Roger Access Control System 5v2

Application note no. 017

Document version: Rev. D

Operation with MS SQL Server database

Note: This document refers to RACS 5 v2.0.4 or newer

Introduction

RACS 5 system requires Windows 10 (or newer) operating system and it enables use of MS SQL Server 2012 SP4 (or newer) database management system in order to apply centralized type database e.g. Express, Standard, Enterprise.

Centralized database can be used in small, medium and large systems managed from multiple workstations so all operators could communicate with database on a server. RogerSVC software with RACS 5 servers is usually installed on the same computer as database.

This document explains installation and configuration of centralized database using MS SQL Server 2019 Express as an example and it includes procedures for database backup, database transfer to another server, migration from local type to centralized database and encryption of database. Description of features and requirements for free of charge MS SQL Express edition database is available on Microsoft webpage.

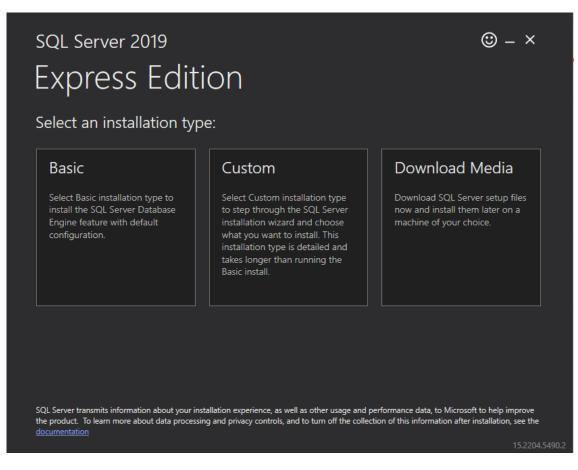
Note: The RACS 5 v1 system could work with local type Microsoft SQL Server Compact 4.0 database or centralized type Microsoft SQL Server 2012 SP4 (or higher) database. Due to discontinued support of Microsoft company for local type databases, only centralized type Microsoft SQL Server 2012 SP4 (or higher) database can be applied in RACS 5 v2 system.

MS SQL Server 2019 Express system

Downloading, installation and configuration

- Search for MS SQL Server 2019 at Microsoft website or use following link in your web browser: <u>https://www.microsoft.com/pl-pl/sql-server/sql-server-downloads</u>
- Start downloaded installation file and after unpacking select the option *Custom* and define installation path.





• In the next step select as below.

🃸 SQL Server Installation Center		– 🗆 X
Planning Installation	ŧ	New SQL Server stand-alone installation or add features to an existing installation Launch a wizard to install SQL Server 2019 in a non-clustered environment or to add features to an existing SQL Server 2019 instance.
Maintenance Tools Resources	1	Install SQL Server Reporting Services Launch a download page that provides a link to install SQL Server Reporting Services. An internet connection is required to install SSRS.
Options	∎	Install SQL Server Management Tools Launch a download page that provides a link to install SQL Server Management Studio, SQL Server command-line utilities (SQLCMD and BCP), SQL Server PowerShell provider, SQL Server Profiler and Database Tuning Advisor. An internet connection is required to install these tools.
	K	Install SQL Server Data Tools Launch a download page that provides a link to install SQL Server Data Tools (SSDT). SSDT provides Visual Studio integration including project system support for Microsoft Azure SQL Database, the SQL Server Database Engine, Reporting Services, Analysis Services and Integration Services. An internet connection is required to install SSDT.
	•	Upgrade from a previous version of SQL Server Launch a wizard to upgrade a previous version of SQL Server to SQL Server 2019. Click here to first view Upgrade Documentation
Microsoft SQL Server 2019		



• Select Next, accept license agreement and choose as below.

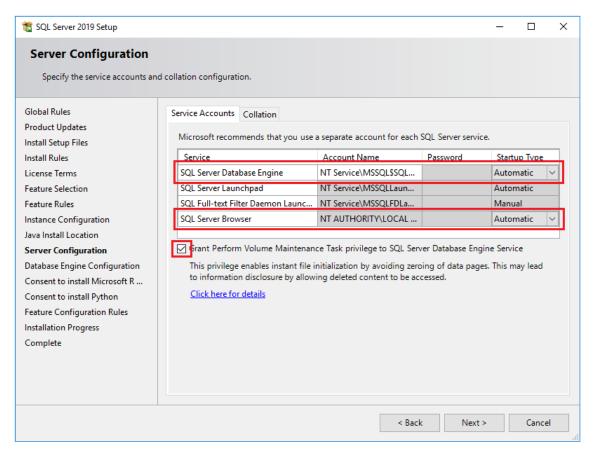
🃸 SQL Server 2019 Setup			- 0	×			
Feature Selection Select the Express features to in	stall.						
Global Rules Product Updates Install Setup Files Install Rules License Terms Feature Selection Feature Rules Instance Configuration Java Install Location Server Configuration Database Engine Configuration Consent to install Microsoft R Consent to install Python Feature Configuration Rules Installation Progress Complete	 Looking for Reporting Services Features: Database Engine Services SQL Server Replication Machine Learning Services R Python Java Full-Text and Semanti PolyBase Query Service Java connector for Select All Unselect All Instance root directory: 	vices and Language	Feature description: The configuration and operation of each instance feature of a SQL Server instance is Prerequisites for selected features: Already installed: Windows PowerShell 3.0 or higher Microsoft Visual C++ 2017 Redistributable Disk Space Requirements Drive C: 3154 MB required, 39618 MB available	>			
	Shared feature directory: Shared feature directory (x86):		Microsoft SQL Server\ (x86)\Microsoft SQL Server\				
			< Back Next > Cancel				

