

# SmartPTT PLUS 9.4

# Radioserver Configurator User Guide

November 2018

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# **1 Settings**

In this tab you can configure the general settings of SmartPTT Radioserver:

- <u>Radioserver</u>
- <u>Licenses</u>
- <u>Radio network services</u>
- Add-on Modules
- <u>Profiles</u>
- Radio groups
- <u>Metadata</u>

# **1.1 Radioserver**

To set up the radioserver, click **Radio Server** in the left list of the *SmartPTT Radioserver Configurator* window. The **Radio Sever** window appears.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioServi	ce.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server	Radio Server	
Radio Network Services	Server Role	Primary ~
, Profiles Kadio Groups	Name	Radioserver
🗄 🗃 Metadata	Interface	Port
	Any ~	8888
	Authentication	
	No	
	VoIP Listen Port	18500
	Block option	Radio Disable $\checkmark$
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal $\checkmark$
	Language	English

**Server Role:** Sets the radioserver role (*Primary* or *Redundant*). Primary radioserver can have only one redundant radioserver and vise versa. To configure the redundant radioserver settings, see the <u>Redundant Radio Server</u> section.

Name: Radioserver alias. You cannot type more than 20 characters into this field.

**Interface** and **Port:** Radioserver IP address, i.e. the IP address of the computer where the radioserver is installed. Default port is *8888*.

#### NOTE

If the specified port is occupied, you will see the warning icon ( ) next to the input field. Hover the mouse over the icon to see where the port is being used. **Authentication:** Authentication parameters required for connection to the radioserver. Select *No* to set anonymous authentication. Select *Windows* to set Windows authentication.

#### NOTE

If *Windows* is selected, to connect, the dispatcher must use the user name and password of the account where the radioserver service was started.

**VoIP Listen Port:** Number of a UDP port for receiving voice data from the dispatcher.

**Block option:** Allows selecting the way of blocking the radio. When *Radio Disable* is applied, radioserver sends the *Radio Disable* command to block the radio. The *Deny Channel* option denies the radio to work on the given channel.

#### NOTE

The **Deny Channel** option is applicable only to NAI based configurations.

#### NOTE

When the *Block Radio* command is sent from one radio to another, the radio will be blocked, even if *Deny Channel* is selected.

**Limit Radios to Service:** Allows to manage the number of radios allowed in the network. Here you can specify which radios are to be controlled by the system and which are not.

**Enabled:** Select to make this functionality active.

Allowed Radio Numbers: Enter IDs of radios which can be managed from a dispatch console.

#### WARNING

Dispatcher cannot connect to radios whose IDs are not specified.

**Process priority:** Allows selecting the priority that the system associates with a process. By setting this parameter you can speed up or slow down SmartPTT performance. The highest possible priority is *Real time*. Use it wisely, because it may cause malfunctioning of the whole system. We recommend to use the *Normal* priority.

**Language:** Allows selecting languages of the user interface of the *SmartPTT Radioserver Configurator* program.

You can save changes made by clicking **Save** ( Sa ). If you want to cancel changes made, click **Restore** ( a). All the changes made after the last save will be restored. To exit *SmartPTT Radioserver Configurator*, click **Close** ( Carl ). To view help, click **Help** ( a).

The radioserver is implemented as Windows service SmartPTT Radio Service. To enable saved changes you must restart the service. Service is managed using the following buttons: **Start ( > )**, **Stop ( • ) and Restart ( • )**.



## **1.2 Redundant Radioserver**

Redundant radioserver is activated in case of primary server breakdown. Switching between the servers is made automatically, however, the redundant server is activated only if the last connection to the primary server was no later than 31 days ago. Primary radioserver can have only one redundant radioserver.

#### IMPORTANT

To activate a redundant radioserver, install the corresponding license. For details, see Licenses.

Values and parameters of primary and redundant servers must not be the same. You need to set new parameters for a redundant radioserver. The primary radioserver settings are copied to the redundant server in accordance with the parameters set in the correspondence table. For details, see <u>Configuring the Correspondence Table</u>.

If the primary server parameters were changed after the redundant radioserver start, you need to update the correspondence table.

#### NOTE

After configuring redundant and primary radioservers, you need to add them in SmartPTT Dispatcher.

For information on adding radioservers, see "Radioservers" in Dispatcher User Guide.

You can also configure automatic radioserver redundancy error notifications. For details, see <u>Configuring Server Redundancy Error Notifications</u>.

For information on configuring a redundant radioserver, see the sections below.

# 1.2.1 Redundant Radio Server Settings

The **Redundant Radio Server** node appears in the left pane of the **Settings** tab when you select the *Redundant* radioserver role in the **Radio Server** node.

When you expand the **Redundant Radio Server** node, the **Redundant Radio Server Settings** pane appears, which consists of two areas.

<table-cell> Sma</table-cell>	rtPTT Serv	er Configur	ation - (	C:\Progra	ım Files	(x86)\SmartPTT\Server	r\RadioServi	ice.exe.config		_		$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics					
1 100	Radio Serve	ar Radio Serve	_1			Redundant Radio	Server Set	tings				
	Licenses	ork Services Iules				Redundancy Primary server addr (host:port) Connection timeout	t, s	192.168.37 60 dio server Copy Settings		]	]	
						Correspondence ta Add Value Change Type Value Parameter	ble Add Value/Par 100 Port - Radi		Redundant F Value 110 8880	Radio Ser	ver	

The **Redundancy** area provides the following elements:

#### Primary server address (host:port)

IP address and port of a primary radioserver computer.

#### Connection timeout, s

Time interval after which the redundant server becomes active (starting from the primary server shutdown). The minimum value is *20* seconds.

#### Synchronize with primary radio server

Activates the automatic synchronization of the redundant server with primary server after the primary server restart.

#### NOTE

When the **Synchronize with primary server** check box is selected, only the **Activity**, **Export/Import Settings** and **Statistics** tabs are available for editing.

#### **Copy Settings**

Copies primary radioserver settings to the redundant server.

The **Correspondence table** area provides the following elements:

#### Add Value

Adds a new value entry to the correspondence table. You can enter a new value in the entry to replace it on the redundant server.

#### Add

Opens the **Parameter Overriding** window where you can select a parameter and its value that will replace the corresponding parameter of the primary server. In the correspondence table the selected parameter name is displayed in the **Value/Parameter** column, and its value is displayed in the **Redundant Radio Server Value** column.

#### Delete

Deletes the selected value or parameter from the correspondence table.

#### Correspondence table

Contains values and parameters that will be replaced on the redundant radioserver. The table consists of the following columns:

- The **Change Type** column displays the replacement type.
- The **Value/Parameter** column contains the value or parameter name that will be replaced on the redundant radioserver.
- The **Redundant Radio Server Value** column contains a new value, or the selected parameter that will be used on the redundant radioserver.

For information on configuring the table, see <u>Configuring the Correspondence Table</u>.

You can sort the values and parameters in the table by columns and arrange the entries in ascending or descending order by clicking the name of the desired column. You can sort entries only by one column, clicking the name of another column automatically discards the sorting order applied earlier.

### 1.2.1.1 Parameter Overriding Window

The **Parameter Overriding** window appears at adding or editing a parameter in the **Correspondence table** area. In the window you can select the desired parameter and its value that will replace the corresponding parameter of the primary server.

Parameter Overriding	_		×
Settings Networks Radio Server Radio Network Services Add-on Modules Redundant Radioserver Add Add			
Parameter Value			
Name - Radio Server Redundant Radioserver		Fini	sh

The **Parameter Overriding** window consists of the following areas:

• Area with **Settings** and **Networks** tabs with the structure that corresponds to the structure of the primary server tabs.

- Area with non-editable table which contains all added parameters.
- Area for selecting parameters and their values. The area consists of the following elements:

#### Parameter

Contains a list of available parameters. Depending on the selected node, the list contains different parameters.

#### Value

Depending on the selected parameter, contains a check box, a list, or a box for changing the parameter value.

#### Add

Adds the parameter and its value to the table below and to the correspondence table.

# 1.2.2 Configuring Redundant Radioserver

Follow the procedure to add and configure the redundant radioserver.

#### **Prerequisites:**

- Ensure all parameters of the primary server are saved, and it is started. If the parameters were changed, save the changes and restart the primary server.
- Obtain the primary server IP address.

#### **Procedure:**

1. In the left pane of the **Settings** tab, click **Radio Server**.

In the Radio Server pane, from the Server Role list, select *Redundant*.
 In the left pane, the Redundant Radio Server node appears.

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioServi	ce.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
	Radio Server	
	Server Role	Redundant $\checkmark$
Add-on Modules	Name	Radioserver
	Interface	Port
i. • • • • • • • • • • • • • • • • • • •	Any $\checkmark$	8888 🜩
	Authentication	
	No	
	VoIP Listen Port	18500
	Block option	Radio Disable 🗸 🗸
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal $\checkmark$
	Language	English

3. In the left pane of the **Settings** tab, click **Redundant Radio Server**. The **Redundant Radio Server Settings** pane appears.

ettings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics			
10201	Radio Serve		-			Redundant Radio	Server Se	ttings		
	Redundant Licenses	Radio Serve				Redundancy				
T	Radio Netwo Add-on Mod		•			Primary server addr (host:port)	ress	remoteho	ost:8888	
-960 C P	Profiles Radio Group	)S				Connection timeout	t, s	60		
	Metadata	-				Synchronize wi	th primary ra	dio server		
								Copy Settin	gs	
						Correspondence ta	ble			
						Add Value	Add	Dele	te	
						Change Type	Value/Pa	arameter	Redundant Radio Se Value	erver

- 4. In the **Redundant Radio Server Settings** window, perform the following actions:
  - a. In the **Primary server address (host: port)** box, enter the primary radioserver IP address and port.
  - b. *Optional:* In the **Connection timeout (s)** box, enter time interval after which the redundant server becomes active.
  - c. Click **Copy Settings** to copy primary radioserver settings to the redundant server.
  - d. Select the **Synchronize with primary radio server** check box to activate the automatic synchronization of redundant server with primary server after the primary server restart.
- Configure the correspondence table.
   For information on configuring the table, see <u>Configuring the Correspondence Table</u>.

# 1.2.3 Configuring the Correspondence Table

Follow the procedure to configure the correspondence table for the redundant radioserver.

#### **Prerequisites:**

- Ensure all parameters of the primary server are saved, and it is started.
- Ensure the **Synchronize with primary radio server** check box in the **Redundancy** area is selected.

#### Procedure:

- Set or edit the existing values or parameters for replacing. For details, see <u>Setting Values</u> and <u>Setting Parameters</u>.
- 2. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 3. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### 1.2.3.1 Setting Values

Follow the procedure to set a replacing value for the redundant server in the correspondence table.

#### WARNING

The value in the correspondence table changes all similar values copied from the primary server parameters.

#### Procedure:

- In the Correspondence table area, click Add Value.
   In the correspondence table below, a new entry appears.
- 2. In the **Value/Parameter** box, type the desired value for replacing.
- 3. In the **Redundant Radio Server Value** box, type a new value for the redundant radioserver.

#### **Postrequisites:**

To edit the value, double-click it in the correspondence table, and then type a new value.

### 1.2.3.2 Setting Parameters

Follow the procedure to set a replacing parameter for the redundant server in the correspondence table.

#### **Procedure:**

- In the Correspondence table area, click Add. The Parameter Overriding window appears.
- In the left pane of the **Parameter Overriding** window, select the desired tab, and then expand the desired node.
   In the right pane, the area for selecting the parameter and its value appears.
- 3. From the **Parameter** list, select the required parameter:
  - For NAI IP Site Connect, NAI Capacity Plus and NAI Linked Capacity Plus network topologies replace **Peer ID** parameters values.
  - Optional: Replace IP-addresses.
  - *Optional:* Replace databases names.

#### NOTE

If you configure **Clients Connection**, you do not need to replace its parameters for the redundant server.

- 4. In the **Value** area, set the value in one of the following ways:
  - Type the value in the box
  - Select the value from the list
  - Select/clear the check box.
- 5. Click **Add** to add the parameter to the correspondence table.
- 6. Click **Finish** to close the window.

#### **Postrequisites:**

To edit the parameter or its value, double-click it in the correspondence table, and then select another parameter, or change the selected earlier value.

# **1.3 Licenses**

In the **Licenses** menu you can see the services which are available to you in SmartPTT and install a new license if needed.

	; (x86)\SmartPTT\Server\RadioService.exe.	config	— C	) X
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics			
Radio Server Conses Radio Network Services Add-on Modules Radio Groups Radio Groups Metadata	Licenses Licensed to: SmartPTT PLUS License key ID: 224BBC63 Contacts: Address: Support expiration date: 1/10/2018			
	License	Quantity	Expiration Date	^
	Telephone Interconnect Service	1	12/31/2017	
	Repeater IP Connections	10	12/31/2017	
	Additional Dispatchers	5	12/31/2017	
	Radio Network Bridging Service	1	12/31/2017	
	Monitoring Service	1	12/31/2017	
	SNMP Service	1	12/31/2017	
	Web Service	1	12/31/2017	~
	Change License Activation Hardware ID Collect	Сору		

Availability of the services is regulated by the license file. It contains licenses – permissions to use the particular number of particular services. Those licenses are being called here as services.

At the fresh start, SmartPTT generates demo license file which works for a small period of time. You cannot extent its activity period and you should obtain a regular license file.

Regular license file binds to the hardware of the primary radioserver computer or redundant radioserver computer. Hardware ID (HID) is required for the binding.

To obtain hardware ID via *SmartPTT Radioserver Configurator*:

- 1. Run SmartPTT Radioserver Configurator.
- 2. In the **Settings** tab click **Licenses**.
- 3. Click the **Collect** button in the **Activation** area of the **Licenses** window. The code which appears in the **Hardware ID** field is the hardware ID.
- 4. Click **Copy** to copy the hardware ID to the clipboard.

To obtain hardware ID without *SmartPTT Radioserver Configurator*, please, refer to the <u>following</u> <u>article</u> on the SmartPTT Technical Support Center website.

When you get the license file, you should install it.

To install a license file, follow these steps:

- 1. Run SmartPTT Radioserver Configurator.
- 2. In the **Settings** tab click **Licenses**.
- 3. Click Change License.
- 4. Open the received license file. The **License Installation** window appears:

icense Installation			×
Licensed to: License key ID: Update subscription expiration date: Contacts: Address:	SmartPTT Customer Name 1BE7813E 4/30/2018		
License	Quantity	Expiration Date	^
Web Service	1	4/30/2018	
Indoor Tracking	1	4/30/2018	
Connect Plus Voice Support	1	4/30/2018	
Connect Plus Data Support	1	4/30/2018	
NAI Voice for IP Site Connect	2	4/30/2018	
NAI Voice for Capacity Plus	2	4/30/2018	
NAI Voice for Linked Capacity Plus	2	4/30/2018	
GPS Positioning	1	4/30/2018	
	1	4/30/2018	
Voice Recording			

5. Check the information in the **License Installation** window. Pay attention to the table to check if you have all the services you need.

#### NOTE

If the license does not match the product or the hardware, **Licensed to** text will be red and the services table will be empty.

License Installation				Х
Contacts: Address:	on SmartPTT Wrong 0E832BE6 7/5/2018			
License		Quantity	Expiration Date	-
		Can	cel Apply	

- 6. To accept the license click **Apply**. To cancel the license installation click **Cancel**.
- 7. Click **OK** in the notification window.
- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

After the license installation in the **Licenses** window the available services will appear as they were in the **License Installation** window.

Different services may have different expiration date. When the service is expired, it will be written red in the table.

When the expiration data approaches, you will start to get notifications at the start of *SmartPTT Radioserver Configurator*:

You can select the **Remind me in 5 days** check box to remind about the license updating in 5 days.

Warning	×
Your SmartPTT PLUS Support license will expire in 37 day(s). Please contact Motorola Solutions or your distributor to renew your Support license and continue to get SmartPTT PLUS support, latest software upgrades, maintenance releases, and license updates.	
Remind me in 5 days	]

In addition, yellow triangle will appear near the dates, notifying about the approaching of the expiration date.

ings Net	works	Client List	Rules	Activity	Log	Export/Import Settings Statistics			
Radio Server Radio Network Services Add-on Modules Radio Groups Metadata		Licenses Licensed to: SmartPTT Customer Nar License key ID: 1BE7813E Contacts: Address: Support expiration date: 12/31/2017							
						License	Quantity	Expiration Date	^
						Telephone Interconnect Service	1	12/31/2017	
						Repeater IP Connections	15	12/31/2017	
						Additional Dispatchers	10	12/31/2017	
						Radio Network Bridging Service	1	12/31/2017	
						Monitoring Service	1	12/31/2017	
						SNMP Service	1	12/31/2017	
						Web Service	1	12/31/2017	~
						Change License Activation Hardware ID Collect	Сору		
				ce: Stopp					1 [

You cannot update or upgrade to SmartPTT released later of the expiration date of annual support. Nevertheless, your current software will continue to operate without any limitations until the licensed services are not expired. You could also be provided with the limited technical support for SmartPTT.

To use the newest version of SmartPTT with all new features, please, renew the annual support.

# 1.4 Add-on Modules

# 1.4.1 Tallysman

SmartPTT supports MOTOTRBO<sup>™</sup> generic option boards (GOB) programmed with the <u>Tallysman</u> <u>Sprite<sup>™</sup> software</u>. With those GOBs, SmartPTT provides the following features:

- Heartbeats. For details, see <u>Heartbeats</u>.
- Movement Reports Restoration. For details, see Movement Reports Restoration.

The settings of those features appear in the right pane of the SmartPTT Radioserver Configurator (the **Tallysman** pane) when users select **Tallysman** in the **Add-on Modules** node.

🎯 Smar	🖓 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🛛 🗙								×				
Settings	Networks	Client List	Network Configuration	Rul	les	Activity	Log	Export/Import Settings	Statistics				
	Radio Serve Licenses Radio Netw Add-on Mod Tallysm Indoor T Event L Phone C Clents C Clents C Core Monitorin Ouser Au Profiles Radio Group Metadata	ork Services ules racking og calls otifications connection ng thorization			ID 1- - - - - - - - - - - - - - - - - - -	99, 150 Heartb Heartbeat Response Mover Receive p	peats message Delay (se ment repo ort: re lost mo	orts	Exa	smple: 1-99, 5000 8 5010	150 •		

In the **Tallysman** pane, the following general settings are available:

#### Active

The check box activates GOB support and unlocks the GOB feature settings.

#### IDs of radios having GOB with Tallysman

You should enter Radio IDs of subscriber units that has GOB configured to send GPS batches only. You do **not** need to enter Radio IDs of subscriber units that use Heartbeats. To enter multiple IDs properly, use the example available on the right above the box.

#### WARNING

All Radio IDs must be unique across all dispatched radio systems.

The **Heartbeats** area is related to the Heartbeats feature settings. It provides the following controls:

#### Heartbeats

The check box activates the feature support and unlocks its settings.

#### Heartbeat message port

The UDP port number used to receive presence messages from the radios. This number must be the same as the Host UPD Port configured in the Tallysman Sprite Configurator. The default Host UPD Port is *5000*.

#### Response delay (sec)

The delay between moments of time when SmartPTT Radioserver receives the heartbeat message and acknowledges its receiving to the radio. The parameter must not exceed the maximum acknowledgment delay set in the GOB using Tallysman Sprite Configurator.

The **Movement reports** area is related to the Movement Reports Restoration feature settings. It provides the following controls:

#### **Movement reports**

The check box activates the features and unlocks its settings.

#### Port for reports receiving

The UDP port number used to receive the coordinates. It must be the same as the Base UDP Port parameter in Tallysman Sprite Configurator. The default port number is *5010*.

#### **Restore lost movements reports**

The check box activates the movement reports restoration in SmartPTT Radioserver.

#### **Restoration period (days)**

Number of days for which the coordinates must be requested and restored. Each day is equal to 24 hours. For example, if you enter 3 in this box, SmartPTT Radioserver will request coordinates received within the last 72 hours. Value ranges are the following: minimum value is *1* (24 hours); maximum value is *31* (744 hours); increment is *1* (24 hours); default value is *1*.

For information on configuring Tallysman, see the sections below.

### 1.4.1.1 Configuring Radios to Support GOB

Follow the procedure to configure the radio to use MOTOTRBO<sup>™</sup> option board.

#### **Procedure:**

Settings

- 1. Start MOTOTRBO CPS.
- 2. Open the radio codeplug.
- 3. In the left pane, expand **Channels** → **<Zone Name>**, and then select the desired digital channel.

The **<Channel Name>** pane appears.

🖩 MOTOTRBO Customer Programming Software - [Sample_DP4801.ctb] – 🗆 X								
Eile Edit View Device Feature	ures <u>R</u> emote <u>W</u> indow <u>H</u> elp	_ # ×						
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DP4801	С	hannel1						
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Text Messages	Voice Announcement Fil	None V						
Telemetry								
📷 Menu	Dual Capacity Direct Mod							
Security	Timing Leader Preference	Eligible V						
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Announcement	Scan/Roam Lis	None 🔽						
	Auto Sca							
+ Encoder	Color Cod	a 1 ÷						
E Decoder								
E Contacts	Repeater/Time Sk							
RX Group Lists	Phone System	None 👻						
🚍 🔁 Channels								
🖃 — 💼 Zone1	AR	S On System Change						
Channel1	Enhanced GNS							
Channel2	Window Size	8 •						
E Scan								
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🗄 ··· 💼 Capacity Plus	Privacy Alia	Privacy Key1 v						
	RAS Alia:	None 💌						
	Option Board							
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		×						
	0-4i Dd	0						
Channel1		Expert View NUM						

- 4. At the top of the **<Channel Name>** pane, click **Top**.
- 5. In the top area, select the **Option Board** check box.

- 6. For the Movement Reports Restoration feature only, perform the following actions:
  - a. At the top of the **<Channel Name>** pane, click **TX**. Transmission settings appear.

MOTOTRBO Customer Programming		_	o x
Elle Edit View Device Fea	tures <u>Remote Window H</u> elp		_ # ×
DP4801	Channel1		
Accessories	Top RX TX		
<ul> <li>Buttons</li> <li>Text Messages</li> </ul>	RX	ТХ	^
Bin Telemetry     Bin Telemetry     Bin Telemetry     Bin Telemetry     Security     Bin Security     B	Offset (MHz) Frequency (MHz) 403.025000 Copy Ref Frequency Default Group List Emergency Alarm Indication Emergency Alarm Ack Emergency Call Indication Emergency Call Decode Tone	Frequency (MHz)       403.025000         Ref Frequency       Default         Contact Name       Call         Emergency System       None         VOX          Power Level       High         TOT (sec)       60         TOT Rekey Delay (sec)       0	-
Channel Pool	CNSS Dourse	Allow Interruption  TX Interruptiole Frequencies Admit Criteria In Call Criteria RSSI Threshold (dBm) -124 GNSS Revert None Private Call Confirmed	- - -
p Channel1		Expert View	NUM

b. In the **TX** area, from the **GNSS Revert** list, select *None*.

#### WARNING

If the channel is used as a GNSS revert channel, Movement Reports Restoration will be unavailable. c. In the left pane, expand <Radio Model>, and then select General Settings.
 The General Settings pane appears.

MOTOTRBO Customer Programming	Software - [Sample_DP4801.ctb]	- 0	×
	tures <u>R</u> emote <u>W</u> indow <u>H</u> elp		- 8 ×
RM Open Save Reports Delete	⋈     ⋈     ⋈     ⋈     ⋈       Cut Copy     Paste     Search     Read     Write     Clone     Bluetooth		
DP4801	General Settings		
General Settings			
Accessories	Top CWID Audio Profile Microphone Backlight Battery Saver Alerts Over-the-Air Programming Persistent LRI	RRP Requests Lone Worker Power Up	
Text Messages	Password and Lock Front Programming Password Delete All 5 Tone Radio ID		
Telemetry	Radio Name Motorola		^
Menu		1	
Network	Select		
	Welcome Image Remove	1	
Job Tickets		_]	
Signaling Systems     Encoder			
Encoder	Radio ID 1049282		
Contacts	GNSS		
RX Group Lists	GNSS GPS/QZSS		
E Channels			
⊡ Roam	Private Calls 🔽		
	Site Search Timer (sec) 16 ÷		
	ARS Initialization Delay (min)		
	TX Preamble Duration (ms)		
	TX Inhibit Quick Key Override		
	Monitor Type Open Squeich		
	Min Speaker Volume Level (dB) Muted ÷		
			*
J. F	Radio ID		\$
General Settings		Expert View N	IUM

- d. At the top of the **General Settings** pane, click **Top**.
- e. In the **Radio ID** box, view the Radio ID value. You need this to add the Radio ID to the list of radios.
- 7. Save changes to the codeplug and write them to the radio.

### 1.4.1.2 Heartbeats

Heartbeats is an option board feature that inform SmartPTT dispatchers that the radio is online now and continues to be online. Messages are sent periodically and SmartPTT Radioserver acknowledges each message to indicate its own presence. If SmartPTT Radioserver does not receive the message in time, the radio considers to be offline. If SmartPTT Radioserver does not send the acknowledgment in time, or the radio channel is busy, the radio informs its user that SmartPTT dispatchers are unavailable. The feature is unavailable in the Connect Plus radio systems due to the use of alternative option boards.

For configuring the Heartbeats feature, see <u>Programming GOB for Heartbeats</u> and <u>Configuring</u>. <u>SmartPTT to Support Heartbeats</u>.

### 1.4.1.2.1 Programming GOB for Heartbeats

Follow the procedure to view and/or modify MOTOTRBO<sup>™</sup> option board settings required to support Heartbeats in SmartPTT.

#### Procedure:

- 1. Start the Tallysman Sprite Configurator, and then ensure that its version is 0.2.68.
- 2. Open the option board codeplug.
- 3. In the left pane, expand **<Codeplug Internal Name>**, and then select **Heartbeat**. Heartbeat settings appear in the right pane.

🛠 Tallysman Sprite Configurator		_	×
<u>F</u> ile <u>P</u> rogram <u>T</u> ools <u>H</u> elp			
Open Save Read Write Validate	e Get Info Activation Server Orientation Read Channel		
- Sprite 0.3.1 TW25X - Host Application - Bandwidth	Heartbeat		
Events     Waypoints (Circle)	Heartbeat Enabled		
Waypoints (Polygon) Man Down Heartbeat	Host Radio ID 3 PC 🗸		
- Sprite Data Revert	Host UDP Port 4007		
Expert	Time Interval 15 seconds		
	Reply Timeout 8 seconds		

- 4. In the right pane, select the **Heartbeat Enabled** check box.
- 5. In the **Host Radio ID** box, type the system-specific SmartPTT Radioserver identifier.
- 6. From the list after the **Host Radio ID** box, select **PC**.
- 7. In the **Host UDP Port** box, type the unlocked UPD port number of the computer with SmartPTT Radioserver.
- 8. In the **Time Interval** box, type the send period for radio heartbeat messages.

- 9. In the **Reply Timeout** box, type the the maximum delay of the SmartPTT Radioserver response waiting after the heartbeat message is sent.
- 10. Save changes to the codeplug and write them to the option board.

### 1.4.1.2.2 Configuring SmartPTT to Support Heartbeats

Follow the procedure to configure the support of Heartbeats between the dispatch system and radios. SmartPTT Radioserver responds to all radios that send heartbeat messages to it.

#### **Prerequisites:**

Using Tallysman Sprite Configurator, obtain the following parameters:

- Host UDP Port
- Reply Timeout

For details, see Programming GOB for Heartbeats.

#### **Procedure:**

- 1. Start SmartPTT Radioserver Configurator.
- 2. In the **SmartPTT Server Configuration** window, select the **Settings** tab.
- 3. In the left pane, expand **Add-on Modules**, and then select **Tallysman**.

💱 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — □								×			
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics			
	Radio Serve Licenses Radio Netw Add-on Mod <b>magnetic server</b> <b>Magnetic Server</b> <b>Magnetic Server</b> <b>Monitori</b> <b>Clients C</b> <b>Monitori</b> <b>Clients C</b> <b>Monitori</b> <b>Profiles</b> Radio Group Metadata	ork Services ules racking og Calls otifications Connection ng thorization		6	1-99, 150 Heartbeat Response Mover Receive p	neeats message Delay (s ment rep ort: re lost me	orts		5010		

- 4. In the Tallysman pane, select the Active check box.
- 5. Select the **Heartbeats** check box.

- 6. In the **Heartbeat Message Port** box, set the value of the **Host UPD Port** parameter set in Tallysman Sprite Configurator.
- 7. In the **Response Delay** box, set the value of the **Reply Timeout** parameter set in Tallysman Sprite Configurator.

#### NOTE

You can enter the smaller value if needed.

- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### **Postrequisites:**

In the firewall software on the computer, unlock UPD port.

### 1.4.1.3 Movement Reports Restoration

When the radio leaves the radio coverage zone, the outdoor location request can be performed by the option board itself. At some configurations, the request rate can be higher than that of the MOTOTRBO radio. Option board stores the requested coordinates and provide all of them to SmartPTT Radioserver by a request. SmartPTT Radioserver receives these coordinates, updates the database, and provides the information to the active dispatch applications. Using new information, applications can create highly-detailed reports and tracks.

The feature is available to perform over the local control stations connected over USB. Other control station connections are not supported. In repeater-based systems, the feature is unassailable in Connect Plus due to the use of alternative option boards.

### 1.4.1.3.1 Programming GOB for Movement Reports Restoration

Follow the procedure to view and/or modify MOTOTRBO<sup>™</sup> option board settings required to support movements restoration in SmartPTT.

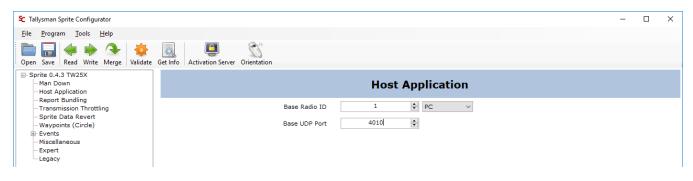
#### **Prerequisites:**

Using SmartPTT Radioserver Configurator, obtain the following information:

- SmartPTT Radioserver identifier in the radio system:
  - For control station, obtain the Radio ID.
  - For IP Site Connect, or Capacity Plus, obtain the Radio ID of the slot.
  - For NAI systems (NAI IP Site Connect, NAI Extended Range Direct Mode, NAI Capacity Plus, and NAI Linked Capacity Plus), or Capacity Max, obtain MNIS Application ID.
- Whether the channel of a control station or IP Site Connect is configured as Data Channel.

#### **Procedure:**

- 1. Start the Tallysman Sprite Configurator, and then ensure that its version is 0.3.16.
- 2. Open the option board codeplug.
- In the left pane, expand the <Codeplug Internal Name>, and then click Host Application.
   Host settings appear in the right pane.



- 4. In the right pane, enter the SmartPTT Radioserver identification information:
  - a. In the **Base Radio ID** box, set the system-specific SmartPTT Radioserver identifier.
  - b. From the list after the box, select **PC**.
  - c. In the **Base UPD Port** box, set the unlocked port of the computer with SmartPTT Radioserver.

#### NOTE

If default value is applicable, leave the parameter unchanged.

5. In the left pane, click **Report Bundling**. Report settings appear.

🗲 Tallysman Sprite Configurator			- 🗆 X
<u>F</u> ile <u>P</u> rogram <u>T</u> ools <u>H</u> elp			
Open Save Read Write Merge Validate	Get Info Activation Server Orientation		
- Sprite 0.4.3 TW25X		Report Bundling	
Report Bundling Transmission Throttling Sprite Data Revert	Bundling Mode	Contrails ~	
Waypoints (Circle)		Contrails	
Events     Miscellaneous     Expert     Legacy	Contrail Options	Contrail is always vital Contrail is vital on any Event Contrail is vital if an Event is vital Send using Sprite GPS Revert	
	GPS Position Interval	5 Seconds V	
	Transmit Timer	2 Minutes V	
		Legacy Bundling	
	Bundle Max Size	10 GPS reports	
	Bundle Timer	5 🔄 Minutes V	

- 6. In the right pane, from the **Bundling Mode** list, select **Contrails**.
- 7. Clear the following check boxes:
  - Contrail is always vital
  - Contrail is vital on any Event
  - Contrail is vital if an Event is vital

radio systems,

8. Set up the revert mode for control station or IP Site Connect radio system:

If you configured a channel as a Data	set up the data revert in the option board. For
Channel,	details, see <u>Configuring GOB Revert Channel</u>
	<u>Settings</u> .
If you do not have Data Channels in your	clear the <b>Send using Sprite GPS Revert</b>

check box.

- 9. Set up the location request interval:
  - a. From the list after the **GPS Position Interval** box, select the desired measurement units.
  - b. In the **GPS Position Interval** box, set the desired period of time. The recommended value is *10 s*.
- 10. Set up the location transmission attempt interval:
  - a. From the list after the **Transmit Timer** box, select the desired measurement units.
  - b. In the **Transmit Timer** box, set the desired period of time. The recommended value is *2 s*.
- 11. In the left pane, expand **Events**.
- 12. For each subnode of the **Events** node, perform the following actions:
  - a. Click the subnode.
  - b. In the right pane, clear the **Event Enabled** check box.
- 13. Save changes to the codeplug and write them to the option board.

### 1.4.1.3.2 Configuring GOB Revert Channel Settings

Follow the procedure to to configure the location data provision from the option board over the revert channel. This option is available in NAI - IP Site Connect only.

#### WARNING

This configuration is incompatible with the Enhanced GPS mode in IP Site Connect.

#### **Prerequisites:**

Obtain the Zone ID and Channel ID of both IP Site Connect channels from the radio codeplug.

#### **Procedure:**

- 1. Start the Tallysman Sprite Configurator, and then ensure that its version is 0.3.16.
- 2. Open the option board codeplug.
- 3. In the left pane, expand the **<Codeplug Internal Name>**, and then click **Sprite Data Revert**.

Data revert settings appear in the right pane.

🛠 Tallysman Sprite Configurator			-	×
<u>F</u> ile <u>P</u> rogram <u>T</u> ools <u>H</u> elp				
Open Save Read Write Merge Validate	e Get Info Activation Server Orientation			
Sprite 0.4.3 TW25X Man Down Host Application		Sprite Data Revert		
- Report Bundling Transmission Throttling	Sprite Data Revert Mode	Data Revert (GPS) 🛛 🗸		^
<ul> <li>Sprite Data Revert</li> <li>Waypoints (Circle)</li> <li>⊕ Events</li> <li>Miscellaneous</li> <li>Expert</li> <li>Legacy</li> </ul>	Sprite Data Revert Options Delay after Channel Change	✓ Use Data Revert for responses         ✓ Use Data Revert for GPS Reports         ✓ Dont use Data Revert for Access Insite requests         ✓ Use Data Revert for Access Insite requests         ✓ Use Data Revert for Form Reports         ✓ Stay on Data Revert for Form acknowledgement         100         ➡ milliseconds		
		Channel Pair #1		
	Zone ID Voice Channel ID	1 🚖		
	Zone ID Data Channel ID	1 🗘		
	Repeater Latitude	0.00000		
	Repeater Longitude	0.00000		

- 4. In the right pane, from the the **Sprite Data Revert Mode** list, select **Data Revert (GPS)**.
- 5. To the right of the **Sprite Data Revert Options** heading, select all check boxes.
- 6. *Optional:* In the **Delay after Channel Change** box, set the delay between the data channel selection and location data sending.
- 7. In the **Channel Pair #1** area, on the right of the **Voice** heading, perform the following actions:
  - a. In the **Zone ID** box, set the Zone ID of the voice channel.
  - b. In the **Channel ID** box, set the Channel ID of the voice channel.

- 8. Repeat the previous step for boxes to the right of the **Data** heading.
- 9. If the configuration is complete, save changes to the codeplug and write them to the option board.

#### **Postrequisites:**

Turn off the GPS revert in NAI - IP Site Connect channels in the following software and hardware:

- Radio codeplug
- Repeater codeplug
- MNIS configuration file

# 1.4.1.3.3 Configuring SmartPTT to Restore Movement Reports

Follow the procedure to to configure movement reports restoration in the dispatch system.

## **Prerequisites:**

- Obtain Radio IDs of radios that have option boards configured for the feature. For details, see <u>Configuring Radios to Support GOB</u>.
- Using Tallysman Sprite Configurator, obtain the following parameters:
  - Base Radio ID
  - Base UDP Port

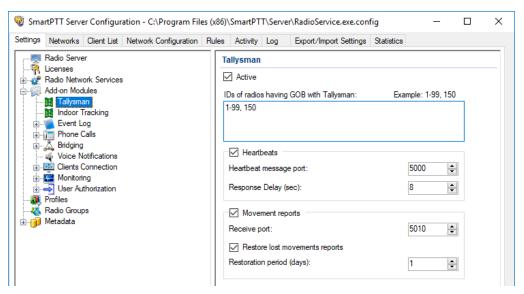
For details, see <u>Programming GOB for Movement Reports Restoration</u>.

• Determine the necessity of the restoration period limitation and determine the limiting value.

#### **Procedure:**

- 1. Start SmartPTT Radioserver Configurator.
- 2. In the SmartPTT Server Configuration window, select the Settings tab.

3. In the left pane, expand Add-on Modules, and then select Tallysman.



- 4. In the **Tallysman** pane, select the **Active** check box.
- 5. In the **IDs of radios having GOB with Tallysman** box, type Radio IDs of subscriber units with properly configured option boards.
- 6. Select the **Movement reports** check box.
- 7. In the **Port for reports receiving** box, set the value of the **Base UPD Port** parameter from the Tallysman Sprite Configurator.
- 8. To limit the restoration period, perform the following actions:
  - a. Select the **Restore lost movements reports** check box.
  - b. In the **Restoration period (days)** box, set the restoration period in days.

#### NOTE

The day unit here is equal to 24 hours. If you type *3*, SmartPTT Radioserver requests coordinates collected on the GOB within the last 72 hours.

- 9. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 10. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

#### **Postrequisites:**

In the firewall software on the computer, unlock UPD ports.

# 1.4.2 Indoor Tracking

Big organizations with huge premises require constant control over their employees displacement inside buildings. For this purpose Indoor Tracking system was implemented.

Currently, SmartPTT system supports the following technologies and products:

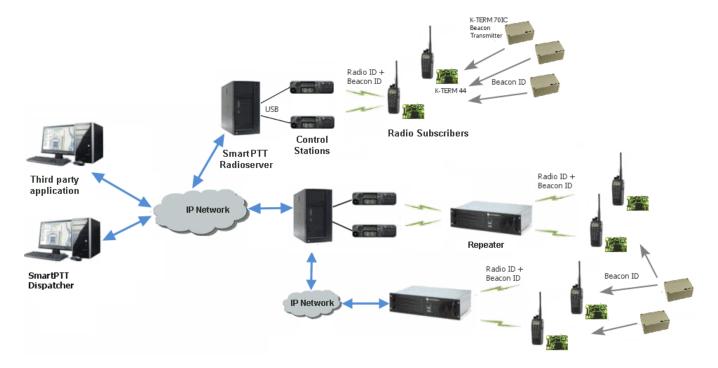
- **iBeacon technology:** With MOTOTRBO radios with the firmware version 2.6 and above, and beacons that support iBeacon technology.
- **BluFi Wireless:** With option boards (Connect-RTLS RF800) and beacons (Connect-RTLS RF800).
- **Kilchherr Elektronik AG:** With option boards (K-TERM 44) and beacons (K-TERM 70IC Beacon Transmitter).

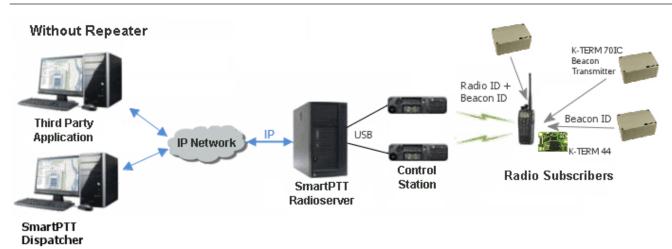
Connect Plus systems support Indoor Tracking based on the iBeacon technology only.

#### IMPORTANT

Indoor Tracking functionality requires the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

The following scheme shows how SmartPTT Radioserver gets radio location data:





# iBeacon-based technology scheme

Each installed beacon is transmitting at an interval ranging from a fraction of a second to several minutes the data packages in the following format:

- *iBeacon prefix:* A title of a package
- UUID: A unique identifier of the beacon
- Major: A group parameter of the beacon
- *Minor:* The individual parameter of the beacon in the group
- *Tx power:* The strength of the signal, transmitting by the beacon

The radio with the preconfigured CPS settings receives the data packages from the beacons which identifiers (UUID) are set in the CPS settings, and transmits them to SmartPTT Radioserver via repeater or control station.

# BluFi scheme

The RF800 beacons operate in a continual **Sleep**  $\rightarrow$  **Transmit**  $\rightarrow$  **Sleep**  $\rightarrow$  **Transmit** mode. When a beacon awakes from its sleep cycle, it transmits its allocated code during the transmit phase, and then returns to sleep phase.

Portable radios operate in the **Sleep**  $\rightarrow$  **Listen**  $\rightarrow$  **Sleep**  $\rightarrow$  **Listen** mode. When a portable radio awakes from its sleep cycle, it listens for any transmitted beacon codes during its listen phase, and then determines the current active beacon. If a new active beacon is different from the previous active beacon, a beacon update status message (a special TMS message) is sent via the radio

network to SmartPTT Radioserver. For information on BluFi beacons and option boards, see the manufacturer's documentation on the products.

#### NOTE

Connect-RTLS RF800 option boards transmit data in TMS messages. Therefore, it is necessary to have TMS enabled.

# **Kilchherr scheme**

Each beacon installed is continually transmitting commands, like *Detect, Keep Alive, Lost,* which contain unique **Beacon ID** (set in K-Term CPS). When a radio gets closer to the beacon, the built-in option board receives **Beacon ID** and then transmits it with the **Radio ID** to SmartPTT Radioserver via repeater or control station. Further data processing can be handled by *SmartPTT Dispatcher* or any third party application, connected to the radioserver using API. For information on Kilchherr beacons and option boards, For information on the manufacturer's documentation on the products.

#### WARNING

For the **Kilchherr** and **BluFi** option boards, in network systems with MNIS service enabled, make sure that the ID set in the option board settings (where data is to be sent) should match **MNIS Application ID**. In network systems without MNIS service enabled, any ID can be set in the option board settings (where data is to be sent). However, it is necessary that **Data call confirmed** should be unselected in the radio settings. In networks based on control stations it is necessary that the ID set in the option board settings should match **Radio ID** set in the control station settings.

To use the **Indoor Tracking** feature based on the iBeacon technology, ensure that the MOTOTRBO radio meets the following requirements:

- The radio supports Indoor-positioning
- The radio is <u>configured properly</u> in MOTOTRBO CPS

# 1.4.2.1 Configuring Indoor Tracking in MOTOTRBO CPS

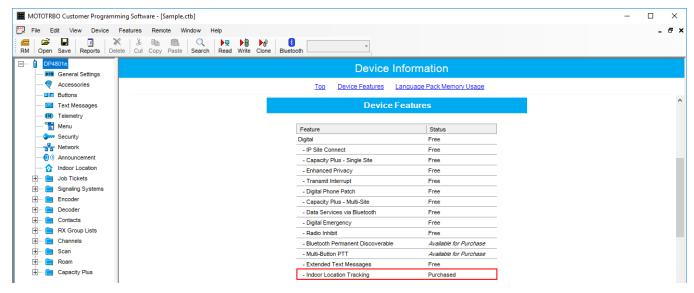
#### NOTE

Below is a description of the Indoor settings only.

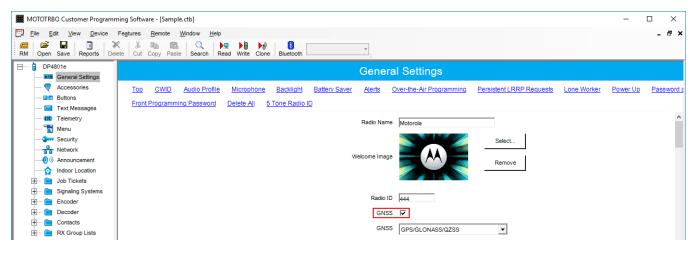
For information on programming the MOTOTRBO equipment, see *MOTOTRBO CPS Online Help*.

To configure the MOTOTRBO radio for use of the Indoor Tracking feature based on the iBeacon technology, follow these steps:

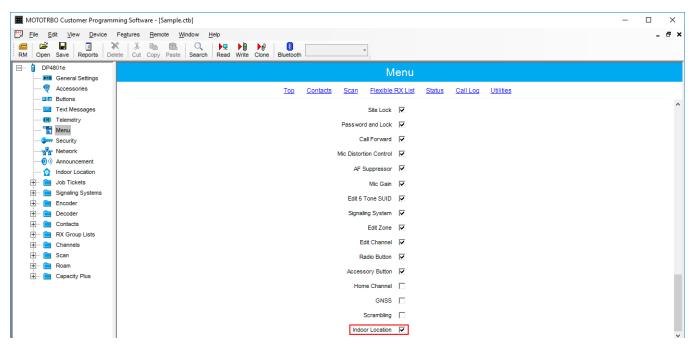
- 1. Launch MOTOTRBO CPS with the 13.0 version or above, and perform the following actions:
  - a. In the left pane, select the desired radio and in the **Device Information** tab verify the **Indoor Location Tracking** field has the *Purchased* value.



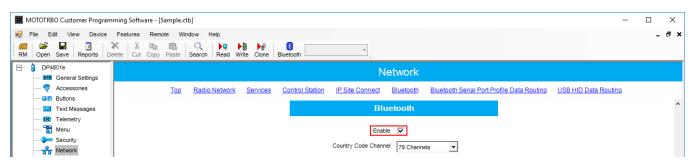
b. In the left pane, select **General Settings**. In the **General Settings** window, select the **GNSS** check box.



c. In the left pane, select **Menu**. In the **Utilities** area of the **Menu** pane, select the **Indoor Location** check box.



d. In the left pane, select **Network**. In the **Bluetooth** area of the **Network** pane, select the **Enable** check box.



e. In the left pane, select **Indoor Location**. In the **Indoor Location** pane, select the **Indoor Location** check box.

I MOTOTRBO Customer Programm	ning Software - [Sample.ctb]			- 🗆 X		
	Fegtures Remote Window Help	etooth		_ & ×		
DP4801e		Indoor	Location			
		<u>Τορ</u> <u>Β</u> ι	eacon Alias			
Text Messages		Indoor Scan Interval on Ti	Location 🔽			
Menu	Scal Interval off Time (ms) 1000					
Network      Network      Notwork      Nouncement      Indoor Location		Beac	on Alias			
		Add	Delete			
Encoder		Beacon Alias	Beacon UUID			
Contacts     RX Group Lists		iBecom 1 iBecom 2 iBecom 3	FDA50693A4E24FB1AFCFC6EB07647825 FDA50693A4E24FB1AFCFC6EB07647842 0D021402C7A844E2AA50FDB059CB58B6	-		
there is the second se		iBecom 3 iBecom 4 Contact	0D021402C7A844E2AA50FDB059CB58B6 0D021402C7A844E2AA50FDB059CB58B7 F7826DA64FA24E988024BC5B71E0893E	-		
🕀 💼 Roam		Contact	1 10200 AUAI A242000240C0011E00002			

- f. In the **Beacon Alias** area, add the beacons and specify their names and identifiers (UUID).
- 2. Configure Bluetooth in the radio to activate Indoor-positioning. For that, with use of radio menu buttons, perform the following actions:
  - a. Set the parameter **Main Menu**  $\rightarrow$  **Bluetooth**  $\rightarrow$  **My Status**  $\rightarrow$  **On**.
  - b. Set the parameter Main Menu  $\rightarrow$  Bluetooth  $\rightarrow$  Indoor Location  $\rightarrow$  Enabled.

# 1.4.2.2 Configuring Indoor Tracking

To configure **Indoor Tracking** in SmartPTT Radioserver Configurator, follow these steps:

1. In the left pane of *SmartPTT Radioserver Configurator*, select **Indoor Tracking**.

🎯 SmartPTT Se	rver Configu	ration -	C:\Progra	im Files	(x86)\SmartPTT\Server	\RadioService.exe.confi	g	—	×
Settings Networ	cs Client List	Rules	Activity	Log	Export/Import Settings	Statistics			
Radio Se					Indoor Tracking				
	twork Service	s			Active				
Add-on I	sman				Indoor source	Motorola	$\sim$		
	or Tracking t Log				Data Port	3100	*		
i	e Calls ing				Minimum RSSI level	-130	* *		
🕀 🔤 Clien	Notifications				Set list of allowed	beacons			
iter in the second sec	onng Authorization								
Radio Gi									
i Metadata	1				Example: 1.5, 1.6, 2.9	9-2.15			

- 2. In the **Indoor Tracking** pane, perform the following actions:
  - a. Select the **Active** check box to activate Indoor Tracking.
  - b. From the **Indoor source** list, select the desired Indoor-positioning technology:
    - Motorola: If you use iBeacon technology
    - BluFi: If you use BluFi Wireless technology
    - *Kilchherr:* If you use Kilchherr Elektronik AG technology
- 3. Only for *Kilchherr* technology: In the **Data Port**, enter the UDP port for listening to Beacon ID.
- 4. Only for *iBeacon* technology: In the **Minimum RSSI level**, enter the minimum value of the signal strength, that radio receives from the beacon.

#### NOTE

SmartPTT Radioserver does not process the signals with power that is lower than the specified level.

- 5. *Optional:* Select the **Set list of allowed beacons** check box and specify the numbers of the beacons which data must be processed by SmartPTT Radioserver. Use the following format:
  - If you use *Motorola* technology: Specify the numbers of the beacons in the *Major.Minor* format, where the *Major* is the beacons number, *Minor* is the individual number of the beacon in the group.
  - For the *BluFi* or *Kilchherr* technology: Specify the Beacon IDs set in the beacons parameters.

#### NOTE

If the **Set list of allowed beacons** check box is not selected, the radioserver processes data from all the beacons.

# 1.4.3 Event Log

Event Log tracks all events from all dispatch systems connected to the radioserver. Events are registered in the event log even if *SmartPTT Radioserver Configurator* is closed.

Activate the event log by clicking **Settings**  $\rightarrow$  **Add-on Modules**  $\rightarrow$  **Event Log**, and selecting the **Active** check box.

Then create the database for the log.

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config $ \Box$ $\times$
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Radio Server Licenses Add-on Modules Add-on Modules Add-on Tracking Cevent Log Phone Calls Bridging Voice Notifications Clients Connection Monitoring User Authorization Profiles Radio Groups Metadata	Event Log         ✓ Active         Creating Database         Server Name:       localhost\SQLExpress         Database Name:       Radio Server         Create New Database         Authorization Mode:       Windows NT Authorization         Login:
	Restoring Database From Backup             Restore Database         Optimization         The database is optimized.         Start

To create a new database, enter the server name and the database name in the **Server Name** and the **Database Name** fields, and click **Create New Database**. If creation is successful, a message about successful database creation appears. If a database is not created, the cause of failure will be displayed at the bottom of the window.

## NOTE

Database creation process at SmartPTT Radioserver is similar to the database creation process at *SmartPTT Dispatcher*.

For the database server installed together with the SmartPTT Radioserver enter the name using the following format: <*Name of computer\SQLExpress*> (for example, MYCOMP\SQLExpress).

Select Authorization Mode between the two:

- Windows NT Authorization: The user who has logged into the Windows system, must be listed in the SQL server's list of users to make connection.
- **SQL Server Authorization:** You must have the login name and password of the account with SQL server access.

Click **Check Connection**. In case of successful authorization the message *"The connection is established successfully!"* appears. If authorization fails, the cause will be displayed at the bottom of the window.

To restore the event log database from the backup, select the required database backup file in the **Path** field and click **Restore Database**.

#### NOTE

To set up the auto backup of the event log database, go to the <u>Automatic Database Backup</u> window.

To optimize the event log database, click the **Start** button in the **Optimization** block. The optimization of the event log database accelerates the database query processing when getting a large amount of GPS data or events. For example, when building the **Radio Activity Reports**, **Radio Locations**, **Events for Period** and other reports in *SmartPTT Dispatcher*.

## NOTE

The optimizing feature is applicable only to non-optimized event log databases created before the release of SmartPTT 9.0 and higher.

Before performing the optimization, ensure that the radioserver is stopped.

If the event log database is optimized, the **Optimization** block shows the corresponding message and the **Start** button is inactive.

The following instructions are related to the event log:

# **Creating Database**

To create the event Log database, follow these steps:

1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Event Log**.

