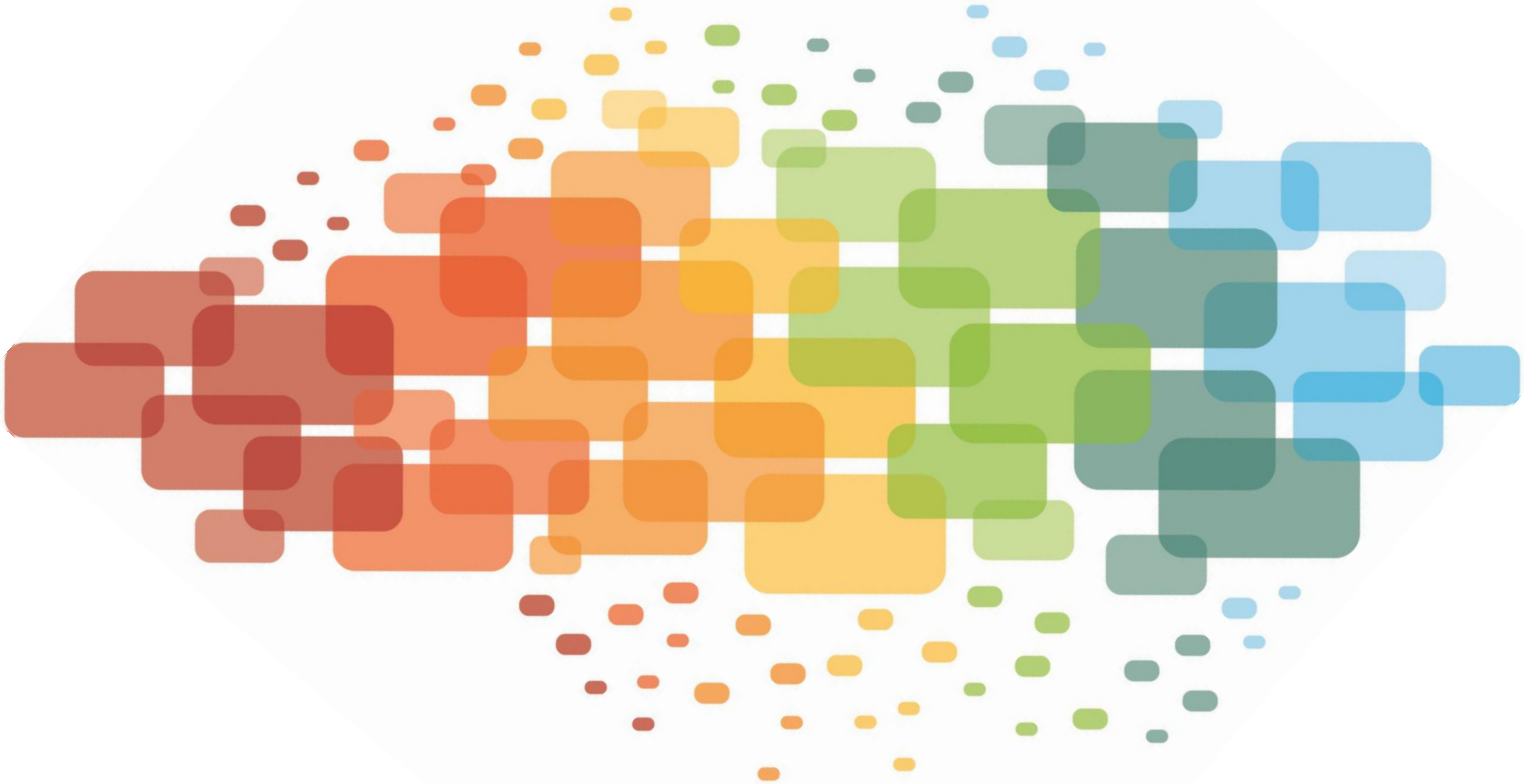

Connection Description

SwyxWare

Last updated: 09.10.2018

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1 Forward

The screenshots of the configuration and program functions described in this document refer to the SwyxWare from release v10.00.x and Swyx Edition by aurenz from release 11.0.01.

The data exchange follows through a text file stored in the SwyxWare server or direct access to the SwyxWare CDR database.

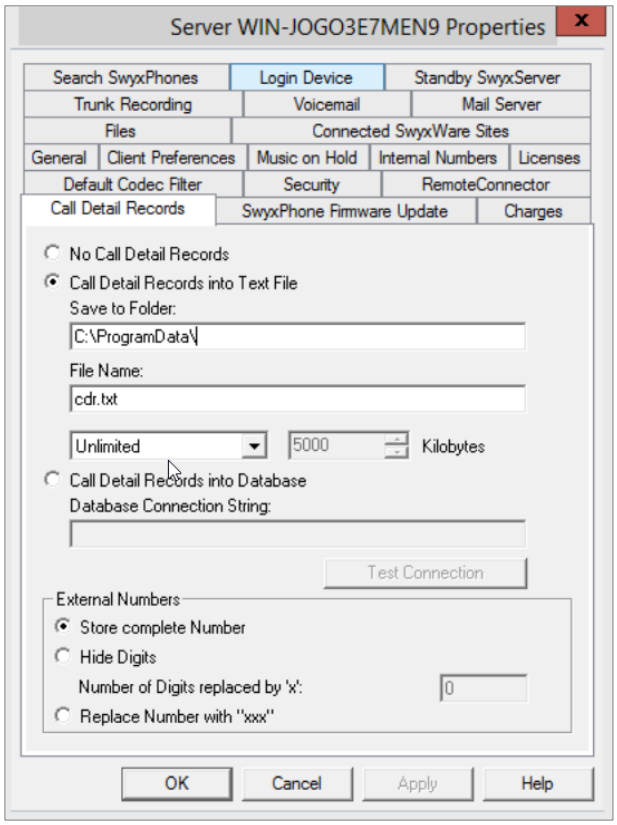
This document describes the data exchange from the SwyxServer, taking place over a LAN connection. The AlwinPro PC and the telephone system must be connected to LAN, and then the data exchange takes place over LAN, in a freely selected directory in the PBX (network share).

Before the exchange of data, the PBX and AlwinPro/Anna4 must be prepared. It is necessary to make certain adjustments, which 1) causes the SwyxWare to release call information and 2) makes it possible for the Swyx Edition to receive the information.

2 Required SwyxWare® settings

The adjustments described below are generally constructed and may vary from the actual configuration you are dealing with. The following settings apply to the connection between SwyxWare v10.00.x and SwyxEdition from 11.0.01

2.1 Enable Call Detail Records



First start the SwyxWare administration. Select the SwyxServer, click the right mouse button, and open the dialog window properties. Select call detail records, and set the path and the name of the data file. Here you can also enable or disable call data recording. Set the file size between 100-500 kilobytes. If the file size is exceeded a new file will be created with the same name plus an additional counter.

When connecting via a SQL server, note the connection information here.

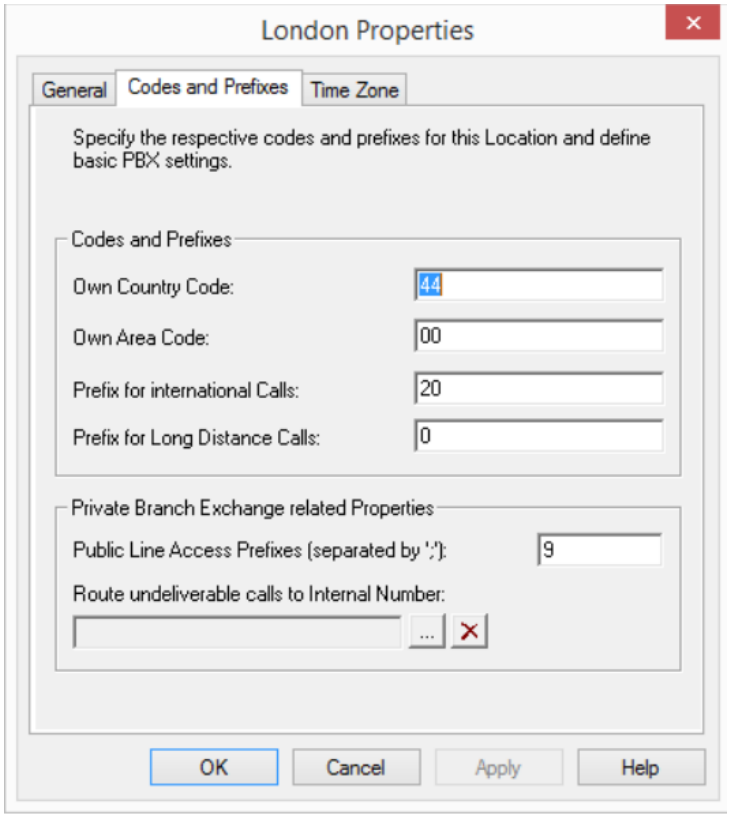
ATTENTION
In connection with the CDR-files, please check the free drive space. 100 kilobyte file contains about 350 records.

Chose store complete number under the section external numbers. Settings concerning data privacy protection can be made in the Swyx Edition.

ATTENTION
Configuration changes might require a SwyxServer restart. Please follow the current SwyxWare manual.

2.2 To enable business/private calls

If you want to make a distinction between business and private calls in the Swyx Edition, please see in the picture below to configure properly.



Additional prefix for public lines access can be added, use semicolon to separate. The prefix for public lines access used for the call type private must be defined equally in the settings of the Swyx Edition data collector (Section 4.6).

2.3 To use project/PIN numbers

To save calls as project (business) or PIN (private) within Swyx Edition, use the Swyx project codes. The project code has to be dialed both before the destination number itself and also before the public line access code for business or for private calls. Generally a project call will begin with * and end with #

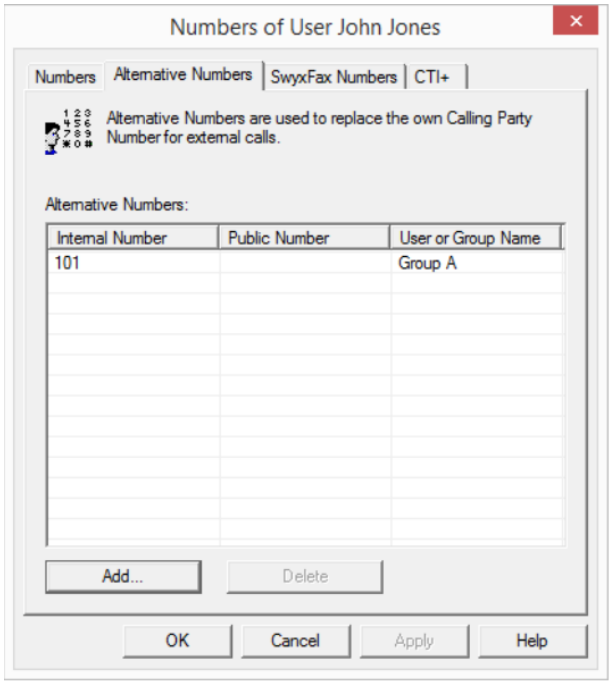
Examples of numbers (public lines access for business calls is 0 and for private call is 9) and their classification in the Swyx Edition:

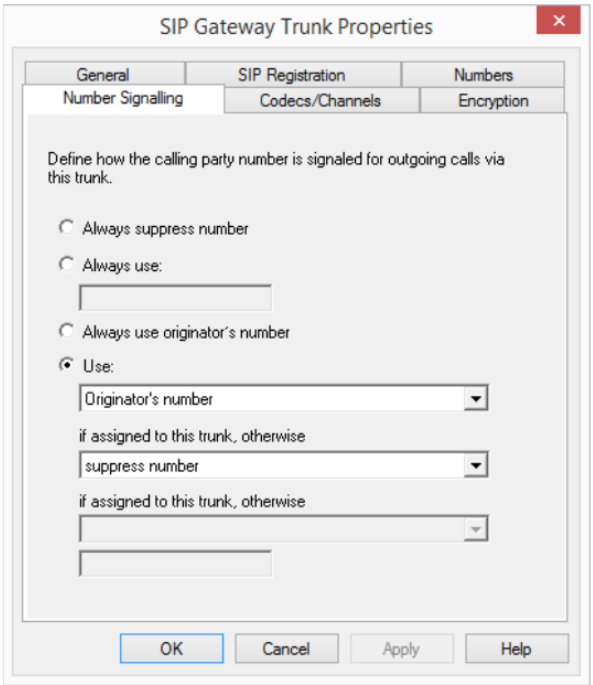
<Prefix 0><number> = Business call e.g. 0070211234567
<Prefix 9><number> = Private call e.g. 9070211234567
<Project code #><Prefix 0><number> = Project call e.g. *1234#0070211234567
<Project code #><Prefix 9><number> = PIN call e.g. *1234#9070211234567
<Project code #><canonical numbers> = Always project calls e.g. *1234#+4970211234567
<Project code #><Trunk Group Prefix><canonical numbers> = Always project calls e.g. *1234#**34#+4970211234567

2.4 To use phone number replacements in the SwyxWare

Depending on the characteristics of the Trunk (CLIP/CLIP no screening) there are several ways in the SwyxWare to indicate alternative call numbers for external calls. For instance this could be used to always signal the 0 to the external subscriber in case the call is initiated by a certain group of subscriber.

ATTENTION
When using alternative numbers or the different numbers signaling in the trunk properties, the alternative numbers will be signaled to the target subscriber and will be used as origination number in the Call Detail Record (CDR).

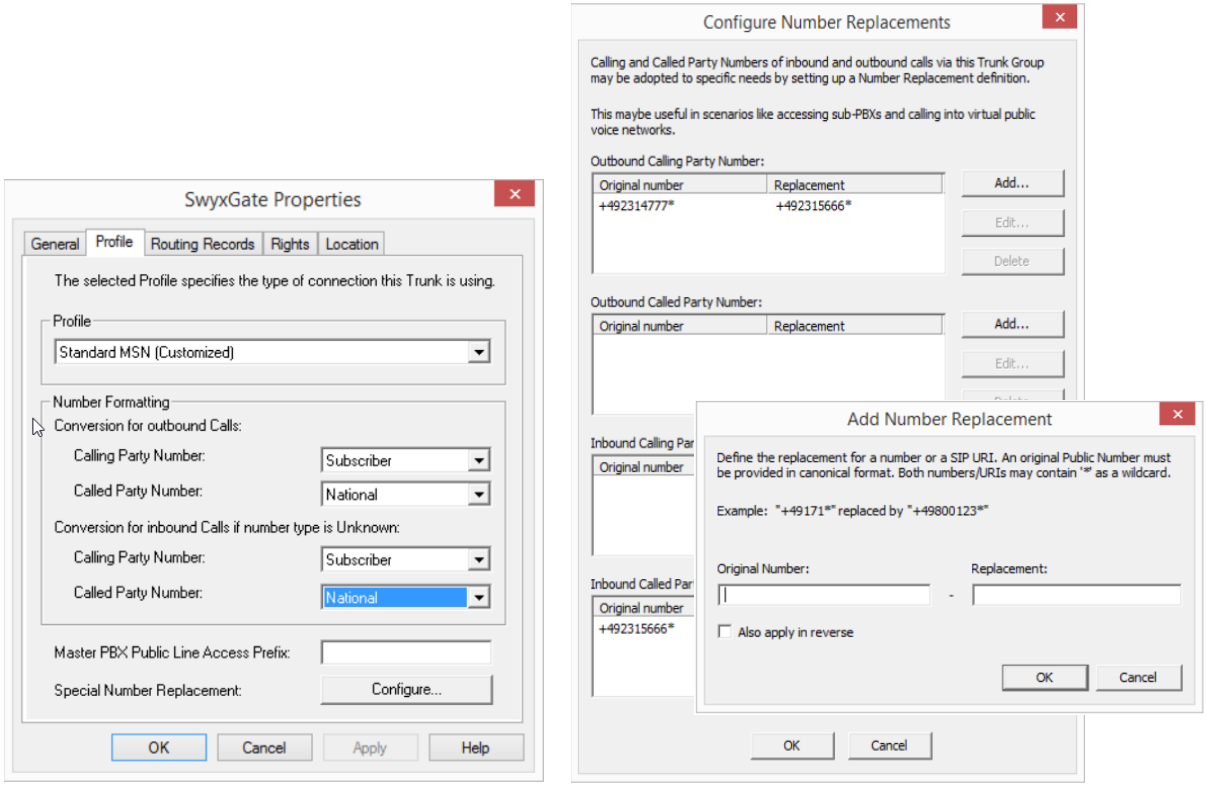




If you use these settings, the calls in the Swyx Edition will not be associated with the calling extension.

Alternative

Do not use call number replacements but *special number replacements* of the trunk group configuration, which you will find in the register profile under the trunk group properties page.
Only with this kind of number replacements, the calling extension will appear as an organizational number in the CDR, and the replacement will be signaled to the targeted subscriber.



