

SmartPTT PLUS

Radioserver Configurator User Guide

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Table of Contents

1 SmartPTT Radioserver Configurator	5
1.1 Radioserver	5
1.1.1 Licenses	7
1.1.2 Services	9
ARS	9
GPS	11
TMS	12
Telemetry	13
Subscriber Blacklist	13
Email Gateway	16
SMS Gateway	23
File Receive	29
1.1.3 Add-on Modules	34
Tallysman	34
Indoor Tracking	36
Event Log	43
Settings	45
Automatic Database Backup	46
Phone Calls	47
Telephone Interconnect	51
Bridging	58
Multigroups	59
Voice Notifications	60
Web Service	62
Monitoring	62
Settings	64
Automatic Database Backup	64
SNMP Service	65
1.1.4 Control Stations	66

How to Configure Control Station Channels	73
How to Configure Control Station Talkgroups	74
How to Configure Control Station Audio Settings	75
1.1.5 Connect Plus	76
How to Configure Connect Plus	77
XRC Controller	78
XRT Gateway	80
Control Stations	82
1.1.6 Radio Activity	84
How to Configure Radio Activity Network	84
How to Configure Radio Activity Slots	86
Analog Control Station	87
1.1.7 NAI Systems	87
How to Configure NAI System	90
How to Configure NAI Slots	95
DDMS Settings	106
MNIS Data Gateway	107
MNIS and DDMS service settings	112
1.1.8 SIP/RTP Interfaces	115
SIP/RTP gateway	117
1.1.9 SmartPTT Radioservers	118
1.1.10 Capacity Max	136
How to Configure Capacity Max	138
Trunking Controller	143
MNIS Data Gateway	145
MNIS VRC Gateway	152
1.1.11 Security Settings	155
1.2 Profiles	160
1.3 Subscriber Groups	164
1.4 Metadata	165

1.4.1 Subscribers	166
1.4.2 Automatic Database Backup	166
1.5 Client List	167
1.6 Rules	169
1.7 Activity	173
1.8 Network Configuration	174
1.9 Log	180
1.10 Export/Import Settings	181
1.11 Statistics	183

1 SmartPTT Radioserver Configurator

1.1 Radioserver

To set up the radioserver, click **Radioserver** in the left list of the SmartPTT Radioserver Configurator window. At that, the settings window will display on the right.

Settings		
⊟ <mark>Radio Server</mark>	Radio Server	
Radio Network Services	Name	
Control Stations	Radioserver	
Connect Plus Radio Activity Networks Radio Activity Networks Radio Activity Networks	Interface Po 192.168.0.224 V	ort 388 👻
	Authentication	
	No	
	VoIP Listen Port	18500
	Block Options	Kill Radio 🔻
	Redundant Server Settings	
	Server Role	Primary
	Primary Server Address (host:port)	remotehost:8888
	Connection Timeout, sec	60
	Limit Radios to Service	
	Enabled	Example: 1-99,150
	Allowed Radio Numbers	
	Process priority	Above normal 🔻
	Language	English
Service: Running	Devel	oper 8.7.0.17301

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 PC where the radioserver is installed. Default port is 8888.

Note: If the specified port is occupied, you will see a warning icon **O** 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.

No – anonymous authentication.

Windows – Windows authentication. 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 Options – allows selecting the way how to block a radio. When *Kill Radio* is applied, radioserver sends *Kill Radio* command to block the radio. The *Deny Channel* option denies the subscriber radio to work on the given channel.

Note: The *Deny Channel* option is applicable only to IP Site Connect (direct IP connection) or NAI based configurations.

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

Language – allows selecting languages of the user interface of the SmartPTT Radioserver Configurator application.

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! It may cause malfunctioning of the whole system. We recommend to use the *Normal* priority.

You can save changes made by clicking **Save** . If you want to cancel changes made, click **Restore** . All the changes made after the last save will be restored. To exit SmartPTT Radioserver Configurator, click **Close**





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

How to Set up the Redundant Server

The redundant server can be useful in case of the primary server breakdown. Switching between the servers is made automatically.

To set up the redundant server correctly follow the steps enumerated below:

1. Take two radioservers and define their roles: **Redundant** or **Primary**. In the settings of the redundant server enter the IP address of the primary radioserver. A primary server can be backed up only with one redundant server.

2. Fill in the fields Primary Server Address (host:port) and Connection Timeout.

Connection Timeout, sec – time interval that starts ticking as soon as the primary server is down. If the primary server has not recovered within the specified time interval, the redundant server takes over. The least possible value is 20 seconds.

Note: The Primary Server Address (host:port) and Connection Timeout fields are unavailable if the role of the server is set to Primary.

- 3. Make sure that both radioservers are up and running.
- 4. Add both radioservers into the dispatch console (Settings > Radioservers). Make them both active.
- 5. Check that you can see both radioservers online in the Radio Fleet panel.

How to Limit the Number of Radios

The **Limit Radios to Service** area was designed to manage the number of radios allowed in the network. Here the user can specify which radios are to be controlled by the system and which are not.

To make this functionality active select **Enabled**. Then, in the **Allowed Radio Numbers** field, enter ID's of the radios which are to be controlled by the system.

Warning! All the radios whose ID's were not specified will be ignored by SmartPTT system.

1.1.1 Licenses

To use the SmartPTT application you need to install licenses. There are licenses for basic features, which allow you to run the application, and licenses for additional features, like telephone connection support, bridging, SNMP service, etc.

To install server licenses, select **Licenses** section in SmartPTT Radioserver Configurator. At that, the following window opens.

Click Change License – the browse window is displayed. Specify location of the license file and click Open.



The Licenses window appears, which displays information on the license type and functionality. Click Change

License to install the license.

The license is installed, and the window displays information on the license type.

wailable Licenses			
SmartPTT Plus Demo (expires on 9/15	/2014)	
Update Subscription Expiration Date:	7/1	8/2015	
License Key ID:	FF	B125FF	
License	Amount	Date	-
Telephone Interconnect Service	1	9/15/2014	
Radioserver Recording	1	9/15/2014	=
Additional Dispatchers	2	9/15/2014	
Radio Network Bridging Service	1	9/15/2014	
NAI Voice for IP Site Connect	2	9/15/2014	
NAI Voice for Capacity Plus	2	9/15/2014	
NAI Voice for Linked Capacity Plus	2	9/15/2014	
ope plant i	-	0.45.004.4	-

License – title of the license.

Quantity – allowed number of computers where the service can be installed or the number of repeater

connections.

Date – license expiration date.

Licenses can be tied to the hardware ID. You can generate it in the Activation area by clicking Collect.

Activation Hardware ID		
Collect	Сору]

When the subscription expiration date is getting close, the system notifies the user about it.

1.1.2 Services

ARS

ARS or registration service provides information on the availability of radio subscribers 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. At that, a new window appears on the right.

Radio Server	ARS	
⊡	Active	
——————————————————————————————————	Radio Inactivity Timeout, s	600
i Telemetry Subscriber Blacklist 	Global Minimum Request Interval, ms	1000
🖶 🗃 SMS Gateway	Use Radio Check	

To enable the service select the Active check box.

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.

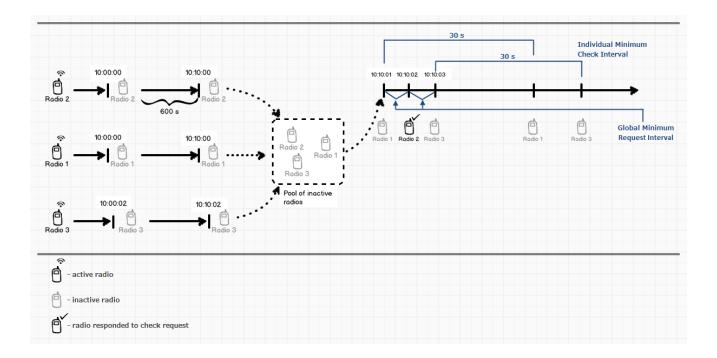
Generally, a radio can be sent 5 presence check requests successively with a 30-second interval. This parameter is called Individual Minimum Check Interval and equals 30s; it can't be changed in SmartPTT Radioserver Configurator. This parameter sets the interval between presence check requests sent to 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 pic. 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.



Use Radio Check – this setting defines the mechanism used for checking radio subscriber presence in the network. If selected, the system uses the command Radio Check. This option was implemented for radios that do

not support ARS.

GPS

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

To set up location service parameters, click GPS in the list in the left area of the SmartPTT Radioserver

Configurator window. At that, the following window opens.

Radio Server	0.00			
Radio Network Services	GPS			
ARS	Active			
	Minimum location update interval, s		20	
	Minimum Request Interval, s		1	
	Minimum nequest interval, s			
File Receive	Radio Inactivity Timeout, s		60	
Hand Add-on Modules				
Control Stations	Get Subscriber Location for Following Gro	ups:		
Connect Plus		T. 1.		0
Radio Activity Networks	Group Name	Time Interv	al, s	On/Off
🗈 🚽 NAI Networks	Security			
	Drivers	240		
		2.0		
🎎 MultiGroups				
🗄 🕤 Metadata				
	Allow Dispatchers to Amend Location	Update Time	Interval	

If necessary, location service can be unavailable. To do this, clear the Active check box.

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 did not send GPS becomes potentially

absent. In this case the radio receives a location update request.

system includes this radio into a special presence check process.

The list **Get Subscriber Location for Following Groups** allows you to specify location update time interval per subscriber group added in SmartPTT Radioserver Configurator under **Subscriber Groups**.

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 subscriber 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" is not selected and there are no subscriber groups in the table, the dispatcher won't receive any subscriber location data.

TMS

TMS or text messaging service is used to exchange text messages between radio subscribers and SmartPTT Dispatcher. To set up the messaging service parameters, click **TMS** in the setting tree of the SmartPTT Radioserver Configurator window. At that, a window opens. To enable the messaging service, select the **Active** check box.



Telemetry

The telemetry service is used for transmission and processing of telemetry signals between SmartPTT Dispatcher and radio subscribers. To set up the telemetry service parameters, click **Telemetry** in the list in the left area of the SmartPTT Radioserver Configurator window. At that, the following window is displayed on the right. To enable the telemetry service, select the **Active** check box.

Radio Server	Telemetry Service
⊟	Active
Telemetry	

Subscriber Blacklist

Subscriber blacklist allows managing the number of available radio subscribers and operators in the network. To create a blacklist, first it is necessary to create subscriber groups. We will need these to form a blacklist.

To add a subscriber group, click **Subscriber Groups** in the setting tree of SmartPTT Radioserver Configurator. At

that, the Subscriber Groups window opens on the right.

Radio Server	Subscriber Groups	
teren and the services and t	Sample List of Subscribers for Group: 1,5,10-20	
Radio Activity Networks	Add Remove	
AI Networks SmartPTT Radioservers	Group Name	Subscribers
🔊 🔍 Profiles	Group 1	12-22,47-59
	Drivers	122-132
	Opertors	100-107

Group Name – any name of a subscriber group.

Subscribers – the list of radio IDs that are to be included in the created group.

To configure blacklist parameters, click **Subscriber Blacklist** in the setting tree of SmartPTT Radioserver

Configurator. At that, the following window opens.

🖃 🕎 Radio Server	Subscriber Blacklist	
Radio Network Services	Active	
GPS		
TMS	Action for Selected Groups	
	Allow O Deny	
🕢 😥 Email Gateway	Apply to Subscriber Groups	
SMS Gateway		
	Group Name	Active
Control Stations	Group 1	
	Drivers	
Radio Activity Networks	Opertors	
NAINetworks		
. Profiles		
Subscriber Groups		
🗄 👘 Metadata		
	Blocking Retry Interval, sec	60 🌲
	Blocking Retries	10 🜩
I	1	

Enable subscriber blacklist service by ticking off the **Active** check box.

Note: Subscriber Blacklist allows not only blocking certain radios, but also creating the so-called "whitelist" of radios that are allowed in the radio network. In the latter case all other radios, that is not included in the whitelist, will be blocked.

To block certain groups of subscribers, choose **Deny** and select groups that are not permitted to communicate in MOTOTRBO network.

To allow certain groups of subscribers to communicate in MOTOTRBO network, that is to create a whitelist,

select **Allow** and mark those groups that will be available in radio network when all other radios are blocked.

Blocking Retry Interval, sec – sets a minimum time period for sending a command to block the radio added in the blacklist.

Blocking Retries – number of retries to send the Block command to the radio before confirmation comes.

To save changes, click **Save** and then restart SmartPTT Radioserver

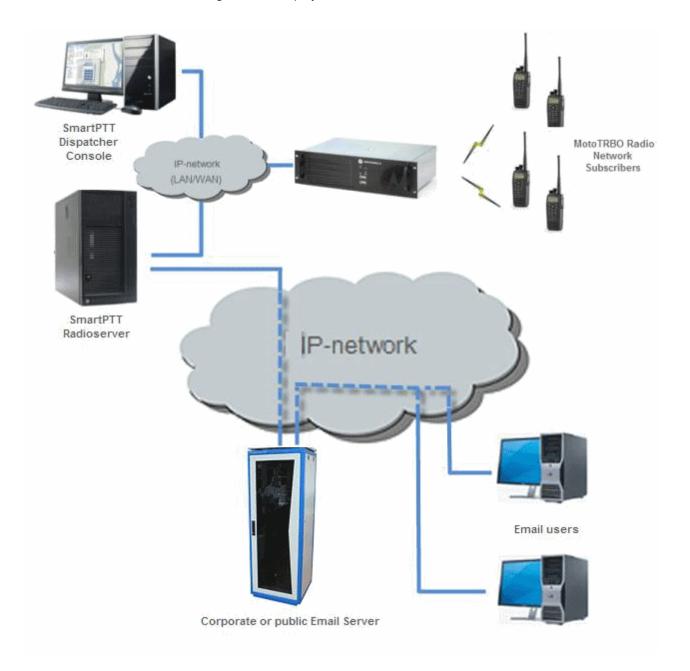
If a radio is in the blacklist and MOTORBO control station is used (MOTOTRBO control station, Capacity Plus system), then the radio will be completely unavailable. When the radio is unavailable, some actions are still available: **Monitoring**, **Radio Check** and **Radio Unblocking**. The dispatcher can remove the block from the radio by sending the "Unblock" command. To enable the radio without dispatcher's help, just read the codeplug of the radio in MOTOTRBO Customer Programming Software (called MOTOTRBO CPS) and then write the settings to the codeplug.

To be able to process the Radio Disable command, the radio must have the **Radio Disable Decode** parameter selected in the codeplug. You can find it in MOTOTRBO CPS, in the **Signaling Systems** section. If **Radio Disable Decode** is not selected, the radio can't be blocked even if it is in the blacklist.

When direct IP connection is used (for example, IP Site Connect) in MOTOTRBO network, radio blocking allows to block the channel only. At that, "Channel Denied" is displayed on the radio screen. The radio can change the channel and resume its operation. To enable the blocked channel, the dispatcher should send the "Unblock" command to the radio. To enable the radio without dispatcher's help, delete the blocked channel and create the channel equal to the deleted one.

Email Gateway

Email gateway provides the ability to exchange digital messages between e-mail users and MOTOTRBO radio network subscribers. The following scheme displays how it is done.



To be able to exchange email messages between radio subscribers and email users you need:

- 1. Create and configure email account.
- 2. Configure the radioserver.

Create and Configure Email Account

First of all, create your email account, if you do not have one. This section describes how to do it as well as how to configure it properly.

- 1. Create your email account. You can use your corporate email server or any other server. In this example we are using *gmail.com*.
- 2. In the settings of the newly created email account specify all the necessary parameters.
- 3. In the settings of the email account in the Forwarding and POP/IMAP tab select the following items:
 - 1) Enable POP for all email (even mail that has already been downloaded).
 - 2) Enable IMAP.
 - 3) Save changes.

General Labels Inbox Accounts and	Import Filters Forwarding and POP/IMAP Chat Web Clips Labs Offline Themes
POP Download: Learn more	 1. Status: POP is enabled for all mail that has arrived since 8/31/09 Contended Contended Contend Contended Contended Contended Contended Contended Contended
	2. When messages are accessed with POP keep Gmail's copy in the Inbox
	3. Configure your email client (e.g. Outlook, Eudora, Netscape Mail) Configuration instructions
IMAP Access: (access 6mail from other clients using IMAP) Learn more	Status: IMAP is disabled Senable IMAP Disable IMAP
	When I mark a message in IMAP as deleted: ⊙ Auto-Expunge on - Immediately update the server. (default) ○ Auto-Expunge off - Wait for the client to update the server.
	When a message is marked as deleted and expunged from the last visible IMAP folder: Archive the message (default) Move the message to the Trash Immediately delete the message forever
	Folder Size Limits ⊙ Do not limit the number of messages in an IMAP folder (default) ○ Limit IMAP folders to contain no more than this many messages 1,000 ▼
3	Configure your email client (e.g. Outlook, Thunderbird, iPhone) Configuration instructions

4. If you have an email client (for example, Microsoft Outlook), for the outgoing messages you need the

following settings:

- 1) Use plain text as message format.
- 2) Use Unicode (UTF-8) for outgoing images (with Base64 encoder).

Configure SmartPTT Radioserver Settings

The radioserver configuration includes the following steps:

- 1. Configure email gateway (activate email gateway, choose the direction of text message sending).
- 2. Setup POP3/IMAP4 protocols for sending text messages.

Email Gateway Configuration

Select Email Gateway in SmartPTT Radioserver Configurator.

🖃 🕎 Radio Server	E-mail Gateway		
ia-∰ Radio Network Services 	Active		
TMS Telemetry Subscriber Blacklist Email Gateway SMS Gateway File Receive Add-on Modules Control Stations	Forward Messages to E-mail Sender Name 224 Recipients your_email@gmail.com		
Control Stations Connect Plus Radio Activity Networks NAI Networks SmartPTT Radioservers Profiles Subscriber Groups MultiGroups Refi	Add Remove Image: Enable Direct Messages Delivery from Radio Network Image: Enable Direct Messages Delivery to Radio Network Receive protocol POP3 Image: Split Long Messages Image: Sender ID Image: Ignore After Line		

Select the Active check box to enable the email gateway service.

Forward Messages to E-mail – select to enable message forwarding from radio subscribers to the email addresses specified in the **Recipients** list.

Note: When a radio subscriber sends a text message to another radio subscriber, all email users whose emails are given in the **Recipients** list will receive 1 or 2 text messages. The first one with the confirmation that the message was sent and the second – with the confirmation on delivery.

Sender Name – specify domain name, in the name of which all email messages will be sent (for example, *smartptt.com*).

Recipients – list of email addresses to receive forwarded text messages.

Enable Direct Message Delivery from Radio Network – forwarding mail messages directly from radio subscribers.

Enable Direct Message Delivery to Radio Network – forwarding mail messages directly to radio subscribers. **Receive protocol** – select protocol for email message receiving (POP3 or IMAP4).

Split Long Messages – if not selected, a long E-mail message, i.e. a message that contains more characters than allowed in one message in the radio network, addressed to a radio is trimmed to not exceed the limit (some information will be lost). If selected, the original message is split into several packages during transmission. Thus, the radio subscriber receives the message without information loss.

Sender ID – when selected, the received message contains the sender e-mail address.

Ignore After Line — ignore everything after a certain string in the received e-mail message.

Example:

The original e-mail message: Due to technical works on the PBX, the PI will have no telephony for the whole day. To turn off these notifications, open **Personal Settings**, click **Manage Alerts**. Clear check boxes next to unwanted notifications.

If you enter *To turn off* in the **Ignore After Line** field, the radio subscribers will receive the message: *Due to technical works on the PBX, the PI will have no telephony for the whole day.*

POP3 Protocol Configuration

In the Receive Protocol field, select POP3 and click Settings in the left setting tree.

E-Madio Server	E-mail Gateway Settings		
Radio Server Radio Network Services Radio Network Services Radio Network Services Radio Server GPS TMS Telemetry Subscriber Blacklist Email Gateway Redio Server SMS Gateway	E-mail Gateway Set Outgoing Message Se SMTP server Port Authentication	erver (SMTP) smtp.gmail.com 587 Use SSL Login/Password	
	Login Password	your_email@gmail.com	
Connect Plus Radio Activity Networks NAI Networks SmartPTT Radioservers	Send Test Message		
	POP3 Server Port	pop.gmail.com	
⊞	Authentication	Login/Password 🔹	
	Login	your_email@gmail.com	
	Password	••••••	
	Polling Delay	30 sec Check Connection	

SMTP server – domain name of the SMTP server which is used for delivering outgoing email messages (for example, *smtp.gmail.com*).

Port – SMTP server port number.

Use SSL – check this option if you need secure connection to SMTP server.

Authentication - select authentication method for SMTP server (Anonymous - connect anonymously,

Windows - connect to the server under Windows user account, Login/Password - connect with Login/

Password specified).

Login – email address or login required by the mail server.

Password – user's password.

Send test message – click the button to check server connection. In case of successful connection and correct settings, the mail user specified above will receive a test email message.

POP3 server – specify domain name of POP3 server which is used to deliver incoming e-mail messages.

Port – enter POP3 server port number.

Use SSL – check this option if you need a secure connection to POP3 server.

Authentication – select authentication method for POP3 server.

Login – enter email address or login required by mail server.

Password – user's password.

Polling Delay – polling interval for the mail server.

Check connection – click to check connection with the server. In case of successful connection, the pop-up

window message shows the number of unread email messages in your email box. In case of connection failure, a

window with connection error message opens.

IMAP4 Protocol Configuration

Select "IMAP4" in the drop-down list of Receive protocol and click Settings.

Image: ARS Outgoing Message Server (SMTP) Image: GPS SMTP server Image: SMTP SMTP server	erver E-mail Gateway Settings
Subscriber Blacklist Email Gateway SMS Gateway File Receive Add-on Modules Control Stations Connect Plus Radio Activity Networks NAI Networks SmatPTT Radioservers Profiles Subscriber Groups MultiGroups Metadata	tio Network Services ARS GPS TMS Telemetry Subscriber Blacklist Email Gateway Subscriber Blacklist Email Gateway Site Gateway File Receive Ion Modules trol Stations nect Plus tio Activity Networks Networks artPTT Radioservers iles scriber Groups tiGroups adata Market Authentication Login Password Incoming Message Server (IMAP4) IMAP4 Server Port 933 Port 933 Port 933 Port 102 Enable SSL Authentication Login Password Port 933 Port 933 Port 933 Port 102 Enable SSL Authentication Login Password Port 933 Port 933 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Port 933 Port 102 Por

IMAP4 server – specify the domain name of IMAP4 server which is used for incoming email messages delivery.

Port – enter IMAP4 server port number.

Use SSL – check this option if you need secure connection to IMAP4 server.

Authentication – select authentication method for IMAP4 server.

Login – enter email address or login required by mail server.

Password – user's password.

Polling Delay – polling interval for the mail server.

Check connection – click the button to check connection with the server. In case of successful connection, the pop-up window shows the number of unread mail messages in your email. If connection is failed, connection error window opens.

Supported Message Formats

When sending an email message to radio subscribers, use the following format of the message.



: - prefix indicating that this message is addressed to a radio subscriber or talkgroup.

<ID|IP> – ID or IP address of the radio subscriber or subscriber group.

Space indicates the beginning of the message body.

Use the Split Long Messages option to guarantee that a message won't be cut.

Example:

- 1. The email message :12.0.0.77 Hello! or :77 Hello! received from the mail server will be forwarded to the radio subscriber with ID 77.
- The email message :225.0.0.1 Please, call to the station received from the mail server will be forwarded to the subscriber group with ID 1.

The email message :12.0.0.80,12.0.0.81,12.0.0.82,12.0.0.50 Hello! or :9080,9081,9800,9050 Hello! received from the mail server will be forwarded to the radio subscribers with corresponding IDs.

When sending a text message from a radio subscriber to an email user, use the following format.



: - prefix indicating that this message is addressed to an email user.

<email_address> - email address of the email user.

Space indicates the beginning of the message body.

Example:

- 1. The message :email_address@example.com Hello! from a radio subscriber will be forwarded to the email user with the email address email address@example.com.
- 2. The message :email_address1@example.com,email_address2@example.com Hello! from a radio subscriber will be forwarded to the email users email_address1@example.com and email_address2@example.com.

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

SMS Gateway

SmartPTT Radioserver has an integrated SMS Gateway service, which allows establishing communication between radios and mobile phones There are 2 possible ways to communicate between each other:

- 1. A radio subscriber sends an SMS to a phone subscriber.
- 2. A phone subscriber sends an SMS to a radio subscriber.

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

Select the **SMS Gateway** item in SmartPTT Radioserver Configurator.

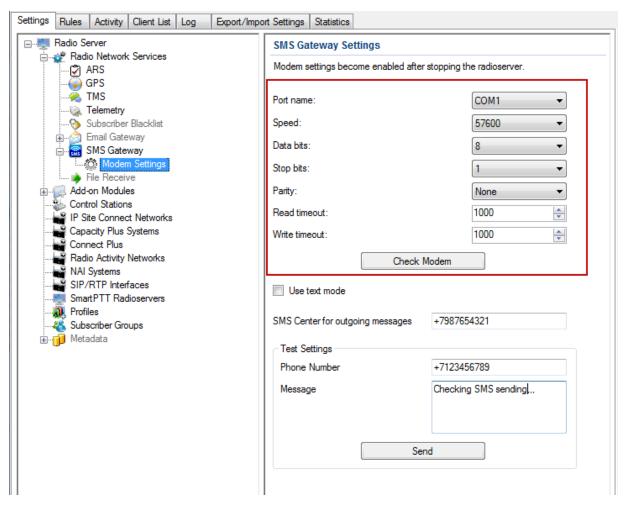
Settings Rules Activity Client List Log Export/Imp	port Settings Statistics
Radio Server Radio Network Services ARS GPS TMS Telemetry Subscriber Blacklist Email Gateway Modem Settings File Receive Add-on Modules Control Stations IP Site Connect Networks Capacity Plus Systems	SMS Gateway Image: Constraint of the second state of the seco

Active - select to enable SMS Gateway service.

Allow SMS delivery from radios – select this option if you need to forward SMS directly from subscriber radios. Allow SMS delivery to radios – select this option if you need to forward SMS directly to subscriber 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 radio subscriber will see the phone number of the sender with the received SMS.

Configuring a modem and outgoing messages

Warning! To enable modem settings, stop SmartPTT Radioserver.



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/sec).

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.

If Parity is None, parity checking is not performed and the parity bit is not transmitted.

If **Parity** is **Odd**, the 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.

If **Parity** is **Even**, the 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. The next step is to check settings for outgoing messages and to send a test message.

Settings Rules Activity Client List Log Export/Impo	ort Settings Statistics	
Radio Server	SMS Gateway Settings	
adio Network Services 	Modem settings become enabled after	r stopping the radioserver.
🥉 TMS 	Port name:	COM1 -
	Speed:	57600 -
SMS Gateway	Data bits:	8
File Receive ⊕	Stop bits: Parity:	None
Control Stations	Read timeout:	1000
IP Site Connect Networks	Write timeout:	1000
	Check	
	Use text mode	
	SMS Center for outgoing messages	+7987654321
	Test Settings	
	Phone Number	+7123456789
	Message	Checking SMS sending,
	Se	nd

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.

Running tests on SMS sending

Make sure SMS 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 is and restart the

radioserver . After the radioserver is restarted, **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.





: - prefix indicating that this message is addressed to a radio subscriber or talkgroup.

<Radio/Talkgroup IP> – radio or talkgroup IP address of the recipient

<Radio ID> – radio ID of the recipient

Space indicates the beginning of the message body.

Use the Split Long Messages option to guarantee that a message won't be cut.

Example:

When the radioserver gets the following message, it sends the message to subscriber 77 (or to talkgroup ID=2): To subscriber 77: :12.0.0.77 SMS text :77 SMS text To talkgroup 2: :225.0.0.2 SMS text To multiple subscribers simultaneously: :12.0.0.80,12.0.0.81,12.0.0.82,12.0.0.50 SMS text :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 subscriber 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.

: - prefix indicating that this message is addressed to a mobile phone.

&phone number – mobile phone number of the SMS recipient (symbol "&" is used instead of "+" because there is no "+" symbol on the MOTOTRBO radios).

