SYTECH RIOS USER MANUAL

CONTROL SOFTWARE FOR THE RIOS RADIO INTEROPERABILITY SYSTEM

DESIGNED AND MANUFACTURED BY:

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Control Software for RIOS Software Versions 3.45

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1. THE RIOS CLIENT APPLICATION

The Radio Interoperability System (RIOS) interoperates dissimilar communication networks by collecting and converting local communication signals into digital IP packets. RIOS consolidates signals from a variety of sources into a single unified operating platform. Control of the system is accomplished via the RIOS Graphical User Interface (GUI). The image below illustrates the RIOS Interoperability Conversion.
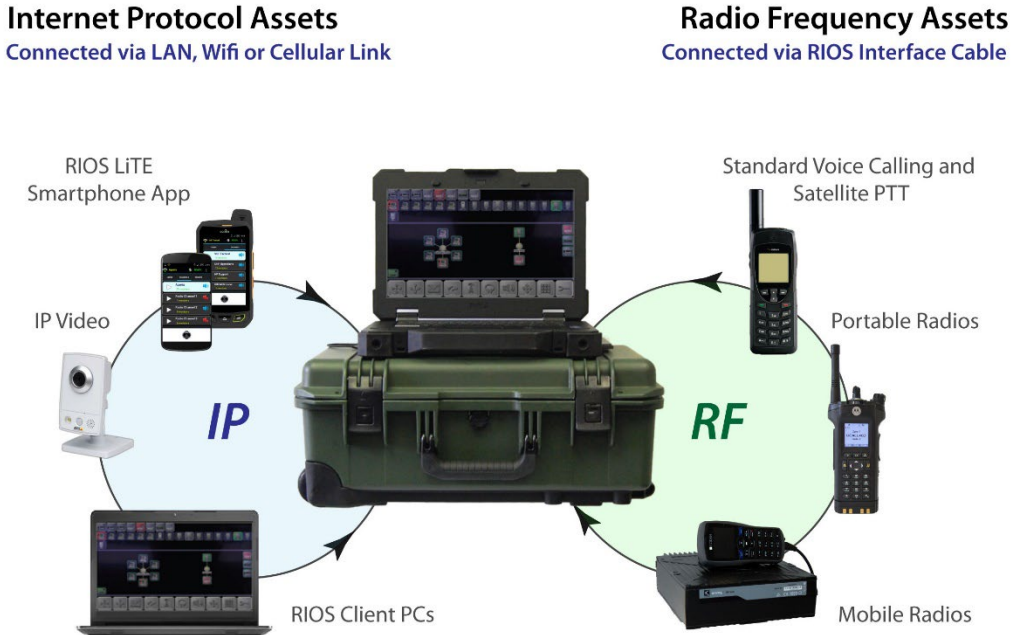
The purpose of this manual is to train and equip the RIOS operator with the fundamentals of creating effective interoperability. After completing this manual the user should be able to:

- Interconnect dissimilar communication networks
- Monitor and record interoperated communications
- Optimize gateway parameters to deliver high-quality audio transmissions
- Extend radio range via RIOS Wide-Area Network
- Send customized alert signals
- Communicate off the air with RIOS Chat text messaging
- Remotely control interfaced mobile radios (where applicable)

RIOS solutions range from standalone servers to tactical interoperability kits, remote-client PCs, and state-wide networks connected across a variety of IP networks. Wide-area RIOS networks can result in fully interoperable communications perimeter unlimited by physical terrain and distance.

Operators of RIOS GUI have the ability to interoperate local agency networks while offering wide-area connectivity to remote RIOS networks. Should you have any questions please contact RIOS Technical Support at 703-941-7887 or via email at RIOSSupport@CodanCorp.com.

1.1 Logging In To the RIOS Client

RIOS Software operates within a client/server environment of Microsoft Windows. The server program (RIOS Service) starts automatically during the boot process. The control program (RIOS Client, the GUI) must be launched by the user. RIOS GUI can be started from the Desktop as well as from within its home folder, C:\Program Files\RIOS. The RIOS GUI application is titled, "RIOS Client."

1. Start RIOS GUI from the Windows Desktop by double clicking the RIOS Shortcut.
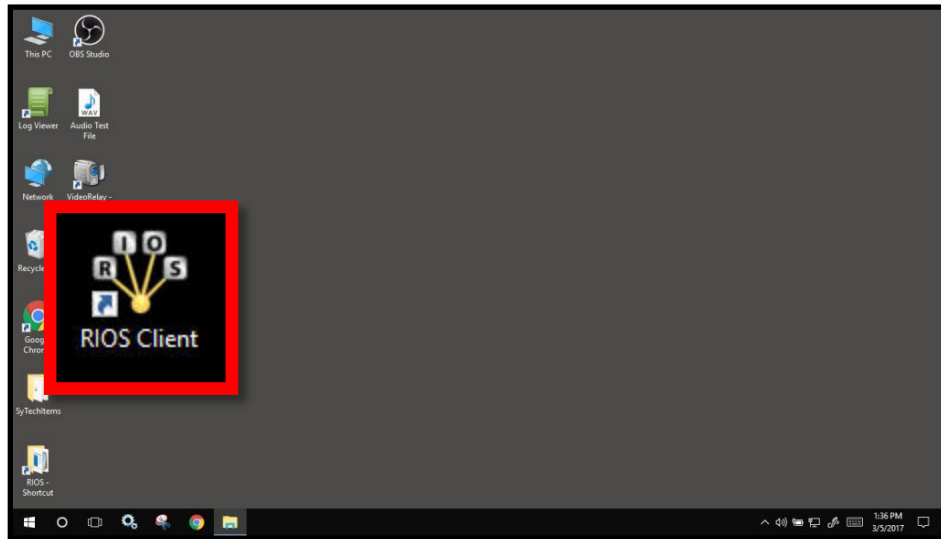
2. Input the username and password provided by the RIOS administrator. By default, the username is "**admin**" with password "**admin**."
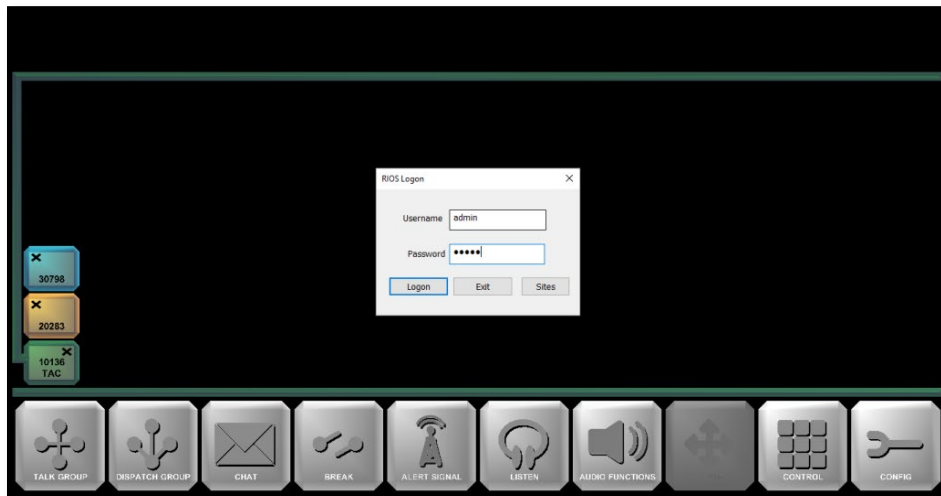
In many cases, Codan will configure a username and password as "1" and "1" respectively for ease of use. Popular usernames include basic names such as "Workstation 1."

Note that usernames and passwords are case sensitive.

3. The RIOS Graphical User Interface will appear as shown below.

There are 4 parts to the RIOS GUI:

1. Asset Port (Top of Screen)
2. The Monitor Column (Right of Screen)
3. The RIOS Functions (Bottom of Screen)
4. Sites Column (Left of Screen)

1.2 RIOS Functions

The Functions of RIOS are displayed at the bottom of the RIOS GUI interface. **Functions are calls for specific actions**. They are the starting point for creating interoperability between Physical and Virtual Ports.

RIOS is responsive to the user's previous action. After a function has been engaged, RIOS will darken the logically unavailable icons. This feature decreases the possibility of .

Connecting Gateway Ports within RIOS follow a logical three-step process; **activate**, **select**, **confirm**. Throughout this manual the process will be repeated while placing special emphasis on required interactions.

The RIOS Three Step Process:

1. <u>Activate</u> the Function.
2. <u>Select</u> the assets to be effected.
3. <u>Confirm</u> the Function by re-selecting the Function that started the process.

RIOS offers Push-To-Talk for dispatcher transmission. The dispatcher can transmit to a single gateway by selecting the port or an entire group by selecting the center node of a Talk Group. By convention, <u>Gateway Ports highlighted in **RED** are in **transmit** mode while Gateway Ports highlighted in **GREEN** are in **receive** mode</u>.

1.2.1 **The Listen Function**

The Listen Function is used to monitor port audio. Ports in listen mode will appear in the Listen Column along the right-hand side of the display. The three modes of simultaneous audio are **Mono**, **Stereo** and **Quad Mode**.

To Monitor a Radio:

1. Active the Listen Function
2. Select the Physical or Virtual Ports to be monitored.
3. Confirm the ports to be monitored by deselecting the Listen Function.

Within the Listen Column audio is prioritized from left to right, top to bottom. The first gateway selected will have the highest listening priority. Push-To-Talk transmissions will automatically be placed in the Listen Column.

Use the Break Function to remove a gateway in listen mode

Change the listening priority by activating the Move Function and dragging the port to the desired position within the Listen Column. After the necessary moves are complete, deselect the Move Function to disable it.

Change the audio mode by selecting Configure, the RIOS Server icon, General. The user can toggle amongst Mono, Stereo and Quad styles of listening.

1.2.2 **The Talkgroup Function**

A Talkgroup is an on-screen representation of two or more Physical or Virtual Ports connected in two-way communication. Talkgroups are the main ingredient of RIOS interoperability and will be used frequently throughout this manual.

To Create a Talkgroup:

1. Select the Talk Group Function
2. Select the ports that correspond to the radios to be connected.
3. Confirm the group by deselecting the Talk Group Function.

A Talk Group named "New" will appear as shown in the image below. This arrangement

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graphically illustrates three Gateways Ports, their respective devices, <u>and</u> native networks connected within an interoperated group.
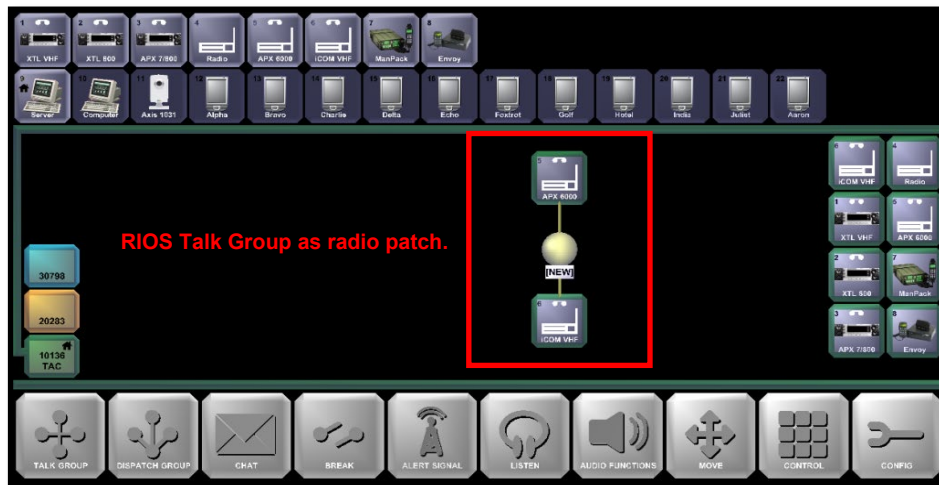
1.2.3 **The Move Function**

The Move Function is used to move groups to new locations within the Work Area. Move allows individual operators to customize their display to suit their particular needs.

<u>To Move a Group</u>:

1. Activate the Move Function
2. Drag the Center Node of the Group to its new location.
3. Turn off the Move Function by deselecting the Move Function.

Rotate the gateways of a group by selecting the Move Function, a gateway within the group and dragging the asset around the center node.

1.2.4 **The Break Function**

The Break Function can be used to:

(1) Disconnect one or more gateways from a group.
(2) Disconnect or "break" an entire group.
(3) Remove a gateway from the Listen Column.
(4) Log off the RIOS GUI without closing the application.

   <u>To Remove a Talk Group</u>:

1. Activate the Break Function
2. Select the Center Node of the Talk Group to be removed.
3. Confirm the break by deselecting the Break Function.

Remove individual gateways from a Talk Group by activating the Break Function, selecting the gateway from within a group and confirming the break by deselecting the Break Function.

1.2.5 **The Dispatch Group Function**

A Dispatch Group allows one Gateway Port (usually the RIOS Server) to act as the dispatcher to connected gateway networks. A Gateway Port assigned as the dispatcher can transmit and receive audio to and from the gateways within the dispatch group; however, audio transmitted by the *other gateways* within the dispatch group will only be heard by the dispatcher, not the individual Gateway Ports.

To Create a Dispatch Group:

1. Activate the **Dispatch Group** Function.

2. Select the **RIOS Server** IP Port. The server icon appears as the left-most Computer IP Port with the small house icon.

3. Select the **Gateway Ports** that will be included in the dispatch group.

4. Confirm the group by deselecting the **Dispatch Group** Function.

A Dispatch Group will appear as shown below. Notice the convergence of communication lines toward the RIOS Server.

The RIOS operator can transmit via on-screen push-to-talk by selecting an individual port or the center node of a group and broadcasting using a microphone headset. In addition, the operator can transmit to all Physical and IP Ports by depressing the All-Call Button.
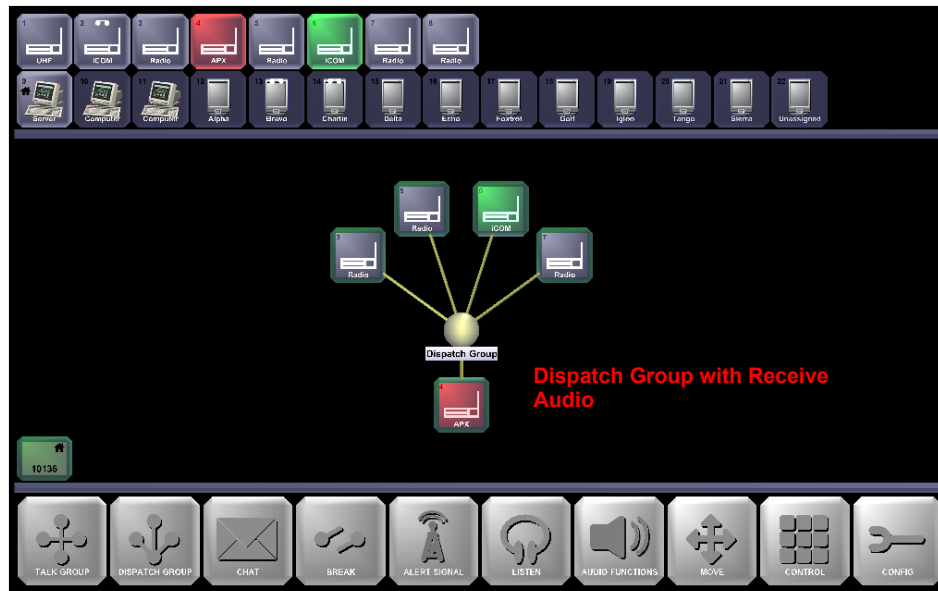
1.2.6 <u>**Instant Recall**</u>

Instant Recall allows the user to playback transmissions and receptions from individual ports.

<u>To Access Instant Recall</u>:

1. Activate the Audio Function Button.

2. Instant Recall will automatically be activated. Select the Gateway Port to playback.

3. The user can select any portion of the Instant Recall display to playback receptions and transmissions.

   Transmissions (from the perspective of the G*ateway Server*) are shown in **red** while **receptions** are shown in **green**. Recall time is determined within the Client Configuration File with a default value of 2 minutes. Both Tx and Rx communication is collated into the 2 minute playback file.

4. Close the Instant Recall display by selecting the "x" marker.
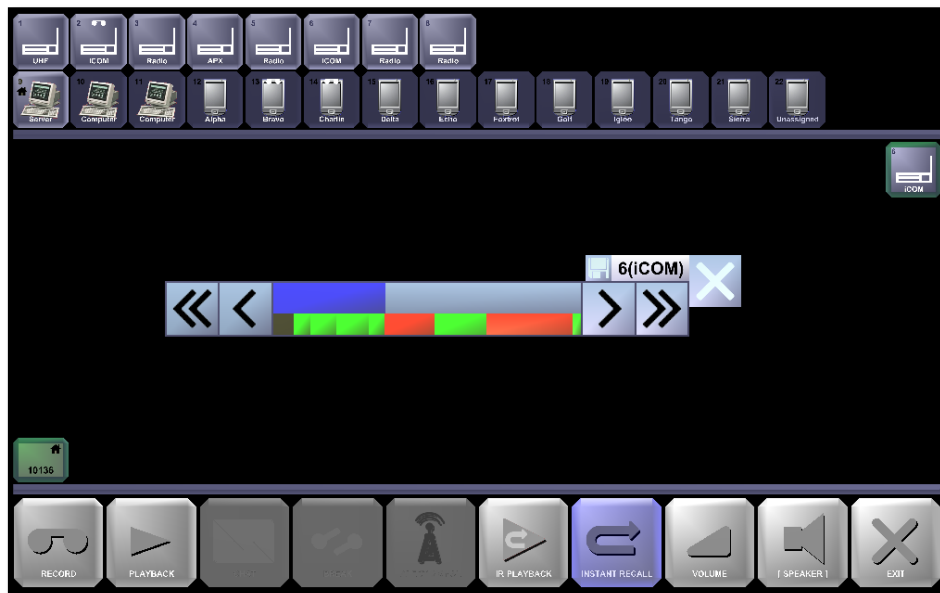
Instant recall removes the time in between to playback on the transmissions and receptions. The user is able to select on the File icon to save the Instant Recall. The file is saved to the IR folder which may be access from the RIOS GUI with the IR Playback function located to the left of the Instant Recall.

1.2.7 <u>Transmissions Activity Log</u>

The Transmissions Activity Log within RIOS allows the user to see a histograph of incoming and outgoing voice communications. The Activity Log includes Instant Recall capability by allowing the user to double click on the activity to hear the recent transmission and receptions within RIOS.

For long-term activity recording, Codan recommends the RIOS Playback Module option for the RIOS Gateway

<u>To Open the Activity Log</u>:

1. Select the **Control** Function.

2. Select the **Log** Function.

3. The Activity Log will appear will appear as shown below. As activity occurs, the log displays all ports involved in the communication. (Activity Log may first appear in a minimized window on the taskbar).

4. To replay a message, simply double click on the entry and the Instant Recall Menu is retrieved for that individual port. The Instant Recall timer is set to store the last two minutes of TX/RX voice.

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1.2.8 **Alert Signals**

Alert Signals allow the user to send customized recording through one or more Gateway ports. The user may copy .wav files into the C:\Program Files\RIOS \AlertSignals Folder as desired.

1. Activate the Alert Signal Button.

2. Select the Gateway Port to receive the alert. The user can select individual gateways or the center node of a Talkgroup. Gateways that will receive the alert will turn blue.

3. Select the tone from the Alert Signals Menu. The selected tone will highlight in pink as shown below.

4. Confirm the tone by deselecting the Alert Signal.
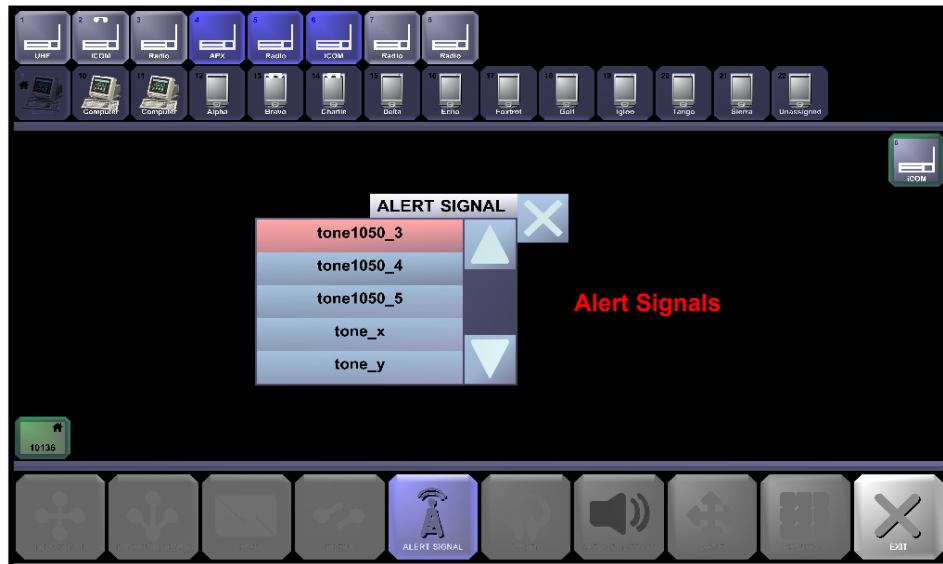
1.3 The Control Function

The Control Function with RIOS enables the operator to remotely control a variety of devices from within the RIOS Client program. RIOS is able to control both radio and smartphone devices from within the RIOS Client. The following section outlines the functionality of remote control for both types of devices.

1.3.1 Smartphone Remote Control

RIOS Smartphone control enables the RIOS Client user to remotely control functions of the RIOS LiTE smartphone application such as automatically logging on the device, logging off the device, suppressing a transmission and other actions.

Access the Smartphone Control Head

Smartphone control may be accessed by one of two ways: (1) by selecting **Control**, then selecting the smartphone currently logged into the system or (2) by selecting the device from the Channels window and selecting the "Show Control Head" icon.

