



DOCUMENTS 7.2 and later

Installing and Configuring Microsoft SQL Server

For Use With DOCUMENTS 7

November 2015 – ReadSoft AB

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Before installation

Knowledge of your Windows server and SQL Server is required

Using Microsoft SQL Server with ReadSoft products requires knowledge and competence in:

- Microsoft Windows operating systems administration
- Microsoft SQL Server software administration

While ReadSoft supports its own products being run on servers with a SQL Server database, that support does not include Microsoft Windows servers or Microsoft SQL Server itself. Server administration, database maintenance, backup tasks, troubleshooting of servers and databases, etc., are your responsibility.

The guidelines and instructions provided in this document are not a substitute for maintaining the necessary level of competence within your organization.

Requirements

The configuration and production data for DOCUMENTS 7 can reside in:

- Microsoft SQL Server 2014
- Microsoft SQL Server 2012 Standard Edition
- Microsoft SQL Server 2008 R2
- Microsoft SQL Server 2008¹

If you plan to use REPORTER 7 with DOCUMENTS, the same SQL Server versions are supported.

The operating system should be updated to the latest ReadSoft-approved service pack, listed in the [DOCUMENTS 7 Fact Sheet](#).

¹ DOCUMENTS clients running on Windows Vista or Windows Server 2008 cannot connect to a Microsoft SQL Server 2008 database server. When you try to connect to the named instance of Microsoft SQL Server, the connection fails and you receive an error such as “Specified SQL server not found” or “Error Locating Server/Instance Specified.” For more information and suggested workarounds, please see [Microsoft Knowledge Base article 944390](#).

Installing Microsoft SQL Server

We recommend that the SQL Server program files be installed on the same partition as your operating system for optimal performance.

In installations where the volume is very high, we recommend installing the database on a separate disk drive. For optimal performance, the database should have a physical drive of its own. When you install SQL Server, database files are saved to `C:\Program Files\Microsoft SQL Server\MSSQL $version$.MSSQLSERVER\MSSQL\Data` unless you change the default path or Instance ID.

1. Ensure that you have system administrator rights on the computer.
2. Insert the SQL Server CD. If the installation program does not start automatically, go to the Windows **Start** menu, click or enter **Run**, and specify `X:\setup.exe` (where *X* is the drive letter for the CD-ROM drive). Click **OK**. The SQL Server Installation Center opens.

Important: Make sure to run the setup as an administrator. Failure to do so may result in a failed installation due to lack of user rights.

3. In the **Planning** menu, click **Hardware and Software Requirements** and make sure that your system meets the requirements.

You may also run the **System Configuration Checker** to confirm that you can install SQL Server on your system.

4. In the **Installation** menu, click **New SQL Server stand-alone installation or add features to an existing installation**.
5. The SQL Server Setup program opens. Follow the instructions in the dialogs that appear.
 - a) The **Setup Support Rules** program runs. If the program found any problems, be sure to fix them before continuing. Click **OK** and then in the next dialog, click **Install**. If any rules fail, correct the problem(s), and click **Next**.
 - b) Enter a valid product key and click **Next**.

- c) Accept the license agreement.

In the **Feature Selection** dialog, select **Database Engine Services**. Next, under **Shared Services**, select:

- **Management Tools** (**Complete** is included by default when you select **Basic**) in order to install SQL Server Management Studio.
 - **Client Tools Connectivity** in order to manage your DOCUMENTS databases from a remote site.
- d) Select **Default instance**, unless you want to keep a previously-installed database server. In this case select **Named Instance**, and give the new server a different name.
- e) In the **Server Configuration** dialog, on the:
- **Service Accounts** tab, specify an **Account Name** for the services.
 - **Collation** tab, ensure that the settings are correct. This setting affects the search order and output strings.

❗ **Warning:** DOCUMENTS and REPORTER support only case-insensitive (_CI) collations. Do not install SQL Server to be case sensitive. If you do, ReadSoft solutions will not work properly.

Click **Next**.

- f) In the **Database Engine Configuration** settings, on the **Account Provisioning** tab, for **Authentication Mode**, select **Mixed Mode (SQL Server authentication and Windows authentication)**, or **Windows Authentication**.

If you use **Mixed Mode**, you will be asked to specify a password for the sa account under **Built-in SQL Server Administrator Account**.

