

# RIOS 101

If you're considering the purchase of a RIOS, you probably have a few questions about how it works, what you need and what's available. RIOS 101 outlines the major topics of RIOS starting with device compatibility and continuing through its operation. To start, let's review a few basic terms and concepts.

## The RIOS Processing Code and Gateway

At its heart, RIOS is a processing code. To process the code, the RIOS Gateway is comprised of two parts: the RIOS Server Computer and RIOS I/O Chassis. You can think of the RIOS Server as the brain of RIOS, while the RIOS I/O Chassis operates as the ears and mouth. Together, the RIOS Gateway is capable of receiving, processing and communicating to almost any type of electrical communication standard.

The following sections outline the basics of the RIOS Gateway in greater detail.



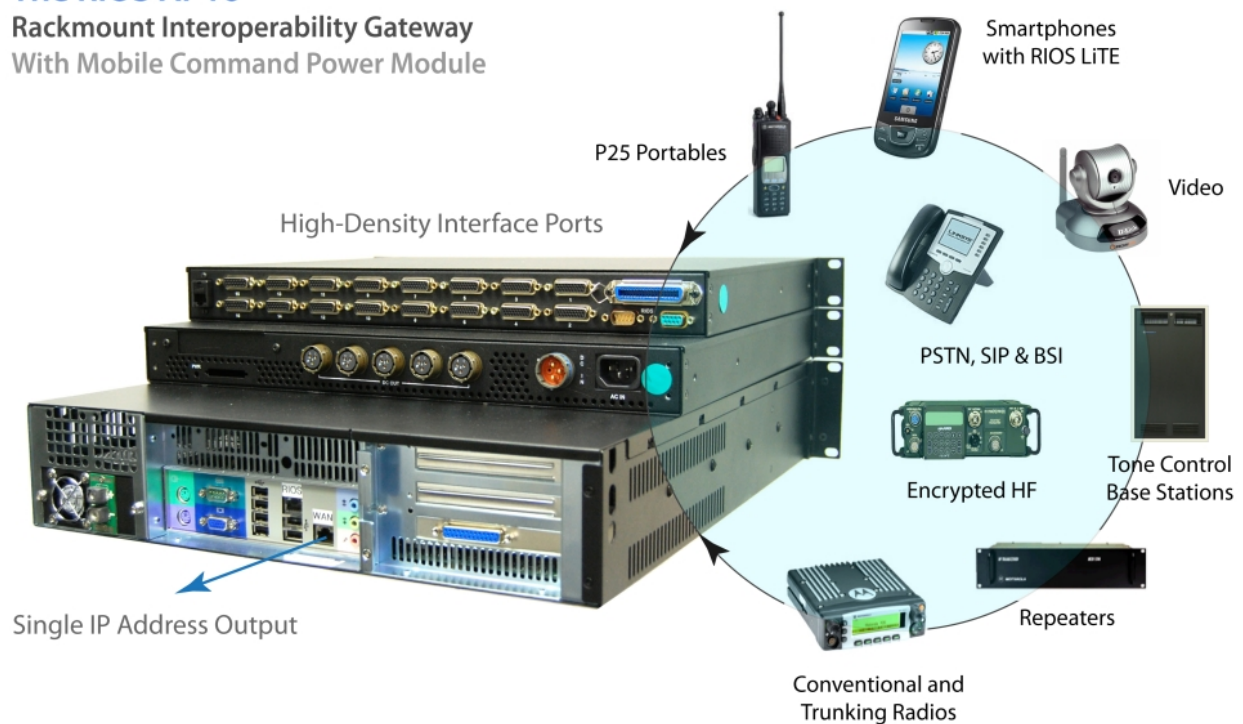
## RIOS Hardware

The RIOS Gateway functions as the main hardware component of the Radio Interoperability System, RIOS. The RIOS Gateway is comprised of two parts: the RIOS Server Computer and RIOS I/O Chassis. You can think of the RIOS Server as the brain of RIOS while the RIOS I/O Chassis operates as the ears and mouth. Together, the RIOS Gateway is capable of receiving, processing and communicating to almost any type of electrical communication standard.

In the image below, various entry-point devices are connecting to the RIOS Ai-16 Gateway to provide mixed-mode communications interoperability.

### The RIOS Ai-16

Rackmount Interoperability Gateway  
With Mobile Command Power Module



## Device Compatibility + Network Simplicity



To configure your system, simply connect the available entry points to the RIOS I/O Chassis with the corresponding RIOS Interface Cables. Power on the RIOS Server and run the RIOS Client Application. Once logged in to the RIOS Interface, authorized users have the ability to transmit, receive, patch, page, record, view, and control local *and* remote communication resources.

Again, two components comprise the RIOS Gateway: The RIOS Server and the RIOS I/O Chassis. The RIOS Server processes both physical and virtual ports, while the RIOS I/O Chassis interfaces the physical devices connected to the system.

RIOS goes beyond traditional “ear and mouth” interoperability to include options for data capture such as Radio ID and GPS (where available). Instead of the traditional 4 or 9 inputs, the RIOS I/O Chassis features high-density, 26-pin connectors for added functionality. In addition to data transfer, high-density input allows RIOS to offer on-screen remote control for multiple vendors, makes, and models of signaling devices.

### **Highly Capable Connections = Highly Functional Communications**



Shown above is the backplane of the RIOS I/O Chassis for the RIOS SR-3000 Series. The RIOS SR I/O Chassis offers sixteen (16) input channels with the ability to cascade I/O chassis for larger systems.

### **RIOS Software**

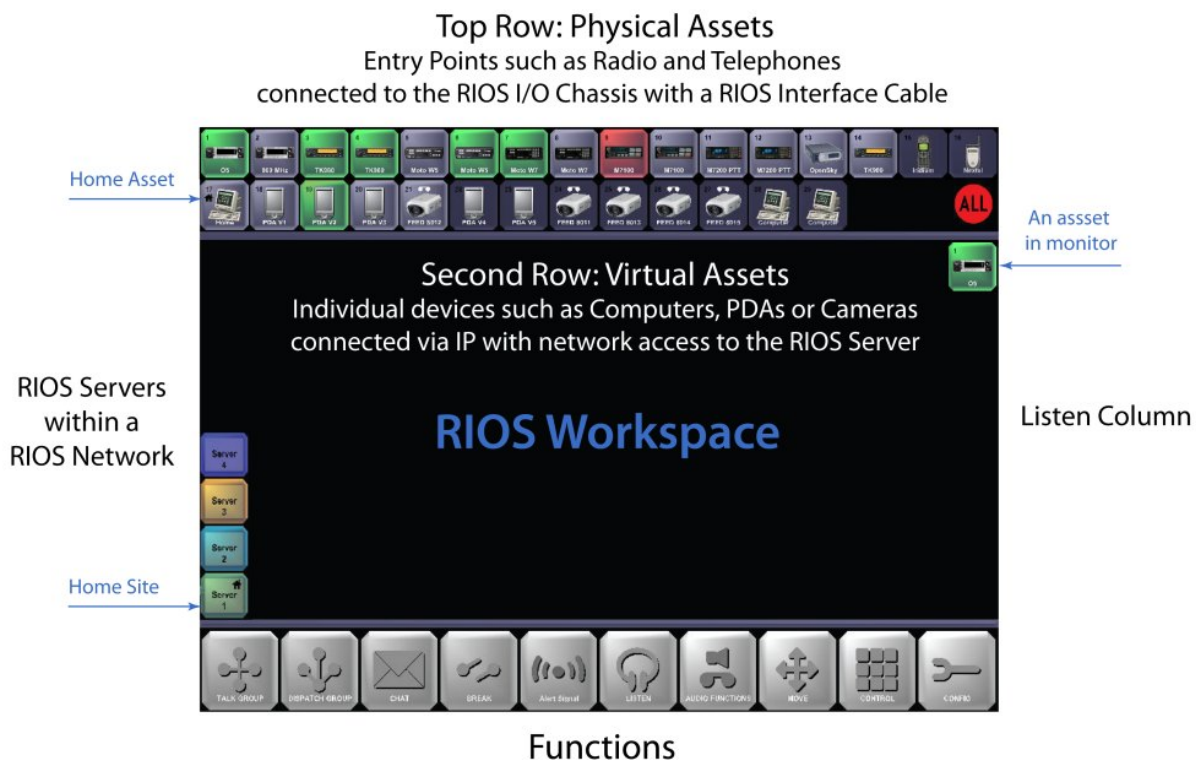
Our interoperability experience has shown ease-of-use to be the single most important factor for providing effective interoperability. For this reason, we designed the RIOS Interface to be an intuitive, icon-based interoperability experience that instantly conveys the most important information with real-time action and display.



With RIOS, a picture says a thousand words. For example, transmitting assets flash red, receiving assets flash green, patches are shown as cluster groups and radios, cameras, smartphones and computers actually look like radios, cameras, smartphones and computers. With RIOS, the operator can immediately see an entire communications landscape and respond with limited effort. Combine RIOS with a touch-screen display for added usability and an even quicker response.

## Basic Overview

The graphic below illustrates the RIOS workspace. Within the workspace, all assets, functions and elements are displayed within a single interface. The top row of the GUI graphically represents the entry point devices physically connected to the I/O chassis of the RIOS Gateway. The second row of the GUI graphically represents the virtual assets connected via IP to the RIOS Server. The large buttons at the bottom of the GUI represent the Function of RIOS--the basic building blocks of all the actions within RIOS.



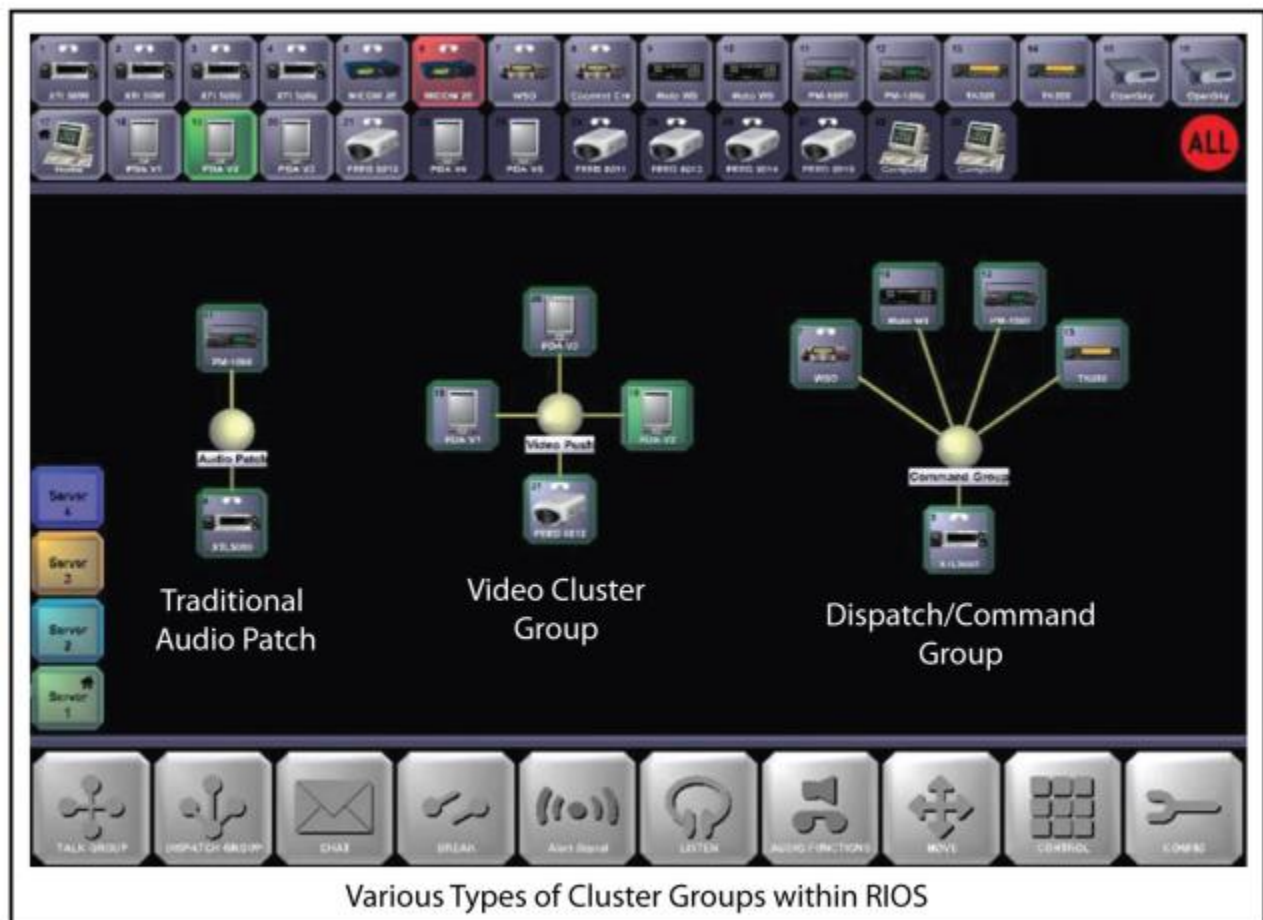
We have trained hundreds of law enforcement, first responders, dispatchers and military personnel. In most cases, first-time system users can learn 80% of RIOS functionality within the first 10 minutes of training. In the real world, we understand that the people we train today may not be the user of tomorrow; hence, it is of highest importance that the system is intuitive and easy to learn for first-time users and operators with limited time and training.



