

Configuration Microsoft SQL Server 2016



Installation manual for system providers

5/31/2022

Product line Neo, version 7.x

The described functions can be used with the following ASC products:

EVOIP^{neo}

Please note that you can always find the most up-to-date technical documentation and product updates in the partner area on our website at <https://www.asctechnologies.com>.

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2 Introduction

This document describes the configuration of Microsoft SQL Server 2016 for the EVOIP_{neo} software.



For Microsoft SQL databases, we support the high-availability AlwaysOn Failover Cluster Instances and AlwaysOn Availability Groups. The MS SQL functionality *Dynamic Ports* is not supported for always-on.

Configure the failover operation according to the manual of the manufacturer.



For Microsoft SQL databases, we support connections to cluster instances (always-on) which can be reached by means of an IP address. Primary and failover database nodes with different IP addresses in high-availability configurations are not supported.

3

Preconditions

- Empty asc_rs database
- User must have been created before installation
- The language of the user has been set to English.
- Microsoft SQL server has been installed according to Microsoft manual

Minimum rights for user

Owned Schema:	asc_rs
Membership:	db_owner



Full-text search cannot be configured before Microsoft SQL has been installed.

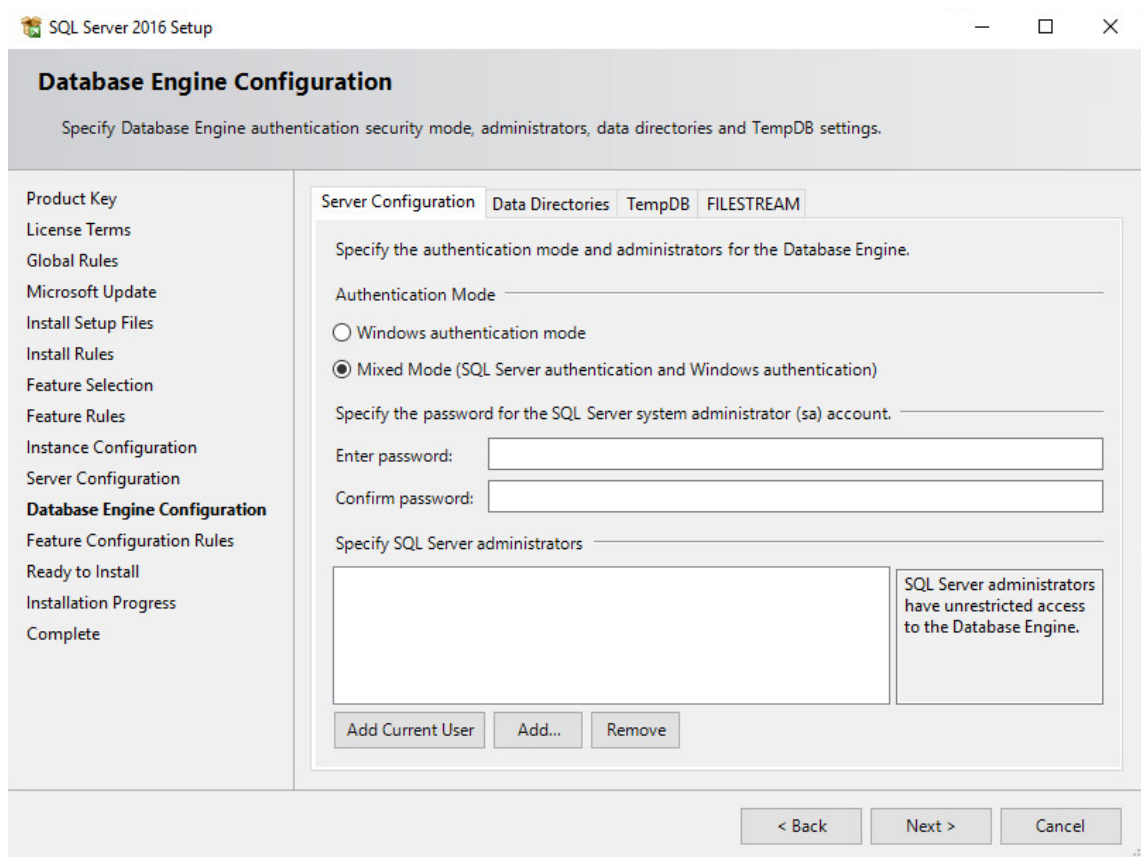
Adjust one of the following settings in the setup:

Windows authentication mode

1. In the window *Database Engine Configuration*, select the option *Windows authentication mode*.

Mixed mode (SQL Server authentication and Windows authentication)

1. In the window *Database Engine Configuration*, select the option *Mixed mode*.
2. Click on the button *Add Current User* to add the current user as SQL Server administrator.
3. Create a password for the SQL Server administrator.



SQL Server 2016 Setup

Database Engine Configuration

Specify Database Engine authentication security mode, administrators, data directories and TempDB settings.

Product Key
License Terms
Global Rules
Microsoft Update
Install Setup Files
Install Rules
Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Feature Configuration Rules
Ready to Install
Installation Progress
Complete

Server Configuration | Data Directories | TempDB | FILESTREAM

Specify the authentication mode and administrators for the Database Engine.

Authentication Mode

☐ Windows authentication mode

☒ Mixed Mode (SQL Server authentication and Windows authentication)

Specify the password for the SQL Server system administrator (sa) account.

Enter password:

Confirm password:

Specify SQL Server administrators

SQL Server administrators have unrestricted access to the Database Engine.

Add Current User Add... Remove

< Back Next > Cancel

Fig. 1: Select authentication mode (example)



The external database has to be installed before installing the Neo software. If you would like to use an external database, you have to open the port which allows the Neo software to access the database.

The ASC software uses the default port 1433 for MSSQL.

Observe the following order during configuration:

1. Configure SQL Server Configuration Manager, see [chapter "Configure SQL Server Configuration Manager", p. 7](#)
2. Install EVOIP_{neo} software, see [chapter "Install ASC software", p. 8](#)
3. Configure database properties, see [chapter "Configure database properties", p. 8](#)
4. Configure database backup, see [chapter "Configure database backup", p. 11](#)
5. Configure backup of the transaction log, see [chapter "Configure backup of the transaction log", p. 17](#)
6. Start SQL Server Agent, see [chapter "Start SQL Server Agent", p. 17](#)

4.1

Configure SQL Server Configuration Manager

1. After the installation of the SQL server, start the SQL Server Configuration Manager.
2. Change to the protocol *MSSQLSERVER* in the menu item *SQL Server Network Configuration*.
3. Activate the protocol *TCP/IP*.

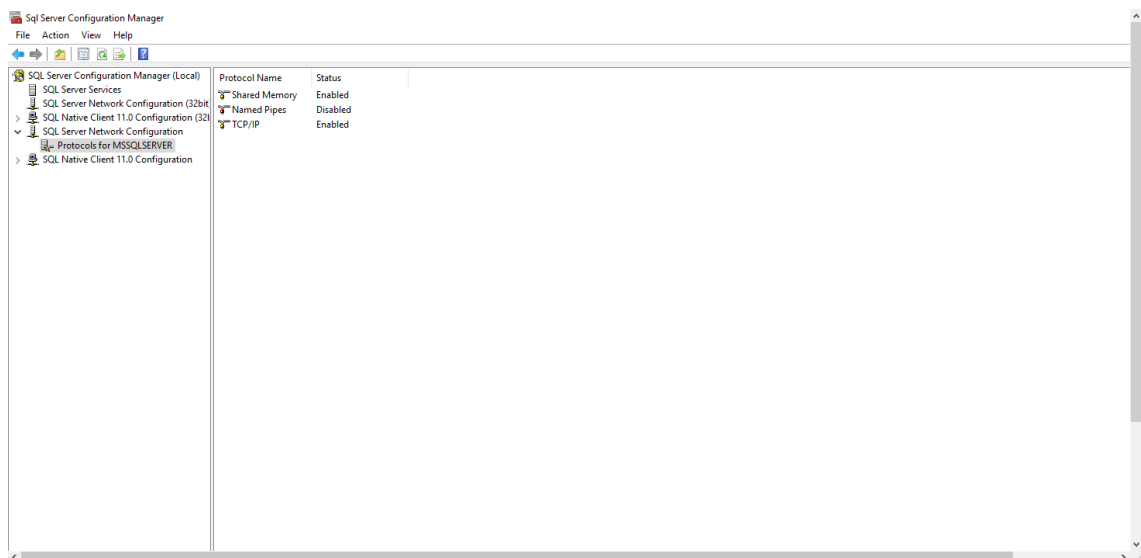


Fig. 2: Configure SQL Server Configuration Manager

If you do not want to use the default instance, a separate port has to be defined for this instance:



SQL Server Configuration Manager > SQL Server Network Configuration > Protocols for... > TCP/IP > IP Addresses

Enter this port for every IP address.

After that, restart the instance via the *SQL Server Services*. Open the port in the firewall. Use this port during the setup, too.

4.2 Install ASC software

Install the EVOIP_{neo} software. See installation manual *Installation EVOLUTIONneo*, *Installation EVOLUTIONneo eco* or *Installation EVOLUTIONneo XXL*.

4.3 Configure database properties



The database properties must not be changed by administrators without the necessary experience. Enabling autogrowth by default will cause performance issues as the database will not be available for the application during autogrowth.

After a certain time in productive operation check the autogrowth value. If required, adjust the value when the size of the database has changed.

Configure asc_rs database:

1. Start *SQL Server 2016 Management Studio* by clicking on *Windows key > All Programs > Microsoft SQL Server 2016*.
2. Select the database in *SQL Server 2016 Management Studio*.

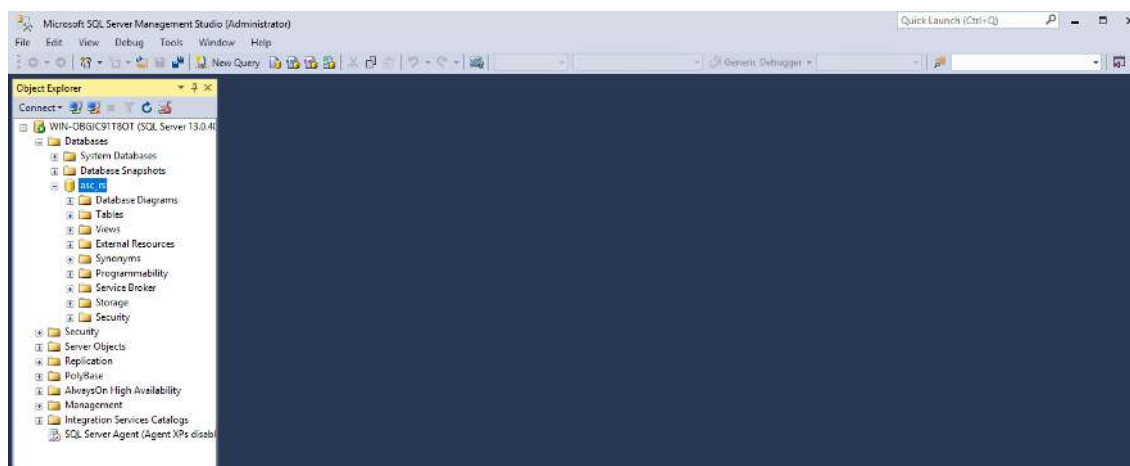


Fig. 3: Select database

3. Right-click on the folder of the *ASC database* and open the context menu.
4. Select the menu item *Properties*.

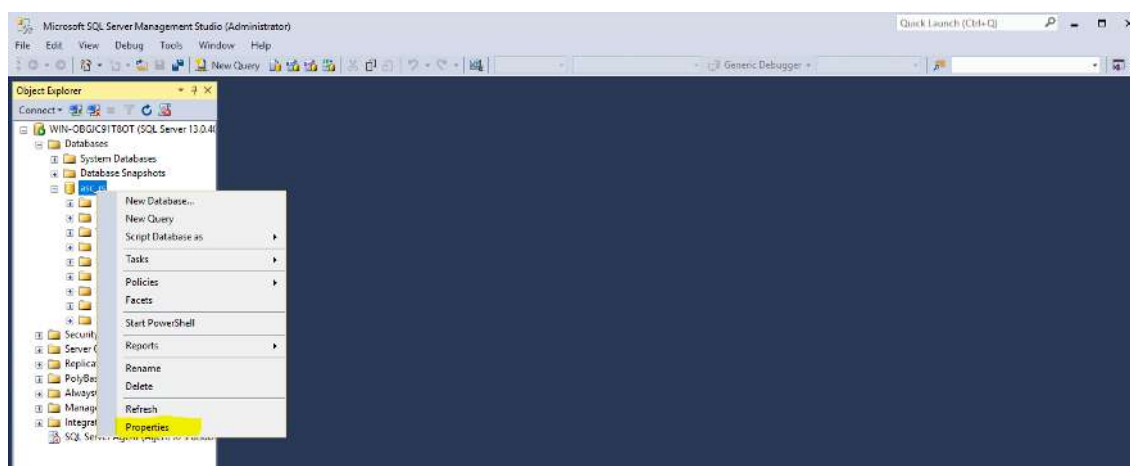


Fig. 4: Select properties of the asc_rs database

5. Click on *Select a page > Files*.
6. Go to the table with the database files and scroll to the right.
7. In the line *asc_rs* in the column *Autogrowth/Maximum Size*, click on the button with the three dots.

