SmartPTT System Requirements

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Introduction

SmartPTT-based dispatch system can include several dispatch consoles, SmartPTT Radioservers and communication channels connecting them. Thus, technical requirements are related to the following system components:

- SmartPTT Dispatcher
- SmartPTT Radioserver Configurator
- Communication channels connecting SmartPTT Dispatcher and SmartPTT Radioserver, and communication channels connecting SmartPTT Dispatcher, MOTOTRBO repeaters, and control stations.

Number of the required components can increase. This depends on the product type and required functionality.

Minimum System Requirements for SmartPTT Dispatcher

Software Requirements

SmartPTT Dispatcher can be installed and used on Windows computers only.

OS Family	Version
Windows 10	Pro version 1809 or later (64 bit)
	Enterprise 2016 LTSB (64 bit)
Windows 8.1	Windows 8.1 (64 bit) **NOTE** Windows 8.1 must have the latest updates or the KB 2919355 update. For details, see Microsoft Support information.

NOTE
To ensure operating system security and SmartPTT stable operation, it is recommended to install the latest Windows updates.

Hardware Requirements

Processor:	Intel® Core™ i5 (7th generation or higher) for systems with less than 3,000 subscribers.
	Intel® Core™ i7 for systems with more than 3,000 subscribers or activated GPS/Monitoring/Indoor services.
Memory (RAM):	4 GB for systems with less than 3,000 subscribers.
	8 GB for systems with more than 3,000 subscribers or activated GPS/Monitoring/Indoor services.
Storage:	7200 rpm SATA drive.
	20 GB space for software and database.
Graphics adapter:	1 GB RAM PCI-E or similar CPU-integrated for systems with voice transmission only.
	2 GB RAM PCI-E or similar CPU-integrated for systems with activated GPS/Monitoring/Indoor services.

Monitor:	display size: 23”
	screen resolution: 1366 × 768 px
	color depth: 16 bit
Input/output ports:	1 input port per input device or Human Interface Device (HID).
	1 analog audio output per playback device (speaker or headset).
	1 audio input per microphone.
Sound adapter:	Multichannel sound adapter.
Audio recording device:	A microphone or a headset.
Playback device:	Headphones or a headset.
LAN:	10/100/1000 Mbps Ethernet adapter.
Pointer:	A mouse or a trackball.
Keyboard:	A standard keyboard.

NOTE
These are standard system requirements for SmartPTT Dispatcher. They can change depending on the configuration, complexity and/or workload of the system.

Minimum System Requirements for SmartPTT Radioserver

Software Requirements

SmartPTT Radioserver can be installed on Windows computers only.

OS Family	Version
Windows Server	Windows Server 2016
	Windows Server 2012 R2
Windows 10	Pro version 1809 or later (64-bit)
	Enterprise 2016 LTSB (64-bit)
Windows 8.1	Windows 8.1 (64-bit) **NOTE** Windows 8.1 must have the latest updates or the KB 2919355 update. For details, see Microsoft Support information.

NOTE
To ensure operating system security and SmartPTT stable operation, it is recommended to install the latest Windows updates.

Hardware Requirements

Processor:	Intel® Core™ i5 (7th generation or higher) for systems with less than 3,000 subscribers.
	Intel® Core™ i7 for systems with more than 3,000 subscribers or activated GPS/Monitoring/Indoor services.
Memory (RAM):	4 GB for systems with less than 3,000 subscribers.
	8 GB for systems with more than 3,000 subscribers or activated GPS/Monitoring/Indoor services.
Storage:	7200 rpm SATA drive.
	40 GB space (software and database only).
	190 GB space (software, database, and voice records).

Input/output ports:	1 USB port per each control station connected directly to the computer.
	1 analog audio input/output per each control station connected directly to the computer.
	1 input port per each input device.
Sound card:	External sound cards required to support multiple control stations connected directly to the computer.
LAN:	10/100/1000 Mbps Ethernet adapter.

NOTE
These are standard system requirements for SmartPTT Radioserver. They can change depending on the configuration, complexity and/or workload of the system.