Under **SQL administrators**, select **Add Current User**. (Optional: select **Add...** and specify additional users.)

6. Continue with the instructions in **Setting up SQL Server** on page 7.

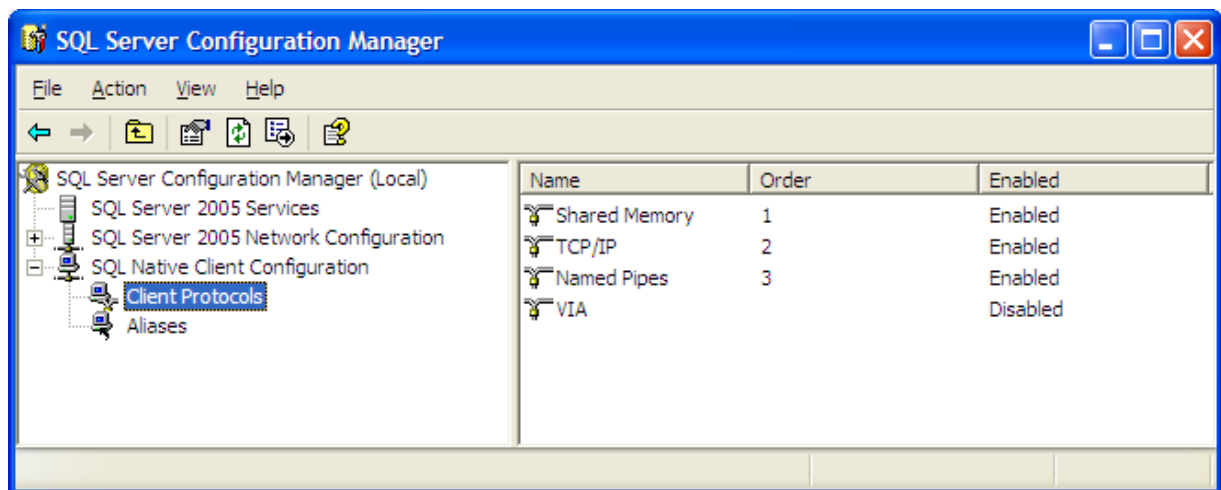
Setting up SQL Server

DOCUMENTS database server

This section describes how to set up the Microsoft SQL Server database that will store the DOCUMENTS configuration data, production data, and (optional) knowledge store data.

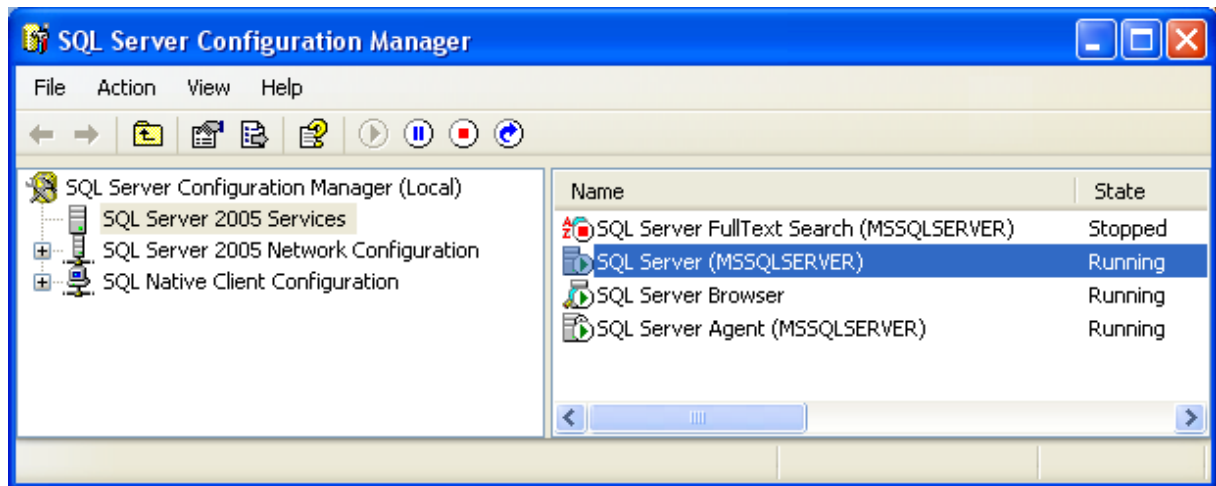
Server settings

1. Select **Start** menu > **Programs** > **Microsoft SQL Server** > **Configuration Tools** > **SQL Server Configuration Manager**.
2. Expand **SQL Native Client Configuration** and select **Client Protocols**.

