Roger Access Control System 5

Application note no. 035

Document version: Rev. C

<u>Remote management of RACS 5</u> <u>system</u>

Note: This document refers to RACS v1.5.2 up to v1.6.6

Introduction

RACS 5 system is managed and configured via Ethernet network. On the software level the communication between MC16 access controllers, MS SQL database and VISO software is provided by communication service (Windows service) which is part of RogerSVC software package. In general perspective, MC16 access controllers are designed for operation in dedicated local area network (LAN). In case of such scenario the configuration of communication is so simplified that it can be mostly based on default settings but it might be necessary to unblock ports for configurable services and MC16 communication. The system can be managed from single workstation using local database or from multiple workstation using centralized database which is explained in the AN017 Application note which is available at www.roger.pl. Additionally the system can be managed remotely using VISO, VISO WEB and VISO Mobile applications.

Note: The remote management scenario discussed in this note does not concern RACS 5 virtual controllers.





Remote management (VISO)

VISO software enables full control of RACS 5 system in regard of configuration and monitoring. Remote management as in figure above requires centralized MS SQL database and configured communication with the database and RACS 5 services. Such communication will require port forwarding as explained below or configuration of Virtual Private Network (VPN).

Database (LAN)

After installation of MS SQL system and creation of database with VISO software according to AN017 Application note it is necessary to define communication port for database:

- Start SQL Server Configuration Manager which is included in configuration tools of Microsoft SQL Server
- In the navigation tree expand *SQL Server Network Configuration* command and select *Protocols for SQLEXPRESS* command.
- In the opened window right click *TCP/IP* command and select *Properties* command.
- In the next window, in *IP Addresses* tab enter database port e.g. 49868 and IP address of computer with database. Close the window with *OK* button.

Sql Server Configuration Manager			Właściwości: TCP/IP	8	×
Plik Akcja Widok Pomoc		_			
🗢 🔿 🖄 🔚 🔒 🛛			Protocol IP Addresses		
 SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) SQL Native Client 11.0 Configuration SOL Server Network Configuration 	Protocol Name	Status Enabled Enabled	TCP Dynamic Ports TCP Port IP4 Active Enabled IP Address TCP Port IP5 Active Enabled IP Address TCP Dynamic Ports TCP Dynamic Ports TCP Dynamic Ports TCP Dynamic Ports TCP Dynamic Ports TCP Dynamic Ports TCP Port Active Indicates whether the sel	0 Yes No 192.168.1.2 1433 Yes No fe80::5efe:192.168.10.24%13 0 1433 lected IP Address is active. Anuluj Zastosuj F	E

• According to displayed message restart database service to make new settings effective. For that purpose in the navigation tree select *QL Server Services* command, right click *SQL Server* (*SQLEXPRESS*) service and select *Restart* command.



Sql Server Configuration Manager				
Plik Akcja Widok Pomoc (=) (=) (=) (=) (=) (=)				
SQL Server Configuration Manager (Local)	Name	State	Start Mode	
Image: SQL Server Services Image: SQL Server Network Configuration (32bit) Image: SQL Server Network Configuration Image: SQL Network Client 11.0 Configuration	SQL Server (SQLEXPRES SQL Full-text Filter Daer SQL Server Reporting Se SQL Server Agent (SQLE SQL Server Browser	Start Stop Pause Resume Restart	Running Running Running Stopped Running	Automatic Manual Automatic Other (Boot Automatic
		Właściwości Pomoc		

RACS 5 services (LAN)

RACS 5 system services are installed and configured within RogerSVC software package. They are installed on single computer only. Remote system management requires communication service. If VISO EX version software is applied then license service may be also required. Define service as follows:

• After installation of RogerSVC, starting RACS Service Manager and double clicking its icon in Windows tray, select *Communication service* tile.



• In the opened window select *Configuration* command and enter IP address of the computer with just installed communication service and port used by the service (8890 by default). Get back to the main window of manager.



