Voisus Client User Guide

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Contents

Voisus Clients are voice-over-IP communications tools, featuring:

- Simulated Radios and Intercoms
- Conference and Private Calling
- Text Chat

There are multiple user interfaces available:

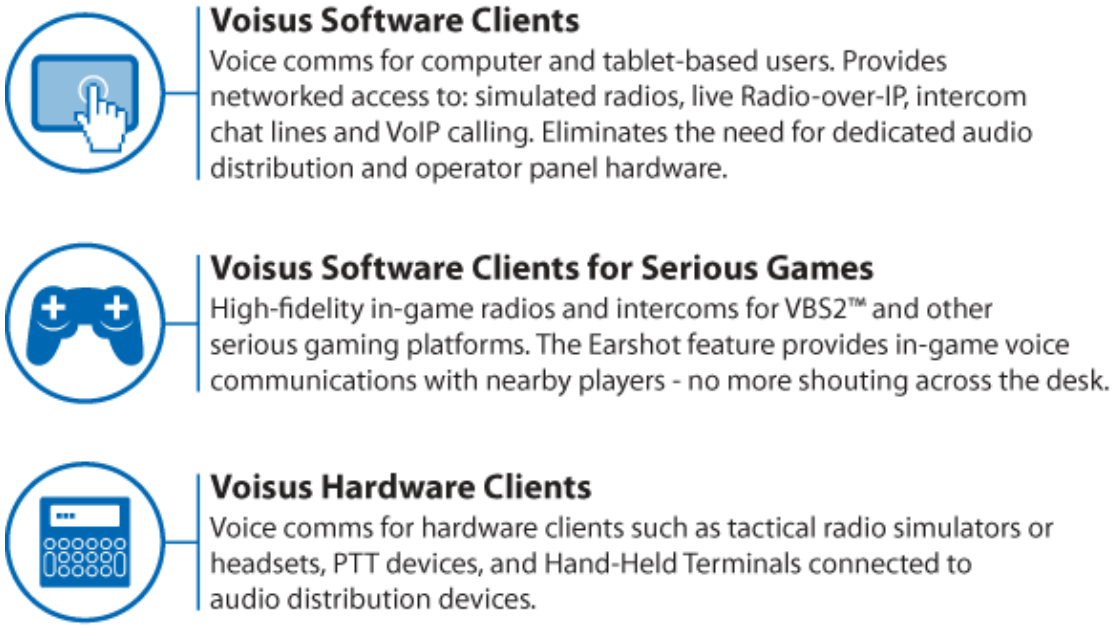

Figure 1:

For a brief overview of the Voisus Client workflow, check out our Voisus Client Quick-Start Tutorial[1] on YouTube.

1 Scenario Management

Use the Voisus Client app to create exercise Scenarios for specific training tasks and simulations. Each Scenario contains all of the resources necessary for client communications, including:

- **Comm Plan:** A collection of nets, which are sets of operational parameters such as frequency and waveform modulation type. Nets are used to create simulated radios and determine which radios can interoperate.

[1] http://www.youtube.com/watch?v=BDfSHfvZ5nc

- **Roles:** Each role is assigned one ore more radios, and each radio consists of one or more nets from the comm plan.
- **Client Management:** Add hardware and software clients to the exercise and map a role to each client. The role contains the simulated radios and intercoms each client will use for communications.
- **DIS Settings:** Configure the DIS settings to participate in a DIS exercise.

The Voisus server holds an unlimited number of Scenarios and can run one Scenario at a time. When Voisus clients connect to the server, they will gain access to the running Scenario's resources.

1.1 Scenario Dashboard

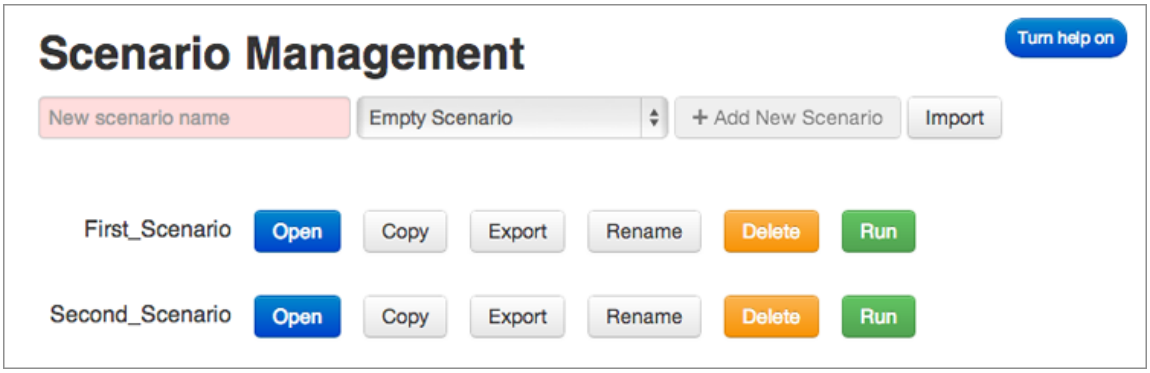

Figure 2:

The Scenario Management dashboard offers the following functions:

- Create a New Scenario (section 1.3)
- Import (section 1.2)
- **Open:** Click to open a scenario and edit its resources. Scenarios can be edited dynamically while they are running.
- **Copy:** Create a duplicate of the selected scenario.
- Export (section 1.2)
- **Rename:** Change the scenario's name.
- **Delete:** Deletes the chosen scenario.
- **Run:** Install the chosen scenario. The Voisus server can run one scenario at a time, and Voisus clients will have access to the resources in the actively running scenario.

1.2 Scenario Import/Export

Use the Import and Export buttons on the Scenario Management dashboard to transfer scenarios between the Voisus server and your computer's hard drive. This allows you to easily share scenarios between Voisus servers using email or another file transfer method of your choice.

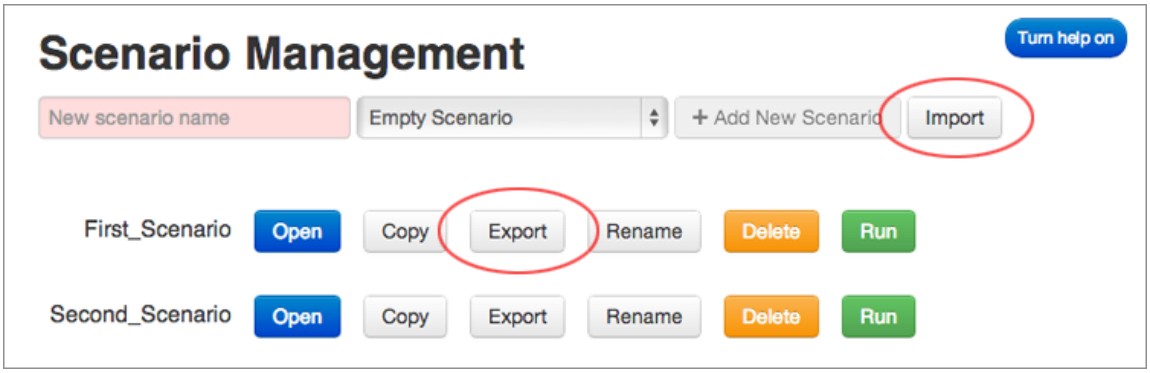

Figure 3:

Import/Export Considerations

- Scenario import/export is only available for Voisus software version 5.15.0 at this time.
- Scenarios are given a unique ID when they are exported. If Scenario A already exists on the destination server, and the destination server imports another copy of Scenario A, the server will now hold two separate instances of Scenario A, each with a unique scenario ID.

1.3 Create a New Scenario

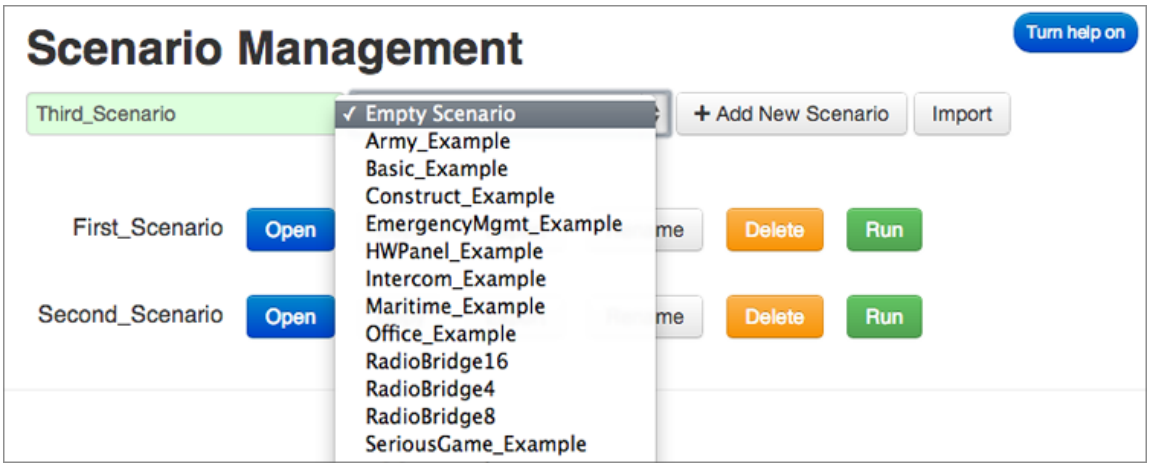

Figure 4:

1. Enter a Scenario name.
2. Use the drop-down menu to select either an "Empty Scenario" or one of the example Scenarios. Examples are pre-loaded with Comm Plans, Roles, and Radios.
3. Click "Add a New Scenario".
4. Open the scenario to view and edit the scenario elements. At minimum, each scenario must have a Comm Plan (section 1.4) and Roles and Radios (section 1.5).

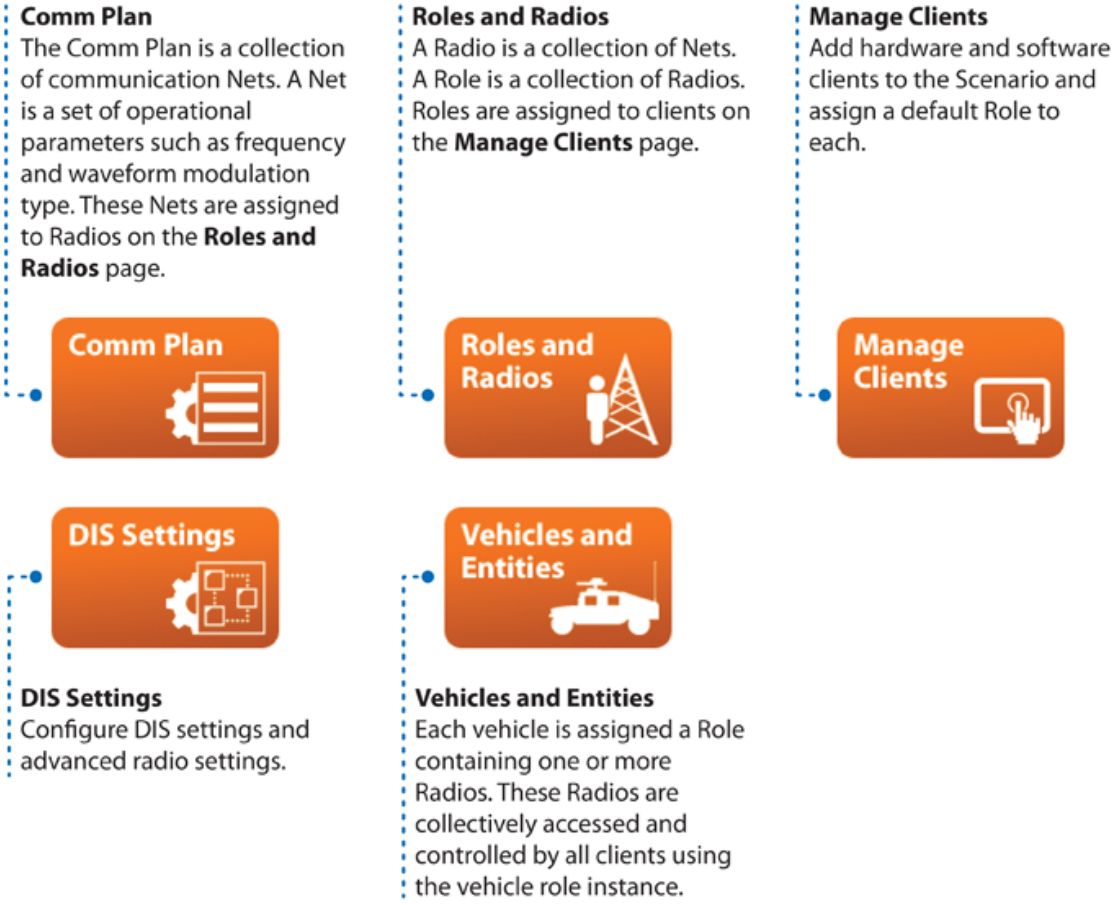

Figure 5:

1.4 Comm Plan

Figure 6:

The Comm Plan consists of communication Nets, which are sets of operational parameters such as frequency and waveform modulation type. These Nets will be assigned to Radios on the Roles and Radios (section 1.5) page.

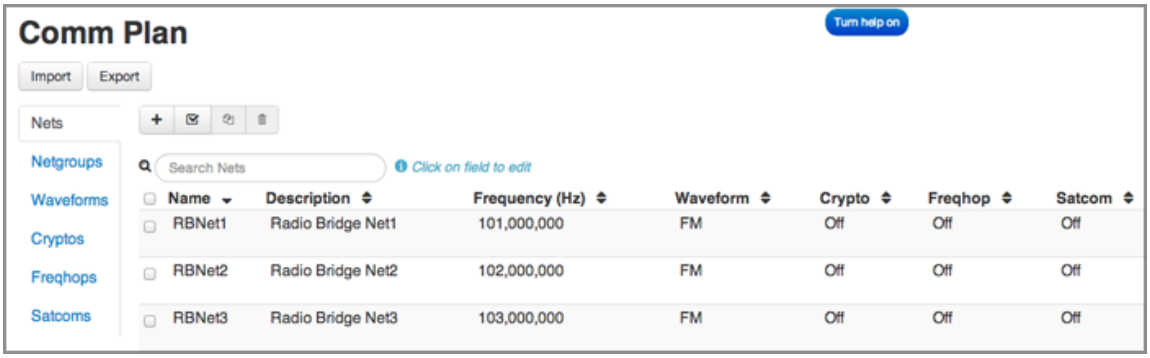

Figure 7:

Parameters

Each net has seven parameters:

- **Required Parameters:**
  - Name
  - Frequency
  - Waveform
- **Optional Parameters:**
  - Description
  - Crypto
  - Freqhop
  - Satcom

Radio Communications

Radio nets must share key net settings to intercommunicate:

- Frequency
- Waveform Modulation Type
- Bandwidth
- Crypto Settings

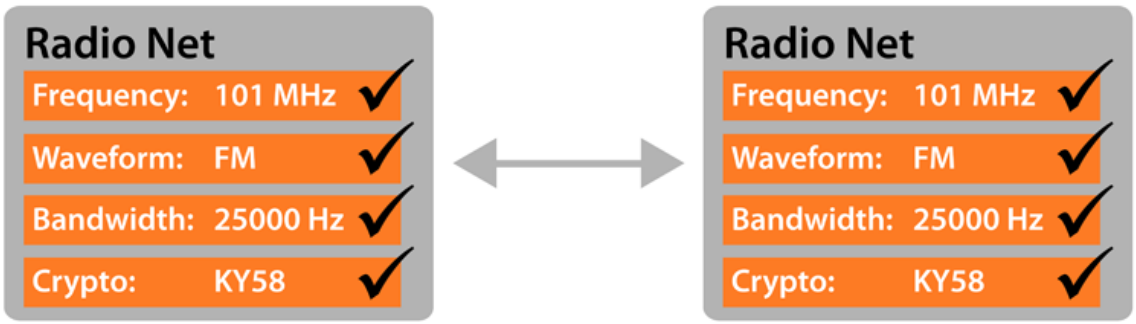

Figure 8:

Netgroups

For convenience, Nets can be grouped into Netgroups. These Netgroups can be used to assign a group of nets to a radio on the Roles and Radios (section 1.5) page.

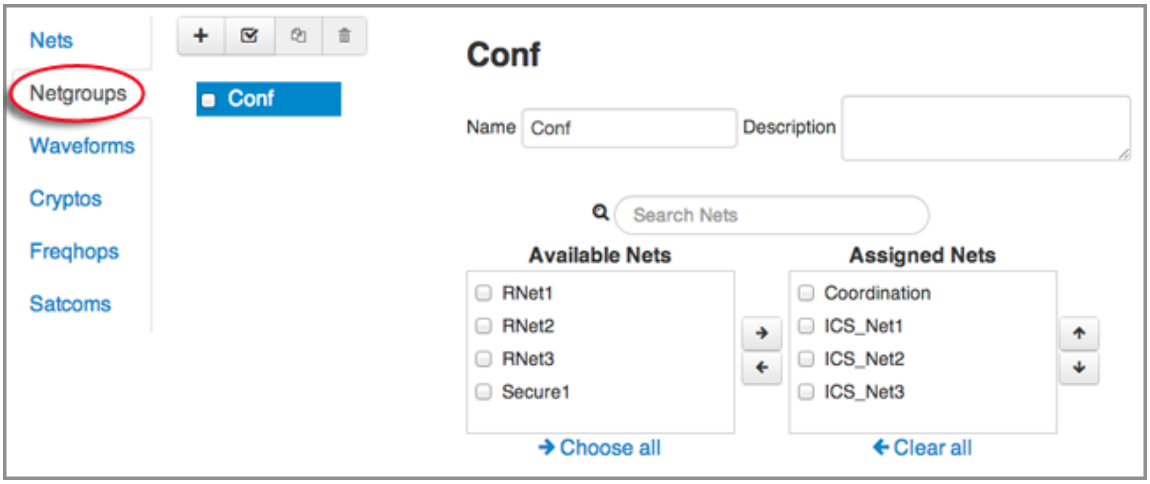

Figure 9:

Comm Plan Import/Export

Use the Comm Plan Import and Export feature to transfer the comm plan between the Voisus server and your computer's hard drive. This function can be used to distribute your comm plans among different Voisus systems.

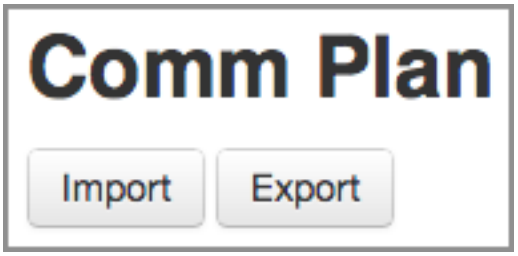

Figure 10:

1. Use the Export feature to save the comm plan to CSV (Excel) format and save to your PC. If desired, you can make changes to your comm plan while it is in CSV format.
2. Using email or another file transfer method of your choice, send the CSV file to other Voisus server users.
3. Use the Import feature to select a CSV comm plan file on your PC and convert it to a comm plan.

Note: The comm plan import/export feature only captures comm plan-specific items, such as nets, netgroups, waveforms, cryptos, freqhops, and satcoms. To export an entire scenario, use Scenario Import/Export (section 1.2).

1.5 Roles and Radios

Figure 11:

Roles are collections of radios. Each Voisus client assumes a role and gains access to its associated radios.

