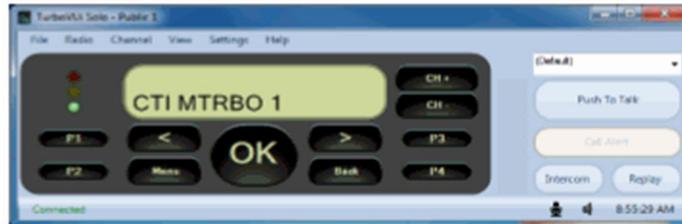


# CTI Products

## RadioPro! Solo

### User Guide



Document # S2-61431-802

For Version 8 Software

**Contact Us**

Support, replacement part ordering, and service may be arranged by contacting our Cincinnati office. Parts for service can be returned following request of a Return Material Authorization.

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**Warnings**

*Notes and important information*

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

**Software parameter values**

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# 1 SYSTEM OVERVIEW

**RadioPro** provides remote access to 2-way radios via IP Networks. This Dispatch over IP (DoIP) solution consists of PC-based software allowing voice and data communications between PC users and 2-way radio subscribers. Communications with radio subscribers is also possible for remote mobile users using Android or iOS devices. A RadioPro system consists of at least one RadioPro IP Gateway (server) and at least one client (Dispatch, Solo, Talk, or Talk for Mobile) with an IP network connecting the RadioPro components.

## 1.1 System Components

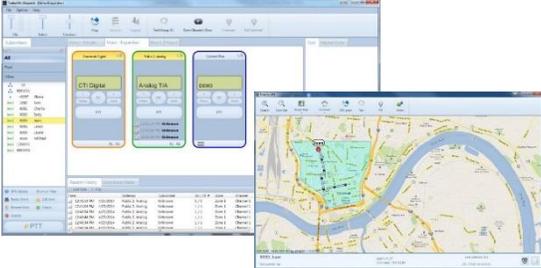
CTI's Dispatch over IP system is based on Server-Client architecture. System components are described below:

- RadioPro IP Gateway Kit** (CTI Part # S2-61815) is the hardware interface that connects a mobile radio (control station) to an IP network. The IP Gateway is the **Server** for the control station radio connected to it. Each control station radio used for voice requires one IP Gateway. System components, such as IP Gateways and clients (Dispatch, Solo, Talk, or Talk Mobile), may be located together or separated geographically and connected via a Wide Area Network (WAN) or Virtual Private Network (VPN). An optional license can be purchased for the IP Gateway to allow users of Solo, Talk, and/or Talk for Mobile client applications to connect to the two-way radio system. Each IP Gateway requires a static IP address. For more information, see the following documents:
 

[RadioPro IP Gateway - Installation Guide, Document # S2-61781](#)

[RadioPro IP Gateway Data Sheet](#)

[RadioPro System Brochure](#)

- RadioPro Dispatch Client** (CTI Part #s S1-61770 Core, S1-61771 Voice Module, S1-61772 GPS Module, S1-61773 Telemetry Module, S1-61774 Text Messaging Module) is a dispatch console for PCs that provides voice dispatching to multiple simultaneous radio channels or talk groups, as well as GPS/AVL, Telemetry, Text Messaging, and Voice Logging. Windows 10 Pro, 8 Pro or Windows 7 Pro operating system is required. This application can be used with either Motorola MOTOTRBO or Kenwood NEXEDGE systems. System components, such as Dispatch clients and IP Gateways, may be located together or separated geographically and connected via a Wide Area Network (WAN) or Virtual Private Network (VPN).
 

For more information, see the following information:

[RadioPro Dispatch Client Installation and Configuration Guide, Document # S2-61785](#)

[RadioPro Dispatch Client User Guide, Document # S2-61786](#)

[RadioPro Dispatch Client Data Sheet](#)

[RadioPro System Accessories Catalog](#)

[RadioPro System Brochure](#)

- Solo Client** is a software application for PCs and notebooks that provides voice dispatching to a single radio channel or talk group. The virtual radio head duplicates the full functionality of a XPR4550/5550 control station, including channel steering. Other features include Voice Logging for 24 hours, Text Messaging, and channel steering. It requires Windows 10, 8, 7, or XP operating system. This application can be used with only Motorola MOTOTRBO systems. The use of this application requires a license installed on the IP Gateway. The license will permit some number of simultaneous Solo, Talk, and Talk Mobile application users to connect to the radio system. System components, such as clients and IP Gateways, may be located together or separated geographically and connected via a Wide Area Network (WAN) or Virtual Private Network (VPN).



