



SmartPTT Plus

System Requirements

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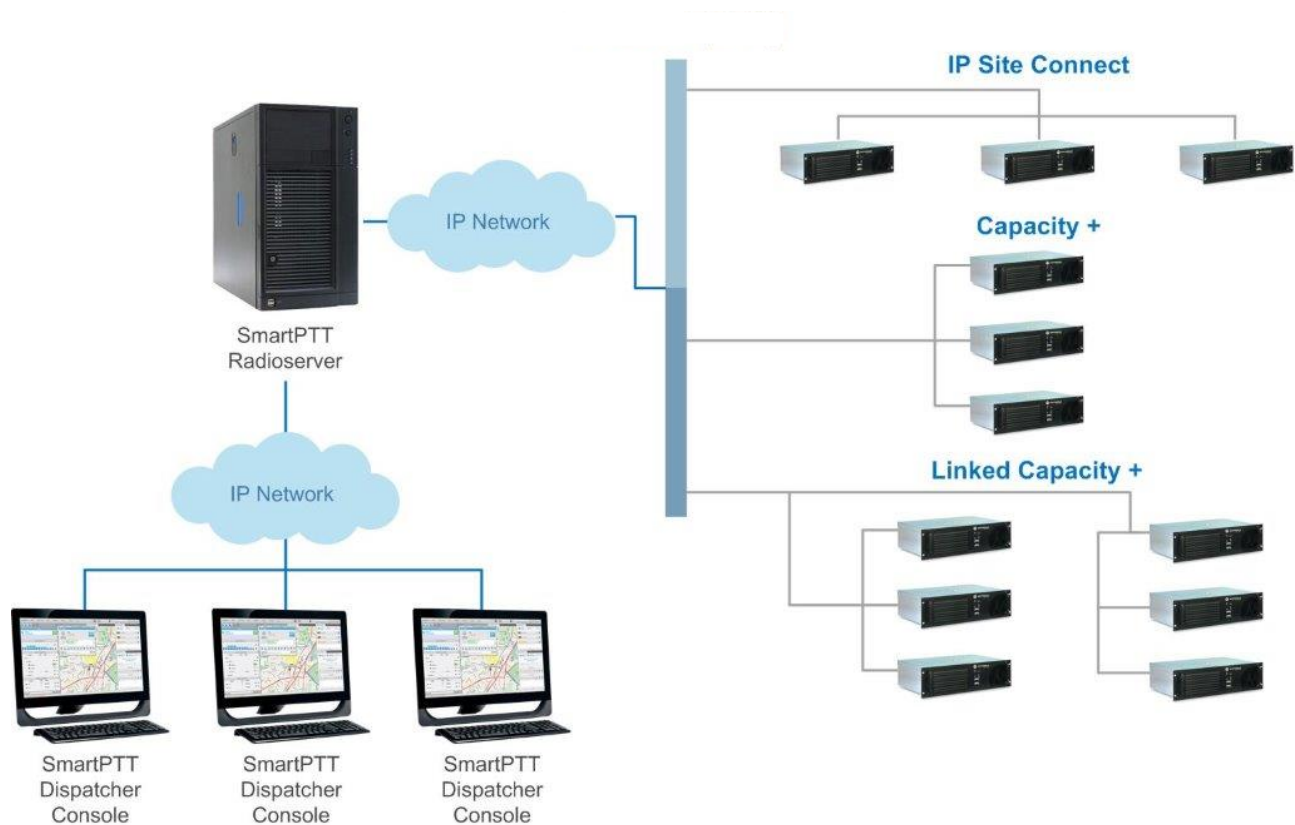


System Requirements

Architecture Description

The SmartPTT-based dispatching system can include several dispatch consoles, SmartPTT Radioservers and communication channels connecting them. Thus, technical requirements relate to three system components:

1. SmartPTT Dispatcher
2. SmartPTT Radioserver
3. Communication channels connecting SmartPTT Dispatchers and SmartPTT Radioserver, and communication channels connecting SmartPTT Radioserver and MOTOTRBO repeaters.



However, the number of the required components can increase. This depends on the product type and required abilities. E.g., SmartPTT Plus supports MOTOTRBO Network Application Interface protocol (MNAI) for data and voice transmission over radio network, and Connect Plus. To support NAI protocol it is required to have MOTOTRBO Network Interface Service and Device Discovery and Mobility Service installed. And for Connect Plus

it is obligatory to have XRC 9000 Controllers and XRT 9000/9100 Gateway.

1. System Requirements for SmartPTT Dispatcher

1. Intel Core i3 processor or higher
2. Windows 7, Windows 8 operating systems
3. RAM 2 GB or more
4. Hard drive

The hard drive size depends on the size of the database and recorded calls. There must be at least 12 GB of the hard drive space available if you install Microsoft SQL Server 2008 R2 Express. Using a database server other than SQL Express, free space depends on the planned volume of data. Calls are recorded with a bitrate of 40 Kbps.