## Cluster Groups

As a grouping interface, RIOS graphical user interface, known as the RIOS GUI, represents all audio patches, dispatch groups and video groups as cluster elements to simplify the complexities of mixed-mode communications. The video below outlines the RIOS Interface as well as how to create local and wide-area groups.

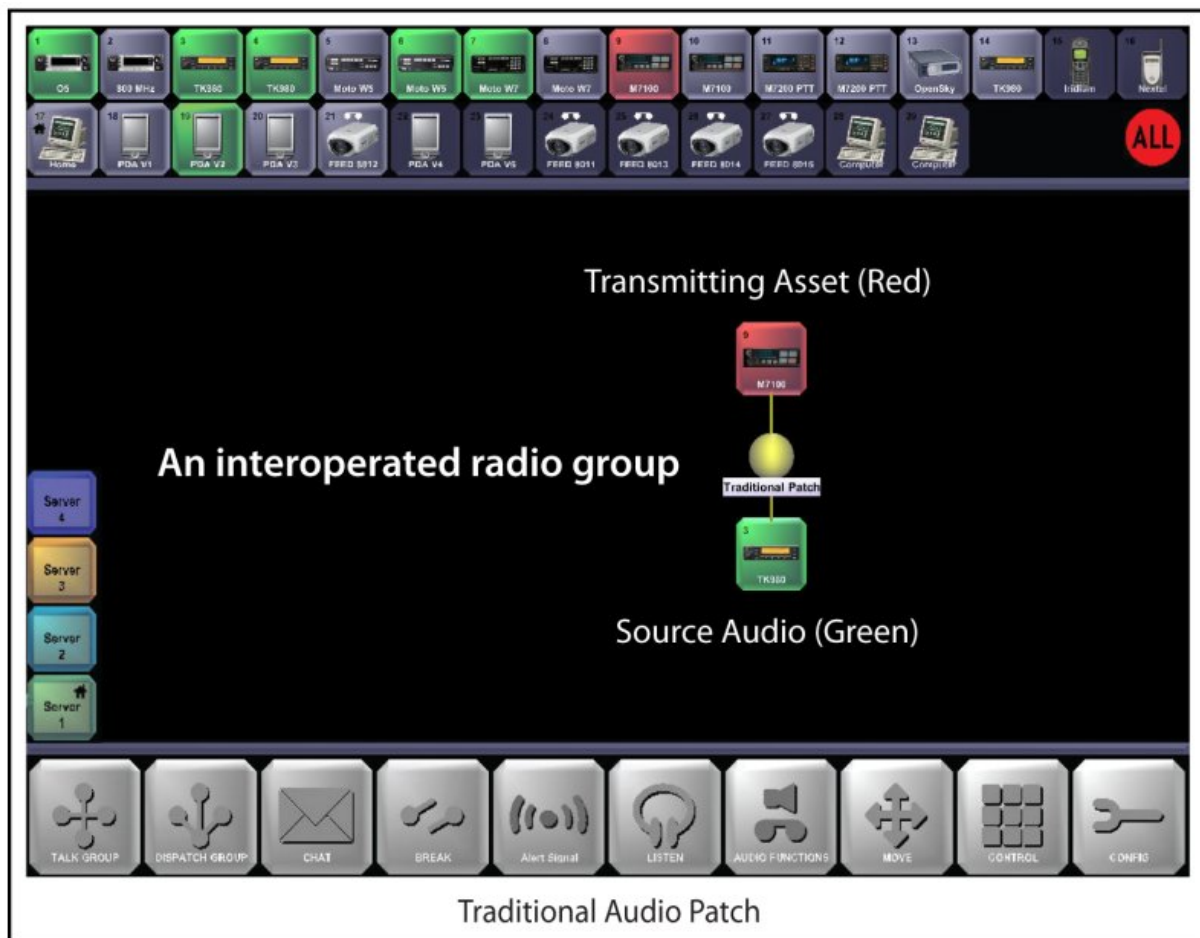
RIOS goes beyond traditional audio patching by delivering more functionality for interconnected cluster groups. The graphic below illustrates a RIOS Interface with three types of cluster groups; an Audio Patch, a Video Push, and a Dispatch Group. The following section describes these other types of groups in greater detail.



## Traditional Audio Patch

The first type of cluster group, a traditional audio patch, simply connects two or more disparate communication networks together—for example an 800 MHz radio to a VHF radio. All interoperability gateways provide this ability to some degree. The RIOS Server and the RIOS Interface go one step further with interoperated groups to represent this patch as a functional cluster group.

In the graphic below, a traditional audio patch has been created between two mobile radios physically connected to the RIOS Server. With the patch in place, audio received by one of the mobile radios will be transmitted through the patch and re-broadcast to the disparate radio entry point also connected to the RIOS Server. The corresponding patch results in interoperability between two traditionally non-compatible radio networks. The user can quickly see what's taking place within the patch as indicated by the color coding.



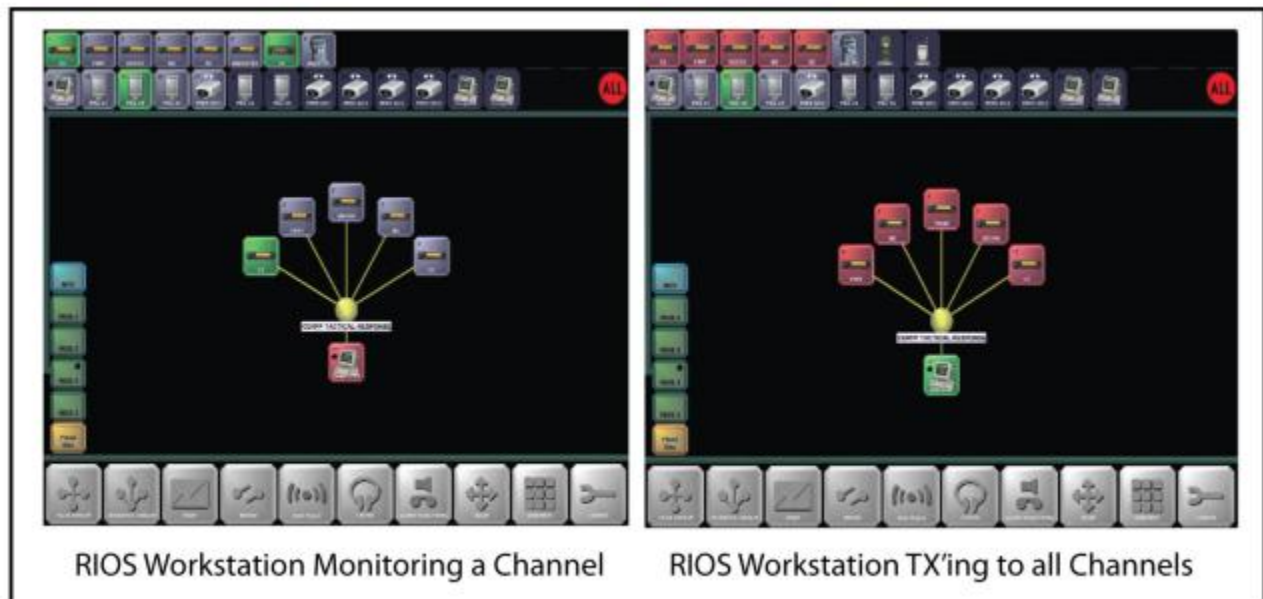
If the user wants to delete the patch or remove a radio group from the patch, the user selects the Break Function from the Function Menu (located in the bottom row of the GUI) and proceeds to (1) select the individual radio groups to be removed from the patch or (2) selects the center node of the cluster group to delete the group. Next, the user confirms the selection by deselecting the Break Function and the patch is removed from the screen.

### Dispatch/Command Group

RIOS Dispatch or Command Groups allow the user to direct audio traffic from multiple channels into a single computer workstation or radio group. As opposed to an audio patch whereby “everybody hears everybody”, Dispatch Groups allow radio channels to function as normal while “funneling” radio traffic to the RIOS Client Workstation or a set-aside tactical or operational channel.

Dispatch Groups place the RIOS Client Workstation as the point device while Command Groups place a radio channel, telephone or iDEN device at the point. Both groups are created in the same manner with the only difference being the point device.

In the graphic above, a Dispatch Group is created with five radio families funneling audio to the computer. In the first panel, notice how the receiving radio (green) is transmitting to ONLY the receiving computer (red). In this panel, the computer is monitoring the radio traffic from these assets. However, in the second panel, the computer is multicasting to all groups within the group by pressing the center node of the Dispatch Group.



In a Command Group, the radio, not the computer, is the point device. With this arrangement, all radio traffic is funneled to a single radio frequency. The result is an interoperated channel where the point radio has the ability to hear multiple radio channels without giving up the ability to monitor their primary channel. Should the point radio desire to transmit to all radio channels within the Command Group, the user simply keys the radio and speaks to all connected channels. This is a very powerful feature and unique to the RIOS ICS.