Space indicates the beginning of the message body.

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

File Receive

File Receive service is an easy and useful tool, which allows sending files for almost all MOTOTRBO radios. This function is even more necessary in field communication characterized by the absence of the Internet connection and other channels to transmit data.

In version 2.0 SmartPTT File Transfer allows receiving files without the server application or base stations. The user needs to have only a radio connected to the PC via USB port and the client application SmartPTT File Transfer version 2.0.

Note: Not all networks support the new scheme of file transfer. It is possible for IP Site Connect only. For other network types use the old file transfer method, that is using control stations and server application SmartPTT File Transfer version 1.0 or 2.0.

To enable this functionality the following steps should be taken:

- 1. Configure SmartPTT Radioserver settings.
- 2. Configure the radio with the help of MOTOTRBO CPS.
- 3. Configure routing settings for file transfer on a remote computer.
- 4. Configure the client application SmartPTT File Transfer 2.0.

How to Configure SmartPTT Radioserver

To configure the settings, select the **File Receive** menu item in the left setting tree of SmartPTT Radioserver Configurator. At that, the **File Receive Service** window opens on the right.

Radio Server	File Receive Service		
∃∰ Radio Network Services	Active		
	Port	5001	
	Received File Folder	C:\ProgramData\SmartPTT\File Transfer\	
⊞			
File Receive			

Active – enables the service.

Port – port used by file receive service.

Received File Folder – field to specify the folder name where received files are to be stored.

To apply the changes, save the new settings and restart the radioserver.

How to Configure Radio Settings in MOTOTRBO CPS

For the best file transfer rate a radio should be configured in the following way:

- 1. Open MOTOTRBO CPS and go to **General Settings** and configure the **TX Preamble Duration** parameter to be *60* ms.
- 2. Go to Network and configure the Max TX PDU Size parameter to be 500 byte.
- 3. Clear **Data Call Confirmed** for the channel where the files are to be transmitted.

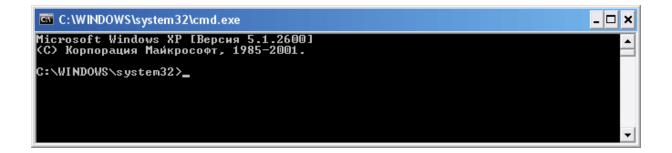
How to Configure Routing Settings for File Transmission

To configure file transmission correctly, add information on the new route for file transmission in the routing table

of the PC to which a radio is connected.

The routing table is configured via Windows command line. To open the command line, run file C:\\WINDOWS

\system32\cmd.exe.



To add the file transmission route, use Windows command line:

route -p add 13.0.0.0 mask 255.0.0.0 192.168.X.X, where:

route is a command to add a route;

-p – the 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;

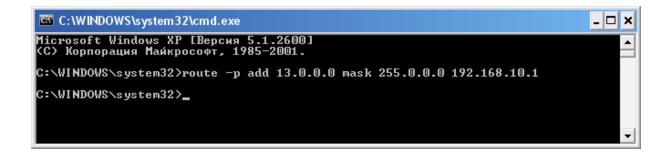
mask 255.0.0.0 - network mask;

192.168.X.X - radio IP address.

Example:

To transmit data packets from the radio with IP address **192.168.10.1** (radio IP address can be found in the MOTOTRBO CPS application, **Network** menu item), the following command needs to be entered:

route -p add 13.0.0.0 mask 255.0.0.0 192.168.10.1



How to Configure SmartPTT File Transfer Settings

Download and install the latest version of the application SmartPTT File Transfer (http://www.smartptt.com/

demo_versija.html).

Launch the client application (Start > All Programs > SmartPTT File Transfer > SmartPTT File Transfer Client).

🔳 SmartPTT - File	Transfer 2.0 (client)		
File Service Help			
! 💕 🎯 🕨 💷 🤇)		
Network statistics Packets transmitted: Last command name: Last command state: Retry File transfer statistics- File name: File size: Transfer progress:	unknown	Packets received Packets lost: Current state: Last state:	0 0 waiting waiting
Connection managem	ent		
Server ID:	: 5001	Connect Disco	onnect
Ready	No messages		

In the **Server ID** field, enter the slot ID of the IP Site Connect, which will be used for file transmission. The slot ID is set in Smart PTT Radioserver Configurator, in the **Slot** window.

E	NAI Control Station	
ia∰ Radio Network Services	📝 Active	
Control Stations	Name	Slot 1
Radio Activity Networks	ID	1
📄 🕁 IP Site Connect	CAI Network	12
Slot 1 Talkgroups	CAI Network for Groups	225

To connect to the radioserver, click **Connect**.

📕 SmartPTT - File	Transfer 2.0 (client)		
File Service Help			
i 💕 🎱 🕨 💷 🤇	2		
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:	Текстовый документ.txt 3 byte(s), 1 packet(s) Г		
Connection managem Server ID:	ent : 500	1 Connect Discor	nnect
Ready	No messages	13.0.0.1	

Select file to transmit (File > Select File) and click the Start File Transfer button . At that, the radio will

start transmitting the file to the radioserver, and at the bottom of the window a record will appear informing about the ongoing file transmission process.

📕 SmartPTT - File 🛛	Transfer 2.0 (client)		
File Service Help			
i 📸 🎯 🕨 💷 🤇	9		
Network statistics Packets transmitted: Last command name: Last command state: Retry File transfer statistics File name: File name: File size: Transfer progress:	3 GET_LOST_LIST_SID + ECHO success 0 Текстовый документ.txt 3 byte(s), 1 packet(s)	Packets received Packets lost: Current state: Last state:	1 O Transfer file Response OK
Connection managem Server ID:	ent : 5001	Connect Disc	connect
Transfer file	File transfer	13.0.0.1	

As soon as the file is successfully transmitted, the corresponding notification appears at the bottom of the window.

🔳 SmartPTT - File	Transfer 2.0 (client)		
File Service Help	L		
i 💕 🎱 🕨 💷 🤇	9		
Network statistics			
Packets transmitted:	4 SAVE_TO_FILE_SID + ECHO	Packets received Packets lost:	5 0
Last command state:	SAVE_TO_FILE_SID + ECHO SUCCESS	Current state:	0 Response OK
Retry	0	Last state:	Save to file
File transfer statistics			
File name:	Текстовый документ.txt		
File size: Transfer progress:	3 byte(s), 1 packet(s)		
Connection managem	ent		
Server ID:	1 :	5001 Connect	Disconnect
Response OK	File transferred	13.0.0.	1

Note: For more information about the settings of SmartPTT File Transfer, please check SmartPTT File Transfer User Guide.

1.1.3 Add-on Modules

Tallysman

SmartPTT provides a more efficient radio monitoring that works in the Lone Worker mode. The option is compatible with MOTOTRBO DM/DP 3000 and 4000 series radios.

SmartPTT ensures the following features for the generic option board with the Tallysman Sprite[™] TW251 firmware:

- Mandown, i.e. activating the alarm signal if the radio position (its tilt) no longer corresponds to the parameters set for the option board in Tallysman Sprite Configurator.
- Heartbeat messages. Messages that provide information about subscriber presence in the radio network. If
 message delivery failed, SmartPTT Dispatcher is notified about the radio unavailability. The radio is also
 informed about radioserver unavailability (e.g., when the channel is busy).

Example of the option board configuration:

When the radio tilt changes, a signal is played on the radio. The signal stops after the radio is returned to its

normal position. If not, an emergency alarm is sent to SmartPTT Radioserver. The emergency alarm LED on the radio can be turned off by a long press on the emergency alarm button (depends on the radio MOTOTRBO CPS settings).

For proper operation of the radios with the built-in option board with the Tallysman Sprite[™] TW251 firmware, do the following radio settings in MOTOTRBO CPS:

- enable option board on the selected channel by selecting the Option Board check box;
- enable the Emergency Alarm Indication option and select digital signaling system from the list in the Emergency System field. To set up a signaling system, go to Signaling Systems > Digital Emergency item.

DP 3601	Rep1_SlotA
	Ιορ ΒΧ ΙΧ
■■ Buttons ▼ Text Messages	ARS On System Change
🔟 Telemetry 🛅 Menu	Privacy
	Privacy Alias Privacy Key1
🕀 📄 Signaling Systems	Option Board 🔽
🕀 💼 RX Group Lists	Lone Worker
Element 2 Zone 1	Allow Talkaround IP Site Connect
⊡ i Zone 2 ⊡ i Zone 3	Messaging Delay (ms) 60 ÷
⊡	Compressed UDP Data Header
⊞ 🚞 Scan ⊞ 🚞 Roam	RX Only
🕂 ···· 🛅 Capacity Plus	RX TX
	Offset (MHz)
	Frequency (MHz) 137.000000 Frequency (MHz) 142.000000
	Copy Ref Frequency (MHz) Default Copy
	Group List List1 Contact Name 15
	Emergency Alarm Indication 🔽

To enable Tallysman, click Tallysman in the setting tree of SmartPTT Radioserver Configurator and select the

Active check box.

Radio Server	Tallysman
ia∰ Radio Network Services ia∭ Add-on Modules	C Active
Licenses Tallysman Indoor Tracking Event Log Telephone Interconnect	Heartbeat Message Port 5000 Response Delay, sec 8

Heartbeat Message Port – UDP port to receive messages about the radio presence in the network. This value must match **Host UDP Port** in the option board configurator (the **Heartbeat** item, the SmartPTT GOB Configurator application). Use the default value of *5000*.

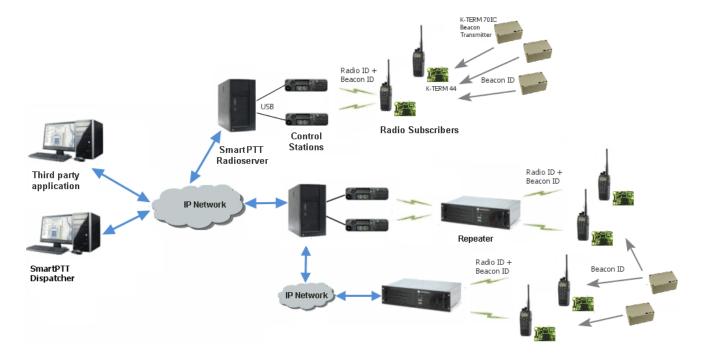
Response Delay, sec – the time period that passes before SmartPTT Radioserver sends heartbeat message confirmation to the radio. Set the value taking into consideration the network load. Otherwise, if the radio does not receive acknowledgment, the radio gets a signal about radioserver unavailability.

Indoor Tracking

Big organizations with huge premises require constant control over their employees' displacement inside buildings. For this purpose Indoor Tracking system was implemented. Indoor Tracking system allows getting data from special beacons and transmitting it to SmartPTT Dispatcher or any other client application using API. Contact our technical support (<u>http://support.smartptt.com/hc/en-us</u>) for SmartPTT Client API documentation. Currently, SmartPTT system supports the following technologies and products:

- iBeacon technology: with the use of MOTOTRBO radios with the firmware version 2.6 and above and the beacons that support iBeacon technology,
- Blufi option boards (RF800) with special beacons (Connect-RTLS RF800), and
- Kilchherr option boards (K-TERM 44) with special beacons (K-TERM 70IC Beacon Transmitter).

Note: Indoor Tracking functionality requires the corresponding license. Connect Plus systems support Indoor Tracking based on the iBeacon technology only.



The following scheme shows how SmartPTT Radioserver gets subscriber location data.

iBeacon-based technology scheme: Each beacon installed is transmitting at an interval ranging from a fraction of a second to some minutes the data packages of the following format: *iBeacon prefix*—the title of the package, *UUID*—the unique identifier of the beacon, *Major*—the 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 (see <u>below</u>) 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 -> Transmit -> Sleep -> Transmit mode. When the beacon awakes from its sleep cycle, it transmits its allocated code for the duration of the transmit phase and then returns to its sleep phase. The portable radios function in a similar fashion except they follow a Sleep -> Listen -> Sleep -> Listen mode. When a portable radio awakes from its sleep cycle, it listens for any transmitted beacon codes for the duration of its listen phase and then determines the current active beacon. If the 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 more information on Blufi beacons and option boards see the manufacturer's documentation on the products.

Note: Connect-RTLS RF800 option boards transmit data in special TMS messages, therefore it is necessary to

have TMS enabled.

Kilchherr sheme: 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 more information on Kilchherr beacons and option boards see 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 has the firmware version 2.6 and above,
- the radio supports Indoor-positioning, and
- the radio is configured properly in MOTOTRBO CPS.

To configure the MOTOTRBO radio for use of the **Indoor Tracking** feature based on the iBeacon technology, do the following:

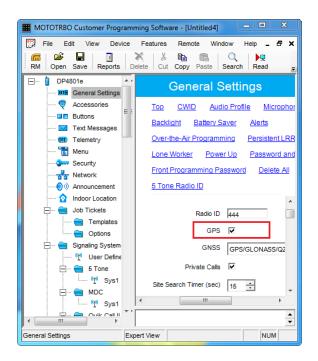
1. Launch MOTOTRBO CPS with the 13.0 version or above and make the following settings:

Note: Below is a description of the Indoor settings only. The complete information on how to program the MOTOTRBO equipment step by step, see here.

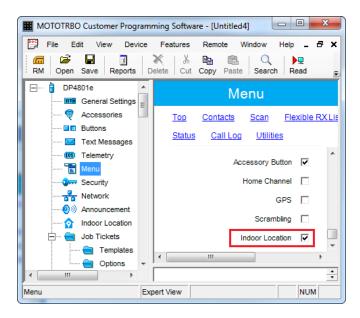
• To ensure that the radio supports Indoor-positioning, click the radio title in the settings tree on the left and check in the **Device Information** tab if the **Indoor Location Tracking** field has the **Purchased** value.

MOTOTRBO Customer Progra		
Image: Construction Image: Construction	₩ X B Q Delete Cut Copy Paste Search	
DP4801e	Device Inform	ation
Accessorie:	Top Device Features Lang	guage Pack Memory L
Text Messa	- Data Services via Bluetooth	Free
101) Telemetry	- Digital Emergency	Free
🛅 Menu	- Radio Inhibit	Free
😳 🛲 Security	- Bluetooth Permanent Discoverable	Available for Purchs
Network	- Multi-Button PTT	Available for Purch
	- Extended Text Messages	Free
🕜 Indoor Loca	- Indoor Location Tracking	Purchased
📄 ···· 🚖 Job Tickets	- Authenticated Radio Disable	Available for Purchs
🔁 Tempk	Connect Plus	Available for Purch
Option	Connect Plus Mandown 5 Tone	Available for Purchs
📄 🛁 Signaling Sy	5 Ione III	Fiee V
🔮 🖓 User [🚽		
DP4801e	Expert View	NUM

• To activate GPS positioning, click **General Settings** in the settings tree on the left and in the **Device** Information tab select **GPS**.



• To turn on the **Indoor Location** menu display on the radio, click **Menu** in the settings tree on the left and in the **Menu** tab select **Indoor Location**.



• To activate Bluetooth on the radio, click **Network** in the settings tree on the left, click the **Bluetooth** tab and select **Enable**.

MOTOTRBO Customer Program	ming Software - [Untitled4]
File Edit View Device	Features Remote Window Help _ 🗗 🗙
RM Open Save Reports	X X = Copy Paste Search Read Write Clone
DP4801e	Network
Accessories	Top Radio Network Services Control Station
Text Messages	IP Site Connect Bluetooth Bluetooth Serial Port Profile D: USB HID Data Routing
Menu Security	Bluetooth
·····································	Enable 🔽
Indoor Location	Country Code Channel 79 Channels
Templates	Reconnect TOT (min) 2
⊟ 📻 Signaling System	
Network	Expert View NUM

• To activate and configure the **Indoor Location** mode, click **Indoor Location** in the settings tree on the left, select **Indoor Location** in the tab that opened and add the beacons by specifying the names and identifiers (UUID) of the beacons in the corresponding fields.

MOTOTRBO Customer Programm	ing Software - [Untitled4]
File Edit View Device	Features Remote Window Help _ 🗗 🗙
RM Open Save Reports De	K B B Cut Copy Paste Search Read Write Clone Bluetooth 192.168.11.1 ▼
DP4801e	Indoor Location
Accessories	Top Beacon Alias
Text Messages	Indoor Location
······ 💷 Telemetry	Scan Interval on Time (ms) 1000
Security	Scan Interval off Time (ms) 200 +
Announcement	Show Beacon Alias
🖃 🔁 Job Tickets	Beacon Alias
🤤 Templates	Add Delete
🖃 – 💼 Signaling Systems	
User Definer	Beacon Alias Beacon UUID
🚍 🗠 🚰 5 Tone	Anchor1 FDA50693A4E24FB1AFCFC6EB07647842
⊢ — — MDC	Anchor2 0D021402C7A844E2AA50FDB059CB58B6
MDC	Anchor3 FDA50693A4E24FB1AFCFC6EB07647825
□····································	Anchor4 0D021402C7A844E2AA50FDB059CB58B7
Guik-Call II	< III
Dioital Emerc	▲ ▼
Indoor Location	Expert View NUM

- 2. Set up Bluetooth in the radio to activate Indoor-positioning. For that, with use of radio menu buttons, perform the following commands:
 - Main Menu > Bluetooth > My Status > On.
 - Main Menu > Bluetooth > Indoor Location > Enabled.

To enable **Indoor Tracking** in SmartPTT Radioserver Configurator, select **Indoor Tracking** in **Add-on Modules** and select **Active**.

⊡	Indoor Tracking	
	The Arthur	
🗄 🚀 Radio Network Services	Active	
⊨ Add-on Modules		
Tallysman	Indoor source	Motorola 🔹
Indoor Tracking		
🗄 👘 Event Log	Data Port	3100
🗄 👘 Phone Calls	Minimum RSSI	
🗄 👗 Bridging	level	-130
🔹 Voice Notifications	_	
Web Service	Set list of allowed be	eacons
🗄 📲 Monitoring		
Control Stations		
🗄 📲 IP Site Connect Networks		
🗄 📲 Capacity Plus Systems		
🗄 📲 Connect Plus		
Radio Activity Networks	Example: 1.5, 1.6, 2.9-2.	.15

Indoor source: The Indoor-positioning technology. Specify *Motorola*, if you use iBeacon technology, specify *BluFi* or *Kilchherr*, if you use the BluFi or Kilchherr products respectively.

Data Port: UDP port for listening to Beacon ID (applicable to Kilchherr beacons only).

Minimum RSSI level: The minimum strength of the signal, that radio receives from the beacon. SmartPTT Radioserver will not process the signals with the strength that is lower than the specified level (applicable to iBeacon technology only).

Set list of allowed beacons: You can specify the numbers of the beacons which data must be processed by SmartPTT Radioserver. If the option is not selected, the radioserver processes data from all the beacons. If you use *Motorola* source, specify the numbers of the beacons in the *Major*. *Minor* format, where the *Major* value is separated from the *Minor* value by a dot. *Major* stands for the group number of the beacons, *Minor* stands for the individual number of the beacon in the group. For the *BluFi* or *Kilchherr* source, specify the **Beacon ID**s.

Event Log

The **Event Log** is a special SmartPTT Radioserver log. It 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. First activate the event log by checking off **Enable Event Logging**. To do it, select **Event Log** item in the setting tree in SmartPTT Radioserver Configurator.

Then create the database for the log.

🖃 📲 Radio Server	Event Log	
ia	Active	
¶ Licenses ⊡¶ Event Log	Creating Database	
Automatic Database Backup	Server Name:	localhost\SQLExpress
Telephone Interconnect Bridging Voice Notifications	Database Maine.	Create New Database
Control Stations	Authorization Mode:	Windows NT Authorization
NAI Networks	Login:	
Profiles Subscriber Groups MultiGroups	Password:	Check Connection
i Metadata	Restoring Database Ba	ackup
		Restore Database

Warning! To enable Event Log on the radioserver, the corresponding license should be available. Go to the Licenses section to acquire the necessary license.

To create a new database, type in the **Server Name** and the **Database Name** fields, 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: Database creation process at SmartPTT Radioserver is similar to the database creation process at SmartPTT Dispatcher.

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).

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.

Click Check Connection. In case of successful authorization the message "The connection is established

successfully!" is displayed. 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 Automatic Database Backup window.

Settings

To tune the radioserver event log select **Settings** under **Event Log** in the setting tree of SmartPTT Radioserver Configurator.

	Event Log Settings
R Licenses	Event Log Truncate Settings
ia Radio Network Services	
	On 't Truncate Event Log
Indoor Tracking	Records retention period (days)
Event Log	100
Automatic Database Backup	Voice Logging
ia - ji∏ Phone Calls ia	Record Incoming Calls
🗄 🐨 🐳 Voice Notifications	Record Outgoing Calls
Web Service	✓ Fixed Sample Rate (8 kHz)
Monitoring SNMP Service	Recording Level of Outgoing
Control Stations	Voice Logging Folder
IP Site Connect Networks	
	C:\ProgramData\SmartPTT\RecordedCalls\Server
Radio Activity Networks	Voice Log Truncate Settings
NAI Systems	Don't Truncate Voice Log
SIP/RTP Interfaces	
	 Records retention period (days)
Сети Perseus	100
Profiles	

Event Log Truncate Settings – settings to manage records deletion in the log.

Record Incoming Calls – if this option is on, incoming calls are recorded.

Record Outgoing Calls – if this option is on, outgoing calls are recorded.

Recording Quality (kbps) – audio files sound quality.

Recording Level of Outgoing Calls – increase or decrease sound volume for recording outgoing calls.

Voice Logging Folder – set path to the folder where recorded audio files are stored.

Voice Log Truncate Settings – settings to control audio records truncate parameters.

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 user to back up the event log database automatically. In order to set up automatic backup schedule of the event log database, select **Automatic Database Backup** under **Event Log** in the setting tree of SmartPTT Radioserver Configurator.

E Badio Server	Automatic Database Backup
ia.⊶ 🛫 Radio Network Services ia.∽ 🚛 Add-on Modules	Active
Licenses Event Log Settings Automatic Database Backup	Backup Folder Image: C:\Backup Files Backup Settings
Bridging Voice Notifications Control Stations Connect Plus Radio Activity Networks	Daily Su Mo Tu We Th Fr Sa Veekly Repeat every 1 week Monthly
Smart PTT Radioservers Profiles Subscriber Groups MultiGroups HuttiGroups	Time: 9:00
	Start Date: 01.01.2014 □▼ End Date: 18.01.2014 □▼ Image: I

Active – select the check box to enable the ability to create current event log 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 event log database recovery from the automatically created backup is performed manually in the <u>Event</u> Log window.

Phone Calls

Now it is possible to make a conference call between radio subscribers, dispatchers and telephone subscribers without enabling Telephone interconnect.

For this, do the following:

1. Define **Deaccess code**. Make sure that it matches the deaccess code specified in subscriber's radio settings.

Radio Server	Telephone Calls		
R Licenses			
	Access code *1		
Indoor Tracking	Deaccess code #		
ia⊶iiii Event Log ia⊣iiiii Phone Calls	Radio ring timeout (s)	20	
Telephone Interconnect	Phone ring timeout (s)	20	
Outgoing Calls	Phone call idle session timeout (s)	30	
in	Conference call idle session timeout (s)	900	
Web Service	Calls to be confirmed by radio subscriber		
SNMP Service	Private calls		
Control Stations			
IP Site Connect Networks Capacity Plus Systems	All Call		
Connect Plus Radio Activity Networks	Radio subscribers' notifications		
NAI Systems SIP/RTP Interfaces	Incoming phone call tone		
	Pick up tone		
Profiles	Hang up tone		
& Subscriber Groups ⊕ j] Metadata	Eπor messages		
	Sound Volume Settings		
	Phone subscriber	1 •	
	Radio subscriber	1 •	

2. Enable Telephone Interconnect in the slot settings.

Settings Rules Activity Client List Network Configuration	n Log Export/Impo	ort Settings Statistics
Radio Server	Slot	
ia.⊶it Radio Network Services	Active	
Licenses Tallysman	Name	Slot 1
Indoor Tracking	Radio ID	1
ia™ Event Log iaIm Phone Calls	CAI Network	12
Telephone Interconnect Bridging	CAI Network for Groups	225
Web Application	Emergency Alarm (Confirmed
Monitoring SNMP Service	Compressed UDP	Data Header
Control Stations	TX Time-Out Timer, s	60
in IP Site Connect 1 in "" Slot 1	📝 Private Call Confim	ned
	🔲 Data Call Confirme	d
Slot 2	🔲 Allow Transmit Inte	mupt
Security Settings	Allow Telephone Ir	nterconnect
	Transmit Data Only	/
NAI Networks		

3. In SmartPTT Dispatcher, go to **Settings** > **Telephone Interconnect** and set up the following parameters:

nfiguration					:
Telephone Settings Settings and Subs	criber List for Telepho	one Interconnect			Ö
General Settings — Dispatcher Setti	Codec Settings	SIP Trunk Authentication	SIP Accounts		
Allow Calls to Te	elephone Subscriber	5			
Transport SIP Port Phone Number	5060			Interface RTP Ports ed Subscriber Name	192.168.37.170 18700 - 18748 Dispatcher
VoIP Gateway D			0.59.69		
Dial Prefix for O		2			
Default VoIP Ga		2.200.114.46 SIP Port	5060		
	lert for Incoming Ca lert for Outgoing Ca				
Help				Cance	el Finish

• Select Allow Calls to Telephone Subscribers;

- Define your radioserver IP address and RTP ports;
- Under the VoIP Gateway settings enter Dial Prefix for Outgoing Calls. This must match the same prefix set in the VoIP gateway.
- Specify the IP address of the VoIP gateway.
- To save the changes, click **Finish**.

Additional features, which are applied to telephone calls over SIP protocol:

Calls to be confirmed by radio subscriber – if enabled, when making a private call, group calls, All Call the telephone subscriber can hear the ring tone until the radio subscriber has pressed the PTT button. If these check boxes are not selected, the call will start immediately.

Radio ring timeout – sets the time interval during which the radioserver waits for the radio subscriber to press the PTT button.

Phone ring timeout – sets the time interval during which the radioserver waits for the telephone subscriber to pick up the phone.

Phone call idle session timeout — sets the time interval starting from the last time the radio subscriber presses the PTT button after which the telephone call will be automatically finished. This timeout must not exceed **TX Time-Out Timer** set in network settings in SmartPTT Radioserver Configurator and in repeater settings.

Conference call idle session timeout – sets the time interval starting from the last time the conference call participant presses PTT button after which the conference call will be automatically finished.

Radio subscribers' notifications – sets notifications of radio subscribers of various events with a special tone: telephone calls, beginning and end of calls. The radio subscriber can also receive messages about errors.
Sound Volume Settings – allows setting up sound volumes on a telephone and a radio during incoming or outgoing radio calls.

Telephone Interconnect

Telephone Interconnect service allows for communication between radio and telephone subscribers, and uses SIP and RTP protocols for signaling and voice data transmission. Voice data transmission is done in half-duplex mode. Switching between receiving and transmitting modes is carried out by voice interrupt initiated by a radio subscriber. There are several ways how to make the interconnection:

- A telephone subscriber makes a private call.
- A telephone subscriber makes a group call.
- A radio subscriber makes a call to a telephone subscriber.
- The dispatcher connects telephone and radio subscribers.
- The dispatcher connects a telephone subscriber and a talkgroup.

To use Telephone Interconnect service, configure the radioserver and VoIP gateway settings. Also, make sure that **Allow Telephone Interconnect** is enabled in the network slot parameters.

Configuring SmartPTT Radioserver

To configure SmartPTT Radioserver settings, go to SmartPTT Radioserver Configurator and select Telephone

Interconnect as shown on the picture.

Settings Rules Activity Client List Log Ex	port/Import Settings Statistics		
	Telephone Interconnect		*
Add-on Modules	Active		
Licenses	- Radioserver Settings		
		168.37.170	
🖶 🔞 Event Log	Intendee 152.	100.37.170	
Phone Calls	SIP port 5060)	
Telephone Interconnect	RTP ports 1865	60 - 18660	
Outgoing Calls			
⊕ A Bridging Woice Notifications	Transport UDP	• •	
Web Service	Codec Settings		
Monitoring	Active Name	Priority	=
Control Stations	G711A	1	
IP Site Connect Networks	☑ G711U	2	
Connect Plus	SPEEX	3	
Radio Activity Networks	G729	4	
SmartPTT Radioservers	Permissions for Subscriber Gro	0,105.	
	Active	Jups.	
🗄 👘 Metadata		la ancient	
	Group Name	Incoming Calls Outgoin	g Calls
			~

Warning! To activate Telephone Interconnect, install the corresponding license. The license can be installed under Licenses.