8. In the following window, set the parameter *File Growth* to 1/8th of the size of the database *In Megabytes*.
9. Select the option *Unlimited* for the maximum file size.
10. Click on the button *OK*.

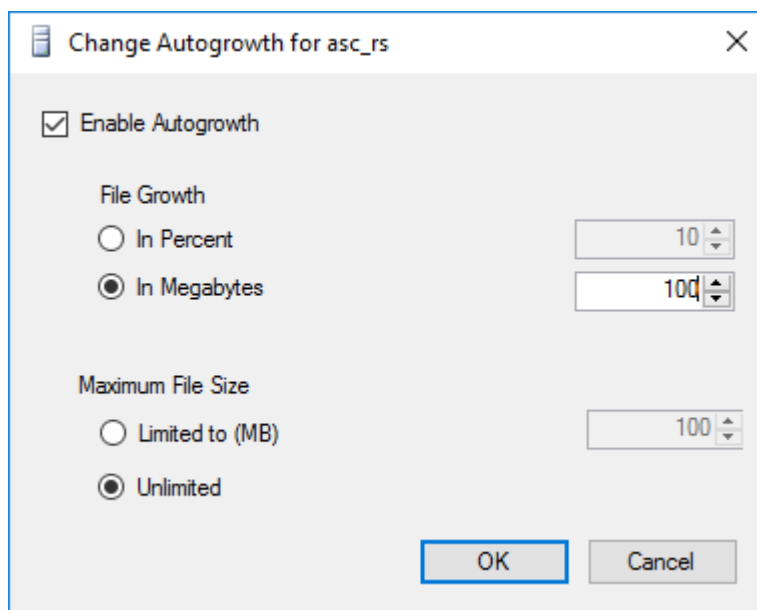


Fig. 5: Change autogrowth for dat file (example)

11. In the line *asc_rs_log*, click on the button with the three dots.
12. In the following window, set the parameter *File Growth* to 1/8th of the size of the database *In Megabytes*.
13. Select the option *Unlimited* for the maximum file size.
14. Click on the button *OK*.

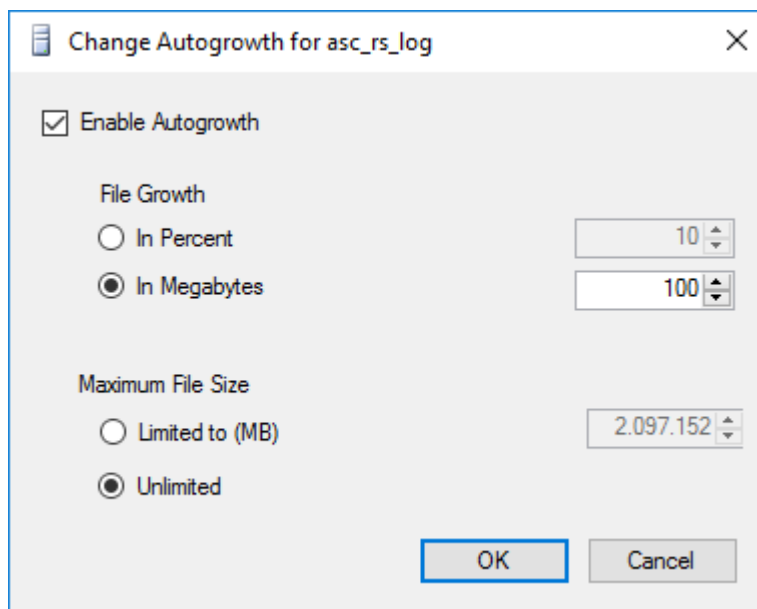


Fig. 6: Change autogrowth for log file (example)

15. Click on *Select a page > Options*.
16. On the right, select the option *Full* for the *Recovery model*.
17. For *Automatic > Auto Shrink*, select the value *False*.
18. Click on the button *OK*.

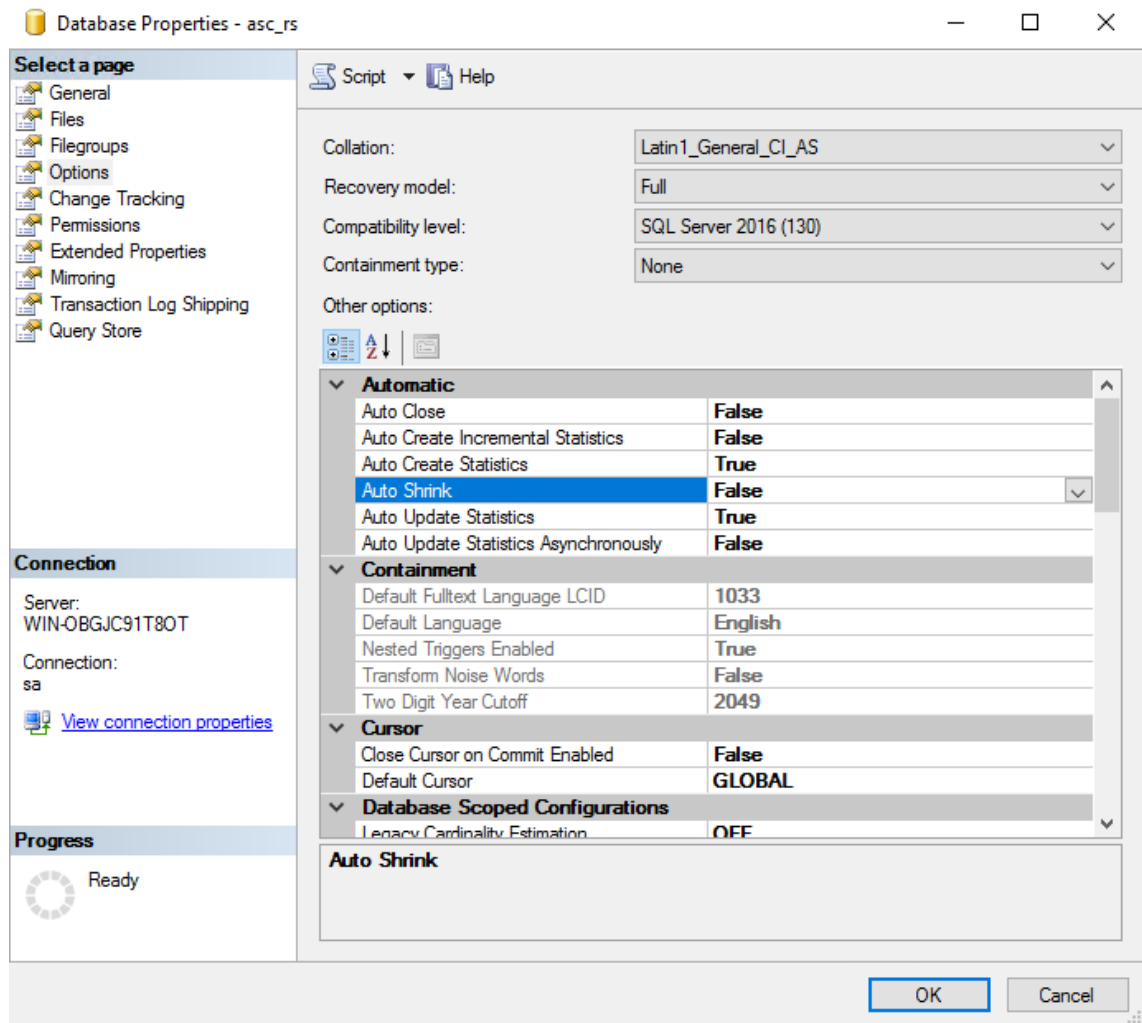


Fig. 7: Adjust recovery type

ATTENTION!

When expecting more than 5 million recordings for a database, the following settings are urgently recommended.

Preconditions:

- Full-text search (FULLTEXTSEARCH) must have been installed in Microsoft SQL.
- Neo version 6.4 or higher.

Proceeding:

- Stop the service ASC-ServiceMan and the Enterprise Core on all Enterprise Core servers.
- Start Microsoft SQL Server Management Studio and execute the following queries. Make sure that you have all administrative rights to the Microsoft SQL database.

Query 1:

```
CREATE FULLTEXT CATALOG fullTextSearch AS DEFAULT;
```

Query 2:

```
ALTER TABLE asc_rs.recordmetadatarc ADD id UNIQUEIDENTIFIER NOT NULL DEFAULT NEWID();
```

Query 3:

```
ALTER TABLE asc_rs.recordmetadatarc ADD CONSTRAINT pk_recordmetadatarc PRIMARY KEY NONCLUSTERED ( id ASC )WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, SORT_IN_TEMPDB = OFF, IGNORE_DUP_KEY = OFF, ONLINE = OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = OFF, FILLFACTOR = 80)
```

Query 4:

```
CREATE FULLTEXT INDEX ON asc_rs.recordmetadatarc (recordingids Language 1031) KEY INDEX pk_recordmetadatarc WITH STOPLIST = SYSTEM;
```

- Add the following entry in the *setup.xml* on all Enterprise Cores:

```
<useMssqlFullTextIndexForInsert>true</useMssqlFullTextIndexForInsert>
```

- Reboot the service ASC-ServiceMan and the Enterprise Core on all Enterprise Core servers.

4.4 Configure database backup



The backup interval has to be calculated individually for every client!



It is recommended to defragment the indices cyclically. For more information see <https://solutioncenter.apexsql.com/how-to-automate-and-schedule-sql-server-index-defragmentation/>.

If many database transactions take place, a daily database backup and a backup of the transaction protocol every 2 hours is recommended.

If few transactions are effected, a weekly database backup and a daily backup of the transaction protocol is recommended.

1. Start the Microsoft SQL Server 2016 Management Studio.
2. Right-click on the folder of the ASC database and open the context menu.
3. Select the menu item *Tasks > Back Up*.

