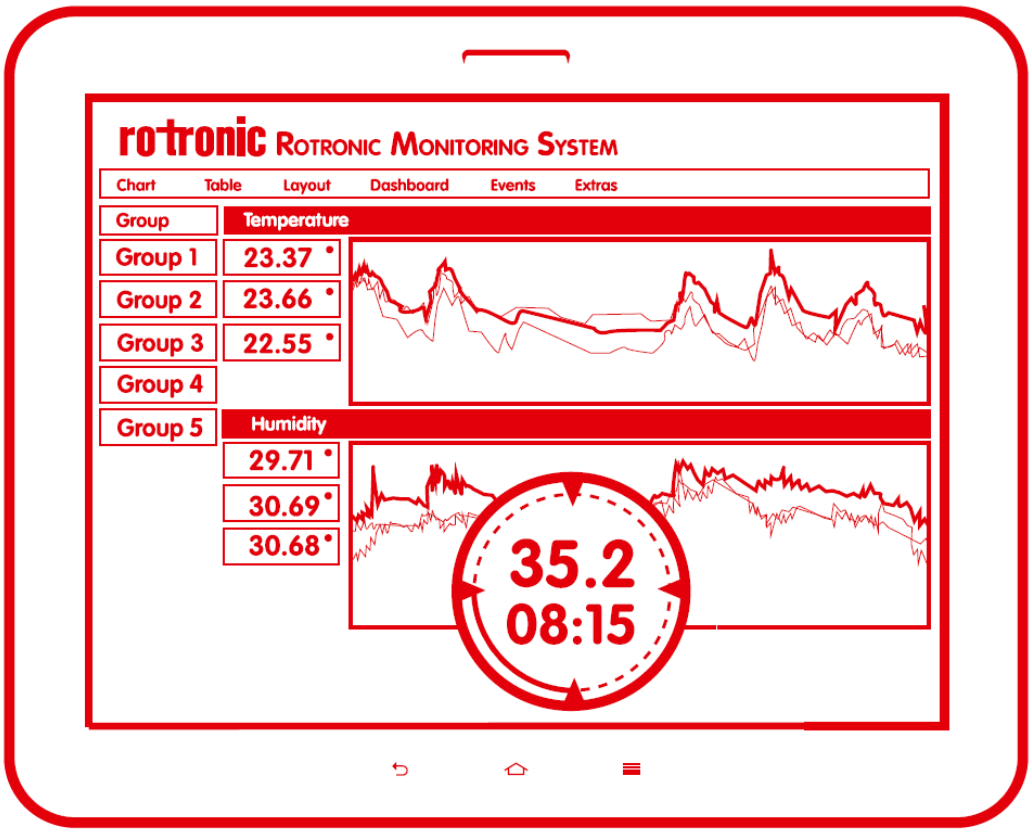
ROTRONIC MANUAL

# RMS Monitoring Software System Installation






rotronic
MEASUREMENT SOLUTIONS

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**Scope:**
This manual is valid for the RMS Monitoring Software from Version 1.0. The low-order digit of the software version stands for minor changes, e.g. correction of errors, that do not influence the main functionality of the software.
The manual describes the installation of RMS server software and database with **SQL-Server Express 2014** and **Windows Server 2012** as an example. Installation with other SQL Server and/or Windows Server versions are also possible.

# 1 Overview

The software consists of server software and a database. The server software and database can be installed on the same or two different servers. It merely needs to be ensured that the server software and database can communicate with each other.

## 1.1 Minimum System Requirements

The server environment must fulfil the following requirements for the server software and database to run.

### 1.1.1 *Hardware*

- Processor: Core I7 or equivalent
- Memory: Min. 16GB
- HDD: Min. 100GB

### 1.1.2 *OS and Software*

- Windows Server 2012 or newer (virtual server also possible)
- SQL Express 2008 R2 or SQL Server 2008 (or newer)
- .Net Framework 4.5
- .Net Framework 3.5, SP1
- IIS 7.5 or newer

**Remarks:**

- For systems with more than 100 measuring points, it is recommended to install the database and RMS web server on separate computers. Smaller systems can also achieve better performance in this way.
- Please note that live monitoring and the alarm functions stop working completely when the database or web server is shut down, e.g. for a Windows update. If this is not acceptable, both servers must be implemented redundantly.
- SQL Express allows a maximum database size of 10GB. This corresponds to about 200 million measured values. For larger volumes of data, the commercial SQL Server version must be used.
- Windows Client versions (Win 7/8/10) allow a maximum of 10 simultaneous connections and are only suitable for systems with fewer than 10 users and devices (in all).

### 1.1.3 *Browser*

The RMS supports the following web browsers:

- Microsoft Internet-Explorer, Version 11 or later
  - If the "compatibility mode" is on, IE behaves as version 9. This is lower than the minimum required version IE 11 (actually IE 10), and therefore RMS SW gives alarm as if an old IE version is applied.
- Mozilla Firefox, Version 40 or later
- Google Chrome, Version 43 or later

## 2 Update to a newer version of the RMS Software

If the RMS software is running and a new update is available, follow these guidelines for the installation.

1) Unzip the new version and copy it into a folder with the version number parallel to the currently installed version: „C://inetpub/wwwroot/rms/{version}“.

2) Edit connection string in “Connections.config” in folder \wPage and \wService
   - Data Source
   - Initial Catalog
   - User Id
   - Password

   The existing settings can be found in web.config in folder \wService of the current RMS Installation.

3) Update web.config files, if there are changes under appsettings or defaultProxy

4) Switch wService and wPage application offline by selecting physical path “…/{new version}\Offline”. (*Server Manager → IIS → right click the server and select “Internet Information Server (IIS) manager”*) The file "App_Offline.htm" should be located in the directory. Afterwards a maintenance message will be displayed in the browser when RMS is called.

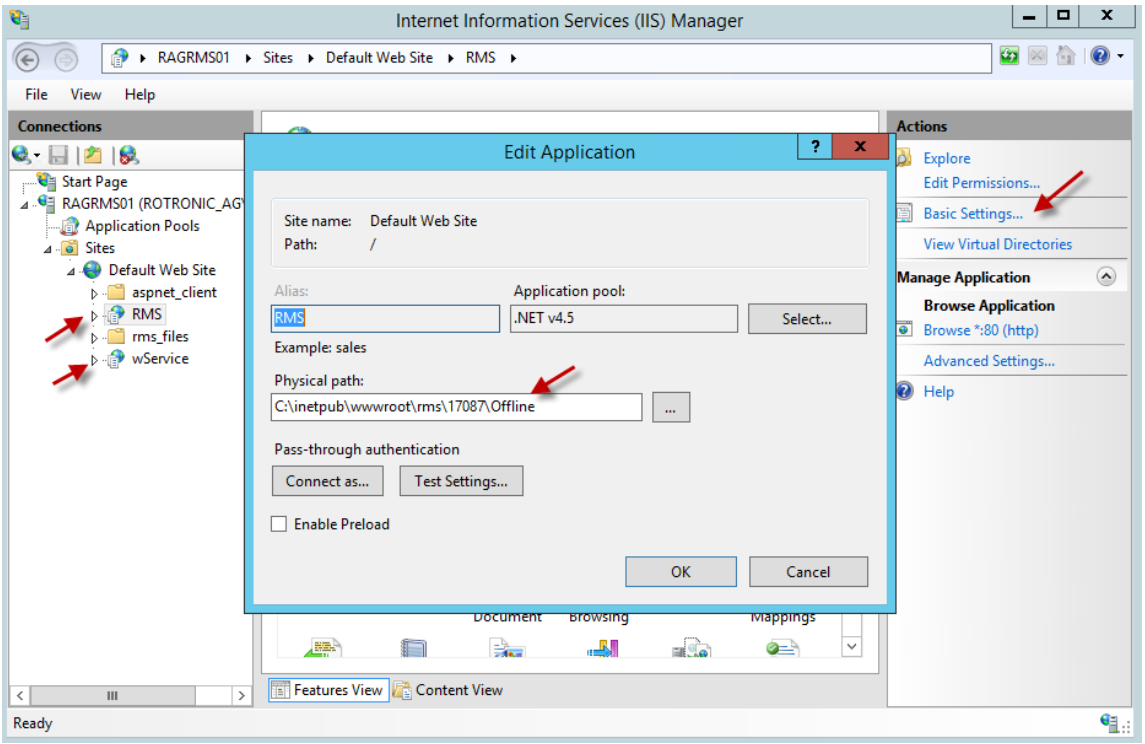



*Figure 1: Switch wService and wPage application offline*

5) Create a backup of the RMS database:

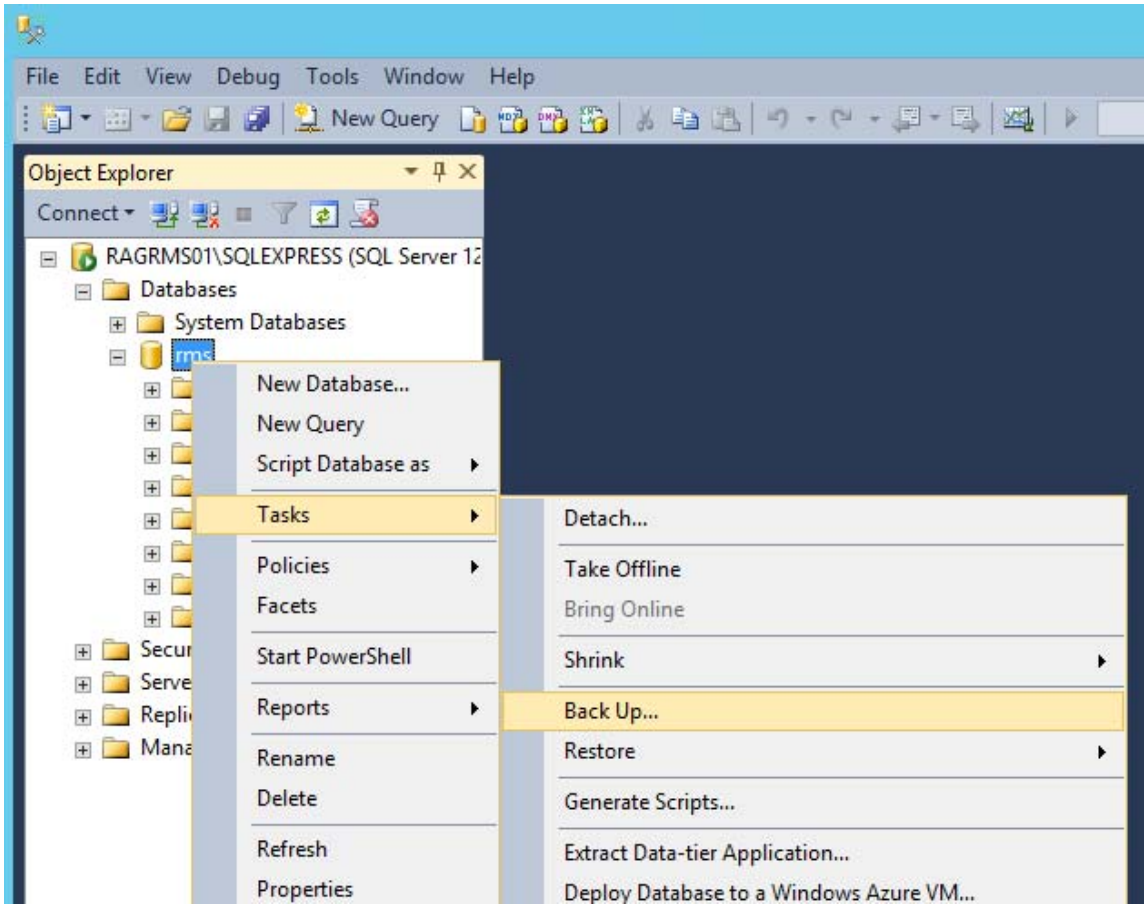



*Figure 2: Create a backup of the RMS database*

6) Update the database schema using the attached SQL script of the new version (Rotronic-RMS-Tables.sql)

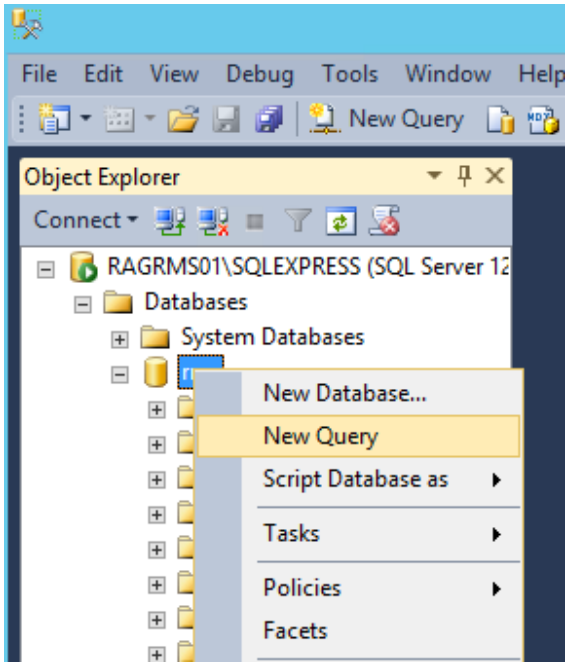



*Figure 3: Update the databank schema.*

Then drag the script into the window and run.

7) Recycle Application Pool ".NET v4.5" (in IIS Manager – Application Pools – Recycle).

8) Set both applications online again.
C://inetpub/wwwroot/rms/{new version}/wPage
C://inetpub/wwwroot/rms/{new version}/wService

9) Test to see if the website and the webservice are running:
   - Login to the website
   - Service test:
     ({ServerAddresse}/wService/wService3.DeviceService.svc/TestDatabase)

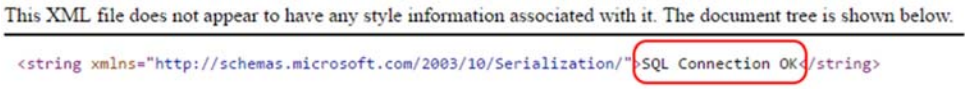



*Figure 4: Service test*

10) Adapt “User rights” in RMS SW due to new rights “Report templates” and “Email reports”

***Roll-back to original version (only when update not successful)***
If the update was not successful, it is possible to roll-back to the original version.