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The Smartphone Control Head will appear as shown in the image below.
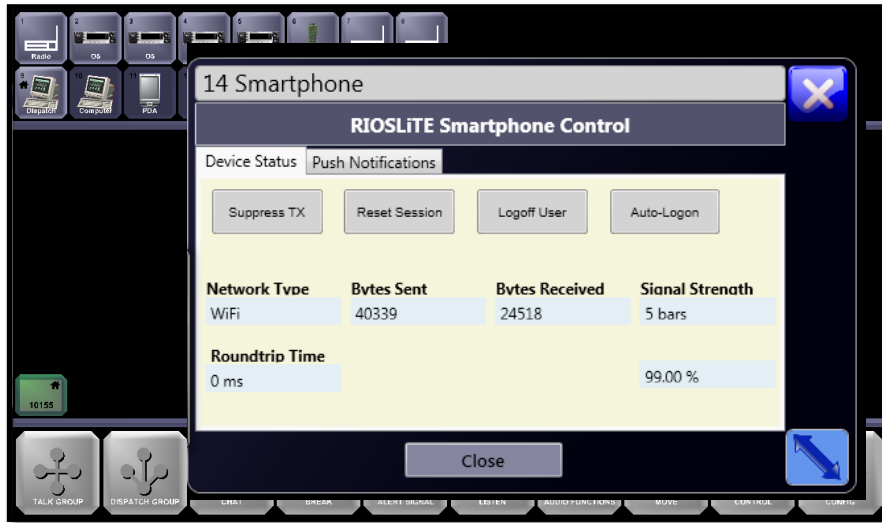
The Smartphone Remote Control Head displays information received from the selected smartphone. This information includes such as network type, signal strength and battery level. Smartphone Remote Control capabilities include:

Suppress TX: Enables the dispatcher to suppress a transmission from the user who is transmitted unwanted or accidental audio. Upon activating "Suppress TX" the user's transmission will be suppressed. Three consecutive tones will emit from the handset for 10 seconds. The user will be able to transmit about 5 seconds after the third tone. To suppress a transmission:

1. Access the Smartphone Phone Control Head for the smartphone that is to be controlled.

2. Select "Suppress TX" from the control head.

3. Select "Yes" to confirm the transmission suppression.

The selected user will receive the message "Operator Request Stop Transmitting." PTT audio from the application will not be available for about 15 seconds. The message will be displayed for about 2 minutes.

Reset Session: Reset Session allows the RIOS Client user to refresh the session of the RIOS LiTE application to the server. Reset Session might be used as a trouble shooting tool in the event that two-way audio isn't reaching the server from the handset or vice versa. When initiated the RIOS LiTE user will briefly see the message "Connecting RIOS LiTE" overlayed on the application.

Logoff User: Logoff User allows the RIOS Client user to log off the RIOS LiTE user from the RIOS Server. To Logoff a User:

1. Access the Smartphone Phone Control Head for the smartphone that is to be controlled.

2. Select "Logoff User" from the control head.

3. Select "Yes" to confirm the user logoff.

The selected user will receive the message "Operator Request Logout." The user will need to select the Android back button to access the RIOS LiTE Logon Screen and log back into the RIOS Server.
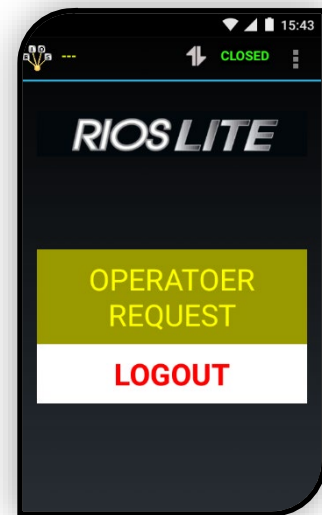
Auto Logon: Auto Logon enables the RIOS Client user to automatically log in a RIOS LiTE user. Auto Logon is possible when the application is installed but currently not running on the smartphone. The smartphone must have network connectivity for Auto Logon to operate. To automatically logon a RIOS LiTE user:

1. Access the Smartphone Phone Control Head for the smartphone that is to be controlled.

2. Select "Auto Logon User" from the control head.

The RIOS LiTE application will launch and the user will log on to the RIOS Server.

Push Notifications: Push Notifications allow the RIOS Client user to send one-way text messages to the smartphone even while the RIOS LiTE application is not logged on. To send a Push Notification:

1. Access the Smartphone Phone Control Head for the smartphone that is to be controlled.

2. Select the "Push Notifications" tab located on the control head.

3. Type message to be sent to the recipient. Select "Send."

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The smartphone will receive a notification within the Android Notification Bar located at the top of the screen. Pull down the Notification Bar to view the message.
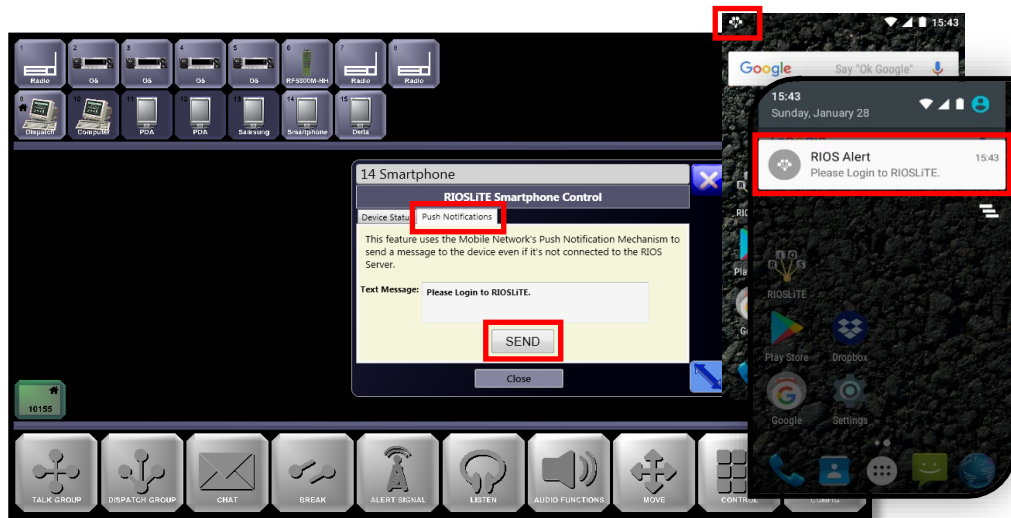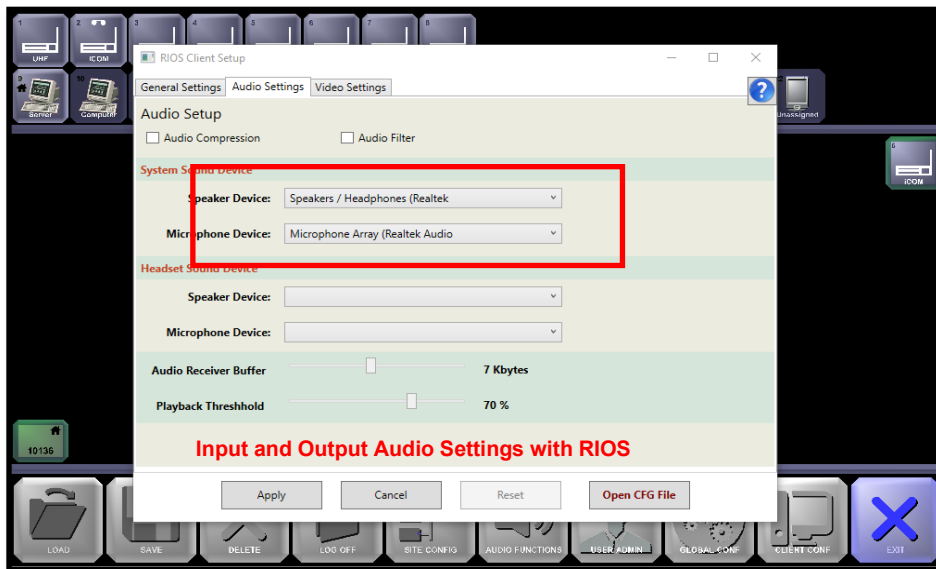
1.4 Audio Control

Audio input and output can be controlled from within the RIOS GUI using the Audio Function and Volume Button. **Setting the Audio Functions with RIOS is critical to transmitting and receiving audio from within the GUI and must be set correctly.** Audio Functions control which driver RIOS interacts with to input and output audio from the system.

To Configure Audio Functions:

1. Select CONFIG from the RIOS GUI.

2. Select Audio Functions. The RIOS Client Setup Window will appear as shown in the preceding image.

3. Select the computer's speaker and microphone device drivers from the dropdown window. "System Sound Device" generally refers to the computer's main input and output audio device.
    In the image below, the user has selected the computer's "Realtek" audio drivers. It is acceptable to only select one set of audio control devices as shown below.

4. Select "Apply."

5. RIOS Client will restart. Log back in. The user should be able to PTT to individual ports and the asset turns to red to indicate transmit.

Additional Audio Control that affect RIOS include:

1. **Windows audio settings.** Confirm speaker and microphone operation outside of RIOS to begin audio troubleshooting. Use the Windows VU meter to confirm microphone operation.

2. **Input and output gain settings for the radio device.** Controlled with CONFIG Function, selecting the radio, RIOS Input. Generally input gain is modified to increase or decrease radio audio.

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3. **Physical audio controls.** Confirm physical devices are connected, powered on, and not on mute or disabled.

4. Audio Functions (Mai**n RIOS GUI) toggling the "Speaker Headset/Headset" Function switches between the audio devices.**

5. **Audio Functions (Main RIOS GUI), Volume.** This controls the audio volume with RIOS. In most cases it's unnecessary to adjust this level.

6. **Audio Functions (Main RIOS GUI), Volume, Select a Physical Port.** This controls the audio for the individual port. It is possible to mute the individual radio for the client workstation. A mute icon will indicate this setting.

For additional information on control audio within RIOS, please review the document "*Client Audio Adjustments*."

2. RIOS CHANNELS WITHIN THE RIOS GUI

The RIOS Channels Interface is designed for users who want to create and manage communication channels among smartphones, radios, and computers. The RIOS Channels Interface allows users to quickly communicate with individuals and grouped assets through selectable push-to-talk capability. The following document outlines the basic operation of the RIOS Channels Interface.

The RIOS Channels Interface is an add-on resource available through the RIOS Client Graphical User Interface. If initiated from within the RIOS GUI (CONFIG > Global Config > Global Options), the channels interface starts automatically with the RIOS Client Graphical User Interface.

The image below illustrates an example of the RIOS Client GUI along with the RIOS Channels Interface. In this example, the user is viewing the RIOS GUI along with the "Channels" window, the "Users" window, and two open channels named "Agents" and "Radio Channel 1."
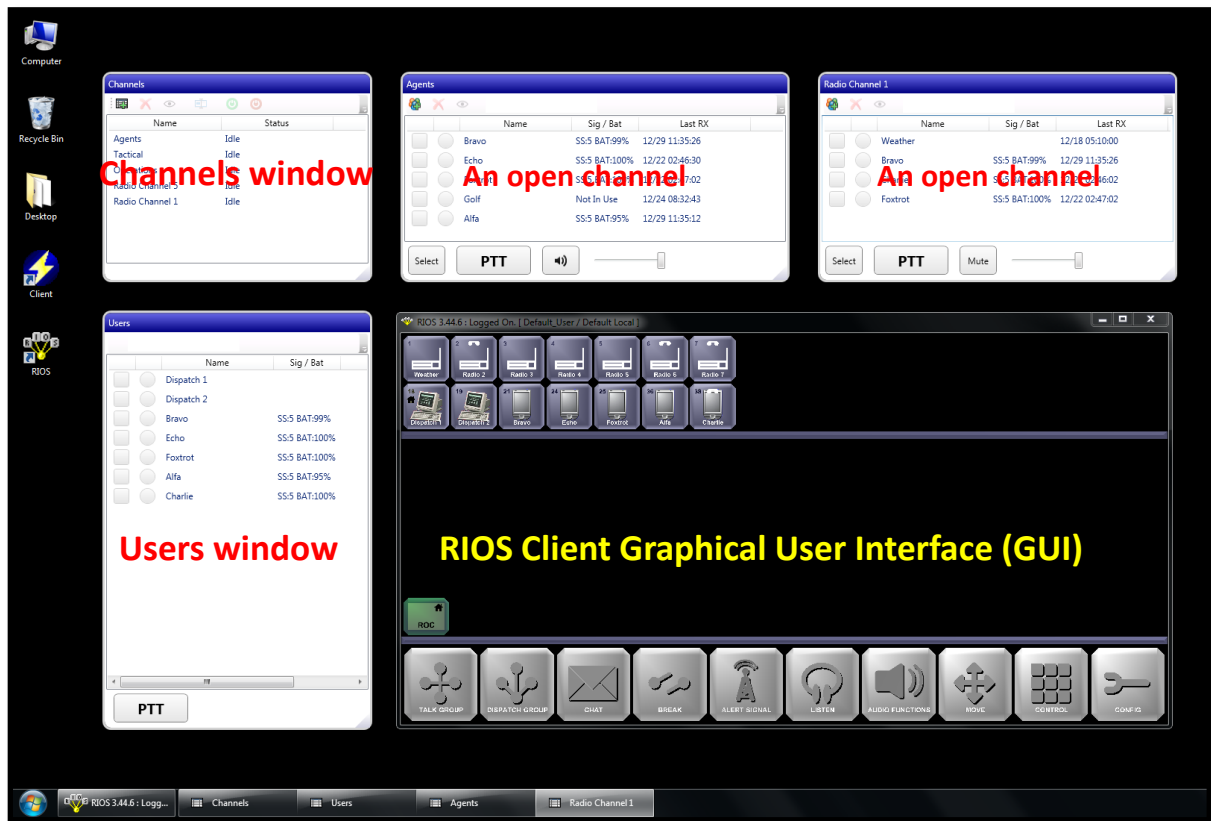
TIP: Channels can be placed anywhere on the Windows Desktop. The user can "snap-to-grid" the size and placement of the windows by holding "Ctrl" and sizing bottom right corner of the window and placing it accordingly.

When the RIOS GUI is re-started, the channels will be placed in the last configuration of the local computer. To close a channel the user may right-click on the channel from the Windows Tool Bar and select "Close."

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2.1 The Channels Window

A _**channel**_ is a group of resources such as radios, smartphones, and/or computers that can communicate as a group. When assets are added to a channel they are cross-patched together, meaning that they are able to communicate with push-to-talk audio as a group. Within RIOS, smartphones and computers are known as VoIP Assets. VoIP Assets can appear in multiple channels at the same time. Standard Assets, such as radios, can only be used in one channel at a time. The user is able to create as many channels as necessary. The created channels are shown in conjunction with the RIOS Client GUI as well as on the smartphone operating the RIOS LiTE smartphone application. The RIOS LiTE user has the ability to join or exit the channel by toggling the speaker icon of the corresponding channel.

The _**Channels window**_ is the main control panel for the RIOS Channels Interface. Channels are created, managed, and deleted from within this window. The image on the left displays an example of the Channels window. In this example, five channels are created. The image on the right displays the corresponding channel interface from the perspective the RIOS LiTE user.

The Channels window from within the RIOS Channels Interface.

The Channels tab from RIOS LiTE.
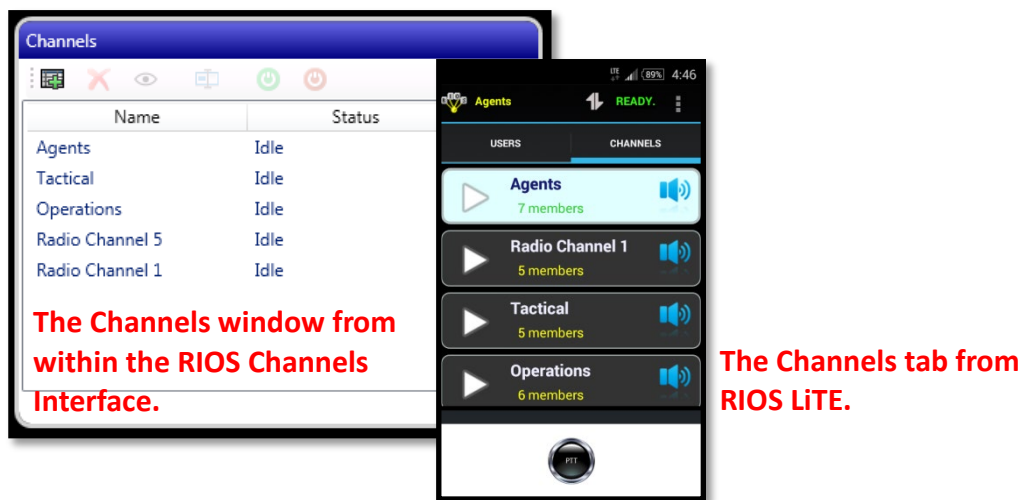
From the Channels window, double click on the channel name to open a channel. The user can hide the channels by selecting the Show icon (appears as an eye) or close the channel from the Windows Task Bar.

Actions that are available within the Channels window are shown in the top ribbon of the panel. The user can also access these actions by right-clicking on the specific channel.


The Channels sub menu.
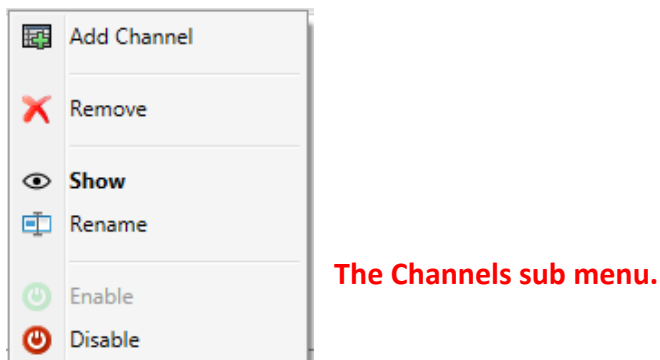
2.1.1 Creating a New Channel

1. **Select the "Add Channel"** icon to create a new channel select. The prompt will appear as indicated below.
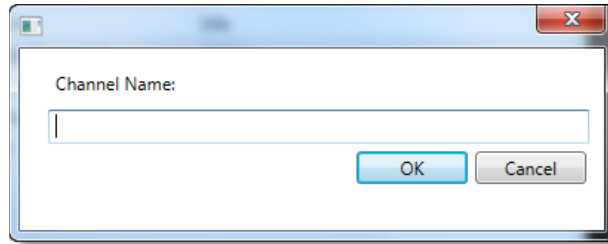
Naming a new channel.

2. **Enter the name** of the new channel to be created. Select "Okay." Pressing the "Cancel" button exits the new channel prompt. If the user does not enter a name within the Channel Name field the channel will be called "new channel."

3. **Double click the newly created channel** to open the channel.

4. **Click the "Add Member"** icon to add radios, smartphones, and/or computers to the channel. The assets selection menu will open. Select the assets you wish to add (by double-clicking). When complete select the "Done" button.
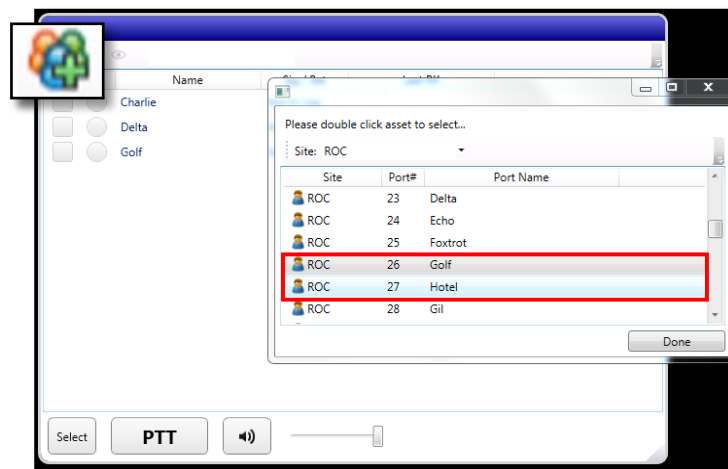
Adding assets to a channel.

The channel is now created.

NOTE: Upon creating the Channel, permissioned RIOS LiTE users are able to join the channel by selecting the "Channels" tab within RIOS LiTE and toggling the speaker icon to monitor the channel.

2.1.2 Deleting a Channel or User

Select the channel or user you wish to delete. Select the "Remove" icon to delete the selected channel/user. The assets that were in that channel will no longer be patched.

2.1.3 **Viewing a Channel**

Select the channel you wish to view. Select the "Show" icon to open the channel. The user can also accomplish this by double clicking the channel.

2.1.4 **Renaming a Channel**

Select the channel you wish to rename. Select the "Rename" icon to open Channel Name field. Input a new name. When complete select "Done."

2.1.5 **Enabling and Disabling a Channel**

Select the channel you wish to disable or enable. Select the corresponding "Enable" or "Disable" icon. If the channel is disabled, "Disabled" will appear in the Channel Status Column and "Disabled" will be written across the open channel as shown below.

A Disabled channel.

Disabling channels allows the user to suspend the patch of the channel while having the option to make the patch available if necessary. Users logged into RIOS LiTE will see the channel however no patching will occur.

2.2 **The Users Window**

A *user* is a smartphone or computer that is logged into the RIOS server. A user can be a smartphone operating the RIOS LiTE smartphone application or a personal computer operating the RIOS Client GUI or RIOS Channels Interface. Both types of users appear in the Users window when logged into the system.

The image below illustrates an example of the Users window. In this example five smartphones are logged into the system while two computers, "Dispatch 1" and "Dispatch 2" are logged into the system.

The Users window displaying all logged in users.