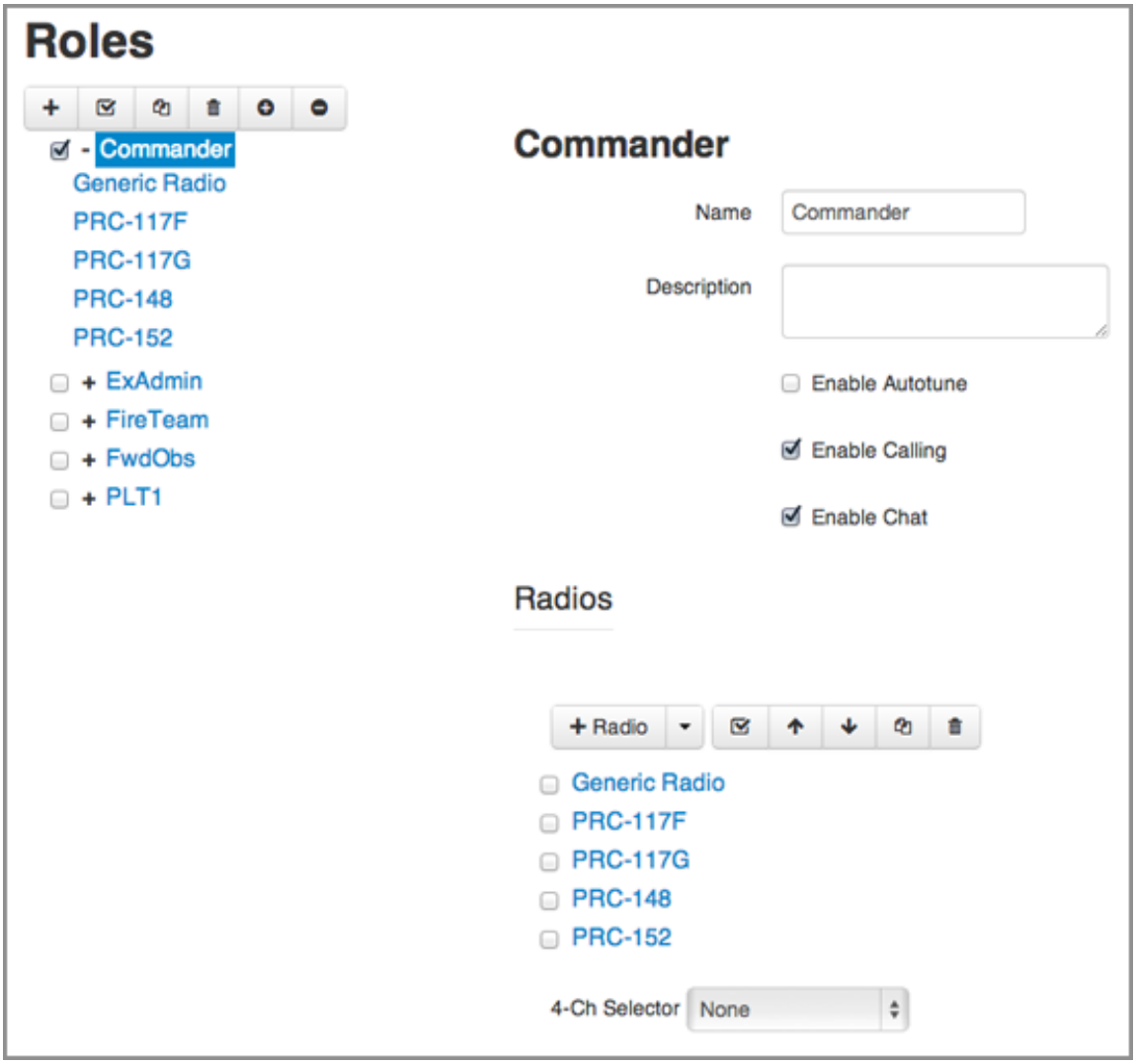

Figure 12:

Each radio is loaded with one or more nets. A radio with only one net is fixed (non-tunable). A radio with multiple nets can be tuned by the client operator unless the default net is locked.

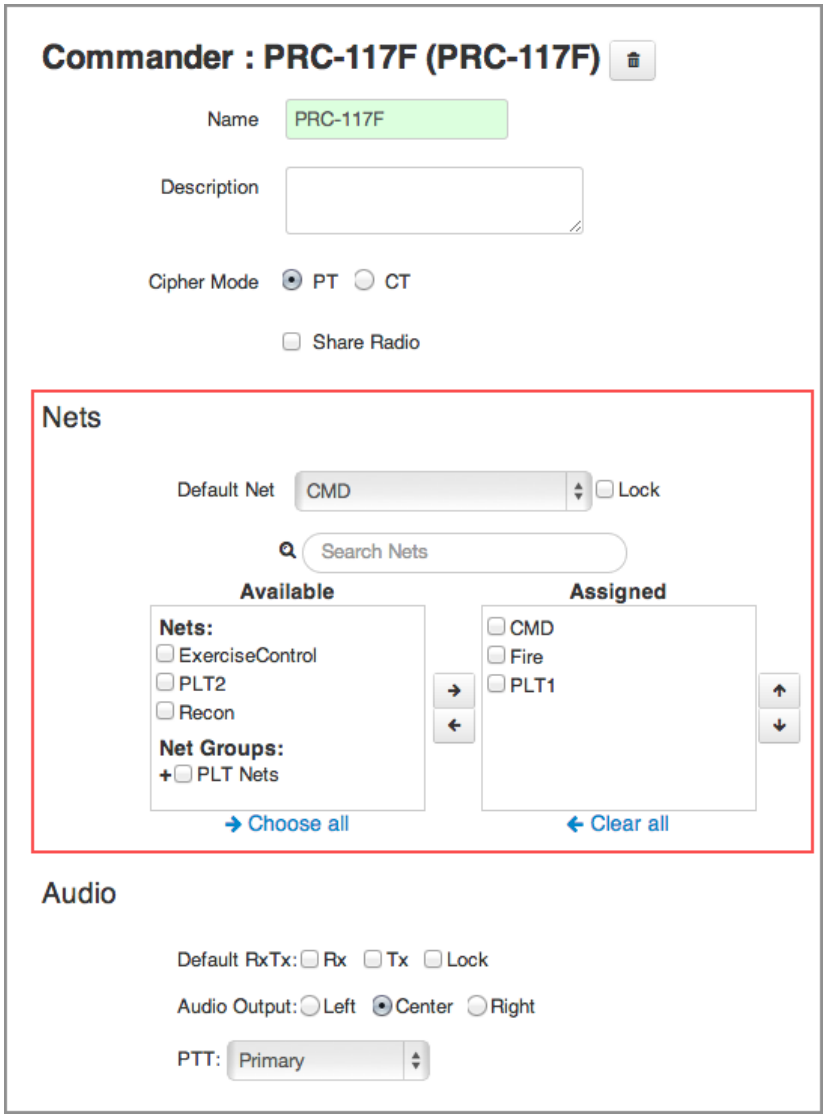

Figure 13:

Create a New Role

1. Click the plus button to create a new role.

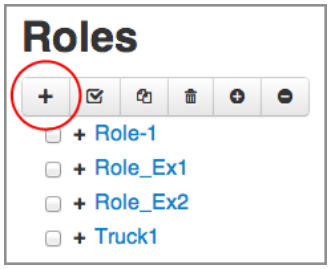

Figure 14:

2. Click the name of the new role to open it for editing.

3. **Name:** (Optional) Edit the role's name.

   Description: (Optional) Add a description of the role.

   Enable Autotune: Check this box to enable the software client operator using this role to instantly establish comms by clicking on a realtime list of active radios on the network.

   Enable Calling: Check this box to enable the calling feature for roles using the Original Desktop Client (section 2.5) and Voisus Client for Desktops & Tablets (section 2.6). The calling feature provides private intercom communications between two or more clients without disrupting the exercise. The client's radio transmit mode is disabled while on a call, but receive mode remains active so the client can hear radio and intercom communications.

   Enable Chat: Enable the chat feature for roles using the Voisus Client for Desktops & Tablets (section 2.6) The chat feature must also be enabled for the server as described in Appendix B: Voisus Chat (chapter 5).

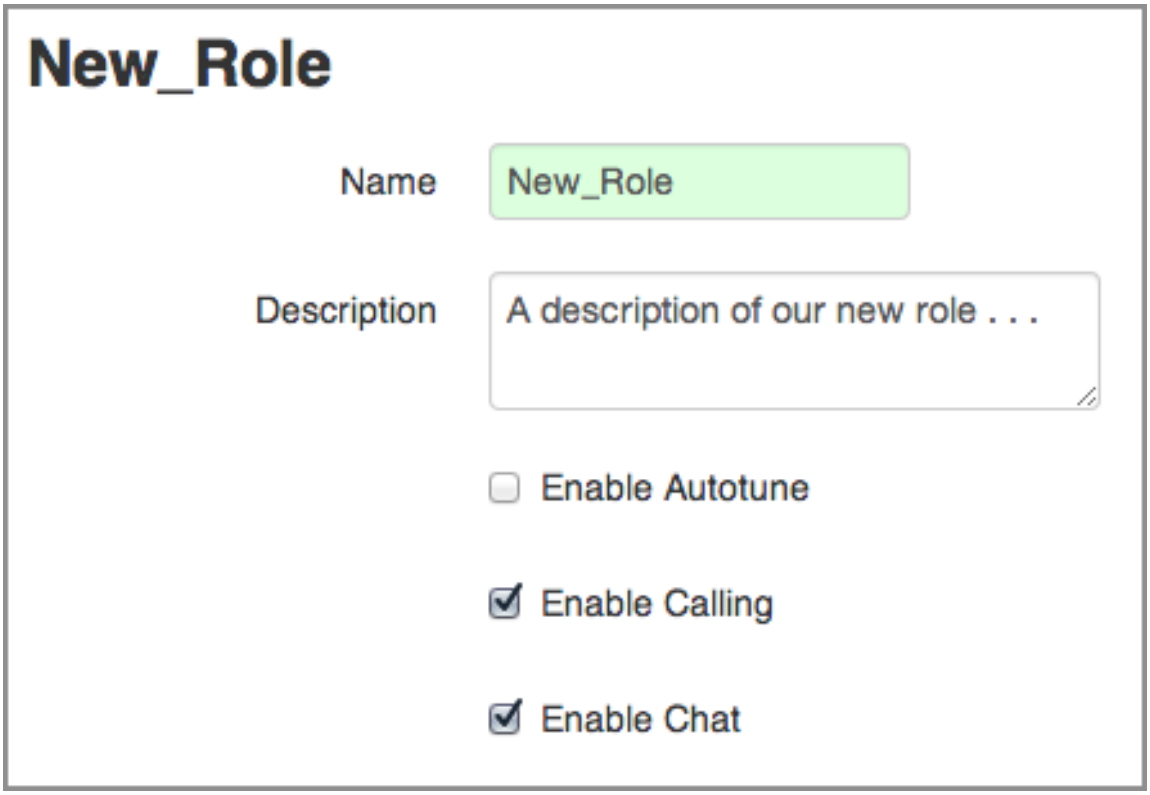

Figure 15:

4. Add radios to the role as described below.

Create a New Radio

1. Use the + Radio button to select the desired radio type.

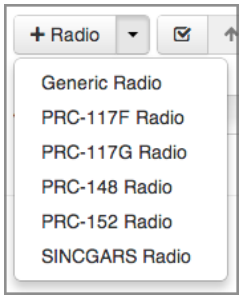

Figure 16:

- **Generic Radio:** For use with the Original Desktop Client (section 2.5), Voisus Client for Desktops & Tablets (section 2.6), and most hardware clients (except the PRC–117 panel and SINCGARS panel).
- **PRC–117F:** For use with the Voisus Client for Desktops & Tablets (section 2.6) and the ASTi PRC–117 Panel.
- **PRC–117G:** For use with the Voisus Client for Desktops & Tablets (section 2.6).
- **PRC–148:** For use with the Voisus Client for Desktops & Tablets (section 2.6).
- **PRC–152:** For use with the Voisus Client for Desktops & Tablets (section 2.6).
- **SINCGARS:** For use with the ASTi SINCGARS Panel[2].

2. Click the new radio's name on the list to edit.

[2]sincgars.html

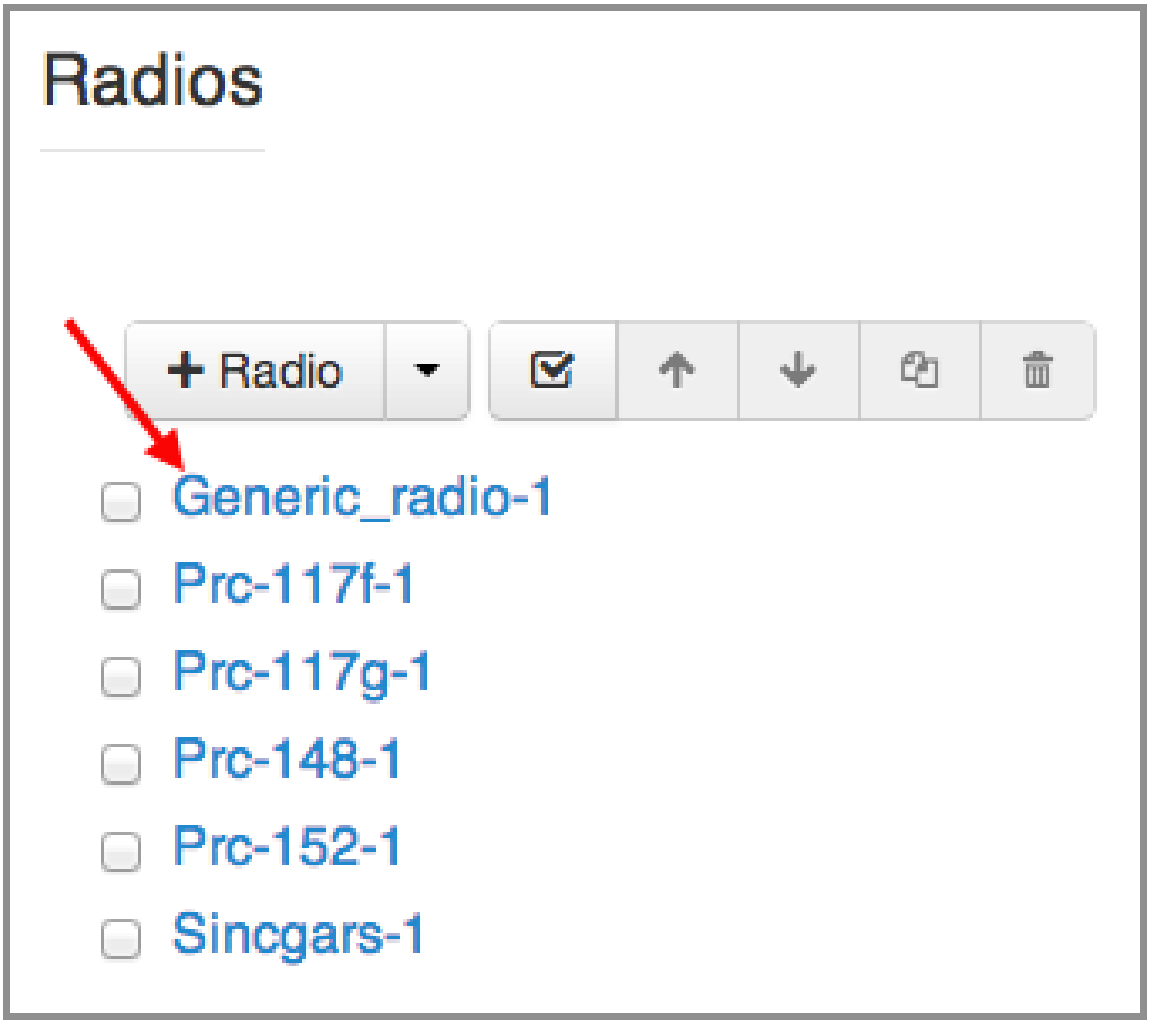

Figure 17:

3. **Name:** (Optional) Edit the radio's name.

   Description: (Optional) Add a description of the radio.

   Cipher Mode: Select an initial cipher mode for this radio: Plain Text (PT) or Cipher Text (CT). This setting can be changed in clients such as the Voisus Client for Desktops & Tablets and simulated radio panels, which allow the user to switch between PT and CT as needed. However, in the Original Desktop Client and VBS2 Plugin, this setting will be fixed. Setting the default mode to PT could result in a "cannot receive" condition when this radio receives a CT net.

Share Radio: Check to simulate a single radio that is shared and controlled by every operator using this role. If unchecked, each operator using this roll will have their own instance of this radio that only they can control.

Disable Squelch Tail: Check to disable squelch tail, which is the burst of noise heard after a transmission ends.

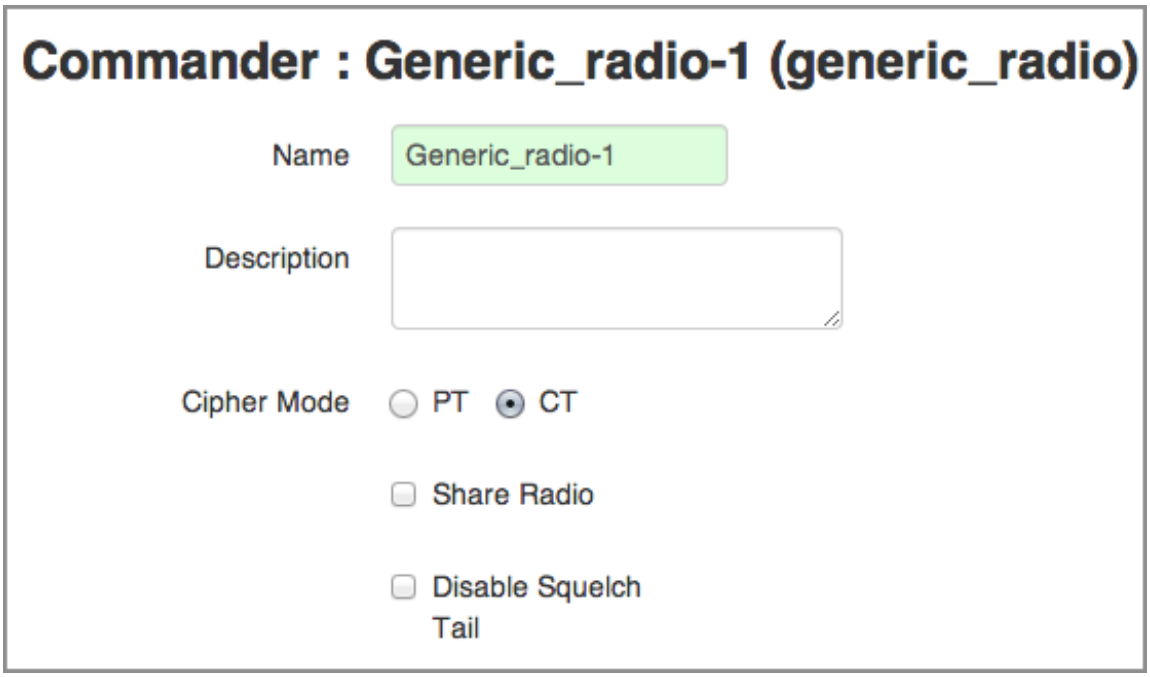

Figure 18:

4. **Nets:** Assign one or more nets to the radio and select a Default Net from the drop-down menu. Lock the default if desired.