For more information, see the following documents:

[RadioPro Solo Installation Guide, Document # S2-61568](#)

[RadioPro Solo User Guide, Document # S2-61432](#)

[RadioPro Solo Data Sheet](#)

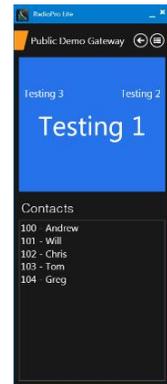
[RadioPro System Brochure](#)

- Talk for Windows PC** is a software application for PCs and notebooks that provides voice dispatching to a single radio channel or talk group. Other features include Voice Logging for 24 hours, Text Messaging, and channel steering. It requires Windows 10, 8 or 7 operating system. This application can be used with either Motorola MOTOTRBO or Kenwood NEXEDGE systems. The use of this application requires a license installed on the IP Gateway. The license will permit some number of simultaneous Solo, Talk, and Talk Mobile application users to connect to the radio system. System components, such as clients and IP Gateways, may be located together or separated geographically and connected via a Wide Area Network (WAN) or Virtual Private Network (VPN).

For more information, see the following documents:

[RadioPro Talk for PC Data Sheet](#)

[RadioPro System Brochure](#)



- Talk for Mobile devices** is a mobile app for Android and iPhone/iPad that provides remote access to a 2-way radio system for voice communications, text messaging, and locating another user. This application can be used with either Motorola MOTOTRBO or Kenwood NEXEDGE systems. The Mobile app is useful over cellular or Wi-Fi networks when you are on-the-go and outside the coverage of your radio system, yet still need radio communications. The use of this application requires a license installed on the IP Gateway. The license will permit some number of simultaneous Solo, Talk, and Talk Mobile application users to connect to the radio system.

For more information, see the following documents:

[RadioPro Talk for Mobile Devices How-to-Guide](#)

[RadioPro Talk for Mobile Devices Data Sheet](#)

[RadioPro System Brochure](#)