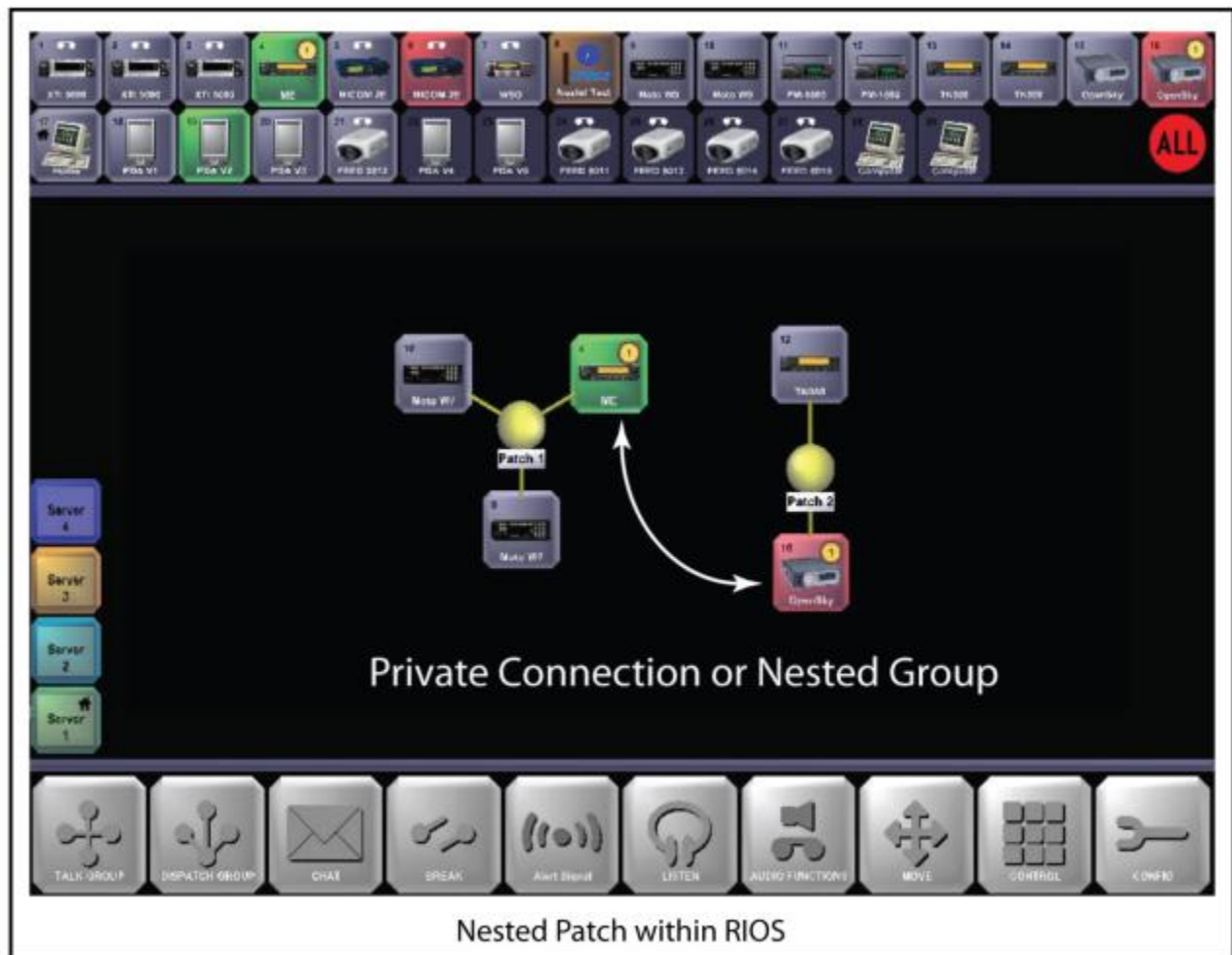
Dispatch Groups and Command Groups are a great way to provide real-world interoperability without creating interference on operational channels. It is a frequently-used feature and should be highly considered when selecting an interoperability gateway.

### **Private Connections/Nested Groups**

Private Connections refer to nested connections between cluster groups within the RIOS GUI. Private Connections allow cluster groups to stay intact while providing a means to offer a temporary connection, should the need arise.

In the graphic below, a private connection is made between a Kenwood radio and a Harris radio. Note the “1” token on each asset used to indicate a private connection. If a second private connection were made, a “2” token would be used and so on.

When audio is received by an asset within the private connection, the corresponding audio will be passed through the RIOS ICS and transmitted to its assigned location. In this example, the Kenwood radio is receiving audio (green) and, as a result of the private connection, transmitting through the Harris radio (red). Notice how no other radio group is affected within the cluster groups.



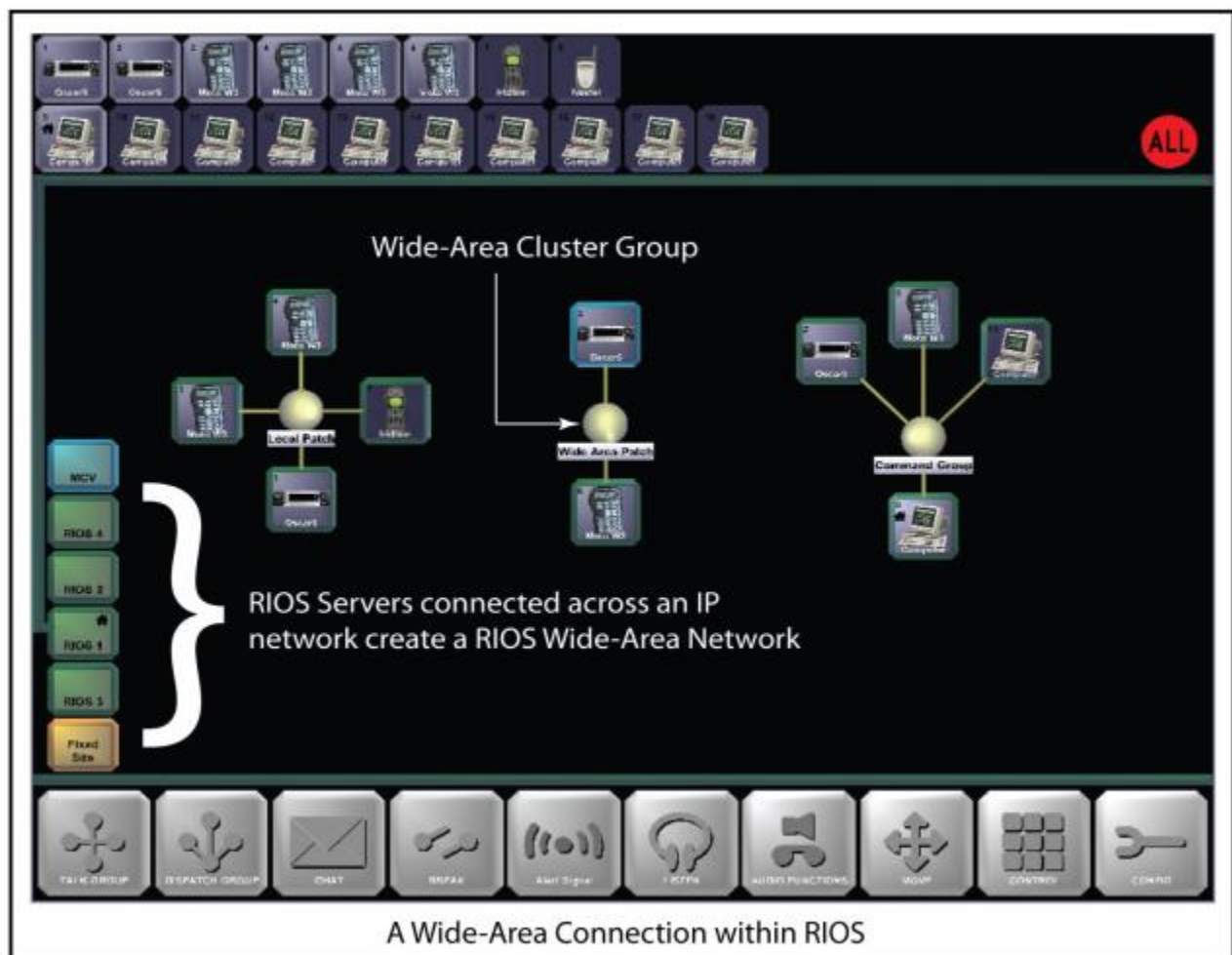
## Wide-Area Cluster Groups

Wide-Area Cluster Groups visually represent a wide-area patch created within the RIOS Wide-Area Network. In the graphic below a Multi-Site RIOS GUI is shown with six (6) RIOS ICSs connected across an IP network.



Three cluster groups are shown in this graphic: a four-way cluster group, a wide-area cluster group, and a dispatch cluster group. The group containing the radio entry point with the blue band represents a wide-area cluster group. This particular radio is locally interfaced to the RIOS ICS highlighted in blue. The local ICS is the green site with the small home icon labeled “RIOS 1.” Color coding options within the RIOS GUI allow the user to quickly see which assets are patched and to which RIOS ICS the resource belongs.

When configured for a RIOS Wide-Area Network, the user can select any site from the site list and see, monitor, transmit, patch and affect the remote asset relative to user’s permission set. For more on wide-area controls, please review “The RIOS Wide-Area Network”.



## Video Cluster Groups

A Video Cluster Group directs IP video streams to a desired IP location. Especially useful in low bandwidth environments, Video Clusters multicast IP video streams to RIOS Client Workstations or RIOS Lite Smartphones.

In the graphic below, the RIOS ICS is accepting an IP video stream in Port 21, the fifth Virtual Port from the left. The system user has created a Video Cluster Group with three smartphones running the RIOS Lite Application. With this arrangement, the smartphone users are now able to view the IP video stream from their handheld device.



Video Clusters can operate in the “push” video mode (shown above) or “pull” video mode. In the pull video mode, the RIOS ICS receives an IP video feed from the RIOS Lite Smartphone Application. When the RIOS ICS receives an IP video stream, the system user has the ability to view the feed and/or record it with the RIOS Integrated Recording Software Plug-In Module.

## Device Compatibility

RIOS connects radio, telephone, computer, and IP video assets by means of the gateway methodology. The gateway methodology refers to the RIOS gateway physically connecting to a single “in-network” device to gain entry into a radio frequency or network. As a result, RIOS is able to communicate through the device and, consequently, to all available devices within the corresponding frequency or network.

For example, RIOS might interface to a single 800 MHz mobile radio to communicate to twenty 800 MHz portables in the field. Repeat the connection with various bands of HF, VHF, UHF, 700/800 MHz radios, telephones, computers, etc, and RIOS acts as a signaling translator with the ability to receive, transmit, patch, record and message throughout the communications spectrum. The checklist below outlines some of the device forms compatible with RIOS.



#### **Compatible With:**

- ✓ Mobile and Portable Radios
- ✓ Trunking and Repeater Systems
- ✓ Cellular and iDEN Phones
- ✓ Satellite Phones
- ✓ Computer and IP Networks
- ✓ SIP and VoIP Phones
- ✓ Smartphones with RIOS LiTE
- ✓ IP Video Streams

## Two Types of Device Connections: Physical Interface and Virtual Connection

With RIOS, two types of device connections are available; (1) a physical interface and (2) a virtual connection. A physical interface refers to a device (such as a radio, telephone, iDEN handset or satellite phone) that is physically connected to the RIOS I/O Chassis with a RIOS Interface Cable. Conversely, a virtual connection refers to a device (such as a computer, IP video feed or smartphone) that can communicate directly with the RIOS Server via an IP connection.

### Physical Interface

Shown below is a list of popular devices that allow for a physical interface to RIOS. Again, these devices connect to the RIOS I/O Chassis with a device-specific RIOS Interface Cable. Physical interface provides for unsurpassed connectivity to the device with 26-pin-capable, high-density interface connections. RIOS High Density Connections offer superior connection to the device by providing options for P25 data, GPS and Remote Radio Control.