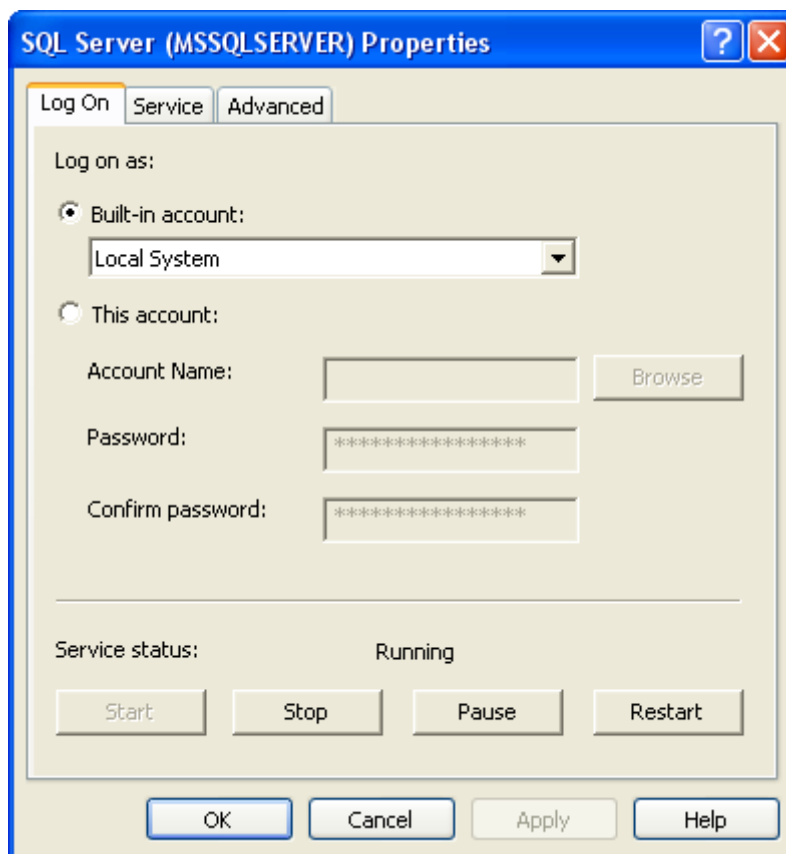


3. Make sure that **TCP/ IP** and **Named Pipes** are both set to **Enabled**.
4. In the left pane, select **SQL Server Services**.

- Right-click **SQL Server (MSSQLSERVER)** and select **Properties**.



- Make sure **Built-in account** is selected, and that **Local System** is selected in the dropdown list.
- Make sure that the **Service status** is **Running**. If it isn't, click **Start**.



Creating the DOCUMENTS databases

Create databases for DOCUMENTS, following the instructions in *DOCUMENTS 7 Installation Guide*.

That document also contains instructions for creating the Knowledge Store database that is needed if you install DOCUMENTS Knowledge Store Service.

REPORTER database server

We recommend installing SQL Server's latest service pack and critical updates before creating REPORTER's three databases.

- ❗ **Essential SQL Server prerequisite:** Network DTC access must be enabled for both inbound and outbound communication. Refer to *REPORTER Installation Guide* for more information.

The databases are created using the REPORTER configuration tool, which opens automatically after REPORTER is installed. You can also start the configuration program manually, by selecting **Start** menu > **All Programs** > **ReadSoft** > **REPORTER** > **Configuration** > **REPORTER Configuration Tool**. Follow instructions in *REPORTER Configuration Help*, which you can access from that tool.

There are three databases. Their default names are RS_RWorkflow, RS_RAApprove and RS_RReporter.