Viewing the users from RIOS LiTE.
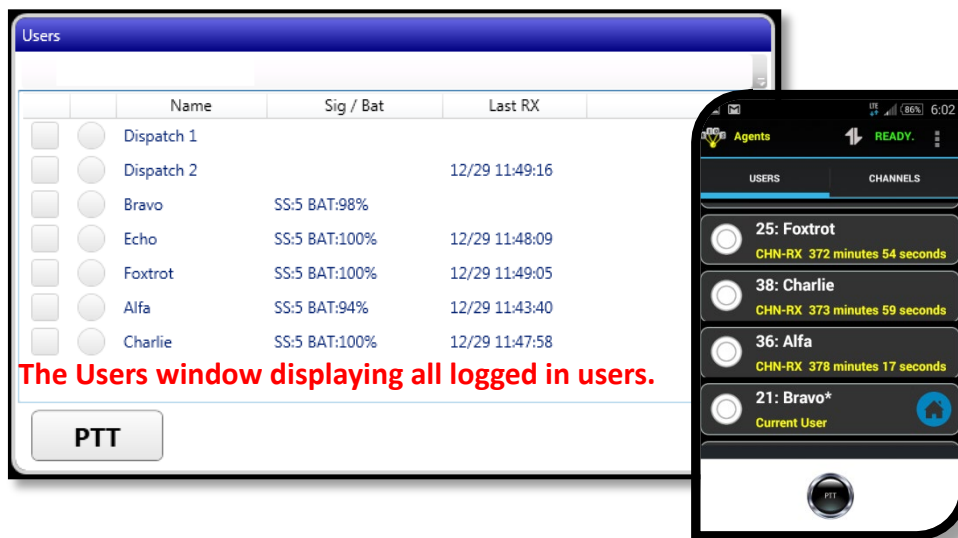
In addition to displaying users who are currently logged into the system, the Users window acts as an access point for private, one-to-one connections with other users.

2.2.1 <u>Private Connections</u>

A ***private connection*** is a one-to-one conversation that can only be heard between the two users.

To initiate a private connection with another user select the box next to the user you wish to communicate. The box turns yellow as shown below. Press and hold the PTT button to transmit audio to the user.

2.2.2 <u>Column Headers</u>

The column headers within the Users window (and open channels) display the "Name," "Signal/Battery," and "Last Reception" for each device. The displayed "Last Reception" is from the perspective user or channel.

<u>TIP</u>: To sort the users, click on the column desired header. To search for a user, click above the column headers. The search box will appear. Type the user you wish to find.

2.2.3 **Transmit and Receive Indicators**

The transmit and receive indicators show the direction of audio traffic from the perspective of the user. The indicators appear as:

🟢 – Receive

🔴 – Transmit

⚪ – The asset is not logged in or is not in the active group.

2.3 Open Channels

An ***open channel*** is a channel that is currently being viewed by the user. The image below illustrates an example of a RIOS Channels Interface open channel with five smartphones currently monitoring the "Agents" group and one smartphone, "Golf," that is monitoring the group but is not currently logged in.

An open channel with users.

Viewing users of a channel within RIOS LiTE.
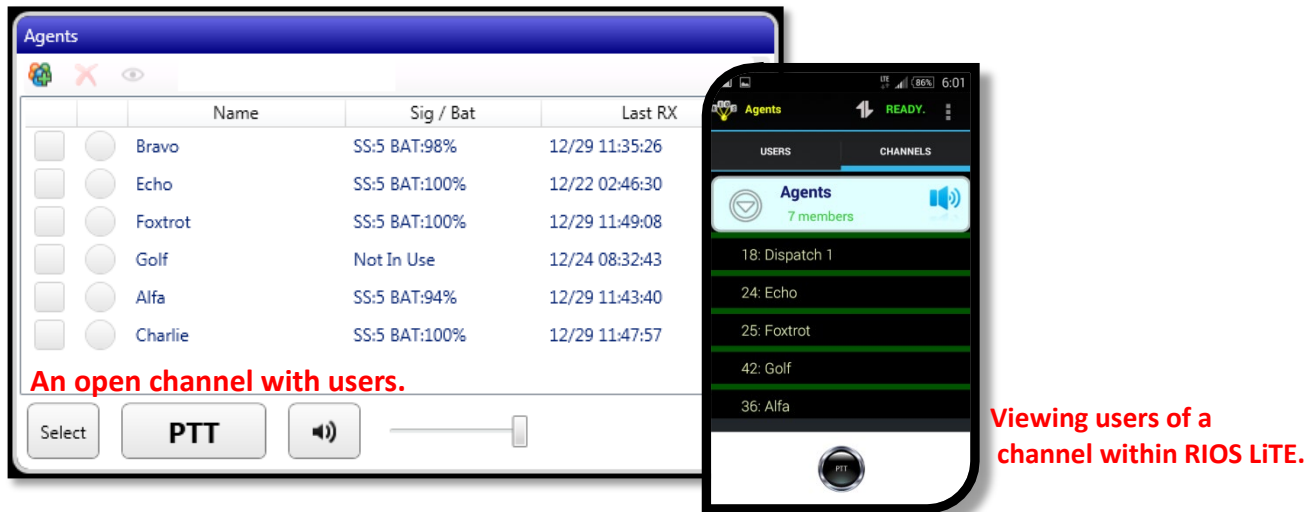
Users who are displayed in the channel can be in one of two states: logged in or not in use. "Not In Use" means that the phone is not turned on or it is not using the RIOS LiTE application. Furthermore, the local user of the RIOS Channels Interface (in the above example "Dispatcher 1") is not shown in the local, open channel. However, as seen from other RIOS Channels Interface workstations or RIOS LiTE users, the local user is shown in the group. From the perspective of the RIOS Server, the local user is in the group so long as the open channel is not muted (Section 3.04).

NOTE: If the RIOS LiTE user **mutes** the channel from their smartphone they will not be shown in the group. They will however appear in the Users window (Section 2.0). If communication is required with the user who has muted the channel, the Channel Interface user may utilize the Users window and a private connection (Section 2.01) to inform the RIOS LiTE user to unmute the channel.

2.3.1 **Managing Channel Audio**

The RIOS Channel Interface allows the user to communicate to assets in the following ways:

1. Using the Channel PTT Button to communicate to all users within a group.

2. Using the Channel Select Button and a physical PTT button such as a SyTech CCU2 PTT microphone or footpedal to communicate to all users within a group.

3. Using the selection box and the Channel PTT Button to communicate with one or assets to create a temporary channel.

2.3.2 Using the Channel PTT Button

The Channel PTT Button within an open channel allows the user to quickly transmit to the available assets within the indicated channel. Simply press and hold the PTT button of the channel to transmit to the group.
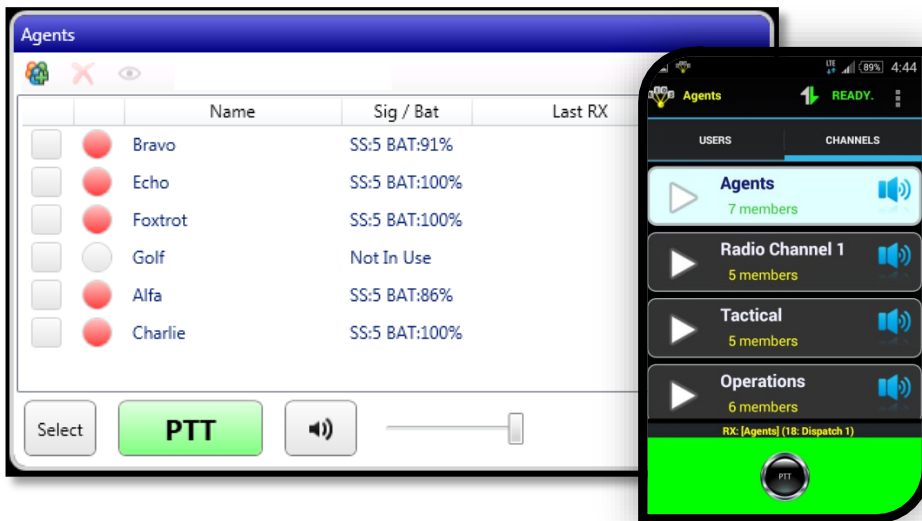
Receiving the transmission from within RIOS LiTE.

NOTE: Only users who are monitoring the channel will receive the transmission. User who are logged into the system but have muted the channel will not be shown in the channel or receive the transmission.

2.3.3 Using the Channel Select Button

The Channel Select Button allows the user to select the destination of a physical PTT button used in conjunction with RIOS. Typically, the physical PTT button is the SyTech PTT microphone or a foot pedal as used with the SyTech CCU2 Audio Control.
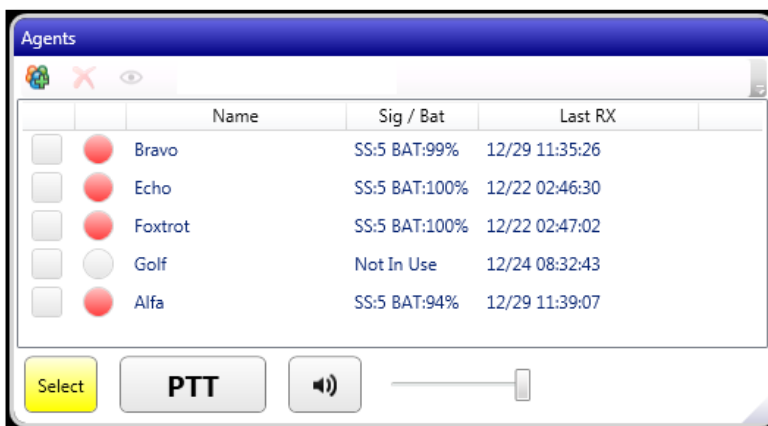
Using the Select button and physical PTT button to transmit.

Within the Channels Interface only one channel can be armed with the Select button at a time. The user is able to switch between selected channels by clicking the Select button within the desired channel.

2.3.4 Using the Select Box and Channel PTT

The Channels Interface allows the user to transmit to individual assets or a group of assets within an open channel. To do so, select the asset(s) to receive the transmission and press and hold the Channel PTT Button. The screen will appear as shown below. From the RIOS LiTE perspective, a temporary channel will be created with the "TMPCH" nomenclature. The temporary channel will be removed when the individual RIOS LiTE user mutes the temporary channel.

Using the Select Box to transmit to users.
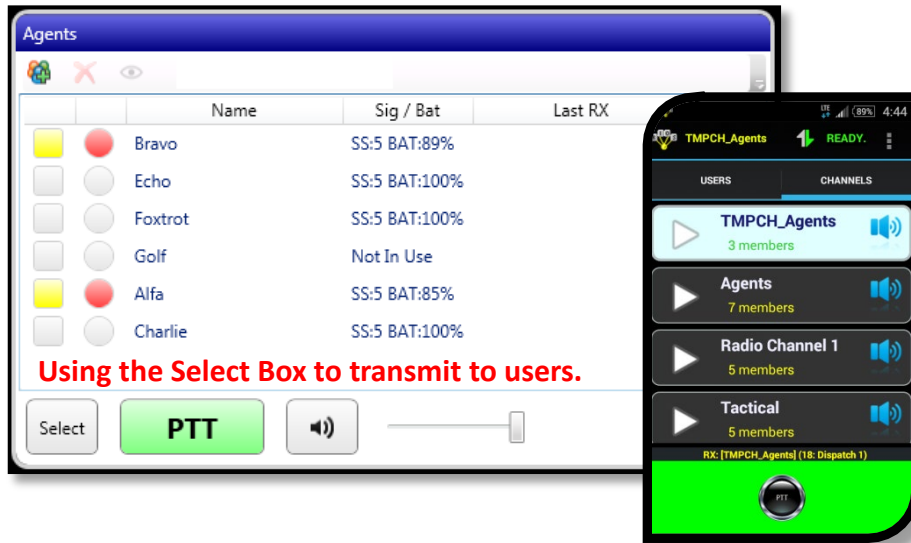
Receiving a Temporary Channel (TMPCH) transmission.

2.3.5 The Speaker Icon and Volume Control

The Speaker icon within an open channel allows the user to mute the incoming audio of the channel. To mute the open channel toggle the Speaker icon. Muting the channel effectively removes the RIOS Channels Interface user from the group. As such, the Channels Interface user will no longer appear in the group when viewed from other workstations.

The Volume Control slider bar allows the dispatcher to control the level of receive volume. Sliding the bar from left to right increases the receive audio from the open channel.

3. USER ADMIN AND VIRTUAL PORT ASSIGNMENT

The RIOS User Admin Function allows the system administrator to create user groups and user records within RIOS. The delegation of rights and permissions within RIOS operates on a group/user basis. The administrator creates a group and determines the appropriate features and permissions for the group. Next, the administrator creates the user records that will inherit the rights and permissions of the assigned parent group.

3.1 RIOS Users and User Groups

To access the RIOS User Administration:

1. Select the CONFIG Function (Bottom right of screen).
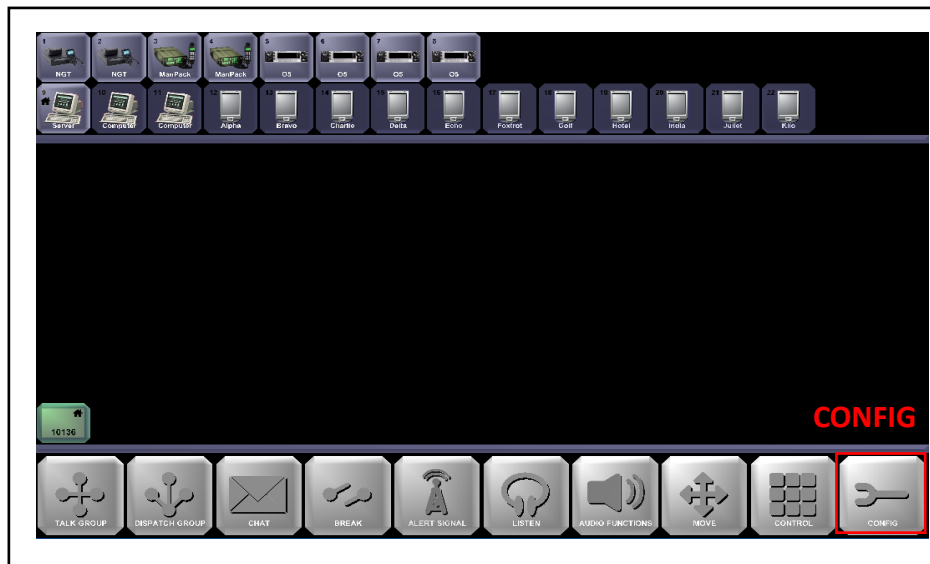
2. Select the USER ADMIN Function.
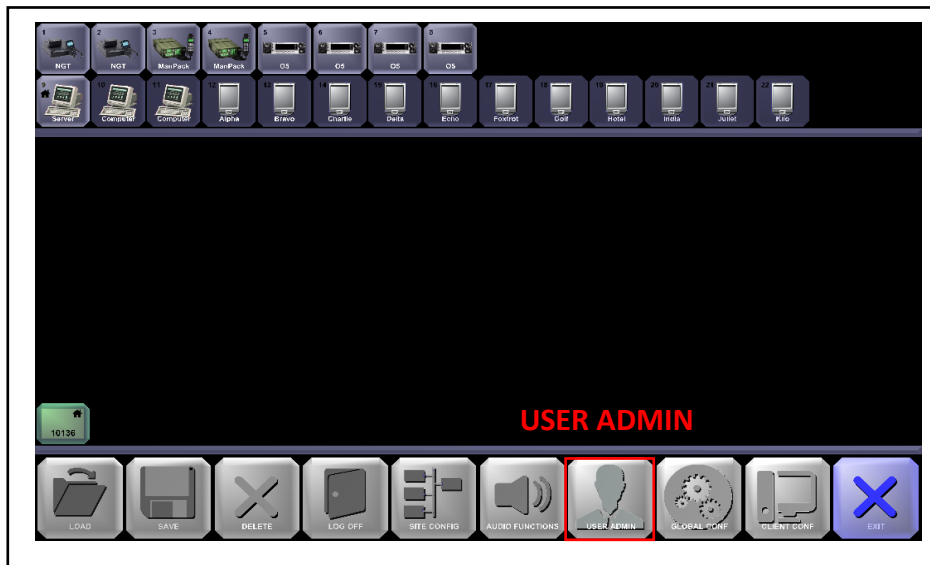
3. The RIOS User Admin Tool will appear as shown below. From this interface the administrator can create, modify or delete groups as well as create, modify or delete users. Groups currently created are shown on the left-hand side while Users are shown on the right. The administrator is

able to select the desired User Group to view existing Users within the selected group. By default, RIOS maintains three default group types:

Default Local – Access to local assets. The recommend Group type for most systems.
Default Remote – Access to local assets and remote.
Default Global – Able to override certain parameters.
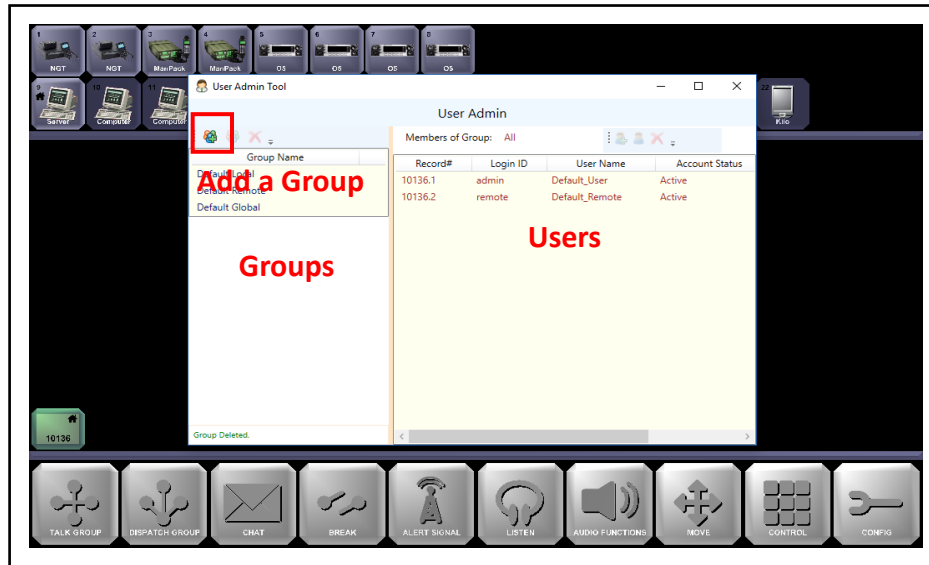
3.1.1 Create a User Group

1. Select the "Add a Group" as shown in the preceding image. The "Group Record" will appear as shown below.

2. Input the desired name of the new group within the Group Name field.

3. Select the desired rights and port permissions.

The User Record interface allows the administrator to delegate rights and port permissions for the User Group. Available group rights can be assigned for both RIOS Client (PC Interface) and RIOS LiTE (Smartphone Interface). Tabs for each mode of operation are available as shown in the image below.

In the example above, a group called "Dispatchers" is created. The administrator has selected the appropriate rights for the Dispatcher group.
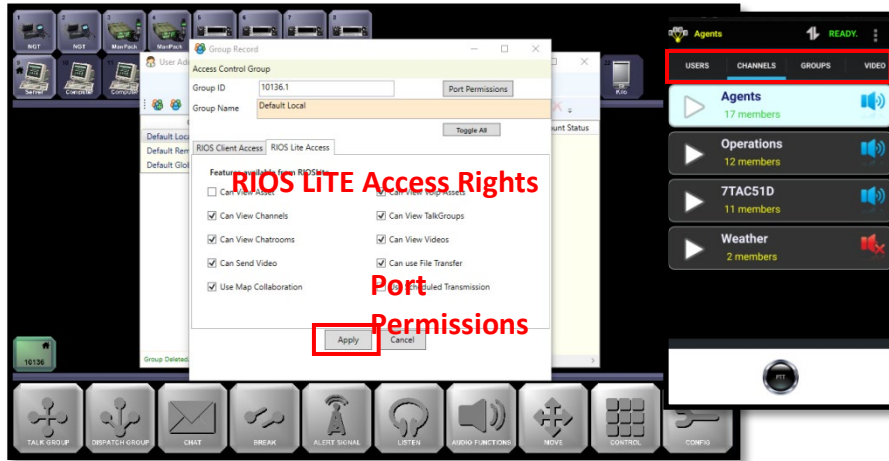
RIOS Client Access Rights

In the example above, a group called "Dispatchers" is created. The administrator has selected the appropriate rights for the Dispatcher group.

RIOS Client Access Rights

- ➢ Arrange Screen: Allows the user to move created groups within the RIOS GUI
- ➢ Use RIOS Client: Allows the user to log into RIOS Client **(Required for RIOS Client and LiTE access)**
- ➢ Use Playback Clients: Allows the user to initiate RIOS Recording Playback.
- ➢ Save Presets: Allows the user to save created groups, asset levels and other settings.
- ➢ Initiate Chat Session: Allows the user to access the internal RIOS Chat program.
- ➢ Control Legacy Sites: Allows the user to control RCU-enabled radios for systems prior to RIOS 3.44.
- ➢ View Transmission Log: Allows the user to initiate a Transmission Log.
- ➢ See Record Button: Allows the user to turn on or off Recording for individual ports.
- ➢ Select Sites: Allows the user to view other RIOS sites within the RIOS Widearea Network
- ➢ Run User Admin: Allows the user to open and modify User Admin.
- ➢ Run Global Config: Allows the user to open and modify Global Config.
- ➢ Load Presets: Allows the user to load saved preset groups, asset levels and other settings.
- ➢ See Bandwidth Indicator: Allows the user to view bandwidth indicator, if option is licensed.
- ➢ Control Mic Volume: Allows the user to adjust microphone volume within RIOS Client.
- ➢ Configure Legacy Site Assets: Allows the user to configure assets, load, save, or adjust ports for systems prior to RIOS 3.44.
- ➢ See AllCall Button: Allows the user to view and initiate the AllCall button to TX to all assets.
- ➢ See Playback Button: Allows the user to see the Client Playback Button.
  Use Instant Recall: Allows the user to initiate instant recall found with Audio Functions

RIOS LiTE Access Rights

To view the available right for RIOS LiTE, select the RIOS LiTE Access tab. The available rights for the smartphone interface are shown within the image below. From the perspective of the smartphone, the selected rights will appear as tabs within RIOS LiTE.