1) Switch wService and wPage application offline (same as step 4 for update)

2) Restore the database using the backup done before update

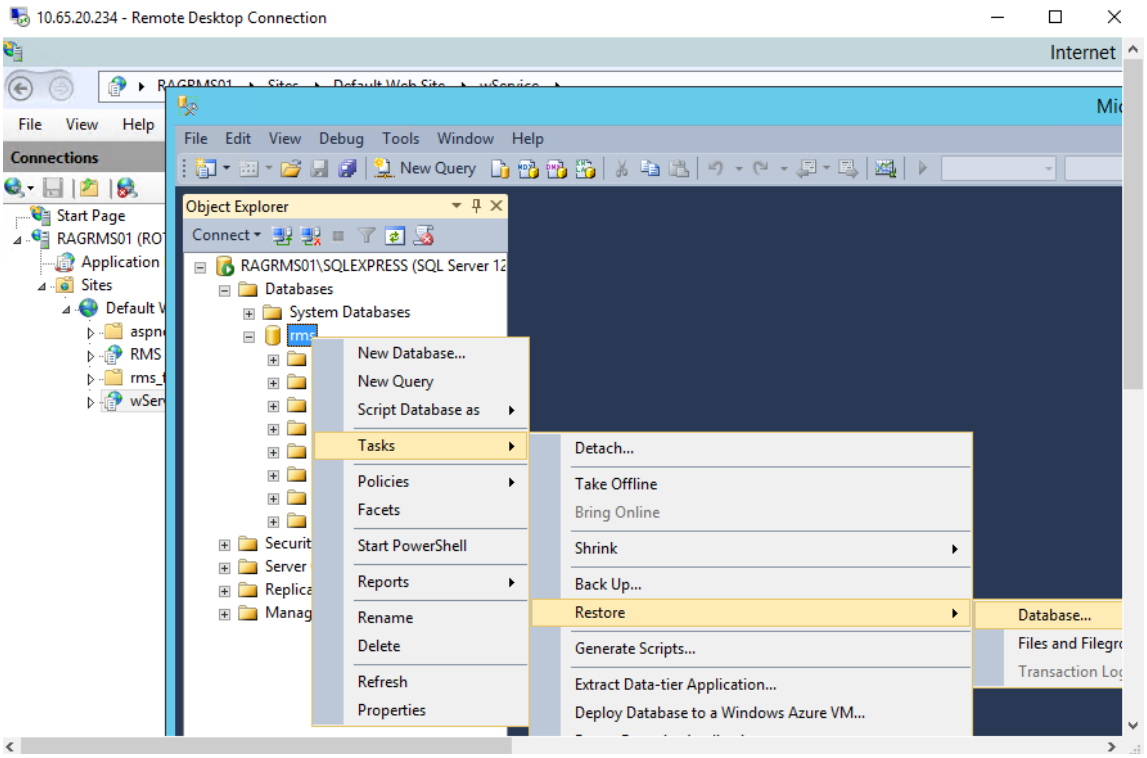



*Figure 5: Restore database*

If the restore fails because of still activated connection to the database, the problem can be solved by selecting the option “close existing connection” or by recycling the application pool.

3) Set both applications online again with old version
C://inetpub/wwwroot/rms/{old version}/wPage
C://inetpub/wwwroot/rms/{old version}/wService

# 3 Installation

An SQL database must be installed before the RMS server software can be installed. This manual describes everything from downloading to configuring the SQL Express license (free version).

**Important:**
Before starting with the software installation process, please make sure that the ZIP file of the server software and the EXE file of the SQL database (chapter 3.1 ) are saved on the server.

## 3.1 Download SQL Server Express

To download SQL Express, use the following link:
https://www.microsoft.com/en-us/download/details.aspx?id=42299

When downloading, make sure you select the right language (Figure 6). It must match the language set on the server (where the database is later installed).

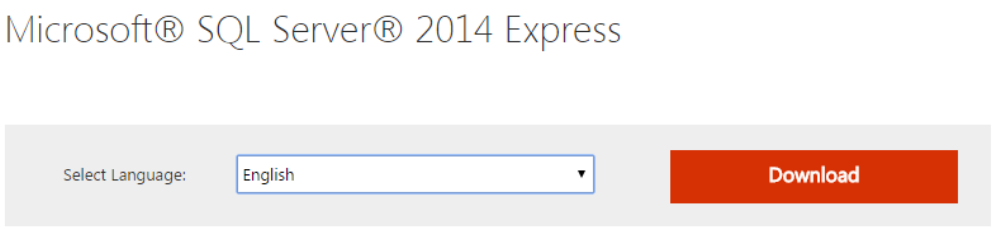



*Figure 6: Language selection when downloading the database*

Then select the SQL version with tools according to the server operation system (Figure 7).

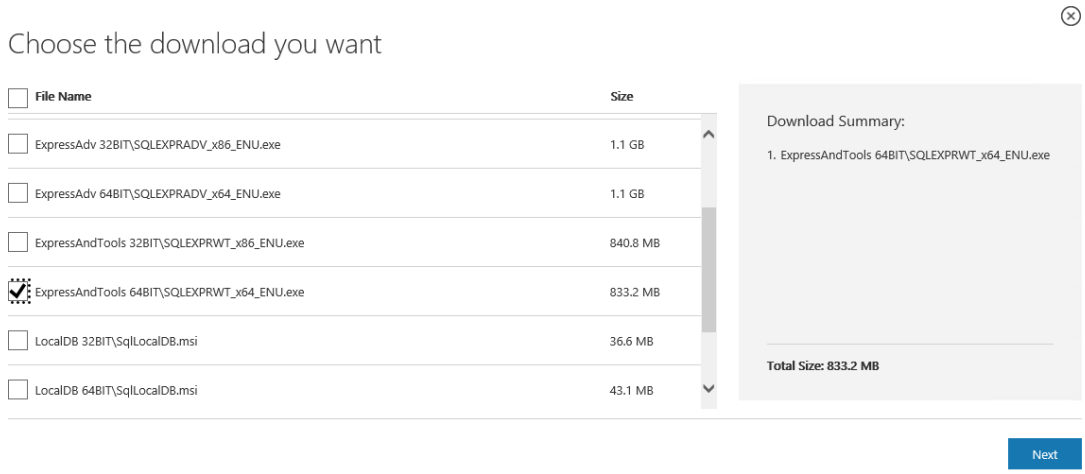



*Figure 7: Selection of SQL Express with tools*

**Important!**
The Express version is limited to a database file size of 10GB and also offers only limited performance (according to Microsoft's terms of use). 10GB suffice typically for 200 million measured values.

## 3.2 Installation and Configuration of SQL Server Express

Proceed as follows to configure the SQL database:

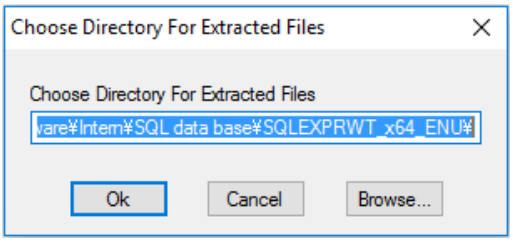



*Figure 8: Extract the EXE file to the desired directory*

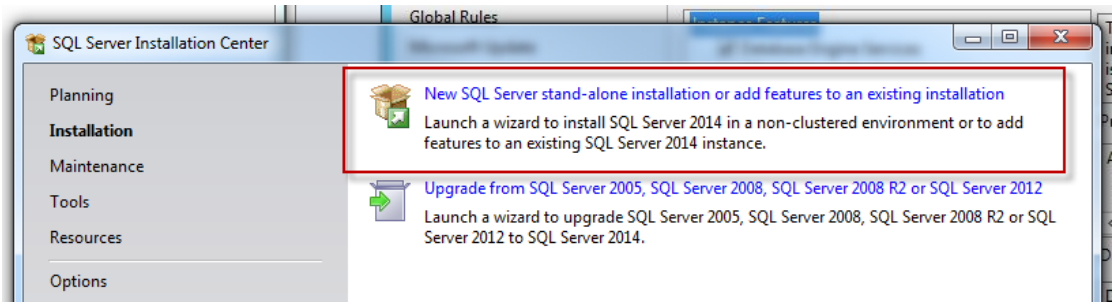



*Figure 9: Select new SQL installation*

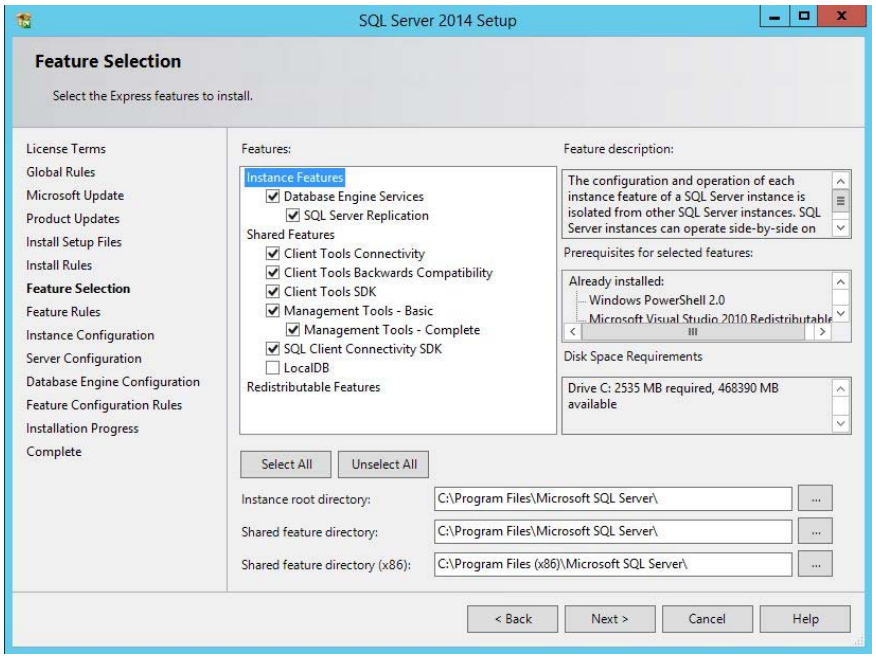



*Figure 10: Configuration of the features*

If the server is not yet running .NET-FW v3.5, it must be installed later (see Figure 11 and Figure 12).

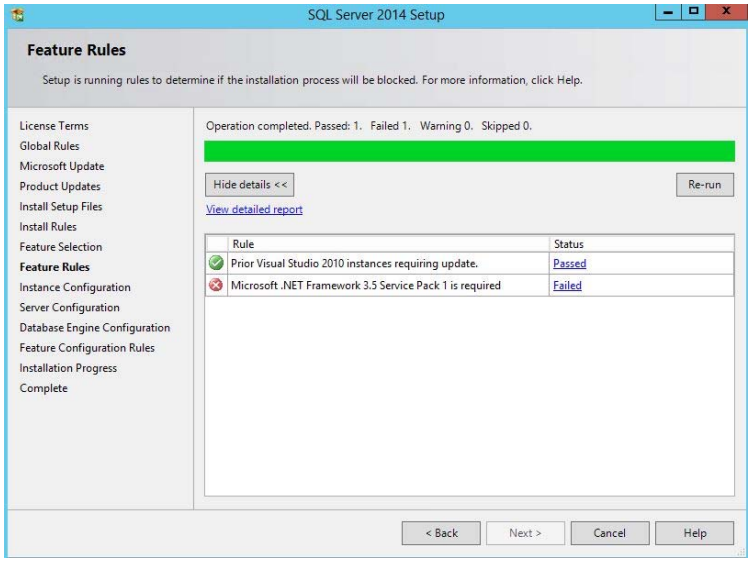



*Figure 11: If .NET-Framework 3.5 is not yet installed, an error is reported.*

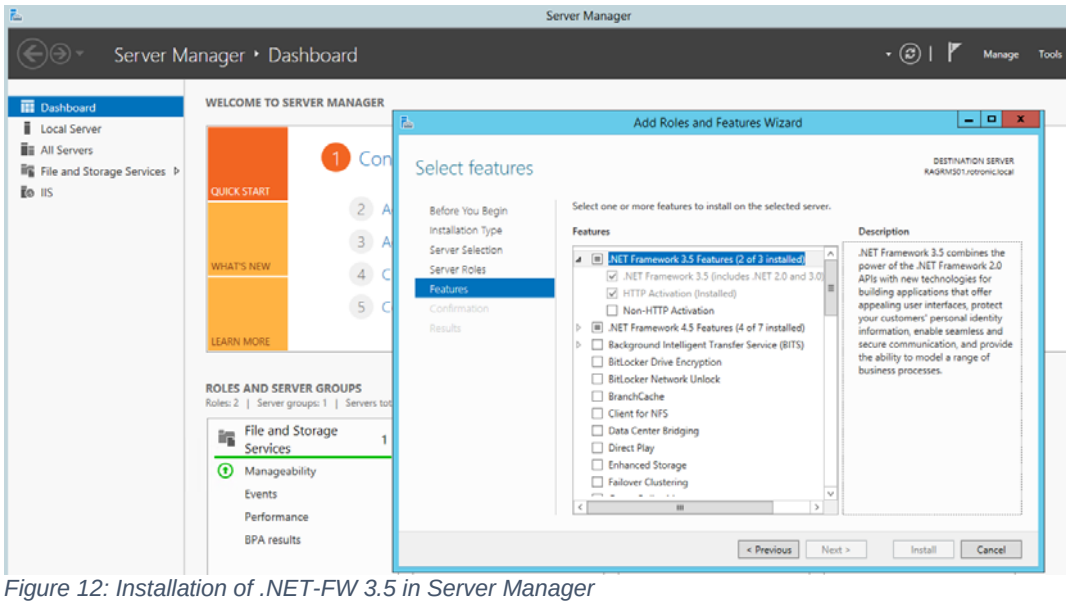



*Figure 12: Installation of .NET-FW 3.5 in Server Manager*

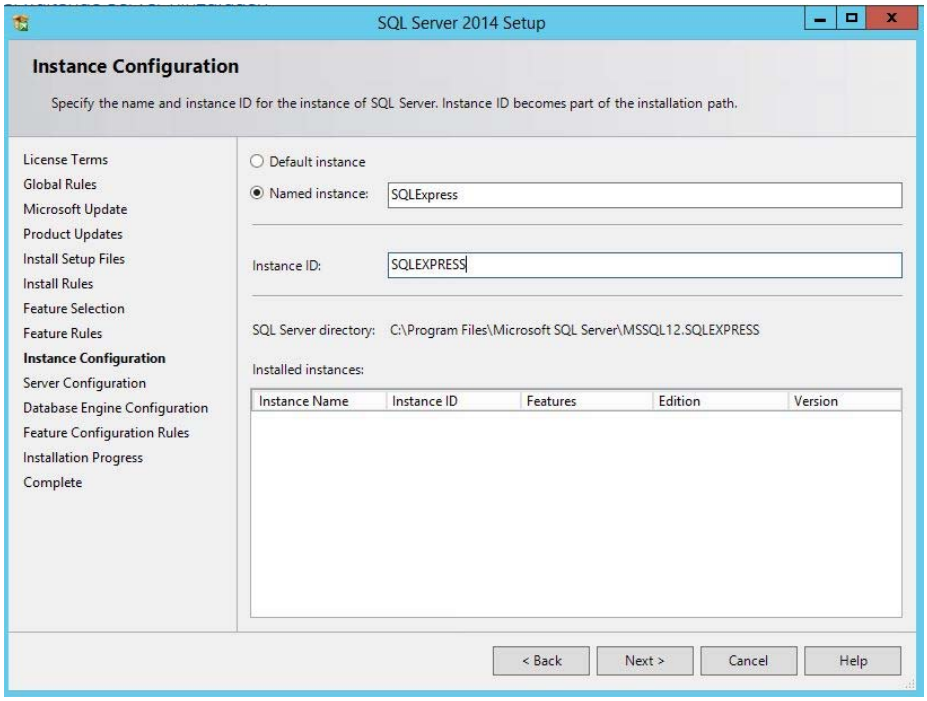



*Figure 13: Configuration of the instance*

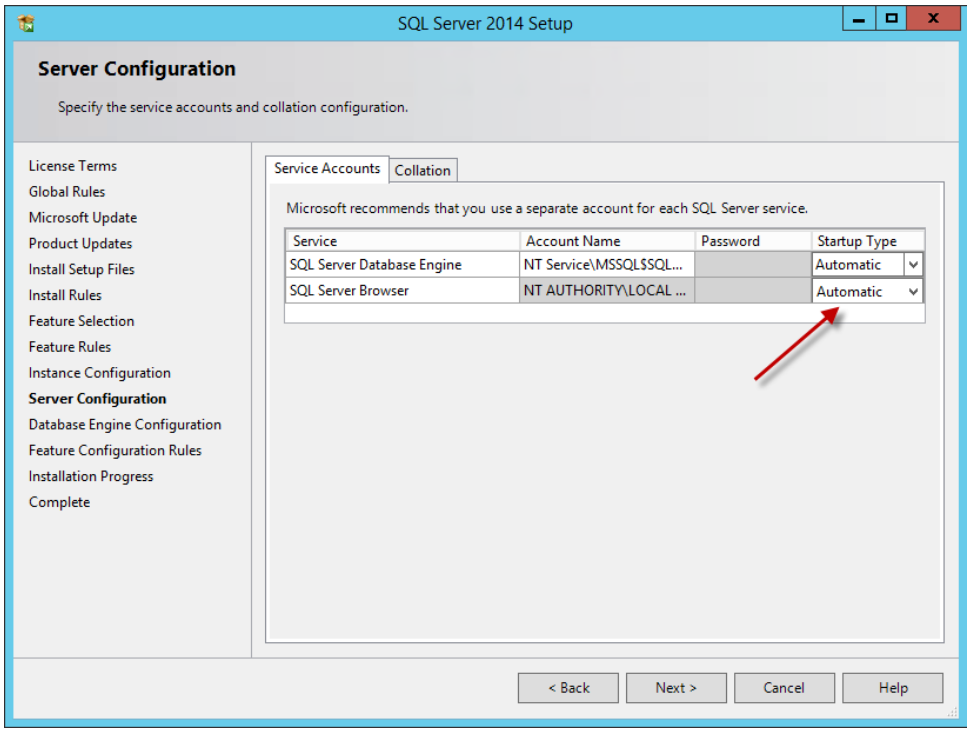



*Figure 14: Configuration of the server*

To finish the installation of SQL, you must still specify the user (system administrator) and a password (Figure 15). This user must be an administrator. This user later has all rights to the database.