### RIOS Physical Ports - Radios, Telephones and More





## Virtual Connections

In addition to radios and telephones, RIOS operates with computers, smartphones, video cameras, VoIP and SIP/VoIP/BSI extensions by connecting at the IP level. Shown below are a few examples of devices that offer IP access compatibility with RIOS. For these devices, the user bypasses the RIOS I/O Chassis and connects the device via a standard CAT5+ cable, 3G/4G wireless connection or Wifi/WiMax.

### RIOS Virtual Ports - Computers, Smartphones, Cameras and More



## Scalability

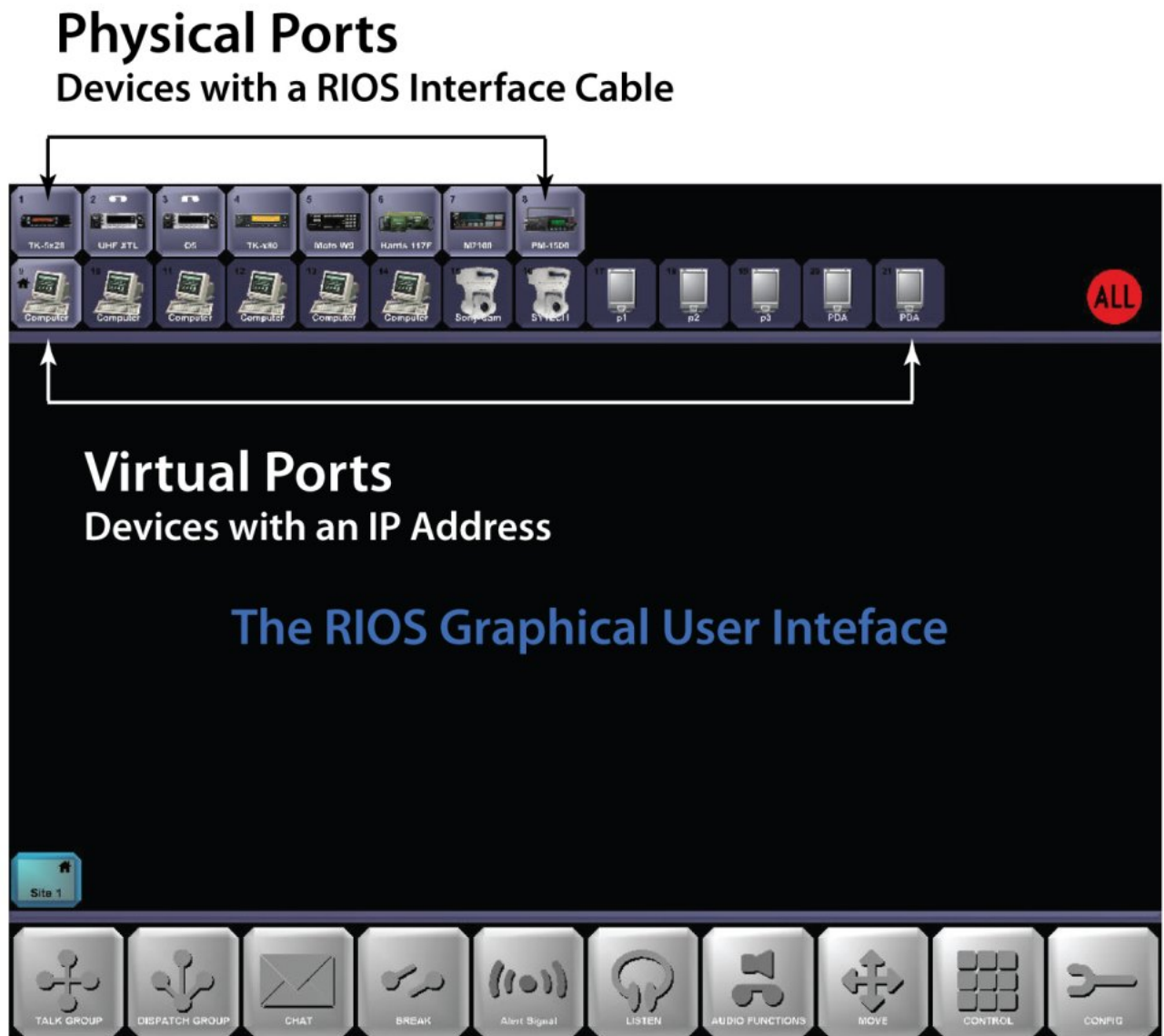
**Physical Interface:** Most RIOS I/O Chassis offer 8 or 16 ports for physically compatible devices with options to cascade RIOS I/O Chassis if needed. Devices that are physically compatible with RIOS appear in the top row of the RIOS Interface and are referred to as Physical Ports.

**Virtual Connections:** All RIOS Gateways ship with at least one Computer Connection Virtual Port. Normally, this is referred to as the Server Seat as it provides the RIOS Server the ability to log into the RIOS GUI. RIOS can be configured to accept as many connection ports as desired by the user. Connection ports within the RIOS GUI are referred to as Virtual Ports

## Physical & Virtual Port Profiles

A device such as a radio, telephone or iDEN handset physically connected to the RIOS I/O chassis is represented as a Physical Connection Port within the top row of the RIOS Graphical User Interface. On the other hand, a device such as a computer, IP video feed or smartphone connected via an IP network,

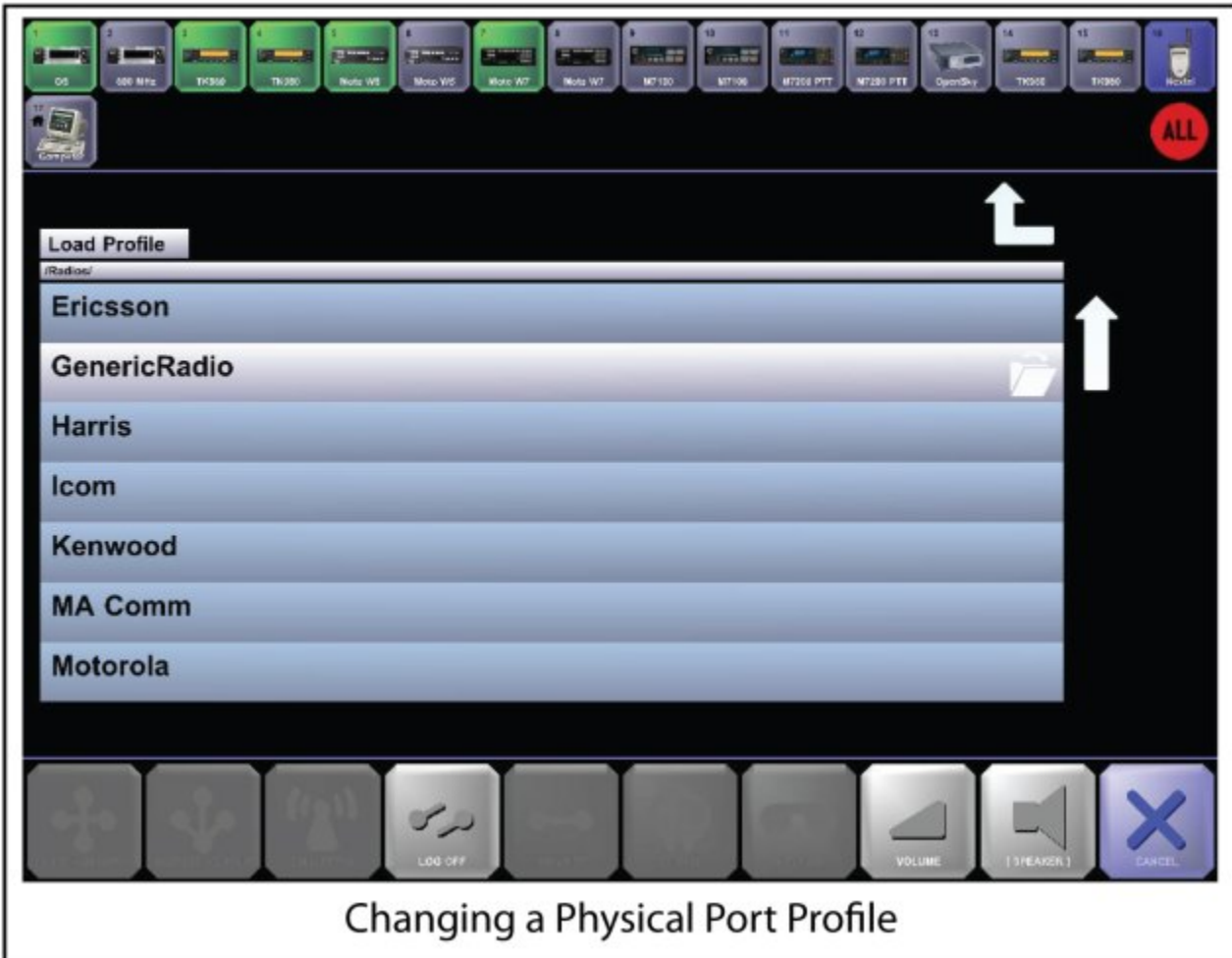
is represented as a Virtual Connection Port within the second row of the RIOS GUI. The graphic below displays a RIOS GUI with eight Physical Ports and thirteen Virtual Ports.



Physical Ports appear in the top row the RIOS Graphical User Interface and are usually in numbers of 6, 8 or 16 ports. Virtual Connection Ports appear in the second row of the RIOS GUI and act as available seats within the interface. Virtual Ports are referred as "virtual" as they are unlimited in number and are based on RIOS port licensing.

## Physical Port Profiles

With RIOS, physical ports are interchangeable via software-defined port profiles. This means that a physical port can change from one type of port configuration to another. For example, a port configured as a Nextel iDEN handset can quickly be configured to operate as a Motorola XTL O5 mobile radio. The graphic below illustrates this example. In this case, port 16, currently configured as a Nextel handset, is being swapped for a radio chosen from with the RIOS CommDB Library.



Within RIOS, the CommDB Library stores the configurations for each device profile. For each device profile, our radio engineers set the corresponding profile settings to match the default settings of the specific device. These settings can always be adjusted using the Configure Function and saved accordingly. For a list of device profiles within RIOS, [click here](#) (post required).

If your device does not appear in the CommDB listing, using the GenericRadio Profile will provide for standard receive and transmit capability.

For customers who purchased RIOS Remote Radio Control, loading the device profile and connecting the device with the corresponding RIOS RCU Cable, will allow the operator to control the radio on screen just as if you were standing in front of the radio.