3 Setup Swyx Edition

3.1 Install the software

* For standard installations, default settings of the installation wizard can be adopted. Follow the wizard's instructions.

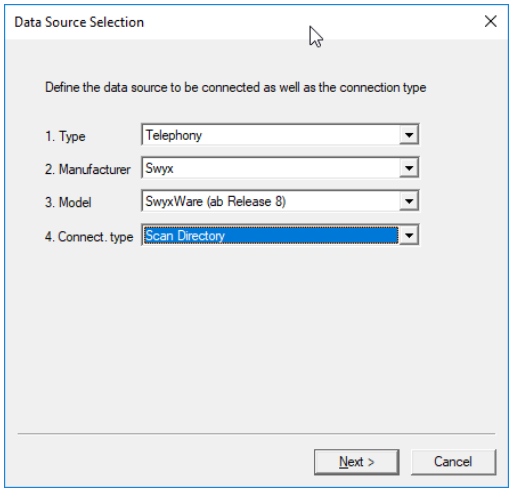
* If the Visual C ++ 2013 redistributable (x86) package from Microsoft for MFC applications is installed, depends on the various software requirements.

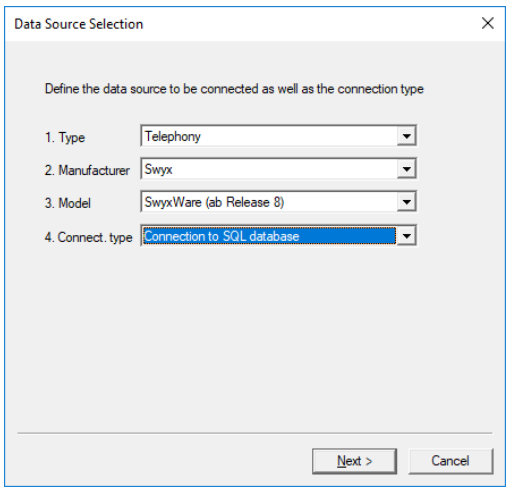
Start the setup and follow the instructions. After the installation you will be given the choice to connect the mail server and telephone system immediately or later. Select install now and perform the following steps (all settings can be changed later on).

If you want to install the phone system later (install later) the following message appears and the installation process will be completed. Otherwise, the installation wizard starts

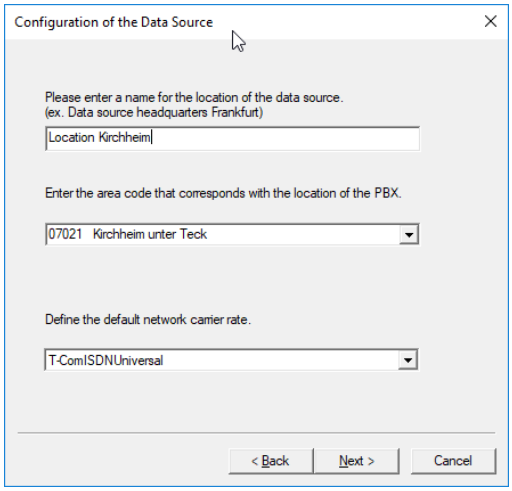
3.1.1 Select telephone system and connection type

Select *Swyx* and *SwyxWare* (from Release 8)" and either *directory scanning or Connection to SQL database* when creating the telephony data source.

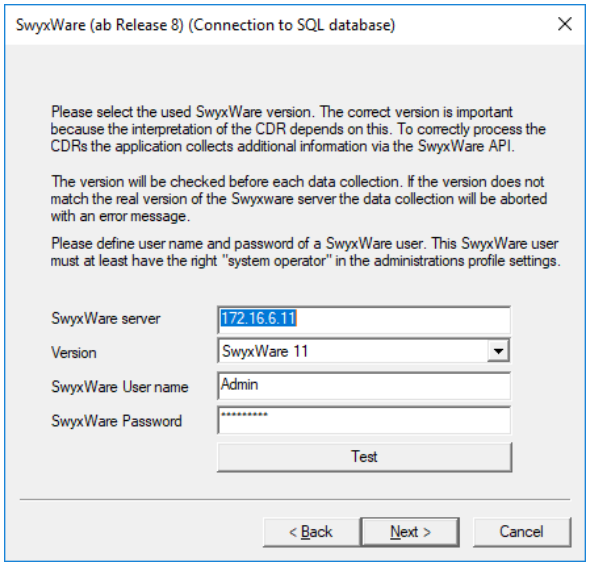




Enter a name for this node and define from which area code the breakout to the public line is taking place.



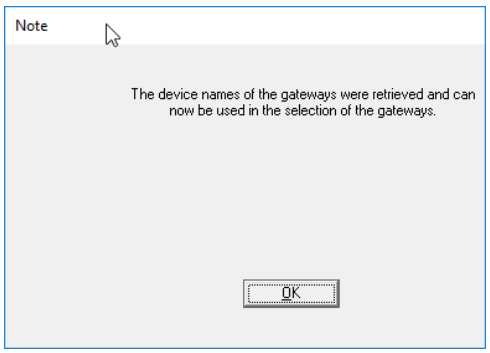
3.1.2 Connection to the SwyxWare Config Data Store (CDS)



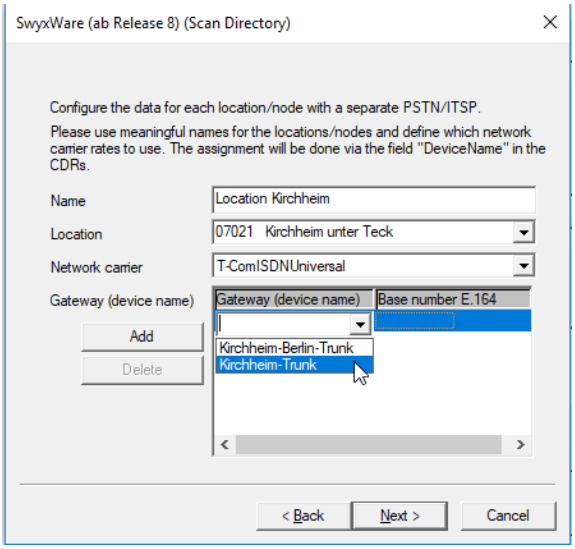
Enter the IP address or the FQDN of the SwyxWare server, select your SwyxWare version and enter a SwyxWare user who, in the SwyxWare administration profile, has the right "System Administrator". The user is required to read data such as SwyxWare version, trunk groups and the phonebook from the Swyx Config Data Store (CDS).

ATTENTION
If the connection to the SwyxWare cannot be established before collecting the CDRs the data processing will be stopped. The processing of data will also be stopped if an incompatibility of the Swyx Edition version is recognized. To resolve this problem update Swyx Edition.

To check that the data query works, use the test or next – button.



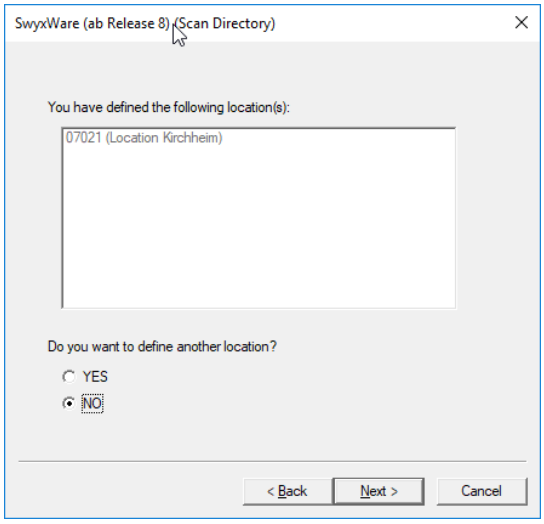
3.1.3 Define locations and gateways



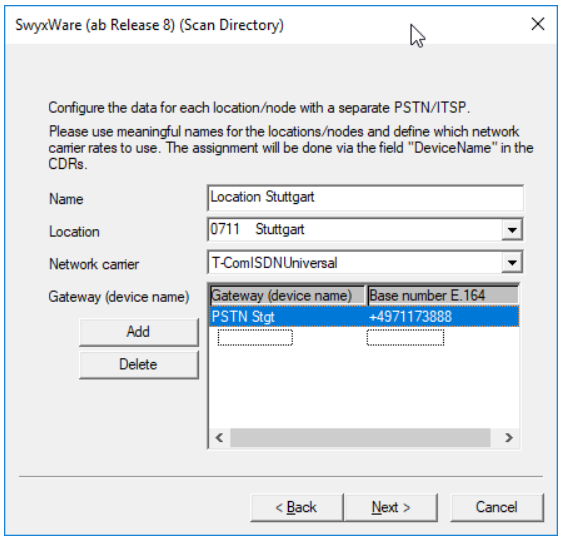
In this dialog one has to define all the gateways over which external calls are routed.

ATTENTION
This setting is needed to identify external Calls. Please check the main number associated to the trunk. In some cases one has to remove the last digit (often the “0”) because this is already the default extension of the location.

Setting up additional locations

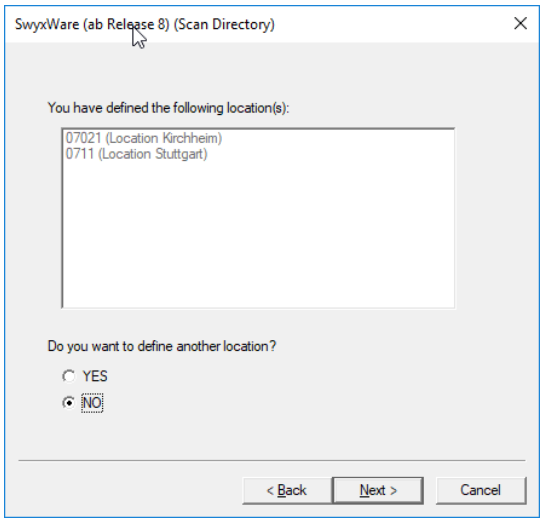


If your SwyxWare contains gateways with different area codes or multiple locations with their own access to the PSTN, you have the option to create additional locations here.



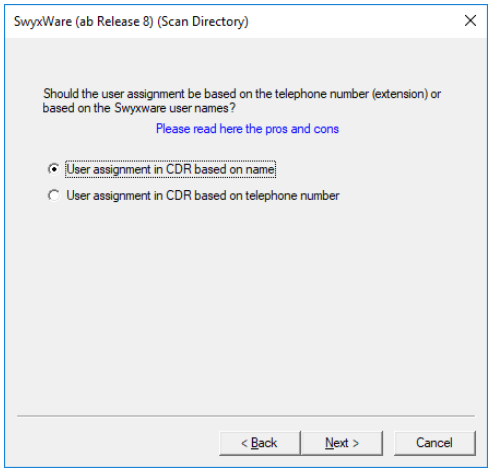
Choose a name, an area code and the network provider rate for this location. Select the gateway and enter the main office number. All sites and trunks added to PSTN / ITSP must be part of this SwyxWare data source.

If the call data of another independent SwyxWare installation is to be processed, an additional data source must be created with corresponding settings.



After you have set up all the locations select NO and go to next.

3.1.4 Subscriber assignment based on name or phone number



The Swyx Edition offers you the possibility to use the field of the calling party number or the field of the calling party name in the SwyxWare CDRs for storage. Both have advantages and disadvantages, which are listed below with some examples.

Storage using the name field

Advantage

The names of the users are unique

Disadvantage

It is no longer possible for a subscriber with several assigned numbers to perform a differentiated evaluation for the individual numbers.

Optional organization chart reconciliation with an LDAP server may be problematic.

Storage using the number field

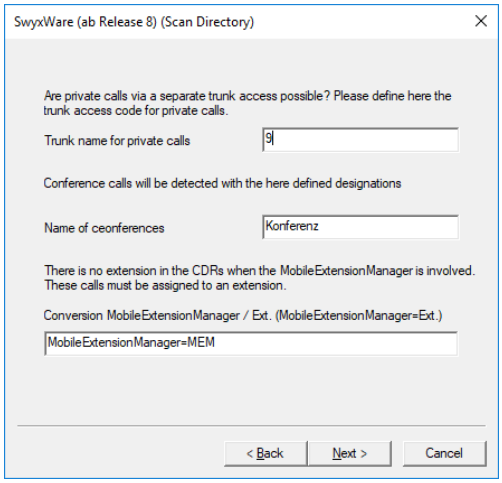
Advantage

It is possible to distinguish different phone numbers for one user.

Disadvantage

For each phone number assigned to the user (extension), a license in AlwinPro is used.
This may cause higher license consumption than under name – storage.

3.1.5 Further parameters

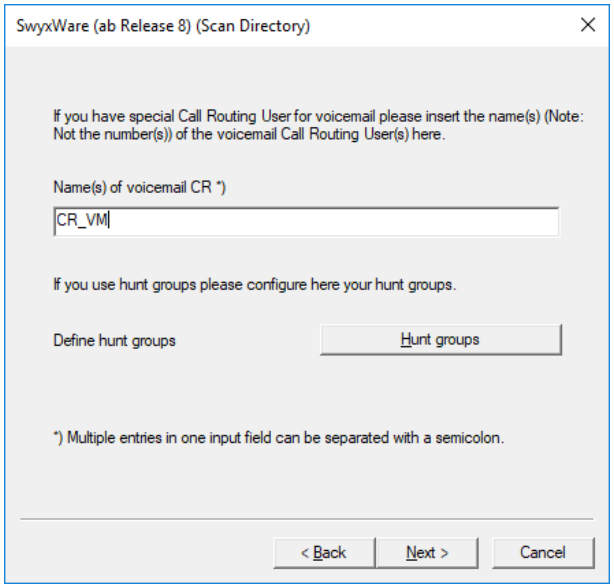


Trunk line access code for private calls (in combination with project code numbers = PIN calls)
Please enter the trunk line access code for private calls if used (see SwyxWare Administration - Locations).

Conference name
The user account for the SwyxConference-Manager is set up automatically when installing SwyxWare via the SwyxWare configuration assistant. The name for the conference user entered at that time cannot be changed via the SwyxWare Administration. Enter the used user name (Default = Conference) in the field "Names of conferences". With the designations entered here, the CDRs determine whether they are conference calls or not. If the connection to the SwyxWare Server is established, this field value is set automatically.

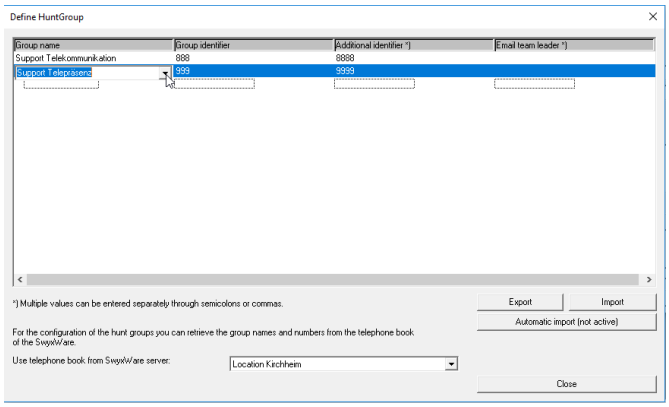
MobileExtensionManager
The user account for the mobile extension manager (MEM) is set up automatically when installing the SwyxWare under the name MobileExtensionManager. The default name cannot be changed via the SwyxWare administration. When using the function in SwyxWare, the subscriber must be activated and a phone number assigned. If the connection to the SwyxWare Server is established, this field value is set automatically.

3.1.6 Routing Script User for Voice Mails



Within the CDRs there is no flag if a call was answered by a user or automatically by the user's voice mail. In both cases the CDR looks the same. To differentiate between these two cases a forward to a separate routing script user which then connects the call to the voice mail has to be included into the users routing script. Please enter these routing script users here, separate multiple entries with a semicolon.

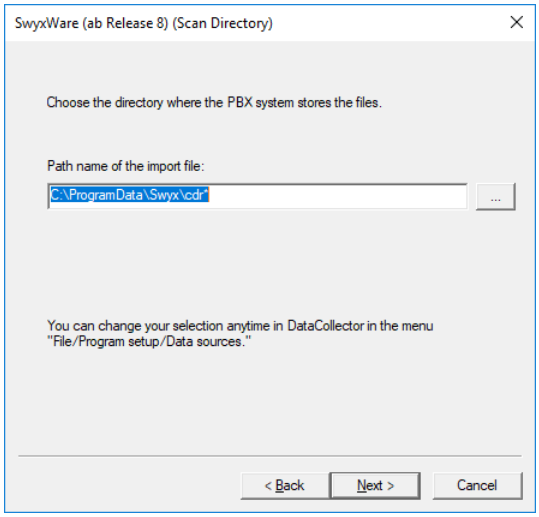
3.1.7 Setup Hunt Groups



To enable hunt group statistics it is needed to define for which groups the hunt group statistics has to be performed. It is important that not only the hunt group number/name are entered here but also the routing script user that is forwarding the call to this hunt group. Please enter the *group identifier* which can be the name or the extension (depends if the user assignment is based on the number or the name) for this group and the extension of the routing script user as *additional identifier*. If the SwyxWare Server is connected at this time all the hunt groups and users can be selected from a combo box.