Networking Requirements

Network Quality

Computer networks where SmartPTT is installed and used, must comply with the following requirements:

Parameter	Value
Packet Loss	Slightly distorted voice: 0.0–2.5 %
	Distorted voice: 2.5–15.0 %
Two-Way Delay	Radio network connection: 0–90 ms
	SIP Server connection: 0–60 ms
Jitter	Radio network connection: 0–90 ms
	SIP Server connection: 0–60 ms

IP access to the radio network means the connection to hardware/software solution that provides access to the radio network:

- Connection to an RG-1000e device.
- Connection to repeaters:
  - Master repeater (for voice calls and monitoring).
  - Other repeaters (for monitoring).
- Connection to a computer with a MNIS Data Gateway Relay application.
- Connection to a computer with Device Discovery and Mobility Service (DDMS).
- Connection to the XRC controller (Connect Plus).
- Connection to the XRT gateway (Connect Plus).
- Capacity Max System Server (CMSS) connection.

NOTE
Motorola radio hardware may have more specific requirements for the above parameters. For this information, refer to the respective hardware documentation.

Bandwidth Requirements

Computer networks where SmartPTT is installed and used must provide specific bandwidth between the computer with SmartPTT Radioserver and the other IP devices of the dispatch system. All following requirements are applicable to one-way transmissions.

Voice transmission

All following requirements are applicable to a single voice stream.

Source/Target	Minimum	Comments
SmartPTT Dispatcher application	13 kbps	For DMR vocoder
	100 kbps	For G.711 vocoder
RG-1000e radio gateway	from 65 kbps	Exact value depends on vocoder parameters
Master repeater	20 kbps	
XRT Gateway	20 kbps	Applicable to Connect Plus only
Capacirty Max System Server	20 kbps	
SIP Server	65 kbps	For G.729 or Speex vocoders
	100 kbps	For G.711 vocoder
Applications that use SmartPTT WebSocket	from 65 kbps	For each of the following applications: • SmartPTT Web Client • SmartPTT Mobile • Third Party app over SmartPTT Server API Exact value depends on vocoder parameters.

Required bandwidth should be increased if you use the bridging, cross patches, conference calls, or voice communication between dispatchers. For details on increased bandwidth, contact Elcomplus LLC representative in your region.

If you have an alternate/redundant SmartPTT Radioserver, the bandwidth to that computer must comply with the synchronization settings between the main and redundant servers.

Voice traffic between SmartPTT Dispatcher applications (the Dispatchers feature) is not sent to SmartPTT Radioserver. To provide this feature, the bandwidth between dispatcher computers must be 65 kbps or more per each configured contact.

Data transmisison

In SmartPTT, data transmisison includes text messages, indoor and outdoor location, telemetry information and control commands.

Source/Target	Minimum	Comments
SmartPTT Dispatcher application	3.5 kbps	For Enhanced CSBK location data from 10 subscribers and location update period 7.5 s
Master repeater	20.0 kbps	For each repeater without a revert channel
	45.0 kbps	For each repeater with a revert channel
Remote MNIS host	20.0 kbps	For each repeater without a revert channel
	45.0 kbps	For each repeater with a revert channel
XRC controller	20.0 kbps	For each repeater without a revert channel
	45.0 kbps	For each repeater with a revert channel
Avigilon server	3150 kbps	For each camera. This value is obtained based on the following conditions: • Resolution is 1920 x 1080. • FPS is 25. • Service packets in stream no more than 5% of the video stream. • *H.264 Base codec - medium quality*. • Average dynamics of the image change.

Bandwidth must be increased if you activate and use the Bridging feature in SmartPTT Radioserver, create a cross patch, or organize a conference call.

If you have a redundant SmartPTT Radioserver, the bandwidth to that computer must comply with the synchronization settings between the main and redundant servers.

Monitoring service

Source/Target	Minimum	Comments
SmartPTT Dispatcher application	42 kbps	For each configured repeater if the **Monitoring**

Source/Target	Minimum	Comments
		panel is closed
	45 kbps	For each configured repeater if the **Monitoring** panel is opened
Repeater	42 kbps	For each configured repeater

Support and Compatibility

MOTOTRBO Infrastructure

SmartPTT supports the following MOTOTRBO firmware and software:

Firmware/Software	Version	Comments
Subscriber radio Firmware	R02.11.XX R02.10.XX R02.09.XX	
Repeater Firmware	R02.11.XX R02.10.XX R02.09.XX	
Control Station Firmware	R02.11.XX R02.10.XX R02.09.XX	
MOTOTRBO Network Interface Services Software (MNIS)	R2.105.X R2.100.X R2.90.X	Provides data transmission in IP Site Connect, Capacity Plus, and Linked Capacity Plus
Device Discovery and Mobility Service Software (DDMS)	R3.100.X R3.70.X	Provides radio registration information in IP Site Connect, Capacity Plus, and Linked Capacity Plus
XRC and XRT Firmware	R02.80.XX	Connect Plus only
Capacity Max System Server (CMSS) Firmware	R02.11 R02.10 R02.09	

Additional information on infrastructure:

- Within the radio system, all repeaters, subscriber radios and control stations should use the same or compatible firmware versions.
- If you activate the Bridging feature, you should bridge only the radio fleet objects which are associated with the same or compatible firmware versions.
- Access and operation in radio systems for SmartPTT require separate licensing.

Elcomplus Products

SmartPTT is compatible with the following Elcomplus LLC products:

Product	Version	Comments
Radio gateway RG-1000e	R3.X	Current version of firmware used on the device for control station remote connection and operation.
	R2.2	Previous version of firmware used on the device.
SmartPTT File Transfer	2.0	Application for file transmission over the radio network.
SmartPTT SCADA	1.1	New version of software SmartPTT extension for data acquisition and remote control in civil engineering.
	1.0.1	Software SmartPTT extension for data acquisition and remote control in civil engineering.

Third Party Products

SmartPTT is compatible with a range of third-party products. Below you will find a list of hardware and software products that proved to be compatible with the SmartPTT applications.

Database Management Systems

SmartPTT uses Microsoft SQL Server as a database. The following versions are supported:

- Microsoft SQL Server 2014 Express
- Microsoft SQL Server 2008 R2 Enterprise

For information on use of other Microsoft SQL Server versions and editions, submit a request to SmartPTT Technical Support Center.

Option Boards

- Connect-RTLS RF800 (BluFi Wireless).
- K-TERM 44 (Kilchherr Elektronik AG).

Beacons

- Connect-RTLS RF800 (BluFi Wireless).
- K-TERM 70IC Beacon Transmitter (Kilchherr Elektronik AG).
- iBeacons.

Option Boards Software

SmartPTT supports MOTOTRBO™ option boards programmed using Tallysman Sprite Configurator. For specific features, the corresponding software versions are required:

- Version 0.2.68 for the Heartbeats feature.
- Version 0.3.16 for the Movement Reports Restoration feature.

These software versions are incompatible and they do not provide both features to one option board.

Sound cards

- Internal PCI-E Sound Blaster Audigy RX.
- External Sound Blaster X-Fi Go.
- ESI MAYA44XTe.
- ICON Digital Cube Pro USB.

Accessories

- Desktop USB microphone D-9 by Holmco
- Desktop USB microphone PS12 by pei tel
- Desktop microphone DM-160 by CXD
- Push-to-talk button PTT-13 by Imtradex
- USB corded headsets Blackwire C310-M and C320-M by Plantronics
- Yellow foot switch X-keys XK-3 USB Switch Interface by P.I. Engineering

Hardware

- SmartPTT Dispatcher can be installed and used on BeFREE 10 computers.
- SmartPTT supports the IP Gear Claro 30 SIP-gateway (by ESTel) for access to analog telephone networks.
- SmartPTT can connect to NexLog recorders running under NexLog Recorder Software 2.8.2.
- SmartPTT can connect to Avigilon system cameras using the Avigilon Control Center Server 7 software.

Contact Information

The document describes the product developed by Elcomplus LLC. The official company's website is www.elcomplus.com.

For contact information with the Elcomplus LLC representatives, see www.elcomplus.com/contacts.

Technical Support

Customer support is provided by Technical Support Center. The official website of the Center is support.smartptt.com.

To contact the support engineer, perform one of the following actions:

- Fill in and submit the support request from the website.
- Email the support request to support@smartptt.com.

In America, customer support is provided by Elcomplus, Inc. To contact support engineers, use the following contact information:

- Phone: +1 786-362-5525
- Email: miami@smartptt.com
- Mailbox: 290 NW 165th St, Ste P-200, 3rd Flr
  Miami, FL, 33169, USA

Technical Support Center and Elcomplus, Inc. do not consult on deployment and maintenance of Motorola Solutions products except on settings related to SmartPTT connection and data communication. For the technical support on Motorola Solutions products, please contact authorized Motorola Solutions representative in your region.

Customer Documentation

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