• Select named instance and enter any name.

📸 SQL Server 2019 Setup						—		×
Instance Configuration								
Specify the name and instance	ID for the instance of S	QL Server. Instance ID k	becomes part	of the installatio	n path.			
Global Rules	O Default instance							
Product Updates Install Setup Files	Named instance:	SQLExpress						
Install Rules								
License Terms	Instance ID:	SQLEXPRESS						
Feature Selection Feature Rules								
Instance Configuration	SQL Server directory:	C:\Program Files\Micr	rosoft SQL Ser	rver\MSSQL15.SC	QLEXPRESS			
Java Install Location Server Configuration	Installed instances:							
Database Engine Configuration	Instance Name	Instance ID	Features	Editio	n	Ver	sion	
Consent to install Microsoft R								
Consent to install Python Feature Configuration Rules								
Installation Progress								
Complete								
				< Back	Next >		Cance	
			L					



• In the next window select default settings for Java and then enable automatic startup for services.



Note: It is recommended not to change the parameter *Collation* in *Collation* tab for the value different than $*_CI_AS$. Database should be case insensitive and accent sensitive in regard of sorting.

• Define authentication parameters as below. It is recommended to select *Mixed Mode*. Password for system administrator (sa) must be remembered for further use.



髋 SQL Server 2019 Setup						_		×
Database Engine Config	guration							
Specify Database Engine authen parallelism, Memory limits, and f		administrators, dat	a directori	es, TempDi	B, Max degree o	f		
Global Rules Product Updates Install Setup Files Install Rules License Terms Feature Selection Feature Rules Instance Configuration Java Install Location Server Configuration Database Engine Configuration Consent to install Microsoft R Consent to install Python Feature Configuration Rules	Server Configuration Specify the authent Authentication Mod Windows authen Mixed Mode (SQ Specify the password Enter password: Confirm password: Specify SQL Server a RCCERClastachick	ication mode and a de L Server authentica of for the SQL Serve 	dministrat	tors for the	Database Engin uthentication) or (sa) account. SQL Server			
Installation Progress Complete	Add Current User	Add Re	emove		< Back	Next >	Cance	

- Consent to installation of additional elements and select *Next*.
- Close all windows when the installation is finished
- Start SQL Manager typing *Sql Server 2019 Configuration Manager* phrase in Windows Start menu.
- In the navigation tree select *Protocols for SQLEXPRESS* and then enable *Named Pipes* and *TCP/IP* protocols as below.

🚟 Sql Server Configuration Manager			-	\times
File Action View Help				
🗢 🏟 🖾 🖾				
 SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server Network Configuration Protocols for SQLEXPRESS SQL Native Client 11.0 Configuration 	Protocol Name S Shared Memory T Named Pipes TCP/IP	Status Enabled Enabled Enabled		

• Restart SQL service selecting SQL Server Services, then right click SQL Server (SQLEXPRESS) and select Restart.



SQL Server Configuration Manager (Local) SQL Server Services Name State State Log On As Process ID Service Type SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) Running Automatic NT AUTHORITY/LOC 19380 SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server (SQLEXPRESS) Running Automatic NT Service\MSSQLSS 19876 SQL Server SQL Server Network Configuration SQL Server Agent (SQLEXPRESS) Stopped Other (Boot, Syste NT AUTHORITY/NET 0 SQL Agent SQL Server Color of SQLEXPRESS SQL Server Launchpad (SQLEXPRES Running Automatic NT Service\MSSQLE 18224 SQL SQL Full-text Filter Daemon Launc Running Manual NT Service\MSSQLFD 7228	 Sql Server Configuration Manager File Action View Help 					-		×
	및 SQL Server Network Configuration (32bit) > . <td>SQL Server Browser SQL Server (SQLEXPRESS) SQL Server Agent (SQLEXPRESS) SQL Server Launchpad (SQLEXPRES</td> <td>Running Running Stopped Running</td> <td>Automatic Automatic Other (Boot, Syste Automatic</td> <td>NT AUTHORITY\LOC NT Service\MSSQL\$S NT AUTHORITY\NET NT Service\MSSQLLa</td> <td>19380 19876 0 18224</td> <td>SQL Server</td> <td>:</td>	SQL Server Browser SQL Server (SQLEXPRESS) SQL Server Agent (SQLEXPRESS) SQL Server Launchpad (SQLEXPRES	Running Running Stopped Running	Automatic Automatic Other (Boot, Syste Automatic	NT AUTHORITY\LOC NT Service\MSSQL\$S NT AUTHORITY\NET NT Service\MSSQLLa	19380 19876 0 18224	SQL Server	:

• Verify if SQL Server Browser service is running and automatic start mode is selected.

SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server Network Configuration SQL Server Adjusted Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server Network Configuration SQL Server Adjusted Configuration (32bit) SQL Server Adjusted Configuration (SQLEXPRESS) SQL Server Network Configuration SQL Server Launchpad (SQLEXPRESS) Stopped SQL Native Client 11.0 Configuration SQL Full-text Filter Daemon Launc Running			-	
	Start Mode Automatic Automatic Other (Boot, Syste Automatic Manual	Log On As NT AUTHORITY\LOC NT Service\MSSQLSS NT AUTHORITY\NET NT Service\MSSQLLa NT Service\MSSQLFD	0 18224	Service Type SQL Server SQL Agent

Firewall configuration

After MS SQL Express system installation it is necessary to unblock ports in Windows firewall:

- Start firewall typing Windows Firewall with Advanced Security in Windows Start menu.
- In the newly opened window select Inbound rules command and then New Rule...
- In the next window select *Port* rule type and then configure allowed connection for TCP port 1433 and another rule for UDP port 1434.
- Similarly configure *Outbound rules* for the same protocols and ports.

If particular instance of MS SQL Server is configured for dynamic ports then 1433 TCP port can be defined by starting SQL Server Configuration Manager as in the figure below.

File Action View Help Frotocol Protocol Protocol Protocol Protocol SQL Server Configuration Manager (Local) SQL Server Services Shared Memory Enabled SQL Server Network Configuration (32bit) Shared Memory Enabled Mamed Pipes Enabled No Mamed Pipes Enabled Mamed Pipes Enabled TCP /IP Enabled Frotocols for SQLEXPRESS SQL Native Client 11.0 Configuration SQL Native Client 11.0 Configuration Image: SQL Server Network Configuration Frotocols for SQLEXPRESS SQL Native Client 11.0 Configuration Frotocols for SQLEXPRESS Frotocols for SQLEXPRESS Frotocols for SQLEXPRESS SQL Native Client 11.0 Configuration Frotocols for SQLEXPRESS Fr	Sql Server Configuration Manager			TCP/IP Properties		?	×	>
SQL Server Configuration Manager (Local) Protocol Name Status SQL Server Services Solu Server Network Configuration (32bit) Shared Memory Enabled SQL Server Network Configuration (32bit) Solu Server Network Configuration (32bit) Solu Server Network Configuration (32bit) Solu Server Network Configuration (32bit) SQL Server Network Configuration Solu Server Network Configuration (32bit) Solu Server Network Configuration (32bit) Solu Server Network Configuration (32bit) SQL Server Network Configuration Solu Server Network Configuration (32bit) Solu Server Network Configuration (32bit) Solu Server Network Configuration (32bit) SQL Native Client 11.0 Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration Solu Server Network Configuration <td>File Action View Help</td> <td></td> <td></td> <td>Protocol IP Addresses</td> <td></td> <td></td> <td></td> <td> </td>	File Action View Help			Protocol IP Addresses				
TCP Port TCP port	③ SQL Server Configuration Manager (Local) ③ SQL Server Services ④ SQL Server Network Configuration (32bit) > ④ SQL Native Client 11.0 Configuration (32bit) > ③ SQL Server Network Configuration (32bit) ■ SQL Server Network Configuration (32bit) ■ SQL Server Network Configuration (32bit) ■ SQL Server Network Configuration (32bit)	Shared Memory	Enabled Enabled	TCP Dynamic Ports TCP Port IP5 Active Enabled IP Address TCP Dynamic Ports TCP Port IP6 Active Enabled IP Address TCP Dynamic Ports TCP Dynamic Ports TCP Port IPAII TCP Dynamic Ports TCP Port TCP Port	Yes No ::1 0 Yes No 127.0.0.1 0 52021			



Database (VISO)

VISO software for configuration and management of RACS 5 system enables creation of database in MS SQL Server system.