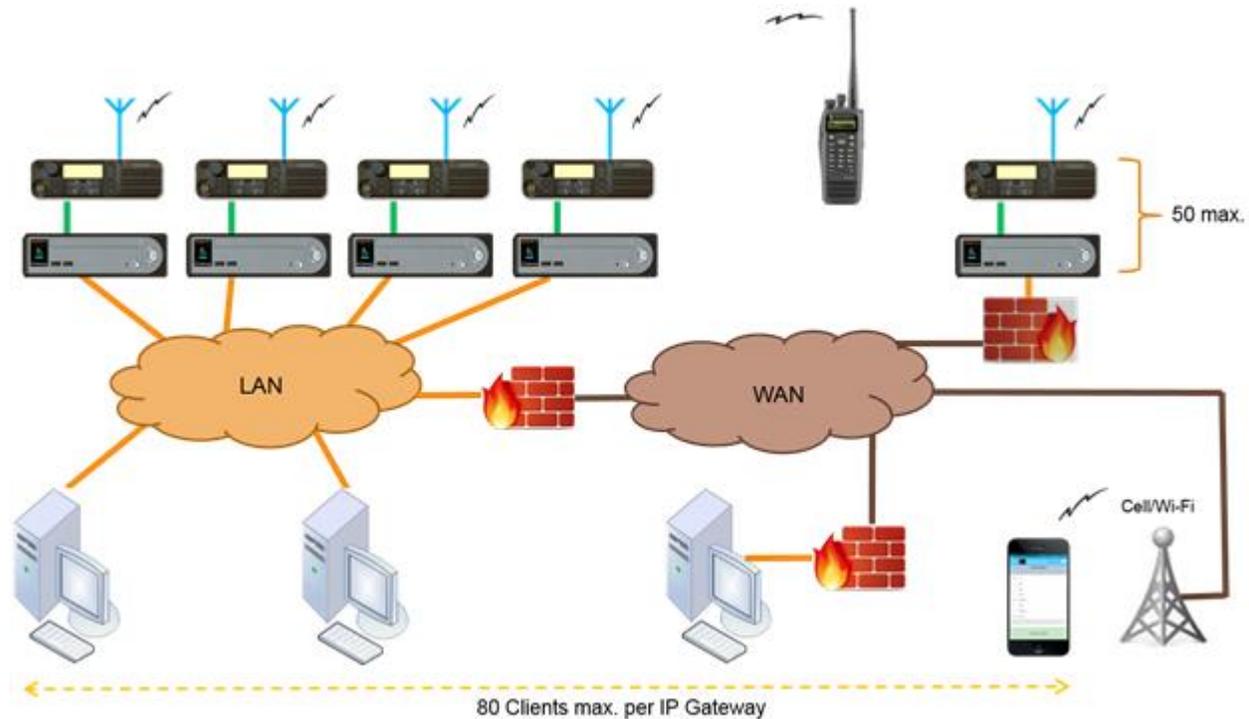
- **Control Station Radio** - A control station radio must be used as the interface to the radio system, and connects to a RadioPro IP Gateway using the rear accessory/communications port. Each control station radio used for voice requires one IP Gateway. Radio models that can be used for a Control Station radio and provide full radio functionality from a RadioPro client include:
  - Kenwood NEXEDGE: NX-700/800  
NX-720/820 (NX-700/800 is preferred)
  - Motorola MOTOTRBO: XPR5550/5580 (North America)  
DGM5500/8500 (Latin America)  
DM4600/4601 (Europe)  
XiR M8260/M8268/M8660/M8668 (Asia Pacific)
- **Personal Computer or Workstation** is required to host the RadioPro Dispatch, Solo, or Talk for PC clients. Console accessories may include microphone and speakers (or headset), Push-to-Talk footswitch, and touch screen monitor.

## 1.2 Architecture

The IP Gateways interface the radio system to an IP network. One IP Gateway is required for each control station radio used for voice. The IP Gateways and control station radios can be centrally located or scattered among different locations using a Virtual Private Network (VPN) or Wide Area Network (WAN) such as the Internet.

Each IP Gateway in a RadioPro system acts as the server for the Control Station Radio connected to it, and ensures easy wide-area deployment. Since there is not a server PC, the architecture reduces “single point-of-failure” concerns.

A system may have a mixture of RadioPro Dispatch, Solo, and Talk clients for PCs, as well as RadioPro Talk for Mobile apps running on mobile devices. These Clients may be centrally located or scattered among different locations using a Virtual Private Network (VPN) or Wide Area Network (WAN) such as the Internet.



### System Maximum Build-out

A RadioPro system may have maximum components listed below.

System Component	Maximum
Dispatch Clients	20
Simultaneous Solo, Talk, and Talk for Mobile client connections per IP Gateway	80
IP Gateways	50

### System Planner Document and Template

The System Planner (Document # S2-61645) includes examples for various radio network topologies, and should be consulted if the RadioPro Dispatch client is being deployed.

Use the System Planner Template (located at the end of this document) in the planning phase of a project to record IP addresses, usernames, passwords, serial numbers, and device names.



## 1.3 RadioPro SOLO CLIENT

The Solo client is application software that runs on a customer's PC. It presents a virtual MOTOTRBO radio panel to the remote user. The remote user is able to transmit and receive audio, as well as control all radio functions. The Solo client software provides:

- ~ Virtual Front Panel ó all radio functions and buttons are accessible
- ~ **Push-to-Talk** button to enable transmit audio
- ~ **Intercom** button for Client-to-Client communications
- ~ **Replay** button to repeat last audio transmission
- ~ Access to audio and events from previous 24 hours
- ~ Access to text messaging between radio subscribers and other Solo clients
- ~ Private calls using drop-down list of radio subscribers
- ~ Remote Radio Reboot

Solo client provides remote access to MOTOTRBO radios via IP. Use Solo for simultaneous radio sharing. Not only can users of the shared radio have push-to-talk and listen capabilities; they also can access other radio functions.