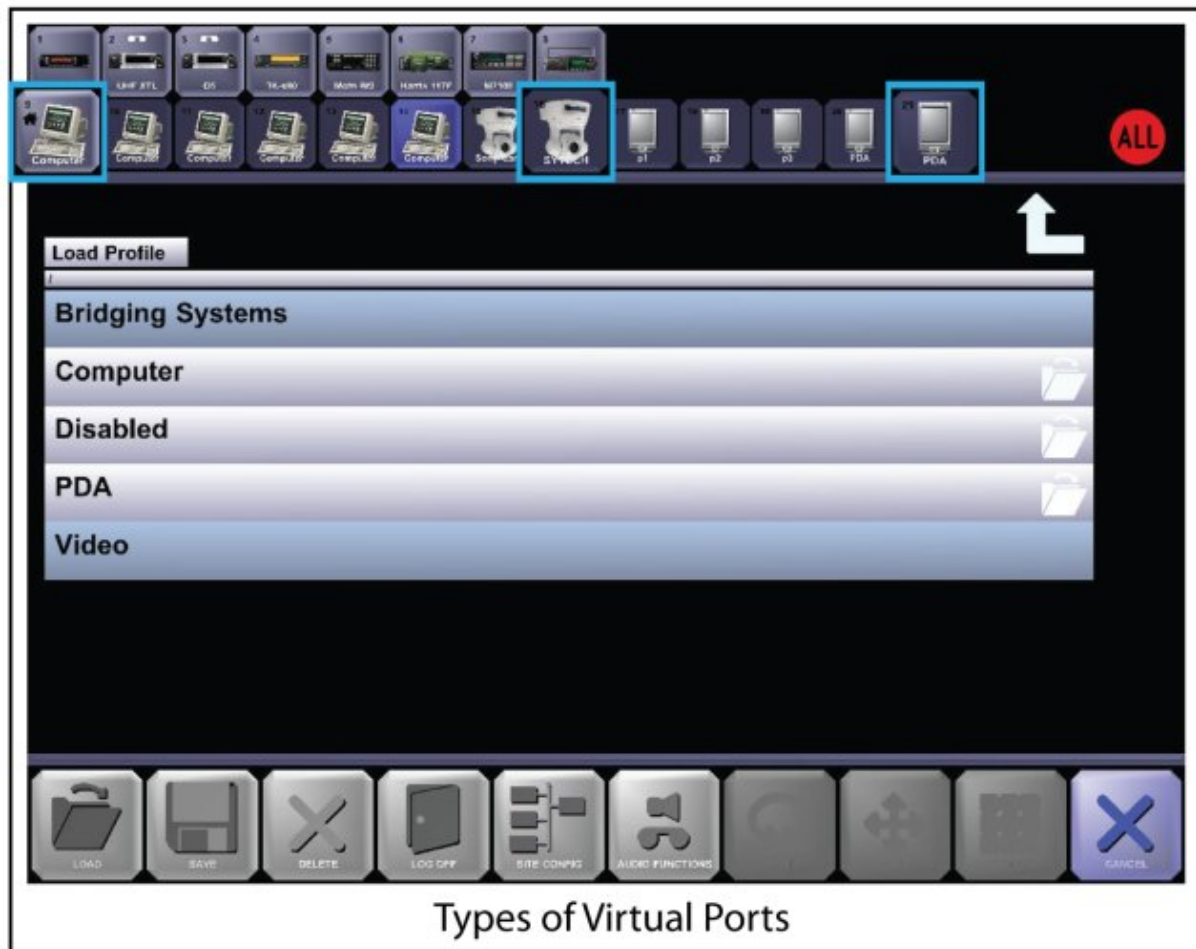
## **Virtual Port Profiles**

Virtual Port Profiles act as seats within the RIOS GUI. The number of Virtual Ports can vary based on system requirements. Base RIOS gateways ship with one Computer Port Profile. This connection port is often referred to as the server seat as it allows the operator to log into the RIOS GUI from the RIOS Server. RIOS allows for various types of Virtual Port Profiles ranging from computers, SIP phones, smartphones, IP video feeds and more. The following section outlines the available Virtual Port Profiles in more detail.

## **Types of Virtual Port Profiles**

The graphic below illustrates the available Virtual Ports within the RIOS CommDB library. In this graphic, the operator is changing port 14 from a Computer Port Profile to another type of Virtual Port Profile. For this graphic, the various types of device profiles are highlighted with a blue band; this particular configuration offers computer, camera and PDA devices.





Computer Profile: Allows additional computers operating the RIOS Client Application to log into the shared RIOS GUI. This arrangement is often referred to as RIOS Multi-User Access. Once logged in, users can see groups created within the shared workspace while maintaining their individual audio settings. In addition to radio communications, operators within a multi-user arrangement can intercom among the various computer connections.

RIOS Multi-User Access includes computers connected locally with LAN as well as RIOS Client Workstations connected remotely with a VPN connection. Additional Computer Connections can be purchased individually or as a site license based on anticipated usage. Computer Connections are included with RIOS Client Workstations.

PDA: Allows a smartphone operating RIOS LiTE to log into the system.

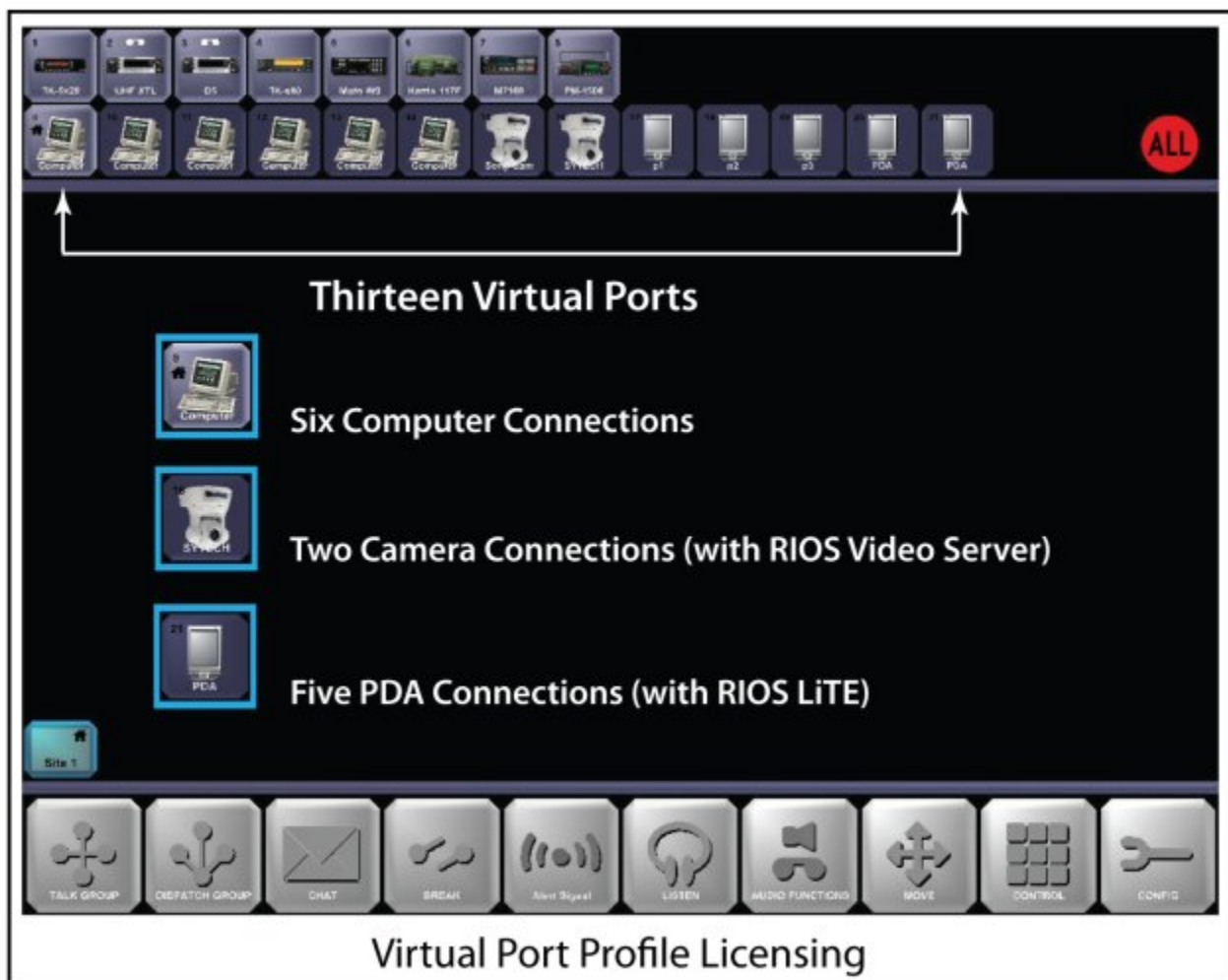
Video: Allows an IP video feed to operate within the RIOS Interface. Video Virtual Profiles include PTZ controls for select IP models of Sony, Panasonic and Axis models of cameras. We can incorporate a video encoder to operate with analog video feeds as well. Video Virtual Profiles require the RIOS Video Server Module.

**Bridging Systems:** Allows SIP and analog input of outside sources. This profile grouping includes the BSI profile as documented by the Department of Homeland Security. SIP services may be required for some operations.

## Virtual Port Licensing

All RIOS gateways ship with the available profiles; however, the system must be licensed to operate with that profile. At most, Virtual Port licensing is based on three criteria: the Device Profile, Number of Connection Ports, and the number of Instances. The following section outlines Virtual Port Licensing in more detail.

**The Device Profile:** The Device Profile refers to the type of device that can be loaded into the Virtual Port. In the graphic below, there are three (3) types of device profiles: Computer Profile, PDA Profile and Video Profile. All systems come with the Computer Profile loaded within the Device Library. Many systems will ship with all Virtual Profiles but require another component (RIOS Video Server, RIOS LiTE PDA Application, SIP server) for correct operation of the port. This allows for the system to be upgraded as budget and need permit.



The Number of Connection Ports: The Number of Connection Ports refers to the number of “seats” available for the designated profile. In the graphic above, the RIOS is configured for 13 virtual assets: six computer connections, five smartphone connections and two IP video connections. For this example, six concurrent computers are able to log in to the RIOS Interface. If the RIOS Server is licensed for UP TO SIX Computer Connections, any additional attempts to load another Computer Profile will result in an "Unlicensed" label across the corresponding virtual port.

The Number of Instances: The Number of Instances refers to the number of customer devices operating our client software by the end-user device. This is used mostly for RIOS LiTE PDA applications and in some cases for customers with several computers with VPN access. In the example above, the number of PDA instances is at least five. However, there could be more instances of the RIOS LiTE loaded on phones that are currently not logged in to the RIOS Interface but could if a smartphone port was available. We require these types of designations as it is an indicator of the level of effort with regard to system support.

### **The RIOS Standard Build**

Most RIOS Systems ship with only the server Connection Port which allows the RIOS Server to log in to the RIOS Interface. However, additional Virtual Ports can offer several added benefits.

### **Command & Control Features**

RIOS was originally developed in the mid 1990s at the request of law enforcement operatives seeking a simplified method to on-scene radio communications. Since then, RIOS has evolved to include a unique set of features specifically designed for public safety, law enforcement and military command and control.

### **Functional Overview**

In today's environment of command and control, precision and timing are everything. It's because of this critical reality that we engineered RIOS to deliver immediate, pin-point communications regardless of platform or frequency. The checklist below highlights the functional overview of the RIOS Interoperability Gateway as well as additional software modules as indicated with an asterisk.