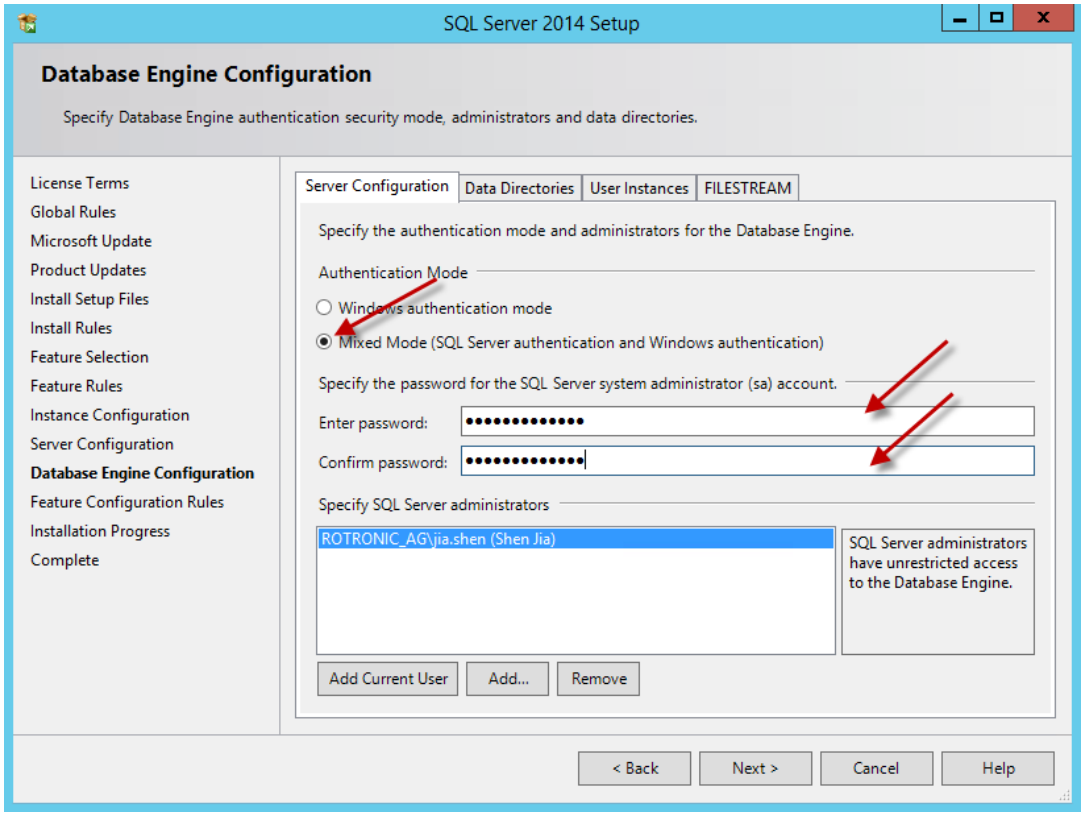



*Figure 15: Final configuration of the Database Engine and specification of the password*

When installation has been completed, you must launch *SQL Server Management Studio*. The password defined earlier is needed to log in.

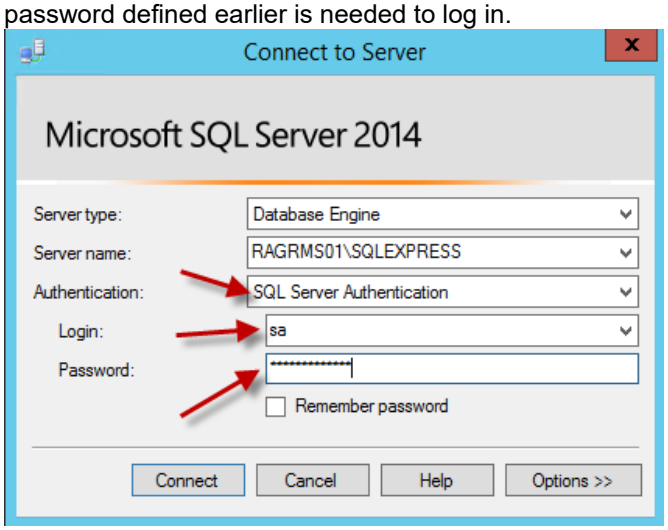



*Figure 16: Screenshot with SQL Server Authentication and user name "sa", password is the one defined in the previous step*

## 3.3 Create New Database Instance

In this step you create a database that later interacts with the RMS server software.
Right-click “Databases”: select “New Database…” (Figure 17 and Figure 18).

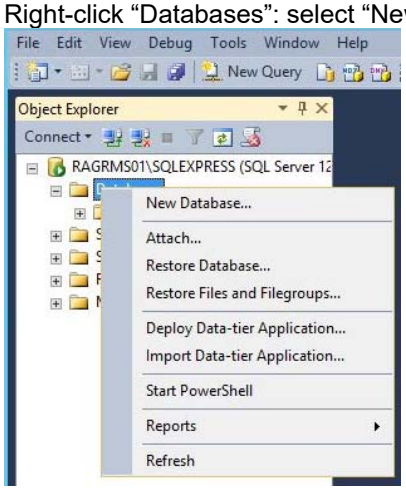



*Figure 17: Add new database*

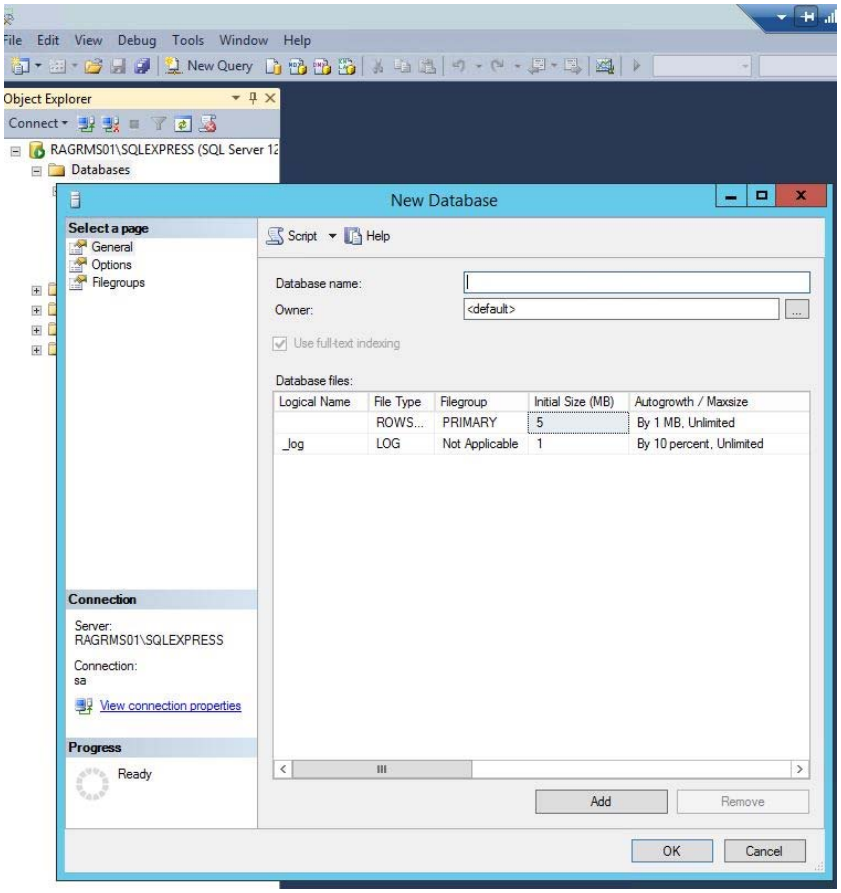



*Figure 18: Create new database instance*

Specify the database name: “**rms**”. The default values can be used for the initial size of the database.

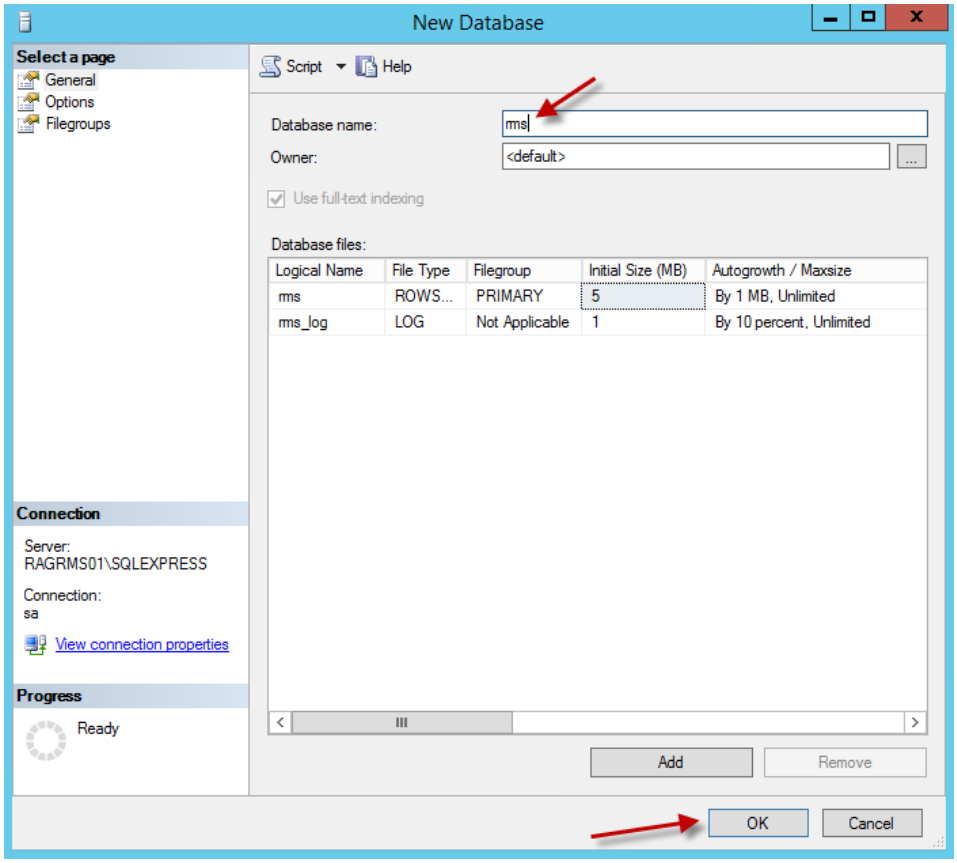



*Figure 19: Specify the database name*

In Object Explorer, right-click “New Login…” under *Security* > *Logins* (Figure 20).

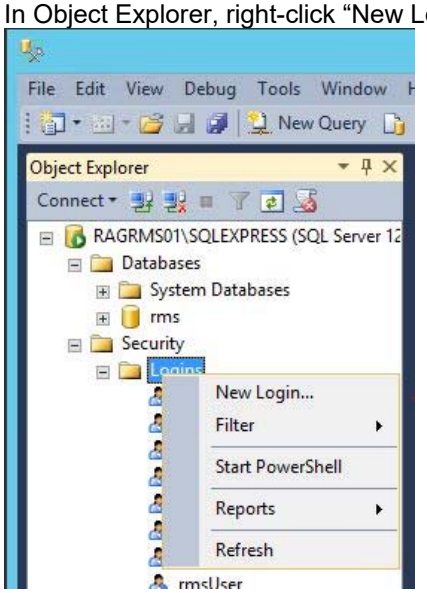



*Figure 20: Generate new user for database login*

Specify the login data for the user of the SQL database (Figure 21).[1]

**Important:**

- This user login must be specified later for the Web Service so that the RMS server software can access the database.
- Use only letters and numbers for the password. The password will be used when installing server software (chapter 3.6). Special characters could create conflict.
- Default database: **rms**

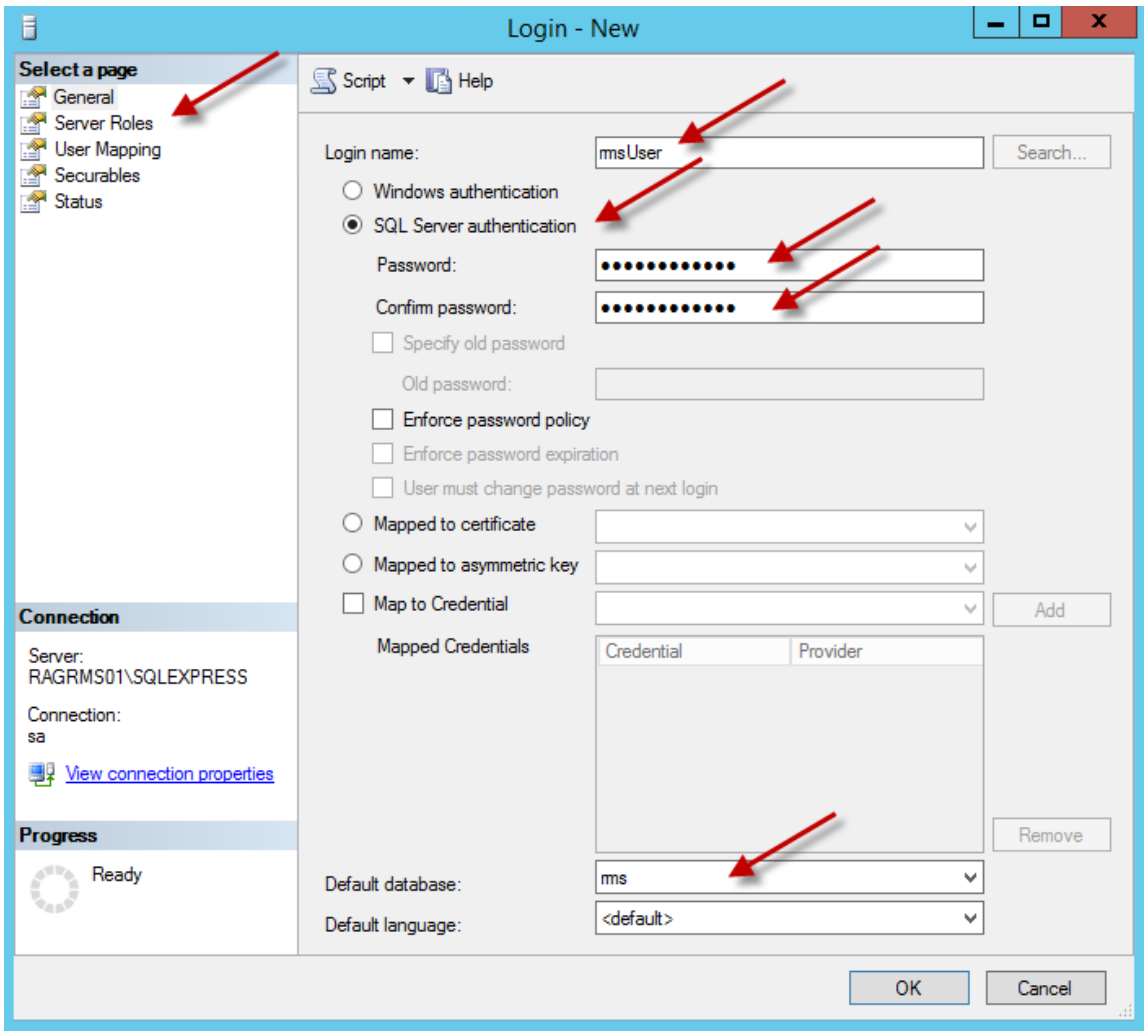



*Figure 21: Login data*

Go to “Server Roles” when finished on this page.