RIOS LiTE Access Rights

Port Permissions

Access Rights Delegated to RIOS LiTE Tabs

Standard RIOS LiTE Access Rights:

➢ View Assets: Allows the user to view, transmit to and receive from radio and virtual ports.
➢ View Voip Assets: Allows the user to view, transmit to and receive from client-type assets such as RIOS Clients and RIOS LiTE users. Within RIOS LiTE, this will appear as the Users tab.
➢ View Channels: Allows the user to view, transmit to and receive from channels. Appears as the Channels Tab within RIOS LiTE.
➢ View Talkgroups: Allows the user to view, transmit to, receive from, create and modify talkgroups, also known as nets and patches. Appears as the Talkgroup tab within RIOS LiTE.
➢ View Chatrooms: Allows the user to send and receive chat messages through RIOS. Appears as the Chat tab with RIOS LiTE.

Licensed RIOS LiTE Access Rights:

➢ View Videos: Allows the user to view videos sent through RIOS. Appears as Video tab within RIOS LiTE.
➢ Send Video: Allows the user to send video through RIOS.
➢ Use File Transfer: Allows the user to send files through RIOS. Appears within the Chat tab of RIOS LiTE.
➢ Use Map Collaboration: Allows the user to view and track RIOS LiTE users with enabled GPS. Appears as the Maps tab with RIOS LiTE.
➢ Use Scheduled Transmissions: Decommissioned feature for RIOS LiTE.

3.1.2 **Managing Rights and Permissions**

In the preceding image, the Port Permissions button is shown. Select this button to enter the Ports Level Access as shown below.

Port Permissions allow the administrator to grant or deny specific permissions on any physical and virtual ports within RIOS. For example, an administrator might elect to set a radio port to receive only, limiting a group's ability to transmit on a radio. The image below illustrates the permissions available to the administrator as shown in the vertical rows. The horizontal columns indicate the corresponding port that is affected.
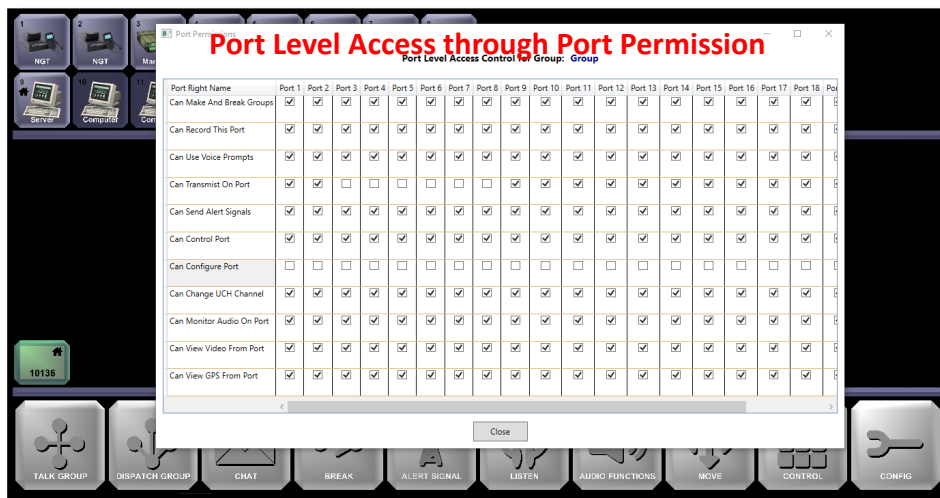
In the image shown above, the administrator has removed the Group's ability to Transmit on radios 3 through 8 while denying the ability to configure a port on all ports.

TIP: The administrator can toggle the desired port permission to grant or deny all ports for that permission. To deny or grant all permissions on all ports, toggle "Port Right Name" at the top left of the interface.

By default, all ports are enabled. Generally the system administrator will elect to allow port level access to all users.
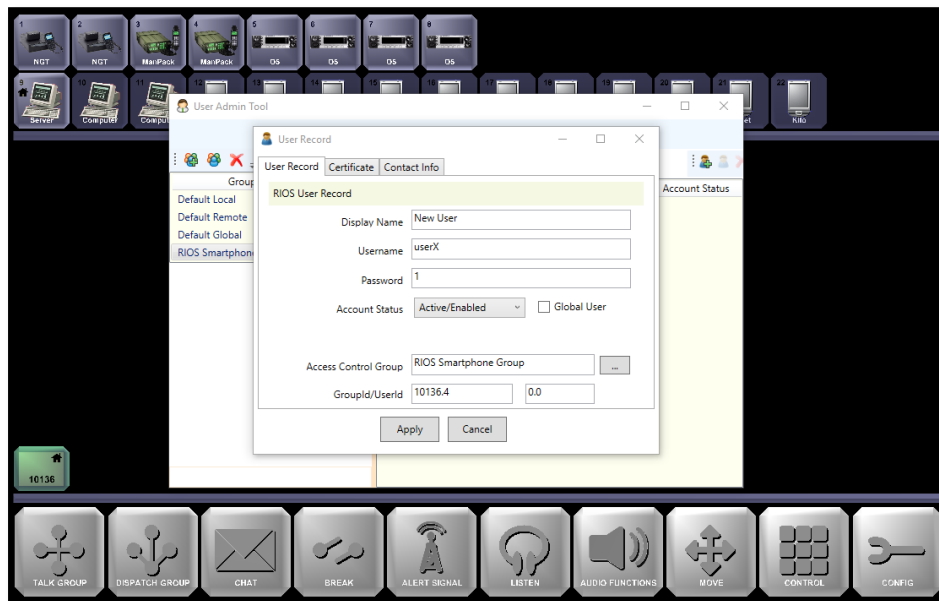
3.1.3 <u>**Creating a New User**</u>

1. Create a user within a group by selecting the group where the user will belong. In the example below, the administrator is creating a user within the newly created "RIOS Smartphone Group."
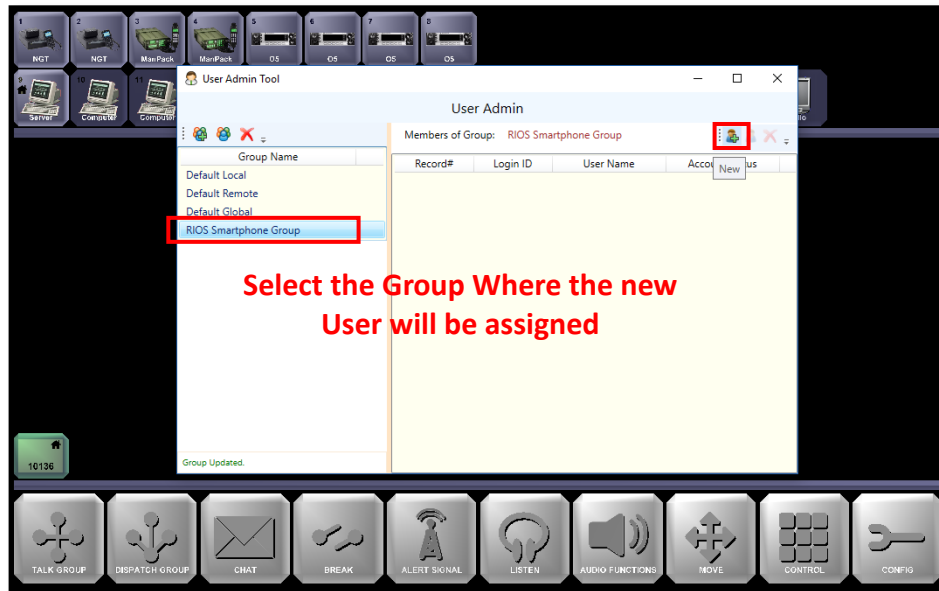
2. Select the "New User" icon as shown above.

3. The User Record will appear as shown below. The default values of a new user are shown.

4. Input, for example, the user's Last Name, First Initial for "Display Name." Input a unique username for the user. Password as desired by the administrator.

    The fields within the User Record include:

    Display Name: Corresponds to how the name appears within User Admin.

Username: The unique log-in identifier of the user. RIOS will reject repeated user names. The User Admin will discard the repeated username and response with "Username Already Exists."

Password: The selected password for the corresponding username.

NOTE: Multiple ROS Client PCs may use the same user name and password but RIOS LiTE users require a unique username and password.
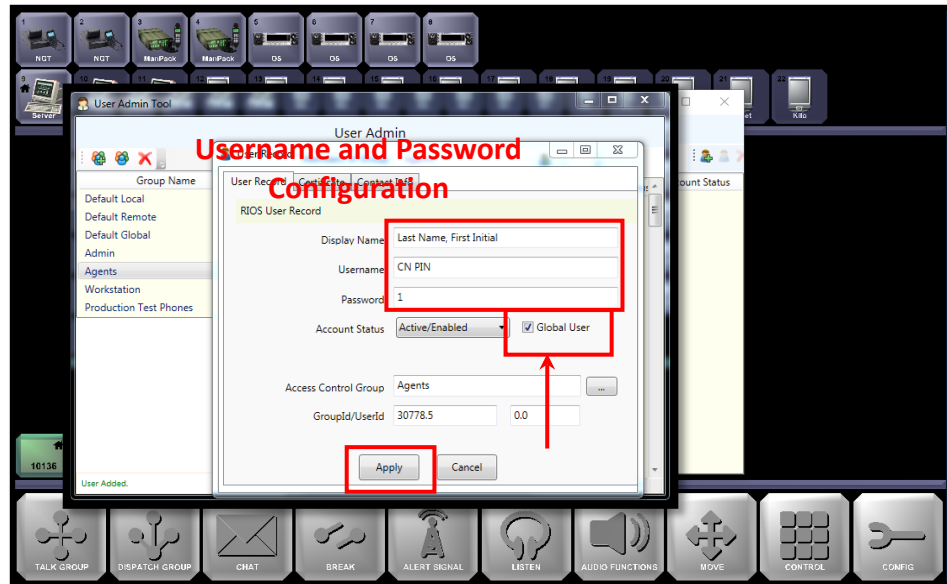
Account Status: Allows the administrator to delete, disable, activate and time restrict the user. Selecting "Time Restrict" allows the administer to select a start and end time for the selected user.

Global User: Enables the user to access remote sites when the system is configured within a RIOS Widearea Network.

Access Control Group: Indicates group assignment for the current user. The administrator is able to reassign the user to an existing group by selecting the drop down button, selecting the new group assignment and selecting "Apply."

Group/UserID: Non configurable. Indicates the RIOS USID and numeric assignment of the user record.

For RIOS MultiSite Users Only:

5. Select "**Global User**." This also creates the User for the remote site. By checking this box the user does not need to be entered into the User Admin of the remote site. The administer should "Update All" within the RIOS Global Configuration if RIOS is configured for a multisite environment. The seat assignment however must be set up (see following section).

6. **Select Apply**.

Note: Hitting "Enter" will not save the User Record.

RIOS will return to the User Admin Tool. "User Added" will be displayed at the bottom left of the screen. The new user will be displayed as shown below.

The newly created Username will appear within the User Admin Tool
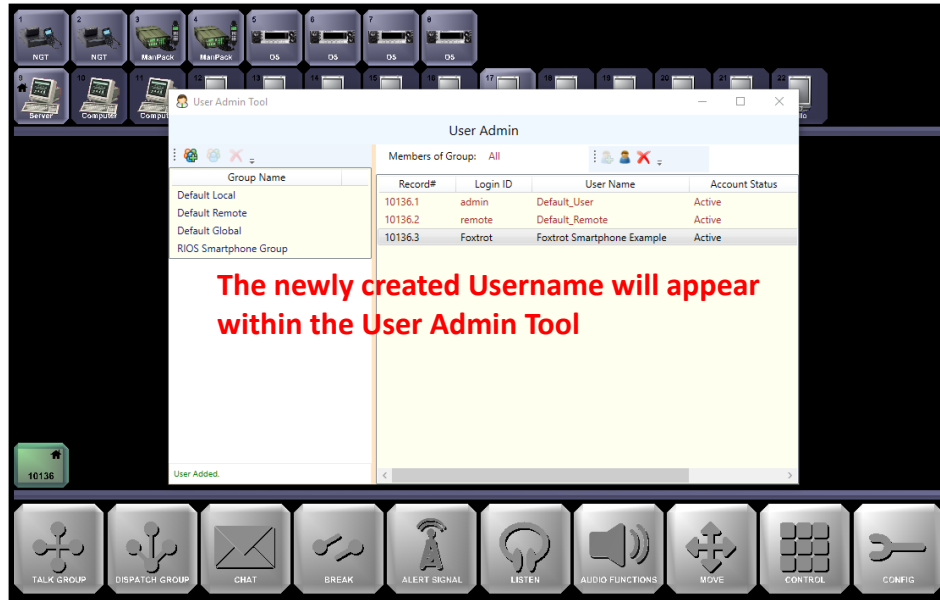
7. Continue to add additional Groups and Users as necessary. To delete the user or group, select the user or group to be delete and select the red X that corresponds to the record.

8. Close the User Admin tool when complete.

RIOS Client and RIOS LiTE assets will now be able to log in to the system.

The following section, "RIOS Virtual Port Assignment," outlines how to register assets into specific RIOS virtual ports for proper seat assignment and naming conventions.

For SSL Download

Inside of the User Editor there is a tab called Contact Info. The phone number block must be filled in if you wish to download an RSP remotely.

SyTech
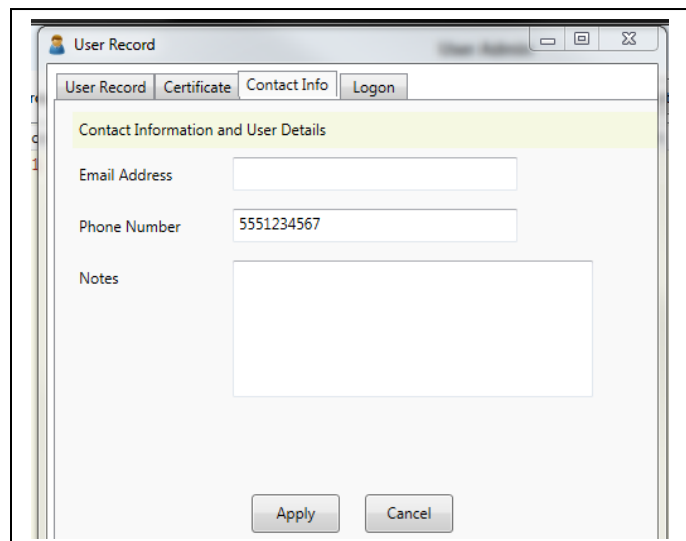
3.2 RIOS Virtual Seat Assignment

RIOS will grant access to users who are registered within the User Admin. If a seat assignment for the username is *not configured within the RIOS GUI*, RIOS will place the authorized user into the first available port starting from the left. Seats are unavailable to users without a seat assignment if (1) another user is currently logged in to a seat or (2) the seat has been reserved by an assigned Client Name or other client specific information such as an IP address.

NOTE: The user's seat assigned is important as it denotes how the user will appear to other RIOS users. By assigning a username to seat, the user will always registered into the corresponding seat.

By default, the name of the user will appear as "Computer" for RIOS Client users and "Smartphone" for RIOS LiTE users. The username that corresponds to the VOIP/client name will inherit the **General Name** of the port. The following section outlines how to assigned a username to a specific seat within RIOS.

Configure the General Name and VOIP/Client Name for Seat Assignment:

1. Select CONFIG.

2. Pick the RIOS Virtual port where the Username will registered. In the image below, RIOS Virtual Port 124, "Smartphone" is selected.

`
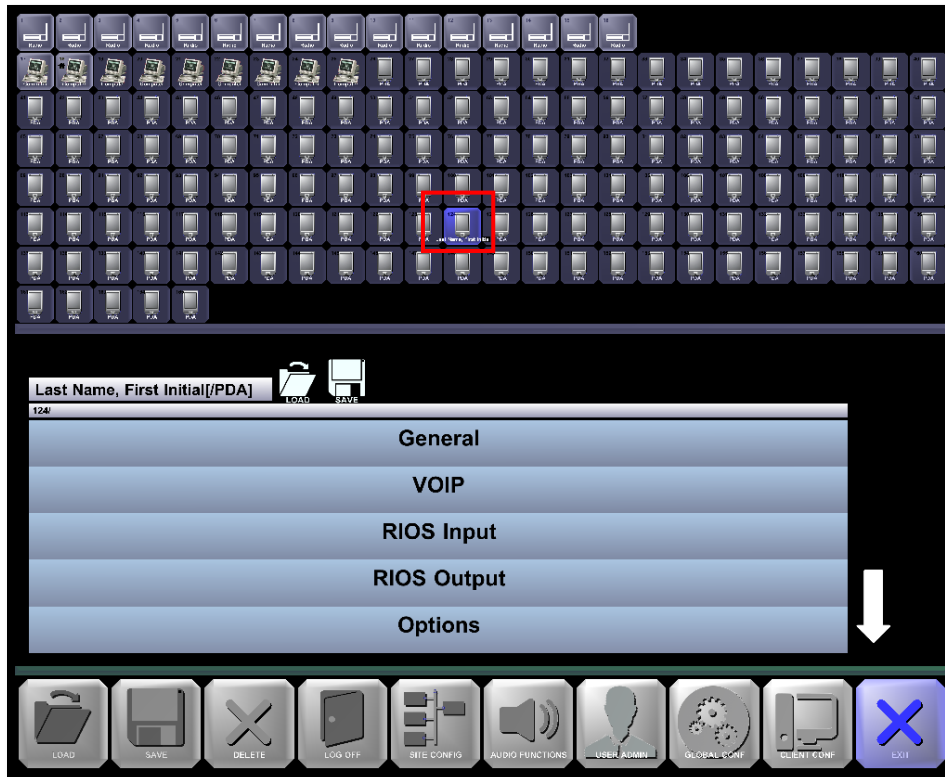
3. Select "General."

4. Select the keyboard icon to the right on "Name."

5. Input the agent's name as it will appear in the RIOS GUI and on RIOS LiTE.

6. Select "Enter."

7. Select the up arrow.

8. Select VoIP.

9. Select the keyboard icon to the right on "Client Name."

10. Input the **Username** that will be assigned to this seat. Select Enter to accept. In the image below, the **Username of 123456** is input into the <u>VOIP/Client Name field</u>.


11. Select "ENTER"

12. Select the "Exit" Function.

13. The user is now configured for the Primary Site. Test the new user, PIN, and seat assignment by logging in as the newly created user.

   Repeat the process for additional user that required assigned seats.

Another way to assign seats to users to login into is use the User Admin. Two options are to individually sign each user or the multi-user sign on for all the users in a User Group.

To do the Multi-User seat assignment the Multi-User Update button in the user admin has to be pressed.
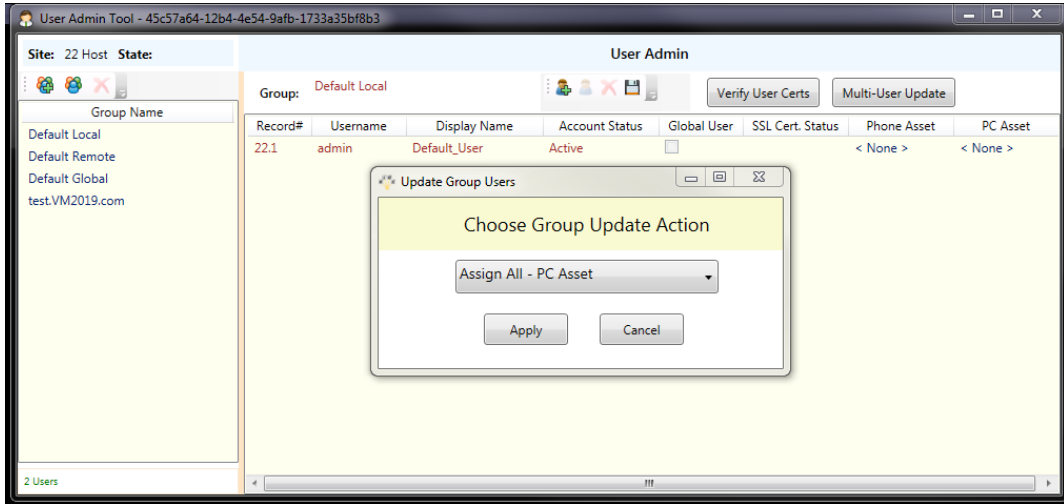
Once pressed it will pop up with a box that indicates a group update action to take either assign all as PC Assets or as Smartphone Assets.

To do the single user seat assignment the user has to be selected from within the User Admin. Once done there is a tab called Logon.
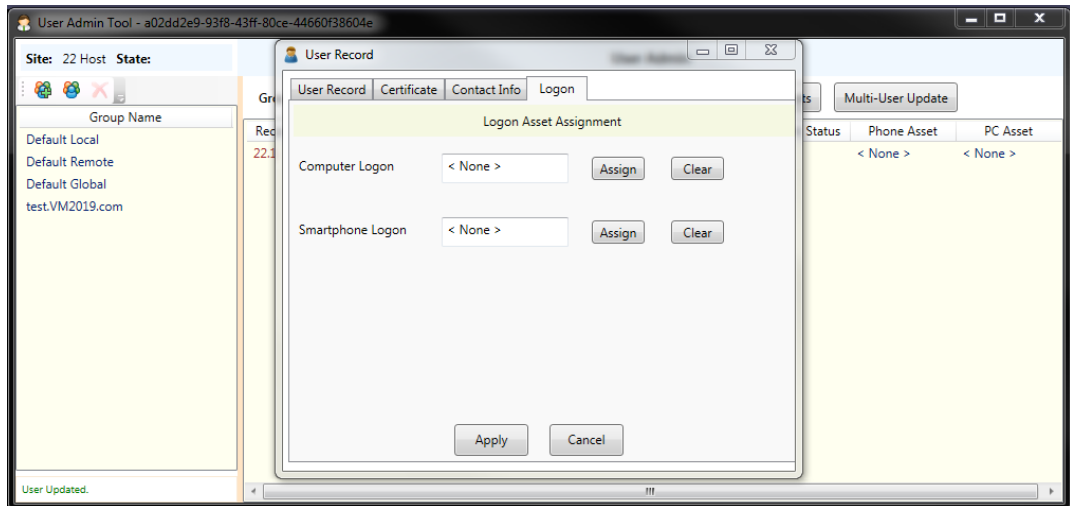

The logon tab has two options Computer Logon or Smartphone Logon. All that has to be done is select the assign button it will assign the first open seat of the selected type. If the user is already assigned a log on seat to use then it will appear on this screen. The clear button allows you to remove from any assigned log on seat in the system.