Under **Radioserver Settings** specify the interface that will be used for sending and receiving commands and voice data when working with VoIP gateway.

SIP port – UDP or TCP port number to receive and send SIP data packets. The default value is 5060.

Accordingly, the specified port must be available for incoming and outgoing traffic.

Warning! If both SmartPTT Dispatcher and SmartPTT Radioserver are installed on one computer, their SIP ports must differ. For example, 5060 for the radioserver and 5061 for the dispatch console.

RTP ports – each connection with a phone subscriber occupies two UDP ports (even port numbers are used by RTP protocol, and odd port numbers—by RTCP protocol). The specified port must be available for incoming and outgoing traffic. The default range of values is from *18650* to *18660*.

Warning! The address and the port of the VoIP gateway must be real (NAT is not supported). If both SmartPTT Dispatcher and SmartPTT Radioserver are installed on one computer, the port ranges set in and the RTP ports fields in SmartPTT Radioserver Configurator and SmartPTT Dispatcher must differ.

Transport – allows selecting between TCP and UPD for SIP commands transmit.

In the **Codec Settings** tab you can enable or disable supported audio codecs, as well as change their priorities. Currently, there are 4 audio codecs: G711A, G711Q, SPEEX µ G729. When connecting to PBX the radioserver always uses the codec priorities list set in the PBX settings, while the PBX can ignore the priorities list set in the radioserver. That is why codecs used by the call initiator and the responder can be different.

Permissions for Subscriber Groups – in this section you can allow or forbid particular groups of radio subscribers to make or answer telephone calls. These groups of subscribers can be created under <u>Subscriber</u> <u>Groups</u>. If the Active check box is selected, and the table is empty, communication between radio and phone subscribers will be impossible.

Incoming Calls

In terms of SmartPTT system "incoming calls" are calls that are made from telephone subscribers to radio subscribers.

Radio Server Incoming Calls Add-on Modules Private call mask Add-on Modules Structure Incoming Calls Private call mask Incoming Calls Structure Incoming Calls Structure <t< th=""><th>Settings Rules Activity Client List Log Ex</th><th>port/Import Settings Statistics</th><th></th></t<>	Settings Rules Activity Client List Log Ex	port/Import Settings Statistics	
Add-on Modules Private call mask 31T Add-on Modules Private call mask 31T Tallysman Group call mask 32NSST Event Log		Incoming Calls	
Indoor Tracking Event Log	Add-on Modules	Private call mask	31T
	Indoor Tracking	Group call mask	32NSST
Magail .	Phone Calls		
□ Telephone Interconnect □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Incoming Calls	Incoming Calls Authentication	
Enabled Dutgoing Calls Immin A Bridging	🖽 🖧 Bridging	Enabled	
Web Service Service Realm		Realm	SmartPTT
Monitoring Usemame usemame1		Usemame	usemame 1
Control Stations Password Password		Password	
Voice Menu Settings	Connect Plus	Voice Menu Settings	
Radio Activity Networks	MAI Systems	Active	
SIP/RTP Interfaces Radioserver Call Number 1		Radioserver Call Number	1
Voice Menu File			
Subscriber Groups C:\Program Files (x86)\SmartPTT\Server\Sound\VoiceMenu.wz Image: Comparison of the state of the st		C:\Program Files (x86)\SmartPTT	\Server\Sound\VoiceMenu.wa
Dial Extension Timeout, s 30		Dial Extension Timeout, s	30

A telephone subscriber can make two types of calls to radio subscribers.

- 1. Private call is a call when the radioserver calls to a radio subscriber. You can use **Private call mask** when making a private call.
- 2. Group call is a call when the radioserver calls to a talkgroup. You can use **Group call mask** to make a group call.

A mask is a regular expression. In the following table you can find all the symbols used in masks.

Symbols	Description
	Used for any figure
[m-n]	Used for any figure in the interval from m to n
[a,b,c] or [abc]	Used for any figure from the list
т	Used for any number of any figures
()	Used to unite regular expressions

{}	Used to include everything inside the brackets into the resulting number.
	Used to denote network ID. <i>N=0</i> when there is only one network. Can be used only in Group Call Mask .
	Used to denote Slot ID (IP Site Connect) or Site ID (Linked Capacity Plus). Can be used only in Group Call Mask .

Example:

Let's review sample masks:

Private Call Mask: 31 or 31T

Group Call Mask: 32NSST

Then the dialed numbers will mean the following:

31403, i.e. 31 403: private call to subscriber with ID=403.

3200013, i.e. 32 0 00 13: wide group call to a talkgroup 13, which must be either unique for the radioserver, or

located in the only network connected to the radioserver.

3210013, i.e. 32 1 00 13: wide group call to a talkgroup 13 located in network 1.

32112123, i.e. 32 1 12 123: local group call to a talkgroup 123 in network 1, on site 12.

The **S** symbol can be assigned different values and they depend on the network type. Below is the list of values that can be used for the **S** symbol:

- In the IP Site Connect network the S symbol can be assigned values 1 or 2 only, which correspond to the number of the IP Site Connect slot.
- In the Capacity Plus network the S symbol can have only one value: 0.
- In the Linked Capacity Plus network the S symbol can be assigned any value. S=0 stands for a wide group call. S=1, S=2, S=any other figure stand for a local group call specifying the LCP site number.

To make the All Call, use the following values:

- In the IP Site Connect network: **S**=1/2 and talkgroup ID=0.
- In the Capacity Plus and Linked Capacity Plus networks: **S**=0 and talkgroup ID=0.

Incoming Calls Authentication – receiving an incoming call from a phone/softphone, the radioserver asks for the username and password corresponding to **Realm** in the described setting. The calling telephone subscriber must send back the username and password specified in this setting. To activate this ability, select **Enabled**. **Realm** – parameter used for the incoming telephone calls authentication. **Username** – username used for authentication.

Password – password used for authentication. It should correspond to the specified realm.

Voice Menu Settings is used for setting up interactive voice response (IVR), i.e., a technology that allows SmartPTT system to interact with subscribers through the use of voice and DTMF tones input via keypad. If enabled and set up properly, the telephone subscriber can make a call to the radioserver and then to the required radio subscriber or talkgroup using the information heard in the voice menu file.

Radioserver Call Number – number to call to the radioserver.

Voice Menu File – the audio file which will be played to the telephone subscriber. The sampling frequency of the audio file must be 8000 Hz.

Dial Extension Timeout – period in seconds when the caller can dial the ID of the radio subscriber or talkgroup after listening to the voice menu file. If the caller has not dialed the ID before the time is out, the call will be dropped.

Here is the list of steps to make a call using voice menu:

- 1. Dial your PBX number.
- 2. Dial the radioserver call number.
- 3. Dial * to turn on DTMF mode on the telephone (not obligatory, depends on the telephone parameters).
- 4. Dial the private or group call mask, and then the radio subscriber or talkgroup ID.
- 5. Dial #.

Example:

The radio subscriber ID: 120.

The PBX number: 9649.

The radioserver call number: 10.

The private call mask: 1.

The telephone subscriber will call: 9649 10 (*) 1 120 #.

Outgoing Calls

Settings Rules Activity	Client List Log	Export/Import Settings Statistics
🖃 🕎 Radio Server		Outgoing Calls
		Default Gateway Settings
Licenses		Allow Calls to Default VoIP Gateway
Indoor Trac	king	IP address 82.200.114.46
Event Log		SIP port 5060
	one Interconnect coming Calls	Example: 32%15 Source mask
	tgoing Calls	Destination mask 12
Web Servic		Dialing Rules
Monitoring		TMS prefix A
Control Stations	3	
IP Site Connect		Outgoing Calls Authentication
Connect Plus		Enabled
Radio Activity N		Realm SmartPTT1
SIP/RTP Interf		Usemame SmartPTTuser1
	ups	Password
	940	Example: Radio %
		Caller name for private calls Radio %
		Example: Group %
		Caller name for group calls Group %
		Talk permit tone for phone subscriber
I		

Allow Calls to Default VoIP Gateway – if enabled, radio subscriber calls to telephone subscribers are made automatically, using all the data given, such as IP address of the automatic exchange, Source and Destination masks, Dialing Rules. If the option is not selected, radio subscribers will need to enter the IP address and the full number of the telephone subscriber to make a call.

IP address – IP address of the automatic exchange.

Source mask – must correspond to the source mask specified in the automatic exchange. It includes only figures, for example, 32%15, where % is the number of the radio subscriber.

Destination mask – contains only figures, for example, 32%15, where % is the dialed telephone number. It is used to speed up dialing of the telephone number.

TMS prefix is used for making a call to a telephone subscriber with the help of a text message sent from a radio.

TMS Prefix can contain any available symbol on the radio keyboard. Figures following the specified prefix are regarded as the telephone subscriber's number.

Outgoing Calls Authentication – the setting includes parameters required for outgoing call authentication. If **Realm** is left blank, the specified user name and password are used in response to any authentication request from the called party. Otherwise, **Realm** is checked whether it corresponds to the requesting user name and password. If it matches, user name and password are sent. If not, the authentication is failed immediately. **Realm** – if the value is set, SmartPTT Radioserver responds to authentication requests with the matching **Realm** value. If the value is not set, SmartPTT Radioserver sends user name and password given in response to any authentication request.

Username – user name used for authentication.

Password – password used for authentication.

Caller name at private calls – name of the radio subscriber that will be shown to the telephone subscriber. The percent symbol (%) will be replaced automatically by the radio number.

Caller name at group calls – name of the talkgroup that will be shown to the telephone subscriber. The percent symbol (%) will be replaced automatically by the talkgroup number.

Talk permit tone for phone subscribers – if enabled, the phone subscriber will hear a special tone prompting to start speaking.

Bridging

SmartPTT bridging service allows joining various network systems into a single radio network. The bridging service is implemented in the scope of SmartPTT PLUS Radioserver and provides intelligent means of redirecting voice and data streams among different network systems.

To activate the Bridging service, click **Bridging** in the setting tree of SmartPTT Radioserver Configurator. In the opened window select the **Active** check box.

Radio Server	Bridging
ia	Active
Licenses	
Tallysman	
Indoor Tracking	
🕀 📲 Event Log	
Phone Calls	
MultiGroups	
🤹 Voice Notifications	
😳 Web Application	

Multigroups

MultiGroups are used to organize dynamic routing of group calls between channels and different network systems. Routing of group calls can be global or limited to predefined channels. Configuration of MultiGroups does not require any bridging settings on SmartPTT Dispatcher, but **Bridging** must be enabled in SmartPTT Radioserver Configurator. If it is not activated, **MultiGroups** settings will be disabled.

To create multigroups, go to **Bridging** and click **Multigroups**.

	MultiGroups Add Remove	Apply
Tallysman	MultiGroup Name	Talk Group
	New multigroup 1	1
Den Calls		
A Bridging MultiGroups MultiGroups Multigroup 1		
Voice Notifications Web Service		

To add a new multigroup, click Add. Then open its settings by selecting it in the settings tree.

Radio Server	MultiGroup		
and a second and a second a s	Name	New multigroup 1	
Tallysman Indoor Tracking	Talkgroup ID	1 Example: 1,5,10-20	
in	Subscriber IDs	89,25,12,17,45-50	
HultiGroups	Use all channels		
Voice Notifications Web Service Monitoring	 Use all channels Use selected channels 	nels	
SNMP Service	Expand All	Collapse All	
⊕ 🚽 IP Site Connect Networks 	Radioserver	inect 1	
Radio Activity Networks	Slot 1 Slot 2 → ■ NAI- Linked Capacity Plus 1		
SIP/RTP Interfaces	Slot 1	• •	

Name – name of the multigroup.

Talkgroup ID – the ID of the talkgroup whose calls are to be routed.

Subscribers IDs - radio IDs of the radio subscribers who will be included in the multigroup.

Use all channels – select this option if you want the group call to be routed globally.

How it works: If a multigroup is created for a talkgroup, and a group call is made to this talkgroup, SmartPTT starts to look for all the talkgroups with this ID. Then SmartPTT checks if these groups have radio subscribers that were defined in the multigroup settings. The group call will be routed only to the talkgroups that include at least one of these radio subscribers.

Use selected channels – select this option if you want the group call to be routed within selected channels.

Note: When you add, change or delete a multigroup, it is not necessary to restart the radioserver. Click **Apply** to activate the multigroups.

Voice Notifications

The main purpose of the voice notification functionality is to warn talkgroups about the fire or other emergency and to manage evacuation. However, in normal mode voice notifications can be used to transmit ordinary announcements.

To create a voice notification, select the Voice Notifications item in SmartPTT Radioserver Configurator. At that,

the Voice Notifications window appears on the right. To enable the service, select the Active check box.

🖃 🕎 Radio Server	Voice Notifications
ia⊶ 🚀 Radio Network Services ia⊷ 🙀 Add-on Modules	Active
ia	
Bridging	
Voice Notifications	
- 🕹 Control Stations	

To add a voice notification, right-click on **Voice Notifications** and select **Add**. At that, the **Voice Notification**

Settings window opens.

Set the following parameters in the Voice Notification Settings window.

E	Voice Notif	fication Settings	3
🚊 🥡 Add-on Modules	Name Notifi	cation 1	
Licenses Event Log Telephone Interconnect Bridging Voice Notifications Control Stations Connect Plus Radio Activity Networks NAI Networks Smart PTT Radioservers Profiles Subscriber Groups MultiGroups MultiGroups Metadata	Settings Sound File Play Court Play Inter Channels	e nt val, s	C:\Program Files (x86)\SmartPT1 100 20 Collapse All t 1

Name – name of the voice notification displayed in SmartPTT Dispatcher.

Sound File – sound file in WAV format. Only monophonic files can be used as voice notifications.

Play Count – specifies how many times the voice notification will be played on the channel. To be set in the range from *1* to *9999*.

Play Interval, sec – specifies the interval between the voice notification plays. To be set in the range from *5* to *216000*.

Select channels of the hardware or/and virtual control stations in the **Channels** area (**All Call** or **Group Call**) that play the voice notification (after it was run in SmartPTT Dispatcher).

Note: Playing voice notification on the channel corresponds to an outgoing call of SmartPTT Radioserver and fully occupies the selected channel. Thus, each control station (hardware or virtual) can have only one call type to be used for playing voice notifications on the channel – an all call or a group call.

To delete the voice notification profile, right-click on the selected profile and click **Delete**.



Web Service

This additional module expands SmartPTT bounds. It allows the dispatchers to do their job without the desktop SmartPTT Dispatcher. The web version of SmartPTT Dispatcher was designed specifically to provide users with the functionality of the desktop version, but without the restrictions of desktop applications. Currently the web version provides the following functionality:

- Displaying radio subscribers on Google Map
- · Sending TMS messages to and from radio subscribers
- Getting ARS and GPS data
- Blocking and unblocking radios

Install the web client and connect it to SmartPTT Radioserver by selecting the **Active** check box in the **Web Service** window in SmartPTT Radioserver Configurator.

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.

Warning! Monitoring service requires corresponding license to be installed at SmartPTT Radioserver. Licenses are installed under the Licenses section of SmartPTT Radioserver Configurator. 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.

Settings Rules Activity Client List Network Configuration	n Log Export/Import Settings Statistics
E	Monitoring
ia⊡ 🛫 Radio Network Services i⊒∭ Add-on Modules	☑ Active
	Creating Monitoring Database
Indoor Tracking	Server Name: localhost\SQLExpress
Phone Calls Bridging	Database Name: Monitoring
Voice Notifications	Create New Database
Web Application	Authorization Mode: Windows NT Authorization
Automatic Database Backup	Login:
Control Stations ⊕ P Site Connect Networks	Password:
Capacity Plus Systems	Check Connection
Madio Activity Networks NAI Networks SIP/RTP Interfaces	Restoring Database Backup
······ SmartPTT Radioservers	Restore Database
& Subscriber Groups & MultiGroups ⊕10 Metadata	
, , , , , , , , , , , , , , , , , , ,	

To create a database for the monitoring purpose, type in the **Database Server Name** and **Database Name** fields, and click **Create New Monitoring 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 between the two:

SQL Server Authorization – the Account Name 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.

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 Database Backup window.

Settings

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

⊡	Monitoring Event Log Settings
⊞⊶2 Radio Network Services	Event Log Truncate Settings
	 Don't Truncate Event Log Automatically Delete Records Older Than
	100 📩 days
Bridging Web Application	
Voice Notifications Image: Settings Image: Settings </td <td></td>	

Don't Truncate Event Log – if selected, monitoring event log is not cleared automatically.

Automatically Delete Records Older Than n 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.

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 user 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.

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.

SNMP Service

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

Warning! To be able to get information about the state of a device, the user needs to have the corresponding license and an SNMP client application installed. Use versions 1 and 2 of SNMP client applications.

To obtain the license, go to SmartPTT Radioserver Configurator and open the **Licenses** section. Check if you have the license for SmartPTT SNMP service installed, and if not install it. For more information how to install licenses, check the <u>Licenses</u> section.

After you have obtained the license, enable SNMP service. To do that, select **Add-on Modules > Monitoring > SNMP Service**. At that, the following window opens.

Note: Monitoring must be activated, otherwise you won't be able to enable SNMP Service.

Settings	Rules	Activity	Network Configuration	Client List	Log	Export/Import Settings	Statistics		
Radio Server Redio Server Licenses Redio Network Services		SNMP S							
	Add-	on Module Tallysman ndoor Tra	es			e Settings	▼ Port	161	
		Event Log Phone Cal	-			132.100.57.170			
		Bridging /oice Noti Veb Servi	ce						
		Monitoring	is atic Database Backup <u>Service</u>						

Select the Active check box to enable the service. At that, the Interface Settings will become available.

Interface – the IP address of the 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.

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

1.1.4 Control Stations

In this section you can configure MOTOTRBO and analog control stations, which are used as a gateway to radio network.

The MOTOTRBO control station is a mobile or portable MOTOTRBO radio station connected to the PC via USB and used as a gateway to radio network.

To set up the MOTOTRBO control station, right-click **Control Stations** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and select **MOTOTRBO Control Station**.

At that, a new setting window will appear.

E- Madio Server	MOTOTRBO Control St	ation				-
Radio Network Services	Active					-
Add-on Modules Control Stations	Name	Control Station 1				
Control Station 1	Control station IP address	192.168.10.1				
Talkgroups	Local interface	192.168.10.2				
IP Site Connect Networks	Radio ID	16448250				
Capacity Plus Systems ⊕	CAI Network	12				
Radio Activity Networks	CAI Network for Groups	225				
SIP/RTP Interfaces	🔲 Transmit Data Only					Ш
Сети Perseus 	Allow Telephone Interd	connect				
Subscriber Groups	📝 GPS					
	V ARS		Port	4005		
	✓ TMS		Port	4007		
	Telemetry Service		Port	4008		
	Analog Call Hangtime, ms			3000	*	
	Options					
	GPS Transmission Mode	Data		•		
	5 Tone Signaling	bhA 🗸	Dele	ete		

Name – control station name.

Control station IP address – the IP address of the control station. The following address format and range are used: *(001-223).(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.

Local interface - local interface used for connection to the control station. A question mark at the beginning of

the field means that the control station was not defined.

Radio ID – unique radio station identifier used during communication with it. ID is to be set in the range from 1 to

16776415. It is highly recommended to use 16448250 as ID.

CAI Network – CAI-Network identifier. To be set in the range from 1 to 126. Use the default value of 12.

CAI Network for Groups – the identifier of the group's CAI-Network. To be set in the range from 225 to 239. Use the default value of 225.

ARS - enables registration service. Port 4005 is used as default.

GPS - enables location service which provides coordinates of radio subscribers.

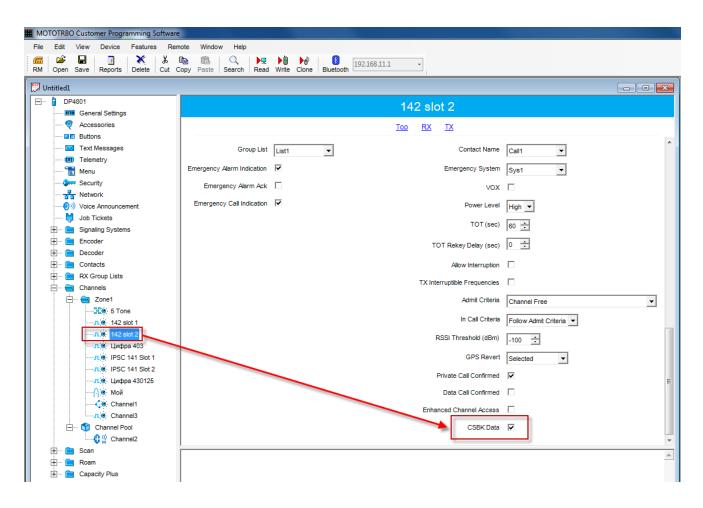
GPS Transmission Mode - allows you to select the way how to transmit location updates: as data packet in

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
CSBK	 Low traffic load on a channel Increased GPS transmission frequency rate —once in 15 seconds 	 Not all radios support CSBK commands
Enhanced CSBK	 Low traffic load on a channel Increased GPS transmission frequency rate —once in 7.5 seconds 	 Not all radios support CSBK commands

To transmit location data using CSBK or Enhanced CSBK, enable CSBK Data in radio settings.



Note: Enhanced CSBK can be used on Enhanced GPS channels only.

TMS – enables the service for exchanging text messages amid dispatchers and radio subscribers. Port *4007* is used by default.

Telemetry Service – enables the service responsible for transmitting and processing of telemetry signals between SmartPTT Dispatcher and subscriber stations. Port *4007* is used by default.

Analog Call Hangtime – virtual hangtime which is used for uniting analog calls into one. This was done to not overload the event log with too many records of analog calls. During this hangtime the channel is not reserved, any one can start transmitting.

Allow Telephone Interconnect – allows you to enable voice calls to telephone subscribers.

Transmit Data Only – if selected, the control station is used for data transmit only and is not displayed in SmartPTT Dispatcher.

Note: Although the control station can't be seen in the **Subscriber** panel, you can still find it in **Report Wizard** and **Radio Activity Report**.

5 Tone Signaling – settings for 5 Tone signaling, also known as SelectV.

SelectV is used in the analog networks to arrange selective calls. As a result, the analog channel provides additional services other than all call. 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 SelectV signaling for MOTOTRBO DM 46xx Series radios and DP 46xx, DP 48xx Series radios used as control stations.

Note: Make sure that control stations and radios operating on the analog channel are configured properly in MOTOTRBO CPS.

Selective call is based on subscriber addressing, i.e., on assigning IDs to subscribers. At the beginning of each session the sound signals of different frequencies are transmitted and received by the radio. Such signals are called telegrams. Each telegram contains from one to three sequences. Every sequence may include up to 12 tones. The telegram formed in this way may include the calling subscriber or talkgroup address, the radio ID, a status message or a command. The radio receives all signals, but handles only its telegrams, i.e., telegrams addressed to this radio.

Note: You can specify one or several identifiers (**CAI** + **Radio ID** or **IP**, **MDC ID** or **5 Tone ID**) as a radio ID in SmartPTT Dispatcher in the **Properties** window. If the radio is used on the analog channel only, enter **5 Tone ID** or **MDC ID**; the **CAI** and **Radio ID** or **IP** fields must be left empty.

System – 5 Tone signaling system. Parameters in this section allow you to match the outgoing command from SmartPTT Radioserver and the telegram number.

Note: When decoded, telegrams are verified if the telegram sequences correspond to one of the definitions, and then the command of this definition is applied. To configure the command definition, use MOTOTRBO CPS (**Decoder > Definitions**, the **Matching Encode Telegram** field).

To create a 5 Tone signaling system in SmartPTT Radioserver Configurator, click **Add**. The several signaling systems can be added for each control station. To change the control station signaling system, select the required value from the list.

To delete the selected 5 Tone signaling system, click **Delete**.

Voice Call – the telegram number conforming to the private or group voice calls.

Silent Interrogate - the telegram number which corresponds to the check command of the radio presence on

the network without notifying the subscriber.

Stun – the telegram number which stands for sending the Block command to the radio.

Unstun – the telegram number which stands for sending the **Unblock** command to the radio.

Emergency Off – when the radio receives the telegram number while in an emergency mode, the radio terminates the emergency mode.

PTT Dekey – when the radio receives the telegram number, the radio stops the current call session.

When the telegram encoding parameters are set, it is required to assign the signaling system for the channel (see the Channels tab).

If necessary, the control station can be disabled from the connection list. To do this, clear the Active check box.

To delete the control station, right-click Control Stations entry in the setting tree of SmartPTT Radioserver

Configurator and click **Delete**.



Analog control station

Following user evaluations and to facilitate migration from analog technology to digital technology, SmartPTT has been complemented with support of analog control stations. Here you can find the configuration manual for the analog control station connected to the computer COM port via interface card. The interface card schematic is shown on the <u>website</u>.

To add an analog control station, right-click **Control Stations** in the setting tree of SmartPTT Radioserver

Configurator, point to Add and click Control Station (Analog).

At that a new setting window appears on the right.

Radio Server	Analog Control Station		
ia	Active		
Control Stations Control Station 1 Control Station 2	Name	Control Station 2	
Control Station 2	Serial Number		
Connect Plus	Serial Port	-	
NAI Networks 	Switch Pin	CD (1) -	
	Rx Pin	CTS (8) -	
	Tx Pin	RTS (7) 🔹	
_	TX Time-Out Timer, s		60 🚔
	Analog Call Hangtime, ms		3000

Name – control station name.

Serial Number – the control station serial number.

Serial Port – the port to which the control station is connected.

Control station control signals:

- Switch Pin (incoming) is set to 1 (< -3.0V) when the control station is switched on.
- **Rx Pin** (incoming) is set to *1* when a signal carrier is registered on the channel.
- **Tx Pin** (outgoing) is set to *1* to switch to transmit mode.

Change the display of the control signals of the control station 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.

Note: The default values of the control signals are universal and usually do not require any changes.

TX Time-Out Timer (sec) – continuous radio transmission timeout. After this time the transmission is interrupted.

Analog Call Hangtime – a virtual hangtime which is used for uniting analog calls into one. This was done to not overload the event log with too many records of analog calls. During this hangtime the channel is not reserved, any

one can start transmitting.

In the Control Station Channels window add a channel and name it (otherwise the dispatcher displays 1:1).

E	Control Station Channels
ia⊷ 🚀 Radio Network Services ia⊷ 🙀 Add-on Modules	Add Remove
😑 🧼 Control Stations	Name
	Channel 1
Channels	

Audio is configured in the same way as for the control stations MOTOTORBO.

Save the changes and restart the service.

Note: In SmartPTT Dispatcher the operation of the analog control station is the same as for MOTOTRBO control stations in analog mode without signaling.

How to Configure Control Station Channels

After adding a control station, configure its channels. To set up and edit control station channels, click **Channels** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window is displayed.

To add a channel, click **Add**. At that, you will see a record of the added channel appear in the table.

E Radio Server	Control Station Channels				
ie v v Radio Network Services ie v ie Add-on Modules	Add Remove		Co	py Pas	te
Control Stations	Name	Zone	Channel	Signaling	\otimes
Channels	Channel 1	1	1	5 Tone - Sys1	 ✓
	Channel 2	1	2	Auto	

Name – channel alias visible to SmartPTT Dispatcher.

Zone – serial number of a channel group. Information on the maximum possible number of zones and radio station channels is shown in the following table.

Model	Maximum number of	Maximum number of	Maximum total number
	zones	channels per zone	of channels
Mobile radio station	50	160	160
with display			

Model	Maximum number of	Maximum number of	Maximum total number
	zones	channels per zone	of channels
Mobile radio station	2	32	32
with digital display			

Channel – channel sequence number.

Signaling – 5 Tone signaling system taken from the <u>MOTOTRBO Control Station</u> settings window. The field is available only if the MOTOTRBO control station has at least one 5 Tone signaling system.