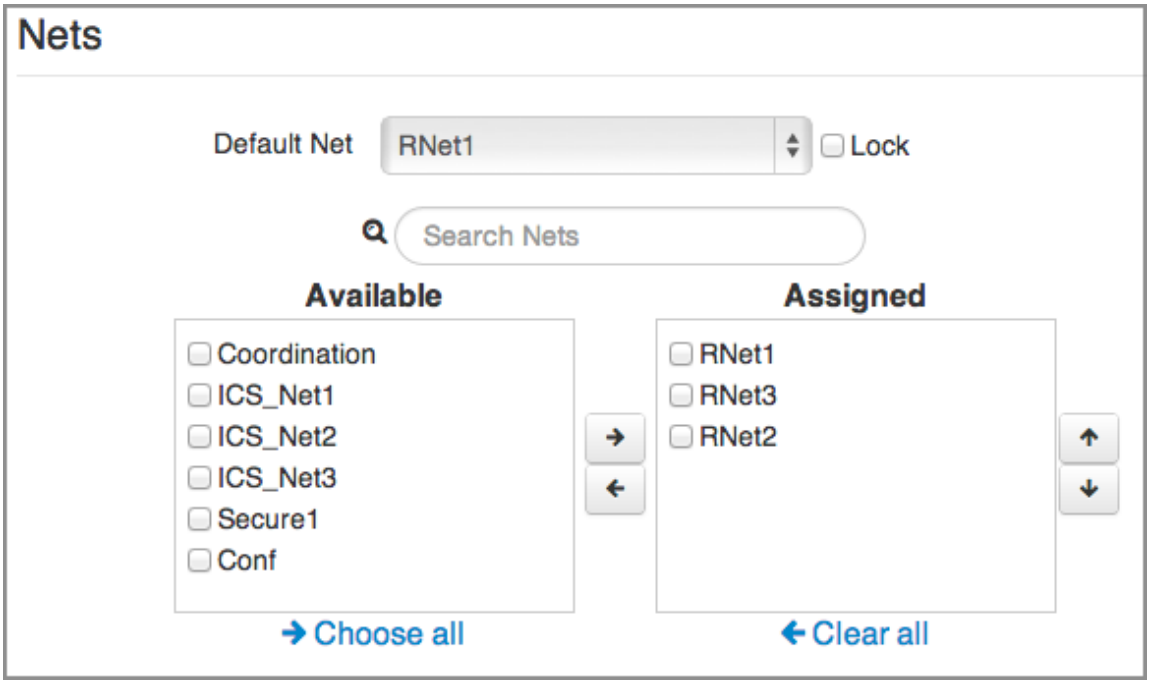

Figure 19:

5. **Audio:** Adjust client audio settings for this radio.

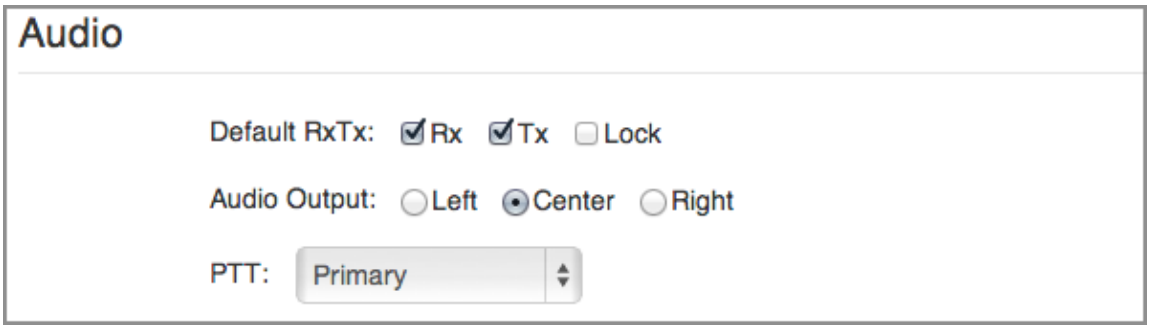

Figure 20:

1.6 Manage Clients

Figure 21:

Use the Manage Clients page to map Roles to software and hardware clients.

Software clients are communications GUIs for PCs and tablet devices. They are available for download through the Voisus App in Other > Downloads. See Voisus Software Client (chapter 2) below for details.

Hardware Clients include simulated radio panels and peripherals (such as headsets and PTTs) that connect to audio distribution devices. See Voisus Hardware Client (chapter 3) below for details.

Settings for Unlisted Clients

Allow unlisted clients to connect?

- **Yes:** Any client will be able to connect to the server. Select a Default DIS Domain and Default Role for these unlisted clients. The default role can be locked if desired.
- **No:** Only the clients on the Client List will be able to connect to the server.

Figure 22:

Client List

Use the Client List to map hardware and software clients to a Default Role and DIS Exercise.

Figure 23:

- **Software Clients**

  1. Add a Client Name to the Client List and assign a default role and DIS exercise to the new client.

Figure 24:

  2. In the Voisus software client, enter the Client Name exactly as it appears on the Client List. Upon connection to the server, the software client will connect to its default role as configured on the Manage Clients page of the Voisus Client app.

Figure 25:

- **Hardware Clients**

  1. On the Configure > Hardware page, name the Channel Identifier associated with the hardware client as described in the Voisus Hardware Client (chapter 3) section below. The Channel Identifier refers to the audio distribution device channel connected to the hardware client.
  2. On the Manage Clients page, add the Channel Identifier name to the Client List as a Client Name. It must match the hardware client's Channel Identifier as it appears on the Configure Hardware page.

  The example below shows the AI-S Channel Identifiers on the Configure > Hardware page (top). The AI-S Channel Identifiers are added to the Clients List on the Manage Clients page (bottom) and assigned a Default Role and DIS exercise.

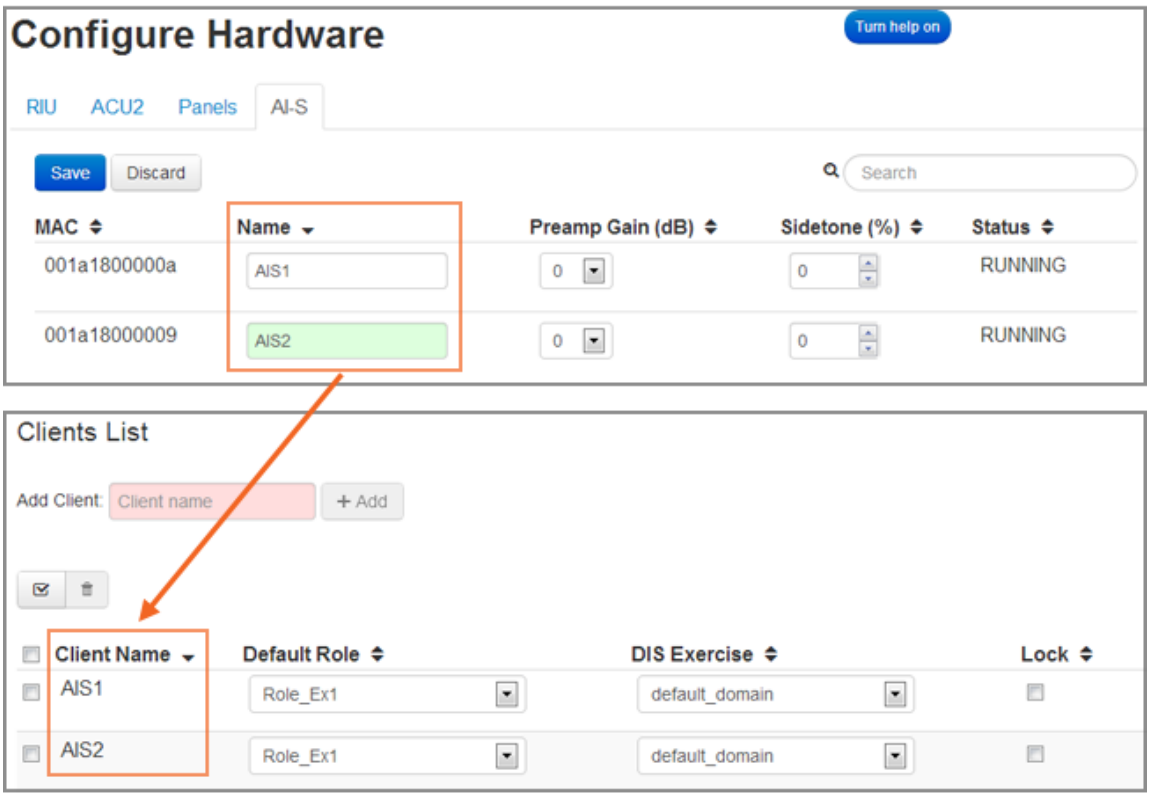

Figure 26:

1.7 DIS Settings

Figure 27:

Distributed Interactive Simulation (DIS) is a standard for exchanging entity state information over the network, enabling entities controlled by different hosts to interact in a common virtual training exercice. The entity state information is contained in a Protocol Data Unit (PDU), which is sent to other hosts in UDP packets via TCP/IP. ASTi DIS radio entities consist of Transmitter PDUs, Signal PDUs, and Receiver PDUs.

Use the DIS page in the Voisus Client app to network your Voisus Scenario to a DIS exercise. Contact your exercise administrator to determine the proper DIS configuration parameters.

Advanced settings are available through the links at the bottom of the page:

- **DIS Modulations:** Override the default Voisus DIS Transmitter PDU Modulation Type Record and manually set signal parameters for a particular waveform. See Appendix A: DIS Modulations (chapter 4) for details.
- **Advanced Radio Settings:** Adjust settings for audio Rx and Tx packets.

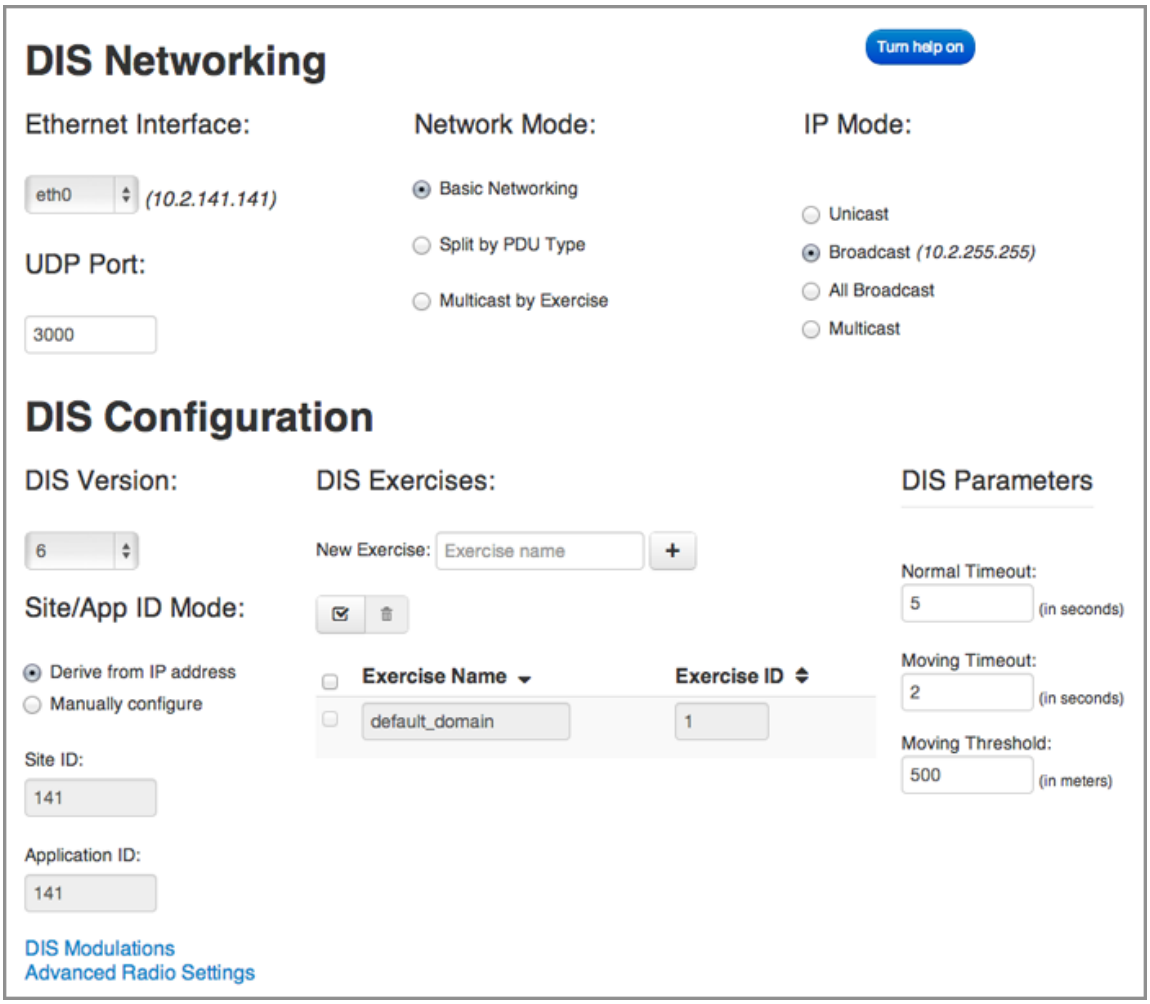

Figure 28:

Basic DIS Settings

- **DIS Networking:**

  1. Select an Ethernet Interface. Eth0 is the default.
  2. Add a UDP Port number. The default port number is 3000.
     Note: All communications systems on the DIS network must share a common DIS UDP port number.
  3. Select a Network Mode and configure its particular settings.

- **DIS Configuration:**

  1. Select a DIS Version.
  2. Site/App ID Mode: How would you like the DIS site and application IDs determined? It can be derived from the IP address or manually configured.
  3. DIS Exercises: create up to 255 DIS exercise names to enumerate mappings. "default_domain" cannot be deleted or edited. Exercise IDs 2 through 255 are available.
  4. DIS Parameters: Configure settings related to publishing PDUs.

1.8 DIS Exercise Configuration

To configure a DIS exercise with multiple Voisus servers, each Voisus server must be set to the same UDP Port and Exercise ID.

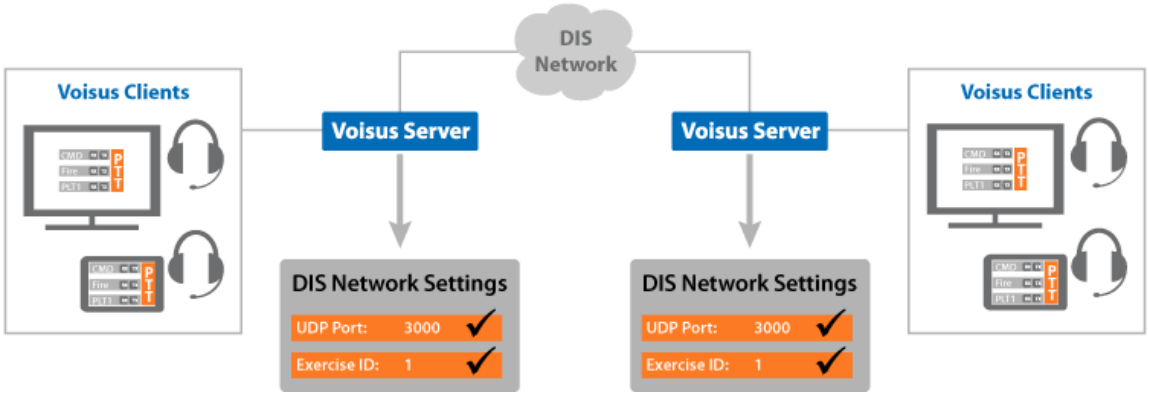

Figure 29:

1.9 Vehicles and Entities

Figure 30:

Create vehicles for use with the VBS2 Plugin (section 2.7) and other games for training. These radios are collectively accessed and controlled by any game users inside the in-game vehicle.

1. Select a quantity and role, then add new vehicles.
2. Click the vehicle name in the list to edit it.
3. Change the role by using the Role drop-down menu.
4. Assign a DIS exercise.

Figure 31:

2 Voisus Software Client

The Voisus server distributes voice communications across networks to computer-based software client operators. Voisus software clients leverage existing computers and network infrastructure and eliminate the need for dedicated audio distribution and operator panel hardware.

2.1 Features

- Simulated Radios and Intercoms
- Customized Radio Skins
- IRC Chat*
- VoIP Calling
- Interaction with Live Radio-over-IP

* Multiple chat options are available, including XMPP chat. See Appendix B: Voisus Chat (chapter 5) for details.

2.2 System Requirements

Voisus software clients run on PCs or tablet devices with an Ethernet network connection. See the table below for supported operating systems.

Operating System	Requirements
RedHat Enterprise Linux 5.4 - 5.9 (32bit)	GTK, ALSA, libusb and libprotobuf
CentOS 5	GTK, ALSA, libusb and libprotobuf
Windows XP (32 bit)	Service Pack 2 or 3
Windows Vista (32 and 64 bit)	Service Pack 1
Windows 7 (32 and 64 bit)	n/a

The minimum system requirements include:

- Intel Pentium 4 1.3 GHz or better
- 1 GB RAM
- 10/100 Ethernet card
- USB 2.0 port (available for connection to USB adapters and headsets)
- Shared network connection with the Voisus server

2.3 Download the Voisus Software Client

To download a client, select “Downloads” from the “Other” drop-down menu in the Voisus App. Select a client and follow the on-screen instructions for installation.

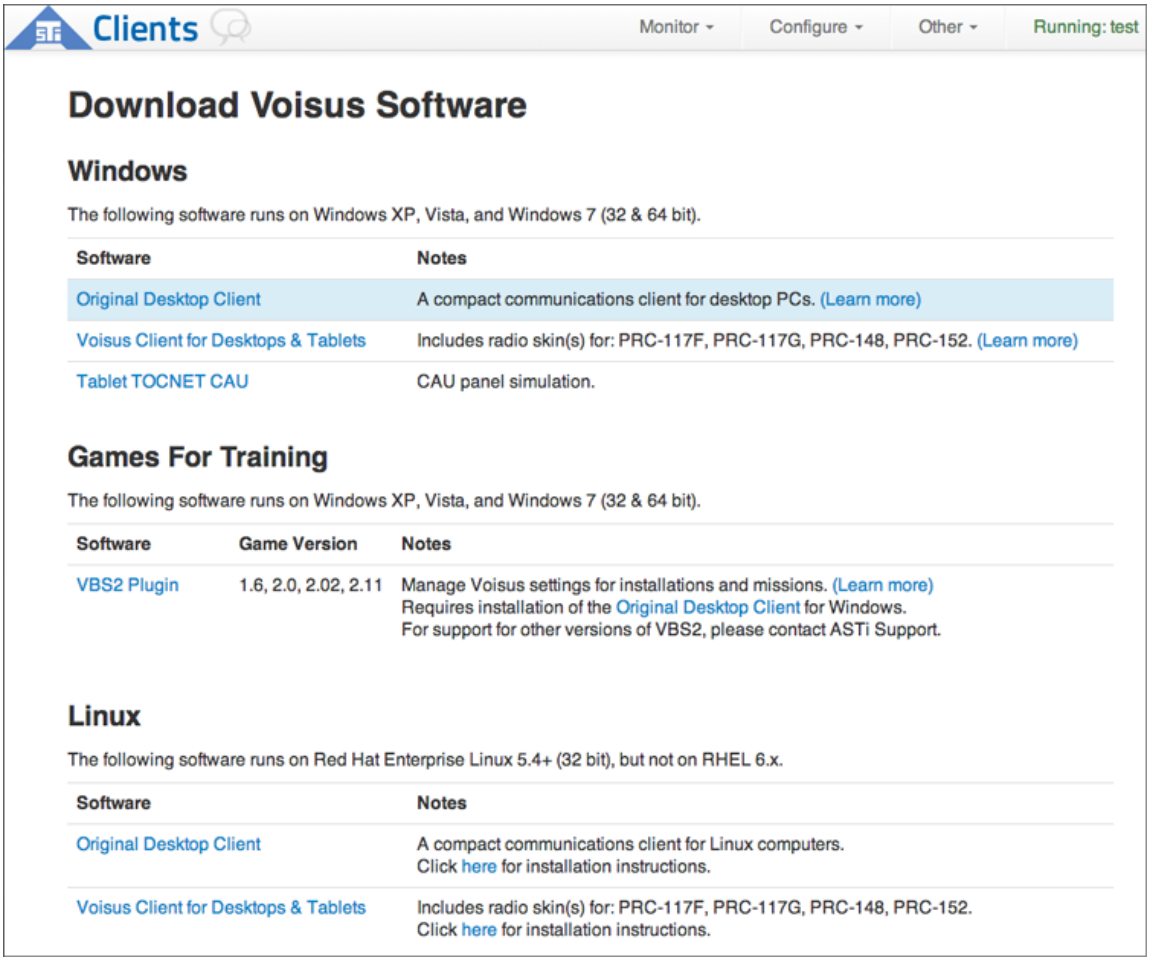

Figure 32:

Windows Installation

Follow the on-screen installation Wizard for installation instructions.