`

4. PHYSICAL PORT CONFIGURATION

4.1 Understanding Physical Ports

A "radio entry point" refers to a single, physical communications device such as a two-way radio operating within its frequency network. Within the RIOS GUI, radio entry points are represented by on-screen as Physical Ports. For devices that connect with an IP address, Virtual Ports, are displayed in second row of RIOS Ports as shown below
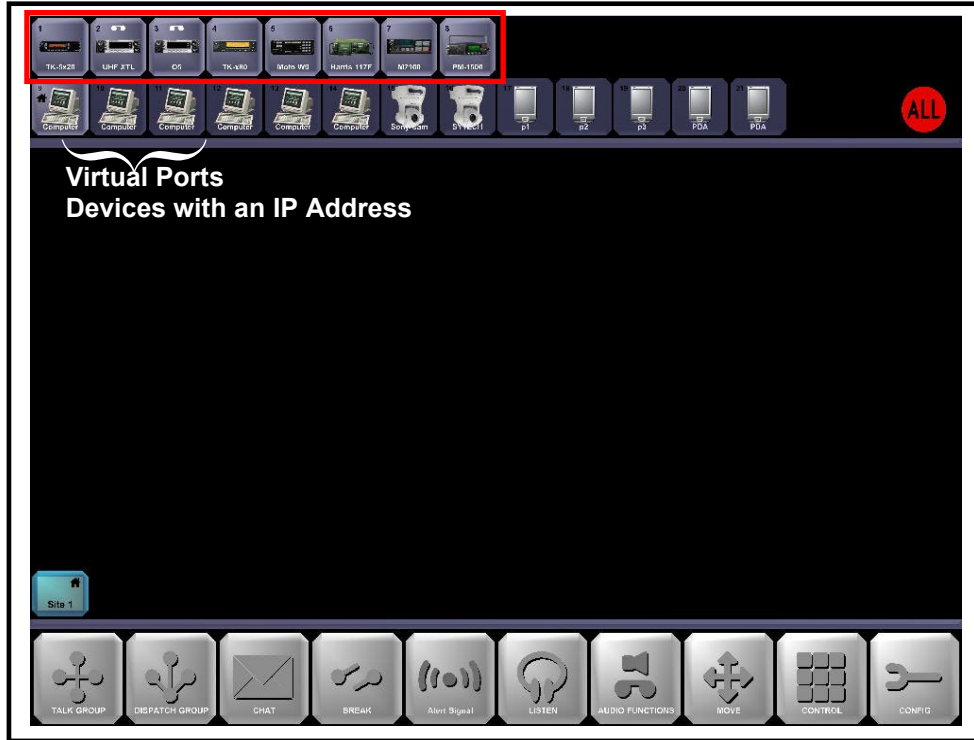
Connected to the RIOS I/O chassis, radio entry points act as a go-between for dissimilar communication networks. Hence, **RIOS must have one radio entry point for each network it attempts to incorporate**. For example if the operator wishes to communicate within the VHF, UHF, or 800 MHz frequency bands, the operator must connect one radio device from each frequency network. Because of this functional requirement, proper gateway connection and configuration are vital to effective interoperability.

Radio Entry Points are configurable to a variety of devices including portable radios, mobile radios, manpack radios, repeaters, tone-control interfaces, the SyTech GSM module, satellite phones voice calling phones such as cell phones connected with a 3.5 mm cable.

Section 3, *Gateway Management*, describes how to connect, load and configure Gateway Ports for effective interoperability.

Gateway Devices and the Configure Function

The Configure Function allows the RIOS users to load device profiles, select Virtual Control Heads, adjust high-level gateway parameters, and perform simple tasks such as volume control, audio output designation, and user log off. The following section relies upon the use of the Configure Function.

4.2 Loading Assets

The Configure Function allows the user to designate Gateway Ports as general devices, such as generic radios and landline, load specific device profiles enabling **Universal Control Heads** (UCH), or disable Gateway Ports.

1. Activate the **Configure** Function.

2. Select the **Physical Port** that will receive the new profile. The Configure Menu will appear as shown
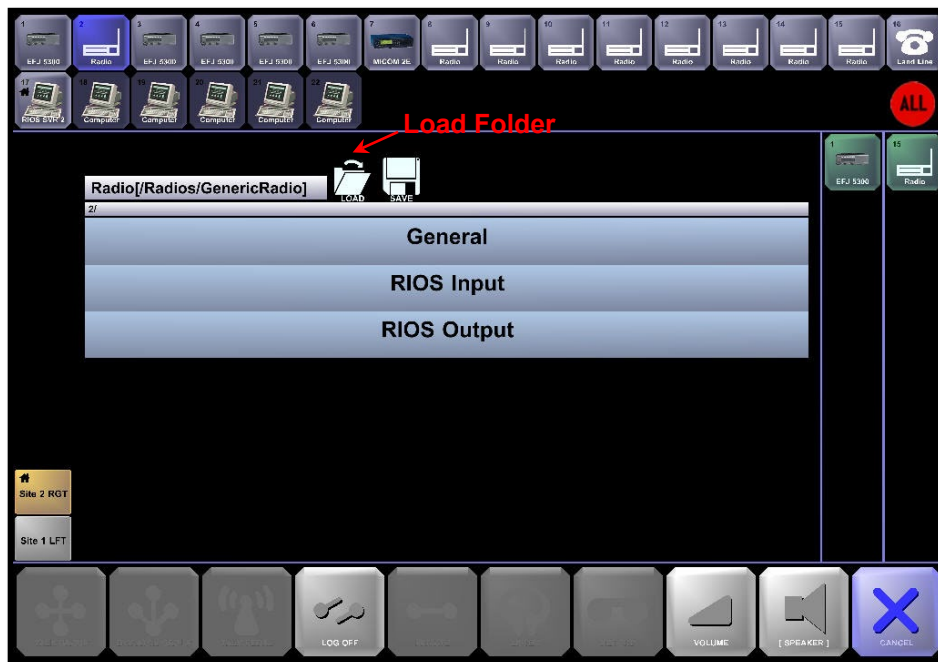
3. Select the folder icon titled "**Load**". The Load Profile menu will appear

4. Select **Radios** as the type of device to be loaded.

5. If your RIOS package included Universal Control Heads, select the desired folder icon.

6. RIOS will insert the loaded radio icon into the Physical Port.

4.3 Connecting a Walk-Up Radio

All gateway devices are connected to the RIOS I/O chassis via high-density 26-pin male connectors. Most RIOS packages ship with integrated radios and the requisite gateway cabling as specified by the customer. In addition to the standard RIOS package, a cache of frequently-used cables may also have been purchased to support the possibility of walk-up radios.

A variety of connection methods exist when dealing with walk-up radios at an incident site. For agencies that wish to interoperate the quickest method of interoperability is to switch all radios to the local, regional or national interoperable frequency. However due the demands of some agencies this option may not be available. Instead **the agencies requesting interoperability can provide a single device**, for example a handheld UHF radio, **to act as a gateway into the agency's frequency network**. After connecting the walk-up radio to RIOS the operator can patch communications within the device's native network to their own network.

In the event of a radio without a cable, the operator may choose to program the base-station radio to match the frequency of the walk-up. Consult the radio manufacturer for frequency programming.

SyTech maintains an inventory of radio cables. If timing permits, contact your SyTech representative for cable availability and purchasing options.

4.3.1 **To Connect a Gateway Device**

1. **Test** the validity of the handheld device by transmitting and receiving from a <u>second radio</u> within the device's native network. Confirm signal strength and power

2. **Locate** the appropriate cable from the cable cache

3. **Attach** the HD 26-pin connector to an open port on the RIOS I/O Chassis. Fully tighten the thumbs screws.

4. Firmly **connect** the radio-receiver end of the cable to the microphone port on the walk-up radio as shown below

5. If the walk-up radio is connected to a port with a generic radio loaded as the Gateway Port, **key the second radio** to test for connectivity. If the radios are connected correctly and set to the same channel the Gateway Port will turn **GREEN** when the second radio is keyed.

   If the Gateway requires configuration **proceed** to the next section for instruction configuring walk-up radio.

4.3.2 Configure and Confirm a Walk-Up Radio

1. After connecting the walk-up radio activate the **Configuration** Function

2. Select the **Gateway Port** that corresponds to the walk-up radio

3. The Configuration Window will appear. Select "**Load**" folder from the top of the Configuration Window

4. The Load Profile Window appears. Select the **Radios** row followed by the profile type of the walk-up radio. If the profile was not purchased, select **GenericRadio** from the list. A radio icon will appear in the configured gateway

5. **Key the second radio** as shown below. If the icon turns **GREEN** the walk-up radio and the device network are now connected to RIOS. If the gateway doesn't light green, check the channels, cables and configuration

`

Confirmed Connection

6. **Create a Talkgroup** to test for network connectivity. The receiving port will turn **GREEN** while the transmitting port will turn **RED**. Test for audio connectivity.

4.4   Telephony Gateways – Connecting and Dialing

A variety of telephony devices can be connected to the RIOS I/O Chassis. The following subsections briefly describe the connection methods of PTSN, Cellular, and VoIP gateway options.

PTSN Gateways

Connect a standard analog telephone line to RIOS by connecting the two-wire PTSN cable to the RIOS I/O chassis. Plug the PTSN cable into to a functioning wall jack. Configure the corresponding Physical Port by selecting Configure, Load, Phones, and POTS. RIOS will load the POTS icon into the Physical Port.

RIOS can send and accepts calls using this line. When RIOS receives a call, the port will ring and flash **red**. Answer the call by selecting the port. An answered call will appear in the Listen Column.

Cellular Gateways

A cellular phone connected as a gateway will allow all cellular users within any cellular network to call into RIOS. Cellular gateways can be extremely usefully, allowing non-radio personnel to communicate within radio networks. Cellular gateways, however, can be a challenge as most cellular phone makes and models require a unique cable. If your agency requires a cellular phone cable contact SyTech for purchasing details.

In an effort to support cellular and Push-to-Talk devices many RIOS Packages ship with Nextel Gateway cables. If available, the RIOS operator can connect and load the Nextel Push-to-Talk profile by selecting Configure, Load, Phones, and Nextel. RIOS will load the Nextel icon into the Gateway.

VoIP Gateways

Integrated RIOS packages may connect to a telephony backhaul by connecting the RIOS PTSN cable into a call managing router. With this arrangement the user should configure the corresponding Gateway Port to POTS line and call out with standing VoIP call structure.

For example, if the router offers port 90 as a telephony plug-in remote users may call into RIOS by dialing the ten digit access number of the VoIP server (703-654-06xx), and, when prompted, entering the router extension (101), followed by the port number, in this case port 90.

The RIOS Virtual Keypad can be used for the dial service of PTSN, cellular, satellite and VoIP phones.

Start the Keypad Control by activating the Control Function and selecting a Port that has a telephony device connected. The Virtual Keypad will appear as shown.

The operator is able to enter a phone number, private or group ID number of the party, group, or agency they wish to call. Once the number is entered, pressing the return key will initiate the call.

The display at the top of the keypad will display the call status. Once the call is active it can be placed into a Talk or Dispatch group.

The "M" key on the keypad when pressed will open a Phone book which will allow you to save phone numbers and access the last dialed numbers.

4.5 DSP2 Card Ports

RIOS IP Ports can be configured to communicate with DSP2 card ports such as the Raytheon JPS ACU-1000. With this configuration each IP Port represents a module card of the interoperating device. RIOS allows the user to load the "ACU" profile and set the IP Port address to the IP address of the corresponding module card. The image below displays an ACU configuration menu for a loaded ACU profile.
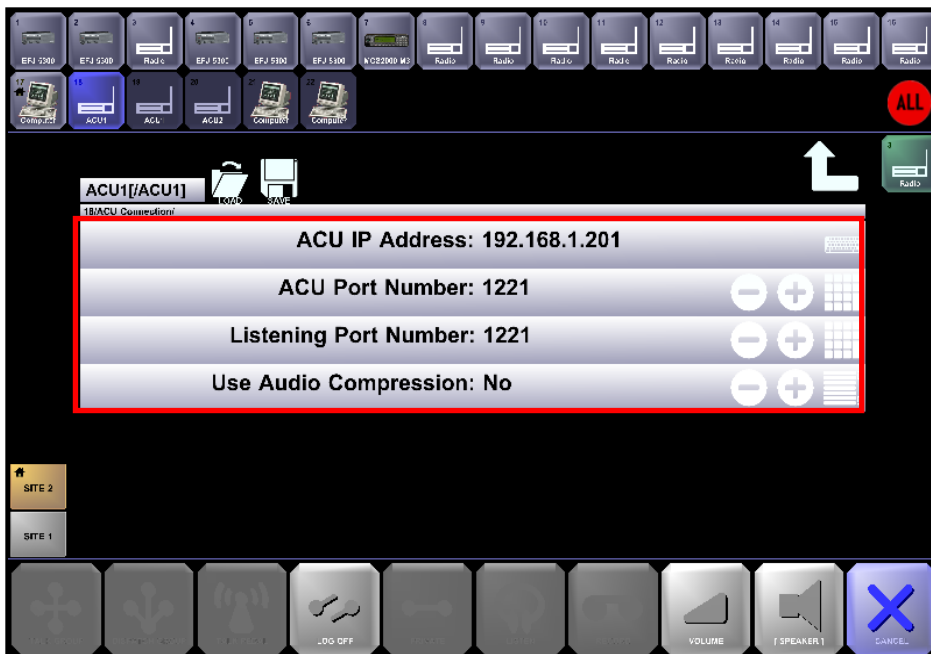
4.6 Remote Connection with DTMF Devices

RIOS users have the ability to create Talkgroups from DTMF radios and landlines.

Create a Talkgroup from a connected DTMF radio by selecting the Configure Function, General, and enabling Remote Connect. Key the DTMF radio while pressing the "✱" key. Release. RIOS will respond "Please enter the destination code followed by the pound key." While keying the radio, press the number key of the corresponding physical port followed by the "#" key. Release. RIOS will connect the gateways and respond "You are now in a Talkgroup."

Create a Talkgroup from a DTMF landline by selecting the Configure Function, General, and enabling Remote Connect for the PTSN Gateway Port. Dial the corresponding phone number of the established PTSN Gateway Port. When prompted, input the User ID followed by the pound key. Next, enter the destination code (Gateway Port number) followed by the pound key. RIOS will connect the gateways and respond, "You are now in a Talkgroup."
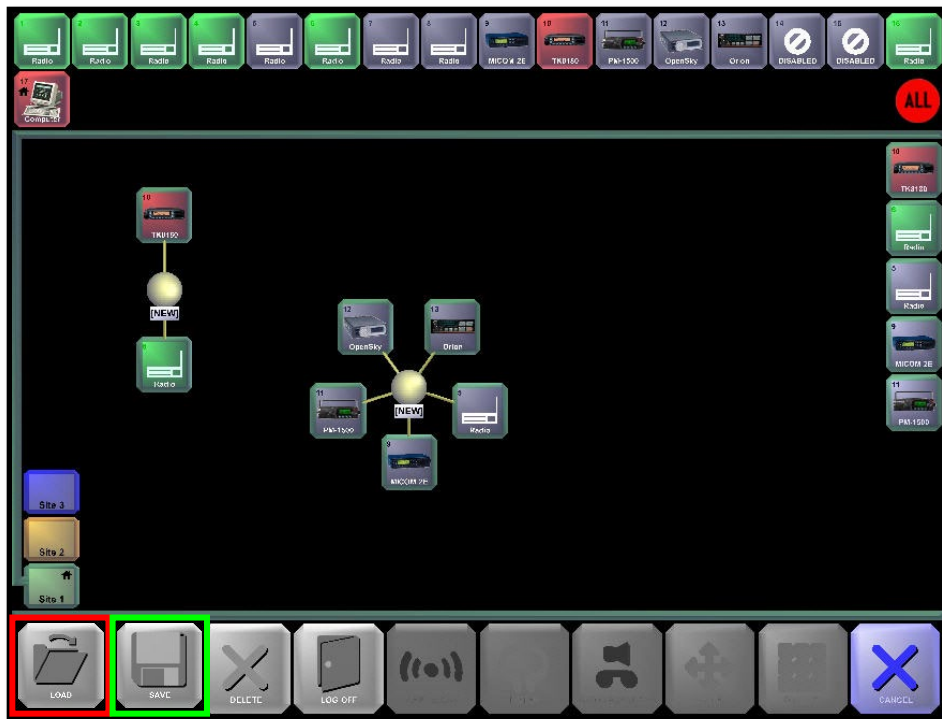
4.7 Saving and Loading Presets

Presets allow the user to save and reload local groups and configurations based on likely situations and scenarios.

4.7.1 Save a Preset Configuration

1. After arranging a configuration select the **Configure** Function.

2. Select the **Save** button that appears in the Function Row.

3. Select the "**+**" sign to open the keyboard control. **Type the name** of the Preset to be saved. Select **Enter**

4.7.2 **Load a Preset Configuration**

1. Select the **Configure** Function.

2. Select the **Load** Button from the Function Row. Previously saved presets will be available. Select the **desired preset**. RIOS will load the configuration along with the corresponding local attributes such as the Listen Column and Radio Channels and Frequency.

Presets are intended to be used on the local level only and not with wide-area assets. Delete presets by selecting the Delete button followed by the Presets to be erased.

4.8 Configuring Port Audio

Configuring a Physical or Virtual Port refers to the customization of gateway parameters to deliver the highest quality audio while offering the operator highest level of control. The three main setting categories within the Configure Function are **General**, **Input** and **Output** as shown in. The three categories are described as follows:
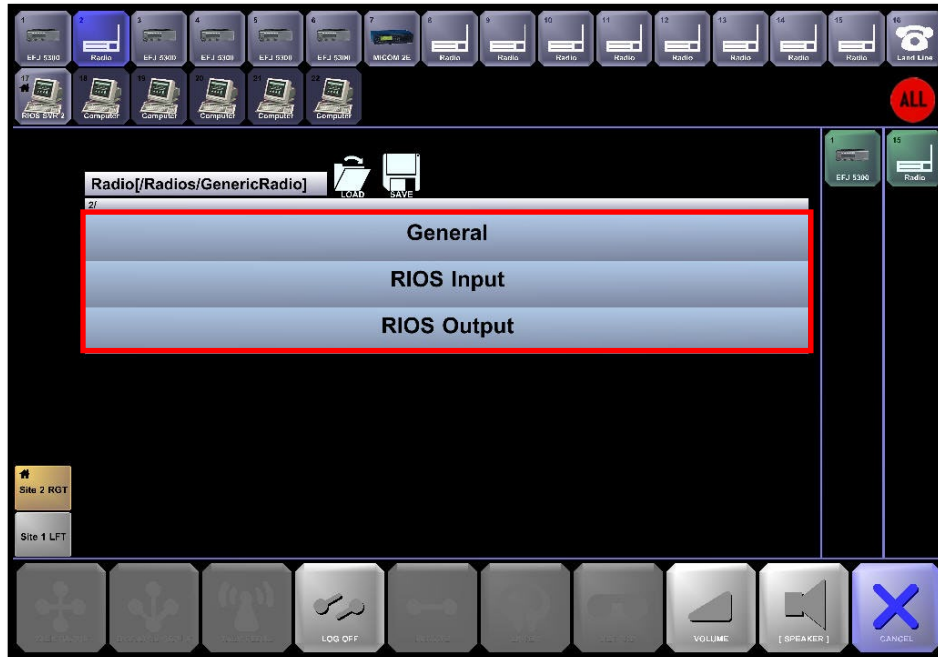
1. **General**: Selecting this menu item will allow the operator to name the port. A keyboard appears on the monitor screen. From here the operator has the option of renaming the port to reflect the gateway device attached to it or the name of the Agency Network associated with the gateway device, such as Police, Fire, or EMS. Other General options include the ability to select a gateway device to Receive Audio only, Transmit Audio only or Receive and Transmit Audio and turn on the Secure Connection Reminder.

2. **Input**: The RIOS CTI Board refers to the physical device within the RIOS Server that converts analog audio signals into digital pulse code modulated (PCM) data streams. The CTI board creates events, performs certain tasks, and makes certain decisions based on the Input parameter values entered. **Both Input and Output are from the perspective of the CTI Board**. Input options are described as follows:

    A. Gain: Use this function to set the gain level going into the CTI channel. Raising the volume on the gateway device will have the same effect as increasing the Input Gain. It is recommended to first adjust the gateway device volume level to mid-range and then adjust the Input Gain to a comfortable listening level. Any changes to the Gain Setting MUST be done prior to the adjustment of VOX settings.

    B. VOX Level: This option is used to set at what audio level, on the leading edge, the VOX will trigger on. An incoming signal must be above this parameter setting to be considered a valid signal. If a remote radio is transmitting and the RIOS is not indicating a receive signal, lower the Trigger On Level, raise the gateway device volume control, or raise the gateway input gain in the RIOS Input menu. If the RIOS is having frequent faults triggers, raise this level.

    C. VOX On Time: This is used to determine the duration of the VOX signal to be considered valid. An incoming signal must remain above the Trigger On Level for this time duration to generate a VOX Activated event.

D. <u>VOX Off Time</u>: An active signal must fall below this parameter value in order to be considered an end of signal. This parameter is normally set to the same value as the VOX Trigger On Level.

E. <u>Pre Buffers</u>: This parameter tells the RIOS to buffer the selected number of 40ms blocks of audio. Buffering is required to ensure that the first couple of syllables of the audio transmission are not lost due to other time delays such as VOX On Time.

3. Output: These parameters tell the CTI board to perform certain functions on the signal leaving the board. The settings accessible to the operator for adjustment of audio quality are as follows:

A. <u>Gain</u>: This is the gain setting going to the Gateway radio microphone input. The CTI card can raise or lower the signal level out the CTI channel. Raising the volume at the remote radio will have a similar affect.

