2020-09-11 10:22:24.793883 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct
338	2020-09-11 10:22:24.921359 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct
339	2020-09-11 10:22:25.110967 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct
340	2020-09-11 10:22:25.289495 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct
341	2020-09-11 10:22:25.503617 PM	001 - Company Database Builder	Information	Upgrading company database "TimberlineConstruct

Location of log file.

3. When it finishes running the scripts, you will be prompted to connect to the SQL instance again for the **Configuration Manager**.

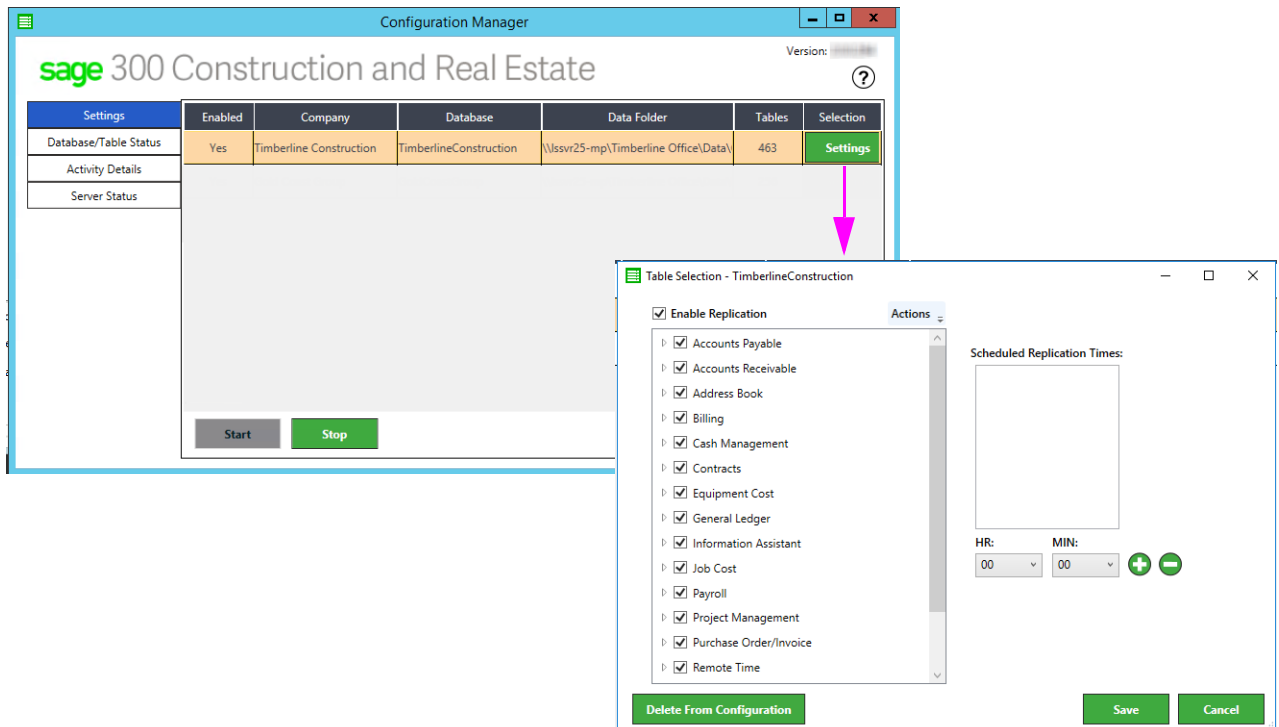
4. The **Configuration Manager** opens and automatically connects to the Pervasive database to read the schema so that it can create the schema (tables, views, and objects) for the corresponding company database in SQL. This process determines the list of tables that are available in the **Table Selection** window explained in the next topic.



5. When the process is finished, remain on the **Settings** tab of **Configuration Manager**. Next, you will define the replication settings and start the replication process—continue to the next topic to learn this.

Specify the replication settings for each company

1. On the **Settings** tab of **Configuration Manager**, click the **Settings** button to open the **Table Selection** window. You use this to specify which tables are replicated and how often the replication occurs.



2. All the Pervasive database tables are automatically included for replication.
 - The **Enable Replication** check box is automatically selected. This is required for replication to take place.
 - Click the arrow next to an application name to view the tables. For tables that you do not want to replicate into SQL Server, clear the check box next to the table name. Note that certain tables are required and you are unable clear the check boxes for these tables.

