Kofax Invoice Automation
Install and Configure SQL Server
Version: 6.0.2

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KOFAX

Legal Notice

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Before installation

Knowledge of your Windows server and SQL Server is required

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

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

While Kofax 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

You can use Microsoft SQL Server with these Kofax products:

Product	For details about which SQL Server version to use, see...
Forms 5-3	Installing ReadSoft Forms 5-3
Invoice Automation (all versions)	*Kofax Invoice Automation System Configuration Guide* for your Invoice Automation version

You must install Microsoft SQL Server on a server with an operating system from the Windows 2008 Server family or later. Ensure that the latest Service pack is also installed.

Note: ReadSoft Invoices 5.9 or later does not support Windows Server 2005.

Some SQL database setups require version 2.7 SP1 or later of Microsoft Active Data Objects (ADO). The Kofax Invoice Automation installation program includes this, but if you are installing ReadSoft Forms, we recommend that you first read Microsoft's system requirements and release documents for the latest version of MDAC.

Exit all Windows programs and then perform these tasks in this order:

1. Install SQL Server.
2. Install your Kofax software, following the instructions in the installation guide provided with the product.

3. Configure SQL Server

Recommendations when installing Microsoft SQL Server with Kofax products

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 \MSSQLversion.MSSQLSERVER\MSSQL\Data` unless you change the default path or Instance ID.

> **Important** Kofax products only support case-insensitive collations (_CI). They will not work properly if SQL Server is installed to be case sensitive.

Additional things to consider

- Make a note of the following settings. You must provide them when running the Kofax database setup program and when you install your Kofax product.
- When you install SQL Server 2008, make sure you select **Management Tools** (**Basic** or **Complete**) in the **Feature Selection** dialog to get SQL Management Studio.
- SQL Server databases can only be managed from computers where SQL Server is installed. If you want to manage the databases from a remote site, install **Client Tools Connectivity** (**Feature Selection** dialog) on the computer you want to use.
- If you want ot keep an existing database server, selecte **Named Instance**. Otherwise, select **Default Instance**.
- Ensure the **Collation** setting (**Server Configuration** dialog) is correct. It affects the search order and output strings.
- Under **Database Engine configuration** > **Account Provisioning** > **Authentication mode**, select **Mixed Mode** (SQL Server authentication and Windows authentication.

Setting up SQL Server and SQL Server Express (2008, 2008 R2)