3.1.8 Setup the connection type

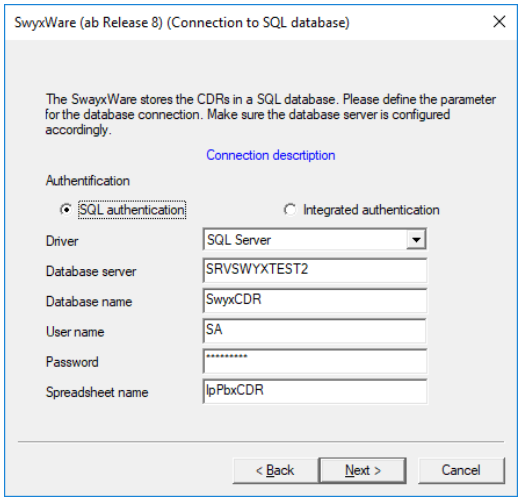
a) In case of Scanning Directory



Please enter the CDR file name and path. When retrieving the file(s), SwyxEdition reads all unprocessed data records of the files matching that pattern, into the database.

ATTENTION
This setting is needed to identify external Calls. Please check the main number associated to the trunk. In some cases one has to remove the last digit (often the “0”) because this is already the default extension of the location.

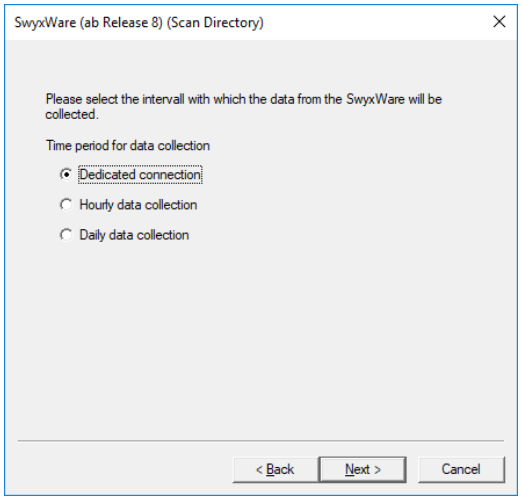
b) In case of Database Connection



When storing CDRs in a database under MS SQL Server 2014 EXPRESS, the SwyxWare node name followed by the instance must also be entered in a connection string (for example “node name\SQLEXPRESS”).

For details regarding storing *call detail records* in a database, see the Swyx Knowledge Base article "HOWTO: Write *call detail records* in a database (kb2491)".

3.1.9 Data processing interval

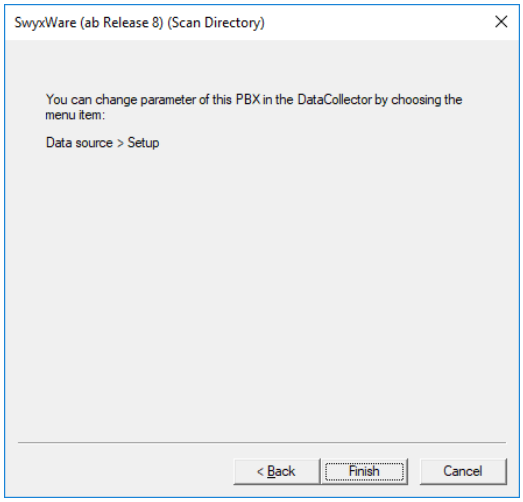


Dedicated Connection - New records are processed immediately.

Hourly Data Collection - New records are collected every hour.

Daily Data Collection - New records will be picked up once a day at 22:00.

It is recommended that the data are processed immediately after they appear. Only in that case the reports will show actual numbers.



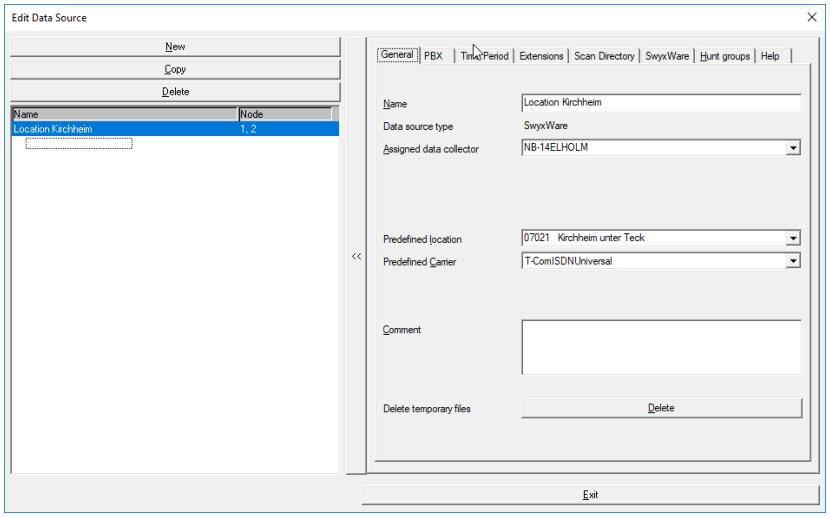
This completes the setup of the data source via the configuration wizard.

Attention
Adjustments made via the wizard, as well as additional optional settings for "relevant extensions" and for "hunt groups", can be carried out directly in the data source of the data collector module.

4 Setup the data source via the user interface of the data collector module

Via the menu item *Data Source -> Setup* you can specify which telephone system to configure. If you have not already done so while installing Swyx Edition, select *new* and carry out the steps described in chapter 3.1.1 to 3.1.9.

If you have created an instance of a data source you will find it in the list of data sources. Select it to display the configuration parameters. All settings made during the wizard process when creating a new data source can be found and changed in the property pages at the right side of the window.



However there are two additional settings which were not available in the wizard.

4.1 Tab fax extensions

If you want to use the fax extension option, enter the fax machine prefix here.

5 Some words to the hunt group analyzes

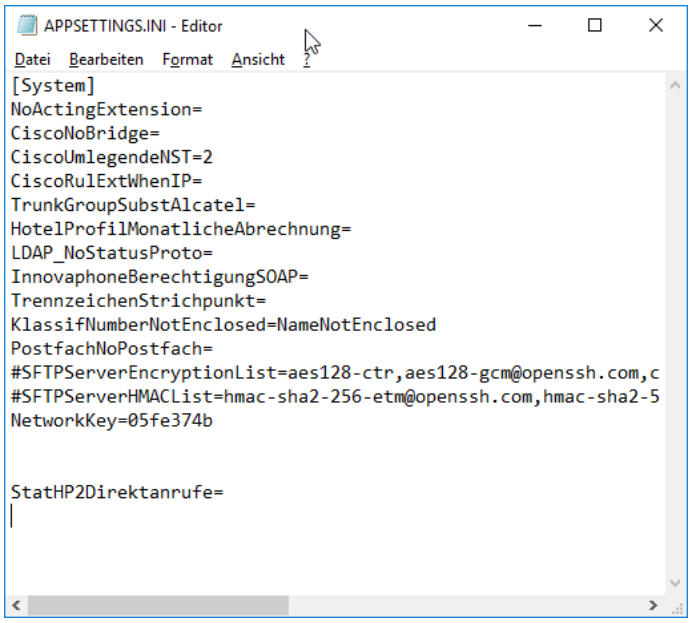
From Swyx Edition release 9.8.06, the Anna4 hunt group analyses are available if wished. Hunt group analyses are reports of hunt groups and their members (agents). The reports are based on the CDRs provided by SwyxWare. The CDRs are already interpreted when collected through the data source. It is therefore important to arrange the hunt groups in the Swyx Edition properly, and to set the correct processing logic-option, before the CDRs are retrieved through data acquisition

5.1 Option: Treat direct calls to an agent's extension like a call a hunt group call

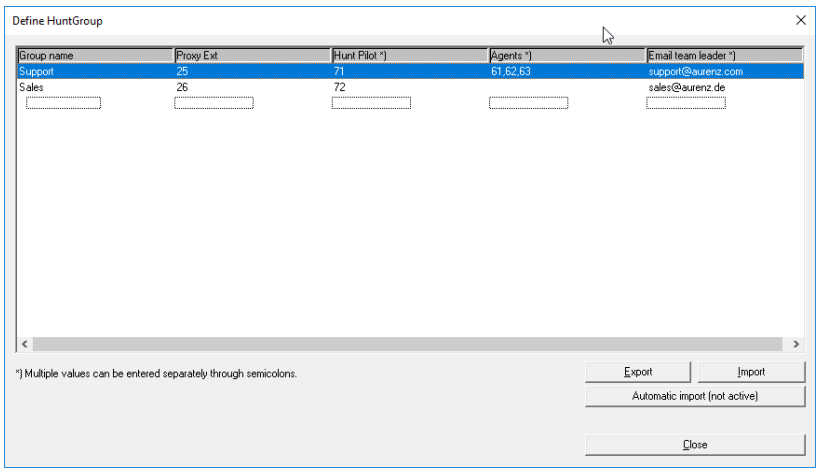
If the direct calls shall not be assigned to the subscriber itself but to a hunt group the subscriber belongs to, use the INI-key:

StatHP2Direktanrufe=

If necessary, you must enter this key in a new line in the APPSETTINGS.INI found in the directory "System" within the Swyx Edition installation folder and terminate it with a line break.



NOTE
When you have stored the APPSETTINGS.INI you have to restart all modules and associated services. With this INI key, you now have the possibility to enter the extensions of the subscribers in the relevant hunt group.



Enter either (depending data source) name or call number of the relevant subscribers in the field and separate with a comma.

6 Testing the installation

Start the Swyx Edition data source connection and carry out some test-calls through the SwyxWare. Open the menu: item Data Sources/overview. Mark your PBX and select the menu item Data Sources/Data record monitor. Click on data source window overview to activate this window and then click the button Connect now. Swyx Edition now collects the available data.
You can check the data processing status on the monitors. In the overview monitor the transfer of the data is displayed, and in the data record monitor the interpretation of each data record.

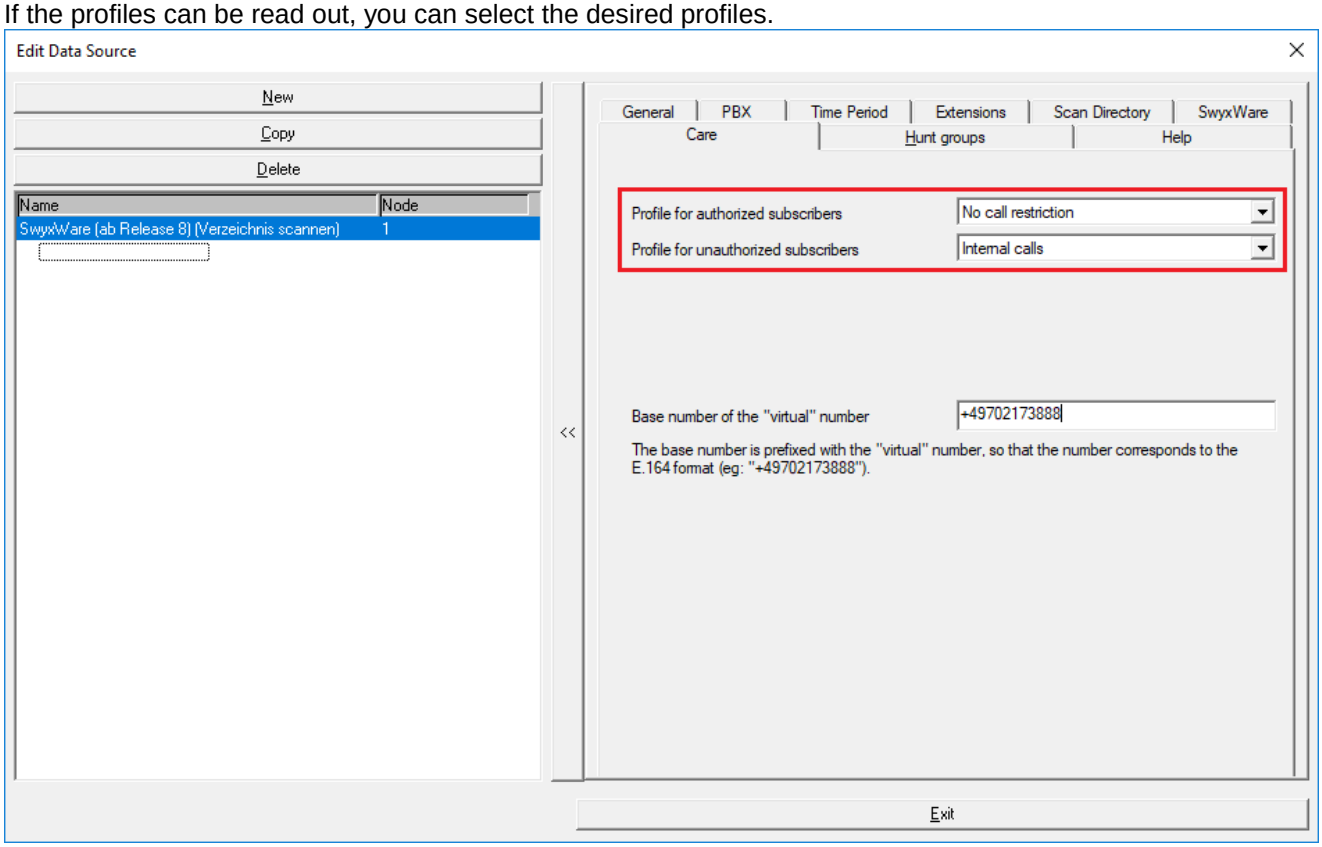
7 Additional settings for Hotel/Care

The changing class of service in SwyxWare is realized through switching the user profiles. For this, the pre-defined profiles or newly created profiles in SwyxWare can be used.
However there must be a profile that allows to make external phone calls (e.g.: "No call restriction") and a profile which allows only internal calls (e.g.: "Internal calls").

7.1 Change class of service

As already mentioned above, the profiles are changed at the subscribers in the SwyxWare for change class of service. To do so, it must be specified in the data source which profiles should be used for "authorized" subscribers (i.e., guests/patients allowed to make external calls) and for "locked" subscribers (i.e., guests/patients allowed to make internal calls only). This is done in the "Hotel" or "Care" tab.

The profiles used in SwyxWare are read out of the SwyxWare and offered for selection. For this, the access data on the "SwyxWare" tab must be correct; otherwise the profiles cannot be read out.
If the profiles cannot be read out, the selection fields for the profiles are locked (that is, no selection can be made). You must then enter the correct access data to SwyxWare in the "SwyxWare" tab.
If the profiles can be read out, you can select the desired profiles.