In order to create centralized type database:

- Download and start VISO software installation file from <u>www.roger.pl</u>.
- After installation, start VISO in order to display *Connection configuration* window. The window can also be accessed by selection of *System* command in VISO top menu and then *Add connection...*
- In the opened window in the Name field enter any connection name.
- Select server from the list using *Select...* button. It should be listed if it is available in local network or via properly configured VPN. If the server is not on the list then enter its IP address manually in the *Server* field.
- When *Mixed Mode* option is selected then enter previously defined password for sa user. This mode will be used in this note due to simpler configuration. However it is recommended to apply *Windows authentication* mode due to higher security. In this mode it is additionally necessary to configure the service of Communication Server from RogerSVC package so it would log on with authorized Windows account instead of Local System account.
- Enter any database name in the field *Create and name new database*.
- Use *Test connection* button to verify connection with MS SQL Server.

Connection config	guration		?	×
i Enter setting	gs to create connection with data	ibase.		
Name:	connection_name			
Database Type:	Microsoft SQL Server		Chan	ige
Server:	YMEA127564KS\SQLEXPRESS19		Selec	ct
Login				
Windows Aut	thentication			
O SQL Server A	Authentication			
User name:	sa			
Password:	•••••			
Connection				
Select existing	g database:			
O Create and na	ame new database:			
database_	name			
Test connection		ОК	Cano	cel

- Confirm with OK button and proceed.
- In the next window select *Create* in order to create your new database.





• Summary shall be displayed when the database is created. Close the window with *Finish* button.

Create Databas	e	?	×
	Database creating.		
	Database:		
E	[YMEA127564KS\SQLEXPRESS19].[database_name]		
Database pr	ocessing progress		
Automatio	n Nodes		-
System Op	otions		
System Pr	ocess		
Visits			
Communic	ation Server		
Global Cor	nmands		
T&A Form	ats		
T&A Mode	S		
Partitions			
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Favourite	Section		
Person Cu	stom Fields		
🕗 Ready			
		_	T
Ready			
	Ready		
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Servers (RogerSVC)

After exemplary MS SQL Express system installation and data base creation with VISO software it is necessary to configure Communication Server for the communication of VISO software and RACS 5 devices with database. It might also be necessary to configure License and Integration Servers.

Note: In RACS 5 v1 system the Communication Server from RogerSVC program can be installed only on single computer in the network. In RACS 5 v2 multiple Communication Servers can be installed and operated as explained in AN008 application note.

In order to configure Communication Server:



- Install RogerSVC software, select Communication Server and if needed also other servers. If servers are supposed to be operated on individual computers then install RogerSVC on each computer selecting required servers.
- Start RogerSVC program selecting *Start->ROGER->RogerSVC* in Windows menu.
- Click RogerSVC icon 😨 in Windows tray.



• In the RogerSVC window select *Database Connection* tile and then *Configuration* to indicate previously created RACS 5 database. Such indication requires the same parameters as used in database creation i.e. server, authentication parameters and database name. Return to the main window.



Connection configuration 2 X										
i Enter settings to create connection with database.										
Name: VISO										
Database Type: Microsoft SQL Server Change										
Server:	Server: YMLK016960\SQLEXPRESS19 Select									
Login										
Windows Authentication										
SQL Server /	SQL Server Authentication									
User name: sa										
Password:										
Connection										
• Select existing database:										
database_name Select										
Test connection	Test connection OK Cancel									

- In the RogerSVC window select *Communication Server*, click *Configuration*, enter IP address of the computer with the server installed e.g. 192.168.11.13 and define port (8890 by default).
- Select *Start* and return to the main window. The server will be started and operated in the background whenever the computer is switched on even if RogerSVC window is closed.
- Start VISO software and add Communication Server indicating the server which has been just created with RogerSVC.

Management from multiple workstations

RACS 5 system can be managed from multiple workstations and then it requires proper configuration on the level of VISO and RogerSVC programs and it may additionally require Windows firewall ports unblocking.

In order to configure RACS 5 for operation with multiple workstations:

- Install MS SQL Server management system on a dedicated server computer or on any workstation.
- Install VISO software on one of workstations and use it to create centralized database within MS SQL system for RACS 5 system.
- Install RogerSVC software on a dedicated server computer or on any workstation.
- Using RogerSVC program indicate connection with database. In the properties of Communication Server enter IP address of the computer with installed server and define port (by default 8890) so the server could be accessed by other workstations with VISO software. Start or restart the server.
- If necessary start Windows Firewall with Advanced Security on computer with installed Communication Server and define new allowing inbound rule for TCP protocol and server port (by default 8890).
- Install and start VISO software on all remaining workstations indicating previously created centralized database when connection with database is configured.