1. Select **Start** > **Programs** > **Microsoft SQL Server** > **Configuration Tools** > **SQL Server Configuration Manager**.
2. Expand **SQL Native Client Configuration** and select **Client Protocols**.
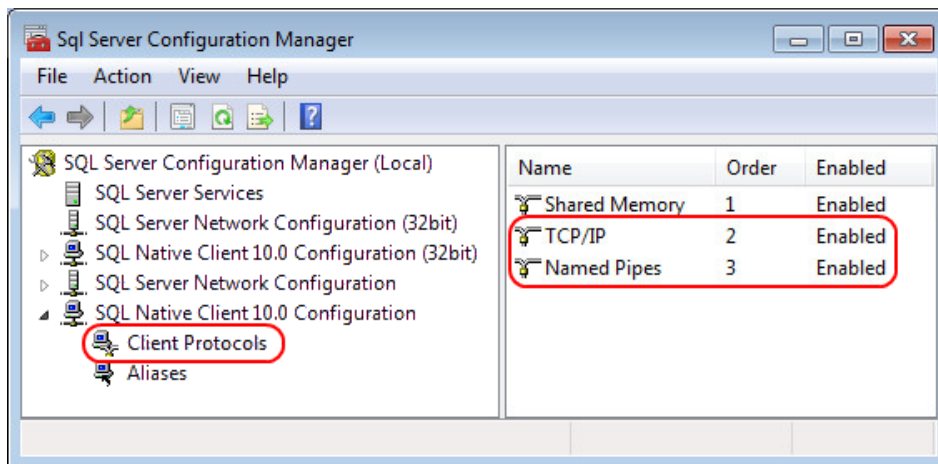
3. Right-click **TCP/|IP** and select **Enable**.
4. Right-click **Named Pipes** and select **Enable**.
5. Select **SQL Server Services**.
6. Right-click **SQL Server (SQLEXPRESS)** or **SQL Server (MSSQLSERVER)** and select **Properties**.
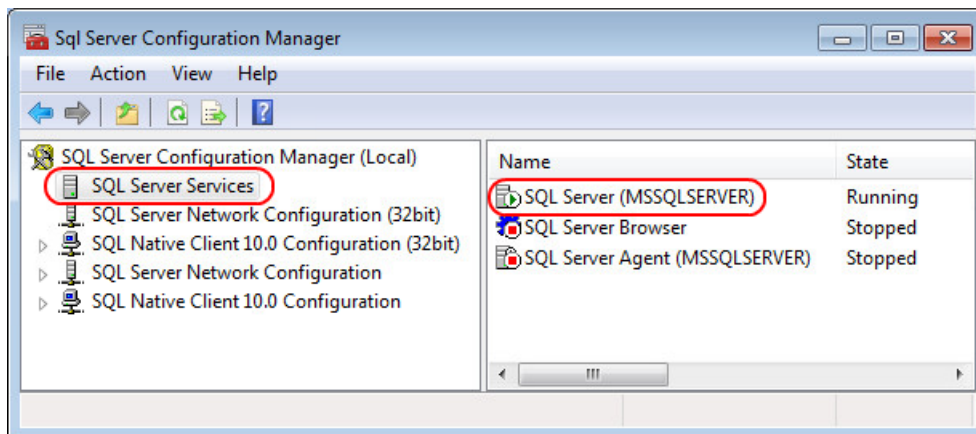
7. Make sure **Built-in account** is selected, and select **Local System** in the dropdown list.
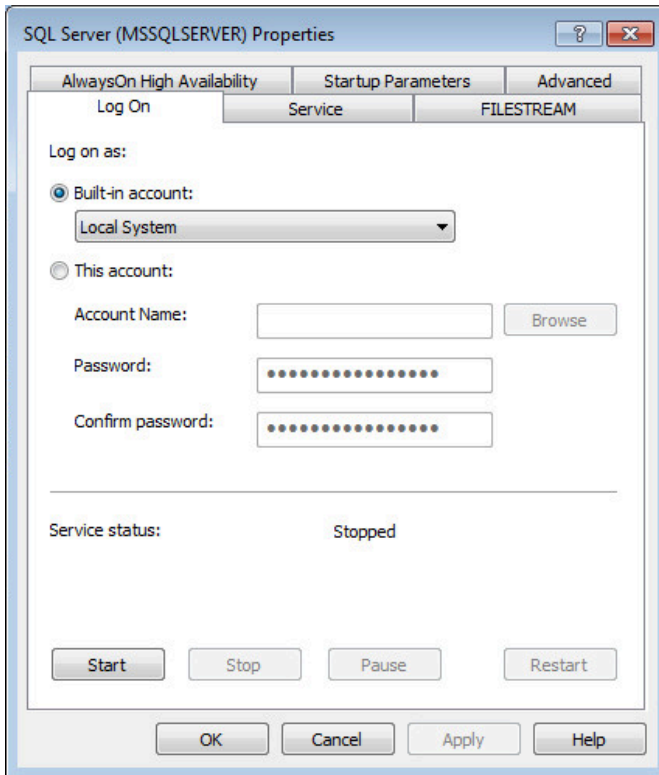
8. Click **Start** in the **Service status** part of the dialog. The **Service status** changes to **Running**.

Setting up SQL Server 2012 SP1/2014/2016

1. Select **Start** > **Programs** > **Microsoft SQL Server** > **Configuration Tools** > **SQL Server Configuration Manager**.

   In Windows Server 2012/Windows 8, press the Windows key to access the **Start** window. Begin typing SQL… and select **SQL Server Configuration Manager** in the results.