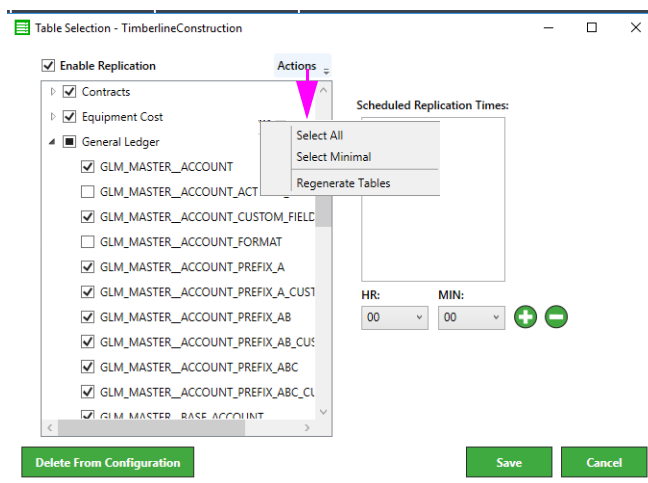


TIP: Look for “dummy files” and exclude them from replication.

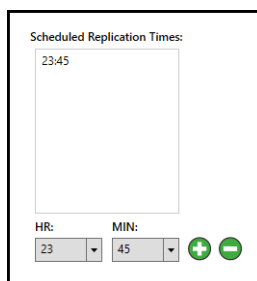


WARNING: By excluding certain tables from replication, some reporting views and stored procedures will not work, affecting the ability to return information on certain Crystal reports and in Mobile Dashboards. See “Changes to the replication settings” on page 39.

- Do not use the **Select Minimal** option if you use Mobile Intelligence or SQL reporting because the replication is limited and you are not permitted to adjust the table selection. See [Sage Knowledgebase article 93399](#) for the list of tables that are replicated with this option.



3. The replication frequency is automatically set to continuous unless you specify a scheduled time. Use **HR** and **MIN** to select the time and click the plus symbol to add it. You can set up multiple scheduled replications per day.



4. Click **Save** to save your settings.

5. On the **Settings** tab of **Configuration Manager**:

- The **Enabled** column shows **Yes** if the **Enabled Replication** check box is selected in the **Table Selection** window.
- The **Tables** column shows the number of tables selected for replication.

Settings	Enabled	Company	Database	Data Folder	Tables	Selection
Database/Table Status	Yes	Timberline Construction	TimberlineConstruction	\\ssvr25-mp\Timberline Office\Data\Construction Sample Data	448	Settings
Activity Details						
Server Status						

6. If there are additional companies for which you want to replicate the data, close **Configuration Manager** and return to **System Administrator** and repeat these steps for each company.

After you have configured the settings for all the companies, you are ready to start the replication—continue to the next topic to learn this.

Start the replication

On the **Settings** tab of **Configuration Manager**, click **Start** to begin the replication for all the companies where the **Enabled** column shows **Yes**. Do this even when all the companies are configured to use scheduled replications.



WARNING: The **Start** and **Stop** buttons on the **Settings** tab affect all the companies. If you later want to stop the replication for only one company, see “To stop the replication for a company” on page 40.

Settings	Enabled	Company	Database	Data Folder	Tables	Selection
Database/Table Status	Yes	Gold Coast Group	GoldCoastGroup	\\C3001851489d01\Timberline Office\Data\PM Sample Data	282	Settings
Activity Details	Yes	Timberline Homes, Inc.	TimberlineHomesInc	\\C3001851489d01\Timberline Office\Data\Home Builder Sample Data	246	Settings
Server Status	Yes	Timberline Construction	TimberlineConstruction	\\C3001851489d01\Timberline Office\Data\Construction Sample Data	672	Settings

Start Stop View Log

The replication operation follows this order:

1. Replicates the data for the selected tables for each company.
2. Creates SQL reporting views (see page 37).
3. Copies Sage 300 CRE security settings into SQL (see page 37).

While the replication is in process, users can continue to work in Sage 300 Construction and Real Estate without interruption. The length of time it takes to complete the initial replication depends on the size of your database and your server hardware.

You can view the replication activity by clicking **Activity Details** in **Configuration Manager**. When the initial replication is finished, the **Message** column shows **Initial replication completed**.



TIP: To check for warnings and errors with the replication process, click **View Log**.



FOR MORE INFORMATION: Configuration Manager provides tools for monitoring the replication—see page 32



NOTE: If you will access the data through Sage Construction Central for Sage Mobile services, you must follow the instructions in the Sage Construction Central Setup Guide to grant security permissions and licenses to users, and deploy your mobile website through Microsoft Azure Cloud Services.



WARNING: For data integrity, when you back up your Pervasive data, you must also back up the corresponding SQL Server database. You can use the **Backup** feature in **System Administrator**—see “Backing Up and Restoring” on page 35.

Replicator monitor tools

The **Database/Table Status**, **Activity Details**, and **Server Status** tabs in **Configuration Manager** let you monitor the replication progress and server usage. See the next pages to learn how to use the information on these tabs.

The screenshot shows the Configuration Manager window for Sage 300 Construction and Real Estate. It features a table with columns: Settings, Enabled, Company, Database, Data Folder, Tables, and Selection. The 'Database/Table Status' tab is selected and highlighted with a pink box. Below the table are 'Start', 'Stop', and 'View Log' buttons.