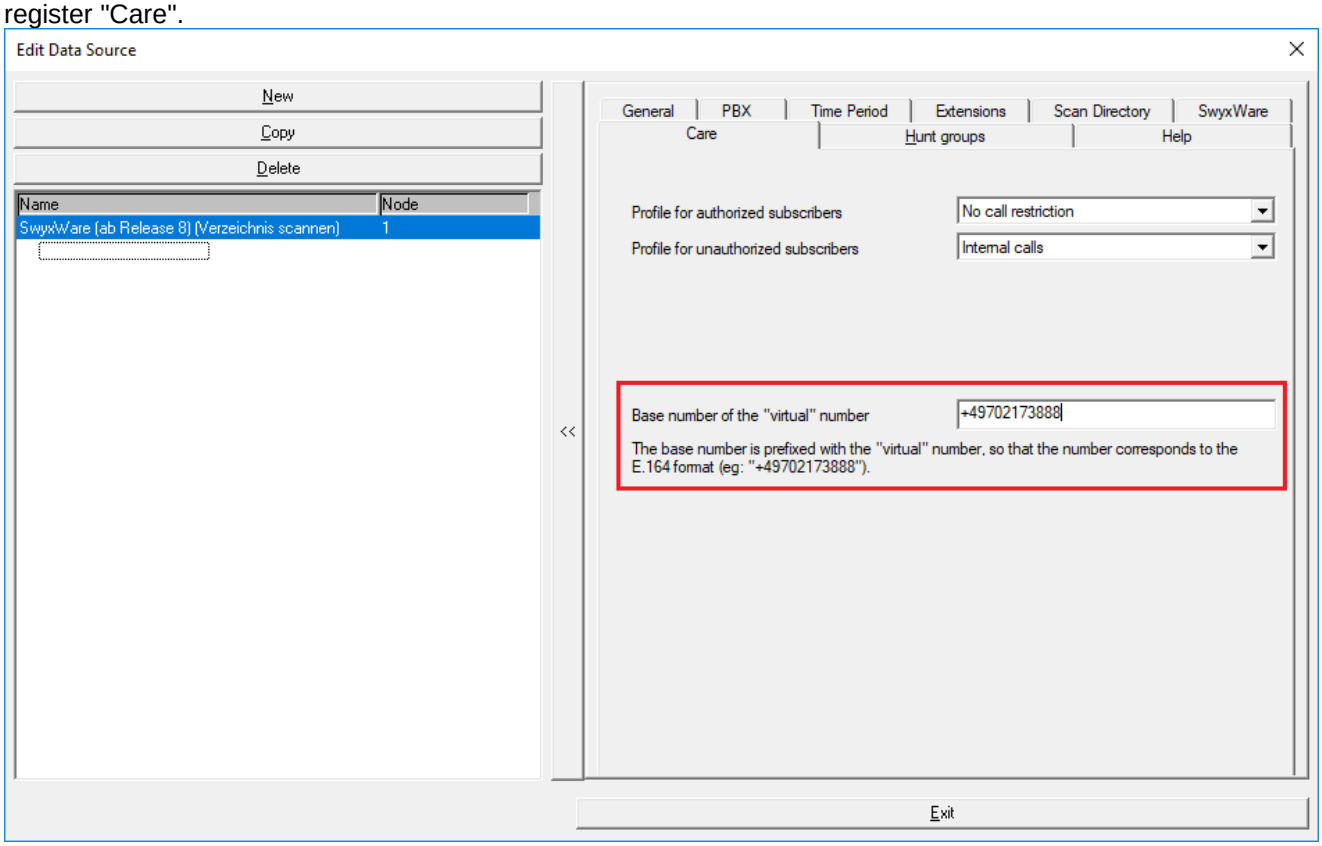


7.2 Base numbers for telephone number assignment

If it is a "Care" installation, usually the telephone number assignment is used (note: this is defined in the basic settings in the register "telephone number assignment"). The point here is that a patient receives a "virtual"

telephone number under which the patient can be reached externally, regardless of which "physical" telephone the patient is logged on to.
IMPORTANT: In the data source, the setting "User assignment in CDR based on phone number" must be selected in the "SwyxWare" tab.

The "virtual" numbers are used in SwyWare in such a way that a "public" number is assigned to the "internal" number.
In the basic settings, you specify the "virtual" numbers to be used. Here, only the extensions (without the base number) are entered (**IMPORTANT**: The "virtual" numbers may NOT overlap with the "physical" numbers).
To be able to generate the "public" number, the base number must be known. This is to be defined in the register "Care".



8 Setting up a Microsoft SQL database to store the CDRs

The Swyx CDR will be stored in one or more text files by default. These text files will be available for further processing by controlling and analyzing software. Alternatively, you can store the CDRs in a SQL database. During the installation routine of SwyxWare no additional SQL database for storing CDRs is currently applied (SwyxWare 2015r3-2).

In the Knowledgebase-Article *HOWTO* from Swyx, is described “How To: Call Detail Records in eine Datenbank schreiben” (kb2491), and what installations are necessary in SwyxWare (connection string). In addition a create table script is delivered (IpBbxCDR.sql), which can be used to generate the required database table. However, the database must first be set by hand one time.

This chapter shows the creation of an additional MS SQL Server 2014 express database (IpPbxCDR). This can be done by using *Microsoft SQL Management Studios*. Furthermore the configuration and access through the network is described.

Note:
The maximum size of a database in MS SQL Server 2014 Express is 10 GB.

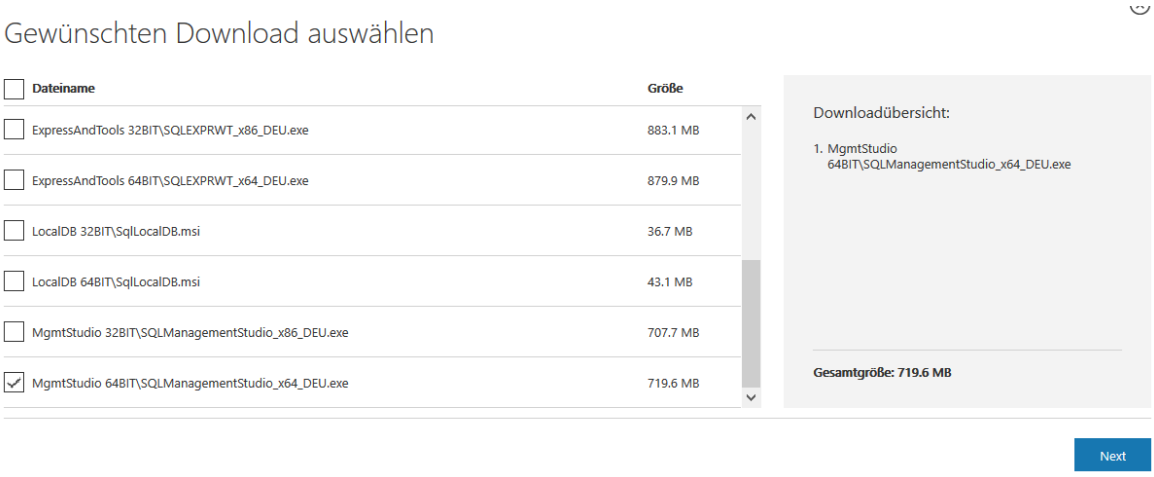
8.1 Requirements

The SQL Server 2014 Management Studio is not available on the SwyxWare DVD. You can download the required program package from the Microsoft Website. Choose the version and language that suits you.

https://www.microsoft.com/de-de/download/details.aspx?id=42299

The required version for the SQL Server 2014 Management Studio depends on your Swyx server provided platform: operating system = 32/64bit /Language = ENU/DEU.

After selecting language, klick on download and the following page will be shown. Here you can select various packages. To start the download press “next”.



- For our example, we use the package "SQLManagementStudio_x64_DEU.exe“

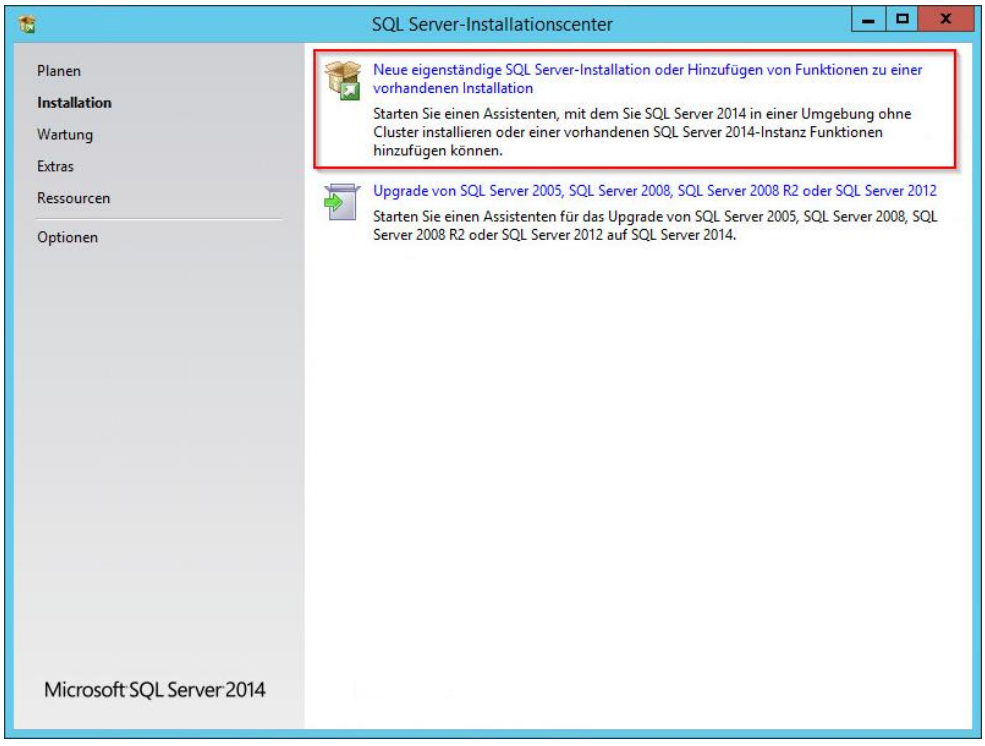
Use the Swyx website or the Swyx partner portal to download the file „kb2491_cdr.zip“. You will find it there under *Support/Knowledge Database* and if you search for *kb2491* in the *support knowledge base*.

https://www.swyx.de/produkte/support/wissensdatenbank.html

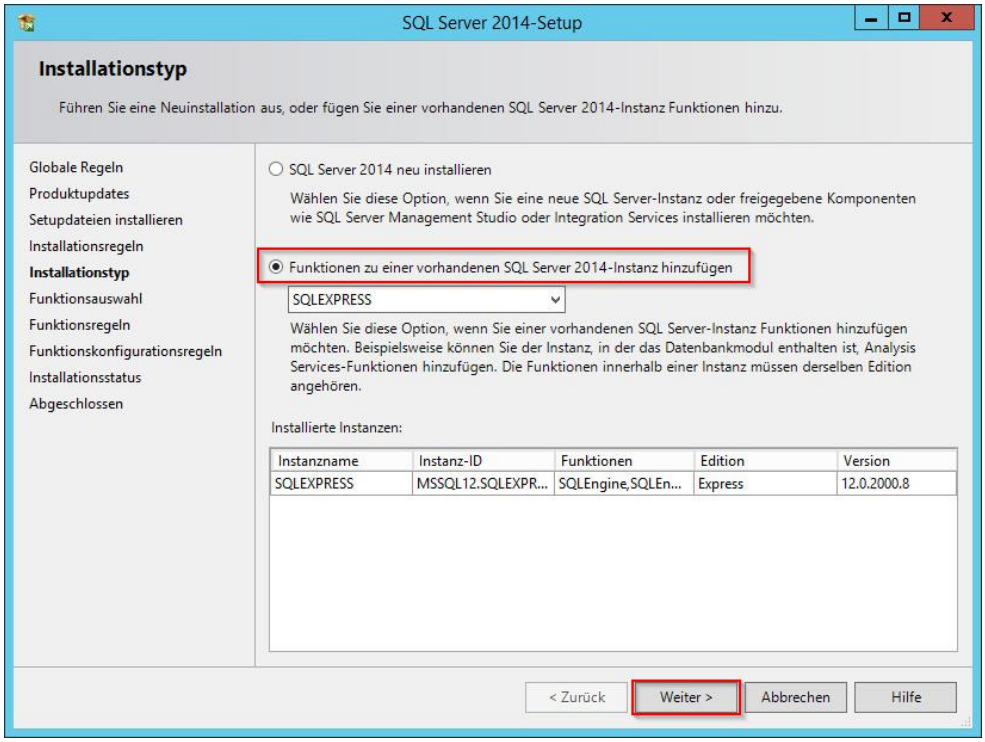
Open the link „HOWTO: Call Detail Records in eine Datenbank schreiben (kb2491)”. In the end of the article you will find the download link for the file "kb2491_cdr.zip".

8.2 How to install the SQL Server 2014 Management Studio on the Swyx Server

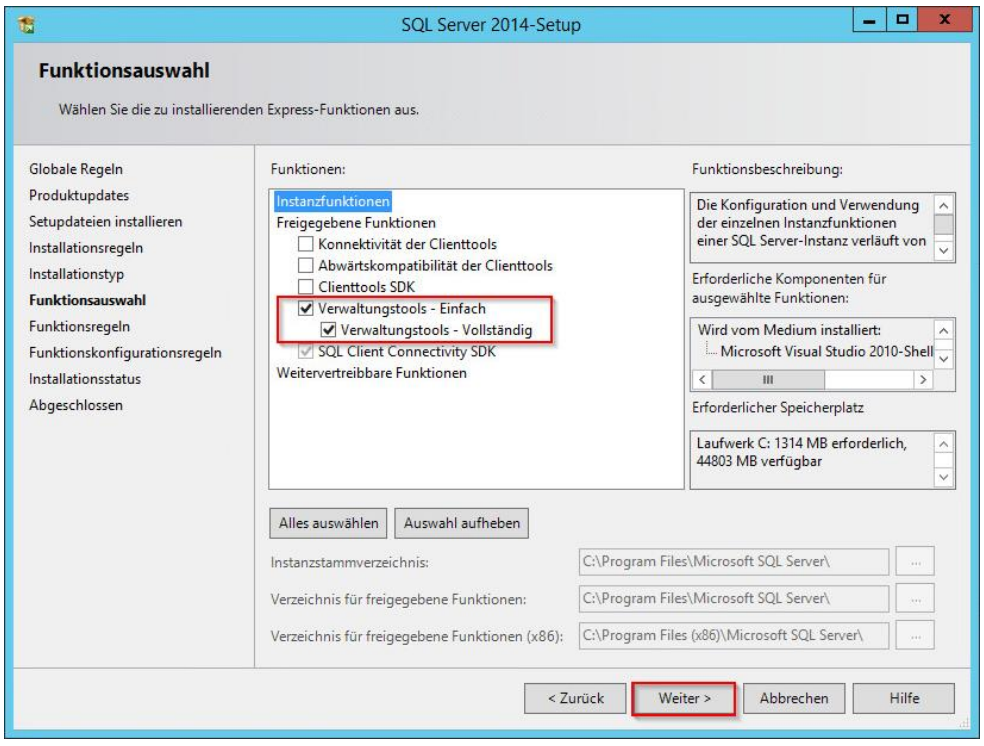
Copy the downloaded software package *Microsoft SQL Management Studio* on the SwyxWare Server, and start the installation by right-clicking and "Run as administrator".



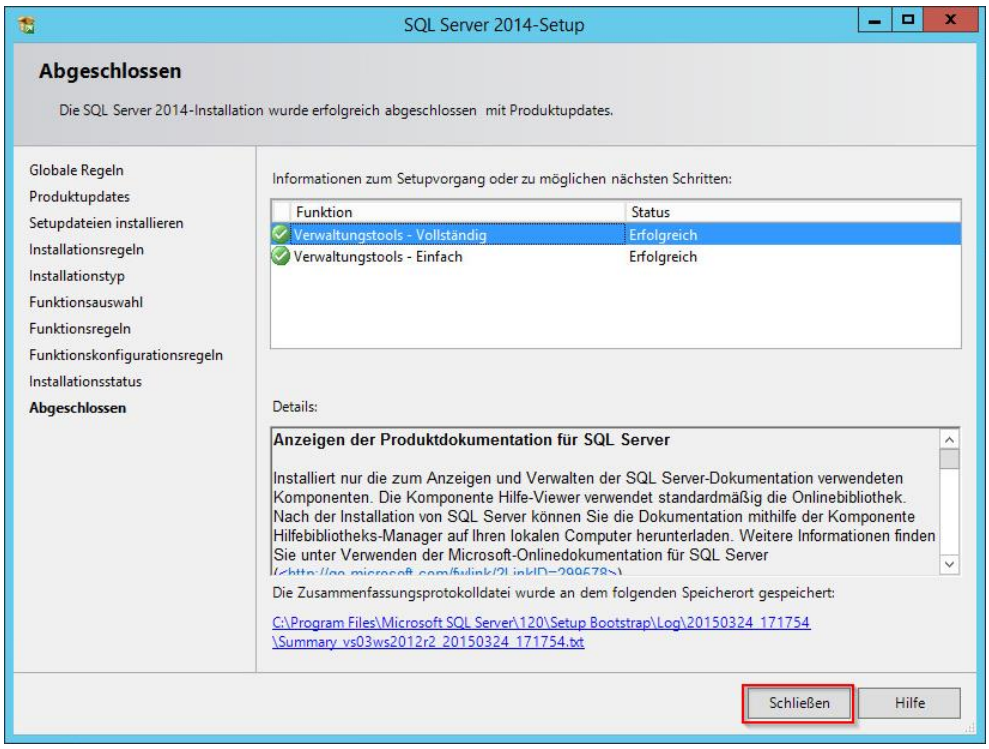
- Select "adding features to an existing installation"
- Confirm the window for product updates with „next“.



- Select installation type: "Add features to an existing SQL Server 2014 instance"
- Check the screenshot display and click on "next"



- Select *functions* as indicated, and click on "next".



- After a successful installation, this screen will appear.
- The "SQL Server 2014 Management Studio" is hereby successfully installed.
- Close the SQL server 2014-setup.