2. Expand **SQL Server Network Configuration** and click **Protocols for MSSQLSERVER**.
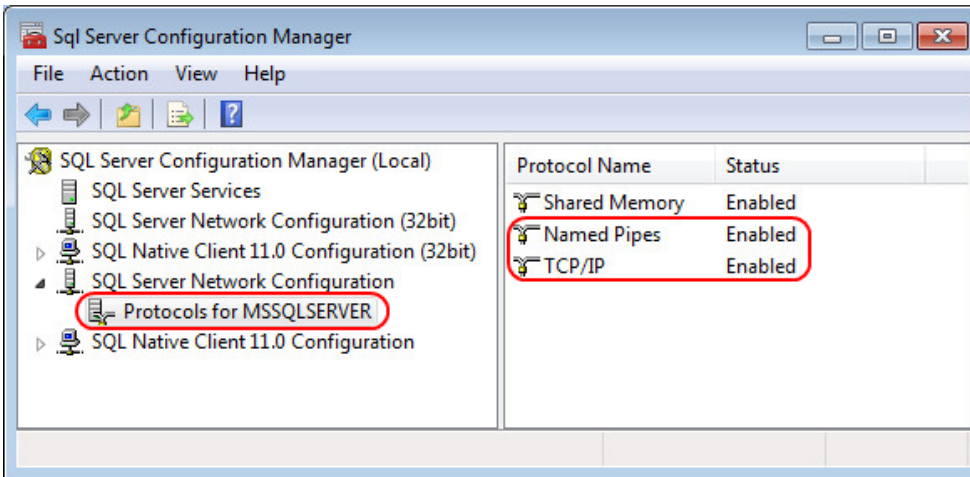
   Right-click both **Named Pipes** and **TCP/IP** and select **Enable**.

3. Expand **SQL Native Client Configuration** and select **Client Protocols**.
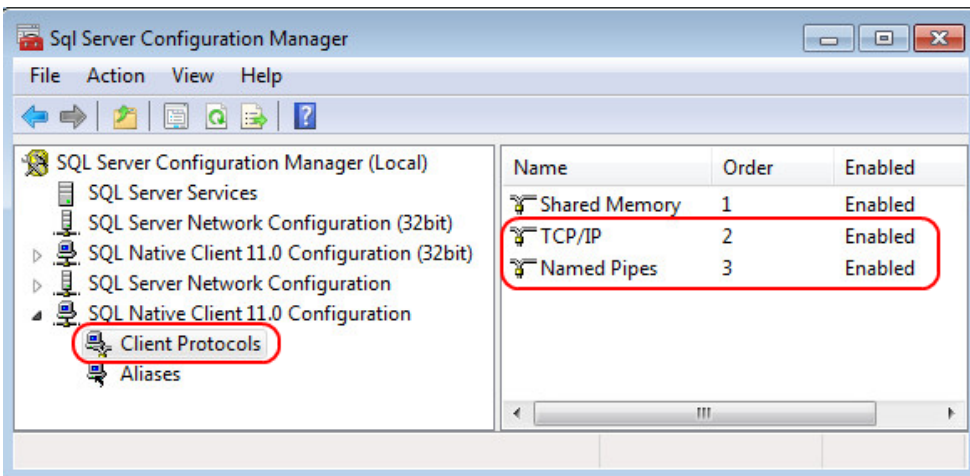
   Right-click both **Named Pipes** and **TCP/IP** and select **Enable**.

4. Right-click **SQL Server Services** and select **Properties**. Select **This account** and click **OK** to accept the **Account name** and password that was specified during installation.
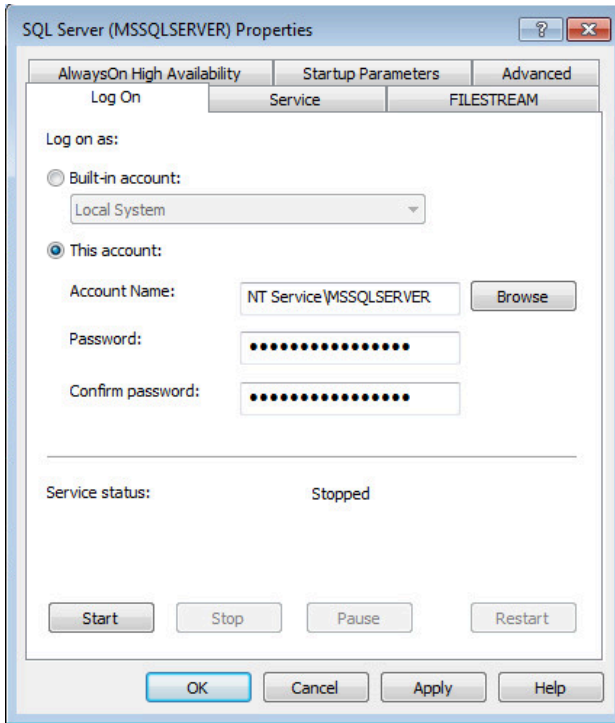
5. Click **Start** and the **Service status** changes to **Running**.

