

## TRX RoIP

# Radio over IP

# USER GUIDE

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TRX S.C. 15-743 Białystok, ul. Wierzbowa 8 tel. 85 662 88 11 fax. 85 662 88 10 email: <u>trx@trx.pl</u> <u>www.trx.pl</u>

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#### 1. Radio over IP – introduction



RoIP application allow remote controlling radios through SGM remote control. There are no limits of number of radios open on one computer.

RoIP allow to configure SGM5E settings like:

- change radio type working with SGM5E,
- network configuration,
- audio levels,
- users and privileges,
- firmware of SGM5E.



#### 2. Installation

RoIP requirements: Windows 8/Windows 7/ Windows Vista/ Windows XP/ Windows 2000/ Windows 2003 Server, graphic card working in High Color(16-bit) or True Color(32bit) and PCI sound card or integrated sound card. USB audio devices works properly only in Windows 7 and Windows Vista.

1. To install RoIP execute TRX\_RoIP.exe. Allow application to make changes in your computer.

2. Choose your language.

3. Choose directory

4. Check where to put shortcuts: Desktop, Menu Start, Autostart

5. Press Install

6. Installer may show alert about unsigned driver, 'press continue anyway'

7. Close installer

#### 3. **RoIP configuration**

#### 3.1. Connecting with SGM device

SGM5E default IP address is 172.16.0.189To connect to device add IP address in network configuration (ex. 172.16.0.190)

Open 'Network and Sharing Center' and on left side go to 'Change adapter settings', right click your network device and choose properties:



In properties window select 'Internet prtocol version 4 (TCP/IP v4)' and click properties.

Ethernet Properties	×
Networking Sharing	
Connect using:	
Realtek PCIe GBE Family Controller	
Configure This connection uses the following items:	
✓	•
Install Uninstall Properties	
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	
OK Cance	ł

In new window click 'Advanced...' button:

Internet Protocol Version	4 (TCP/IPv4) Properties
General	
You can get IP settings assigned auton this capability. Otherwise, you need to for the appropriate IP settings.	natically if your network supports ask your network administrator
O Obtain an IP address automatical	у
Use the following IP address:	
IP address:	192.168.2.144
Subnet mask:	255.255.255.0
Default gateway:	192.168.2.1
Obtain DNS server address autom	natically
• Use the following DNS server add	resses:
Preferred DNS server:	8.8.8.8
<u>A</u> lternative DNS server:	8.8.4.4
Validate settings upon exit	Ad <u>v</u> anced
	OK Cancel

Click 'add...' under IP addresses

Advanced TCP/IP Settings	×
IP Settings DNS WINS	
IP add <u>r</u> esses	
IP address Subnet mask	
192.168.2.144 255.255.255.0	
<u>A</u> dd <u>E</u> dit	Remove
De <u>f</u> ault gateways:	
Gateway Metric	
192.168.2.1 Automatic	
A <u>d</u> d Edi <u>t</u>	Re <u>m</u> ove
✓ Automatic metric	
Interface metric:	
OK	Cancel

Add IP ex.	172.16.0.190	and mask 255.255	5.0.0 and click 'Add'
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	TCP/IP Address	×
IP address:	172 . 16 . 0 . 190	
Subnet mask:	255.255.0.0	
	<u>A</u> dd Cancel	

If there is any problem with this connection try to automatic diagnose network connection or restart network card.

To check if connection with SGM5E is established open Windows command prompt and type 'ping 172.16.0.189'. If computer get answer from SGM, open RoIP to configure remote control.



#### 3.2. Adding SGM remote controls in RoIP



#### RoIP window

To add new server click \star button. Server configuration window will pop up.

1	Server	r config	guration		×
General	Communication PT	T Us	er interface		
Ser Filte (CT	ver name: er efectiveness PL CSS): Connect at program s	Radio none		~	
			OK	Cance	1

Name is for user to recognize SGM on list.