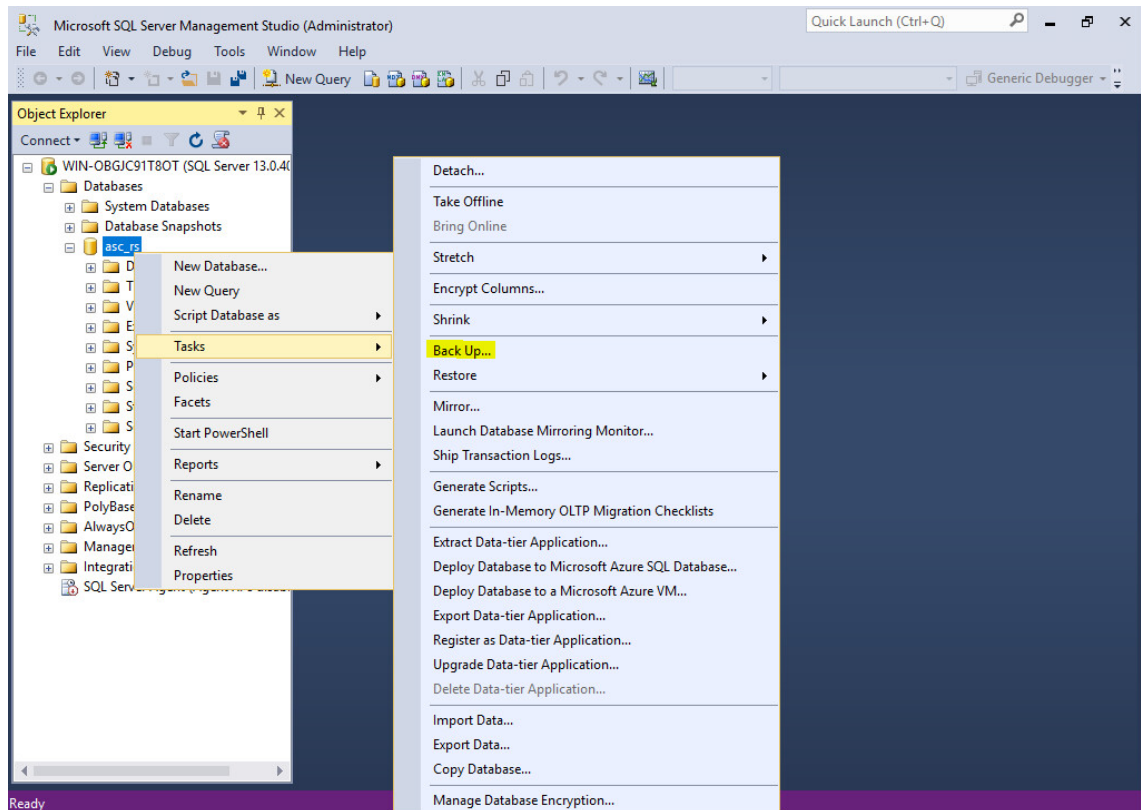


Fig. 8: Select Tasks > Back Up

4. In the following window, under *Source > Backup type*, select the option *Full*.

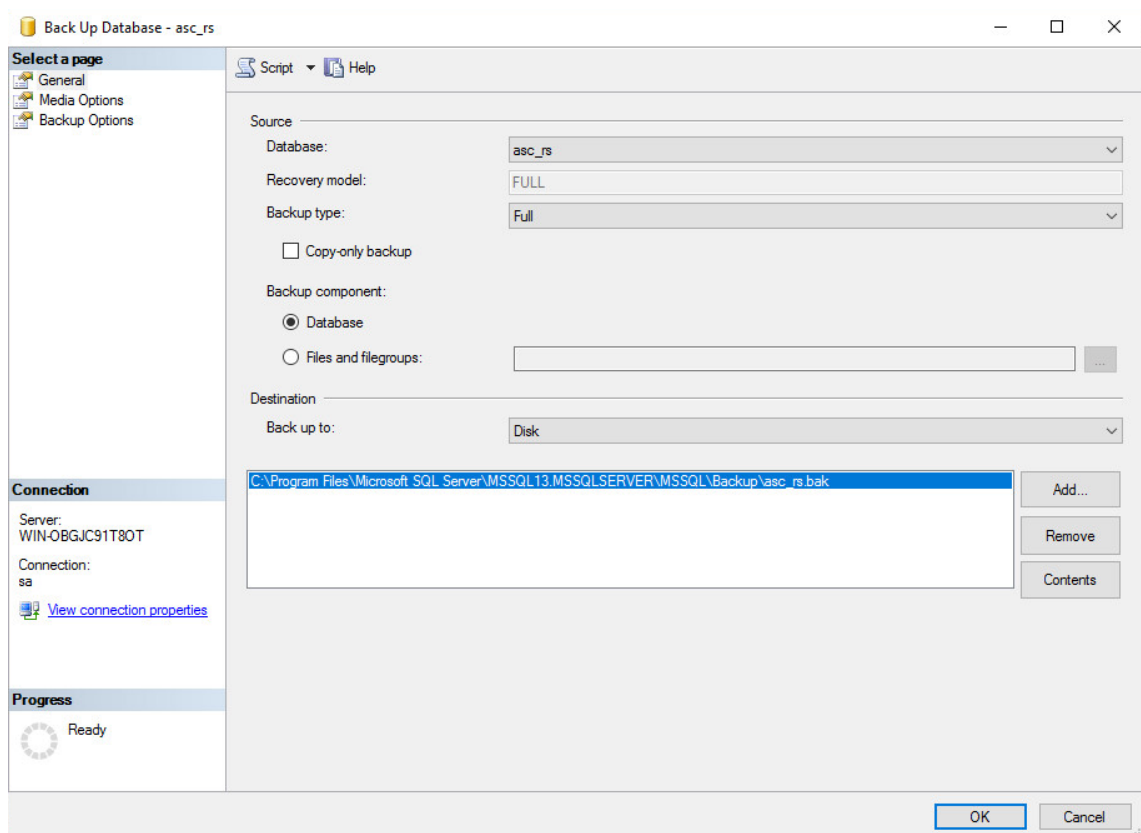


Fig. 9: Select backup type

5. Under *Destination*, click on the button *Add* to add an existing target directory or create a new one. Here, you define the name of the backup file, too.

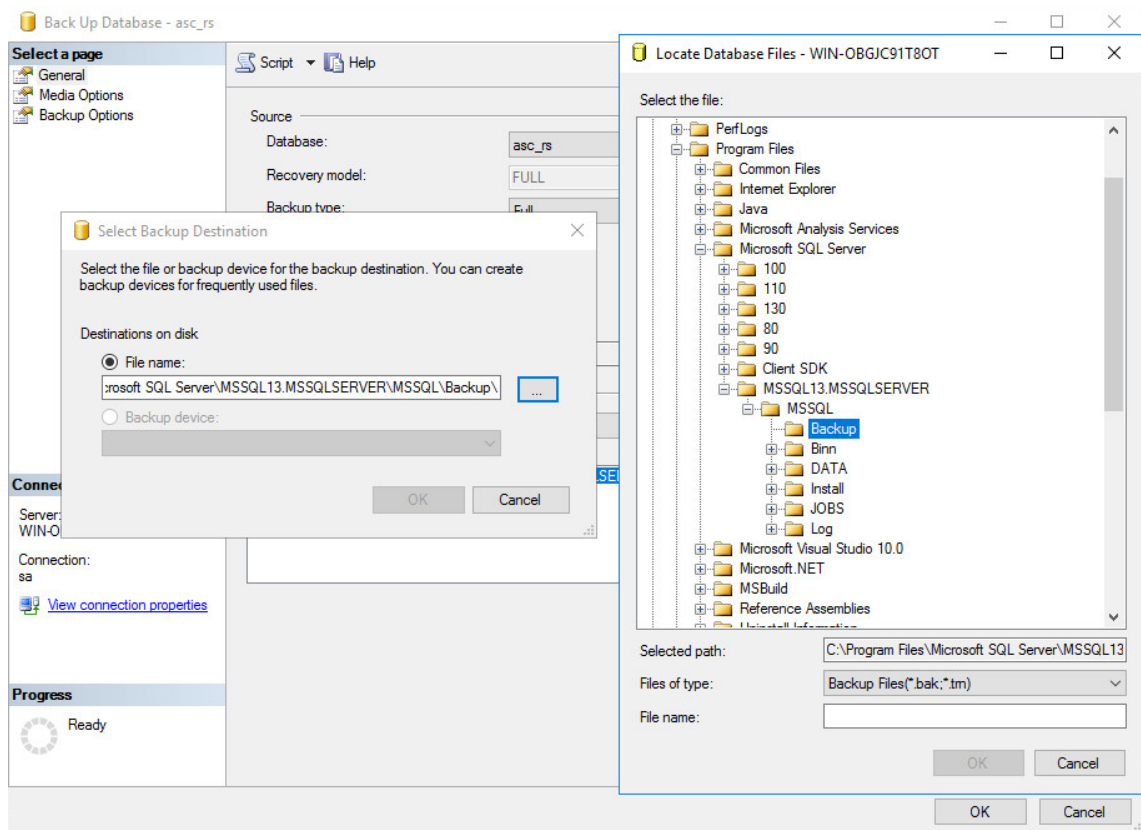


Fig. 10: Define name and target directory of the backup file

6. Click on *Select a page > Media Options*.
7. To attach the backup to a backup set which already exists on the backup computer, go to *Overwrite media > Back up to the existing media set* and activate the option *Append to the existing backup set*.
To overwrite all existing backup sets on the backup computer, go to *Overwrite media > Back up to the existing media set* and activate the option *Overwrite all existing backup sets*.

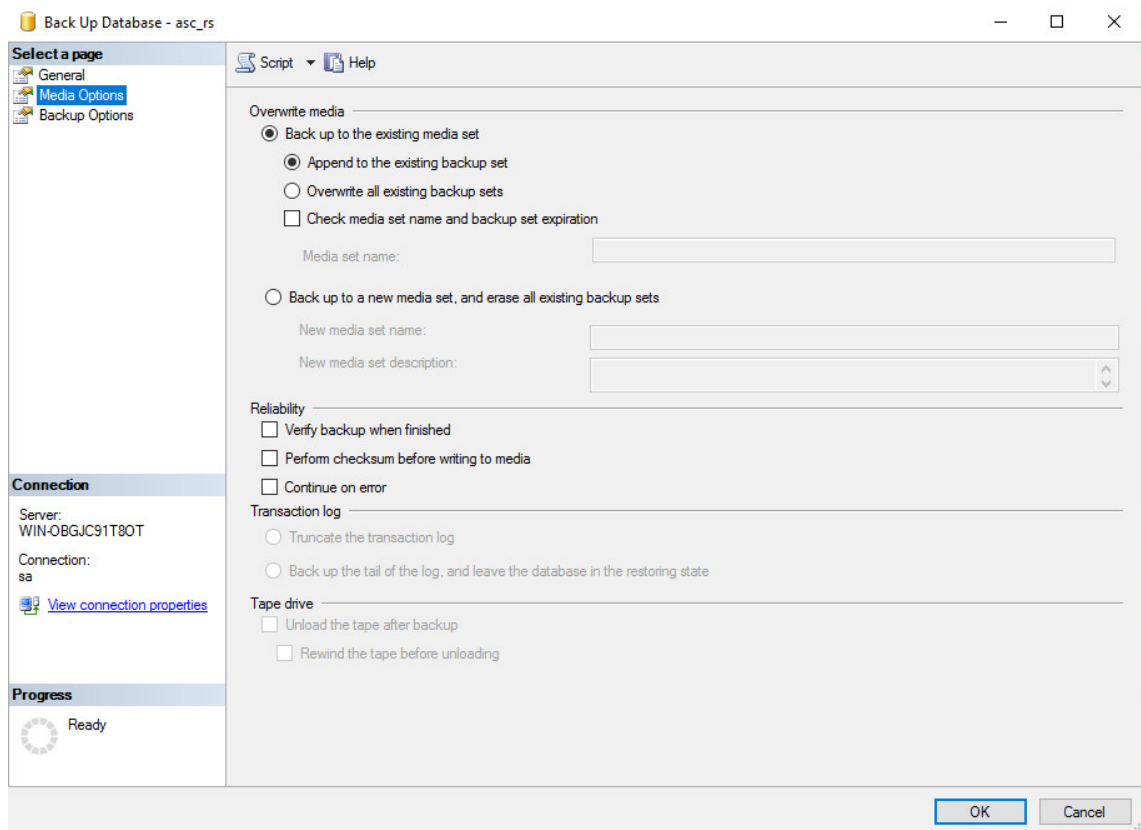


Fig. 11: Overwrite media

8. Click on *Select a page > Backup Options*.
9. In the field under *Backup set > Name*, enter a name for the backup set. In the field *Description*, you can optionally enter a description of the backup set.