Chapter 5

Configuring SQL Server

ReadSoft Invoices 5.9 or later including Kofax Invoice Automation

After downloading the installation package, the contents of the Kofax Invoice Automation installation package is available in the following folder structure in the temporary folder where it was put.

📁 Database Setup
📁 Documentation
📁 FlexIm
📁 INVOICES
📁 Plugins

Installing the database configuration tool

To install the SQL database configuration tool

1. Go to the temporary folder where the installation package is found, and in the **INVOICES** folder, open the **MSSQLServer** folder under **Database Setup**, and double-click the installation file, `INVOICES_MSSQL_DB_Config.msi`.
2. Click **Next** in the Welcome dialog that is displayed.
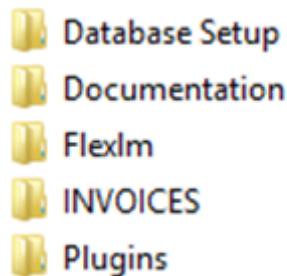3. In the **Ready to Install the Program** dialog, click **Install**.
4. Click **Finish** when the installation is complete. If you want to start the database configuration tool directly, ensure that **Launch INVOICES SQL Configuration Utility** remains selected in the dialog.

Creating the database for Kofax Invoice Automation

The database does not need to be created before Kofax Invoice Automation 5.9 or later can be installed, but you do need to specify the same database name both when Invoice Automation is installed and when the database is created.

1. If you did not select to start the database configuration directly from the previous section, you can access the tool from the Start menu on the computer where Invoice Automation is installed. Click **Start** > **All programs** > **ReadSoft** > **Invoice Automation Database Configuration** > **SQL Configuration Utility**.

2. Follow the steps in the next section, "Invoice Automation (all versions)" starting with step 3, making sure that you specify the same name for the database as was specified in the Invoice Automation installation.

3. You can also create a new database with another name if you want, but then you will have to change the database setting in `eiglobal.ini` to match it in order to access it.

Invoice Automation (all versions)

Create the Invoice Automation database *before* installing Invoice Automation on the client PCs.

You only need to create an Invoice Automation database once. If you install Invoice Automation on multiple computers in a network, you do not need to create a new database for each installation.

Notes

You must have system administrator rights when you create the Invoice Automation database.

The below tasks can also be performed using the SQL scripts contained in the Invoice Automation installation package. They are located in the `\Installation\database\MSSQLServer\Scripts` directory.

Procedure

1. Once installed, the database utility can be accessed by clicking **Start** > **All Programs** > **Kofax** > **Invoice Automation Database Configuration** .

2. When the **Welcome** dialog is displayed, click **Next**.

The **Database server** dialog is displayed.

3. Enter the required information, namely the **Database server name** (the name of the computer where the database server is located).

If you want to use MSOLEDB as the provider to create the database, select **Use MSOLEDBSQL**. Note that MSOLEDB must be installed to be able to use this option.

Normally, the setup program gets the rest of the information from `Eiglobal.ini`. If it does not, specify **User** and **Password** (the user login and password needed to access the database server).

4. Click **Next** to continue. The **New database** dialog is displayed. The setup program may retrieve the information it needs from Eiglobal.ini. If it does not, or if you want to adjust it, use this dialog:

Specify the name of the database you want to create in the **Name** box. The name you enter is automatically copied to the Invoice Automation database log file name, and it precedes the log file and database file names in both of the **Location** boxes.

Important (SQL Server 2008): If you installed SQL Server 2008, there is no default path to the database file and database log file. You must manually specify the paths in both of the **Location** boxes. The default path in SQL Server 2008 would be `C:\Program Files\Microsoft SQL Server\MSSQL10.MSSQLSERVER\MSSQL\DATA`.

5. Click **Next** to proceed. Review the next dialog to make sure the database settings are correct. If you need to change a setting, you can click **Back** to return to any of the previous dialogs.

6. Click **Next** to create the new Invoice Automation database. A progress log is displayed, which you can review if the database creation fails. When the program creates the database successfully, the **Database setup complete** dialog is displayed.

7. Click **Finish** to complete the setup. The Invoice Automation database is now ready for use.

Forms 5-3

Install Forms 5-3 *before* configuring SQL Server. Follow the instructions in *Installing Forms 5-3*.