Notes

- By default the databases use the simple recovery model. However, this is configurable. For more information, please refer to *REPORTER Configuration Help*.
- When setting up SQL Server for REPORTER, consider its growth rate. The REPORTER database accumulates information about all activity related to the DOCUMENTS Invoice solutions. The size can be estimated at 1.2 GB for every 100,000 invoices. You must allocate sufficient space on the disk for the database itself and for ongoing backups, considering the number of processed invoices in your installation annually. You must also delete old data at regularly scheduled intervals to keep the database size under control (see *REPORTER Configuration Help* for instructions).
- The *REPORTER Installation Guide* contains answers to some frequently asked questions regarding the REPORTER databases and other details.

User authentication for access to the databases

DOCUMENTS databases

Even before a user starts DOCUMENTS, he must connect to the database. Therefore, all users must be authenticated against the database. This is true regardless of the program's **User management** settings.

There are two ways to set up user authentication against the database:

- Use SQL Server login credentials.

In this case, DOCUMENTS connects to the database after obtaining SQL Server login credentials from the Windows registry.

- Use Windows authentication.

In this case, DOCUMENTS connects to the database using Windows authentication credentials from the Active Directory. The user or user group must exist in the Active Directory.

DOCUMENTS creates a DSN-free connection to SQL Server and passes the credentials to it using standard mechanisms. If the credentials are valid, the user is given access to SQL Server.

User permissions

The DOCUMENTS user, which is used in communication between the Administration and Production modules, must be able to add, read, and delete data from all user tables in the DOCUMENTS and DOCUMENTS_PRODUCTION databases.

A DOCUMENTS user must be a part of the following SQL Server roles:

- DB_DataReader – Read data from any user table in the database.
- DB_DataWriter – Add, update and delete data in any user table in the database.
- DB_DDLAdmin – Run the Data Definition Language (DDL) command in a database.

- ❗ If the Knowledge Store Service is being used, *the user configured for the Knowledge Store* must also have the above SQL Server roles. (That user is created with the **Database login** setting in the **DOCUMENTS configuration** dialog – see “Creating the knowledge store database” in *DOCUMENTS 7 Installation Guide*.) The Knowledge Store cannot use Windows authentication to authenticate against the Knowledge Store database.

The DOCUMENTS user (but not the Knowledge Store user) also needs to execute permissions for the stored procedures in the databases.

There are many methods for assigning permissions to users and roles. We recommend creating a new role that gives permission to execute the stored procedures. Then make sure the DOCUMENTS user has that role in addition to the DB_DataReader, DB_DataWriter, and DB_DDLAdmin roles.

- ❗ **Note:** When you install and upgrade DOCUMENTS, and perform a database upgrade, you must have system administrator rights on the computer and database role membership “db_owner”.

REPORTER databases

REPORTER consists of a server component and the two data collection components. Dedicated SQL login, database users, and database roles are created during the initial system configuration, though these can be changed by the administrators for security reasons. All of the REPORTER components use the SQL Server login to connect to the database.

The default credentials for accessing databases as configured by the configuration tool are:

Login: rsreporter

Password: VerySecret2*

Role in every database: rsreporterrole

User in every database, member of rsreporter role: rsreporter

Default permissions: Minimum permissions necessary to access objects in all three REPORTER databases are granted to rsreporterrole.

Login details for REPORTER’s data collection components are specified in their *add-on configuration* in DOCUMENTS. (On the **Configuration** tab of the Administration module, create a new add-on configuration by selecting **File > New specification > Add-on configuration**. Or, to open an existing one, select **System specifications > Add-ons** and double-click the add-on in the right pane.)

The REPORTER server component saves login details in the Windows Registry:

HKEY_LOCAL_MACHINE\SOFTWARE\ReadSoft AB\Workflow engine\Configuration\DAL\SQL
Server\ConnectionString

HKEY_LOCAL_MACHINE\SOFTWARE\ReadSoft AB\Reporter\Configuration\ConnectionString

HKEY_LOCAL_MACHINE\SOFTWARE\ReadSoft AB\Reporter\MessageStore\ConnectionString

Maintaining your SQL Server database

A maintenance plan for your SQL Server database is highly recommended and can save you time and money if you experience difficulties with the database.

Take advantage of system downtime to perform maintenance. Doing so ensures that you can restore the entire system from a backup. Failure to do so will cause inconsistencies in the databases and make restoring them impossible.