🎯 SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioServi	ce.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server	Radio Server	
	Server Role	~
Tallysman	Name	Radioserver
Event Log	Interface	Port
	Any $\checkmark$	8888
Voice Notifications	Authentication	
Clients Connection     Monitoring	No 🗸	
User Authorization     Profiles     Kadio Groups	VoIP Listen Port	18500
🗄 👘 Metadata	Block option	Radio Disable $\checkmark$
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal $\checkmark$
	Language	English

SmartPTT Server Configuration - C:\Program Files Settings Networks Client List Rules Activity Log	(x86)\SmartPTT\Server\RadioService.exe.config —  Export/Import Settings Statistics	×
Radio Server Licenses Radio Network Services Radio Network Services Add-on Modules Tallysman Indoor Tracking Event Log Phone Calls Refiging Voice Notifications Clients Connection Clients Connection Refies Radio Groups Radio Groups Metadata	Export/import Settings       Statistics         Event Log	
	Check Connection          Restoring Database From Backup         Image: Check Connection         Restore Database         Optimization         The database is optimized.         Start	

# 2. Make sure that the **Active** check box is selected in the **Event Log** pane.

3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address* of your computer>\<Your SQL Server name> or localhost\<Your SQL Server name> format:

Settings Networks Client List Dulas Activity Los	_
Networks       Client List       Rules       Activity       Log         Radio Server       Licenses       Licenses       Add-on Modules         Add-on Modules       Tallysman       Indoor Tracking       Fvent Log         Phone Calls       Stridging       Voice Notifications       Stridging         Voice Notifications       Clients Connection       Stridging         Profiles       Worktoring       User Authorization         Monitoring       User Authorization       Metadata	Export/Import Settings Statistics   Event Log  Active  Creating Database Server Name: localhost\SQLExpress Database Name: Radio Server  Create New Database  Authorization Mode: Windows NT Authorization  Login: Password: Check Connection  Restoring Database From Backup
	Restore Database         Optimization         The database is optimized.         Start

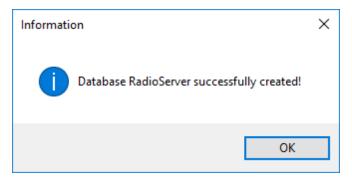
4.	In the Database	Name field,	enter the name	e of a local	event log database.
----	-----------------	-------------	----------------	--------------	---------------------

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config —	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Cerent Log Phone Calls Radio Groups Clients Connection Monitoring User Authorization Radio Groups Radio Groups Metadata	Event Log         ✓ Active         Creating Database         Server Name:         localhost\SQLExpress         Database Name:         Radio Server         Create New Database         Authorization Mode:         Windows NT Authorization         Login:         Password:         Check Connection         Restoring Database From Backup            Restore Database         Optimization         The database is optimized.         Start	

#### 5. Click Create New Database.

🎯 SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\RadioService.exe.config — 🗌 🗙	<
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Event Log From Calls Reference Offications Reference Offications Clients Connection Reference Offications Reference Offication Referen	Event Log         Active         Creating Database         Server Name:       localhost\SQLExpress         Database Name:       Radio Server         Create New Database         Authorization Mode:       Windows NT Authorization         Login:         Password:         Check Connection	
	Restoring Database From Backup Restore Database Optimization The database is optimized. Start	

If creation is successful, the following message appears.



- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# Connecting Local Database

To connect to the local event Log database, follow these steps:

1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Event Log**.

SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\RadioServio	ce.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server	Radio Server	
Radio Network Services	Server Role	~
Tallysman	Name	Radioserver
🖶 👰 Event Log	Interface	Port
Phone Calls     Bridging	Any ~	8888
Voice Notifications     Gients Connection	Authentication	
Monitoring	No 🗸	
User Authorization     William Profiles     Radio Groups	VoIP Listen Port	18500
🗈 🍈 Metadata	Block option	Radio Disable $\checkmark$
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal $\checkmark$
	Language	English

SmartPTT Server Configuration - C:\Program File Settings Networks Client List Rules Activity Log	
Settings Networks Client List Rules Activity Log Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Phone Calls Woice Notifications Clients Connection Monitoring User Authorization Radio Groups Metadata	Export/Import Settings Statistics     Event Log     Creating Database   Server Name:   localhost\SQLExpress   Database Name:   Radio Server   Create New Database   Authorization Mode:   Windows NT Authorization   Login:   Password:   Check Connection   Restoring Database From Backup   Image: Set Server Database   Optimization   The database is optimized.     Start

# 2. Make sure that the **Active** check box is selected in the **Event Log** pane.

3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address* of your computer>*\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:

Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Radio Server Licenses Radio Network Services Add-on Modules Indoor Tracking Cert Log Reference Constitutions Reference Connection Reference Connection	Event Log         Active         Creating Database         Server Name:       localhost\SQLExpress         Database Name:       Radio Server         Create New Database         Authorization Mode:       Windows NT Authorization         Login:
i	Password: Check Connection Restoring Database From Backup  Restore Database Optimization The database is optimized. Start

4.	In the <b>Database</b>	Name field,	enter the name	of a local Event	Log database.
----	------------------------	-------------	----------------	------------------	---------------

🧐 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🗡					
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics				
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Cevent Log Revent Log Revent Log Revent Log Voice Notifications Clients Connection Revent Monitoring User Authorization Radio Groups Radio Groups Radio Groups Revent Metadata	Event Log         Active         Creating Database         Server Name:       localhost\SQLExpress         Database Name:       Radio Server         Create New Database         Authorization Mode:       Windows NT Authorization         Login:       Password:         Password:       Check Connection         Restoring Database From Backup          Restore Database       Optimization         The database is optimized.       Start				

ettings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics	
2	Radio Serve	er				Event Log		
- U.Y.	Licenses Radio Netw	ork Services	8			Active		
þ. 🏹	Add-on Modules		Creating Database					
	Indoor 1					Server Name:	localhost\SQLExpress	
	Phone (	Calls				Database Name:	RadioServer	
	👗 Bridging 🏘 Voice N	otifications					Create New Database	
±	Clients ( Monitori J User Au Profiles Radio Grou	ng thorization				Authorization Mode:	Windows NT Authorization Vindows NT Authorization SQL Server Authorization	
÷	Metadata					Password:		
							Check Connection	
						Restoring Database	From Backup	
							Restore Database	
						Optimization		
						The database is opti	imized.	
							Start	

## 5. From the **Authorization Mode** list, select the needed authorization mode:

**Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.

**SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

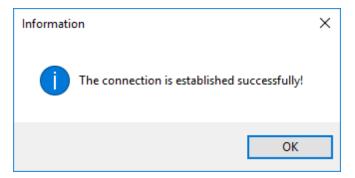
tings Networks Client List Rules Activity Log	Export/Import Settings Statistics
	Event Log
	Active
Tallysman	Creating Database
Indoor Tracking	Server Name: localhost\SQLExpress
🕀 👘 Phone Calls	Database Name: Radio Server
	Create New Database
Clients Connection     Monitoring     Juser Authorization	Authorization Mode: SQL Server Authorization
📲 Profiles 🍇 Radio Groups	Login:
📁 Metadata	Password:
	Check Connection
	Restoring Database From Backup
	Restore Database
	Optimization
	The database is optimized.
	Start

# 6. If **SQL Server Authorization** is selected, enter login and password.

#### 7. Click Check Connection.

🎯 SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Event Log From Event Log Phone Calls Ridging Voice Notifications Clients Connection Monitoring User Authorization Profiles Radio Groups Metadata	Event Log         Active         Creating Database         Server Name:       localhost\SQLExpress         Database Name:       Radio Server         Create New Database         Authorization Mode:       Windows NT Authorization         Login:       Password:         Check Connection
	Restoring Database From Backup            Restore Database         Optimization         The database is optimized.         Start

If the connection is successful, the following message appears.



- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 1.4.3.1 Event Log Settings

The Event Log cleanup settings can be configured in the **Event Log Settings** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules**  $\rightarrow$  **Event Log**  $\rightarrow$  **Settings**).

SmartPTT Server Configuration - C:\Program Files (x	86)\SmartPTT\Server\RadioService.exe.config	_	$\times$
	86)\SmartPTT\Server\RadioService.exe.config         Export/Import Settings         Event Log Settings         Event log cleanup settings         O not clear event log         Records retention period (days)         100		
Service: Running			

In the **Event Log Settings** pane you can select one of the following Event Log cleanup options:

# Do not clear event log

If selected, the Event Log entries will not be deleted. They will be stored for as long as there is available disk space.

# Records retention period (days)

If selected, the Event Log entries will be deleted after the specified period of time. You can specify the desired retention period in the box below.

Available values range from *1* to *9999*. The default retention period is *100* days.

# 1.4.3.2 Event Log Database Automatic Backup

Automatic Event Log database backup helps to prevent data loss in case of the SmartPTT Radioserver hardware or software failure.

The Event Log backup settings can be configured in the **Automatic Database Backup** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules**  $\rightarrow$  **Event Log**  $\rightarrow$  **Automatic Database Backup**).

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	—		$\times$
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics			
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Event Log Automatic Database Backup Automatic Database Backup Autorecording settings Phone Calls Bridging Voice Notifications Clients Connection Monitoring User Authorization Radio Groups Terrifies Radio Groups Metadata	Automatic Database Backup         ✓ Active         Backup folder         ●         ● Daily         ● Daily         ● Daily         ● Weekly         ● Monthly         Time:       9:00         ●         Backup Period         Start date:       27.08.2018         ● No end date			
Service: Running		2	È.	

# The Automatic Database Backup pane provides the following elements:

#### Active

Activates automatic Event Log database backup.

# **Backup Folder**

The folder for storing the generated database backup files. You can select the desired folder by clicking the Browse (

# NOTE

The specified folder can store up to three backup files, after which the oldest one will be replaced with a new one.

The **Backup Settings** area provides controls for configuring the backup settings. The area provides the following elements:

# Daily

Activates regular automatic backup with a specified day interval. When selected, to the right appears the **Interval (days)** box where you can set the desired interval in days.

# Weekly

Activates regular automatic backup with a specified week interval.

When selected, to the right appear controls for selecting the desired days for performing the backup. You can select one or multiple week days by selecting the corresponding check boxes. In the **Interval (weeks)** box you can set the desired backup interval in weeks.

# Monthly

Activates regular automatic backup with a specified month interval.

When selected, to the right appear the **Day of month** and **Interval (month)** boxes where you can set the desired day of the month and interval in months for performing the backup.

# Time

Sets the time for performing the database backup. The default value is *9:00*. The **Backup Period** area provides controls for specifying the period of time that will be covered by the backup. The following parameters are available:

#### Start date

The first day of the backup period starting from which the Event Log database will be backed up.

#### End date

The last day of the backup period starting from which the Event Log database will not be backed up.

#### No end date

If selected, the database will be backed up from the **Start Date** up to the day of the performed backup.

For information on recovery of the Event Log database from automatically generated backup files, see <u>Event Log</u>.

# 1.4.4 Audio Recording Settings

SmartPTT provides the ability to record incoming and outgoing calls in the radio system and save them as audio files to a local folder.

The audio recording settings can be configured in the **Audio Recording Settings** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules**  $\rightarrow$ 

# Audio Recording Settings).

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe	e.config	— (	⊐ ×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics			
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Revert Log Audio recording settings Revert Log Audio recording settings Robin Clients Connection Revert Log Voice Notifications Revert Log Voice Notifications Revert Log Voice Notifications Revert Log Nonitoring User Authorization Redio Groups Redio Groups Revert Log Metadata	Audio recording settings <ul> <li>Record incoming calls</li> <li>Record outgoing calls</li> </ul> Audio records folder <ul> <li>C:\ProgramData\SmartPTT\Rec</li> </ul> Audio file extension       Recording volume of outgoing calls         Audio file extension       Recording volume of outgoing calls         Image: Second secon	cordedCalls\Server		
Service: Running			2 4	

## The Audio recording settings pane provides the following elements:

#### **Record incoming calls**

Activates recording of the voice calls initiated by radios.

#### **Record outgoing calls**

Activates recording of the voice calls initiated by dispatchers.

#### Audio records folder

The folder where the voice call records are stored.

#### Audio file extension

The call recordings extension. The following options are available:

- MP3
- OGG
- WAV

By default, call recordings are saved as .ogg audio files.

#### **Recording volume of outgoing calls**

The sound increase ratio applied to the current sound volume when recording calls initiated by dispatchers.

You can select a value from the range of *1* to *5*. The default value is *1*. If left unchanged, the sound volume of outgoing calls does not change when recorded.

#### Fixed sample rate (8 kHz)

Sets the fixed sample rate of 8 kHz for all recorded voice calls. Such sample rate reduces the size of the saved audio files due to certain audio quality loss.

# The **Audio records cleanup settings** area provides controls for configuring parameters of the voice calls automatic cleanup.

The following options are available:

# Do not delete audio records

If selected, call recordings are not deleted. The audio files are stored for as long as there is available disk space.

# **Records retention period (days)**

If selected, call recordings are automatically deleted after the specified period of time. You can specify the desired retention period in the box below.

Available values range from 1 to 9999. The default retention period is 100 days.

# 1.4.5 NexLog Recording System

NexLog Recording System provides the ability to record and upload data from various communications systems to NexLog recorders.

Starting from version 9.4, SmartPTT provides compatibility with the NexLog Recording System service and can be configured to upload audio records of incoming and outgoing calls to the NexLog server.

## NOTE

Access to the **NexLog Recording System** functionality requires the NexLog license. For details, see <u>Licenses</u>.

Parameters of the SmartPTT Radioserver connection to the NexLog recorder can be configured in the **NexLog Recording System** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules** → **NexLog Recording System**).

#### NOTE

The **NexLog** node is not displayed in the SmartPTT Radioserver Configurator settings tree if the corresponding license is not installed.

# The **NexLog Recording System** pane provides the following elements:

#### Active

Activates uploading records of the incoming and outgoing voice calls from the radio system to the NexLog recorder.

# NexLog Recorder IP address

IP address of the NexLog recorder used by SmartPTT Radioserver for connection.

## **RTP ports**

The UDP ports of the NexLog call recorder used by SmartPTT Radioserver for data transmit. The default range is from *13000* to *13200*. It is strongly recommended that you leave the default values unchanged.

# Codec (outgoing)

The codec used for processing the call recordings audio. You can select one of the following audio codecs:

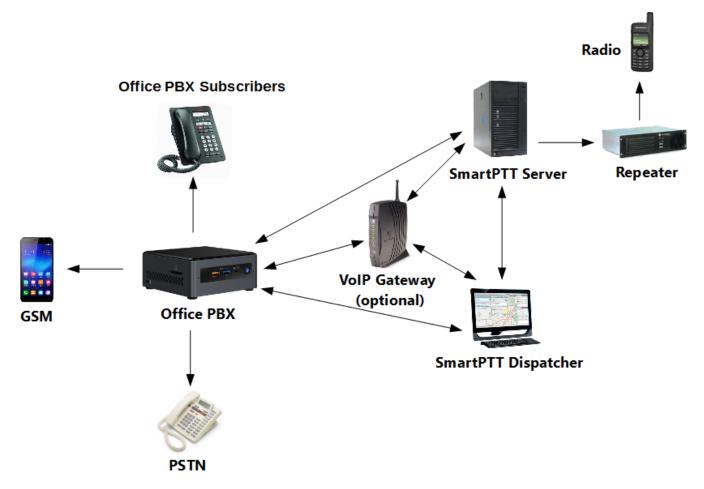
- · G.711 u-Law
- · G.711 a-Law

By default, the G.711 u-Law codec is selected.

# 1.4.6 Phone Calls

SmartPTT provides the ability to connect radios, talkgroups, and dispatchers with telephone subscribers using the Telephone Interconnect feature.

The following scheme shows the Telephone Interconnect connection principles in SmartPTT radio systems:



A VoIP gateway is a device bridging conventional telephone networks and equipment to VoIP telephone networks. Connection between SmartPTT Radioserver and the PBX may be established with or without the VoIP gateway.

A Private Branch eXchange (PBX) is a telephone exchange normally used in offices.

The Public Switched Telephone Network (PSTN) is the wired phone system over which landline telephone calls are made using circuit switching.

SmartPTT Radioserver Configurator provides controls for configuring general radio system settings required for establishing connection between radios and telephone subscribers.

The telephone calls settings are available in the **Telephone Calls** pane in SmartPTT Radioserver Configurator (**Add-on Modules**  $\rightarrow$  **Phone Calls**).

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	- 0	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server	Telephone Calls		
🖶 🚀 Radio Network Services	Access code		
	Deaccess code		
	Radio ring timeout (s)	20	
Phone Calls	Phone ring timeout (s)	20	
⊞	Phone call idle session timeout (s)	30	
Clients Connection     Monitoring	Conference call idle session timeout (s)	900	
. User Authorization	Calls to be confirmed by radio		
	Private calls		
	Group calls		
	Notifications on radios		
	<ul> <li>Incoming phone call tone</li> <li>Pick up tone</li> </ul>		
	Hang up tone		
	Error messages		
	Sound Volume Settings		
	Phone subscriber	1 ~	
	Radio	1 ~	
Service: Running			-

### The **Telephone Calls** pane provides the following elements:

### Access Code

The DTMF code dialed on the radio to initiate the phone call on SmartPTT Radioserver. For details, see "Access Code" in *MOTOTRBO CPS Online Help*.

### **Deaccess Code**

The DTMF code dialed on the radio to finish the phone call on SmartPTT Radioserver. For details, see "Deaccess Code" in *MOTOTRBO CPS Online Help*.

### Radio ring timeout (s)

The time period during which the radioserver waits for the radio user to press the PTT button on the called radio. The default value is *20 s*.

### Phone ring timeout (s)

The time period during which the radioserver waits for the telephone subscriber to answer the call. The default value is *20 s*.

### Phone call idle session timeout (s)

The time period after the last PTT button press on the radio in a private call after which the call will be automatically finished. The maximum timeout value is *600 s*. The default value is *20 s*.

#### NOTE

The **Phone call idle session timeout** value must not exceed the **TX Time-Out Timer** value that is set on the **Networks** tab in *SmartPTT Radioserver Configurator* and in the repeater settings.

### Conference call idle session timeout (s)

The time period after the last PTT button press on the radio in a conference call after which the call on that radio will be automatically finished. The maximum timeout value is *3600 s*. The default value is *900 s*.

The **Calls to be confirmed by radio** area provides the ability to set the dial tone playback for telephone subscribers until the called radio user presses the PTT button. This option is available for the following call types:

- Private Call
- Group Call
- All Call

If the check box is selected, the call starts only after the PTT button press on the called radio. Until then, telephone subscribers will hear the dial tone playing. If the check box is clear, the call starts immediately after its processing on the server.

### NOTE

If you select the **All Call** check box, ensure that the value in the **Contact Name** box in the radio channel settings is *All Call*. Otherwise, the call will be dropped when the radio user presses the PTT button on the radio. For details, see *MOTOTRBO CPS Online Help*.

The **Notifications on radios** area provides the ability to set notifications for radio users informing them of major events during the call with a tone or a message. You can activate notifications by selecting the desired check box. The following options are available:

### Incoming phone call tone

Indicates that the called telephone subscriber's line is open and the call was received by the addressee.

### Pick up tone

Indicates that the telephone subscriber answered the call.

### Hang up tone

Indicates that the telephone subscriber finished the call.

### Error messages

Indicates that an error occurred while the server was trying to establish connection to the telephone subscriber (for example, the telephone subscriber was not available).

The **Sound Volume Settings** area provides controls for setting the call sound volume for phone subscribers and radios. The sound volume values range from 0,1 to 10. You can select the desired value from the expandable list to the right of the corresponding parameter. The default value is *1*. The following controls are available:

### Phone subscriber

The sound volume during incoming and outgoing calls on connected telephones.

### Radio

The sound volume during incoming and outgoing calls on radios.

For information on the Telephone Interconnect settings, see <u>Telephone Interconnect Settings</u>.

For information on recommended Telephone Interconnect settings, see <u>Configuring Telephone</u> <u>Interconnect Settings</u>.

For information on recommended Conference Calls settings, see <u>Configuring Conference Calls</u> <u>Settings</u>.

# 1.4.6.1 Telephone Interconnect

The Telephone Interconnect feature provides the ability to connect radios, talkgroups, and dispatchers with telephone subscribers using a connected PBX.

Connection to telephone subscribers is established over the SIP protocol. Voice transmission is performed over the RTP protocol.

Voice is transmitted in half-duplex mode. The call direction (transmitting or receiving) is determined by the radio. When the radio user presses the PTT button, voice transmission starts. When the PTT button is not pressed, the radio switches to the receiving mode. Telephone subscribers cannot control the call direction.

SmartPTT Radioserver provides the following connection options:

- A telephone subscriber initiates a private call.
- A telephone subscriber initiates a group call.
- A radio initiates a call to a telephone subscriber.
- Dispatcher connects a radio or a talkgroup with a telephone subscriber.

For correct functioning of the Telephone Interconnect functionality, you need to configure the radioserver settings and ensure their compliance with the relevant PBX settings.

### IMPORTANT

The Telephone Interconnect feature requires installing the Telephone Interconnect license. For details, see <u>Licenses</u>.

The Telephone Interconnect feature settings are available in the **Telephone Interconnect** pane in SmartPTT Radioserver Configurator (**Add-on Modules**  $\rightarrow$  **Phone Calls**  $\rightarrow$  **Telephone Interconnect**).

The **Telephone Interconnect** pane provides controls for configuring the settings required for establishing direct connection between radios and telephone subscribers using a PBX.

🎯 SmartPTT Server Configuration - C:\Program File	es (x86)\SmartPTT\Server\RadioService.exe.config —	$\times$
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server Licenses Add-on Modules Add-on Modules Indoor Tracking Addio recording settings Audio recording settings Audio recording settings Addio recording settings	Telephone Interconnect       ✓         ✓ Active       Radioserver Settings         Interface       Auto         SIP port       5060         RTP ports       18650         Transport       UDP	~
Clients Connection     Monitoring     User Authorization     Profiles     Radio Groups     Metadata	Audio Codecs         Active       Name       Priority         Image: G711A       1         Image: G711U       2         Image: G711U       2         Image: G729       4	
	Permissions for radio groups:         Active         Group Name       Incoming Calls       Outgoing Calls	~
Service: Running		-8

The **Telephone Interconnect** pane consists of the following areas:

- Radioserver Settings
- Audio Codecs
- Permissions for radio groups

The **Active** check box at the top of the pane activates the Telephone Interconnect feature. It provides access to the PBX, which makes direct connection between radios and telephone subscribers possible.

If the check box is not selected, connection can be established only using the Conference Calls feature. For details, see "Conference Calls" and "Configuring Conference Calls Settings" in *SmartPTT Dispatcher User Guide*.

The **Radioserver Settings** area provides the following controls for configuring the SmartPTT Radioserver parameters required for the PBX connection:

### Interface

The IP address of the computer where SmartPTT Radioserver is installed. It is used for voice and SIP commands transmit to and from the connected PBX. The list contains both physical and virtual network interfaces.

By default, the *Auto* option is selected. In this case, SmartPTT Radioserver will use all available physical interfaces. It is recommended that you select the desired interface manually.

### SIP port

Number of the UDP or TCP port used for receiving and sending SIP data packets during the SIP session initiation and termination. The port specified in this box must be available for incoming and outgoing traffic. The default value is *5060*.

### **RTP ports**

UDP ports used for receiving and sending voice to telephone subscribers. Each connection to a telephone subscriber occupies two ports. Even port numbers are used by the RTP protocol. Uneven port numbers are used by the RTCP protocol. The ports you specify must be available both for incoming and outgoing traffic. The default range is from *18650* to *18950*.

### IMPORTANT

In SmartPTT, the Network Address Translation (NAT) mechanism is not supported. The specified IP address and ports must be real.

### NOTE

If SmartPTT Dispatcher and SmartPTT Radioserver are installed on the same computer, they must be assigned different RTP ports. For example, port 5060 for SmartPTT Radioserver and port 5061 for SmartPTT Dispatcher.

### Transport

The protocol (TCP or UDP) used for SIP commands transmit.

The **Audio Codecs** area contains a table where you can specify which audio codecs must be used for voice data processing and their priority.

Currently, SmartPTT provides support for the following audio codecs:

- G711A
- G711Q
- SPEEX
- G729

### NOTE

The G729 codec reduces audio quality due to a higher data compression ratio, which makes it suitable for low-capacity systems.

The Audio Codecs table consists of the following columns:

The Active column contains the check box indicating the codec activation status.
 By selecting or clearing the check box, you can activate or deactivate the codec. Inactive codecs will not be used for the incoming audio processing.

### IMPORTANT

If the codecs supported by the connected PBX are deactivated on SmartPTT Radioserver, voice data will not be transmitted.

- The **Name** column contains the audio codec name.
- The Priority column contains the number indicating the codec current priority level. Audio codecs with higher priority will be used for audio processing in the first place.
   The priority levels range from 1 to 4, from highest to lowest respectively. You can set the desired priority using the Raise priority ( 1 and Lower priority ( 1 buttons located to the right of the table.

When the radioserver connects to a PBX, it uses the codec priorities specified in the PBX settings. Some PBXs ignore the priorities specified in the radioserver settings.

The **Permissions for radio groups** area contains a table where you can configure access to the Telephone Interconnect functionality for radio groups.

For information on managing radio groups on SmartPTT Radioserver, see <u>Radio Groups</u>.

### Active

Activates the permission settings specified in the table.

### IMPORTANT

If the **Active** check box is selected but the table is empty, communication between radios and telephone subscribers will be impossible.

The table contains all radio groups configured on SmartPTT Radioserver and consists of the following columns:

- The **Group Name** column contains the name of the radio group.
- The **Incoming Calls** column contains information on the incoming calls permission status for the radio group. By selecting or clearing the check box, you can permit or deny the ability to receive calls from telephone subscribers.
- The **Outgoing Calls** column contains information on the permission status of outgoing calls. By selecting or clearing the check box, you can permit or deny the ability to initiate calls to telephone subscribers.

For information on the incoming calls settings, see <u>Incoming Calls Settings</u>.

For information on outgoing calls settings, see <u>Outgoing Calls Settings</u>.

For information on general Phone Calls settings, see <u>Phone Calls</u>.

For information on recommended Telephone Interconnect settings, see <u>Configuring Telephone</u> <u>Interconnect Settings</u>.

## 1.4.6.1.1 Incoming Calls Settings

The **Incoming Calls** pane provides controls for configuring the incoming calls settings.

Settings Networks Client List Rules Activity Log Export/Import Settings Statistics   Radio Server Licenses Radio Network Services Incoming Calls Private call mask   Radio Network Services Add-on Modules Indoor Tracking Incoming Calls Authentication   Indoor Tracking Feelphone Interconnect Incoming Calls   Phone Calls Incoming Calls Realm   SmartPTT	Radio Server   Licenses   Addo Nodules   Indoor Tracking   Indoor Tracking   Indoor Tracking   Indoor Tracking   Incoming Calls   Incoming Ca
Radio Network Services   Add-on Modules   Tallysman   Indoor Tracking   Indoor Tracking   Audio recording settings   Audio recording settings   Incoming Calls   Incoming Calls	Licenses   Radio Network Services   Addon Modules   Tallysman   Indoor Tracking   Audio recording settings   Phone Calls   Incoming Calls   I
Voice Notifications Clients Connection Monitoring User Authorization Voice Menu Settings Voice Menu Settings Voice Menu Settings Voice Menu Settings Voice Menu Settings Voice Menu Settings Voice Menu File Voice Menu File 	

In SmartPTT, incoming calls are calls from telephone subscribers to radios. The following types of calls can be initiated by telephone subscribers:

- Private call (to a specific radio, requires the radio ID for initiation)
- Group call (to radios in a talkgroup, requires the group ID for initiation)

SmartPTT Radioserver supports the use of masks, regular expressions providing information on whether the incoming call is a private call or a group call. You can specify the masks values in the corresponding boxes:

### Private call mask

Regular expression indicating a private incoming call. It is recommended that the box is left empty.

### Group call mask

Regular expression indicating a group incoming call. The recommended value is *0*.

### NOTE

If both boxes are left empty, all incoming calls from telephone subscribers are treated as private.

The following table contains information on the symbols used in masks:

Symbol	Description
•	Wild card symbol that can match any single character.
[m-n]	Matches any character within the range from m to n.
[a,b,c] or [abc]	Matches any character specified in the brackets.
Т	Matches any number of characters. Normally is used to represent the addressee's number.
(.)	Unites several regular expressions into one.
{}	Inserts everything inside the curly brackets into the number.
Ν	Matches the radio network ID. When there is only one network, the recommended value is <i>0</i> . The parameter is relevant only for the <b>Group call mask</b> box.

Symbol	Description
S	Depending on the network, the <b>S</b> symbol can represent the following parameters:
	• In IP Site Connect networks, it represents the slot number. Possible values are <i>1</i> and <i>2</i> .
	• In Capacity Plus networks, the parameter is not relevant. The only possible value is <i>0</i> .
	• In Linked Capacity Plus networks, it represents a local group specifying the LCP site number. It can take any value.
	If <b>S</b> is represented by <i>0</i> , the call is treated as a wide group call.
	<b>NOTE</b> The parameter is relevant only for the <b>Group call mask</b> box.

### Example

If the **Private Call Mask** value is is *31* or *31T* and the **Group Call Mask** values is *32NSST*, the dialed numbers will mean the following:

- **31403 (31 403)** a private call to a radio with ID = 403.
- **3200013 (32 0 00 13)** a wide group call to a talkgroup with ID = 13. In this case, ID 13 must be either unique for the radioserver or belong to the only network connected to the radioserver.
- **3210013 (32 1 00 13)** a wide group call to a talkgroup with ID = 13 belonging to a network with ID = 1.
- **32112123 (32 1 12 123)** a local group call to a talkgroup with ID = *123* on site 12 belonging to a network network with ID = *1*.

The **Incoming Calls Authentication** area contains controls for configuring authentication parameters for incoming calls:

### Enabled

Activates the incoming calls authentication. If the check box is not selected, the radioserver connects telephone subscribers with radios immediately after processing the call.

### Realm

The parameter used for the incoming telephone calls authentication.

When the radioserver receives a call from a telephone subscriber, it requires the username and password valid for the specified realm. If the caller replies with valid credentials, the radioserver connects the telephone subscriber with the called radio or talkgroup.

If the parameter is not specified, any valid username and password will be accepted.

### Username

The username required for authentication. Must be valid for the specified realm.

### Password

The password required for authentication. Must be valid for the specified realm.

The **Voice Menu Settings** area contains controls for configuring the interactive voice response (IVR) feature that provides telephone subscribers with the ability to interact with radios through the use of voice navigation and DTMF tones. Using this feature, telephone subscribers can reach the desired radio or talkgroup using the information recorded in the voice menu file.

### Enabled

Activates the voice menu playback on incoming calls.

### Radioserver call number

The number using which telephone subscribers can call the radioserver.

### Voice Menu File

The audio file that will be played to the telephone subscriber when they call the radioserver. The required audio file sampling frequency is 8000 Hz.

You can select the desired audio file by clicking the Browse ( 🗔 ) button.

### NOTE

In SmartPTT, the IVR feature provides the ability to route telephone calls from the radioserver to a radio or talkgroup by dialing the desired radio object ID. It does not present a caller with a list of menu options and questions about the nature of the call. For this reason, it is recommended that you select a voice menu file with a recorded message that prompts the telephone subscriber to dial the desired radio or talkgroup ID.

### **Dial Extension Timeout**

The period in seconds during which the caller can dial the radio or talkgroup ID after the voice menu audio file playback. If the caller does not dial the ID before the specified timeout expires, the call is dropped.

## 1.4.6.1.2 Outgoing Calls Settings

The **Outgoing Calls** pane provides controls for configuring the outgoing calls settings.

Settings       Networks       Client List       Rules       Activity       Log       Export/Import Settings       Statistics         Image: Conserver Licenses       Conserver Licenses       Conserver Licenses       Outgoing Calls       Default Gateway Settings         Image: Conserver Licenses       Tailyaman       Image: Conserver Licenses       Add-on Modules       Image: Conserver Licenses         Image: Conserver Licenses       Tailyaman       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses         Image: Conserver Licenses       Tailyaman       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses         Image: Conserver Licenses       Addor coording settings       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses         Image: Conserver Licenses       Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses         Image: Conserver Licenses       Conserver Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses         Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses       Image: Conserver Licenses         Image: Conserver Licenses       Image: Conserver Licenses       Image: Con	Image: SmartPTT Server Configuration - C:∖	Program Files (	x86)\SmartPTT\Server	\RadioService	e.exe.config	—		$\times$
Ucenses   Radio Network Services   Addo recording settings   Indoor Tracking   Prone Calls   Phone Calls   Monitoring   Metadata     Caller name for private calls   Radio '%   Caller name for group calls   Group %	Settings Networks Client List Rules A	Activity Log	Export/Import Settings	Statistics				
<ul> <li>Addo Nexturb Services</li> <li>Addor Nodules</li> <li>Talyman</li> <li>Indoor Tracking</li> <li>Audio recording settings</li> <li>Audio recording settingsetting settings</li> <li>Audio recording settin</li></ul>								
Example: Radio %         Caller name for private calls         Radio %         Example: Group %         Caller name for group calls         Group %         Talk permit tone for phone subscriber	Licenses Radio Network Services Add-on Modules Add-on Modules Add-on Tracking Licenses Add-on Modules Add-on Modules Add-on Tracking Event Log Audio recording settings Audio recording settings Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Cutgoing Calls Audio recording settings Profiles Radio Groups		Default Gateway Se Allow calls to IP address SIP port Source mask Destination mask Dialing Rules TMS prefix Outgoing Calls Auth Enabled Realm Usemame	default VoIP ga				
Image: Service: Running			Caller name for grou	up calls	Radio % Example: Group % Group %		4	-9

The **Default Gateway Settings** area contains controls for configuring default parameters applied to the calls initiated by radios.

### IMPORTANT

If default gateway setting are not specified, SmartPTT Radioserver will not be able to connect to the called telephone subscribers.

### Allow Calls to Default VoIP gateway

Activates default parameters that are used when radios initiate calls to telephone subscribers.

### **IP address**

IP address of the PBX used for connecting radios with telephone subscribers.

### SIP port

Number of the UDP or TCP port on the PBX used for receiving and sending SIP data packets. The specified port must be available for incoming and outgoing SIP packets transmission. The default value is *5060*.

### Source mask

The prefix automatically added to the ID of the calling radio or talkgroup that must be used by the telephone subscriber for calling back. The **Source mask** parameter must match the corresponding prefix specified in the radioserver SIP trunk settings on the PBX. If the source mask is not specified, the called subscriber will only see the calling radio or talkgroup ID. To call back, the prefix must be dialed manually.

### Destination mask

The prefix automatically added to the telephone subscriber's number that must be used for correct call addressing. The **Destination mask** parameter must match the corresponding prefix specified in the radioserver SIP trunk settings on the PBX.

If the destination mask is not specified in the PBX settings, radio users need to dial the prefix before the number of the called telephone subscriber manually.

## TMS prefix

The prefix using which radio users can call telephone subscribers by sending a text message. The text message must contain the prefix at the beginning and the desired telephone subscriber's number after it.

### NOTE

In radio systems that use control stations for outgoing voice transmissions. radio users can initiate calls using DTMF codes. This functionality is unavailable in the radio systems that do not use control stations.

The **Outgoing Calls Authentication** area provides the following controls for configuring authentication parameters for outgoing calls:

### Enabled

Activates the outgoing calls authentication settings.

If the check box is selected, the specified parameters are used for replying to the PBX authentication requests.

If the check box is not selected and authentication on the connected PBX is not configured, the radioserver connects radios with telephone subscribers immediately after processing the call. If the check box is not selected and authentication on the connected PBX is configured, the call will be denied by the PBX.

### Realm

The parameter used for the outgoing telephone calls authentication.

When a radio user calls a telephone subscriber, SmartPTT Radioserver must reply to the PBX authentication requests with the username and password valid for the specified realm. If the parameter is not specified, SmartPTT Radioserver replies with the specified username and password to all authentication requests from the PBX.

### Username

The username required for authentication. Must be valid for the specified realm.

### Password

The password required for authentication. Must be valid for the specified realm.

### Caller name for private calls

The name that appears on the telephone subscriber's device screen on receiving a call from the radio.

The percent symbol (%) will be automatically replaced by the radio number.

### Caller name for group calls

The name that appears on the telephone subscriber's device screen on receiving a call from the talkgroup.

The percent symbol (%) will be automatically replaced by the talkgroup number.

### Talk permit tone for phone subscriber

Activates the playback of a special tone to the called telephone subscriber indicating that they can start speaking.

# 1.4.6.2 Telephone Interconnect Configuration

To ensure correct functioning of the Telephone Interconnect feature, you need to configure minimum required settings that provide access to its main functionality.

For information on configuration of basic required Telephone Interconnect settings, see <u>Configuring Telephone Interconnect Settings</u>.

For information on configuration of the Conference Calls functionality, see <u>Configuring</u> <u>Conference Calls Settings</u>.

## 1.4.6.2.1 Configuring Telephone Interconnect Settings

Follow the procedure to configure minimum required Telephone Interconnect feature settings in SmartPTT Radioserver Configurator.

## **Prerequisites:**

- Ensure that you have the Telephone Interconnect license. For details, see <u>Licenses</u>.
- Ensure that the Telephone Interconnect functionality is activated in the slot settings of the desired radio system. For details, see <u>Configuring Local Slots</u> for NAI radio systems and <u>Configuring MNIS VRC Gateway</u> for Capacity Max.
- Obtain the access and deaccess codes configured in the radio settings. For details, see "Access Code" and "Deaccess Code" in *MOTOTRBO CPS Online Help*.

## **Procedure:**

- In the SmartPTT Radioserver Configuration window, on the Settings tab, expand the Add-on Modules node, and then click Phone Calls. The Telephone Calls pane appears in the right part of the window.
- 2. In the **Access code** and **Deaccess code** boxes, specify the codes configured on the connected radios.
- 3. Expand the **Phone Calls** node, and then click **Telephone Interconnect**. The **Telephone Interconnect** pane appears in the right part of the window.
- 4. In the **Telephone Interconnect** pane, select the **Active** check box.

- 5. In the **Telephone Interconnect** pane, in the **Radioserver Settings** area, in the **Interface** box, select the server IP address that will be used for connection to telephone subscribers.
- 6. Expand the **Telephone Interconnect** node, and then click **Incoming Calls**. The **Incoming Calls** pane appears in the right part of the window.
- 7. In the **Incoming Calls** pane, type *0* in the **Group call mask** box.
- 8. Expand the **Telephone Interconnect** node, and then click **Outgoing Calls**. The **Outgoing Calls** pane appears in the right part of the window.
- 9. In the **Outgoing Calls** pane, in the **Default Gateway Settings** area, perform the following actions:
  - a. Select the **Allow calls to default VoIP gateway** check box.
  - b. In the **IP address** box, specify the connected PBX IP address that will be used for connection to telephone subscribers.
  - c. *Optional:* In the **Source mask** box, specify the prefix used as the source mask.
  - d. *Optional:* In the **Destination Mask** box, specify the prefix used as the destination mask.
- Optional: If outgoing calls authentication is configured on the connected PBX, in the Outgoing Calls pane, in the Outgoing Calls Authentication area, perform the following actions:
  - a. Select the **Enabled** check box.
  - b. In the **Realm**, **User Name** and **Password** boxes, specify the credentials required for the PBX authentication.
- 9. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 10. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

# 1.4.6.2.2 Configuring Conference Calls Settings

Follow the procedure to to configure minimum required Conference Calls settings on SmartPTT Radioserver.

## Prerequisites:

Obtain the access and deaccess codes configured in the radio settings. For details, see "Access Code" and "Deaccess Code" in *MOTOTRBO CPS Online Help*.

## Procedure:

- In the SmartPTT Radioserver Configurator window, on the Networks tab, expand the desired radio system node and click the name of the desired slot. The selected slot settings appear in the right part of the window.
- 2. In the slot settings, select the **Allow Telephone Interconnect** check box.
- In the SmartPTT Radioserver Configurator window, on the Settings tab, expand Add-on Modules → Phone Calls. The Telephone Calls pane appears in the right part of the window.
- 4. In the **Access code** and **Deaccess code** boxes, specify the codes configured on the connected radios.
- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

## **Postrequisites:**

For information on configuring conference calls settings in SmartPTT Dispatcher, see "Configuring Conference Calls Settings" in *SmartPTT Dispatcher User Guide*.

# 1.4.7 Bridging

In SmartPTT you can use bridging service to interconnect multiple networks. The bridging service is implemented by SmartPTT Radioserver and provides intelligent means of routing voice calls among multiple networks.

## IMPORTANT

To activate the bridging service, install the corresponding license. For information on installing licenses, see <u>Licenses</u>.

You can activate the bridging service by clicking the **Bridging** node in the **Add-on Modules** of the **Settings** tab.

Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics		
	Radio Serve	F				Bridging			
	Event Li	ules an racking og Calls otifications Connection ng thorization	1			Active			

## NOTE

After activating the bridging service, you need to restart SmartPTT Radioserver.

For information on configuring and adding multigroups, see the sections below.

# 1.4.7.1 Multigroups

When you activate the bridging service, you can configure multigroups for routing group calls to other channels or radio systems. Routing of group calls can be global or limited to predefined channels.

Configuration of multigroups does not require any bridging settings in SmartPTT Dispatcher. For information on adding multigroups, see <u>Adding Multigroups</u>.

### You can open the **Multigroups** pane by clicking **Multigroups** in the **Bridging** node.

SmartPTT Server Configuration - C:\Program F		-	-	×
Settings Networks Client List Rules Activity Ne	twork Configuration Log Export/	Import Settings Statistics		
Radio Server	MultiGroups			
	Add Remo	ve	Apply	
Tallysman	MultiGroup Name	Talk Group		
Indoor Tracking	New MultiGroup 1	1		
🖶 📲 Event Log				
🖶 🚛 Phone Calls				
🖃 🗸 Bridging				
i≘				
Voice Notifications				
Hand Clerks Connection				
User Authorization				
🗄 👘 Metadata				

The **Multigroups** pane provides the following elements:

#### Add

Adds a new multigroup. The added multigroup appears in the table, and under the **Multigroups** node.

#### Remove

Removes the selected multigroup from the table. It also removes the multigroup from the **Multigroups** node.

### Apply

Activates the multigroup without restarting SmartPTT Radioserver.

### **Multigroup Table**

Contains all added multigroups.

The table provides the following elements:

- The **Multigroup Name** column contains a multigroup name where you can rename it.
- The **Talkgroup** column contains the talkgroup ID where you can change it.

### **Multigroup Pane**

All added multigroups appear under the **Multigroups** node. By clicking the multigroup name,

### you can open the **Multigroup** pane.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\Radi	oService.exe.config	_	×
Settings Networks Client List Rules Activity Network	k Configuration Log Expo	rt/Import Settings Statistics		
Radio Server	MultiGroup			
Radio Network Services	Name	New MultiGroup 1		
Tallysman	Talkgroup ID	1		
Indoor Tracking 	Radio IDs	Example: 1,5,10-20		
ia Bridging ia				
Wew MultiGroup 1	O Use all channels			
Clients Connection     Grad Monitoring	Use selected channels	1		
User Authorization	Expand All	Collapse All		
	Radioserver			

The **Multigroup** pane provides the following elements:

### Name

A multigroup name. You can leave the default name, or type the desired name.

### Talkgroup ID

A talkgroup ID. Group calls to this ID will be routed from any radios in the dispatch system.

### Radio IDs

Contains a list of radios which should be registered on the selected channels to route the group calls.

### Use all channels

Routes group calls within all channels of radio systems dispatched by SmartPTT. The group call will be routed to the talkgroups on all channels that include at least one radio ID set in the multigroup.

### **Use selected channels**

Routes group calls to the selected channels of radio systems dispatched by SmartPTT. The group call will be routed to the talkgroups only on the selected channels that include at least one radio ID set in the multigroup.

### Expand All / Collapse All

The buttons are active when **Use selected channels** is selected. Buttons expand or collapse tree of elements in the area located below.

# 1.4.7.2 Adding Multigroups

Follow the procedure to add a new multigroup.

### **Prerequisites:**

Ensure the bridging service is active, and SmartPTT Radioserver is restated. For details, see <u>Bridging</u>.

### **Procedure:**

- In the left pane of the Settings tab, expand the Add-on Modules → Bridging node, and click Multigroups.
- In the Multigroups pane, click Add.
   A new multigroup appears in the multigroups table; the multigroup appears under the Multigroups node.
- In the left pane, click the multigroup name.
   The Multigroup pane appears.
- 4. *Optional:* In the **Name** box, type the name of the multigroup.
- 5. In the **Talkgroup ID** box, type the ID of the talkgroup.
- 6. In the **Radio IDs** box, type the radio IDs.
- 7. Select the way of routing calls:
  - Select **Use all channels** to route group calls within all channels of all SmartPTT radio systems.
  - Select **Use selected channels** to route group calls to the selected channels, and select the desired channels in the area below.
- 8. In the **Multigroups** pane, click **Apply** to activate the multigroup.

### NOTE

When you add or change a multigroup, it is not necessary to restart the radioserver.

9. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.

### **Postrequisites:**

To remove the multigroup, in the **Multigroups** pane, select the desired group, and click **Remove**.

# 1.4.8 Voice Notifications

In SmartPTT the Voice Notifications feature provides the ability to play preconfigured audio files for selected talkgroups and inform them of emergencies or deliver other important information. You can use preconfigured audio files for voice notifications.

You can add and configure voice notifications in SmartPTT Radioserver Configurator. Their playback is performed in SmartPTT Dispatcher.

For information on playing voice notifications, see "Voice Notifications" in Dispatcher User Guide.

For information on adding and configuring voice notifications, see the sections below.

# 1.4.8.1 Voice Notification Settings

The **Voice Notification Settings** pane appears when you add a new voice notification.

🎯 Smart	PTT Serve	er Configur	ation - (	C:\Progra	m Files	(x86)\SmartPTT\Se	ver\Rad	dioServio	ce.exe.config	—	×
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Setti	gs Stat	tistics			
	dd-on Mod Tallysma Indoor T Event L Audio re Phone C Bridging	ork Services ules an racking og cording sett Calls otifications fication 1 Connection ng thorization					n 1 All	)	C:\Program Files (x86)\ 100 20 Collapse All	SmartPTT∖	

### The **Voice Notification Settings** pane provides the following elements:

### Name

Name of the voice notification displayed in SmartPTT Dispatcher.

### Sound File

Audio file that will be played as the voice notification.

The audio file must meet the following requirements:

Parameter	Value
Encoding Algorithm	16-bit PCM
Sample Rate	8–48 kHz for MP3 8–48 kHz for WAV 8–192 kHz for OGG
Number of Audio Channels	Single channel (mono audio)
Maximum Volume	-22dBFS (-10 dBm)
File Format	WAV MP3 OGG
Audio Frequency Range	200-3400Hz
Audio Length	1–60 seconds The recommended audio file length is <i>10 s</i>

### **Play Count**

Number of the voice notification playbacks. You can select a value from the range from 1 to 9999.

### Play Interval, s

Time interval between the voice notification playbacks. The default value is 20 s.

### Channels

Contains the tree of control station channels and talkgroups for which you can add voice notifications. You can configure the voice notification playback for a channel or a talkgroup.

### NOTE

Voice notification playback is treated as an outgoing call by the SmartPTT Radioserver. The channel becomes unavailable for other transmissions until the playback is over.

For this reason, you can select either the All Call, or the Group Call playback option for each of the channels.

### Expand All / Collapse All

Expands or collapses the tree of objects (channels and talkgroups) in the box located below the buttons.

## 1.4.8.2 Adding Voice Notifications

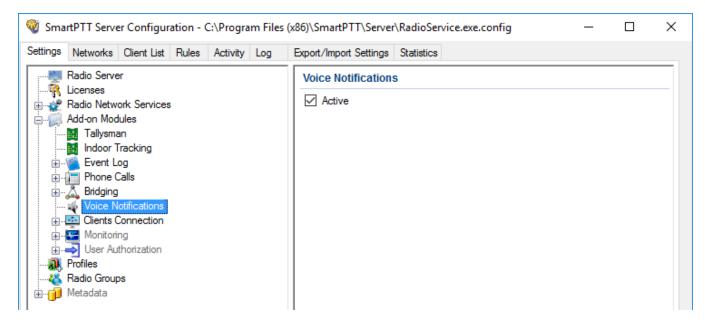
Follow the procedure to add a voice notification.

### **Prerequisites:**

Ensure that the desired audio file meets the requirements. For details, see <u>Voice Notification Settings</u>.

### **Procedure:**

1. In the left pane of the Settings tab, expand Add-on Modules  $\rightarrow$  Voice Notifications. The Voice Notifications pane appears.



- 2. If not selected, select the **Active** check box.
- In the left pane, right-click the Voice Notification node, and then click Add.
   A new node appears appears in the tree. The settings of the added voice notification are displayed in the right pane.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	ım Files	(x86)\SmartPTT\Se	rver\R	adioServi	ice.exe.config	_		×	
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Setti	ngs Si	tatistics					
1 2 2	Radio Serve	er				Voice Notifica	ion Se	ttings					
🗄 🚅		ork Services	3			Name Notification	n 1						
	Add-on Mod					Settings							
	Tallysma					Sound File			C:\Program Files (x8	6)\SmartPTT\			
<b>.</b>		og ecording sett	ings			Play Count			100				
±	Find Phone (					Play Interval,	•		20				
		lotifications				Channels							
	Not 🔄 🛄					Expand	All	(	Collapse All				
1 1 7	Monitori	-				⊡. Slot 1							
	➡ User Au Profiles	thorization					ot I ∐Group	.1					
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Radio Group	os					]Group						
÷.,	Metadata												

- 4. In the **Voice Notification Settings** pane, in the **Name** box, type the voice notification name.
- To the right of the **Sound File** box, click the Browse ( ) button, and in the window that appears, select the desired file.
   The path to the selected file appears in the **Sound File** box.

The path to the selected me appears in the **Sound File** box.

- 6. In the **Play Count** box, type the desired number of the voice notification playbacks.
- 7. In the **Play Interval** box, type the desired interval between the voice notification playbacks.
- 8. In the **Channels** area, click **Expand All** to expand all nodes in the box below, or click the Expand button ( **•** ) to expand the node containing the desired radio object.
- 9. Select the check boxes next to the desired channel or talkgroup.

- 10. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Sav**
- 11. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **Postrequisites:**

- To edit the added voice notification, open the **Voice Notification Settings** pane, and then change the desired parameter.
- To delete the added voice notification, right-click the notification name, and then click **Delete**.

# 1.4.9 Clients Connection

SmartPTT provides the dedicated interface for supplemental applications. The interface is used by SmartPTT Web Clients, third-party applications (those that use Server API), and SmartPTT SCADA.

### WARNING

Interface redundancy is **not** an ordinary SmartPTT functionality. Applications should be connected to the primary SmartPTT Radioserver only.

The interface settings are available in the right pane of the SmartPTT Radioserver Configurator (the **Clients Connection** pane) when users select the corresponding subnode under the **Add-on Modules** node on the **Settings** tab.

Image: Structure Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config       −       □       ×									×				
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Set	tings	Statistics					
Radio Server				Clients Connection									
					WebSocket Server								
Add-on Modules				Interface	Any	r	~	Port	8191	-			
		Tracking											
Event Log     Hone Calls					Codec			BroadVoice			$\sim$		
	🛴 Bridging	3											
	Voice N	lotifications Connection											
	Monitor	-											
· · · · · · · · · · · · · · · · · · ·	JUser Au Profiles	Ithonzation											
	Radio Grou	ps											
<b>.]</b>	Metadata												

The following settings are available in the **Clients Connection** pane:

### Interface

The parameter sets the IP address to which applications must send IP packets. The list shows IP addresses for all network interfaces detected on the computer. It also includes the *Any* option (accepts IP packets from any of the detected IP address) and the *Loopback* option (accepts IP packets from the localhost only).

### Port

The parameter sets the target port number to which applications must send the IP packets. The port ranges are the following: minimum value is *0*, maximum value is *65535*, increment is *1*, default value is *8191*.

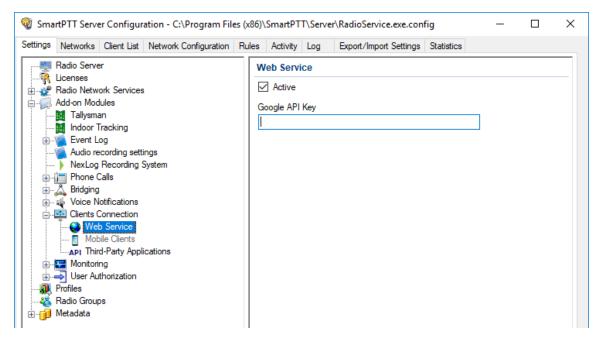
### Codec

The parameter sets the algorithm used to decode and encode the audio when SmartPTT Radioserver communicates with applications. The list provides the *BroadVoice*, *G.711 A-Law*, and *G.711 u-Law* options.

All the supplemental client applications require corresponding licenses. For details, contact SmartPTT dealers in your region.

## 1.4.9.1 Web Service

The **Web Service** node provides settings to configure Web Client access to the SmartPTT Radioserver. Web Client is a web application that provides text messaging functions and GPS location features.



In the **Web Service** pane, the following settings are available:

### Active

Check box turns on and off the support of Web Clients in SmartPTT Radioserver.

### **Google API Key**

Field for the code that turns on the support of Google Maps in Web Clients. This key must be purchased by SmartPTT Customer. For details, see

https://developers.google.com/maps/documentation/embed/get-api-key.

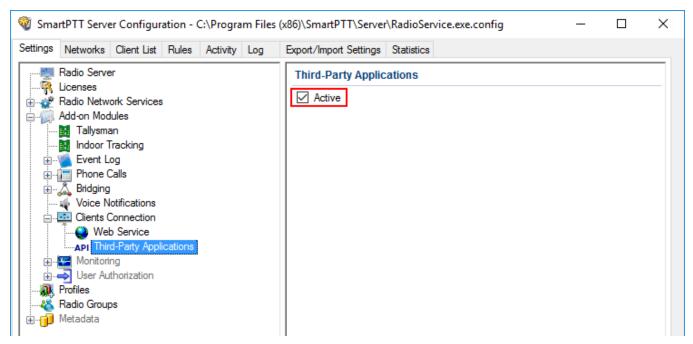
### IMPORTANT

For Web Clients, the **Web Service** license is required in SmartPTT.

For installation and configuration instructions on Web Client, see *SmartPTT Web Client Setup and User Guide*.

# 1.4.9.2 Third-Party Applications

SmartPTT supports third-party applications that use the licensed SmartPTT Server API. For such applications, the dedicated interface must be configured and the **Active** check box must be selected in the **Third-Party Applications** area of the SmartPTT Radioserver Configurator.



The same check box must be selected to support the SCADA module in SmartPTT starting the 9.4 release.

# 1.4.9.3 Configuring Client Connections

Follow the procedure to configure client connections to support SmartPTT Web Client, third-party applications, and SCADA module in SmartPTT.

## **Prerequisites:**

- Determine the computer IP address responsible for LAN or WAN connection.
- Determine the free TCP port.

• Determine the codec for encoding and decoding the voice between SmartPTT Radioserver and supplemental client applications.

### NOTE

The codec is used for all applications. You cannot select different codecs for different applications.

• Ensure that you have the required licenses.