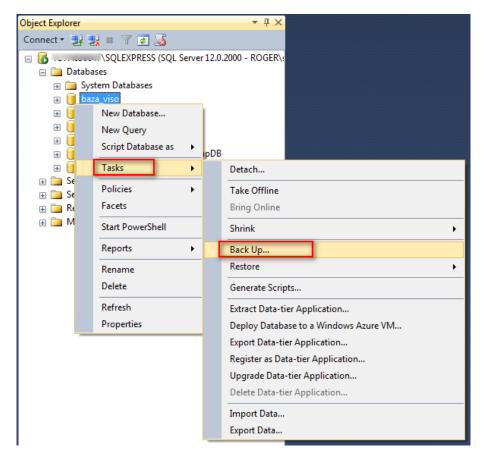
- If necessary start Windows Firewall with Advanced Security on each workstation with installed VISO software and define new allowing outbound rule for TCP protocol and server port (by default 8890).
- At each workstation in VISO software add Communication Server indicating the server created with RogerSVC program.
- If necessary start Windows Firewall with Advanced Security on computer with installed Communication Server and define new allowing outbound rule for UDP protocol and 21063 port to unblock server communication with MC16 controllers.

Database backup

Database can be backed up with MS SQL Server Management Studio program which is installed as a component of MS SQL Server system.

Backup export

- Stop event collecting to database by stopping Communication Server in RogerSVC.
- Start MS SQL Server Management Studio and enter previously defined login and password.
- Expand Databases, right click the database for backup, select Tasks and then Back Up...



• In the newly opened window specify backup parameters. In case of default *Backup type: Full* and *Back up to: Disk* settings a full local backup is made.



Back Up Database - baza_vise	0		
Select a page	Script 🔻 📑 Help		
Media Options Backup Options	Source		
	Da <u>t</u> abase: Recovery <u>m</u> odel:	baza_viso	
	Backup type:	Full	•
	Cop <u>v</u> -only backup		
	Backup component: Database		
	 Files and filegroups: 		
	Destination		
	Back yp to:	Disk	-
			A <u>d</u> d
Connection			Remove
Server:			Contents
Connection:			
View connection properties			
Progress Ready			
The second secon			
			OK Cancel

• Select *Add...* button and in the next window specify backup file name and destination.

Select Backup Destination
Select the file or backup device for the backup destination. You can create backup devices for frequently used files.
Destinations on disk
<u>File name:</u>
/licrosoft SQL Server\MSSQL12.SQLEXPRESS\MSSQL\Backup\
○ <u>B</u> ackup device:
· · · · · · · · · · · · · · · · · · ·
OK Cancel
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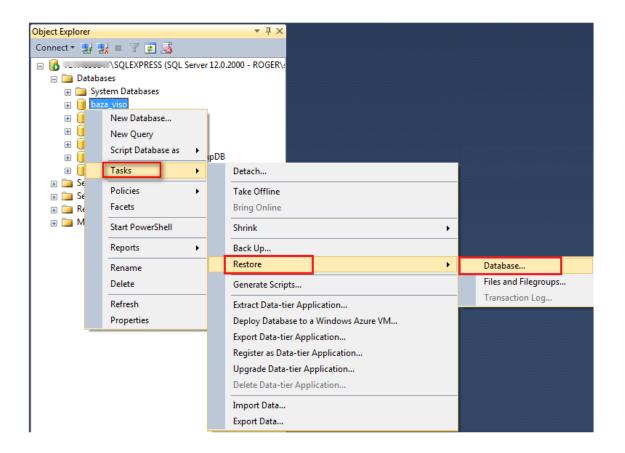
📋 Locate Database Files - 📖	SQLEXPRESS
Select the file:	
	alysis Services p Viewer L Server SQLEXPRESS QL Backup Binn DATA TData Install IOBS Log epIdata Femplate Data ual Studio 10.0
Selected <u>p</u> ath:	C:\Program Files\Microsoft SQL Server\MSSQL12
Files of type:	Backup Files(*.bak;*.tm)
File <u>n</u> ame:	backup-baza-viso.bak
	OK Cancel

• Restore event collecting to database by starting Communication Server in RogerSVC.

Backup import

- Stop event collecting to database by stopping Communication Server in RogerSVC.
- Start MS SQL Server Management Studio and enter previously defined login and password.
- Expand *Databases,* right click the database to be restored, select *Tasks,* then *Restore-> Database...* and indicate the backup file.
- Restore event collecting to database by starting Communication Server in RogerSVC.





Database transfer to another server

Database can be moved to another computer using Microsoft SQL Server Management Studio program as explained below. Alternatively, the method which is given in previous section can also be applied.