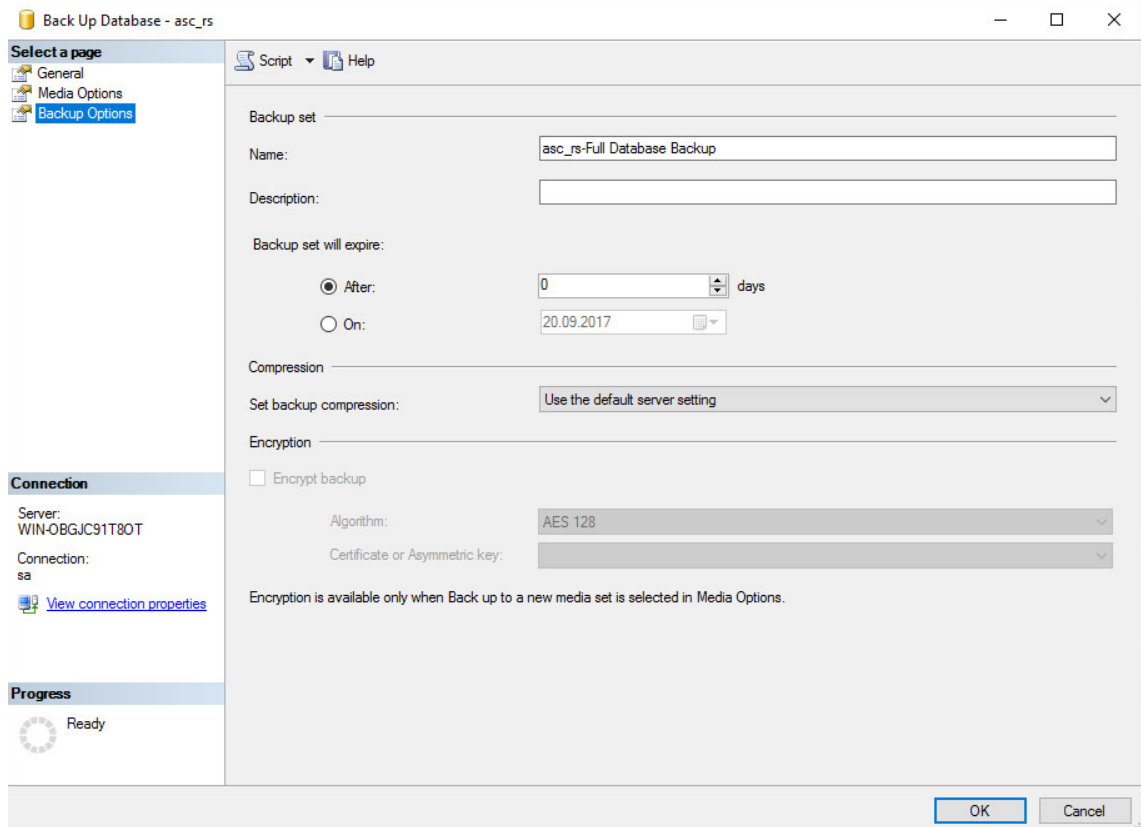


Fig. 12: Define name and description of the backup set

10. Click on *Select a page > General*.
11. Expand the menu *Script* by clicking on the arrow next to it.
12. Select the menu item *Script Action to Job*.

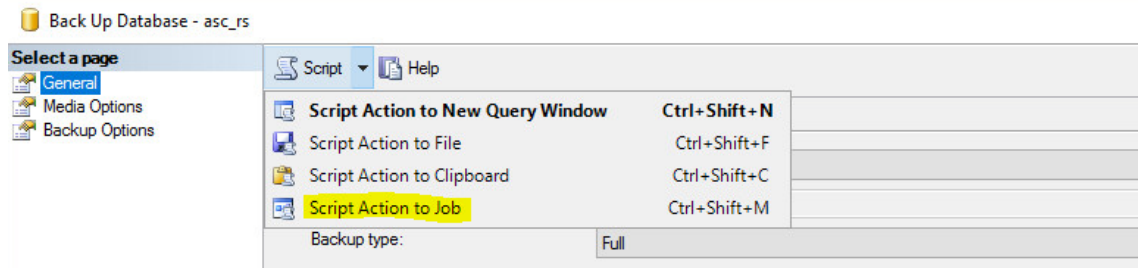


Fig. 13: Select Script Action to Job

13. Enter a job name in the following window in the field *Name*.

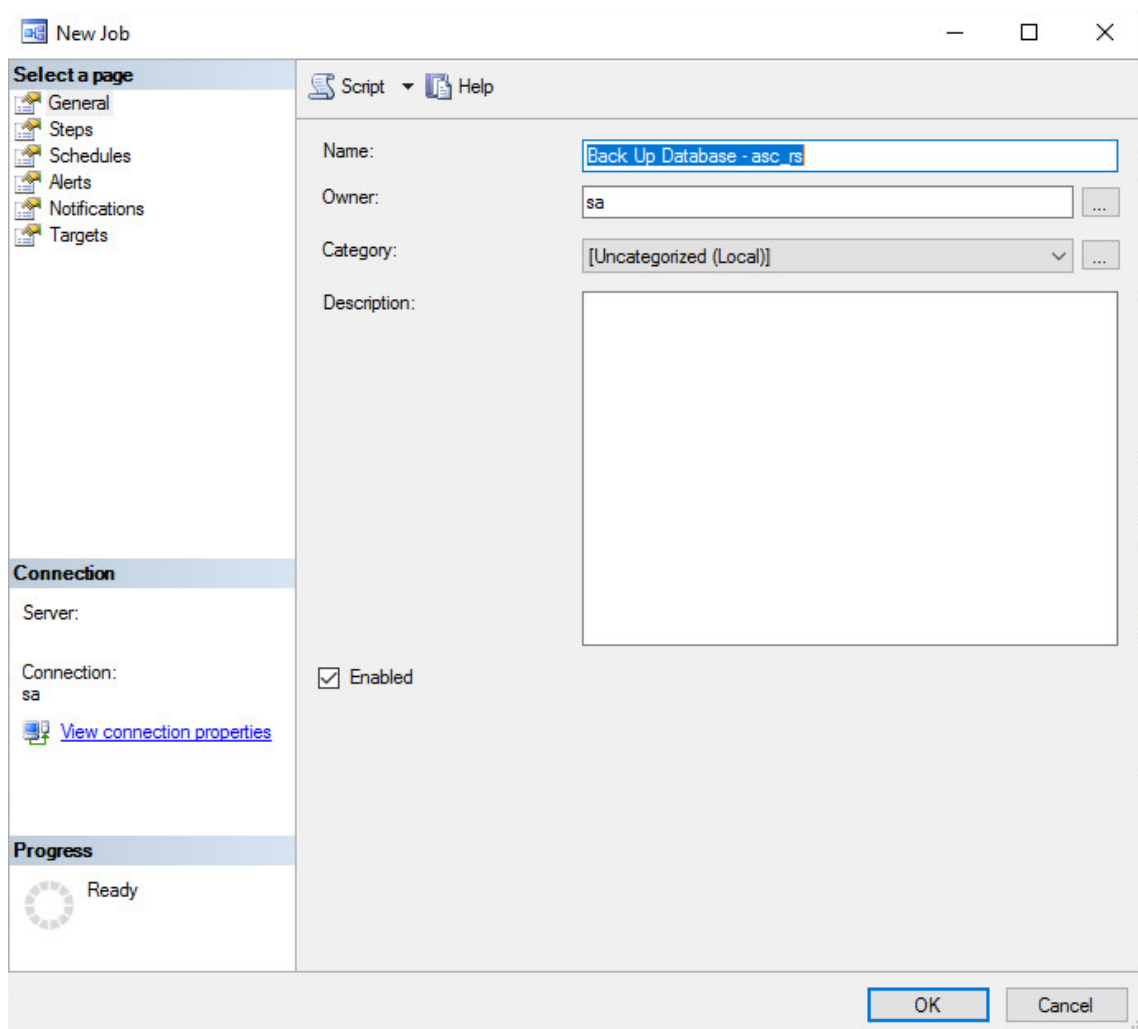


Fig. 14: Define job name

14. Click on *Select a page > Schedules*.
15. Click on the button *New* to create a new date.

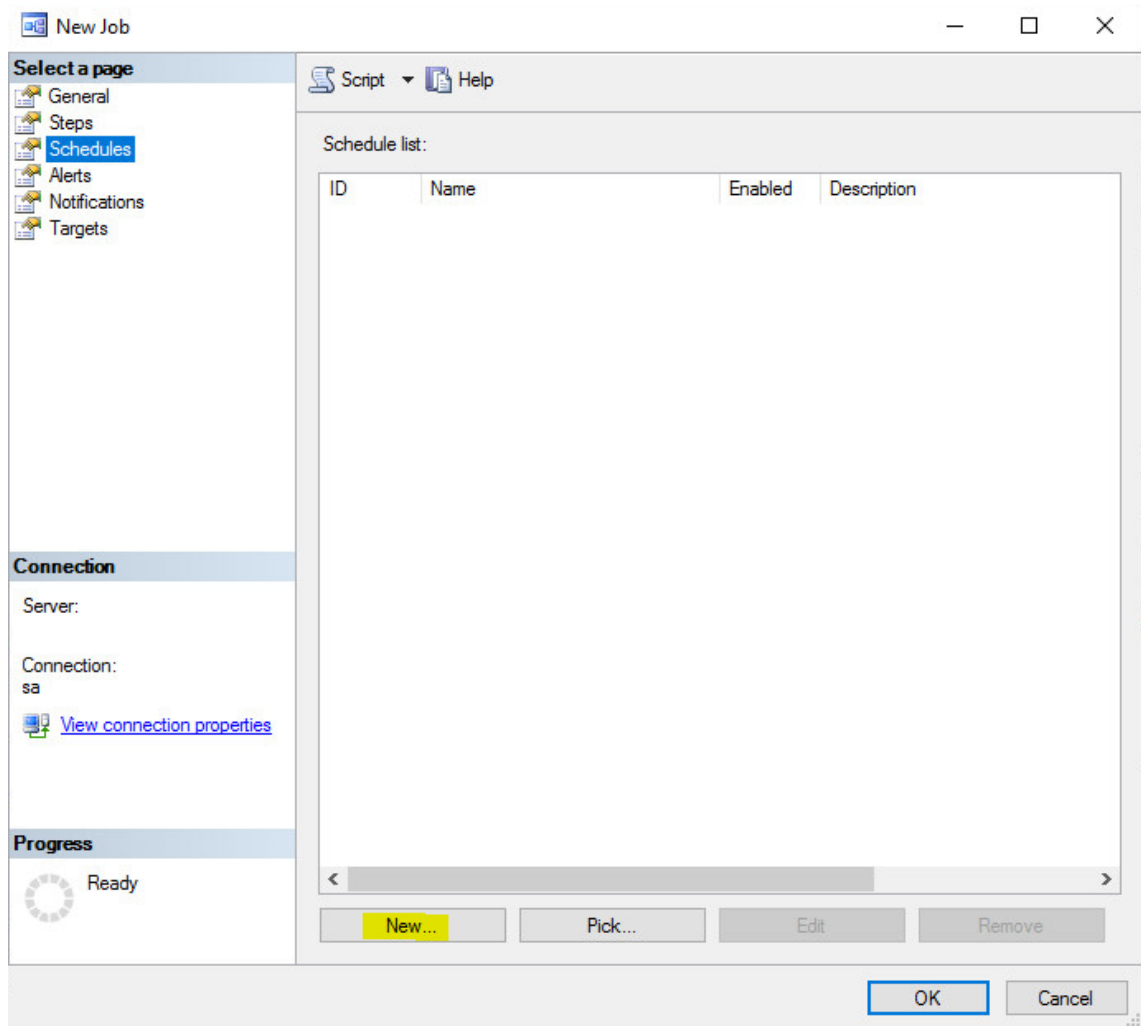


Fig. 15: Create new date

In the following window, you can configure when the backup procedure is supposed to be repeated.