Linux Installation for the Original Desktop Client

1. Download the Linux Original Desktop Client to a directory of your choice.
2. Open a command prompt and `cd` to the directory where the client is saved.
3. Type `su` and press ENTER, then type the root password.
4. Change the permission of the file you downloaded to be executable by typing:

```
chmod +x voisus-client-v5.x.y.bin
```

where `v5.x.y` refers to the Voisus client version you just downloaded.

Press ENTER.

Example: To install voisus-client-v5.15.0, the above command will become:

```
chmod +x voisus-opengl-v5.15.0.bin
```

5. Run the self-extracting binary by typing:

```
./voisus-client-v5.x.y.bin
```

Press ENTER and wait for confirmation that installation is complete.

6. Reboot you computer.
7. Open the Voisus Original Desktop Client by navigating to Applications > Internet > ASTi Voisus. You can also drag the ASTi Voisus icon to the desktop. See Original Desktop Client (section 2.5) below for operating instructions.

Linux Installation for the Voisus Client for Desktops & Tablets

1. Download the Linux Original Desktop Client to a directory of your choice.
2. Open a command prompt and `cd` to the directory where the client is saved.
3. Type `su` and press ENTER, then type the root password.
4. Change the permission of the file you downloaded to be executable by typing:

```
chmod +x voisus-opengl-v5.x.y.bin
```

where `v5.x.y` refers to the Voisus client version you just downloaded.

Press ENTER.

Example: To install voisus-client-v5.15.0, the above command will become:

```
chmod +x voisus-opengl-v5.15.0.bin
```

5. Run the self-extracting binary by typing:

```
./voisus-opengl-v5.x.y.bin
```

Press ENTER and wait for confirmation that installation is complete.

6. Reboot you computer.
7. Open the Voisus Original Desktop Client by navigating to Applications > Internet > ASTi Voisus. You can also drag the ASTi Voisus icon to the desktop. See Voisus Client for Desktops & Tablets (section 2.6) below for operating instructions.

2.4 USB Adapters and Headsets

Voisus Clients are compatible with the following USB adapters and headsets. All of the listed USB adapters provide built-in sidetone. Sidetone is a critical feature that provides the client operator with an audible indication that they are actively transmitting.

Additional headsets may function with Voisus but are not necessarily recommended. Contact ASTi for more information.

Table 1: USB Adapters

ASTi Part Number	Manufacturer	Stereo	Built-in PTT	Compatible Headsets
USB-RADIUS–010	ASTi	Yes	Yes	Specific Telex (see list)
USB-P-DA40	Plantronics	No	No	All Plantronics H-Series*
USB-P-SHS2355	Plantronics	No	Yes	All Plantronics H-Series*

Table 2: Headsets

ASTi Part Number	Manufacturer	Stereo**/Mono	Ear Cups
HS-TX-PH–44R5	Telex	Stereo	Dual, light weight
HS-TX-HR–2R5	Telex	Stereo	Dual, noise isolation, medium weight
HS-P-HW251	Plantronics	Mono	Single, light weight
HS-P-HW261	Plantronics	Mono	Dual, light weight
HS-P-SHR2083–01	Plantronics	Mono	Dual, noise isolation, medium weight

Table 3: USB Adapter & Headset Combined

ASTi Part Number	Manufacturer	Stereo**/Mono	Sidetone	Ear Cups
HS-LG-G35	Logitech	Stereo	Yes	Dual, medium weight

Table 4: Speakerphones

ASTi Part Number	Manufacturer	Features
USB-P-P420	Plantronics	Mic mute and volume controls, active echo cancellation, auxiliary headphone jack

* Pantronics sales literature states that Plantronics USB adapters are compatible with all Plantronics H-Series headsets. ASTi has tested and validated Voisus Clients using the Plantronics headsets listed above.

** Stereo headsets are recommended for use with the Voisus-VBS2 Plugin.

Set the Default Audio Device

On the client PC or tablet you must set the default audio device that Voisus will use. Device names will vary depending on the operating system. Plantronics devices will be listed as “DA40 Adapter”

and the Radius device as “ASTi Radius.”

Windows

In Windows 7, navigate to Control Panel > Hardware and Sound > Sound. Select the appropriate default audio device in the Playback and Recording tabs. Double-click the default device and check the Levels tab to ensure that the device isn't muted.

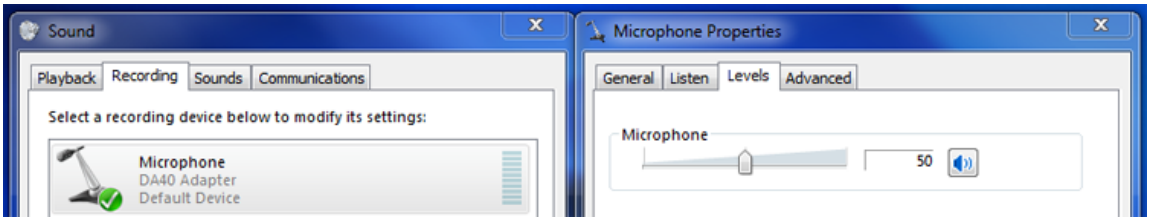

Figure 33:

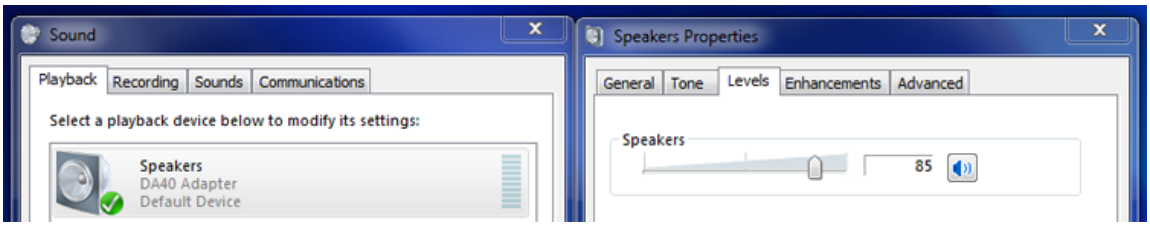

Figure 34:

In Windows XP, navigate to Control Panel > Sounds and Audio Devices. Select the appropriate audio device for default Sound Playback and default Sound Recording.

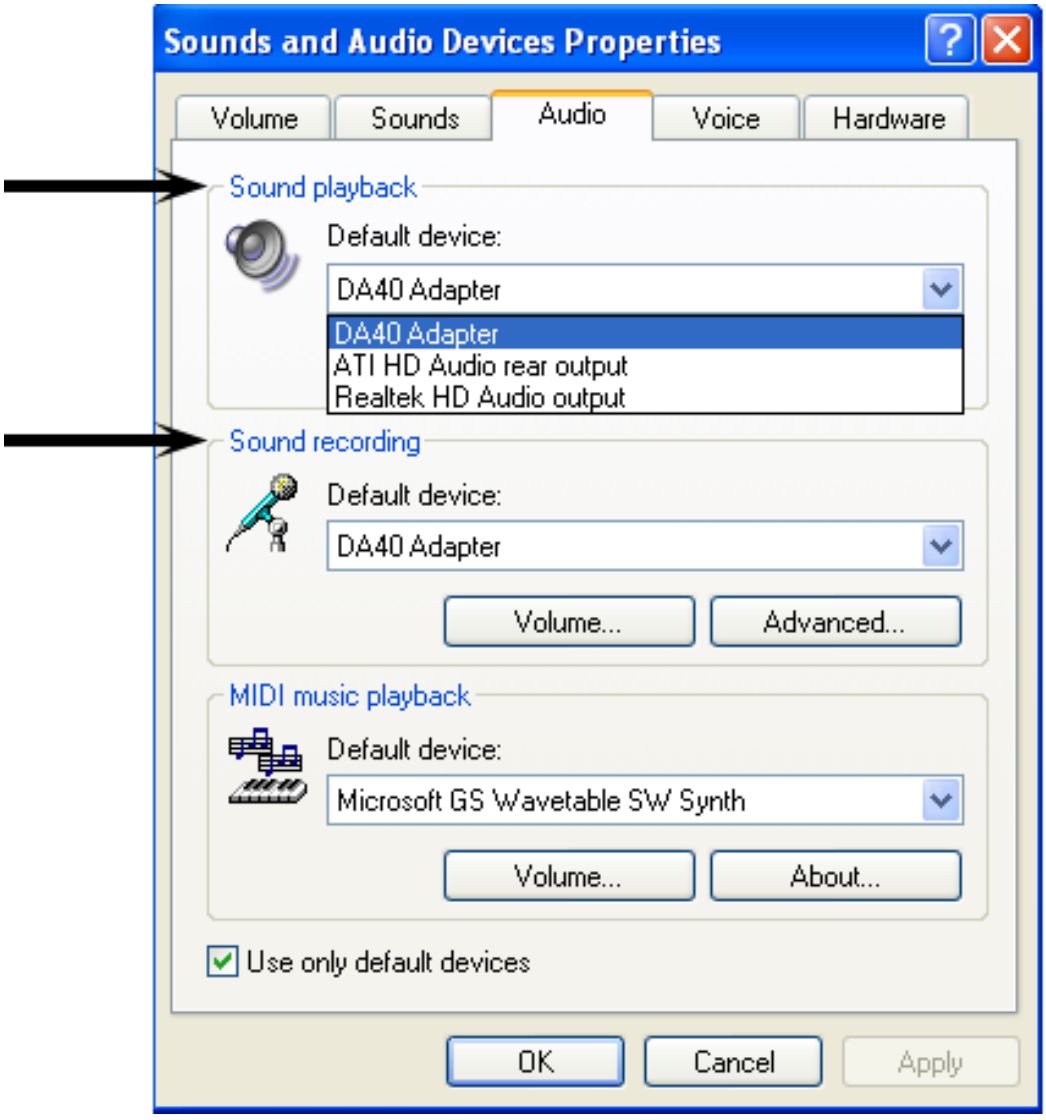

Figure 35:

Linux

In Linux, navigate to System > Administration > Sound Card Detection. Select the appropriate Default Audio Card.

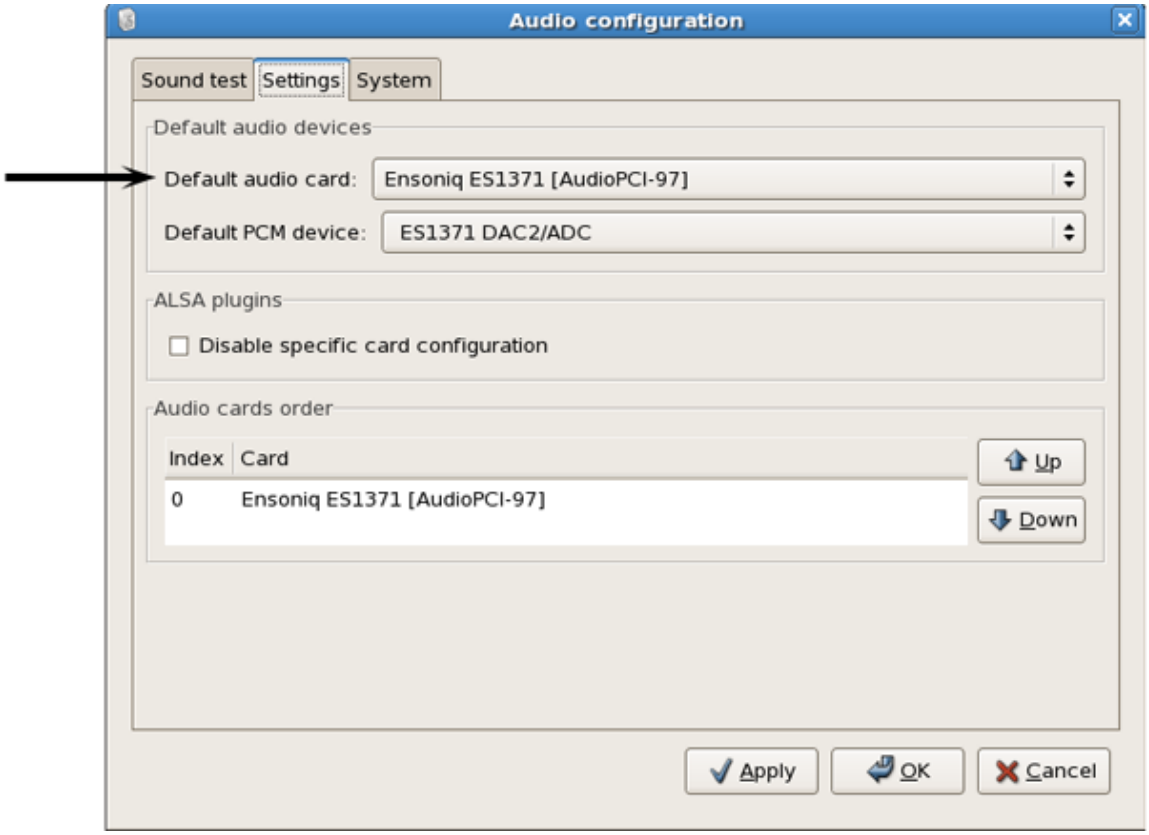

Figure 36:

2.5 Original Desktop Client

The Original Desktop Client is optimized for use on a Windows or Linux desktop computer. The interface provides the runtime communications control settings (receive and transmit access) for each radio in the client's assigned role.

Features

- **Radios:** The current net name with up to eight radios available.
- **RX/TX:** Comms status for receive and transmit on each radio.
- **Volume:** Volume control for each radio as well as master volume control.
- **Calling:** Priviate intercom communications between two or more clients.

The Original Desktop Client can be collapsed or expanded.

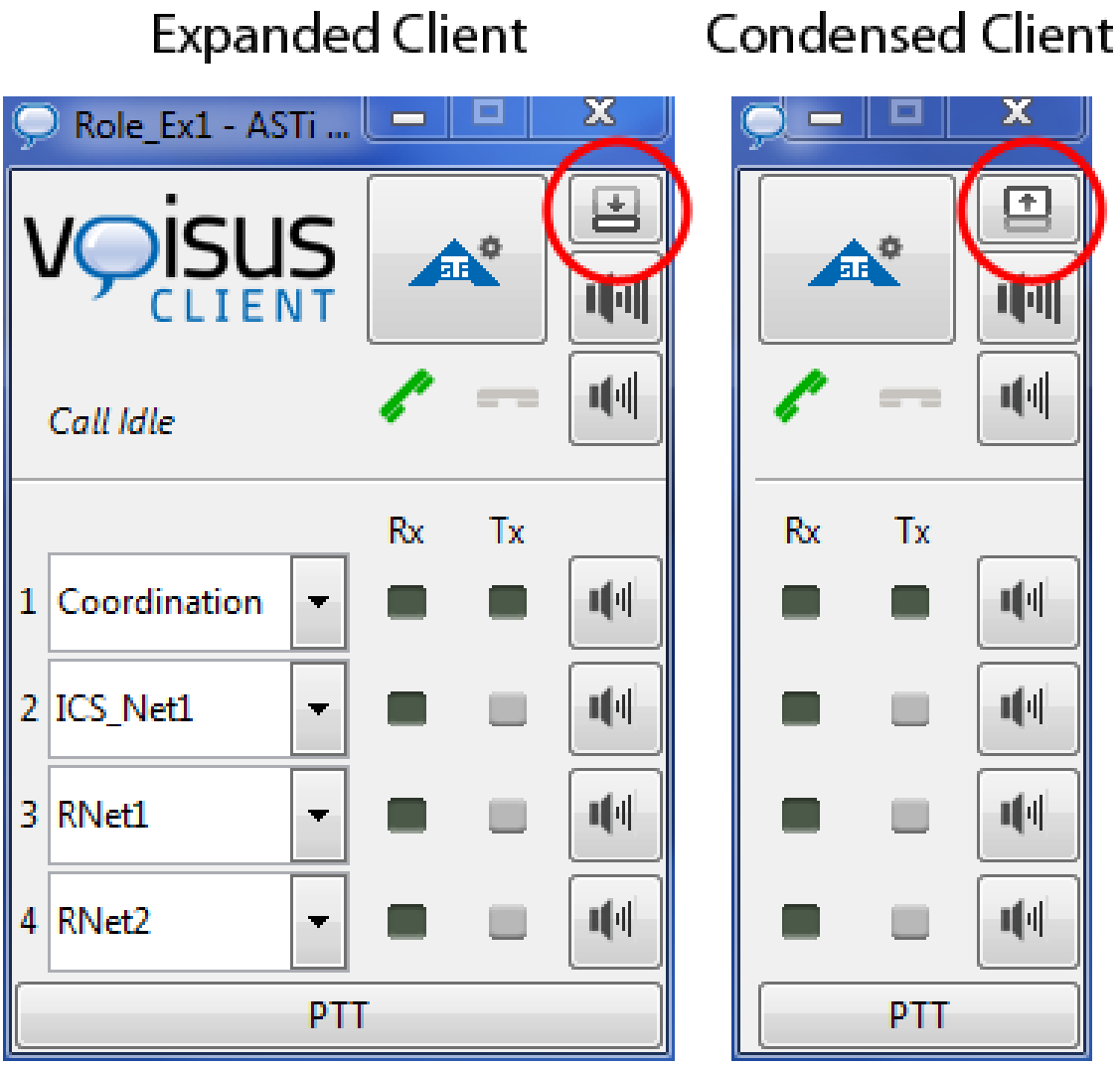

Figure 37:

Connect to the Server

1. Click the ASTi logo/gear button to access the settings.

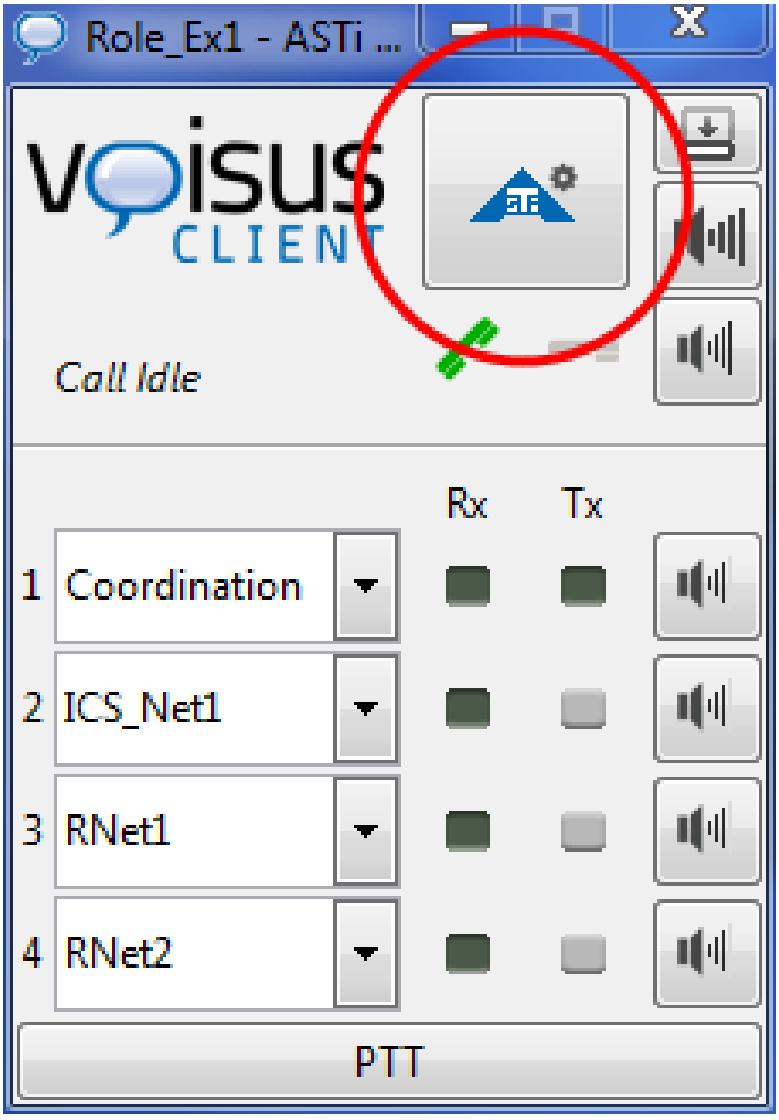

Figure 38:

2. Select the preferences tab.
3. Enter the Voisus server IP address or Cloud ID[3] in the Server field.
4. Enter a client name from the Client List (section 1.6) you created in the Voisus Client app. Or, if your Manage Clients settings allow unlisted clients to connect, you can create a new client name here.