Then use the Forms Configuration Tool to create the database. Follow instructions in *Forms Configuration Help*. To get started:

1. Log in with administrator rights on the workstation.

2. Select **Start** > **All Programs** > **ReadSoft** > **ReadSoft Forms 5-3** > **Configuration** > **Configuration Tool**.
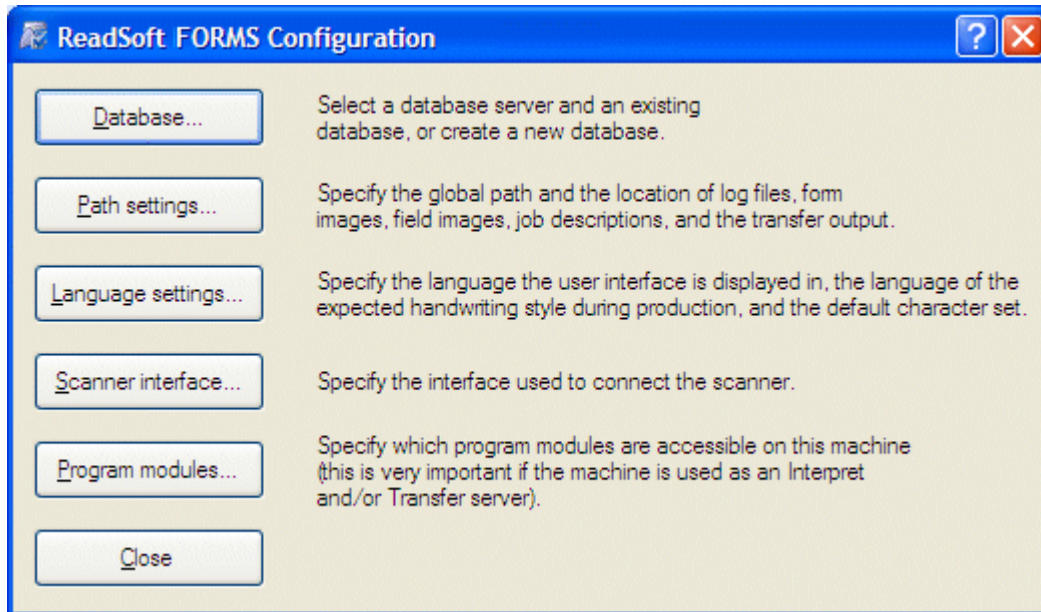
3. Press **F1** for help and instructions.

    The **Server**, **UserName**, and **Password** settings in `Ehglobal.ini` are empty until SQL Server is configured using the above procedure.

User authentication for access to the database

ReadSoft Invoices 5.9 and later;
Forms 5-3 and later

Even before a user starts your Kofax application, it must connect to the database. Therefore, all users must be authenticated against the database. This is true regardless of whether the application itself requires user authorization or—for example in the case of Invoice Automation—what User Selection settings are specified for the user.

User authentication for access to the database is a two-step process:

1. The application connects to the database, sending the values from **UserName** and **Password**— from Eiglobal.ini (Invoice Automation) or `Ehglobal.ini` (Forms)—in the login string.

   Exception: When **Windows** database authentication (WA) is used (see page 16), the **UserName** setting in the INI file is commented out, and the application sends a flag that specifies that WA is used.

   Regardless of which type of authentication is used, the module creates a DSN-free connection to SQL and passes the credentials to SQL Server using standard SQL authentication mechanisms. If the credentials are valid and the user is allowed access to SQL Server, then the module attempts to validate the security identifier (SID) on the local computer.

2. The application validates the current Windows token by retrieving the following information about the currently logged-on Windows user from Windows and Active Directory:

   User name

   Domain name

   List of groups the user belongs to.

   To do this, the application:

   a. Retrieves the access token for the current process (the Invoice Automation or Forms module). The access token contains the user's security identifier (SID).

   b. Uses the Windows API *IsValidSid* to check whether the SID in the access token is valid.

   c. Uses *LookupAccountSid* to retrieve the account name and domain name for the SID. *LookupAccountSid* first tries to find the Windows user on the local computer. If the user is

logged on to a domain, *LookupAccountSid* tries to resolve the name using domain controllers trusted by the local system.

d. Uses *ADsGetObject* to retrieve the Active Directory user object for the currently logged-on Windows user.