5. Sound card
6. Network adapter
7. Monitor with 1024x768 resolution or higher
8. Keyboard
9. Mouse or other pointing device
10. Audio recording and playback devices (e.g. microphone and speakers)

2. System Requirements for SmartPTT Radioserver

1. Intel Core i3 processor or higher
2. Windows 7, Windows 8, Windows Server 2008 operating systems
3. RAM 2 GB or more
4. Hard drive
5. Sound card (for connecting multiple channels – Multi-channel, for example, M-Audio Delta 1010 LT) is required when using control stations
6. Network adapter

Note: These are general system requirements for SmartPTT Dispatcher and SmartPTT Radioserver. They can change due to configuration and complexity of the radio system and its workload.

3. Requirements for Communication Channels

Between SmartPTT Radioserver and SmartPTT Dispatcher the required bandwidth is equal to the bandwidth required for voice transmission. In case of Control Station configuration CCITT uLaw codec is used by default and the required bandwidth is 90 Kbit/sec per one channel. To calculate the required maximum of bandwidth, multiply this value by channel quantity.

*For instance, when one SmartPTT Dispatcher is connected to the radioserver, which is by-turn connected to radio network with two control stations, then the required bandwidth is $90 * 2 = 180$ Kbit/s.*

When other codecs are used (with a higher degree of reduction), sound quality is reduced. At that, requirements for bandwidth are considerably lower. For example, the required bandwidth with the use of BroadVoice codec is about 25 Kbit/sec for one channel.

When direct IP connection is used, the radioserver serves as virtual site, and that is why required bandwidth for communication channels connecting SmartPTT Radioservers and MOTOTRBO repeaters is the same as bandwidth for communication channels connecting MOTOTRBO repeaters. Please refer to MOTOTRBO SYSTEM PLANNER to learn the details.

*For instance, required bandwidth for one repeater is approximately 45 Kbit. Correspondingly, overall service capacity is $45 \text{ Kbps} * \text{amount of repeaters in IP Site Connect network}$.*

It is recommended to use a network with an inter-repeater communication delay of 60 milliseconds or less. In case delay is observed to be higher than 60 milliseconds, then delays should be stable.

System Requirements for MOTOTRBO Hardware

Regions	Mobile Radio	Firmware Version	Portable Radio	Firmware Version	Repeater	Firmware Version
APAC	XiR M82xx series XiR M86xx series	R01.08.32 or higher R02.00.00 or higher	XiR P82xx series, XiR E8608/8600 XiR P8668/8660, XiR P8628/8620, XiR P8608/8600, SL1K	R01.08.32 or higher R02.00.00 or higher	XiR R8200	R02.21.09 or higher
EA	DM 3000 series DM 4000 series	R01.08.32 or higher R02.00.00 or	DP 3000 series DP 4000 and SL series	R01.08.32 or higher R02.00.00 or	DR3000, MTR3000	R02.21.09 or higher

		higher		higher		
LACR	DGM 6100+/6100, DGM 4100+/4100 DGM 8000 series	R01.08.32 or higher R02.00.00 or higher	DGP 6150+/6150, DGP 4150 +/4150, DGP 8050 ELITE DGP 8550/5550, DGP 8050/5050	R01.08.32 or higher R02.00.00 or higher	DGR 6175, MTR 3000	R02.21.09 or higher

For Connect Plus network, the XRC 9000 and XRT 9000/9100 must have firmware versions 1.2 or higher.

Warning! MOTOTRBO repeaters united in one network must have same firmware versions.

Warning! The firmware versions of the repeaters and MOTOTRBO Network Interface Service must be compatible (you can find compatibility information in MNIS Release Notes).

Note: Only repeaters with 32 MB of internal memory support MNAI protocol. **Network Application Interface Data** license is required for all basic functionality. For voice transmission both licenses (**Application Interface Data** and **Network Application Interface Voice**) are required.

List of Ports Used by SmartPTT

SmartPTT Dispatcher (Source)

Transport Protocol	Source	Destination	Comments
TCP	X	8888	Server (Commands)
UDP	18501	18500	Server (Voice)
UDP	18501	18501	Intercom (Communication between Dispatchers), Data,
TCP	18501	18501	Commands Intercom (Communication between Dispatchers), Voice
UDP/TCP	5060	5060	Telephone Interconnect (Commands)
UDP	18600-18650	X	Telephone Interconnect (Voice)

SmartPTT Radioserver (Source)

Transport Protocol	Source	Destination	Comments
TCP	8888	X	Client (Commands)
UDP	18500	18501	Client (Voice)
TCP	X	110, 25, 587 (with SSL), 995 (with POP3), 993 (IMAP4)	E-mail gateway
UDP	161 162	161	SNMP (Monitoring)
UDP/TCP	5060	5060	Telephone Interconnect (Commands)
UDP	18600-18610	X	Telephone Interconnect (Voice)
TCP	X	8002	Connection to control station
UDP	4001 4005 4007 4008	4001 4005 4007 4008	For control station configuration only (4001 – Location, 4005 – Registration Service, 4007 – Messaging Service, 4008 – Telemetry Service)

Transport Protocol	Source	Destination	Comments
UDP	50000	50000	For repeater configuration only

5060 – Port is set by default and can be changed

4001 – Port can't be changed