When *Auto* is selected, the automatic detection of the channel type is set (analog, digital, IP Site Connect slot, etc.). The detection take place when you connect the control station.

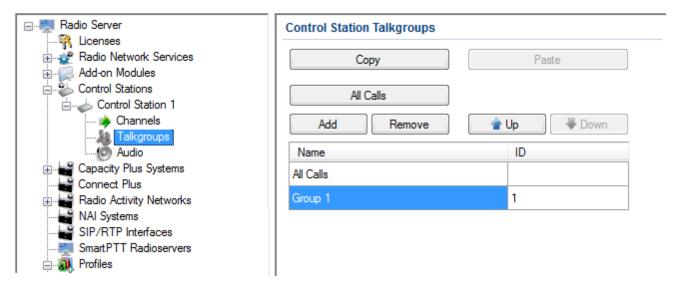
Note: If the channel type can't be determined automatically, you should specify the signaling system explicitly.

— selected channel will be set at the control station, when you start the radioserver.

To remove a channel, click **Delete**. To edit channel name, zone or channel number, place the cursor on the corresponding field and make changes.

How to Configure Control Station Talkgroups

To set up and edit **Control Station Talkgroups**, click **Talkgroups** in the setting tree of SmartPTT Radioserver Configuration. At that, the following window opens.



To add a talkgroup, click Add. To add an all-call, click All Calls. 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.

Name – talkgroup alias displayed by the control station.

ID – talkgroup unique identifier used during communications. To be set in the range from 1 to 16776415.

Remove – deletes the selected talkgroup.

Copy – copy added groups to the clipboard.

Paste - paste copied groups from the clipboard.

To edit talkgroup name or ID, set the cursor on the corresponding field and make changes.

How to Configure Control Station Audio Settings

To select audio devices and set up VoIP parameters, click **Audio** in the setting tree of SmartPTT Radioserver Configurator.

	Audio Settings	
Add-on Modules Control Stations	Active	
Control Station 1	Audio Input	
Channels	DS : Default, 1	-
Audio ⊕ Control Station 2	Input Line	Общая громкость 💌
Connect Plus	Codec	CCITT u-Law
MAI Networks	Format	8000 Hz, 20 ms, 64 (86) kbps 🔹
SmartPTT Radioservers SmartPTT Radioservers With the second	Audio Output	
	DS : Default, 1:L	•

The Active check box allows disabling calls for a control station if it is used to transmit data only.

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**: **8000Hz** 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.

1.1.5 Connect Plus

SmartPTT PLUS supports Connect Plus multi-site trunking system, which starting from version 8.5 can be used not only for ARS, TMS and GPS functionality, but also for voice communication between the dispatcher and radio subscribers.

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.

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:

- 1. Adding new network and its basic configuration.
- 2. Setting up XRC Controller configurations.
- 3. Setting up talkgroups for group messages.
- 4. Setting up XRT Gateway parameters for voice communication.
- 5. Adding talk paths for voice calls.

How to Configure Connect Plus

First of all, make sure you have the necessary license for the Connect Plus network, i.e., Connect Plus Voice

Support and Connect Plus Data Support.

To configure Connect Plus settings, add new Connect Plus system: right-click **Connect Plus** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and click **Connect Plus**.

At that, the Connect Plus window opens.

Radio Server	Connect Plus	
	Active	
	Name	Connect Plus 1
Encryption Settings	Network ID	47
XRC Controllers	Peer ID	47
·····∰ Radio Activity Networks	Radio ID	100
MAI Networks	Interface	192.168.37.71 👻
	UDP Start Port	19000 ×

Active – enables Connect Plus Network.

Name – Connect Plus network name.

Network ID – unique ID of the Connect Plus network, which 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 the radioserver. This is the identifier radio subscribers will see at receiving private calls and text messages from the dispatcher. If there are several dispatchers, you can create a profile for each operator (Profiles) 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.

Username	public
Password	•••••
Max Talk Paths	10
📃 Billing Enable	bed
Vetwork Wid	le All Call (NWAC) Enabled
Group Talk Pat	ths
Group ID	1001,1002
Private Talk Pa	aths
Console User	ID 100

Interface – IP address of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP address of the PC where the radioserver is installed.

UDP Start Port – this is the 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.

XRC Controller

The XRC Controller is necessary for transmitting registration and de-registration, GPS data, text messages. The XRC Controller is also required for making private calls, because without it, radios will be regarded as offline, and the dispatcher won't be able to make private calls.

You can add only one XRC Controller per site. Right-click on **XRC Controller** to add. At that, the following window opens:

🖃 📲 Radio Server	VDC Controller	
🗄 🛷 Radio Network Services	XRC Controller	
Add-on Modules	Active	
Control Stations	Name	XRC Controller
🖃 🚂 Connect Plus		And Controller
Connect Plus 1	Controller Address	192.168.7.121
R Encryption Settings		
XRC Controllers	PN, TMS, GPS	
	CPN	
Talkgroups	Controller Port	4005
Radio Activity Networks		
NAI Networks	Local Port	50005
SIP/RTP Interfaces		
SmartPTT Radioservers	TMS	
	Controller Port	4007
	Local Port	50007
🎎 MultiGroups		
🗄 👘 Metadata	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** unchecked. If the XRC Controller is outside the local network of the radioserver, select **Use NAT**.

Note: Make sure that you have the general Monitoring service enabled (Monitoring).

In order to send group text messages, add talkgroups. Select Talkgroups under XRC Controller. At that, the

following window opens:

Radio Server	Control Station Talkgroups	
Radio Network Services	All Calls	
	Air Calls	
	Add Remove	
Connect Plus		
Connect Plus 1	Name	ID
RC Controllers	Group 1	1
🖃 🗤 📷 XRC Controller	Group 2	2
XRT Gateways		

XRT Gateway

The XRT Gateway allows making voice calls and monitor call events in the Connect Plus system. You can have maximum 5 XRT Gateways working in one network.

Note: To support private voice communication, it is necessary to have an XRC Controller. Otherwise, radio

subscribers will be regarded as offline, and private calls will be impossible.

To add the gateway, right-click on **XRT Gateway**. At that, the following window opens.

Radio Server	XRT Gateway	
ia	Active	
Control Stations	Name	XRT Gateway
Connect Plus 1	Gateway Address:Port	192.168.7.122:10001
	Pool IDs	16000001-16000100
Talk Paths	Usemame	public
SIP/RTP Interfaces SmartPTT Radioservers Profiles Subscriber Groups	Password	password 1
	TX Time-Out Timer, s	60
	Group Call Hang Time, ms	4000
	Private Call Hang Time, ms	6000
	Emergency Call Hang Time	e, ms 8000 🛫

Name – XRT Gateway name, which is displayed only in SmartPTT Radioserver Configurator.

Gateway Address:Port – IP address and port of the XRT Gateway.

Pool IDs – it recommended to use default values. The values must correspond to the range of IDs set in the XRT Gateway settings (**Pool ID**).

Username and **Password** – used for authentication with the gateway and must equal the corresponding values in the XRT Gateway settings:

Username	public
Password	•••••
Max Talk Paths	10
🔲 Billing Enable	bd
Network Wid	e All Call (NWAC) Enabled
Group Talk Pat	
Group ID	1001,1002
a second and a second	la de la compañía de
Private Talk Pa	ths
Console User	ID 100

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 Gateway settings (see above). If the **Group ID** field is empty in the XRT Gateway 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 Gateway settings (see above).

Radio Server ⊕	Talk Paths		
Add-on Modules Control Stations	All Calls		
Control Stations	Add Delete		
Connect Plus 1	Name	Туре	ID
	Group 1	Group	1001
🚊 🚓 XRT Gateways	Group 2	Group 💌	1002
IIII Talk Paths	Dispatcher	Private 💌	100

Note: When adding talk paths make sure that talk paths with the same identifiers are specified in the XRT Gateway settings.

Control Stations

Control stations provide voice communication like the XRT Gateway. You can use control stations instead of the XRT Gateway or together with it to increase the number of talkpaths. One control station can be reserved for one group call or dispatcher call only.

Note: To use control stations, you need a special license.

To add a control station right-click on **Control Stations**, and then click **Add**. You can also add a remote control station, for more information about a remote control station see <u>this article</u>.

	Connect Plus Cont	rol Station
¶ Licenses ⊕∰ Radio Network Services	Active	
	Name	Control Station 1
⊡	IP address	192.168.10.1
	Radio ID	100
Capacity Plus Systems Connect Plus 1 Connect Plus 1 Control Stations Control Stations Control Station 1 Audio Radio Activity Networks NAI Systems	Reserved for Dispatcher Group	ID 0 Name Group
SiP/RTP Interfaces		

Name – control station name.

IP address – the IP address of the control station. The following address format and range are used: *(001-223)*. *(000-255)*. *(001-253)*. *(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. In case of conflicts with other network interfaces 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 – the unique identifier of the control station used for communication. This **Radio ID** must match **Radio ID** set in the settings of the control station. If the control station is used for dispatcher calls, and there are more than one operator in the system, **Radio ID** must match the ID set in the profile of the operator for whom the control station is reserved (see <u>Profiles</u>).

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 (**Talkpath**). You can use one control station per one dispatcher or per one talkpath. To allow group calls, select **Group**, and enter the ID of the talkgroup and its name. To allow private calls to and from the dispatcher, select **Dispatcher**.

To learn how to configure audio settings, see How to Configure Control Station Audio Settings.

1.1.6 Radio Activity

SmartPTT supports Radio Activity DMR network system. When working in Radio Activity DMR network system,

SmartPTT Radioserver serves as a virtual repeater.

How to Configure Radio Activity Network

Configuration of Radio Activity DMR network includes:

- 1. Adding Radio Activity DMR network and basic configurations
- 2. Slot configuration
- 3. Talkgroup configuration

To add a new Radio Activity network, right-click **Radio Activity DMR Networks** in the settings tree of SmartPTT Radioserver Configurator, point to **Add** and click **Radio Activity**.

To configure the newly added network, click **Radio Activity 1** under **Radio Activity Networks**. At that, the following window opens.

E	Radio Activity Ne	twork		
ia	Active			
Enversion Stations Enversion Stations Enversion Stations	Name	Radio A	ctivity 1	
Radio Activity Networks	Network ID	5		
Analog ⊟° ໃot 1	DTI ID (Hex)	000000	01	
2º Slot 2	DTI DMR ID	1		
Talkgroups	Interface	192.168	8.0.224	•
······································	DTI IP Address	192.168	3.0.14þ	
Subscriber Groups MultiGroups			Uplink Ports	Downlink Ports
	Digital Voice	TS A	40128 🚔	40132 🚔
		TS B	40130	40134
	Analog Voice		30130 🚔	40132 🚔
	Data	TS A	50128 🚔	50132
		TS B	50130	50134
	Passive ARS			
	Group Call Hang Ti	me, ms		3000
	Private Call Hang T	lime, ms		4000

Active – enables the Radio Activity network.

Name – Radio Activity network name.

Network ID – unique ID of the Radio Activity network.

DTI ID (Hex) – identifier of the audio gateway of the Radio Activity repeater. It should match **RA DTI ID** in the DTI Manager software in the **About** section.

DTI DMR ID – it should match DMR ID in the DTI Manager software in the About section.

Interface (host:port) - IP address and port of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP

address of the PC where the radioserver is installed.

DTI IP Address – IP address of the audio gateway of the Radio Activity repeater.

Uplink Ports – outgoing ports for data and voice that are set in the Radio Activity repeater.

Downlink Ports – incoming ports for data and voice that are set in the Radio Activity repeater.

Passive ARS – when **Passive ARS** is active, the radioserver does not send any ARS and GPS commands (passive ARS is used for routing between radioservers).

Group Call Hang Time (ms) – time during which the repeater reserves the channel to a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit.

Private Call Hang Time (ms) – time during which the repeater reserves the channel to a private call after the end of transmission. During the timeout, only the participants of the private call can transmit.

Emergency Call Hang Time (ms) – time during which the repeater reserves the channel to an emergency call

after the end of transmission. During the timeout only the participants of the talkgroup can transmit.

To delete Radio Activity, right-click on the selected Radio Activity and choose **Delete**.

How to Configure Radio Activity Slots

To configure Radio Activity network slots, click **Slot 1** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.

Radio Server	Control Station (Tir	ne Slot)
ia	Active	
Control Stations	Name	Slot 1
Radio Activity Networks	Radio ID	16448250
Analog	CAI Network	12
ia [®] ¶ <mark>Slot 1</mark> 	CAI Network for Groups	225
Talkgroups	TOT, sec	60

Active – enables the slot.

Name – slot name. The name is displayed in SmartPTT Dispatcher.

Radio ID – ID of a virtual control station to work with the selected Radio Activity slot.

CAI Network – CAI-network identifier. Use default value of 12. The allowed value range is 1–126.

CAI Network for Groups – CAI-network for groups identifier. Use default value of 225. The allowed value range is 225–239.

TOT – Time-Out Timer. The duration that the radio can continuously transmit before a transmission is

automatically terminated. The default value is 60 sec.

Allow Subscriber Interrupt – enables or disables the ability of SmartPTT Dispatcher to interrupt voice

transmissions by radios that are Transmit Interrupt capable.

Allow Telephone Interconnect – allow radio subscribers to make calls to telephone subscribers and vice versa.

How to Configure Radio Activity Talkgroups

Click Talkgroups under Radio Activity Networks in the setting tree of SmartPTT Radioserver Configurator. At that,

a window opens.

Radio Server	Control Station Talkgroups
⊞	All Calls
⊕⊌ Control Stations ⊕ ⊌ Connect Plus	Add Remove Copy Paste
Radio Activity Networks	Name ID
Analog	All Calls
Slot 1	Group 1 1
Inna Talkgroups Inna Slot 2	Group 2 2
Talkgroups	

Note: Configuration process of Radio Activity talkgroups is similar to the configuring control station talkgroups.

Analog Control Station

To add the analog control station select Analog.

E Radio Server	Analog Control Station			
tadio Network Services ⊕	Active			
⊡ Control Stations	Name	RA Analog		
adio Activity Networks	TOT, sec	60		
RA Analog Slot 1				
Talkgroups				
Talkgroups				

Name - control station alias.

TX Time-Out Timer, sec – continuous radio transmission timeout. After this time the transmission is interrupted.

1.1.7 NAI Systems

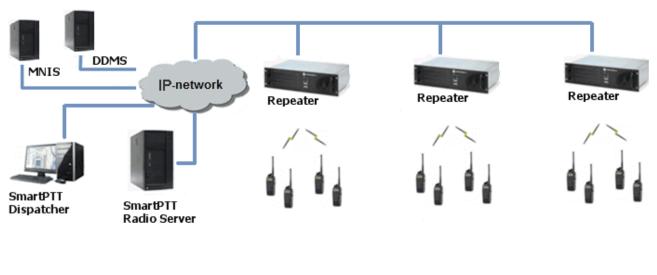
SmartPTT supports MOTOTRBO Network Application Interface (NAI) protocol for networks such as IP Site

Connect, Capacity Plus, and Linked Capacity Plus. NAI network configuration uses this protocol for voice, data

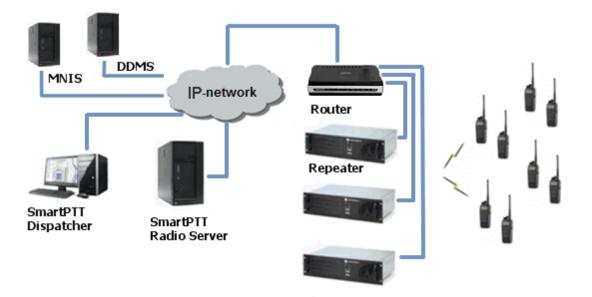
and monitoring data transmission.

Currently, you can configure three network types with the NAI protocol:

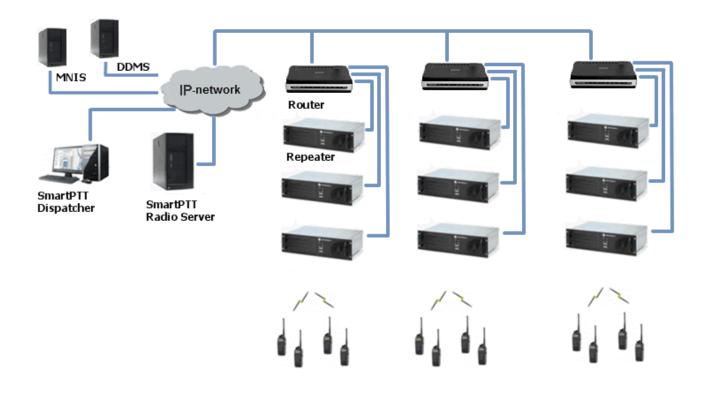
1. IP Site Connect



2. Capacity Plus



3. Linked Capacity Plus



Note: You can install SmartPTT Radioserver, DDMS and MNIS on the same PC.

The MOTOTRBO Network Interface Service (MNIS) lets you transmit data (text messages, GPS, telemetry, etc.) without control stations. MNIS connects with the repeater system over IP and uses them to transmit and receive data packets.

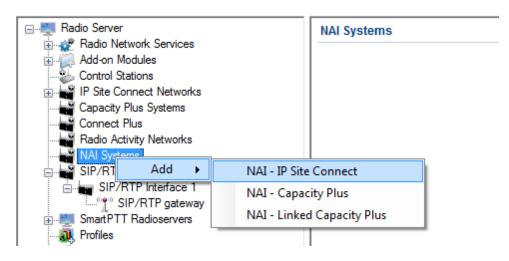
Note: MNIS allows data transmission only. It does not support transmission of voice calls and CSBK commands (Radio Check, Call Alert commands and so on).

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.

How to Configure NAI System

To add a NAI system, right-click NAI Systems, point to Add, and then select the network type (IP Site Connect,

Capacity Plus or Linked Capacity Plus):



At that, a new window with network parameters will open. The network parameters differ depending on the selected network type.

Radio Server	NAI - Linked Capacit	y Plus Network	
🛶 🙀 Licenses 🕀 🛫 Radio Network Services	Active		
	Name	NAI- Linked Capacity Plus 1	
IP Site Connect Networks Capacity Plus Systems	Network ID	2	
Connect Plus	Peer ID	1	
Radio Activity Networks	Interface	192.168.37.170 - Port	50000 🚖
NAI- Linked Capacity Plus 1	Master repeater address (host:port)	192.168.37.141:50101	Test
🎷 Sites 🎉 Talkgroups	Authentication key		
DDMS Settings	Voice transmission	Repeaters	•
SIP/RTP Interfaces	Group call hang time, m	\$	3000 🚔
	Private call hang time, m	IS	4000 ≑
	Max number of telephon	ne calls	100 🚔
	Data transmission		
	Monitoring		

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 (host: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 (to be equal to the **Authentication key** in the repeater settings in MOTOTRBO CPS).

Voice transmission can be carried out in two ways: via repeaters and via control stations. 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 transmit CSBK commands use control stations for voice transfer.

To transmit data and monitoring data select the corresponding check boxes.

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.

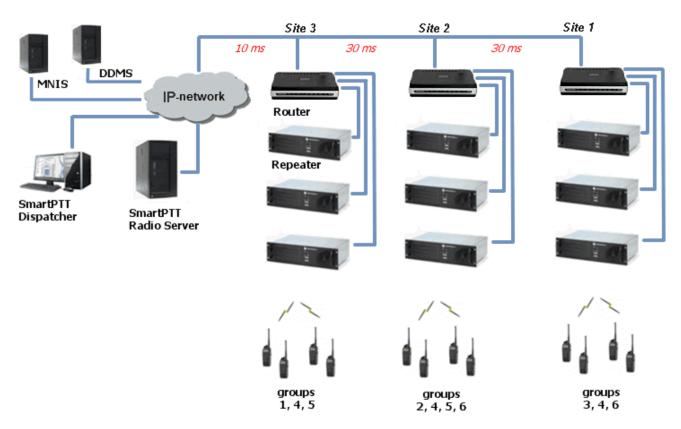
Max number of telephone calls – sets the limit on the number of simultaneous telephone calls per system.

When selecting Linked Capacity Plus network with voice via repeaters, the new section (Sites) appears in the

settings tree:

Radio Server Licenses	Site	S				
🗄 💣 Radio Network Services	Site	Site Priority Configuration				
		Site	Max number of telephone calls	Priority		
Capacity Plus Systems	•	Site 1	16	1	Ŧ	
Connect Plus		Site 2	16	2		
Radio Activity Networks		Site 3	16	3		
🖃 🕁 NAI Systems 📄 🚋 NAI- Linked Capacity Plus 1		Site 4	16	4		
Slot 1		Site 5	16	5		
Sites		Site 6	16	6		
Talkgroups		Site 7	16	7		
DDMS Settings		Site 8	16	8		
MNIS Settings		Site 9	16	9		
Smart PTT Radioservers		Site 10	16	10		
🗄 🖳 🛺 Profiles		Site 11	16	11		
		Site 12	16	12		
		Site 13	16	13		
		Site 14	16	14		
		Site 15	16	15		
		Site 16	16	16		
		Site 17	16	17		
		Site 18	16	18		
		Site 19	16	19		
		Site 20	16	20		
		510 20		20		

Max number of 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 delay in data transmission.



The following example shows sites' location in respect to the radioserver, and talkgroups' distribution on the sites.

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.

DR 3000			Talkgro	oups		
Accessories			All Wide Area Tall	kgroups 🗖 Delete		
く 췒 Talkgroups ⊞ <mark>È</mark> Channels	Call ID 1 ÷ 2 ÷ 3 ÷	Site 1	Site 2	Site 3	Site 4	Site 5
	4 · · 5 · · ▶ 6 · ·	N	য হ হ	I		

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 will be 130 ms.

Setting up the site priorities so that sites with less time delay are associated with a higher priority 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.

Site Priority Configuration

	Site	Priority	^ (
•	Site 1	3	
	Site 2	2	
	Site 3	1	
	Site 4	4	
	Site 5	5	

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 *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.

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).

How to Configure NAI Slots

After you have selected the network type, configure the slots. In order to do that, go to the **Slot 1** item in the setting tree of SmartPTT Radioserver Configurator. At that, the following window appears.

E Radio Server	NAI Control Station
Licenses ⊕ 27 Radio Network Services ⊕ Add-on Modules	Active
Control Stations IP Site Connect Networks Capacity Plus Systems Connect Plus Radio Activity Networks NAI Systems	Name Slot 1 Radio ID 65535 CAI Network 12 CAI Network for Groups 225
NAI- Linked Capacity Plus 1	 Allow Telephone Interconnect TX Time-Out Timer, s 60 Options Emergency alam confirmed Allow transmit interrupt GPS Transmission Mode Data Confirmed Events Private calls

Note: For Capacity Plus or Linked Capacity Plus networks, there is only one slot to configure.

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. Use the default value of 12 (must match MOTOTRBO CPS settings).

CAI Network for Groups – CAI-network for groups identifier. Use the default value of 225 (must match

MOTOTRBO CPS settings).

Emergency alarm confirmed – determines if the emergency alarm is allowed to be acknowledged.

Confirmation of private calls sets private calls on the current digital channel as confirmed.

Allow transmit interrupt – enables or disables the ability to interrupt a radio subscriber.

Allow Telephone Interconnect – enables telephone calls on the slot.

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
CSBK	 Low traffic load on a channel Increased GPS transmission frequency rate —once in 15 seconds 	 Not all radios support CSBK commands Additional MNIS settings*
Enhanced CSBK	 Low traffic load on a channel Increased GPS transmission frequency rate —once in 7.5 seconds 	 Not all radios support CSBK commands Additional MNIS settings*

* 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 IP Site Connect configuration specify latitude and longitude for each network system:

MOTOTRBO Network Interface Service Configuration Utility *		
Configuration View Edit Service Help		
🖃 🛑 Untitled		*
🚥 General Çərrə Security	Enable 🔽	
i ist 	Revert Channel	
e 😑 Conventional	Security Setting None	
- € Capacity Plus - ↓ ↓ Linked Capacity Plus	Security Alias	
🖾 🤇 🗎 Sites 🗗 🚍 Advanced	Group List None 🔻	
	Repeater GPS Coordinates	=
	Add Delete	
	Peer ID GPS Latitude GPS Longitude 1 56 84	
		-

For Capacity Plus configuration specify latitude and longitude just in one place:

MOTOTRBO Network Interface Service	Configuration Utility *		x
Configuration View Edit Service	Help		
			^
- III General	MNIS LE Port	Automatically Assigned	
🗐 🤤 Group List		Manually Assigned None	
Conventional	Authentication Key		
Capacity Plus			
📄 ζ 🤄 Linked Capacity Plus	Security Setting	None	
	Security Alias	~	
Advanced			
🕞 Forwarding Rules	Group List	None	E
Application Override Rules	Outbound Data Limit	2	
	GPS Latitude	56	
	GPS Longitude	84	
			-

For Linked Capacity Plus configuration specify latitude and longitude for each site:

MOTOTRBO Network Interface Service Co	nfiguration Utility	*		_		
Configuration View Edit Service	Help					
1						
··· III General ··· I III Security			Ado	d Delet	e	
📄 💼 Group List	Site Id	Group List	Outbou	und Data Limit	GPS Latitude	GPS Longitude
	1	List1	▼ 2		56	84
	2	List2	▼ 2		56	84
						,
Gapacity Plus						
🖃 ζ 🔅 Linked Capacity Plus						
- 🗸 🗎 Sites						
🖻 😑 Advanced						
Forwarding Rules						
Application Override Rules						

Also, to transmit location data using CSBK or Enhanced CSBK, enable CSBK Data in radio settings:

🗰 мо	TOTRBO Custom	ner Programming S	oftware											
File	Edit View	Device Features	Rem	ote Window	/ Help									
RM	Open Save	Reports Delete		opy Paste	Q Search		Vrite Clone	e Bluetooth	192.168.11.1	Ŧ]			
📴 U	ntitled1													
	DP4801									142	slot	2		
	Genen	-								112	0101	2		
										<u>Top</u> F	<u>RX</u> I	x		
	Button:				Crow	unter L						Contact Name		A
	101 Teleme	-				List		•					Call1	
	📷 Menu			Emergency	Alarm Indic	ation 🔽					E	mergency System	Sys1 💌	
				Emerg	ency Alarm	Ack [VOX		
	Netwo Netwo Voice	Announcement		Emergend	y Call Indic	ation 🔽						Power Level	High 💌	
	🔰 Job Ti	ckets												
	🕂 🧰 📄 Signali	ng Systems										101 (360)	60 🛨	
	Encod										тот	Rekey Delay (sec)	0 ÷	
	E Decod											Allow Interruption		
	🗄 📄 RX Gr	oup Lists									Vieterry			
	🕂 🗎 Chann									12	X Interru			
	🖹 🗁 💼 z	one1										Admit Criteria	Channel Free	•
		 142 slot 1 										In Call Criteria	Follow Admit Criteria 💌	
		. 142 slot 2									RSS	il Threshold (dBm)	-100 ÷	
		 Цифра 403 IPSC 141 Slot 1 										GPS Revert		
		 IPSC 141 Slot 1 IPSC 141 Slot 2 											Selected	
	1 1 1	🧶 Цифра 430125									Priv	ate Call Confirmed	V	Ξ
		👲 Мой									D	ata Call Confirmed		
	1 1 1	 Channel1 Channel3 								E	Enhance	d Channel Access		
		hannel Pool									-	CSBK Data	V	
))) Channel2												-
	🗄 🚞 Scan		Í											A
	🕂 📄 Roam													
	🕀 💼 Capac	ity Plus												

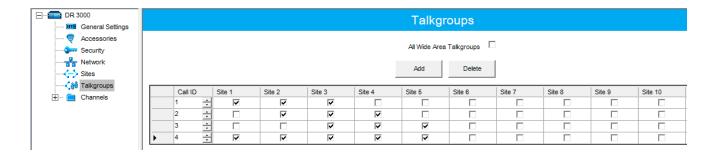
Note: Remember that *Enhanced CSBK* can be used on **Enhanced GPS** channels only.

How to Configure NAI Talkgroups

To configure slot groups, click **Talkgroups** in the setting tree of SmartPTT Radioserver Configurator.