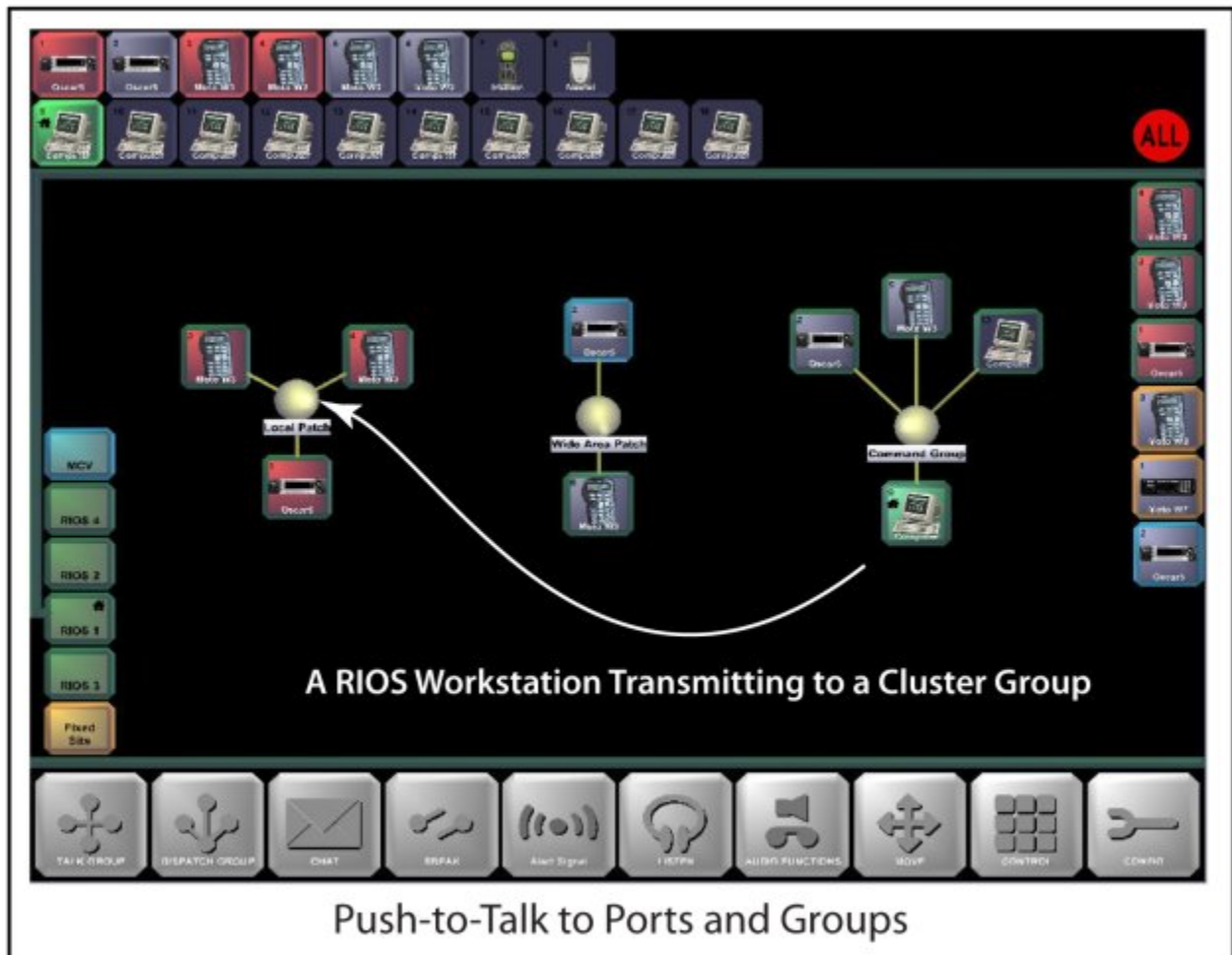


<u>Voice</u>	<u>Data</u>
✓ PTT	✓ Log
✓ Patch	✓ Chat
✓ Monitor	✓ File Transfer*
✓ Alert	
✓ Recall	<u>Video*</u>
✓ Control*	✓ View
✓ Page*	✓ Stream To
✓ Record*	✓ Stream From
	✓ Record

The following section highlights a few of the more popular command and control features of the RIOS Interoperability Gateway.

## Push to Talk

Communication to a port, cluster group or dispatch group is easy; simply select and hold the port icon or group's connection node and speak into the microphone. The port will turn red to indicate transmission while the computer you are communicating from will turn green. A green asset indicates that it is the source audio, i.e., it is receiving audio from the operator.



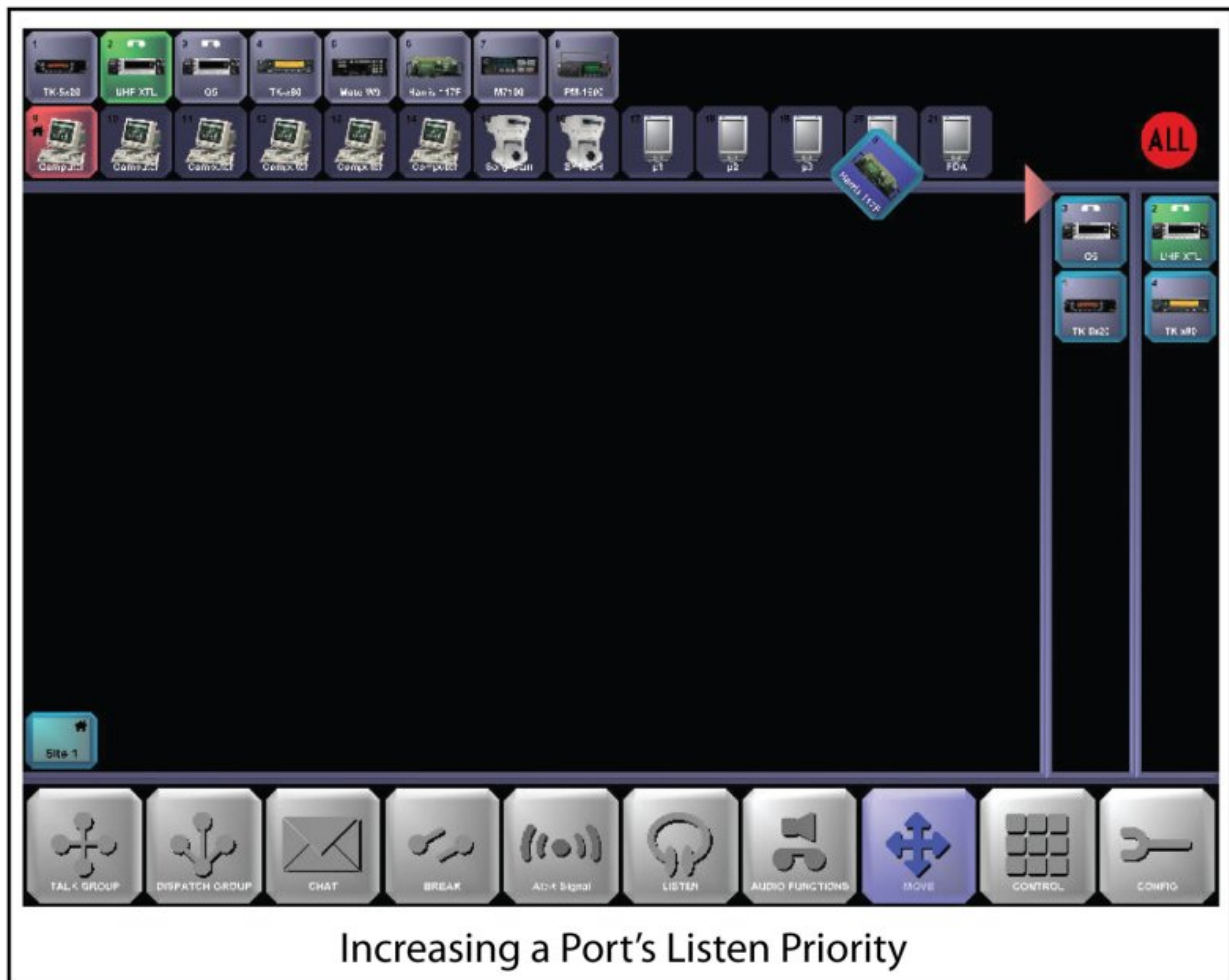
In the graphic above the operator is pressing the center node of the group titled “Local Patch”. RIOS sees this as a PTT to all ports within the patch. Consequently, all three radio entry points transmit to all users on their individual frequencies. Notice that although the computer asset is in a dispatch group, it still has the ability to transmit to another group.



## Priority Listen

Priority Listen allows the user to select a port's audio priority based on graphical hierarchy. The Listen Column, located on the left-hand side of the RIOS GUI, allows the user to drop and drag the audio source of the highest importance to the top of the column. With this arrangement, RIOS will output the audio of the highest port on the list when simultaneous audio is present.

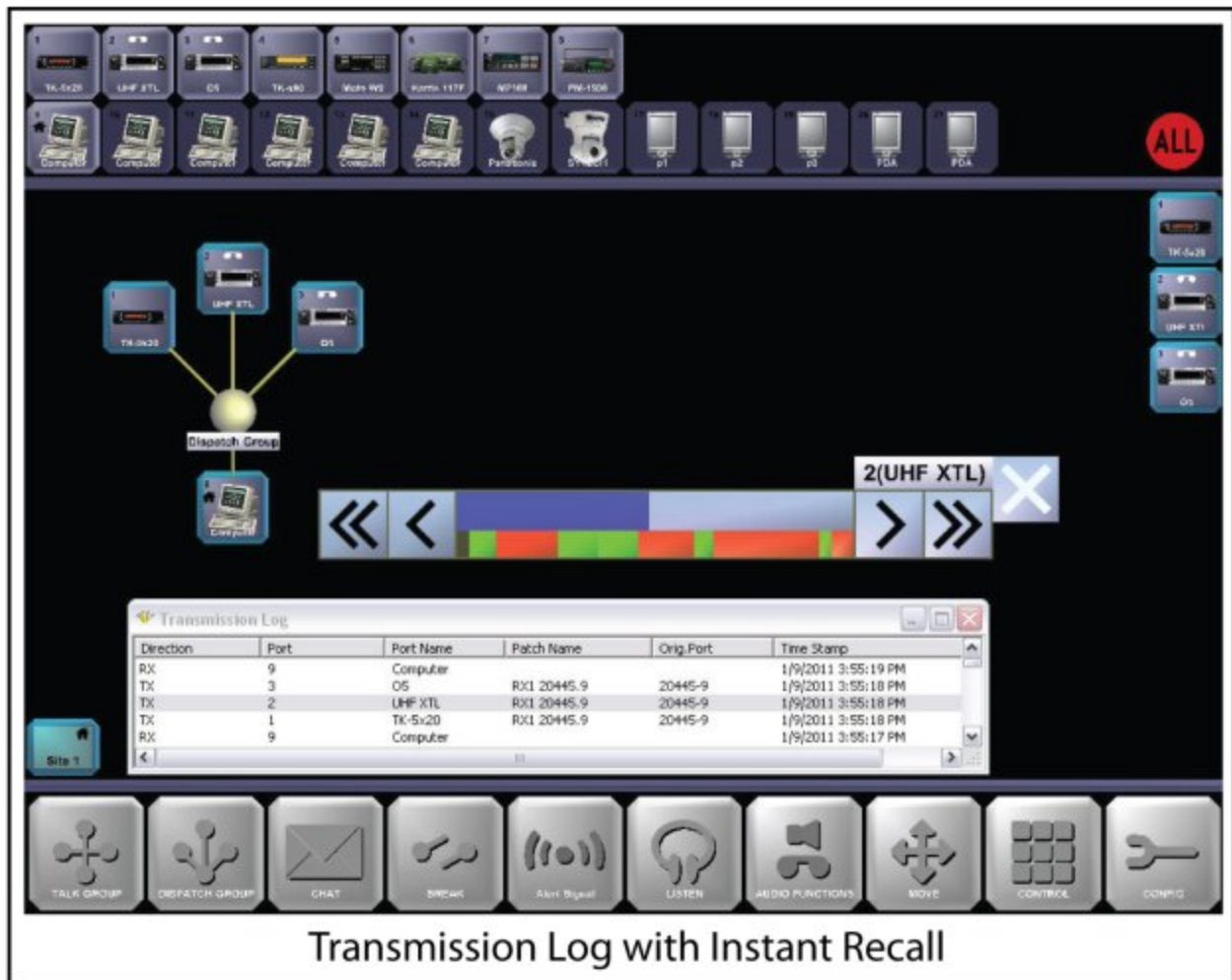
For situations that require the operator to monitor two simultaneous conversations, the RIOS GUI offers a stereo mode selection. With this configuration, the operator can monitor two simultaneous conversations at once. In the graphic below, the operator is moving the Priority Listen of the Port # to the highest level of the left ear.