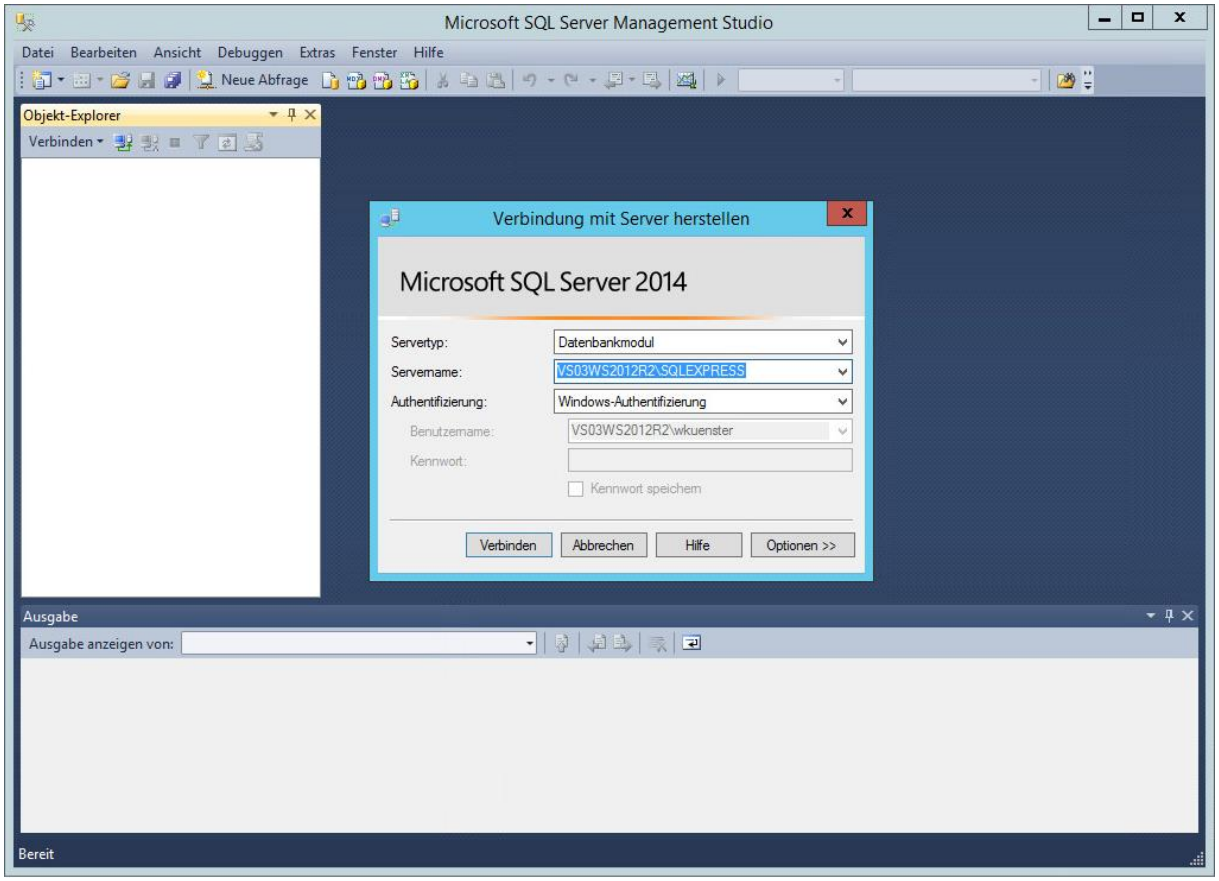
8.3 How to use the SQL Management Studio to set up a CDR database

To prepare, take the downloaded archive "kb2491_cdr.zip" that you got from the Swyx website, and unzip it in a free directory on the SwyxWare server.

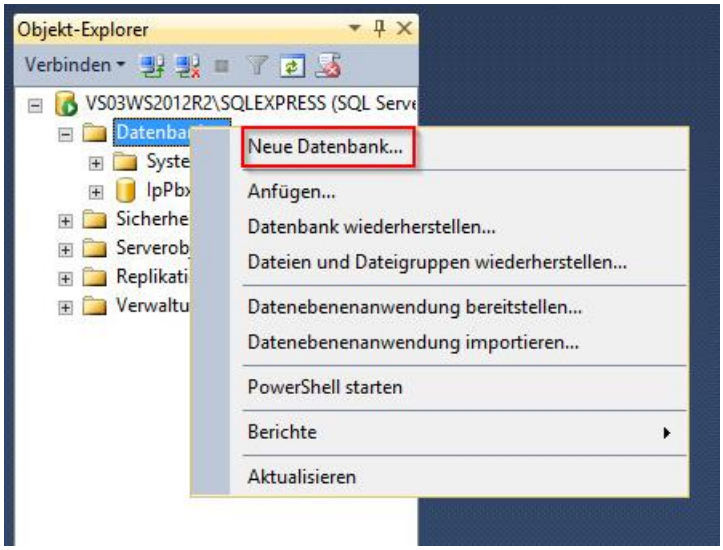
- The file *IpPbxCDR.sql* (table for SQL server) and *cdr.mdb (*MS database access) will unpack – in this case chose IpPbxCDR.sql.

- Open the table *IpPbx CDR.sql* with a text editor and copy the entire contents into the clipboard.

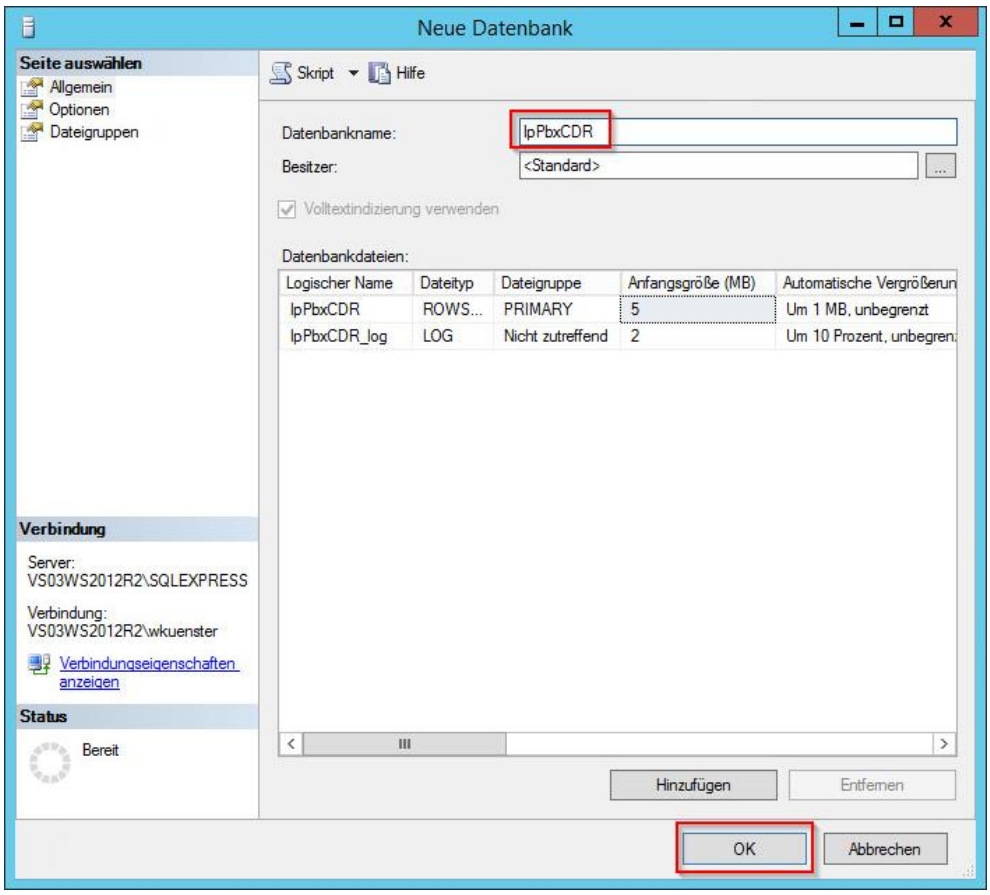
Then start the *SQL server 2014 Management studio* in the program group *Microsoft SQL Server 2014* by right mouse click (run as administrator).



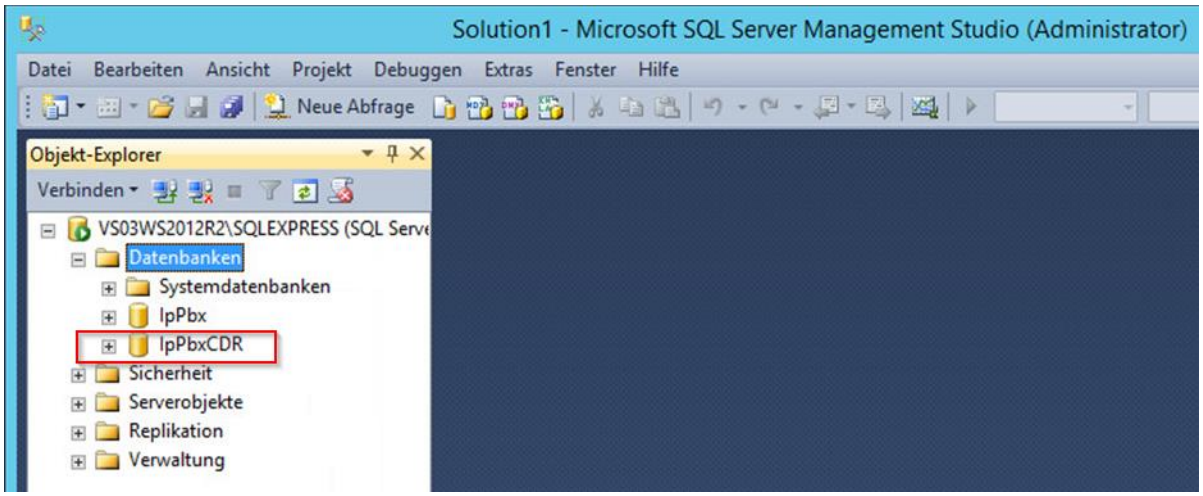
- Select the local instance of your Microsoft SQL server 2014 (NODENAME\SQLEXPRESS)
- Select Windows Authentication
- Click on *connect*



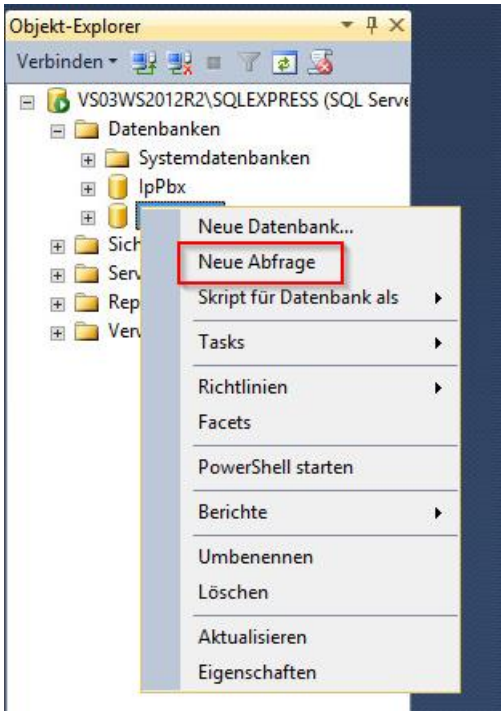
- Click on the folder *databases* in the object explorer, and you will be able to create a new database.



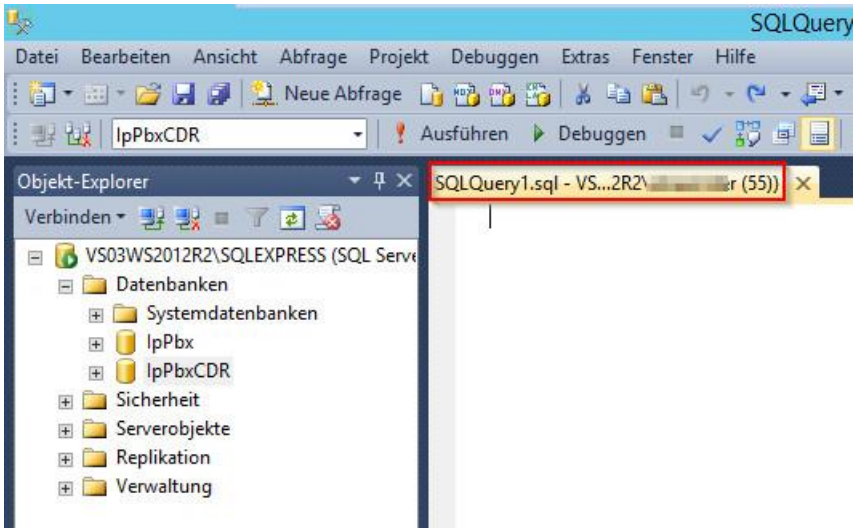
- Select the database name "IpPbx CDR" and click OK.



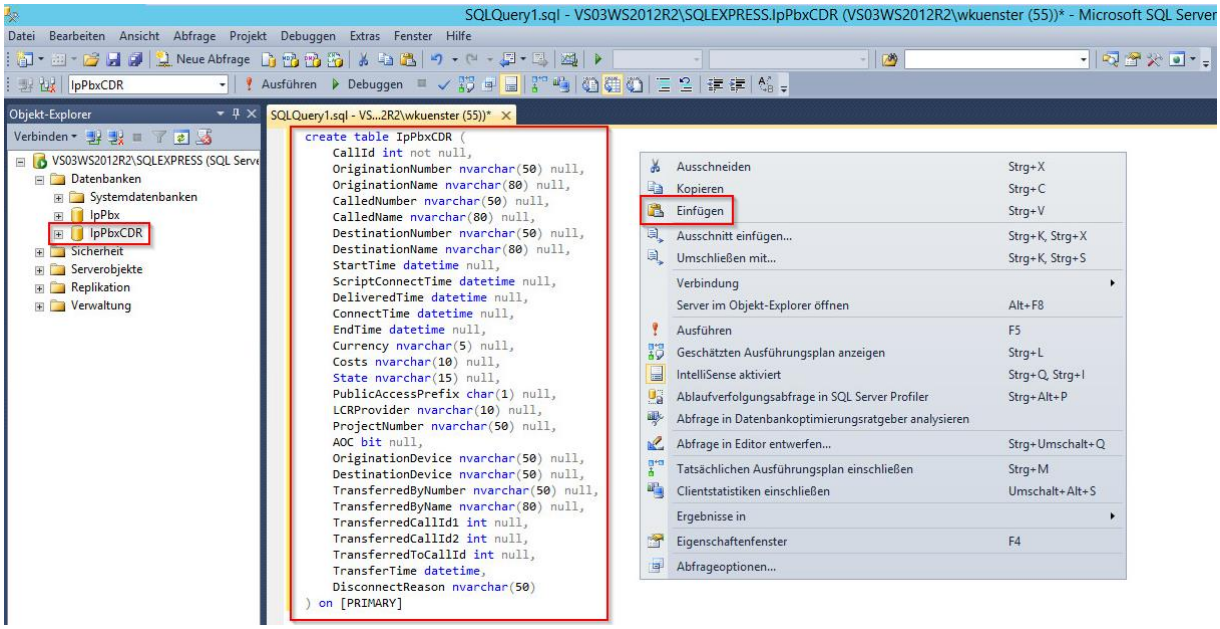
- The new database will appear in *object explorer*.



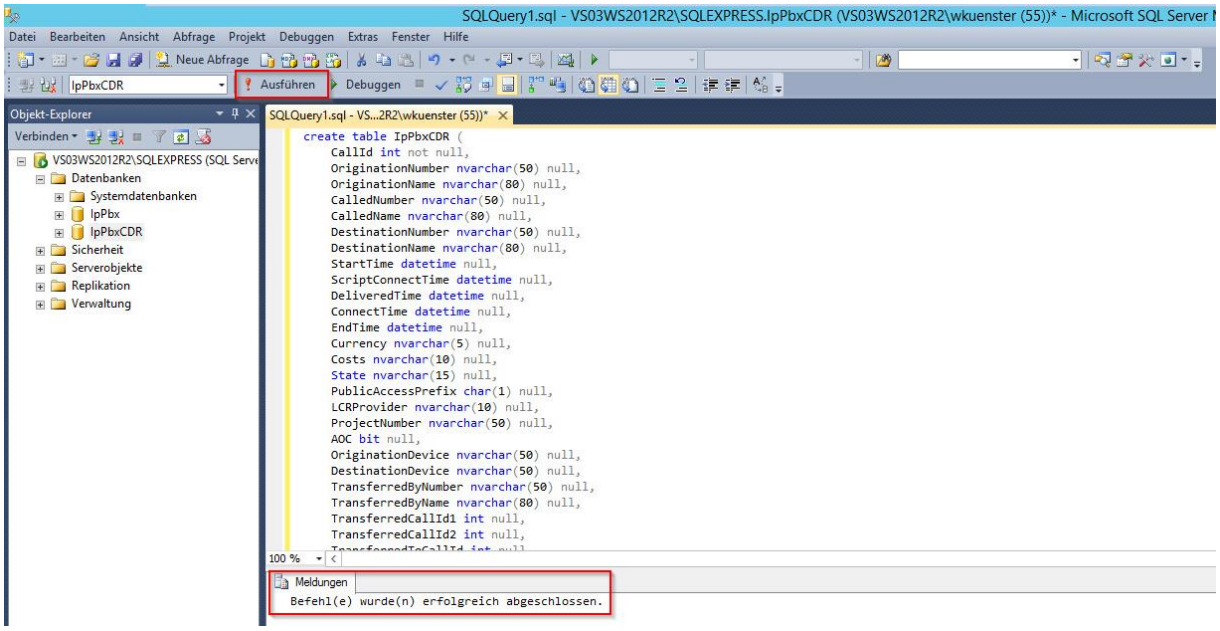
- When right-clicking on the newly created database *Ip Pbx CDR* in *object explorer*, you will be offered to create a "new query".