B. <u>Echo Suppress Time</u>: The CTI board is a full duplex device. As audio comes in on the receive side, crosstalk puts some of the signal on the transmit side. The Echo Suppress timer stops the VOX from activating until the timer has expired.

C. <u>Delay Time</u>: This setting is the amount of time RIOS will listen for acknowledgement tones during which time all incoming audio is buffered. If not received the audio is dumped and the process is reset.

D. <u>Acknowledgement Tone Threshold</u>: This parameter provides the time measurement the CTI board uses to determine if the ACK tone reply is long or short. The CTI board starts a timer when it detects the ACK signal. If the ACK signal is shorter than the ACK Tone Threshold, the RIOS will start sending the buffered audio. If a long tone or series of short tones is detected, the RIOS will understand this to be a negative ACK and the audio buffers will be discarded.

4.9 Gateway Permissions

Gateway Permissions allow sites to grant and deny monitor and connection rights to remote RIOS Sites. For Wide-Area RIOS Systems, monitor rights are denoted with a speaker icon within the icon while connection rights are illustrated with a lock/unlock icon.

4.9.1 Edit Monitor and Connection Rights

1. Activate the **Configure** Function.

2. Select the **Gateway Port** that to edit rights. The Configure Menu will appear as shown below
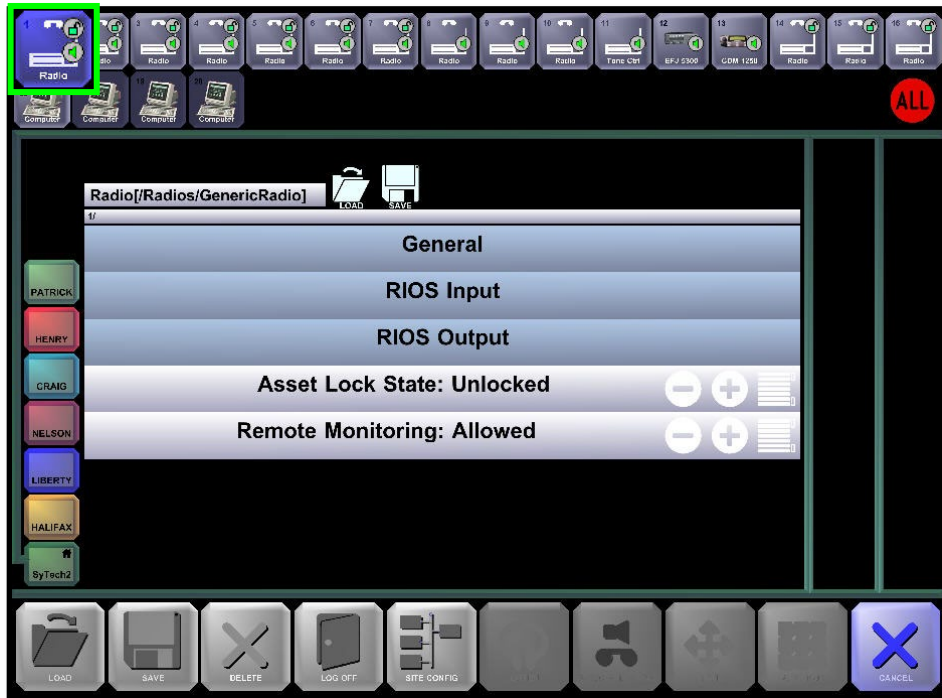
3. The user has the ability to toggle among "**Unlocked**", "**Lock**", and "**Unlocked (temp)**" for connection rights. Unlock "temp" will allow a remote site to connect once before the asset will return to the locked position.

4. The user has the ability to toggle among "**Allowed**" and "**Not Allowed**" for monitoring right.

5. Confirm the desired state by selecting the **Config Function**.

4.10 SIP Profiles

The Sessions Initiated Protocol (SIP) profile provides a profile-interface means to a variety of Voice over IP devices. In order to use SIP, RIOS requires a SIP server which depending on type of configuration requested can run internal to the RIOS Server or remotely from a SIP providing service.

SIP Devices load as Virtual Ports (second row) within RIOS. The user can designate a Virtual Port to be a SIP device using the Configuration Function as described in Section 3.2.

Once the Virtual Port has been loaded as a SIP device, the profile will be able for configuration as shown below in *The RIOS SIP Menu*.

`

SIP Settings: CONFIG, Port
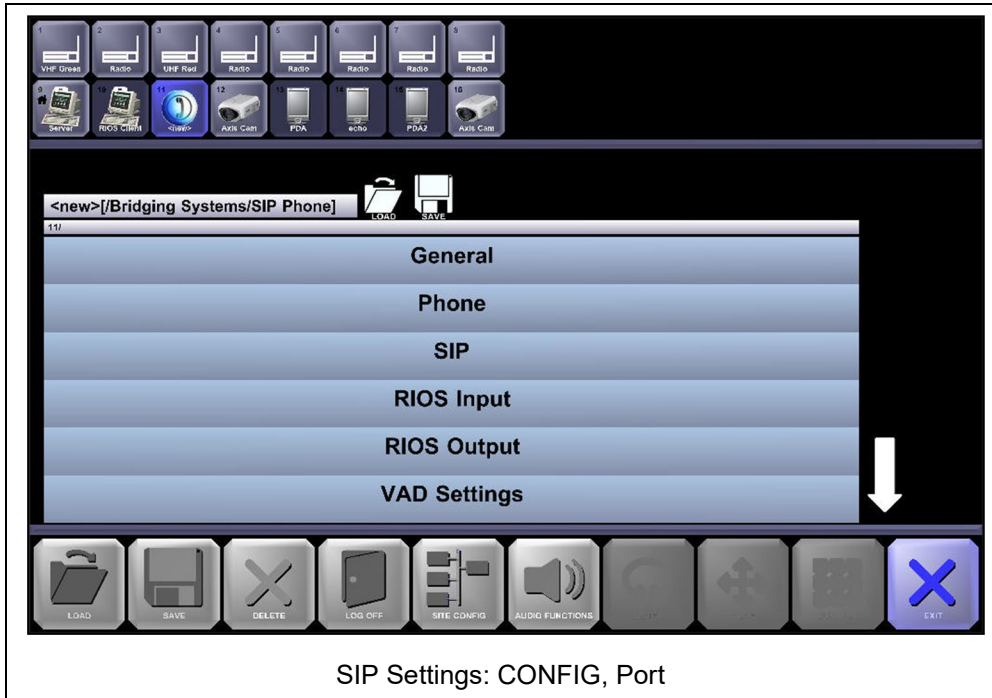
For the most part, the available configurations are unchanged from other profiles. The main differences are The RIOS SIP Setup Menu and The RIOS SIP VAD Menu.

The RIOS SIP Setup Menu shown in the image below, provides the setup configurations for working with the SIP server where User-ID/EXT refers to an extension location of a SIP enabled device; simply put, the phone number of the device.

The password and server address refer to the SIP server location. The user should not have to adjust Packet Reordering.

SIP Server Location
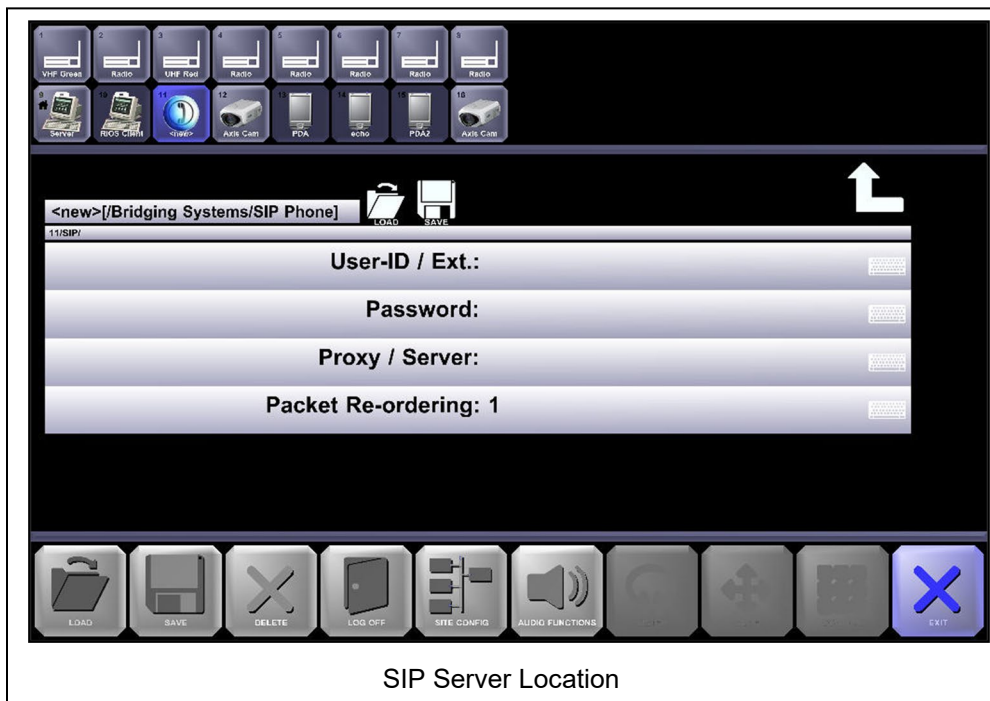
The RIOS SIP VAD Menu provides the configuration interface to adjust the SIP profile's voice activity detection settings.

The RIOS SIP VAD Menu
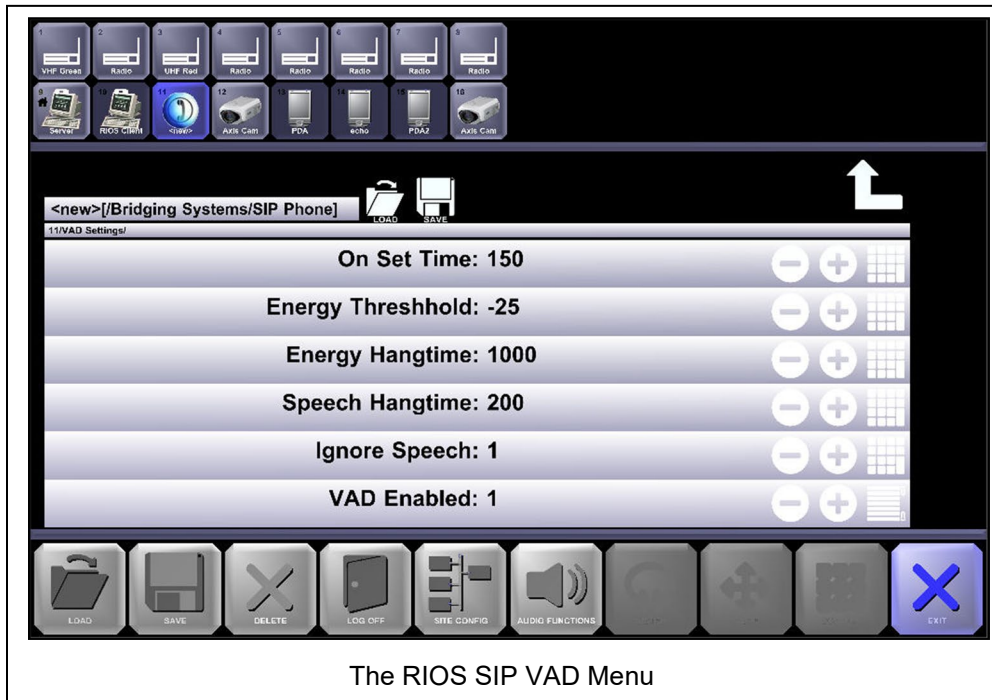
5. THE RIOS WIDEAREA NETWORK

The RIOS Wide Area Network (WAN) within the RIOS MultiSite software module enables system owners to interconnect multiple RIOS servers via an IP network. The encompassing RoIP network results in a wide area communications network not limited by range allowing RIOS Global Users to remotely monitor, transmit from, patch to and remotely control radio resources.

In the image below, are RIOS Wide Area Radio Network is created using the RIOS MultiSite Software. In this example, local HF and VHF radio resources are connected locally to the RIOS TAC2 and patched to the remote site via an IP a network. The resulting patch creates a radio network unlimited by distance.
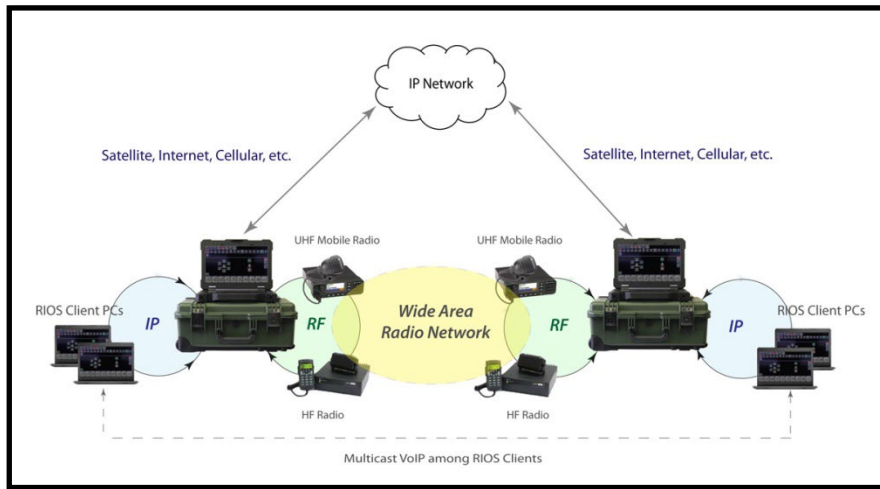
Authorized RIOS Global Users are able to select the desired remote site they wish to interact with and are able to:

- Create Wide Area Patches and Dispatch Groups
- Enable Virtual Repeater Functionality
- Remotely Control Radios with RIOS RCU Capability
- Share Radio, Smartphone, Client or Video Resources

The graphic below illustrates a Multi-Site RIOS System. In this depiction, three RIOS systems are interconnected across an IP network. A wide area radio network is created with a local asset at each RIOS location. Color coding illustrates the corresponding location of the connected radio asset. With this configuration when a radio transmits at one location the connected radio assets will receive the transmission.
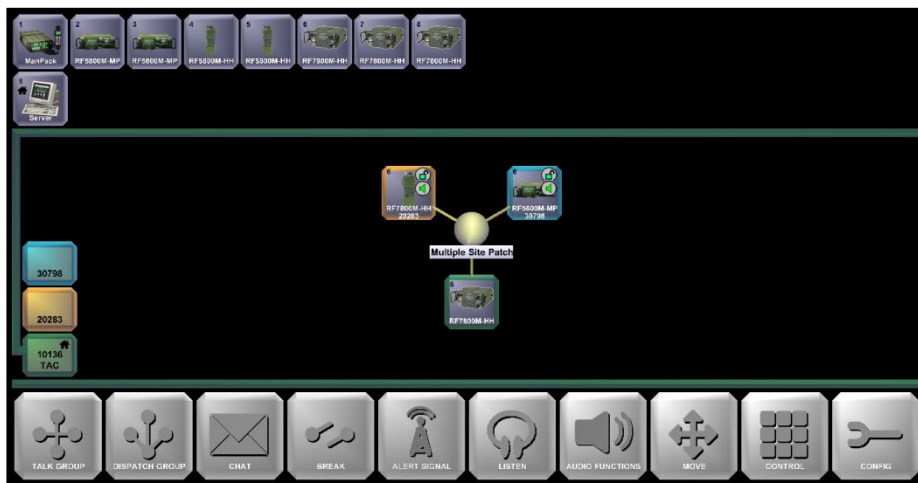
The graphic below displays the RIOS Global Configuration used to create to wide area network in the example above. Within this interface, the network administrator inputs the public-facing IP address of the RIOS site and RIOS Unique Site ID (USID) and pushes the information to the connected RIOS sites.
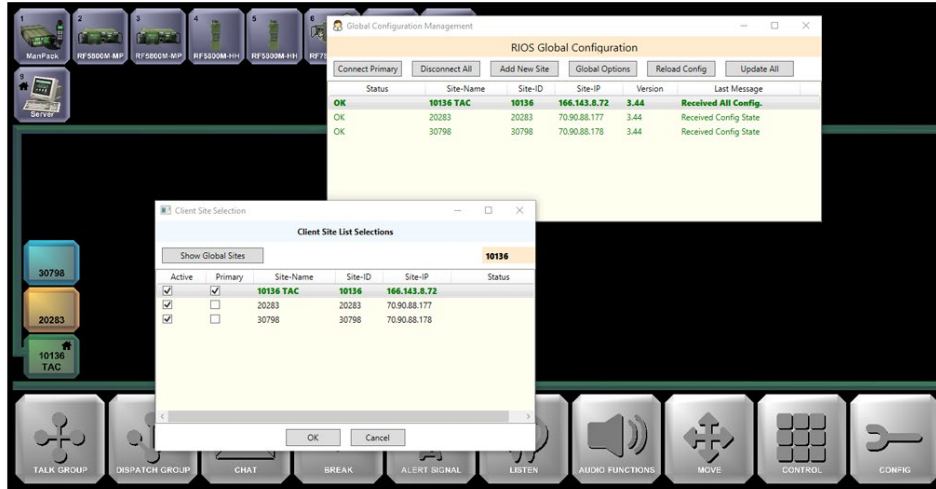
The RIOS Client Site List Selection (shown above) allows the system user to select the sites to be shown with the RIOS Graphical User Interface.

RIOS requires only one IP address per RIOS server location. By doing so, RIOS reduces address allocation and simplifies configuration of the network. The RIOS Wide Area Network can function with public IP addresses or with dedicated routing components with dynamic DNS.

For a video demonstration of RIOS MultiSite please visit:

https://www.youtube.com/watch?v=FmFD2vyuJaE&feature=youtu.be

## 5.1 <u>Adding a New RIOS Site with Global Configuration</u>

1. Log into the RIOS GUI.

2. Select "Config" on the lower right-hand side.

3. Select "Global Config."

4. Select "Connect Primary" and input the required administrator credentials.

5. Once the site turns green select "Add New."

6. Input the desired site name, Site ID, and public facing IP address of the new site.

7. Select "OK."

8. Select "Update All." If the site information is entered correctly and reachable on the required ports the new site will turn green.
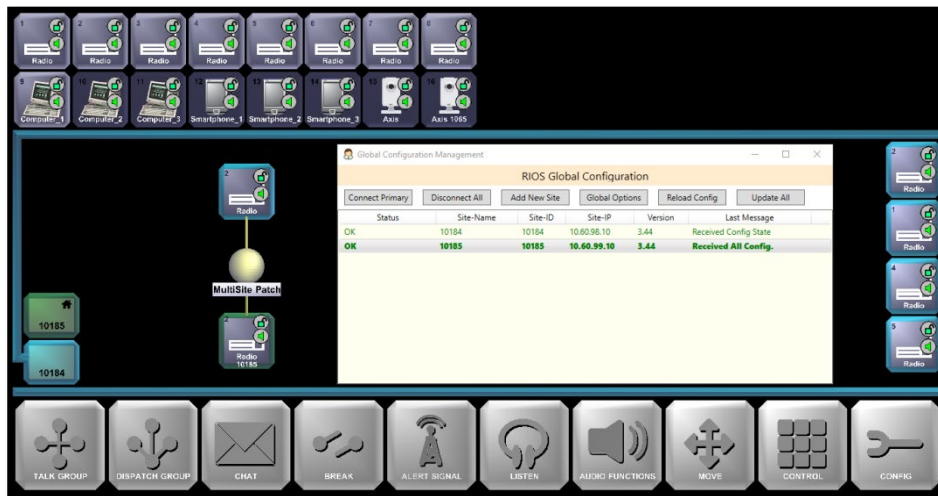
9. Exit Global Configuration. Continue to the next section for information on how to add the new site to the RIOS Client GUI.

5.2 Adding a New RIOS Site to the RIOS GUI

1. From within the RIOS GUI select "Config"

2. Select "Site Config."
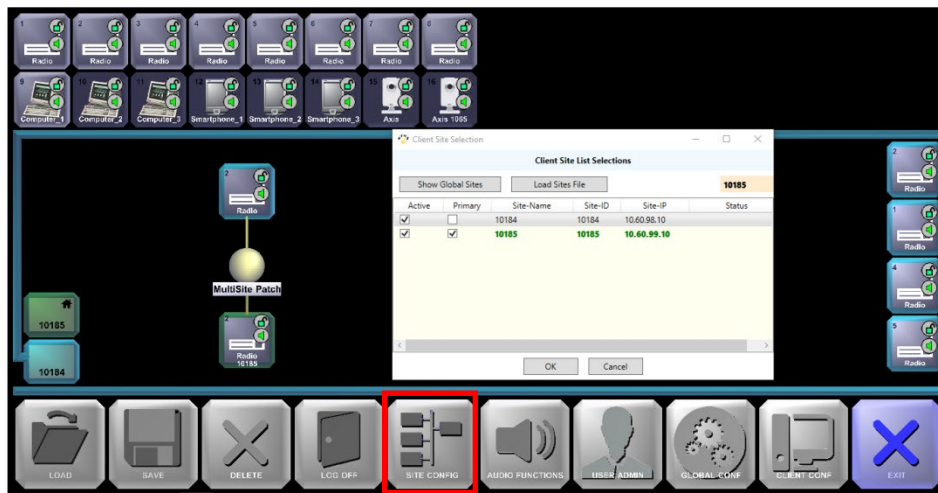
3. The Client Site List Selection will appear. Select the available sites that are to be shown on the graphical user interface

4. The sites will now be shown within the Site List on the left-hand side.

5.3 Creating a Wide Area Patch

Widearea patching allows the operator to create a patch between multiple RIOS system across an IP network. To create a wide area patch, perform the same steps to create a local patch whereby:

1. Select the Talkgroup function

2. Select the local asset you would like patch

3. Select the Site for where the remote radio originates. The operator will see the available asset from within the GUI. If the assets are grayed out, the remote site does not have permission to make the remote connection. The admim from the remote site will need to provide port permission as outline in the section above, "Gateway Permissions."