### **Procedure:**

- 1. Start SmartPTT Radioserver Configurator.
- 2. In the **SmartPTT Server Configuration** window, select the **Settings** tab.
- 3. In the left pane, expand **Add-On Modules**, and then select **Client Connections**.
- 4. In the right pane, in the **Web Socket Server** area, perform the following actions:
  - a. From the **Interface** list, select the required IP address.
  - b. In the **Port** box, set the required TCP port.
- 5. For a third-party application, from the **Codec** list, select the codec that complies all types of connected applications.
- 6. In the left pane, expand **Client Connections**, and then activate support of the required application types:

To support SmartPTT Web Client,	perform the following actions:				
	1. Click <b>Web Service</b> .				
	2. In the right pane, select the <b>Active</b> check box.				
	3. In the <b>Google API Key</b> field, enter Google API.				
To support the third-party	perform the following actions:				
applications or SmartPTT SCADA,	1. Click Third Party Applications.				
	2. In the right pane, select the <b>Active</b> check box.				

### WARNING

SmartPTT Mobile is **not** supported in the current SmartPTT release.

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **Postrequisites:**

- In the firewall software, unlock the set TCP port and at least one UDP port for each type of applications except for SCADA.
- Create accounts to authorize applications. For details, see <u>Client List</u>.

# 1.4.10 Monitoring

The Monitoring service gives an outlook for the whole radio system in the real time. With the help of this service the dispatcher can see what is happening on the channels and get information on the state of the devices.

### IMPORTANT

Monitoring service requires the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

By default, the Monitoring service is not active. Select **Monitoring** in the setting tree in *SmartPTT Radioserver Configurator* and select **Active** to enable it. If the **Monitoring** service is not activated, the radioserver and its network won't be displayed on the **Monitoring** panel.

🎯 SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Network Configuration	Rules Activity Log Export/Import Settings Statistics
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Mindoor Tracking Revent Log Revent Log R	Monitoring         Active         Creating Monitoring Database         Server Name:       localhost\SQLExpress         Database Name:       Monitoring         Create New Database         Authorization Mode:       Windows NT Authorization
	Login:
⊞ <b>ji</b> Metadata	Password: Check Connection Restoring Database From Backup  Restore Database

To create a database for the monitoring purpose, type in the **Server Name** and **Database Name** fields, and click **Create New Database**. If creation is successful, a message about successful database creation is displayed. If the database is not created, the cause of the issue will be displayed at the bottom of the window.

### NOTE

If the database server and SmartPTT Radioserver are installed on one computer, enter the name of the following format: *Computer Name\SQLExpress* (for example, *MYCOMP\SQLExpress*).

#### Select Authorization Mode:

- SQL Server Authorization: Login and Password must belong to the account with access to the SQL server.
- Windows NT Authorization: The user, who has logged into the Windows system, must be listed in the SQL server user list to make connection.

Click **Check Connection**. In case of successful authorization the message "*The connection is established successfully!*" is displayed. If authorization fails, the reason will appear at the bottom of the window.

### NOTE

The radioserver event log database, the Monitoring database and the Dispatcher event log database must be different.

### NOTE

To restore the monitoring database from the backup, select the required database backup file in the **Path** field and click **Restore Database**.

### NOTE

To set up the auto backup of the monitoring database, go to the <u>Automatic Database Backup</u> window.

### **Creating Database**

To create the monitoring database, follow these steps:

1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Monitoring**.

SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioServi	ce.exe.config — 🗆 🗙					
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics						
Radio Server	Radio Server						
Radio Network Services	Server Role	Primary ~					
Tallysman	Name	Radioserver					
🖶 📲 Event Log	Interface						
iandian Phone Calls iandiana Bridging	Any ~	8888					
Voice Notifications	Authentication						
Clients Connection	No ~						
User Authonization     Were Authonization     Profiles     Radio Groups	VoIP Listen Port	18500					
the field of the	Block option	Radio Disable 🗸 🗸					
	Limit Radios to Service						
	Enabled	Example: 1-99,150					
	Allowed Radio Numbers						
	Process priority	Above normal $\checkmark$					
	Language	English					

ettings Networks Client List Rules A	Activity Log	Export/Import Settings	Statistics
Radio Server		Monitoring	
Radio Network Services		Active	
Add-on Modules		Creating Monitoring D	Database
		Server Name:	localhost\SQLExpress
ie im Event Log ie im Phone Calls ie im Bridging		Database Name:	Monitoring
Voice Notifications			Create New Database
Clients Connection			
Monitoring     User Authorization		Authorization Mode:	Windows NT Authorization $\qquad \qquad \qquad$
		Login:	
- 👘 Metadata		Password:	
			Check Connection
		Restoring Database F	From Backup

### 2. Make sure that the **Active** check box is selected in the **Monitoring** pane.

3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address* of your computer>*\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:

SmartPTT Server Configuration - C:\Program	Files (x86)	\SmartPTT\S	erver\Ra	adioService.exe.con	fig	—		$\times$
Settings Networks Client List Network Configuration	on Rules	Activity Lo	g Ex	port/Import Settings	Statistics			
Radio Server Geneses Radio Network Services Add-on Modules Indoor Tracking Indoor Tracking Revent Log Revent Log Revent Log Revent Cog Revent Cog		Ionitoring Active Creating Monit Server Name: Database Nan	_	localhost\SQLExp	ress			
Phone Calls     Bridging     Voice Notifications     Clients Connection     Monitoring     Jose Authorization		Database Ivan Authorization I Login:	[	Monitoring Create New Database Windows NT Authorization			~	
<b>&amp; Radio Groups</b> ⊕ <b>j</b> Metadata		Password:	[	Check Connect	tion			
		Restoring Data	abase Fro	om Backup Restore Databa	ase			

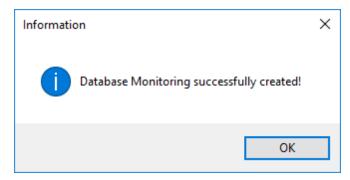
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
	Radio Serve Licenses Radio Netw Add-on Mod Tallysma Indoor T Event L	r ork Services an racking og calls otifications connection			Activity Ionitoring Active Creating Ma Server Nan Database N Authorizatio Login: Password:	onitoring ne: Name:		ress	~	
					Restoring [	Database	From Backup Restore Databa	ase		

## 4. In the **Database Name** field, enter the name of a local monitoring database.

#### 5. Click Create New Database.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\	SmartPTT	T\Server	-\RadioService.exe.config	- 🗆	×				
Settings Networks Client List Network Configuration F	Rules	Activity	Log	Export/Import Settings Statistics						
Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Phone Calls Phone Calls Phone Calls Ridging Voice Notifications Clients Connection Clients Connection Clients Connection Clients Connection Reference User Authorization Metadata	⊡ ⊂C S	Monitoring         Image: Creating Monitoring Database         Server Name:       localhost\SQLExpress         Database Name:       Monitoring         Create New Database								
	P	Authorization Mode:       Windows NT Authorization         Login:       Password:         Check Connection								
	ll a	estoring L	Jatabase	Restore Database						

If creation is successful, the following message appears.



- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### Connecting Local Monitoring Database

To connect to the local monitoring database, follow these steps:

1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Monitoring**.

SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioServio	ce.exe.config — 🗆 🗙							
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics								
Radio Server	Radio Server								
Radio Network Services	Server Role	Primary ~							
Tallysman	Name	Radioserver							
🗄 📲 Event Log	Interface	Port							
iaian Phone Calls ia	Any ~	8888							
Voice Notifications	Authentication								
Clients Connection     Monitoring	No ~								
User Authonization     Williams     Profiles     Radio Groups	VoIP Listen Port	18500							
theale cloops 	Block option	Radio Disable 🗸 🗸							
	Limit Radios to Service								
	Enabled	Example: 1-99,150							
	Allowed Radio Numbers								
	Process priority	Above normal $\checkmark$							
	Language	English							

ettings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics
1	Radio Serve	r				Monitoring	
: U.Y.	licenses Radio Netw	ork Services	5			Active	
÷- 👰 /	Add-on Mod	ules				Creating Monitoring	Database
	🚦 Indoor 1	racking				Server Name:	localhost\SQLExpress
- T -	Phone (	alls				Database Name:	Monitoring
±	🍒 Unidging						Create New Database
	Clients C						
	Monitori					Authorization Mode:	Windows NT Authorization $\sim$
- 👧 F	Profiles Radio Group					Login:	
۱ <u> (</u>	Metadata					Password:	
							Check Connection
						Restoring Database	From Backup
							Restore Database

### 2. Make sure that the **Active** check box is selected in the **Monitoring** pane.

3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address* of your computer>*\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:

SmartPTT Server Configuration - C:\Program Files (x86)	5)\SmartPTT\Server\RadioService.exe.config - 🗆 🗙
Settings Networks Client List Network Configuration Rules	s Activity Log Export/Import Settings Statistics
Licenses	Monitoring Active Creating Monitoring Database Server Name: localhost\SQLExpress Database Name: Monitoring Create New Database Authorization Mode: Windows NT Authorization Login: Password: Check Connection Restoring Database From Backup Restore Database

ettings Networks Client List Network Configuration Ru	iles Ad	ctivity	Log	Export/Import Settings	Statistics		
ettings       Networks       Client List       Network Configuration       Ru         Radio Server       Licenses       Licenses       Add-on Modules       Indoor Tracking         Tallysman       Indoor Tracking       Event Log       Phone Calls       Straining         Original Clients Connection       Bridging       Voice Notifications       Other Authorization         User Authorization       Work Configuration       Monitoring         Wetadata       Metadata	Moni A Crea Serv Data Auth Logi Pass	toring ctive ting Mor er Name abase Na abase Na abase Na abase Na abase Sa	nitoring [ e: ame: n Mode:	Export/Import Settings	ress base norization	~	

### 4. In the **Database Name** field, enter the name of a local Monitoring database.

-		-	-			\RadioService.exe.com	-	-	Х
	Radio Serve Licenses Radio Netw Add-on Mod Tallysma Indoor T Event L Phone C & Bridging	r ork Services ules an racking og calls confications connection ng thorization	Network Configuration	Ionitoring Active Creating M Server Nar Database I Authorizatio Login: Password:	onitoring ne: Name: on Mode:	localhost\SQLExp Monitoring Create New Data	ress base porization orization rization		

### 5. From the **Authorization Mode** list, select the needed authorization type:

**Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.

**SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

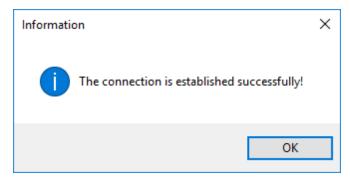
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
	Radio Serve Licenses Radio Netw Add-on Mod Tallysma Indoor T Event L Phone C A Bridging Voice N Clients C Clients C Monitori Voser Au Profiles Radio Group Metadata	ork Services Jules an Tracking og Calls otifications Connection			onitoring Active Creating M Server Nar Database I Authorizatio Login: Password:	onitoring ne: Name: on Mode	Database localhost\SQLExpi Monitoring Create New Data SQL Server Autho	base		
					Restoring [	Database	From Backup Restore Databa	se		

### 6. If **SQL Server Authorization** is selected, enter login and password.

#### 7. Click Check Connection.

🎯 SmartPTT Server Configuration - C:\Program Files (;	x86)\SmartPTT\Server\RadioService.exe.config	- 🗆 X
Settings Networks Client List Network Configuration Ru	ules Activity Log Export/Import Settings Sta	atistics
Settings       Networks       Client List       Network Configuration       Ru         Radio Server       Licenses       Licenses       Licenses         Radio Network Services       Add-on Modules       Indoor Tracking         Indoor Tracking       Prone Calls       Bridging         Voice Notifications       Clients Connection       Distribution         Intervention       Workford       User Authorization         Profiles       Radio Groups       Metadata	Monitoring         ✓ Active         Creating Monitoring Database         Server Name:       localhost\SQLExpress         Database Name:       Monitoring         Create New Database         Authorization Mode:       SQL Server Authorizat         Login:	3 
	Restore Database	

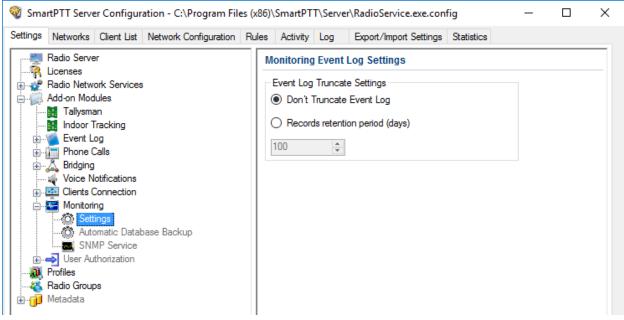
If the connection is successful, the following message appears.



- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 1.4.10.1 Settings

To configure automatic cleaning for the monitoring event log, go to the **Settings** section of the monitoring in *SmartPTT Radioserver Configurator*. The following window appears:



**Don't Truncate Event Log:** If selected, monitoring event log is not cleared automatically.

**Records retention period (days):** If selected, the system will delete records older than the number of days set in the field. By default, it is set to 100 days.

# 1.4.10.2 Monitoring Database Automatic Backup

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. *SmartPTT Radioserver Configurator* allows to back up the monitoring database automatically.

In order to set up automatic backup schedule of the monitoring database, select **Automatic Database Backup** under **Monitoring** in the setting tree of *SmartPTT Radioserver Configurator*.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	-	Х
Settings Networks Client List Network Configuration R	ules Activity Log Export/Import Settings Statistics		
Radio Server Geneses Radio Network Services Add-on Modules Indoor Tracking Control Event Log Phone Calls Indoing Bridging	Automatic Database Backup  Active Backup folder Backup Settings  Daily Interval (days)		
Voice Notifications     ✓ Voice Notifications     ✓ Clients Connection     ✓ Monitoring     ✓ Settings     ✓ Automatic Database Backup     ✓ SNMP Service     ✓ User Authorization	<ul> <li>Weekly</li> <li>Monthly</li> </ul>		
Radio Groups ∰ Profiles Metadata	Time: 09:00 € Backup Period Start date: 3/30/2017 ₪▼ End date: 3/31/2017 ₪▼		

**Active:** Select the check box to enable the ability to create current monitoring database backups in the automatic mode.

**Backup folder:** Full path to the file for saving the database backup.

**Backup Settings:** Schedule for creating the current database backup.

**Daily:** Every fixed day at the specified time (for example, every day, every third day at 9:00 a.m.).

**Weekly:** Every fixed day of the week at the specified time (for example, every Monday, Wednesday and Friday at 11:00 p.m.).

**Monthly:** Once a month on the fixed day of the selected month and at the specified time.

**Backup Period:** Allows you to set time period when automatic database backup is to be made according to the selected backup settings.

#### NOTE

The number of stored backup files in the same folder is limited to 3. Otherwise, when creating a new copy, the old files are deleted.

### NOTE

The monitoring database recovery from the automatically created backup is performed manually in the <u>Monitoring</u> window.

# 1.4.10.3 SNMP Service

SNMP service allows to monitor network-attached devices such as repeaters, routers and uninterruptible power supplies (UPS).

To be able to get information about the state of a device, you need to have an SNMP client application installed. Use versions 1 and 2 of SNMP client applications. **Monitoring** must be activated, otherwise you won't be able to enable **SNMP Service**.

### IMPORTANT

SNMP service requires the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

After you have obtained the license, enable SNMP service. To do that, select **Add-on Modules**  $\rightarrow$  **Monitoring**  $\rightarrow$  **SNMP Service**. The following window appears:

SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config									-	×		
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Impor	t Settings	Statistics	s		
	Phone ( Bridging Voice N Clients ( Monitori Sett Carlot Auto	ork Services lules an racking og Calls otifications Connection ng ings matic Datat <u>MP Service</u>	base Backup		NMP Ser	ettings	2.168.56.1	∼ Po	ort 1	61		

Select the **Active** check box to enable the service. The **Interface Settings** will become available.

**Interface:** The IP address of SmartPTT Radioserver.

**Port:** Port to listen to the data from the devices. By default, it is set to port 161.

Then, install SNMP client application. Configure its settings to contain the IP address of the radioserver to get information on the devices, and the **External Community** to get information on particular device parameters. The **External Community** can be found in *SmartPTT Radioserver Configurator* in the **Network Configuration** tab for each device.

🎯 SmartPTT Server Configuration - C	<pre> .\Program Files (x86)\SmartPTT</pre>	/\Server\RadioService.exe.config	- 🗆 ×					
Settings Networks Client List Network	Configuration Rules Activity	Log Export/Import Settings Statistics						
Radioserver Connect Plus	Device General Alam Notifications							
NAI - IP Site Connect 1		isco 2900	~					
	Name Ci	isco						
	Description							
		92.168.56.1 V Port 162	*					
	IP-address 0.	0.0.0 Port 161	-					
	SNMP Version V	V1 ~						
	Community Co	Community 2						
	Response Timeout, s 3							
	Polling Interval, s 30	)						
	Check Connection							
	SNMP Parameters							
	External Community Ex	demal Community						

#### NOTE

For more information how to get device parameters, read documentation or review the corresponding MIB file of the device.

# 1.4.11 User Authorization

Companies with a great number of staff members often require control and accounting of radio use, namely to know the current radio user. For this purpose user authorization is implemented in SmartPTT Radioserver.

ttings Networks Client List Network Configuration	n Rules	Activity	Log	Export/Import Settings	Statistics				
	U	User Authorization							
Licenses     Add-on Modules     Add-on Modules     Indoor Tracking     Formation Event Log		Active Authentifica Interface:		ver 2.168.56.1 ~	Port:	5055	* *		
hone Calls	-(	Creating Da	atabase						
Woice Notifications	9	Server Nan	ne:	localhost\SQLEXP	RESS				
🗄 🔤 Clients Connection	1	Database N	Name:	Users					
User Authorization				Create New Data	base				
🦥 Radio Groups 🌐 Metadata	,	Authorizatio	on Mode	Windows NT Auth	orization		~		
	1	Login:							
	6	Password:							
				Check Connecti	on				
	-F	Restoring [	)atabase	From Backup					
	[								
				Restore Databa	se				

User authorization allows the dispatcher to identify the worker using the channel.

For proper work of the user authorization you should preconfigure the radio and set specific networks. The radio is configured in the *MOTOTRBO CPS* program. NAI networks are configured in the MOTOTRBO DDMS program and Capacity Max networks are configured in the *Radio Management* program.

#### NOTE

To display users in SmartPTT Dispatcher, **Show radio user name** check box should be selected in the **General Settings** window of SmartPTT Dispatcher.

For details, see *Dispatcher User Guide*.

#### MOTOTRBO CPS, MOTOTRBO DDMS and Radio Management settings include:

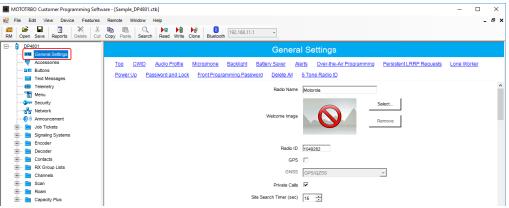
### **Configuring Radio**

The following section describes the configuration of the radio in MOTOTRBO CPS. There are two ways to configure the radio:

- To connect the radio to the computer and to update its firmware.
- To preconfigure the firmware file and to use it for updating the radio firmware.

To configure the radio, follow these steps:

- 1. Run MOTOTRBO CPS.
- 2. Read the radio firmware or open the radio firmware file.
- 3. In the left pane, click **General Settings**.



4. In the **General Settings** pane, select the **Sign In/Sign Out** check box.

MOTOTRBO Customer Programming Soft	ware - [Sample_DP4801.tb] —	×
File Edit View Device Features	Remote Window Help	Ð
Open Save Reports Delete Cut	Ba Base Constant Search Read Write Clone Bluetooth Bluetooth Search Read Write Clone Bluetooth Search Read Write Clone Bluetooth Search Search Read Write Clone Search Search Read Write Clone Bluetooth Search Sea	
DP4801	General Settings	
General Settings		
····· 👼 Accessories	Top CWID Audio Profile Microphone Backlight Battery Saver Alerts Over-the-Air Programming Persistent LRRP Requests Lone Worker	
····· 🗉 🗉 Buttons	Power Up Password and Lock Front Programming Password Delete All 5 Tone Radio ID	
····· 🖂 Text Messages		
····· (11) Telemetry	Talkaround Group Call Hang	
🔚 Menu	Talkaround Group Call Hang 3000 +	
Security	Talkaround Private Call Hang aron	
Network	Talkaround Private Call Hang Time (m)	
	Disable All LEDs	
🕀 💼 Job Tickets		
🕀 💼 Signaling Systems	Sign In / Sign Out	
🗄 🖻 Encoder	Secure Sign In ID	
🗄 ··· 🚞 Decoder		
🗄 🧰 Contacts	Test Mode 📝	
🗄 💼 RX Group Lists	Scrambling Frequency 3.29 kHz 👻	
🕀 💼 Channels	J.J. KIL	
🕀 🚞 Scan	Home Channel None	
🗄 🗠 🚞 Roam		
- Capacity Plus	Home Channel Reminder Interval (min) 2 —	

#### WARNING

Do not unplug your cable from the radio or computer until the radio firmware update complete.

5. Update the radio firmware or save the radio firmware file for the following updating.

### **Configuring DDMS service**

To configure MOTOTRBO DDMS settings, follow these steps:

- 1. Run MOTOTRBO DDMS.
- 2. If the **Stop** ( **o** ) button on the toolbar of MOTOTRBO DDMS is active, click it to stop the DDMS service.
- 3. In the left pane, expand the **Interfaces** node, and then click **Authentication Server Settings**.

The **Authentication Server Settings** node appears in the right pane.



- 4. If the **Authentication Server Settings** node is collapsed, click Expand ( **•**) to expand it.
- 5. In the right pane, in **AuthenticationServerIP**, type the IP-address of the authentification server.
- 6. In **AuthenticationServerPort**, type the number of the authentication server port.
- 7. If the **!!MESSAGE\_ERROR!!** value is *Off*, double-click **!!MESSAGE\_ERROR!!** The **!!MESSAGE\_ERROR!!** value changes to *On*.
- 8. Click Save Configuration ( 🔜 ).
- 9. Click **Start ( • )** to start DDMS service.

#### **Configuring Capacity Max**

For proper work of the authentication server, you should set Capacity Max networks. Capacity Max networks are configured in the program *Radio Management*.

To configure Capacity Max settings in *Radio Management*, follow these steps:

- 1. Run Radio Management.
- 2. Click Actions ( 🖸 ).

- 3. From the **Manage** list, select **Sets**.
- 4. In the **Set Categories** pane, expand the **Capacity Max Features** node.

📠 Radio Management					-	
Set View   Voice Announcement						2 1
Set Categories #	/	$\oplus \Theta \Theta$				
<ul> <li>Capacity Max Features</li> </ul>		Set Name	Last Modified Date	Comments	Configurations	
Capacity Max Systems	- × 1	VoiceAnnouncement-23801	09/25/2017 17:55:31			0
Capacity Max Radio Wide Features		VoiceAnnouncement-23904	09/26/2017 11:58:27			1
Capacity Max Site Selection		VoiceAnnouncement-23903	09/26/2017 11:46:02			0
Capacity Max Status List		VoiceAnnouncement-23902	09/26/2017 11:11:56			1
		VoiceAnnouncement-23901	09/26/2017 09:33:44			1
		VoiceAnnouncement-105	09/20/2016 15:21:39			1
		VoiceAnnouncement-104	09/20/2016 15:21:39			1
		VoiceAnnouncement-102	09/20/2016 15:21:39			1
		VoiceAnnouncement-101	09/20/2016 15:21:39			1

- 5. Click Capacity Max Systems.
- 6. In the right pane, click the required Capacity Max System.
- 7. Click **Edit (** 🖌 **)**.

#### 8. Click User Name Verification Application.

-	
🚾 Radio Management	- 0
*	
Set View 🔸 Capacity Max Systems 🔸 TVZSystem1	
Set Categories 4	
	Save Save As Discard Close
General	
<ul> <li>Capacity Max Features</li> </ul>	General Data Revert Authentication Timers Channel Plan Lists Capacity Max Sites
Capacity Max Systems:CapacityMaxSystems-10	Adjacent Sites Site Announcement User Name Verification Application
Capacity Max Radio Wide Features	
Capacity Max Site Selection	User Name Verification Application Addresses
Capacity Max Status List	
	$\checkmark \oplus \ominus \ominus$
	Domain ID IP Port
	1 192.168.36.110 5055

9. In **User Name Verification Application Addresses** pane, specify the following parameters:

**IP:** Enter the IP-address of the authentication server.

#### NOTE

By default, the authentication server has the IP address of the primary SmartPTT Radioserver.

**Port:** Enter the port of the authentication server.

**Domain ID:** Specify ID for authentication server in Radio Management.

After this, perform the following actions to save the changes in the *Radio Management* program.

- 1. Click **Radio View ( I**) to open the main menu.
- 2. Click Actions ( 🖸 ).
- 3. From the list, select Manage  $\rightarrow$  Capacity Max System Server Data.
- 4. In the right pane, click the desired radio.
- 5. In the **User Name Domain ID** field, specify the value from 0 to 16.

a Radio Management							- 0
<b>⇔</b> ©							
Capacity Max System Server Data 🔸 Subscri	os Contr	ol					
Capacity Max Systems 🛛 🗍	View	by: 🖲 S	ubscriber Access Cor	itrol 🗌 Talkgroup Site /	Association		
TVZSystem1	4100	⊕ ⊝	c c				Q
		o Check Tx	🕂 Status Call 🕁	System All Call Tx 👎	Receive Kill 보	Initiate Kill 보	User Name Domain ID 🗢
		<b>V</b>					1
		$\checkmark$					1
							0
	$\rightarrow$			V			0
		<b>V</b>					0
		$\checkmark$					0
		$\checkmark$					0
							0
		<b>v</b>					0
	4		I (1 currently selected				

- 6. Click **Radio View ( I**) to open the main menu.
- 7. Right click on the radiostation that was modified.
- 8. Select Schedule job.

9. In the **Schedule job** window, click **OK**.

✓ No Switcho	ver
Generate co	onfiguration
	-
N) 🖲 IP Program	Over the Air Any
vitchover	Switchover Timer (min):
	End before
	OK Cancel

When preliminary configuration of radio equipment complete, User authorization configuration should be made. This includes the following:

### **Creating User Authorization Database**

To create the authentification server database, follow these steps:

- 1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
- 2. In the **User Authorization** pane, select the **Active** check box.

$\overline{\mathbb{W}}$ SmartPTT Server Configuration - C:\Program Files (	(x86)\SmartPTT\Server\RadioService.exe.config - 🗆 🗙
Settings Networks Client List Network Configuration R	ules Activity Log Export/Import Settings Statistics
Radio Server Licenses Radio Network Services Add-on Modules Add-on Modules Indoor Tracking Event Log	User Authorization          Active         Authentification Server         Interface:       192.168.56.1
Phone Calls     Bridging     Voice Notifications     Olients Connection     Monitoring     Section     Profiles     Radio Groups     Metadata	Creating Database Server Name: localhost\SQLEXPRESS Database Name: Users Create New Database Authorization Mode: Windows NT Authorization
	Login:
	Password: Check Connection
	Restoring Database From Backup Restore Database

 In the Server Name field of the Creating Database area, enter the name of the SQL Server. You can use either <IP address of your computer>\<Your SQL Server name> or localhost\<Your SQL Server name> format:

	\SmartPTT\Server\RadioService.exe.config - 🗆 🗙
Settings Networks Client List Network Configuration Rules	Activity Log Export/Import Settings Statistics
Radio Server Licenses Add-on Modules Add-on Modules Add-on Modules Add-on Tracking Lindoor Tracking Event Log Clients Connection Clients Connection Clients Connection Clients Connection Clients Connection Clients Connection Clients Connection Clients Connection Add-on Monitoring Clients Connection Add-on Monitoring Clients Connection Add-on Monitoring Add-on Monitoring	Activity Log Export/Import Settings Statistics   ser Authorization   Active   Authentification Server   Interface: 192.168.56.1 Port: 5055   Interface: 192.168.56.1 Port: 5055   Creating Database   Server Name: Iocalhost\SQLEXPRESS   Database Name: Users   Create New Database   Authorization Mode:   Mundows NT Authorization   Login:   Password:   Check Connection   Restoring Database From Backup     Restore Database

4. In the **Database Name** field, enter the name of the authentification server database and click **Create New Database**.

If the creation is successful, the following message appears.

Information	×
Database Users successfully created!	
ОК	

- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### **Connecting User Authorization Database**

To connect to the authentification server database, follow these steps:

- 1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
- 2. In the **User Authorization** pane, select the **Active** check box.

🎯 Sma	rtPTT Serve	er Configur	ation - C:\Program Fil	es (x86)\	SmartPT	[\Server	\RadioService.exe.con	fig	-		Х
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics			
	Radio Serve Licenses Radio Netw Add-on Mod Tallysma Indoor 1 Event L Phone C Voice N Cients C Cients C Monitori Cients C Monitori Metadata	ork Services ules an racking og Calls otifications connection ng			Ser Author Active Authentifica Interface: Creating Da Server Nam Database N Authorizatio Login: Password: Restoring D	ation Ser 192 atabase ne: lame: n Mode:	ver .168.56.1 ✓ localhost\SQLEXP Users Create New Data	base	5055	×	

- In the Server Name field of the Creating Database area, enter the name of the SQL Server. You can use either <IP-address of your computer>\<Your SQL Server name> or localhost\<Your SQL Server name> format.
- 4. In the **Database Name** field, enter the name of the needed database.

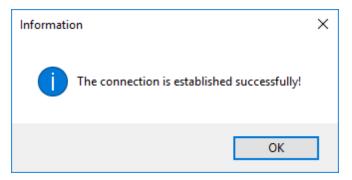
🎯 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config										×
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
	Radio Serve Licenses Radio Netw Add-on Mod Tallysma Event L Phone C Bidging Voice A Voice Monitori Clients C Monitori Profiles Radio Group Metadata	ork Services ules an racking og Calls otifications connection ng thorization			ser Autho Active Authentifica Interface: Creating Da Server Nam Database N Authorizatio Login: Password: Restoring D	tion Ser 192 tabase e: ame: n Mode:	ver .168.56.1 ✓ localhost\SQLEXP Users Create New Data	base	5055	

- 5. From the **Authorization Mode** list, select the needed authorization mode:
  - Windows NT Authorization: Select to use Windows account for connecting to the local SQL Server.
  - **SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

ettings Networks Client List Network Configuration F	Rules Activity Log Export/Import Settings Statistics									
Radio Server	User Authorization									
Kadio Network Services     Add-on Modules     Add-on Modules     Indoor Tracking     Event Log     Formation     Phone Calls     Formation     Clients Connection     Monitoring     User Authorization     Monitoring     Ser Authorization     Metadata	✓ Active         Authentification Server         Interface:       192.168.56.1         ✓ Port:       5055         Creating Database         Server Name:       localhost\SQLEXPRESS         Database Name:       User         Create New Database         Authorization Mode:       Windows NT Authorization         Windows NT Authorization         Login:       SQL Server Authorization									
	Password:									
	Check Connection									
	Restoring Database From Backup									
	Restore Database									

6. If **SQL Server Authorization** is selected, enter **Login** and **Password** and then click **Check Connection**.

If the connection is successful, the following message appears.



- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### Restoring Database from Backup

To restore database from backup, follow these steps:

- 1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
- 2. In the **User Authorization** pane, select the **Active** check box.

SmartPTT Server Configuration - C:\Program Fil	es (x86)'	\SmartPT	T\Serve	fig	-	$\times$	
Settings Networks Client List Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
Radio Server Licenses Radio Network Services Addon Modules Tallysman Bindoor Tracking Contracking Form Former Phone Calls Cients Connection Cients Connection Cients Connection Cients Connection Cients Connection Radio Groups Radio Groups Metadata		Ser Auth Active Authentific Interface: Creating D Server Nar Database Database Authorizatio Login: Password: Restoring I	ation Sei 19 atabase ne: Name: on Mode	ver 2.168.56.1 ✓ localhost\SQLEXP Users Create New Datat	RESS	5055	

3. In the **Restoring Database Backup** area of the **User Authorization** pane, select the required database backup file and click **Restore Database**.

🕎 Radio Server 💦 Licenses	lle										
A Licenses	0.5	User Authorization									
Radio Network Services Add-on Modules Tallysman Indoor Tracking Event Log Phone Calls Bridging Voice Notifications Clients Connection Monitoring User Authorization Profiles Radio Groups Metadata	Au In Cr Se Dz Au Lo Pa	Active uthentifica iterface: reating Da erver Nam atabase N uthorizatio ogin: assword: estoring D	192 atabase – ne: Name: on Mode:	Ilocalhost	lew Datał	on	5055				

### **Connecting Authentication Server**

To connect to the authentification server, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Network Configuration F	Rules Activity Log Export/Import Settings Statistics
Radio Server Licenses Add-on Modules Add-on Modules Tallysman Indoor Tracking Event Log Phone Calls Bridging Voice Notifications Clients Connection Monitoring User Authorization Profiles Radio Groups Metadata	User Authorization         ✓ Active         Authentification Server         Interface:       192.168.56.1         Port:       5055         Creating Database         Server Name:       localhost\SQLEXPRESS         Database Name:       Users         Create New Database         Authorization Mode:       Windows NT Authorization         Login:
	Restoring Database From Backup Restore Database

2. In the **User Authorization** pane, select the **Active** check box.

3. In the **Interface** field of the **Authentification Server** area, enter the IP-address of the SmartPTT Radioserver.

### NOTE

By default, the authentification server has the IP-address of the primary radioserver.

4. In the **Port** field, enter the port number.

#### Activating User Authorization

To activate the user authorization, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

SmartPTT Server Configuration - C:\Program Files (x	x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Network Configuration Ru	les Activity Log Export/Import Settings Statistics
Radio Server Licenses Radio Network Services Add-on Modules Radio Tracking Indoor Tracking Phone Calls Ridging Voice Notifications Clients Connection Monitoring Ser Authorization Radio Groups Radio Groups Radio Groups	Jes       Activity       Log       Export/Import Settings       Statistics         User Authorization       Active         Authentification Server       Interface:       192.168.56.1       Port:       5055         Interface:       192.168.56.1       Port:       5055       Image: Creating Database         Server Name:       Iocalhost\SQLEXPRESS       Database         Database Name:       Users       Image: Create New Database         Authorization Mode:       Windows NT Authorization       Image: Create New Database         Authorization Mode:       Image: Create New Database       Image: Create New Database         Authorization Mode:       Image: Create New Database       Image: Create New Database         Restoring Database From Backup       Image: Create New Database From Backup       Image: Create New Database
	Restore Database

2. In the **User Authorization** pane, select the **Active** check box.

- 3. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 4. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 1.4.11.1 Users

In *SmartPTT Radioserver Configurator* you can create a list of users. This list contains the names of the users with corresponding unique identifiers. When the radio user enters the unique identifier on the radio, the corresponding name becomes visible in *SmartPTT Dispatcher*.

🎯 Sma	SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config											×
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Im	port Settings	Statistics			
1 10	Radio Serve	er			sers							
	Licenses Radio Netw	ork Services					D.L.					
-	Add-on Mod		,		Add		Delete					
	🚹 Tallysm				User Name	•		User ID				
	Indoor 🖬	-										
+	🐚 Event L	-										
	🛴 Bridging											
	•	lotifications										
: :	💼 Clients ( 🚾 Monitori											
		-										
	Use Use											
<b>a</b>	Profiles	omatic Datat	base Backup									
	Radio Grou	ps										
÷. 힌	Metadata											

Configuration of the list of users includes:

### Adding users to the list

To add a user to the list, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

SmartPTT Server Configuration - C:\Program Files	es (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🔿
Settings Networks Client List Network Configuration	Rules Activity Log Export/Import Settings Statistics
Radio Server Licenses Radio Network Services Add-on Modules Add-on Modules Tallysman Indoor Tracking Event Log Phone Calls Bridging Voice Notifications Clients Connection Monitoring User Authorization Profiles Radio Groups Metadata	User Authorization         ✓ Active         Authentification Server         Interface:       192.168.56.1         Port:       5055         Creating Database         Server Name:       localhost\SQLEXPRESS         Database Name:       Users         Create New Database         Authorization Mode:       Windows NT Authorization         Login:

2. In the **User Authorization** pane, select the **Active** check box.

3. In the left pane of the **Setting** tab, expand the **User Authorization** node and click **Users**.

#### 4. In the **Users** pane, click **Add**.

Image: SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config											$\times$
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/In	nport Settings	Statistics		
	Phone ( Bridging Voice N Clients ( Monitor User AL User AL	ork Services Jules an Tracking .og Calls Jotifications Connection ing thorization	base Backup		Add User Name	3	Delete	User ID			

- 5. In the **Name** field, enter the name of a user.
- 6. In the **ID** field, enter the radio ID.

🎯 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config												×		
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Im	nport Settings	Statistics					
1 2	Radio Serve Licenses		U	Users										
🗉 🚅	Radio Network Services													
	Tallysman				User Name	)		User ID						
	Indoor Tracking ⊕ Event Log ⊕			U	User			1						
1 1 7														
<b>•</b>	👗 Bridging	otifications												
1 1 7	Clients C	Connection												
· · · ·	📰 Monitori 🥰 User Au	-												
	Use	rs	base Backup											
	Profiles													
	Radio Group Metadata	05												

7. Add more users if needed.

#### NOTE

User names cannot be the same.

- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

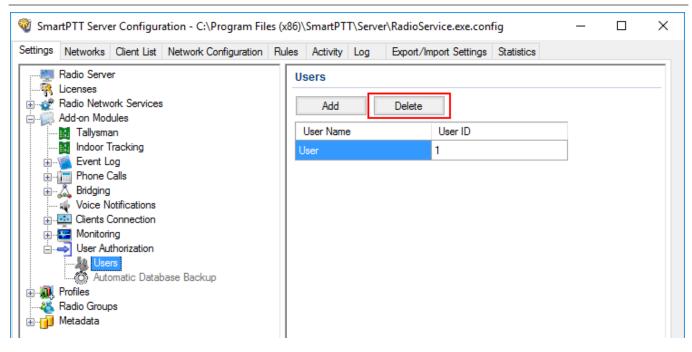
### Removing users from the list

To remove a user from the list, follow these steps:

- 1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
- 2. In the **User Authorization** pane, select the **Active** check box.

🕽 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙												
Settings Networks Client List Network Configuration Rul	les Activity	Log E	xport/Import Settings	Statistics								
Radio Server Licenses Radio Network Services Add-on Modules Radio Tracking Reference Calls Reference Netrications Reference Netrications Reference Netrication Reference Netrica	User Autho Active Authentifical Interface: Creating Data Server Nam Database N Authorization Login: Password: Restoring D	rization tion Server 192.16 tabase e: ame: n Mode:	88.56.1	Port: RESS base orization	5055							

- 3. In the left pane of the **Setting** tab, expand the **User Authorization** node and click **Users**.
- 4. In the **Users** window click the name of the user you want to delete and then click **Delete**.



# 1.4.11.2 Automatic Database Backup

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. *SmartPTT Radioserver Configurator* allows to back up the authentication server database automatically.

To set up automatic backup schedule of the authentication server, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

ettings Networks Client List Network Configurat	ion Rules Activity Log Export/Import Settings Statistics
Radio Server Licenses Add-on Modules Add-on Modules Tallysman Indoor Tracking Event Log Event Log Friend Phone Calls Clients Connection Clients Connection	User Authorization       Active       Authentification Server       Interface:     192.168.56.1       Port:     5055       Creating Database       Server Name:     localhost\SQLEXPRESS       Database Name:     Users       Create New Database
<b>&amp; Radio Groups</b> 3 <b>11</b> Metadata	Authorization Mode: Windows NT Authorization ~
	Password: Check Connection
	Restoring Database From Backup Restore Database

### 2. In the **User Authorization** pane, select the **Active** check box.

3. In the left pane of the **Setting** tab, expand the **User Authorization** node and click **Automatic Database Backup**.

Radio Server Licenses Radio Network Services Add-on Modules Tallysman Indoor Tracking Event Log	Automatic Database Backup
Addio Network Services Add-on Modules Tallysman Indoor Tracking	Backup folder
Add-on Modules	Backup folder
Tallysman	
Indoor Tracking	
	Backup Settings
🗄 📈 Bridging	Daily Interval (days) 1 -
Voice Notifications	◯ Weekly
Clients Connection	
🗄 📲 Monitoring	
User Authorization	O Monthly
Automatic Database Backup	
Kadio Groups	Time: 09:00 🖨
Metadata	
	Backup Period
	Start date: 3/30/2017
	End date: 0 3/31/2017
	No end date

- 4. In the **Automatic Database Backup** pane, select the **Active** check box. The database backup becomes active in the automatic mode.
- 5. In **Backup folder** enter the path to the file for saving the database backup.
- 6. In the **Backup settings** area of the **Automatic Database Backup** pane, configure the following parameters:

**Daily:** Every fixed day at the specified time (for example, every day, every third day).

**Interval (days):** Set the interval for the database backup.

**Weekly:** Every fixed day of the week at the specified time (for example, every Monday and/or Wednesday).

**Monthly:** Once a month on the fixed day of the selected month and at the specified time.

**Time:** Set the time for the automatic database backup. This setting is common for all the intervals.

- 7. In the **Backup Period** area, set the time period when automatic database backup is to be made according to the selected backup settings. It can be either a restricted period of time or a period of time without end date.
- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

# **1.5 Services**

# 1.5.1 ARS

ARS or registration service provides information on the availability of radios in the radio network.

To set up the registration service parameters, click **ARS** in the list in the left area of the SmartPTT Radioserver Configurator window. A new pane appears on the right:

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	_	
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server	ARS		
🖃 🙀 Licenses E 🚽 🚰 Radio Network Services	Active		
🖓 ARS 	Use Radio Check		
TMS	Radio inactivity timeout (s)	600	
Radio Blacklist     Email Gateway	Global Minimum Request Interval, ms	1000	
B SMS Gateway	Automatic update of registration, h	0.0	
- Rofiles			

Active: Select to enable the service.

**Use Radio Check:** This setting defines the mechanism used for checking radio presence in the network. If selected, the system uses the **Radio Check** command. This option was implemented for radios that do not support ARS.

**Radio Inactivity Timeout, s:** Time period, after which the radio that did not display any activity becomes potentially absent. In this case the system includes this radio into a special presence check process.

### NOTE

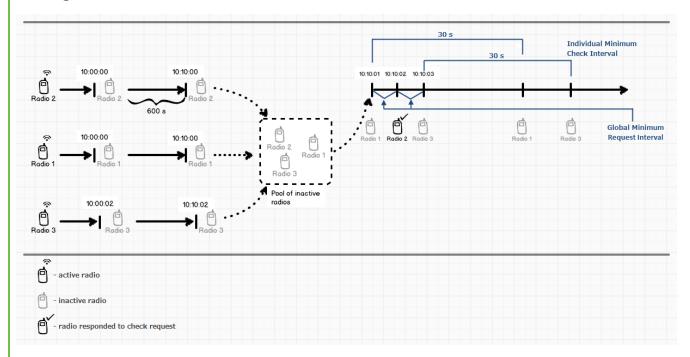
Radio activity includes the following events: GPS location, telemetry signal, text message or voice call.

Generally, a radio can be sent 5 presence check requests successively with a 30-second interval. This parameter is called Individual Minimum Check Interval and equals to 30 s; it can't be changed in *SmartPTT Radioserver Configurator*. This parameter sets the interval between presence check requests sent to one radio. Therefore, it can be increased depending on the number of radios to check. If the radio does not respond to the presence check requests and does not display any activity, it will acquire the Offline status after the 5th unsuccessful presence check request.

**Global Minimum Request Interval, ms:** Sets the minimum interval between presence check requests sent to all inactive radios in all networks. Instead of sending presence check requests to all inactive radios at one time, the system puts them on a queue and sends one presence check request to one radio at a time with the interval set in the Global Minimum Request Interval field. This method allows us to eliminate the risk of sending too many presence check requests at one time, thus removing traffic overload on the channel and spreading network load evenly.

### Example

There are three radios active till 10:00:00 and 10:00:02 (see figure below). Then, for the following 600s they do not display any activity. So, the radio activity timeout for Radios 1 and 2 runs out at 10:10:00 and for Radio 3 at 10:10:02. When it happens, the system creates a pool of inactive radios. The system puts the radios on a queue and starts sending presence check requests with the interval set in the **Global Minimum Request Interval** field. Radio 2 responds to the presence check request and is no longer regarded as potentially offline. Radios 1 and 3 do not respond to the presence check request and do not display any activity, so the system sends another request in 30s to each radio. After the 5th presence check request, the radios get the Offline status.



**Automatic update of registration, h:** If selected, the radio will send its ARS data to server at specified intervals.

### NOTE

We recommend to specify the automatic registration update interval larger than the radio inactivity timeout interval.

# 1.5.2 GPS

GPS or location service provides coordinates of radios with a GPS receiver so you can determine their current location.

To set up location service parameters, in the **Settings** pane of the *SmartPTT Radioserver Configurator* window click **GPS**. The **GPS** pane appears:

	; (x86)\SmartPTT\Server\RadioService.exe.con	fig —	. 🗆	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics			
Radio Server	GPS			
	Active			
	Minimum radio location update interval (s)	30	]	
Telemetry	Minimum Request Interval, s	1	]	
terria Gateway terria SMS Gateway	Radio inactivity timeout (s)	60	]	
File Receive ⊕@ Add-on Modules	Get location information on the following radio	groups:		
	Group Name T	îme Interval, s	On/Off	
Metadata	Group of Radios #1 24	40		
	Group of Radios #2 12	20		
	Group of Radios #3 60	)		
	Allow Dispatchers to Amend Location Upo	date Time Interval		

Active: Select to activate the location service.

**Minimum location update interval, s:** Minimum update time interval. If the time interval specified by the dispatcher is less than **Minimum location update interval**, the new value set by the dispatcher will be ignored, and radio location will be updated within **Minimum location update interval**.

**Minimum Request Interval, s:** The minimum interval between GPS requests sent to the radios within one network. The requests can be sent automatically or initiated by the dispatcher. This method allows us to eliminate the risk of sending too many GPS requests at one time, thus removing traffic overload on the channel and spreading network load evenly.

**Radio Inactivity Timeout, s:** Time period, after which the radio that has not send GPS becomes potentially absent. In this case the radio receives a location update request.

The **Get location information on the following radio groups** table contains the radio groups added in the <u>Radio Groups</u> pane.

Group Name: The radio group name added in the Radio Groups pane.

**Time Interval, s:** The location update time interval for a certain radio group. It can be set in two ways:

- In the **Time Interval** field type the needed location update interval and press Enter.
- Select the **On/Off** check box and type the needed location update interval in the **Time Interval** field instead of the appeared default value.

You can set a range of fixed values for the location update time interval. The values for different <u>GPS transmission modes</u> can be the following:

- If the Data mode is on, you can set 30 s, 60 s, 120 s, 240 s or 480 s location update time interval.
- If the CSBK mode is on, you can set 15 s, 30 s, 60 s, 120 s, 240 s or 480 s location update time interval.
- If the Enhanced CSBK mode is on, you can set 7.5 s, 15 s, 30 s, 60 s, 120 s, 240 s or 480 s location update time interval.

### NOTE

You can set 7.5 s interval using 7 or 8 values only.

**On/Off:** Select the check box to set location update time interval default value (*240 s*). If the check box is not selected, it will be selected automatically after typing the location update time interval in the **Time Interval** field.

### NOTE

Each time you select or clear the **On/Off** check box again, the location update time interval in the **Time Interval** field automatically resets to its default value (*240 s*).

If **Allow Dispatchers to Amend Location Update Time Interval** is selected, dispatchers can reduce the location update time interval configured in the table above. However, if the time interval specified by the dispatcher is less than **Minimum location update interval**, the new value set by the dispatcher will be ignored, and radio location will be updated within **Minimum location update interval**. If **Allow Dispatchers to Amend Location Update Time Interval** is not selected, dispatchers won't be able to change the time interval for location update, and location will be updated within the time interval set in the table per each group.

### WARNING

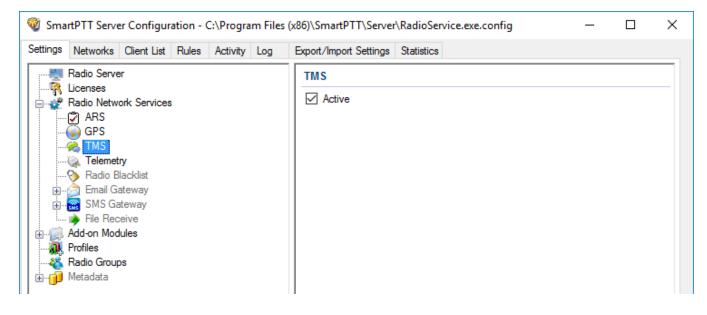
If **Allow Dispatchers to Amend Location Update Time Interval** check box is clear and the table is empty, the dispatcher will not receive any radio location data.

# 1.5.3 TMS

TMS or text messaging service is used to exchange text messages between radios and SmartPTT Dispatcher.

To set up the messaging service parameters, follow these steps:

- 1. In the left pane of the **Settings** tab click **TMS**.
- 2. In the **TMS** pane, select the **Active** check box.



# 1.5.4 Telemetry

Telemetry is used for transmission and processing of telemetry signals between *SmartPTT Dispatcher* and radios.

To set up telemetry parameters, follow these steps:

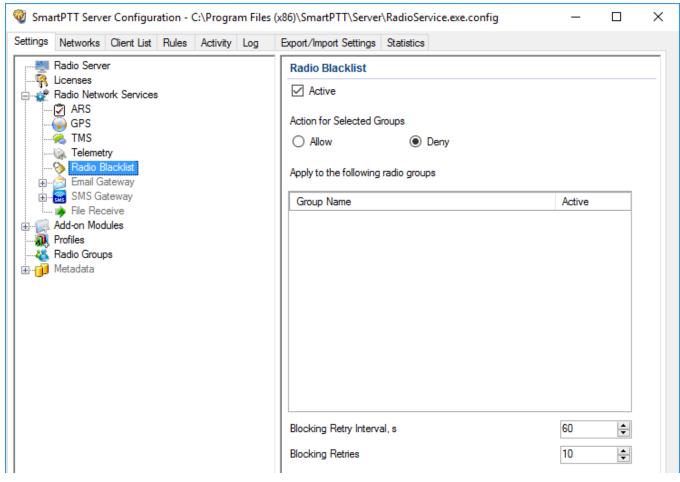
1. In the left pane of the **Settings** tab, click **Telemetry**.

### 2. In the **Telemetry Service** pane, select the **Active** check box.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	m Files	(x86)\SmartPTT\Server	\RadioService.exe.config	_	$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics		
1 2	Radio Serve	er				Telemetry Service	)		
	Licenses Radio Netw	ork Services	3			Active			
	ARS								
	🕞 GPS 🙈 TMS								
	C Telemet								
	📎 Radio E 🚖 Email G								
<b>.</b>	📓 SMS Ga	-							
÷	File Rec Add-on Mod								
	Profiles								
	Radio Group Metadata	ps							

# 1.5.5 Radio Blacklist

**Radio Blacklist** is used for blocking radios. You can block only registered radios when they go online and included into the certain <u>radio group</u>. Besides the blacklist you can also create a "whitelist", in other words to block all other radios except those who are in the selected groups.



To block the radio, you should preconfigure this feature using *MOTOTRBO CPS*.

If the radio is not blocked, *SmartPTT Radioserver Configurator* performs several attempts of blocking according to the settings.

Configuration of the blacklist includes the following steps:

### **Configuring the Firmware File**

This topic contains information about the firmware file configuration. It is alternative to the <u>Configuring Radio</u> procedure.

To configure a firmware file, follow these steps:

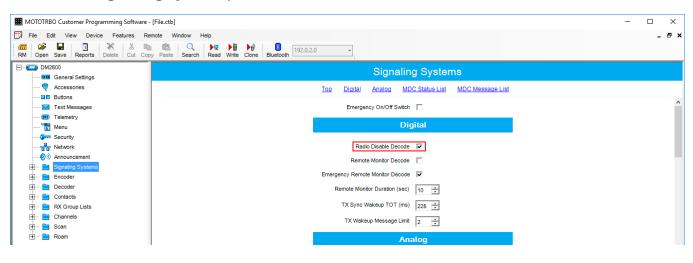
1. In *MOTOTRBO CPS*, click **Open** and select the firmware file.



2. In the left pane, click **Signaling Systems**.

MOTOTRBO Customer Programming Software -	[File.ctb]	– 🗆 X
File Edit View Device Features Re	note Window Help	_ & ×
RM Open Save Reports Delete Cut Cop	Paste Search Read Write Clone Bluetooth     192.0.2.0     ▼	
⊡ <b>€</b> DM2600	Signaling Systems	
General Settings		
🞈 Accessories	Top Digital Analog MDC Status List MDC Message List	
Buttons		
Messages	Emergency On/Off Switch	^
💷 Telemetry		
🛅 Menu	Digital	
Network	Radio Disable Decode 🔽	
	Remote Monitor Decode	
🖽 🚥 💼 Signaling Systems	Kende Monitor Decode	
Encoder	Emergency Remote Monitor Decode	
🕀 🗠 💼 Decoder	Remote Monitor Duration (sec)	
🛨 🗂 Contacts		
🕀 🗠 💼 RX Group Lists	TX Sync Wakeup TOT (ms)	
🕂 🗂 Channels	TV Michael Marcal Link	
🛨 💼 Scan	TX Wakeup Message Limit 2 ÷	
🕀 💼 Roam	Analog	

3. In the **Signaling System** pane, select **Radio Disable Decode**.



#### 4. Click Save.

Red En Edit Ven Davies Fasters Dente Medeus Met		
💬 File Edit View Device Features Remote Window Help	-	8 ×
RM Open Save Reports Delete Cut Copy Paste Search Read Write Clone Bluetooth 192.0.2.0		

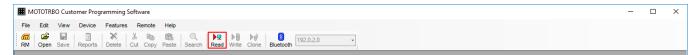
To allow blocking the radio, update the radio firmware using the saved file.

### **Configuring Radio**

This topic contains information about radio configuring. It is alternative to the <u>Configuring</u> <u>Firmware File</u> procedure.