Specify the server roles: only “public” must be selected.

[1] The password should be different from the one of the administrator of the SQL Engine configuration (Figure 16).

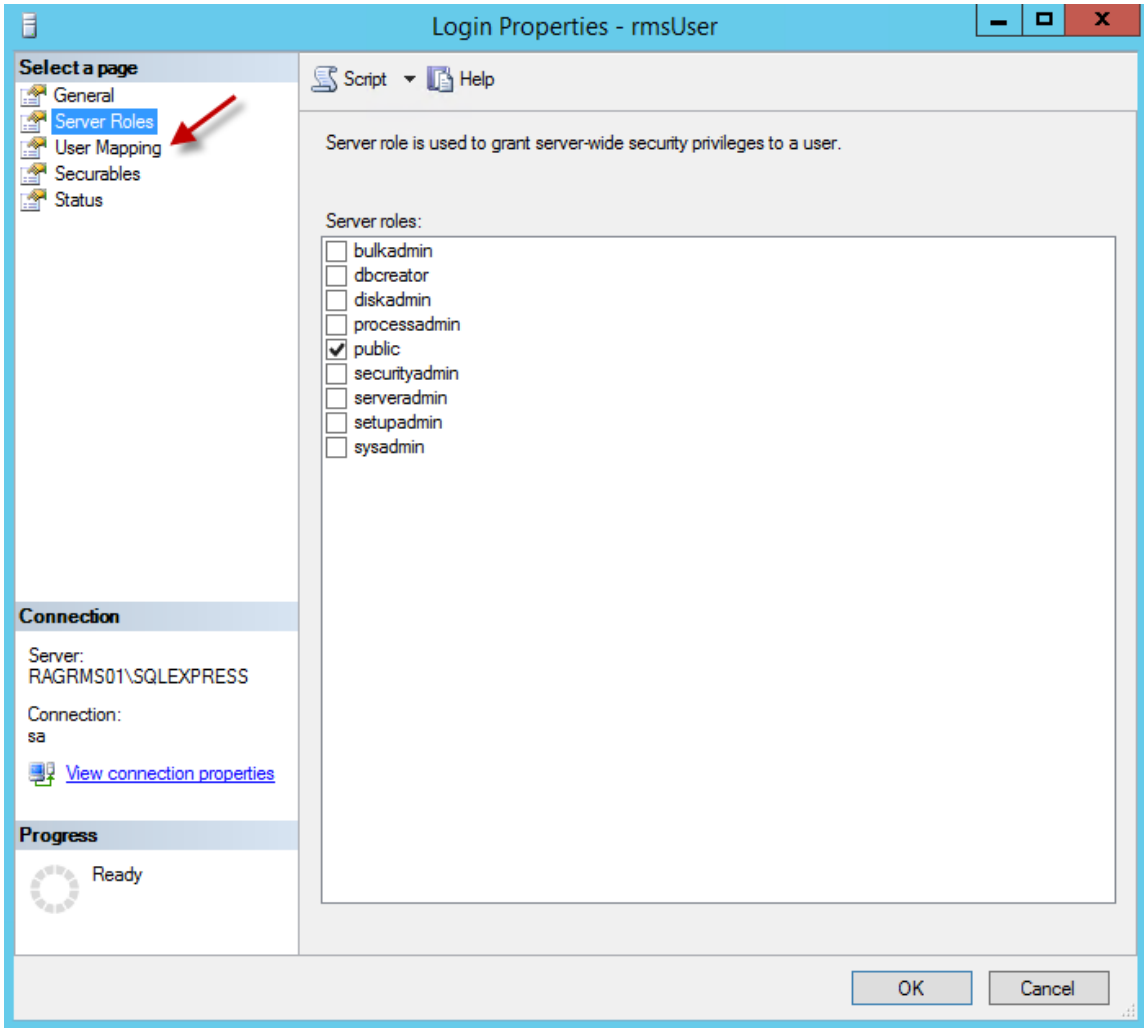



*Figure 22: Server roles “public”*

Go to “User Mapping” when finished this page.

Specify all settings under “User Mapping”:

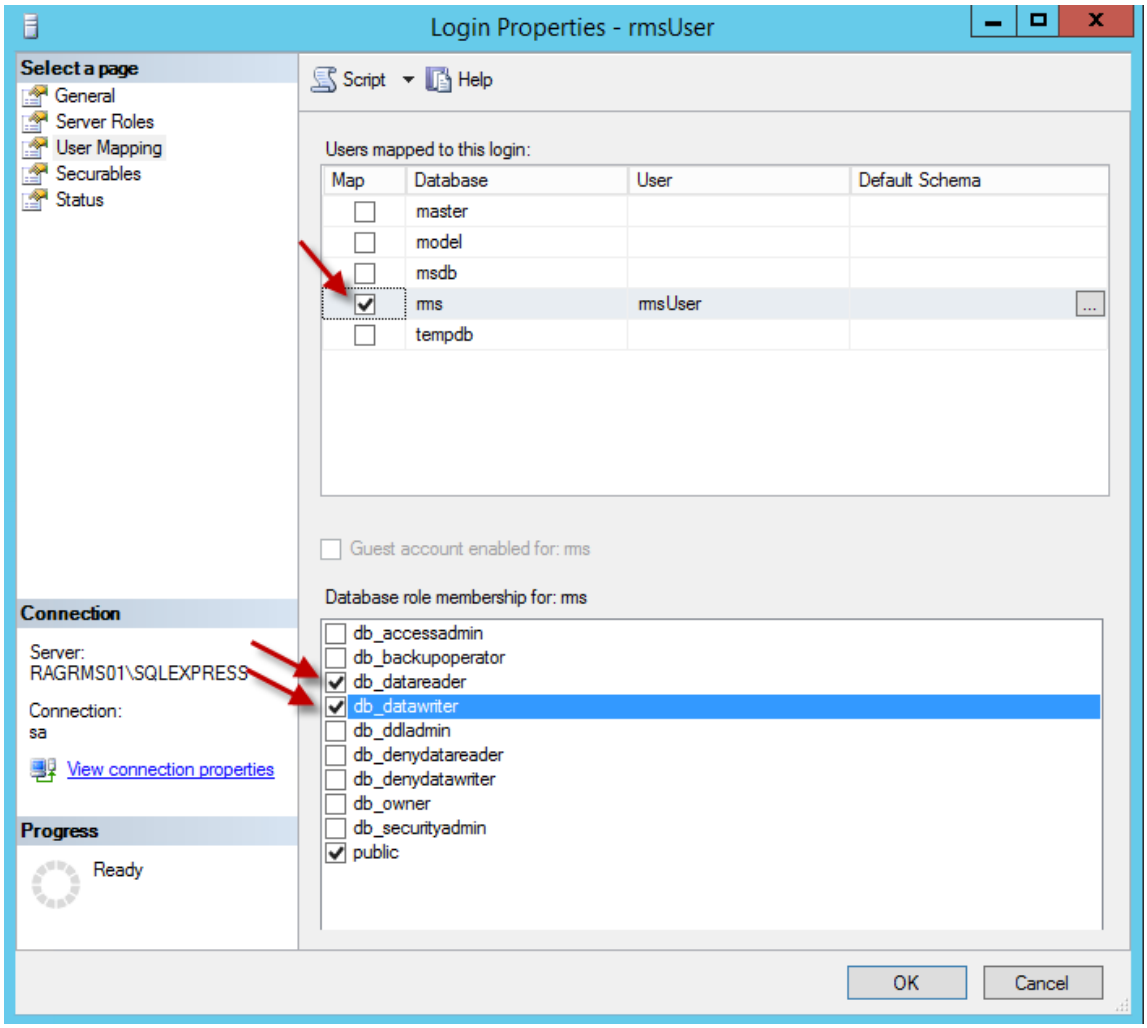



*Figure 23: User mapping settings*

No particular settings need to be made under “Securables” and “Status” (Figure 24 and Figure 25). Configuration of the database is then finished.

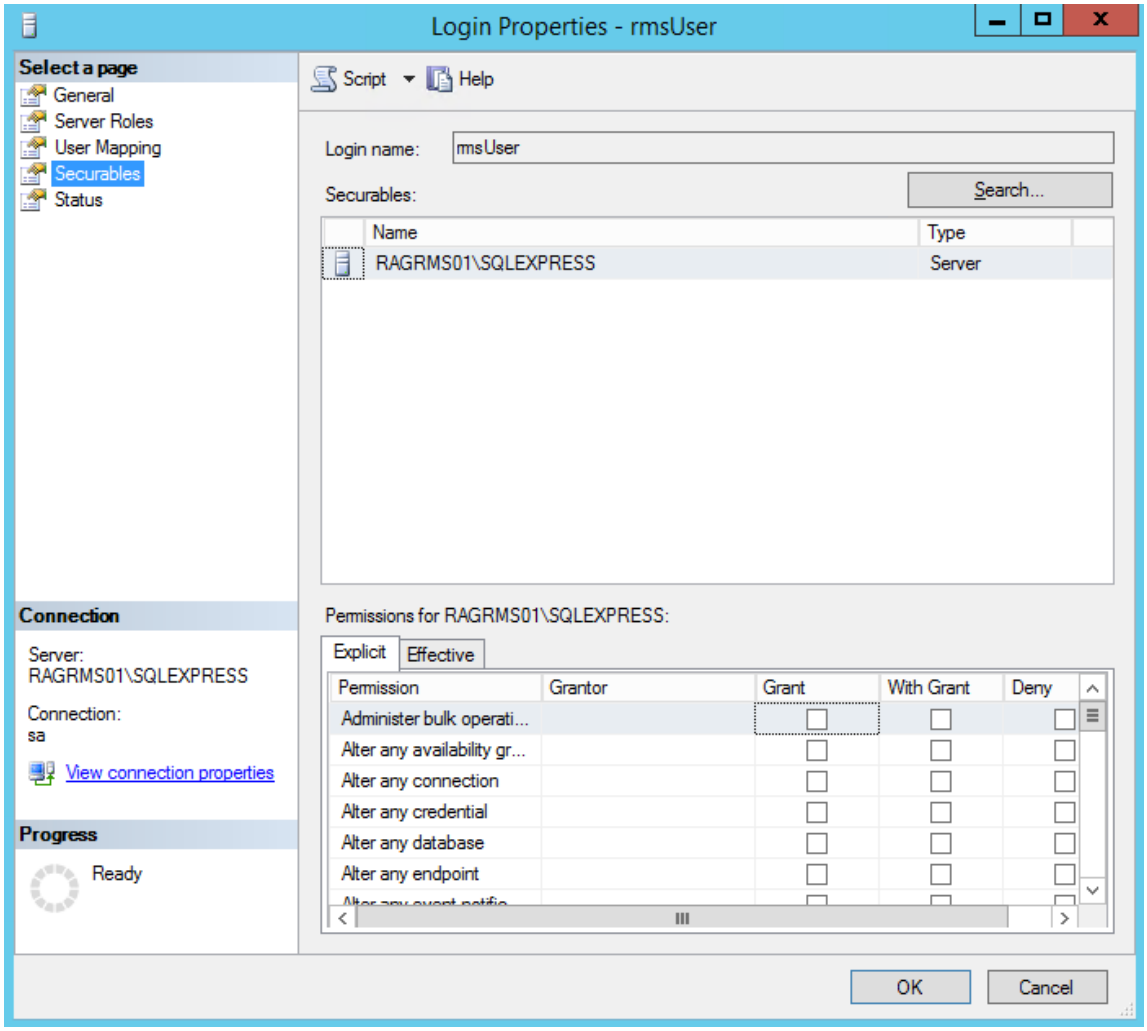



*Figure 24: Settings “Securables”*

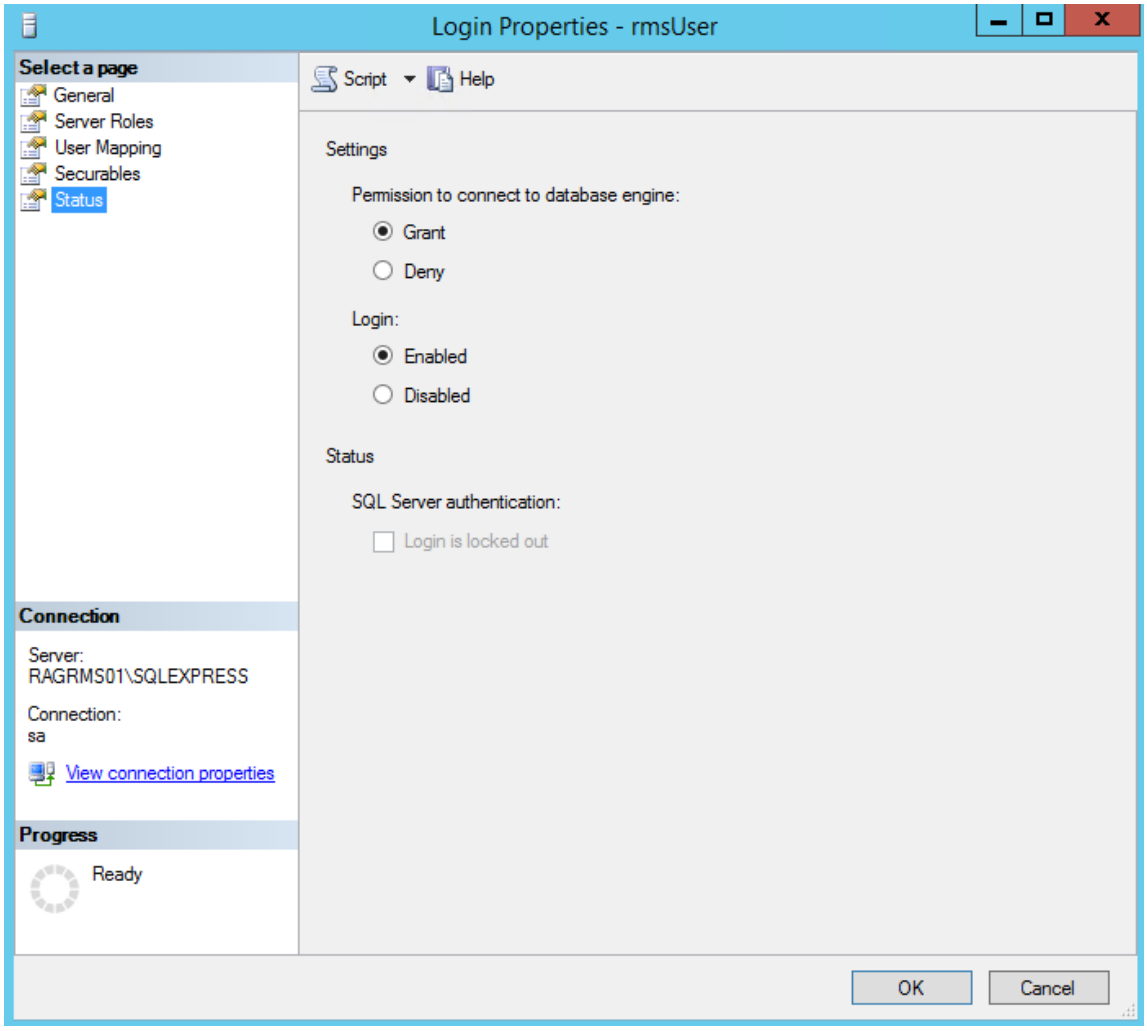



*Figure 25: Settings "Status"*

## 3.4 Create Database Tables

The empty database now needs the tables for the RMS. Proceed as follows:

- Select the RMS database (red arrow in Figure 26) and select "*Open file*" *(*orange arrow in Figure 26*)*. Then load the script *RMS-Tables.sql* delivered with the software into the database.
- Click "*Execute*" to run the script (yellow arrow in Figure 26).
- Verify that the tables have been created by clicking the "+" symbol in the RMS database (about 30 tables in the folder "Tables"). Sometimes need to restart SQL server management studio to see the tables.