ADsGetObject uses NT LAN Manager (NTLM) to authenticate the module. Active Directory uses Kerberos, and possibly NTLM, to do this. *ADsGetObject* is a part of Microsoft's Active Directory Services Interfaces (ADSI).

e. Extracts the list of groups from the Active Directory user object.

After the SID in the access token is validated, the application's user authorization process begins. That process is described in *Invoice Automation Help* and *Forms Help*.

User permissions

If your Invoice Automation/Forms users do not have database role membership "db_owner", or if you need to limit permissions on the database, consider the following:

All Invoice Automation/Forms users must be able to add, read, and delete data from all user tables in the database. Users must also have permission to create tables, drop tables and execute stored procedures in the database. They 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 – Create, modify and drop tables in the database.

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

Note (Invoice Automation only): If you upgrade Invoice Automation, and perform a database upgrade using Manager, avoid problems by first ensuring that you are system administrator on the PC and have database role membership "db_owner".

When using instances of Interpret and Transfer as services (ReadSoft Invoices 5.9 or later only)

If instances of Interpret and Transfer are used as services and the account used to access the database does not have full permissions, an additional role, DB_executor, needs to be created for the database and enabled for the account.

Using Windows database authentication (WA)

Recent versions of Forms and Invoice Automation software allow you to use Windows Authentication instead of the SQL Server account. The current user information (name and password) are then used for authentication, instead of the default SQL Server login account ("sa").

Use this procedure:

1. Open `Ehglobal.ini` (Forms) or `Eiglobal.ini` (Invoice Automation) and comment out the *UserName* flag by inserting a semicolon in front of it.

   Then save and close the file.

2. Start SQL Server Management Studio (SQL Server 2008/2012).

3. In the tree view, select [**ServerName**] > **Security** > **Logins**, as shown in one of these examples:
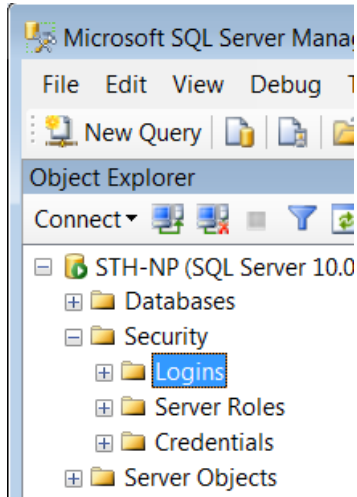
4. Right-click **Logins** and select **New login**.

5. Specify the full name and domain of the user who is to have access. Alternatively, click the **Search...** and select the user.

6. Ensure that **Authentication** is set to **Windows Authentication**.

7. Click **User Mapping** and specify Forms or Invoice Automation as the database.

8. Select **db_owner** as the database role.

9. Ensure that the password policies **Enforce password expiration** and **User must change password at next login** are deselected.

10. Click **OK** to close the dialog.

Chapter 7

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.

No Forms or Invoice Automation production modules can be running during maintenance procedures on those databases. If Interpret and Transfer are running as Windows services, those services must be stopped.

Creating a maintenance plan

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.

Starting the Database Maintenance Plan Wizard

1. Start SQL Server Management Studio (SQL Server 2008/2012/2014/2016).
2. Expand the server group.
3. Expand the server.
4. Expand the **Management** folder.
5. Right-click **Database Maintenance Plans** and select **New Maintenance plan**. The **Database 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 settings (or similar ones) may be suitable:

• Reorganize data and index pages

- Remove unused space from database files
- Check database integrity
- Attempt to repair any minor problems
- Perform these checks before doing backups
- Backup the database as a part of the maintenance plan
- Remove files older than: 4 weeks
- Backup the transaction log as part of the maintenance plan
- Remove files older than: 4 weeks
- Write report to a text file in directory
- Delete text report files older than: 4 weeks

Maintaining SQL Server's transaction log

Your Microsoft SQL Server database contains a transaction log. It is possible for the transaction log for the database to become full. If this occurs, data cannot be added to or deleted from the database. You must first truncate the transaction log, then shrink it, because the transaction log 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.

