

CTI Products

RadioPro™ IP Gateway
Installation Guide
for
Motorola APX 4500 P25 Radios



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For Version 8 Software

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Disclaimer

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Fonts used in this document:

Technical terms

Cross-references within this document

Hyperlinks to other documents or web pages

Warnings

Software menus, menu options, folders, pages, and parameters

Software parameter values

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1 OVERVIEW

This Manual will focus on configuring and using the *Motorola APX 4500 Radio* with the RadioPro System.

Please Refer to the [RadioPro IP Gateway Installation Guide](#) for general installation information relevant for all radio system types.

1.1 System Planner Document and Template

Use the System Planner Template on page [12](#) of this document in the planning phase of a project to record IP addresses, usernames, passwords, serial numbers, and device names.

1.2 Required Items

1.2.1 Radio Interface Cable

A radio interface cable must be ordered for each IP Gateway from the following table:

<i>Control Station Radio</i>	<i>Cable Part #</i>
Motorola APX 4500	S2-61927

1.2.2 Control Station Radio

Each Control Station radio used for voice requires one IP Gateway.

<i>Control Station Radio</i>
Motorola APX 4500

1.2.3 Radio Programming Cable

The Motorola programming cable must be used with the CPS software to configure the Control Station radio. **The RadioPro Interface cable cannot be used to program the APX 4500 radio.**

2. FEATURE AVAILABILITY

Motorola P25 Systems

Depending on the P25 System Type, some features may not be available. Use the following table to determine if a feature discussed in this document is not available.

<i>System Type</i> <i>Feature</i>	<i>P25</i>
Voice Dispatch	✓*
Text Messaging	-
GPS Mapping	-
ARS	-
Private Call	-
Remote Monitor	-
Remote Enable/Disable	-
Telephone interconnect Rec/Mon	-

* Voice Dispatch is talk/listen only with no PTT ID.

3. CONFIGURATION AND INSTALLATION

Use the steps in the following table to install a RadioPro System. Each step is discussed in detail starting on page 7. Following installation of the IP Gateway in Step 5, at least one Client must be installed from Step 6.

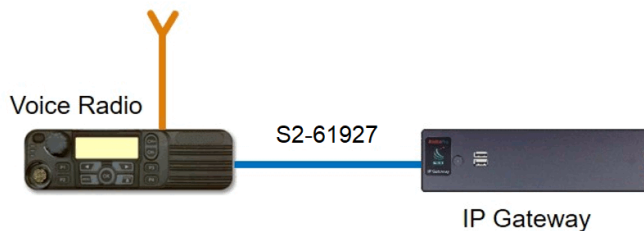
Step #	Description	Motorola MOTOTRBO
1	Configure the APX 4500 for Voice	page 7
2	Connect RadioPro IP Gateway to Control Station Radio	page 7
3	Configure RadioPro IP Gateway(s) using ICU.exe	page 8

Please Refer to the [RadioPro IP Gateway Installation Guide](#) for additional installation steps relevant for all radio system types.

Step 1. for Motorola APX 4500 (Voice):***Configure Control Station Radio (For Voice)***

The RadioPro IP Gateway connects to the APX 4500 through an intercom interface. This interface uses the COR / PTT functionality that is always available through the accessory connector of the APX 4500 radio. Therefore, no special radio programming is required to connect to the APX 4500.

NOTE: The APX 4500 Radio does not offer GPS functionality accessible to the Gateway. Therefore, the Data-revert operation cannot be utilized when using this model radio.

Step 2. for Motorola APX 4500 systems:***Connect the RadioPro IP Gateway to the Control Station Radio***

Note: Before continuing, ensure that the programming cable has been disconnected

See Section [4.1 Appendix – Radio Interface Cables](#)

Motorola APX 4500 on Page [10](#) for interface cable details

Connect the IP Gateway to the Control Station Voice radio using the following steps:

1. Connect the DE-9 side of cable S2-61927 to the DE-9 connector on the rear of the RadioPro IP Gateway module.
2. Connect the other end of the cable to the Rear Accessory Connector on the APX Voice radio.

Note: Since the IP Gateway has not yet been configured with appropriate IP parameters, do NOT connect the IP Gateway to an IP network.

Step 3. Configure RadioPro IP Gateway



Note: Before continuing, ensure that Wi-Fi connection has been disabled in the PC or Laptop being used to configure the IP Gateway.

The RadioPro ICU (IP Configuration Utility) must be used to configure each RadioPro IP Gateway with the necessary parameters. Configuration of each RadioPro IP Gateway must be performed before connecting the IP Gateway to a local area network.

Configure RadioPro IP Gateway settings:

Please Refer to the [RadioPro IP Gateway Installation Guide](#) for information about how to connect to the IP Gateway and for settings that apply to all radio systems.

Configure APX 4500 specific settings: (Once connected to the IP Gateway with the ICU Utility)

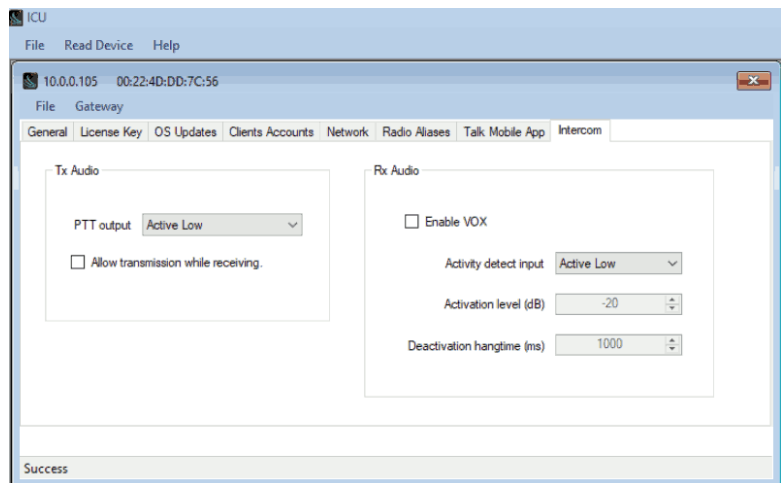
Intercom tab

Tx Audio

PTT output must be set based on radio model.