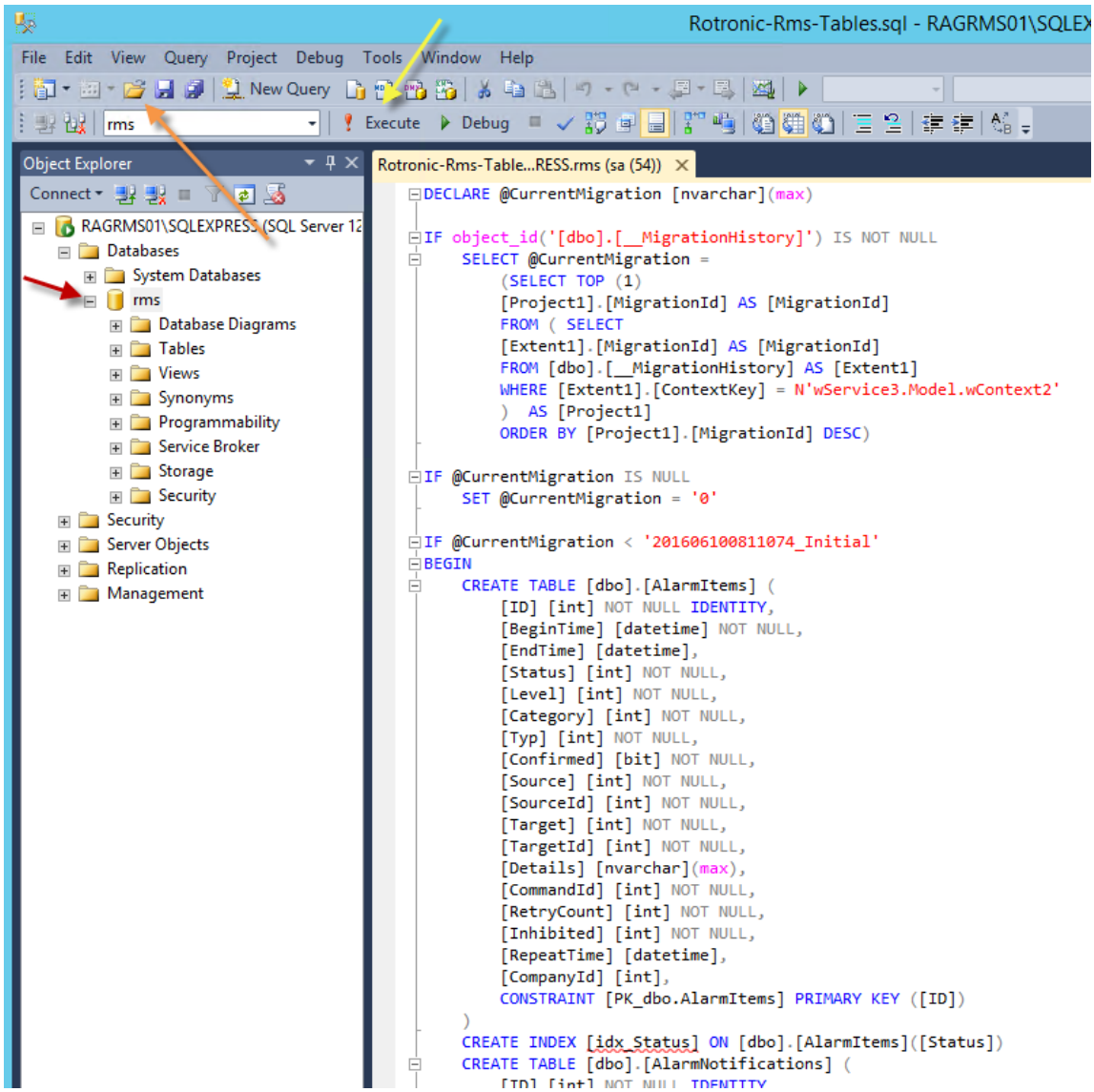



*Figure 26: View of the script "RMS-Tables.sql"*

Configuration of the RMS database is then finished.

## 3.5 Enable IIS Web Server

In the Server Manager Dashboard, start “Add Roles and Features Wizard” (see Figure 27).

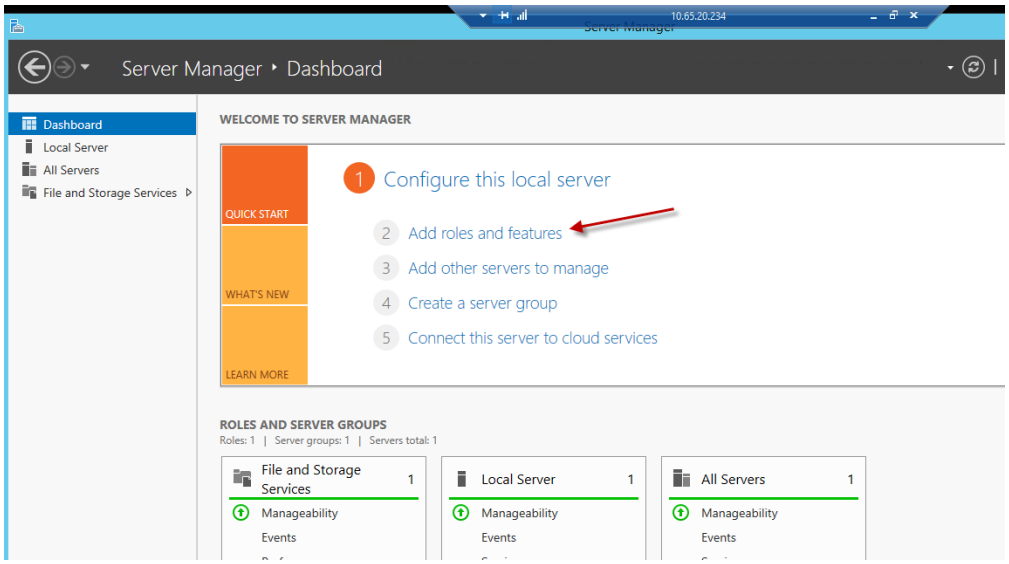



*Figure 27: Start “Add Roles and “Features Wizard”.*

There are no special settings needed for “Before You begin”, “Installation Type” and “Server Selection”