NOTE: By default, wide area port permissions are set to "Lock" as indicated by the absence of the lock indicator the port within the RIOS GUI. Refer "

4. Select the asset from the remote site as shown in the image below.

5. Continue the process from other sites if necessary. In the image below, three sites are connected in a widearea patch.
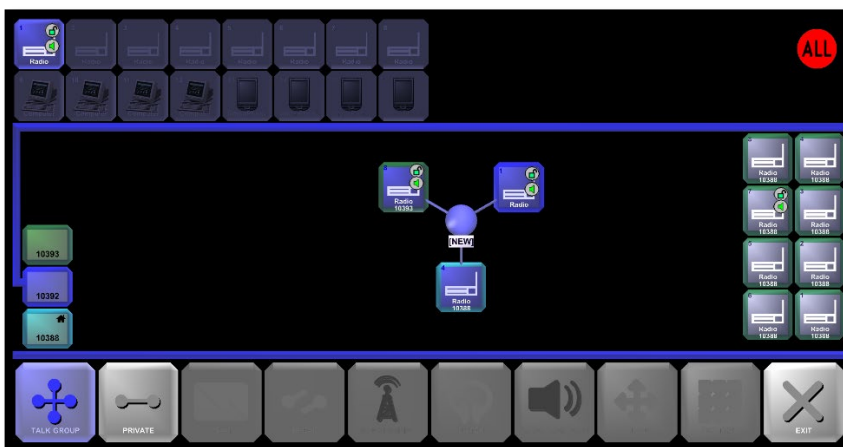
6. Confirm the patch be deselecting the Talkgroup function. If a "?" appear on the remote asset it is because the site does not appear on the site list. Refer to the section above titled "Adding a New RIOS Site" to add the site to the GUI.

`

6. FILE TRANSFER

File Transfer allows for users on the RIOS system transfer files from client system to another on a local system or in a multi-site system. This is done via an FTP protocol that is setup inside of the RIOS Server Service on the system that is the RIOS Server.
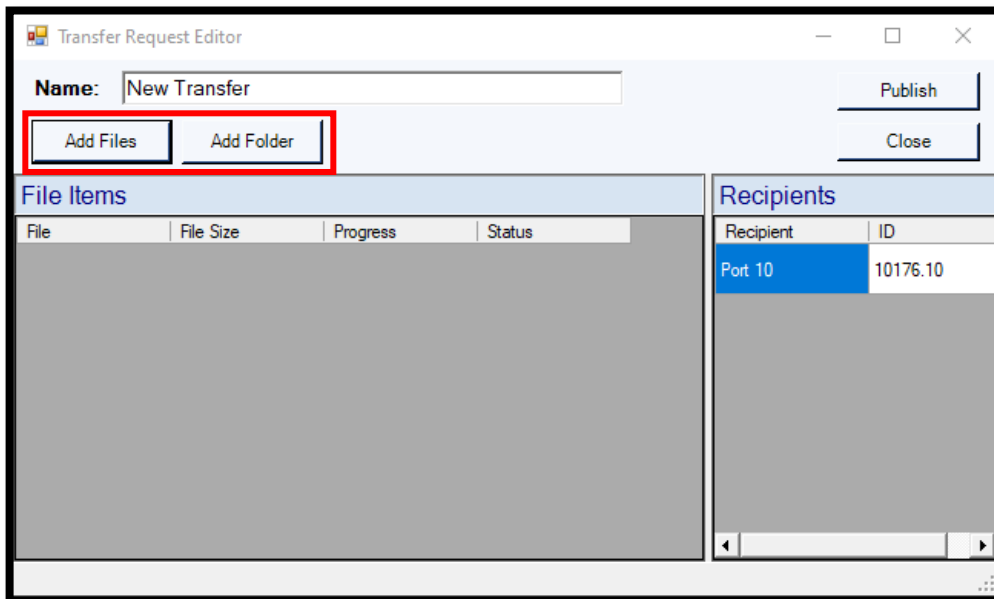
To transfer a file between RIOS Clients:

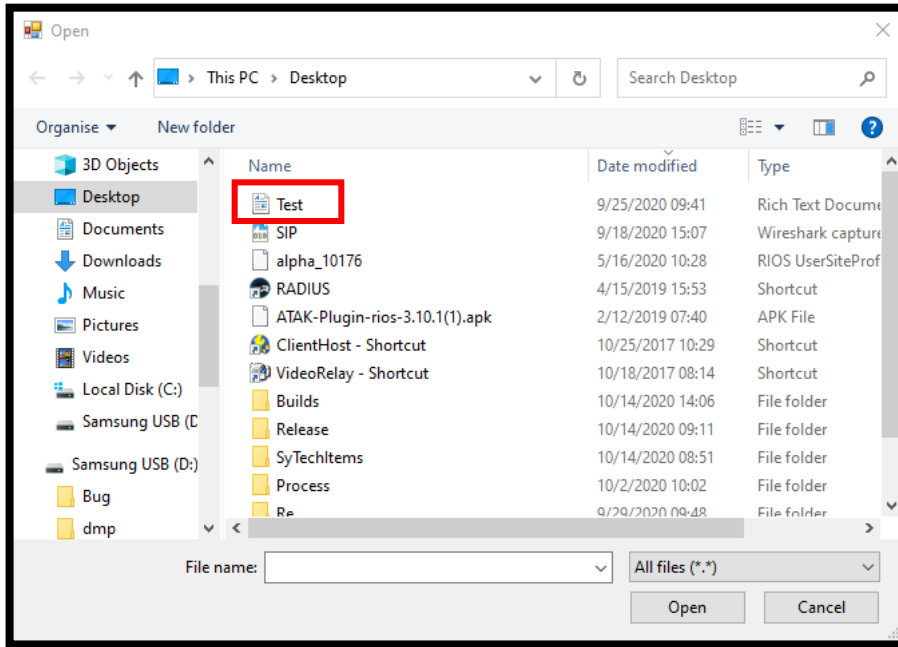1. Select Control from the action buttons at the bottom of the screen

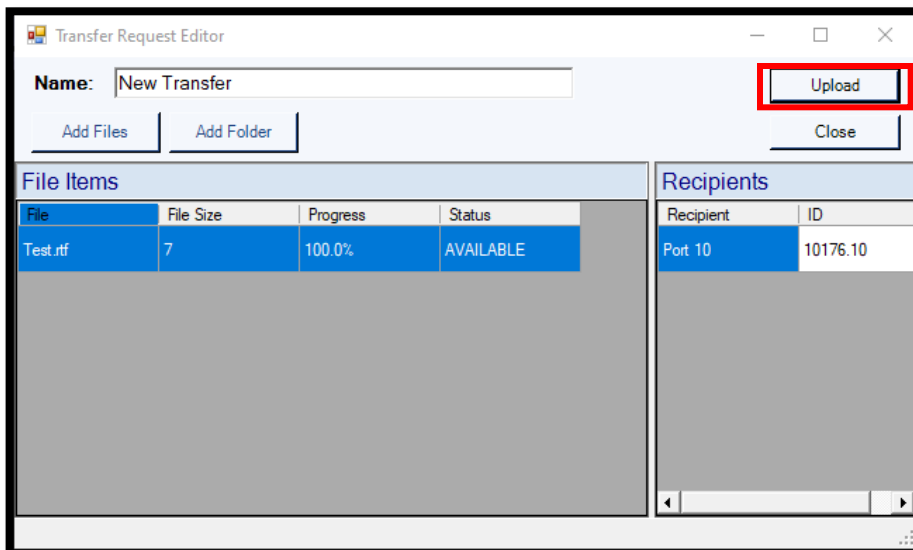2. Select File Transfer then the asset to send the file to and end with selecting File Transfer

3. A new window will appear. The user may select "Add Files" or "Add Folder."

`

4. The select window will appear. Select the file to be transferred.
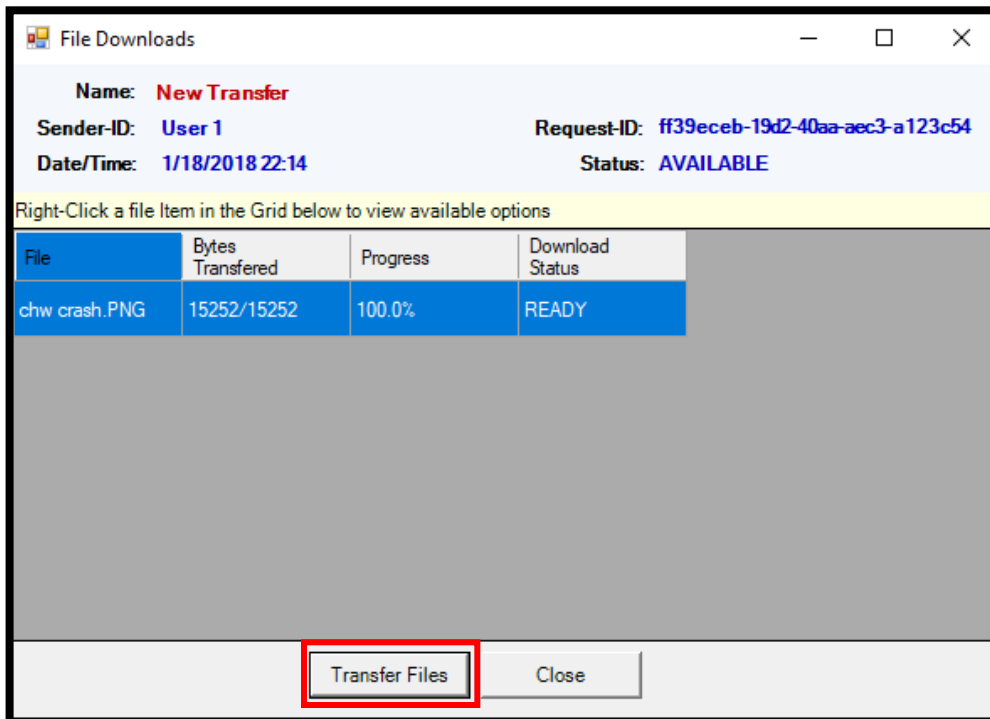

5. Select "Upload" to send it to the server

6. On the receiving client, the "File Downloads" window will appear when the transfer is complete.
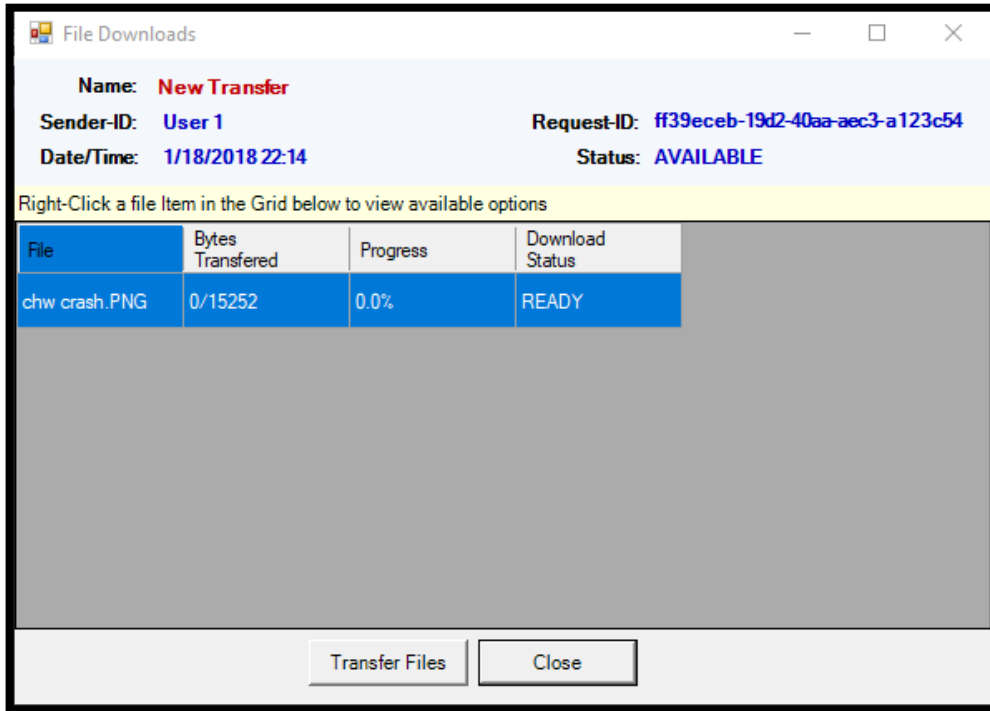
7. On the receiving client, select "Transfer Files" to download the files.

8. Once the file is done transferring the user can **right click the file** and select "Show in Folder" to view the transferred file.

`

A user can use the Transfer Status action button to bring up all upload and download requests that have been sent to the server to view.
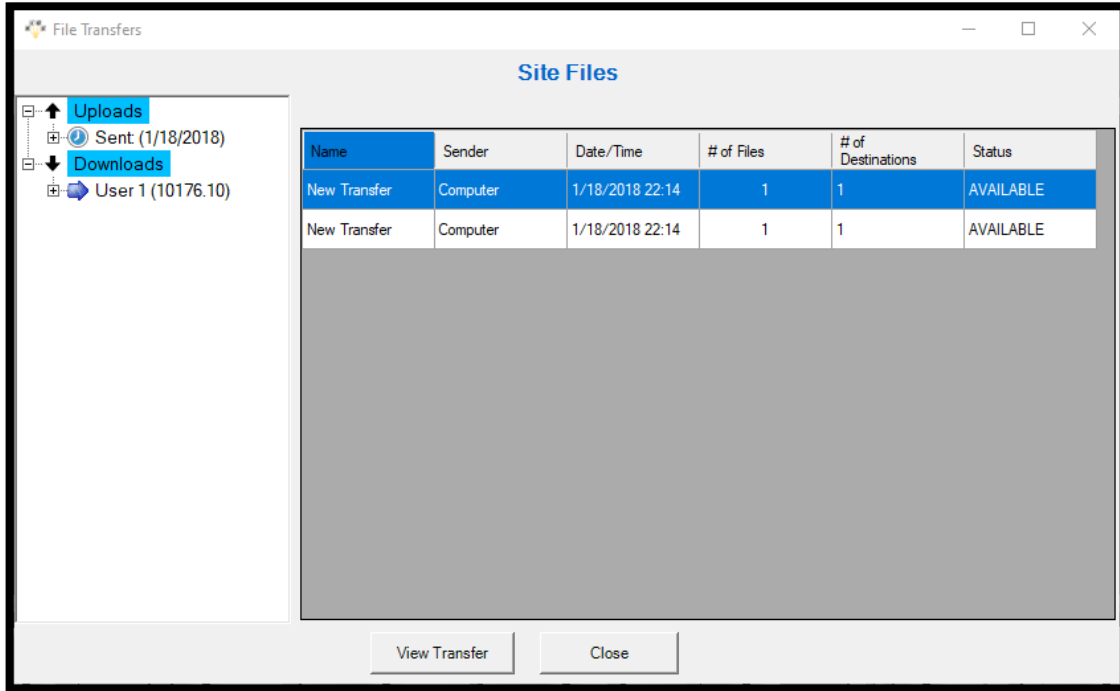
From this window a user can download any downloads they may have missed or redownload and files they need. As long as the status says "AVAILABLE" then the file is still on the server for the user to retrieve.

7. CONNECTING A NEW RIOS CLIENT

RIOS Client software for Windows computers enables system owners to simultaneously log into the RIOS Server from multiple computers. Client connection ports are licensed at the time of purchase and appear within the RIOS Graphical User Interface as computer assets. The image below displays a RIOS interface with a two RIOS Clients logged into the two available RIOS Virtual Ports.

Two RIOS Clients logged into the RIOS GUI
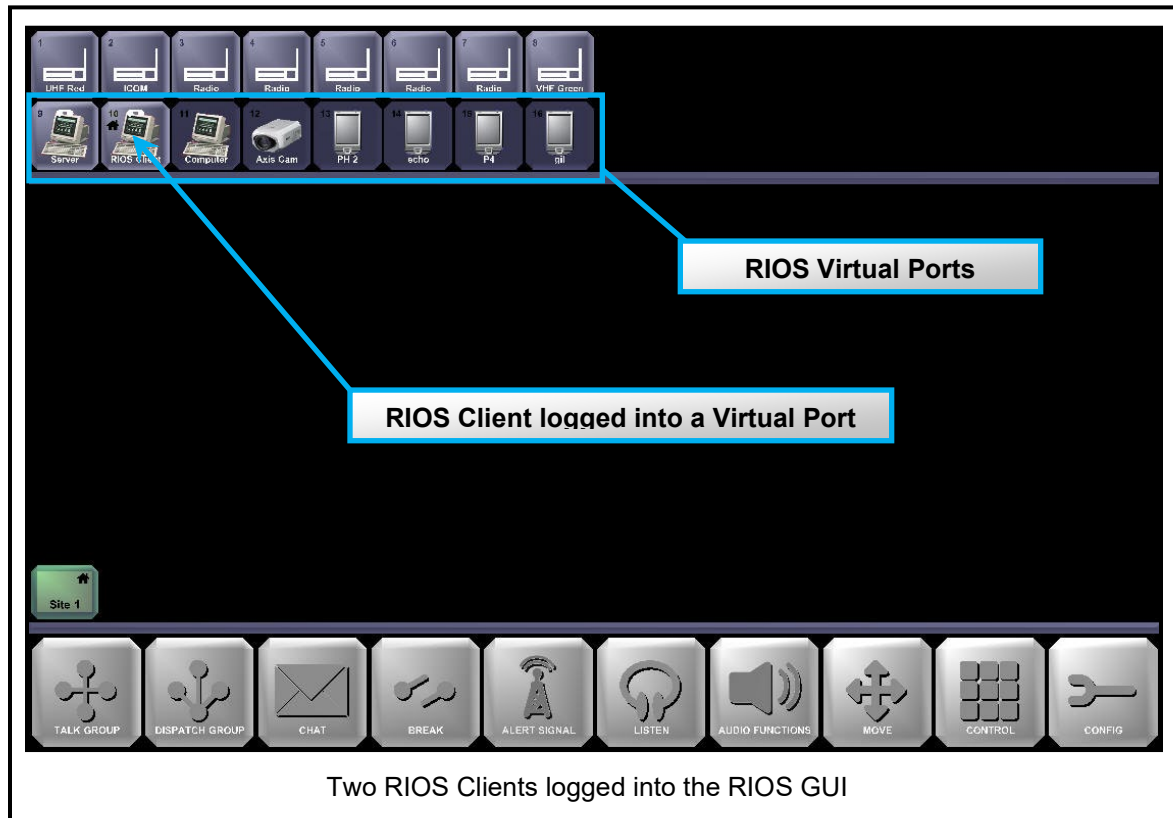
The user can think of the RIOS Client as a seat at a table whereby any Windows PC can "sit" at the table provided (1) there is an available seat (a Virtual Port with Computer Profile) and (2) the RIOS Client is correctly networked, configured, and permissioned.

The following sections provide a step by step process for verifying the network connection between the RIOS Server and Client, installing RIOS Client, and configuring the Windows permissions for the RIOS user. The preceding topics are covered in the following sections:

- Section 1 – Establishing a Network Connection

- Section 2 – Using the RIOS Client .msi and Configuring Audio Device Configurations
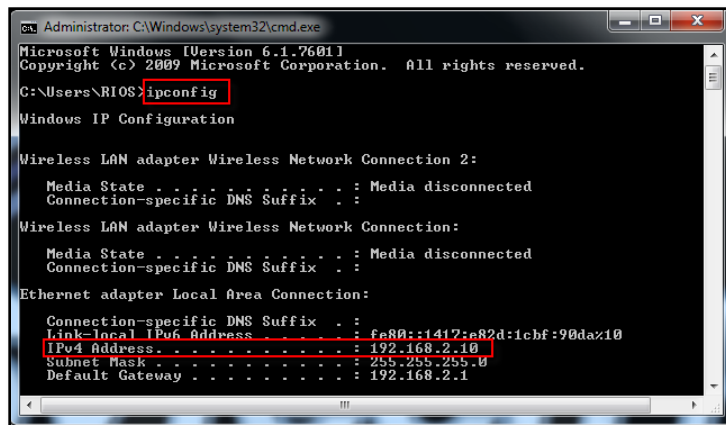
- Section 3 – Adding an Additional Logon Site

For questions related to this configuration, please email the SyTech RIOS Support Team at RIOSSupport@SyTechCorp.com.

7.1 <u>Verifying the IP Connection</u>

All RIOS Clients must be able to access the RIOS Server via IP. SyTech recommends a cabled LAN connection for best performance; however, a Wifi or VPN connection is also possible. Additionally, SyTech recommends the user configure the RIOS Server with a static IP address as opposed to DHCP. By default, most RIOS Servers are configured to be 192.168.0.10, if available.

<u>To Verify the IP Connection</u>

1. Connect the PC to the same local network as the RIOS Server. SyTech recommends a basic switch between the RIOS server computer and personal computer that will operate the RIOS Client application.

2. FROM THE RIOS SERVER: Determine the IP address of the RIOS Server using IPCONFIG from the command prompt. To start, use the Windows 7 Search tool (click on the Windows logo at the bottom left) and type "cmd." This will launch the command prompt. For Windows XP, input "cmd" within the Run prompt.

3. From the command prompt type "ipconfig." Select Enter. The IP address of the RIOS Server is shown within the IPv4 Address line.

4. FROM THE RIOS CLIENT COMPUTER: Confirm <u>connectivity from the client to the RIOS Server</u> using the ping command from the command prompt.

    Open a command prompt from the client as shown in earlier steps. Ping the server IP address that you found in Step 3 by typing "ping" followed by the IP address of the RIOS Server. Select Enter.

    You will receive a reply as shown if it's correctly connected in a local area network.

    NOTE: In this example it's 192.168.2.10. In most cases it's 192.168.0.10

    If the ping does not reach the server it's possible the firewall restrictions are turned on for the RIOS Server. Turn the firewall off temporarily for installation. Should the user require a firewall, add <u>Firewall Exceptions for ports 5913 and 5915 for basic RIOS operation</u>.

5. After connectivity is confirmed note the IP address of the server and continue to the following section, "Using the RIOS Client .msi."

7.2 Installing a New Client

The RIOS Client .msi allows the user to start the installation and configure the application on a PC without a current RIOS Client installation.