Settings	Enabled	Company	Database	Data Folder	Tables	Selection
Database/Table Status	Yes	Gold Coast Group	GoldCoastGroup	\\C3001851489d01\Timberline Office\Data\PM Sample Data	382	Settings
Activity Details	Yes	Timberline Homes, Inc.	TimberlineHomesInc	\\C3001851489d01\Timberline Office\Data\Home Builder Sample Data	246	Settings
Server Status	Yes	Timberline Construction	TimberlineConstruction	\\C3001851489d01\Timberline Office\Data\Construction Sample Data	672	Settings

Database/Table Status

Use the **Database/Table Status** tab to check the replication progress.

The upper grid shows the companies for which you have enabled replication. It indicates:

- The number of errors that occurred during replication. The individual errors are listed in the **Activity Details** tab.
- The latest time that a table finished replicating.

The tables shown in the lower grid are based on the database that you select in the upper grid. Use this grid to learn the replication status of each table. Once a table has finished replicating, the date and time are entered in the **LastReplicated** column.



TIP: You can click any column header to sort the information in ascending or descending order.

Configuration Manager
Version: 2.0.0.1

300 Construction and Real Estate

Settings	Databases:									
Database/Table Status	Enabled	Name	DataFolder	SQLDatabaseName	Size	Summary	Assessment	ErrorCount	LastReplicated	
Activity Details	Yes	Gold Coast Group	\\C3001851489d01\Timberline Office\Data\PM Sample Data	GoldCoastGroup	924.60	Working (5,946 of 5,946)	Holding steady	0	2020/03/12 21:20:43	
Server Status	Yes	Timberline Construction	\\C3001851489d01\Timberline Office\Data\Construction Sample Data	TimberlineConstruction	873.27	Working (360 of 360)	Holding steady	0	2020/03/12 21:35:42	
	Yes	Timberline Homes, Inc.	\\C3001851489d01\Timberline Office\Data\Home Builder Sample Data	TimberlineHomesInc	982.32	Working (132 of 132)	Holding steady	0	2020/03/12 21:25:46	

Status for "Gold Coast Group":

Table	Operation	Completed	Total	Percent	RowSec	ETA	Progress	LastReplicated
APM_MASTER_AUTHORIZATION	Idle							2020/03/11 17:43:03
APM_MASTER_BATCH	Idle							2020/03/11 17:43:07
APM_MASTER_CHECK	Idle							2020/03/11 17:43:09
APM_MASTER_DIST_PAYMENT	Loading Initial State	595	595	100.0	10,987	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:16
APM_MASTER_DISTRIBUTION	Loading Initial State	686	686	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:18
APM_MASTER_INVOICE	Loading Initial State	598	598	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:22
APM_MASTER_INVOICE_PAYMENT	Loading Initial State	518	518	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:25
APM_MASTER_PREFIX_TOTAL	Loading Initial State	88	88	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:27
APM_MASTER_VENDOR	Loading Initial State	56	56	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:33
APT_CURRENT_TRANSACTION	Loading Initial State	1,301	1,301	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:37
APT_HISTORY_TRANSACTION	Loading Initial State	2,104	2,104	100.0	∞	9:35 PM (Δt 0s)	<div style="width: 100%; height: 10px; background-color: #000;"></div>	2020/03/11 17:43:39
APZ_ISSUE_VENDOR_ISSUE	Idle							2020/03/11 17:43:43
CMM_MASTER_BANK_ACCOUNT	Idle							2020/03/11 17:43:44
CMM_MASTER_GL_CASH_ACCOUNT_BALANCE	Idle							2020/03/11 17:43:49
CMM_MASTER_LAST_TRANSACTION	Idle							2020/03/11 17:43:50
CMM_MASTER_PENDING_DEPOSIT	Idle							2020/03/11 17:43:51
CMT_HISTORY_BATCH	Idle							2020/03/11 17:43:54

Activity Details

Use the **Activity Details** tab for detailed information about the replication for each table. To locate specific information:

- Use the drop-down next to **Level** to filter the type of information shown: all information, only warnings, or only errors.
- You can also use the Search box to locate specific entries based on text in the **Message** column.

When the initial replication is finished, the **Message** column shows **Initial replication completed**.

The information in the **Activity Details** tab is cleared out when you close **Configuration Manager** and is not logged by default. For troubleshooting purposes, you can enable logs to retain this information— follow the steps in [Sage Knowledgebase article 100109](#).

The image displays two screenshots of the Configuration Manager application interface for Sage 300 Construction and Real Estate. Both screenshots show the 'Activity Details' tab with a table of replication activities.