[3]getstarted.html#cloudmulti-serverconfiguration

5. Click Connect to view the list of roles available on the server.
6. Select an operator role and click Connect again.
7. The green status button appears when the client is connected to a role.

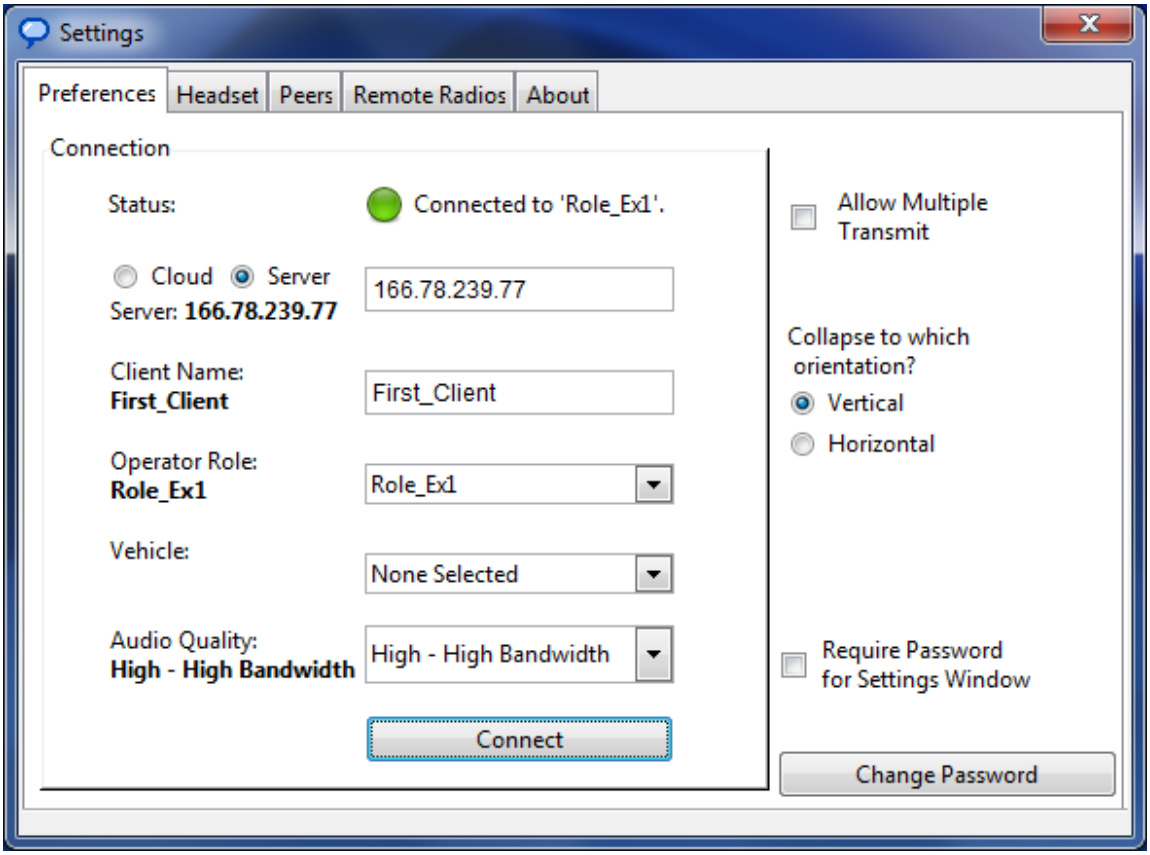

Figure 39:

Headset Settings

Embedded functionality allows operators to adjust radio settings such as volume, sidetone and vox levels. There are headset presets for the Plantronics USB headset and for the ASTi Radius. Select the preset for your headset, click Set Preset, and adjust the settings as necessary.

Sidetone volume sets the level for hearing your own voice feedback during transmissions. In order to hear sidetone, a radio must be enabled and your headset device must support sidetone (see USB Adapters and Headsets (section 2.4)).

Vox threshold allows for automatic transmission of voice without having to push a PTT button. The vox is voice-activated and is dependent upon the threshold level. The higher the vox level,

the louder the voice must be to transmit, so output is active only when the voice level exceeds the threshold. The lower the vox level, the more easily a voice is transmitted. In other words, output is active at a lower level.

Adjust the earphone, mic, sidetone, and vox settings to a comfortable level using the sidetone test. To test the headset use the headset test which plays a sinewave to check the sound device.

If there is a hardware PTT connected to the computer it will appear in the drop-down menu under 'Hardware PTT Options'. Select the button that will be used on the PTT. To confirm the hardware PTT is working properly, the word 'Pressed' will appear (as shown below) when the proper PTT button is pressed.

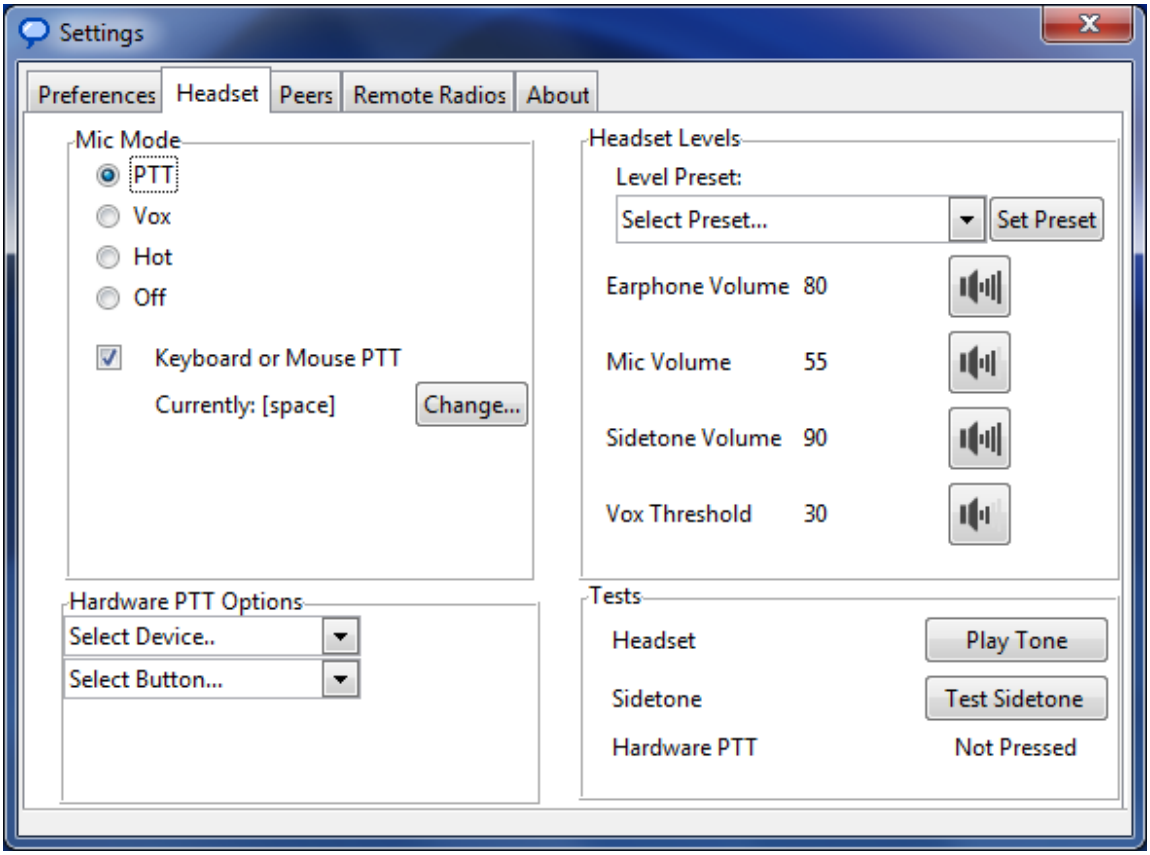

Figure 40:

Calling

The Voisus calling feature provides private intercom communications between two or more clients in the same training exercise. Click the green phone handset icon to view a list of clients on the network and invite a client to talk. If the client accepts, you can communicate in real-time over the network. Clients on an active call can invite other clients to join as well.

A client's radio transmit mode is disabled while on a call. However, the client's receive mode remains enabled so the client can hear radios and intercoms.

The calling feature is enabled or disabled for each role in the Voisus Client app on the Roles page (section 1.5).

2.6 Voisus Client for Desktops & Tablets

The Voisus Client for Desktops & Tablets is optimized for Windows and Linux PCs and Windows tablet devices. It includes radio skins for:

- Generic Radio (section 2.6)
- PRC–117F (section 2.6)
- PRC–117G (section 2.6)
- PRC–148 (section 2.6)
- PRC–152 (section 2.6)

To use these radio skins, create radios of these types in the Roles and Radios (section 1.5) section of the Voisus Client app.

Additional features:

- Calling (**??**)
- Chat (**??**) (via built-in IRC client)
- Command line options (section 2.6) for user interface customization (Windows only)

Settings

Tap the Settings button to access the Settings menu.

Figure 41:

Connection

Use the Connection tab to connect the client to the server and set a role. The status bar at the top will confirm successful connection.

Figure 42:

Transmit

1. **Mic Mode:** select your desired mode.

   Note: "Voice Activated (VOX)" includes both Press-To-Talk and VOX-activated mic if the VOX threshold is exceeded.

2. **PTT Configuration:**

   - On-Screen Button: choose the location of your on-screen PTT button.
   - Keyboard: choose a keybinding to use as a PTT.
   - Hardware: choose a device and button for PTT if hardware will be used.

3. **PTT State:** Test your hardware PTT and this field will give a visual indication that the PTT has been activated.

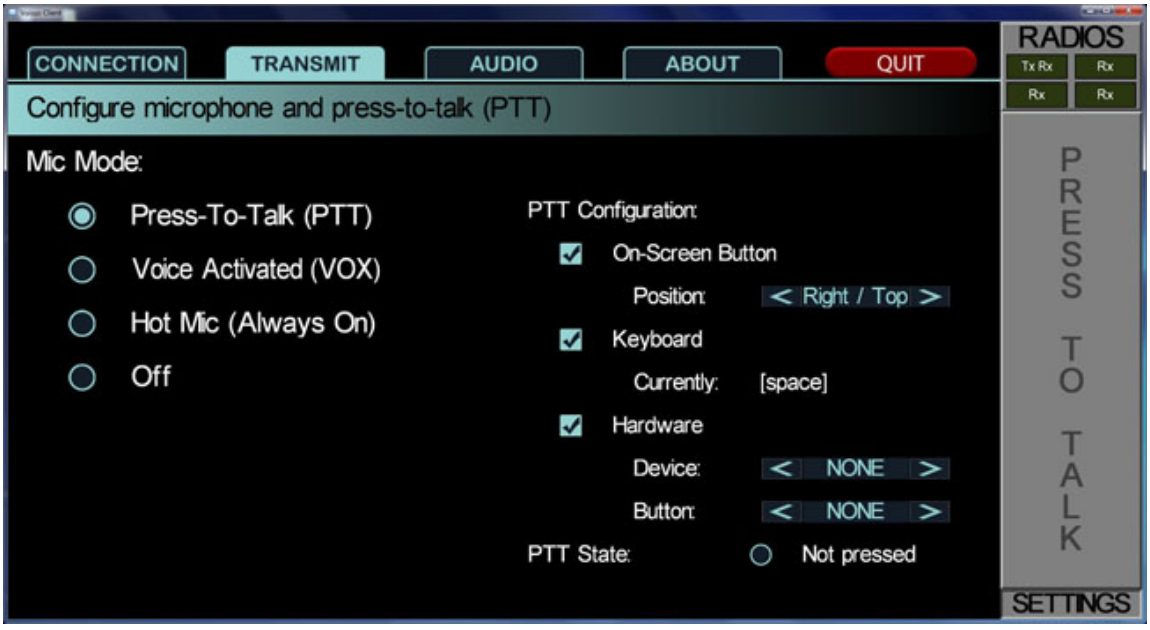

Figure 43:

Audio

Select an audio preset and adjust the levels as desired. Adjustments are applied dynamically. The Apply button will return the selected preset to its factory settings.

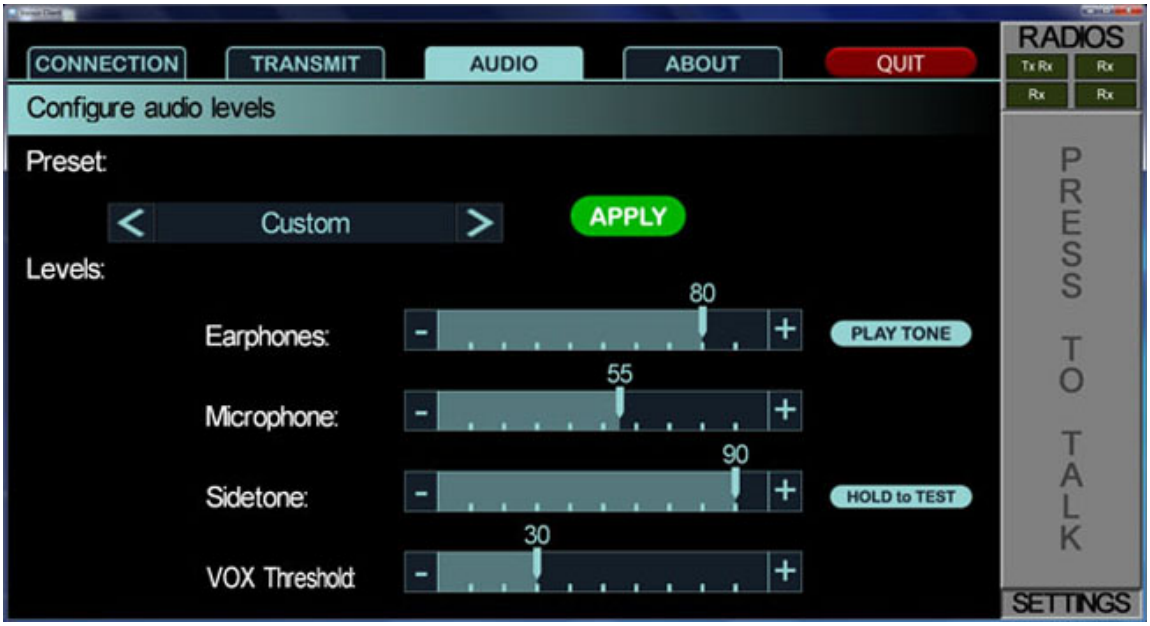

Figure 44:

About

The About tab displays the Voisus software version. Tap "View Log" to view details about the software's status. Change the password if desired.

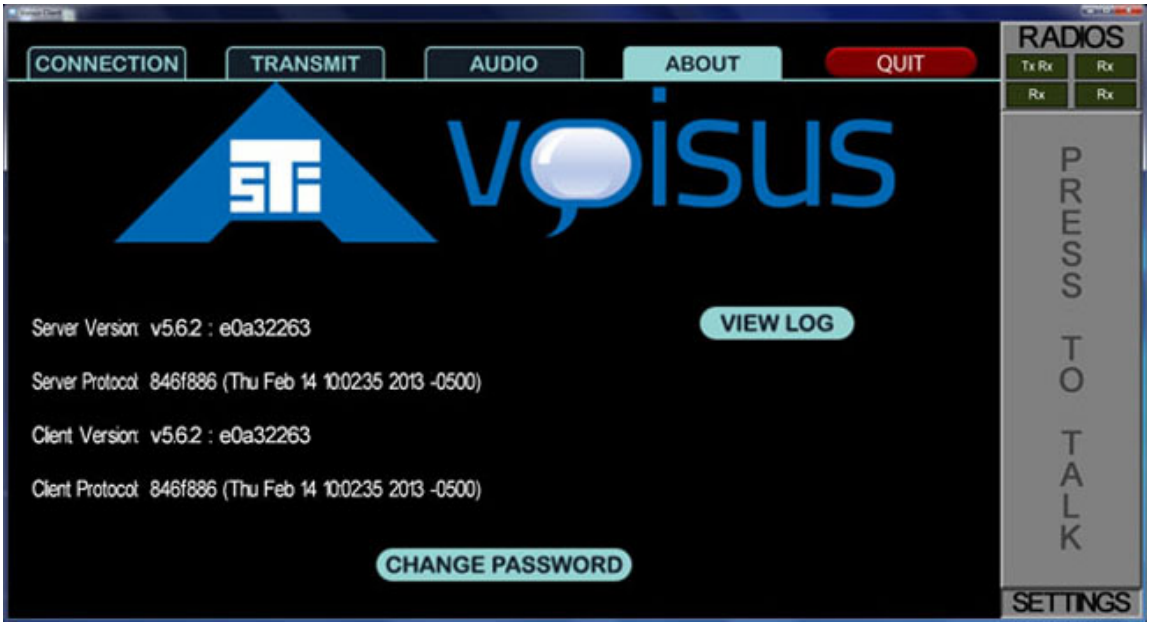

Figure 45:

Tap the Radios button in the upper right to exit the Settings menu.