16. Under *Name*, enter a name for the schedule.
17. Confirm all windows by clicking on the button *OK*.

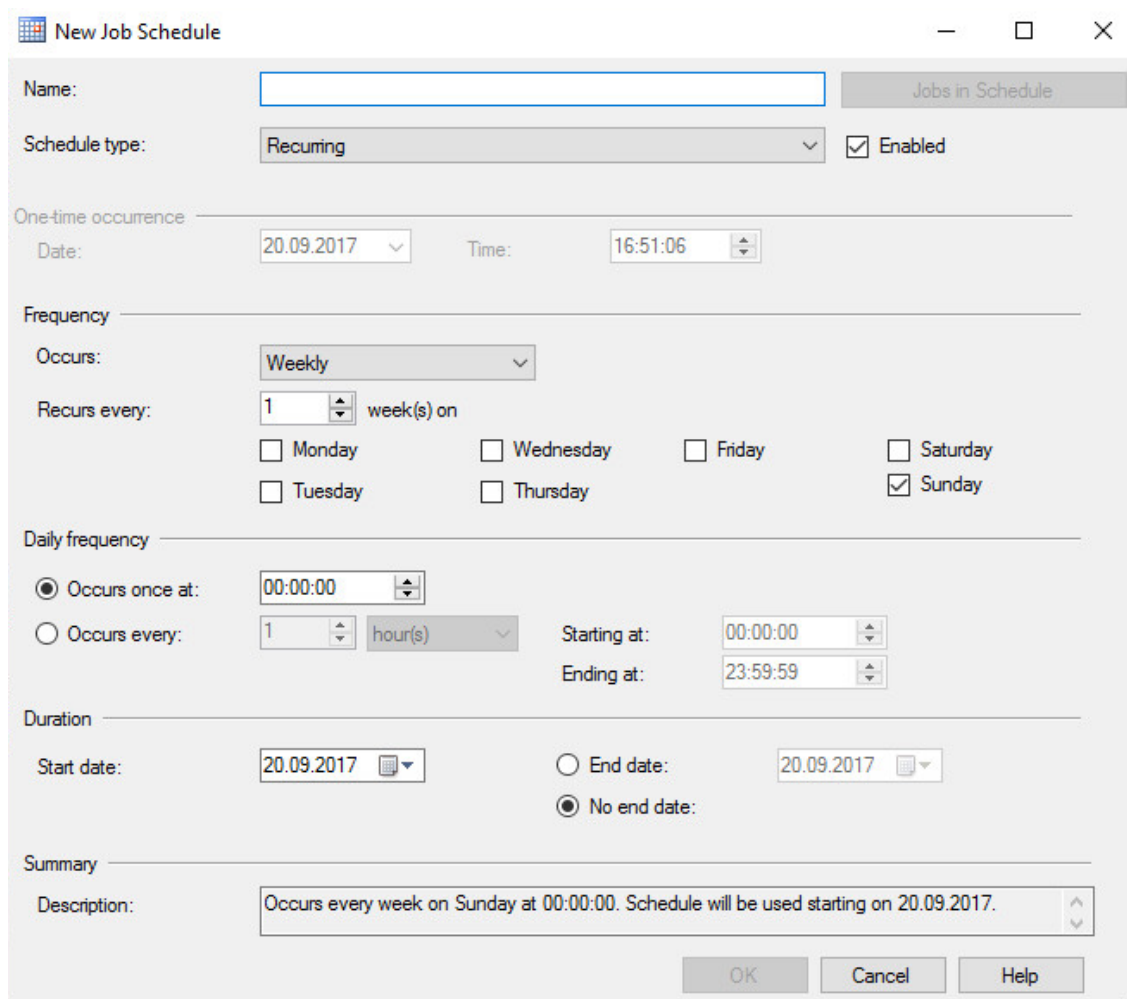


Fig. 16: Enter name of the schedule



It is possible to create several schedules for one single process. That way the process can be carried out on every first Monday of the month as well as on very 10th day of the month.



If the process does not start according to the schedule, read Start SQL Server Agent in this installation manual.

4.5 Configure backup of the transaction log

Repeat all steps described in [chapter "Configure database backup", p. 11](#). The only difference is in the selection of the backup type. Under *Source > Backup type*, select the option *Transaction log*, see [Fig. 12, p. 14](#).

4.6 Start SQL Server Agent



The service *SQL Server Agent* is required to execute jobs in the Neo database.

The service *SQL Server Agent* has been deactivated by default when the SQL Server 2 starts the service automatically.

1. Open the *Server Manager* in the taskbar.
2. Click on the menu item *Tools > Services*.
3. Double-click on the service *SQL Server Agent (MSSQLSERVER)*.

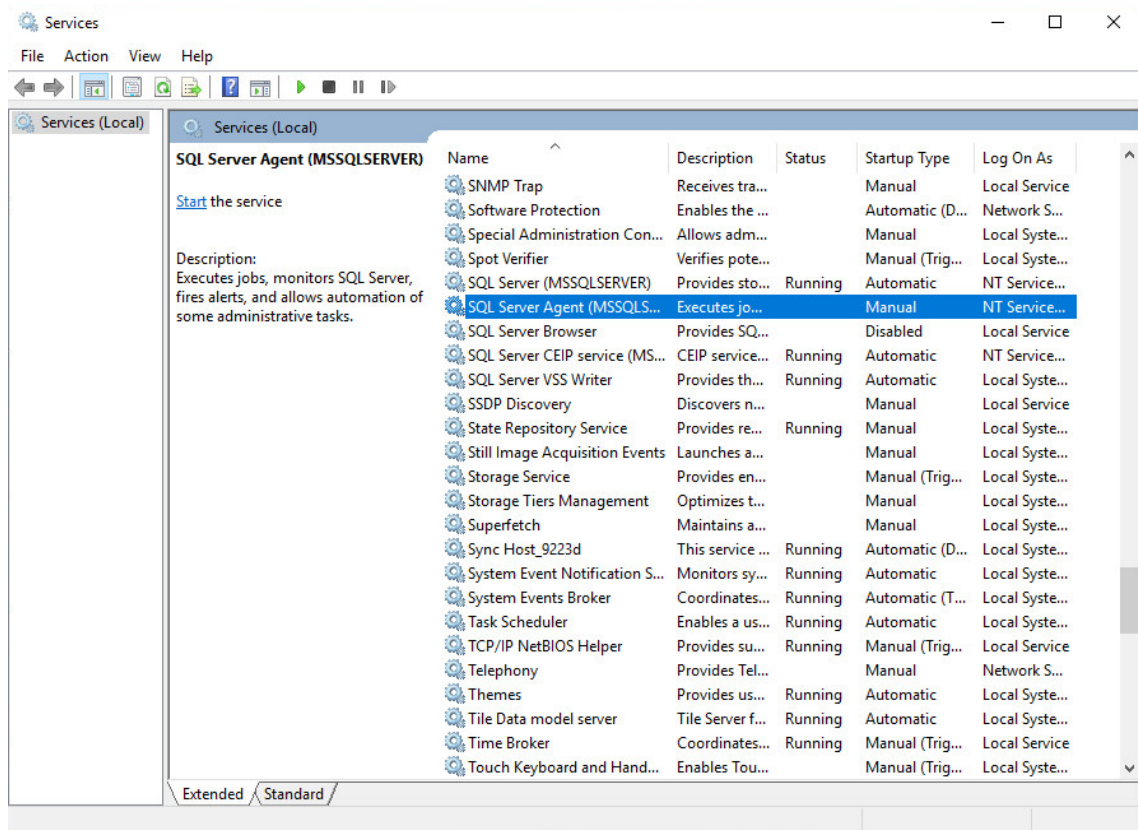


Fig. 17: Edit service "SQL Server Agent"

4. In the tab *General* > *Startup type*, select the option *Automatic*.
 5. Click on the button *Start* to start the service.
 6. Click on the button *OK*.
- ⇒ The service is now started automatically upon the start.

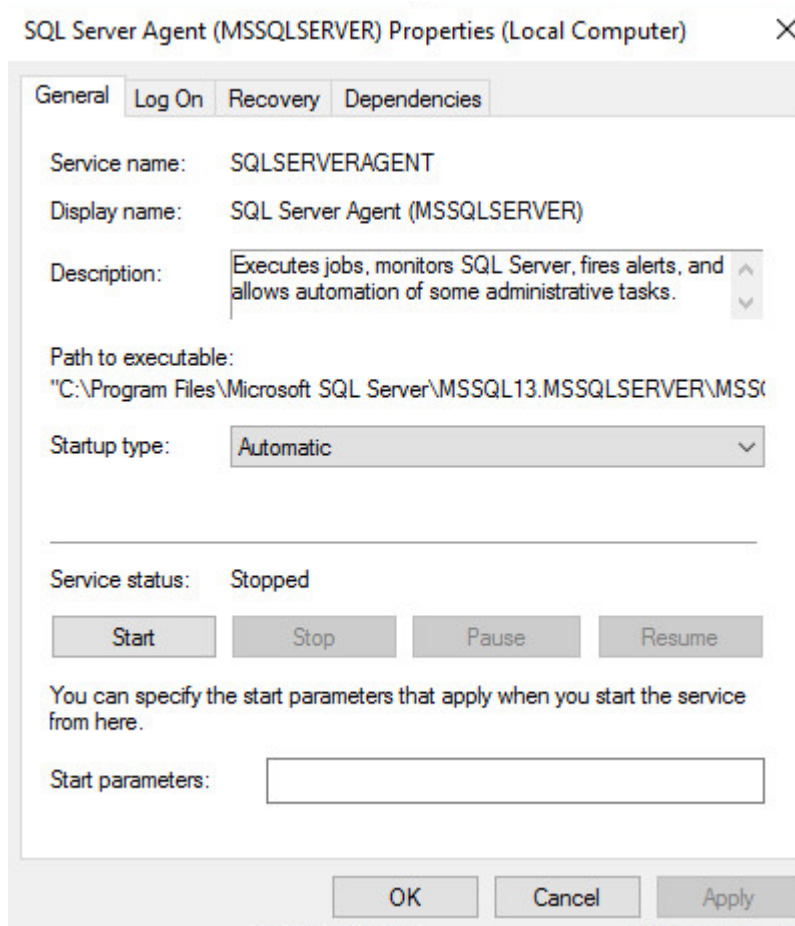


Fig. 18: Change properties of the service

4.7 Connection to an AlwaysOn availability group

If a Microsoft SQL Cluster is supposed to be distributed across several locations, the following manual configuration is required:

1. Stop the service *ASC Application Server* on the Neo application server.
2. On the Neo application server, open the configuration file *domain.xml* in an editor.