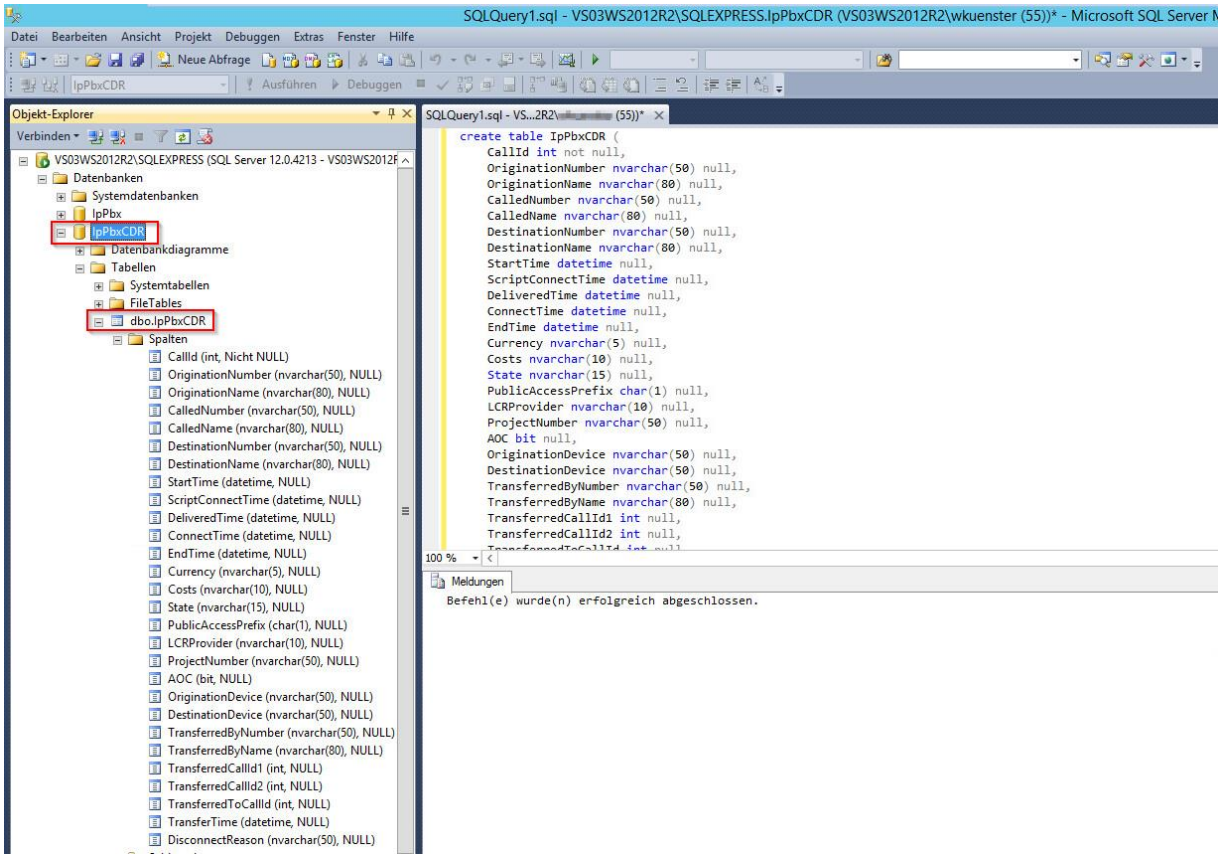
- An empty window opens – for the "new query".
- Copy the previously copied content of "Ip Pbx CDR.sql" file from the clipboard with CTRL-V or "Insert" in the empty field (see: beginning of section 8.3).



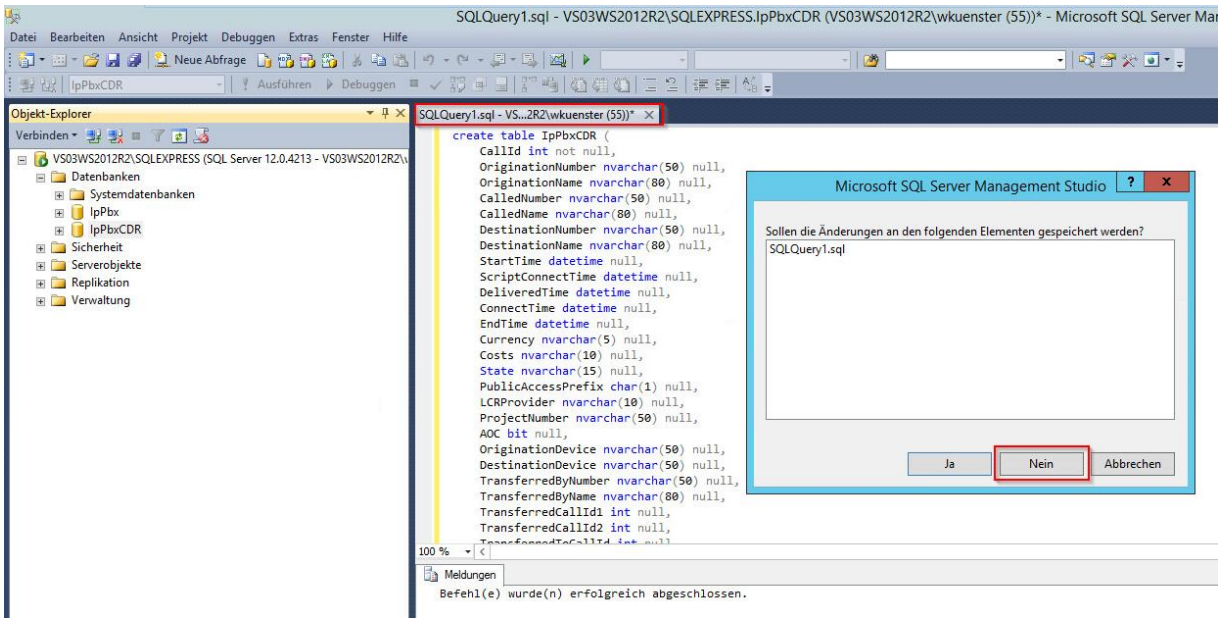
- The result should look like this.



- The next step: click the button “run” and await the following message: *successfully completed*



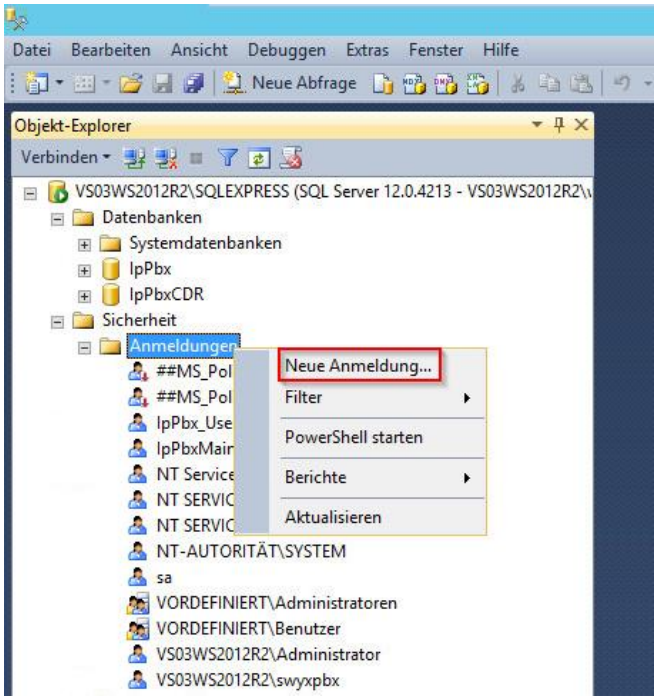
- As a result, the table *dbo.IpPbxCDR*, with the corresponding columns to the CDR field will be displayed under the database IpPbxCDR,.



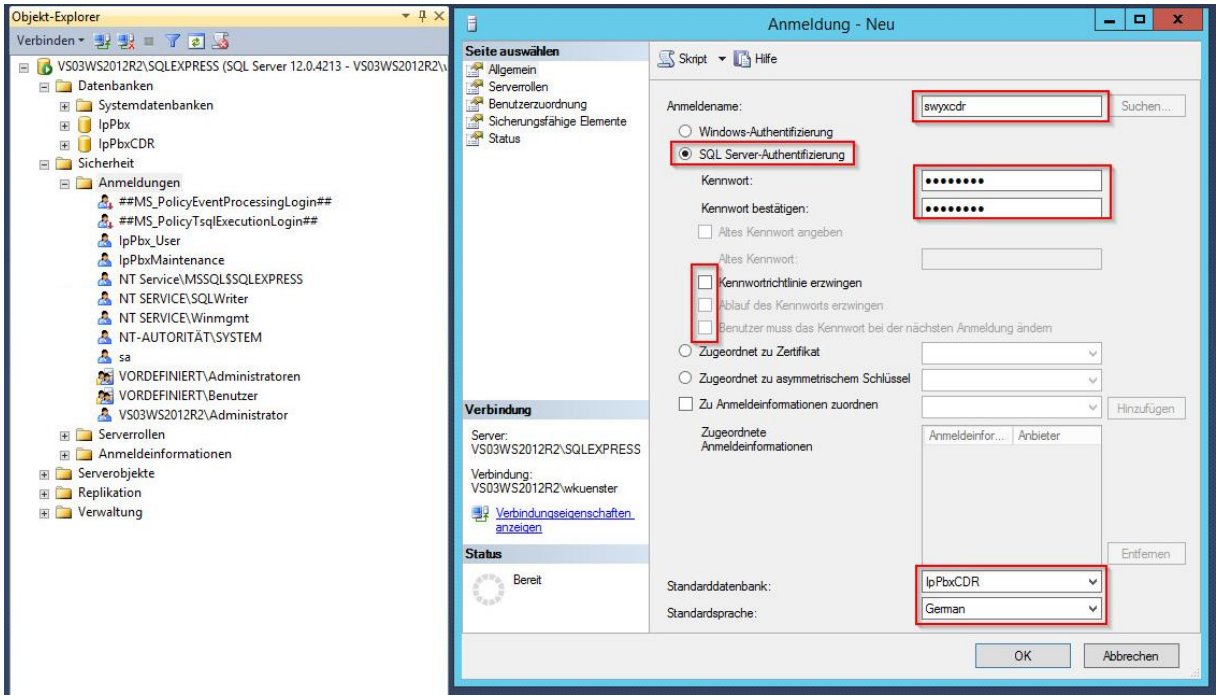
- The SQLQuery1.sql window ... can be deleted in connection with X without saving, which makes the creating of the database complete.

8.4 Setup an user account for database access.

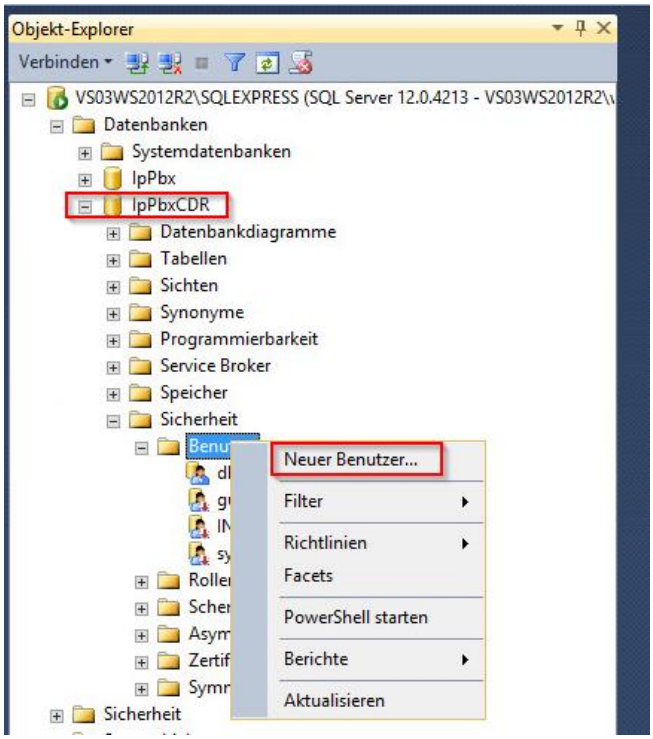
Assign a new SQL server user account the rights to access the database IpPbxCDR. This account will be used in our example both for the SwyxWare access to the database, as well as for database query from AlwinPro (read only).



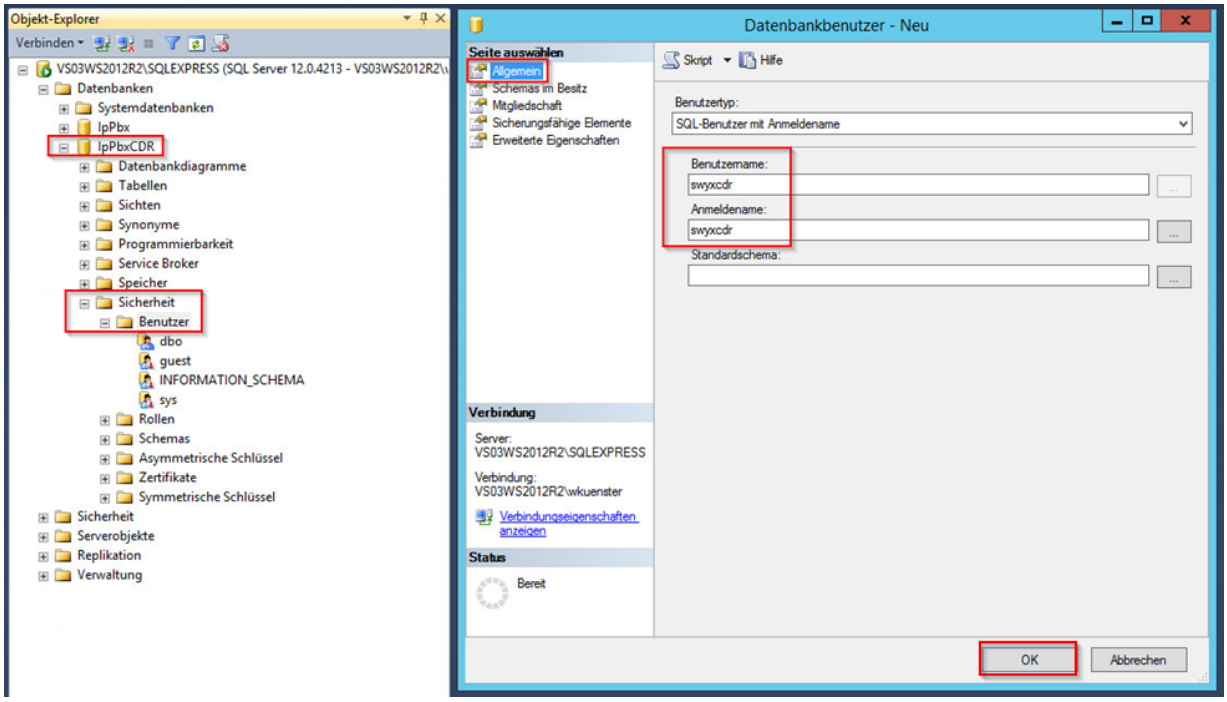
- In the folder security, when right-clicking on registrations, a “new registration” is installed for the *MS SQL server 2012 express*.