RACS Services Manager (1.5.2.15811)		×
✓ Communica	ition service	
	Name of service RacsCommunicationServer	
	State of service	
	Type of service run	
	Log in as Local system	
Start Stop Restart	Version 1.5.2.15811	
Configuration		
Communication ser	vice address:	
127.0.0.1:8890 Service address	×	Configuration
Service address:	192.168.1.2	
Port:	8890 🗘	
	Save Cancel	

- If needed, define license service in similar way entering the same IP address and required port (by default 8891).
- Select the tile *Database connection* and then *Configure connection* command to configure the connection with previously created database as in example below.

Connection config	₹ x							
Enter inform choose a di	nation to connect to the selected data source or clic fferent data source	:k "Change" to						
Name:	VISO							
Data source:	Microsoft SQL Server	Change						
Server name:	YLTH703325\SQLEXPRESS	Select						
Login To Serve	r							
O Use Windov	O Use Windows Authentication							
● Use SQL Se	rver Authentication							
User name	a: sa							
Password	•••••							
Connect to dat	tabase							
 Select or ent 	ter a database name:							
database	e_name	Select						
Test connection	ОК	Cancel						

Port forwarding by router

The access of VISO software in WAN to database and services located in LAN can be ensured by port forwarding or virtual server as in example below.



	Port Forwarding							
MAC Filtering	If a computer on the LAN is enabled for the Internet (for example, work as an FTP server), port forwarding is required on that all accesses to the adversal server and from the Internet are redirected to the server on the LAN							
URL Filtering							orwarding is	
P Filtering		, mar un decess	66 10 110 0ALC				100 10 110 00	
Service Access Control	Port Fo	orwarding						
Service Access Control	Port Fo	orwarding				Dele	te All	Add Item
Service Access Control ALG Port Forwarding	Port Fo	Protocol	Remote Host	Remote Port Range	Local Host	Delet Local Port	te All	Add Item Operation
Service Access Control ALG Port Forwarding	Port Fo	Protocol TCP	Remote Host	Remote Port Range 8890	Local Host 192.168.1.2	Delet Local Port 8890	te All Status	Add Item Operation Delete Edit
Service Access Control ALG Port Forwarding JPnP	Port Fo	Protocol TCP TCP/UDP	Remote Host	Remote Port Range 8890 49868	Local Host 192.168.1.2 192.168.1.2	Delet Local Port 8890 49868	te All Status Enabled Enabled	Add Item Operation Delete Edit Delete Edit

VISO software (WAN)

The communication of VISO software through router with RACS 5 system located in LAN requires configuration of connection with database and communication service.

Note: For further configuration it is assumed that external IP address of router is static.

- Start VISO and in connection configuration window name the connection and select *Microsoft SQL Server* in the *Data source* field.
- In the *Server name* field enter server name preceded with router's external IP address and followed by database communication port. The external IP address of router can be read from its configuration or by means of popular web sites e.g. <u>http://www.myipaddress.com</u>.
- Enter authentication data according to settings of MS SQL Server system.
- Select previously created database of RACS 5 system.



Connection	configuration	?	×
Enter inforr choose a di	nation to connect to the selected data source or click fferent data source	"Change	e" to
Name:	RACS5	_	
Data source:	Microsoft SQL Server	Cha	nge
Server name:	37.98.222.66\SQLEXPRESS,49868	Sele	ect
Login To Serve	r		
O Use Window	vs Authentication		
● Use SQL Set	rver Authentication		
User name	e: sa		
Password:	•••••		
Connect to dat	abase		
 Select or ent 	er a database name:		
database	e_name	Selec	ct
Create the d	latabase:		
Test connection	🖉 ок	C 🕄	ancel

- When VISO is started then click *Communication Server* field in the bottom bar.
- In the opened window select *Add Server* and then enter router's external IP Address as well as port of RACS 5 communication service (8890 by default).

e	Ado	d Server 🥌 Refresh								
		Address		Database						
Þ	\odot	127.0.0.1:8890	Add Communicati	ion Convor		\sim				
	\bigcirc	192.168.10.23:8890	Add Communicau	on server		^				
			Address:	_	Port:					
			37.98.222.66			8890 🔤				
				\bigcirc	ок 🚺	Cancel				
							Select	8	Cancel	

• Similarly configure connection with license server if VISO EX version is to be applied and the license service is located on the server in LAN.