Top Screenshot: Shows a list of BulkCopier activities. The 'Level' is set to 'Info'. The table columns are Timestamp, Type, Process, and Message. The messages describe the bulk copy results for various tables, including 'API_NEW_CREDIT_CARD_PAYMENT', 'GLM_MASTER_ACCOUNT_PREFIX_A_CUSTOM_FIELDS', 'APM_MASTER_DISTRIBUTION', 'API_NEW_DIST_PAYMENT', 'GLM_MASTER_ACCOUNT_PREFIX_AB', 'APM_MASTER_ELECTRONIC_PAYMENT', 'API_NEW_ELECTRONIC_PAYMENT', 'GLM_MASTER_ACCOUNT_PREFIX_AB_CUSTOM_FIELDS', 'API_NEW_INVOICE_PAYMENT', 'APM_MASTER_INVOICE', 'API_NEW_TAX_DIST_PAYMENT', and 'GLM_MASTER_ACCOUNT_PREFIX_ABC'. The final entry at 3/12/2020 8:57:19 PM shows 'Bulk-copy results for 'APM_MASTER_INVOICE_PAYMENT'' with 17 rows in 105 ms and 162 rows/sec.

Bottom Screenshot: Shows a sequence of Service activities. The 'Level' is set to 'Info'. The messages include: 'Moving QXM to security...', 'QXM_MASTER_SECURITYCATEGORY_Sync', 'QXM_MASTER_SECURITYUSER_Sync', 'QXM_MASTER_SECURITYROLESECURITYUSER_Sync', 'QXM_MASTER_SECURITYROLESECURITYUSER_Sync', 'QXM_MASTER_SECURITYROLESECURITYUSER_Sync', 'QXM_MASTER_SECURITYROLESECURITYUSER_Sync', 'Applying permissions', 'About to release global database mutex "SerializedSecurityMutex".', 'Granting permissions to virtual tables', 'Acquired Replicator mutex for GoldCoastGroup', 'Acquired Replicator mutex for TimberlineHomesInc', 'Acquired Replicator mutex for TimberlineConstruction', and finally, 'Initial replication completed' at 3/12/2020 9:10:18 PM, which is circled in pink.

Server Status

The **Server Status** tab shows the load and memory usage, and the number of processes running on your server. Make a special note of the sever information—full memory usage or a high CPU load negatively affects the replication process.

Settings	Server	Status	Progress
Database/Table Status	Sage SQL Replicator (Total)	24 processes, 626 threads	
Activity Details	Memory Usage	1,494 MB of 7,168 MB	
Server Status	CPU Load	39.50%	
	Start Time	3/12/2020 9:11:35 PM (12m 57s)	
	SQL Replicator Service	2 processes, 58 threads	
	Memory Usage	172 MB of 7,168 MB	
	CPU Load	3.30%	
	Start Time	3/12/2020 9:11:35 PM (12m 57s)	
	SQL Replicator File System Delta	4 processes, 40 threads	
	Memory Usage	170 MB of 7,168 MB	
	CPU Load	0.04%	
	Start Time	3/12/2020 9:12:34 PM (11m 57s)	
	SQL Replicator Pervasive Trace Log	2 processes, 23 threads	
	Memory Usage	95 MB of 7,168 MB	
	CPU Load	30.73%	
	Start Time	3/12/2020 9:12:34 PM (11m 58s)	
	SQL Replicator Row Delta	8 processes, 260 threads	
	Memory Usage	509 MB of 7,168 MB	
	CPU Load	0.09%	
	Start Time	3/12/2020 9:12:35 PM (11m 57s)	
	SQL Replicator Bulk Copier	4 processes, 126 threads	
	Memory Usage	356 MB of 7,168 MB	
	CPU Load	5.80%	
	Start Time	3/12/2020 9:12:35 PM (11m 57s)	
	SQL Table Replicator	4 processes, 116 threads	
	Memory Usage	157 MB of 7,168 MB	
	CPU Load	0.09%	
	Start Time	3/12/2020 9:12:35 PM (11m 57s)	
	Server	115 processes, 1,937 threads	
	Memory Usage	7,409 MB of 7,168 MB	
	CPU Load	97.28%	
	Start Time	3/6/2020 5:43:15 PM (6d 03h 4m)	
	Model	Microsoft Corporation Virtual M	
	CPU Type	Intel® Xeon® CPU E5-2673 v3	
	CPU Count	2 cores	
	System Disk (C:) Usage	56 GB of 127 GB	
	TEMP Disk (C:) Usage	56 GB of 127 GB	
	Redis Server	1 process, 5 threads	
	Memory Usage	20 MB of 7,168 MB	

Required Windows services

In addition to the services required to run your Sage 300 CRE software program, the following services must be running in order for Sage SQL Replicator to work properly:

Windows service	Comment
Sage SQL Replicator Service	<ul style="list-style-type: none"> Installed on the Sage 300 CRE Accounting server when the company configuration database is created in SQL. Uses the Local System account as the default Log on account. See “Specify the account for Sage SQL Replicator Service” for instructions on how to change the account that runs this service. Automatically starts when you click Start in the Configuration Manager.
Sage SQL Replicator Redis Service	<ul style="list-style-type: none"> Runs on the Sage 300 CRE Accounting server. Manages change queues. Is used for continuous replication. Automatically starts when you click Start in the Configuration Manager.
Sage Worker Engine	Runs on the Sage 300 CRE Accounting server and is required for Sage Construction Central and Mobile Intelligence.
SQL Server (SAGE300CRE)	<ul style="list-style-type: none"> The text in parenthesis represents the name of your SQL instance. These services run on the server where the SQL Server instance is installed.
SQL Server Agent (SAGE300CRE)	

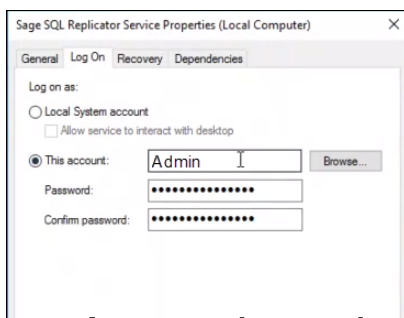
Specify the account for Sage SQL Replicator Service

Instead of using a Local System account on the server to run Sage SQL Replicator Service, you can specify a different account.



NOTE: After upgrading to Sage 300 CRE version 20.1, the **Run-As Account** for Sage SQL Replicator is removed from System Administrator. If needed, use the steps outlined below to change the account for running the Sage SQL Replicator Service.

1. If the replication process is running, stop it—open **Configuration Manager** and click the **Stop** button on the **Settings** tab.
2. Open Windows services (in the Windows search box type services.msc).
3. Locate the service called **Sage SQL Replicator Service**. Right-click on this service and select **Properties**.
4. Go to the **Log On** tab. Select **This account** and enter the account name and password. This account must have the proper permissions to the Sage 300 CRE company data folders being replicated and also to the **TIMBERLINE OFFICE** share folder (this share folder is on your Sage 300 CRE Accounting server, and installed to ProgramData\Sage by default).
5. Click **OK**.



6. To resume replication, open **Configuration Manager** and click the **Start** button on the **Settings** tab.

SQL Reporting views

Sage SQL Replicator creates several views and stored procedures for reporting purposes.

- When you generate Crystal reports designed with a Pervasive data source in Sage 300 CRE with the **Use SQL** check box selected or in Mobile Reports, your software automatically switches to a SQL data source and uses the appropriate views to return the information.
- Certain Mobile Dashboard reports rely on reporting views and stored procedures to generate information.



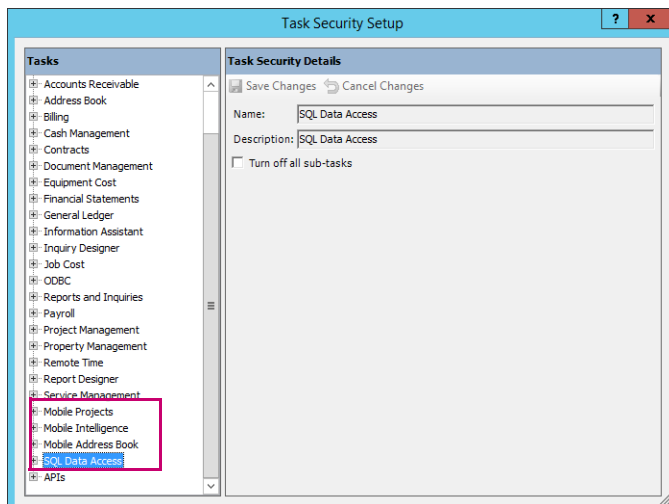
WARNING: Reporting views and stored procedures rely on data replicated into SQL. If you choose not to include all database tables for replication, certain views and stored procedures will not work.

The views created by SQL Replicator are categorized into four groups:

- **Std** views (based on the Pervasive DSN table naming option of Standard descriptions).
- **Custom** views ((based on the Pervasive DSN table naming option of Custom descriptions).
- **Dict** views (based on the Pervasive DSN table naming option of Dictionary names).
- **Reports** views—used by certain Mobile Dashboard reports. See [Sage Knowledgebase article 91722](#) to find out which tables are needed for the **Reports** views and stored procedures.