Example before:

```
<jdbc-connection-pool max-pool-size="60" fail-all-connections="true" validate-atmost-once-period-in-seconds="60" datasource-classname="com.microsoft.sqlserver.jdbc.SQLServerConnectionPoolDataSource" name="ASCSuitePool-Standby" validation-table-name="asc_rs.db_connection_control" is-connection-validation-required="true" transaction-isolation-level="read-uncommitted" res-type="javax.sql.ConnectionPoolDataSource">
  <property name="user" value="sa"></property>
  <property name="url" value="jdbc:sqlserver://#DNS-availability-group-listener#:1433;datasource=asc_rs">
</property>
  <property name="password" value="{ALIAS=db_password_alias}">
</property>
  <property name="selectMethod" value="cursor"></property>
</jdbc-connection-pool>
```

Example after:

```
<jdbc-connection-pool max-pool-size="60" fail-all-connections="true" vali-
date-atmost-once-period-in-seconds="60" datasource-classname="com.micro-
soft.sqlserver.jdbc.SQLServerConnectionPoolDataSource" name="ASCSuitePool-
Standby" validation-table-name="asc_rs.db_connection_control" is-connection-
validation-required="true" transaction-isolation-level="read-uncommitted"
res-type="javax.sql.ConnectionPoolDataSource">
<property name="user" value="sa"></property>
<property name="url" value="jdbc:sqlserver://#DNS-availability-group-lis-
tener#:1433;databasename=asc_rs;multiSubnetFailover=true">
</property>
<property name="password" value="{ALIAS=db_password_alias}">
</property>
<property name="selectMethod" value="cursor"></property>
</jdbc-connection-pool>
```

3. Start the service *ASC Application Server* on the Neo application server.
 - ⇒ You can access both nodes in different networks.
 - ⇒ In case of an error, you can switch actively.

4.8 Configure MSSQL jobs for REPORTneo

For a smooth cooperation between the MS SQL Server and *REPORTneo*, the system operator must create jobs for the stored procedures *reportneo.f_participant_call_activity_fill* (collects data for the Agent Calls report in Neo Core scheme), *reportneo.f_participant_call_activity_compress* (compresses older data previously collected) as well as *reportneo.f_cachestate_check_dastock* (detects changes for cache refresh).

1. Start the Microsoft SQL Server 2016 Management Studio.
2. Right-click on the folder *Jobs* and open the context menu.
3. Select the menu item *New Job...*

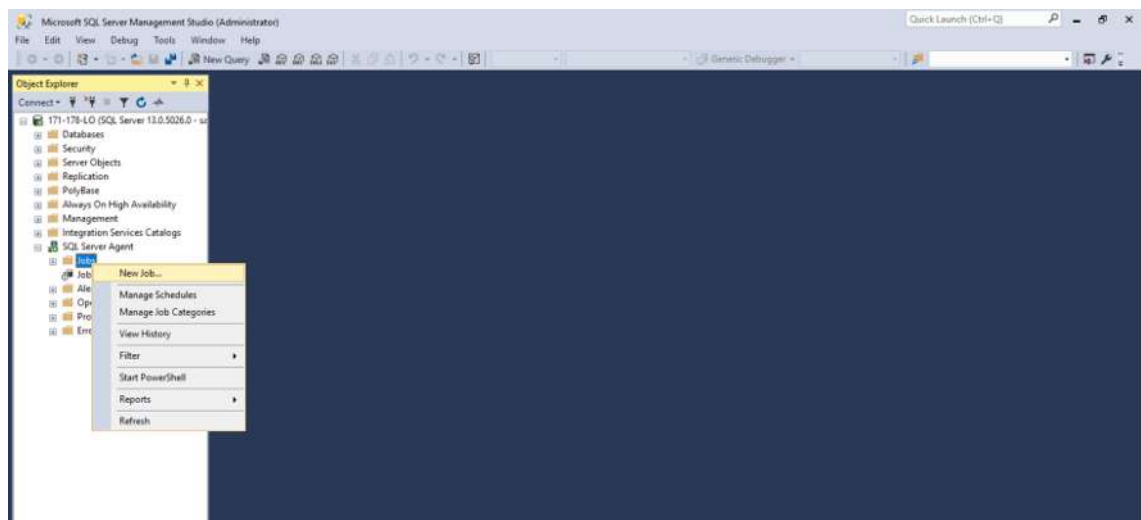


Fig. 19: Create new job

4. In the following window, select the page *General* and enter the name of the job, here: *participant_call_activity_fill*.



participant_call_activity indicates the name of the respective report.

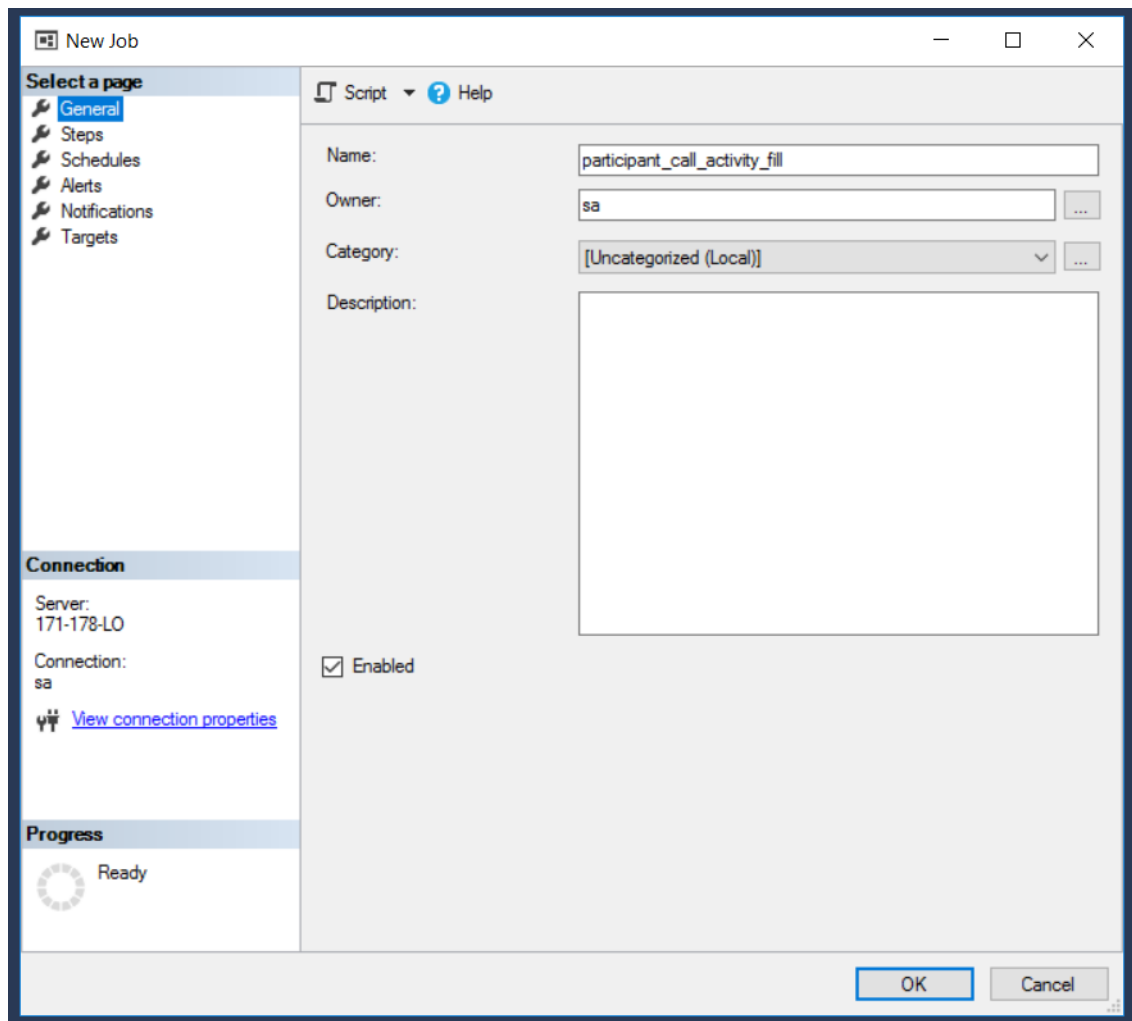


Fig. 20: Configure job

5. Change to the page *Steps* and click on the button *New...* to configure a new job step.

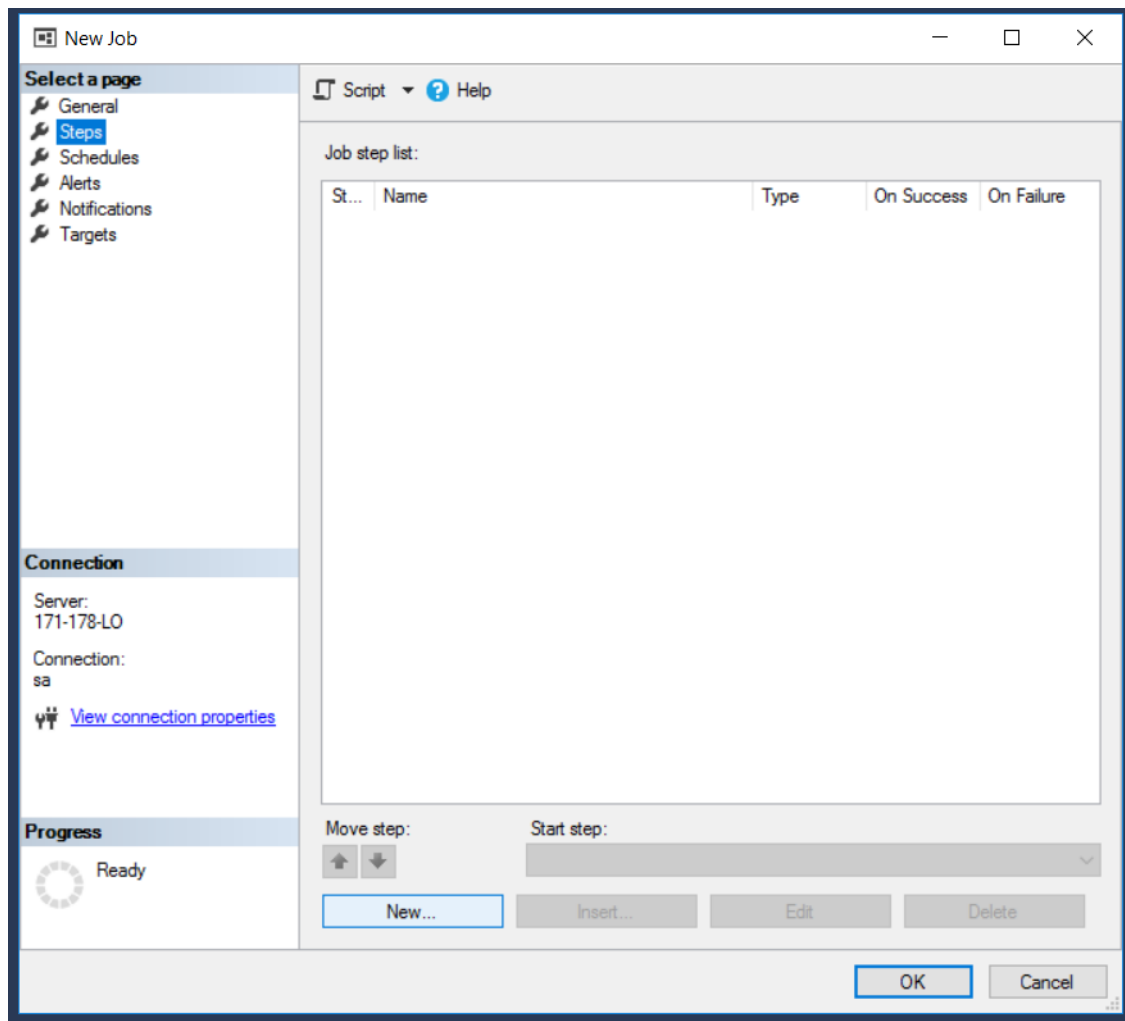


Fig. 21: Create new step

6. In the following window on the page *General*, enter the name of the step in the entry field *Step name*, here: *f_participant_call_activity_fill*.
7. Ensure that in the drop-down list *Type* the entry *Transact-SQL script (T-SQL)* has been selected.
8. From the drop-down list *Database*, select the entry *asc_rs*.
9. In the entry field *Command*, manually enter the command to execute the created job, here: *EXEC reportneo.f_participant_call_activity_fill*;