Ports unblocking

If necessary then unblock all RACS 5 applied communication ports in the firewall of server with database and services and in the firewall of computer with VISO software creating adequate inbound and outbound rules.



Remote management (VISO WEB)

VISO WEB is an application which enables management of RACS 5 system via web browser mainly in regard of user management, remote commands and available monitors. In case of remote management via VISO WEB, both local type and centralized MS SQL databases can be applied. The configuration of remote management requires configuration of VISO WEB server according to its manual and then defining connection to web app service by port forwarding as in example below or by Virtual Private Network (VPN). If the integration service is installed on the same computer as Web app service then default *Integration service address* does not have to be changed.

RACS Services Manager (1.5.2.15811)	ervice	x
	Name of service	
	State of service	
	Type of service run	
	Log in as Local system	
Start Stop Restart	Version	
Configuration		
Web app address:		
192.168.1.2:8080		
Integration service	address:	Configuration
		Configuration

Firewall Level	Port Forwarding							
MAC Filtering								
URL Filtering							forwarding is erver on the LAN	
IP Filtering								
Service Access Control	Port Fo	orwarding						
ALG						Delet	te All	Add Item
	Index	Protocol	Remote Host	Remote Port Range	Local Host	Local Port	Status	Operation
Port Forwarding	Index							
Port Forwarding	1	TCP		8080	192.168 <mark>.1</mark> .2	8080	Enabled	Delete Edit
Port Forwarding	1	TCP		8080	192.168 <mark>.1</mark> .2	8080	Enabled	Delete I

In order to communicate with RACS 5 system enter router's external IP address and forwarded port of web app service in your web browser. According to previous exemplary settings the address would be as below.



New Tab	× +	
$\ \ \leftarrow \ \ \rightarrow \ \ G$	37.98.222.66/8080	

Remote management (VISO Mobile)

VISO Mobile is an application which enables management of RACS 5 system via mobile device (Android, iOS) mainly in regard of user management, remote commands and available monitors. In case of remote management via VISO Mobile, both local type and centralized MS SQL databases can be applied. The configuration of remote management requires configuration of VISO Mobile app according to its manual and then defining connection to integration service by port forwarding as in example below.



in chan Level	Dort Foru	uarding						
MAC Filtering	For Forwarding							
URL Filtering						forwarding is erver on the LAN		
IP Filtering	Findt un debess		indi server port		ist and rounds		errer on the Drift.	
Service Access Control	Port Fo	orwarding						
						Dele	te All	Add Item
ALG								Sister Marshall
ALG Port Forwarding	Index	Protocol	Remote Host	Remote Port Range	Local Host	Local Port	Status	Operation
ALG Port Forwarding	Index 1	Protocol	Remote Host	Remote Port Range 8892	Local Host 192.168.1.2	Local Port 8892	Status Enabled	Operation Delete Edit
ALG Port Forwarding UPnP	Index 1	Protocol TCP	Remote Host	Remote Port Range 8892	Local Host 192.168.1.2	Local Port 8892	Status Enabled	Operation Delete Edit

In order to communicate with RACS 5 system via mobile device enter router's external IP address and forwarded port of integration service in VISO Mobile. According to previous exemplary settings the settings would be as below.



	* 🚺 💷 🚛 82% 🖻 10:24
Settings	
Integration server settings	
Integration server IP 37.98.222.66	
Integration server port 8892	
Login Admin	
Password ******	
Credential's name	
General settings	
Application password	
Password required	

In case of communication problems with VISO Mobile app, enable ICMP protocol at the router as in example below.

Service Access Control

By default, access from the Internet is rejected, but those from the LAN are allowed. The integrated services can be accessed with the suitable rules of Service Access Control (SAC). The router provides access control of multiple external services. Reducing external accesses helps protect the router's performance and improves security.

Note: It is recommended that only necessary services be enabled for the LAN.

Service Access Control

Index	Service	Access Source	IP Address Range	Action	Status	Operation
1	HTTP	LAN		Drop	Disabled	Edit
2	ICMP	LAN		Drop	Enabled	Edit
3	ICMP	Internet		Accept	Enabled	Edit



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