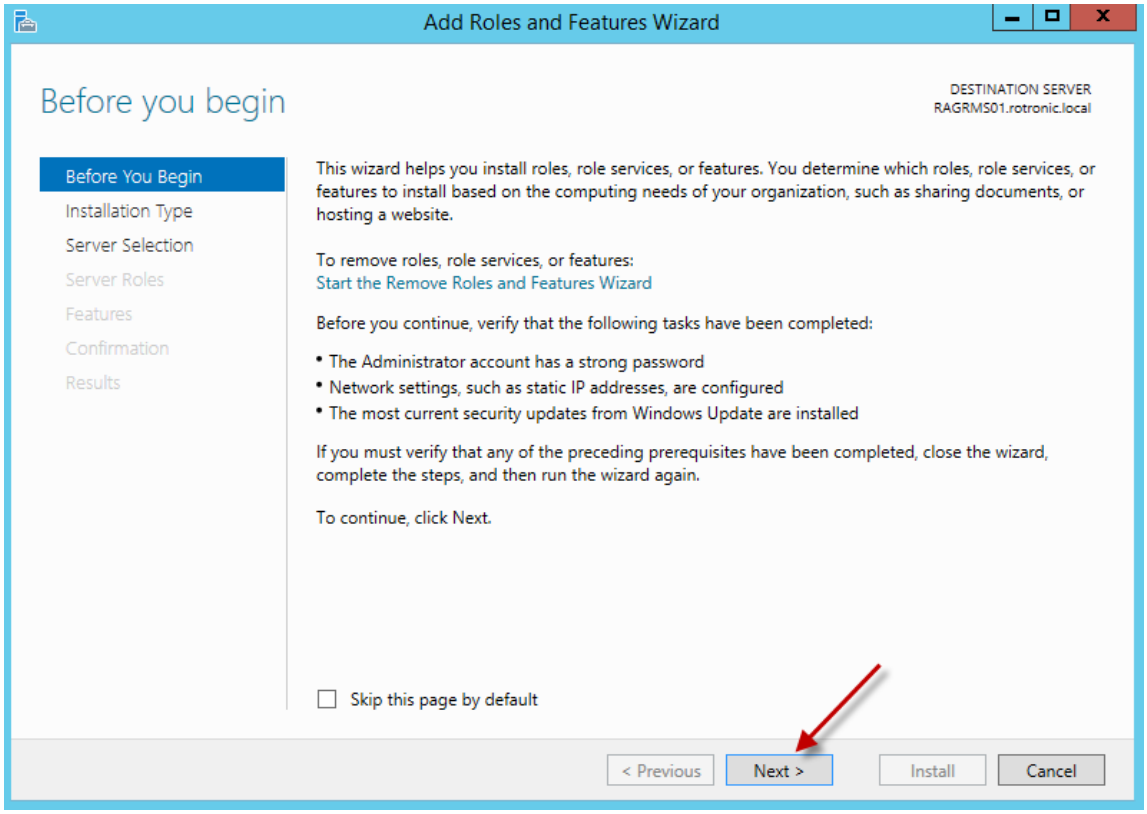



*Figure 28: No special settings needed in this screen*

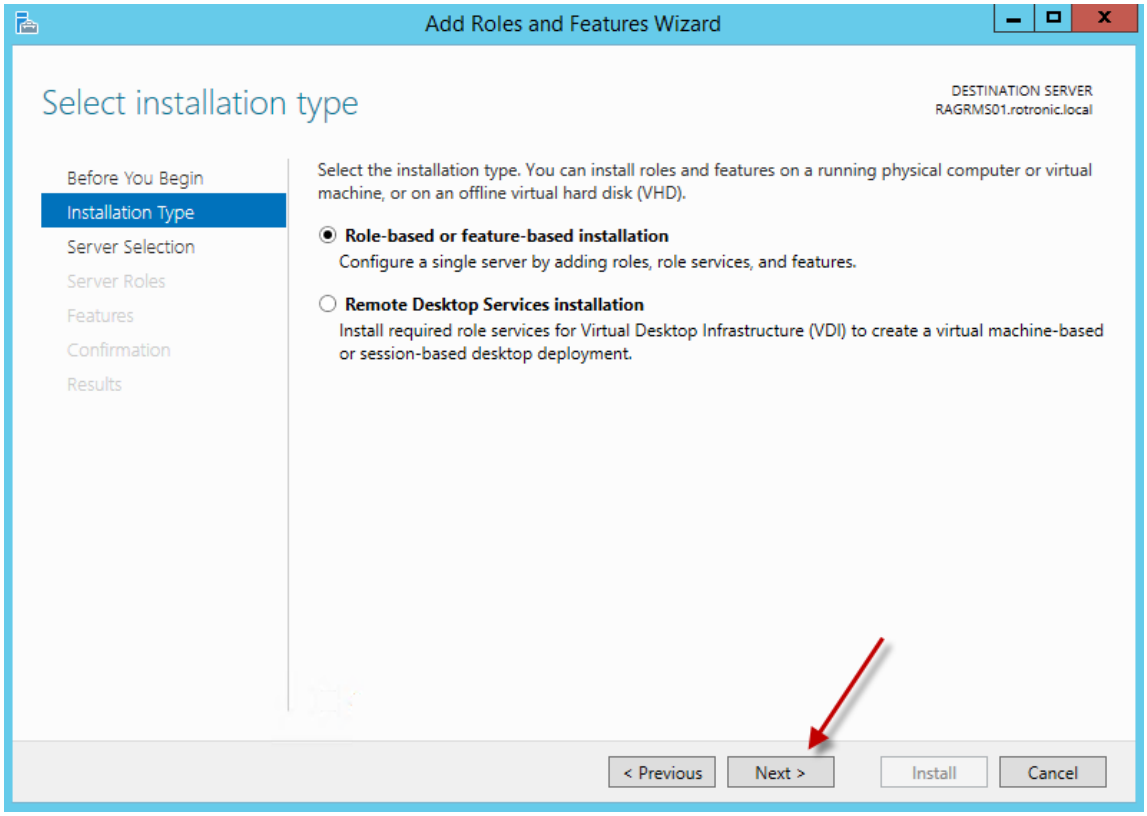



*Figure 29: Selection of the installation type*

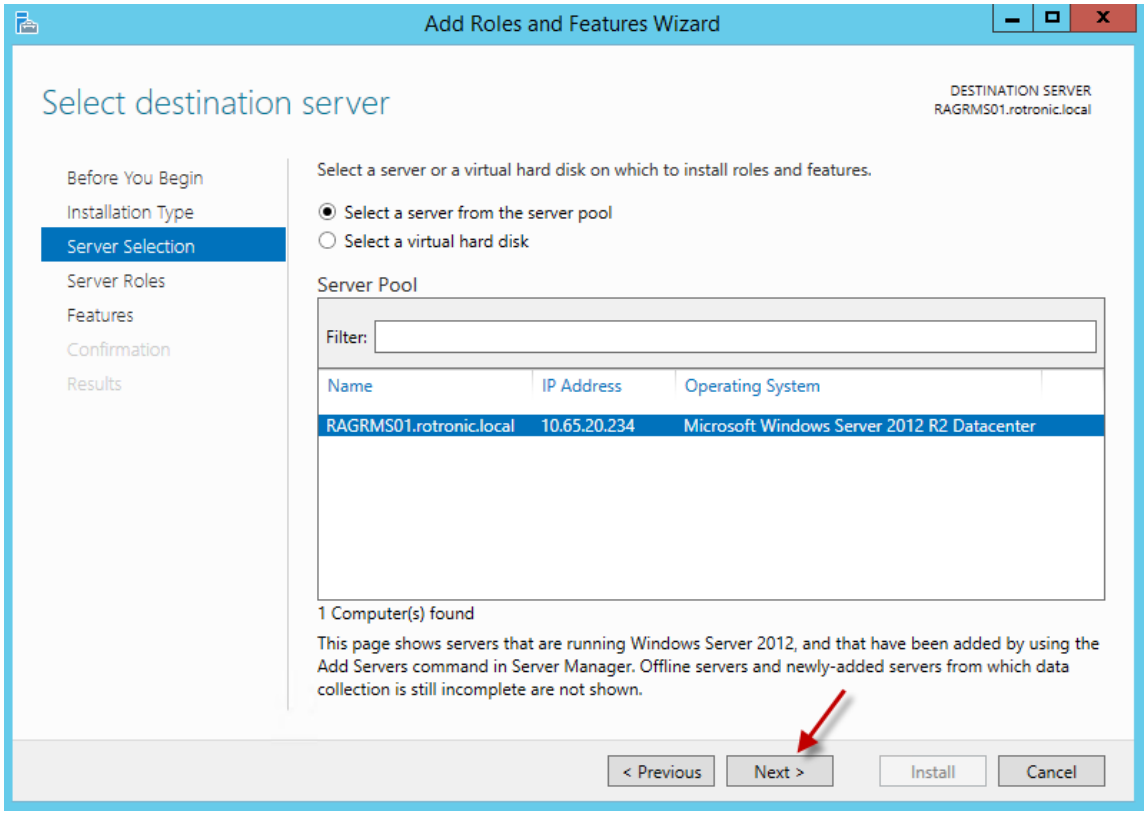



*Figure 30: Selection of server*

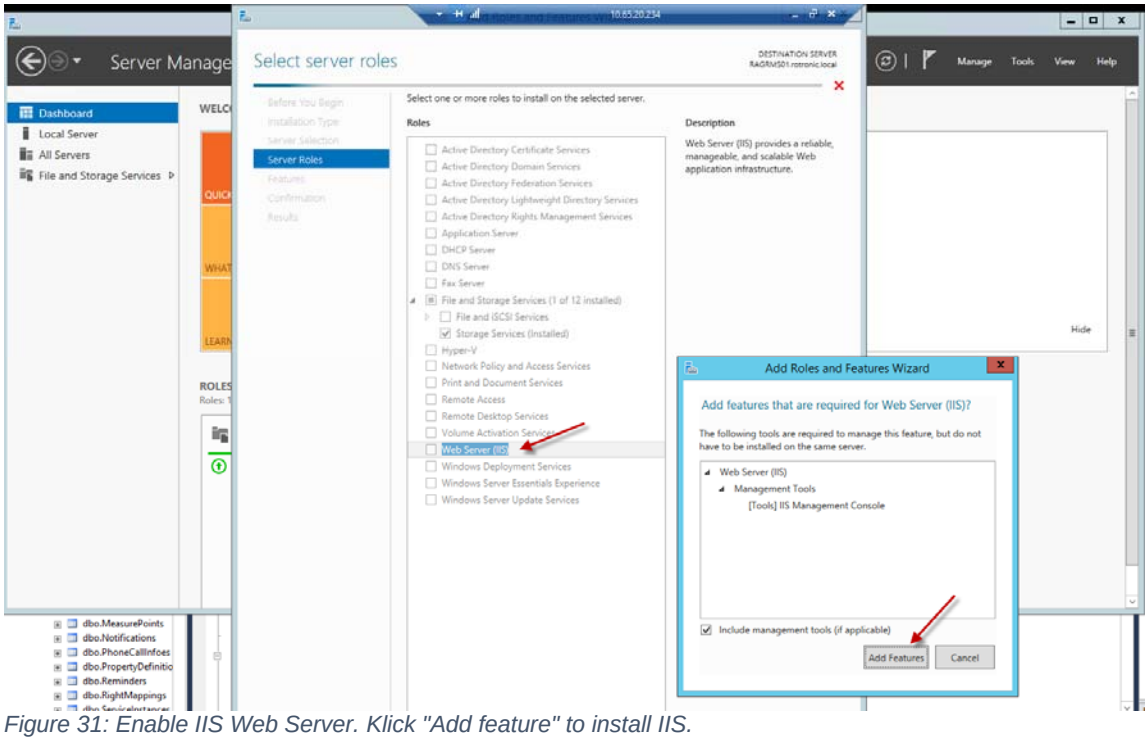



*Figure 31: Enable IIS Web Server. Klick "Add feature" to install IIS.*

Configure the IIS web service as shown in Figure 32 to 35.

**Note:**
The settings in following figures represent mostly the standard settings. For RMS installation, the following settings are important:

- Server roles: IIS web server activated
- Application development
    - ASP.NET 4.5: activated
    - WebSocket protocol: activated