To configure a radio, follow these steps:

- 1. Connect the radio to the computer with special cable and wait for driver installation. *MOTOTRBO CPS* must be installed on the computer previously.
- 2. Run *MOTOTRBO CPS* and click **Read**.



3. In the left pane, click **Signaling Systems**.

MOTOTRBO Customer Programming Software -	[File.ctb]	- 🗆 X
	mote Window Help	_ 8 ×
RM Open Save Reports Delete Cut Cop		
E C DM2600	Signaling Systems	
General Settings	Top Digital Analog MDC Status List MDC Message List	
Buttons	TOU Dividi Atlanta Mice status Etsi Mice messave Etsi	
Text Messages	Emergency On/Off Switch	^
101 Telemetry		
🛅 Menu	Digital	
Security		
Network	Radio Disable Decode 🔽	
	Remote Monitor Decode	
庄 ···· 🚞 Signaling Systems	Emergency Remote Monitor Decode	
Encoder		
🕀 🚾 Decoder	Remote Monitor Duration (sec) 10 🛨	
Contacts      RX Group Lists	TX Sync Wakeup TOT (ms)	
Channels		
t ⊆ chamolo ⊕ ⊂ i Scan	TX Wakeup Message Limit 2 🛨	
	Analog	
	· · · · · · · · · · · · · · · · · · ·	

4. In the **Signaling System** pane, select **Radio Disable Decode**.

MOTOTRBO Customer Programming Software -	[File.ctb]	– 🗆 X
File Edit View Device Features Re	mote Window Help	- & ×
RM Open Save Reports Delete Cut Cop		
DM2600	Signaling Systems	
Accessories	Top Digital Analog MDC Status List MDC Message List	
····· Messages	Emergency On/Off Switch	^
🔟 Telemetry 📷 Menu	Digital	
	Radio Disable Decode 🔽	
······�) Announcement ⊞····	Remote Monitor Decode	_
Encoder	Emergency Remote Monitor Decode 🔽	
🛨 ···· 🧰 Decoder	Remote Monitor Duration (sec) 10 📫	
RX Group Lists	TX Sync Wakeup TOT (ms)	
🕀 💼 Channels	TX Wakeup Message Limit	
	Analog	

- 5. Pause your antivirus software to provide successful firmware update.
- 6. Click **Write** to update radio firmware.

🗰 MOTOTRBO Customer Programming Software - [File.ctb]	-		>	<
File Edit View Device Features Remote Window Help		-	. 8	×
RM Open Save Reports Delete Cut Copy Paste Search Read Write Clone Bluetooth 192.0.2.0				
	_	_	_	-

#### WARNING

Do not unplug your cable from the radio or computer until the radio firmware update complete.

- 7. Wait for the successful update and close *MOTOTRBO CPS*.
- 8. Eject the radio properly and unplug the cable from your computer.

### **Configuring Radio Blacklist**

To begin the configuration of the Radio Blacklist you should create radio groups (see <u>Adding</u>. <u>Radio Groups</u>).

To configure Radio Blacklist, follow these steps:

- 1. In the left pane of the **Settings** tab, click **Radio Blacklist**.
- 2. In the **Radio Blacklist** pane, select **Active**.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	– 🗆 ×	<
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server Radio Network Services Radio Network Services RARS GPS Radio Blacklist Email Gateway	Radio Blacklist         Active         Action for Selected Groups         Allow         Image: Apply to the following radio groups		
B SMS Gateway	Group Name	Active	
⊕@ Add-on Modules	New Group 1		
	New Group 2		
the coope	New Group 3		
	Blocking Retry Interval, s Blocking Retries	60 🗘 10 🗘	

3. Select needed type of the list for radio groups.

	orks Client List		(x86)\SmartPTT\Server\RadioService.exe.config Export/Import Settings Statistics	- 0	×
Radio	Server es Network Service: RS	 -	Radio Blacklist         Active         Action for Selected Groups         Allow         Image: Apply to the following radio groups	Antine	
🏹 Fi	e Receive		Group Name New Group 1	Active	
🗌 🐺 Profile			New Group 2		
Hadio Hadio	Groups ata		New Group 3		
			Blocking Retry Interval, s Blocking Retries	60 <b> </b> € 10 <b> </b> €	

**Deny:** Blocks selected radio groups.

**Allow:** Blocks other groups except of the selected ones.

## 4. Select the desired radio groups.

ettings Networks Client List Rules Activity	og Export/Import Settings Statistics	
Radio Server	Radio Blacklist	
	Active	
ARS 	Action for Selected Groups	
🧙 TMS	O Allow       Deny	
	Apply to the following radio groups	
	Group Name	Active
	New Group 1	
Profiles	New Group 2	
	New Group 3	
	Blocking Retry Interval, s	60 ≑
	Blocking Retries	10 🖨

## 5. In the **Blocking Retry Interval** field, enter an interval between attempts of blocking.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	- 0	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server	Radio Blacklist		_
Radio Network Services	Active		
	Action for Selected Groups     O Allow     O Deny		
Radio Blacklist	Apply to the following radio groups		
i	Group Name	Active	
Add-on Modules	New Group 1		
	New Group 2		
⊕ 1 Metadata	New Group 3		
	Blocking Retry Interval, s	60 🔶	
	Blocking Retries	10 🗘	

tings Networks Client List Rules Activity	Log Export/Import Settings Statistics	
- Radio Server	Radio Blacklist	
	Active	
ARS GPS MS Telemetry Radio Blacklist	Action for Selected Groups <ul> <li>Allow</li> <li>Deny</li> </ul> Apply to the following radio groups	
ia⊘ Email Gateway iaa SMS Gateway	Group Name	Active
File Receive	New Group 1	
- 🔊 Profiles	New Group 2	
<b>&amp; Radio Groups</b> <b></b> Metadata	New Group 3	
	Blocking Retry Interval, s	60 🚖
	Blocking Retries	10 😫

### 6. In the **Blocking Retries** field enter a number of groups blocking retries.

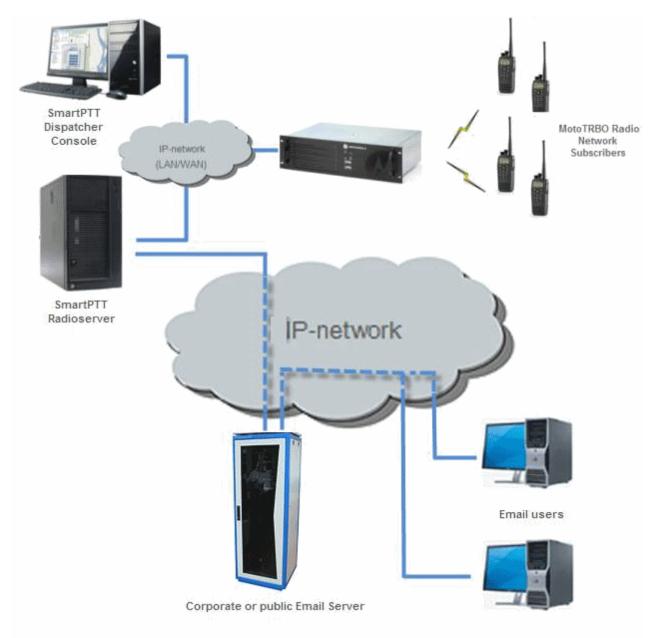
### NOTE

If blocking is failed after retry number, SmartPTT Radioserver Configurator stops attempting until the restart.

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 1.5.6 Email Gateway

Email gateway is used for exchanging digital messages between email users and MOTOTRBO radios:



To be able to exchange email messages between radios and email users you need to configure radioserver.

For text message exchange you can use POP3 or IMAP4 protocol.

Before configuring radioserver, ensure your email account is configured properly:

- POP is activated for all email (including downloaded)
- IMAP is activated

If you use an email client (for example, Microsoft Outlook), the following settings are required for the outgoing messages:

- Plain text as a message format
- Unicode (UTF-8) encoding for outgoing images (with Base64 encoding)

For information on configuring and using email gateway, see the sections below.

# 1.5.6.1 Configuring Radioserver

Follow the procedure to configure SmartPTT Radioserver.

### **Procedure:**

1. In the **Settings** tab of SmartPTT Radioserver, expand **Radio Network Services** and click **Email Gateway**.

2. In the **Email Gateway** pane, select the **Active** check box.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	—	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server Licenses Radio Network Services Radio Network Services Radio Pr Radio Blacklist Radio Blacklist SMS Gateway File Receive Add-on Modules Profiles Radio Groups	E-mail Gateway  Active  Forward Messages to E-mail Sender Name Recipients  Add Remove		
	Enable Direct Messages Delivery from Radio Network     Enable Direct Messages Delivery to Radio Network     Receive protocol POP3       Split Long Messages     Sender ID     Deferred actions     Ignore After Line		

3. Select the **Forward Messages to E-mail** check box to activate message forwarding from radios to the email addresses specified in the **Recipients** list.

#### NOTE

When a radio sends a text message to another radio and if it was successfully sent or/and delivered, all recipients added to the **Recipients** list receive the according confirmation messages.

- 4. In the **Sender Name** field, enter the domain name from which email messages are sent.
- 5. In the **Recipients** field, enter the list of email addresses to receive forwarded text messages.
- 6. *Optional:* Select the **Direct Message Delivery from Radio Network** check box to forward mail messages directly from radios.
- 7. *Optional:* Select the **Direct Message Delivery to Radio Network** check box to forward mail messages directly to radios.

- 8. *Optional:* From the **Receive protocol** list, select the protocol for email message receiving (*POP3* or *IMAP4*).
- 9. *Optional:* Select the **Split Long Messages** check box to split the original message into several packages during transmission without losing information.
- 10. *Optional:* Select the **Sender ID** check box to insert the sender email address to the received message.
- 11. *Optional:* Select the **Deferred actions** check box to deliver an information to the offline radio. When radio becomes online, it will immediately receive it.
- 12. *Optional:* Select the **Ignore After Line** check box to ignore everything after a certain string in the received email message.
- 13. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 14. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

### NOTE

When **Forward Messages to E-mail** is enabled together with the options of receiving messages from the radio network and from the email, all messages sent or received by email users will be duplicated to the specified email addresses.

# 1.5.6.1.1 Configuring Outgoing Messages Server

Follow the procedure to configure outgoing message server settings.

### **Procedure:**

 In the Settings tab of SmartPTT Radioserver, expand Radio Network Services → Email Gateway and click Settings.

Image: SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server	\RadioService.exe.config	_	×
Settings Networks Client List Rules Activity Log	Export/Import Settings	Statistics		
Radio Server	E-mail Gateway Se	ettings		
Radio Network Services   Radio Network Services   Radio GPS   Radio Blacklist   Radio Blacklist  SMS Gateway  Receive  Add-on Modules  Profiles	Outgoing Message SMTP server Port Authentication Email Password	Server (SMTP)		
	POP3 Server Port	 110 ↓		
	Authentication Email Password Polling Delay	☐ Enable SSL Login/Password ✓ 30 ♀ sec		
		Check Connection		

- 2. In the **Outgoing Message Server (SMPT)** area of the **E-mail Gateway Settings** pane, perform the following actions:
  - a. In the **SMTP server** field, enter the domain name of SMTP server which is used for delivering outgoing email messages.
  - b. In the **Port** field, enter the port number SMTP server.
  - c. Optional: If you want to establish a secure connection with SMTP server, select the Use

SSL check box.

- d. From the **Authentication** list select the authentication method for SMTP server:
  - i. *Anonymous* to connect to the SMTP server anonymously.
  - ii. *Windows* to connect to the SMTP server using Windows Authorization.
  - iii. *Login/Password* to connect to the SMTP server with Login/Password specified.
- e. *If the Login/Password authentication is selected:* In the **Email** field, enter an email address required by the mail server.
- f. *If the Login/Password authentication is selected:* In the **Password** field, enter the password.
- Click Send Test Message to check server connection.
   If connection is successful and the settings are correct, the mail user specified above will receive a test email message.
- 4. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 5. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

## 1.5.6.1.2 Configuring Incoming Messages Server

Follow the procedure to configure incoming message server settings.

### **Procedure:**

1. In the **Settings** tab of SmartPTT Radioserver, expand **Radio Network Services** and click **Email Gateway**.

### 2. In the **Email Gateway** pane, from the **Receive protocol** list, select *POP3* or *IMAP4*.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	_	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server Genses ARS GPS TMS Telemetry Radio Blacklist Email Gateway	E-mail Gateway  Active  Forward Messages to E-mail Sender Name Recipients		_
<ul> <li>Gateway</li> <li>File Receive</li> <li>Add-on Modules</li> <li>Profiles</li> <li>Radio Groups</li> <li></li></ul>	Add Remove Enable Direct Messages Delivery from Radio Network Enable Direct Messages Delivery to Radio Network		
	Receive protocol POP3		

### 3. Expand Email Gateway and click Settings.

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config	_	$\times$
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
Radio Server	E-mail Gateway Settings		
Radio Network Services ARS GPS TMS Telemetry Radio Blacklist Email Gateway	Outgoing Message Server (SMTP) SMTP server Port 25 Use SSL Authentication Login/Password	~	
Settings     SMS Gateway     SMS Gateway     File Receive     Add-on Modules     Profiles     Radio Groups	Email Password Send Test Message		
Metadata	Incoming Message Server (POP3)		
	POP3 Server	$\sim$	
	Port 110		
	Authentication Login/Password	$\sim$	
	Email		
	Password		
	Polling Delay 30 🜩 sec		
	Check Connection		

- 4. In the **Incoming Message Server** area of the **Email Gateway Settings** pane, perform the following actions:
  - a. In the **POP3 Server** (or **IMAP4 Server**) field, specify domain name of the server which is used to deliver incoming email messages.
  - b. In the **Port** field, enter the port number server.
  - c. *Optional:* If you want to establish a secure connection with server, select the **Use SSL** check box.
  - d. From the Authentication list select the authentication method for server:
    - i. *Anonymous* to connect to the server anonymously.
    - ii. *Login/Password* to connect to the server with Login/Password specified.

- e. *If the Login/Password authentication is selected:* In the **Email** field, enter an email address required by the mail server.
- f. *If the Login/Password authentication is selected:* In the **Password** field, enter the password.
- g. In the **Polling Delay** field, specify the polling interval for the mail server.
- 5. Click Check Connection.

If connection is successful, the pop-up window displays the number of unread email messages in your email box.

- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 1.5.6.2 Sending Messages

In SmartPTT you can use the Email Gateway in the following ways:

- Sending text messages from email accounts to radios. For details, see <u>Sending Messages to</u> <u>Radios</u>.
- Sending text messages from radios to email users. For details, see <u>Sending Messages from</u> <u>Radio Subscribers to Email Users</u>.

## 1.5.6.2.1 Sending Messages to Radios

Follow the procedure to send an email message to a radio.

### **Procedure:**

- 1. Sign in to your email account.
- 2. Compose the message:
  - a. Enter the prefix : (colon symbol) indicating that this message is addressed to a radio or a talkgroup.
  - b. Enter the radio/talkgroup ID or IP address in the **<ID|IP>** format.

### NOTE

If a radio or talkgroup ID is more than 255, you can send an email message only by entering the radio or talkgroup IP address.

- c. Enter the space symbol that indicates the beginning of a text message body.
- d. Enter your message.



### Example

- The email message :12.0.0.77 Hello! received from the mail server will be forwarded to the radio or talkgroup with IP 12.0.0.77.
- The email message :77 *Hello*! received from the mail server will be forwarded to the radio with ID 77.
- The email message :12.0.0.80,12.0.0.81,12.0.0.82,12.0.0.50 Hello! or :80,81,82,50 Hello! received from the mail server will be forwarded to the radios with corresponding IDs.

## 1.5.6.2.2 Sending Messages to Email Address

Follow the procedure to send a message from a radio to an email user.

### **Procedure:**

- 1. Open the **Messages** menu on the radio.
- 2. To enter the message text in the field, perform the following actions:
  - a. Enter the prefix : (colon symbol) indicating that this message is addressed to email user.
  - Enter the email address of the contact or several contacts, separated with the coma (,) symbol in the <email\_address> format.

- c. Enter the space symbol that indicates the beginning of the message body.
- d. Enter your message.



### Example

- The message :email\_address@example.com Hello! from a radio will be forwarded to the email user with the email address email\_address@example.com.
- The message :email\_address1@example.com, email\_address2@example.com Hello! from a radio will be forwarded to the email users email\_address1@example.com and email\_address2@example.com.

# 1.5.7 SMS Gateway

SmartPTT Radioserver has an integrated SMS Gateway service, which allows establishing communication between radios and mobile phones. There are two possible ways to communicate between each other:

- A radio sends an SMS to a phone subscriber
- A phone subscriber sends an SMS to a radio

To be able to send an SMS, it is necessary to do preliminary settings on both modem and SmartPTT Radioserver.

## **Configuring SmartPTT Radioserver and Incoming Messages**

In the left pane of the Settings tab, click **SMS Gateway**.

<table-cell> Sma</table-cell>	artPTT Serve	er Configur	ation - (	C:\Progra	im Files	(x86)\SmartPTT\Server\RadioService.exe.config	_	$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings Statistics		
	Radio Serve Licenses Radio Netw (2) ARS (3) GPS (3) TMS (3) Telemet (3) Radio B (3) Email G (3) SMS G (4) File Rec Add-on Moo Profiles Radio Group Metadata	ork Services ary llacklist ateway ateway peive fulles	3			SMS Gateway         Active         SMS sending         Allow SMS Delivery from Radios         Allow SMS Delivery to Radios         Incoming SMS messages         Split Long Messages         Sender ID         Deferred actions		_

Active: Select to enable SMS Gateway service.

**Allow SMS Delivery from Radios:** Select this option if you need to forward SMS directly from radios.

Allow SMS Delivery to Radios: Select this option if you need to forward SMS directly to radios.

**Split Long Messages:** If selected, a long message, i.e. a message that contains more characters than allowed in one message in the radio network sent to a radio, will be split into several messages. If not selected, a long message addressed to a radio is trimmed to not exceed the limit (some information will be lost).

**Sender ID:** If selected, the phone number of the sender with the received SMS will be displayed on the radio.

**Deferred actions:** If selected, it allows to deliver an information to the offline radio. When radio becomes online, it will immediately receive it.

### **Configuring a Modem and Outgoing Messages**

### WARNING

To enable modem settings, stop SmartPTT Radioserver.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.confi	g — 🗆 🗙		
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics			
Radio Server	SMS Gateway Settings			
	Modem settings become enabled after stopping the radioserver.			
GPS	Port name:	COM1 ~		
🦗 Telemetry	Speed:	57600 ~		
	Data bits:	8 ~		
BMS Gateway	Stop bits:	1 ~		
File Receive	Parity:	None ~		
	Read timeout:	1000		
	Write timeout:	1000		
	Check Modem			
	Use text mode			
	SMS Center for outgoing messages			
	Test Settings			
	Phone Number			
	Message			
	Send			

**Port name:** COM port number which modem is connected to. You can find the COM port number by opening modem properties in Windows Control Panel.

**Speed:** Data flow rate through COM port (in bits per second).

**Data bits:** Number of data bits to transmit. You can configure **Data Bits** to be *5*, *6*, *7*, or *8*. Data is transmitted as a series of five, six, seven, or eight bits (five and six bit data formats are used rarely for specialized communications equipment).

**Stop bits:** Number of bits used to indicate the end of a byte. You can configure **Stop Bits** to be *1*, *1.5*, or *2*. If **Stop Bits** is *1.5*, the stop bit is transferred for 150% of the normal time used to transfer one bit. Both the computer and the peripheral device must be configured to transmit the same number of stop bits.

**Parity:** Method of detecting errors in transmission. You can configure **Parity** to be **None**, **Odd** or **Even**:

**None:** Parity checking is not performed and the parity bit is not transmitted.

**Odd:** Number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits.

**Even:** Number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an even number of mark bits.

**Read timeout:** Number of milliseconds before a time-out occurs when a read operation does not finish.

**Write timeout:** Number of milliseconds before a time-out occurs when a write operation does not finish.

**Check Modem:** Modem operation test. If a modem is detected, you will see information regarding the type of modem installed on your system. If there is no modem detected, you will see "Modem not found" message.

Check modem	
Check modem connection COM2: opened! Modem Response: Modem found. Manufacturer data: ATI Cinterion MC52i REVISION 01.201	
	Close

### The next step is to check settings for outgoing messages and to send a test message.

ngs Networks Client List Rules Activity Log	Export/Import Settings Statistics	
	SMS Gateway Settings	
¶ Licenses ∰ Radio Network Services ∭ ARS	Modem settings become enabled	after stopping the radioserver.
GPS	Port name:	COM1 $\checkmark$
	Speed:	57600 ~
🗄 🚵 Email Gateway	Data bits:	8 ~
E SMS Gateway	Stop bits:	1 ~
	Parity:	None $\vee$
	Read timeout:	1000 🜩
<b>&amp; Radio Groups</b> ] <b></b> Metadata	Write timeout:	1000 🗘
-	Che	eck Modem
	Use text mode	
	SMS Center for outgoing message	95
	Test Settings	
	Phone Number	
	Message	

**Use text mode:** Allows selecting Text or PDU mode for SMS sending. There are two ways of sending and receiving SMS messages: in text mode (the check box selected) and in the protocol description unit (PDU) mode (the check box is not selected). The text mode (unavailable on some phones) is just an encoding of the bit stream represented by the PDU mode, and can be used only for English; PDU mode and Unicode are used for all languages. Unicode is the universal character encoding which provides the basis for the consistent encoding, representation and handling of text expressed in most of the world's writing systems.

**SMS Center for outgoing messages:** SMS message center number. If the number is registered on modem's SIM-card, there is no need to fill this field.

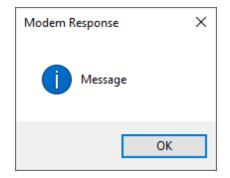
## **Testing SMS Sending**

Make sure SMS that messages can be sent to recipients from SmartPTT Radioserver. Use **Test Settings** to do it.

First, in the field **Phone Number** specify the phone number where you will send the test message.

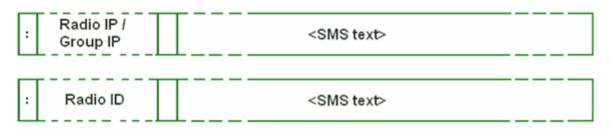
Second, enter the text of the message in the field **Message**. And then click **Send**.

If the message is successfully sent, you will get a confirmation notification.



When modem is selected and test message is successfully sent, save the changes and restart the radioserver **D**. After the radioserver is started, **Check modem** and **Send** (test message) will be unavailable. It will mean that now you are ready to send SMS messages from the radio and to the radio.

To send an SMS from the mobile phone to the radio, the message forwarded to the modem number should comply with one of the following formats.



The following symbols should be used:

- Colon (:) symbol: Prefix that indicates addressing the message to the specific recipient
- <Radio/Talkgroup IP>: Radio or talkgroup IP address of the recipient OR

- <Radio ID>: Radio ID of the target contact
- Space symbol: Indicates the beginning of the message text

Use the **Split Long Messages** option to guarantee that a message will not be cut.

### Example

When SmartPTT Radioserver received the following message, it sends the message to radio 77 (or to talkgroup ID = 2):

- To the radio with radio ID = 77: :12.0.0.77 SMS text
- To the radio with radio ID = 77: :77 SMS text
- To talkgroup 2: :225.0.0.2 SMS text
- To multiple radios simultaneously: :12.0.0.80, 12.0.0.81, 12.0.0.82, 12.0.0.50 SMS text
- To multiple radios simultaneously: :9080,9081,9082,9050 SMS text

#### NOTE

When only ID is specified (with no IP address of the radio or talkgroup), SMS can be sent only to the radio with the specified ID. To send a group SMS, it is necessary to use a full talkgroup IP address.

To send an SMS from a radio to a mobile phone, the message should comply with the following format.



The following symbols should be used:

- **Colon (:)** symbol: Prefix that indicates addressing the message to the specific telephone user.
- <&phone number>: Phone number of the SMS target (symbol "&" is used instead of "+" because there is no "+" symbol in the MOTOTRBO radios).
- **Space** symbol: Indicates the beginning of the message text.

### 🗉 Example

On receiving the message :&71234567890 SMS text, the radioserver sends it to the mobile radio with the phone number +71234567890

• To several mobile subscribers simultaneously: :&71234567890,&71234567890 SMS text

# 1.5.8 File Receive

File Receive is used for sending files of any formats from MOTOTRBO radios. This function can be necessary in the absence of the Internet connection and other channels to transmit data.

In version 2.0 SmartPTT File Transfer you can receive files without the server application or base stations. You need to have only a radio connected to the computer by using USB port and the client application SmartPTT File Transfer version 2.0.

For information on configuring and using file transfer service, see the sections below.

# 1.5.8.1 Configuring File Receive in SmartPTT Radioserver Configurator

Follow the procedure to configure **File Receive** service in SmartPTT Radioserver Configurator.

#### **Procedure:**

1. In the **Settings** tab of SmartPTT Radioserver, expand the **Radio Network Services** node, and then click **File Receive**.

The File Receive Service pane opens.

🎯 Smart	PTT Serve	er Configur	ation - (	C:\Progra	m Files (	x86)\SmartPTT\Server	\RadioService.exe.config	—	$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics		
	Radio Serve icenses Radio Netwo ARS GPS TMS Telemet Radio B Email Ga SMS Ga SMS Ga File Rec Add-on Mod Profiles Radio Group Ietadata	ork Services ry lacklist ateway iteway eive ules	5			File Receive Service	5001	ansfer\	 _

- 2. Select the **Active** check box to activate the service.
- 3. In the **Port** box, enter the port number for file receive service.
- 4. Next to the **Received File Folder** box, click Browse ( ), and specify the folder name where received files are to be stored.
- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

## 1.5.8.2 Configuring Radio Settings in MOTOTRBO CPS

Follow the procedure to configure radio settings in MOTOTRBO CPS to provide stable file transfer rate.

#### **Procedure:**

- 1. Start MOTOTRBO CPS.
- 2. Open the radio codeplug.
- 3. If not selected, in the **Edit** menu, select the **Expert** view type.
- 4. In the left pane, click **General Settings**. The **General Settings** pane appears.
- 5. In the **General Settings** pane, in the **TX Preamble Duration** box, enter 60 ms.

I MOTOTRBO Customer Programming	Software - [Sample_DP4801.ctb] -	×
	tures Remote Window Help	. 8 ×
RM Open Save Reports Delete	X     Image: Constraint of the second s	
DP4801	General Settings	
Accessories     Buttons	Top CWID Audio Profile Microphone Backlight Battery Saver Alerts Over-the-Air Programm	ing
····· 🖂 Text Messages	Persistent LRRP Requests Lone Worker Power Up Password and Lock Front Programming Password Delete All 5 Tone Radio ID	
······ 🔟 Telemetry	GNSS GPS/QZSS	^
Network	Private Calls	
∲≫) Announcement ⊕ 📄 Job Tickets	Site Search Timer (sec)	
	ARS Initialization Delay (min)	
Decoder	TX Preamble Duration (ms) 60	
RX Group Lists	Monitor Type Open Squelch	
🛨 🧰 Scan 🛨 💼 Roam	Min Speaker Volume Level (dB) Muted	
Em Capacity Plus		
General Settings	Expert View N	JM

6. In the left pane, click **Network**.

The **Network** pane appears.

7. In the **Network** pane, from the **Max TX PDU Size** list, select *500 bytes*.

I MOTOTRBO Customer Programm	ning Software - [Sample_DP4801.ctb]	– 🗆 X
w.	Features Remote Window Help	- 8 ×
RM Open Save Reports Del	K Banchard Bluetooth K Banchard Read Write Clone Bluetooth 192.168.11.1 192.168.11.1	
🖃 🖷 🏮 DP4801	Network	
General Settings	Network	
Accessories	Top Radio Network Services Control Station IP Site Connect Bluetooth	Bluetooth Serial Port Prof
Buttons	USB HID Data Routing	
Text Messages		
Telemetry	Radio Network	^
Menu		· · · · ·
Security	CAI Network	
Network	CAI Network 12	
	CAI Group Network	
🕀 🚞 Job Tickets		
🕂 ···· 📄 Signaling Systems	Protected Mode Control Station	
Encoder	Max TX PDU Size (bytes) 500 -	
🕀 🗠 🧰 Decoder		
Contacts	Telemetry UDP Port 4008	
RX Group Lists	Forward to PC Disabled	
Hannels		
🕀 🖳 🔁 Scan	Services	
🕀 💼 Roam		v .
庄 ···· 🚞 Capacity Plus	, [	
Network	Expert View	NUM

8. In the left pane, expand **Channels** → **<Zone Name>**, and then select the channel on which files are transmitted.

The **<Channel Name>** pane appears.

9. In the open pane, clear the **Data Call Confirmed** check box.

	O Customer Programming	g Software - [Sample_DP4801.ctb]	_		×
🕎 File Ed	dit View Device Fea	atures Remote Window Help		-	đΧ
RM Open	Save Reports Delete	み     ●     ●     ●     ●       Cut     Copy     Paste     Search     Read     Write     Clone     Bluetooth			
		Channel1			
	General Settings				
	Accessories	<u>Top</u> <u>RX</u> <u>TX</u>			
	Buttons	I O I Rekey Delay (sec) 0			^
		Allow Interruption			
101	Telemetry				
		TX Interruptible Frequencies			
-	Security	Admit Criteria Channel Free			<b>-</b>
	Network Announcement	Channel Tee			<u> </u>
∎ ⊕ <b>⊘</b> ∥	Job Tickets	In Call Criteria Always			
	Signaling Systems	RSSI Threshold (dBm)			
	Encoder	RSSI Threshold (dBm)			
	Decoder	GNSS Revert Selected	-		
	Contacts				
	RX Group Lists	Private Call Confirmed			
	Channels	Data Call Confirmed			
	- 🚔 Zone1	Location Data Delivery Mode Follow Data Call Confirmed			- 64
	Channel1	Location Data Delivery Mode Follow Data Call Confirmed			
	Channel2	Enhanced Channel Access			
	Channel Pool	CSBK Data			
📕 🗄 🗠 🧰	Scan	CSBK Data			
🛓 🕂 🚞	Roam	<			>
	Capacity Plus				-
Channel1		Expert View		NUN	
Channen		Expert view		INON	"

10. Save changes to the codeplug and write them to the radio.

### 1.5.8.3 Configuring Routing Settings for File Transmission

Follow the procedure to add information on a new route for file transmission in the routing table of the computer to which a radio is connected.

#### **Procedure:**

Run Windows Command Prompt as Administrator.
 The Administrator: Command Prompt window appears.



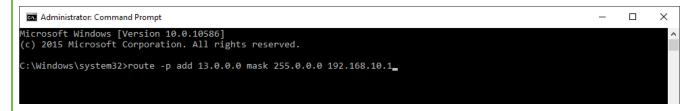
- 2. In the command prompt, type the command *route –p add 13.0.0.0 mask 255.0.0.0 192.168.X.X* to add the file transmission route, where:
  - route: command to add a route
  - -*p*: key for adding a route into the list of fixed routes
  - *add:* adding the route
  - 13.0.0.0: IP address of all radios available in the radio network
  - *mask 255.0.0.0:* network mask
  - 192.168.X.X: radio IP address

#### NOTE

Radio IP address can be found in the MOTOTRBO CPS application, in the **Network** node.

#### Example

To transmit data packets from the radio with IP address *192.168.10.1*, the following command should be typed: *route –p add 13.0.0.0 mask 255.0.0.0 192.168.10.1* 



### 1.5.8.4 Configuring SmartPTT File Transfer Settings

Follow the procedure to configure SmartPTT File Transfer application settings.

#### NOTE

For information on settings of SmartPTT File Transfer, see SmartPTT File Transfer User Guide.

#### **Prerequisites:**

Ensure you downloaded and installed the latest version of the SmartPTT File Transfer (<u>https://smartptt.com/download/</u>).

#### **Procedure:**

1. Start SmartPTT File Transfer Client.

📕 SmartPTT - File Tra	nsfer 2.0 (client)				_	$\times$
File Service He	lp					
i 💕 🎒   🕨 💷   🔇	Þ					
Network statistics Packets transmitted: Last command name: Last command state: Retry	unknown		Packets received Packets lost: Current state: Last state:	0 0 waiting waiting		
File transfer statistics File name: File size: Transfer progress:	file not selected unknown					
Connection managem Server ID:	ent 1	: 5001	Connect Dis	connect		
Ready	No mess	ages				

2. In the **Server ID** box, enter the radio ID of NAI - IP Site Connect, which will be used for file transmission.

#### NOTE

The radio ID is set in SmartPTT Radioserver Configurator, in the NAI - IP Site Connect  $\rightarrow$  NAI Control Station pane, in the Radio ID box.

🎯 Sma	artPTT Serve	er Configur	ation - C:\Program File	es (x86) <sup>v</sup>	SmartPT	T\Server	\RadioService.exe.co	nfig	_	×
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	s Statistics		
		s Site Connect Talkgroups Security Set 2 Talkgroups Security Set MS Settings S Data Gate or Networks	tings tings eway	S S C C C	lot ID 1 ladio ID Al Network	c c for Grou elephone	1 12 12 12 12 12 12 12 1			

3. In SmartPTT File Transfer, click the **Connect** button to connect to the radioserver. The **Connect** button and boxes next to it become unavailable, and the **Disconnect** button becomes active.

📕 SmartPTT - File Tra	nsfer 2.0 (client)			_	$\times$
File Service He	lp				
i 💕 🎒   🕨 🗉 🛛	$\mathbf{\hat{v}}$				
Network statistics					
Packets transmitted: Last command name: Last command state: Retry	unknown		Packets received Packets lost: Current state: Last state:	0 0 waiting waiting	
File transfer statistics					
File name:	file not selected unknown				
Connection managem	ent				
Server ID:	1	: 5001	Connect Disc	onnect	
Ready	N	lo messages			

### 1.5.8.5 File Transmitting

Follow the procedure to perform file transmitting in SmartPTT File Transfer.

#### **Procedure:**

- 1. In the **SmartPTT File Transfer** window, click **File**  $\rightarrow$  **Select File**. The window for selecting file appears.
- 2. In the open window, select the desired file to transmit, and click **Open**.
- 3. Click the **Start File Transfer ( )** button.

At the bottom of the window, the caption **File transfer** about the ongoing file transmission appears in yellow.

📕 SmartPTT - File Tra	nsfer 2.0 (client)		_	×
File Service He	le Service Help     Vetwork statistics   Packets transmitted:   3   Aast command name:   GET_LOST_LIST_SID + ECHO   Aast command state:   success   0     Current state:   Transfer file   Last state:   Retry   0     Current state:   Transfer file   Last state:   Retry   0     Connection management   Server ID:     1     5001     Connect   Disconnect			
i 💣 🏟   🕨 🔳 🕻	P			
Last command name:	GET_LOST_LIST_SID + ECHO	Packets lost: Current state:	0 Transfer file	
File transfer statistics File name: File size: Transfer progress:				_
Connection managem Server ID:		5001 Connect	Disconnect	
Transfer file	File transfer	192.0.	2.0	

4. Wait until the file is successfully transmitted.

At the bottom of the window, the caption **File transferred** appears in green when the file is successfully transmitted.

📕 SmartPTT - File Tra	nsfer 2.0 (client)		_	
File Service He	lp			
i 💕 🎒   🕨 🗉 🛛	9			
Network statistics Packets transmitted: Last command name: Last command state: Retry	SAVE_TO_FILE_SID + ECHO	Packets received Packets lost: Current state: Last state:	3 0 Response OK Save to file	
File transfer statistics File name: File size: Transfer progress:	1.csv 235 byte(s), 1 packet(s)			
Connection manageme Server ID:		5001 Connect D	isconnect	
Response OK	File transferred	192.0.2.0	0	

# **1.6 Profiles**

In SmartPTT Radioserver Configurator you can create profiles for managing the capabilities of dispatchers in SmartPTT Dispatcher.

You can add profiles in the **Profiles** node of the **Settings** tab. For details, see <u>Adding Profiles</u>.

All added profiles are available in the **Profiles** node and provide the following elements:

🎯 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config —	
Settings Networks Client List Rules Activity Log Export/Import Settings Statistics	
Settings       Networks       Client List       Rules       Activity       Log         Profile       Licenses       Radio Network Services       Addom Modules       Profile         Profile       Profile       Linit Radios to Service       Example: 1-99, 150         Addo Groups       Profile       Linit Radios to Service       Enabled         Radio Groups       Radio Groups       Imit Radios to Service       Imit Radios to Service         Profile       Imit Radios to Service       Imit Radios to Service         Radio Groups       Imit Radios to Service       Imit Radios to Service         Profile       Imit Radios to Service       Imit Radios to Service         Profile       Imit Radios to Service       Imit Radios to Service         Radio Groups       Imit Radios to Service calls       Imit Radios to Service calls         Private calls       Imit Private calls       Imit Private calls	Down

#### Name

The profile name. You can change the name if required.

The Limit Radios to Service area provides the following elements:

#### Enabled

Activates the functionality for filtering radios presented in the system when the profile is assigned to a dispatcher, and unblocks the **Allowed radio ID's** box.

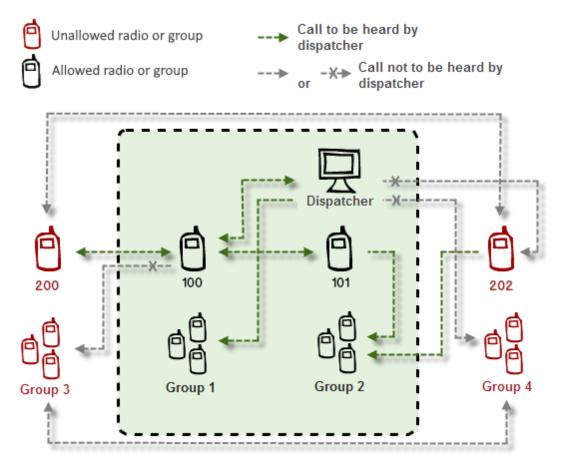
If the functionality is disabled, the dispatcher can operate all radios in the system.

#### Allowed radio ID's

Used for setting the IDs of the radios that will not be filtered. The text above the box provides an example of the value input format.

If you leave the box empty, a warning symbol ( **9**) appears and all radios of the system become unavailable to dispatcher when the profile is selected.

The following scheme illustrates interaction of the dispatcher with filtered and unfiltered (allowed and unallowed) radios and groups:



The table below summarizes the working principle of radio filtering:

Call From	Call To						
	Allowed group	Unallowed group	Allowed radio	Unallowed radio	Dispatcher		
Unallowed radio	Allowed	Not allowed	Allowed	Not allowed	Not allowed		
Allowed radio	Allowed	Not allowed	Allowed	Allowed	Allowed		
Dispatcher	Allowed	Not allowed	Allowed	Not allowed	Allowed		

#### Expand/Collapse All

Expands or collapses trees of objects in the Objects box located below the buttons.

#### Up/Down

Moves the objects up or down. The objects position in the profile affects the way they are displayed in the Radio Fleet panel of SmartPTT Dispatcher is assigned to a dispatcher.

#### **Objects Box**

Provides various controls for configuring objects of the profile. The objects displayed in the box represent networks and control stations added to SmartPTT Radioserver. By selecting or clearing the check box next to the object name, you can select or clear check all boxes in the object tree.

SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\RadioService.exe.config —	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server	Profile	
alio Network Services	Name Profile 1	]
Profiles	Limit Radios to Service	
<mark>48 Radio Groups</mark> ⊕ <b>1</b> Metadata	Example: 1-99, 150 Allowed radio ID's 1	
		1
	Expand All Collapse All 🛖 Up 🚽 Down	1
	Control Station 1 Group 1 Private calls monitoring Private calls monitoring Private calls monitoring Radio Network Services MARS Telemetry NAI - IP Site Connect 1 - Slot 1 Private calls Private calls Private calls Private calls Private calls monitoring Private calls monitoring Private calls monitoring Private calls Private calls P	

You can configure the following object parameters by selecting the corresponding check boxes in the **Objects** box:

#### ID

If selected, you can specify the object ID. The ID is required when more than one dispatchers use the same channel.

If the check box is clear, the **Network ID** value of the network is used as the object ID for dispatcher identification.

If the IDs are the same for several profiles, dispatchers will hear each other's private calls even if the **Private calls** check box is clear.

The IDs can be used to initiate private radio calls to the corresponding dispatchers.

The box is unavailable for control stations.

#### Private calls

If selected, the dispatcher can initiate private calls to radios, telephone subscribers, and other dispatchers.

#### Private calls monitoring

If selected, the dispatcher can listen to private calls made from radios to radios, from radios to dispatchers, and from radios to telephone subscribers, and vice versa. The dispatcher can also read the messages sent from the objects.

#### Group

If selected, the dispatcher can initiate group calls to the selected group and hear all calls made to it.

#### All Call

If selected, the dispatcher can initiate All Calls.

#### **Radio Network Services**

If selected, the dispatcher can use all the services provided by the object such as ARS, TMS, GPS, and telemetry.

You can expand the node and select or clear the desired check boxes.

For information on the radio network services, see <u>Registration Service</u>, <u>Location Service</u>, <u>Text</u> <u>Messaging Service</u>, and <u>Telemetry Service</u>.

#### **Reserved Control Station**

Available only for the NAI - Capacity Plus and NAI - Linked Capacity Plus radio systems. Appears when a control station is added and reserved for dispatcher private calls. For details, see <u>Adding</u> <u>and Configuring NAI Control Stations</u>.

When the check box is selected, the reserved control station becomes assigned to the profile. The object ID is the same as the **Radio ID** of the control station.

	🎯 SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\Server.exe.config	_	
1	Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics		
	Radio Server K Licenses Radio Network Services	Profile		
	Add-on Modules	Name Profile 1 Limit Radios to Service Enabled Allowed radio ID's	Example: 1-99, 150	
		Expand All Collapse All Collaps	1	Down

#### High priority of calls

Available only in the Capacity Max radio system. If selected, all dispatcher calls have a high priority level and interrupt normal priority calls. The **Allow priority increasing** check box is cleared automatically.

#### Allow priority increasing

Available only in the Capacity Max radio system. If selected, dispatchers can increase the call priority level from normal to high before initiating it in SmartPTT Dispatcher. High priority calls interrupt normal priority calls.

If selected, the **High priority of calls** check box becomes unavailable.

#### NOTE

Emergency Calls and All Calls always have high priority and cannot be interrupted.

	; (x86)\SmartPTT\Server\Server.exe.conf	fig — 🗆 X
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server Licenses Add-on Modules Add-on Modules Profiles Radio Groups Radio Groups Metadata	Profile         Name       Profile 1         Limit Radios to Service         □ Enabled         Allowed radio ID's         Expand All       Collapse         □ Capacity Max 1 - Capacity Max         □ ID: Not set         □ Private calls         □ Private calls monitoring         ⊕ □ Radio Network Services	

For information on configuring profiles, see the sections below.

# 1.6.1 Adding Profiles

Follow the procedure to add a new profile.

#### **Prerequisites:**

Open the **Settings** tab of SmartPTT Radioserver Configurator.

#### **Procedure:**

1. In the left pane of the **Settings** tab, right-click **Profiles**, and then click **Add**. The **Profile** pane appears.

- 2. *Optional:* In the **Name** box of the **Profile** pane, type the desired name of the profile.
- 3. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.

#### **Postrequisites:**

To delete a profile, in the left pane of the **Settings** tab, right-click the desired profile name, and then click **Delete**.

# 1.6.2 Configuring Radios Filter

Follow the procedure to specify the radios available to dispatcher in SmartPTT Dispatcher. For details, see <u>Profiles</u>.

#### **Prerequisites:**

- Open the **Settings** tab.
- Ensure at least one profile was added to SmartPTT Radioserver. For information on profile adding, see <u>Adding Profiles</u>.

#### Procedure:

- 1. In the **Settings** tab, click **Profiles**  $\rightarrow$  **<name of the profile**>. The **Profile** pane appears.
- In the Profile pane, select the Enabled check box.
   The Allowed radio ID's box becomes available
- 3. In the **Allowed radio ID's** box, type the IDs of radios that will be allowed in this profile.
- 4. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save ( Context of Save ( Sa**

# 1.6.3 Configuring Dispatcher Capabilities

Follow the procedure to configure dispatcher capabilities in the profile. For information on check boxes, see <u>Profiles</u>.

#### **Prerequisites:**

• Ensure the desired networks were added in the **Network** tab.

 Ensure the desired profile was added to SmartPTT Radioserver. For details, see <u>Adding</u> <u>Profiles</u>.

#### Procedure:

- 1. In the **Settings** tab, click **Profiles**  $\rightarrow$  **<name of the profile**>. The **Profile** pane appears.
- 2. *Optional:* In the Objects box, click **Up** or **Down** to move objects to the desired position.
- 3. Click **Expand All** to expand all nodes in the Objects box, or click the Expand button ( **•**) to expand the desired node.
- 4. In the Objects box of the **Profile** pane, select the desired check boxes, or select the check box next to the object name to select all check boxes.
- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.

#### **Postrequisites:**

- To set a custom ID for the object, see <u>Setting Custom IDs</u>.
- To select the desired reserved control station for the object, see <u>Selecting Reserved Control</u> <u>Stations</u>.

### 1.6.3.1 Setting Custom IDs

Follow the procedure to specify a custom ID for profile objects. For information on object IDs, see <u>Profiles</u>.

#### **Prerequisites:**

Ensure the **ID**: **Not set** check box is available in the desired object tree.

#### **Procedure:**

- Select the **ID: Not set** check box.
   The name of the check box changes to **ID: <number>**.
- 2. Double click the **ID: <number>** check box.

- In the box, enter the desired ID of the object.
   The new ID is set for the object.
- 4. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save ( Configuration** window, click **Save ( Save ( S**

# 1.6.3.2 Selecting Reserved Control Stations

Follow the procedure to select a reserved control station for an object if more than one reserved control stations are added to SmartPTT Radioserver. For information on reserved control stations, see <u>Profiles</u> and <u>Adding and Configuring NAI Control Stations</u>.

#### NOTE

If only one reserved control station is added to SmartPTT Radioserver, perform the <u>Configuring</u> <u>Dispatcher Capabilities</u> procedure.

#### **Prerequisites:**

- Ensure at least two reserved control station were added for the object.
- Ensure the **Reserved Control Station: Not set** check box is available in the object tree.

#### **Procedure:**

- Select the Reserved Control Station: Not set check box.
   The check box changes to Reserved Control Station: <control station name> check box and ID: Not set check box changes to ID: <control station Radio ID value>
- 2. Double click the **Reserved Control Station: <control station name>** check box.
- 3. From the list, select the desired reserved control station.
- 4. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.

# 1.7 Radio Groups

Radio groups (do not confuse with talkgroups) are used to perform various tasks:

• Organization of a dynamic bridging of private calls (this feature is configured in *SmartPTT Dispatcher*)

- Telephone calls management
- Management of the intervals for receiving GPS coordinates of particular set of radios

SmartPTT Server Configuration - C:\Program Files (	86)\SmartPTT\Server\RadioService.exe.config	– 🗆 X
Settings Networks Client List Network Configuration Ru	es Activity Log Export/Import Settings Statistic	S
Radio Server 	Radio Groups Example of radio ID list for group: 1, 5, 10-20	
Profiles     Radio Groups     Metadata	Add Remove	
	Group Name 🔺 F	Radio IDs
	New Group 1	
	New Group 2	
	New Group 3	

Configuration of radio groups includes:

#### Adding Radio Group

To add a radio group, follow these steps:

1. In the left pane of the **Settings** tab, click **Radio Groups**.

🎯 SmartPTT Server Configuration - C:\Program Files (x	(86)\SmartPTT\	\Server\RadioService.exe.confi	g —	×
Settings Networks Client List Network Configuration Rul	les Activity I	Log Export/Import Settings	Statistics	
Radio Server	Radio Group	ps		
arrige Decrises arriver Radio Network Services arriver Add-on Modules	Example of ra	adio ID list for group: 1, 5, 10-20		
Radio Groups	Add	Remove		
i Metadata	Group Name	e	Radio IDs	

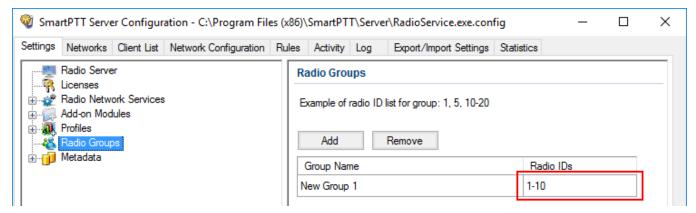
2. In the **Radio Groups** pane, click **Add**.

Image: SmartPTT Server Configuration - C:\Program Files (x)	86)\SmartPTT\Server\RadioService.exe.config	_	×
Settings Networks Client List Network Configuration Ru	les Activity Log Export/Import Settings Statistics		
Radio Server	Radio Groups		
Radio Network Services	Example of radio ID list for group: 1, 5, 10-20		
⊕	Add Remove		
⊞ 🚺 Metadata	Group Name Ra	idio IDs	

3. Change the name of the added group if needed.

🎯 Sma	rtPTT Serve	er Configur	ation - C:\Program File	es (x86)	\SmartPT	T\Serve	r\RadioService.exe.cor	nfig	-	-	×
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics	3		
	Radio Serve Licenses Radio Netwo Add-on Mod	ork Services	:		Radio Grou Example of		list for group: 1, 5, 10-20				-
	Profiles Radio Group Metadata				Add		Remove				
					Group Nan New Group				ladio IDs		

4. Enter radio IDs which should be included to the group.



5. Add more groups if necessary.

#### NOTE

Different groups may include the same radio IDs.

6. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.

7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### **Removing Radio Group**

To remove a radio group, follow these steps:

- 1. In the left pane of the **Settings** tab click **Radio Groups**.
- 2. In the **Radio Groups** window click the name of the group that you want to remove.

<table-cell> Sma</table-cell>	rtPTT Serve	er Configur	ation - C:\Program File	es (x86)	\SmartPT	T\Serve	r\RadioService	.exe.con	fig	_	×
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import	Settings	Statistics		
Radio Server					Radio Grou	ips					
÷	Radio Network Services				Example of	radio ID	list for group: 1,	5, 10-20			
	Profiles Radio Group Metadata	os			Add		Remove				
i ⊕	Meldudid				Group Nar	ne			Ra	adio IDs	
					New Group	1			1-1	0	

#### 3. Click Remove.

🎯 Sma	rtPTT Serve	er Configur	ation - C:\Program File	es (x86)	)\SmartPT	T\Serve	\RadioService.exe.con	fig	_	$\times$
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
1 2	Radio Serve Licenses	er		F	Radio Grou	ups				
acenses ac					Example of	radio ID I	ist for group: 1, 5, 10-20			
	Profiles Radio Group	os			Add		Remove			
<b>⊡⊡</b>	Metadata				Group Nar	ne		Ra	idio IDs	
					New Group	1		1-1	0	

- 4. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 5. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 1.8 Metadata

To provide several dispatch consoles with one consistent list of radios it was decided to keep radio metadata, e.g., radio ID, radio name, and whether it supports GPS or not. This data appears in *SmartPTT Dispatcher* automatically as soon as the radioserver is up and running. This refers only to online radios. If a radio is offline and is added to the <u>Radios</u> list, it won't appear in *SmartPTT Dispatcher*.

To create the database for radios metadata, follow these steps:

1. Click **Metadata** in *SmartPTT Radioserver Configurator* and click **Active**.

🎯 SmartPTT Server Configuration - C:\Program File	es (x86)\SmartPTT\Server\RadioService.exe.config	—		×
Settings Networks Client List Network Configuration	Rules Activity Log Export/Import Settings Statistics			
Radio Server	Metadata			
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Active			
ia/ Add-on Modules	Creating Metadata Database			
Radio Groups	Server Name: localhost\SQLEXPRESS			
in the state in the state is t	Database Name: Metadata			
	Create New Database			
	Authorization Mode: Windows NT Authorization		~	
	Login:			
	Password:			
	Check Connection			
	Restoring Database From Backup			
	Restore Database			

# 2. In the **Server Name** and the **Database Name** fields, enter the needed names and click **Create New Database**.

If creation is successful, a message about successful database creation is displayed. If a database is not created, the cause of failure will be displayed at the bottom of the window.

#### NOTE

For the database server installed together with the radioserver enter the name using the following format: *<Name of computer\SQLExpress>* (for example, *MYCOMP\SQLExpress*).

- 3. Select Authorization Mode between the two:
  - **SQL Server Authorization**: You must have the login name and password of the account with SQL server access.
- Windows NT Authorization: The user who has logged into the Windows system, must be listed in the SQL server's list of users to make connection.
- 4. Click Check Connection.

If authorization is successful, the message "The connection is established successfully!" appears. If authorization fails, the cause will be displayed at the bottom of the window.

To restore the database from the backup folder, select the required database backup file in **Restoring Database Backup** and click **Restore Database**.

#### NOTE

To set up the auto backup of the database, go to the <u>Metadata Database Automatic Backup</u> window.

#### **Creating Database**

To create metadata database, follow these steps:

1. In the left pane of the **Settings** tab, click **Metadata**.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioServi	ce.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server	Radio Server	
🖶 🚀 Radio Network Services	Server Role	Primary ~
	Name	Radioserver
😥 🎁 Metadata	Interface	Port
	Any $\checkmark$	8888 🜩
	Authentication	
	No ~	
	VoIP Listen Port	18500
	Block option	Radio Disable $\sim$
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal $\sim$
	Language	English

#### 2. Make sure that the **Active** check box is selected in the **Metadata** pane.

In SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\Rac	dioService.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Stat	tistics
Radio Server Ricenses Radio Network Services	Metadata	
Add-on Modules	Creating Metadata Datab	base
	Server Name:	localhost\SQLEXPRESS
	Database Name:	Metadata
		Create New Database
	Authorization Mode:	Windows NT Authorization $\qquad \qquad \lor$
	Login:	
	Password:	
		Check Connection
	- Restoring Database From	n Backup
		Restore Database
		Restore Database

3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address* of your computer>*\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:

						; (x86)\SmartPTT\Server\RadioService.exe.config —
ettings	Networks	Client List	Rules	Activity	Log	Export/Import Settings Statistics
	Radio Serve Licenses Radio Netw Add-on Mod Profiles	ork Services	3			Metadata       Active       Creating Metadata Database
	Radio Group Metadata	os				Server Name: localhost\SQLEXPRESS
±	Meladala					Database Name: Metadata
						Create New Database
						Authorization Mode: Windows NT Authorization ~
						Login:
						Password:
						Check Connection
						Restoring Database From Backup
						Restore Database

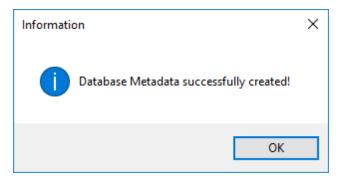
#### 4. In the **Database Name** field, enter the name of a local metadata database.