Solo is specifically suited for situations when you are out of radio range, yet still need to communicate on your talk group, such as:

- ~ Underground or building facilities that prevent radio communications
- ~ A home office that is outside the coverage area of the radio system
- ~ A temporary travel situation removing you from the coverage area

With Solo and an IP connection, users can stay in "radio" contact.

### **Simultaneous Radio Sharing**

A base station radio is sometimes shared between multiple users. Prior to RadioPro, this was accomplished with speaker boxes, microphones, push-to-talk switches, and audio junction boxes, plus wiring to bring audio to each workstation. After all this, the user gets very little functionality; simply push-to-talk, and listen.

Solo allows each user to run the client application on their existing PC. No additional audio wiring or installation is required since any IP connection (LAN, WAN, or Internet) is used to transfer audio and data. In addition, the user not only gets talk and listen capabilities, but also MOTOTRBO radio functions listed below.

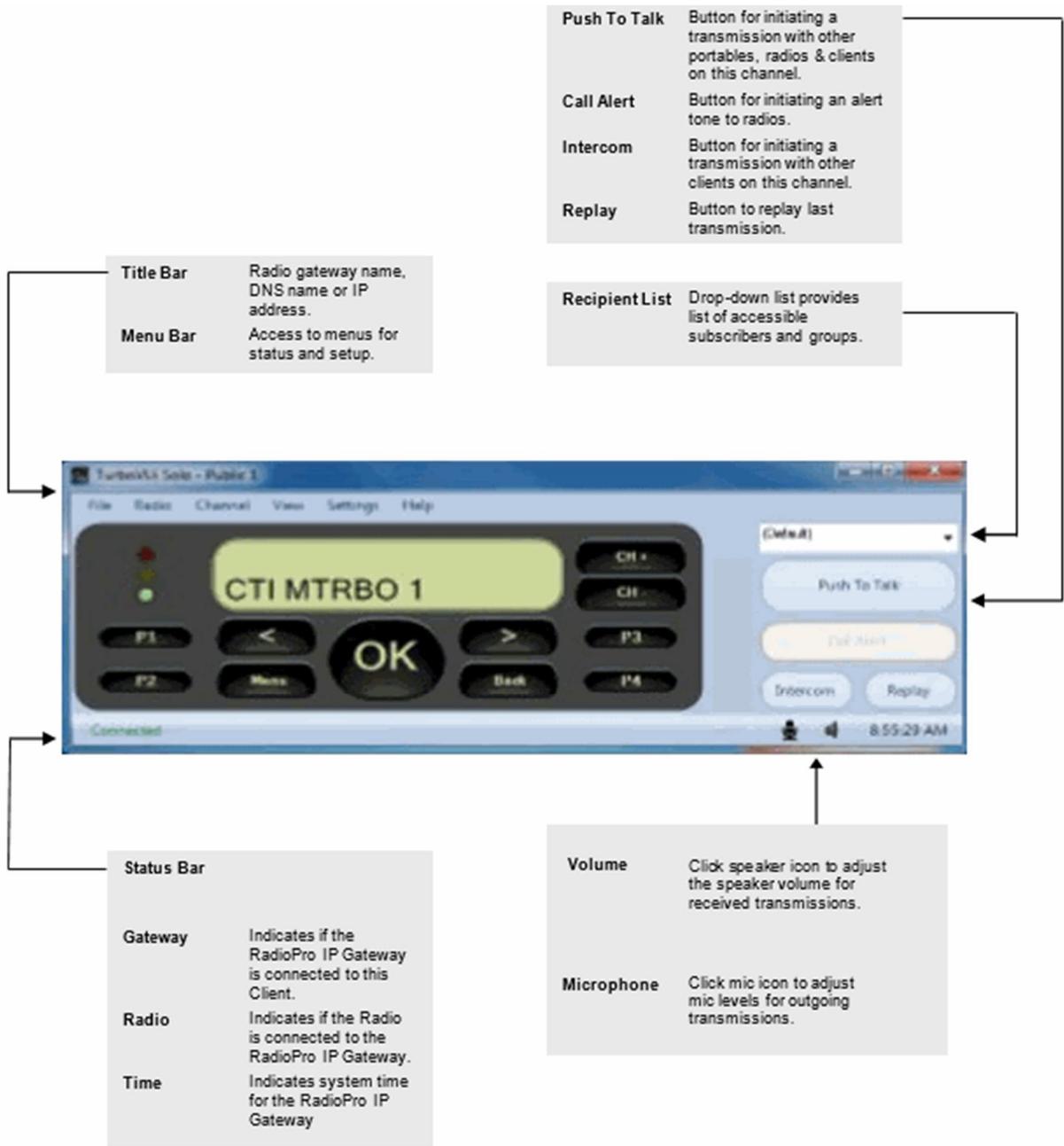
- ~ **Instant Replay** for the last received message
- ~ **History** of transmissions from the previous 24 hours
- ~ **Intercom** to communicate with other Clients without using radio talk time