Radio GUI

The main radio GUI displays:

- **Radios:** Up to eight radios available. The current net name of each radio is displayed. When multiple nets are available, use the drop-down menu to change nets.
- **RX/TX:** Displays comms status for receive and transmit on each radio.
- **Volume:** Provides volume control for each radio.
- **Radio Skins:** Tap the radio skin button 

to access each radio's skin. The radio skin type is configured when you create a new radio (section 1.5) in the Voisus Client app.

Figure 46:

Generic Radio Skin

The Generic Radio skin provides basic radio functions such as net selection, volume control, and cipher mode (PT/CT). Initial cipher mode is configured when you create a new radio (section 1.5) in the Voisus Client app.

Figure 47:

PRC–117F Radio Skin

The PRC–117F knob has three functional settings: Off, PT (Plain Text), and CT (Cipher Text).

The VOL and PRE buttons on the faceplate are also functional. Use the PRE button to scroll through the available net list.

PT

Use the PT setting to simulate non-encrypted communications.

Figure 48:

CT

Use the CT setting to send and receive simulated encrypted communications. Crypto-capable nets are created in the Comm Plan (section 1.4) section of the Voisus Client app.

Figure 49:

PRC–117G Radio Skin

The PRC–117G knob has three functional settings: Off, PT (Plain Text), and CT (Cipher Text).

The VOL and PRE buttons on the faceplate are also functional. Use the PRE button to scroll through the available net list.

PT

Use the PT setting to simulate non-encrypted communications.

Figure 50:

CT

Use the CT setting to send and receive simulated encrypted communications. Crypto-capable nets are created in the Comm Plan (section 1.4) section of the Voisus Client app.


Voisus Client
ASTi
BAT NORM VINSON CT
01=RNET2
LOS VOC OFF FM OFF
TYPE ADF DATA MODE SQL
AN/PRC-117G
OFF
CT
PT
LD
Z
RADIOS
Rx
Rx
PRESS TO TALK
SETTINGS
PHONE
VOL
PRE
1 ABC CALL
2 DEF LT
3 GHI MODE
4 JKL SQL
5 MNO ZERO
6 PQR
7 STU OPT
8 VWX PGM
9 YZ?
0
CLR
ENT

Figure 51:

PRC–148 Radio Skin

Figure 52:

PRC–152 Radio Skin

The PRC–152 knob is used to navigate among available nets and turn the radio off. The PRE button can also be used to change nets. The up and down arrows provide volume control.

Figure 53:

Calling

The Voisus calling feature provides private intercom communications between two or more clients in the same training exercise. Tap the Phone button to view a list of clients on the network and invite a client to talk. If the client accepts, you can communicate in real-time over the network. Clients on an active call can invite other clients to join as well.

A client's radio transmit mode is disabled while on a call. However, the client's receive mode remains enabled so the client can hear radios and intercoms.

The calling feature can be enabled or disabled for each role in the Voisus Client app on the Roles page (section 1.5).

Chat

The Voisus Client for Desktops & Tablets features an IRC chat client. By default, Voisus IRC chat operates in conference mode.

The IRC chat feature must be enabled on the Voisus server as described in the IRC Chat (section 5.1) section of Appendix B. Additionally, the chat feature can be enabled or disabled for each role in the Voisus Client app on the Roles page (section 1.5).

Command Line Options (Windows only)

There are several command line options available to customize the appearance of the Voisus Client for Desktops & Tablets. The options listed below can be added by modifying the shortcut target of the Voisus Client icon on your desktop:

1. Right-click the Voisus Client icon.
2. Select Properties.

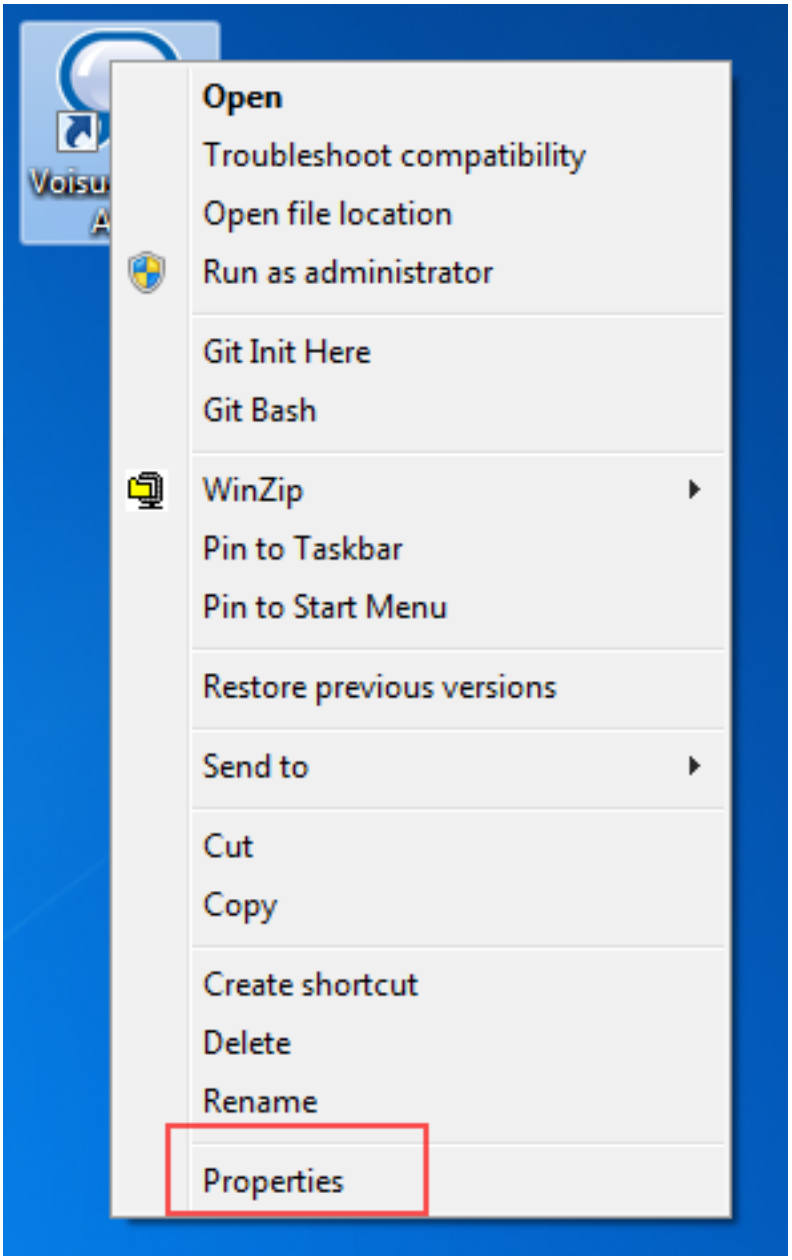

Figure 54:

3. In the Target field, you will see a file path similar to this: `"C:\ProgramFiles\ASTi\VoisusCLientApp\Ace5Client.` You can add command line arguments that will affect the appearance and behavior of the client by appending the field as shown in these examples:

```
"C:\ProgramFiles\ASTi\VoisusCLientApp\Ace5Client.exe" WINDOW
"C:\ProgramFiles\ASTi\VoisusCLientApp\Ace5Client.exe" POS_x_y_w_h
"C:\ProgramFiles\ASTi\VoisusCLientApp\Ace5Client.exe" NOFRAME
```

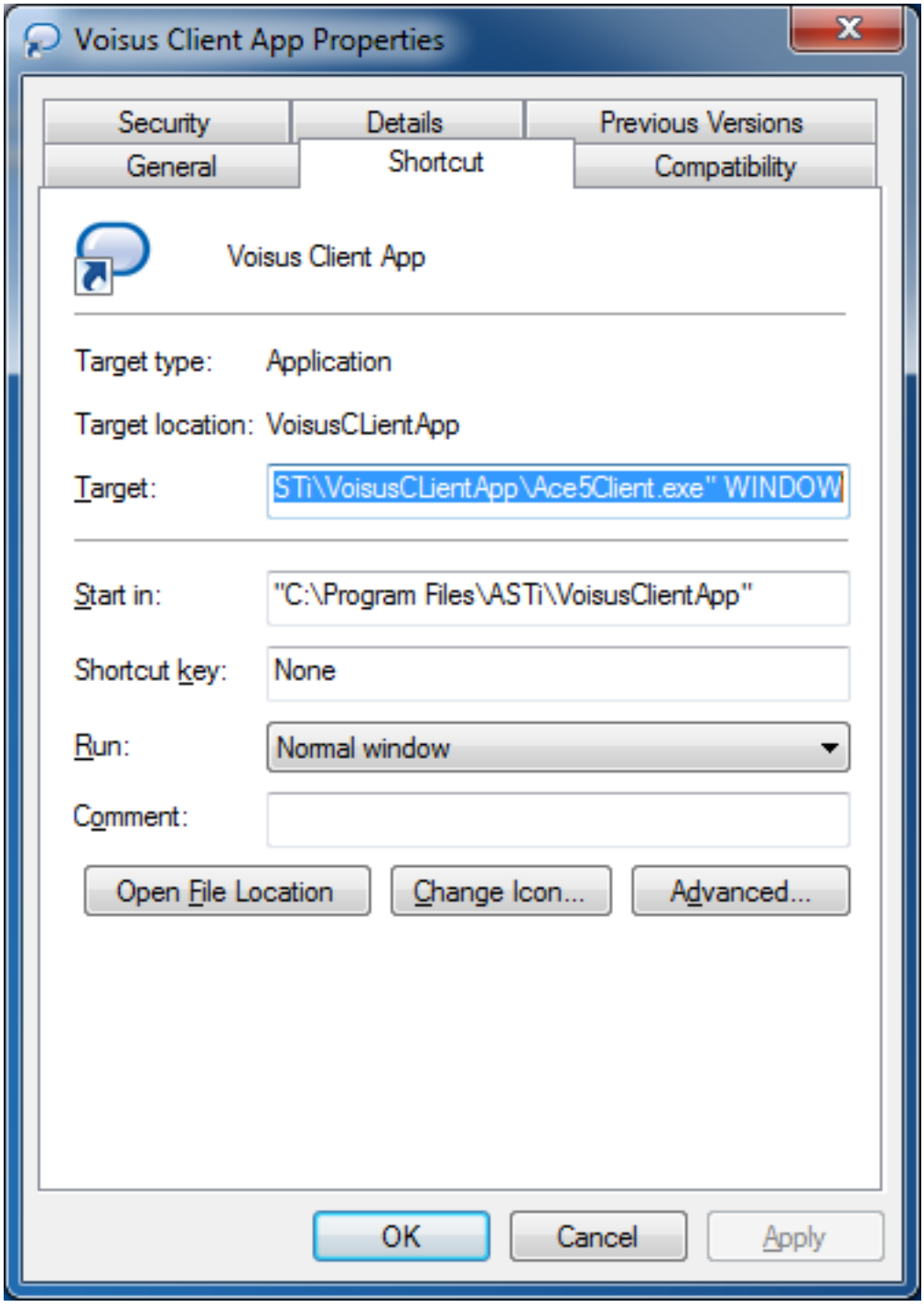
Voisus Client App Properties
Security
Details
Previous Versions
General
Shortcut
Compatibility
Voisus Client App
Target type: Application
Target location: VoisusCLientApp
Target: STi\VoisusCLientApp\Ace5Client.exe" WINDOW
Start in: "C:\Program Files\ASTi\VoisusClientApp"
Shortcut key: None
Run: Normal window
Comment:
Open File Location
Change Icon...
Advanced...
OK
Cancel
Apply

Figure 55:

Note: A space must separate the closing quotes and the argument.

4. Command line arguments can be combined. Each argument must be separated by a space. For example:

   `"C:\ProgramFiles\ASTi\VoisusCLientApp\Ace5Client.exe" POS_x_y_w_h NOFRAME`

The various commands are described below.

DESKTOP

The client will automatically open in DESKTOP mode when no touchscreen is detected. The appearance will be full-screen with a window border and mouse control. The client window can be moved and resized as desired.

TOUCH

The client will automatically open in TOUCH mode if it detects that the device has a touchscreen. This will sometimes occur on non-touchscreen devices, such as a PC running Windows 8. The appearance will be full-screen, no windows borders, and there will be no mouse control. There is no way to resize or move the application.

If TOUCH mode is undesirable, use the WINDOW command.

WINDOW

WINDOW mode gives the client a window border and mouse control.

POS_x_y_w_h

POS_x_y_w_h mode includes the WINDOW (section 2.6) effects as well as specifying the size of the client window and its position on the display screen. The variables are as follows:

- **x**: client position, in pixels, from the left side of the screen
- **y**: client position, in pixels, from the top of the screen
- **w**: client width, in pixels
- **h**: client hight, in pixels

For example, `POS_50_100_500_250` will place the client 50 pixels from the left side of the screen and 100 pixels from the top. The client will be 500 pixels wide and 250 pixels high.

NOFRAME

NOFRAME mode removes the window border from clients running in DESKTOP (section 2.6) mode.

2.7 VBS2 Plugin

VBS2 users can employ ASTi's full-fidelity radio simulation and communications capabilities within VBS2's interactive, three-dimensional training system. Users will gain the enhanced training benefits of a highly realistic simulated radio environment with the introduction of ASTi radios into VBS2.

The Voisus-VBS2 plugin integrates a Voisus software client directly into the VBS2 game environment. Each VBS2 player is configured with one or more communication assets such as radios or intercoms. While in a mission, the player has a Heads Up Display (HUD) showing all the necessary information about their radios, including current net selections and transmit/receive status. In addition to player radios, in-game vehicles can be assigned radios that players can use while they are in the vehicle. These unique features provide realistic dismounted training.

ASTi's Earshot increases gaming realism, as only players within acoustic in-game range can communicate. Earshot works automatically when using geolocated maps in VBS2 - there is nothing to configure. Earshot uses a highly accurate physics model to constantly adjust the reception of players' voices based on the distance between voices and the volume of voices.

VBS2 Plugin Elements

The VBS2 Plugin comprises four important elements that are included in the VBS2 installation package:

1. **Voisus VBS2 Manager**

   The Voisus VBS2 Manager is a program designed to help install and manage the integration of Voisus and VBS2. This program detects existing VBS2 installations and missions and enables activating or deactivating Voisus for those installations and missions.

2. **ASTivoisus.dll Plugin**

   This provides the communication between Voisus Client's audio and networking libraries and the VBS2 application. This file is installed in your VBS2 plugins directory via the Voisus VBS2 Manager. There is a DLL file for every game install instance.

3. **ASTivoisus.pbo VBS2 Add-On**

   This file contains the necessary VBS2 scripts and user interface elements to properly display Voisus information in-game. This file is installed in your VBS2 add-ons directory via Voisus VBS2 Manager.

4. **Advanced Setting - ASTi init.sqf Mission File**

   The VBS2 mission initialization script allows users to define additional keyboard bindings. This script is customizable so users can select which keyboard bindings to use for actions such as push-to-talk, selecting nets, muting radios, etc.

VBS2 Plugin Requirements

- Windows XP, Vista, or Windows 7 (32 & 64 bit)
- Bohemia Interactive's Virtual Battlespace 2[4]

[4] http://products.bisimulations.com/products/vbs2/overview

- USB Headset
- Voisus Original Desktop Client (section 2.5) for Windows. The client must be installed on the computer, but it does not have to be open while using the VBS2 plugin. However, you may opt to have the client open in the background so you can continue communicating even if the VBS2 exercise goes down.

Install the VBS2 Plugin

1. Using the Voisus web interface, open the Voisus Client app and navigate to Other > Downloads. (See Download the Voisus Software Client (section 2.3))
2. Select the VBS2 Plugin and run the installer. Follow the on-screen instructions to install the Voisus VBS2 Manager.
3. When installation is complete, click Finish to launch the Voisus VBS2 Manager.

Voisus VBS2 Manager

1. The Voisus VBS2 Manager detects all of the VBS2 installations and missions on the computer. Click "Enable Voisus for X installations and Y missions" to install Voisus on all VBS2 installations and missions detected.

   You will be prompted to enter the Voisus Server IP address.

   Alternatively, click "Manage installations and missions" to install Voisus on specific installations and missions.

Figure 56:

2. To install Voisus on specific installations, click "Add VBS2 Installation". You can also do this to confirm that the Voisus VBS2 Plugin was installed in the proper VBS2 installation directory.

   Confirm that your VBS2 installation has active Voisus comms as indicated by a green checkmark. If there is not a green checkmark, highlight the item and click Enable.

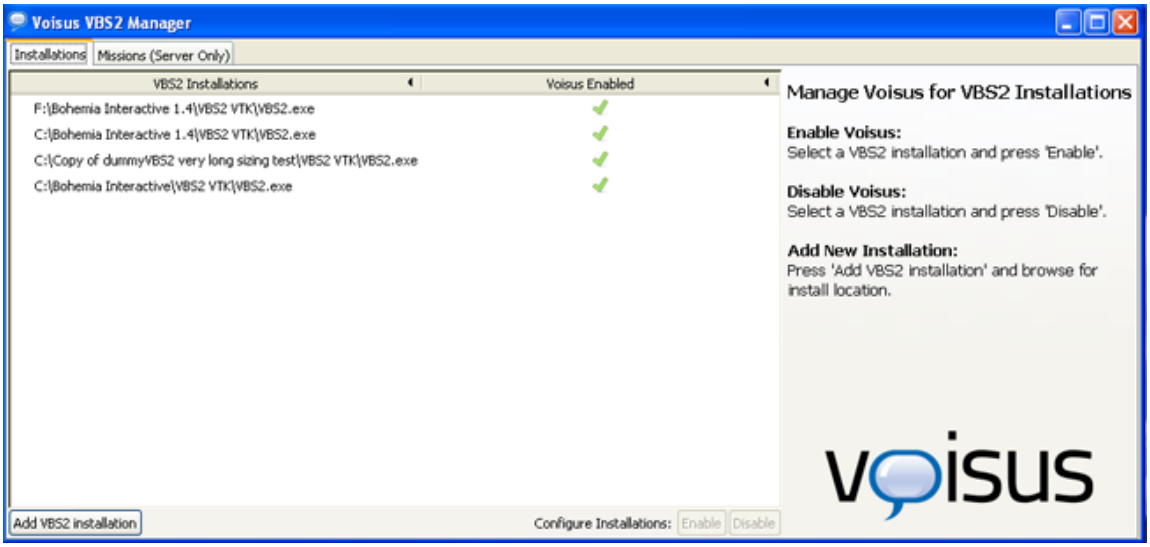

Figure 57:

3. To install Voisus on specific missions, select the "Missions (Server Only)" tab.

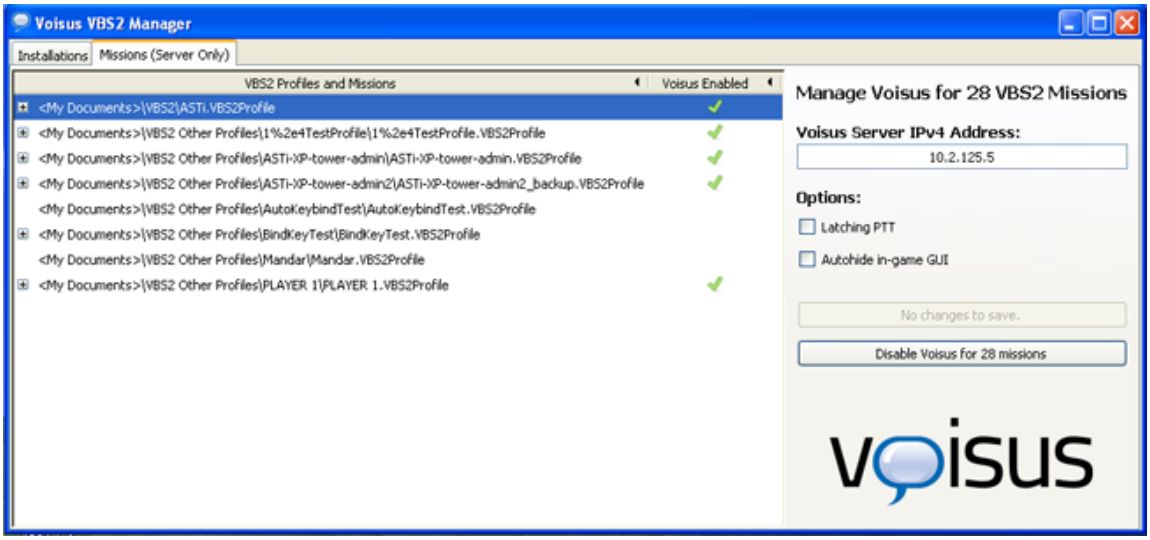

Figure 58:

4. Set the Voisus Server IP address and save to activate Voisus communications.

Disable VBS2 Keybindings

In this step, you will disable the keys that are necessary for Voisus control. You must do this for each VBS2 profile used, and it is imperative to the audio quality of the Voisus software. This is not for all VBS2 keybindings. Only a small subset is required for Voisus.