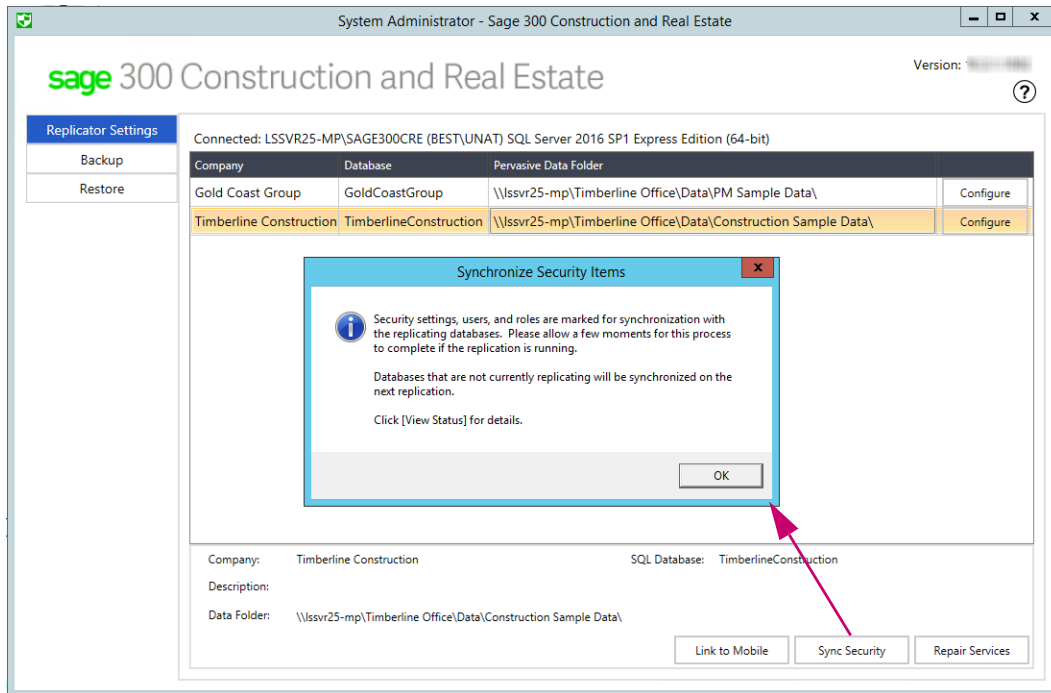
Security

In order to allow users access to the SQL Server data through reports or Mobile solutions, you must grant the appropriate task permissions in Sage 300 Construction and Real Estate **Security Administration**.