### **Remote Radio Access**

Radio users sometimes find themselves outside the radio coverage area, such as when traveling, or in a building with limited coverage. If an Internet connection is available, Solo allows a user to stay in "radio" contact.



### 1.4 SCREEN COMPONENTS



## 2 OPERATION

### 2.1 CONTROLS

When a Solo client is connected to the IP Gateway module, all MOTOTRBO Radio buttons on the virtual user interface are operational. Reference the Motorola's MOTOTRBO documentation for operation details of these buttons. In addition, the Solo has several other controls described below.

#### **Volume Global Control**

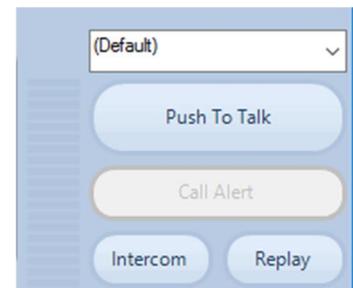
Controls for globally adjusting volume are located on the bottom right side of the Solo client window. The **Volume** slider can be adjusted by clicking on the speaker icon  and holding the mouse over the slider handle, then dragging it up or down. Mute all incoming transmissions by sliding the slider handle all the way down.

#### **Mic Global Control**

Controls for globally adjusting the microphone levels are also located on the bottom right side of the Solo client window. The **Microphone** slider can be adjusted by clicking on the mic icon  and holding the mouse over the slider handle, then dragging it up or down. Mute all outgoing transmissions by sliding the slider handle all the way down.

#### **Talk/Listen Controls**

The **Push to Talk** button functions just like a push-to-talk button on a portable radio or handheld mic. The PTT acknowledgement tone must be heard before speaking or else the beginning of your conversation will not be transmitted. With "Default" displayed in the Recipient window, a transmission from this Client using the **Push to Talk** button will be transmitted to the default group programmed in the base station radio.



For private calls or group calls, click the down arrow next to the Recipient window. When the Recipient list opens as shown below, click on a subscriber or group, then use the **Push to Talk** button to make the private or group call. A subscriber whose icon is green has been detected by the base station radio's ARS (Automatic Registration Service) and is considered available. A subscriber whose icon is red has not been detected by the ARS.



The **Call Alert** button provides a quick way to issue an alert tone to a subscriber in the drop-down recipient list.

The **Intercom** button functions in a similar manner to the **Push to Talk** button described above, except that it will only communicate with other Solo clients that are connected to the same Gateway. In other words, a message using this button will not be transmitted to portable, mobile, or base station radios. Therefore, the use of this button will not use any bandwidth on the radio system. It also differs from the **Push to Talk** button in that it supports duplex communication with other Solo clients. This means that multiple clients can simultaneously Speak and Listen to each other using the **Intercom** button.

#### **Radio Virtual User Interface (VUI)**

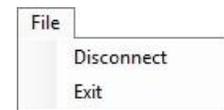
All radio controls are operational via the Solo client's virtual user interface. The only exceptions are the Power button, and the Volume knob. Volume is controlled with the Volume Slider. Permanent Power Off is not possible but the radio can be power cycled by the **Reboot Radio** option, located in the **Radio** Menu.