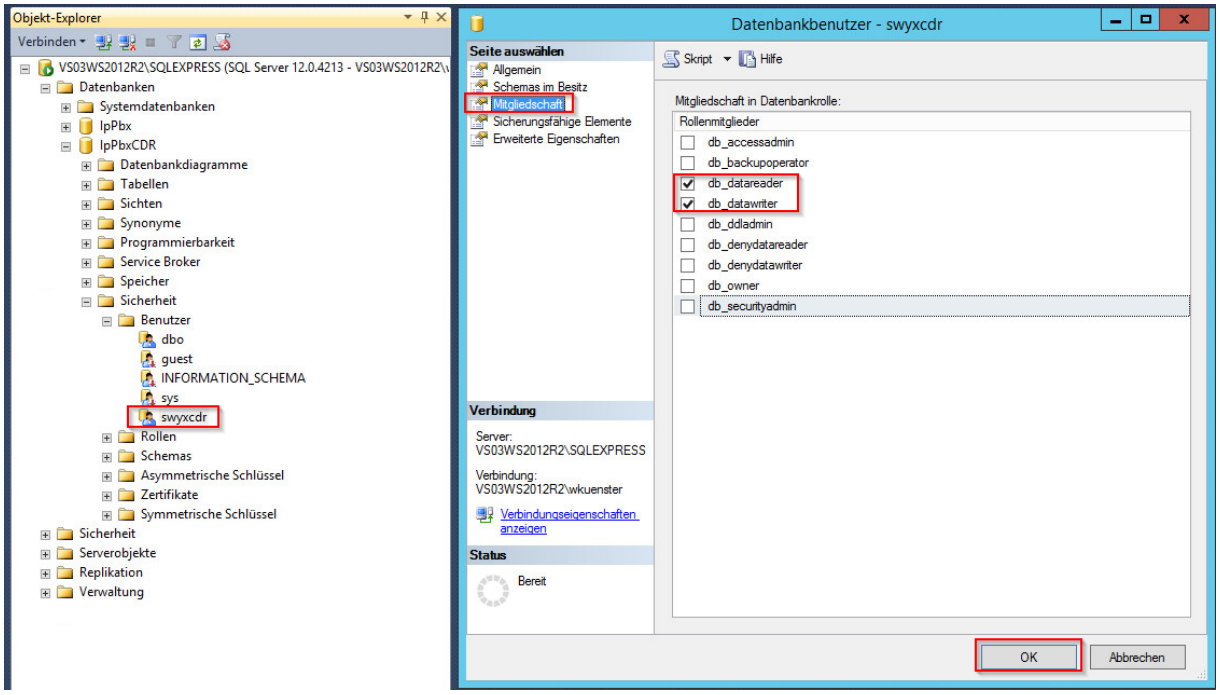
- In the example, we will use and confirm the login name „*swyxcdr*“ added with the *SQL Authentication Server* and the standard database *IpPbxCDR* , without any password policies .



- The newly created database IpPbxCDR is assigned to our previously applied new user *swyxcdr*. Right-click on *user* and then on *new user*.



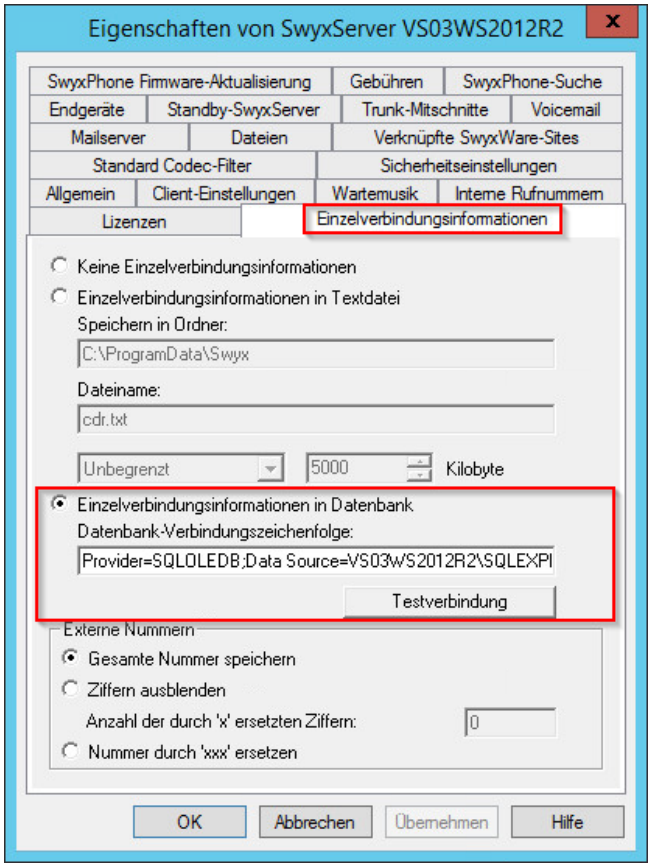
- Under default - enter the user "Swyxcdr", and the login name "Swyxcdr" and confirmed with ok.



- Right-click on the properties of the newly assigned user "swyxcdr" and set the access rights for the database IpPbxCDR under *membership*.
- Select db_datareader and db_datawriter. And confirm the setting with OK.
- End the program SQL Server 2014 Management Studio.

8.5 Settings and test with the SwyxWare

Open the SwyxWare administration and connect to your SwyxServer. In the properties of the SwyxServer, select the *individual connection information*, and make the settings as in the example, but with your own values.

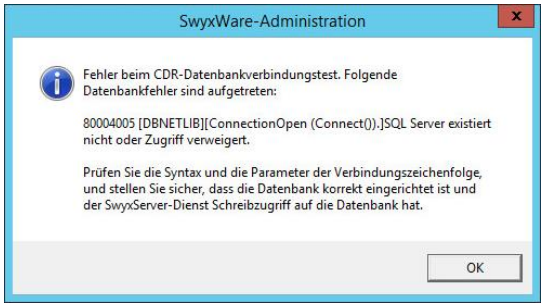


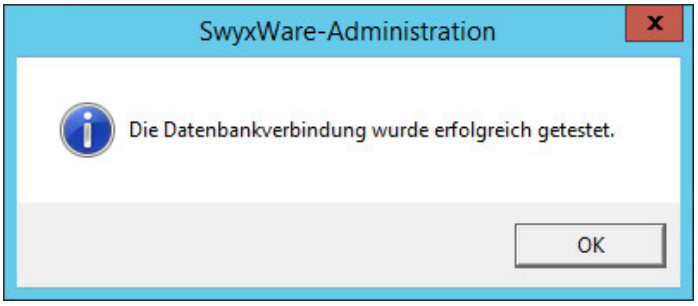
- The connection string is set, depending on the authentication mode of the MYSQL server according to the examples. In our case we used a name and a password for the SQL authentication.

```
Provider=SQLOLEDB;Data Source=KNOTENNAME\SQLEXPRESS;Initial Catalog=IpPbxCDR;Integrated Security=SSPI

Provider=SQLOLEDB;Data Source=KNOTENNAME\SQLEXPRESS;Initial Catalog=IpPbxCDR;User ID=<Benutzer>;Password=<Passwort>
```

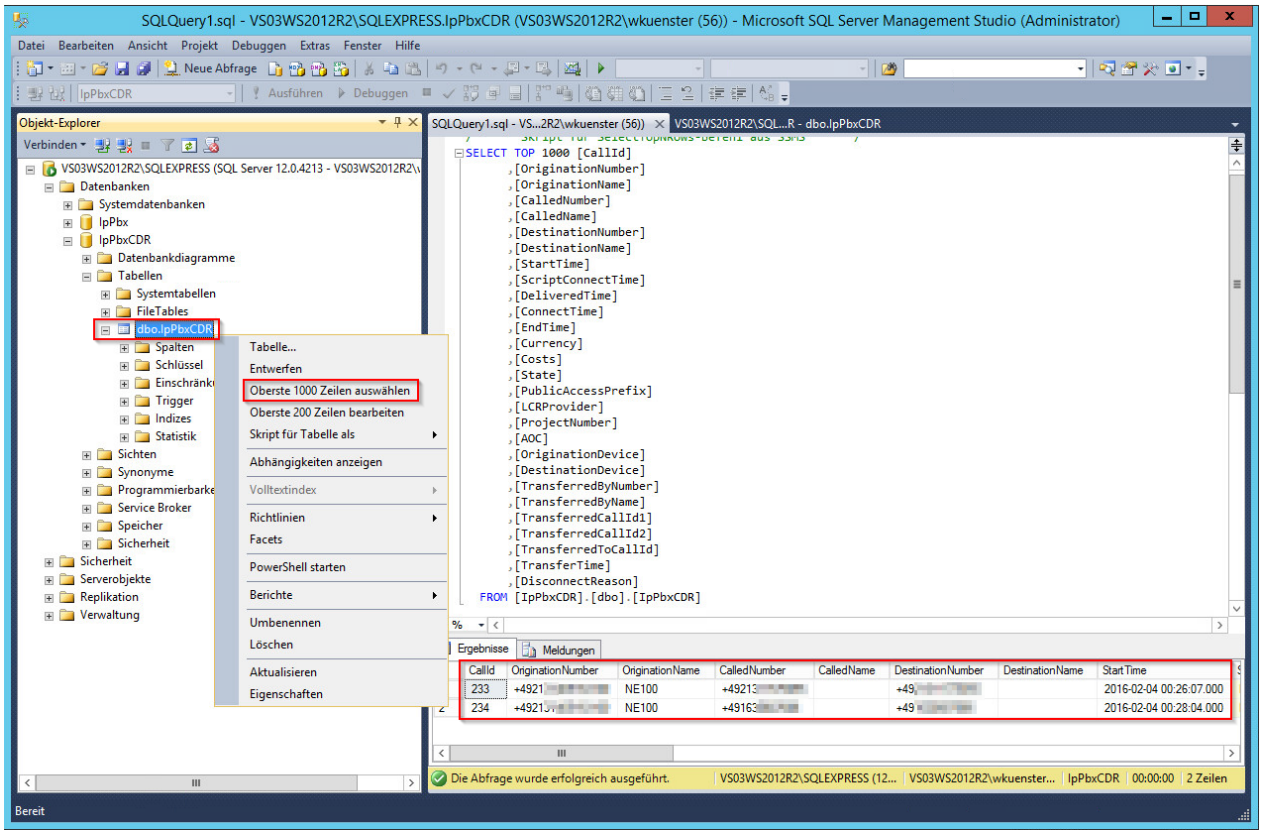
Important:
Even though the MS SQL Server 2014 Express is on the same server as the SwyxWare, you need to enter "Data Source = NODENAME \ SQLEXPRESS" otherwise the connection will fail.





- Use the parameters and run a test compound, possible errors will show immediately.

Make some phone calls in SwyxWare for control purposes. Use the SQL Server 2014 Management Studio, to check if the call detail records (CDRs) are written in the database IpPbxCDR.



- Right-click on the database table "dbo.IpPbx CDR" and select the top 1000 lines, to view the previously saved CDRs.

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9 Setting up the SQL Server 2014 Express for remote connections

If AlwinPro/Anna4 is installed on the same server as the SwyxWare, the access to the local SQL database IpPbxCDR will function without the settings described in the following section.

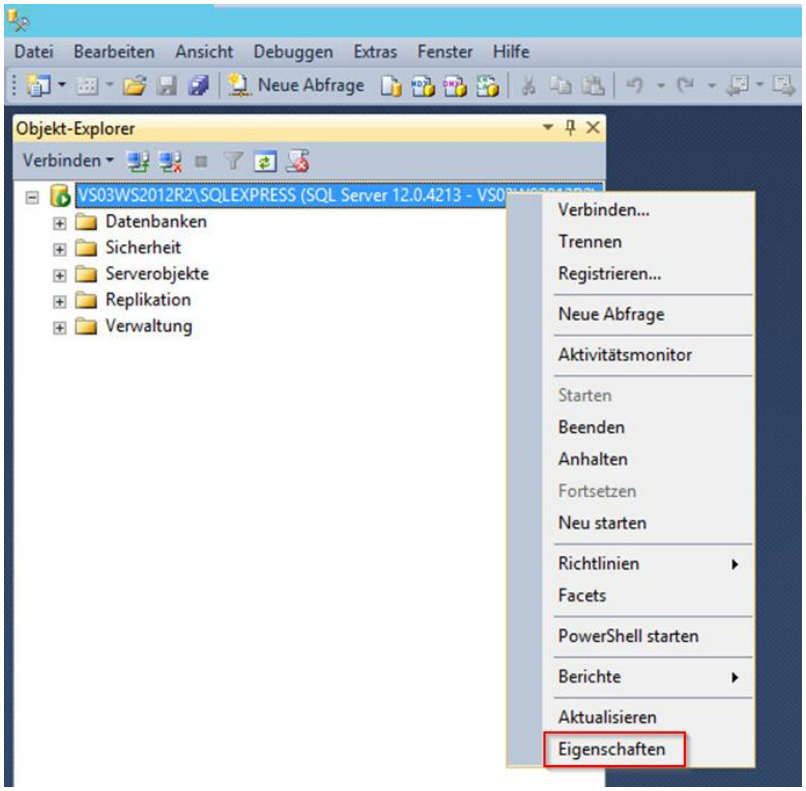
If AlwinPro/Anna4 is installed on a separate computer, you need to connect the SQL database SwyxWare over the network. In this case, the SQL server must be configured to allow remote connections.

Attention

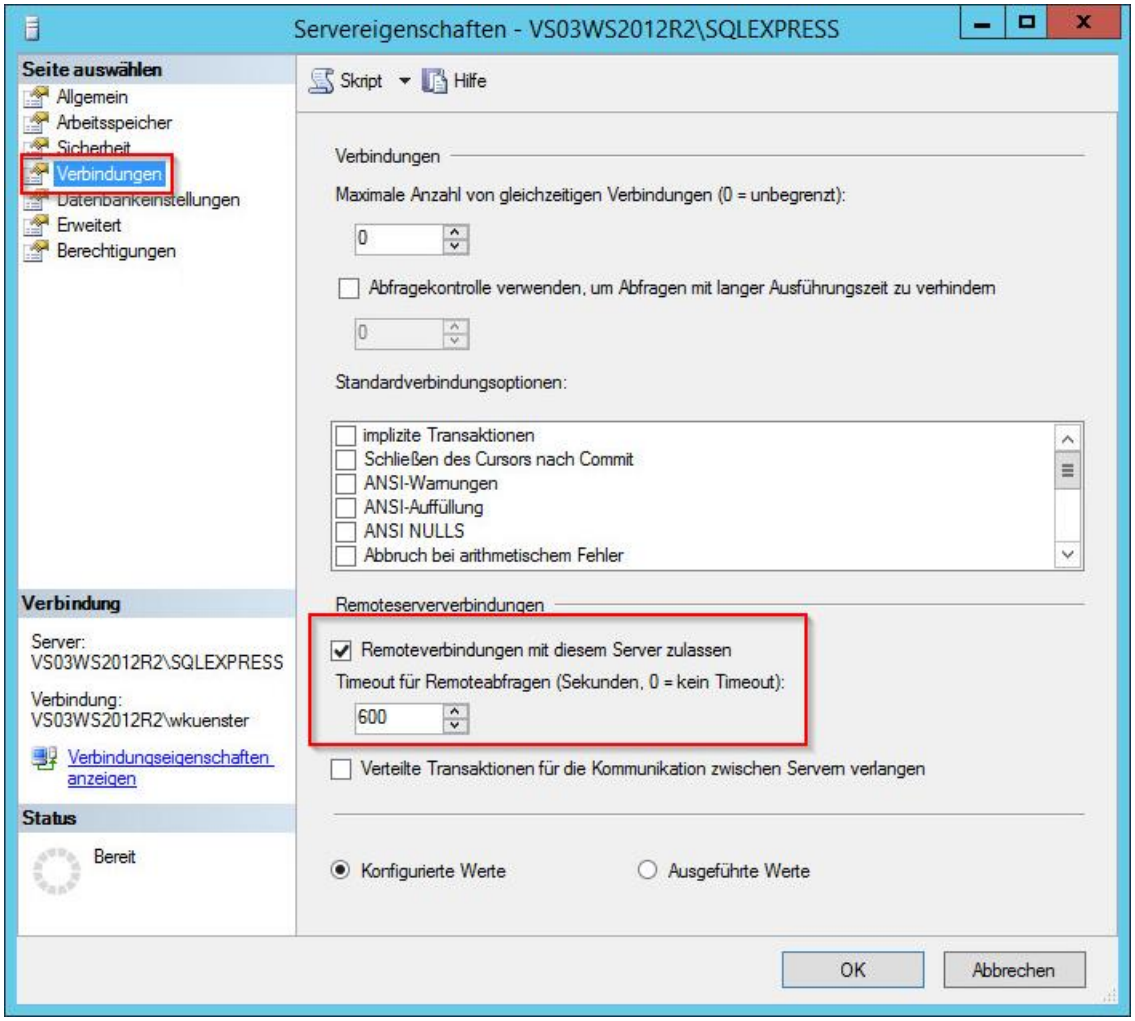
The setting for the remote access requires a restart of the SQL Server 2014 Express. This also affects the Swyx Server as restarting the SQL Server will close Swyx services, without automatically restart them. Therefor it is necessary to reboot the Swyx Server. Clear this course of action with your customers.

9.1 To allow remote connections for the SQL server instance SQL EXPRESS

Enable remote access to SQL Server instances that you want to access through the network. Simply start the SQL Management Studio.

