ORF EXTERNAL DATABASE GUIDE

for Microsoft SQL Server 2008 Express

For ORF users

Revision 1.5 (for ORF version 6 and up)
Date January 2, 2024

INTRODUCTION

What is this guide about?

This guide provides step-by-step instructions for setting up Microsoft SQL Server 2008 Express to provide database services for ORF.

Please consider that this guide cannot cover the complex topic of administering a database server. We strongly recommend to consult the documentation of the database product on securing and administering the database product of your choice.

About Microsoft SQL Server 2008 Express

Microsoft SQL Server 2008 Express is a free database server product from Microsoft. It is basically the same product as Microsoft SQL Server 2008, but with some technical restrictions, for instance:

- Database size is limited to 10 GB per database.
- Hardware utilization limits (single physical CPU and max. 1 GB of RAM)

Shall I be concerned about the SQL express limitations?

Probably not. If your SQL Server Express is dedicated to ORF only, you are unlikely to run into performance issues, unless you run ORF in a very high load environment (800,000 - 1,000,000 emails per day). If you experience low response times from SQL Server Express (SQL timeout errors in the ORF logs), you may want to consider upgrading to the full SQL Server 2008 version.

GETTING STARTED

Getting Microsoft SQL Server Express

You can download Microsoft SQL Server 2008 Express free of charge from the following link:

https://www.microsoft.com/en-us/download/details.aspx?id=30438

For creating and managing the databases, this guide uses the free tool called SQL Server Management Studio (SSMS)which is available at:

https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms

INSTALLATION

Before installing SQL Server Express, you should install the following softwares in the following order (if you do not have them installed):

1. Microsoft .NET Framework 3.5 Service Pack 1 (download link)
2. Windows Installer 4.5 (download link)
3. Windows PowerShell 1.0 (download link)

Once these are installed, you can proceed with the installation of **Microsoft SQL Server 2008 Express** (if something goes wrong, see the "**Troubleshooting**" section at the end of this guide). Use the default options offered by the installer, except where the guide tells you otherwise:

1. Accept the license agreement. The installer will check that your system meets the requirements.

2. When selecting the components to install, add **Database Engine Services** and **Management Tools** to the installation (the latter will install **SQL Server Management Studio Basic**):

3. The installer will offer to create a named instance for the databases. Let us use "SQLExpress".

4. On the **Server Configuration** page, the installer asks which user account will be used by the SQL Service. If the computer is not a member of the domain, but a workgroup, you need to install as "**Local System**" instead of "**Network Service**" or "**Local Service**". In this example, this guide assumes that your computer is in the DMZ, separated from the domain, so here we use the "**Local System**" account.

5. On the Database Engine Configuration page, switch the Authentication mode to Mixed Mode, set the password of the sa account and add an SQL Administrator account:

6. Finish the installation of SQL Server 2008 Express.

CREATING THE DATABASE & TABLES

Once SQL Server Express is installed, we can proceed with creating a database for ORF, which will store the **Auto Sender Whitelist, Greylisting, Honeypot and Directory Harvest Attack (DHA)** and **SQL Log** databases. To ease things, we provide an SQL script shipped with this guide (*sql-orf.sql*), which will create the database (called "*ORF*") along with a database owner user (called "*orfuser*") with a default password ("*ChangeThisPwd#1*").

> **NOTE:** if you already have some of the tables created, please run the individual SQL scripts for creating tables for the new features only. Features and scripts:
>
> - Auto Sender Whitelist: *sql-aswl.sql*
> - DHA Protection Test: *sql-dha.sql*
> - Greylisting: *sql-grey.sql*
> - Honeypot Test: *sql-honeypot.sql*
> - SQL Log: *sql-log.sql*
>
> If the database is already set up, you can skip the instructions for creating a user, changing the password, etc.

1. Start **SQL Server Management Studio** tool.
2. Connect to the SQL Server instance.
3. Open the ORF SQL script file (*sql-orf.sql*) in **SQL Server Management Studio** (*File | Open | File...* in the main menu or *Ctrl+O*)
4. Select the instance in the *Object Explorer* on the left.
5. Right click anywhere in the script and choose **Execute**. You should get a "***Command(s) completed successfully.***" message.