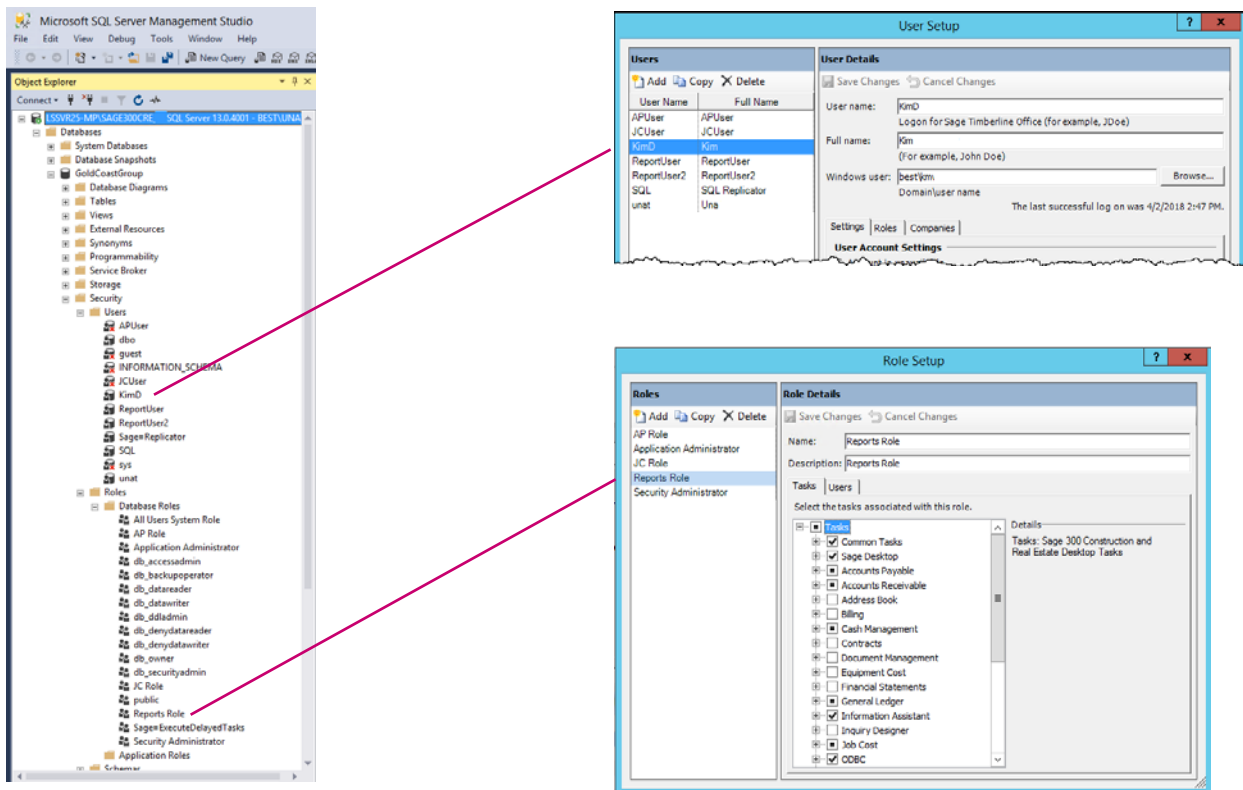


The replication process enforces Sage 300 Construction and Real Estate security settings in the SQL Server data. Any user, role, task, company, and record permissions established in Sage 300 Construction and Real Estate are respected when users access the SQL Server data through Sage Construction Central, reports, or in any other manner.

The initial replication process copies the security settings into the SQL Server instance. When you make changes to the security setup afterwards, such as adding new users, you must manually synchronize the changes with the SQL Server data. In System Administrator, on the **Replicator Settings** tab, click **Sync Security**.



Sage 300 Construction and Real Estate user names and roles, along with their task and company permissions are copied to each SQL Server database.

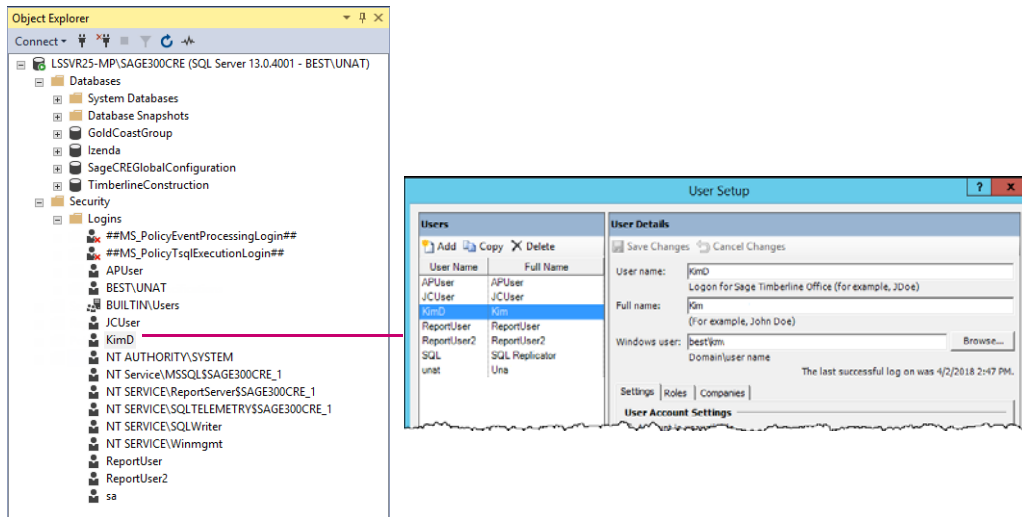


For each Sage 300 Construction and Real Estate user name, a SQL Server login is created with SQL Server Authentication. The passwords (in Sage and in SQL Server) are automatically synchronized when the user logs into

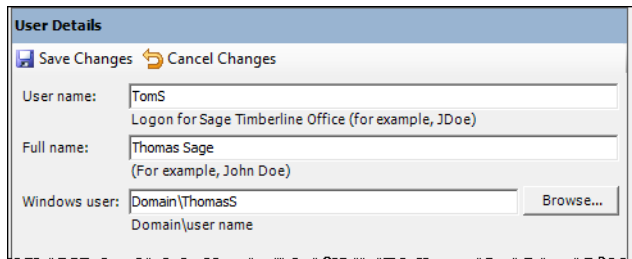
Sage 300 Construction and Real Estate for the first time after replication. This lets you use your Sage 300 Construction and Real Estate credentials whenever you access the SQL Server data in on-premises Sage and third party applications such as Microsoft Excel or Access.



NOTE: User names and passwords are case-sensitive.



Anyone who accesses the SQL Server data through Sage Construction Central must have a Windows user name associated with their Sage 300 Construction and Real Estate user setup. This is because Sage Construction Central requires Windows authentication—you log on using your Windows credentials.



Changes to the replication settings

You may want to change the replication settings after the initial replication is finished. For example, to alter the replication frequency, the table selection included for replication, or to stop the replication for a company. For these types of changes, you can open **Configuration Manager** directly from the **ConfigurationManager.exe** file instead of through **System Administrator**. This file is stored on your Accounting server in this default location: C:\Program Files(x86)\Sage\SageSQLReplicator.

Any changes to the replication settings will only take effect after you restart the replication process. To restart the replication, you must click **Stop** and then **Start** on the **Settings** tab of **Configuration Manager**.



NOTE: During each **Configuration Manager** session, the message to remind you to restart the replication after making a change appears only once.