Settings     Networks     Client List     Rules     Activity     Log     Export/Import Settings     Statistics	🎯 Sma	artPTT Serve	er Configur	ation - (	C:\Progra	m Files (	(x86)\SmartPTT\Server	\RadioService.exe.config	_	×
Badin Server	Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics		
Nature       Metadata         Icenses       Icenses         Radio Network Services       Add-on Modules         Image: Add-on Modules       Creating Metadata Database         Image: Add-on Modules       Server Name:         Image: Add-on Modules       Icealhost\SQLEXPRESS         Image: Add-on Modules       Server Name:         Image: Add-on Modules       Icealhost\SQLEXPRESS         Image: Add-on Modules       Server Name:         Image: Add-on Modules       Icealhost\SQLEXPRESS         Image: Database Name:       Metadata         Image: Database Name:       Metadata		Radio Serve Licenses Radio Netw Add-on Moo Profiles Radio Group	er ork Services Iules		Activity	Log	Metadata	Database localhost\SQLEXPRESS Metadata Create New Database Windows NT Authorization Check Connection From Backup		

#### 5. Click Create New Database.

	(x86)\SmartPTT\Server\RadioService.exe.config —	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server Licenses Radio Network Services Add-on Modules Profiles Radio Groups Metadata	Metadata   Active   Creating Metadata Database   Server Name:   localhost\SQLEXPRESS   Database Name:   Metadata   Create New Database   Authorization Mode:   Windows NT Authorization   Login:   Password:   Check Connection   Restoring Database From Backup   Restore Database	

If creation is successful, the following message appears.



- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### **Connecting Local Database**

To connect to the local metadata database, follow these steps:

1. In the left pane of the **Settings** tab, click **Metadata**.

🎯 SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioServio	ce.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server	Radio Server	
Radio Network Services	Server Role	Primary ~
	Name	Radioserver
🗄 👘 Metadata	Interface	Port
	Any ~	8888 🖨
	Authentication	
	No 🗸	
	VoIP Listen Port	18500
	Block option	Radio Disable $\checkmark$
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal $\checkmark$
	Language	English

#### 2. Make sure that the **Active** check box is selected in the **Metadata** pane.

		_		-			\RadioService.exe.config — 🗆	×
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics	_
1.1	Radio Serve	er -				Metadata		
1 3 92	Licenses Radio Netw	ork Services				Active		
	Add-on Moo	ules				-Creating Metadata [	Database	
	Radio Group Metadata	os				Server Name:	localhost\SQLEXPRESS	
	Metadata					Database Name:	Metadata	
							Create New Database	
						Authorization Mode:	Windows NT Authorization $\qquad \qquad \lor$	
						Login:		
						Password:		
							Check Connection	
						Restoring Database	From Backup	
							Restore Database	

3. In the Server name field, enter the name of the SQL Server. You can use either <IP-address of your computer>\<Your SQL Server name> or localhost\<Your SQL Server name> format:

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Radio Server	Metadata
	Active
	Creating Metadata Database
<sup>2</sup> Radio Groups ⊕ <mark>1] Metadata</mark>	Server Name: localhost\SQLEXPRESS
	Database Name: Metadata
	Create New Database
	Authorization Mode: Windows NT Authorization V
	Login:
	Password:
	Check Connection
	Restoring Database From Backup
	Restore Database

#### 4. In the **Database Name** field, enter the name of a local Metadata database.

🎯 SmartPTT Server Configuration - C:\Program Files (	(x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙	
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Settings       Networks       Client List       Rules       Activity       Log         Radio Server       Licenses       Licenses       Add-on Modules       Add-on Modules       Add-on Modules       Image: Service and the ser	Export/Import Settings Statistics     Metadata   Active   Creating Metadata Database   Server Name:   Iocalhost\SQLEXPRESS   Database Name:   Metadata   Create New Database   Authorization Mode:   Windows NT Authorization   Login:   Password:   Check Connection   Restoring Database From Backup	
	Restore Database	

#### 5. From the **Authorization Mode** list, select the needed authorization type:

🎯 SmartPTT Server Configuration - C:\Program Files	; (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🔿	×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Radio Server Licenses Radio Network Services Add-on Modules Profiles Radio Groups Metadata	Metadata         Active         Creating Metadata Database         Server Name:       localhost\SQLEXPRESS         Database Name:       Metadata         Create New Database         Authorization Mode:       Windows NT Authorization         Login:       SQL Server Authorization         Password:       Check Connection         Restoring Database From Backup          Restore Database	

**Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.

**SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

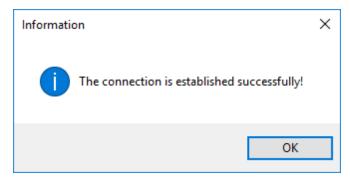
#### 6. If **SQL Server Authorization** is selected, enter login and password.

SmartPTT Server Configuration - C:\Program Files (	(x86)\SmartPTT\Server\RadioService.exe.config - 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Settings       Networks       Client List       Rules       Activity       Log         Radio Server       Licenses         Radio Network Services         Radio On Modules         Radio Groups         Radio Groups         Hotadata	Metadata         Active         Creating Metadata Database         Server Name:       localhost\SQLEXPRESS         Database Name:       Metadata         Create New Database         Authorization Mode:       SQL Server Authorization         Login:
	Restore Database

#### 7. Click Check Connection.

🎯 SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\RadioService.exe.config – 🗆	$\times$
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
	-	
	Restore Database	

If the connection is successful, the following message appears.



- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

## 1.8.1 Radios

To add radio metadata, click **Radios**:

🎯 Sma	artPTT Serve	er Configur	ation - C:\Program File	es (x86)	\SmartPT	T\Server	\RadioService.exe.con	fig	—	×
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
	Radio Serve Licenses Radio Netw Add-on Mod Profiles Radio Group Metadata (C) Radios Automat	ork Services Iules os			ID Input Fo ID Input Fo IP addr CAI + F Addr ID	ess Radio ID	Remove		GPS	

**ID Input Format:** Allows you to select the radio ID format to use.

To add a radio to the list, follow these steps:

- 1. Click **Add**. The window for entering the radio ID opens up. The ID format depends on the selection in the **ID Input Format** section.
- 2. In the **Name** column, enter the name of the added radio.
- 3. In the **GPS** column, select whether the radio supports GPS.
- 4. To delete the radio from the database, select it in the list and click **Remove**.
- 5. Click **Save** to keep changes and restart the radioserver to see the newly added radios in the SmartPTT Dispatcher.

## 1.8.2 Metadata Database Automatic Backup

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. *SmartPTT Radioserver Configurator* allows to back up the metadata database automatically.

In order to set up automatic backup schedule of the metadata, select **Automatic Database Backup** under **Metadata** in the setting tree of *SmartPTT Radioserver Configurator*.

🎯 SmartPTT Server Configuration - C:\Program Files (;	(x86)	SmartPTT\S	erver\	RadioServ	ice.exe.cor	nfig	—	×
Settings Networks Client List Network Configuration Ru	ules	Activity Lo	g	Export/Imp	ort Settings	Statistics		
Radio Server Licenses Add-on Modules Profiles Radio Groups Metadata Radios Automatic Database Backup			gs 0	e: 3/3	aval (days) 30/2017 [ 31/2017 [			

**Active:** Select the check box to enable the ability to create database backups in the automatic mode.

**Backup folder:** Full path to the file for saving the database backup.

Backup Settings: Schedule for creating the current database backup.

Daily: Every fixed day at the specified time (for example, every day, every third day at 9:00 a.m.).

**Weekly:** Every fixed day of the week at the specified time (for example, every Monday, Wednesday and Friday at 11:00 pm.).

**Monthly:** Once a month on the fixed day of the selected month and at the specified time.

**Backup Period:** Allows you to set time period when automatic database backup is to be made according to the selected backup settings.

#### NOTE

The number of stored backup files in the same folder is limited to 3. Otherwise, when creating a new copy, the old files are deleted.

## 2 Networks

This section contains the description of the following MOTOTRBO topologies and additional connections:

- <u>Control Stations</u>
- <u>Connect Plus</u>
- NAI Systems
- Capacity Max

## 2.1 Control Stations

In the **Networks** tab of *SmartPTT Radioserver Configurator* you can manage control stations that are used in SmartPTT. Control stations are used as a gateway to radio network.

In SmartPTT the following control stations are available:

- MOTOTRBO Control Stations
- <u>Analog Control Stations</u>
- <u>Remote MOTOTRBO Control Stations</u>
- <u>Remote I/O Control Stations</u>

## 2.1.1 MOTOTRBO Control Stations

A MOTOTRBO control station is a mobile or portable MOTOTRBO radio connected to the computer by using USB. The maximum number of simultaneously active control stations is 8.

To add a MOTOTRBO control station, right-click **Control Stations**, click **Add**  $\rightarrow$  **MOTOTRBO control station**.

🎯 SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioService.exe.config	– 🗆 ×
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
	MOTOTRBO control station	
Control Station 1	Active	
	Name: Control Station 1	
Connect Plus	Network ID: 1	
Capacity Max Networks	Control station IP address: 192.168.10.1	
	Local interface: ? 192.168.10.2	
	Radio ID: 16448250	
	CAI Network: 12	
	CAI Network for Groups: 225	
	Data Channel	
	Phone Calls	
	GPS	
	✓ ARS	Port: 4005
	✓ TMS	Port: 4007
	☑ Telemetry Service	Port: 4008
	Analog Call Hangtime, ms: 3000	
	Options	
	GPS Transmission Mode: Data	~
	✓ 5 Tone signaling	
	Add Delete	
	System PTT ID Telegram Nu	Imber

#### The **MOTOTRBO control station** pane provides the following elements:

#### Active

Activates the control station.

#### Name

A control station name.

#### Network ID

A unique identifier of the control station system among other systems.

#### **Control station IP address**

The IP address of the control station. The following address format and range are used: (001-223).(000-255).(000-255).(001-253).

You can use any address except 127.x.x.x in the range from 1.x.x.x to 223.x.x.x. Use the default value address *192.168.10.1*, and in case of conflicts with other network interfaces, type another IP address.

#### NOTE

When two or more control stations are connected to the computer, one of the first three octets of the IP addresses must be unique for each control station.

#### Local interface

Local interface is used for connection to the control station. A question mark at the beginning of the IP address means that the control station is unidentified.

#### Radio ID

A unique radio identifier used during communication. Set the ID in the range from 1 to 16776415. The default value is *16448250*.

#### **CAI Network**

CAI-Network identifier. Set the identifier in the range from 1 to 126. The default value is 12.

#### **CAI Network for Groups**

The identifier of the group CAI-Network. Set the identifier in the range from 225 to 239. Use the default value *225* as identifier.

#### Data channel

When selected, the control station transmits data only, and is not displayed in *SmartPTT Dispatcher*.

#### **Phone Calls**

Enables initiating voice calls to telephone subscribers.

#### GPS

Activates location service for providing radio coordinates.

#### ARS

Activates registration service. The default port is 4005.

#### TMS

Activates <u>text message service</u>. The default port is 4007.

#### **Telemetry Service**

Activates <u>telemetry service</u>. The default port is 4008.

#### **Analog Call Hangtime**

Hangtime that is used for uniting analog calls into one. It prevents overloading the event log with too many records of analog calls. During this hangtime the channel is unreserved, any user can start voice transmitting.

#### NOTE

The **Data Channel** option provides the capability to receive GPS batches from radio option boards.

#### **GPS Transmission Mode**

Provides a list of modes for transmitting location updates as a data packet in multiple bursts, or as a single CSBK (Control Signaling Block).

#### NOTE

The **GPS Transmission Mode** parameter is not applicable to the Capacity Plus systems.

Each solution has its own advantages and disadvantages:

GPS Transmission Mode	Advantages	Disadvantages
Data	No need to configure additional settings for receiving GPS data except for the Capacity Max settings. In the <i>Radio Management</i> program for all Capacity Max channels you	Increased traffic load on a channel.

GPS Transmission Mode	Advantages	Disadvantages
	can select the <b>Trunked Channel</b> type.	
СЅВК	Low traffic load on the channel. Increased GPS transmission frequency rate (every 15 seconds).	Not all radios support CSBK commands.
Enhanced CSBK	Low traffic load on the channel. Increased GPS transmission frequency rate (every 7.5 seconds).	Not all radios support CSBK commands.

Enhanced CSBK mode can be used on Enhanced GPS channels only. To transmit location data using CSBK or Enhanced CSBK, you should activate **CSBK Data** option in the radio settings in *MOTOTRBO CPS*.

#### **5** Tone signaling

Enables configuring settings of 5 Tone signaling, also known as Select 5.

You can use 5 Tone signaling to arrange selective calls in analog radio systems. As a result, the analog channel provides additional services, for example, group and private calls to the radio, blocking or unblocking the radio, checking the radio presence on the channel.

#### NOTE

The current version of *SmartPTT Radioserver Configurator* supports 5 Tone signaling for MOTOTRBO DM 46xx Series radios and DP 46xx, DP 48xx Series radios used as control stations.

5 Tone signaling area provides the following elements::

- The **Add** button adds a 5 Tone telegram.
- The **Delete** button removes the selected 5 Tone telegram.
- The **System** column contains added 5 Tone telegram name.
- The **PTT ID Telegram Number** column contains a radio identifier of for 5 Tone telegram.

When you set the parameters of 5 Tone signaling, you need to assign it for a channel. For details, see <u>Channels</u>.

To delete the control station, right-click the control station name under the **Control Stations** node, and click **Delete**.

### 2.1.1.1 Channels

You can configure control station channels in the **Channels** node under the control station name.

😨 Sma	rtPTT Serve	er Configur	ation - C	C:\Progra	am Files	(x86)\SmartPTT\Server	\RadioService	e.exe.co	nfig	_		$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics					
	Control Stati					Control Station Ch	annels					
	Cha	nnels				Сору			Paste	e		
	Connect Plu	io				Add						
	NAI Systems					Name		Zone	Channel	Signaling	$\otimes$	]
	Capacity Ma	ax Networks				Channel 1		1	1	DMR		
						Channel 2		1	2	MDC	×	
									-			1

In the **Control Station Channels** pane, the following elements are available:

- The **Add** button adds a new channel.
- The **Remove** button removes a channel.
- The **Copy** button copies all channels of a control station.
- The **Paste** button pastes the copied channels to another control station.
- Table with channels contains added channels available for editing.

The table with channels provides the following elements:

- The **Name** column contains a channel alias visible to SmartPTT Dispatcher.
- The **Zone** column contains a serial number of a channel group. Information on the maximum possible number of zones and radio channels, see in the following table.

Model	Maximum number of	Maximum number of	Maximum total number
	zones	channels per zone	of channels
Mobile radio with display	50	160	160

#### Networks

Model	Maximum number of	Maximum number of	Maximum total number
	zones	channels per zone	of channels
Mobile radio with seven segment display	2	32	32

- The **Channel** column contains a channel sequence number.
- The **Signaling** column provides a list for selecting the signaling system of the control station:
  - DMR
  - Analog
  - MCD
  - 5 Tone (the value is available only if the 5 Tone signaling system is added to the control station)
- Check mark icon ( ≥) sets the selected channel at the control station, when you start the radioserver.

### 2.1.1.2 Talkgroups

You can configure control station talkgroups in the **Talkgroups** node under the control station name.

🎯 SmartPTT Serv	er Configur	ation -	C:\Progra	ım Files	(x86)\SmartPTT\Server	r\RadioService	e.exe.config		_	×
Settings Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics				
Control Sta	tions Station 1				Control Station Ta	lkgroups				_
	kgroups				Сору	aste				
Connect P	us				All Call					
NAI System	ıs ax Networks				Add	Remove	👚 Up	🐺 De	own	
					Name				ID	
					All Call					
					Group 1				1	
					Group 2			1	2	

In the **Control Station Talkgroups** pane, the following elements are available:

- The **Add** button adds a new talkgroup.
- The **Remove** button removes a talkgroup.
- The **Copy** button copies the selected talkgroup of a control station.
- The **Paste** button pastes the copied talkgroup to another control station.
- The **All Call** button adds an all call.
- The **Up** and **Down** buttons can be used for selecting the desired talkgroup in the list.
- Talkgroups table contains added talkgroups available for editing.

Talkgroups table provides the following elements:

- The **Name** column contains a talkgroup alias visible to *SmartPTT Dispatcher*.
- The **ID** column contains a talkgroup ID.

### 2.1.1.3 Audio

You can configure control station audio settings in the **Audio** node under the control station name.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	im Files	(x86)\SmartPTT\Server	RadioService.exe.con	fig	_		×
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics				
	Control Stati					Audio Settings					
	Control	nnels				Active					
	Aud	lio				Audio input	DS : Default, 1			~	
	Connect Plu NAI System:	s				Input line	Master Volume			~	
	Capacity Ma	ax Networks				Codec	G.711 u-Law			~	
						Format	8000 Hz, 20 ms,	64 (86) kbps		~	
						Audio output	DS : Default, 1:L			~	

In the **Audio Settings** pane, the following elements are available:

#### Active

Enables calls for a control station if it is used to transmit data only.

#### Audio input

Provides the list of input audio devices to which the control station audio output is connected.

#### Input line

Provides the list of audio mixer lines used for connections. The control station audio output can be connected to the line input of the audio device.

#### Codec

Provides the list of outgoing audio stream compression methods.

#### Format

Provides the list of sampling frequencies of an outgoing audio stream.

For example, the codec format 8000 Hz, 20 ms, 64 (86) kbps contains the following parameters:

- 8000Hz: Sampling rate
- 20 ms: Frame size
- 64 kbps: Voice data bit rate
- *86 kbps:* Full bit rate (required network bandwidth)

#### Audio output

Provides the list of audio devices to which the control station audio input is connected.

## 2.1.2 Analog Control Stations

Analog control stations connect to the computer serial port by using interface card.

To add an analog control station, right-click **Control Stations**, click **Add**  $\rightarrow$  **Analog control station**.

🧐 SmartPTT S	erver Configu	ration - (	C:\Progra	ım Files	(x86)\SmartPTT\Server	\RadioService.exe.config	_	$\times$
Settings Netwo	rks Client List	Rules	Activity	Log	Export/Import Settings	Statistics		
Control					Analog Control Sta	ition		
	ntrol Station 1 Audio t Plus				✓ Active			
NAI Sy	stems				Name:	Control Station 1		
Capaci	y Max Networks	1			Network ID:	1		
					Serial number:			
					Serial Port:	*		
					Switch Pin:	CD (1) v		
					Rx Pin:	CTS (8) v		
					Tx Pin:	RTS (0) v		
					TX Criteria:	Channel Free v		
					TX Time-Out Timer, s:	60 📫		
					Analog Call Hangtime, ms:	3000		

The **Analog Control Station** pane provides the following elements:

#### Active

Activates the control station.

#### Name

A control station name.

#### **Network ID**

A unique identifier of the control station system among other systems.

#### **Serial Number**

The control station serial number.

#### **Serial Port**

Provides the list of ports to which the control station is connected.

#### Switch Pin

Provides the list of incoming control signals. When the control station is switched, the value sets to 1 (< -3.0V). The default value usually does not require any changes.

#### Rx Pin

Provides the list of incoming control signals. When a signal carrier is registered on the channel, the value sets to *1*. The default value usually does not require any changes.

#### Tx Pin

Provides the list of outgoing control signals. When a control station switches to transmit mode, the value sets to *1*. The default value usually does not require any changes.

#### NOTE

Change the control signals displaying to the pins of the socket RS323 (see the DE-9 pin numbers in brackets), if it is different from the one that is specified.

#### Talkgroup name

A name of a talkgroup. The default name is All Call, but you can change it.

#### TX Criteria

Provides the list of options determine when voice or data can be transmitted on the channel. You can select **Channel Free** (radio transmits only when a channel is idle) or **Always** values.

#### **TX Time-Out Timer**

Continuous radio transmission timeout. After this time the transmission is interrupted.

#### **Analog Call Hangtime**

Virtual hangtime is used for uniting analog calls into one. It prevents overloading the event log with too many records of analog calls. During this hangtime the channel is not reserved, any user can start transmitting.

#### NOTE

In *SmartPTT Dispatcher* the operation of the analog control station is the same as for MOTOTRBO control stations in analog mode without signaling.

To delete the control station, right-click the control station name under the **Control Stations** node, and click **Delete**.

### 2.1.2.1 Audio

You can configure control station audio settings in the **Audio** node under the control station name.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	ım Files	(x86)\SmartPTT\Server	\RadioService.exe.config	—		$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics			
-	Control Stati					Audio Settings				
	Control	io				Active				
	Connect Plu NAI Systems	3				Audio input	DS : Default, 1		~	
	Capacity Ma	ax Networks				Input line	Master Volume		~	
						Codec	G.711 u-Law		~	
						Format	8000 Hz, 20 ms, 64 (86) kbps		~	
						Audio output	DS : Default, 1:L		~	

In the Audio Settings pane, the following elements are available:

#### Active

Enables calls for a control station if it is used to transmit data only.

#### Audio input

Provides the list of input audio devices to which the control station audio output is connected.

#### Input line

Provides the list of audio mixer lines used for connections. The control station audio output can be connected to the line input of the audio device.

#### Codec

Provides the list of outgoing audio stream compression methods.

#### Format

Provides the list of sampling frequencies of an outgoing audio stream.

For example, the codec format 8000 Hz, 20 ms, 64 (86) kbps contains the following parameters:

- 8000Hz: Sampling rate
- 20 ms: Frame size

- 64 kbps: Voice data bit rate
- 86 kbps: Full bit rate (required network bandwidth)

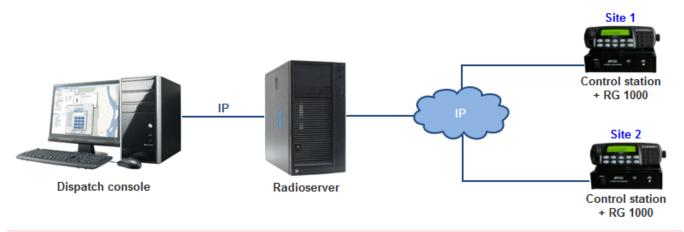
#### Audio output

Provides the list of audio devices to which the control station audio input is connected.

## 2.1.3 Remote MOTOTRBO Control Stations

Remote control station is a MOTOTRBO control station connected to the radioserver computer by using IP connection.

The control station is connected to a special gateway for remote control (RG-1000e) which provides IP connection to SmartPTT Radioserver. RG-1000e supports MOTOTRBO control stations (DM series) on both digital and analog channels.



#### IMPORTANT

To configure IP connectivity to MOTOTRBO control station, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>. To add a remote control station, right-click **Control Stations**, click **Add**  $\rightarrow$  **Remote MOTOTRBO control station**.

🎯 Конфигурирование сервера - С:\Program File	s (x86)\SmartPTT\Server\RadioService.exe.config	– 🗆 X
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Control Stations	Remote MOTOTRBO Control Station	
····· 🏟 Channels	Active	
	Name: Remote control station 1	
Connect Plus	Network ID: 1	
Capacity Max Networks	Control station IP address: 192.168.10.1	XCMP port 30010
	Local interface: Any v	
	Radio ID: 16448250	
	CAI Network: 12	
	CAI Network for Groups: 225	
	Data Channel	
	Phone Calls	
	GPS	
	I ARS	Port: 4005
	✓ TMS	Port: 4007
	✓ Telemetry Service	Port: 4008
	Analog Call Hangtime, ms:	3000 +
	Options	
	GPS Transmission Mode: Data	¥
	Specify local ports	
	XCMP: 1024	
	Audio: 1024	
	GPS: 1025	
	TMS: 1026	
	ARS: 1027	
	Telemetry Service: 1028	
	✓ 5 Tone signaling	
	Add Delete	
	System PTT ID Telegram Nu	mber
		· · · · · · · · · · · · · · · · · · ·

The **Remote MOTOTRBO Control Station** pane provides the following elements:

#### Active

Activates the control station.

#### Name

A control station name.

#### **Network ID**

A unique identifier of the control station system among other systems.

#### **Control station IP address**

The IP address of the control station. The following address format and range are used: (001-223).(000-255).(000-255).(001-253).

You can use any address except 127.x.x.x in the range from 1.x.x.x to 223.x.x.x. Use the default value address *192.168.10.1*, and in case of conflicts with other network interfaces, type another IP address.

#### NOTE

When two or more control stations are connected to the computer, one of the first three octets of the IP addresses must be unique for each control station.

#### **XCMP Port**

The port of the remote gateway. The port value should match the XCMP port set in the settings of the remote gateway.

#### Local interface

The local interface used for connection to the remote gateway.

#### Radio ID

A unique radio identifier used during communication. Set the ID in the range from 1 to 16776415. The default value is *16448250*.

#### **CAI Network**

CAI-Network identifier. Set the identifier in the range from 1 to 126. The default value is 12.

#### **CAI Network for Groups**

The identifier of the group CAI-Network. Set the identifier in the range from 225 to 239. Use the default value *225* as identifier.

#### Data channel

When selected, the control station transmits data only, and is not displayed in *SmartPTT Dispatcher*.

#### Phone Calls

Enables initiating voice calls to telephone subscribers.

#### GPS

Activates location service for providing radio coordinates.

#### ARS

Activates registration service. The default port is 4005.

#### TMS

Activates <u>text message service</u>. The default port is 4007.

#### **Telemetry Service**

Activates <u>telemetry service</u>. The default port is 4008.

#### **Analog Call Hangtime**

Hangtime that is used for uniting analog calls into one. It prevents overloading the event log with too many records of analog calls. During this hangtime the channel is unreserved, any user can start voice transmitting.

#### WARNING

Remote control station cannot be used to receive GPS batches from radio option boards to SmartPTT Radioserver. Only control stations connected over USB (<u>MOTOTRBO Control Stations</u>) can be used to support this feature.

#### **GPS Transmission Mode**

Provides a list of modes for transmitting location updates as a data packet in multiple bursts, or as a single CSBK (Control Signaling Block).

#### NOTE

The GPS Transmission Mode parameter is not applicable to the Capacity Plus systems.

Each solution has its own advantages and disadvantages:

GPS Transmission Mode	Advantages	Disadvantages
Data	No need to configure additional settings for receiving GPS data except for the Capacity Max settings. In the <i>Radio Management</i> program for all Capacity Max channels you can select the <b>Trunked Channel</b> type.	Increased traffic load on a channel.

GPS Transmission Mode	Advantages	Disadvantages		
СЅВК	Low traffic load on the channel. Increased GPS transmission frequency rate (every 15 seconds).	Not all radios support CSBK commands.		
Enhanced CSBK	Low traffic load on the channel. Increased GPS transmission frequency rate (every 7.5 seconds).	Not all radios support CSBK commands.		

Enhanced CSBK mode can be used on Enhanced GPS channels only. To transmit location data using CSBK or Enhanced CSBK, you should activate **CSBK Data** option in the radio settings in *MOTOTRBO CPS*.

#### **Specify local ports**

The check box enables the ports (XCMP, Audio, GPS, TMS, ARS, and Telemetry Service) that can be used for connection to the gateway if the default ports of the corresponding services are already in use.

By default the system occupies local ports automatically, but you can set them manually.

#### **5** Tone signaling

Enables configuring settings of 5 Tone signaling, also known as Select 5.

You can use 5 Tone signaling to arrange selective calls in analog radio systems. As a result, the analog channel provides additional services, for example, group and private calls to the radio, blocking or unblocking the radio, checking the radio presence on the channel.

#### NOTE

The current version of *SmartPTT Radioserver Configurator* supports 5 Tone signaling for MOTOTRBO DM 46xx Series radios and DP 46xx, DP 48xx Series radios used as control stations.

5 Tone signaling area provides the following elements::

- The **Add** button adds a 5 Tone telegram.
- The **Delete** button removes the selected 5 Tone telegram.
- The **System** column contains added 5 Tone telegram name.
- The **PTT ID Telegram Number** column contains a radio identifier of for 5 Tone telegram.

When you set the parameters of 5 Tone signaling, you need to assign it for a channel. For details,

#### see <u>Channels</u>.

To delete the control station, right-click the control station name under the **Control Stations** node, and click **Delete**.

### 2.1.3.1 Channels

You can configure control station channels in the **Channels** node under the control station name.

💱 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🔿										
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics									
Control Stations	Control Station Channels									
Channels	Copy Paste									
Audio	Add Remove									
NAI Systems	Name Zone Channel Signaling 🔗									
Capacity Max Networks	Channel 1 1 DMR 💙									
	Channel 2 1 2 MDC									

In the **Control Station Channels** pane, the following elements are available:

- The **Add** button adds a new channel.
- The **Remove** button removes a channel.
- The **Copy** button copies all channels of a control station.
- The **Paste** button pastes the copied channels to another control station.
- Table with channels contains added channels available for editing.

The table with channels provides the following elements:

- The **Name** column contains a channel alias visible to SmartPTT Dispatcher.
- The **Zone** column contains a serial number of a channel group. Information on the maximum possible number of zones and radio channels, see in the following table.

Model	Maximum number of	Maximum number of	Maximum total number
	zones	channels per zone	of channels
Mobile radio with display	50	160	160

#### Networks

Model	Maximum number of	Maximum number of	Maximum total number		
	zones	channels per zone	of channels		
Mobile radio with seven segment display	2	32	32		

- The **Channel** column contains a channel sequence number.
- The **Signaling** column provides a list for selecting the signaling system of the control station:
  - DMR
  - Analog
  - MCD
  - 5 Tone (the value is available only if the 5 Tone signaling system is added to the control station)
- Check mark icon ( ≥) sets the selected channel at the control station, when you start the radioserver.

### 2.1.3.2 Talkgroups

You can configure control station talkgroups in the **Talkgroups** node under the control station name.

<table-cell> Sma</table-cell>	SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config −										×
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics				
	Control Stati	ons control stati	on 1			Control Station Ta	lkgroups				
	Char 🎉 Talk					Сору		P	aste		
	Connect Plu	s				All Call					
					Add	🐺 Do	wn				
				Name	1	ID					
						All Call					
						Group 1			1		
			Group 2								

In the **Control Station Talkgroups** pane, the following elements are available:

- The **Add** button adds a new talkgroup.
- The **Remove** button removes a talkgroup.
- The **Copy** button copies the selected talkgroup of a control station.
- The **Paste** button pastes the copied talkgroup to another control station.
- The **All Call** button adds an all call.
- The **Up** and **Down** buttons can be used for selecting the desired talkgroup in the list.
- Talkgroups table contains added talkgroups available for editing.

Talkgroups table provides the following elements:

- The **Name** column contains a talkgroup alias visible to *SmartPTT Dispatcher*.
- The **ID** column contains a talkgroup ID.

### 2.1.3.3 Audio

You can configure control station audio settings in the **Audio** node under the control station name.

🎯 SmartPTT Server Configuration - C:\Program Files (	_		×		
Settings Networks Client List Rules Activity Log	Export/Import Settings	Statistics			
Control Stations	Audio Settings				
Emote control station 1 →  → Channels	Active				
Audio	Codec	G.711 u-Law		~	
	Format	8000 Hz, 20 ms, 64 (86) kbps		~	

In the **Audio Settings** pane, the following elements are available:

- The **Active** check box enables calls for a control station if it is used to transmit data only.
- The **Codec** list contains outgoing audio stream compression methods.
- The **Format** list contains sampling frequencies of an outgoing audio stream.

#### Example

Consider the following codec format: 8000 Hz, 20 ms, 64 (86) kbps. Those settings mean:

- *8000Hz:* Sampling rate
- 20 ms: Frame size
- *64 kbps:* Voice data bit rate
- *86 kbps:* Full bit rate (required network bandwidth)

## 2.1.4 Remote I/O Control Stations

Remote I/O control stations connect to RG-1000e by using general purpose input output lines (GPIO lines). RG-1000e is connected to control station and provides IP connection between SmartPTT Radioserver and control station.

To add a remote I/O control station, right-click **Control Stations**, click **Add**  $\rightarrow$  **Remote I/O control station**.

_		×
30010	<u>▲</u> ▼	
	30010	30010

#### The **Remote I/O Control Station** pane provides the following elements:

#### Active

Activates the control station.

#### Name

A control station name.

#### **Network ID**

A unique identifier of the control station system among other systems.

#### **Serial Number**

The control station serial number.

#### **Remote gateway IP address**

The IP address of the remote gateway which provides control over the remote control station. The default port is *30010*.

#### Local interface

The local interface used for connection to the remote gateway.

#### Talkgroup name

A name of a talkgroup. The default name is All Call, but you can change it.

#### TX Criteria

Provides the list of options determine when voice or data can be transmitted on the channel. You can select **Channel Free** (radio transmits only when a channel is idle) or **Always** values.

#### **TX Time-Out Timer**

Continuous radio transmission timeout. After this time the transmission is interrupted.

#### **Analog Call Hangtime**

Virtual hangtime is used for uniting analog calls into one. It prevents overloading the event log with too many records of analog calls. During this hangtime the channel is not reserved, any user can start transmitting.

#### **Specify local ports**

Enables the ports that can be used for connection to the gateway (XCMP and Audio) if the default ports of the corresponding services are already in use.

By default the system occupies local ports automatically, but you can set them manually.

To delete the control station, right-click the control station name under the **Control Stations** node, and click **Delete**.

### 2.1.4.1 Channels

You can configure control station channels in the **Channels** node under the control station name.

🎯 SmartPTT Serve	🛿 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🗙										
Settings Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics					
Control Stati		on 1			Control Station Ch	nannels					
Channels (6) Audio				Copy Paste							
	Connect Plus				Add						
Capacity Ma	Capacity Max Networks			Name		Channel		$\otimes$			
			Channel 1		1		<b>~</b>				
			Channel 2			2					

In the **Control Station Channels** pane, the following elements are available:

- The **Add** button adds a new channel.
- The **Remove** button removes a channel.
- The **Copy** button copies all channels of a control station.
- The **Paste** button pastes the copied channels to another control station.
- Table with channels contains added channels available for editing.

The table with channels provides the following elements:

- The **Name** column contains a channel alias visible to *SmartPTT Dispatcher*.
- The **Channel** column contains a channel sequence number.
- Check mark icon ( ≥) sets the selected channel at the control station, when you start the radioserver.

### 2.1.4.2 Audio

You can configure control station audio settings in the **Audio** node under the control station name.

🧐 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛									
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics								
Control Stations	Audio Settings								
Emote control station 1 →  Channels	Active								
Audio	Codec G.711 u-Law 🗸								
MAI Systems	Format 8000 Hz, 20 ms, 64 (86) kbps ~								

In the Audio Settings pane, the following elements are available:

- The **Active** check box enables calls for a control station if it is used to transmit data only.
- The **Codec** list contains outgoing audio stream compression methods.
- The **Format** list contains sampling frequencies of an outgoing audio stream.

#### Example

Consider the following codec format: 8000 Hz, 20 ms, 64 (86) kbps. Those settings mean:

- 8000Hz: Sampling rate
- 20 ms: Frame size
- 64 kbps: Voice data bit rate
- 86 kbps: Full bit rate (required network bandwidth)

## 2.2 Connect Plus

Connect Plus network can include up to 15 repeaters (29 channels + 1 control channel) on each site. Each site must have at least one XRC Controller. It is the core of the Connect Plus network and its presence on each site is obligatory. The XRC Controller provides central call processing and real-time resource management for MOTOTRBO Connect Plus digital trunking systems. There can be two XRC Controllers per site if one of them serves as backup to the primary XRC. The secondary

controller provides backup capability, but it does not increase the number of repeaters and calls that can be managed per site.

SmartPTT PLUS supports Connect Plus multi-site trunking system that can be used not only for ARS, TMS and GPS functionality (except GPS batching), but also for voice communication between the dispatcher and radios. XRT Gateways are required for voice communication only.

MOTOTRBO Connect Plus multi-site trunking network provides extended load capacity and provides digital communication to as many as 2,900 users per site.

When using Connect Plus network, SmartPTT Radioserver plays the role of a virtual repeater.

The Connect Plus network configuration includes the following stages:

- Adding new network and its basic configuration
- Setting up XRC Controller configurations
- Setting up talkgroups for group messages
- Setting up XRT Gateway parameters for voice communication
- Adding talk paths for voice calls

#### WARNING

Access to Connect Plus radio system requiresConnect Plus Voice Support license andConnect Plus Data Support license.

## 2.2.1 Configuring Connect Plus

To configure Connect Plus settings, add new Connect Plus system: right-click Connect Plus in the **Networks** tab of *SmartPTT Radioserver Configurator* and click **Add**.

The **Connect Plus** window appears:

🎯 SmartPTT Serve	🎯 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config									$\times$
Settings Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics			
~@~	s Plus 1 Controllers VoiceGate urity Settings	ways s	۲ ۲ ۴ ۱	Active Active Active Anne Active Acti	)	Connect Plus 1 1 1 1 Any 19000				

Active: Activates Connect Plus System.

Name: Connect Plus network name.

**Network ID:** Unique ID of the Connect Plus network, that is used inside SmartPTT system. This is important if you have more than one Connect Plus network. Note that this ID is different from the Network ID defined in the XRC Controller codeplug.

**Peer ID:** Unique ID of the virtual repeater in the Connect Plus network. Make sure this ID is different from the repeater ID in the Connect Plus network.

**Radio ID:** The identifier of SmartPTT Radioserver. This identifier will be displayed on radios at receiving private calls and text messages from the dispatcher. If there are several dispatchers, you can create a profile for each operator (<u>Profiles</u>) and define a unique identifier for each operator. **Radio ID** set in this window must correspond to the **Console User ID** field in the XRT Gateway settings.

**Interface:** IP address of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP address of the computer where the radioserver is installed.

**UDP Start Port:** Starting port number for local UDP ports that will be used by SmartPTT Radioserver for talk paths. It is recommended to use the default value of *19000.* If the created Connect Plus network should not transmit voice packets, this field can be ignored.

To delete the Connect Plus network, right-click the network you want to delete and click **Delete**.

## 2.2.2 XRC Controller

XRC Controller is necessary for transmitting registration and de-registration, GPS data, text messages. XRC Controller is also required for making private calls, because without it, radios will be regarded as offline, and the dispatcher will not be able to make private calls.

#### IMPORTANT

To configure XRC Controller, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

You can add only one XRC Controller per site. Right-click **XRC Controller** to add. The following window appears:

🎕 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🗙									
Settings Networks Client List Network Configuration Rul	les Activity Log Export/Import Set	ttings Statistics							
Control Stations Connect Plus Connect Plus 1 Connect Plus 1 Controllers XRC Controller 1 Talkgroups XRT VoiceGateways Security Settings NAI Systems Capacity Max Networks	XRC Controller								
	Active								
	Name	XRC Controller 1							
	Controller IP address	remotehost							
	PN, TMS, GPS								
	PN	4005							
	Controller Port	4005							
	Local Port	50005							
	TMS								
	Controller Port	4007 <b>•</b> 50007 <b>•</b>							
	Local Port								
	GPS								
	Controller Port	4001 🜩							
	Local Port	50001 🔹							
	Monitoring								
	Controller Port	38000 🜩							
	Local Port	38000 🚔							
	Use NAT								

**Name:** XRC Controller name. This is used only in *SmartPTT Radioserver Configurator*.

**Controller Address:** IP address of the XRC Controller. Port is not required in this field.

In order to enable data services on the controller select **PN**, **TMS**, **GPS**.

**Controller port:** Port of XRC Controller for the corresponding service.

**Local port:** Port of the virtual repeater for the corresponding service.

#### NOTE

**PN Controller Port** should match the port of Presence Notification service set in XRC Controller.

To be able to review the XRC Controller on the **Monitoring** panel in *SmartPTT Dispatcher*, select **Monitoring** and specify **Controller port** and **Local port**. If the XRC Controller is in one local network with the radioserver, leave **Use NAT** clear. If the XRC Controller is outside the local network of the radioserver, select **Use NAT**.

#### NOTE

Make sure that general <u>Monitoring</u> is active.

In order to send group text messages, add talkgroups. Click **Talkgroups** under **XRC Controller**. The following window opens:

SmartPTT Server Configuration - C:\Program	nfig — 🗆 🗙	
Settings Networks Client List Network Configuration	Rules Activity Log Export/Import Settings	Statistics
Control Stations	Control Station Talkgroups	
Connect Plus 1	Сору	Paste
ARC Controller 1	All Call	
R Security Settings	Add Remove 🌰	Up 😽 Down
Capacity Max Networks	Name	ID
	Group 1	1
	Group 2	2

## 2.2.2.1 Configuring Joint GPS and Indoor Data

If you want to receive joint location data (GPS and indoor) in Connect Plus, configure the following settings:

- Radio settings in MOTOTRBO CPS
- Radio settings in SmartPTT Dispatcher
- Repeater settings in *MOTOTRBO CPS*

### 2.2.2.1.1 Configuring Radio in MOTOTRBO CPS

To configure radio in MOTOTRBO CPS, follow these steps:

- 1. In the radio firmware file, select **Channels**  $\rightarrow$  **<Zone Name>**  $\rightarrow$  **<Channel Name>**.
- 2. In the **<Channel Name>** pane, perform the following actions:
  - Select the **Enhanced GNSS** check box, and from the **Window Size** list, select 10.
  - From the **Compressed UDP Data Header** list, select *MSI*.

### 2.2.2.1.2 Configuring Radio in SmartPTT Dispatcher

To configure radio in SmartPTT Dispatcher, follow these steps:

- 1. Open the radio properties window.
- 2. In the **Location** tab, perform the following actions:
  - a. Select the **Indoor Tracking** check box.
  - b. Select the **Update Interval** check box, and enter *30* in the field.

### 2.2.2.1.3 Configuring Repeater in MOTOTRBO CPS

To configure repeater in MOTOTRBO CPS, follow these steps:

- 1. In the repeater firmware file, select **Channels**  $\rightarrow$  **<Zone Name>**  $\rightarrow$  **<Channel Name>**.
- 2. In the **<Channel Name>** pane, in the **Enhanced GNSS area**, select the **Enable** check box.

## 2.2.3 XRT Gateway

XRT VoiceGateway allows making voice calls and monitor call events in the Connect Plus system. You can have up to 5 XRT VoiceGateways working in one network. To support private voice communication, it is necessary to have an XRC Controller. Otherwise, radios will be regarded as offline, and private calls will be impossible.

#### IMPORTANT

To configure XRT Voice Gateway, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

# To add the gateway, right-click **XRT VoiceGateways** and click **Add**. The following window appears:

SmartPTT Server Configuration - C:\Program Files (	x86)\SmartPTT\Server\RadioService.exe.config	– 🗆 X						
Settings Networks Client List Network Configuration Ru	les Activity Log Export/Import Settings Stat	tistics						
Control Stations	XRT Gateway							
Connect Plus	Active							
XRC Controllers XRC Controller 1 Talkgroups XRT VoiceGateways XRT Gateway 1 Talkpaths Security Settings NAI Systems Capacity Max Networks	Name XRT Gateway 1							
	Gateway (IP address:Port) remotehost:10001							
	Pool IDs 16000001-16000100							
	Usemame							
	Password							
	TX Time-Out Timer, s	60						
	Group Call Hang Time, ms	4000 🜩						
	Private Call Hang Time, ms	6000						
	Emergency Call Hang Time, ms	8000 🚖						

**Name:** XRT VoiceGateway name, which is displayed only in *SmartPTT Radioserver Configurator*.

**Gateway Address:Port:** IP address and port of the XRT VoiceGateway.

**Pool IDs:** It is recommended to use default values. The values must correspond to the range of IDs set in the XRT VoiceGateway settings (**Pool ID**).

**Username** and **Password:** Used for authentication with the gateway and must equal the corresponding values in the XRT VoiceGateway settings.

**TX Time-Out Timer, s:** Time period during which the radio can transmit without interruptions. After this time is over, the transmission is interrupted.

**Group Call Hang Time, ms:** Time during which the channel is reserved for a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit. This parameter should match the same parameter set in the XRC Controller.

**Private Call Hang Time, ms:** Time during which the channel is reserved for a private call after the end of transmission. During the timeout, only the participants of the private call can transmit. This parameter should match the same parameter set in the XRC Controller.

**Emergency Call Hang Time, ms:** Time during which the channel is reserved for an emergency call after the end of transmission. During the timeout only the participants of the talkgroup can transmit. This parameter should match the same parameter set in the XRC Controller.

The next step is to add talk paths. They are necessary for voice communication. For each talkgroup or/and dispatcher add a talk path. This can be done in the **Talk Paths** window. Group IDs should match the IDs set in the **Group ID** field in the XRT VoiceGateway settings (see above). If the **Group ID** field is empty in the XRT VoiceGateway settings, the user should have permission for any Group Talk Path that it validly registers with the XRT 9000.

Dispatcher ID should match the ID set in the **Console User ID** in the XRT VoiceGateway settings (see above).

SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config							—		×				
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Imp	ort Settings	Statis	tics			
	Control Stati Connect Plu			Ta	Talkpaths								
Connect Plus 1			All Call										
			Add		Delete								
			Name			Туре		ID					
	XRT Gateway 1		G	iroup 1			Group	~	1001				
			G	Group 2			Group	~	1002		]		
- 14	NAI Systems				Dispatcher			Private	$\sim$	100			
	Capacity Ma	x Networks								_			

#### NOTE

When adding talk paths make sure that talk paths with the same identifiers are specified in the XRT VoiceGateway settings.

# 2.2.4 Security Settings

Connect Plus supports two types of privacy mechanisms – Enhanced and Advanced Encryption Standard (AES).

The Enhanced Privacy utilizes Motorola proprietary algorithms and therefore is not interoperable with other vendor's privacy offerings. The Enhanced Privacy provides high level of protection by means of 40-bit key length and supports multiple keys in a radio.

The Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST). The AES feature supports 256-bit key length, unlike Enhanced Privacy. Similar to Enhanced Privacy, the AES also supports multiple keys. For AES encryption a special license is required.

The **Security Settings** window allows you to specify the encryption keys for incoming and outgoing traffic on the digital channel.

🎯 SmartPTT Serve	r Configur	ation - C:\Program File	es (x86)\	SmartPT	T\Server	\RadioService.exe.con	fig	-		$\times$
Settings Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics			
Control Static	s Plus 1		S	ecurity S	ettings Copy		Paste		1	_
⊡© XRT	KRC Contro VoiceGate KRT Gatew Talkpati unity Setting	ller 1 ups ways ay 1 hs		Enhanced Add Key ID	Privacy	Remove Value				
				TX Privacy Type No		√ Key ID		$\sim$		

**Copy:** Copy encryption settings of the channel to the clipboard.

**Paste:** Paste encryption settings of the channel from the clipboard.

### **Enhanced Privacy**

To configure **Enhanced Privacy**, follow these steps:

- 1. Run *MOTOTRBO CPS*.
- 2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the enhanced privacy key. Enter its ID and value in the corresponding fields.

I MOTOTRBO Customer Programming Software	- [Sample.ctb]	– 🗆 X
		_ & ×
RM Open Save Reports Delete Cut Co	vy Paste Search Read Write Clone Bluetooth Security	
	Top Privacy Restricted Access to System	^
Text Messages	Privacy	
Security	Privacy Type Enhanced	
········ @ )》Announcement 亩 盲 Signaling Systems	Basic Privacy Key 1	
Encoder     Decoder	Add Delete	
	Key ID         Key Alias         Key Value           Image: Image and the i	

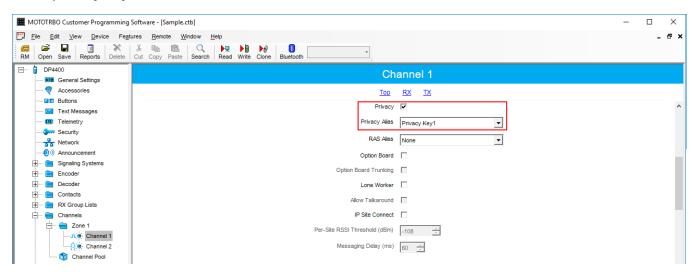
3. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced.

	Features Remote Window Help			-	□ × -₽×
SLR 5500			Security		
Accessories		<u>Top</u> <u>Privacy</u>	Restricted Access to System		^
Link Establishment		F	Privacy		
		Privacy T	ype Enhanced		

4. In the **Security** window of *MOTOTRBO Network Interface Service Configuration Utility* in the **Enhanced** field add the enhanced privacy key. Enter its ID and value in the corresponding fields.

MOTOTRBO Network Interface Service Configuration Utility *						-	×
<u>C</u> onfiguration <u>V</u> iew <u>E</u> dit <u>S</u> ervice <u>H</u> elp							
1 🔁 📙 🖸 🖸							
E: Dutitled							^
··· III General							
- Ş <del></del> Security							
🗄 🧮 Group List		Add	Delete				
Conventional		huu	Delete				
😯 Capacity Plus					1		
🗈 🌾 Linked Capacity Plus		Alias	Key ID	Key Value			
🔅 🚞 Advanced	1	Enhanced Key1	1	2612346782			

5. In the radio settings in *MOTOTRBO CPS* to enable the encryption mode on the required channel select the **Privacy** check box and in the **Privacy Alias** field select the enhanced privacy key for this channel.



6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an enhanced privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

Enhanced Add	Privacy Remove	
Key ID	Key Value	
1	0123456789	

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **AES Privacy**

To configure the **AES** privacy, follow these steps:

- 1. Run MOTOTRBO CPS.
- 2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the AES privacy key. Enter its ID and value in the corresponding fields.

III MOTOTRBO Customer Programmir	ig Software - [Sample.ctb]	– 🗆 X
Elle Edit View Device For RM Open Save Reports Delete	agtures <u>R</u> emote <u>Window H</u> elp	_ @ ×
DP4801	Security	
Accessories	Top Privacy AES Restricted Access to System Privacy	^
Telemetry     Telemetry     Telemetry     Menu     Security     To Security     John Network     John Network     John Tickets     Signaling Systems     Encoder     Encoder	Privacy Type Enhanced Basic Privacy Key Add Delete Key ID Key Alas Key Value ▶ 1 Privacy Key1 1	
Contacts  Contacts Contacts  Contacts  Contacts Contacts  Contacts Cont	AES Add Delete	
n in the second	Key ID         Key Alias         Key Value           1         Symmetric Key1         1	

3. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select **Enhanced**.

MOTOTRBO Customer Programming Software - [Sample.ctb]		– 🗆 ×
Eile Edit View Device Features Remote Window Help		_ @ ×
Image: Constraint of the second se	te Clone Bluetooth	
SLR 5600	Security	
	Top Privacy Restricted Access to System	
- 20 Network	Privacy	Â
Sites	Privacy Type Enhanced	

4. In the **Security** window of MNIS in the **Symmetric Keys** field add the AES symmetric privacy key. Enter its ID and value in the corresponding fields.

MOTOTRBO Network Interface Service Confi	guration Util	ity *			-	×
<u>Configuration View Edit Service H</u> e	lp					
1 🔁 📜 🔚 🖸 🖸	?					
🖃 🛑 Untitled				Symmetric Keys		^
··· III General						
- 🚛 Security						
🎚 🔁 Group List						
🗄 🔁 Conventional				Add Delete		
Go. Capacity Plus						_
Linked Capacity Plus		Alias	Key ID	Key Value		
Advanced	.1	Symmetric Key1	1	54634562435		

5. In the radio settings in *MOTOTRBO CPS* to enable the AES encryption mode on the required channel clear the **Privacy** check box and in the **AES Alias** field select the AES privacy key.

MOTOTRBO Customer Programm	ng Software - [Sample.ctb]	– 🗆 X
Eile Edit View Device F ☐ ☐ ☐ ☐		_ & ×
DP4801     General Settings     Accessories	repSlot1	
Buttons	Inbound Color Code	^
Telemetry     Menu     Security	Outbound Color Code 1 -	
→ → → → → → → → → → → → → → → → → → →	Phone System 1	
Signaling Systems	ARS On System/Site Change 💌	
Decoder     Decoder     Ontacts     Decontacts     RX Group Lists	Window Size 8 V	
Channels	Privacy Alas Privacy Key1 v	
	AES Alias Symmetric Key1	

6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an AES privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

AES		
Add	Remove	
Key ID	Key Value	
1	9876543210	

#### NOTE

Key ID and Key Value must match the values set in the radio settings in the Radio Management program and in MOTOTRBO Network Interface Service Configuration Utility. If the values in the Key ID fields are the same, but the values in the Key Value fields do not match, the receiving side hears only a distorted voice. If the key identifier of the transmitting side does not coincide with one of the key identifiers in the list of the receiving side, then transfer to the receiving party will not be heard.

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **TX Privacy**

TX Privacy is used for selecting an encryption mode for outgoing traffic on the side of *SmartPTT Dispatcher*.

To configure the TX Privacy for a Connect Plus system, follow these steps:

1. In the **TX Privacy** area, from the **Type** list select the desired encryption type:

SmartPTT Server Configuration - C:\Program Files	s (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Control Stations	Security Settings
MAI Systems	Copy Paste
	Enhanced Privacy
	Add Remove
	Key ID Key Value
	TX Privacy
	Type No V Key ID V

- Select *No* if encryption of outbound traffic from the radioserver is not required.Select *Enhanced* if you want to use enhanced encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Enhanced Privacy** area.
- *AES license is required:* Select *AES (Legacy Key)* if you want to use AES (*Legacy Key*) encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.
- *AES license is required:* Select *AES (Symmetric Key)* if you want to use AES (*Symmetric Key)* encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.

### NOTE

If from the **Type** field *No* is selected and you have AES encryption for incoming traffic configured, AES (Symmetric Key) is used for incoming traffic by default.