An **Active Low** PTT radio expects the voltage on the PTT line to be high when not transmitting and to be pulled low, or to ground when transmitting.

An **Active High** PTT radio expects the voltage on the PTT line to be low, or ground, when not transmitting and to be pulled high when transmitting.



The APX 4500 PTT line is **Active Low**.

Allow transmission while receiving can be set if the control station radio is programmed to operate in full duplex mode with the ability to transmit and receive simultaneously.

With this setting **Enabled**, a client connected to the RadioPro IP Gateway will be able to transmit even when the radio is receiving. **Warning: This setting should only be checked for radios that have full duplex functionality.**

With this setting **Disabled**, a client connected to the RadioPro IP Gateway will get a bonk if trying to transmit when currently receiving a call.

The APX 4500 does not have full duplex capability, therefore, this setting should be **Disabled**.

Rx Audio

Activity detect input must be set based on radio model.

An **Active Low** COR (Carrier operated relay) radio will maintain a high voltage on the COR line when not in a call and pull the voltage low, or to ground when a transmission is received.

An **Active High** COR radio will maintain a low, or grounded voltage on the COR line when not actively in a call and will pull the voltage high when receiving a transmission.

The APX 4500 COR line is **Active**.

Enable VOX can be set to have the IP Gateway operate as a voice operated switch.

When **Enabled** the gateway determines a receive call by the Activation Level.

When **Disabled** the gateway determines a receive call by the COR signal from the radio.

Activation level (dB) is the audio level in decibels that will trigger the voice-operated exchange.

Deactivation hangtime (ms) is the time in milliseconds the VOX will keep the incoming audio transmission up after the last “good” audio level is received.

Refer to the [RadioPro IP Gateway Installation Guide](#) for instructions on how to connect the RadioPro IP Gateway to an IP Network, configure Port Forwarding, and installing RadioPro Clients.

4. APPENDIX

4.1 Appendix – Radio Interface Cables

Motorola APX 4500

Voice Radio

Interface Cable # S2-61927

<i>Signal Name</i>	<i>IP Gateway DE-9 Pin #</i>	<i>APX 4500 Radio HLN6961 Accessory Connector</i>
Digital Gnd	3	1 (Org)
Serial Rx/Cor	1	13 (Brn)
Radio Mic -	5	14 (Grn)*
Radio Spkr -	9	15 (Blk)*
Serial Tx/PTT	6	16 (Blu)
Radio Spkr +	8	21 (Gry)
Radio Mic +	4	23 (Yel)
12v Acc	2	25 (Red)

* These signal wires are pinned together.

This interface cable requires DE-9 Male to connect to the IP Gateway female connector.

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6. SYSTEM PLANNER TEMPLATE **PAGE 1 OF 2**

RadioPro IP Gateways

Parameters Common to all IP Gateways

<i>ICU.exe Admin Password</i> <small>for ICU.exe, default is "admin"</small>	<i>Dispatch Client Password</i> <small>for Dispatch client connections</small>	<i>NTP Server IP Address</i> <small>Network Time Protocol</small>

Parameters Unique to each IP Gateway

GPS = GPS Data Revert.
Each IP Gateway supports 1
Voice & 1 GPS Data Radio.

	<i>Name</i> <small>IP Gateway name has max 2 lines, 24 chars per line</small>	<i>Serial #</i>	<i>IP Address</i>	<i>Subnet Mask</i>	<i>Default Gateway</i>
IP Gateway A	Example Gateway Name	1234	192.168.56.22	255.255.255.0	192.168.56.1
Voice Radio A0	Example Radio VR A0		192.168.10.1	255.255.255.0	
GPS Radio A1	Example Radio GPS A1		192.168.11.1	255.255.255.0	
IP Gateway B					
Voice Radio B0					
GPS Radio B1					
IP Gateway C					
Voice Radio C0					
GPS Radio C1					
IP Gateway D					
Voice Radio D0					
GPS Radio D1					
IP Gateway E					
Voice Radio D0					
GPS Radio D1					
IP Gateway F					
Voice Radio D0					
GPS Radio D1					
IP Gateway G					
Voice Radio D0					
GPS Radio D1					
IP Gateway H					
Voice Radio D0					
GPS Radio D1					
IP Gateway J					
Voice Radio E0					
GPS Radio E1					

If additional IP Gateways are needed, copy this page.

See next page for System Planner Template Page 2 of 2

6. SYSTEM PLANNER TEMPLATE **PAGE 2 OF 2**

RadioPro Dispatch Clients

See [RadioPro Dispatch Installation and Configuration Guide S2-61785](#) for more information.

Parameters Common Parameters Unique
to all Dispatch clients to each Dispatch client

<i>Administrator Password</i> <small>for Edit Mode</small>	<i>PC Name</i>	<i>IP Address</i>	<i>License #</i>	<i>Licensed IP Gateway Connections</i>

RadioPro Solo, Talk, and Mobile Clients

See [RadioPro Solo Client Installation Guide S2-61568](#), for more information.

Parameters Common to all Talk Clients

<i>Administrator Login Name</i> <small>Not Editable</small>	<i>Administrator Password</i> <small>default is "admin"</small>
admin	

<i>User Login Name</i> <small>default is "user"</small>	<i>User Password</i> <small>default is "user"</small>

If additional Solo, Talk, or Mobile client logins are needed, copy this page.