- ❗ **Important:** The guidelines and instructions provided here may help you maintain your database. However, they are not a substitute for SQL Server expertise and familiarity with the needs of your organization.
- ❗ **Warning:** No DOCUMENTS modules can be running during maintenance procedures on the databases. If any ReadSoft applications are running as Windows services, those services must be stopped. REPORTER and its Workflow Engine must also be shut down during database maintenance.

Creating a maintenance plan using SQL Server Management Studio

Use the **Database Maintenance Plan Wizard** to set up maintenance tasks that will ensure that your database performs well and is regularly backed up in case of hardware or software failure. You can follow this procedure to create a Microsoft SQL Server job that performs maintenance tasks automatically at scheduled intervals. However, you (the database administrator) are responsible for implementing maintenance and backup routines suitable for your organization and installation.

- ❗ **Important:** If DOCUMENTS Knowledge Store Service is being used, remember to back up the Knowledge Store database (default name: DOCUMENTS_KS), in addition to the DOCUMENTS_PRODUCTION and DOCUMENTS databases.

Starting the Database Maintenance Plan Wizard

1. Start SQL Server Management Studio.
2. Expand the server group.
3. Expand the server.
4. Expand the **Management** folder.
5. Right-click **Maintenance Plans** and select **New Maintenance plan**. The **maintenance Plan Wizard** starts.

Creating the Database Maintenance Plan

The steps included in the wizard depend on which version of SQL Server you are using, and the choices you make must be based on your company's security and backup policies. However, these steps (or similar ones) may also be suitable:

- Reorganize data and index pages
- Remove unused space from database files
- Check database integrity
- Attempt to repair any minor problems
- Perform the following operations regularly:
 - Backup the database
 - Backup the transaction log
 - Write report to a text file in directory
 - Remove any database, transaction log and text report files older than 4 weeks

Creating a maintenance plan for invoice data

DOCUMENTS has built-in functionality for creating maintenance plans specifically for invoice data. These can be used to perform routine database operations. It is important that you use these, as well. Please refer to “Maintenance plans for invoice configuration data and statistics” in *DOCUMENTS Help* for an overview, and see “Creating maintenance plans for invoice configuration data and statistics” for instructions.

Maintaining SQL Server's transaction log

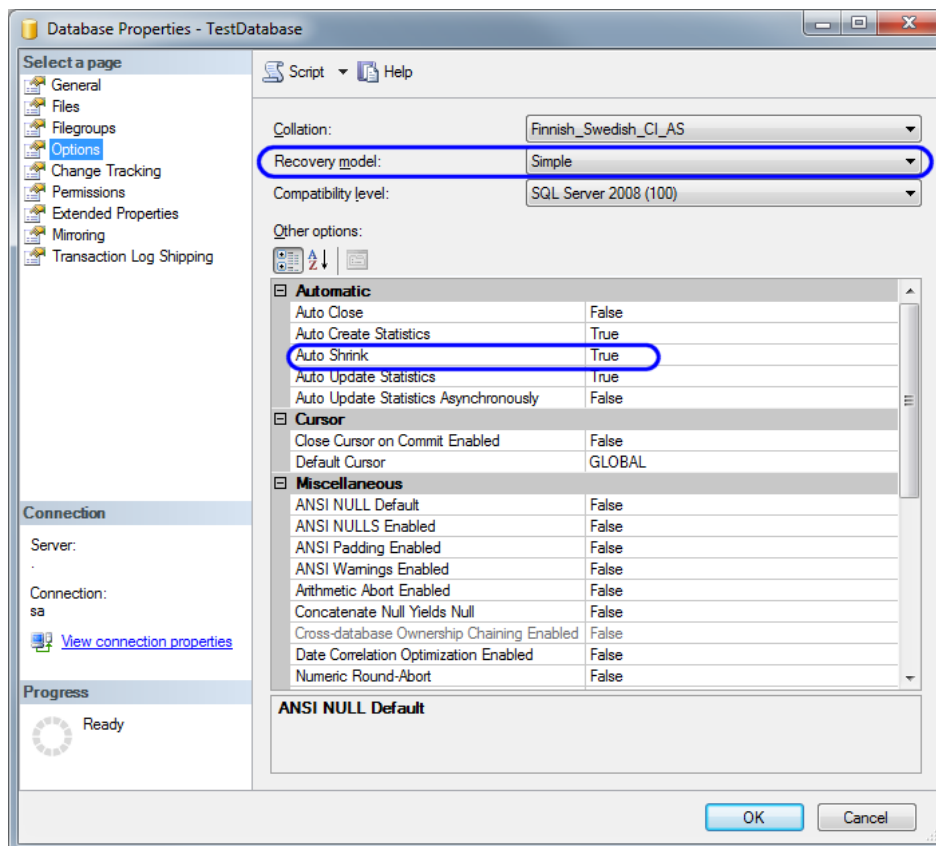
Your Microsoft SQL Server database contains a transaction log. If this becomes full, data cannot be added to or deleted from the database. You must first truncate the transaction log, then shrink it, because *it still reserves the same amount of space even after truncation*.