Note: The configuration process of the virtual control station talkgroups for *NAI IP Site Connect* or *Capacity Plus* networks is absolutely similar to the configuration of MOTOTRBO control station talkgroups.

For *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. For more information about wide area and local groups of Linked Capacity Plus network see Motorola System Planer. Wide area talkgroup calls are available to the subscribers 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.



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.



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: Make sure that identifiers of wide area and local talkgroups do not match.

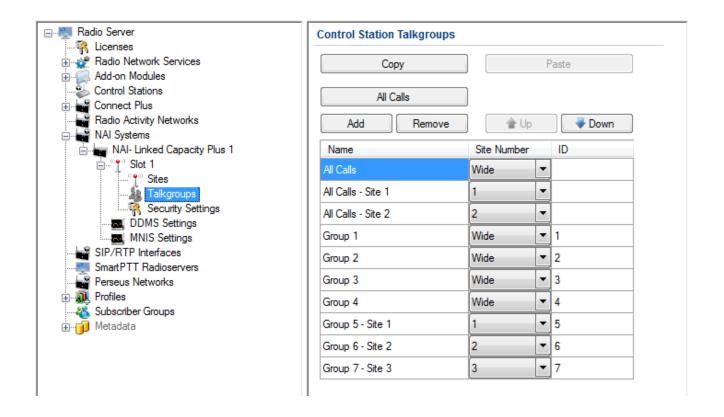
	Control Station Talkgroups		
Add-on Modules Solutions Control Stations Connect Plus	All Calls Add Remove	Сору	Paste
Radio Activity Networks	Name	Site Number	ID
NAI Network 1	Group 1	Wide 💌	1
Slot 1	Group 2	Wide	2
Talkgroups	Group 3	Wide	3
MNIS/DDMS Settings	Group 4	Wide	4
	Group 5 - Site 1	1	5
	Group 6 - Site 2	2 -	6
	Group 7 - Site 3	3 🗸	7

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 Calls. In 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 Calls**. Make sure that **Site Number** is set to *Wide*. To add an All Call limited to one site, click **All Calls**, 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.



How to Configure 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.

Radio Server	NAI - Linked Capacit	y Plus Network					
¶ Licenses ⊕∰ Radio Network Services	Active						
	Name	Name NAI- Linked Capacity Plus 1					
	Network ID	2					
	Peer ID	1					
Radio Activity Networks NAI Systems NAI Systems NAI- Linked Capacity Plus 1 Sites Talkgroups Security Settings	Interface	192.168.37.170 - Port	50000 🚔				
	Master repeater address (host:port)	192.168.37.141:50101	Test				
	Authentication key						
DDMS Settings	Voice transmission	Control Stations	-				
SIP/RTP Interfaces	Group call hang time, m	3000					
	Private call hang time, n	4000 🜲					
	Max number of telephon	ne calls	100 🚔				
	Data transmission						
	Monitoring						

To configure the control station settings, right-click **Control Stations** and click **Add**. You can also add a remote control station, for more information about a remote control station see <u>this article</u>.

Radio Server	NAI Control Station		
	Active		
🗄 🧖 Add-on Modules	Name	Control Station 1	
Control Stations IP Site Connect Networks	IP Address	192.168.10.1]
	Radio ID	100	1
Radio Activity Networks	Working Channel	Zone 1	Channel 1
Al Systems	Reserved for		
i⊨° to Slot 1	Oispatcher		
Talkgroups Control Stations	Talkgroup	Group 1	~
Control Station 1	·	۹	

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 PC, 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 Capacity Plus or 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 Linked Capacity Plus and 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 dropdown list with added talkgroups becomes enabled. To allow private calls to and from the dispatcher, select Dispatcher and add profiles — 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.

Radio Server	Profile	
⊷	Name Profile 1	
	Enabled	Example: 1-99, 150
Radio Activity Networks	Allowed radio ID's	
NAI Systems SIP/RTP Interfaces SmartPTT Radioservers	Expand All Collapse All	👚 Up 🛛 🕹 Down
Profiles	Reserved Control Station: Control Sta ID: 100 Private calls	tion 1
	Radio Network Services	
	TMS	

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.
- In Network under Control Station section, select Voice Only.
- In the Channel settings, in RX Group List, select the talkgroup, for which the control station is reserved

in SmartPTT Radioserver Configurator.

2. When using for dispatcher:

- In General Settings, select Private Calls.
- In Network under Control Station section, select Voice Only.
- In the Channel settings, in RX Group List select None.

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.

To select audio devices and set up VoIP parameters, click **Audio** in the setting tree of SmartPTT Radioserver Configurator.

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:

8000Hz 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.

How to configure 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.

🖃 📲 Radio Server	NAI Control Sta	tion
🗄 💣 Radio Network Services		
Add-on Modules	Active	
🗄 🖑 Control Stations		
🗄 🚔 Connect Plus	Peer ID - Slot	Peer ID 10, Slot 2
Radio Activity Networks	Name	LS 2 Peer 10
🖻 🙀 NAI Networks		
NAI Network 1	Slot ID	3
ia i	Radio ID	16448250 🚖
	CAI Network	12
Talkgroups	CAI Network for G	aroups 225 🚔
Security Settings		
⊟ [®] ¶ [®] LS 2 Peer 10	🛛 🛛 Allow Telepho	one Interconnect
	TX Time-Out Time	er, s 60 🚔
	0.5	
	Options	
	Emergency	Alarm Confirmed
MNIS/DDMS Settings	Allow Trans	mit Internut
SIP/RTP Interfaces		
	GPS Transmiss	ion Mode Data 👻
👰 Profiles		
	Confirmed event	8
	Private Call (Confirmed
🕀 🔟 Metadata		

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.

Emergency Alarm Confirmed – determines if the emergency alarm is allowed to be acknowledged.

Private Call Confirmed – this feature sets private calls on the current digital channel as confirmed.

Allow Transmit Interrupt – enables or disables the ability to interrupt a radio subscriber.

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.

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</u> Mode.

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

Security Settings.

DDMS Settings

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 set up DDMS settings, click **DDMS Settings**.

Server Address – IP address of the PC with the MOTOTRBO DDMS Administrative Client application installed on it, and port number of the DDMS server. The port number in this field must match the port number in the

PortWatcher field of the MOTOTRBO DDMS Administrative Client (Interfaces > Watcher Settings).

	S MOTOTRBO DDMS
DDMS	File Action Help
Server Address localhost:3000	O O 闷 🏟 📓 🗒 🖒
	Service Settings
	PortWatcher 3000
	ARS Settings WatcherTO 14400 Watcher Settings NotifyGroup 0
	Watcher Settings NotifyGroup 0

MNIS Data Gateway

To set up data transfer over NAI network, set up MNIS Data Gateway settings.

Radio Server	MNIS Data Gateway	
	Socket Type	Local Socket
🚋 🦏 Add-on Modules		
Control Stations	MNIS Control Interface	localhost:5000
	Interface	192.168.10.2
Connect Plus	MNIS ID	1
Radio Activity Networks	Location Port	4001
- NAI- Linked Capacity Plus 1	TMS Port	4007
⊡°° Slot 1 ° ° Sites	Telemetry Port	4008
DDMS Settings		
MNIS Data Gateway		
SIP/RTP Interfaces		

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 application is installed on the same PC as SmartPTT Radioserver. Select *Remote Socket* if MOTOTRBO Network Interface Service Configuration Utility and SmartPTT Radioserver are installed on a different PCs. In this case, information exchange between the processes is supported by the MNIS Relay application.

MNIS Control Interface – use *localhost*, if MOTOTRBO Network Interface Service Configuration Utility is installed on the same PC as the radioserver. If MOTOTRBO Network Interface Service Configuration Utility and the radioserver are installed on different PCs, enter the IP address of the PC where MOTOTRBO Network Interface Service Configuration Utility is installed. The port should match the port number specified in the **MNIS Control** Interface TCP Port field in MOTOTRBO Network Interface Service Configuration Utility settings:

MOTOTRBO Network Interface Service	e Configuration Utility	
<u>C</u> onfiguration <u>V</u> iew <u>E</u> dit <u>S</u> ervice <u>H</u> el		
-🖃 🛑 111	ARS Monitor ID None	^
🚥 General		_
Security	Device Discovery and Mobility Service	
🗊 🤤 Group List 🖅 🥽 Conventional	Server Address 127.0.0.1	
Ge Capacity Plus		
🗊 🗸 🍥 Linked Capacity Plus	Watcher Port 3000	
🖻 💼 Advanced	MNIS Control Interface	
🚌 Forwarding Rules	MNIS Control Interface TCP Port 5000	
Application Override Rules		=
	 Image: A second s	<u>></u>

Interface – MOTOTRBO Network Interface Service interface. It must match the interface specified in the **Tunnel** IP Address field of MOTOTRBO Network Interface Service Configuration Utility.

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. Make sure MNIS ID matches the MNIS Application ID field (the General tab) in MOTOTRBO Network Interface Service Configuration Utility. It is also recommended that MNIS ID should match Radio ID in the radioserver slot settings.

MNIS		MOTOTRBO Network Interface Servic	e Configuration Utility *
Socket Type	Local Socket 🛛 🗸	Configuration View Edit Service	ce Help
MnisControl Interface	localhost:5000		
Interface	192.168.10.2 1	1	
MNIS ID	1 2		General
Location Port	4001	General	
TMS Port	4007	Group List	System Operation Mode Conventional
Telemetry Port	4008	🕀 😑 Conventional	MNIS Application ID 1 2
		Capacity Plus	
		 Linked Capacity Plus Advanced 	Tunnel Network
			MNIS IP Address 192.168.10.1
			Tunnel IP Address 192.168.10.2 1

Location Port – the port where the radioserver will expect GPS data.

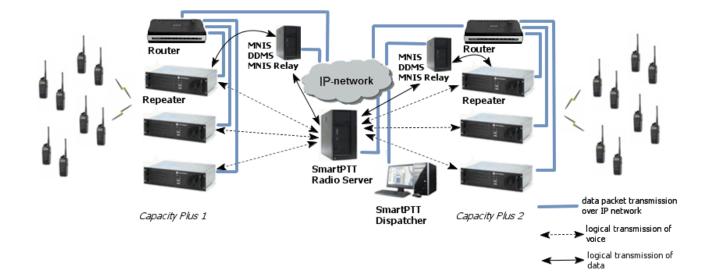
TMS Port – the port where the radioserver will expect text messages.

Telemetry Port – the port where the radioserver will expect telemetry data.

The ports should match the ports set in the **TMS UDP PORT**, **Telemetry UDP Port** and **Location Server UDP Port** fields in MOTOTRBO Network Interface Service Configuration Utility (**Advanced > Network**).

MNIS		MOTOTRBO Network Interface Service Configuration Utility	
Socket Type	Local Socket 🛛 👻	Configuration View Edit Service Help	
MnisControl Interface	localhost:5000		
Interface	192.168.10.2		
MNIS ID	1	- III Network	^
Location Port	4001 🔹 1	Security CAI Network 12	
TMS Port	4007	 	
Telemetry Port	4008 😒 3		
		Advanced ARS UDP Port 4005	
		Forwarding Rules 2 TMS UDP Port 4007	
		3 Telemetry UDP Port 4008	
		1 Location Server UDP Port 4001	~

Remote Socket is used when you want to connect more than one network such as Capacity Plus or Linked Capacity Plus to SmartPTT Radioserver. To ensure proper functioning of all connected networks (voice and/or data transmission), each network requires separate MNIS and DDMS services set up and running. At the same time, multiple MNIS and DDMS can't be installed on one PC. To work around this problem, you should install and configure MOTOTRBO Network Interface Service Configuration Utility, MOTOTRBO DDMS Administrative Client and MNIS Relay applications on multiple PCs. The number of PCs depends on the number of networks (Capacity Plus or Linked Capacity Plus) connected to SmartPTT Radioserver. Thus, the transmission of voice data from repeaters to SmartPTT Radioserver is carried out directly, and data transfer – via PC with MNIS Relay and the MNIS and DDMS service applications.



In SmartPTT Radioserver Configurator, in the **Socket Type** field, select *Remote Socket*. At that, the **Interface** field will turn into **MNIS Relay Address**.

Radio Server	MNIS Data Gateway		
Radio Network Services	Socket Type	Remote Socket	
i⊞	MNIS Control Interface	192.168.31.71:5000	
i⊞ IP Site Connect Networks	MNIS Relay Address	192.168.31.71:8890	
Connect Plus	MNIS ID	1	
NAI Systems	Location Port	4001	
iani and NAI- Linked Capacity Plus 1	TMS Port	4007	
Sites	Telemetry Port	4008	
Talkgroups			
DDMS Settings			
SIP/RTP Interfaces			

MNIS Control Interface – the IP address of the PC where MOTOTRBO Network Interface Service Configuration Utility is installed.

MNIS Relay Address - the IP address of the PC where MNIS Relay is installed. The MNIS Control Interface

and MNIS Relay Address fields must be equal, except for ports.

Run MNIS Relay and do the the following settings.

MNIS Interface – the interface created by the MOTOTRBO Network Interface Service. The value in this field must match the value in the **Tunnel IP Address** field (the **General** tab) of MOTOTRBO Network Interface Service Configuration Utility.

Server Interface – select the IP address of the PC with the MNIS Relay application explicitly, or select *Any* (the service is available from any network interface) or *Loopback* (the service is available from the local interface only).

Port – the port number for the MNIS Relay application. The default value – 8890.

🞯 MnisRelay Settings 💧 🧶 📄		OTRBO Network Interface Service Config	uration Utility	Million of States States			
MnisRelay		guration View Edit Service He	lp				
MNIS Interface: 192.168.10.2 Server Interface: 192.168.37.71 V Port: 88	390		?				
Server Interface: 192.168.37.71		test General General		System Operation Mode MNIS Application ID	Conventional	V A	^
Status: Not 1.0.0		Group List Conventional Capacity Plus		Tunn	el Network		
		Iinked Capacity Plus Advanced		MNIS IP Address Tunnel IP Address	192.168.10.1 192.168.10.2		E
	MNIS Data Gateway			Subnet Mask	255.255.255.0		
Hadio Network Services	Socket Type	Remote Socket 🔹		oublist maar	200.200.200.0		-
	MNIS Control Interface	192.168.31.71:5000					*
IP Site Connect Networks Capacity Plus Systems	MNIS Relay Address	192.168.31.71(8890)					
Connect Plus	MNIS ID	1					-
Radio Activity Networks	Location Port	4001					
NAI- Linked Capacity Plus 1	TMS Port	4007	-				
Sites Stes Takgroups Security Settings MNIS Data Cateway SIP/RTP Interfaces SmartPT Radiosevers	Telemetry Port	(400) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A					

Save the settings in the MNIS Relay application and start the service by clicking

MNIS and DDMS service settings

The following section describes MNIS service settings in MOTOTRBO Network Interface Service Configuration Utility and DDMS service settings in MOTOTRBO DDMS Administrative Client, which are necessary for proper data transmission over network.

You should configure the following settings in the MOTOTRBO Network Interface Service Configuration Utility application:

 In the System Operation Mode field of the General section, select a mode depending on the network type selected in SmartPTT Radioserver Configurator. If IP Site Connect is used, select *Conventional*. Other modes correspond to the Capacity Plus and Linked Capacity Plus networks.

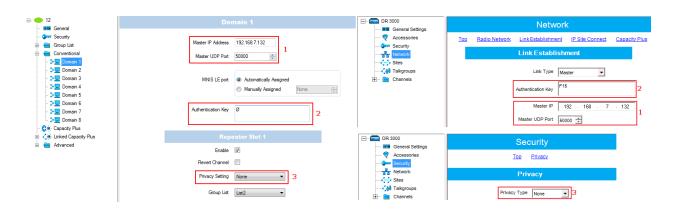
⊡· 🛑 12 💷 General	General
- Certeran - Certeran Security - Group List	System Operation Mode Conventional 🔹
🔤 👌	MNIS Application ID 1

2. In the Security section set the encryption keys that match the keys specified in the radio MOTOTRBO

CPS settings.

	Security	DP 3601	Security
Security	Basic Privacy Key 21	Accessories	Top Privacy
ີ່ ຈູ່ອື່ອີ List 1 ອີ 🧰 Conventional	Enhanced	Text Messages	Privacy
Capacity Plus	Add Delete	Menu	Privacy Type Basic 💌
	Alias Key ID Key Value Enhanced Key1 1 φ	Network	Basic Privacy Key 21
	Enhanced Key2 2 ø	⊞… 💼 Signaling Systems ⊞… 🚞 Contacts	Add Delete
		RX Group Lists	Key ID Key Alias Key Value
		⊞… 🚞 Scan ⊞… 🚞 Roam	1 Privacy Key1 1234567890 2 Privacy Key2 0987654321

- 3. Set up the following parameters in the **Conventional/Capacity Plus/Linked Capacity Plus** sections respectively:
 - IP address and UDP port of the Master repeater in the Master IP Address and the Master IP Port fields. These values should match the values in the corresponding fields in the Master repeater MOTOTRBO CPS settings and in the network settings of SmartPTT Radioserver Configurator.
 - Authentication key, if it is set in the repeater MOTOTRBO CPS settings.
 - Privacy settings that match repeater encryption settings in MOTOTRBO CPS.



4. It is recommended to clear the **Data Call Confirmed** field in the **Advanced** section and to specify the identifier in the **MNIS LE ID** field explicitly.

E • ● 12	A	dvanced
··· III General		
- 🗊 Security		
🚊 🔁 Group List	Data Call Confirmed	
- 🎎 🖗 🗎 List 1	Compressed UDP Data Header	
	Compressed ODF Data Header	
⊕ ⊖ Conventional	Battery Saver Preamble	V
	ballory baver realible	
🖓 😌 Capacity Plus	Individual Data to Registered Site	
Linked Capacity Plus		
🖨 💼 Advanced	TX Preamble Duration (ms)	120 🛓
Network		
Forwarding Rules	Conventional Channel Access	NI
Application Oven	conventional channel / booss	Normal 👻
	MNIS LE ID	Use MNIS ID
		Manually Assigned 5195

DDMS operation is closely connected to MNIS for data exchange (MNIS serves as DDMS Watcher). DDMS filteres 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. Therefore, when you configure DDMS settings, make sure that:

a) The **PortWatcher** field in MOTOTRBO DDMS Administrative Client matches the **WatcherPort** field in MOTOTRBO Network Interface Service Configuration Utility settings (**Advanced > Network**).

MOTOTRBO Network Interfac	ce Service Configuration Utility *	MOTOTRBO DDMS
Configuration View Edit	Service Help	File Action Help
1		Image: Service Image: Watcher Settings
Untitled General	ARS Monitor	PortWatcher 3000 PortWatcher 3000 Hat ArS Settings Watcher Settings Notr/Group 0
Group List Groventional	ARS Monitor ID None 🔶	Logging NotifyRate 5
Capacity Plus	Device Discovery and Mobility Service	PortWatcher Port listening for Watcher Subscribe requests. Range: 1000 - 65535
 Cinked Capacity Plus Cinked Capacity Plus Cinked Capacity Plus 	Server Address 127.0.0.1	Settings for Watcher interface
Network Network Forwarding Rules	Watcher Port 3000 🚖	

b) The PORT SU field (Interfaces > ARS Settings) in MOTOTRBO DDMS Administrative Client matches the ARS UDP Port field in MOTOTRBO Network Interface Service Configuration Utility (Advanced > Networks).

MOTOTRBO Network Interfa	ce Service Configuration Utility *	S MOTOTREO DDMS
Configuration View Edit	Service Help	File Action Help
1	00	Comparison C
🖃 🛑 Untitled	Network	PortSU 4005
- IIII General		- En Watcher Settings Device Refresh Time 240
- 🕬 Security	CAI Network 12	Logging DeregistrationTO 120 PersistenceTO 12000
 	CAI Group Network 225 👘	PostSU Pott SU Pott listening for inbound ARS messages.
Capacity Plus Capacity Plus	Services	Range: 1000 - 65535
Advanced	ARS UDP Port 4005	Settings for ARS/SU interface:
Forwarding Rule	IMS UDP Polt 4007	

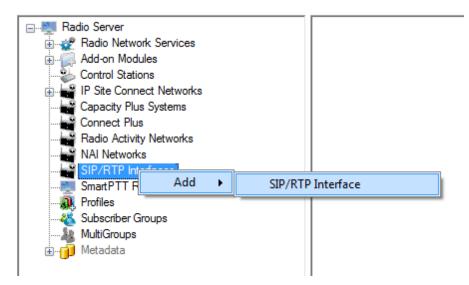
1.1.8 SIP/RTP Interfaces

Backed up with Cisco special hardware, SmartPTT can operate with cable radio networks. The cable radio network interface allows converting analog voice signals into digital IP packets. So far, we have run successful tests on Cisco 2900 only.

Cable radio networks allow SmartPTT to connect to analog radio systems and other systems supporting cable radio network interfaces. The dispatcher can monitor calls from and to these systems. In this version, only All Calls and Group Calls are supported. Group Calls require additional bridging configurations.

Note. Cable radio network support requires a special license.

To add a cable radio network interface, right-click on **SIP/RTP Interfaces**, point to **Add** and click **SIP/RTP Interface**:



The following window will open:

Radio Server	SIP/RTP Interface			
Add-on Modules	Active			
	Name	SIP/RTP Interface 1		
Radio Activity Networks	Network ID 1	1		
SIP/RTP Interfaces	Interface	192.168.37.170 ▼ Port 5060 ↓		
SIP/RTP gateway	Master Peer Address (host:port)	192.168.37.125[5060		
<mark>vä</mark> Subscriber Groups ⊕ ji Metadata	Start RTP Port	18650		
	No Voice Timer, ms	100		
	Call Hang Time, ms	3000		
	Send KeepAlive timer, ms	5000		
	Idle SIP/RTP device disconnect timer, s	15		

Active – enables the network.

Name - network name, which will be used in SmartPTT Dispatcher.

Network ID – unique ID of the network, which is used inside SmartPTT system. It is important that you have no other network with the same **Network ID**.

Interface – a local IP address which is used as gateway between the radioserver and Cisco hardware. This IP address must also be defined in the Cisco device settings.

Port – port number used for interconnection between the radioserver and Cisco hardware. This port must not be used in any other networks. The default value is *5060.*

Master Peer Address (host:port) – the IP address and port of the SIP/RTP device (Cisco hardware), which is used as the network master peer.

Start RTP port – this is the first RTP port is to be used by the SIP/RTP device for voice channels. The default value is *18650*.

No Voice Timer, ms – time period for which the radioserver reserves the channel for a call session. If during this time period the SIP/RTP device has not sent any voice packet, the radioserver activates **Call Hang Time**.

Call Hang Time, ms – time period during which the radioserver reserves the channel for a call after the end of transmission. During the timeout, only the participants of the call can transmit.

Send KeepAlive timer, ms – time interval for the radioserver to send a special packet (keepalive) to the SIP/RTP device to notify that the radioserver is active and running.

Idle SIP/RTP device disconnect timer, s - time interval when the radioserver waits for a special packet (keepalive) from the SIP/RTP device to notify that the device is active and running. If the radioserver has not received this packet from the SIP/RTP device during this time period, the device gets the Offline status.

SIP/RTP gateway

To set up the SIP/RTP gateway, click on SIP/RTP gateway. At that, the following window will open:

⊡	SIP/RTP gateway		
Add-on Modules Control Stations	Active		
Connect Plus	Name SIP/RTP gateway		
NAI Networks	Local SIP ID 16448250		
SIP/RTP Interface 1	Peer ID 1		
	TX Timeout Timer, s 60 💌		
	Disconnect Timeout, s 10		
in 🔁 Metadata			

Active – enables the SIP/RTP gateway.

Name – any random name of the SIP/RTP gateway. It used only in SmartPTT Radioserver Configurator.

Local SIP ID – the identifier of the radioserver. This will be used as a Radio ID by radio subscribers wishing to make the incoming All Call.

Peer ID - the identifier of the Cisco device. This will be used as a Radio ID for outgoing calls.

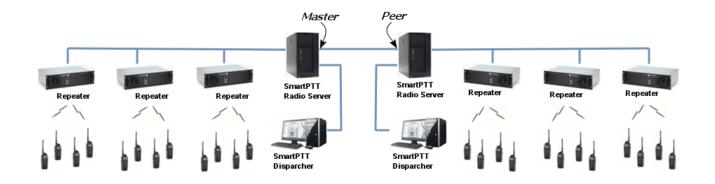
TX Timeout Timer, s – time period during which the radio can transmit without interruptions. After this time is over, the transmission is interrupted.

Disconnect Timeout,	s – time period	during which t	he channel is	s blocked or	ne way after	TX Timeo	ut Timer
expiration. After this tin	ne period is ove	r, the channel	becomes av	ailable for tra	ansmission.	While the d	channel is

blocked, calls going in the opposite direction are not affected.

1.1.9 SmartPTT Radioservers

SmartPTT Bridging service allows joining two radioservers into a single radio network with the help of intelligent means of patching for voice and data streams. Thus, radio subscribers or talkgroups under control of one radioserver become available for another radioserver for voice call and data packet transmissions.



Note: Currently, bridging service between two radioservers is supported with all network topologies, except for topologies with control stations.

SmartPTT Bridging service allows joining radio networks, managed by two different radioservers, to cover distributed regions. The important advantages of the network are dynamic redirection of private and group calls and data packets from one radioserver to another, and short voice delay (60 ms).

How to Configure SmartPTT Radioservers

Configuration of bridging service between two radioservers includes:

- 1. Adding an external radioserver:
 - · basic configuration of the external radioserver
 - · control station configuration of the external radioserver
 - talkgroup configuration
- 2. Activating bridging service
- 3. Configuring bridging settings in SmartPTT Dispatcher

These actions are required for both joined radioservers in the system.

SmartPTT Radioservers

To add a new external radioserver, right-click SmartPTT Radioservers in the setting tree of SmartPTT

Radioserver Configurator, point to Add and click SmartPTT Radioserver.



Configuring SmartPTT Radioserver

To configure the newly added network, click SmartPTT Radioserver 1 under SmartPTT Radioservers. At that,

the following window opens.

Radio Server	SmartPTT Radios	erver	
iain the services iaiii. Add-on Modules	Active		
Control Stations	Name	SmartPTT Radioserver 1	
Malio Activity Networks	Network ID	6	
SmartPTT Radioservers	Peer ID	1	
Control Station	Interface	192.168.0.224 - Port	50000 🚔
Talkgroups ⊕, Profiles	Link Type	Peer •	
& Subscriber Groups & MultiGroups ⊕∎ Metadata	Master Radioserver Address (host:port)	192.168.0.142:50000	Test
	Messaging Delay, m	s	60
	Group Call Hang Tin	ne, ms	3000
	Private Call Hang Ti	me, ms	4000
	Emergency Call Han	ng Time, ms	4000
	Authentication Key		
I			



Network ID – unique ID of the SmartPTT radioserver system.

Peer ID – unique ID of the radioserver in the network.

Warning! Peer ID must be unique. No other repeater in this network can have the same ID.

Interface – IP address of the local SmartPTT Radioserver. Specify the IP address of the PC where the radioserver is installed.

Port – a port number associated with the IP address of the local SmartPTT Radioserver.

Warning! Port number must be unique.

Link Type – select the role of the local SmartPTT Radioserver: Peer or Master.

Master Radioserver Address (host:port) – IP address and port of the other SmartPTT Radioserver, which plays the role of the Master in the network.

Note: Select Master in the Link Type field for one of the radioservers acting as a master, select Peer for another. If Master is selected in the Link Type field, the Master Radioserver Address field becomes dimmed. If Peer is selected in the Link Type field, make sure that the Master Radioserver Address field contains the interface and port number of the master repeater, that is the second radioserver.

TX Preamble Duration (ms) – duration of TX preamble.

Messaging Delay (ms) – message exchange delay between repeaters.

Group Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of a group call transmission. During this time, only members of the talkgroup that the channel is reserved for can transmit. After expiration of the group call hang timer, the radio will transmit using the TX contact name (digital group) specified for this channel in MOTOTRBO CPS.

Private Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of a private call transmission. During this time, only members of the private call that the channel is reserved for can transmit. After the hang timer expires, the radio transmits using the TX contact name specified for this channel in MOTOTRBO CPS.