Filter effectiveness PL(CTCSS) allow to setup high-pass filter to cut electrical hum. Connecting automatically to SGM with program start is option, check box to use this function.

👔 Se	rver configuration	×		
General Communication	PTT User interface			
Data communication		-		
Server address:	172 . 16 . 0 . 189			
Server port:	5556			
	✓ SSL connection (default port 5556)			
	Enable audio encryption			
User account				
Login:	admin			
Password:	•••			
	✓ Save password			
	OK Cance	el		

First connect to SGM with default parameters:

IP address - 172.16.0.189 Server port: 5555 or 5556 for SSL connection Admin login – admin (to configure IP adress) User login – user (to connect to SGM) Default password – xxx

This is minimal configuration needed to connect and use SGM5E server.

To configure basic and alternative PTT signal, go to PTT tab.

ŝ S	erver configurati	on	×
General Communicatio	n PTT User inter	face	
Global PTT key			- 1
Global key:	None		
Press the button or combinations with	n the keyboard. Are als Ctrl, Alt and Shift.	o allowed	
PTT Signal			- 1
Primary:	none	± 0	
Secondary:	none	1	
Switch to test m	ode		
		OK Cance	:

Global PTT key, configure which button works as PTT. Combinations with keys like Shift, Alt are allowed.

PTT Signal configure PTT signals from external devices, TRX HT desk I/O audio device, Motorola microphones. Just press button from device. When listening is active.

User interface tab is for setting descriptions for radio buttons. Maximal length is 30 characters. If radio window is open changes will be applied after reopen.

User	r interface config	- Motor	rola 🗕 🗆	×
Buttor	n descriptions for the M	lotorola tra	nsceivers	
P1	P1 - unused	P3	P3 - unused	
P2	P2 - unused	P4	P4 - unused	
			OK Can	cel

#### 3.3. Connecting to server as administrator

To connect to SGM server right click on server on list and click 'Connect administration session'. Enter login and password (default: admin/xxx):

Enter login para	meters to SGM remote control a	×
	Enter login and password for SGM account admin Enter the password; max. 31 characters If logging will be successful, application run remote panel or administrator panel.	
	OK Cancel	

#### 3.4. Server configuration

<b>î</b>	SGM cont	figuration	×
	User a User a 👔 Info	accounts 🔅 Update	
	Firmware identification		
	Firmware version:	2.25	
	Communication protocol:	1.7	
	Compilation number:	1406100005	
	Network device MAC address		
	00:04:25:	FF:B1:06	
	ОК	Cancel Apply	

In 'Main' tab configure radio model used with SGM5E. Radio name will be displayed in radio window title bar.

SGM configuration			
Info     Main       Two-way radio	accounts 😋 Update		
Radio model: Radio name: Maximum transmission time(sec	Motorola GM-360 V GM360 - my radio		
Remote control restart and close window			
ОК	Cancel <u>A</u> pply		

In communication tab set up network configuration to fit to local network addressation.

SGM conf	SGM configuration			
Info	accounts 😋 Update			
Network device settings				
IP addres:	192 . 168 . 2 . 193			
Subnet mask:	255 . 255 . 255 . 0			
Default gateway:	192 . 168 . 2 . 1			
Communication server settings	5555			
TCP + SSL port:	above +1			
Max TCP connections:	∞ ▲ ▼			
Audio transmission port:	8000			
OK	Cancel <u>Apply</u>			

Codecs can be configured in 'Audio' tab. GSM codec is to use with low bandwidth, A-Law for high bandwidth, Speex have best compression, but audio quality is poor. Recommended value for 'Buffer size' is 6 packets

1	SGM configuration				
(ĵ) Info ⊂∫∥ Audio	Main 🥥 Communication		Communication		
Stream paramete	ers				
Audio codec:		G.711 A-Lav	v v		
Buffer size:		6	<ul> <li>T</li> </ul>		
Audio levels(olde	r versions only)			51	
Output audio lev	/el:				
Input audio leve	l:				
Additional au	dio input amplific	ation(+20 df	3)		
	ОК	Can	cel <u>A</u> pply	/	

In 'User accounts' tab use right button to add/delete accounts.