When you back up the transaction log, SQL Server automatically truncates the inactive part of the transaction log.

- ❶ **Recommended:** Select **Simple recovery model** or **Auto shrink** – or both. Your choice must be based on your company's security and backup policies. "Simple" recovery saves only transaction data starting from the previous backup. You can read more about recover models on the [MSDN website](#).

Use this procedure to set one or both of those options:

1. Start Microsoft SQL Server Management Studio.
2. Right-click the database and select **Properties**.
3. Click **Options**.
4. Change **Recovery Model** from **Full** to **Simple**, and/or set **Auto shrink** to **True**.



Backing up a database manually

Always back up a database before you clear it and before you upgrade the system.

1. Ensure that no ReadSoft software is running.
2. Start SQL Server Management Studio.
3. Expand the server group.
4. Expand the server.
5. Expand the **Database** folder.
6. Right-click the database and select **All Tasks > Backup Database**.
7. If this is the first backup you have performed on the database, you must enter the backup destination. Click **Add (Destination group)** and enter the file name or select a backup device.
8. Click **OK** to back up the database.

Restoring a Knowledge Store database

1. If there is no Knowledge Store database to restore the backup to, create one as described in *DOCUMENTS 7 Installation Guide*.
2. Start SQL Server Management Studio.
3. Expand **Databases** under your database server.



4. Right-click the database to restore the backup to, and select **Tasks > Restore > Database**.
5. Under **Specify the source and location of backup sets to restore**, select **From device**.
6. Click the browse (...) button.
7. In the **Specify Backup** dialog, click **Add**.

8. Browse to and select your database backup file, and click **OK**.
9. Click **OK** again.
10. In the **Select the backup sets to restore** list, select the database that you added.
11. Click **Options**.
12. Select **Overwrite the existing database (WITH REPLACE)**.
13. Ensure that the path names under **Restore As** point to existing files.
14. Click **OK**.

The database is now restored. However, you still need to set the appropriate database user settings.

15. In the Object Explorer, expand **Security > Logins**.
16. Double-click the user to use for logging on to the knowledge store database.
17. Select **User Mapping**.
18. Select the knowledge store database that you restored.
19. Under **Database role membership for**, select **db_datareader**, **db_datawriter**, **db_ddladmin**, and **public**.
20. Click **OK**.

Troubleshooting

This document assumes that you have knowledge of Microsoft Windows operating system administration, as well as Microsoft SQL Server software administration. The information below is for guidance only and is not intended to provide a solution to every problem.

A good source of further information is the SQL Security Checklist available at SQLSecurity.com.

Using Windows authentication

- ❗ **REPORTER and Knowledge Store cannot be set up to access their databases using Windows authentication. You cannot *create* those databases using Windows authentication, either.**