Database export

- Stop event collecting to database by stopping Communication Server in RogerSVC program.
- Start MS SQL Server Management Studio and enter previously defined login and password.
- Expand Databases, right click the database for transfer, select Tasks and then Export Data-tier Application



Object Explorer		- ↓ ×
Connect 🕶 🛃	🛃 = 🍸 🛃 🔏	
□ 10 YM4X2 □ 10 Dat 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	57784\SQL_SEBA (SQL Server 1 abases System Databases RCP V1.5 VIS New Database New Query Script Database as	12.0.2269 - sa)
	2 Tasks ▶ Policies ▶ Facets Start PowerShell Reports ▶ Rename Delete Delete Refresh Properties ▶	Detach Take Offline Bring Online Shrink Back Up Restore Generate Scripts Extract Data-tier Application Deploy Database to a Windows Azure VM
		Export Data-tier Application Register as Data-tier Application Upgrade Data-tier Application Delete Data-tier Application

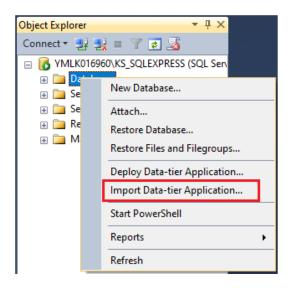
• Specify backup file name and destination. Proceed to finish the export.

Export Data-tier Application 'Vi	so'	-	- 🗆 X
Export Settings			
Introduction			🔞 Help
Export Settings	Export Settings		
Summary		e a BACPAC file that contains the logical contents o location where you want the BACPAC file to be cre	
Results		ubset of tables to export, use the Advanced option	
	Settings Advanced		
	Save to local disk		
	C:\Database_export\	SQL_VISO.bacpac	Browse
	○ Save to Windows A	zure	
	Storage account:		Connect
	Container:		~
	File name:	Viso.bacpac	

Database import

- Install MS SQL Server system on new server.
- Start MS SQL Server Management Studio and enter previously defined login and password.
- Right click *Databases* and select *Import Data-tier Application*.





• Indicate previously exported database file and proceed to finish the import.

Import Data-tier Application	-		×
Import Settings			
Introduction		🔞 н	lelp
Import Settings	Specify the BACPAC to import.		
Database Settings	This operation will create a database from a BACPAC file. To continue, specify the BACPAC. Optionally, specify settings for the new database. Click Next to		of
Summary	Import from local disk	continuer	
Results	C:\Database_export\SQL_VISO.bacpac	Browse	
	O Import from Windows Azure		
	Storage account:	Connect	
	Container: 🗸		
	File name: 🗸 🗸	Browse	

- Start VISO, in the top menu select *System->Add connection...* and indicate new database.
- Start RogerSVC, select Database connection and then Configure to indicate new database.
- Start Communication Server in RogerSVC program.

Migration from local type to centralized type database

Note: The local type database could be used in previous RACS 5 v1 system but in case of RACS 5 v2 it must be migrated to centralized type database. Migration method which is described below is based on third party programs and Roger cannot guarantee full cohesion and integrity between databases after migration.

Note: The present document explains one of possible migration methods. The migration can be also done with other available tools.

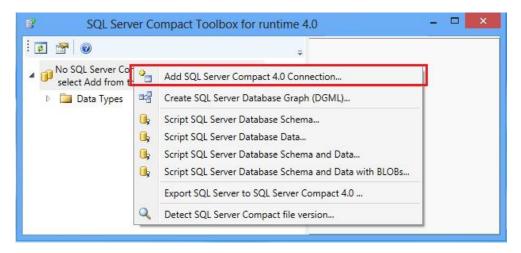
Export from local type database

Data can be exported from local type database with SQL Server Compact Toolbox 4.0 program.

• Stop event collecting to local type MS SQL Server Compact database by stopping Communication Server in RogerSVC program.



- Search for SQL Server Compact 4.0 at Microsoft website or use following link in your web browser and install the software: <u>https://www.microsoft.com/en-us/download/details.aspx?id=30709</u>
- Download SQL Server Compact Toolbox 4.0 software in a standalone version and start it as Windows administrator.
 https://github.com/ErikEJ/SqlCeToolbox (project link)
- Select the command Add SQL Server Compact 4.0 Connection.



• In the newly opened window enter *Max Buffer Size* = 4096 and *Max Database Size* = 4000. Additionally enter password if it is required for your database.

Add SQL Compact Conne.								
Browse								
Create								
Test Connect	tion							
SqlCeConnectionStringBuil	der							
Search Search	×							
Zaawansowane								
Autoshrink Threshold	60 🚔							
Default Lock Escalation	100 🚔							
Default Lock Timeout	5000 🚔							
Flush Interval	10 🚔							
Max Buffer Size								
Temp File Max Size 256 💽								
Temp File Directory								
Zabezpieczenia								
Password								
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Max Database Size Maksymalny rozmiar bazy da megabajtach).	nych (w							
Close								



• Indicate your local type database using *Browse* button.