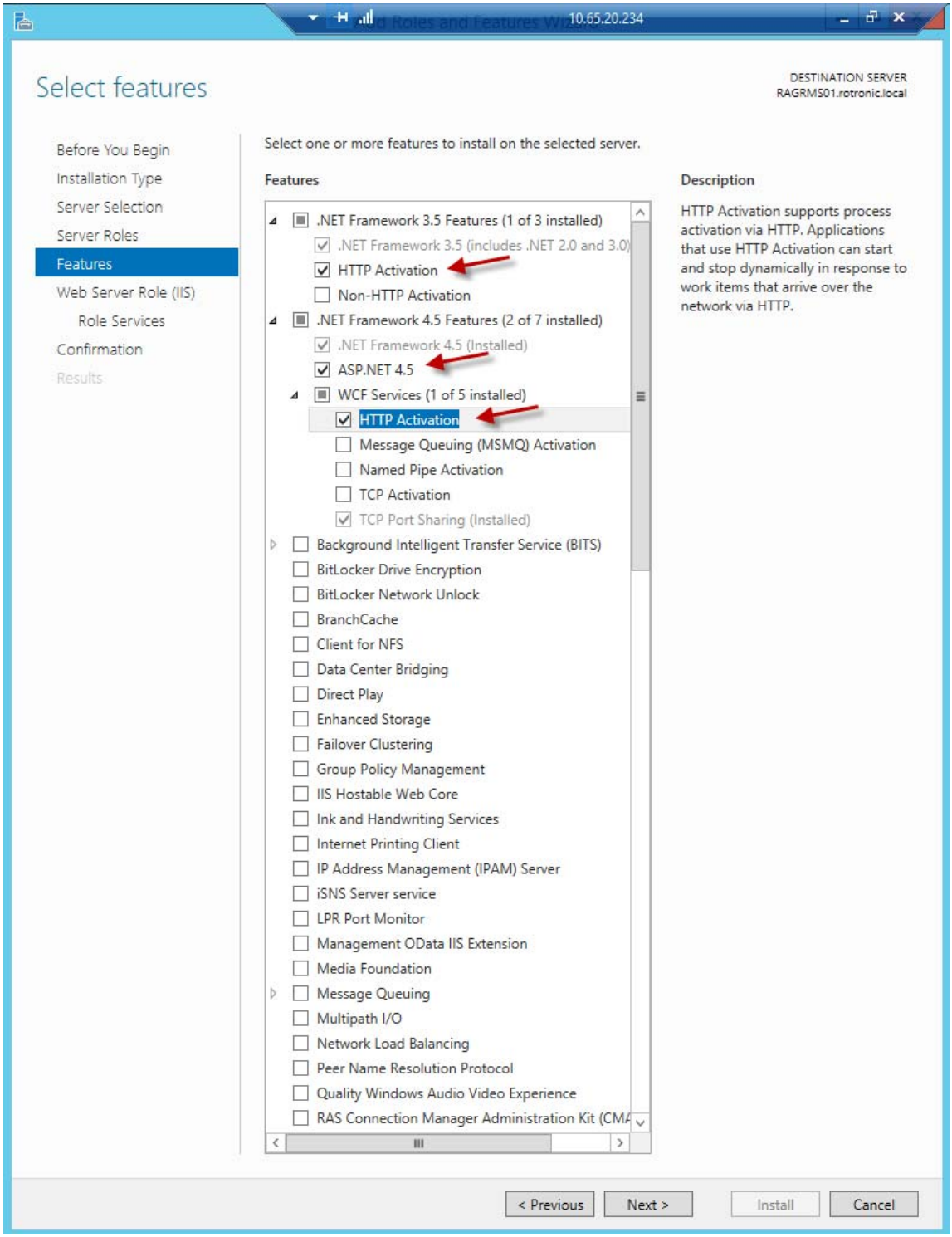



*Figure 32: Configuration of features and IIS web service, part 1*

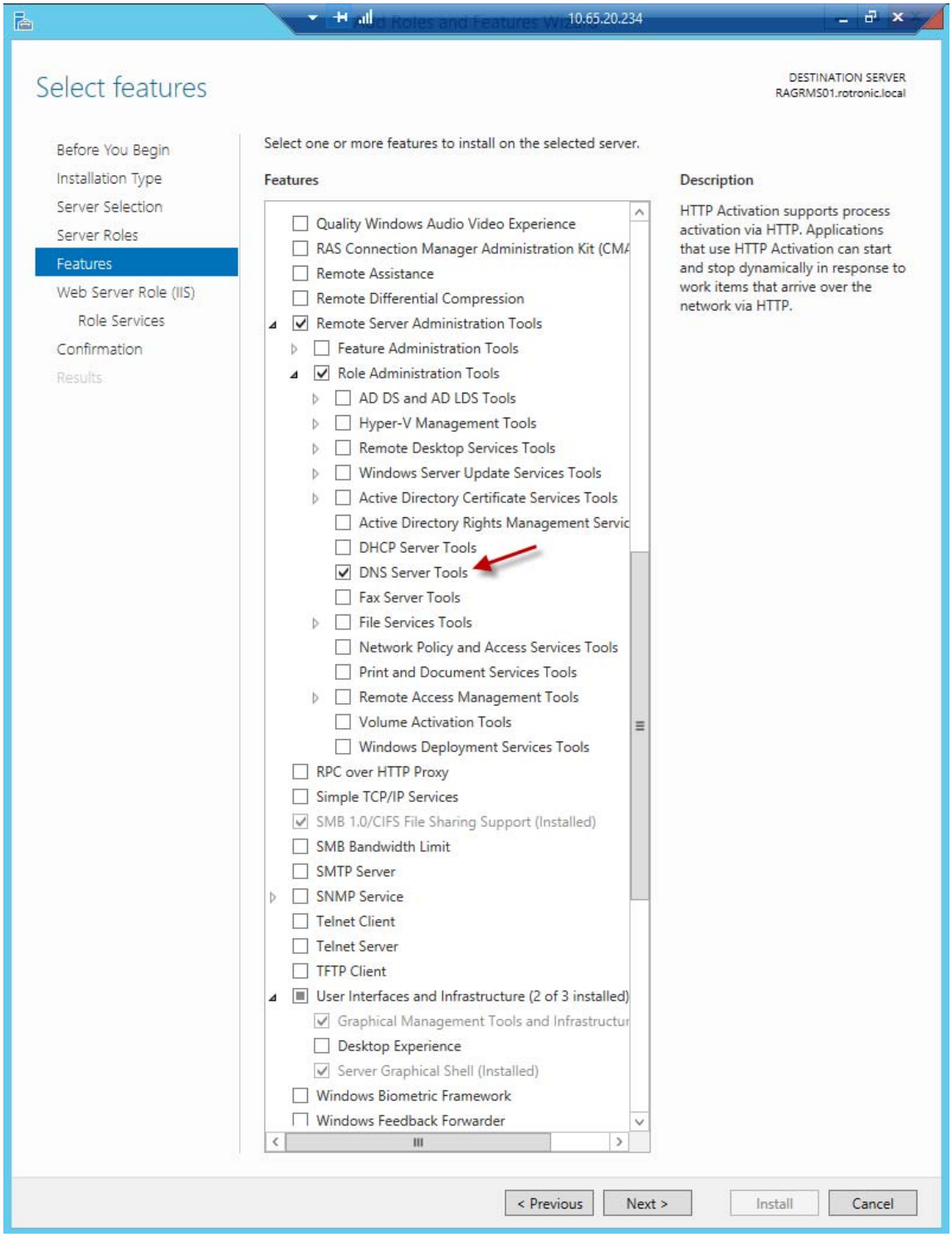



*Figure 33: Configuration of features and IIS web service, part 2*

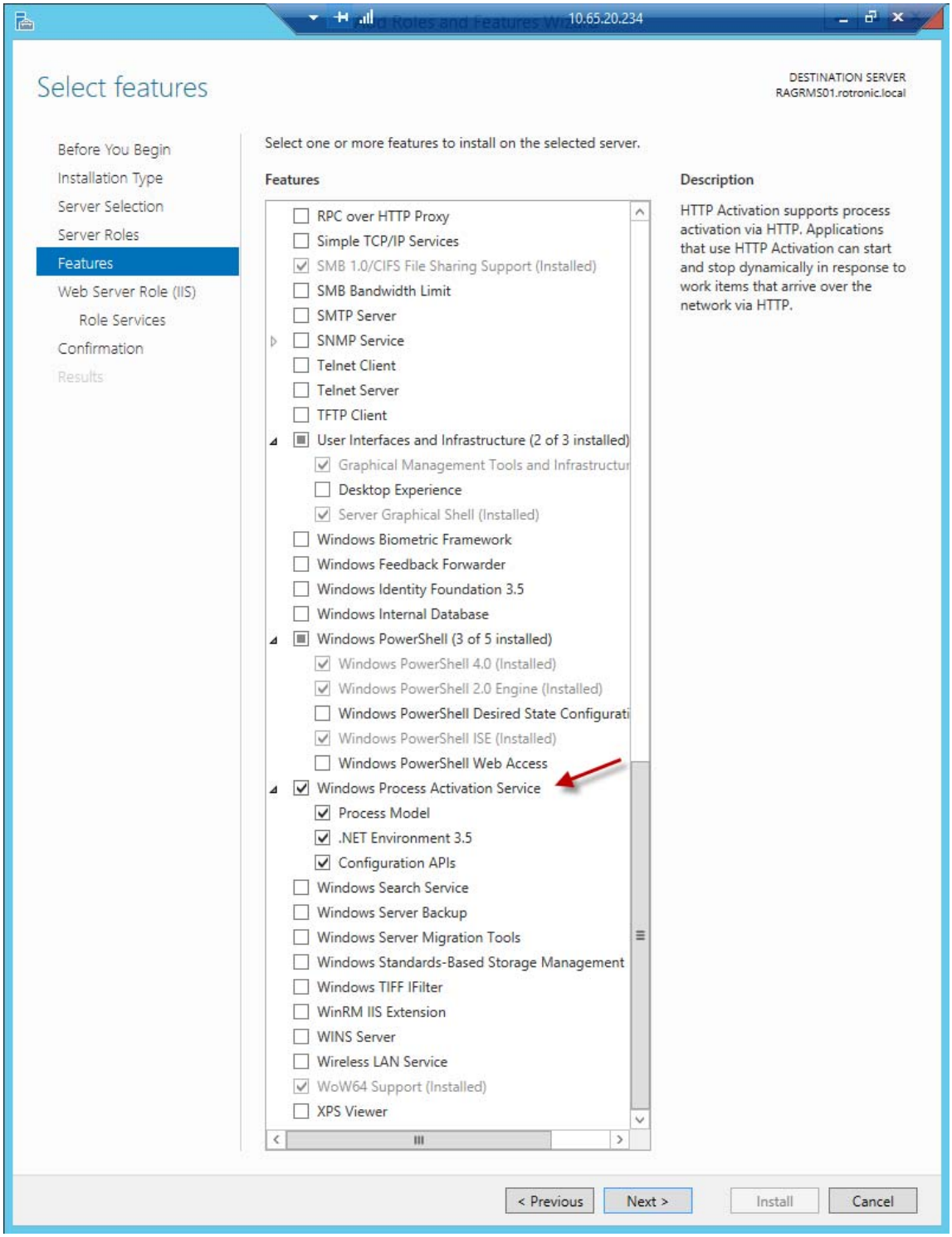



*Figure 34: Configuration of features and IIS web service, part 3*

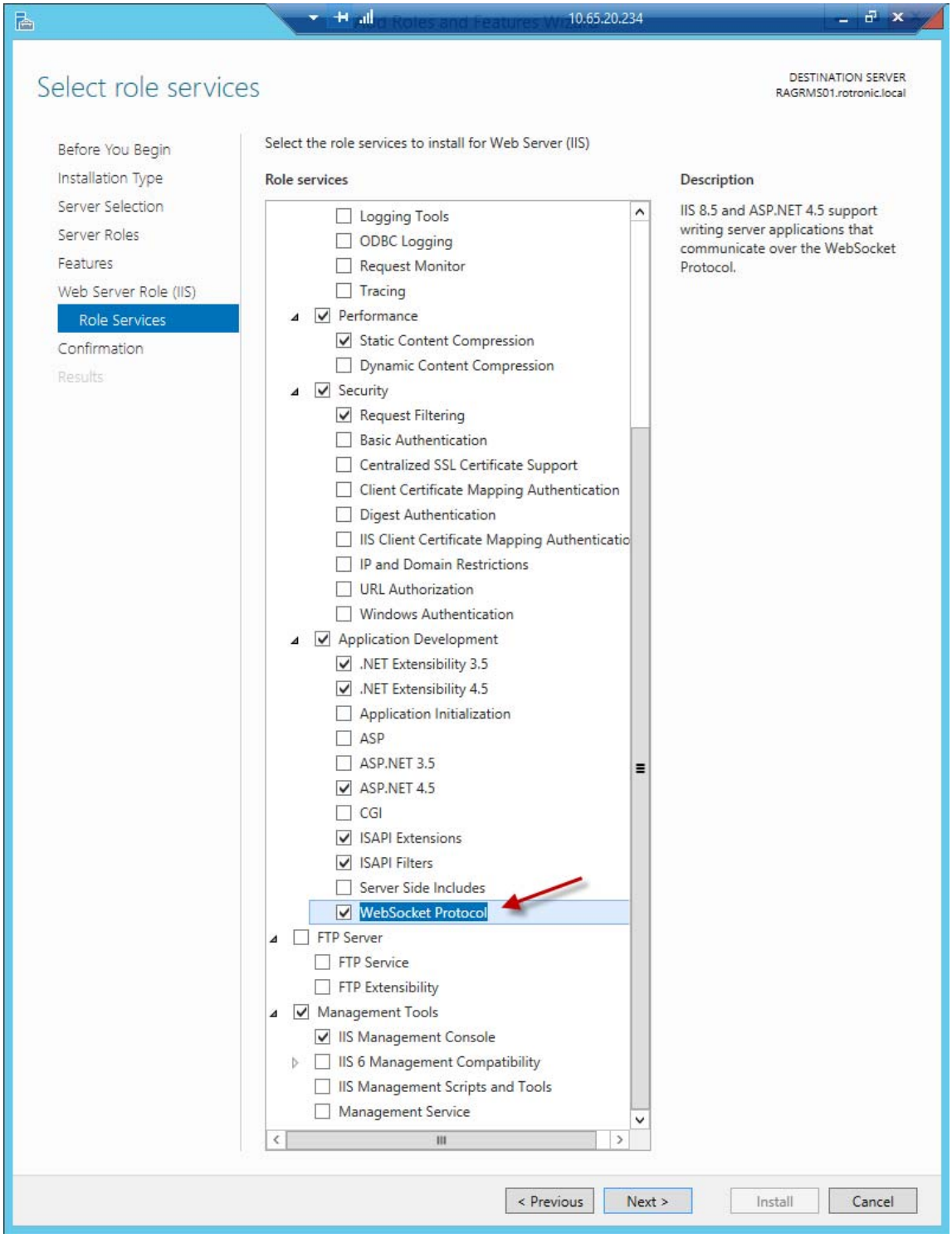



*Figure 35: Configuration of features and IIS web service, part 4*

## 3.6 Install Server Software

Extract the ZIP file and save the folder to the following path on the server:
**C:\\inetpub\wwwroot\rms\{Version}**

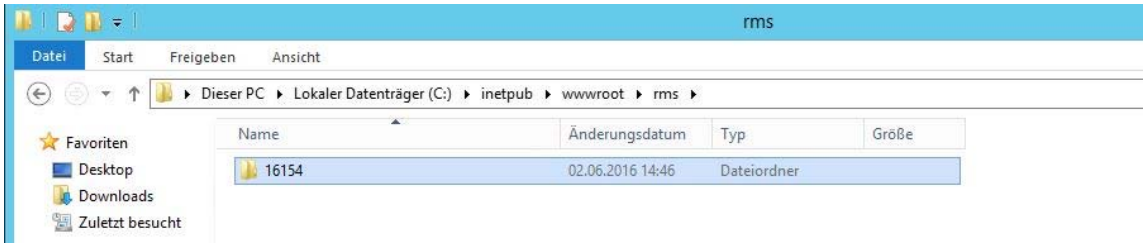



*Figure 36: Location of the extracted ZIP folder with the software version (e.g. 16154)*

### 3.6.1 *Setup connection configuration for wPage*

In the extracted subdirectory wPage, open the file *connections.config*.
Path: **C:\\inetpub\wwwroot\rms\{Version}\wPage**

The following information in the connection string must be modified according to chapter 3.3.

- **Data source:**
  Is the data base instance. SQLEXPRESS as used above. This must be adapted, when external SQL data base is used. E.g.:
  - Data base instance name: InstanzName
  - Data base server: 12.34.56.789
    Data source = *12.34.56.789\InstanzName*
- **Initial catalog**
  Name of the data base. “RMS” as used above
- **ID**
  User ID for data base access of the software. “rmsUser” as used above.
- **Password**
  Password for data base access of the software. As defined in chapter 3.3.

Example:

```
<connectionStrings>
        <add name="DataContext" providerName="System.Data.SqlClient"
        connectionString="Data Source=.\SQLEXPRESS;Initial Catalog=RMS;Persist Security
        Info=True;User ID=rmsUser;Password=xxxxxxxx" />
</connectionStrings>
```

### 3.6.2 *Setup connection configuration for wService*

Repeat the setup above for also for wService, or just copy the connection.config file to this folder.

The RMS Server Service is now connected to the database.

## 3.7 Configure IIS Web Server

To configure the IIS Web Server, select the server in *Server Manager Dashboard* > *IIS* and right-click "*Internet Information Services (IIS) Manager*" (Figure 37).

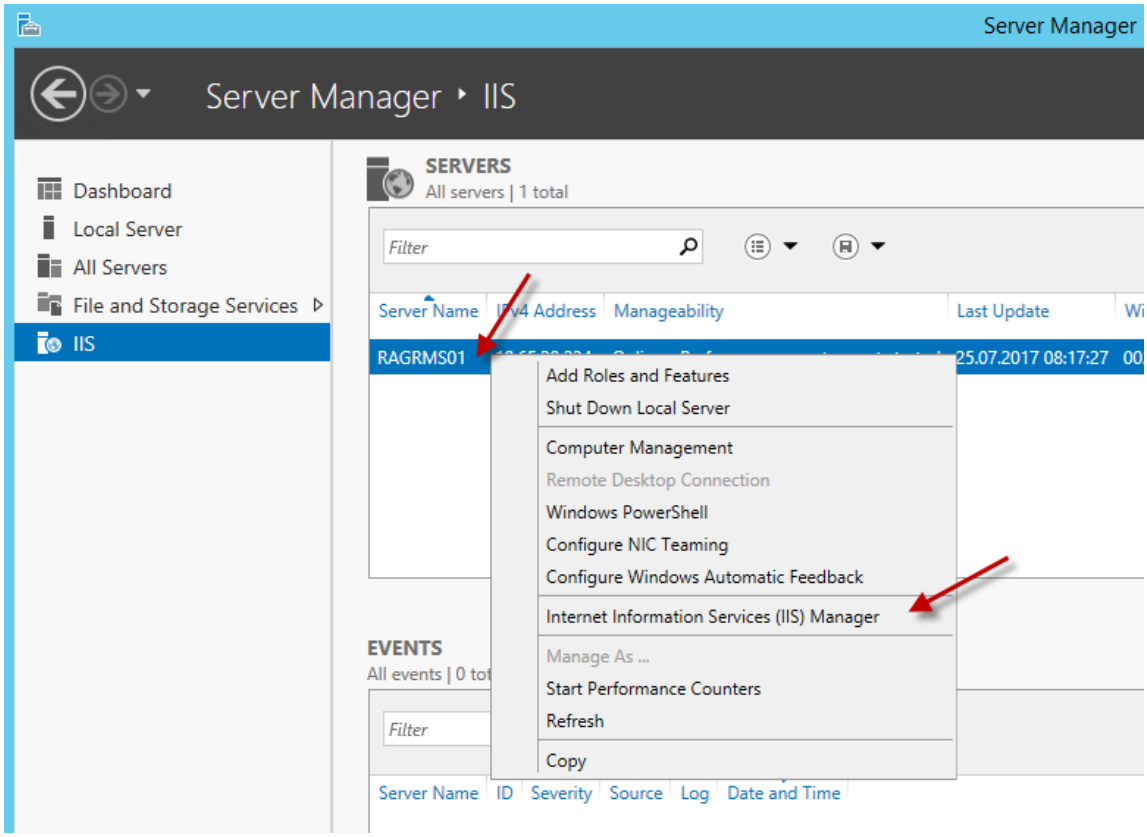



*Figure 37: Start IIS Configurator*

Create the following two new websites under the default website by right-clicking the default website (Figure 38 to Figure 40):

- RMS
- wService[2]

Note the correct configuration of "*Alias*", "*Application pool*" and "*Physical path*".

[2] The websites must be named exactly as given, otherwise the web service and database cannot be connected to each other.

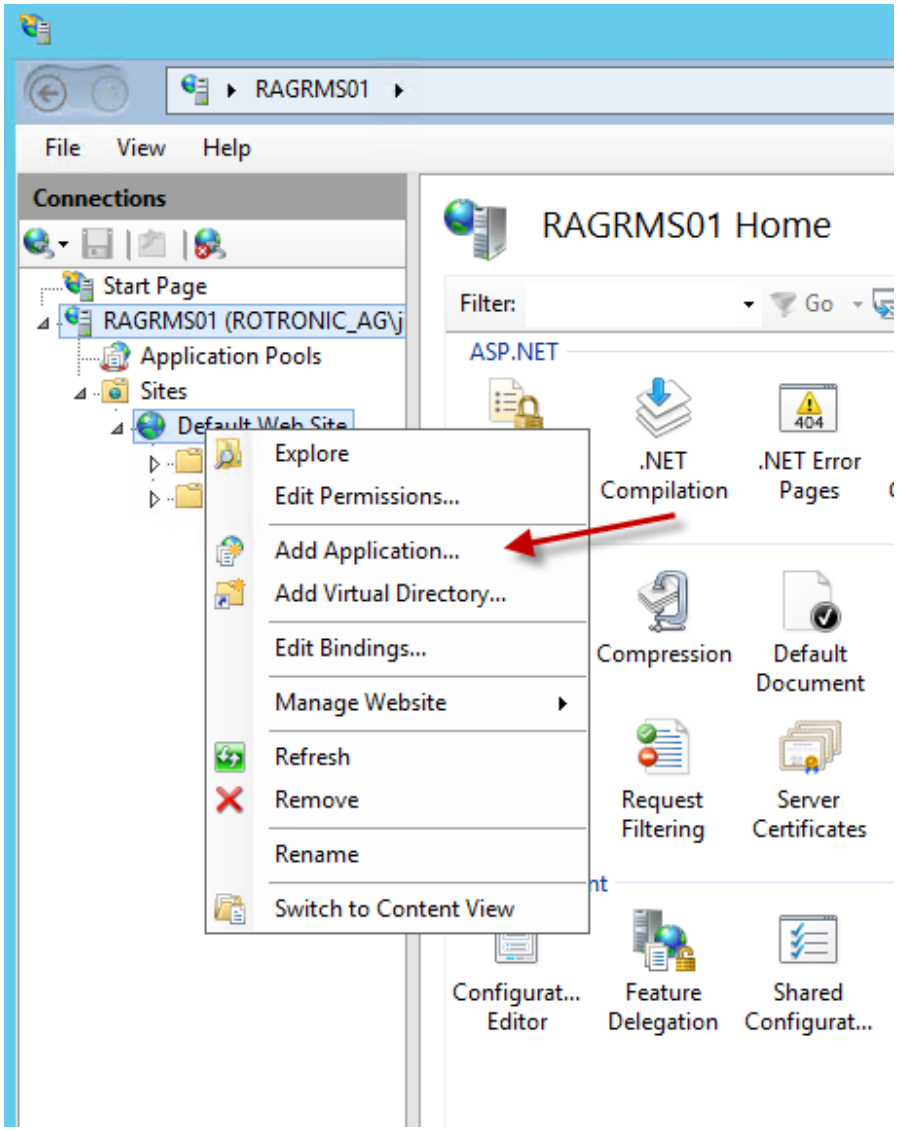



*Figure 38: Add sub-websites*

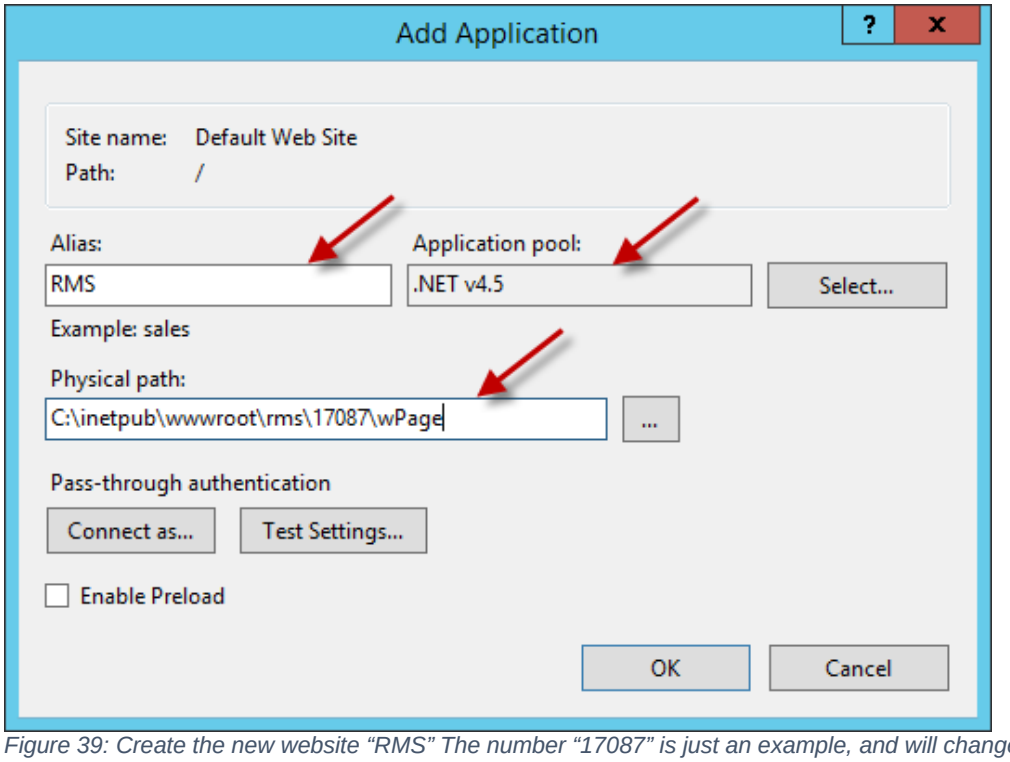



*Figure 39: Create the new website "RMS" The number "17087" is just an example, and will change with every SW version*