Emergency Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the talkgroup that the channel is reserved for can transmit.

Authentication Key – repeater authorization key (to be equal to the Authentication key in MOTOTRBO CPS).

To delete the SmartPTT radioserver, right-click on the selected SmartPTT Radioserver system and choose

Delete.

🚊 📲 SmartPTT Radioservers	
🖦 🌉 Smart PTT Radioserver	1
'and the control station between the control station betw	Delete
	iyə
🎎 Talkgroups	

Control Station Configuration

To set up the SmartPTT radioserver control station, click **Control Station** under **SmartPTT Radioserver 1** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.

	SmartPTT Control Stat	ion
	Active	
	Name	Control Station
🗄 🕁 Connect Plus	Radio ID	1
NAI Systems SIP/RTP Interfaces	CAI Network	12
	CAI Network for Groups	225
Control Station	Allow Telephone Interc	connect
Security Settings	TX Time-Out Timer, s	60
	Emergency alarm con	fimed
tetadata	Allow transmit interrup	t
	Compressed UDP dat	a header
	Confirmed Events	
	Private calls	
	Data calls	

Name – virtual control station name.

Radio ID – ID of a virtual control station of the network.

CAI Network – CAI-network ID. Use default value of 12.

CAI Network for Groups – CAI-network for groups ID. Use default value of 225.

Allow Telephone Interconnect – allow telephone interconnect on the channel.

TX Time-Out Timer, s – continuous radio transmission timeout. After this time, transmission is interrupted.

Emergency alarm confirmed – determines if the emergency alarm is allowed to be acknowledged.

Allow transmit interrupt - enables or disables the ability to interrupt a radio subscriber.

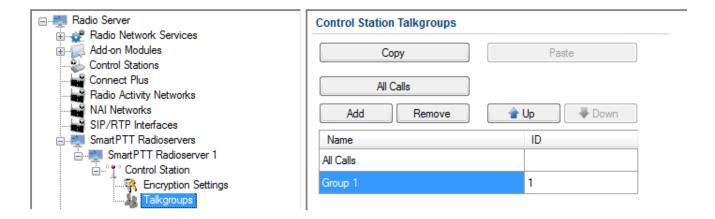
Compressed UDP data header – enabling this item reduces delays in data transmissions.

Private calls – this feature sets private calls on the current digital channel as confirmed.

Data calls – this feature enables individual packets in data calls (ARS, GPS and Text Message) on the current digital channel or personality to be confirmed.

Configuring Talkgroups

To configure talkgroups, click **Talkgroups** in the setting tree of SmartPTT Radioserver Configurator. At that, the **Control Station Talkgroups** window opens.



Note: Configuration process of SmartPTT Radioserver control station talkgroups for this network is similar to the configuration of control station talkgroups (see <u>Control Station > Talkgroups</u>).

Bridging Service

To activate the bridging service, click **Bridging** in the setting tree of SmartPTT Radioserver Configurator. In the opened window select the **Active** check box (see the <u>Bridging</u> section in the Help of SmartPTT Radioserver Configurator).

Bridging Service in SmartPTT Dispatcher

To set up the redirection of voice calls and data packets correctly, configure routes, route groups and profiles for the bridging service in SmartPTT Dispatcher. For more information see **Bridging** in the Help file of SmartPTT Dispatcher.

Example

The following example presents bridging configuration between two radioservers. Each of them works with the IP Site Connect network topology.

User 1 (in SmartPTT Radioserver Configurator) makes the settings for direct connection of the radioserver to

repeaters' network, functioning in IP Site Connect system (Network ID = 1).

The IP address and port number of the master repeater must be specified in the **Master Repeater Address** field (the example displays connection settings only with one repeater).

In the Interface field select the IP address of the virtual repeater in the network with Network ID = 1.

Radio Server	NAI Network					
ia	Active					
Control Stations Connect Plus Radio Activity Networks	Name Network ID Peer ID	NAI Networ	k 1			
	Interface	192.168.37	71	▼ Port	50000	÷
Talkgroups	Master Repeater Address (host:port)	192.168.37		For	Test	
Talkgroups MNIS/DDMS Settings	Authentication Key					
SIP/RTP Interfaces	Network Type	IP Site Con	nect			-
	Connection Type	Voice	Data	Monitoring		
& Subscriber Groups & MultiGroups ⊕∎ Metadata	Repeaters Control Stations			\checkmark		
	·					_

Slot and group settings for IP Site Connect network with **Network ID** = 1:

Slot			Slot			
Active		_	Active			-
Name	Slot 111_1		Name	Slot 111_2		
Radio ID	1 000	Network 111	Radio ID	16448250	NAI Ne	
CAI Network	12	R Encryption Settings	CAI Network	12		t 111_1 Encryption Settings
CAI Network for Groups		Talkgroups Not 111_2 Encryption Settings	CAI Network for Groups	225	Slo	Talkgroups 1111_2 Encryption Settings
·		Talkgroups				Talkgroups
Control Station Tal	kgroups		Control Station Tal	lkgroups		
All Calls			All Calls			
Add	move Copy Paste		Add	lemove Co	ppy Paste	
Name	ID		Name		ID	
All Call(Slot 111_1)			All Call(Slot 111_2)			
Group1 (Slot 111_1)	1		Group3 (Slot 111_2)		3	
Group2 (Slot 111_1)	2		Group4 (Slot 111_2)		4	

User 2 also configures the IP Site Connect network connection (**Network ID** = 2) in SmartPTT Radioserver Configurator. Fill in the **Master Repeater Address** and the **Interface** fields with data corresponding to the network with **Network ID** = 2.

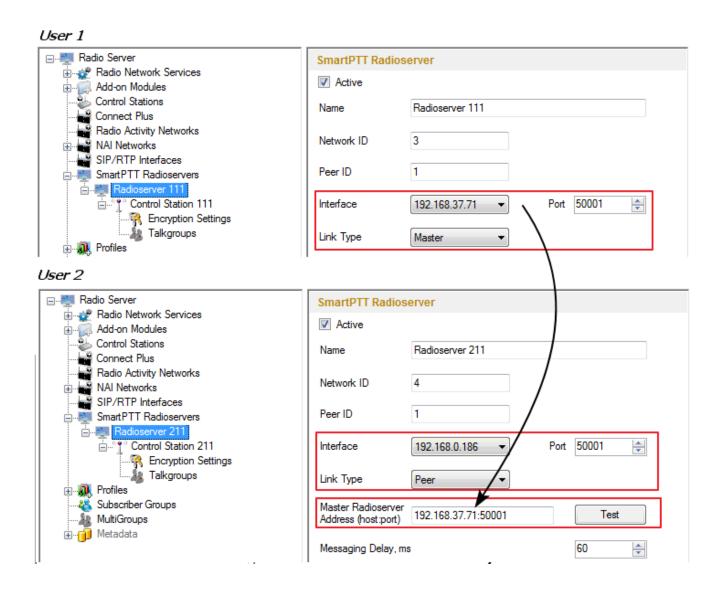
E Radio Server	NAI Network					
ia	Active					
Control Stations	Name	NAI Netw	ork 211			
NAI Networks	Network ID Peer ID	2 1				
Slot 211_1	Interface Master Repeater Address (host:port)	192.168.0 192.168.7	0.186 7.211:50000	▼ Port	50000 Test	-
Talkgroups MNIS/DDMS Settings	Authentication Key					
SIP/RTP Interfaces	Network Type	IP Site Co	onnect			
⊕	Connection Type	Voice	Data	Monitoring		
	Repeaters	V	\checkmark	\checkmark		
	Control Stations					

Slot and talkgroup settings for IP Site Connect network with **Network ID =** 2:

Slot				Slot			
Active			-	Active			
Name	Slot 211_1			Name	Slot 211_2		
Radio ID	16448250	in NAI Net		Radio ID	16448250	i N	Al Network 2111 Slot 211_1
CAI Network	12	.	211_1 Encryption Settings	CAI Network	12		Recryption Settings
CAI Network for Groups	225	⊨° <u>°</u> ° Slot	Talkgroups 211_2 Encryption Settings	CAI Network for Groups	225		A Talkgroups Slot 211_2 R Encryption Settings
Control Station Tall	karoups		Talkgroups S/DDMS Settings	Control Station Ta	lkgroups		MNIS/DDMS Settings
All Calls				All Calls]		
Add Re	Copy	Paste		Add	Remove	Copy	:
Name		ID		Name		ID	
All Call(Slot 211_1)				All Call(Slot 211_2)			
Group1 (Slot 211_1)		1		Group1 (Slot 211_2))	3	
Group2 (Slot 211_1)		2		Group2 (Slot 211_2)	4	

Next, *user 1* adds the SmartPTT radioserver (Radioserver 111) with the **Master** link type and chooses the corresponding IP address in the **Interface** field of SmartPTT Radioserver Configurator.

User 2 also adds the SmartPTT radioserver (Radioserver 211) and defines its connection type as a **Peer**. In the **Master Radioserver Address** field *User 2* specifies the IP address and port number of the Master repeater.



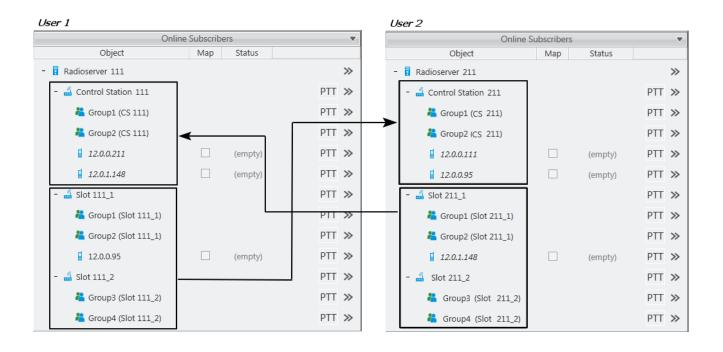
Settings for control station and its talkgroups of the radioservers:

SmartPTT Control	ol Station		Control Station Talkgroups	
Active			All Calls	
Name	Control Station 111		Add Remove	Copy Paste
Radio ID	111		Name	ID
CAI Network	12		All Call (CS 111)	
CAI Network for Groups	225		Group1 (CS 111) Group2 (CS 111)	2
User 2 SmartPTT Contro	al Station		Control Station Tolling	
SmartPTT Contro	ol Station		Control Station Tallonson	
_	of Station		Control Station Talkgroups	
Active		_	All Calls	
	Control Station 211			Copy Paste
☑ Active Name Radio ID			All Calls	Copy Paste
Name Radio ID	Control Station 211		All Calls Add Remove	
Name	Control Station 211 211		All Calls Add Remove Name	

After that, both user 1 and user 2 activate the bridging service in SmartPTT Radioserver Configurator.

To apply settings, click **Save** and restart the service in SmartPTT Radioserver Configurator (for user 1 and user 2).

In the SmartPTT Dispatcher application of *user 1* (Master), a radio with the **IP address** = *12.0.0.95* is registered at Slot 111_1. The SmartPTT radioserver (*user 2*) with its radios and talkgroups is shown in the *user 1* system as Control Station 111. In SmartPTT Dispatcher of *user 2*, a radio with the **IP address** = *12.0.1.148* is registered at Slot 211_1. SmartPTT radioserver (*user 1*) in respect to *user 2* is displayed as Control Station 211.



In SmartPTT Dispatcher of *user 1* set up the bridging service of voice calls and data. To do this, create a group with routes to redirect calls of all types in duplex mode (from Slot 111_1 and Slot 111_2 to Control Station 111). Make this route group active.

Bri	dging Co	nfiguration					×
Pr Ro	ofile: outes:	r: Radioserver 111 Bridging 111 <-> 211 O All O Active iroup / Edit Group - Dele	nange Profile	Save	Save As		
	Active	Route Group				A	Show Details
	Rout	111 <-> 211 es					Hide Details
	N≘	Source Network	Source	Direction	Destination Network	Target	
	12	IP Site Connect 111 - Slot 111_1	All	++	Radioserver 111 - Control Station 111	All	
	13	IP Site Connect 111 - Slot 111_2	All	++	Radioserver 111 - Control Station 111	All	
						Ţ	Apply Close

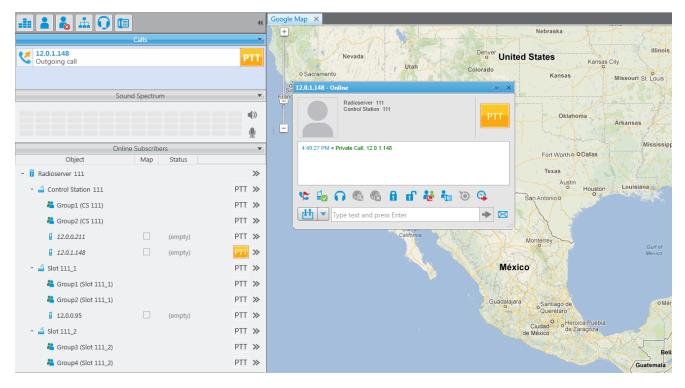
Make similar settings in SmartPTT Dispatcher for user 2.

Bridg	jing Con	figuration						×
Profi Rout	ile: tes:	Radioserver 211 Bridging 211 <-> 111 Cha and All Active pup Chit Group Dele	ange Profile te Group	Save	Save As			
	Active	Route Group					*	Show Details
	Routes	211 ↔ 111						Hide Details
	N≘	Source Network	Source	Direction	Destination Network	Target	i	
	1	IP Site Connect 211 - Slot 211_1	All	++	Radioserver 211 - Control Station 211	All		
	2	IP Site Connect 211 - Slot 211_2	All	++	Radioserver 211 - Control Station 211	All		
							Ŧ	Apply Close

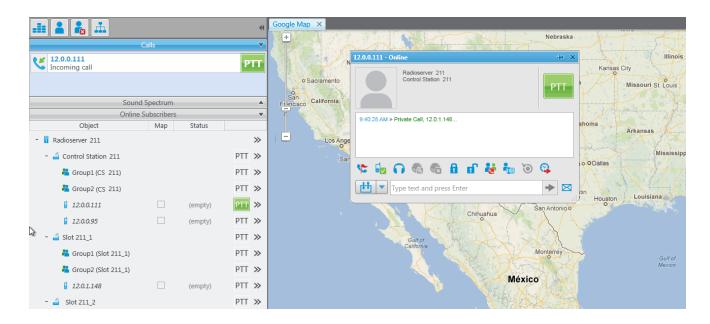
System verification:

1. User 1 makes a private call to the radio registered in the system of user 2.

User 1 (an outgoing call):



User 2 (incoming call, a radio has a corresponding indication about the incoming call):



2. A group call is initiated by the radio registered in the system of user 2.

The radio, registered in the network of *user 2*, makes a group call. In this case, the group call is redirected to the appropriate group of Control Station 111 (*user 1*).

User 2:

🏥 👗 👗			44	Google Map ×	
C	alls		$\mathbf{\nabla}$	Radioserver 211 / Control Station 211 / Gro	oup1 (CS 211) + ×
Group1 (CS 211) Incoming call			РТТ	v Sacramento	PTT Kansas City Missouri St Lous
	Spectrum		▲ ▼	San 9:42:58 AM > Group Call (5 sec.) 9:42:58 AM > Group Call (5 sec.) 9:42:58 AM > Group Call (12.0.0.95 (2 sec.)) 9:42:58 AM > Group Call (5 sec.) 9:42:58 AM > Group Call (12.0.0.95 (2 sec.))	
Object	Мар	Status		9:43:08 AM >> Group Call, 12.0.0.95 (1 sec.)	Tima Arkansas
- 🚦 Radioserver 211			>>	Los Angeles	
- 🝶 Control Station 211			PTT »	San Di	Fort Worth O ODallas
ီ Group1 (CS 211)			PTT »	Tucson	
ီ Group2 (CS 211)			PTT »		Austin
12.0.0.111		(empty)	PTT »	Chinus	San Antonio
12.0.0.95		(empty)	PTT »	Chihua	inua
- 🝶 Slot 211_1			PTT »	Gulf of California	AL SHE
粘 Group1 (Slot 211_1)			PTT »	Caironna	Monterrey Guil of
붵 Group2 (Slot 211_1)			PTT »		Mexico
12.0.1.148		(empty)	PTT »		México
- 🛋 Slot 211_2			PTT »		



.ii 👗 👗 🚠			44	Google Map X
	Calls		▼	Radioserver 211 / Control Station 211 / Group1 (CS 211)
Group1 (CS 211) Incoming call			PTT	Nev 0 12.0.0.95 PTT Karisas City Missouri St. Louis
Sound	Spectrum		A	San Fit noisco California 9:42:58 AM > Group Cali (5 sec.) 9:42:58 AM > Coroup Cali (5 sec.)
Online	Subscribers			943/38 AM > Group Call.
Object	Мар	Status		Arkansas
- 🖥 Radioserver 211			>>	Los Angeles Type text and press Enter
- 🝶 Control Station 211			PTT »	San D
ီ Group1 (CS 211)			PTT »	Tucson Juárez Texas
ီ Group2 (CS 211)			PTT »	Austin
12.0.0.111		(empty)	PTT »	Chihuahua San Antonioo
12.0.0.95		(empty)	PTT »	
- 📓 Slot 211_1			PTT »	Guitof California
ီ Group1 (Slot 211_1)			PTT »	Guit of
粘 Group2 (Slot 211_1)			PTT »	Mexico
12.0.1.148		(empty)	PTT »	México
- 🚮 Slot 211_2			PTT »	

3. A private call from the radio, listed in the system of *user 2*, to the radio of *user 1*.

User 2:

			44	Google Map ×		
	Calls		~	+	12.0.1.148 - Online	* × *
12.0.1.148 Incoming call			РТТ	o Sacramento	Radioserver 211 Slot 211_1	PTT Illinois Kansas City Missouri St. Louis
	Spectrum Subscribers			San Francisco	9:44:13 AM > Offline 9:44:13 AM > Offline 9:44:13 AM > Offline	
Object	Map	Status			9:44:13 AM > Online 9:44:13 AM > Private Call, 12.0.0.95	≡ aArkansas
- 🚦 Radioserver 211			>>	Los Angeles		
- 🚄 Control Station 211			PTT »	San Dieg	👎 🖬 🞧 🚳 📾 🖬 😽 🍓	Mississipp Jallas
粘 Group1 (CS 211)			PTT »	V	Type text and press Enter	
着 Group2 (CS 211)			PTT »			Austin O Houston Louisiana
12.0.0.111		(empty)	PTT »		San	Antonio O Houston Louisiana
12.0.0.95		(empty)	PTT »		Chihuahua	
- 🝶 Slot 211_1			PTT »		Gulf of	- X 7
ង Group1 (Slot 211_1)			PTT »		California Mo	nterrey Guilf of
粘 Group2 (Slot 211_1)			PTT »			Mexico
12.0.1.148		(empty)	PTT »		México	
- 🝶 Slot 211_2			PTT »		N THERE	



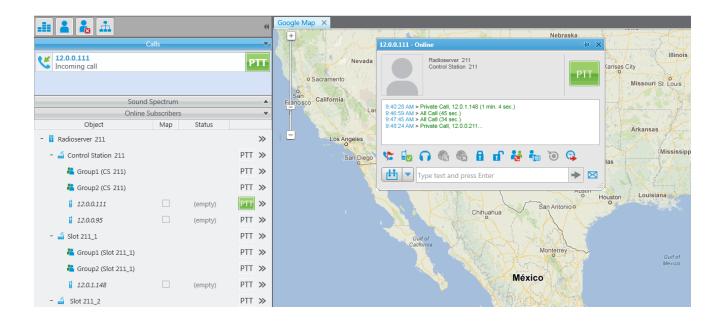
	Google Map X
Calls 🗸	12.0.1.148 - Online 🗘 🗙
V 12.0.1.148 PTT	o Sacramento
Sound Spectrum 🔻	4:45:42 PM > Offine
•()	4-45-34 2 PM > Offine 4-45-34 2 PM > Offine
<u>•</u>	Los Angeles Advance Call, 12.00.95
Online Subscribers 💌	San Diego 🗽 🗤 🎧 🔞 🔞 🔒 🗗 🍓 🐜 🐌 🤹 🥂 Mississipp
Object Map Status	
- 🖥 Radioserver 111 🛛 🎽	
- 🚄 Control Station 111 PTT ≫	
🐫 Group1 (CS 111) PTT ≫	Chihuahua San Antonio o
📇 Group2 (CS 111) PTT >>	
▮ 12.0.0.211	Guilforia California Monterrey
■ 12.0.1.148	Guild
- 🝶 Slot 111_1 PTT »	México
🔏 Group1 (Slot 111_1) PTT >>	
📇 Group2 (Slot 111_1) PTT >>	Guadalajara Santuago de OMén
∎ 12.0.0.95	Querétaro
- 🝶 Slot 111_2 PTT >>	Ciudad of Cludad

4. A call from the control station of *user 1* to the control station of *user 2*.

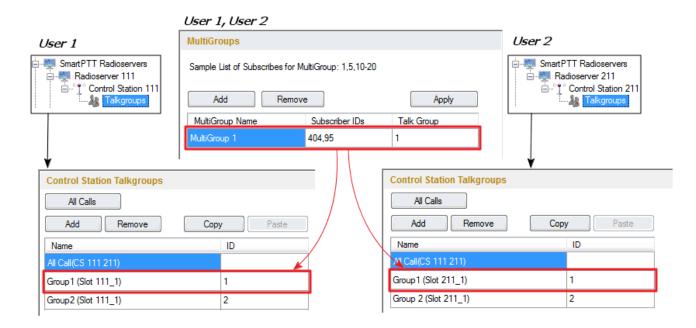
User 1:

😅 Dispatcher - Administrator		Could Billion at the second Billion and the second se
Operators Map Event Log View Settings	Service Rep	orts Help
	44	Google Map X
		+ Nebraska
12.0.0.211		Nevada
Outgoing call	РТТ	Radioserver 111
		PTT Missouri St. Louis
Sound Spectrum	•	San Etancisco California
		4:48:23 PM < Private Call, 12:0.0.211
		Los Angeles
Online Subscribers	¥	San Diego Mississippi
Object Map Status		
- 🖥 Radioserver 111	»	Type text and press Enter
- 📓 Control Station 111	PTT »	San Antonio
📇 Group1 (CS 111)	PTT »	Chihuahua San Antonio o
📇 Group2 (CS 111)	PTT »	Gunor
12.0.0.211 (empty)	PTT »	California
12.0.1.148 (empty)	PTT »	Guit of Mexico
- 🝶 Slot 111_1	PTT »	México
📇 Group1 (Slot 111_1)	PTT »	
🚢 Group2 (Slot 111_1)	PTT »	Guadalajara Santiago de o Mérida
12.0.0.95 (empty)	PTT »	Queretaro
- 📓 Slot 111_2	PTT »	Ciudag ^o o Herroica Puebla de México de Zarágoza

User 2:



To redirect only group calls between two radioservers without setting up routes in SmartPTT Dispatcher, create multigroups with the list of radios, that support group call bridging in SmartPTT Radioserver Configurator (for both radioservers). For more details see the Multigroups section in the Help of SmartPTT Radioserver Configurator.

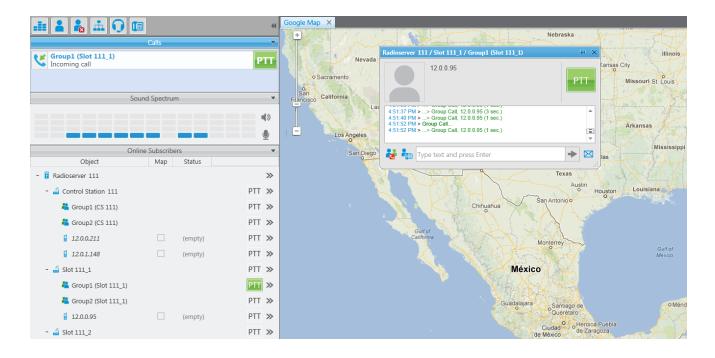


The following example demonstrates a call to Group 1. Group 1 corresponds to the created Multigroup 1 with the a list of radios – 95 (**IP address** = 12.0.0.95) and 404 (**IP address** = 12.0.1.148). The radio with the **IP address** = 12.0.1.148 (**ID** = 404) initiates a group call. The radio with the **IP address** = 12.0.0.95 (**ID** = 95) is also able to participate in the call due to Multigroup 1.

User 2:

.ii 🔒 🐁 🚠			44	Google Map X		
	Calls		~	+	Nebra	ska
Group1 (CS 211) Incoming call			РТТ	o Sacramento	Radioserver 211 / Control Station 211 / Group1 (CS_211) 12.0.0.95	Ansas City PTT Missouri St. Louis
	Spectrum			San Francisco California		
Online : Object	Subscribers Map	Status	•		9:51:53 AM >> Group Call, 12:0.0.95 (1 sec.) 9:52:10 AM > Group Call	
- Radioserver 211	wap	Status	>>	Los Angeles	9:52:10 AM >> Group Call, 12.0.0.95 (1 sec.) 9:52:11 AM >> Group Call, 12.0.0.95 (2 sec.)	Arkansas
- 🛁 Control Station 211			PTT »	San Diego	👸 🚛 Type text and press Enter	→ 🖂 Ias
ង Group1 (CS 211)			PTT »	N N N N N N N N N N N N N N N N N N N	Tey	195
📇 Group2 (CS 211)			PTT »	l X		Austin
12.0.0.111		(empty)	PTT »	1	Chituahua San Anton	Housion
12.0.0.95		(empty)	PTT »		Chihuahua	and the second sec
- 🝶 Slot 211_1			PTT »		Guilt of	
粘 Group1 (Slot 211_1)			PTT »		California	
粘 Group2 (Slot 211_1)			PTT »			Mexico
12.0.1.148		(empty)	PTT »		México	
- 🛁 Slot 211_2			PTT »			A CONTRACTOR

User 1:



1.1.10 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.

To configure the Capacity Max system in SmartPTT Radioserver Configurator, you will need to use the following applications:

- Radio Management application-to get the settings of the preconfigured virtual resources, and
- MOTOTRBO Network Interface Service Configuration Utility-to set up the MNIS Data gateway.

Capacity Max configuration in SmartPTT Radioserver Configurator includes the following steps:

- 1. Adding new network and its basic configuration.
- 2. Setting up the trunking controller.
- 3. Setting up MNIS Data gateway for data transfer.
- 4. Setting up the MNIS VRC gateway and the talkgroups.
- 5. Setting up the security settings.

How to Configure Capacity Max

To add a new Capacity Max system, right-click Capacity Max Networks in the setting tree of SmartPTT

Radioserver Configurator and click Add.

At that, Capacity Max System configuration menu appears on the right.

Settings Rules Activity Network Configuration Client I	List Log Export/Impo	ort Settings Statistics
	Capacity Max Syst	em
	Active	
Add-on Modules	Name	Capacity Max 1
IP Site Connect Networks	Network ID	2
iau and Capacity Plus Systems and a connect Plus	Radio ID	600
🕀 📲 Radio Activity Networks	Interface	Any 👻
in the state of t	Presence informat	tion
	Data transmission	
Capacity Max Networks	Voice transmission	n
Trunking Controller	Allow transmit interview	mupt
MNIS Data Gateway	Prioritize calls duri	ing emergency
Talkgroups	Channel Grant Waitin	ng timer (s): 15 🚔
Security Settings	TX time-out timer (s):	60 🚖
	GPS transmission mo	de: Data 🔹

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 is the identifier radio subscribers will see 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 value set in the **Device ID** field for the preconfigured radioserver device in the Radio Management application (see the **Capacity Max Systems** settings, sorted by the **Subscriber Access Control** value).

Capcity Max Systems Subscriber Access C	ontrol							\$ T
Capcity Max System 4	Vie	w by: 🔳 Sub	scriber Access Con	trol 🗌 Talkgroup Site Ass	ociation			
OurSystem1	Ŧ	k 🖉 🗊						ę
		Device Type	Serial Number	Physical Serial Numbe	Device ID	Enabled on System	Queue Priority	Allowable
		Console	0	0	600		6 -	<all sites=""></all>
		Data Gateway	0	0	301		б •	<all sites=""></all>
		Console	0	0	601		6 🗸	<all sites=""></all>
		Voice Gateway	0	0	201		6 •	<all sites=""></all>
		Motorola Radio	871TNV1525	1E0408B45C7685B4329F	506		б •	<all sites=""></all>
		Console	0	0	603		6 •	<all sites:<="" td=""></all>
		Console	0	0	602		6 -	<all sites=""></all>
		Console	0	0	604		6 •	<all sites<="" td=""></all>
		Console	0	0	605		б •	<all sites=""></all>
		Motorola Radio	807TQH1216	0CD025424B05C04BE66+	505		6 •	<all sites=""></all>
	4							•
		10 items found (0) currently selected)).				