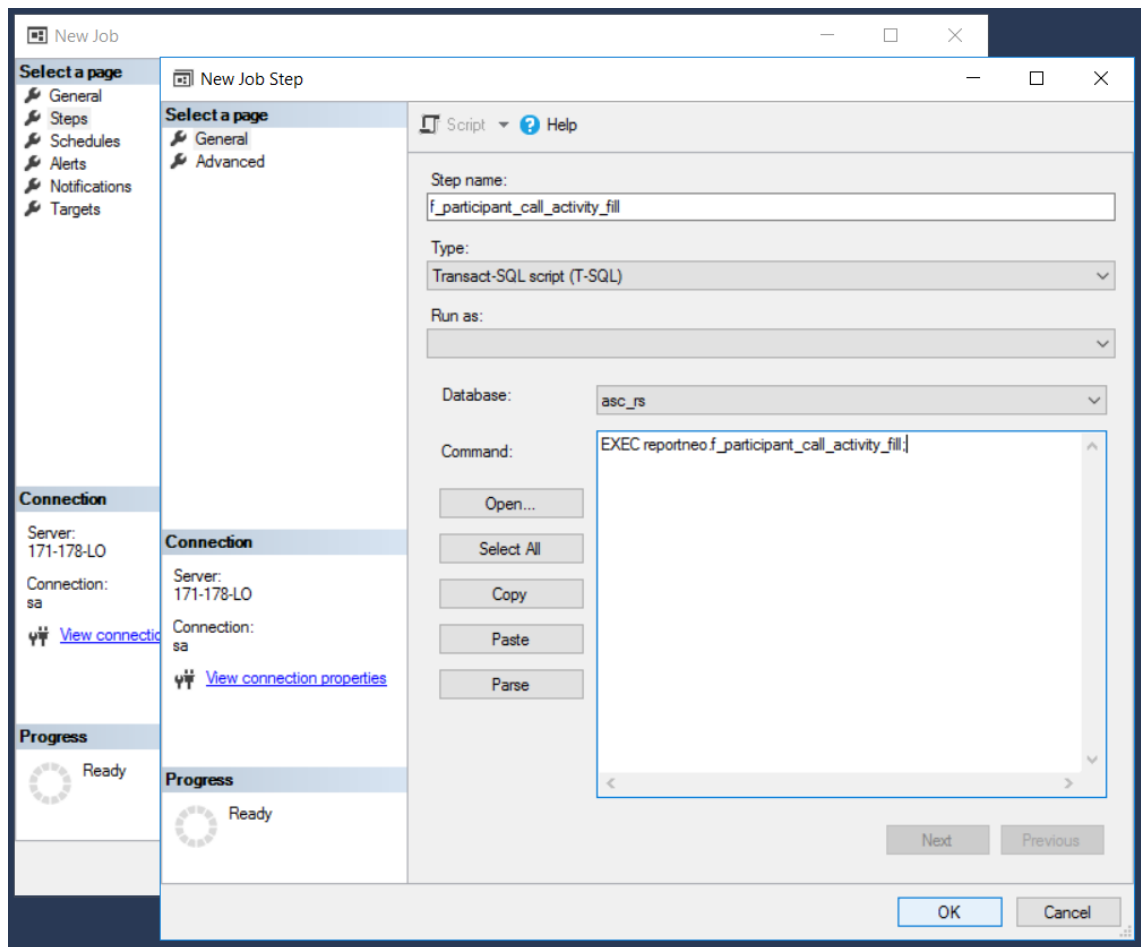


Fig. 22: Enter command

10. Click on the button *OK* to apply the entries.

⇒ The step appears on the page *Steps* in the list of job steps.

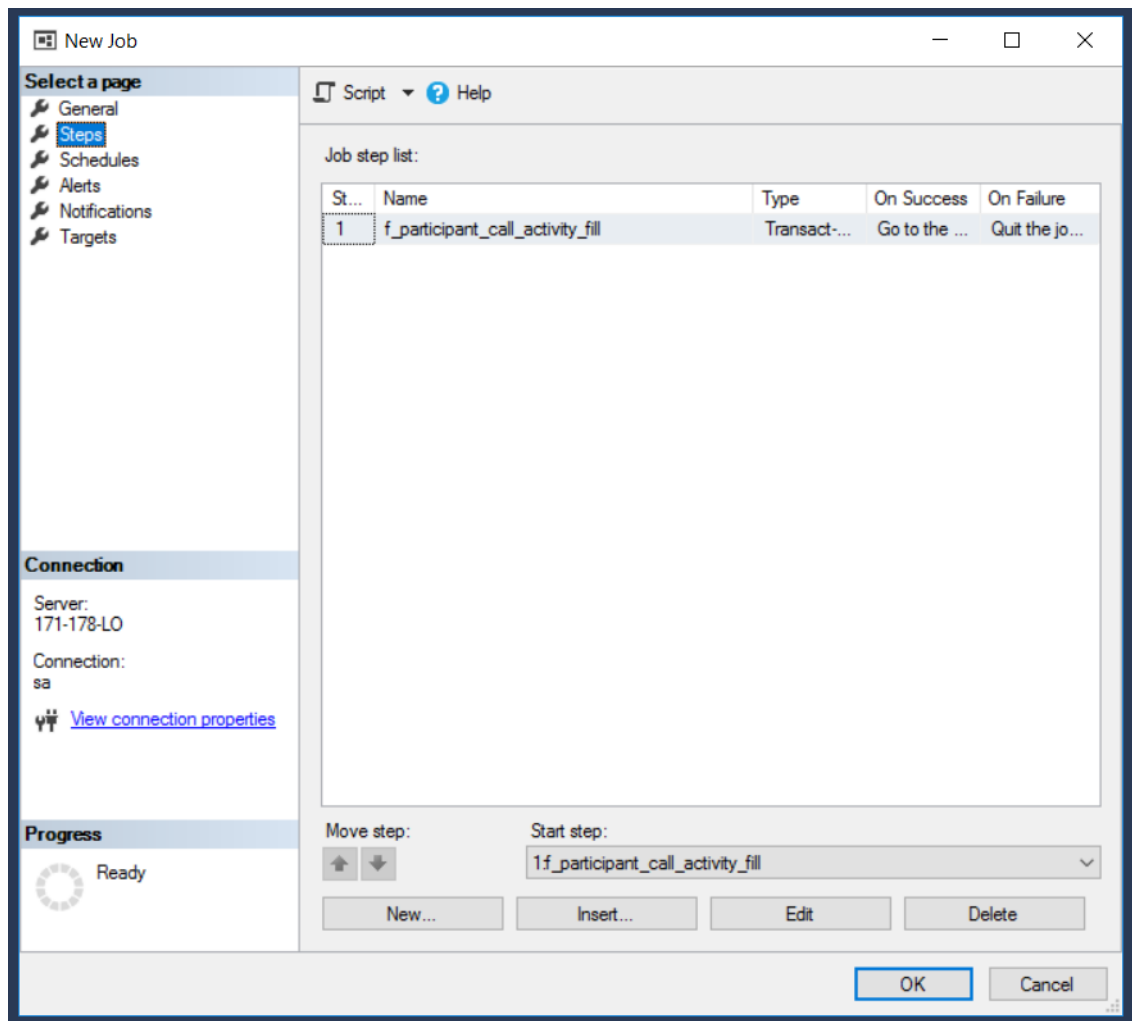


Fig. 23: Job in list

11. Change to the page *Schedules* and click on the button *New...* to create a schedule for the job.

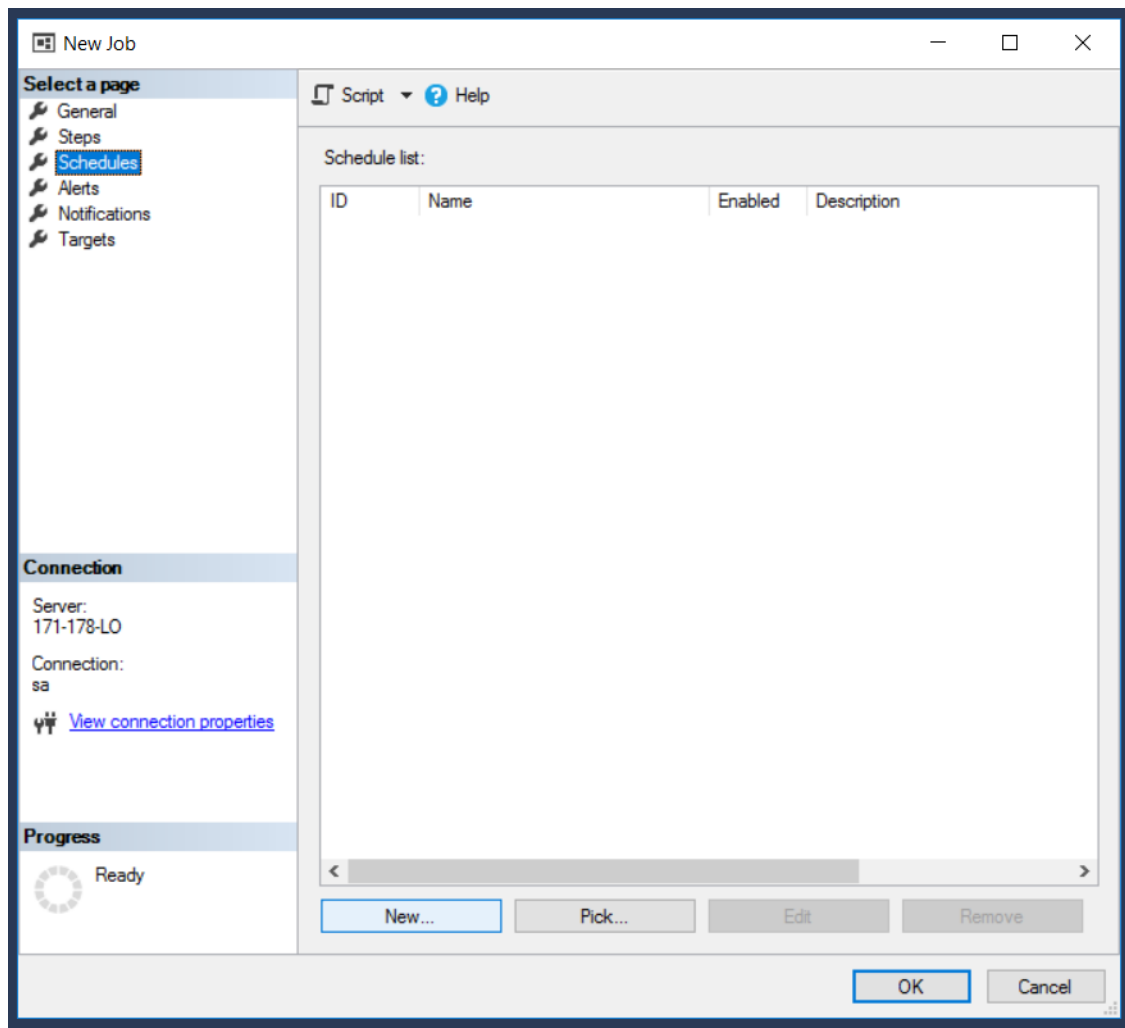


Fig. 24: Create new schedule

12. In the following window in the entry field *Name*, enter a name for the schedule of the job.
13. Ensure that in the drop-down list *Schedule type* the type *Recurring* has been selected.
14. Under *Frequency* in the entry field *Occurs*, select the execution *Daily* and under *Recurs every* select the frequency *1 Day(s)*.
15. Under *Daily Frequency* in the entry field *Occurs every*, select the frequency *5 minute(s)*.
16. Under *Duration*, activate the option *No end date*.