5	GM configuration	on
🕕 Info	🕺 Main	Communication
الله الالم	🚇 User accounts	😋 Update
Login	Level	Enable buttons
Administrators —		~
🚨 admin	0	8
Limited accounts		~
🐍 user	2	$\bigcirc$
👗 rec[192.168.2	10	8
🚴 konsola	2	$\bigcirc$
👗 konsola2	10	8
	OK (	Cancel <u>Apply</u>

Add user window:

1	User account settings	×
Account	<ul> <li>Administrator</li> <li>Account with restrictions</li> </ul>	
Login (max 31 charac	:ters):	
Password (max. 31 d	haracters): The password was not changed yet	
Level (1-999):	10	▲ ▼
	Activate access to radio panel butto	ns
	OK Canc	el

Each user should have his own account. Working on same account can cause conflicts. User with higher level(lower number) have privilegest to break other user transmission. Breaking is signalized by short sound signal. This sound is also when device break transmission after setted interval(default 60 seconds).

Firmware upadate,	load file w	vith firmware a	and press u	pdate button.
-------------------	-------------	-----------------	-------------	---------------

	SGM conf	figuration		2	
<ul><li>Info</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□</li><li>□<td>🛞 Main 🗷 User a</td><td colspan="4">Main Organication</td></li></ul>	🛞 Main 🗷 User a	Main Organication			
File with SGM rer	note control firm	ware			
Load	file with SGM rer	note control firm	ware		
	File localization -	any selected file	2		
		Remote contr.	File		
Firmware version	1:	2.25	empty		
Compilation num	ber:	ber: 1406100005 empty			
SGM firmware up	odate in progress	9			
			Update		
	ОК	Cancel	Apply		

After configuration press OK, SGM device will restart(~1 minute).

Do not switch off SGM5E during update!

To get file to update SGM please contact us <u>trx@trx.pl</u>. After sucessful update SGM5 will play short sound.

#### 4. Microphone configuration

To have best audio quality it is needed to properly set up microphone. To open sound settings go to Control Panel > Sound.

۲		Sound		x
Playback Re	cording Sounds	Communications		
Select a rec	ording device be	low to modify its s	ettings:	
5	Mikrofon Realtek High D Default Device	efinition Audio		
<u>C</u> onfigur	e	<u>S</u> et Defa	ult 💌 <u>P</u> roperties	
		ОК	Cancel Apply	,

Right click on used microphone and click 'Properties'. In 'Levels' tab adjust settings to best performance in working environment. For example set first slider on 100% and second to +10dB.

7	N	Aikrofon Pro	perties	×
General Lis	sten Levels	Enhancements	Advanced	
Mikrofor	n		89 (1)	
Zwiększe	enie wydajnoś	ci mikrofonu +1	0.0 dB	
		ОК	Cancel	Apply

In 'Listen' tab uncheck 'listen to this device'.

A Mikrofon Properties	×
General Listen Levels Enhancements Advanced	
You can listen to a portable music player or other device through this Mikrofon jack. If you connect a microphone, you may hear feedback.	
$\searrow \rightarrow \bigcirc$	
Listen to this device	
Playback through this device:	
Default Playback Device 🗸	
Power Management	1.1
Continue running when on battery power	
O Disable automatically to save power	
OK Cancel Apply	

#### 5. GM360



Radio window contains all the buttons from radio front panel.

Red led – radio in transmit/recieve Yellow led – radio in monitoring state Blue led aux – high level (pin21 DB-25 connector in SGM5E)

Display is copied display from radio.

#### **Red background – transmiting.** Green background – recieving.

Display color changing can be switched off by right click on display and uncheck option.

By right clicking on title bar od radio window can be configured:

Window always on top, show/hide numeric keyboard, autohide window.