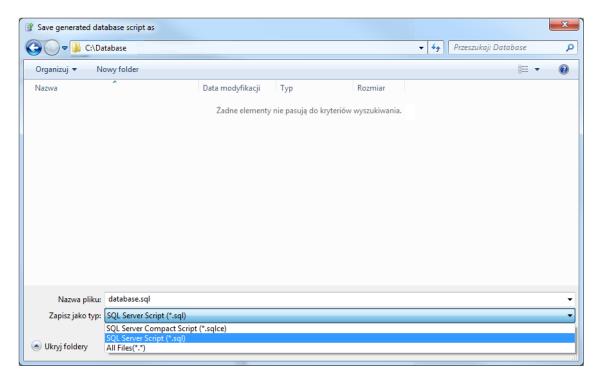
Create		1		SOL Server Con	npact Toolbox for	runtime 4.0		_	-
Test connection				SQL Server con	inpact rooibox for	runume 4.0			_
€ 2↓ Search	×								
	~	▲ No SQL : select A	erver Compact Data Con dd from the context menu	nections found, i to add one.					
Zaawansowane Autoshrink Threshold	60	Þ 🚞 Dat	a Types						
Default Lock Escalat			Sele	ect Database File to	Open				×
Default Lock Timeor) 🄿 🔻 🕆 🚺 C:\Pri	ogram Files (v86)\ R	ger\VISO\App_data			v ¢	Przeszukaj: App_data		p
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Temp File Max Size	Nazwa		Data modyfikacji	Тур	Rozmiar				
Zabezpieczenia	🖹 baza_db1.sdf		2017-09-08 13:22	SQL Server Comp	. 5 312 KB				
Password	DB 0.sdf		2017-10-05 14:26	SQL Server Comp	21 440 KB				
Persist Security Info	B_DB_0sdf		2017-09-08 13:21	SQL Server Comp	5 056 KB				
Źródło	B_0_Backup_201710	04133022.sdf	2017-10-04 13:29	SQL Server Comp	21 440 KB				
Data Source	😭 v11211.sdf		2017-10-05 14:26	SQL Server Comp	20 800 KB				
Max Database Size	🖺 v11211_Backup_2017	1004133251.sdf	2017-10-04 13:32	SQL Server Comp	19 840 KB				
lax Database Size									
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CI									
	Nazwa	pliku: DB_0.sdf				~	SQL Server Compact	Database	14
							Otwórz	Anuluj	_

• Start scripts creating by right clicking the database connection and selecting *Script->Script SQL Server Database Schema and Data*.

🔮 SQL Server	Com	pact Toolbox for runtime 4.0		
2 🚰 🦉) ver C	ompact Data Connections		
⊳ 🕞 DB_ ⊳ 🚞 Da	<u>с</u> и	Open SQL Editor Build Table (alpha)		
	i,	Script +	١,	Script Database Schema
	0,	Script Database Diff		
		Create Database Graph (DGML) Create Database Documentation	0, 0, 0,	Script Database Schema and Data with BLOBs
	_	Create LINQ to SQL DataContext class Create Windows Phone DataContext class	•	Script Database Data for SQL Server
		Maintenance •		
	2	Edit description		
	×	Remove Connection		

• Define location and name for SQL (*.sql) and additionally SQL CE (*.sqlce) script file(s).





Select all tables displayed on the list, including _MigrationHistory which is deselected by default.

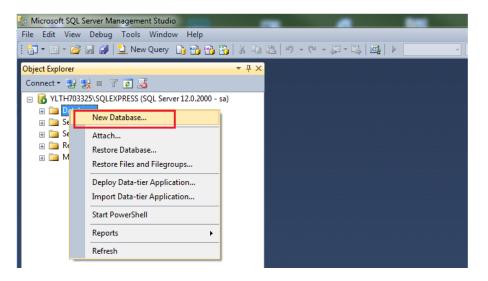
✓ Tables			
_MigrationHis			~
 AccessControll 	And the second s		
 AccessControll 	erCredentials		
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 AccessControll 	erRights		
✓ AccessControll	ers		
✓ AccessControll	erSnapshots		
✓ AccessControll	erStates		
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✓ AccessCredent	ialSnapshots		
✓ AccessDoorCo	ntrolCommands		
✓ AccessDoorFur	nctionKeys		
✓ AccessDoorFur	Construction of the second		
✓ AccessDoorGro	aguo		
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Accore Doore			~
		ОК	Cancel

• Wait till program displays message confirming that all script files are created.