1. Open VBS2 and navigate to Options > Controls.

Figure 59:

2. Scroll to “Push to Talk” and select it.

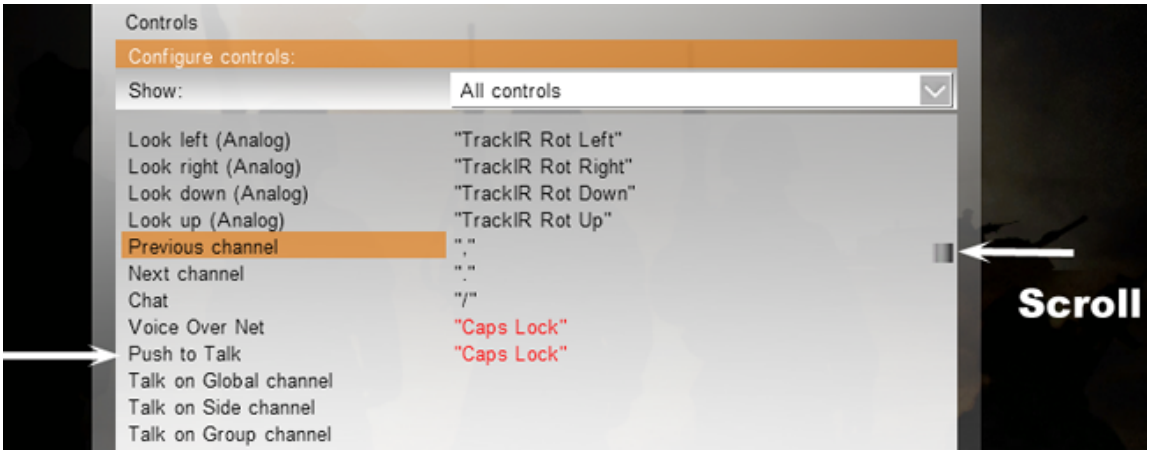

Figure 60:

3. Highlight the comma ("Caps Lock") and click Delete.

Figure 61:

4. Select "Voice Over Net" and repeat the two steps above.

   Note: for VBS2 2.xx, repeat step 4 for "Next Channel," "Chat," and "Previous Channel."

5. Click OK when you are finished.

Select a Role

1. Open the Voisus options page by pressing Alt+O. This is the default key combination, but VBS2 administrators can change this key combo.

   On the Voisus options page the user can:

   - View and select available Roles
   - Change the Voisus Server IP address
   - Change the radio and GUI settings

2. Select a Role. See Roles and Radios (section 1.5) for more details on creating Roles.
3. Click OK.

Figure 62:

ASTi Keybinding Map

The default ASTi keybindings are shown below.

Earshot PTT: Tab
Radio PTT: Caps Lock
Mute Selected Net: k
Open Voisus Options: Alt + O

Open Simscribe Options: Shift + Alt + H
Change Radio: /
Net + : . (period)
Net - : , (comma)

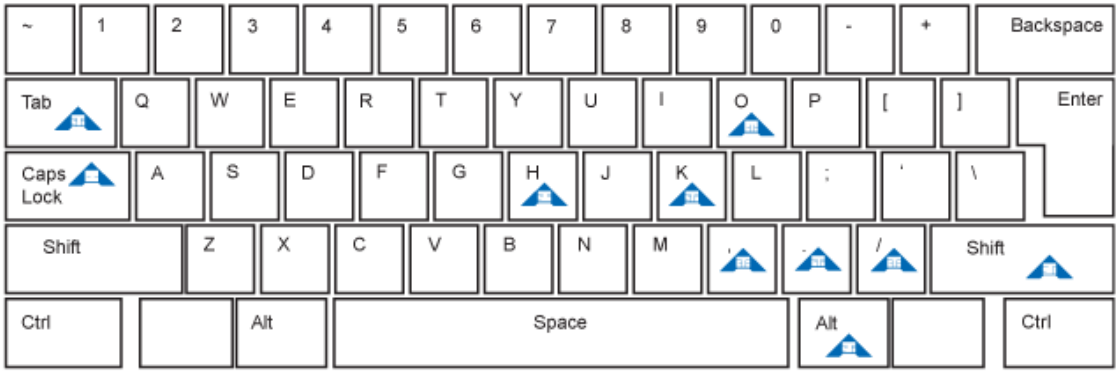

Figure 63:

VBS2 Client Radio Key

Yellow = Client GUI Name
Orange = Actively Tx
Blue = Actively Rx
White = Idle Net

Figure 64:

Simscribe for VBS2

Simscribe for VBS2 is is a networked voice and radio communications capture and replay tool that is installed as a part of the Voisus VBS2 Plugin. To use the in-game controls, VBS2 must be opened in administrator mode. Also, Simscribe must be enabled for VBS2 in the Preferences section of Simscribe on the Voisus web interface.

In-Game Simscribe Controls

The basic operation of Simscribe for VBS2 is exactly like the in-game VBS2 AAR record and playback.

Recording

1. Open VBS2 and start a mission. To launch Simscribe for the first time, press Shift+Alt+H to open the Simscribe configuration.
2. Enter your Voisus server's IP address.
3. Switch "Simscribe Enabled" to On if you want this station to control the Simscribe recording.

Figure 65:

4. Start recording on the VBS2 Realtime Editor page.

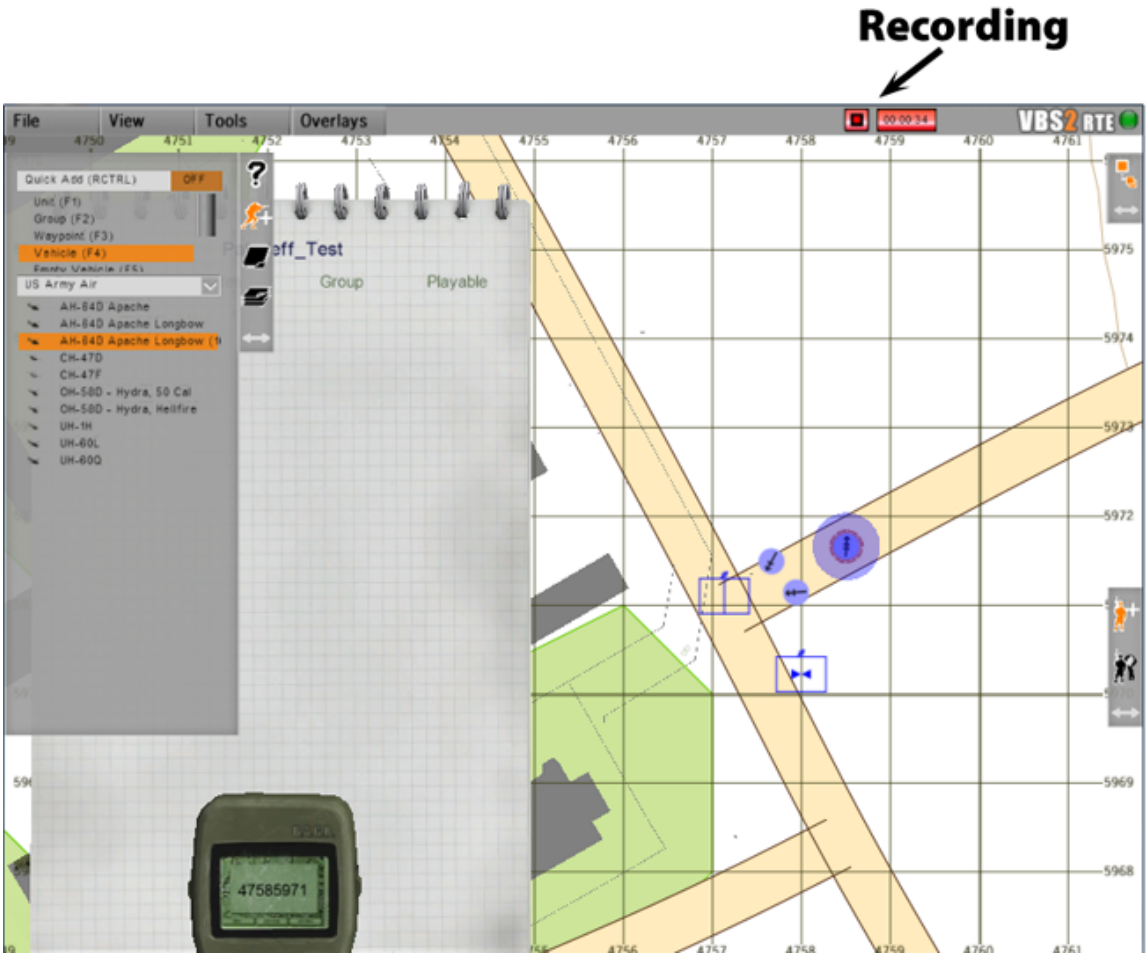

Figure 66:

5. When the recording is stopped, a VBS2 “Save AAR” window appears. Name the recording and click OK.

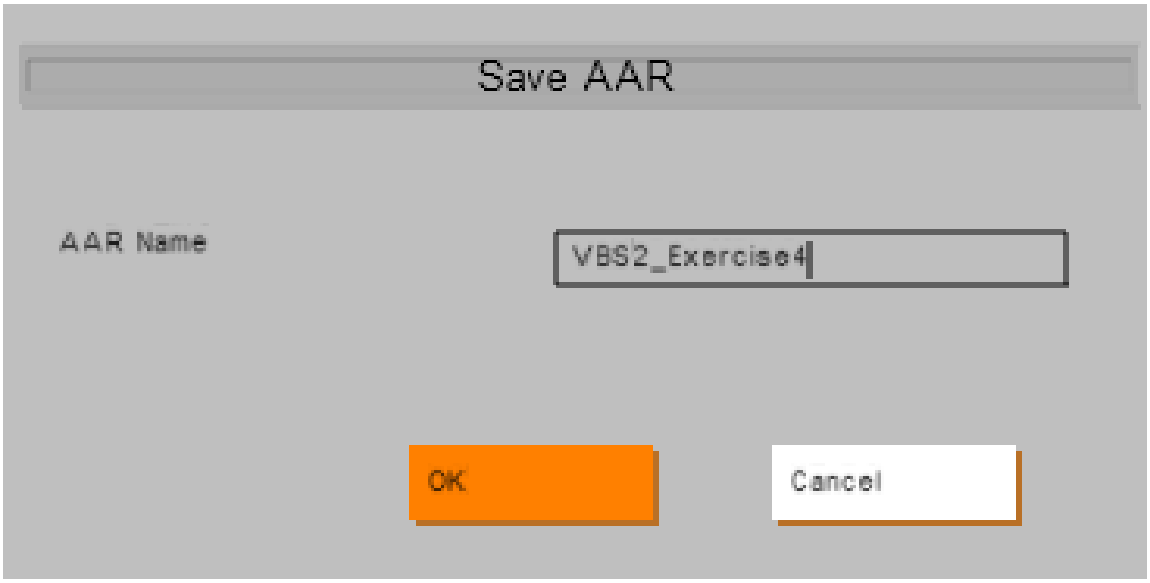

Figure 67:

6. Next the ASTi Simscribe save window appears. Save the file again with the exact same name.

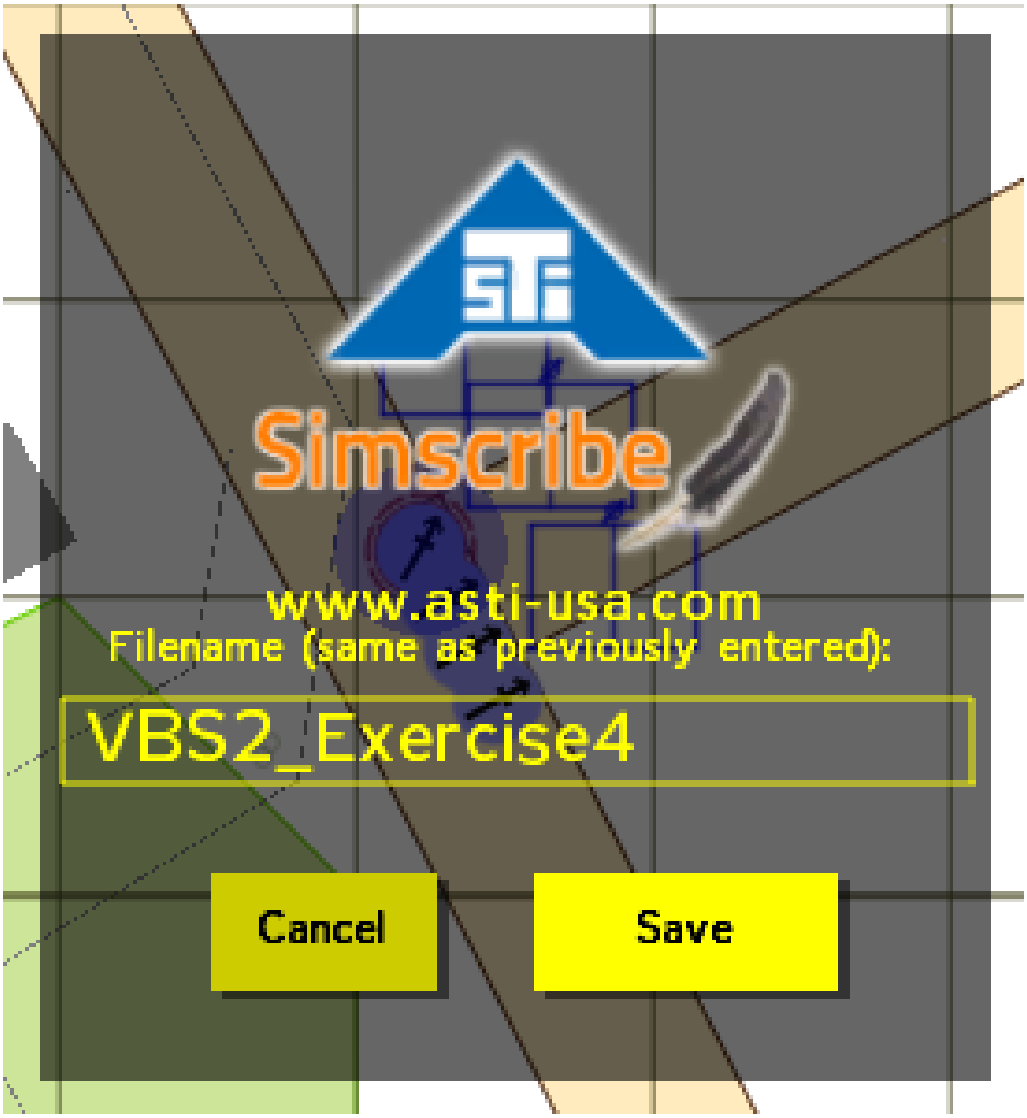

Figure 68:

Playback

1. Navigate to the VBS2 AAR page.

Figure 69:

2. The list of recordings available for playback are found under Missions as shown below. Select a recording for playback.

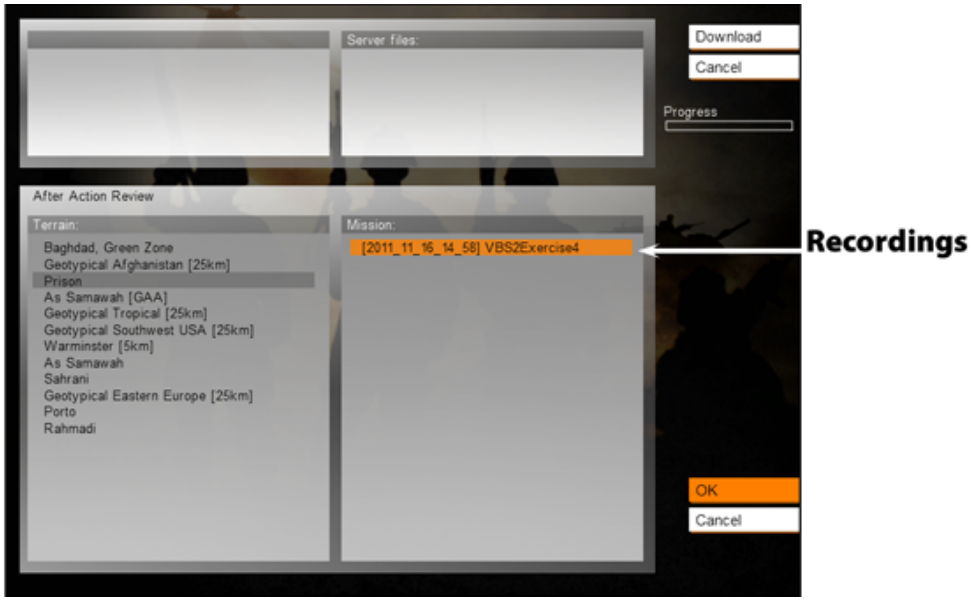

Figure 70:

3. Use the in-game AAR playback controls.

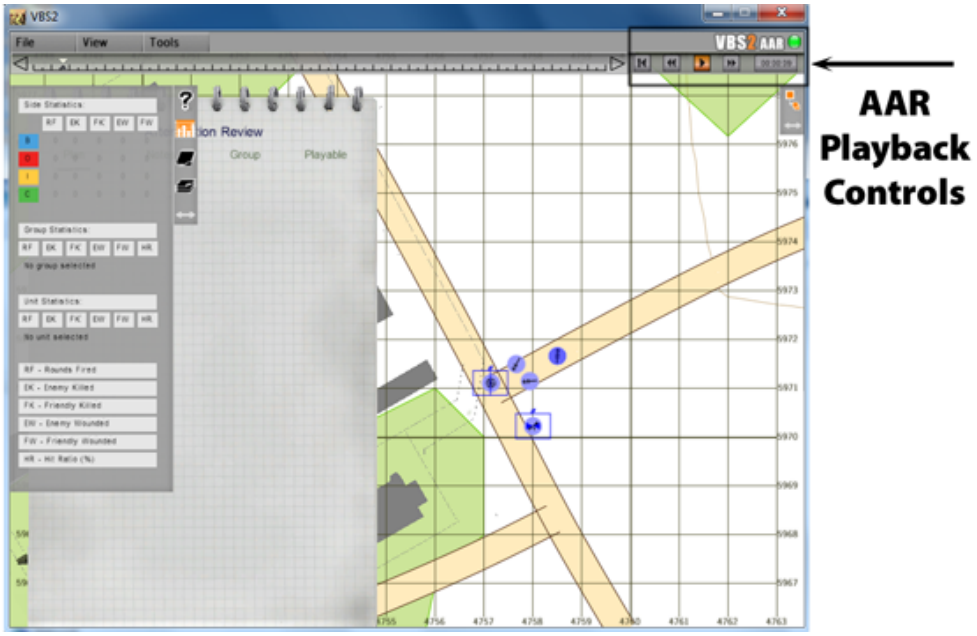

Figure 71:

4. To listen to the playback, tune the Original Desktop Client (section 2.5) to the nets you wish to hear.

3 Voisus Hardware Client

Hardware Clients include simulated radio panels as well as peripherals (such as headsets, PTTs, and HHTs) that connect to ACE-RIUs, ACU2s, and AI-S devices. A hardware client is identified by the name of the channel and/or serial port that it is connected to.