## 2.2 MENUS

### **FILE menu**

#### **Disconnect**

This menu item allows a user to disconnect the current user from the RadioPro IP Gateway module. The "Connect to RadioPro Gateway" login window is then displayed.



#### **Exit**

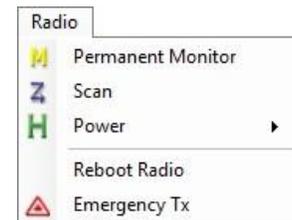
This menu item will close the Client program.

### **RADIO Menu**

This menu provides direct remote control of certain radio functions.

#### **Permanent Monitor**

Selecting Permanent Monitor will allow the receiver to pass all traffic received on the selected channel.



#### **Scan**

Disables or enables the radio scanning for voice activity by cycling through the channel/group sequence specified in the scan list for the current channel/group.

#### **Power**

This allows the quick selection between High or Low Transmit Output Power levels of the Radio.

#### **Reboot Radio**

This option allows the user to restart the radio from the interface remotely.

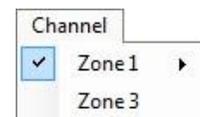
#### **Emergency TX**

If enabled in the radio code plug this feature sends out a distress signal from the Control Station that triggers an audible alert in the RF field unit of every active user.

### **CHANNEL Menu**

#### **Zone #**

This menu item will choose a zone that has been previously defined. Each zone will consist of up to 16 channels that have been previously defined on the MOTOTRBO Radio.



### **VIEW Menu**

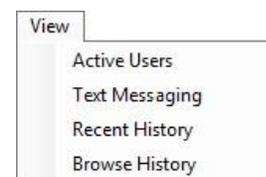
#### **Active Users**

This menu item will display a list of connected client users. Each user will be displayed with their Username and IP Address.

#### **Text Messaging & Quick Text**

This menu item will allow the user to select a Recipient from the **Send To:** drop down menu, and after typing the desired text the send button will send the message to the desired receiver.

Also the quick text message feature will allow the user to select a preconfigured text message to send to the Recipient. The quick texts can be defined in the settings menu; see **Quick Text tab** on Page 14 for more information.



**Note:** Text Messaging will function only with radios in Digital mode.

**Recent History**

This menu item shows a list of the last 50 transmissions.

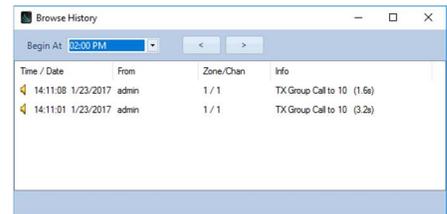
If the user wants to replay a transmission they should double-click on the transmission they would like to replay, or

single click on the transmission and then click on the play button .



**Browse History**

This menu item allows a user to look at up to the last 50 transmissions from a specified time from the past 24 hours by selecting a desired time from the drop down menu. If the user wants to replay a transmission they should double-click on the transmission they would like to replay, or single-click on the transmission and then click on the play  button.

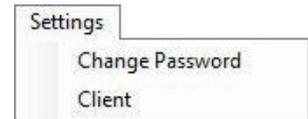


**SETTINGS Menu**

**Change Password**

This menu item allows the current user to change his password.

**Client**



**General tab**

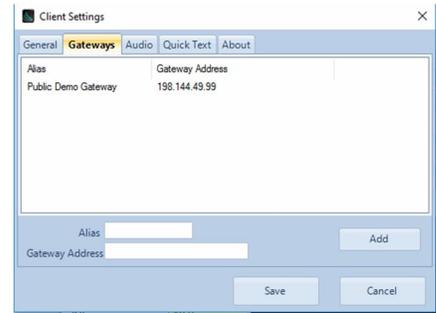
The **General** tab of this menu item displays options for customizing the operation of the Solo client program.