► To change the replication frequency or table selection

1. Open **Configuration Manager**.
2. On the **Settings** tab, click the **Settings** button next to the company for which edit the replication.

3. Make the necessary changes in the **Table Selection** window and click **Save**.
4. Restart the replication process—click **Stop**, and when the **Start** button becomes available, click it.

► To stop the replication for a company

1. Open **Configuration Manager**.
2. On the **Settings** tab, click the **Settings** button next to the company for which to cease replication. The **Table Selection** window opens.
3. Clear the **Enable Replication** check box to exclude the company from the replication process.
4. If you want to remove this company from **Configuration Manager**, click **Delete from Configuration**. Once the configuration is deleted, the company no longer appears on the **Settings** tab but the database remains in SQL Server. If you want to remove the database from SQL Server, you can do so with MS SQL Server Management Studio.
5. Click **Save**.
6. Restart the replication process—click **Stop**, and when the **Start** button becomes available, click it.

Replicate a new company

In addition to the current companies you are replicating, you may want to add another company in the future. To do so:

1. You must open **System Administrator** to create the configuration database for the new company first (see page 28).
2. Next, you use **Configuration Manager** to specify the replication settings for the company (see page 29).
3. Last, you must restart the replication to include the new company in the operation.

Schema changes in the Pervasive database

As you learned, when SQL Replicator creates the configuration database for each company, it reads the Pervasive schema so that it can create the schema for the corresponding database in SQL. If there are changes to the Pervasive schema, SQL Replicator does not automatically pick them up, resulting in some columns or tables being skipped by replication.

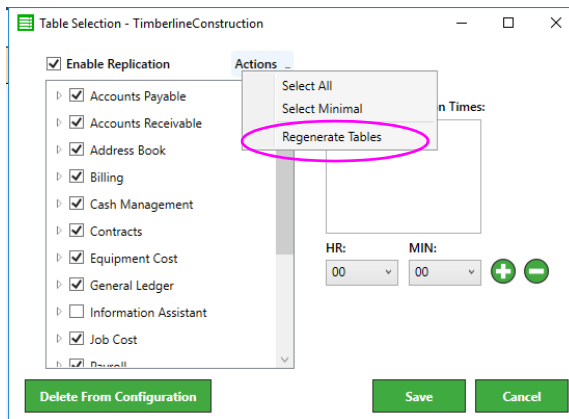
Examples of Pervasive schema changes include:

- Upgrading to a new version of Sage 300 CRE that has database changes. Refer to the Release Notes for database changes.
- Changes to custom descriptions. For example, you change the default name for the field **AP Misc Deduction**.
- Changes or additions of custom fields.
- Creating a new file, such as an archive file.
- Changes to file or record security.

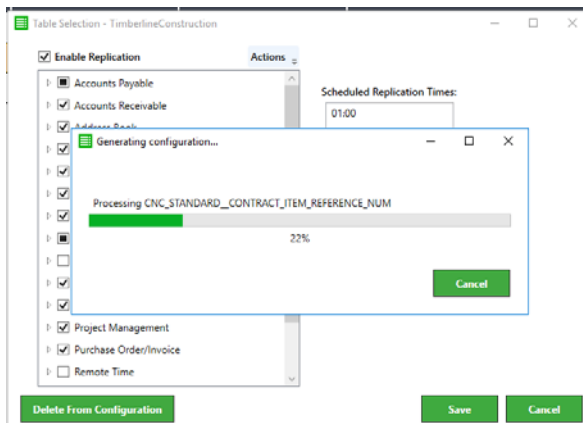
When you have Pervasive schema changes, you must use **Configuration Manager** to regenerate the configuration database for the company to update the schema. To do so:

1. Open **System Administrator** and click **Configure**.
2. On the **Settings** tab of **Configuration Manager**, click **Stop**.
3. Click **Settings** for the company which has schema changes to open the **Table Selection** window.

4. Click **Actions** and select **Regenerate Tables**.



5. When the continue prompt appears, click **Yes** to start the process of re-reading the Pervasive schema and updating the SQL schema.



After the **Regenerate Tables** process is finished, any new tables that were added to the SQL schema are automatically selected for replication. If needed, you can make changes to the table selection.

6. Click **Save**.

7. Click the **Start** button to restart the replication.



NOTE: If there are database changes when you upgrade your Sage software, you must regenerate the tables and restart the replication for all your companies to update the schema.

Repair Sage-managed SQL system accounts

Sage creates several different SQL system accounts to manage the functions used by SQL Replicator and Mobile Intelligence solutions. In some cases, these Sage-managed SQL accounts may become out of sync with SQL Replicator and the Mobile features, causing the processes to stop.

If the Sage Worker Engine stops and you are unable to start it or you are directed by Sage Support, click the **Repair Services** button in the **System Administrator** to repair the Sage-managed SQL system accounts used by SQL Replicator, Mobile Reports, and Mobile Dashboards.