A new database should appear called **ORF** with tables called ***dbo.ASWL***, ***dbo.DhaBlacklist***, ***dbo.DhaHistory***, ***dbo.GREY***, ***dbo.HoneypotBlacklist*** and ***dbo.Log***. If they are not listed, try to *Refresh* the view.

CHANGING THE PASSWORD

1. Right click orfuser in ***Security*** \ ***Logins*** and select ***Properties***.

1. Change the password.

2. Click **OK.**

ADDITIONAL SETTINGS

Networking protocols are disabled by default in SQL Server 2008, however without these, ORF cannot connect to it. Follow the steps below to enable the required network protocol.

1. Start the **SQL Server Configuration Manager** from ***Start*** > ***Programs*** > ***Microsoft SQL Server 2008*** > ***Configuration Tools***.

2. Select the "**Protocols for SQLEXPRESS**" node. TCP/IP is now disabled.

3. Right click on "**TCP/IP**" and click **Enable**

4. Restart the **SQL Service**

Configuring the SQL server port

Follow the steps below to configure the SQL Server to listen on a fixed port.

1. In the **SQL Server Configuration Manager**, select the "**Protocols for SQLEXPRESS**" node.

2. Right click on "**TCP/IP**" and select **Properties**.

3. Select the "**IP Addresses**" tab.

4. Delete "**0**" from "**TCP Dynamic Ports**" for the network interface you use to connect to the database (if it is blank, dynamic ports will be disabled).

5. Enter a port number to use in "**TCP Port**" (in this example, we will use **1234 on the local interface (127.0.0.1)**). Also make sure that the network interface you will use to connect is in "**Enabled**" state.

6. Click **Apply** and **OK**.

7. Restart the **SQL Service**.

Note that setting a fixed port is not strictly required. You can also use the default dynamic port settings. In that case, the **SQL Server Browser Service** must be running and the port number must not be included in the connection string.

CONNECTING ORF TO THE DATABASES

ORF connects to the database using a ***connection string*** that specifies the connection parameters for ORF.

Connecting the Auto sender whitelist database

1. Start the **ORF Administration Tool**.

2. In *Whitelists / Auto Sender Whitelist* click the **Database** button.

3. Select the **External SQL Server** radio button.

4. Click the **Configure** button.

5. Enter the connection string as described below:

```
Provider=<PROVIDER>;
Data Source=<SERVERIP>,<PORT>;
Database=<DBNAME>;
User Id=<USERNAME>;
Password=<PASSWORD>;
DataTypeCompatibility=80;
```

According to the instance name and port we used in this example, the connection string looks like this (connecting to the local instance, fix port):

```
Provider=SQLNCLI10;
Server=ORFSRV\SQL2008,1234;
Database=ORF;
User Id=orfuser;
Password=NewPassword;
DataTypeCompatibility=80;
```

6. Finally, test the connection string by clicking the *Test Connection* button. You should get a message: "*Connection test was successful*".

Connecting the Greylisting database

1. Start the **ORF Administration Tool**.
2. Select *Blacklists / Greylisting* and click the **Database** button.
3. Continue as in the case of the Auto Sender Whitelist setup steps 3-6.

Connecting the DHA database

1. Start the **ORF Administration Tool**.
2. In *Blacklists / DHA Protection Test* click on the **Database** button.
3. Continue as in the case of the Auto Sender Whitelist setup steps 3-6.

Connecting the Honeypot database

1. Start the **ORF Administration Tool.**
2. In *Blacklists / Honeypot Test* click on the **Database** button.
3. Continue as in the case of the Auto Sender Whitelist setup steps 3-6.

Connecting the SQL Log database

1. Start the **ORF Administration Tool.**
2. In *System / Log* click on the SQL Log **Configure** button.
3. Select the Connection tab and continue as in the case of the Auto Sender Whitelist setup steps 4-6.

CONNECTING ORF TO A REMOTE DATABASE

In case your SQL Server is installed on a separate server or you would like to configure multiple ORF instances to share the Auto Sender Whitelist and Greylisting databases, you should install the **Microsoft SQL Server Native Client** tool in order to connect to the remote database server.

You can download this tool from here. The connection method is the same for the remote connections as described above.

TECHNICAL SUPPORT

Please find our technical support contact options on our website at:

https://vamsoft.com/r?o-support