Note: To open the Capacity Max System settings in the Radio Management application, click Actions >

Manage > Capacity Max System Server Data or press the Ctrl+Shift+G together.

Interface: The IP address of the PC where SmartPTT Radioserver is installed.

Presence information: Select this check box to enable connection with Trunking Controller.

Data transmission: Select this check box to work with MNIS Data gateway.

Voice transmission: Select this check box to enable MNIS VRC gateway.

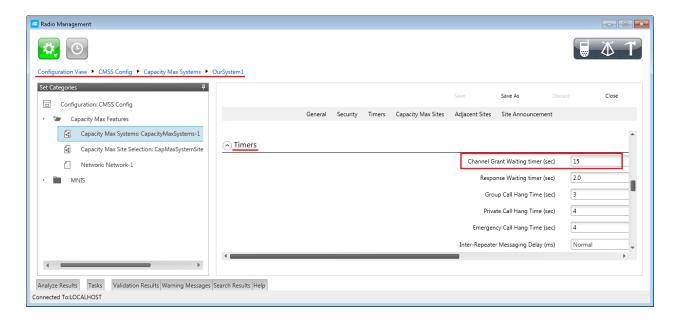
Allow transmit interrupt: Select this check box if you need the ability to interrupt a radio subscriber.

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.

Channel Grant Waiting timer: 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 the Radio Management application (see the **Capacity Max Systems:...** settings in the **Capacity Max Features** menu of the **CMSS Config** configuration, the **Channel Grant Waiting timer** field in the **Timers** tab).



Note: To open the Capacity Max Features of the CMSS Config configuration in the Radio Management application, click Actions > Manage > Configurations or press Alt+C together. In the table that opened, select the CMSS Config item and click Edit. In the Set Categories tab that opened, click Configuration: CMSS Config > Capacity Max Features.

FOACSU (Full Off Air Call Set Up) stands for the strategy of assigning the traffic channel only when the called party user has specifically answered the call. During the timeout the traffic channel is not allocated for the call.

For correct work of the FOACSU private calls, make sure that it is configured in the Radio Management application (see the **Capacity Max Systems:...** settings in the **Capacity Max Features** menu of the **CMSS Config** configuration, the **Individual Voice Call Type** field in the **General** tab).

🦲 Radio Management		- • •
. O		5 4 T
Configuration View CMSS Config Capacity Max Systems Out	rSystem1	
Set Categories #	Save Save As Discard	Close
Capacity Max Features	General Security Timers Capacity Max Sites Adjacent Sites Site Announcement	
Capacity Max Systems: CapacityMaxSystems-1	Last Modified Date	01/29/2016 12:52:
Capacity Max Site Selection: CapMaxSystemSiteS	Comments	
Network: Network-1		
► MNIS	() General	
	System Name	OurSystem1
	System Type	Capacity Max Adva
	Network Model	Large
	Network ID	1
	Stun/Revive Authentication	
	Individual Voice Call Type	FOACSU
	Call Queue Enable	
	Max Infrastructure Voice Interrupt Attempts	3
	Max Preemption Interrupt Attempts	6
	Primary Trunking Controller IP	172.16.1.10
		×
<		
Analyze Results Tasks Validation Results Warning Messages Se	arch Results Help	
Connected To:LOCALHOST		

TX time-out timer: Time period during which the radio can transmit without interruptions. After this time is over, the transmission is interrupted. It is recommended to use the default value of 60 seconds, which is set in the Radio Management application (see the **MNIS System** settings in the <u>MNIS</u> menu of the **CMSS Config** configuration, the **Transmission TOT** field in the **General** tab).

📕 Radio Management	
Configuration View CMSS Config MNIS System MNISSys	₩ T
Set Categories	
·	Save Save As Discard
 Capacity Max Features Capacity Max Systems: CapacityMaxSystem 	General Tunnel Network
Capacity Max Site Selection: CapMaxSystem	General
Network: Network-1	Capacity Max System OurSystem1
👻 🐨 MNIS	MNIS Application ID 201
MNIS Security: MNISSecurity-1	MNIS LE Port 201
MNIS System: MNISSystem-1 🔅	Transmission TOT (sec) 60
MNIS Advanced: MNISAdvanced-1	
MNIS Network: MNISNetwork-1	Request CSBK Data
MNIS Forwarding Rules	
MNIS Application Override Rules	Data Queue Size 25
<	
Analyze Results Tasks Validation Results Warning Messages Connected To:LOCALHOST	Search Results Help

Note: To open the MNIS menu of the CMSS Config configuration in the Radio Management application, click Actions > Manage > Configurations or press Alt+C together. In the table that opened, select the CMSS Config item and click Edit. In the Set Categories tab that opened, click Configuration: CMSS Config > MNIS.

GPS Transmission Mode: Allows you to select the way how to transmit location updates: as 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
CSBK	 Low traffic load on a channel Increased GPS transmission frequency rate 	 Not all radios support CSBK commands

	once in 15 seconds	
Enhanced	 Low traffic load on a channel 	Not all radios support CSBK commands
CSBK	Increased GPS transmission frequency rate	
	—once in 7.5 seconds	

Trunking Controller

To set up trunking controller click **Trunking Controller**.

Settings Rules Activity Network Configuration Client Lis	t Log Export/Import Settings Statistics
Settings Rules Activity Network Configuration Client Lis Radio Server Radio Network Services Radio Network Services Radio Network Services Radio Network Services Radio Network Services Radio Network Services Radio Network Services Radio Network Services Radio Control Stations Service Services Radio Networks Radio Networks Radio Activity Networks Radio Activity Networks NAI Systems	t Log Export/Import Settings Statistics Trunking Controller Primary controller address and port Redundant controller address and port
SIP/RTP Interfaces SmartPTT Radioservers Capacity Max Networks Capacity Max 1 Multi Controller MNIS Data Gateway MNIS VRC Gateway Talkgroups Security Settings	

Note: The Presence information check box in the Capacity Max window should be selected. Otherwise, the Trunking Controller parameter will not be shown.

Primary controller address and port: IP address and port of the primary virtual trunking controller, preconfigured in the CMS server. The IP address in this field must match the value set in the corresponding fields in the Radio Management application (see the CMSS Network:... settings in the Capacity Max Features menu of the CMSS Config configuration, the Trunking Controller IP field and the Presence Server IP field in the General tab).

🖷 Radio Management			
			A T
Configuration View ► CMSS Config ► CMSS Network ► Network Set Categories ₽ ▼ □ Configuration: CMSS Config	Save Save As		Close
 Capacity Max Features 	G	General	
Capacity Max Systems: CapacityMaxSystem	General		•
CMSS Network: Network-1	CMSS IP	172.16.1.9	
MNIS	CMSS UDP Port	50000	
	Trunking Controller IP	172.16.1.10:50000	
	Presence Server IP	172.16.1.10:50015	
	VRC Gateway IP	172.16.1.13	
	System Advisor IP	172.16.1.14	
	CMSS Internal Network	192.168.231.0	
	Gateway IP	172.16.1.254	
	Gateway Netmask	255.255.255.0	
	NTP Server	0.0.0.0	
· · · · · ·			
Analyze Results Tasks Validation Results Warning Mes	sages(1*) Search Results Help		
Connected To:LOCALHOST			Radio Count:1

Redundant controller address and port: IP address and port of the redundant virtual trunking controller. This field is optional. If you fill in this field, ensure that the corresponding values are set in the Radio Management application.

MNIS Data Gateway

To set up data transfer over Capacity Max network, set up MNIS Data gateway settings in SmartPTT Radioserver

Configurator and in the MOTOTRBO Network Interface Service Configuration Utility.

To set up MNIS Data gateway settings in SmartPTT Radioserver, click Capacity Max Networks > Capacity

Max > MNIS Data Gateway.

	MNIS Data Gateway					
Licenses Radio Network Services Add-on Modules Control Stations IP Site Connect Networks Capacity Plus Systems	Socket Type MNIS Control Interface Interface	Local Socket ▼ localhost:5000 192.168.10.2				
🗄 📲 Connect Plus	MNIS ID	301				
ia a Radio Activity Networks ia a NAI Systems	Location Port	4001				
SIP/RTP Interfaces SmartPTT Radioservers	TMS Port	4007				
⊡ 🙀 Capacity Max Networks ⊡ 🟣 Capacity Max 1	Telemetry Port	4008				
Trunking Controller MNIS Data Gateway						

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 PC as SmartPTT Radioserver. Select *Remote Socket* if MOTOTRBO Network Interface Service Configuration Utility and SmartPTT Radioserver are installed on a different PCs. In this case, information exchange between the processes is supported by the MNIS Relay application.

MNIS Control Interface: Use *localhost*, if MOTOTRBO Network Interface Service Configuration Utility is installed on the same PC as the radioserver. If MOTOTRBO Network Interface Service Configuration Utility and the radioserver are installed on different PCs, enter the IP address of the PC 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).

📻 Radio Management		- • •
		1
Configuration View DataMNIS01 Config MNIS Network	MNISNetwork-101	
Set Categories # Configuration: DataMNIS01 Config Capacity Max Features 	Save Save As Close	Discard
MNIS MNIS Security: MNISSecurity-101	General	
MNIS Security: MNISSecurity-101 MNIS System: MNISSystem-101 MNIS Advanced: MNISAdvanced-101	General	^
MNIS Network: MNISNetwork-101	CAI Network 12	
MNIS Forwarding Rules	CAI Group Network 225 STANDED TMS UDP Port 4007	
MNIS Application Override Rules	Telemetry UDP Port 4007	
MNIS Sites: MNISSitesList-101	Location Server UDP Port 4003	
	User Defined UDP Port 1 0 - Disabled	
	User Defined UDP Port 2 0 - Disabled	
	User Defined UDP Port 3 0 - Disabled	
	XCMP High Efficiency Data Enable	
	XCMP Server UDP Port 4004	
	Battery Management UDP Port 4009	
	Control Interface TCP Port 5000	-
<		
Analyze Results Tasks Validation Results Warning Messages	(1*) Search Results Help	
Connected To:LOCALHOST		Radio Count:1

Note: To open the MNIS menu of the DataMNIS Config configuration in the Radio Management application, click Actions > Manage > Configurations or press Alt+C together. In the table that opened, select the DataMNIS.. Config item and click Edit. In the Set Categories tab that opened, click Configuration: DataMNIS.. Config > MNIS. **Interface:** MOTOTRBO Network Interface Service interface. It must match the interface specified in the Radio Management application (see the **MNIS System** settings in the <u>MNIS</u> menu of the **DataMNIS Config** configuration, the **Gateway Tunnel IP** field in the **Tunnel Network** tab).

🚾 Radio Management	
Configuration View DataMNIS01 Config MNIS System MNISSystem-101	a t
Set Categories 4 Configuration: DataMNIS01 Config Device Information: DATAMINS01 Capacity Max Features	Save Save As Discard Close General Tunnel Network
MNIS System: MNISSystem-101 Active Vo MNIS Advanced: MNISAdvanced-101 Data Gate MNIS Network: MNISNetwork-101 MNIS Forwarding Rules	ed Data Enabled
Analyze Results Tasks Validation Results Warning Messages(1*) Search Resu	Gateway IP 192.168.10.1 teway Tunnel IP 192.168.10.2

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. Make sure **MNIS ID** matches the corresponding field in the Radio Management application (see the **MNIS System** settings in the <u>MNIS</u> menu of the **DataMNIS Config** configuration, the **Data Gateway Radio ID** field in the **General** tab).

🦲 Radio Management		
		1
Configuration View DataMNIS01 Config MNIS System Configuration: DataMNIS01 Config Device Information: DATAMINS01 Device Information: DATAMINS01 Device Information: DATAMINS01 Device Information: DATAMINS01 MNIS Security: MNISSecurity-101 MNIS System: MNISSystem-101 MNIS System: MNISSystem-101 MNIS System: MNISAdvanced-101 MNIS Network: MNISAdvanced-101 MNIS Softwarding Rules MNIS Application Override Rules MNIS Sites: MNISSitesList-101	► MNISSystem-101* Save Save As Discar Close General Tunnel Network	d
Analyze Results Tasks Validation Results Warning Messa Connected To:LOCALHOST		idio Count:1

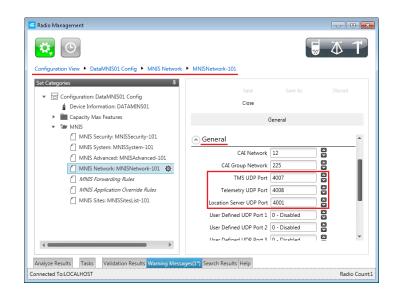
Location Port: The port where the radioserver will expect GPS data.

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 <u>MNIS</u> menu of the **DataMNIS Config**

configuration, the Location Server UDP Port



field, the **TMS UDP Port** field, the **Telemetry UDP Port** field in the **General** tab).

To set up MNIS Data gateway settings in MOTOTRBO Network Interface Service Configuration Utility, do the following:

 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 together. In the Export GWCFGX window that opened, specify the file name and click OK.

Radio Management							
* •							🚽 🕁 T
Radio View	4						
Groups			Sho	w Details	Edit	Configuration	Analyze Schedule Job
All	★ 	[d] [d]					ę
	Serial Number	Radio Alias Configurati	ion Group	Modified		Job Status	Job Name
	DATAMINS01		1 <i>Confia</i> None ▼	_			
	478IRU1225	Show Details	Ctrl+W			Completed	Write without Switchover 02/04/2016 06:04:21(
	► 478IRU1223	Delete	Del	1 A A A		Completed	Write without Switchover 02/04/2016 04:57:15(
	478IRC0016	Select Group	Ctrl+Alt+G			Completed	Write without Switchover 02/04/2016 06:06:00
	807TQH1216					Completed	Write without Switchover 02/05/2016 09:13:34
	871TNV1525	Edit Configuration	Ctrl+F			Completed	Write without Switchover 02/04/2016 04:00:05(
	USE519PLXA	Select Configuration	Alt+Shift+F	1.1		Completed	Write without Switchover 02/09/2016 06:46:43(
		Select IP System Settings					
		Schedule Job	Ctrl+J				
		Cancel Job	Alt+Shift+J				
		Select MVO	Alt+Shift+V				
		Analyze	Alt+Shift+S				
		Reports		_			
	•	Upgrade Firmware					•
	7 items found (1 c	Export		Rac	dio	Ctrl+Shi	ft+R
nalyze Results(1*) Tasks		Modify Radio Password		Grid	d to File	Ctrl+Shi	ft+S
				-	CFGX	Ctrl+Shi	64 . NI

 Transfer the saved GWCFGX file to your PC 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.

rganize 🔻 🛛 Include	e in library ▼ Share with ▼	New folder			≣ ▼ 🚺
F avorites	Name	Date modified	Туре	Size	
📃 Desktop	CapacityMax.gwcfgx	08.02.2016 12:37	GWCFGX File	3 КБ	
\rm Downloads	🔮 gw_default_tuning.xml	28.04.2014 17:11	XML Document	3 КБ	
📃 Recent Places	🔮 gw_index.xml	14.12.2015 16:47	XML Document	1 КБ	
Libraries					
J Libraries					
Music					
Pictures					
Videos					
Computer					
ڏ Local Disk (C:)					
Network					

 Launch 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 Service Configuration Utility 🗖 🗉 🕺
Configuration View Edit Service Help
Select Configuration
Select Configuration
CapacityMax.gwcfgx
OK Cancel

MNIS VRC Gateway

To set up the MNIS VRC gateway and talkgroups, click MNIS VRS gateway.

Settings	Rules	Activity	Network Configuration	Client List	Log	Ехро	t/Import Settings	Statistics	
⊡		MNIS VRC	Gatew	ay					
	Licenses Radio Network Services Add-on Modules Control Stations IP Site Connect Networks Capacity Plus Systems Connect Plus Radio Activity Networks NAI Systems SIP/RTP Interfaces SmartPTT Radioservers Capacity Max Networks		Name MNIS VRC G				ateway		
			Primary gateway address and port				172.16.1.	13:6000	
			Redundant gateway address and port			ss and port			
			Voice port (local)			40000		
			Listenin	g to priva	ate call	s between subscri	bers		
	i - 🟣 (Capacity N	8	Phone of	calls				
		MNIS MNIS	Data Gateway VRC Gateway Ikgroups ty Settings						

Note: The Voice transmission check box in the Capacity Max window should be selected. Otherwise, the MNIS VRC Gateway parameter will not be shown.

Name: The name of the gateway.

Primary gateway address and port: IP address and port of the main voice gateway. The IP address in this field must match the value set in the corresponding fields in the Radio Management application (see the CMSS Network:... settings in the Capacity Max Features menu of the CMSS Config configuration, the VRC Gateway IP field in the General tab).

🖷 Radio Management	
X O	
Configuration View CMSS Config CMSS Network N	etwork-1
Set Categories 7 □ Configuration: CMSS Config □ Capacity Max Features □ Capacity Max Features □ Capacity Max Features □ Capacity Max Features 	Save Save As Discard Close
Capacity Max Systems: CapacityMaxSyste	General
Capacity Max Site Selection: CapMaxSyst	General ▲
(VITAD	CMSS IP 172.16.1.9
	CMSS UDP Port 50000
	Trunking Controller IP 172.16.1.10:50000
	Presence Server IP 172.16.1.10:50015
	VRC Gateway IP 172.16.1.13
	System Advisor IP 172.16.1.14
	CMSS Internal Network 192.168.231.0
<	
Analyze Results(1*) Tasks Validation Results Warning M	essages(1*) Search Results Help
Connected To:LOCALHOST	Radio Count:1

The port in this field must match the value set in the corresponding field in the Radio Management application (see the **MNIS Network:...** settings in the **MNIS** menu of the **CMSS Config** configuration, the **Server TCP Port** in the **General** tab).

🚾 Radio Management		- • •
* •		4 1
Configuration View CMSS Config MNIS Network MN	ISNetwork-1	
Set Categories Image: Configuration: CMSS Config Configuration: CMSS Config Capacity Max Features Capacity Max Systems: Capacity/MaxSyste Capacity Max Site Selection: CapMaxSyste CMSS Network: Network-1 MNIS MNIS Security: MNISSecurity-1 MNIS System: MNISSystem-1 MNIS Advanced: MNISAdvanced-1 MNIS Network: MNISNetwork-1 MNIS Advanced: MNISNetwork-1 MNIS Security: MNISSecurity-1 MNIS Advanced: MNISNetwork-1 MNIS Sites: MNISSItesList-1 	Save Save As Close General CAI Network 12 CAI Group Network 225 TMS UDP Port 4007 Telemetry UDP Port 4007 Centrol Server UDP Port 4001 User Defined UDP Port 1 0 - Disabled User Defined UDP Port 2 0 - Disabled User Defined UDP Port 2 0 - Disabled User Defined UDP Port 3 0 - Disabled Storm Finite Server UDP Port 4004 Storm Server UDP Port 4004 Storm Server UDP Port 4004 Storm Server UDP Port 4004 Storm Server UDP Port 4009 Control Interface TCP Port 5000	Discard
< >	Server TCP Port 6000	-
Analyze Results(1*) Tasks Validation Results Warning Me	essages(1*) Search Results Help	
Connected To:LOCALHOST		Radio Count:1

Redundant gateway address and port: IP address and port of the redundant voice gateway. This field is optional. If you fill in this field, ensure that the corresponding values are set in the Radio Management application. **Voice port (local):** The port where the radioserver will expect voice data.

Listening to private calls between subscribers: Enables the Voice Recording feature, that allows the dispatcher to hear private calls made from radio subscribers to other radio subscribers, dispatchers or telephone subscribers and vice versa, read their messages.

Phone calls: Select this check box if you need the ability to make telephone calls.

Create one or more talkgroups in accordance with the settings in the Radio Management application (see the

Capacity Max Systems settings, sorted by the Talkgroup Site Association value).

Radio Server	Control Station Talkgrou	ps							_		
Radio Network Services	Сору		Paste							4 T	
Control Stations	All Call				Capacity Max System Server Data	Talkgroup Site As					
Capacity Plus Systems Connect Plus	Add Remov	e 🔒 🔒	Jp 🛛 🐺 Dowr	1	Capacity Max Systems		-				
Rado Activy Networks Rado Activy Networks SNA Systems SNA Systems Snart PT Platforms Capacity Max Networks Tarking Controller Tarking Controller MNIS VRC Gateway MNIS VRC Gateway Society Security Secur	Name	Site Number	Site Number ID			View by:	View by: Subscriber Access Control Talkgroup Site Association			ation	
	All Call	Wide	~		OurSystem1						
	All Call - Ste 1	1	~		本 /	* / •			۴		
	All Call - Ste 2	2	~			Talk	group ID Queue	Priority All	owed Sites	*	
	Group 100	Wide	~ 100				106 6	▼ Site	Selection 1	•	
	Group 101	Wide	✓ 101				107 6				
	Group 102	Wide	~ 102						Selection 1	•	
	Group 103	Wide	✓ 103				108 6	▼ Site	Selection 1	•	
	Group 104	Wide	~ 104				109 6	▼ Site	Selection 1	-	
	Group 105	Wide	~ 105				110 6	▼ Site	Selection 1	-	
	Group 106	Wide	✓ 106				111 6	▼ Site	Selection 1	-	
	Group 107	Wide	✓ 107				112 6	• Cite	Selection 1		
	Group 108	Wide	~ 108								
	Group 109	Wide	~ 109	1			113 6	 Site 	Selection 1	•	
	Group 110	Wide	~ 110				114 6	▼ Site	Selection 1	• *	
	-			~		103 ite	ms found (0 current	ly selected).			
					Analyze Results Tasks						

Note: To open the Capacity Max System settings in the Radio Management application, click Actions > Manage > Capacity Max System Server Data or press the Ctrl+Shift+G together.

1.1.11 Security Settings

SmartPTT supports 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, 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.

	Security Settings
🗄 🚛 Ādd-on Modules	Copy Paste
Control Stations	
Connect Plus Radio Activity Networks	Basic Privacy
□	Key 1
NAI Network 1	Enhanced Privacy
Slot 1	Add Remove
Talkgroups	Kaul D. Kaul/alua
	Key ID Key Value
Talkgroups	1 1234567890
MNIS/DDMS Settings	2 0987654321
SIP/RTP Interfaces	
MultiGroups	AES
🗄 👘 Metadata	Add Remove
	Key ID Key Value
	1 123456789123456
	2 654321987654321
	TX Privacy
	Type AES (DMR) Key ID 1

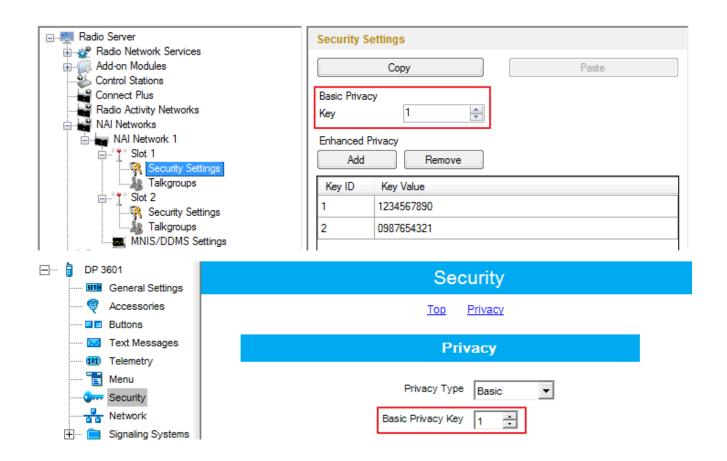
Copy: Copy encryption settings of the channel to the clipboard.

Paste: Paste encryption settings of the channel from the clipboard.

Basic Privacy

Key: A key for the basic encryption mode. The value ranges from *1* to *255*. Make sure that **Key** set in SmartPTT Radioserver Configurator matches **Basic Privacy Key** set in radio settings in MOTOTRBO CPS.

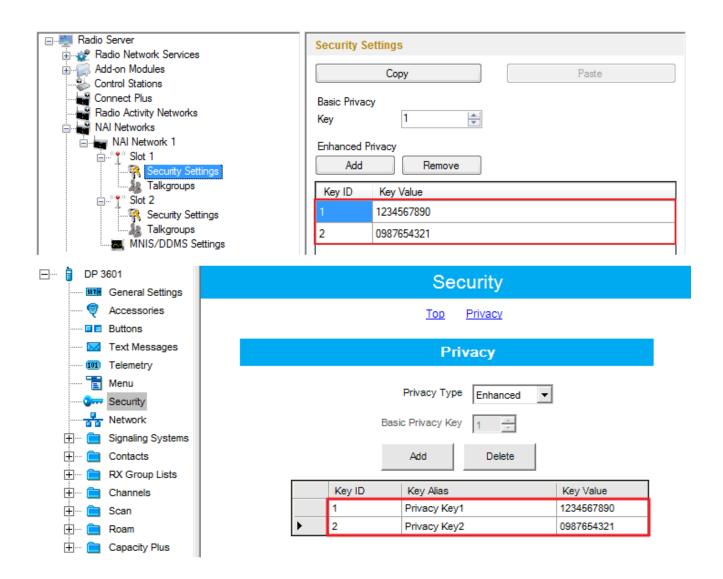
If basic encryption keys of receiving and transmitting side do not match, the receiving side hears only a distorted voice.



Enhanced Privacy

To add an enhanced privacy key for incoming traffic, click **Add**. To edit the key, click the cell that contains the key you want to edit and type the new value. To delete a key, select the key from the list and click **Remove**.

Key ID and **Key Value** must match the values set in the radio settings in MOTOTRBO CPS. 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 receiving side does not coincide with one of the key identifiers in the list of the transmitting side, then transfer to the receiving party will not be heard.



AES

To add an AES privacy key for incoming traffic, click **Add**. To edit the key, click the cell that contains the key you want to edit and type the new value. To delete a key, select the key from the list and click **Remove**.

Key ID and **Key Value** must match the values set in the radio settings in MOTOTRBO CPS and in MNIS 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 receiving side does not coincide with one of the key identifiers in the list of the transmitting side, then transfer to the receiving party will not be heard.

Radio Server	Security Settings
Add-on Modules	Copy Paste
Connect Plus Radio Activity Networks	Basic Privacy Key 1
NAI Networks	Enhanced Privacy Add Remove
E In the second se	Key ID Key Value 1 1234567890
MNIS/DDMS Settings	2 0987654321
& MultiGroups ⊕ j Metadata	AES Add Remove
	Key ID Key Value 1 123456789001234567890012345678900123456789000000000000000000000000000000000000
	2 1123456789012345678901234567890
	TX Privacy Type AES (Symmetric Key) ▼ Key ID 1 ▼

TX Privacy

Type: Allows you to select encryption mode for outgoing traffic on the side of SmartPTT Dispatcher.

If No is set, radioserver does not support outbound traffic encryption.

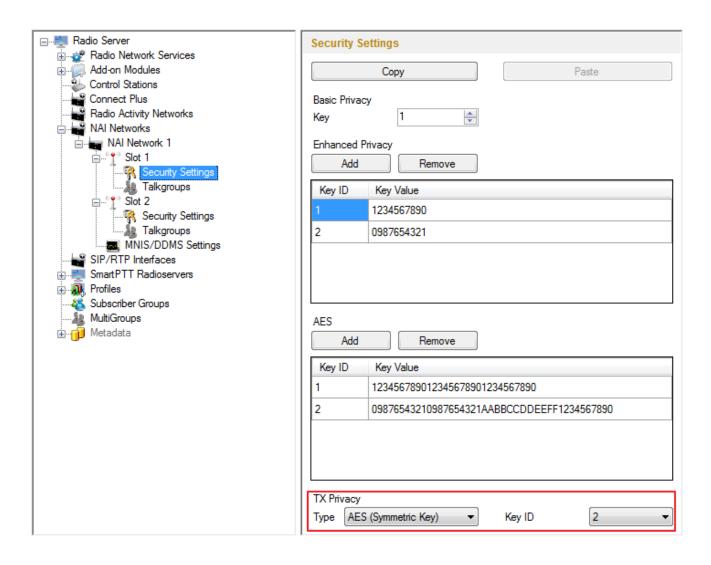
If *Basic* is set, the key specified in the **Key** field in the **Basic Privacy** section is used for encryption of outgoing traffic.