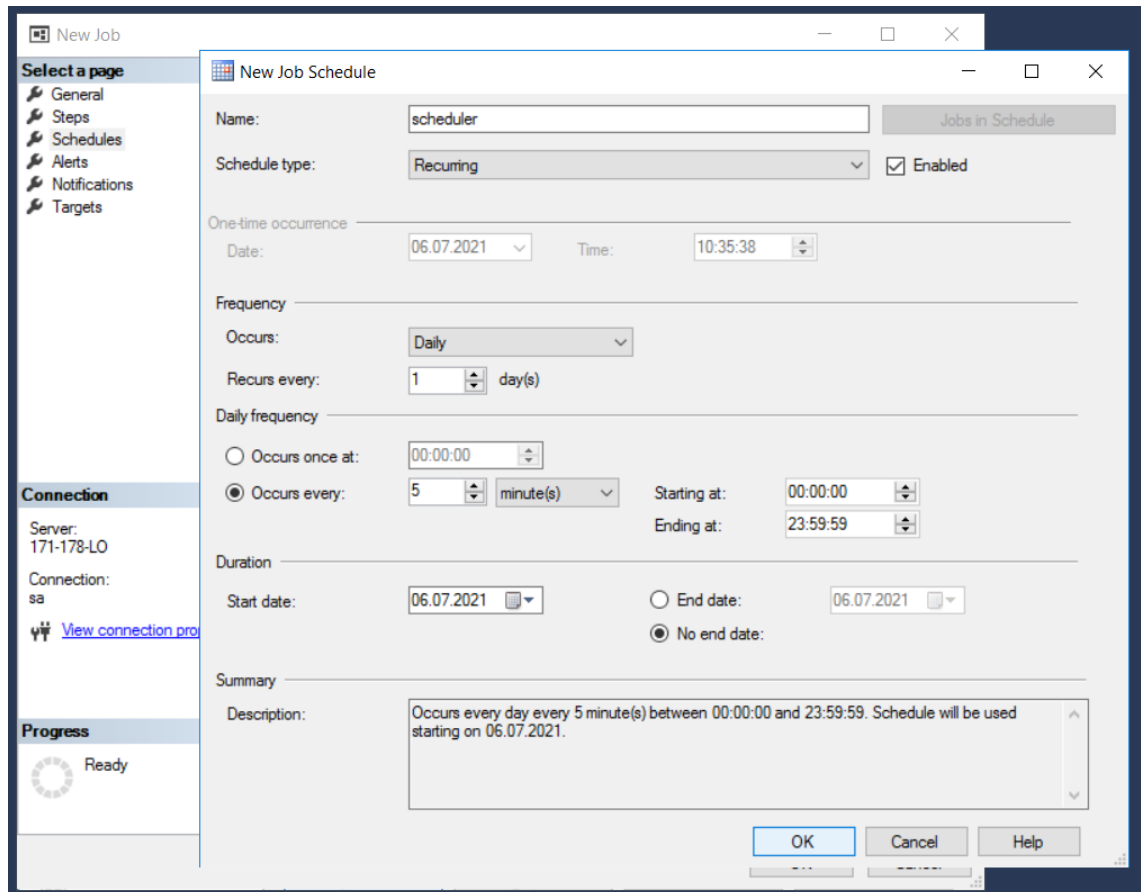


Fig. 25: Configure schedule

17. Click on the button **OK** to apply the entries.

⇒ The schedule appears on the page *Schedules* in the list of schedules.

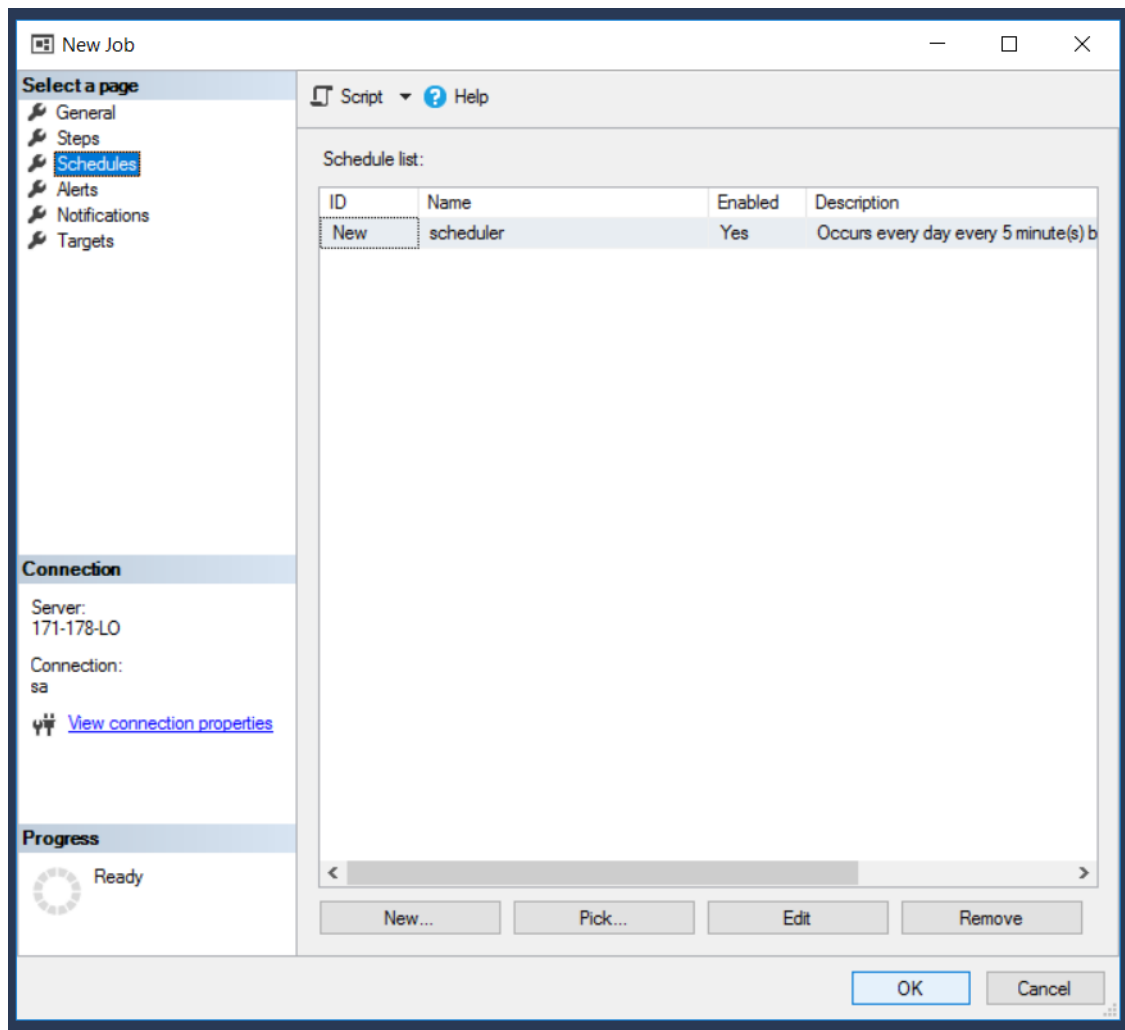


Fig. 26: Schedule in list

18. Click on the button **OK** to finish the configuration.

⇒ The job appears in the Microsoft SQL Server 2016 Management Studio in the folder *Jobs*.

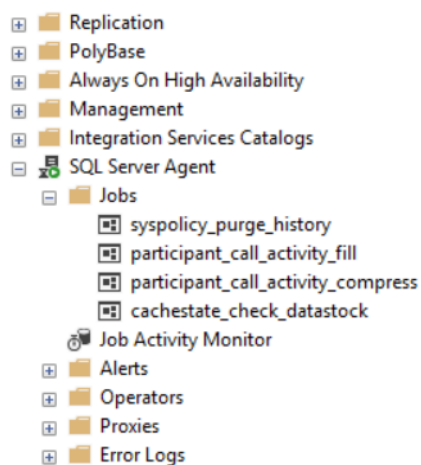


Fig. 27: Job in folder

19. Repeat the process for the jobs *participant_call_activity_compress* and *cachestate_check_datastock*.

- Adjust the default settings during the installation of the SQL Server 2016: **SQL Server 2016 Setup > Database Engine Configuration > Authentication Mode > Windows or > Mixed Mode**: Activate and enter password.
- Start SQL Server Configuration Manager: **SQL Server network configuration > MSSQLSERVER > TCP/IP**: Activate.
- Start SQL Server 2016 Management Studio: **Windows key > All programs > Microsoft SQL Server 2016 > SQL Server Management Studio: asc_rs-database > right-click > Properties > Select a page: Files > asc_rs: [...]** for Autogrowth/Maximum Size and **asc_rs_log: [...]** for Autogrowth/Maximum Size
 - File growth: 1/8th of the size of the database in Megabytes
 - Maximum file size: Unrestricted file growth
- Select database properties: **Windows key > All programs > Microsoft SQL Server 2016 > SQL Server Management Studio: asc_rs-database > right-click > Properties > Options: Select a page > Automatic > Auto shrink: False**.
- The database backup cannot be configured before the EVOIP_{neo} software has been installed.
- Configure database backup: **Windows key > All programs > Microsoft SQL Server 2016 > SQL Server Management Studio > Databases > asc_rs > Tasks > Back up > Backup type: Full > Backup set: Name of the backup set > Destination: Add (a target directory) > Options: Select a page**
 - Append backup to already existing backup sets on backup computer: **Append to the existing backup set: Activate**
 - Overwrite all existing backup sets on the backup computer: **Overwrite all existing backup sets: Activate**
- Script settings: **General: Select a page > Script > Script Action to Job: enter name > Schedule > New: enter date**.

Option: SQL Server Agent

- Start agent: **SQL Server Management > SQL Server Agent > Start**.
- Configure MSSQL jobs for REPORT_{neo}: **Start > All programs > Microsoft SQL Server 2016 > SQL Server Management Studio: Jobs > right-click > New Job...** General > enter Name > Steps > **New...** > enter Step name > select Type Transact-SQL script (T-SQL) > select Database asc_rs > enter Command EXEC reportneo.f.participant_call_activity_fill; > **OK** > Schedules > **New...** > enter Name > select Schedule type Recurring > select Frequency > Recurs every 1 day(s) > select Daily frequency Occurs every > 5 minute(s) > activate Duration No end date > **OK** > Schedules > **OK**

Repeat for *participant_call_activity_compress* and *cachestate_check_datastock*.

6 FAQ

Which MS SQL databases are supported?

Information about released versions and those supported by the recording system can be found in the *Release Announcement* and in the installation manual *Installation requirements*.

Which database size is recommended?

To calculate the database size, use the data volume calculator *Postgres_Callpool_Sizing*. Add an additional 20 % of data volume.



The file *Postgres_Callpool_Sizing* can be found on the Manual Package in folder *1_Sizing calculator*.

Which authentication mode is used?

For Neo systems, Windows authentication or SQL Server Authentication (Mixed Mode) is required.

Which server collations are supported?

The collation *Latin1_General_CI_AS* is required.

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Glossary