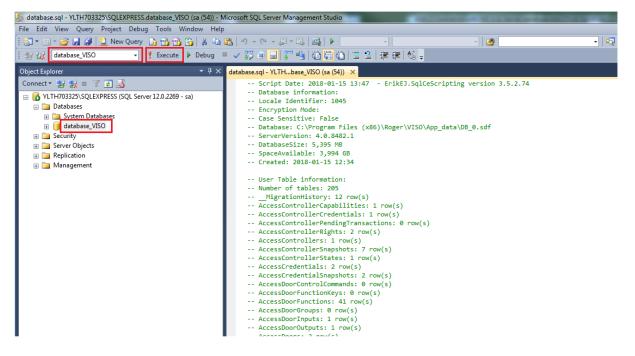
Import to centralized type database (MS SQL Management Studio)

- Install MS SQL Server system on a server.
- Start MS SQL Server Management Studio and enter previously defined login and password.
- Right click *Databases*, select *New Database…* name the database e.g. database_VISO and click *OK*.





- Expand Databases command and select just created database on the list.
- In the top menu select *File->Open->File...* and indicate the first of previously created script files SQL (*.sql).
- Click Execute button to start the script.



- Repeat the same steps for the remaining scripts files in the order specified by their numbers.
- Start VISO, in the top menu select *System->Add connection...* and indicate new database.
- Start RogerSVC, select Database connection and then Configure to indicate new database.
- Start Communication Server in RogerSVC program.

Import to centralized type database (command line)

- Install MS SQL Server system on a server.
- Start MS SQL Server Management Studio and enter previously defined login and password.
- Right click *Databases*, select *New Database…* name the database e.g. database_VISO and click *OK*.
- Start Windows cmd with administrator rights and execute following command for all script files in the order specified by their numbers.

*sqlcmd –S server_name**Instance –d database_name –i script_file*



e.g. sqlcmd -S 192.168.100.99\SQLEXPRESS -d database_VISO -i C:\database\database.sql

- Start VISO, in the top menu select *System->Add connection...* and indicate new database.
- Start RogerSVC, select Database connection and then Configure to indicate new database.
- Start Communication Server in RogerSVC program.

Database encryption (TDE)

The encryption of MS SQL database as well as its logs and backups based on TDE (Transparent Data Encryption) can be applied for database used in RACS 5 system. Such encryption protects database transparently for the application. Certificate or asymmetric key is created during encryption and it must be known to access the database. According to Microsoft webpage the encryption of exemplary 'test_database' with 'MyServerCert' and 'testpassword' can be done with following commands:

```
USE master;

GO

CREATE MASTER KEY ENCRYPTION BY PASSWORD = 'testpassword';

go

CREATE CERTIFICATE MyServerCert WITH SUBJECT = 'My DEK Certificate';

go

USE baza_test;

GO

CREATE DATABASE ENCRYPTION KEY

WITH ALGORITHM = AES_256

ENCRYPTION BY SERVER CERTIFICATE MyServerCert;

GO

ALTER DATABASE baza_test

SET ENCRYPTION ON;

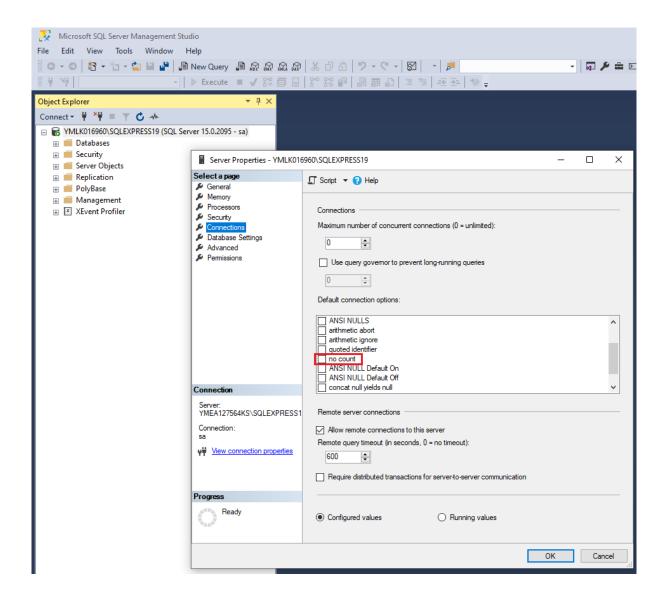
GO
```

No additional configuration in RACS 5 system is necessary to operate with database encrypted with TDE method.

Notes and hints

When SQL server is configured then the parameter *no count* <u>cannot</u> <u>be</u> enabled. RACS 5 is using methods which result in excessive event generating, quick database filling and overall lower performance if the parameter is enabled.







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