If *Enhanced* is set, specify the **Key ID** value from the **Enhanced Privacy** table, which will be used to encrypt outbound traffic.

Select AES (Legacy Key) or AES (Symmetric Key), with the required **Key ID**, if you want to use AES (Legacy Key) or AES (Symmetric Key) for outgoing traffic. If TX Privacy is not set, and you have AES encryption for incoming traffic, AES (Symmetric Key) will be used for incoming traffic by default.

AES (Legacy Key) – AES encryption (Motorola Solutions implementation, MOTOTRBO firmware earlier than R2.4).

AES (Symmetric Key) – AES encryption (DMR-compliant implementation, MOTOTRBO firmware R2.4 and later).



1.2 Profiles

SmartPTT Radioserver Configurator allows creating permission profiles. The permission profiles are used to limit

the operator's access to objects managed by SmartPTT Radioserver (control stations, talkgroups, services, IP Site Connect slots), and to provide additional opportunities in the organization of calls between dispatchers and radio subscribers.

To create a profile right-click **Profiles** in the setting tree of SmartPTT Radioserver Configurator and click **Add**.

At that, the following window opens.

	ofile		
Radio Network Services Add-on Modules Control Stations Connect Plus Radio Activity Networks NAI Networks SmartPTT Radioservers SmartPTT Radioservers MultiGroups MultiGroups MultiGroups Metadata	me mit Radios to Service Penabled Ilowed radio ID's Expand All Provide The Connect Private calls Private calls Private calls Private connect Private calls Private connect Private calls Private calls Private calls Private calls Private calls Private calls Private calls	Collapse All 1 - IPSC_Slot 1 private calls between su private calls between su private calls between su	

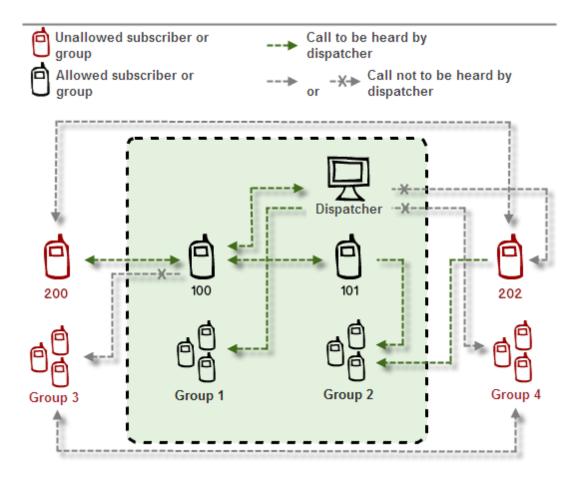
Name – the profile name.

The **Limit Radios to Service** area was designed to manage the number of radios allowed for this profile. Here the user can specify which radios are to be controlled by the profile and which are not.

To make this functionality active select **Enabled**. Then, in the **Allowed radio ID's** field, enter the ID's of the radios which are to be controlled by the profile.

Warning! All the radios whose ID's were not specified will be ignored by SmartPTT system.

The following scheme shows how it works:



This is how this scheme can be presented in the table:

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

Note: When adding allowed radios make sure that the same radios are specified in **Radioserver** > <u>Limit Radios</u> **to Service**. Otherwise, the radios not registered in both lists will be regarded as unallowed.

Upwards and downwards arrows are used for changing the order of head elements in the list. This order will be applied in SmartPTT Dispatcher, if this profile is used.

In the central list you can select all the elements which are to be controlled by the operator with this profile. If there are more than one operator on the same channel, set the unique **ID** for each operator. This will allow radio

subscribers to make private calls to particular operators, dialing the specified ID. If dispatchers have the same ID, they will hear each other's private calls, even if **Private calls** is not selected.

In Capacity Plus and Linked Capacity Plus configurations based on NAI protocol, when using control stations reserved for dispatcher private calls, a new parameter **Reserved Control Station** appears and the **ID** value matches the reserved control station **ID** automatically:

Radio Server	Profile	
Radio Network Services	Name Profile 1	
Control Stations	Limit Radios to Service	
P Site Connect Networks Capacity Plus Systems	Enabled	Example: 1-99, 150
Connect Plus	Allowed radio ID's	
Radio Activity Networks	Expand All Collapse	All 👍 Up 😽 Down
SIP/RTP Interfaces		
	NAI- Linked Capacity Plus 1 - S W Reserved Control Station: C	
Profile 1	···· V ID: 100	
	Radio Network Services	
	🗹 ARS 🕼 GPS	
	TMS	
	Telemetry	

Private calls: If enabled, it allows the dispatcher to initiate private calls to radio and telephone subscribers, and dispatchers.

Listening to private calls between subscribers: If enabled, it allows the dispatcher to hear private calls made from radio subscribers to other radio subscribers, dispatchers or telephone subscribers and vice versa, read their messages. This feature is available for networks with direct connection to repeater, e.g., IP Site Connect, Capacity Plus.

To allow the dispatcher to make an All Call or a group call, select the corresponding check box. If a group is selected, the dispatcher will hear all the calls made to this group.

To allow the dispatcher to use services like ARS, GPS, TMS, telemetry, select the corresponding check boxes

under Radio Network Services.

Save changes and restart the server to apply the new profile.

Note: To assign the created profile, open the dispatch console, Settings > Radioservers.

1.3 Subscriber Groups

Subscriber groups are used in many places, for example, to organize dynamic bridging of private calls, or to

control telephone calls, or to set different location update intervals.

To add subscriber groups, click **Subscriber Groups** in the setting tree of SmartPTT Radioserver Configurator window. At that, **Subscriber Groups** window is displayed on the right.

	Subscriber Groups	
Add-on Modules Control Stations	Sample List of Subscribers for Group: 1,5,10-20	
Connect Plus Radio Activity Networks NAI Networks	Add Remove	
	Group Name	Subscribers
	Drivers_Group 1	12-22
<mark>& Subscriber Groups</mark> & MultiGroups ⊕jji Metadata	Drivers_Group 2	122-132
	Operators	100-107

Group Name – subscriber group name.

Subscriber IDs – the list of radio IDs, which will be included in the created group.

Dynamic routing is configured in SmartPTT Dispatcher in the **Route** window.

Route	×
	Route Number
	8
Source Control Station	Route Type Destination Control Station
Automatically	Dynamic Automatically
Subscriber Group	
Engineers Group 1	
	OK Cancel

Select Dynamic in the Route Type list. Select the group in Subscriber Group list.

Note: Routing configuration is described in details in SmartPTT Dispatcher help (Bridging).

1.4 Metadata

To provide several dispatch consoles with one consistent list of subscribers it was decided to keep subscriber metadata, e.g., radio ID, radio subscriber 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>Subscribers</u> list, it won't appear in SmartPTT Dispatcher. To create the database for subscribers metadata, select **Metadata** in SmartPTT Radioserver Configurator:

	Metadata
Add-on Modules	V Active
Control Stations	Creating Metadata Database
Radio Activity Networks	Server Name: localhost\SQLExpress
	Database Name: Metadata
i	Create New Database
MultiGroups Metadata Subscribers	Authorization Mode: Windows NT Authorization
Automatic Database Backup	Login:
	Password:
	Check Connection
	Restoring Database Backup
	Restore Database

Type in the **Server Name** and the **Database Name** fields, 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*).

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.

Click **Check Connection**. In case of successful authorization the message "The connection is established successfully!" is displayed. 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 Automatic Database Backup window.

1.4.1 Subscribers

To add subscriber metadata, select **Subscribers**:

🖃 🕎 Radio Server	Subscribers		
Radio Network Services Add-on Modules Control Stations Control Stations	 ID Input Format IP address 		
	CAI + Radio ID	Remove	
🕀 🦣 Profiles	ID	Subscriber Name	GPS
	12.0.0.100	Subscriber 100	
🖻 👘 Metadata	12.0.0.101	Subscriber 101	
Subscribers Automatic Database Backup	12.0.0.102	Subscriber 102	

ID Input Format – allows you to select the radio ID format to use.

To add a radio to the list, click on **Add**. At that, a window for entering the radio ID opens up. The ID format depends on the selection in the **ID Input Format** section. In the **Subscriber Name** column enter the name of the added radio subscriber. In the **GPS** column select whether the radio supports GPS.

To delete the radio subscriber from the database, select it in the list and click on **Remove**.

Click **Save** to keep changes and restart the radioserver to see the newly added radio subscribers in the dispatch console.

1.4.2 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 user 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.

⊡	Automatic Database Backup
ia	✓ Active
Control Stations	Backup Folder C:\Documents and Settings\ShmelevaNE\Paбочий стол\Backup
Radio Activity Networks	Backup Settings
	O Daily
	O Weekly
& MultiGroups ⊡ 1 Metadata	
Subscribers Automatic Database Backup	 Monthly Repeat on 1 <a>day of month
	with interval 1 📚 month
	Time: 15:00 📚
	Backup Period
	Start Date: 09/01/2014 💌
	End Date: 🔿 10/01/2014 💌
	No End Date

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 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.

1.5 Client List

The Client List tab enables you to see the lists of client applications connected to the radioserver and to manage

the settings of the users created to work with the web application.

To open the list of client applications connected to the radioserver, click the Client List tab and click Active.

Settings Client List Rules A	ctivity Network Configuration Lo	g Export/Import Settings	Statistics	
All (mobile and web clients)				
List of connected clients				
Client Name	Address	Connect Time	Profile	
Dispatcher - Administrator	192.168.37.75:51145	08.12.2015 9:55:37		
Michael@smartptt, Web	192.168.37.75:51182	08.12.2015 9:56:35		

Client Name: Name of the desktop version of the dispatch console, the operator's name, or web application connected to the radioserver. If Windows Authentication is enabled in SmartPTT Dispatcher > Settings > General Settings, you can also see the name of the Windows group (which, in this case, corresponds to the name of the operator) and the name of the Windows user logged into Windows.

Address: The IP address of the client application.

Connect Time: Time of the last session.

Profile: Assigned profile to the dispatcher or to the user of the web application.

Note: To assign a profile to the dispatcher, click **Settings** > **Radioservers** in SmartPTT Dispatcher. For more information about profiles see <u>Profiles</u> in the Help document.

To connect the desktop version of the dispatch console to the radioserver, go to **Settings** > **Radioservers** in SmartPTT Dispatcher and select the radioserver to which you want to be connected. At that, in the **Client List** tab of SmartPTT Radioserver Configurator the connected dispatch console will show up.

How to connect the user of the web application to the radioserver, please check WebClient

Installation & Configuration for SmartPTT.

To open the list of users created to work with the mobile and web clients, click All (mobile and web clients).

Settings Client List Rules Activity	Network Configuration Log Export/Import Settings Statistics			
All (mobile and web clients) O Active				
Add Delete				
Login	Parameters			
Michael		-		
Peter	Login Michael Change password			
Maria	Profile			

The Login list: The list of users of the SmartPTT web application.

To add new user, click the **Add** button. In the **Parameters** section specify the user name in the **Login** field and set the password by clicking the **Change password** button. The user name and password are case sensitive.

Profile: It contains the list of profiles created in SmartPTT Radioserver Configurator (see the **Settings** tab > **Profiles**). Assigning a profile to the user is not obligatory, but enables you to limit the user's access to objects and to provide additional opportunities in the organization of calls between user and radio subscribers. For more information about profiles see Profiles in the Help document.

To edit the parameters of the existing user, click this user in the **Login** list, and edit the necessary fields in the **Parameters** section.

To delete user, click this user in the Login list, and click the Delete button.

To save the changes, click the **Save** button in the bottom right corner of the SmartPTT Radioserver Configurator.

1.6 Rules

SmartPTT Radioserver allows you to set up rules to perform automatic actions (playback sounds, send messages, play predefined voice notifications) based on conditions specified in the **Rules** tab in SmartPTT Radioserver Configurator.

To set up rules, open the Rules tab in SmartPTT Radioserver Configurator.

	Rules		
Eve	ents on radios	Events on Dispatcher	
🤅 🛟 Ad	🗄 📲 Add 🔎 Modify 💥 Delete		
Active	Name		
	Rule 1		
V	Rule 2		

Events on radios: Allows you to create rules related to subscriber radios.

Events on Dispatcher: Allows you to create rules related to SmartPTT Dispatcher.

To create a new rule for events on radios, click **Events on radios** and then click **Add**. To change the existing rule, click **Modify** or double-click on the rule name in the list of rules.

Rule	
Name:	Rule 1
Active:	
Direction:	Equal to
Event Type:	Equal to
Date:	
Additional Information:	
Control Station:	
Talkgroup:	
Subscriber:	
Status:	
Duration:	
Actions	
Play Sound:	, , ,
Send Message:	Message text
	T 1 1 00 150
	Example: 1-99, 150 Subscriber 5-10
	© Talkgroup 0 ↓
	Send Message To Initiator
Start Voice Notification:	
Stop Current Voice Notification:	Any 🔹
	Save

Name: Any name of the rule.

Active: If selected, the rule will be used in the system.

Under **Conditions** you can select criteria of the rule.

Condition name	Operation	Value
Direction	Equals	Incoming, Outgoing

Condition name	Operation	Value
Event Type	Equals, Not Equals	ARS, Call, Message, Telemetry,
		Alarm, Status, Block
Date	In Interval	Period of time
Additional Information	Equals, Contains	Any additional information, e. g.
		text messages, titles and
		description of tasks, participants
		of a group call.
Control Station	Equals, Contains	Control station name
Subscriber	Equals, Not Equals	Subscriber ID
Talkgroup	Equals, Contains	Talkgroup name
Status	Equals, Not Equals	One of system statuses of events
Duration	Equals, Not Equals, Greater, Greater than or	Duration of time (seconds)
	Equal, Less, Less than or Equal, In Interval	

To create a new rule for events on SmartPTT Dispatcher, click **Events on Dispatcher** and then click **Add**. To change the existing rule, click **Modify** or double-click on the rule name in the list of rules.

Rule				
Name:	Rule 2			
Active:				
Connection to Radiosen	ver: Lost	• Ti	imeout (s): 10	×
Actions Play Sound:				
	Connection to the radios	erver is lost.		
	 Subscriber Talkgroup 	Example: 1 - 99, 150 2-7		
Start Voice Notification:				
Stop Current Voice Notification:	Any			
	Save	Cancel		

Connection to Radioserver: If *Lost* is selected, the system performs predefined actions when the connection between SmartPTT Radioserver and the last dispatch console is terminated. If *Restored* is selected, the system performs predefined actions when the first dispatch console connects SmartPTT Radioserver.

Timeout (s): Time period in seconds, after which the SmartPTT Radioserver performs actions defined under the **Actions** area.

Under Actions you can define actions, which the system will perform when the rule conditions are fulfilled:

- **Play Sound:** When selected, you can specify the path to the folder with the audio file to play, and select a subscriber or a talkgroup to who you want it to be sent. Supported audio file format is WAV.
- Send Message: When selected, you can type a text message, select recipients (subscribers or a talkgroup), and the Send Message to Initiator option.
- Start Voice Notification: When selected, you can specify the notification to play (to learn how to create a voice notification, see Voice Notifications). If the rule conditions were fulfilled at the moment when the operator

played a voice notification, the voice notification specified in the rule actions won't play. To avoid this, select

Stop Current Voice Notification. You can also specify which notification must be stopped.

1.7 Activity

The **Activity** tab displays events going on the radio network. Mostly, it is used for debugging purposes, but it can be useful for Administrators too.

To open Activity, click in the Activity tab in SmartPTT Radioserver Configurator.

Activ	ity			
Auto Scroll				
Filter				
Registration (ARS))	Locations (Location)	Calls (Call)	× .
Messages (TMS)		V Telemetry (Tel)	Other (Other)	All Events
Date/Time	Туре	Control Station	Event	
2/6/2014 12:26:38	Other	IP Site Connect 1 - Slot 1	Connected	
2/6/2014 12:26:38	Other	IP Site Connect 1 - Slot 2	Connected	
2/6/2014 12:28:35	Other	IP Site Connect 1 - Slot 1	Disconnected	
2/6/2014 12:28:35	Other	IP Site Connect 1 - Slot 2	Disconnected	
2/6/2014 12:29:07	Other	Control Station 1	Connected	
	1			

There are six types of monitored events:

- 1. Registration
- 2. Messages
- 3. Locations
- 4. Telemetry
- 5. Calls
- 6. Other (includes connection or disconnection of slots or control stations)

Select an event to monitor it.

Date/Time – date and time of the event.

Type – one of the six event types.

Control Station – source of the event.

Event – short description of the event and its status.

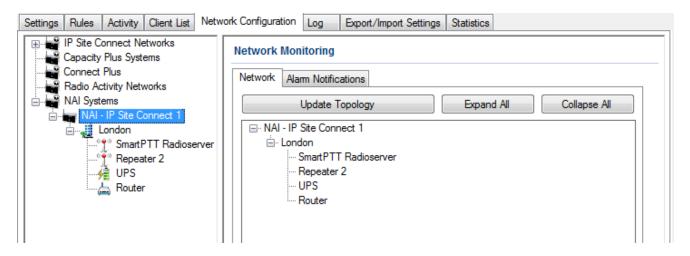
Auto Scroll – by default the list of monitored events scrolls down to the latest recording. If you want to switch off the automatic scrolling, unselect this option.

173

The **Clear Event Log** button deletes all the records of the registered events and cleans the log.

1.8 Network Configuration

In the **Network Configuration** tab you can set up elements of the networks used in the system. The added elements will be displayed in the **Topology** tab of SmartPTT Dispatcher. You can also set up sending of alarm notifications to predefined addresses.



Note: This tab is available only if there is a license for monitoring. If you have it, make sure you have selected the **Active** check box in the <u>Monitoring</u> window.

To add elements of the network, select the network in the list. The supported network elements include:

repeaters, routers, UPS and location. To add devices, open the context menu by right-clicking on the existing

network. Radioservers are added automatically with the name Server.

To delete the created object, right-click on the object and then select **Remove Repeater**, **Remove Device** or **Remove Location** respectively.

Adding Repeater

To add a repeater, select the **Add Repeater** option in the context menu. At that, the window for setting up repeater parameters will open.

Settings Rules Activity	Client List Network Confi	guration [.og	Export/Import Settings	Statistics	
IP Site Connect Net Capacity Plus Syste Connect Plus Radio Activity Netw NAI Systems NAI Systems NAI - IP Site Co Condon SmartP Pepeat UPS Router	errs General Forks Radio II Name TT Radioserv Descripter 2	Alarm Noti	2	Repeater 2		
	SNMF	Parameter	s			
	Comm	unity	C	Community 1		

ID – unique identifier of the repeater.

Name – any random name of the repeater. The name will be used in the **Topology** tab in SmartPTT Dispatcher. If the name is not set, the name from the repeater codeplug will be displayed.

Description – random description of the repeater.

SNMP Parameters – here you can set up the community name, which is used as a password for the external SNMP client to connect to the repeater.

In the **Alarm Notifications** tab you can set up automatic notification of alarms or errors occurred in the repeater. You can have the notifications sent to your email address, to your cell phone, to an SNMP client or to radio subscribers.

Adding UPS and Routers and other devices

The supported devices include a router and an uninterruptible power supply (UPS). To add a device, select the **Add Device** option in the context menu. At that, the following window will open.

Settings Rules Activity Client List N	etwork Configuration Log	Export/Import Settings Statistics
	Device	
Connect Plus	General Alarm Notification	15
NAI Systems	Туре	Cisco2900 🔹
AI - IP Site Connect 1	Name	Router 2900
SmartPTT Radioser	Description	
Pepeater 2		
Router	Interface	192.168.37.170 v Port 162
	IP-address	192.168.36.21 Port 161
	SNMP Version	V1 •
	Community	Community2900
	Response Timeout, s	3
	Polling Interval, s	30
	External Community	Ext_Community2900
		Check Connection

Type – device type. There are the following devices to choose from:

- Cisco2900 (router)
- Eaton9130 (UPS)
- Huawei Router
- UPS ATS-Convers
- Supermicro Server. This server allows you to receive information about the state of the radioserver and errors occurred on the radioserver. To be able to receive alarms from the radioserver, add Supermicro Server. If there are any alarms on the radioserver, you will see them in Monitoring event log in SmartPTT Dispatcher.

• Apc 5000

• Unknown (for other devices not specified in the list)

Name – random name of the device which is displayed in **Topology** in SmartPTT Dispatcher.

Description – random description of the device.

Interface - the radioserver IP address used for interacting with the device.

IP address – IP address of the device.

SNMP version – version of SNMP protocol used in the system. There are two options: versions 1 and 2 (*V1* and *V2*).

Community – community name, which is used as password to locally connect to the device over SNMP protocol.

Response Timeout, sec – time during which the server expects a response from the device. The maximum value is *10* sec.

Polling Interval, sec – time period at the end of which the radioserver sends a request to the device. The default value is *30* sec.

External Community – special community name which is used as password to connect to the device via external SNMP client.

Check Connection – checks if there is a connection to the device. At clicking the button a new window with the information on the connection status opens.

To set up the automatic alarm notifications from the device, go to the Alarm Notifications tab.

Adding Location

If there are many repeaters and devices, they can be grouped by location. In LCP systems a location represents a site (you can define **Site ID**). In Connect Plus systems a location can be used for added XRC controller. To add a location, select the **Add Location** option in the context menu. At that, the following window will open.

Settings Rules Activity Client List Netwo	vork Configuration	Log Export/Import Settings Statistics
	Location	
Connect Plus	Name	London
NAI Systems	Description	
London 		
	Initial State	Unfold

Name – any random name of the location. The name is displayed in the **Topology** tab in SmartPTT Dispatcher. **Description** – random description of the location which is displayed in the **Topology** tab in SmartPTT Dispatcher when hovering the mouse pointer over the object.

Initial State – defines how the location object is to be displayed in the **Topology** tab in SmartPTT Dispatcher. If the check box is selected, all the devices and repeaters allocated to the location will be displayed by default. If the check box is not selected, the devices won't be seen inside the location by default. In this case, to see the devices, you will need to click on the location object in the **Topology** tab.

To add or remove a device or repeater from the location, simply drag it to another place.

Note: When deleting a location with devices and repeaters allocated to it, all the devices will be deleted together with the location.

You can upload the network elements, instead of adding them manually. To do it, click **Update Topology**. At that, a pop-up window will open and the update process will start:

💀 Topol	ogy Upd	ate	inge of the lighted	
		Updating: 2/3		Stop
Changes			Remove missing peers	Update names
Site	Peer ID	Change Type		
0	5	SmartPTT added		Cancel
0	1002	Name change Repeater Tomsk 1->Repe	eater 1	Cancel
			Cancel /	AI OK

Stop – interrupts the ongoing update process. All the changes that were made prior interruption—these you can see in the **Changes** table—will be applied after clicking **OK**.

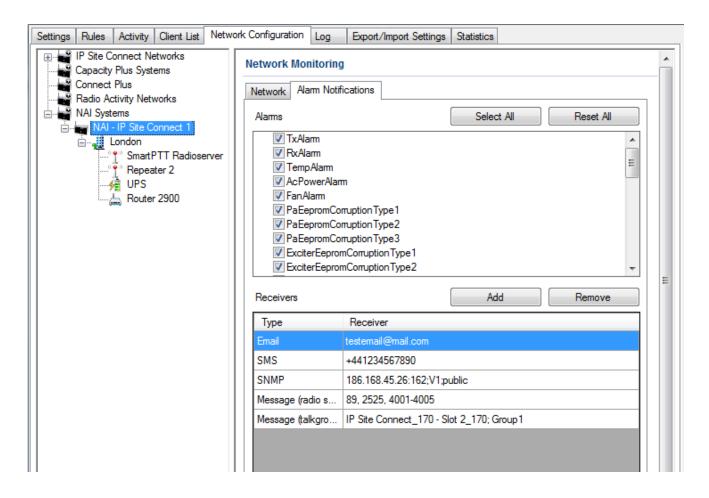
Remove missing peers - checks if there are any missing peers to exclude them from network topology.

Update names – replaces names of repeaters by those defined in CPS.

The **Changes** table shows all the changes made during the update process. You can discard changes by clicking **Cancel**. To discard all changes, click **Cancel All**. To apply the changes, click **OK**.

Alarm Notifications

SmartPTT can notify radio and telephone subscribers, and other users about errors or other malfunctions occurred on devices used in the system. To set up automatic alarm notifications, click **Alarm Notifications** in the **Network Monitoring** window:



Select all the alarms you want to be notified about. Then create the list of notifications receivers. To do it, click **Add**. There are several types of receivers: individual radio subscribers, talkgroups, telephone subscribers, email users, SNMP clients.

The alarm notifications set in the **Network Monitoring** tab are applied to all elements of the radio network, but you can change them for each element of the network.

1.9 Log

The **Log** tab was designed to give information about the radio service system events. Mostly it is used for debugging purposes.

Log

Radio Service	Information	
Time:	07.05.2013 09:42:34.000	
Comment:	Client connected (ip=192.168.0.224,name=Диспетчер.id=3c45cf9e-0eab-44e9-b295-cc96a084935d,voipport=	
18501,sessioni	d=1ad8b0df-db21-48b3-b763-fe7cd7163a5f).	
Radio Service	Information	
Time:	07.05.2013 09:49:27.000	
Comment:	Client disconnected (ip=192.168.0.224,name=Диспетчер.id=3c45cf9e-0eab-44e9-b295-cc96a084935d,voipport=	
18501,sessioni	d=1ad8b0df-db21-48b3-b763fe7cd7163a5f).	
Radio Service	Information	
Time:	07.05.2013 09:49:27.000	
Comment:	Service stopped.	
Radio Service	Information	
Time:	07.05.2013 11:26:23.000	
Comment:	Monitoring database update successfully complete	
Radio Service	Warning	
Time:	07.05.2013 11:26:26.000	
Туре:	Warning	
Source:	RepeaterConnection	
Text:	System.Net.Sockets.SocketException (0x80004005): Этот хост неизвестен	
	t.Dns.GetAddrInfo(String name)	
	t.Dns.InternalGetHostByName(String hostName, Boolean includeIPv6)	
	t.Dns.GetHostAddresses(String hostNameOrAddress)	
	IPSiteConnectService.BwPDA1KJmb0cyXhPeAR(Object)	
at Repeaters	IPSiteConnectServicector(IIPSiteConnectSettings settings)	

1.10 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.

	Export/Import Settings	
	Export/import Settings	
xport		
ave Export File As:		
		Browse
Settings		
Export Radioserver Database		
F		
Export		
nport		
hoose File to Import:		
		Browse
Settings		
Settings		
Import Radioserver Database		
Import Radioserver Database		
 Import Radioserver Database Override Settings Keep Server GUID 		
Import Radioserver Database Ovenide Settings		
 Import Radioserver Database Override Settings Keep Server GUID 		
 Import Radioserver Database Override Settings Keep Server GUID 		

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 the Settings and/or the 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, i.e., 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.
- 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 GUID's.
 - 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 GUID's.
- 5. Click Import.

Note: After importing the radioserver settings with the option to override all the existing settings (**AII**), it is important to delete one of the two servers to avoid GUID conflict.

1.11 Statistics

The Statistics tab was designed to give you information on:

- 1. The total number of events taking place on the radioserver.
- 2. Free space of the used databases.
- 3. The size of the folder with audio recordings.

To open the window click in the **Statistics** tab.

				Statistics
Even	ts			
Reg	istration	244		
Calls	;	981		
Mes	sages	61		
Tele	metry	0		
Alam	ns	0		
Data	base Name	Current Size	Max Size	
•	RadioServer.mdf	2.3 Mb	Unlimited	
	RadioServer_log.LDF	576 Kb	2048.00 Gb	
Audio	0			
	ord Folder Size	39.1 M	ь.	
Reco	nd Folder Size			