SQL Server 2008 R2: Please see Microsoft's documentation on:

Truncating the transaction log

Shrinking the transaction log

Important We recommend that you either select Simple recovery model or select Auto shrink. Another option is doing 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 the following procedure to set one or both of those options:

1. Start SQL Server Management Studio (SQL Server 2008/2012).
2. Right-click the database and select **Properties**. If you do not know the name of your database, see "What is the database name?" on page 27.

3. On the **Options** tab, change **Recovery Model** from **Full** to **Simple**, and/or select **Auto shrink**.

SQL Server 2008 or 2008 R2
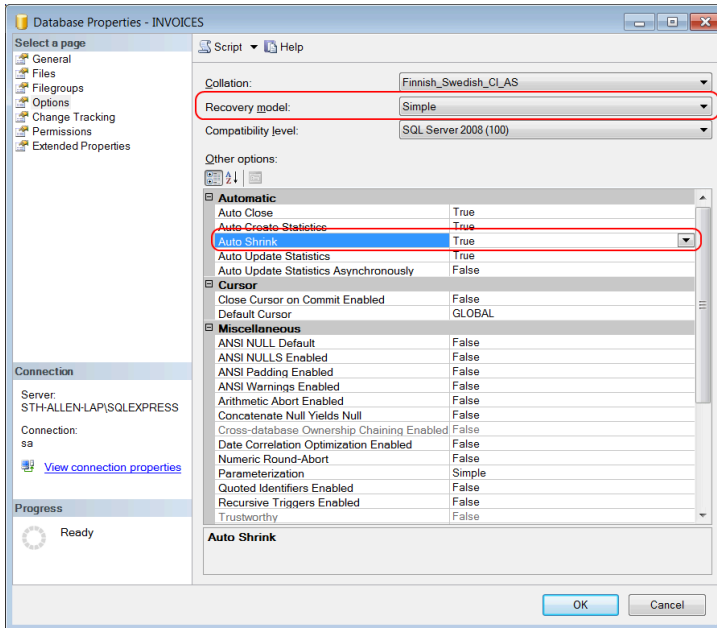
When using **Auto Shrink**, click it and then select **True** in the dropdown list.

SQL Server 2012/2014/2016
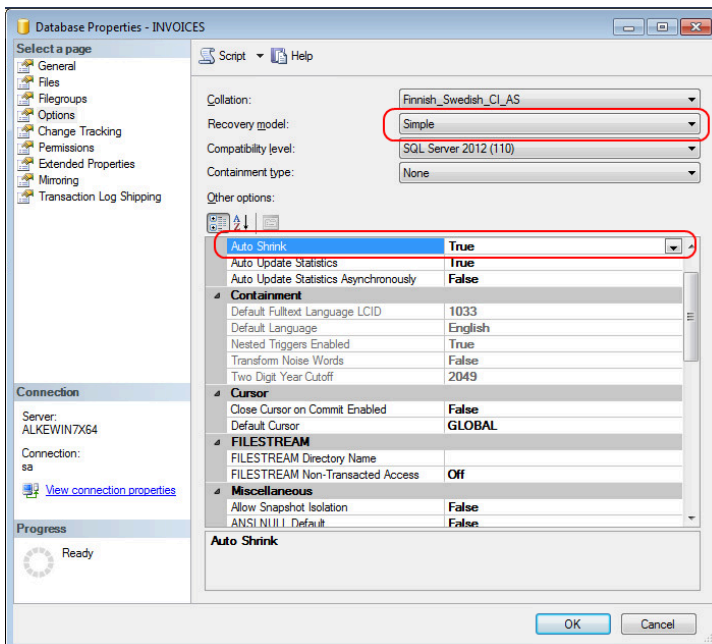
When using **Auto Shrink**, click it and then select **True** in the dropdown list.

4. Click **OK**.

What is the database name?

If you do not know the name of your database:

- Forms: The database is named by the *DatabaseName* flag in `Ehglobal.ini`.
- Invoice Automation: The database is named by the *DatabaseName* flag in `Eiglobal.ini`.

Backing up a database manually

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

1. Ensure that no Kofax software is running. (This includes all Forms or Invoice Automation modules.)
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.

Chapter 8

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.