Common error messages

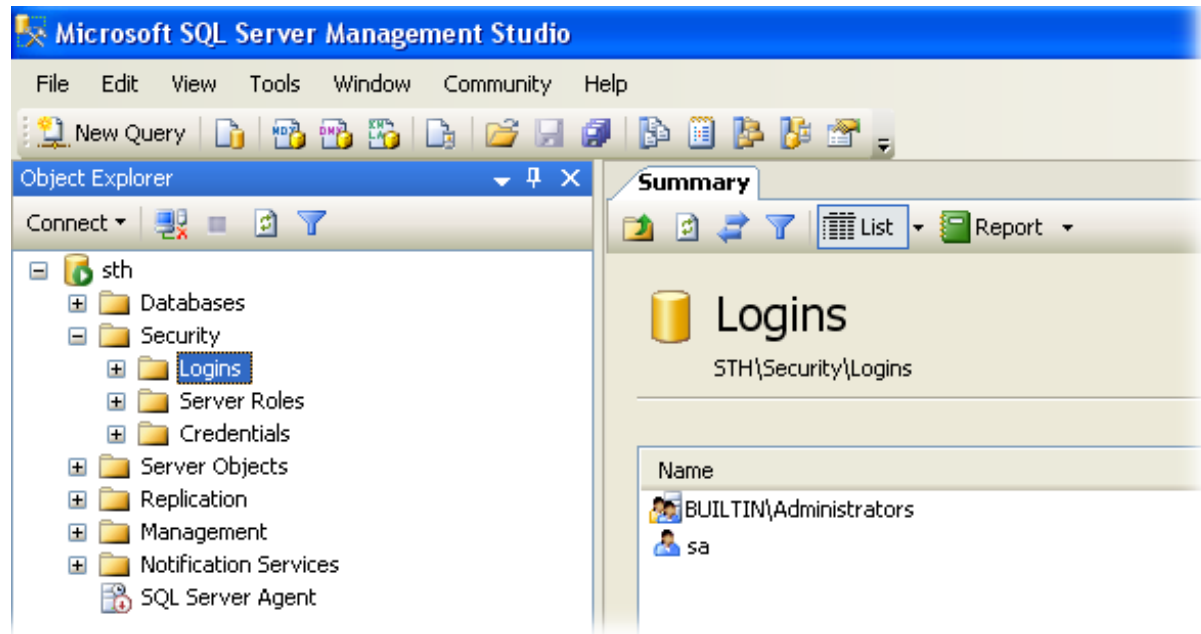
Error message	Possible reason/solution
Failed to connect.	The server name was typed incorrectly, or the server is down.
Failed to create database.	<ul style="list-style-type: none"> The user does not have administrative rights. Some setups of the SQL database require version 2.7, SPI of Microsoft Active Data Objects (ADO). In such cases, this additional message appears: "Method '~' of object '~' failed." <p>If this happens, download and install MDAC 2.7 SPI from Microsoft's website. Read the system requirements and release documents that are also available there.</p>
Cannot connect to ACMESERVER. Login failed for user SA.	SQL Server was found, but login failed. Make sure that the user (or the user shown in your error message) exists.
Failed to set default database.	The user does not have administrative rights.
Failed to create common tables.	The user does not have administrative rights.
File (<i>filename</i>) is on a network device not supported for database files.	You specified a removable storage device or CD drive as the location of database files. Specify another drive.
Device activation error. The file name (<i>filename</i>) may be incorrect.	You specified an invalid path or file name.

Error message	Possible reason/solution
(Locked out of SQL Server.)	<p>If you selected only Windows authentication for your SQL Server installation (see step 4 on page 6), your ReadSoft software cannot connect to the database. Change this setting to Mixed Mode security as follows:</p> <ol style="list-style-type: none">1. Select Start menu > Programs > Microsoft SQL Server > SQL Server Management Studio.2. Expand a server group.3. Right-click the server and select Properties.4. Click Security in the left pane.5. Under Server authentication, select SQL Server and Windows authentication mode. <p>If are locked out, you can also access SQL Server by using the registry key that determines the authentication mode. The key is:</p> <pre>HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MicrosoftSQLServer\ <instance_name>\MSSQLServer\LoginMode</pre> <p>Legal values for LoginMode are 0 for Windows authentication only and 1 for Mixed Mode. Change the value to 1, restart SQL Server, and log in as the system administrator (sa).</p>

Troubleshooting tools

- SQL Server Management Studio.

This is the tool to use for most SQL database maintenance tasks. To use it, you need knowledge of SQL database administration.



- The console utility OSQL.

Start this from the MS-DOS prompt as follows:

```
C:\>osql -S servername -U username -P password
```

Successful login results in:

```
1>
```

Type "Quit" and press **Enter** to exit.

Unsuccessful login can result in:

```
[Microsoft][ODBC SQLServerDriver][Named Pipes]Specified SQL server
not found.
```

```
[Microsoft][ODBC SQLServerDriver][Named Pipes]ConnectionOption
(CreateFile()).
```