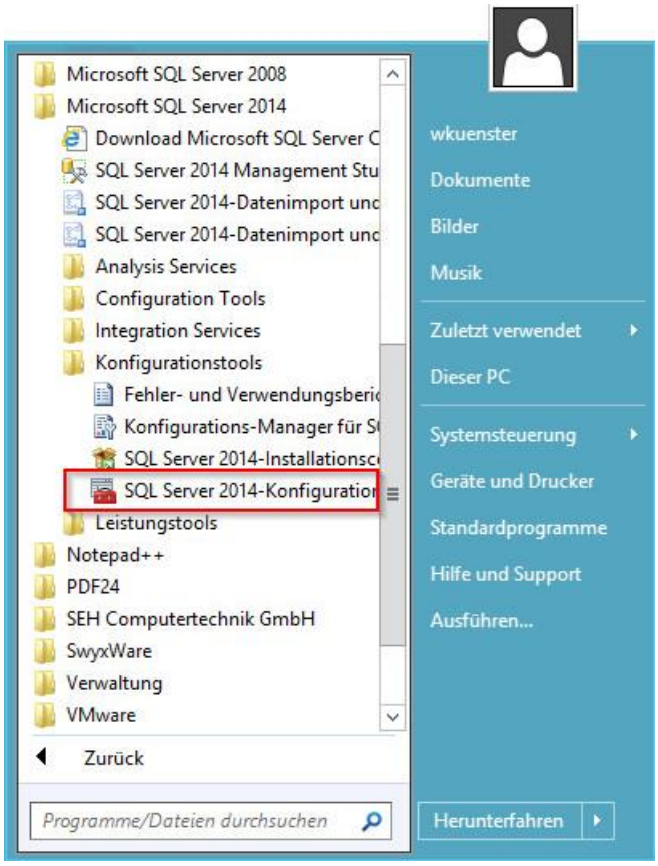


- Open with a right click on the server instance properties.



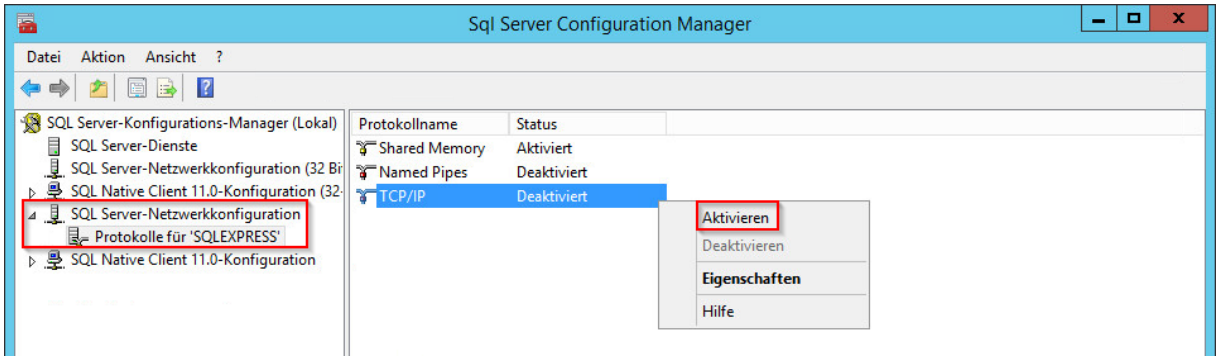
- Check the server properties under connections whether remote connections are allowed to this server. If necessary, change the settings as shown in this screenshot.

9.2 To call the 9.2 SQL Server 2014 Configuration Manager

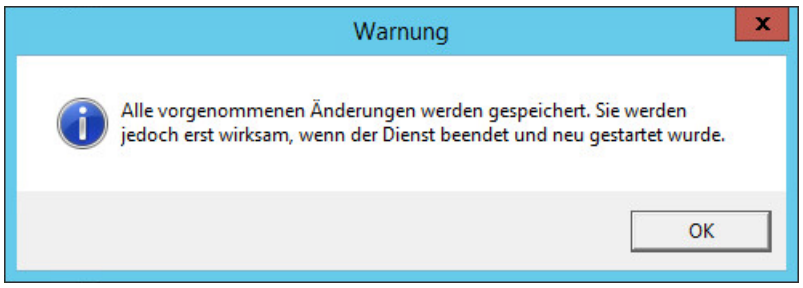


- Open the program "SQL Server 2014 Configuration Manager" under Microsoft SQL Server 2014 *configuration tools*.

9.3 To activate the TCP protocol in *SQL Server 2014 Configuration Manager*

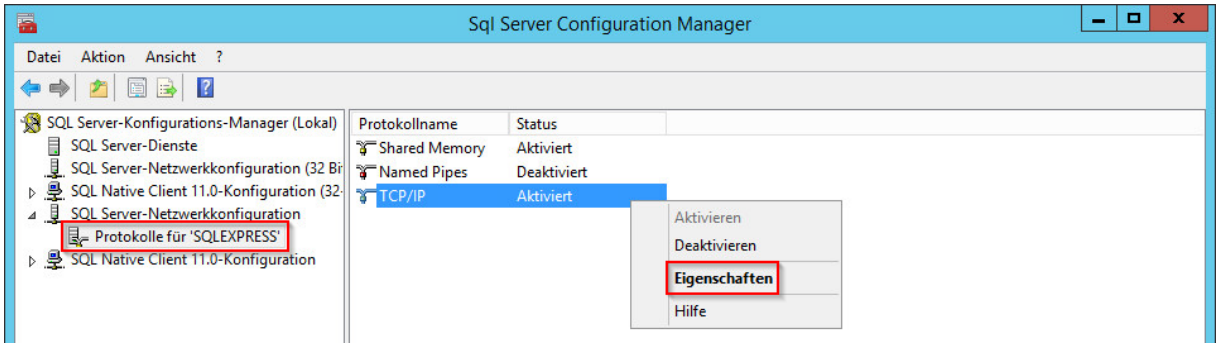


- Activate the TCP/IP protocol for the instance SQLEXPRESS in the SQL Server 2014 Configuration Manager.



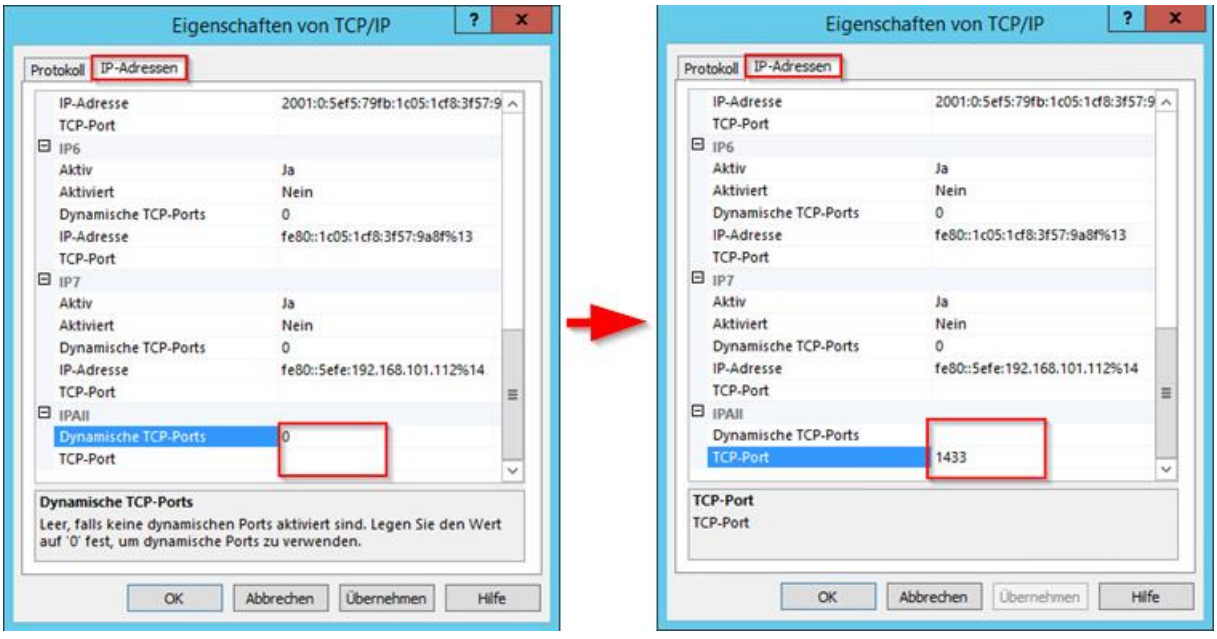
- Restarting the SQL server is required for the change to have effect!
- Continue WITHOUT restarting!

9.4 To switch from the dynamic TCP port to the static TCP-Port 1433

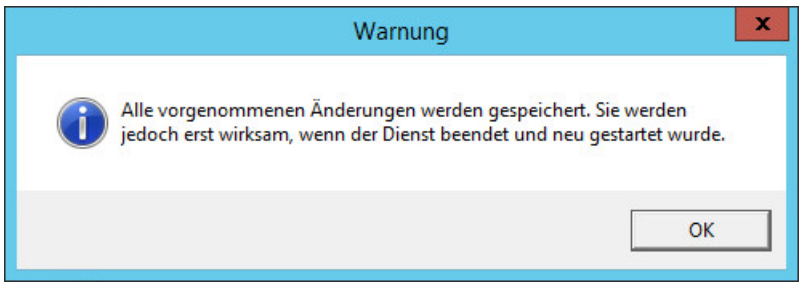


- Open the protocol for SQL Express in the network configuration and go to the properties of the TCP/IP protocol.

- The properties must be modified as follows:

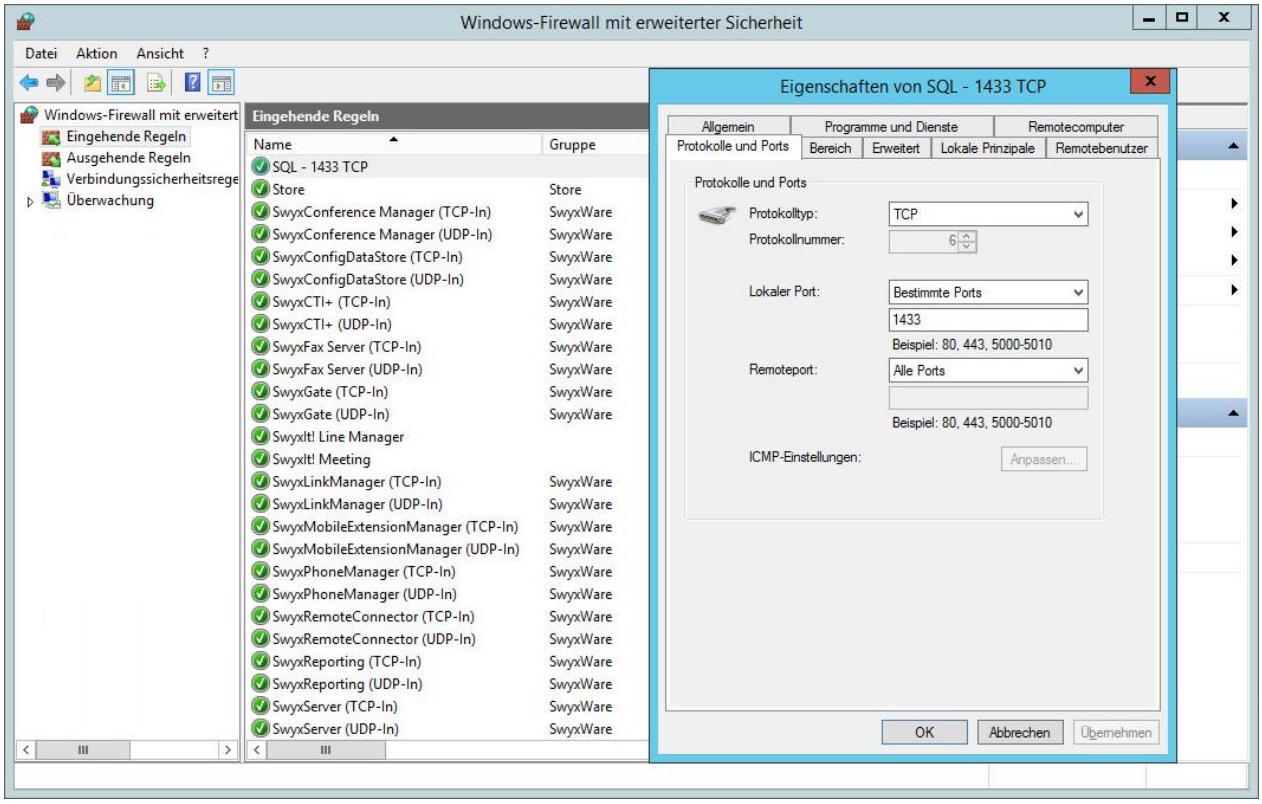


- Go to IPAII. Delete the value In "Dynamic TCP ports" and enter the value 1433 in "TCP port".



- **Restarting the SQL server, or rather the Swyx Server is necessary for the changes to have effect!**

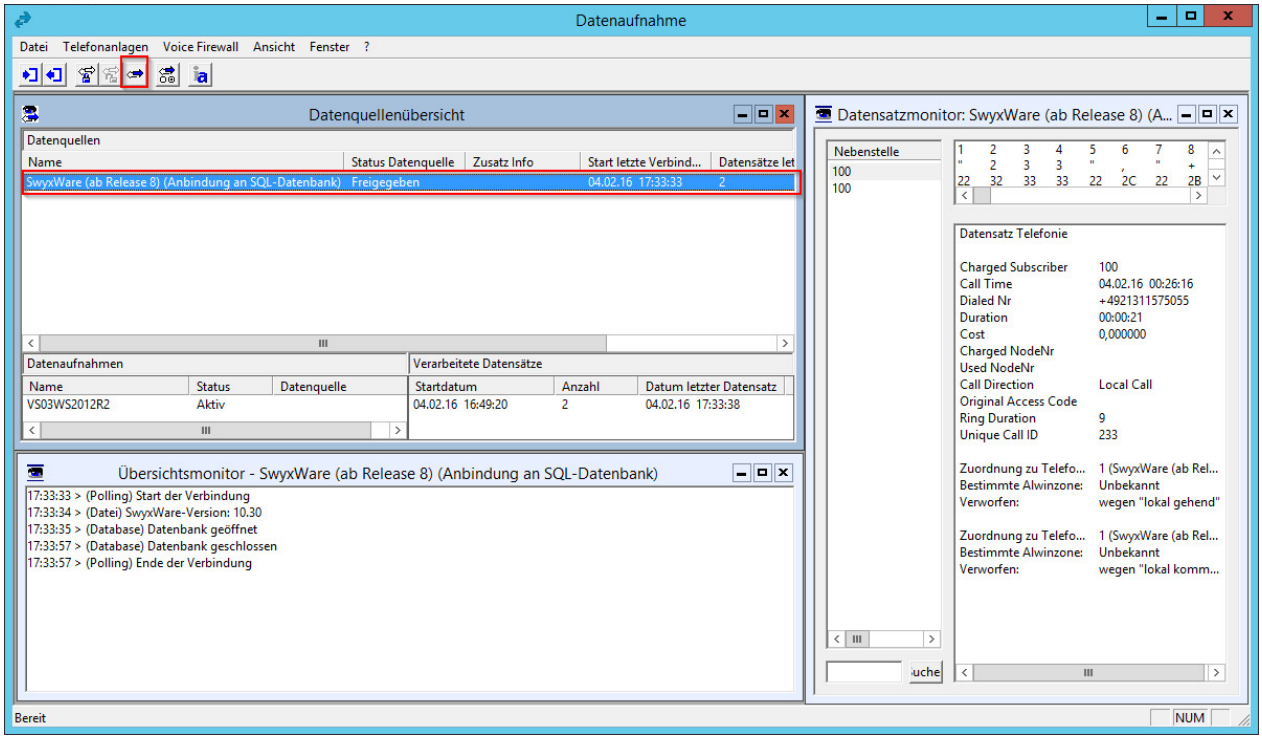
9.5 To set up a Windows Firewall-rule for the network traffic to the SQL server.



- Set up a new inbound rule for the TCP Port 1433:
  - Select a **port**
  - Select TCP and enter the local port 1433
  - Select **allow the connection**
  - Select all three profiles *domain*, *private* and *public*
  - Name the rule, for instance ***SQL – tcp 1433***

9.6 Settings and connection test in AlwinPro/Anna4

It is implied that you have carried out the installations from the chapter 5.8: Register *Database.*



- Sign in to the AlwinPro/Anna4 data collector and open up three Windows. One for *data source overview*, one for *record monitor* and one for *overview monitor*.
- Highlight the entry *SwyxWare* in the *data source overview* and start a database query using the icon *instant connect*.
- A successful connection attempt will be displayed in the *overview monitor*.
- The transferred data records (CDR) will be logged in the *record monitor*.