- “ **Make Solo always on top of other windows**  
This option will keep the Solo client above all other windows that are open on the client PC.
- “ **Program minimizes to system tray when closed**  
When the user clicks on another window outside of Solo, Solo will minimize.
- “ **Make visible when a call is received**  
When Solo is minimized or behind another window when a call is received, then it will appear in front of the other windows.
- “ **Make visible when a hotkey is activated**  
If Solo is minimized or behind another window when a hotkey is pressed, then it will appear in front of the other windows.
- “ **Set private call to last received call**  
This option will automatically set the Recipient list to the last received transmission channel.
- “ **Clear text messages when texting window closes**  
This option will clear out the text messages displayed when the *text messaging* window is closed.

**Gateways tab**

The Gateways tab of this menu item allows alias names to be defined for use during log-in (instead of entering numerical IP addresses). To set up an alias:

1. Enter the desired *Alias* name
2. Enter the *Gateway Address*
3. Click the *Add* Button

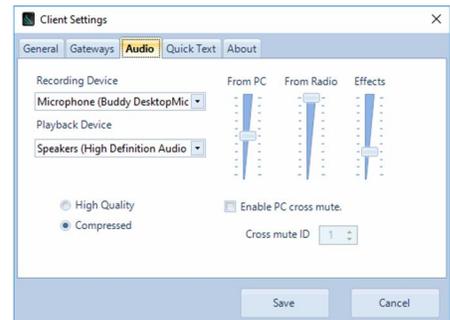


**Audio tab**

The Audio tab of this menu item allows the user to specify which Recording Device and Playback Device, as well as the quality of the audio. Along with these settings, the user also has the option to determine how much of each signal (From PC, From Radio, and Effects) is played by adjusting the moving sliders up or down.

When selecting audio, the user can select the Microsoft Sound Mapper which will automatically use the device the PC has set as default.

It is recommended that the microphone being used is selected in the **Recording Devices** drop-down box.



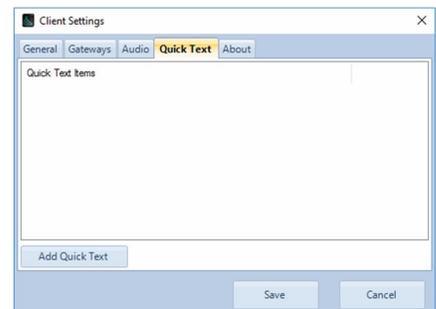
For **Audio Quality**, select **High Quality** or **Compressed**. See the following table for a comparison of these two modes of audio transfer.

	<i>High Quality</i>	<i>Compressed</i>
Bandwidth per voice stream (one talk group)	22kBytes/sec	2.2kBytes/sec
Bandwidth for 10 voice streams (10 talk groups)	220kBytes/sec	22kBytes/sec
Best use	Highest quality audio between radios and RadioPro clients	Most efficient use of IP network bandwidth

**Enable PC Cross Mute** is useful if there are multiple computers in the same room and the user does not wish to hear audio being played back on all of the computers. Adjacent PCs should have the same Cross Mute ID selected.

**Quick Text tab**

The Quick Text tab of this menu item will allow the user to define quick text messages that can be used in the Text Messaging feature. For more info on Text Messaging, see **Text Messaging** in the **View Menu** section above. To remove **Quick Text** items right click on the item and select remove.



**About tab**

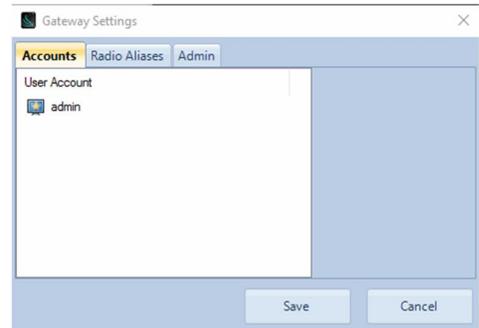
The About tab of this menu item shows the Part Number and Version of the Client software.

**Gateway**

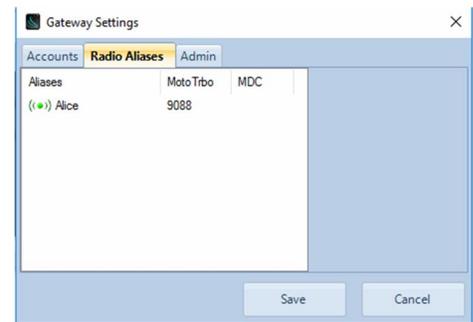
**NOTE:** This menu item is available only for a user logged in as `admin`

**Accounts tab**

The Accounts tab of this menu item allows a Client logged in as `admin` to edit current users as well as add new users to the Gateway. Click on `Save` when finished.