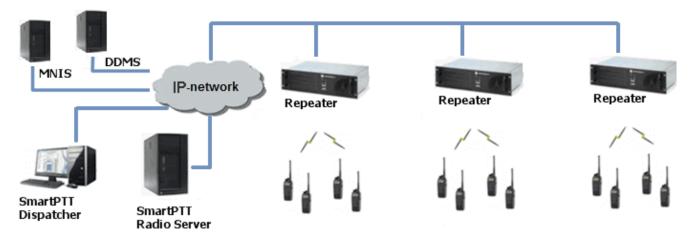
- 2. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 3. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 2.3 NAI Systems

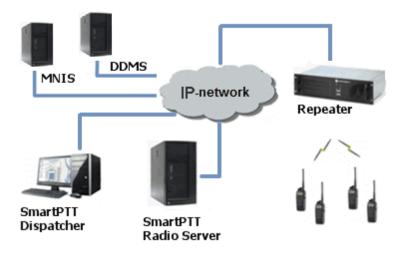
SmartPTT supports MOTOTRBO Network Application Interface (NAI) protocol for networks such as IP Site Connect, Extended Range Direct Mode, Capacity Plus, and Linked Capacity Plus. NAI network configuration uses this protocol for voice, data and monitoring data transmission.

Currently, you can configure four network types with the NAI protocol:

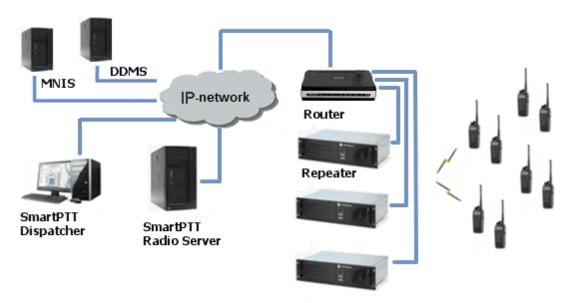
• NAI - IP Site Connect topology:



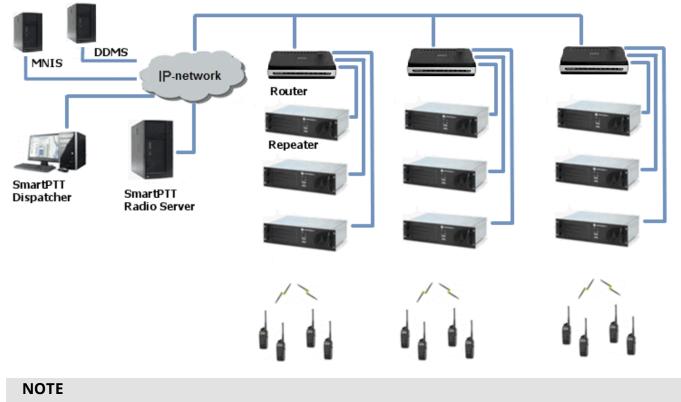
• NAI - Extended Range Direct Mode topology:



• NAI - Capacity Plus topology:



• NAI - Linked Capacity Plus topology:



### You can install SmartPTT Radioserver, DDMS and MNIS on the same computer.

The MOTOTRBO Network Interface Service (MNIS) lets you transmit data (text messages, GPS, telemetry, etc.) without control stations. MNIS connects to the repeater system over IP and uses it to transmit and receive data packets.

To use the service, you need to install and configure *MOTOTRBO Network Interface Service Configuration Utility*.

### NOTE

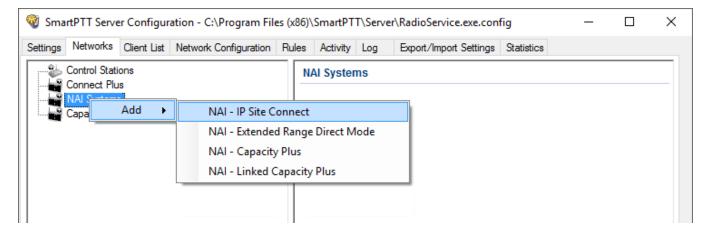
MNIS allows data transmission only. It does not support transmission of voice calls and CSBK commands (Radio Check, Call Alert commands and so on).

The Device Discovery and Mobility Service (DDMS) is a service that monitors the presence of ARS capable radio units and reports their parameters (IP address, Radio ID, etc.) to interested applications, such as SmartPTT Radioserver and MNIS.

To use the service, you need to install and configure MOTOTRBO DDMS.

## 2.3.1 Adding and Configuring NAI Systems

To add a NAI system, on the **Networks** tab of SmartPTT Radioserver Configurator, right-click **NAI Systems**, point to **Add**, and select the desired network type (NAI - IP Site Connect, NAI - Extended Range Direct Mode, NAI - Capacity Plus or NAI - Linked Capacity Plus):



A new pane with network parameters opens. The network parameters differ depending on the selected network type:

SmartPTT Server Configuration - C:\Program Files	(x86)	\SmartPT	T\Serve	r∖Rad	lioService.exe.con	fig	—		×
Settings Networks Client List Network Configuration R	ules	Activity	Log	Ехф	ort/Import Settings	Statistics			
Control Stations		NAI - IP Site Connect Network							^
⊢ NAI Systems ⊢ NAI - IP Site Connect 1		Active							
ian "to Slot 1	N	lame			NAI - IP Site Conn	ect 1			
Talkgroups	N	letwork ID			1				
Slot 2	P	eer ID			1				
Security Settings		nterface			Any	~ Port	50000	-	
MNIS Data Gateway		Naster repe P Address		ress	remotehost:50000		Te	st	
Capacity Max Networks	A	uthenticati	on key						
		Voice tr	ansmissi	on	Repeaters			~	
	G	iroup call h	ang time	, ms			3000	•	
	P	rivate call	hang tim	e, ms			4000	-	
	P	reamble du	uration, n	15			180	-	
					ous Telephone Calls	3	100	-	
		⊿ Data tra		n					
		∠ Monitori	ng						

Active: Activates a network.

Name: Name of the created system.

**Network ID:** Unique ID of the network. The network ID must not match any ID of the other SmartPTT Radioserver networks.

**Peer ID:** Unique ID of the radioserver in the network. This ID must not match any of the other repeater IDs in this network.

Interface: Local interface of the radioserver. The radioserver plays the role of a software peer.

**Port:** Port number of the radioserver. It should differ from the corresponding ports in other networks.

**Master repeater address (IP Address:Port):** IP address and port number of the network Master repeater. Click **Test** to check connection between the radioserver and the Master repeater.

**Authentication key:** Repeater authorization key (should be equal to the **Authentication key** in the repeater settings in *MOTOTRBO CPS*).

**Voice transmission:** Voice transmission can be carried by using repeaters or control stations.

#### IMPORTANT

To activate **Voice transmission**, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

To transmit voice via control stations, configure control station parameters and profiles for making private calls. To transmit voice via repeaters, configure virtual control station channels and talkgroups of the channel. The number of channels depends on the network type. To ensure data packets transmission over the network, configure the DDMS and MNIS services.

**Group call hang time:** Time during which the repeater reserves the channel for a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit.

**Private call hang time:** Time during which the repeater reserves the channel for a private call after the end of transmission. During the timeout, only the participants of the private call can transmit.

**TX preamble duration (ms):** Duration of TX preamble. Increasing of preamble duration makes a message longer. It reduces the probability of missing the message by a scanning in battery save mode receiving radio. Increasing of preamble reduces the amount of data transmitted on the channel. Preamble duration must not exceed *8040 ms*.

**Max number of simultaneous telephone calls:** Sets the limit on the number of simultaneous telephone calls per system. The parameter is not applicable to the Extended Range Direct Mode systems.

Data transmission: Enables data transmission in the network.

#### IMPORTANT

To activate **Data transmission**, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

Monitoring: Enables monitoring of radio network equipment condition.

When selecting NAI - Linked Capacity Plus network with voice via repeaters, the new section **Site** with the **Site Priority Configuration** table appears:

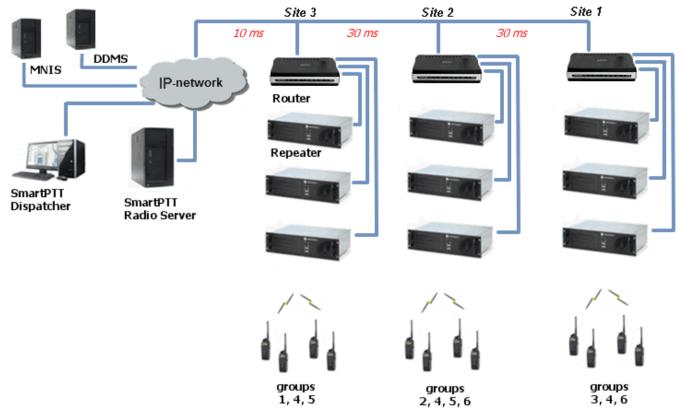
ettings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics					
	Control Stati			Sit	tes								
	Connect Plu NAI Systems	3		Sit	Site Priority Configuration								
NAI- Linked Capacity Plus 1					Si	te	Max Number Simultaneous Telephone C	Priorit	Y		<b>↑</b>		
		Talkgroups Security Set		•	Sit	e 1	16	1			•		
		MS Settings	-		Sit	e 2	16	2					
1.0		S Data Gate	•		Sit	e 3	16	3					
	Capacity Ma	x Networks			Sit	e 4	16	4					
					Sit	e 5	16	5					
					Sit	e 6	16	6					
					Sit	e 7	16	7					

Site: Name of the site.

**Max number of simultaneous telephone calls:** Sets the limit on the number of simultaneous telephone calls per site.

**Priority:** Priorities should be set on the basis of the radioserver proximity to the site. The closer the radioserver to the site, the higher priority it should have. Thus, you will be able to reduce data transmission delay.

The following scheme shows sites location in respect to the radioserver, and distribution of talkgroups on them:



Here, talkgroups 3, 4, 6 are assigned to Site 1; talkgroups 2, 4, 5, 6 – to Site 2; talkgroups 1, 4, and 5 – to Site 3.

The **Talkgroups** tab in repeater *MOTOTRBO CPS* settings allows you to configure group calls as wide area calls on specific sites:

MOTOTRBO Customer Programm	ning Sof	tware - [San	ple.ctb]										-	· □ ×
File Edit View Device	Feature	Remote	Window	Help										- 8
RM Open Save Reports De			aste Search		Clone Blueto		-							
SLR 5500							т	alkgroup	s					
Network									Add	Delete				
Sites		Call ID	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12
	•	1 🕂		~	~									
🗄 🖻 Channels		2		<b>V</b>	~									
		3			•		<b>v</b>							
		4		<b>V</b>	<b>V</b>	<b>I</b>	~				П			

By default, the repeater sends data to Site 1. Then, data goes from Site 1 to other sites. So, if you call to talkgroup 4, the total time delay is 130 ms.

Set up the site priorities so that sites with less time delay have a higher priority. It allows sending data to the nearest site, from which it is distributed to other sites. Ultimately, the total time delay in case of talkgroup 4 reduces up to 70 ms.

If connection with the site of the highest priority fails, the radioserver tries to work through the site of lower priority.

To assign site priority, drag the site name to the desired location or use arrows on the right to the table.

### NOTE

Talkgroup distribution data is provided by the **Talkgroups** table on each site (repeater settings in *MOTOTRBO CPS*).

When selecting NAI - IP Site Connect with voice via repeaters, the **Local Slots** table appears. Local slots allow multiple communications at one time. To add a local slot, click the **Add** button above the table.

ttings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
100	Control Stati			N	AI - IP Sit	e Conne	ect Network			
	Connect Plu NAI Systems				Active					
<u>.</u>	NAI - IP	Site Connec 1	zt 1	N	lame		NAI - IP Site Conr	nect 1		
		Talkgroups Security Set	tings	N	letwork ID		1			
(	j°r° Slot		ungs	P	eer ID		1			
		Talkgroups Security Set	tings	Ir	nterface		Any	~ Port	50000	*
(	Loca	al slot 1 Talkgroups			laster repe P Address		remotehost:50000	0	Tes	st
(		Security Set	tings	A	uthenticat	ion key				
(		Security Set	tings		Voice tr	ansmissio	Repeaters			~
		Talkgroups Security Set	tinas	G	iroup call h	nang time	, ms		3000	* *
	DDI	MS Settings	-	P	rivate call	hang time	e, ms		4000	▲ ▼
- <b></b>		S Data Gate x Networks	eway	P	reamble d	uration, m	IS		180	▲ ▼
				N	lax Numbe	er of Simu	Itaneous Telephone Cal	ls	100	<b>*</b>
					🛛 Data tra	ansmissio	n			
					Monitor	ing				
					Local Slot	s				
					Add		Delete			
					Name		Peer ID	Slot		
					Local slot	1	1	Slot 1		~
					Local slot		1	Slot 2		~
					Local slot	-	2	Slot 1		$\sim$

**Name:** Name of a local slot, which will be displayed in SmartPTT Radioserver Configurator and *SmartPTT Dispatcher*.

**Peer ID:** The identifier of a repeater.

**Slot:** Selection between slots (*Slot 1* or *Slot 2*).

To configure NAI - Extended Range Direct Mode, ensure that the following settings are specified:

### 1. The repeater has the corresponding license in MOTOTRBO CPS.

MOTOTRBO Customer Programmin	g Software - [Sample.ctb]			- 0
File Edit View Device Fe	atures Remote Window Help			- 5
M Open Save Reports Delete		etooth 🔪		
SLR 5500		Device Info	ormation	
		Top Device	Features	
Security		Uigitai	⊢ree	
Network		- IP Site Connect	Free	
Restablishment		- Capacity Plus - Single Site	Available for Purchase	
		- Enhanced Privacy	Free	
		- Transmit Interrupt	Free	
🕀 💼 Channels		- Dynamic Mixed Mode	Free	
		- Enhanced GNSS	Free	
		- Digital Phone Patch	Available for Purchase	
		- Digital Voting	Available for Purchase	
		- Satellite Receiver	Free	
		- Capacity Plus - Multi-Site	Available for Purchase	
		- Restricted Access to System	Free	
		- Network Application Interface Voice	Available for Purchase	
		- Network Application Interface Data	Available for Purchase	
		- Extended Range Direct Mode	Purchased	

2. Extended Range Direct Mode has the *Enabled* value in MOTOTRBO CPS.

I MOTOTRBO Customer Programmi	ng Software - [Sample.ctb]	– 🗆 X
File Edit View Device F	eatures Remote Window Help	_ & ×
RM Open Save Reports Delet	k Ing	
SLR 5500	IP Site SFR	
	Top Enhanced GNSS RX TX	
Security	Color Code 1	^
Link Establishment	Extended Range Direct Mode Enabled	
	Inbound Color Code 1 -	
📥 🚞 Zone1	Outbound Color Code 1 ÷	
···· <b>·.</b>	Network Application Interface Phone	

### 3. The **SFR Mode** check box is selected in the MNIS.

MOTOTRBO Network Interface Service Cont	iguration Utility *		-	×
Configuration View Edit Service H	elp			
1 🔁 📔 🖪 🖸	2			
E Untitled		Domain 1		^
General     G	Master IP Address Master UDP Port	0.0.0 50000		
- ᠿ⊛: Capacity Plus ⊕:	MNIS LE port	Automatically Assigned     Manually Assigned     None		
	Authentication Key			
	SFR Mode			~

# 2.3.2 Adding and Configuring NAI Control Stations

To transmit voice packets over control station, you need to configure its settings.

Control station settings become available, when you select voice packet transmission over control stations, not repeaters.

ings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings Statistics			
-	Control Stat			N/	Al - Linke	d Capa	city Plus Network			
	Connect Plu NAI System				Active					
NAI- Linked Capacity Plus 1				N	ame		NAI- Linked Capacity Plus 1			
			N	letwork ID		1	1			
Control Stations				P	eer ID		1			
-		IS Data Gate ax Networks	away	In	terface		Any V Port	50000	-	
					laster repea P Address:		remotehost:50000	Tes	t	
				1	uthentication	on key				
					Voice tra	ansmissio	On Control Stations		$\sim$	
				G	roup call h	ang time	, ms	3000	*	
				P	rivate call ł	nang time	e, ms	4000	*	
				P	reamble du	ration, m	S	180	*	
				M	lax Numbe	r of Simu	Itaneous Telephone Calls	100	* *	
					🛛 Data tra	nsmissio	1			

To configure the control station settings, right-click **Control Station**, point to **Add**, and select **MOTOTRBO control station**.

🧐 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — □ ×											
Settings Networks Client List Network Configuration Ru	ules Activity Log Ex	port/Import Settings Statistics									
Control Stations Connect Plus NAI Systems	NAI Control Station	Control Station 1									
Slot 1 Talkgroups Control Stations	Name IP Address Radio ID	192.168.10.1									
DDMS Settings MNIS Data Gateway	Working Channel Reserved for	Zone 1 Channel 1									
Capacity Max Networks	<ul> <li>Dispatcher</li> <li>Talkgroup</li> </ul>	~									

Active: Activates a control station.

Name: Control station name.

**IP Address:** Local IP address of the control station. The following address format and range are used: (001-223).(000-255).(000-255).(001-253). Users can use any address except 127.x.x.x in the range from 1.x.x.x to 223.x.x.x. We recommend to use the address *192.168.10.1* by default, and in case of conflicts with other network interfaces you should select a different IP address.

#### NOTE

If two or more control stations are connected to the computer, one of the first three octets of the IP address must be unique for each control station.

**Radio ID:** Unique radio identifier used during communication with it. In the IP Site Connect network, the ID is to be set in the range from 1 to 16776415. In the NAI - Capacity Plus or NAI - Linked Capacity Plus networks, the ID is to be set in the range from 1 to 65535.

**Working Channel:** Select the channel and the zone to be set at the control station at the radioserver launch.

**Reserved for:** Allows you to define how the control station is to be used. It can be used for private calls (**Dispatcher**) or for group calls (**Talkgroup**). This parameter is available only for NAI - Extended Range Direct Mode, NAI - Linked Capacity Plus and NAI - Capacity Plus networks. You can use one control station per one dispatcher or per one talkgroup. To allow group calls, select **Talkgroup**. At that, the list with added talkgroups becomes enabled. To allow private calls to and from the dispatcher, select **Dispatcher** and add <u>profiles</u> – one per dispatcher. In the profile, select the reserved control station. At that, **ID** will change and will match **Radio ID** set in the **NAI Control Station** settings.

🎯 SmartPTT Server Configuration - C:\Program	_		Х					
Settings Networks Client List Network Configurat	ion Rules	Activity	Log	Export/Import Settings	Statistics			
Settings Networks Client List Network Configural	F	Profile lame Limit Radio Enable Allowed ra	s to Served dio ID's d All Linked ( Reserved D: 1 Private c Private c Radio Ne ZaRo Ne	Profile 1 vice Collapse All Capacity Plus 1 - Slot 1 d Control Station: Control alls alls monitoring etwork Services	Example: 1 1-1677641		Down	
			Radio Ne	stwork Services				

Also, make sure the following settings are made in CPS in control stations' configurations:

- 1. When using for talkgroups:
  - In General Settings, clear Private Calls check box.

	MOTOTRBO Customer Programmi	ing Software - [Sample.ctb]	- 🗆 X
1		Features Remote Window Help	_ 8 ×
RN		te Cut Copy Paste Search Read Write Clone Bluetooth	
=-	DP4400	General Settings	
	Accessories	Top CWID Audio Profile Microphone Battery Saver Alerts Over-the-Air Programming Lone Worker Password and Lock 5	Tone Radio ID
	🖂 Text Messages	Radio Name Motorola	^
	Telemetry     Security	Radio ID 1049282	
	Network     Announcement	Private Calls 🔽	
	+ Signaling Systems	Site Search Timer (sec)	

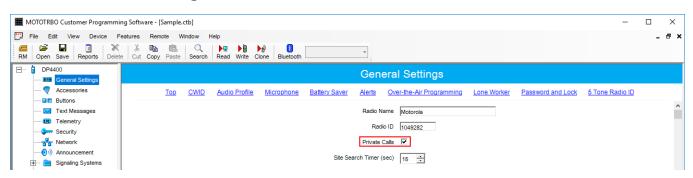
• In Network under Control Station section, select Voice Only.

MOTOTRBO Customer Programming	Software - [Sample.ctb]	- 🗆 ×
File Edit View Device Feat	ures Remote Window Help	- 8 ×
RM Open Save Reports Delete	⋈     ⋈     ⋈     ⋈     ⋈       Cut Copy Paste     Search     Read     Write     Clone       Bluetooth	
🖃 ···· 🔋 DP4400	Network	
General Settings	Network	
	Top Radio Network Services Control Station IP Site Connect	
Buttons		
🖂 Text Messages	Control Station	^
····· 100 Telemetry		
- Security	Voice Only 🔽	
Network		
Announcement	Data Modem System Type None	
Signaling Systems	Data Modem Window Size 5 👻	
🕀 💼 Encoder		

• In the **Channel** settings, in **RX Group List**, select the talkgroup, for which the control station is reserved in SmartPTT Radioserver Configurator.

I MOTOTRBO Customer Programming So	oftware - [Sample.ctb]		-	
File Edit View Device Featur	res Remote Window Help			_ & ×
	% ™ ₩ Q Paste Search Read Write Clone Bluetooth	*		
🖃 🔋 DP4400		NAI IPSC 1		
General Settings				
💙 Accessories		Top <u>RX TX</u>		
Buttons				^
Text Messages	RX		ТХ	
Telemetry		Offset (MHz)		
Security		Oliset (MHZ)		
Network     Network     Notwork     Nouncement	Frequency (MHz) 136.025000	0.000000	Frequency (MHz) 136.025000	
Arnouncement     Signaling Systems		Carry	1	
Encoder	Ref Frequency Default V	Сору	Ref Frequency Default -	
Decoder		-		
🕂 💼 Contacts	Group List None		Contact Name Call1	
🕂 🚞 RX Group Lists	Emergency Alarm Indication		Emergency System Sys1	
🕂 🤤 Channels				
E Zone 1	Emergency Alarm Ack		vox 🗖	
	Emergency Call Indication		Power Level High 👻	
NAI CP 1	Emergency Call Decode Tone			
Channel Pool	Emergency Call Decode Fone		TOT (sec) 60 ÷	

- 2. When using for dispatcher:
  - In General Settings, select Private Calls.



### • In Network under Control Station section, select Voice Only.

MOTOTRBO Customer Programming	Software - [Sample.ctb]	- 🗆 X
File Edit View Device Feat	ures Remote Window Help	_ & ×
RM Open Save Reports Delete	K     Image: Construction of the second	
DP4400	Network	
Accessories	Top Radio Network Services Control Station IP Site Connect	
····· 🖂 Text Messages	Control Station	^
	Voice Only 🔽 Data Modem System Type None 💌	
	Data Modern Window Size 5 v	

• In the **Channel** settings, in **RX Group List** select *None.* 

I MOTOTRBO Customer Programming So	ftware - [Sample.ctb]			– 🗆 ×
File Edit View Device Feature	es Remote Window Help			_ 8 ×
RM Open Save Reports Delete C	从 Im Im Search Read Write Clone Bluetooth	*		
🖃 🔋 DP4400		NAI IPSC 1		
General Settings				
		Top RX TX		
Buttons				^
Text Messages	RX		TX	<u> </u>
101 Telemetry				
		Offset (MHz)		
Network		0.000000		
	Frequency (MHz) 136.025000	0.00000	Frequency (MHz) 136.025000	
+ 🚞 Signaling Systems		Сору		
Encoder	Ref Frequency Default		Ref Frequency Default -	
🕂 💼 Decoder		-		-
E Contacts	Group List None	•	Contact Name Call1	-
🕀 🗁 🚞 RX Group Lists	Emergency Alarm Indication		Emergency System Sys1	-
🚊 🗠 🚞 Channels	_			-
🖻 – 💼 Zone 1	Emergency Alarm Ack		vox 🗖	
	Emergency Call Indication		Power Level High	
NAI CP 1	_		i ngn 💽	
Channel Pool	Emergency Call Decode Tone		TOT (sec) 60 ÷	

### NOTE

All Calls can be initiated via a control station reserved for a group. If the control station is reserved for the dispatcher, you can only listen to **All Calls.** 

### 2.3.2.1 Audio Settings

To select audio devices and set up VoIP parameters, click **Audio** in the **Networks** tab of *SmartPTT Radioserver Configurator*.

🎯 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config									$\times$
Settings Networks Client List Network Configuration R	Rules	Activity	Log	Export/Import S	ettings	Statistics			
Control Stations Connect Plus NAI Systems NAI- Linked Capacity Plus 1 Slot 1 Talkgroups Control Stations Control Station 1 Control Station 1 DDMS Settings MNIS Data Gateway Capacity Max Networks		Input line Codec Format Audio ou	put efault, 1	Mast CCIT 8000	er Volun Tu-Lav	ne	bps	-	

Active: Activates audio settings.

Audio input: An audio device to which the control station audio output is connected.

**Input line:** Audio mixer line used for connections. The control station audio output can be connected to the line input of the audio device.

**Codec:** Outgoing audio stream compression method.

**Format:** Sampling frequency of an outgoing audio stream.

#### Example

Specifications of the codec format 8000 Hz, 20 ms, 64 (86) kbps:

- 8000 Hz is the sampling rate
- 20 ms is the frame size
- **64 kbps** is the voice data bit rate
- 86 kbps is a full bit rate (required network bandwidth)

Audio output: An audio device to which the control station audio input is connected.

# 2.3.3 Configuring NAI Slots

To configure the NAI Network slots, on the **Networks** tab of SmartPTT Radioserver Configurator, click the desired slot. The **NAI Control Station** pane appears:

SmartPTT Server Configuration - C:\Program Files (	(x86)\SmartPTT\Server\RadioService.exe.config —	
Settings Networks Client List Network Configuration R	Activity Log Export/Import Settings Statistics	
Control Stations Connect Plus NAI Systems NAI- Capacity Plus 1 Solution Security Settings DDMS Settings MNIS Data Gateway Capacity Max Networks	NAI Control Station         ✓ Active         Name       Slot 1         Radio ID       65535         CAI Network       12         CAI Network       12         ✓ Allow Telephone Interconnect         TX Time-Out Timer, s       60         Options	

#### NOTE

For the NAI - Extended Range Direct Mode, NAI - Capacity Plus or NAI - Linked Capacity Plus networks, there is only one slot to configure.

Active: Activates a control station.

Name: Slot name.

**Slot ID:** Local slot identifier. This identifier is used in telephone calls (e.g., when there are many local slots to differentiate between them).

**Radio ID:** Unique identifier of a virtual control station corresponding to the network slot.

**CAI Network:** CAI–network identifier. The default value is *12* (must match *MOTOTRBO CPS* settings).

**CAI Network for Groups:** CAI–network for groups identifier. The default value is 225 (must match *MOTOTRBO CPS* settings).

Allow Telephone Interconnect: Enables telephone calls on the slot.

#### NOTE

**Allow Telephone Interconnect** is not applicable to the NAI - Extended Range Direct Mode systems.

**Emergency alarm confirmed:** Determines if the emergency alarm is allowed to be acknowledged.

**TX Interrupt:** Enables or disables the ability to interrupt a radio.

**Private Calls:** Enables or disables the private calls confirmation.

**GPS Transmission Mode:** Allows you to select the way how to transmit location updates: as a data packet in multiple bursts or as a single CSBK (Control Signaling Block).

Each solution has its own advantages and disadvantages:

GPS Transmission Mode	Advantages	Disadvantages
Data	No need to configure additional settings for receiving GPS data	Increased traffic load on a channel
СЅВК	<ul> <li>Low traffic load on a channel</li> <li>Increased GPS transmission frequency rate — once in 15 seconds</li> </ul>	<ul> <li>Not all radios support CSBK commands</li> <li>Additional MNIS settings*</li> </ul>
Enhanced CSBK	<ul> <li>Low traffic load on a channel</li> <li>Increased GPS transmission frequency rate — once in 7.5 seconds</li> </ul>	<ul> <li>Not all radios support CSBK commands</li> <li>Additional MNIS settings*</li> </ul>

### NOTE

The Enhanced CSBK **GPS Transmission Mode** is not applicable to the NAI - Extended Range Direct Mode systems.

To transmit location data using CSBK and Enhanced CSBK, configure additional MNIS settings, which include adding repeater latitude and longitude. This information is used for calculation of radio locations.

 For NAI - IP Site Connect configuration select Conventional → IP Site Connect/Extended Range Direct Modedomain name and in the Repeater GPS Coordinates area specify latitude and longitude for each network system:

MOTOTRBO Network Interface Service Configuration Utility *					-	×
Configuration View Edit Service Help						
⊡ 🛑 Untitled			ater GPS Coordi			^
- III General		Kepes				
- 👽 Security						
🗄 💼 Group List			Add De	elete		
🚊 🧰 Conventional						
IPSC		Peer ID	GPS Latitude	GPS Longitude		
🕂 🤁 🐼 Capacity Plus	•	1	56	84		
🗄 ζ 🧶 Linked Capacity Plus						
🗄 🧰 Advanced						

• For NAI - Capacity Plus configuration specify latitude and longitude just in one place:

NOTOTRBO Network Interface Service Configuration Utility *	_	×
Configuration View Edit Service Help		
Untitled Security Alias		^
Group List		
🗄 🧧 Conventional Outbound Data Limit 2		
⊕ Capacity Plus     GPS Latitude     56		
😥 🚔 Advanced GPS Longitude 84		~

• For NAI - Linked Capacity Plus configuration specify latitude and longitude for each site:

MOTOTRBO Network Interface Service Conf	iguration Utility *				- 0	ı x
Configuration View Edit Service He	elp					
1	?					
⊟· 🛑 Untitled						
··· 🚥 General ··· 🚛 Security			Add	Delete		
🗄 💼 Group List	Site Id	Group List	Outbound Data	a Limit GPS Latitude	GPS Longitude	
Conventional	1	List1	~ 2	56	84	
Capacity Plus	2	List2	~ 2	56	84	
<ul> <li>Linked Capacity Plus</li> <li>Sites</li> </ul>				'	'	
😟 💼 Advanced						

Also, to transmit location data using CSBK or Enhanced CSBK, select **CSBK Data** in radio settings:

MOTOTRBO Customer Programming	Software - [Sample.ctb]		– 🗆 X
	tures Remote Window Help	•	_ & ×
DP4400		Channel 1	
General Settings     Consortial Settings     Consortial Settings     Consortial Settings     Consortial Settings     Consortial Settings     Security     Security     Security     Security     Security     Security     Decoder     Contacts     Con	Emergency Call Indication	In Call Criteria	60
Channel 2     Channel Pool     Channel Pool     Cannel Po		Data Call Confirmed Location Data Delivery Mode Enhanced Channel Access CSBK Data	Follow Data Call Confirmed

### NOTE

Remember that Enhanced CSBK can be used on **Enhanced GNSS** channels only.

### 2.3.3.1 Configuring Local Slots

As soon as the local slot is added to the **Local Slots** table, a new section appears in the settings tree.

### NOTE

Local slots become available only when *Repeater* is selected for voice transmission.

ttings Networks Client List Network Configurat	ion Rules	Activity	Log	Export/Import Settings	Statistics		
Control Stations	N	Al Control	Stati	on			
		Active					
ianian MAI - IP Site Connect 1 ianianiani € Slot 1	P	eer ID - Slot	:	Peer ID 1, Slot 1			
Talkgroups	N	lame	[	Local slot 1			
	s	lot ID	[	3 ≑			
Talkgroups	F	ladio ID		16448250 🜲			
Local slot 1	C	Al Network		12 ≑			
Security Settings	C	Al Network	for Gr	oups 225 🚔			
MNIS Data Gateway		Allow Tel	ephor	e Interconnect			
Capacity Max Networks	Т	X Time-Out	Timer	.s 60	<b>÷</b>		
		Options					
		Emerge					
		TX Inte					
		GPS Trans	missio		$\sim$		
		Confirmed E	vents				
		Private	calls				

**Active:** Allows you to enable or disable a local control station.

**Peer ID - Slot:** Peer identifier and slot number. Data is taken from the **Local Slot** table.

**Name:** Name of the local slot. It is used in *SmartPTT Radioserver Configurator* and in *SmartPTT Dispatcher*.

**Slot ID:** The identifier of the local slot, which will be used for group calls. This will be used in a group call mask. It must be unique in the system.

**Radio ID:** Unique radio identifier used during communication. It can match **Radio ID** of the virtual slots.

**CAI Network:** CAI-network ID. Use the default value of *12*.

CAI Network for Groups: Group CAI-network ID. Use the default value of 225.

Allow Telephone Interconnect: Allows telephone calls on the slot.

**TX Time-Out Timer, s:** Time period during which the radio can transmit without interruptions. When time is out, the transmission is interrupted.

**Emergency alarm confirmed:** Determines if the emergency alarm is allowed to be acknowledged.

**TX Interrupt:** Enables or disables the ability to interrupt a radio.

**Private calls:** This feature sets private calls on the current digital channel as confirmed.

**GPS Transmission Mode:** Allows you to select the way how to transmit location updates: as a data packet in multiple bursts or as a single CSBK (Control Signaling Block). For more information, see <u>GPS Transmission Mode</u>.

To configure groups of the local slot, click **Talkgroups**. Configure talkgroup settings as ordinary IP Site Connect talkgroups.

If you use encryption, go to **Security Settings**. For more information on how to configure encryption settings, see <u>Security Settings in NAI systems</u>.

### 2.3.3.2 Configuring Joint GPS and Indoor Data

If you want to receive joint location data (GPS and indoor) in NAI, configure the following settings:

- Radio settings in MOTOTRBO CPS
- Radio settings in SmartPTT Dispatcher
- Repeater settings in *MOTOTRBO CPS*

### 2.3.3.2.1 Configuring Radio in MOTOTRBO CPS

To configure radio in *MOTOTRBO CPS*, follow these steps:

- 1. In the radio firmware file, select **Channels**  $\rightarrow$  **<Zone Name>**  $\rightarrow$  **<Channel Name>**.
- 2. In the **<Channel Name>** pane, perform the following actions:
  - Select the **Enhanced GNSS** check box, and from the **Window Size** list, select 10.
  - From the **Compressed UDP Data Header** list, select *MSI*.
  - Clear the **CSBK Data** check box.

### 2.3.3.2.2 Configuring Radio in SmartPTT Dispatcher

To configure radio in SmartPTT Dispatcher, follow these steps:

- 1. Open the radio properties window.
- 2. In the **Location** tab, perform the following actions:
  - a. Select the **Indoor Tracking** check box.
  - b. Select the **Update Interval** check box, and enter *30* in the field.

### 2.3.3.2.3 Configuring Repeater in MOTOTRBO CPS

To configure repeater in MOTOTRBO CPS, follow these steps:

- 1. In the repeater firmware file, select **Channels**  $\rightarrow$  **<Zone Name>**  $\rightarrow$  **<Channel Name>**.
- 2. In the **<Channel Name>** pane, in the **Enhanced GNSS area**, select the **Enable** check box.

# 2.3.3.3 Configuring Data Transmitting on CSBK/Enhanced CSBK channel

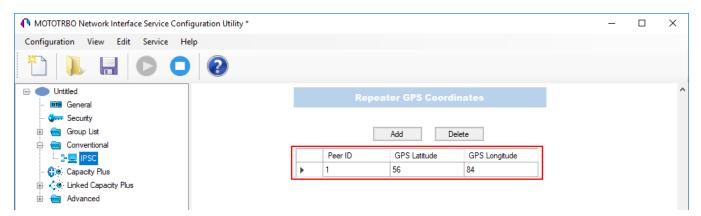
To transmit location data using CSBK and Enhanced CSBK, configure additional MNIS settings, which include adding repeater latitude and longitude. This information is used for calculation of radio locations.

### NOTE

1. The Enhanced CSBK GPS Transmission Mode is not applicable to the NAI - Extended Range Direct Mode systems.

- 2. Enhanced CSBK can be used on **Enhanced GNSS** channels only.
- 3. CSBK is incompatible with the GPS batching feature.

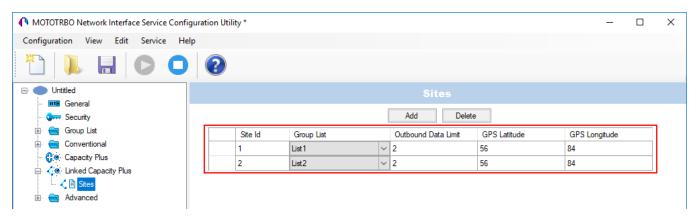
 For NAI - IP Site Connect configuration: Select Conventional → IP Site Connect/Extended Range Direct Modedomain name and in the Repeater GPS Coordinates area specify latitude and longitude for each network system:



• For NAI - Capacity Plus configuration: Specify latitude and longitude just in one place:

MOTOTRBO Network Interface Service Config	uration Utility *			_	х
Configuration View Edit Service Hel	p				
1	0				
Untitled     General	Security Alias		~		^
🗫 Security ⊕ 🖶 Group List	Group List	None	~		
Conventional     Geo Capacity Plus	Outbound Data Limit	2			
🗈 🄇 Linked Capacity Plus	GPS Latitude	56			
i en Advanced	GPS Longitude	84			~

• For NAI - Linked Capacity Plus configuration: Specify latitude and longitude for each site:



Also, to transmit location data using CSBK or Enhanced CSBK, select **CSBK Data** in radio settings:

MOTOTRBO Customer Programming So	oftware - [Sample.ctb]					-	- 🗆	×
File Edit View Device Featur	es Remote Window Help						-	đΧ
	X In International Search Read Write	Clone Bluetooth						
🖃 ···· 📋 DP4400			Channe	el 1				
General Settings			onann					
			Top RX	<u>TX</u>				
Buttons Messages	Emergency Call Indication				Power Level	High 💌		^
Telemetry	Emergency Call Decode Tone				TOT (sec)	60 ÷		
Network					TOT Rekey Delay (sec)	0 ÷		
					Allow Interruption			
🕀 💼 Encoder					TX Interruptible Frequencies			
Decoder     Contacts					Admit Criteria	Channel Free	•	1
RX Group Lists					In Call Criteria	Always		
🚍 🤤 Channels					RSSI Threshold (dBm)	-124 葉		
Channel 1					Private Call Confirmed			
Channel Pool					Data Call Confirmed			
⊞ 💼 Scan ⊕ 💼 Roam					Location Data Delivery Mode	Follow Data Call Confirmed 💌		
Em Capacity Plus					Enhanced Channel Access			
					CSBK Data			*

# 2.3.4 Configuring NAI Talkgroups

To configure slot groups, in the **Networks** tab of *SmartPTT Radioserver Configurator*, click **Talkgroups**. The **Control Station Talkgroups** pane appears:

🎯 SmartPTT Serv	er Configur	ation - C:\Program File	es (x86)\	SmartPT	T\Server	\RadioService.exe.com	fig	_	×
Settings Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
Control Stat	JS		C	ontrol Sta	ation Ta	lkgroups			_
	Site Connec	ct 1			Сору		Paste		
	Talkgroups Security Set			Add	All Call	Remove	Up	Down	
- <u>-</u> -	Talkgroups	*		Name				ID	
- 🔤 DD	Security Set MS Settings		1	VI Call					
MN	IIS Data Gate		0	Group 1				1	
	ax norworks			Group 2				2	

### NOTE

The configuration process of the virtual control station talkgroups for NAI - IP Site Connect, NAI - Extended Range Direct Mode or NAI - Capacity Plus networks is absolutely similar to the configuration of MOTOTRBO control station talkgroups. For NAI - Linked Capacity Plus network type, parameters of wide area and local talkgroups are set in the **Control Station Talkgroups** window. All the configured talkgroups are displayed in *SmartPTT Dispatcher*.

Wide area talkgroup calls are available to the radios that are in the coverage area of sites designated in MOTOTRBO CPS for this talkgroup. Select check boxes in the required columns of the **Talkgroups** tab in the repeater MOTOTRBO CPS settings. Each column corresponds to the site where the talkgroup is available for a call.

III MOTOTRBO Customer Programm	ning Soft	vare - [Sam	ple.ctb]										-	
	Features	Remote	Window H	lelp										_ 8 :
RM Open Save Reports Dele		Copy Pa	ste Search	Read Write	Clone Bluetor	oth	•							
SLR 5500							т	alkgroup	s					
									All Wide Area T	alkgroups 🗌				
Network									Add	Delete				
Sites		Call ID	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12
	•	1 ÷	<b>I</b>	~	~									
🗄 ···· 🧰 Channels		2 ÷		~	<b>v</b>	<b>V</b>								
		3 ÷				<b>V</b>	V							
		4 ÷		~	~	~	~							

In order to display wide area talkgroups in *SmartPTT Dispatcher*, add necessary talkgroups in *SmartPTT Radioserver Configurator*, define talkgroup identifiers that correspond to the identifiers of the wide area talkgroups in the repeater MOTOTRBO CPS settings and select *Wide* in the **Site Number** field.

SmartPTT Server Configuration - C:\Program F	iles (x86)	\SmartPT	T\Serve	\RadioService.exe.co	onfig	_		×
ettings Networks Client List Network Configuration	Rules	Activity	Log	Export/Import Setting	s Statistics			
Control Stations	C	ontrol St	ation Ta	lkgroups				
ian and NAI Systems ian and NAI- Linked Capacity Plus 1			Сору					
⊡°° Slot 1			All Call					
Talkgroups		Add		Remove	ê Up	🐺 Down		
DDMS Settings		Name			ID	Site Numbe	er	
MNIS Data Gateway	(	Group 1			1	Wide	~	*
	0	Group 2			2	Wide	~	*
	(	Group 3			3	Wide	~	*
		Group 4			4	Wide	~	1

The talkgroups that are not specified in the repeater MOTOTRBO CPS settings are considered as local. The local talkgroup call does not go beyond the site where the call is initiated.

Add the required local talkgroups in *SmartPTT Radioserver Configurator*, define identifiers for them and select site number from the list in the **Site Number** field.

### NOTE

Ensure that identifiers of wide area and local talkgroups do not match.

🎯 SmartPTT Server Configuration - C:\Program File:	s (x86)\	SmartPT	T\Serve	r\RadioService	e.exe.con	fig	_	
Settings Networks Client List Network Configuration	Rules	Activity	Log	Export/Import	Settings	Statistics		
Control Stations	C	ontrol Sta	ation Ta	lkgroups				
Al Systems     NAI- Linked Capacity Plus 1		Copy Paste						
Slot 1			All Cal					
		Add		Remove		Up	Veri Down	
		Name				ID	Site Numbe	r
Capacity Max Networks		Group 1			1		Wide	~
	0	Group 2			2	2	Wide	~
	0	Group 3			3	}	Wide	~
		Group 4 - S	ite 1		4	ļ.	1	$\sim$
	0	Group 5 - S	ite 2		5	j	2	~
		Group 6 - S	ite 3		6		3	~

It is important to specify all talkgroups supported by the system in *SmartPTT Radioserver Configurator*. Otherwise, the operator can't initiate a call to such a talkgroup until the talkgroup member has made a group call to the operator.

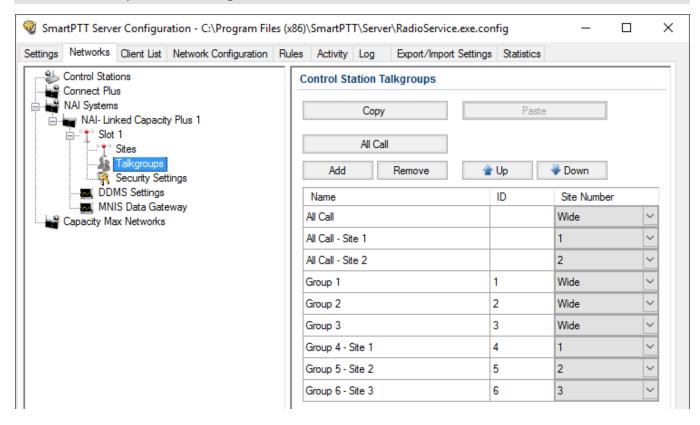
To add the All Call, click **All Call**. In NAI - Linked Capacity Plus networks, you can add a wide All Call and a local All Call, which is limited to one site.

To add a wide All Call, which available to all sites, click **All Call**. Ensure that **Site Number** is set to *Wide*.

To add an **All Call** limited to one site, click **All Call**, and in the **Site Number** column select the site number where the All Call will be heard. Please note, that you do not need any IDs for local All Calls. Only dispatchers can initiate the local All Call from the dispatch console.

### NOTE

Local All Calls operate within one site in networks where voice transmission is carried out via a repeater. In hybrid networks, where voice transmission is carried out via a control station, a local All Call operates as the global All Call.



# 2.3.5 DDMS Service

*Device Discovery and Mobility Service* (DDMS) is a service that monitors presence of ARS capable radio units and reports their parameters (IP address, Radio ID, etc.) to SmartPTT Radioserver and *MOTOTRBO Network Interface Service Configuration Utility* (MNIS).

*Device Discovery and Mobility Service* is closely connected to MNIS. DDMS filters the registration service packets (ARS), received by the repeater, and information on the radio presence in the network is sent to all systems for further processing.

Before configuring *Device Discovery and Mobility Service*, ensure that MOTOTRBO DDMS and *MOTOTRBO Network Interface Service Configuration Utility* are installed on the same computer.

### 2.3.5.1 Configuring DDMS in MOTOTRBO DDMS

To configure DDMS in MOTOTRBO DDMS, follow these steps:

- 1. Run MOTOTRBO DDMS.
- 2. In the left pane, select **Interfaces**  $\rightarrow$  **ARS Settings**.
- 3. Ensure the **PortSU** field value matches the **ARS UDP Port** field value in **Advanced** → **Networks** of MOTOTRBO Network Interface Service Configuration Utility.

🐍 MOTOTRBO DDMS			-	×
File Action Help				
Service     Interfaces     Inte	ARS Settings     PortSU     PassiveMode     DeviceRefreshTime     DeregistrationTO     PersistenceTO	4005 Off 240 120 12000		

- 4. In the left pane, select **Interfaces**  $\rightarrow$  **Watcher Settings**.
- Ensure the **PortWatcher** field value matches the **WatcherPort** field in **Advanced** → **Networks** of *MOTOTRBO Network Interface Service Configuration Utility*.

🐍 MOTOTRBO DDMS			_	×
File Action Help				
O O O 🖗 🖗 🔜 🔜 🐀				
Service	Watcher Settings			
🚊 🏘 Interfaces	PortWatcher	3000		
ARS Settings	WatcherTO	14400		
	NotifyGroup	0		
Authentication Server Settings	NotifyRate	5		
🔮 Logging				

### 2.3.5.2 Configuring DDMS in SmartPTT Radioserver Configurator

To configure DDMS settings in SmartPTT Radioserver Configurator, follow these steps:

1. In the left pane of the **Networks** tab, expand **NAI Systems** → **<Added NAI network>** and select **DDMS Settings**.

🎯 Sma	🥎 SmartPTT Server Configuration - C:∖Program Files (x86)\SmartPTT\Server\RadioService.exe.config								_	$\times$
Settings	Networks	Client List	Network Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
	Slot	s Site Connect 1 Talkgroups Security Set 2 Talkgroups Security Set <u>MS Settings</u> S Data Gate	tings tings way	E	DDMS Sett	-	ocalhost:3000			

- 2. In the **DDMS Settings** pane, perform the following actions:
  - a. Select the **Active** check box.
  - b. In the Server Address field, type the IP address of the computer with the MOTOTRBO DDMS application installed on it, and port number of the DDMS server.
     The port number in this field must match the PortWatcher field value in Interfaces → Watcher Settings.of MOTOTRBO DDMS
- 3. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save (** have changes.
- 4. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 2.3.6 MNIS Data Gateway

MNIS is used for data exchange and serves as a DDMS watcher.

Before configuring MOTOTRBO Network Interface Service, ensure that the following applications are installed on the computer:

- MOTOTRBO Network Interface Service Configuration Utility
- MOTOTRBO CPS

You also should have an access to the MOTOTRBO CPS firmware file of a master repeater.

Remote socket is used for connecting more than one NAI - Capacity Plus or NAI - Linked Capacity Plus networks to SmartPTT Radioserver.

For proper functioning of all connected networks (voice and/or data transmission), ensure the following:

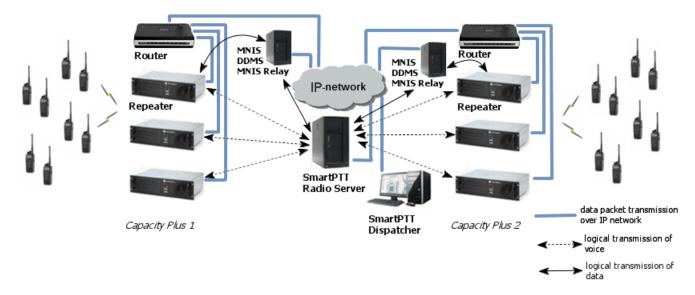
 MOTOTRBO Network Interface Service Configuration Utility, <u>MOTOTRBO DDMS</u> and *MNIS Data Gateway Relay* are installed on multiple computers. The number of computers depends on the number of NAI - Capacity Plus or NAI - Linked Capacity Plus networks connected to SmartPTT Radioserver.

### NOTE

To get information on how to install and configure these applications, see the corresponding guides.

• Separate MNIS and DDMS services are configured by using the corresponding applications and started for each network.

Thus, voice data is transmitted from repeaters to SmartPTT Radioserver directly, and data is transferred via computer with MNIS Relay and the MNIS and DDMS service applications.



The section describes the configuration procedure of SmartPTT Radioserver Configurator and *MNIS Data Gateway Relay* for local and remote sockets.

You should repeat the configuration procedure of *MNIS Data Gateway Relay* and SmartPTT Radioserver Configurator for each separate network.

# 2.3.6.1 Configuring MNIS in MOTOTRBO Network Interface Service Configuration Utility

To configure MOTOTRBO Network Interface Service in *MOTOTRBO Network Interface Service Configuration Utility*, follow these steps:

- 1. Run MOTOTRBO Network Interface Service Configuration Utility.
- 2. In the **System Operation Mode** field of the **General** node, select a mode depending on the network type selected in *SmartPTT Radioserver Configurator*.

MOTOTRBO Network Interface Service Configuration Utility *		—	×
Configuration View Edit Service Help			
1			
E: Dutitled			^
ETH General	System Operation Mode Conventional ~		- 14
🗸 🚛 Security			
🗄 😑 Group List	MNIS Application ID 1		
🗄 💼 Conventional			

3. In the **Security** node, set the encryption keys that match the keys specified in the radio *MOTOTRBO CPS* settings.

4. For IP Site Connect/Capacity Plus/Linked Capacity Plus set up the following parameters in the **Conventional/Capacity Plus/Linked Capacity Plus** sections respectively:

MOTOTRBO Network Interface Service Conf	figuration Utility *				-	Х
Configuration View Edit Service H	elp					
1	2					
			Domain 1			^
-  General - ♀ Security ⊕ ⊖ Group List		Master IP Address	127.0.0.1			
Conventional		Master UDP Port	50000 ≑			
- 🛟 Capacity Plus - 🏑 🔆 Linked Capacity Plus - 😑 🧲 Advanced		MNIS LE port	<ul> <li>Automatically Assigned</li> <li>Manually Assigned</li> </ul>	None 🛓		
				TONC V		
		Authentication Key				
		SFR Mode				
		Rep				
		Enable	$\checkmark$			
		Revert Channel				
		Security Setting	None ~			

- a. In the Master IP address field, type the Master repeater IP address.
   This value should match Master IP value in MOTOTRBO CPS in the Link Establishment pane.
- b. In the Master UDP Port field, type the Master repeater UDP port.
   This value should match Master UDP Port value in *MOTOTRBO CPS* in the Link
   Establishment pane.
- c. In the **Authentication Key** field, type the authentication key, if it is set in *MOTOTRBO CPS* in the **Link Establishment** pane.
- d. From the **Security Settings** list, select the desired encryption mode. The privacy settings should match the repeater security settings in *MOTOTRBO CPS*.

### 5. In the **Advanced** node, perform the following actions:

MOTOTRBO Network Interface Service Conf	_	Х	
Configuration View Edit Service H	elp		
1 🔁 🔁 🖬			
	Advanced		
General     General     Group List     Group Conventional	Data Call Confirmed		
Capacity Plus	Compressed UDP Data Header None ~		
Linked Capacity Plus	Battery Saver Preamble		
🗄 💼 Advanced	Individual Data to Registered Site		
	Selective Forwarding		
	TX Preamble Duration (ms) 120		
	Conventional Channel Access Normal ~		
	MNIS LE ID Use MNIS ID Manually Assigned 5462		

- a. Clear the **Data Call Confirmed** check box.
- b. In the **MNIS LE ID** area, click **Manually Assigned** and enter a unique identifier MNIS.
- 6. Click **Save** ( 🚽 ) to save changes.

### 2.3.6.2 Configuring MNIS Data Gateway for Local Socket

To configure MNIS Data Gateway for a local socket, follow these steps:

 In the left pane of SmartPTT Radioserver Configurator, select NAI Systems → NAI -Capacity Plus/NAI - Linked Capacity Plus Network → MNIS Data Gateway.

SmartPTT Server Configuration - C:\Program Files ()	_		×						
Settings Networks Client List Network Configuration Ru	les Activity Log Export/Import Settings	Statistics							
Control Stations	MNIS Data Gateway								
□ In the second	Socket Type	Local Socket		~					
iani MAI - IP Site Connect 1	Interface	192.168.56.1		~					
Talkgroups	MNIS Control Interface	oopback:55000							
Security Settings	MNIS ID	1 🖨							
Alkgroups	Location Port	4001 🖨							
DDMS Settings	TMS Port	4007 🖨							
MNIS Data Gateway	Telemetry Port	4008 🖨							

- 2. In the **MNIS Data Gateway**, perform the following actions:
  - a. From the **Socket Type** list, select *Local Socket*.
  - b. From the Interface list, select the IP address specified in the Tunnel IP Address field in the General node of *MOTOTRBO Network Interface Service Configuration Utility*. The IP address should not match the IP address of the computer on which *MOTOTRBO Network Interface Service Configuration Utility* is installed.
  - c. In the **MNIS Control Interface**, type the following data:
    - i. The local IP-address of a computer.
    - ii. MNIS server port.