As a note, previous versions of RIOS allowed for Quad mode with four simultaneous conversations. In the operational world, this became somewhat unmanageable. To counter this occurrence, we introduced the Activity Log with Instant Recall to account for these types of situations.

## Transmission Log

The RIOS Transmission Log allows the operator to view recent transmissions and receptions within the RIOS GUI. The log indicates transmission direction, port number, port name, site location and time. To replay a transmission, the operator double clicks on the entry within the log and the Instant Recall Panel appears as shown below.



The screenshot shows the RIOS GUI interface. At the top, there is a row of icons representing various communication devices and systems. Below this, a network diagram shows a central 'Dispatch Group' connected to several devices. A 'Transmission Log' window is open, displaying a table of transmission and reception events. The log includes columns for Direction, Port, Port Name, Patch Name, Orig.Port, and Time Stamp. The Instant Recall Panel is visible, showing a timeline of activity for a selected port, with a '2(UHF XTL)' label and a close button.

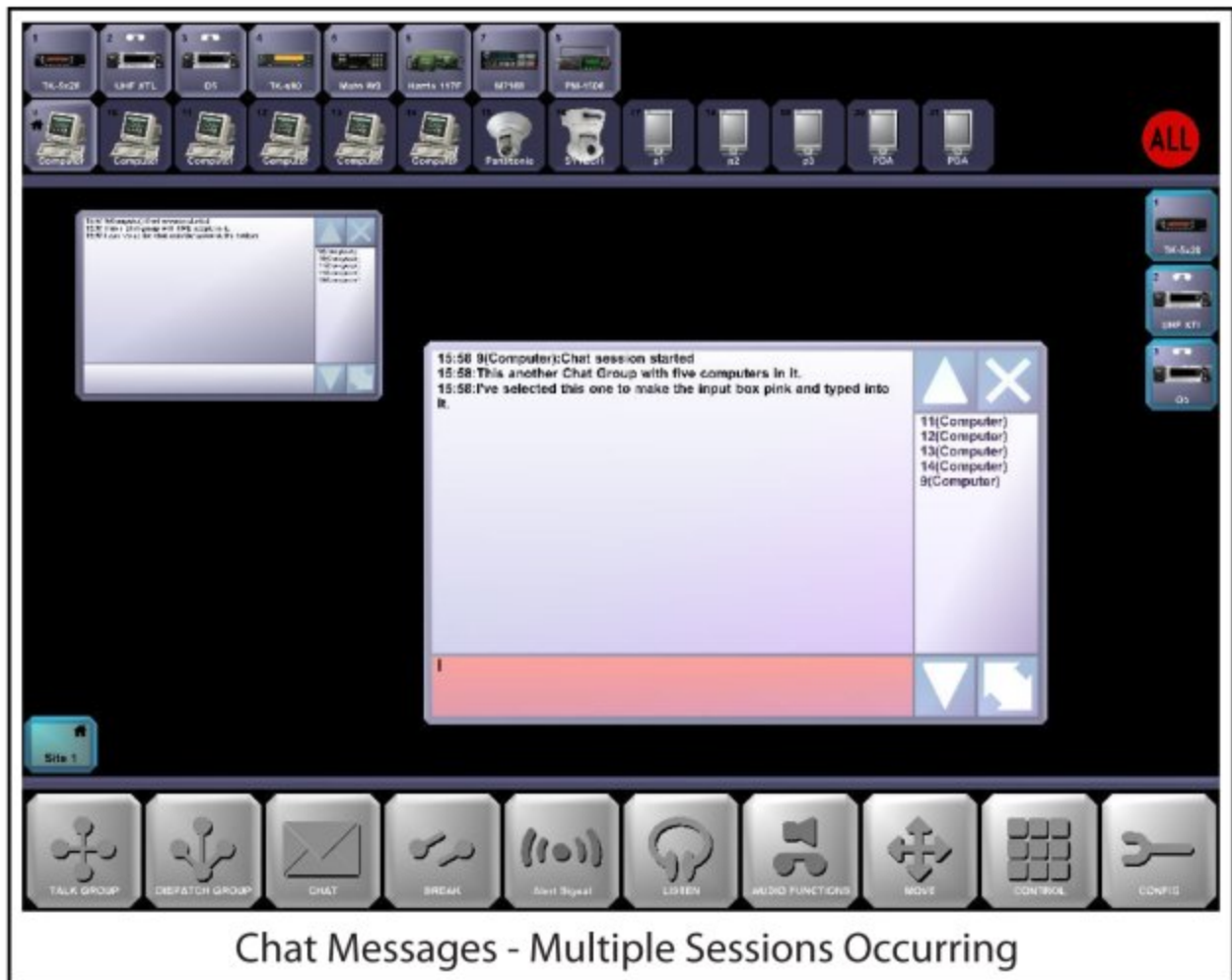
Direction	Port	Port Name	Patch Name	Orig.Port	Time Stamp
RX	9	Computer			1/9/2011 3:55:19 PM
TX	3	OS	RX1 20445.9	20445-9	1/9/2011 3:55:18 PM
TX	2	UHF XTL	RX1 20445.9	20445-9	1/9/2011 3:55:18 PM
TX	1	TX-5x20	RX1 20445.9	20445-9	1/9/2011 3:55:18 PM
RX	9	Computer			1/9/2011 3:55:17 PM

Transmission Log with Instant Recall

In the graphic above, a transmission log has been opened. From this log, the operator has the ability to double-click on a transmission to recall the recent activity that has occurred on the individual port. Referred to as the Instant Recall Panel, the panel displays the last two minutes of activity on the specific port. Within the Instant Recall Panel, transmissions are shown in red while receptions are shown in green. The operator has the ability to double click on these locations to play back the event. Standard recall time defaults to two minutes of transmissions. For long-term recording, we recommend the RIOS Playback Voice and Data Recording Software Module.

## Chat Messages

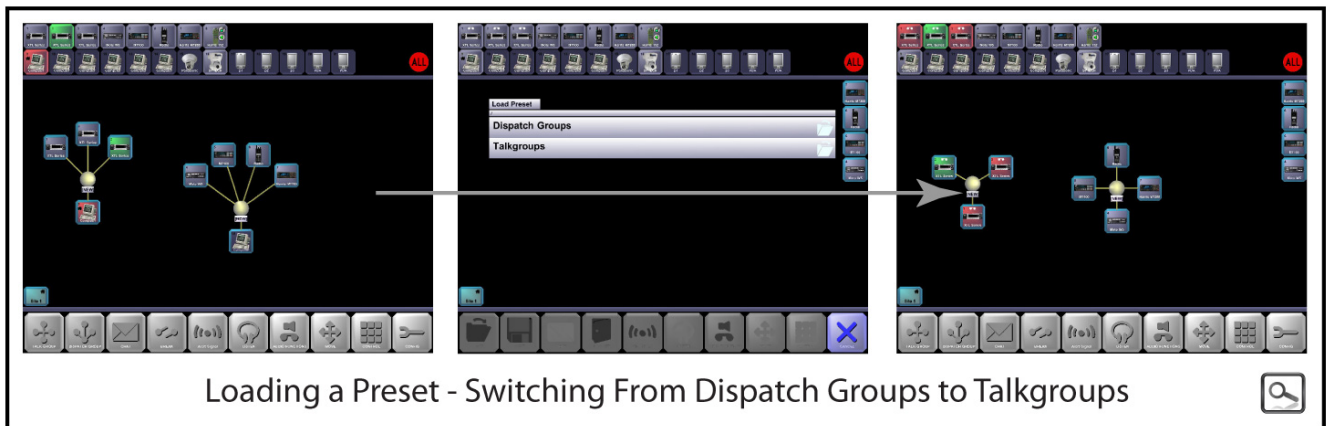
Chat Messages function as a means to communicate off-air with RIOS Client Workstations or RIOS LiTE Smartphones. Chat Messages allow system users to create multi-user groups and switch among multiple chat sessions within the interface.



Chat Message sessions are resizable and logged internally within the RIOS Gateway. Often, Chat Messages are used to ask for connection permissions within wide-area systems.

## Presets

Presets allow the operator to revert to a previously saved configuration of RIOS. To save a Preset, create the desired groups and select the ports to monitor. Select the Configure Function, Save, name the Preset, Enter. When needed, load the Preset from the Configuration Function and groups and ports you have selected to monitor will appear.



In Panel 1 above, the operator is communicating via Dispatch Groups with various radio channels. With this configuration, all radios remain separate while allowing the dispatcher to multicast to the desired group. Notice Port 2 is in receive mode--only the operator and radios on this frequency can hear this port's radio traffic.

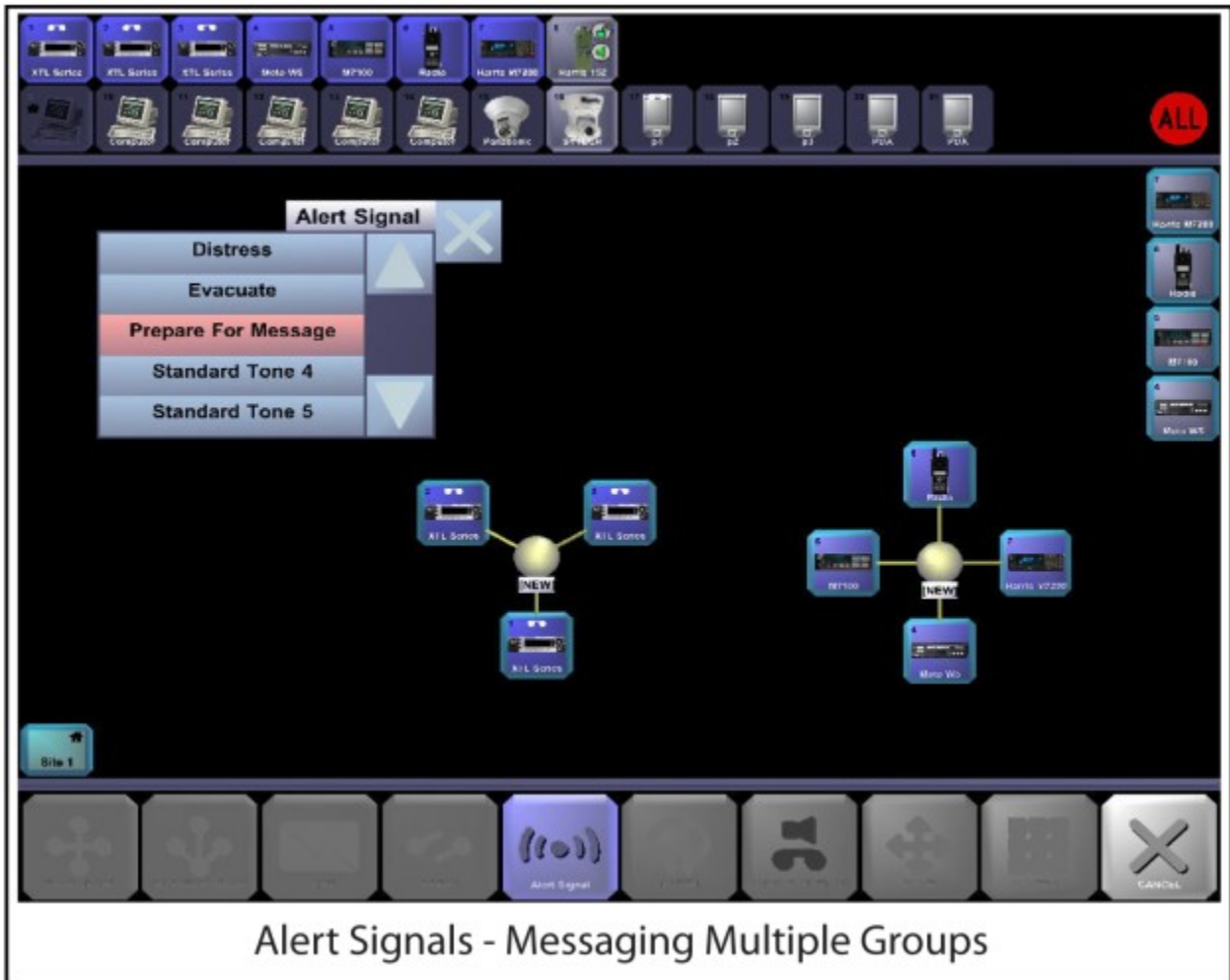
Should the situation require interoperability among the radio ports, the operator can load a Preset that automatically creates the groups and places the appropriate ports within the Listen Column. In Panel 2, the operator has select the "Talkgroups" Preset.