**Radio Aliases tab**

The Radio Aliases tab of this menu item allows a Client logged in as `admin` to add, edit or remove an alias name for a user. This tab also allows for exporting and importing existing alias lists for easy programming.

**Admin tab**

The Admin tab of this menu item allows a Client logged in as `admin` to see information about the Gateway as well as the ability to Reboot the Gateway.

**Update License**

**NOTE:** This menu item is available only for a user logged in as `admin`

The Update License menu item allows the user to request the current license to be stored on their PC, or the ability to set the license from a file currently available on the PC. See Appendix for more details.

**HELP Menu****About**

The About Menu item shows the Part Number and Version of the Client software or access Remote Support.

**Remote Support**

The Remote Support menu item allows the user to get remote assistance from our Technical Support staff.

**Logs**

The Logs menu item allows the user to navigate to the database where radio events are stored.





## 3.2 APPENDIX - SPECIFICATIONS

### *PC Requirements for Solo*

Operating System:	Windows XP, 7, 8 or 10
Microphone:	External (recommended) or Internal to PC
Speaker/Headphones:	External (recommended) or Internal to PC
IP Network Interface:	10 Mbps or faster

## 4 FEATURE AVAILABILITY

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

### 4.1 FEATURES BASED ON MOTOTRBO SYSTEM TYPE

Use the following table to determine if a Solo feature is not available for a MOTOTRBO System Type.

<i>System Type</i> <i>Feature</i>	<i>Analog</i>	<i>Conv.</i> <i>Digital</i>	<i>Cap +</i>	<i>IP Site</i> <i>Connect</i>	<i>Linked</i> <i>Cap +</i>	<i>Connect</i> <i>Plus</i>	<i>Cap</i> <i>Max</i>
Group Call Tx and Rx	✓	✓	✓	✓	✓	✓	✓
Private Call Tx and Rx	✗	✓	✓	✓	✓	✓	✓
Voice Recording (Previous 24 hours)	✓	✓	✓	✓	✓	✓	✓
Text Messaging	✗	✓	✓	✓	✓	✗	✓
ARS (Radio Availability)	✗	✓	✓	✓	✓	✗	✗
Full radio control	✓	✓	✓	✓	✓	✓	✓

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

**RadioPro IP Gateways**

**Parameters Common to all IP Gateways**

<b>ICU.exe Admin Password</b> <small>for ICU.exe, default is %admin+</small>	<b>Dispatch Client Password</b> <small>for Dispatch client connections default is %user+</small>	<b>NTP Server IP Address</b> <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.

	<b>Name</b> <small>IP Gateway name has max 2 lines, 24 chars per line</small>	<b>Serial #</b>	<b>IP Address</b>	<b>Subnet Mask</b>	<b>Default Gateway</b>
<b>IP Gateway A</b>	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	
<b>IP Gateway B</b>					
Voice Radio B0					
GPS Radio B1					
<b>IP Gateway C</b>					
Voice Radio C0					
GPS Radio C1					
<b>IP Gateway D</b>					
Voice Radio D0					
GPS Radio D1					
<b>IP Gateway E</b>					
Voice Radio D0					
GPS Radio D1					
<b>IP Gateway F</b>					
Voice Radio D0					
GPS Radio D1					
<b>IP Gateway G</b>					
Voice Radio D0					
GPS Radio D1					
<b>IP Gateway H</b>					
Voice Radio D0					
GPS Radio D1					
<b>IP Gateway J</b>					
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

**SYSTEM PLANNER TEMPLATE** **PAGE 2 OF 2**

**RadioPro Dispatch Clients**

See RadioPro Dispatch Installation and Configuration Guide, document # S2-61785 for more information.

**Parameters Common to all Dispatch clients**

<i>Administrator Password</i> <small>for Edit Mode</small>

**Parameters Unique to each Dispatch client**

<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 Installation Guide, Document # 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.