The server port value should match the **Control Interface TCP Port** value in **Advanced** → **Network** of *MOTOTRBO Network Interface Service Configuration Utility* 

d. In the **MNIS ID** field, enter the Common Air Interface (CAI) ID of the MNIS in the radio network.

The value should match **MNIS Application ID** field in the **General** node of MOTOTRBO Network Interface Service Configuration Utility.

It is also recommended that **MNIS ID** matches **Radio ID** in the radioserver slot settings.

- e. Optional: Enter the port values for GPS, text messages and telemetry services. The ports values should match the ports set in the TMS UDP Port, Telemetry UDP Port and Location Server UDP Port fields in the Advanced→ Network of MOTOTRBO Network Interface Service Configuration Utility.
- 3. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 4. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### 2.3.6.3 Configuring MNIS Data Gateway for Remote Socket

### 2.3.6.3.1 Configuring MNIS Data Gateway Relay

To configure *MNIS Data Gateway Relay*, follow these steps:

1. Run MNIS Data Gateway Relay.

🎯 MNIS Data G	ateway Relay		-	_		×
MNIS interface:	192.168.1.102	~				
Server interface:	Any	$\sim$	Port	8890		▲ ▼
	Service: Running				2	

- 2. In the MNIS Data Gateway Relay program window, perform the following actions:
  - a. From the **MNIS Interface** field, select the same IP address as in the **Tunnel IP Address** in the **General** node of *MOTOTRBO Network Interface Service Configuration Utility*.
  - b. From the **Server Interface** field, select the local computer IP address on which MOTOTRBO Network Interface Service is started and *MNIS Data Gateway Relay* is installed.
  - c. In the **Port** field, enter the port number through which the data is transmitted.

- d. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- e. Click **Restart (** ) to restart MNIS Data Gateway Relay and apply changes.
- 3. *Optional:* If needed, configure the port forwarding on the router to which your computer is connected.

### 2.3.6.3.2 Configuring Radio Server

To configure a remote socket in SmartPTT Radioserver, follow these steps:

1. In the left pane of *SmartPTT Radioserver Configurator*, select **NAI Systems**  $\rightarrow$  **NAI** - **Capacity Plus/NAI** - **Linked Capacity Plus Network**  $\rightarrow$  **MNIS Data Gateway**.

🧐 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config – 🛛 🖸									
Settings Networks Client List Network Configuration Ru	ules Activity Log Export/Import Set	ings Statistics							
Control Stations	MNIS Data Gateway								
🚊 🙀 NAI Systems	Socket Type	Remote Socket $\sim$							
⊟ime NAI - IP Site Connect 1 	MNIS Control Interface	loopback:55000							
Talkgroups	MNIS Relay Address	remotehost:8890							
Security Settings ⊡° 1° Слот 2	MNIS ID	1							
	Location Port	4001							
DDMS Settings	TMS Port	4007							
Capacity Max Networks	Telemetry Port	4008							

- 2. In the MNIS Data Gateway pane, perform the following actions:
  - a. From the **Socket Type** list, select *Remote Socket*.
  - b. In the **MNIS Control Interface (IP address:Port)** field, enter an IP address and a port of the computer that has MOTOTRBO Network Interface Service installed.
  - c. In the **MNIS Relay Address (IP address:Port)** field, enter an IP address and a port specified in MNIS Data Gateway Relay.

### NOTE

IP addresses entered in the **MNIS Control Interface (IP address:Port)** and **MNIS Relay Address (IP address:Port)** fields should be the same and ports should differ.

d. In the **MNIS ID** field, enter the Common Air Interface (CAI) ID of the MNIS in the radio network.

The value should match **MNIS Application ID** field in the **General** node of *MOTOTRBO Network Interface Service Configuration Utility*.

- e. Optional: Enter the port values for GPS, text messages and telemetry services. The ports values should match the ports set in the TMS UDP Port, Telemetry UDP Port and Location Server UDP Port fields in the Advanced→ Network of MOTOTRBO Network Interface Service Configuration Utility.
- 3. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 4. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 2.3.7 Security Settings

The NAI systems support three types of privacy mechanisms – Basic, Enhanced, and Advanced Encryption Standard (AES).

Both Basic and Enhanced Privacy utilize Motorola proprietary algorithms and therefore are not interoperable with other vendor's privacy offerings. The main differences between Basic and Enhanced Privacy are that the Enhanced Privacy provides higher level of protection by means of 40-bit key length. Enhanced Privacy supports multiple keys in a radio compared to one key in the case of Basic Privacy.

The Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST). The AES feature supports 256-bit key length. Similar to Enhanced Privacy, the AES also supports multiple keys.

### IMPORTANT

To use the AES encryption, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

The **Security Settings** window allows you to specify the encryption keys for incoming and outgoing traffic on the digital channel.

SmartPTT Server Configuration - C:\Program File:	s (x86)\SmartPTT\Server\RadioService.exe.config	—	$\times$
Settings Networks Client List Network Configuration	Rules Activity Log Export/Import Settings Statistics		
Control Stations	Security Settings		
NAI Systems	Copy Paste		
ja°° Slot 1	Basic Privacy		
Talkgroups	Key 1		
Slot 2	Enhanced Privacy		
Security Settings	Add Remove		
MNIS Data Gateway	Key ID Key Value		-
	AES Add Remove		
	Key ID Key Value		 1
	TX Privacy		
	Type No V Key ID	$\sim$	

**Copy:** Copy encryption settings of the channel to the clipboard.

**Paste:** Paste encryption settings of the channel from the clipboard.

### **Basic Privacy**

To configure **Basic Privacy**, follow these steps:

- 1. Run MOTOTRBO CPS.
- 2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field, select *Basic*.

I MOTOTRBO Customer Programming	ioftware - [Sample.ctb]	– 🗆 X
File Edit View Device Feat	res <u>R</u> emote <u>W</u> indow <u>H</u> elp	_ & ×
Image: Constraint of the second se	№     №     №     №     №       Cut Copy Paste     Search     Read     Write     Clone       Bluetooth	
DP4400	Security	
Accessories	Top Privacy Restricted Access to System	
🖂 Text Messages	Privacy	^
	Privacy Type Basic	
	Basic Privacy Key 1	

2. In the **Basic Privacy Key** field specify the key for the basic encryption mode. The value ranges from 1 to 255.

MOTOTRBO Customer Programming	Software - [Sample.ctb]	>	×
Eile Edit View Device Feature	ires <u>R</u> emote <u>W</u> indow <u>H</u> elp	- 8	×
RM Open Save Reports Delete	Min     Min     A     A     A       Cut     Copy     Paste     Search     Read     Write     Clone		
DP4400	Security		
	Top Privacy Restricted Access to System		
III Buttons III Text Messages	Privacy		^
Telemetry			
Network	Privacy Type Basic 💌		
	Basic Privacy Key 1		

3. In the **Security** window of the repeater settings of *MOTOTRBO CPS* in the **Privacy Type** field, select *Basic*.

I MOTOTRBO Customer Programm	ning Software - [Sample.ctb]			- 🗆 ×
Eile Edit View Device	Features Remote Window Help			_ @ ×
RM Open Save Reports Del	K Barrier			
SLR 5500			Security	
Accessories		Top Privacy	Restricted Access to System	
Network     Link Establishment			Privacy	^
Sites		Privac	by Type Basic	

4. In the **Security** window of the MNIS in the **Basic Privacy Key** field, specify the key for the basic encryption mode. The value ranges from 1 to 255.

MOTOTRBO Network Interface Service Confi	iguration Utility *	_	×
<u>C</u> onfiguration <u>V</u> iew <u>E</u> dit <u>S</u> ervice <u>H</u> e	lp		
1 🔁 📕 🕒 🖸			
	Security		^
General			
🗤 Security			
🗄 💼 Group List	Basic Privacy Key 1		
🗄 🧰 Conventional			

5. In the radio settings in *MOTOTRBO CPS*, select the **Privacy** check box to enable the encryption mode on the required channel.

	I MOTOTRBO Customer Programming	Software - [Sample.ctb]	- 🗆 X
	📴 <u>F</u> ile <u>E</u> dit <u>V</u> iew <u>D</u> evice Fe <u>a</u> t	ures <u>R</u> emote <u>Wi</u> ndow <u>H</u> elp	_ & ×
	Image: Constant of the second sec	K     Image: Search     Image: Search     Image: Search     Image: Search     Image: Search       Cut     Copy     Paste     Search     Read     Write     Clone     Bluetooth	
ſ	⊡ <b>DP4400</b>	Channel 1	
	General Settings		
	🦁 Accessories	Top RX TX	
	Buttons	Privacy	^
	Text Messages		
	III Telemetry	Privacy Alias Privacy Key1 -	
	Security		
	Network	RAS Alias None 🗨	
		Option Board	
	🕂 📄 Signaling Systems		
	Encoder	Option Board Trunking	
	🕀 💼 Decoder	Lone Worker	
	🖃 💼 Contacts	Allow Talkaround	
	庄 📄 RX Group Lists	Mow Taikaround	
	🖃 😑 Channels	IP Site Connect	
	🚊 🛁 Zone 1	Per-Site RSSI Threshold (dBm)	
	Channel 1	Per-Site RSSI Threshold (dBm)	
	Channel 2	Messaging Delay (ms)	
	Channel Pool		

6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* in the **Key** field specify the key for the basic encryption mode. The value ranges from 1 to 255.

Security Settings	
Сору	Paste
Basic Privacy	
Key 1 🚔	

#### NOTE

Ensure that the **Key** set in *SmartPTT Radioserver Configurator* matches **Basic Privacy Key** set in the radio settings in *MOTOTRBO CPS* and MNIS. If basic encryption keys of receiving and transmitting sides do not match, the receiving side hears only a distorted voice.

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **Enhanced Privacy**

To configure **Enhanced Privacy**, follow these steps:

- 1. Run MOTOTRBO CPS.
- 2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the enhanced privacy key. Enter its ID and value in the corresponding fields.



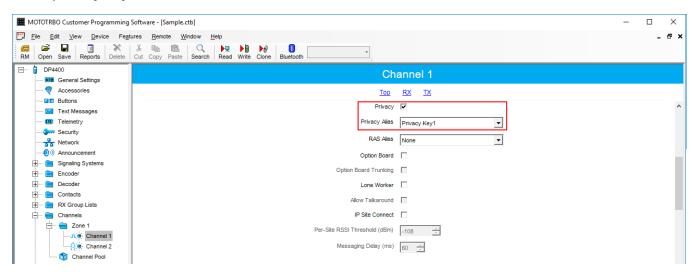
3. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced.

MOTOTRBO Customer Programm	ing Software - [Sample.ctb]				-	
i 📶 🗳 🖬 📋 🕅	Fegtures Remote Window Help		×			_ 8 ×
SLR 5500			Secu	rity		
Accessories		Тор	Privacy Restrict	ed Access to System		
Network			Privac	у		^
Sites			Privacy Type En	hanced		

4. In the **Security** window of *MOTOTRBO Network Interface Service Configuration Utility* in the **Enhanced** field add the enhanced privacy key. Enter its ID and value in the corresponding fields.

MOTOTRBO Network Interface Service Configuration Utility *						-	$\times$
<u>C</u> onfiguration <u>V</u> iew <u>E</u> dit <u>S</u> ervice <u>H</u> elp							
1							
Ontitled							^
III General							
- General Security							
		Add	Delete				
🐵 💼 Conventional - 🛟 💩 Capacity Plus		,	2000				
Capacity Plus     Construction Plus					1		
		Alias	Key ID	Key Value			
	1	Enhanced Key1	1	2612346782			

5. In the radio settings in *MOTOTRBO CPS* to enable the encryption mode on the required channel select the **Privacy** check box and in the **Privacy Alias** field select the enhanced privacy key for this channel.



6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an enhanced privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

Enhanced Add	Privacy Remove	
Key ID	Key Value	
1	0123456789	

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **AES Privacy**

To configure the **AES** privacy, follow these steps:

- 1. Run MOTOTRBO CPS.
- 2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the AES privacy key. Enter its ID and value in the corresponding fields.

🗰 MOTOTRBO Customer Programmir	g Software - [Sample.ctb]	- 🗆 X
Elle Edit View Device Fe	agtures <u>Remote Window H</u> elp	_ & ×
DP4801	Security	
Accessories     Buttons     Text Messages	Top Privacy AES Restricted Access to System Privacy	^
000       Telemetry         000       Security         000       Security         000       Security         000       Security         000       Announcement         000       Job Tickets         000       Signaling Systems         000       Encoder	Privacy Type     Enhanced       Basic Privacy Key	
Contacts     Contacts	AES Add Delete Key ID Key Alias Key Value b 1 Symmetric Key1 1	

3. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select **Enhanced**.

MOTOTRBO Customer Programming Software - [Sample.ctb]		– 🗆 ×
File Edit View Device Features Remote Window Help		_ & ×
RM Open Save Reports Delete Cut Copy Paste Search Read Write Clo	e Bluetooth	
General Settings	Security	
👽 Accessories	Top Privacy Restricted Access to System	
Retwork	Privacy	î
	Privacy Type Enhanced	

4. In the **Security** window of MNIS in the **Symmetric Keys** field add the AES symmetric privacy key. Enter its ID and value in the corresponding fields.

MOTOTRBO Network Interface Service Confi	iguration Utility *		_	×
<u>C</u> onfiguration <u>V</u> iew <u>E</u> dit <u>S</u> ervice <u>H</u> e	elp			
1 🔁 🔍 🖪 🖸 🖸				
🖃 🛑 Untitled		Symmetric Keys		^
·· III General				_
- Gran Security				
🗄 🔁 Group List				
🗄 🔁 Conventional		Add Delete		
🛟 💩 Capacity Plus				_
🗉 🗸 💩 Linked Capacity Plus	Alias	Key ID Key Value		
🕀 🚞 Advanced	Symmetric Key1 1	1 54634562435		

5. In the radio settings in *MOTOTRBO CPS* to enable the AES encryption mode on the required channel clear the **Privacy** check box and in the **AES Alias** field select the AES privacy key.

MOTOTRBO Customer Programm	ng Software - [Sample.ctb]	– 🗆 X
Eile Edit View Device F ☐ ☐ ☐ ☐		_ & ×
DP4801     General Settings     Accessories	repSlot1	
Buttons	Inbound Color Code	^
Telemetry     Menu     Security	Outbound Color Code 1 -	
→ → → → → → → → → → → → → → → → → → →	Phone System 1	
Signaling Systems	ARS On System/Site Change 💌	
Decoder     Decoder     Ontacts     Decontacts     Decontacts	Window Size 8 V	
Channels	Privacy Alas Privacy Key1 v	
	AES Alias Symmetric Key1	

6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an AES privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

Remove	
Value	
6543210	
	7 Value 6543210

### NOTE

Key ID and Key Value must match the values set in the radio settings in the Radio Management program and in MOTOTRBO Network Interface Service Configuration Utility. If the values in the Key ID fields are the same, but the values in the Key Value fields do not match, the receiving side hears only a distorted voice. If the key identifier of the transmitting side does not coincide with one of the key identifiers in the list of the receiving side, then transfer to the receiving party will not be heard.

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **TX Privacy**

TX Privacy is used for selecting an encryption mode for outgoing traffic on the side of *SmartPTT Dispatcher*.

To configure the TX Privacy for a NAI system, follow these steps:

1. In the **TX Privacy** area, from the **Type** list select the desired encryption type:

🎯 Sma	rtPTT Serve	er Configur	ration - (	C:\Progra	m Files	(x86)\SmartPTT\Server	\RadioServ	/ice.exe.conf	ïg	_	×
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics				
	Control Stati Connect Plu NAI System Capacity Ma	IS S					Remove Value	Key ID	Paste	×	

- Select *No* if encryption of outbound traffic from the radioserver is not required.
- Select *Basic* if you want to use basic encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Basic Privacy** area.
- Select *Enhanced* if you want to use enhanced encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Enhanced Privacy** area.
- *AES license is required:* Select *AES (Symmetric Key)* if you want to use AES (*Symmetric Key)* encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.

### NOTE

If from the **Type** field *No* is selected and you have AES encryption for incoming traffic configured, AES (Symmetric Key) is used for incoming traffic by default.

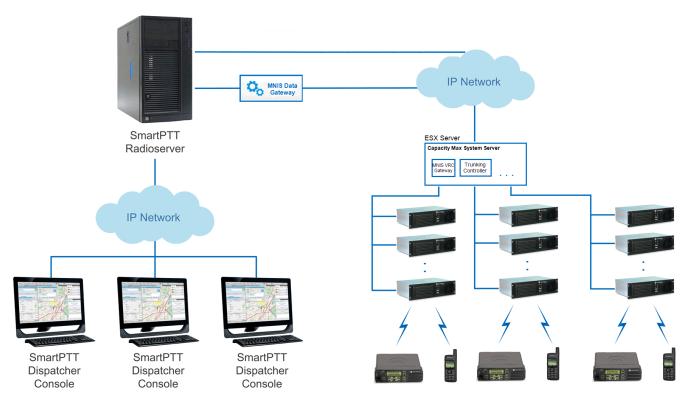
- 2. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 3. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### 2.4 Capacity Max

Capacity Max is a trunking MOTOTRBO system that supports the European Telecommunications Standards Institute (ETSI) Digital Mobile Radio (DMR) Tier III operation.

Capacity Max system represents the enhancement of the Linked Capacity Plus functionality. It can include up to 15 sites and up to 15 trunked repeaters with up to 3,000 users per site. One slot on each site is allocated as a control channel. Capacity Max also supports data revert repeaters: up to 6 per site and 12 time channels per site.

Capacity Max system offers the simple and efficient system architecture that utilizes standard Internet protocol (IP) network with a centralized Capacity Max System Server (CMSS).



CMSS represents the VMware Sphere version 5.5 ESX server and includes the following virtual resources:

- Trunking Controller based on the Red Hat Linux
- MNIS VRC gateway
- Radio Management application that is used instead of *MOTOTRBO Customer Programming Software* (MOTOTRBO CPS) to configure the system

The system architecture also includes the MNIS Data Gateway, which is installed separately.

- High security. All voice, data and control traffic within the IP network is encrypted, and all radios are securely authenticated
- High level of reliability and resilience. The system can include an optional redundant server in addition to the main server and up to three alternate control channels per site

Capacity Max is compatible with all MOTOTRBO repeaters, except DR3000 series with the 8MB RAM, and all MOTOTRBO 4000 series portable and/or mobile radio stations.

To configure the Capacity Max system in *SmartPTT Radioserver Configurator*, you should have the following programs installed:

- *Radio Management* to get the settings of the preconfigured virtual resources
- *MOTOTRBO Network Interface Service Configuration Utility* to set up the MNIS Data Gateway

Capacity Max configuration in *SmartPTT Radioserver Configurator* includes the following steps:

- Adding a new network and performing its basic configuration
- Configuring a Trunking Controller
- Configuring MNIS Data Gateway settings for data transfer
- Configuring MNIS VRC Gateway settings and talkgroups
- Configuring security settings

# 2.4.1 Configuring Capacity Max

To connect a new Capacity Max system to the SmartPTT Radioserver, follow these steps:

1. On the **Networks** tab, right-click **Capacity Max Networks** and then click **Add**.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	m Files	(x86)\SmartPTT\Server	RadioService.exe.config	_	$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics		
Ě	Control Stati Connect Plu NAI System: Capacity Ma	IS	-	Add		Capacity Max Net	works		

2. Select the created Capacity Max system. The **Capacity Max System** pane appears:

Settings Networks Client List Rules Activity Log Export/Import Settings Statistics
Control Stations Connect Plus NAI Systems Capacity Max Networks None: Capacity Max Networks None: Capacity Max Networks None: Capacity Max Networks None: Capacity Max Networks None: Capacity Max Networks Capacity Max Networks Capacity Max Networks None: Capacity Max Networks None

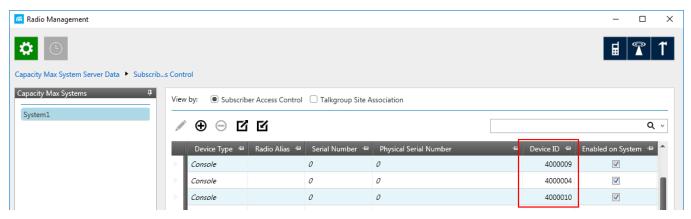
### 3. In the **Capacity Max System** pane, configure the available options:

Name: Name of the created system.

**Network ID:** Unique ID of the network. The network ID must not match any ID of other SmartPTT Radioserver networks

**Radio ID:** The identifier of the radioserver. This identifier is displayed on a radio when it receives private calls and text messages from the dispatcher. If there are several dispatchers, you can create a profile for each operator and define a unique identifier for each operator. **Radio ID** set in this window must correspond to the value set in the **Device ID** field for the preconfigured radioserver device in the *Radio Management* application (see the **Capacity Max Systems** settings, viewed by the **Subscriber Access Control** value).

To open the **Capacity Max System** settings in the *Radio Management* application, click **Action** ( **\square** )  $\rightarrow$  **Manage**  $\rightarrow$  **Capacity Max System Server Data** or press Ctrl+Alt+S.



**Interface:** The IP address of the computer where SmartPTT Radioserver is installed.

Trunking Controller: Select to allow the connection to <u>Trunking Controllers</u>.

**MNIS Data Gateway:** Select to allow a connection to a <u>MNIS Data Gateway</u> and its use.

MNIS VRC Gateways: Select to allow a connection to a MNIS VRC Gateway and its use.

**TX Interrupt:** Select if you want to interrupt a radio.

**Prioritize calls during emergency:** Sets a priority of the dispatcher call during the Emergency Call. If the check box is selected, the dispatcher call has the highest priority during the Emergency Call in relation to other calls and interrupts them in case of lack of resources.

**Encrypted connection:** Select to activate encrypted TLS connection between radioserver and voice gateway.

#### Networks

**Channel Grant Waiting timer (s):** Time period in seconds during which the caller expects a response from the called party (the FOACSU strategy). It is recommended to use the default value of 15 seconds that is set in *Radio Management* (see the **Capacity Max Systems:...** settings in the Capacity Max Features menu of the CMSS configuration, the **Channel Grant Waiting timer** field in the **Timers** tab).

### NOTE

To open the **Capacity Max Features** of the of the CMSS configuration in the *Radio Management* application, click **Action** (  $\square$  )  $\rightarrow$  **Manage**  $\rightarrow$  **Configurations** or press Alt+C. In the open table, select the CMSS configuration and click **Edit**  $\checkmark$ . In the open **Set Categories** pane, expand **Configuration:<CMSS configuration name>** and select **Capacity Max Features**.

🚾 Radio Management							_		×
<b>*</b> ©							∎	T	1
Configuration View ► CMSS01 ► Capacity Max Systems ► Sy	/stem1								
Set Categories					Save	Save As	Discard	Close	
Device Information: USE519PLXA		General	Authentication	Timers	Capacity Max Sites	Adjacent Sites	Site Announcement		
Capacity Max Features		User Nam	e Verification Appli	cation					
Capacity Max Systems: CapacityMaxSystem	<ul> <li>Timers</li> </ul>								•
CMSS Network: Network-101			Channel Grant W	aiting Tim	er (sec) 15		< >		
► Bridge			Response W	aiting Tim	er (sec) 4.0				
			Group Ca	l Hang Tin	ne (sec) 3				
			Private Cal	l Hang Tim	ne (sec) 4				

FOACSU (Full Off Air Call Set Up) stands for the strategy of assigning the traffic channel only when the called party user answered the call specifically. During the timeout the traffic channel is not allocated for the call. For the correct work of the FOACSU private calls, ensure it is configured in *Radio Management* (see the **Capacity Max Systems:...** settings in the **Capacity Max Features** menu of the CMSS configuration, the **Individual Voice Call Type** field in the **General** tab).

🚾 Radio Management								- 0	×
									1
Configuration View  CMSS01  Capacity Max Systems  Systems	/stem1								
Set Categories 7					Save	Save As	Discard	Close	
Device Information: USE519PLXA		General	Data Revert	Authentication	Timers	Channel Plan Lists	Capacity Max Sites		
<ul> <li>Capacity Max Features</li> <li>Capacity Max Systems: CapacityMaxSystem</li> </ul>	🔿 General								•
Capacity Max Site Selection: VoiceMNISSite CMSS Network: Network-101				System Name	System	1			
				System Type	Capacit	ty Max Advantage		•	11
<ul> <li>Bridge</li> </ul>				Network Model	Large			•	11
				Network ID	1				
			Individ	ual Voice Call Type	FOACS	U		•	_

**TX time-out timer (s):** Time period during which the radio can transmit without interruptions. After this time is over, the transmission is interrupted. We recommend you to use the default value of *60* seconds, which is set in *Radio Management* (see the **MNIS System** settings in the **MNIS** menu of the CMSS configuration, the **Transmission TOT** field in the **General** tab).

#### NOTE

To open the **MNIS** menu of the **CMSS configuration** in the *Radio Management* application, click **Action** (  $\square$  )  $\rightarrow$  **Manage**  $\rightarrow$  **Configurations** or press Alt+C. In the open table, select the CMSS configuration and click **Edit** (  $\checkmark$  ). In the open **Set Categories** pane,

expand Configuration: <CMSS configuration name> and select MNIS  $\rightarrow$  MNIS System.

Radio Management			- 🗆 X
Configuration View + CMSS01 + MNIS System + MNISSystem	n-101		E 1
Set Categories 4 Configuration: CMSS01 Device Information: USE519PLXA	G	Save Save As Discard	Close
	Set Name Last Modified Date Comments	MNISSystem-101 11/03/2016 13:35:06	
	General VRC Gateway Enable MNIS Gateway UDP Port Transmission TOT (sec)		00
	Active Voice Talkpath Limit	20	

GPS Transmission Mode: Select the suitable mode:

• **Data:** GPS coordinates will be received in several packets. This mode is working only if **Trunking channel** is set in *Radio Management*. However, traffic is consumed in this mode.

痛 Radio Management								- 🗆	×
<b>*</b> ©							I	<b>e</b> 7	1
Configuration View   478IRC0016  Capacity Max Systems   TVZS	ystem1								
Set Categories 4					Save	Save As	Discard	Close	
Device Information: 478IRC0016		General	Data Revert	Authentication	Timers	Channel Plan Lists	Capacity Max Sites		
General     Gapacity Max Features									
Capacity Max Systems: CapacityMaxSystem	1 i	tems found (1	currently selecte	d).					
Zone/Channel Assignment									
	🕑 Data Re	vert							_
			Enhanced	GNSS Window Size	10				

• **Enhanced CSBK:** GPS coordinates will be sent as a single Control Signaling Block. This is traffic-effective option and it allows to increase GPS request rate up to 7.5 s. However, you should make sure that radio units in your system support CSBK commands.

# 2.4.2 Configuring Trunk Controller

Trunking controller of the Capacity Max network provides actual information about the network status (registered radios).

### IMPORTANT

To configure trunk controller, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

To configure a primary trunking controller, follow these steps:

1. Ensure trunking controller is configured by using the *Radio Management* application, in particular, you can obtain IP address and port from the **Presence Server IP** field.

### NOTE

For more information on how to configure Radio Management application, see *Capacity Max Installation and Configuration Manual*.

#### Networks

📠 Radio Management					-		×
Configuration View  CMSS01  CMSS Network  Network-	101				₿	7	1
Set Categories ₽ ▼		Save	Save As	Discard	(	Close	
Device Information: USE519PLXA		General					
<ul> <li>Capacity Max Features</li> <li>Capacity Max Systems: CapacityMaxSystem</li> <li>Capacity Max Site Selection: VoiceMNISSite</li> <li>CMSS Network: Network-101</li> <li>MNIS</li> <li>Bridge</li> </ul>	General Trunking Controller Enable CMSS IP CMSS UDP Port <i>Trunking Controller IP</i> <i>Presence Server IP</i>	192.0.2.0 50000 <i>192.0.2.1:5</i>			00		
	VRC Gateway IP System Advisor IP						

- 2. Add a new Capacity Max network or select the existing one.
- 3. In the **Capacity Max System** pane, select the **Trunking Controller** check box to make trunking controller settings available.

<table-cell> Sma</table-cell>	rtPTT Serve	er Configur	ation - (	C:\Progra	ım Files	(x86)\SmartPTT\	Server	\RadioServi	ce.exe.c	onfig		—	$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Set	ttings	Statistics					
ľ	Capacit Tur MN MN	s x Networks	ller eway eways Gateway	1		Capacity Mai	Capar 1 1 Any Controll	city Max 1			~		

4. In the left pane, select **Trunking Controller** and in the **Trunking Controller** pane replace the default text *"remotehost:50015"* in the **Primary controller (IP address:Port)** field with IP address and port of the Presence Server from the *Radio Management* application.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	ım Files	(x86)\SmartPTT\Server	\RadioService.ex	e.config	_		×
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics				
l é	Control Stati Connect Plu	s				Trunking Controlle	er				
	NAI System: Capacity Ma					Primary controller (IP	Address:Port)	remotehost	:50015		
<u> </u>	Capacit	/ Max 1 hking Contro	llor			- Redundant control	lers				
	- 🔤 MN	S Data Gate	eway			Add	Remove	1	Up	🖶 Down	
	MN	S VRC Gate MNIS VRC	-	1		Name		IF	P Address:P	ort	
		groups urity Setting	s								

Capacity Max supports up to 4 redundant trunking controllers to keep the radios online when the primary controller goes offline. The order of redundancy is defined by the settings in the *Radio Management* application.

To configure additional trunking controllers:

1. Make sure that redundant trunking controllers are configured in the *Radio Management* application.

📠 Radio Management				-		×
Configuration View   CMSS01   Capacity Max Systems   TVZSy	stem1			E	T	1
Set Categories 7		Save	Save As	Discard	Close	
Device Information: USE519PLXA	General Authentication Timers Capac	ity Max Sites	Adjacent Sites	Site Announcement		
Capacity Max Features	User Name Verification Application					
Capacity Max Systems: CapacityMaxSystem Capacity Max Site Selection: VoiceMNISSite CMSS Network: Network-101  MNIS  MNIS  Bridge	Primary Trunking Controller IP Primary Trunking Controller UDP Port Call Monitor Application 1 IP Call Monitor Application 1 UDP Port Call Monitor Application 2 IDP Call Monitor Application 2 UDP Port Call Monitor Application 3 IDP Call Monitor Application 3 UDP Port Voice Interrupt Support	192.0.2.1         50000         192.0.2.5         51112         0.0.00         51112         0.0.0.0         51112         0.0.0.0         51112         0.0.0.0				
<	Telephone Support	✓				-

2. In your Capacity Max network select Trunking controller.

3. In the **Redundant controllers** area, click **Add** to add a new controller to the table.

SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioService	.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Control Stations	Trunking Controller	
NAI Systems	Primary controller (IP Address:Port)	192.0.2.1:50015
Capacity Max 1	Add         Remove	🚖 Up 🐺 Down
MNIS VRC Gateways     Alkgroups     Security Settings	Name	IP Address:Port

4. Change the redundant controller IP address and port according to the settings in the *Radio Management* application. Rename the controller if needed. You should name controllers differently.

🎯 Sma	rtPTT Serve	er Configur	ation - (	C:\Progra	ım Files	(x86)\SmartPTT\Server	\RadioService.exe	e.config	—		$\times$
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics				
- i	Control Stati Connect Plu	IS				Trunking Controlle	er				
	NAI Systems Capacity Ma Capacity	ax Networks / Max 1				Primary controller (IP		192.0.2.1:500	15		
	- <u>-</u> MN	nking Contro IS Data Gate	eway			Add	Remove	👚 🖕 Up	4	Down	
	How MN	IS VRC Gate aroups	ways			Name		IP A	ddress:Port		
		urity Setting	s			Redundant control	ller 1	remot	tehost:5001	5	

5. Add more redundant controllers if needed. Change their IP addresses and ports according to the settings in the *Radio Management* application.

### NOTE

If ports of some controllers are the same, the exclamation mark **•** appears near them. You cannot switch to another menu until you change the ports.

You can change the order of the redundant controllers in the table. This helps to assign a new active controller in case when others disconnect from each other.

To change the order of the controllers in the table, follow these steps:

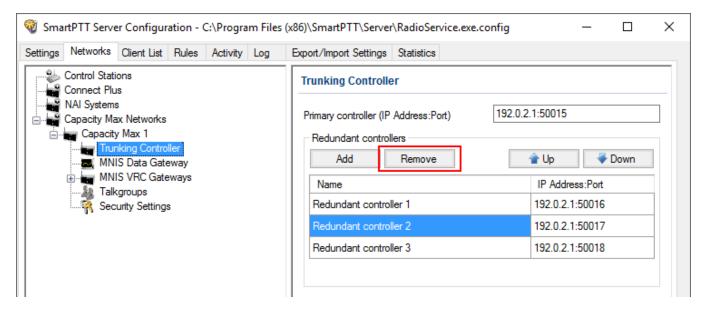
- 1. Select the desired redundant controller.
- 2. Click **Up** or **Down** to move the redundant controller up and down.

ettings	Networks	Client List	Rules	Activity	Log	Export/Import Settings Statistic	s			
	Control Stati Connect Plu					Trunking Controller				
i - 🔐 (	MNI	x Networks	ller eway			Primary controller (IP Address: Redundant controllers Add Remov		192.0.2.1:50015	- Down	
	🛺 Talk					Name Redundant controller 1		IP Addres 192.0.2.1:		
	1.	, ,				Redundant controller 2		192.0.2.1:	50017	
						Redundant controller 3		192.0.2.1:	50018	

To delete a redundant trunking controller from the table, follow these steps:

1. In your Capacity Max network select **Trunking Controller**.

2. In the **Redundant Controller** area, in the table select a redundant controller and click **Remove**.



# 2.4.3 Configuring MNIS Data Gateway

To configure data transfer over Capacity Max network, configure MNIS Data Gateway settings in *SmartPTT Radioserver Configurator* and in *MOTOTRBO Network Interface Service Configuration Utility*.

### IMPORTANT

To configure data transfer, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

To configure MNIS Data Gateway settings in SmartPTT Radioserver, click **Capacity Max** Networks  $\rightarrow$  Capacity Max  $\rightarrow$  MNIS Data Gateway.

🎯 SmartPTT Server Configuration - C:\Program Files ()	(86)\SmartPTT\Server\RadioService.exe.co	onfig — 🗆 🗙
Settings Networks Client List Network Configuration Ru	les Activity Log Export/Import Settings	s Statistics
Control Stations	MNIS Data Gateway	
NAI Systems	Socket Type	Local Socket $\checkmark$
ia in Capacity Max Networks ia in Capacity Max 1	Interface	192.168.56.1 ~
Trunking Controller	MNIS Control Interface	loopback:55000
HIS VRC Gateways	MNIS ID	1
	Location Port	4001
	TMS Port	4007
	Telemetry Port	4008
	Redundant MNIS data gateway	Remote Socket 🗸
	MNIS Control Interface (IP Address:Port)	loopback:55001
	MNIS Relay Address (IP Address:Port)	remotehost:8890
	Location Port	4011 🜩
	TMS Port	4017
	Telemetry Port	4018 🜩

### NOTE

The **Data transmission** check box in the **Capacity Max** window should be selected. Otherwise, the **MNIS Data Gateway** parameter will not be shown.

**Socket Type:** Defines the software interface type to enable communication between processes. Select the *Local Socket* value if the *MOTOTRBO Network Interface Service Configuration Utility* is installed on the same computer as SmartPTT Radioserver. Select *Remote Socket* if the *MOTOTRBO Network Interface Service Configuration Utility* and SmartPTT Radioserver are installed on different computers. In this case, information exchange between the processes is supported by the MNIS Relay application. **Interface:** MNIS interface. It must match the interface specified in the *Radio Management* application (see the **MNIS System** settings in the MNIS menu of the **DataMNIS\_Config** configuration, the **Gateway Tunnel IP** field in the **Tunnel Network** tab).

🖷 Radio Management							- 🗆	×
						1	<b>e</b> 7	1
Configuration View   DataMNIS01  MNIS System  MNISS	ystem-102							
Set Categories            T         Image: Configuration: DataMNIS01				Save	Save As	Discard	Close	
Device Information: DATAMNIS01		General	Tunnel Network	Location Rad	dio ID Range List			
Capacity Max Features								
V MNIS	<ul> <li>Tunnel Network</li> </ul>							•
MNIS Security: MNISSecurity-101			Gateway IP	192.168.10.1				-
MNIS System: MNISSystem-102		Gat	eway Tunnel IP	192.168.10.2				
MNIS Advanced: MNISAdvanced-102		001	ensy rainern	are a contraction				

**MNIS Control Interface:** Use *localhost*, if *MOTOTRBO Network Interface Service Configuration Utility* is installed on the same computer as the radioserver. If *MOTOTRBO Network Interface Service Configuration Utility* and the radioserver are installed on different computers, enter the IP address of the computer where *MOTOTRBO Network Interface Service Configuration Utility* is installed. The port should match the port number specified in the *Radio Management* application (see the **MNIS Network** settings in the <u>MNIS</u> menu of the **DataMNIS\_Config** configuration, the **Control Interface TCP Port** field in the **General** tab).

痛 Radio Management					-		×
<b>‡</b> ©					₽	T	1
Configuration View  DataMNIS01  MNIS Network  MNIS	Network-102						
Set Categories 4 Configuration: DataMNIS01 Device Information: DATAMNIS01		Save General	Save As	Discard		Close	
Capacity Max Features							
V MNIS	TMS UDP Port	4007					*
MNIS Security: MNISSecurity-101	Telemetry UDP Port	4008					
MNIS System: MNISSystem-102	Location Server UDP Port	4001					
MNIS Advanced: MNISAdvanced-102	User Defined UDP Port 1	0 - Disable	d				
MNIS Network: MNISNetwork-102	User Defined UDP Port 2	0 - Disable	d				
MNIS Application Override Rules	User Defined UDP Port 3	0 - Disable	d				
MNIS Sites: MNISSitesList-101	XCMP High Efficiency Data Enable						
	XCMP Server UDP Port	4004					
	Battery Management UDP Port	4009					
	Control Interface TCP Port	55000					
·	Job Ticket UDP Port	4013					Ļ

#### Networks

### NOTE

To open the **MNIS** menu of the DataMNIS configuration in the *Radio Management* application, click **Action (**  $\square$  **)**  $\rightarrow$  **Manage**  $\rightarrow$  **Configurations** or press Alt+C. In the open table, select the DataMNIS and click Edit. In the **Set Categories** pane that opened, click **Configuration: <DataMNIS name>**  $\rightarrow$  **MNIS**.

**MNIS ID:** The Common Air Interface (CAI) ID of the MNIS in the radio network. The ID is used by other calling radios when addressing *MOTOTRBO Network Interface Service Configuration Utility*. Verify **MNIS ID** matches the corresponding field in the *Radio Management* application (see the **MNIS System** settings in the **MNIS** menu of the DataMNIS configuration, the **Data Gateway Radio ID** field in the **General** tab).

🖪 Radio Management		– 🗆 ×
		l 1
Configuration View   DataMNIS01  MNIS System  MNISS	/stem-102	
Set Categories 무 로	Save Save As Discard	Close
Device Information: DATAMNIS01	General Tunnel Network Location Radio ID Range List	
Capacity Max Features     MNIS		
MNIS Security: MNISSecurity-101	Data Gateway Radio ID 300	
MNIS System: MNISSystem-102	MNIS Gateway UDP Port 50000	
MNIS Network: MNISNetwork-102	Enhanced Data Enabled	
MNIS Forwarding Rules	Data Gateway Queue Size	
MNIS Application Override Rules	TX Privacy Type None	
MNIS Sites: MNISSitesList-101	TX Privacy Alias None	

**Location Port:** The port where the radioserver will expect GPS data.

**TMS Port:** The port where the radioserver will expect text messages.

**Telemetry Port:** The port where the radioserver will expect telemetry data.

The ports should match the ports set in the corresponding fields in the *Radio Management* application (see the **MNIS Network** settings in the **MNIS** menu of the DataMNIS configuration, the **Location Server UDP Port** field, the **TMS UDP Port** field, the **Telemetry UDP Port** field in the **General** tab).

📠 Radio Management					-	o ×
<b>‡</b> ©						1 3
Configuration View  DataMNIS01  MNIS Network  MNISNetwork-102						
Set Categories            The configuration: DataMNIS01		Save	Save As	Discard	Clo	se
Device Information: DATAMNIS01		General				
Capacity Max Features						
V MNIS	TMS UDP Port	4007				<b>^</b>
MNIS Security: MNISSecurity-101	Telemetry UDP Port	4008				
MNIS System: MNISSystem-102	Location Server UDP Port	4001				
MNIS Advanced: MNISAdvanced-102						
MNIS Network: MNISNetwork-102	User Defined UDP Port 1	0 - Disable	d			

To set up MNIS Data Gateway settings in the *MOTOTRBO Network Interface Service Configuration Utility*, follow these steps:

 Save MNIS Data Gateway settings from the *Radio Management* application as GWCFGX file. For that, click **Radios**, right click the **DATA MNIS...** item in the table that opened and click **Export** → **GWCFGX...** or press Ctrl+Shift+N. In the open **Export GWCFGX** window, select the file and click **OK**.

Radio Management					- 🗆
					<b>e</b> 7 1
adio View					
Groups	<b>#</b>				
All		Show Details	Edit Configuration	Analyze	Schedule Job
Infrastructure	◢⊕⊝▫◪◪	Cut	Ctrl+X		Q
Radios	Serial Number Radio Alias Configura	Сору		mware Version Codeplug V	ersion Job Stat
Repeaters	USE519PLXA Motorola CMSS01	Paste	Ctrl+V	03.00.00	Complet
	DATAMNIS01 Motorola DataMNIS0			02.00.00	
	MXQ62407XL Motorola CMSS02	Show Details Delete	Ctrl+W Del	03.00.00	Complet
		Select Group	Ctrl+Alt+G		
		Edit Configuration	Ctrl+F		
		Select Configuration Compare	Alt+Shift+F		
		compare			
		Select IP System Settings			
	4	Schedule Job	Ctrl+J		
	3 items found (1 currently selected).	Cancel Job	Alt+Shift+J		
alyze Results Compare Results	Tasks(3*)	Select MVO	Alt+Shift+V		
ONNECTED TO: LOCALHOST		Analyze	Alt+Shift+S		
		Reports			
		Upgrade Firmware			
		Package	Ctrl+Alt+P		
		Upgrade Language Pack	Ctrl+U		
		Export	•	Radio Ctrl+S	hift+R
		Modify Radio Password			hift+S
		Copy Identity		GWCFGX Ctrl+S	hift+N
		Paste Identity			

- 2. Transfer the saved GWCFGX file to your computer where the *MOTOTRBO Network Interface Service Configuration Utility* is installed, to the **Config** folder that is located on the local disk *C:/ProgramData/Motorola/Wireline Gateway*.
- 3. Launch the *MOTOTRBO Network Interface Service Configuration Utility* and click **Configuration** → **Select Active Configuration**. In the **Select Configuration** window that opened, select the GWCFGX file saved before and click **OK**.

MOTOTRBO Network Interface S	Service Configuration Utility	_	$\times$
Configuration View Edit S	Service Help		
1   📙 🛛			
	Select Configuration — 🗆 🗙		
	Select Configuration		
	CapacityMax.gwcfgx OK Cancel		

If *MOTOTRBO Network Interface Service Configuration Utility* and the SmartPTT Radioserver are running on different computers, or you configure several MNIS Data Gateways, follow these steps:

- 1. Install and run MNIS Data Gateway Relay on the computer where *MOTOTRBO Network Interface Service Configuration Utility* is running.
- 2. Run the MNIS Data Gateway Relay Configurator.

🎯 MNIS Data G	ateway Relay		-	-	×
MNIS interface:	192.168.1.1	~			
Server interface:	192.168.1.1	~	Port	8890	-

- 3. In the **MNIS interface** field enter the same address as it is in the **Tunnel IP Address** of MNIS.
- 4. In the **Server interface** field enter the same address as you did in the previous step.
- 5. In the **Port** type the available port of the computer.
- 6. Save changes and restart MNIS Data Gateway Relay.
- 7. In SmartPTT Radioserver Configurator double-click your network and click **MNIS Data Gateway**.

SmartPTT Server Configuration - C:\Program Files	(x86)\SmartPTT\Server\RadioService.exe.co	onfig — 🗆 X
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Control Stations	MNIS Data Gateway	
	Socket Type	Remote Socket $\lor$
ia and a capacity Max Networks	MNIS Control Interface	192.168.2.2:55000
Trunking Controller	MNIS Relay Address	192.168.2.2:8890
MNIS Data Gateway	MNIS ID	1
Security Settings	Location Port	4001
	TMS Port	4007
	Telemetry Port	4008
	Redundant MNIS data gateway	
	Socket Type	Remote Socket 🗸 🗸
	MNIS Control Interface (IP Address:Port)	loopback:55000
	MNIS Relay Address (IP Address:Port)	remotehost:8890
	Location Port	4011
	TMS Port	4017
	Telemetry Port	4018

- 8. In the **Socket Type** field select *Remote Socket*.
- 9. In the **MNIS Control Interface** field, enter the IP address of the computer where MNIS service is running and the port from the **MNIS Control Interface TCP Port** field of the *MOTOTRBO Network Interface Service Configuration Utility*.

- 10. In the **MNIS Relay Address** field, enter the IP address of the computer where *MNIS Data Gateway Relay* service is running and the port from the **Port** field of *MNIS Data Gateway Relay*.
- 11. Configure other settings as describer previously.
- 12. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Sav**
- 13. Click **Restart ( I**) to restart SmartPTT Radioserver and apply changes.

# 2.4.4 Configuring MNIS VRC Gateway

Every Capacity Max network supports up to 15 MNIS VRC gateways. The first gateway is created always exists in the network, so you can add 14 gateways more.

#### IMPORTANT

To configure MNIS VRC gateway, install the corresponding license. For more information on how to install licenses, see <u>Licenses</u>.

The order of the gateways matters a lot. All newly created profiles and talkgroups for your Capacity Max network will be assigned for the first MNIS VRC Gateway in the list. Therefore, you should be careful when configure several MNIS VRC Gateways.

To configure MNIS VRC gateway, follow these steps:

1. Make sure that VRC Gateway is configured in the *Radio Management*.

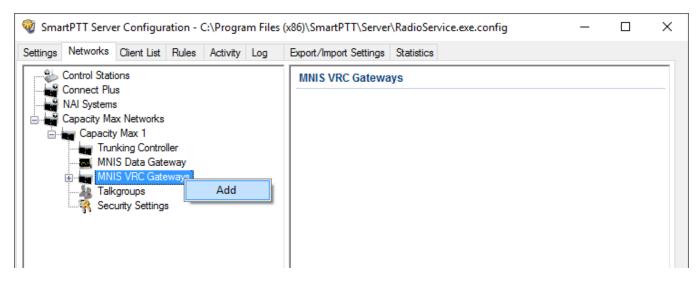
#### NOTE

For more information on how to configure Radio Management application, see *Capacity Max Installation and Configuration Manual*.

2. In your Capacity Max network select **MNIS VRC Gateways** to show and allow to configure MNIS VRC Gateways.

SmartPTT Server Configuration - C:\Program Files	; (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Control Stations	Capacity Max System
MAI Systems	Active
Capacity Max 1	Name: Capacity Max 1
MNIS Data Gateway	Network ID: 1
MNIS VRC Gateway 1	Radio ID: 1
Security Settings	Trunking Controller
	MNIS Data Gateway
	MNIS VRC Gateways
	Data Transmission Options
	GPS transmission mode: Data ~
	Voice Transmission Options
	Allow transmit interrupt
	Prioritize calls during emergency     Encrypted connection
	Channel Grant Waiting timer (s): 15
	TX time-out timer (s):

3. To add a new MNIS VRC Gateway right-click MNIS VRC Gateway and click Add.



4. Select the newly created or existing gateway.

#### NOTE

By default, all new gateways obtain equal IP addresses and ports. When you select one of those, you will not be able to leave the menu until you make its IP address and port unique within the site.

5. Configure the gateway options.

ttings Networks Client List Rules Activity Log	Export/Import Settings Statistics	
Control Stations	MNIS VRC Gateway	
NAI Systems Capacity Max Networks Capacity Max 1 Trunking Controller MNIS Data Gateway MNIS VRC Gateways Talkgroups Security Settings	Name Primary gateway address and port Redundant gateway address and port Voice port (local) Recording of voice calls betwee Radio IDs for voice calls recording	MNIS VRC Gateway 1 remotehost:56000 40000
	✓ Telephone calls Radio IDs for phone calls	1-16776415 Example: 1-99, 150
	Talkpaths (1) Private (1) Group (0) Active Name Default radio ID	

**Name:** The name of the gateway in SmartPTT Radioserver Configurator. Rename your gateway if needed.

**Primary gateway address and port:** IP address from **VRC Gateway IP** and port from **Server TCP port** which were configured in your CMSS Network in *Radio Management*.

**Redundant gateway address and port:** IP address of **VRC Gateway IP** and port from **Server TPC port** of the additional CMS server you assign to be redundant. You can leave this field empty if you do not have redundant VRC gateway.

**Voice port (local):** The port at which SmartPTT Radioserver will expect the voice data.

**Recording of voice calls between radios:** Select this to activate voice recording feature, that allows the dispatcher to hear private calls made from radios to other radios, dispatchers or telephone subscribers.

**Radio IDs for voice call recording:** Enter radio IDs for which the recording should be active. Follow the example, to specify the IDs.

**Phone calls:** Select this if you want to allow telephone calls for this gateway.

**Radio IDs for phone calls:** Enter radio IDs for which phone calls should be available. Follow the examples, to specify the IDs.

Talk paths: You can reorganize the default gateway for radios and profiles here.

**Private:** Click this to view the radio profiles which assigned to the current gateway. Profiles can be assigned to the gateway (**Active** is selected), not assigned (**Active** is clear) and unavailable on it (**Active** is clear, profile name is discolored). If the profile is unavailable, it means that it is selected on the other gateway. By default all new profiles will be selected on the first gateway in the list and their ID will be the same as that of the first gateway in the list.

**Group:** Select this to view talkgroups created for the current site. For more information see Capacity Max <u>Talkgroups</u>.

# 2.4.5 Configuring Talkgroups

To configure Capacity Max talkgroups, click **Talkgroups**. The **Control Station Talkgroups** window appears:

ettings Networks Client List Rules	Activity Lo	og Export/Import Set	tings Statistics				
Control Stations		Control Stati	on Talkgroups				
·····································			Сору	F	Paste		
Capacity Max 1		1	VI Call				
MNIS Data Gateway		Add	Remove	👚 Up			
MNIS VRC Gateway	1	Name	ID	Site Num	ber	Voice gateway	
		Group 1	1	Wide	~	MNIS VRC Gate	🚩
4		Group 2	2	Wide	~	MNIS VRC Gate	~
		Group 3	3	Wide	~	MNIS VRC Gate	~
		Group 4	4	Wide	~	MNIS VRC Gate	~
		Group 5	5	Wide	~	MNIS VRC Gate	~
		Group 6	6	Wide	~	MNIS VRC Gate	~
		Group 7	7	Wide	~	MNIS VRC Gate	🗸
		Group 8	8	Wide	~	MNIS VRC Gate	🗸
		Group 9	9	Wide	~	MNIS VRC Gate	🗸
		Group 10	10	Wide	~	MNIS VRC Gate	~

To add a talkgroup, click **Add**. To add an All Call, click **All Call**. The added talkgroups will also appear in the **Profiles** window. To change the order of groups in the list, use the **Up** and **Down** arrows. The order defined in the window will be used in *SmartPTT Dispatcher*. To copy added groups to the clipboard, click **Copy**. To paste copied groups from the clipboard, click **Paste**. To delete the selected talkgroup, click **Remove**.

Name: Talkgroup alias displayed by the control station.

**ID:** Talkgroup unique identifier used during communications. To be set in the range from 1 to 65535 for a talkgroup, and in the ranges from 1 to 16776415, from 16777056 to 16777183 or be equal to *16777214* for an All Call.

To edit the talkgroup name or ID, set the cursor on the corresponding field and make changes.

**Site Number:** Site number list allowed for transmitting. In the Capacity Max network the talkgroups can be only wide-area, while All Call can be wide-area or local.

#### NOTE

In the Capacity Max network you can add only wide-area talkgroups, so only the *Wide* value is available for groups in the **Site Number** field. In order to display wide area talkgroups in *SmartPTT Dispatcher*, add necessary talkgroups in *SmartPTT Radioserver Configurator*, define talkgroup identifiers that correspond to the identifiers of the wide-area talkgroups in the *Radio Management* settings. You can add a wide-area All Call and a local All Call, which is limited to one site. To add a wide-area All Call, which is available to all sites, click **All Call**. Verify that **Site Number** is set to *Wide*. To add an All Call limited to one site, click **All Call**, and in the **Site Number** field select the site number where the All Call will be heard. Please note, that you do not need any IDs for All Calls.

<u>Voice gateway</u>: List of available voice gateways. You can assign a certain voice gateway for each talkgroup.

#### NOTE

If there are some available voice gateways, all talkgroups use by default the first voice gateway in the list. If the talkgroup is not registered on any voice gateway, the **Voice gateway** field will be empty. If <u>Voice transmission</u> is not selected in the Capacity Max network settings, the **Voice gateway** column will be hidden.

You should create talkgroups in accordance with the settings in the Radio Management application (see the **Capacity Max Systems** settings, sorted by the **Talkgroup Site Association** value).

### NOTE

For more information, see Capacity Max Installation and Configuration Manual.

## 2.4.6 Security Settings

Capacity Max network supports two types of privacy mechanisms – Enhanced and Advanced Encryption Standard (AES).

The Enhanced Privacy utilizes Motorola proprietary algorithms and therefore is not interoperable with other vendor's privacy offerings. The Enhanced Privacy provides high level of protection by means of 40-bit key length and supports multiple keys in a radio. The Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST). The AES feature supports 256-bit key length, unlike Enhanced Privacy. Similar to Enhanced Privacy, the AES also supports multiple keys. For AES encryption a special license is required.