In Panel 3, the groups are created and the correct ports are placed in the Listen Column. Notice how the audio from Port 2 is not being transmitted by Ports 1 and 3.

### Alert Signals

Alerts Signals allow the operator to multicast pre-recorded .wav files to selected ports and groups. Alert Signals are often used in noisy environments where an attention signal is used prior to the transmission of a voice announcement. Users can create custom messages (as shown below) or use the default alerts within RIOS.





In the graphic above, the operator has elected to send the "Prepare for Message" Alert to all the ports within both groups. This task can easily be accomplished by selecting Alerts, choosing "Prepare for Message", and picking the groups or ports to receive the message. The operator confirms the request by deselecting the Alert Signals Function and the message is broadcast through the ports.

### Multi-User Login

The RIOS radio interoperability allows for multiple computers to simultaneously access the shared RIOS GUI. This critical capability allows multiple computer workstations to monitor a situation and share the workload across various disciplines and responsibilities.

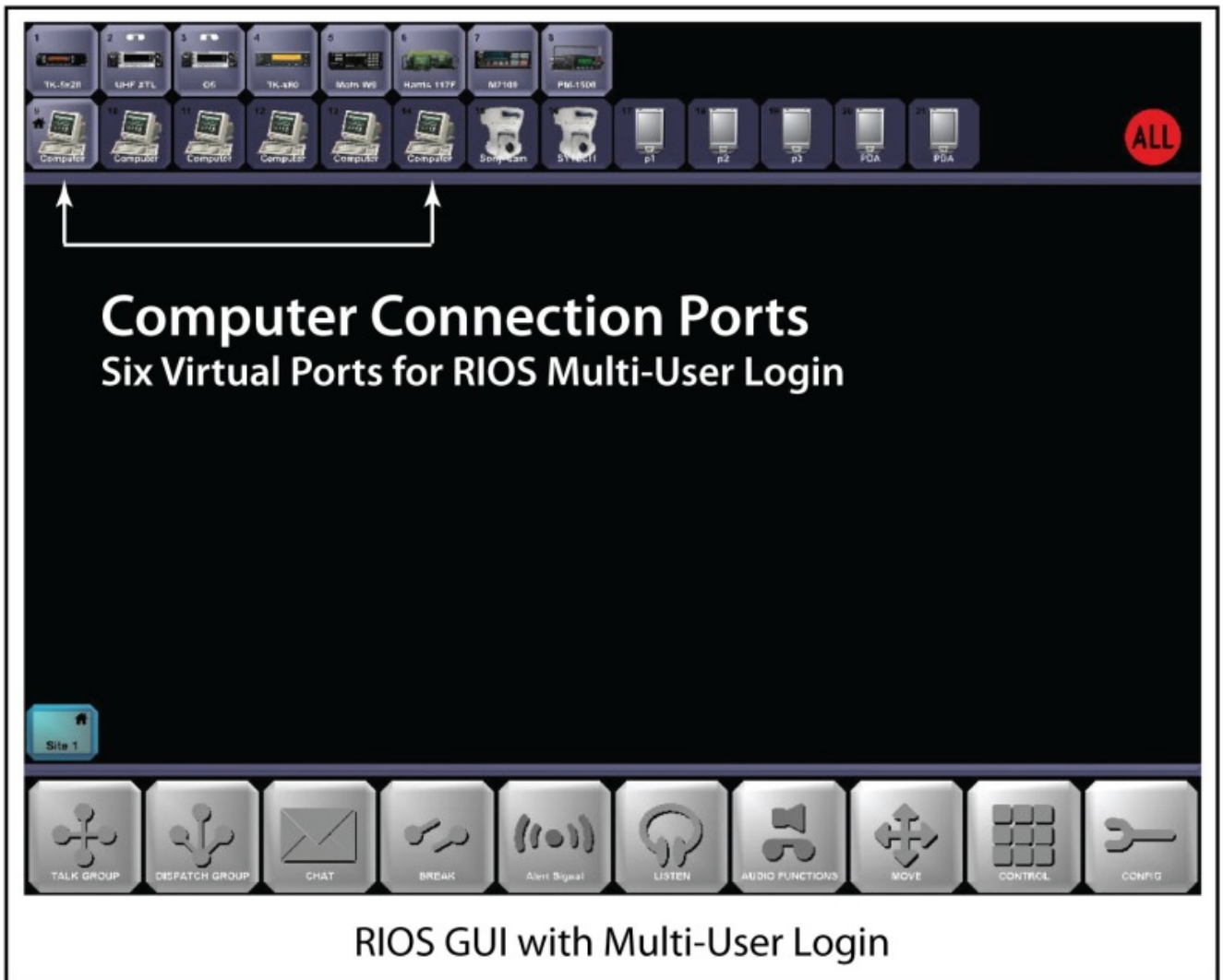
With RIOS Multi-User Login, authorized participants have the ability to:



- Share Radio Resources
- Communicate with PTT VoIP
- Communicate with RIOS Chat
- Internal File Exchange
- Remote Login with RIOS VPN

The picture above illustrates a large-scale command vehicle with three RIOS Multi-User Logins. For this vehicle, the RIOS Workstations log in to the RIOS Gateway via the LAN connection while a laptop computer accesses the RIOS Gateway with a secure Wifi connection.

When an audio patch, dispatch group or other grouping element is created within RIOS, it is shared across all connected workstations. All participants can see the patch while authorized users can monitor, transmit, chat, recall, edit and control permissioned assets and created elements. Conversely, each workstation user has the ability to individually select which assets to monitor and where to place functional elements. The resulting arrangement creates a common operating picture ideal for incident management and multi-agency emergency response. Login rights and permissions are based on User ID and are configured by the RIOS System Administrator.



RIOS Multi-User Login requires available RIOS Computer Port Connections for log in access. In the graphic above, a RIOS GUI with six available computer connections is displayed. This particular RIOS Gateway allows for six concurrent computers running the RIOS Client Application to log in to the shared RIOS GUI.

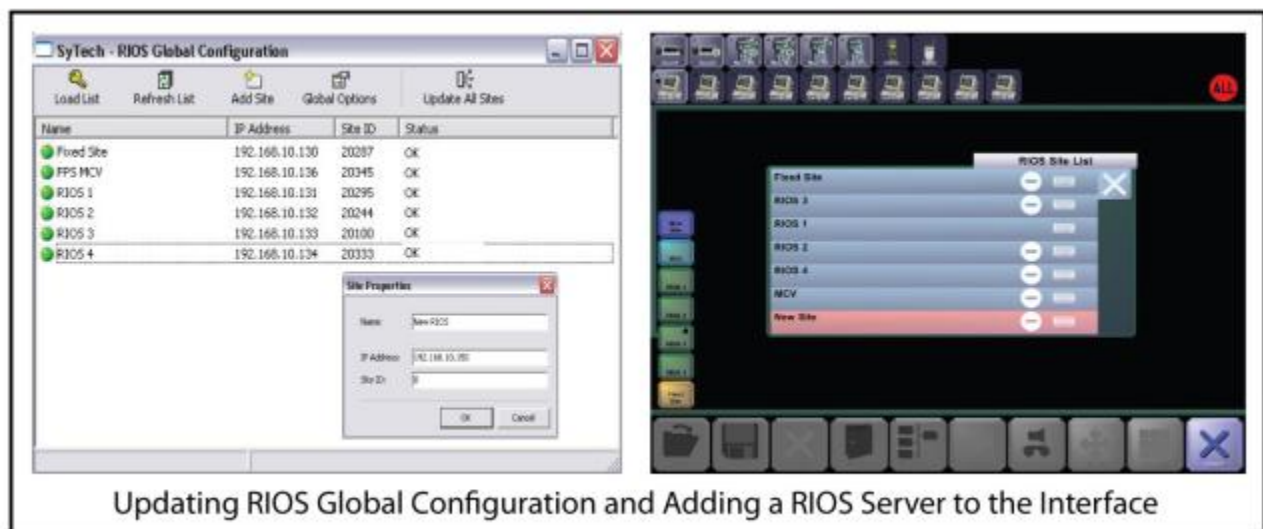
RIOS Multi-User Access is priced based on the number of required seats. The number of seats is determined by the number of required simultaneous users logged into the RIOS GUI. We can offer package licensing for systems requiring several RIOS Computer Connection Ports.

We recommend LAN connections for critical communications; however, secure Wifi can be utilized. Multi-User Access can be accomplished with RIOS Client Workstations, Durabook Notebook Workstations or VPN RIOS Clients. All Client Workstations include the required RIOS Computer Connection Ports.

## Simplified Networking

The RIOS ICS requires only one IP address per RIOS Server. RIOS reduces IP-address allocation by eliminating address-specific DSP-2 cards and internal routing. RIOS Site Builder allows network administrators to push new network configurations to in-network RIOS ICSs resulting in automated network configuration.

The graphic below displays the RIOS Global Configuration used to send the updated site lists throughout the RIOS Wide-Area Network. Once received by the RIOS ICS, the permissioned user can add or delete sites using “Site Configuration” within the RIOS GUI.



All RIOS ICSs multicast at the local level while providing additional network multicast options for advanced networks. We can customize your RIOS to connect with the network resources you currently own and operate. Whether connecting with RF, satellite, EVDO or WiMax, We can integrate the ideal network solution specific to your organization’s needs and wants. With the RIOS Interoperability and a basic IP connection your organization is prepared to handle all aspects of emergency response no matter where the incident occurs.

## System Adaptability

Simply stated, RIOS is a software switch. At the heart of every RIOS system is the RIOS processing code. The system’s capabilities are defined by its software. As a result, the capabilities of RIOS have the ability to be upgraded throughout the lifecycle of the system. The ability to upgrade capabilities not only includes RIOS Software Plug-In Modules but also the ability to adapt to evolving radio standards (BSI, P25) and other emerging communication technologies (wireless applications, video integration). With RIOS, hardware obsolescence is a thing of the past. We offer pricing options for users who want to upgrade to the latest version of RIOS through the product lifecycle.



In addition to the standard features of RIOS, We offer RIOS Software Plug-In Modules for more advanced users.

If you have any more questions about RIOS, please contact our sales department:

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