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.	The user does not have administrative rights. Some setups of the SQL database require version 2.7, SP1 of Microsoft Active Data Objects (ADO). In such cases, this additional message appears: "Method '~' of object '~' failed." If this happens, download and install MDAC 2.7 SP1 from the Microsoft website. Read the system requirements and release documents that are also available there.
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.
Database "EHF" already exists.	You tried to install new databases, but a Forms or Invoice Automation database already exists.
File (*filename*) 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 (*filename*) may be incorrect.	You specified an invalid path or file name.
(Locked out of SQL Server.)	If you selected only Windows authentication for your SQL Server installation (see step 4 on page 6), your Kofax software cannot connect to the database. You can access SQL Server by using the registry key that determines the authentication mode.

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.
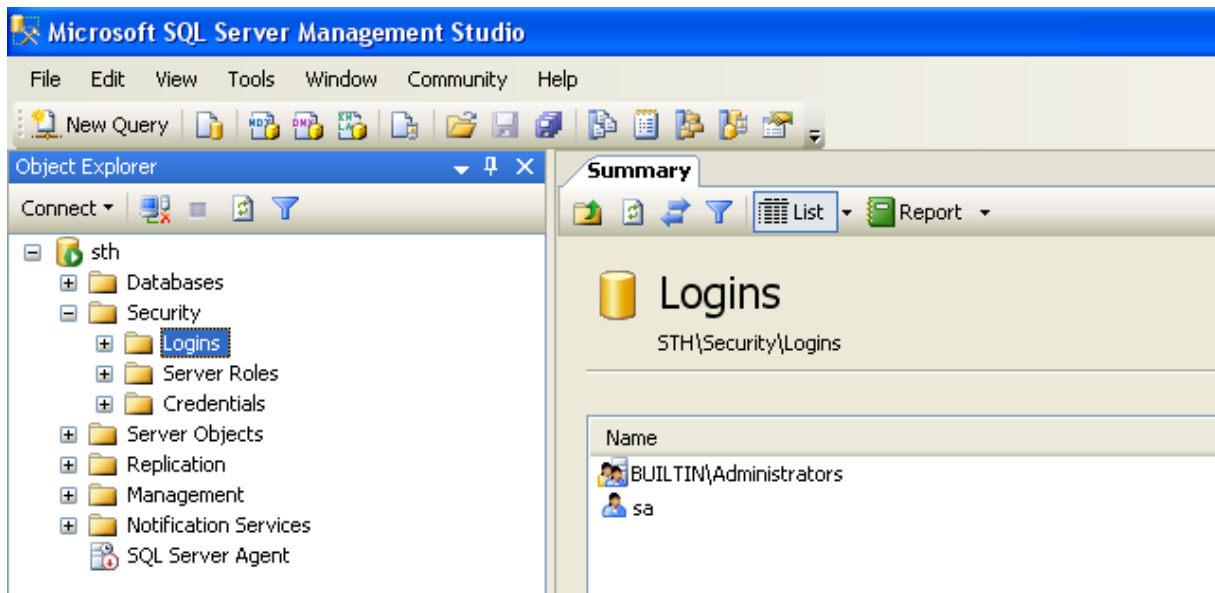
- The console utility OSQL.
  Start this from the MS-DOS prompt as follows:

  ```
  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()).
  ```

- Database administration is part of Invoice Automation' built-in functionality. Please see *Invoice Automation Help* for more information.

Settings in Eiglobal.ini

For your reference, here is a comparison of settings as they appear in `Eiglobal.ini` (Invoice Automation), depending on which database is used.

SQL Server (All versions) [Database] Type=SQL Server Server=ACMESERVER DatabaseName=INVOICES Version=the number of your SQL version - 2008/2012/2014/2016 *UserName=sa **Password=00E000F500...

* Commented out if Windows database authentication is used (see page 20).

** Password can be encrypted. See *INI File Help* for details.

Settings in Ehglobal.ini

For your reference, here is a comparison of settings as they appear in `Ehglobal.ini` (Forms),
depending on which database is used.

Local (not FORMS 5-3) [Database] Type=RDM	SQL Server 2008/2012 (FORMS 5-3) [Database] Type=SQL Server Server= DatabaseName=FORMS UserName= Password=*YourPassword (empty by default)*	
Velocis (not FORMS 5-3) [Database] Type=VELOCIS VelocisName=RDS RDM Server [Database] Type=VELOCIS VelocisName=RDMServer Version=4.0		

* Commented out if Windows database authentication is used (see page 20).

** By default, this line is missing and no password is assumed.