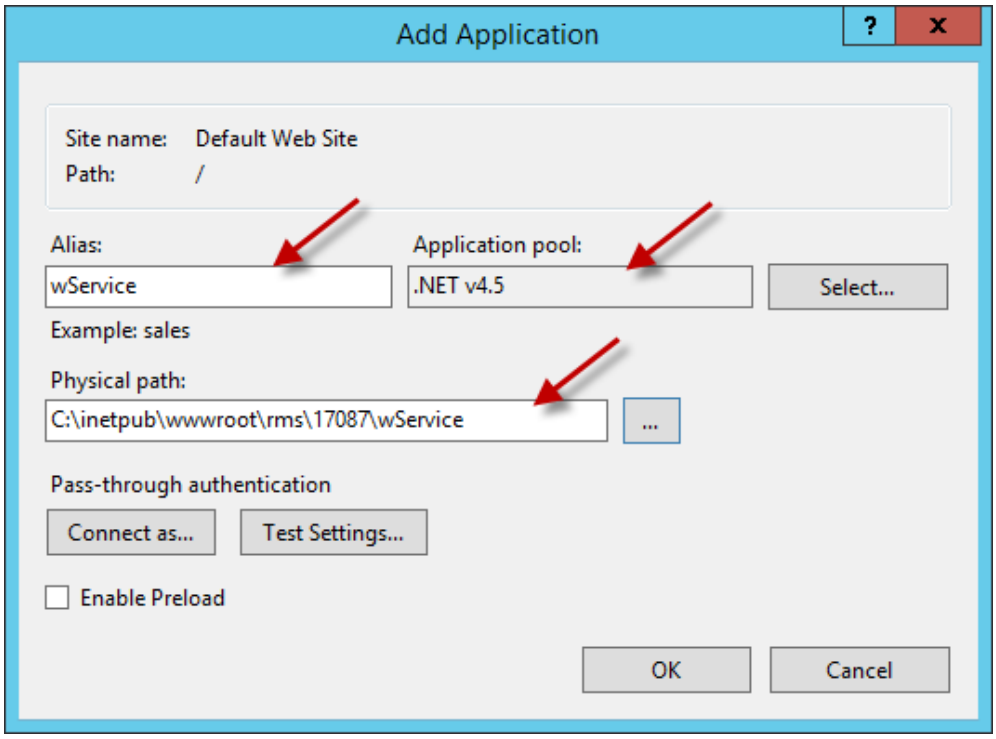



*Figure 40: Create the sub-website "wService". The number "17087" is just an example and will change with every SW version.*

The two web sites shall be visible now.

In order to monitor CPU load and memory usage, IIS needs corresponding rights on the server. (needed for application pool ".NET v4.5" of wService and wPage)

1. Open the **Local Users and Groups** node using "*server manager → dashboard → tools → computer management → Local Users and Groups*"
2. Open the Performance Monitor Users group, and add the application pool identity you are using. For example, if your application pool is named ".NET v4.5" as shown above, then add the user "iis apppool\.NET v4.5". "iis apppool" is a special prefix for application pool identities. Select the location with the button "Locations".

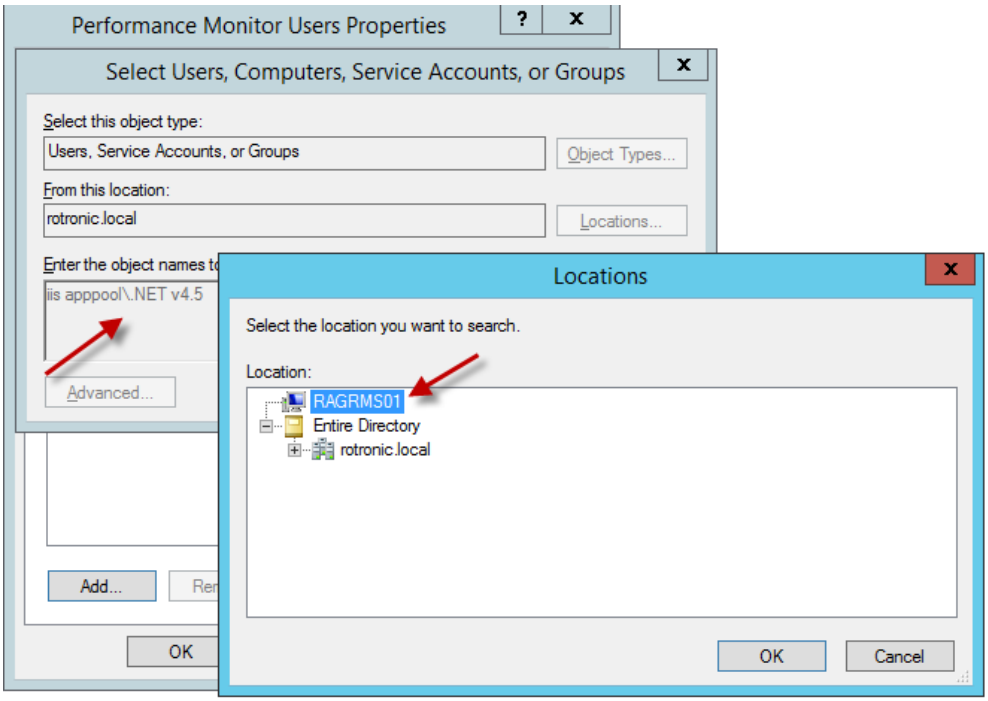



*Figure 41: Search user in selected location*

This shall be then visible in member list afterwards.

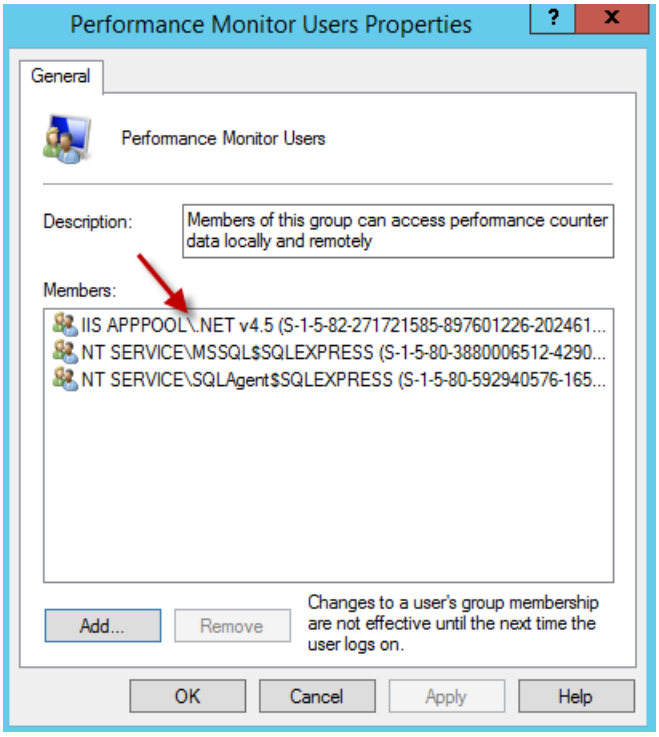



*Figure 42: The application pool is added to the performance monitor users list*

3. Reset your server using "*Server Manager → Local Server → TASKS →Shut Down Local Server → Local Users and Groups*", so that the changes take affect.

The web service configuration is now completed.

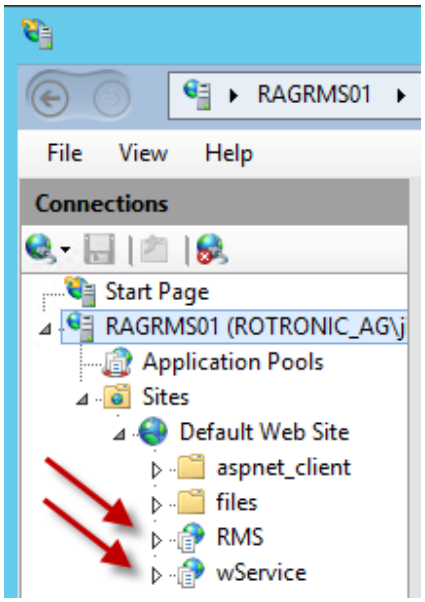



*Figure 43: Two new websites are visible now*

For later storage of uploaded documents in RMS, a file path must be created on the server for storage of these documents. The path can be selected at will (recommended: C:\inetpub\wwwroot\rms_files), but it must be possible for the IIS web service to write to the folder (full access). To this end, right-click the folder properties and set (Figure 44).

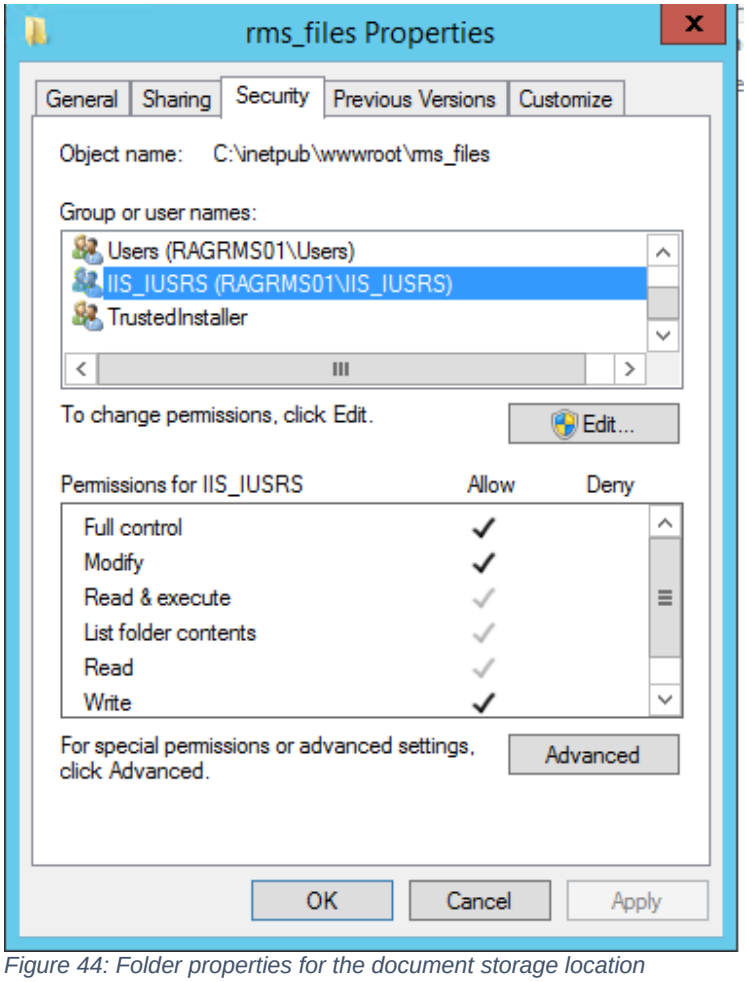



*Figure 44: Folder properties for the document storage location*

Note:
This folder path must be entered in the Documentation Path field in RMS System setting during System Startup. (see section 3.1 of E-SM-RMS-WEB).
When no IIS user is installed, please contact your IT department to install an IIS user.

Installation of the server software and database is now finished.

## 3.8 Testing

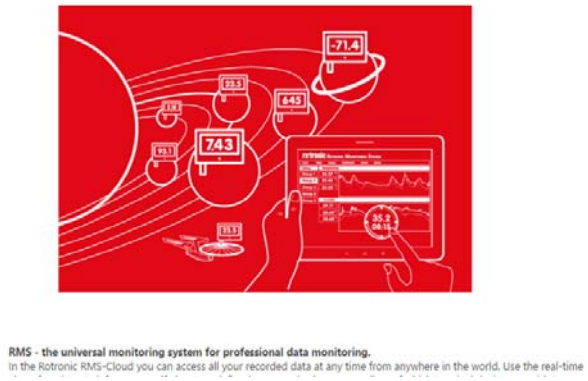
Test installation:

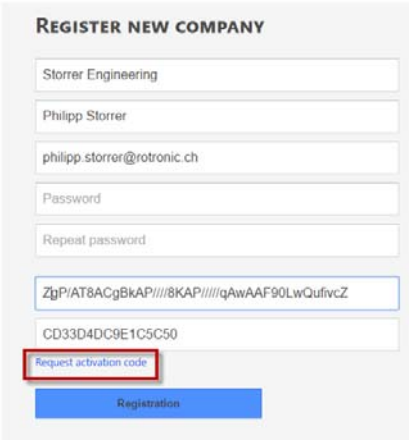
| Description |
| --- |
| Test Webservice database connection<br>Open the following URL:<br>http://<Server>/wService/wService3.DeviceService.svc/TestDatabase<br>The following response must be displayed<br>“SQL Connection OK” |
| Test Database Connection of RMS Web Application<br>Open the following URL:<br>http://<Server>/RMS/TestDatabase.aspx<br>The following response must be displayed<br>“SQL Connection OK” |
| Test RMS Web Application (Http)<br>Login Page must be visible in your browser<br>http://<Server>/RMS/Login.aspx |
| Test RMS Web Application (Https)<br>Only applicable if SSL is required. SSL Certificate must be installed<br>Login Page must be visible in your browser<br>https://<Server>/RMS/Login.aspx |

Please refer to the troubleshooting guide, if the tests above fail.

## 3.9 Register and Login

The login page can now be opened:
**http://123.456.789.0/rms/register.aspx**[3]




[3] 123.456.789.0 is to be substituted by the number of the server.

*Figure 45: Login page of the server software*

The license key is supplied by Rotronic. You need to request an activation key (see red box in Figure 45) before you klick on "Registration".

Setup of the RMS with all devices, users, groups, etc. is described in the manual **E-SM-RMS-WEB, chapter 2**.

# 4 Additional Documents / Materials

| Name | Contents |
| --- | --- |
| E-OM-RMS-WEB | Instruction Manual: System Operation |
| E-SM-RMS-WEB | Instruction Manual: System Startup |
| Installation video example | https://youtu.be/r1n4ofA1j8E |

# 5 Document Versions

| Name | Date | Notes |
| --- | --- | --- |
| V1_0 | October 2016 | First version |
| V1_1 | November 2016 | Update chapter 2, software installation<br>Update chapter 2.6, Installation server software |
| V1_2 | March 2017 | Additional information regarding server settings and data base connection. |
| V1.1.1 | April 2017 | New chapter 2: Update to a newer version of the RMS software.<br>New chapter 3.8: Testing |
| V1.2 | November 2017 | Jia Shen, diverse chapters updated. |