NOTE: You will need Windows **Administrative Permissions** and **Microsoft .NET 4.0** (or higher) to load the RIOS Client software. To download .NET you will need internet access to Microsoft. RIOS Client will automatically check and direct you to .NET if you do not have the required software.

Installing the RIOS Client .msi

1. Locate the RIOSClient.msi. Contact RIOSSupport@SyTechCorp.com if you do not have the .msi. Copy the file to a USB or other transferable media and transfer it to the PC that will operate RIOS Client.

2. Double click the RIOS Client .msi file. The following prompt will appear.
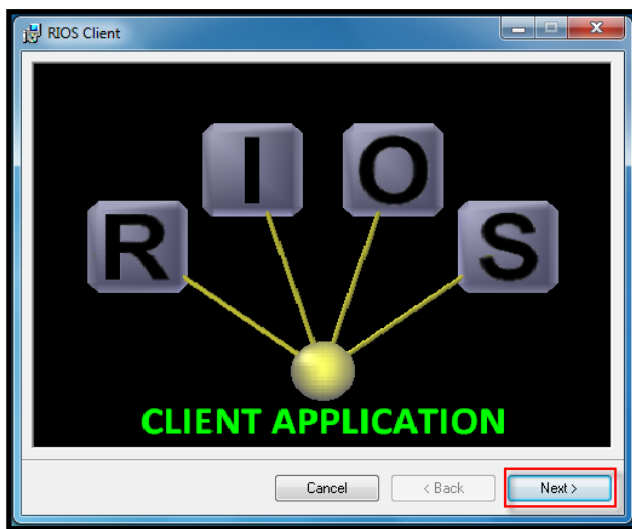
Select the default settings unless otherwise required. After the installation is complete a RIOS Client shortcut will be placed on the Windows desktop.

3. Double click the RIOS Client shortcut on the desktop.

NOTE: As of RIOS Client version 3.44, the RIOS Client .msi places the RIOS Client files in the Windows App Data file location. To manually access the file Windows search %appdata%" and select SyTech > RIOSClient to locate the RIOSclient.cfg. If for any reason the installation need to be re-installed, manually delete the RIOSclient.cfg file.
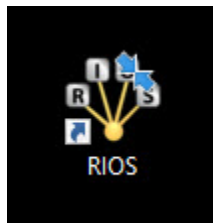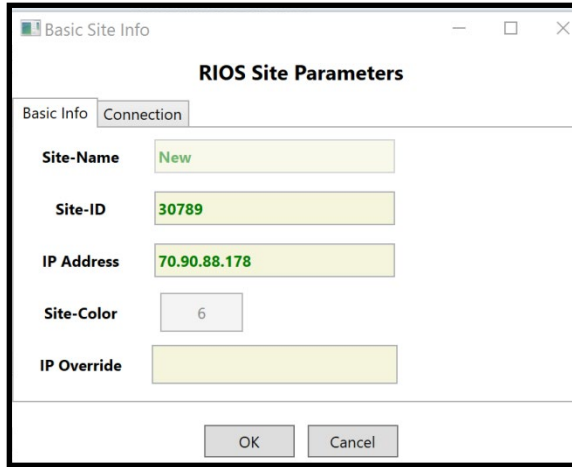
The RIOS Graphical User Interface will launch. The RIOS Logon window will appear as shown. Select the "Sites" button

5. The Client Site List Selection will appear. Double click on the "New" site entry.
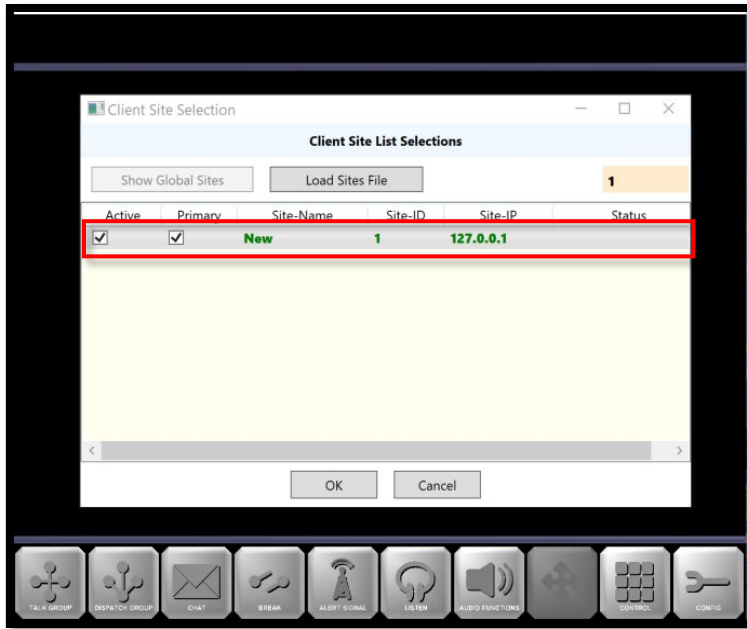
6. The RIOS Site Parameter window will appear.

Initially, the user will only need to input the RIOS USID and the IP Address of the Server. Additional parameters maybe set upon log in, if necessary.

Server Name: Any name you wish to appear for the site. This does not have to be consistent with the name of the RIOS server.

Site ID: The 5 digit site ID of the RIOS server. This should be labelled on the server. If not, from the RIOS server open CONFIG > Client Config and the Site ID will be shown in the "Primary Logon Site."

IP Address: The IP location of the RIOS server found in Section 1.

Site Color: The color of the Site icon within the GUI. Recommend default.

IP Override: The IP address the client should continue to use after set up. If blank, the server will push it's own address, sometimes 127.0.0.1. In most cases the IP Override is only necessary when a locate network IP address is assigned to the server.

When complete select "Ok."

7. Select "OK" from within the Client Site List Selection.

8. The RIOS Logon window will appear. Input the Username and Password for the client to connect. Select "Logon."

   By default, the Username and Password of "admin" and "admin" may or may not be available depending on the system administration. For systems requiring a Username for the Client Workstation, the Client Name is required to be configured prior to log in.

   Please reference the manual section titled "User Admin" for creating a username and password for Client Workstations.

9. Configure the Client Name by selecting CONFIG, Client Conf.

The Client is not logged on if assets in the top row do not
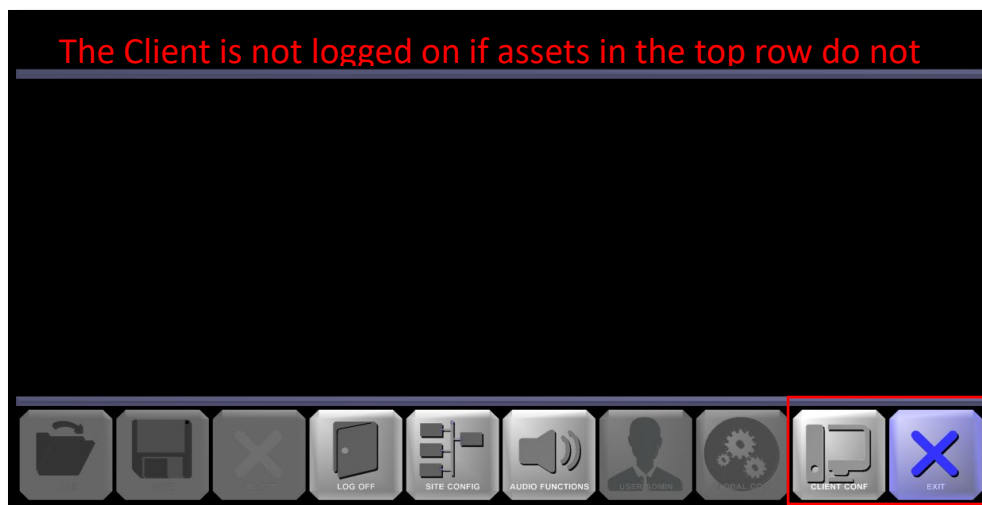
10. From within the RIOS Client Setup, input the Client Name as configured for the VOIP Client Name seat where the asset will log into. If a footpedal is used, input COM1 in the external MIC ComPort.

    For systems with several many assets that log on, select "Hide Inactive Assets."

11. Select the "Audio Settings" Tab. For System Sound Devices, select the audio driver that corresponds with the computer system audio and the headset audio (if used).

    Assigning these drivers is critical to system operation. Audio will not be received or transmitted if this is not configured correctly.

12. For systems using the SOS mandown feature for the Sonim handset, select the "Video" tab. Select "Play Alert Tone" to initiate the audio alert.

13. Select "Apply." The system will log off and display the log on window.

14. Input the correct Username and Password. The system will log the user in.

`

### 7.3 <u>Adding an Additional Log On Site</u>

For system owners with multiple servers available for log in, the RIOS Client may be configured to log in with Windows desktop icons for individual RIOS sites. After completing the initial log in, the following steps provide an outline for adding an additional logon site for multiple RIOS servers.

<u>To Create a Second Logon Site</u>

1. Within Windows, navigate to the RIIOS client folder by navigating on the user's C; drive to Computer -> WIN7_OS(C:)-> Program Files (x86) -> RIOSClient.

2. Right click on the RIOSClient application file and then select the option "Send to desktop".

3. Navigate to the desktop and right-click on the RIOSClient – Shortcut icon and select "Properties".

    NOTE: The icon may appear as package installer.

4. Within the "Start in" bar within RIOS Properties add "/siteconf:XXXXX" to the end of the line. Where XXXXX is the USID of the second system to be connect to. Note, there is no space within the input text.
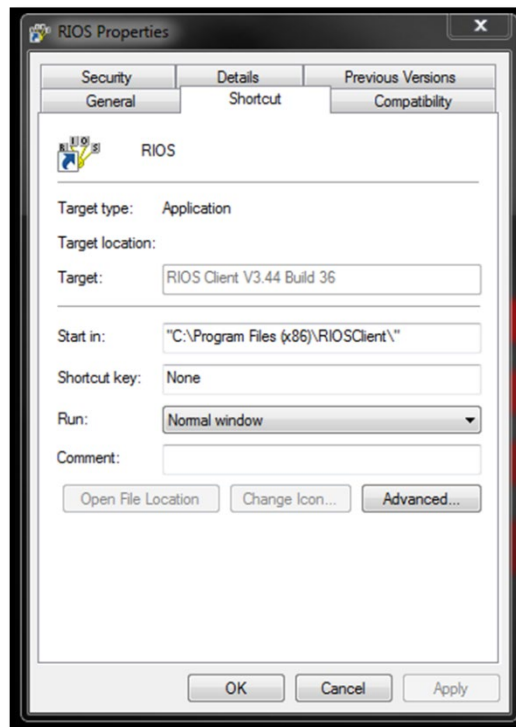
The line should read:

"C:\Programs Files (x86)\RIOSClient\"/siteconf:USID"

5. Select "OK." When launched, the new icon will attempt to log on to the corresponding site.

8. RIOS LITE SMARTPHONE CONNECTIONS

The RIOS LiTE Smartphone Application enables smartphone users to access the functionality of the RIOS server through a wireless connection. Available for Android and iPhone, RIOS LiTE connects across a wireless data link such as Wifi or cellular network to create a presence within the RIOS Graphical User Interface.

The following sections outline how to install, configure, and connect the RIOS LiTE Smartphone Application.

NOTE: Log in for RIOS LiTE requires a Username and Password as created with the system's RIOS User Admin. Please reference *Section 2,* Network Preparation

The two most popular methods of connecting RIOS LiTE to the RIOS server over a wireless network include a local Wifi access point or cellular network. The section below offers a brief discussion on the usage case for each method.

Note: RIOS LiTE connects on ports 5913 – 5917. These ports must be forwarded on the network and allowed within the RIOS Server firewall settings for RIOS LiTE to successfully log into the system.

Local Wifi: Local Wifi refers to a Wifi access point that connects within a LAN to the RIOS server. This method is frequently utilized for RIOS Tactical Kits and Command Vehicles to test a new connection without accessing the Internet. Connecting RIOS LiTE via local Wifi allows the system administrator to test and verify network connectivity, proper RIOS LiTE Site List configuration and RIOS GUI Seat Assignment.

- If connecting to a local access point via Wifi (for example on a RIOS Tactical Kit), confirm that the access point has Internet connectivity. If not, the router may drop the connection to the smartphone as a result of the router configuration. Select "Maintain Connection" if prompted from the smartphone.

Cellular Network: Connecting RIOS LiTE via cellular network is the recommend approach. By doing so, the user will not be limited by the range of the Wifi connection.

- **RIOS LiTE requires a public IP address on the front-facing Internet access point**. A public IP address on the in-bound firewall, USB modem, or RIOS Server allows RIOS LiTE to locate the corresponding RIOS Server connected to the Internet. It is recommended that the public address be a static, unchanging address for consistent, uninterrupted operation.

Prior to connecting RIOS LiTE to the RIOS server, decide on the wireless method of interface. If Wifi, join the local Wifi network connected to the RIOS Server. By default, the local Wifi point on RIOS Tactical Kits is the USID of the RIOS server. If across cellular network, confirm Internet connectivity and note the public IP address of the front-facing Internet access point. Ports 5913-5917 must be forwarded through the network.

8.1 Installation

RIOS LiTE is available for both the Android and Apple iOS operating systems via the Google Play store and App Store respectively.. Alternatively, the Android operating system allows the RIOS LiTE .apk to be directly loaded onto the Android devices; Apple, however, does not allow for direct installation outside of the developers' environment. Enterprise management of smartphone devices may allow for a mobile device manager (MDM) to push the application installation file. For the majority of users, the recommend download method is via the public application store.

The following section outlines the download and installation process for the Android and Apple iOS operating system.

Android and Apple Installation:

1. Launch the Play Store for Android or the App Store for Apple.

2. Search the store for "**rioslite**,".

3. Select "Download" and allow the download to complete.

   Note: Android may require the user to "Allow installation of apps from unknown sources." This option may be found in Settings, Security, Unknown sources.

4. Select "Open."

5. The RIOS LiTE Site List will be shown.

   Note: Apple will ask the user to allow for "RIOS LiTE to Send You Notifications." Select "Allow" for use with RIOS Offline Notifications.

8.2 Site Configuration

Site Configuration of RIOS LiTE refers to the Site List and Log In information stored on the smartphone device required to connect the RIOS server. The following section outlines how to set up the site list for RIOS LiTE for Android and Apple iOS.

The section will utilize the RIOS Public Test Server at 70.90.88.178 with Username "Test1" and password "1."

### 8.2.1 Site Configuration for Android

1. Open the RIOS LiTE application from within the device's applications.

2. The Site List Protection Screen will appear.
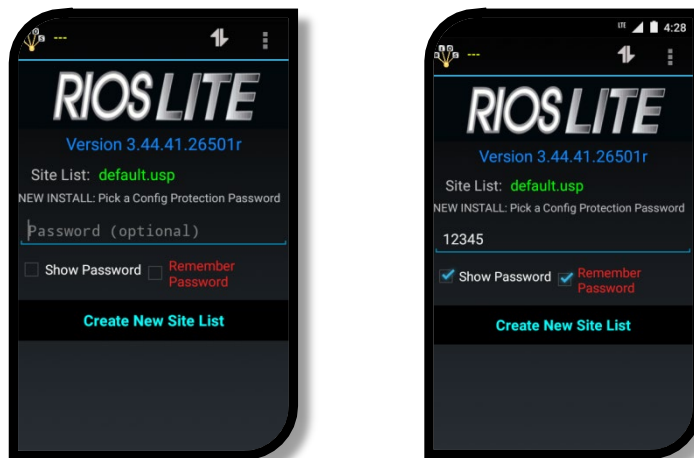
3. Create a Site List Protection Password. The password must be at least five (5) characters. Select the "Show Password" to confirm the password. Select "Remember Password" to automatically recall the password for the next log in instance.

   This password will only be used to access the Site List.

4. Select "Create New Site List."

5. The RIOS LiTE Site List Screen will be shown as shown below. Select the "Sites" button at the bottom left of the screen.
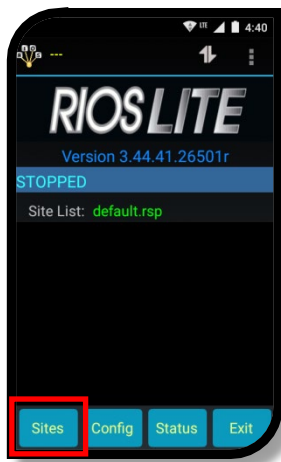
6. Select "New Site."

7. The Site Entry screen will appear as shown below.
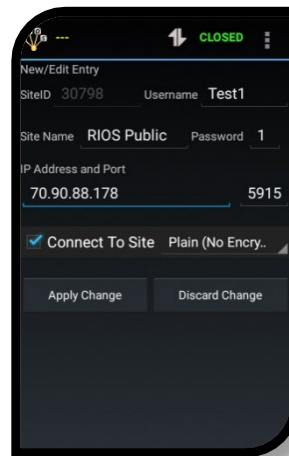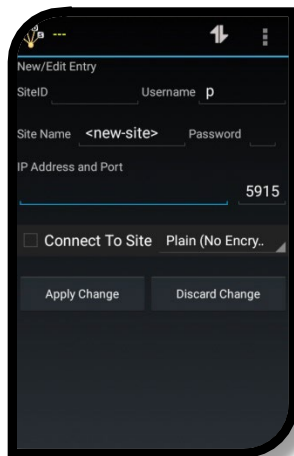
Site ID: Refers to the unique, five digit RIOS server USID. This can be found as labeled on the system or by logging into the RIOS GUI. The Site ID is displayed at the top-left of screen next to the RIOS Client version number. *Example: 30798*.

Username: Refers to the username that was created in *Section 3.1.3 Creating a New User* located in *Section 2:*

of this manual. *Example: "1"*

8. Port 5915 will be automatically filled.

9. Select "Connect to Site."

10. Select "Apply Change." The Site is now configured to log in.
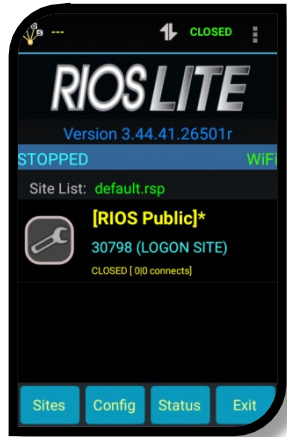
11. Log in to the site by selecting the text of the site that was configured.

The site will progress through the login phase. The smartphone will log into the RIOS server if the following items are configured correctly:

- ✓ IP connectivity to the system (Page 67)
- ✓ Username and password configured in User Admin (Page 32)
- ✓ Site List configured correctly (Page 68)
- ✓ RIOS Virtual Seat Assignment, recommended. (Page 35)
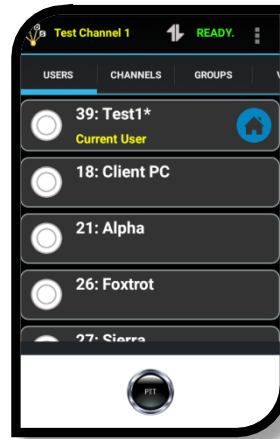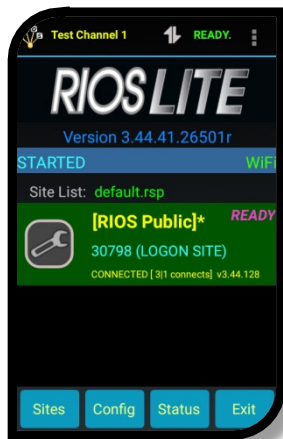
8.2.2 <u>**Site Configuration for Apple iOS.**</u>

1. Open the RIOS LiTE application.

2. The RIOS LiTE Log-In Screen will appear. Select the gear icon to edit settings.
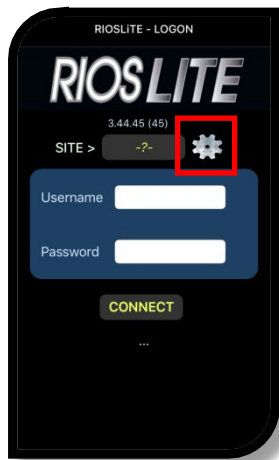

3. Select "RIOS Sites Setup."

4. Select the "+" icon within the Site List Manager.

5. Select the new site.

6. Input the Site Connection Settings.

    Site ID: Refers to the unique, five digit RIOS Server USID. This can be found as labeled on the system or by logging into the RIOS GUI. The Site ID is displayed at the top-left of screen next to the RIOS Client version number. *Example: <u>30798</u>*.

    Site IP: The IP address that corresponds to the RIOS Server.

    Name: Any name the user would like to call this particular site. As a note, several sites maybe setup for user log in. *Example: <u>RIOS Public Server</u>*

    Keep Alive: The application-to-server ping interval. The default value is recommended.
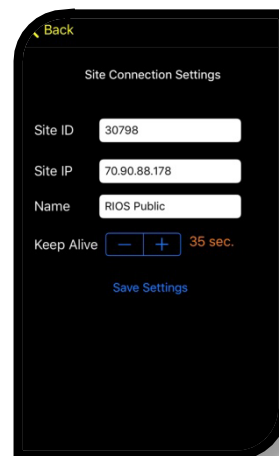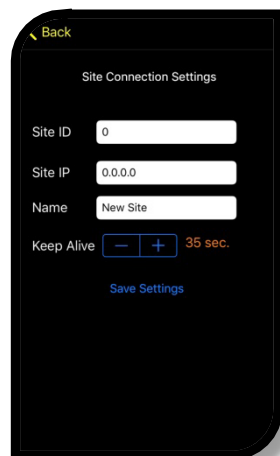
7. Select "Save Settings."

`

8. Go back to the RIOS LiTE Login Screen. The Site will appear in the Site Selection Box. If multiple sites are configured within the Site List Manager the user is able to select the Site Selection Box and rotate the gallery to select an alternative site.

9. Input Username and Password.

10. Select "Connect."

11. The smartphone will log into RIOS if the following items are configured correctly:

- ✓ IP connectivity to the system (Page 67)
- ✓ Username and password configured in User Admin (Page 32)
- ✓ Site List configured correctly (Page 68)
- ✓ RIOS Virtual Seat Assignment, recommended. (Page 35)