You can specify the encryption keys for incoming and outgoing traffic on the digital channel in the **Security Settings** window.

Sma Settings		er Configur Client List			(x86)\SmartPTT\Server Export/Import Settings		e.exe.conf	ig	_	×
	MN	is s ax Networks	eway eways Gateway	1		Remove Value	Key ID	Paste		

**Copy:** Copy encryption settings of the channel to the clipboard.

**Paste:** Paste encryption settings of the channel from the clipboard.

#### **Enhanced Privacy**

To configure **Enhanced Privacy**, follow these steps:

1. Run the *Radio Management* application.

2. In the **Privacy Keys** tab of the Radio Management application add the enhanced privacy key. Enter its ID and value in the corresponding fields.

🚾 Radio Management							-	
<b>ث</b>								₹  1
Resource View 🔸 Privacy Keys								
Resources	4	Ð	Θ					Q v
Firmware	AT	U	0					<b>~</b> ·
Language Packs		Key ID	Key Alias	Key Value	In-Use Templates and Sets	In-Use Templates(Template Mode)	In-Use Sets(Configuration Mode)	Comr
Voice Announcements		4	Priv3	2	1	0	1	
Text To Speech Packs		3	Priv9	1	1	0	1	
Symmetric Keys		2	Priv8	1	1	0	1	
RAS Keys		1	Priv2	1	8	0	8	
Privacy Keys								

Open the configuration of the required radio station and in the Set Categories menu click General → Security. To make the added enhanced privacy keys available for selection, add them in the selection set. To do that, in the Privacy tab click the Add.

🖷 Radio Management						_		×
Configuration View + 871TRR8902 + Security + Security-104						∎	7	1
Set Categories  Configuration: 871TRR8902			Save		Save As Discard	(	Close	
Device Information: 871TRR8902	General	Privacy AES	Restricted Access	to System	Over-the-Air Programming			
<ul> <li>C General</li> <li>Welcome Bitmap: WelcomeBitmap-101</li> </ul>	Privacy							•
Language Packs: PCRLanguage-104		Pr	rivacy Type Enha	anced		•		
General Settings: GeneralSettings-104		Basic	Privacy Key 1					
Control Buttons: ControlButtons-104	Enhanced Privacy Keys							
Text Messages: TextMessages-104	/ 🕀 🖯 💬							
Telemetry: Telemetry-104								
Menu: Menu-104	Key ID	Key Alias	Key Value					
🗋 Security: Security-104 🔅	> 1	Priv2	1					
Network: Network-104	> 2	Priv8	1					
Voice Announcement: VoiceAnnouncer	> 3	Priv9	1					
🗅 Indoor Location: IndoorLocations-104 🖉								

3. In the **Add Keys** window, select the required keys, which you want to be available for selection in the **Privacy Alias** field when specifying the enhanced key on the channel and click **OK**.

📠 Add	Privacy Key					×
						Q ~
	🗱 🛛 Key ID	Key Alias	Key Value	Comments		
- ▶ [	4	Priv3	2			
1 i	items found (1 d	currently selec	cted).			
					ОК	Cancel

4. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select **Enhanced**.



5. In the **Security** window of *MOTOTRBO Network Interface Service Configuration Utility* in the **Enhanced** field add the enhanced privacy key. Enter its ID and value in the corresponding fields.

MOTOTRBO Network Interface Service Configuration Utility *						-	×
<u>C</u> onfiguration <u>V</u> iew <u>E</u> dit <u>S</u> ervice <u>H</u> elp							
1 🔁 📕 🖸 🖸							
E: Untitled							^
BETH General							
- Orre Security							- 11
🗄 🧰 Group List		Add	Delete				
Conventional		/100	Delete				
🖓 🛞 Capacity Plus					1		- 1
🗈 🔨 Linked Capacity Plus		Alias	Key ID	Key Value			
🗄 🚞 Advanced	1	Enhanced Key1	1	2612346782			

6. In the **Security Settings** window of SmartPTT Radioserver Configurator add an enhanced privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

Add	Remove	
Key ID	Key Value	
1	0123456789	

### NOTE

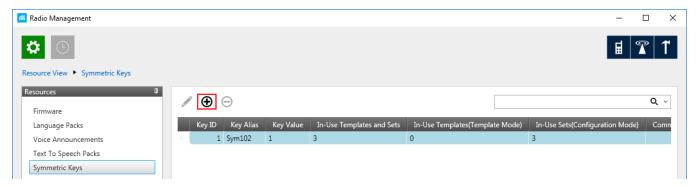
Key ID and Key Value must match the values set in the radio settings in the *Radio Management* program and *MOTOTRBO Network Interface Service Configuration Utility*. If the values in the Key ID fields are the same, but the values in the Key Value fields do not match, the receiving side hears only a distorted voice. If the key identifier of the transmitting side does not coincide with one of the key identifiers in the list of the receiving side, then transfer to the receiving party will not be heard.

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

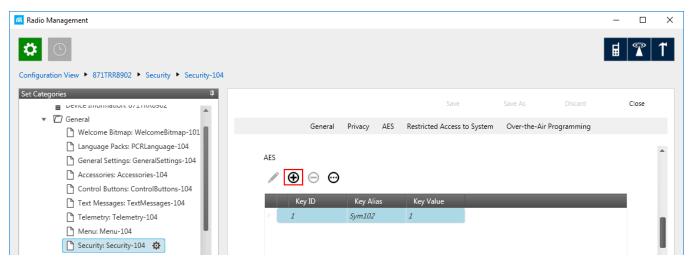
#### **AES Privacy**

To configure the **AES** privacy, follow these steps:

- 1. Run the *Radio Management* application.
- 2. In the **Symmetric Keys** tab of the *Radio Management* application add the AES privacy key. Enter its ID and value in the corresponding fields.



 Open the configuration of the required radio station and in the Set Categories menu click General → Security. To make the added AES privacy keys available for selection, add them in the selection set. To do that, in the AES field, click Add.



3. At that the **Add Keys** window appears: Select the required keys, which you want to be available for selection in the <u>AES Alias</u> field when specifying the AES privacy key on the channel and click **OK**.

🦟 Add Privacy Key					×
					Q, ~
🗱 Key ID	Key Alias	Key Value	Comments		
▶ 🔽 4	Priv3	2		]	
1 items found (1	currently selee	cted).			
				ОК	Cancel

4. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select **Enhanced**.



5. In the **Security** window of MNIS in the **Symmetric Keys** area, add the AES symmetric privacy key. Enter its ID and value in the corresponding fields.

MOTOTRBO Network Interface Service Config	uration Utility *				_	×
<u>Configuration View Edit Service H</u> elp	)					
1	?					
				Symmetric Keys		^
III General						
😏 Security						
🕀 🧰 Group List				Add Delete		
Conventional						
Ge Capacity Plus						-1-
🗄 🔨 Linked Capacity Plus	Alias		Key ID	Key Value		_
🗄 💼 Advanced	Symmetric	: Key1	1	54634562435		

6. In the radio settings in the *Radio Management* application to enable the AES encryption mode on the required channel, clear the **Privacy** check box and in the **AES Alias** field select the **AES privacy key**.

Radio Management									-	
onfiguration View + 871TRR8902 + Zone + CapMaxZone									⊟	7
Set Categories         □	Zone Items	∋ ▲ ▼					Save	Save As	Discard C	lose
Encoder     Decoder	Position	Set Name	Channel Type	Channel Name	Voice Announ	Phone System	Privacy	Privacy Alias	AES Alias	
Contacts	► <b>N</b> *	1 Personality-460	Capacity Max Personality	TG101Channel	None	Sys1		Priv2	Sym102	
RX Group Lists	≻ <mark>N</mark> ¥	2 Personality-459	Capacity Max Personality	TG102Channel	None	Sys1		Priv2	None	
KA Group Lists		3 0 10 450	Capacity Max Personality	TG103Channel	None	Sys1		Priv2	None	
Capacity Max Features	► <b>N</b> 24	3 Personality-458	Capacity Wax Personality	rozoschanner						
Capacity Max Features     Zone/Channel Assignment	> 11# > 11#	4 Personality-458	Capacity Max Personality	TG103Channel	None	Sys1	~	Priv2	None	
Capacity Max Features     D Zone/Channel Assignment     D Zone		-	Capacity Max Personality			Sys1 Sys1	<b>v</b>	Priv2 Priv2	None	
Capacity Max Features     Discrete Channel Assignment	≻ <b>N</b> ≉	4 Personality-457	Capacity Max Personality Capacity Max Personality	TG104Channel	None					

7. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an AES privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

AES		
Add	Remove	
Key ID	Key Value	
1	9876543210	

#### NOTE

Key ID and Key Value must match the values set in the radio settings in the Radio Management program and in MOTOTRBO Network Interface Service Configuration Utility. If the values in the Key ID fields are the same, but the values in the Key Value fields do not match, the receiving side hears only a distorted voice. If the key identifier of the transmitting side does not coincide with one of the key identifiers in the list of the receiving side, then transfer to the receiving party will not be heard.

- 8. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 9. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### **TX Privacy**

TX Privacy is used for selecting an encryption mode for outgoing traffic on the side of *SmartPTT Dispatcher*.

To configure the TX Privacy for a Capacity Max system, follow these steps:

1. In the **TX Privacy** area, from the **Type** list select the desired encryption type:

🎯 SmartPTT Server Configuration - C:\Program File	s (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🗙
Settings Networks Client List Rules Activity Log	Export/Import Settings Statistics
Control Stations	Security Settings
MAI Systems	Copy Paste
	Enhanced Privacy
	Add Remove
	Key ID Key Value
	TX Privacy
	Type No V Key ID

- Select *Enhanced* if you want to use enhanced encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Enhanced Privacy** area.
- *AES license is required:* Select *AES (Symmetric Key)* if you want to use AES (*Symmetric Key)* encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.

#### NOTE

If from the **Type** field *No* is selected and you have AES encryption for incoming traffic configured, AES (Symmetric Key) is used for incoming traffic by default.

- 2. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 3. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 2.4.7 Adding Console in Radio Management

*Radio Management* dispatch console is used for providing a dispatcher with an access to the Capacity Max network.

To add console in *Radio Management*, follow these steps:

- 1. Click Actions ( ☐ ), and select Manage → Capacity Max System Server Data.
- 2. Click **Add ( ⊕ )**.
- 3. In the open **Add Device** window, from the **Device Type** list, select *Console* and click **OK**.

G Add Device		×
Device Type	Console	•
	ОК	Cancel

- 4. In the table, in the added console row, perform the following actions:
  - a. In the **Device ID** column, enter radio ID for the console.
  - b. In the **Allowed Sites** column, from the list select **Edit**.
    - i. In the **Allowed Sites Lists** window, from the **Allowed Site List Name**, select the desired site for registering.

#### ii. Click **Save**.

Allowed Sites Lists		×
Allowed Site List Name	Available	Selected
<all sites=""></all>	Site Name	Site Name
DataMNISSite31	DataMNIS01	Add All
VoiceMNISSite36		
Allowed Site1		Add
Allowed Site2		
		Remove
		Remove All
	1 items found (1 currently selected).	1 items found (1 currently selected).
		Save Close

- c. In the **Telephone Gateway Site** column, from the list select the desired site for telephone recording.
- d. In the **Voice Recording Site** column, from the list select the desired site for voice recording.

🚾 Radio Management						_	
<b>‡</b> (5)						E	<b>T</b> 1
Capacity Max System Server Data 🕨 Subscrib	s Control						
Capacity Max Systems 4 TVZSystem1	View by:  Subscri		I 🗌 Talkgroup Site Associatio	۱ 			Q ~
	Device Type 보	Device ID 👎	Allowed Sites 😽	Telephone Gateway Site	Image: Provide the text state in the text state is the text state in the text state is the text st	-⊐ Serial N	lumber 🔷
	Console	4000019	VoiceMNISSite36	None	▼ None	- 0	
	Console	600	VoiceMNISSite36	VoiceMNIS01	<ul> <li>VoiceMNIS01</li> </ul>	• 0	
	Console	4000018	VoiceMNISSite36	None	▼ None	• 0	

### 2.4.8 Configuring Joint GPS and Indoor Data

If you want to receive joint location data (GPS and indoor) in Capacity Max, configure the following settings:

- Radio settings in Radio Management
- Radio settings in SmartPTT Dispatcher

- Repeater settings in *Radio Management*
- Capacity Max settings in Radio Management

### 2.4.8.1 Configuring Capacity Max in Radio Management

To configure Capacity Max in *Radio Management*, follow these steps:

- 1. Click **Actions**  $\square$ , and select **Manage** $\rightarrow$ **Sets**, or press Alt+S.
- 2. In the Set Categories pane, select Capacity Max features 
   Capacity Max Systems.
- 3. In the left column of the table, click > to select the desired **Capacity Max** system.
- 4. Click Edit ( 🖌 ).
- 5. In the **Data Revert** tab, from the **Enhanced GNSS Window Size** list, select the value 10.
- 6. Save changes.

### 2.4.8.2 Configuring Repeater in Radio Management

To configure Capacity Max in *Radio Management*, follow these steps:

- 1. Click **Actions**  $\square$ , and select **Manage** $\rightarrow$ **Sets**, or press Alt+S.
- 2. In the **Set Categories** pane, select **Capacity Max features**—**Capacity Max Systems**.
- 3. In the left column of the table, click > to select the desired **Capacity Max** system.
- 4. Click Edit ( 🖍 ).
- 5. In the **Capacity Max Sites** tab, perform the following actions:
  - a. In the left column of the table, click > to select the desired **Capacity Max** system.
  - b. Click Edit ( 🖌 ).
- 6. In the **Capacity Max Channels** tab, perform the following actions:
  - a. In the left column of the table, click > to select the desired **Capacity Max** system.
  - b. Click Edit ( 🖌 ).
- 7. In the **General** tab, from the **Channel Type** list, select *Data Revert Channel*.
- 8. Save changes.

### 2.4.8.3 Configuring Radio in Radio Management

To configure radio in *Radio Management*, follow these steps:

- 1. Click Radio View ( 🖬 ).
- 2. In the left column of the table, click > to select the desired radio.
- 3. Click Edit ( 🖍 ).
- 4. In the **Set Categories** pane, perform the following actions:
  - a. Expand **Configuration**  $\rightarrow$  **Zone/Channel Assignment**  $\rightarrow$  **Zone**.
  - b. Select the desired Capacity Max zone.
- 5. In the left column of the table **Zone Items**, click ( ▶ ) to select the desired channel.
- 6. Click **Edit (** 🖌 **)**.
- 7. In the **General** tab, from the **Compressed UDP Data Header** list, select *DMR Standard*.
- 8. In the **RX/TX** tab, clear the **CSBK Data** check box.
- 9. Save changes.

### 2.4.8.4 Configuring Radio in SmartPTT Dispatcher

To configure radio in SmartPTT Dispatcher, follow these steps:

- 1. Open the radio properties window.
- 2. In the **Location** tab, perform the following actions:
  - a. Select the Indoor Tracking check box.
  - b. Select the **Update Interval** check box, and enter *30* in the field.

## 3 Client List

The **Client List** tab serves for two purposes in SmartPTT:

- To manage user accounts for client applications (except SmartPTT Dispatcher).
- To show active applications and their users.

Client applications here means SmartPTT Web Clients, SCADA module, and third-party applications.

User authentication and authorization is performed by the SmartPTT Radioserver. This procedure is not related to the authentication and authorization performed by the Windows operating system. SmartPTT permits to use the same credentials for simultaneous authorization from multiple applications.

The **Client List** tab provides the following views:

- The Accounts view activates when user clicks **All (mobile and web clients)** at the top of the tab. For details, see <u>Accounts View</u>.
- The Active Users view activates when user clicks **Active** at the top of the tab. For details, see <u>Active Users View</u>.

## **3.1 Accounts View**

In the Accounts view, you can add new accounts, remove them, and edit the existing account parameters.

SmartPTT Server Configuration - C:\Prog	ram Files (x86)\SmartPTT\Server\RadioService.exe.config —	×
Settings Networks Client List Rules Activit	Log Export/Import Settings Statistics	
• All (mobile and web clients)	◯ Active	
Add Delete		
Name	Parameters	
DISP-WEB-01		 - 1
middleware	Name DISP-WEB-01 Change password	
DISP-100	Profile profile-for-web ~	
	Allow voice calls	

This view provides the following elements::

#### Add

Creates new account entry.

#### Delete

Removes the account whose name is currently highlighted. The account name and the user name terms mean the same in this document.

#### Name (table heading)

Provides list of user accounts.

The **Parameters** pane provides the following elements::

#### Name (box)

Provides the name of the user whose account is highlighted in the table. The user name is also used as a user login.

The minimum name length is 1 character; maximum length is 50 characters; charset is UTF-8; the name is case sensitive.

#### Change password

Opens the **<User name>: Change Password** window where you can type and confirm the user password. You cannot create a user without the password.

The minimum password length is 1 character; maximum length is 50 characters; charset is UTF-8; the password is case sensitive.

#### NOTE

In SmartPTT, password change does **not** require entering the current password.

#### Profile

Provides the list of created user profiles that can be assigned to the one or multiple user accounts. For details, see <u>Profiles</u>.

### Allow voice calls

Provides the ability to receive and initiate voice calls in third-party applications. The parameter does **not** effect SmartPTT Web Client as it does not support voice calls.

## **3.2 Active Users View**

In the Active Users view, you can see a list of authorized users and the relevant authorization information.

Active users are displayed in the **List of connected clients** table. When users log off from an application or close it, the relevant entry (row) is removed from the table.

Settings Networks Client List	Rules Activity Log Export/I	mport Settings Statistics		
All (mobile and web clients)	Active			
ist of connected clients				
Lat or connected cilents				
Client Name	Address	Connect Time	Profile	 
	Address 192.168.100.101:52548	Connect Time 7/2/2018 9:40:00 AM	Profile	 
Client Name			Profile Profile 1	

The **List of connected clients** table consists of the following columns:

#### **Client Name**

Contains the name of the authorized user and the used application type.

The format of the SmartPTT Dispatcher applications is *<user name> - Dispatcher*, and the format of the SmartPTT Web Client application is *smartptt: <user name> - Web*.

#### NOTE

All user names appear as is (no transliteration is used).

#### Address

Contains IP address in IPv4 format and TCP port number used by the application to access SmartPTT Radioserver.

### **Connect Time**

Contains the date and time of the user authorization.

#### Profile

Contains the name of the SmartPTT profile applied to the current user. If no profile is applied, the cell will appear empty, and user receives access to all application features in all connected radio systems.

### 3.3 Modifying Account Parameters

Follow the procedure to create a new or modify the existing SmartPTT user account used in Web Clients, SCADA module, or third-party application.

#### **Prerequisites:**

Create user profile and configure the access to radio networks and dispatching features. For details, see <u>Profiles</u>.

#### Procedure:

- 1. Start SmartPTT Radioserver Configurator.
- 2. In the **SmartPTT Server Configuration** window, select the **Client List** tab.
- 3. At the top of the **Client List** tab, click **All (mobile and web clients)**.
- 4. Perform the following actions:

To create a new account,	click the <b>Add</b> button.
To edit the existing account properties,	In the left pane, click the desired account name.

- 5. In the **Parameters** pane, in the **Name** box, type the user name.
- 6. Set the user password:
  - a. Next to the Name box, click Change password.
     The <User name>: Change Password window appears.

DISP-WEB-01: Change Password	×
Password	
Confirm password	
Ok Cancel	

b. In the **<User name>: Change Password** window, in the **Password** field, type the password.

- c. In the **Confirm password** box, type the same password.
- d. Click **Ok** to set the password and close the window.
- 7. In the **Parameters** pane, from the **Profile** list, select the required profile.
- 8. To support voice calls in a third-party application (not applicable for Web Client and SCADA module), select the **Allow voice calls** check box.
- 9. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 10. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

### **3.4 Deleting Accounts**

#### Follow the procedure to delete the existing user account.

#### **Prerequisites:**

*Optional:* Back up user accounts as a part of the dispatch system configuration. For details, see <u>Export/Import Settings</u>.

#### **Procedure:**

- 1. Start SmartPTT Radioserver Configurator.
- 2. In the **SmartPTT Server Configuration** window, select the **Client List** tab.
- 3. At the top of the **Client List** tab, click **All (mobile and web clients)**.
- 4. In the left pane, click the user account you want to delete.
- 5. At the top of the **Client List** tab click **Delete**.

#### WARNING

The next step results in the irreversible deletion of the account.

- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### **Postrequisites:**

Remove the profile if it is not assigned to another user of the dispatch system.

### **3.5 Viewing Active Users**

Follow the procedure to view currently active users of the dispatch system. This may help you during the troubleshooting process in the dispatch system.

#### Procedure:

- 1. Start SmartPTT Radioserver Configurator.
- 2. In the SmartPTT Server Configuration window, select the Client List tab.
- 3. At the top of the **Client List** tab, click **Active**.
- 4. In the **List of connected clients** table, view the following information:
  - In the **Client Name** column, view the user name and hyphen-separated application type.
  - In the **Address** column, view the IP address and TCP port used by the application to connect to the SmartPTT Radioserver.
  - In the **Connect Time** column, view the date and time when the user logged on to the application.
  - In the **Profile** column, view the name of the profile assigned to the user.
- 5. *Optional:* To sort entries in the table, perform the following actions:

To sort entries ascending,	click the desired column heading until the Ascending Icon ( 🔺 ) appears on the right of the heading.
To sort entries descending,	click the desired column heading until the Descending Icon ( 🗢 ) appears on the right of the heading.

See also:

- <u>Active Users View</u>
- <u>Clients Connection</u>
- <u>Profiles</u>

## **4 Network Configuration**

In the **Network Configuration** tab you can perform the following actions:

- Configure general or individual settings for the following network elements:
  - Control stations
  - Repeaters
  - Routers
  - Uninterruptible Power Supplies (UPS)
- Create the system topology tree for visualizing and monitoring its elements in *SmartPTT Dispatcher.*
- Configure settings for sending messages with information on device errors and malfunctioning in the radio system.
- Configure settings for sending messages on the radioserver redundancy errors.
- Add locations, configure their settings, and add to them repeaters and other devices.

#### NOTE

In NAI - Linked Capacity Plus radio systems, locations refer to sites. In Connect Plus radio systems, locations refer to XRC controllers.

• Add the network elements using the topology update functionality.

### IMPORTANT

The **Network Configuration** tab appears only after you activate the Monitoring feature. For details, see <u>Monitoring</u>.

The left pane of the **Network Configuration** tab provides the list of available radioservers and networks whose settings you can configure.

🎯 SmartPTT Server Configuration - C	:\Program File	es (x86)\	SmartPT	T\Serve	er\RadioService.exe.con	fig	_	$\times$
Settings Networks Client List Network	Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
Radioserver Control Stations Connect Plus NAI Systems NAI - IP Site Connect 1 Server UPS Nouter		Alarm No Updat IP Site C ierver	tifications te Topolog		Expand All		Collapse All	_

For information on the network element configuration, see the sections below.

## 4.1 Configuring Control Station Monitoring

Follow the procedure to configure the CS monitoring settings.

#### **Procedure:**

1. In the **Network Configuration** tab, in the left pane, expand the **Control Stations** node, and then select the desired control station.

In the right pane, the control station monitoring parameters appear.

🎯 SmartPTT Server Configuration -	C:\Program Files (x86)\SmartPTT\Server\Server.exe.config	—	$\times$
Settings Networks Client List Netwo	rk Configuration Rules Activity Log Export/Import Settings Statistics		
Radioserver Control Stations Control Station 1 Remote control station 1 IP Site Connect Networks	Remote control station       General     Alarm Notifications       Name     Remote control station 1		_
Capacity Plus Systems Connect Plus	Description		
	RG-1000e Parameters		
	Copy Paste		
	Name ?		
	Description		
	Interface Any V Port 162	<b>*</b>	
	IP address 0.0.0.0 Port 161	<b>•</b>	
	SNMP Version V1 ~		
	Community ?		
	Response Timeout, s 3		
	Polling Interval, s 30		
	Check Connection		

2. In the **General** tab, in the **Name** box, type the control station name which appears in the **Topology** panel in *SmartPTT Dispatcher*.

### NOTE

The **RG-1000e Parameters** area is available for remote control stations only.

- 3. In the **RG-1000e Parameters** area, configure the radio gateway parameters:
  - a. In the **Name** box, type the radio gateway name which appears in the **Topology** panel in *SmartPTT Dispatcher*..
  - b. *Optional:* In the **Description** box, the radio gateway description.
  - c. From the **Interface** list, select the radioserver IP address for interacting with the radio gateway.
  - d. In the **Port** box, enter the server port for interacting with the radio gateway.
  - e. In the **IP-address** box, type the IP address of the radio gateway.
  - f. In the **Port** box, type the radio gateway port number.
  - g. From the **SNMP Version** list, select the SNMP protocol that is used in the radio system.
  - h. In the **Community** box, type a name of the community that is used for connection to the radio gateway over the SNMP protocol in the local network.
  - i. In the **Response Timeout**, **s** box, type type the amount of time in seconds during which the server expects a response from the radio gateway. The maximum value is *10* seconds.
  - j. In the **Polling Interval, s** box, type the amount of time in seconds after which the radio server sends a request to the radio gateway.
- 4. *Optional:* Click the **Check Connection** button to check the status of the radio gateway connection.

The window with information on the connection status appears.

5. *Optional:* In the **Alarm Notifications** tab, configure parameters of automatic notifications of alarms and errors on the control stations connected over the radio gateway. For details, see <u>Configuring Alarm Notifications</u>.

#### Important

The RG-1000e radio gateway does not provide information on the alarms and errors that occur on the gateway itself.

6. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save** 

# 4.2 Adding Locations

Follow the procedure to add a location.

#### **Procedure:**

- 1. In the **Network Configuration** tab, in the left pane, expand the desired network type or click the **Control Stations** node.
- 2. Right-click the desired network name or the **Control Stations** node, and then click **Add Location**.

The **Location** pane appears.

SmartPTT Server Configuration - C	:\Program Fil	es (x86)\	SmartPT	T\Serve	r\RadioService.exe.con	fig	_	$\times$
Settings Networks Client List Network	Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
Radioserver	Location							
Connect Networks     Capacity Plus Systems	Site ID		1		-			
	Name		L	ocation				
NAI- Linked Capacity Plus 1	Descriptio	n						

- 3. In the **Location** pane, perform the following actions:
  - a. *In the NAI Linked Capacity Plus and Connect Plus networks:* In the **Site ID** box, enter the site ID.
  - b. In the **Name** box, type a name of the location which appears in the **Topology** panel in *SmartPTT Dispatcher*..
  - c. In the **Description** box, type a location description which appears in the **Topology** panel in *SmartPTT Dispatcher*..
- 4. *Optional:* To add a repeater to the location, right-click the location node in the left pane, and select **Add Repeater**. For details, see <u>Adding Repeaters</u>.

- 5. *Optional:* To add a device to the location, right-click the location node in the left pane, and select **Add Device**. For details, see <u>Adding Devices</u>.
- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 7. Update the topology. For details, see <u>Updating Topology</u>.

#### **Postrequisites:**

To remove the location, right-click the location name in the left pane, and select **Remove Location**.

#### NOTE

If you delete a location with devices and repeaters allocated to it, all the devices will be deleted together with the location.

### 4.3 Adding Repeaters

Follow the procedure to add and configure a repeater.

#### **Procedure:**

- 1. In the **Network Configuration** tab, in the left pane, expand the desired network type.
- 2. Right-click the desired network name, and then click **Add Repeater**.

#### NOTE

By default radioserver is automatically added as a *Server* repeater.

🎯 SmartPTT Server Configuration - C	:\Program File	es (x86)\\$	SmartP	TT\Serve	r\RadioService.exe.con	fig	_	Х
Settings Networks Client List Network	Configuration	Rules	Activity	Log	Export/Import Settings	Statistics		
Radioserver	Repeater							
Connect Plus	General A	Jarm Notif	ications					
ia∎ NAI Systems ia∎ NAI - IP Site Connect 1	Peer ID		2		-			
UPS	Name			epeater 2				
Router	Description	n	Re	epeater 2				
J. Topodor 2								
	SNMP Parameters							
	🗹 Acti	ve						
	Commu	nity	Co	ommunity	1			

- 3. In the open **Repeater** pane, in the **General** tab, perform the following actions:
  - a. In the **Peer ID** box, enter a unique identifier of the repeater.
  - b. *Optional:* In the **Name** box, type any name of the repeater which appears in the **Topology** panel in *SmartPTT Dispatcher*..

#### NOTE

If the repeater name is not set, the name set in the repeater codeplug is displayed.

- c. *Optional:* In the **Description** box, type a description of the repeater which appears in the **Topology** panel in *SmartPTT Dispatcher*.
- d. *Optional:* In the **SNMP Parameters** area, select the **Active** check box to activate the external SNMP client.
- e. In the **Community** box, type the community name used as a password for the external SNMP client to connect to the repeater.

#### NOTE

All repeaters in the same network should have a unique community value.

4. *Optional:* In the <u>Configuring Alarm Notifications</u> tab, configure automatic notification of alarms or errors that occurred in the repeater.

- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Update the topology. For details, see <u>Updating Topology</u>.

#### Postrequisites:

To remove the repeater, right-click the repeater name in the left pane, and select **Remove Repeater**.

### 4.4 Adding Devices

Follow the procedure to add and configure a device.

#### **Procedure:**

1. In the **Network Configuration** tab, in the left pane, expand the desired network type or click the **Control Stations** node.

 Right-click the desired network name or the Control Stations node, and then click Add Device.

The **Device** pane appears.

SmartPTT Server Configuration - C					-	>
ettings Networks Client List Network	Configuration Rules Activ	vity Log	Export/Import Settings	Statistics		
Radioserver	Device					
Connect Plus	General Alarm Notificatio	ns				
NAI - IP Site Connect 1	Туре	Cisco 2900	D		~	
"¶" Server ∳∰ UPS	Name	Router				
Router	Description					
	Interface	192.168.5	6.1 ~	Port 162	-	
	IP-address	0.0.0.1		Port 161	-	
	SNMP Version	V1				
	Community	?				
	Response Timeout, s	3				
	Polling Interval, s	30				
	Check Connect	tion				
	SNMP Parameters					
	Active					
	External Community	Community	1			

- 3. In the open **Device** pane, in the **General** tab, perform the following actions:
  - a. From the **Type** list, select the device type:
    - To configure a router, select *Cisco 2900* or *Huawei Router*.
    - To configure a UPS, select *Eaton 9130*, *UPS ATS-Convers*, or *Apc 5000*.
    - To configure a device for receiving information on the state of the radioserver and errors that occurred on it, select *Supermicro Server*.

### NOTE

To be able to receive alarms from the radioserver, add *Supermicro Server*. If any alarms occur on the radioserver, you will see them in Monitoring event log in SmartPTT Dispatcher.

- To configure a device that is not in the list, select *Unknown*.
- b. *Optional:* In the **Name** box, type the device name which appears in the **Topology** panel in *SmartPTT Dispatcher*..
- c. *Optional:* In the **Description** box, type a description of the device which appears in the **Topology** panel in *SmartPTT Dispatcher*..
- d. From the **Interface** list, select the radioserver IP address for interacting with the device.
- e. In the **Port** box, enter the server port for interacting with the device.
- f. In the **IP-address** box, type the IP address of the device.
- g. In the **Port** box, enter the device port.
- h. From the **SNMP Version** list, select the SNMP protocol that is used in the radio system.
- i. In the **Community** box, type a name of the community that is used for connection to the radio gateway over the SNMP protocol in the local network.
- j. In the **Response Timeout**, **s** box, type the amount of time in seconds during which the server expects a response from the device. The maximum value is *10* seconds.
- k. In the **Polling Interval, s** box, type the amount of time in seconds after which the radio server sends a request to the device.
- I. *Optional:* Click the **Check Connection** button to check the status of the radio gateway connection.

A new window with information on the connection status opens.

- m. *Optional:* In the **SNMP Parameters** area, select the **Active** check box to activate the external SNMP client.
- n. In the **External Community** box, type the community name used as a password for the external SNMP client to connect to the device.
- 4. *Optional:* In the <u>Configuring Alarm Notifications</u> tab, configure automatic notification of alarms or errors that occurred in the device.

- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Update the topology. For details, see <u>Updating Topology</u>.

#### **Postrequisites:**

To remove the device, right-click the device name in the left pane, and select **Remove Device**.

### 4.5 Configuring Error and Alarm Notifications

In SmartPTT systems, you can receive notifications about errors or other malfunctions occurred on devices used in the system or occurred during the redundancy. For details, see <u>Configuring</u> <u>Server Redundancy Error Notifications</u> and <u>Configuring Alarm Notifications</u>.

Parameters for error and alarm notifications can be configured for each network, and for each device type in the network.

### 4.5.1 Configuring Server Redundancy Error Notifications

Follow the procedure to configure automatic radioserver redundancy error notifications.

#### **Procedure:**

1. In the **Network Configuration** tab, in the left pane, click **Radioserver**.

🎯 SmartPTT Server Configuration - C	:\Program File	es (x86)\(	SmartPT	T\Serve	r\RadioSe	rvice.exe.com	fig	_	×
Settings Networks Client List Network	Configuration	Rules	Activity	Log	Export/In	nport Settings	Statistics		
Radioserver	Radioserve	er							
Connect Plus	Redundan	cy error m	essages						
i MAI Systems	Receivers					Add		Remove	
	Туре		Receiv	er					
	Email		test@gr	nail.com					
	SMS		+71234	567890					
	Message (	talkgro	NAI - IP	Site Con	nnect 170 -	Slot 1; Group	1		
	Message (	radio s	1-50, 78						
	SNMP		0.0.0.0:	162;V1;C	Community1				

- 2. Create a list of notifications receivers:
  - a. In the **Receiver** area, click **Add** to add a receiver. The **Receiver** window opens.

🖳 Receiver		×
Type Address	Email	~
Email	test@mail.com	]
	OK Cancel	

- b. In the **Receiver** window, from the **Type** list, select the desired receiver type.
- c. In the **Address** area, in the box/boxes, enter the receiver address. Boxes in the **Address** area depend on the selected receiver type:
  - *If the Email is selected:* Type the receiver email address.
  - *If the Message (Talkgroup) is selected:* Select the desired control station and talkgroup.
  - *If the Message (Radio) is selected:* Type the radio ID.
  - *If the SMS is selected:* Type the desired telephone number.
  - *If the SNMP is selected:* Type the radioserver IP-address and port, realm name and select the version of SNMP client application.
- d. Click **OK** to add the receiver to the list.
- 3. *Optional:* Repeat <u>step 2</u> to add more receivers.
- 4. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 5. Click **Restart ( )** to restart SmartPTT Radioserver and apply changes.

### NOTE

If the receiver list of the object differs from the receiver list of the network, you can make it the same by clicking the **Apply Network Settings** button.

## 4.5.2 Configuring Alarm Notifications

Follow the procedure to configure automatic alarm notifications.

#### **Procedure:**

- 1. In the left pane of the **Network Configuration** tab, select the desired network or control station.
- 2. In the right pane that appears, click the **Alarm Notifications** tab.

Settings Networks Client List Network Configuration Rules Activity Log Export/Imp	nport Settings Sta	atistics	
Radioserver Control Stations Connect Plus			
NAI Systems Alarm Nouncauons Alarm Nouncauons Alarms	Select All	Reset All	
Server         UPS         Router         Location         PaFanAlam         PaEepromCorruptionType1         PaEepromCorruptionType2         PaEepromCorruptionType1         PaEepromCorruptionType1         ExciterEepromCorruptionType1         ExciterEepromCorruptionType2			*
Receivers	Add	Remove	
Type Receiver			
Email testemail@mail.com			
SMS +441234567890			
SNMP 186.168.45.26:162;V1;public	lic		
Message (radio s 89, 2525, 4001-4005			
Message (talkgro IP Site Connect_170 - Slot 2	2_170; Group 1		

- 3. In the **Alarms** area, select the alarms you want to be notified about in one of the following ways:
  - Select the check box next to the desired alarms.
  - Click **Select All** to select all the alarms from the list.

#### NOTE

Types of alarms depend on the repeater or control station type.

- 4. Create a list of notifications receivers:
  - a. In the **Receiver** area, click **Add** to add a receiver. The **Receiver** window opens.

💀 Receiver	×
Type Address	Email ~
Email	test@mail.com
	OK Cancel

- b. In the **Receiver** window, from the **Type** list, select the desired receiver type.
- c. In the **Address** area, in the box/boxes, enter the receiver address. Boxes in the **Address** area depend on the selected receiver type:
  - If the Email is selected: Type the receiver email address.
  - *If the Message (Talkgroup) is selected:* Select the desired control station and talkgroup.
  - *If the Message (Radio) is selected:* Type the radio ID.
  - *If the SMS is selected:* Type the desired telephone number.
  - *If the SNMP is selected:* Type the radioserver IP-address and port, realm name and select the version of SNMP client application.
- d. Click **OK** to add the receiver to the list.
- 5. *Optional:* Repeat <u>step 3</u> to add more receivers.
- 6. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save (** hanges.
- 7. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### NOTE

If the receiver list of the object differs from the receiver list of the network, you can make it the same by clicking the **Apply Network Settings** button.

## 4.6 Updating Topology

Follow the procedure to update a topology.

#### **Procedure:**

- 1. In the left pane of the **Network Configuration** tab, select the desired network.
- 2. In the **Network Monitoring** pane, click **Update Topology**.

The **Topology Update** window appears and the update process starts automatically.

🖳 Тор	oology Up	date	_		$\times$
				Stop	
		Updating: 3/5			
Changes			Remove missing peers	Update	names
Site	Peer ID	Changes			
0	5	SmartPTT added		C	Cancel
0	1002	Name change Repeater 1->Repeater 2		(	Cancel
			Cancel All	OK	

- 3. To change the topology update settings, perform the following actions:
  - a. *Optional:* Select the **Remove missing peers** check box to check if there are any missing peers to exclude them from network topology.

b. *Optional:* Select the **Update names** to replace names of repeaters by those defined in *MOTOTRBO CPS*.

#### NOTE

If the update process was interrupted, you can confirm the implemented changes by clicking **OK**. All changes are displayed in the **Changes** table.

- 4. Click **OK** to apply changes.
- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

#### **Postrequisites:**

- To discard changes for the desired item, click **Cancel** next to it.
- To discard all changes, click **Cancel All**.
- To interrupt the update process, click **Stop**.

### **5 Rules**

SmartPTT Radioserver allows you to configure rules for events on radios or Dispatcher. Rules allow the system to perform automatic actions (for example, playback sounds, send messages, play predefined voice notifications).

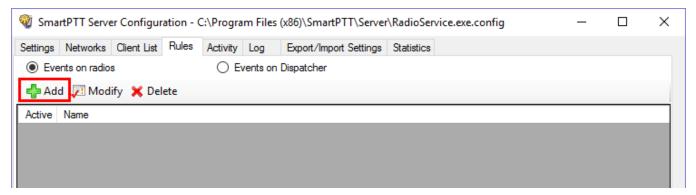
You can add new rules and modify or delete the existing rules.

For information on configuring and managing rules, see the sections below.

### 5.1 Adding Rule for Events on Radios

To create a rule for events on radios, follow these steps:

1. On the **Rules** tab, click **Events on radios** and then click **Add**.



- 2. In the window for creating a new rule type any rule name in the **Name** field.
- 3. Select the **Active** check box to make the rule active right after the creation.

Rule			_	×
	Name: Active:	L		
Conditions				

#### Rules

### 4. Set the needed conditions of the rule:

Conditions								
Direction:	$\checkmark$	Equal to	$\sim$	Incoming	$\sim$			
Event Type:	$\checkmark$	Equal to	$\sim$	Telemetry	$\sim$	Block ~	Alam	$\sim$
Date:								
Additional Information:								
Control Station:								
Talkgroup:								
Radio:	$\checkmark$	Equal to	$\sim$	0	-	0	0	<b>+</b>
User:								
Status:	$\checkmark$	Equal to	~	Call Alert	$\sim$	Incoming Telem( $\sim$	Unlocked	$\sim$
Duration:	$\checkmark$	Equal to	$\sim$	0	-			

Name	Operation	Comment
Direction	Equal to	Select Incoming or Outgoing event
Event Type	Equal to Not equal to	Select the event type
Date	Between	Set the start date and the end date
Additional Informa tion	Equal to Contains	<ul> <li>You can leave the field empty, or depending on the event type, type the following information:</li> <li>Registration – leave the field empty</li> <li>Call – type the identifiers of call initiators, or operator name</li> <li>Message – type the message text</li> <li>Telemetry – type the telemetry event</li> <li>Alarm – type the date and time of alarm acknowledgment, and the operator name who acknowledged it</li> <li>Block radio – leave the field empty</li> <li>User Authorization – leave the field empty</li> </ul>
Control Station	Equal to Contains	Set the control stations names

Name	Operation	Comment
Talkgroup	Equal to Contains	Select the talkgroup name from the needed network
Radio	Equal to Not equal to	Set the radio ID
User	Equal to Not equal to	Select the radio users (see <u>User Authorization</u> )
Status	Equal to Not equal to	Select the system status
Duration	Equal to Not equal to Greater than Greater than or equal to Less than Less than or equal to Between	Set the duration of time in seconds
		Select the desired SCADA object from the list of objects added to the SmartPTT Dispatcher SCADA module
SCADA Object	Equal to Not equal to	<b>NOTE</b> If a SCADA object is deleted from the list of SCADA objects in SmartPTT Dispatcher, or if it is currently unavailable, the rules that affect the object are not deleted.
SCADA Alarm	Equal to Not equal to	SCADA object parameter capable of reporting alarm states

### NOTE

To interact with SCADA objects, you need to instal the corresponding license and activate the SCADA module in SmartPTT Dispatcher settings. For details, see "Licences" and "Activating SCADA Module" in *Dispatcher User Guide*.

#### Rules

Actions			
Play Sound:			
Send Message:			~
			~
		Example: 1-99, 150	
	Radios		
	🔘 User		$\sim$
	Talkgroup	0	~
	Send Message	To Initiator	
Start Voice Notification:			~
Stop Current Voice Notification:	Any		~

### 5. Set the needed actions of the rule:

Name	Comment
Play Sound	Specify the audio file for the selected radios, users or talkgroups by clicking <b>Browse</b> [] and selecting the needed .ogg, .wav or .mp3 file.
Send Message	You can send a text message to the selected radio, user or talkgroups by typing the text in the Send Message field. Select the addressee by typing Radios ID or selecting the User or the Talkgroup. You can also send a message to the initiator if to select <b>Send Message To</b> <b>Initiator</b> .
Start Voice Notification	Specify the voice notification to play. If unavailable, add the voice notification in <u>Voice Notification</u> on the <b>Settings</b> tab. If at the moment of adding the rule the system already has voice notification, the notification specified in the rule will not play.
Stop Current Voice Notification	Select any or specified current notification you want to stop.

6. Click **Save** to save the created rule or click **Cancel** to cancel the rule adding.

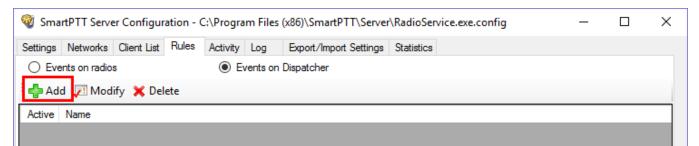
	Save	Cancel		
			a	

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

## 5.2 Adding Rule for Events on Dispatcher

To create a rule for Events on Dispatcher, follow these steps:

1. On the **Rules** tab click **Events on Dispatcher** and then click **Add**.



- 2. In the window for creating a new rule type any rule name in the **Name** field.
- 3. Select the **Active** check box to make the rule active right after the creation.

Rule		_	$\times$
	Name: Name1		
Conditions			

4. Set the needed conditions of the rule:

Conditions			
Connection to Radioserver:	Lost	$\sim$	Timeout (s): 10

Name	Operation	Comment
Connection to Radioserver	Lost	The rule works when the connection between SmartPTT radioserver and last dispatch console is terminated.
	Restored	The rule works when at least one SmartPTT Manager connects to radioserver.
Timeout (s)	Set time period	Time period in seconds, after which SmartPTT radioserver performs the selected actions.

Play Sound: 🗹			
Send Message:			
		Example: 1 - 99, 150	
	Radios		
	🔘 User		
	O Talkgroup	0	
Start Voice Notification: 🔽			
Stop Current Voice Notification:	Any		

#### 5. Set the needed actions of the rule:

Name	Comment
Play Sound	Specify the audio file for the selected radios, users or talkgroups by clicking <b>Browse</b> [] and selecting the needed .ogg, .wav or .mp3 file.
Send Message	You can send a text message to the selected radio, user or talkgroups by entering the text in the <b>Send Message</b> field. Select the addressee by typing Radios ID or selecting the User or the Talkgroup.
Start Voice Notification	Specify the voice notification to play. If unavailable, add the voice notification in <u>Voice Notifications</u> on the <b>Settings</b> tab. If at the moment of adding the rule the system already has voice notification, the notification specified in the rule will not play.
Stop Current Voice Notification	Select any or specified current notification you want to stop.

### 6. Click **Save** to save the created rule or click **Cancel** to cancel the rule adding.

Save	Cancel

- 7. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 8. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

### 5.3 Modifying Rule

If you want to edit the existing rule, follow these steps:

- 1. On the **Rules** tab click **Events on radios** or **Events on Dispatcher**, depending on the rule you want to modify.
- 2. In the list of rules click the rule you want to modify.
- 3. Click **Modify** or double-click the rule.

🦁 Sma	💱 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🗙													
Settings	Networks	Client List	Rules	Activity										
Even	ents on radio	s		OE	vents on	Dispatcher								
i 🛟 Ad	- Add 📈 Modify 🗙 Delete													
Active	Name													
$\checkmark$	Rule 1													
	Rule 2													
	Rule 3													

- 4. Make the needed changes in the rule in the opened window (see <u>Adding Rule for Events on</u> <u>Radios</u> or <u>Adding Rule for Events on Dispatcher</u>).
- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save ( Save ( Save**
- 6. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

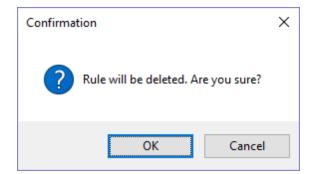
# 5.4 Deleting Rule

If you want to delete the rule, follow these steps:

- 1. On the **Rules** tab click **Events on radios** or **Events on Dispatcher**, depending on the rule you want to delete.
- 2. In the list of rules click the rule you want to delete.
- 3. Click Delete.

🞯 Sma	💱 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🛛 🗙												
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics						
Events on radios     C Events on Dispatcher													
Add 🔎 Modify 🗙 Delete													
Active	Name												
$\checkmark$	Rule 1												
	Rule 2												
$\checkmark$	Rule 3												

4. In the confirmation window click **OK** to delete the rule.



- 5. At the bottom of the **SmartPTT Server Configuration** window, click **Save (** ) to save changes.
- 6. Click **Restart (** ) to restart SmartPTT Radioserver and apply changes.

# 6 Activity

The **Activity** tab displays events that happen in the radio network. Mostly, it is used for debugging purposes, but it can be useful for system administrators as well.

To open **Activity**, click the **Activity** tab in SmartPTT Radioserver Configurator.

<table-cell> Sma</table-cell>	rtPTT Serve	er Configur	rvice.exe.config		_		×					
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Setting	s Statistics					
✓ Auto Filter	Scroll		Clear Activity Log									
	Events		tration (/	ARS)	🗌 Lo	cations (Location)		Calls (Call)	Radio	ID		
		Mess	ages (TN	AS)	□ Te	elemetry (Tel)		Other (Other)				
Date/T	ìme	Туре	Sy	stem		Event						

There are six types of events logged:

- Registration
- Messages
- Locations
- Telemetry
- Calls
- Other (includes connection or disconnection of slots or control stations)

You can enter the radio ID into the **Radio ID** field to view the events related to the particular radio.

You should select one or several of those check boxes to view events in the list.

All events are listed in the table with the following columns:

- Date/Time: The date and time of the event
- **Type:** The one of the listed types above
- System: The network where event happened
- **Event:** The brief description of the event and its status

You can apply the following settings for the list of events:

**Auto Scroll:** Select to make auto refresh of the list of events. When a new event will happen in the system, it will occur in the top of the list.

**Clear Activity Log:** Click to remove all events from the table. Events will be kept in the log files, they would be unavailable in the table of the **Activity** tab.

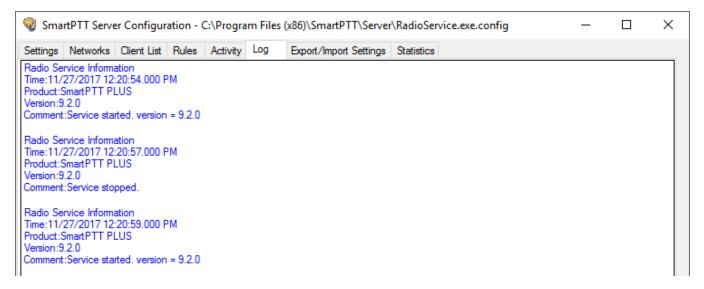
### Example

	Type of	the event	Informat	Information on the event						
Date and time in the regional format		Sourse of the event								
Date/Time	Туре	System	Event							
9/1/16 9:40:00 AM	Location	Control Station 1	12.0.0.1	111 (111) Triggered	Location Report id	<u>= 1, Latitude = 25.77528</u>	Longitude = 80.20889	, Timestamp: 9/	1/16 9:40:00 AM	
				Initiator of the event		ID of the event initiator			Timestamp in the regional format	
			Incomin	ng event	Description of the event		Content of the event			

# 7 Log

The **Log** tab was designed to give information about the radio service system events. Mostly it is used for debugging purposes.

To see the log of the radio service, open the **Log** tab.



## 8 Export/Import Settings

SmartPTT Radioserver allows exporting configuration settings and database from one radioserver and importing them into another. Thus, the process of setting up new radioserver(s) with similar configuration settings becomes much easier and quicker.

### How to Export or Import Settings

To export or import the radioserver settings or/and the database, click **Export/Import Settings**.

🎯 Sma	🛿 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙												
Settings	Networks	Client List	Rules	Activity	Log	Export/Import Settings	Statistics						
Se	rt Export File , ttings Export Radi Export		base					Brow	wse				
	rt ose File to Im ttings	port:						Brow	wse				
	Import Radi	oserver Data	abase										
	verride Settir Keep Se All												
	Import												

### NOTE

Before exporting or importing the radioserver configuration settings and the database, stop the server. Otherwise, the buttons **Browse**, **Export** and **Import** will be unavailable.

### **Exporting Settings and/or Database**

To export the settings and/or the database of the radioserver, take the following steps:

1. Stop the radioserver.

- 2. Select the file where you want the settings to be exported by entering the path to the file in the **Save Export File As** field or by clicking **Browse**.
- 3. Select **Export Radioserver Database** if you want the database to be exported too.
- 4. Click **Export**.

#### NOTE

You cannot export the radioserver database separately (without the settings).

### Importing the Settings and/or the Database

To import the settings and/or the database to the radioserver, take the following steps:

- 1. Stop the radioserver.
- 2. Select the file from where you want the settings to be imported by entering the path to the file in the **Choose File to Import** field or by clicking **Browse**.
- 3. Select **Import Radioserver Database** if you want the database to be imported too.
- 4. Select the import mode:
  - **Keep Server GUID:** Import mode when the server globally unique ID is left unchanged. After importing, there are two servers with same configuration settings, but different globally unique IDs. Use this mode if you need to copy settings to another server which is connected to the same dispatch console.
  - **All:** Import mode when all the server configuration settings, including the GUID, are replaced with the imported values. After importing, there are two servers with absolutely identical settings and GUIDs. Use this mode if you need to restore your current server settings.
- 5. Click Import.

### NOTE

After importing the radioserver settings with the option to override all the existing settings (**All**), it is important to delete one of the two servers to avoid GUID conflict.

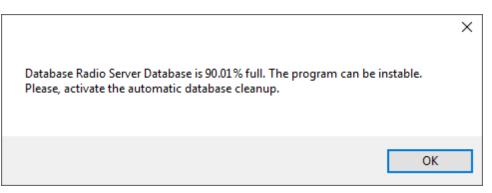
### **9 Statistics**

The **Statistics** tab demonstrates you the following information:

- The total number of events on the radioserver (the Events field)
- The space on the hard drive used by the databases (the Database field)
- The space on the hard drive used by the audio records (the **Audio** field)

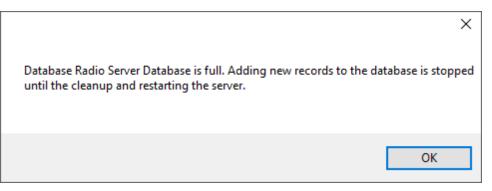
🎯 Sm	🖉 SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config — 🗆 🗙													
Setting	Networks	Client List	Rules	Activity	Log	Export/In	nport Settings	Statistics						
Event	s													
Regi	stration		0											
Calls			0											
Mes	ages		0											
Tele	metry		0											
Alam	ıs		0											
Datab	ase													
	Name		Curre	ent Size	Max	Size								
•	Radio Server	Database.md	2.3 M	b	4.00	Gb								
	Monitoring.md	f	3.3 M	b	4.00	Gb								
Audio												_		
Reco	d Folder Size		N	lo Data										

When the total size of records in your database exceeds 90% of the maximal size, a message will appear:



From this message you can learn the size of the records in your database. This message will appear at the every start of *SmartPTT Radioserver Configurator*. Then, if database is not cleaned up, it will appear every 30 min.

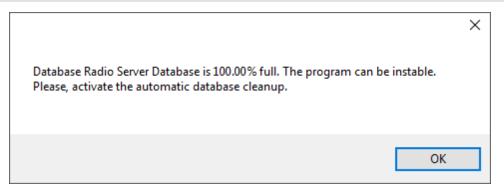
When the total size of records in your database reaches its maximum, another message will appear:



This message will appear at the every start of *SmartPTT Radioserver Configurator*. Then, if database is not cleaned up, it will appear every 30 min.

#### NOTE

In rare cases you may see the message that database is 100.00% full. It actually means that database is 99.995% full.







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