To map hardware devices to a scenario, you must complete the following:

1. Open your Scenario in the Voisus Client app and navigate to Configure > Hardware. This page will show you all of the ACE-RIUs and ACU2s on your server's ACENet, and all of the radio panels and AI-S devices on your network.

2. Click the appropriate tab (RIU, ACU2, Panels, or AI-S) and find your device on the list. Devices are listed by MAC address.

3. Name the Channel Identifier that the peripherals are connected to. Take note of the serial port/channel pairings on the ACE-RIU and ACU2.

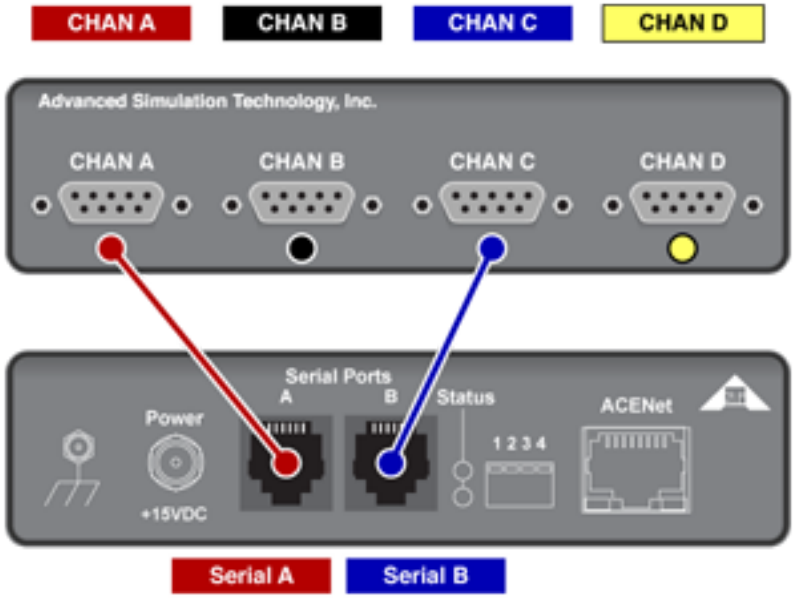
CHAN A
CHAN B
CHAN C
CHAN D
Advanced Simulation Technology, Inc.
CHAN A
CHAN B
CHAN C
CHAN D
Serial Ports
A
B
Status
ACENet
Power
1 2 3 4
+15VDC
Serial A
Serial B

Figure 72:

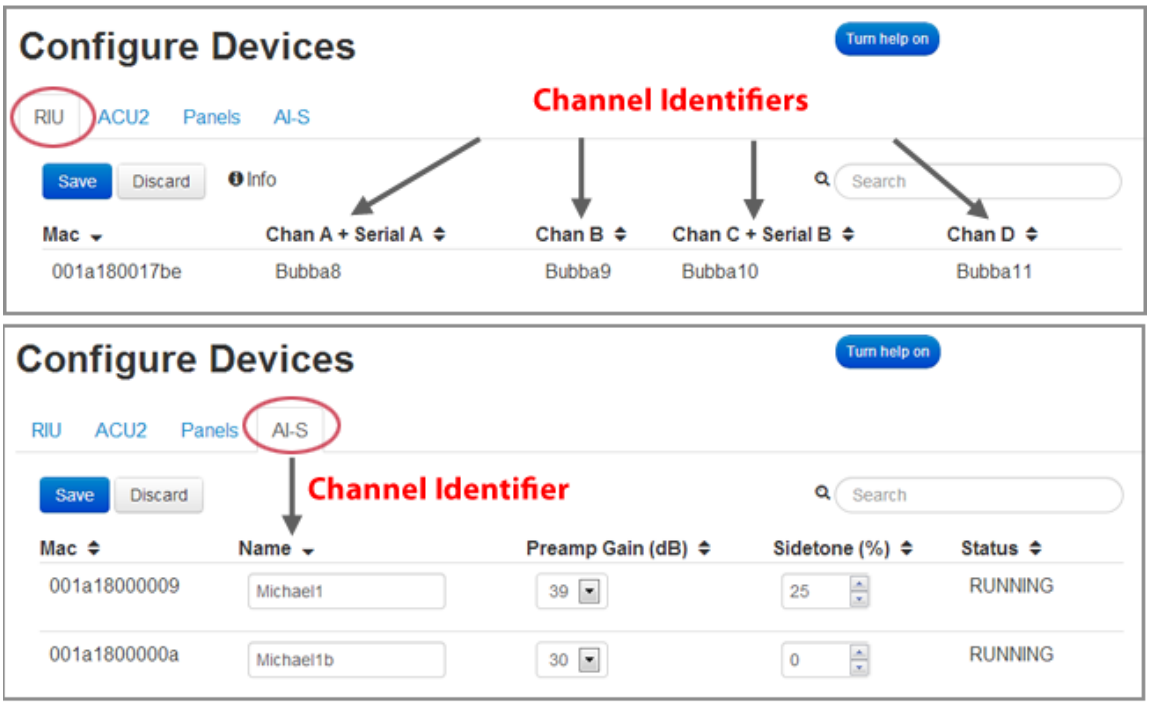

Figure 73:

4. Navigate to Configure > Scenarios and select your scenario. Click the Manage Clients button.
5. Enter the device names and/or Channel Identifiers in the Client List, exactly as they were entered on the Configure Hardware page. The name maps the client settings to the device or channel.
6. Assign a Default Role and DIS Exercise to each hardware client.

3.1 Example

The image below shows the AI-S Channel Identifiers on the Configure > Hardware page (top). The AI-S Channel Identifiers are added to the Clients List on the Manage Clients page (bottom) and assigned a Default Role and DIS exercise. The peripherals attached to the AI-S devices will now gain the roles assigned to them in the Voisus Client app.

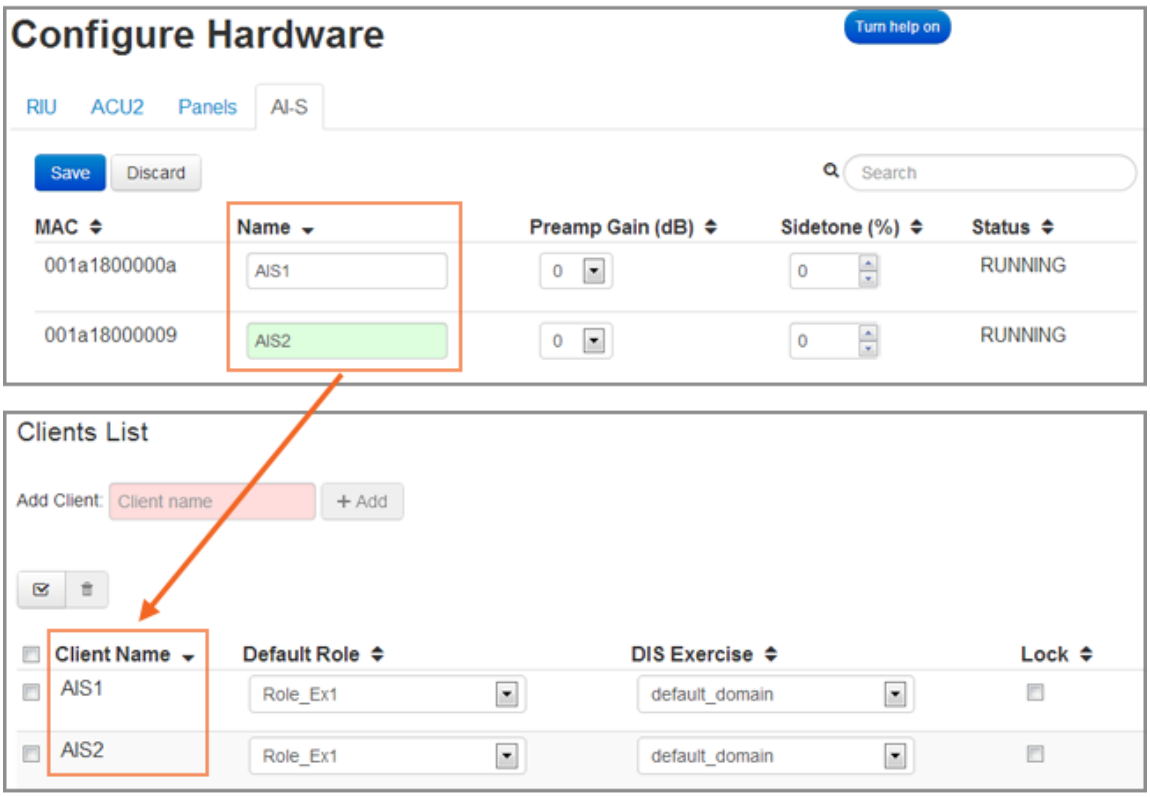

Figure 74:

4 Appendix A: DIS Modulations

In accordance with the IEEE 1278.1 Standard for Distributed Interactive Simulation (DIS), Transmitter PDUs incorporate a Modulation Type Record which uniquely identifies the various sets of signal parameters that determine whether two radios can communicate.

The Modulation Type Record characterizes radio modulation through four enumeration fields:

- Major Modulation
- Detail
- Radio System
- Spread Spectrum

Voisus supports a wide range of modulation types, including: AM, FM, Single Sideband, and Intercom. In a Voisus Scenario's Comm Plan, the modulation type is assigned to a Waveform in the Mode field.

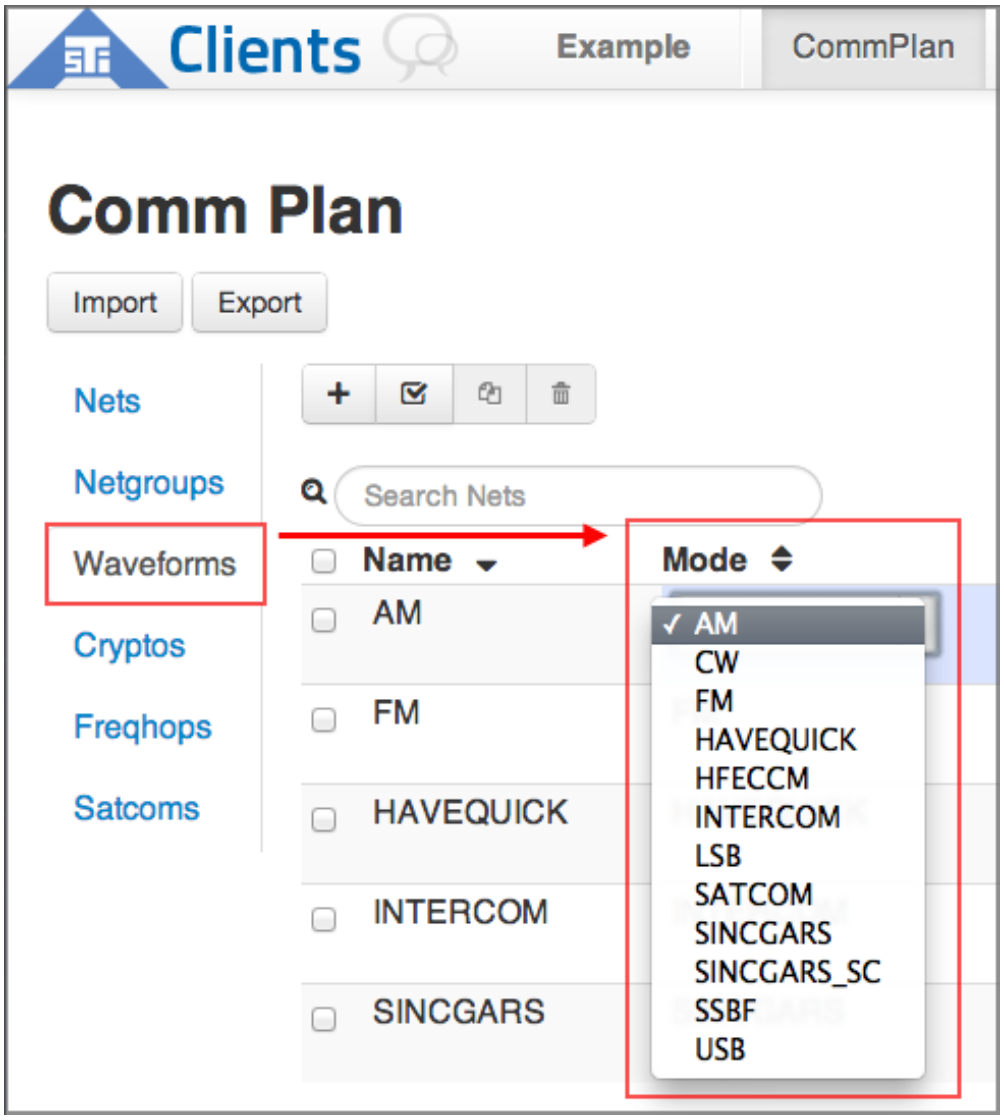

Figure 75:

4.1 Waveform Mapping

The Voisus DIS Gateway maps each Voisus waveform mode to a default DIS Modulation Type Record. This mapping occurs when the Voisus DIS Gateway encodes a DIS Transmitter PDU

during transmission or decodes a Transmitter PDU during reception.

4.2 Default DIS Modulation Type Record

Table 5: Default Modulation Type Records

Voisus Waveform Mode	DIS Major Modulation Type	DIS Detail	DIS Radio System	DIS Spread Spectrum
AM	1	2	1	0
CW	1	3	1	0
FM	3	1	1	0
HFECCM	2	–1	7	1
HAVEQUICK	1	2	2	1
INTERCOM	0	0	0	0
LSB	1	6	1	0
SINCGARS	3	–1	6	1
SINCGARS_SC	3	1	5	0
SSBF	1	7	1	0
SATCOM	8	1	1	0
USB	1	9	1	0

For more information about DIS Transmitter PDUs and Modulation Type Records, refer to the following documents:

- IEEE Standard for Distributed Interactive Simulation Application Protocols (IEEE Std 1278.1–2012)
- Simulation Interoperability Standards Organization (SISO) Enumerations for Simulation Interoperability (SISO-REF–010–2011.1)

Example: DIS Transmitter PDU to Voisus Waveform

Based on the defaults in the table above, the Voisus DIS Gateway maps DIS Transmitter PDU Modulation Types to Voisus waveform modes as follows:

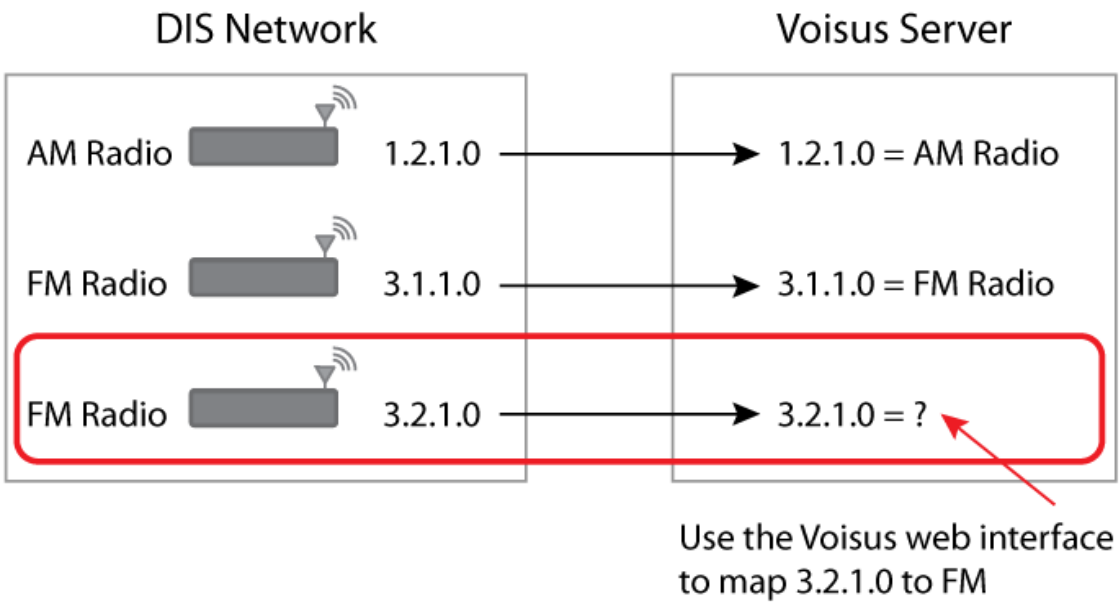

Figure 76:

The first two Transmitter PDUs contain default Modulation Type records, which Voisus maps to AM and FM modes. The last Transmitter PDU contains a Modulation Type record that is not recognized by Voisus. To accomodate this, you can create a custom DIS Modulation in Voisus with a Modulation Type record matching the DIS radio.

4.3 Custom DIS Modulations

To create a custom DIS Modulation in Voisus, visit the "DIS Modulations" page in the Voisus Client app via the link at the bottom of the DIS Settings (section 1.7) page.

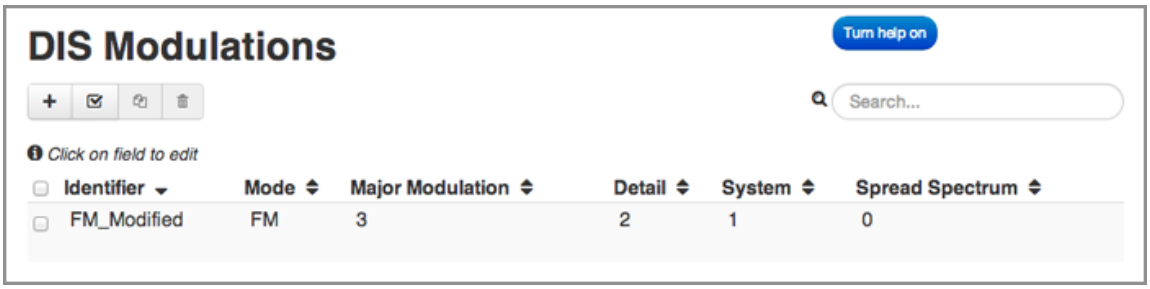

Figure 77:

1. Use the "+" button to add a custom DIS Modulation.
2. In the Identifier field, enter a name for your new mode. This Identifier name will apear in the "Mode" drop-down menu in Comm Plans > Waveforms.

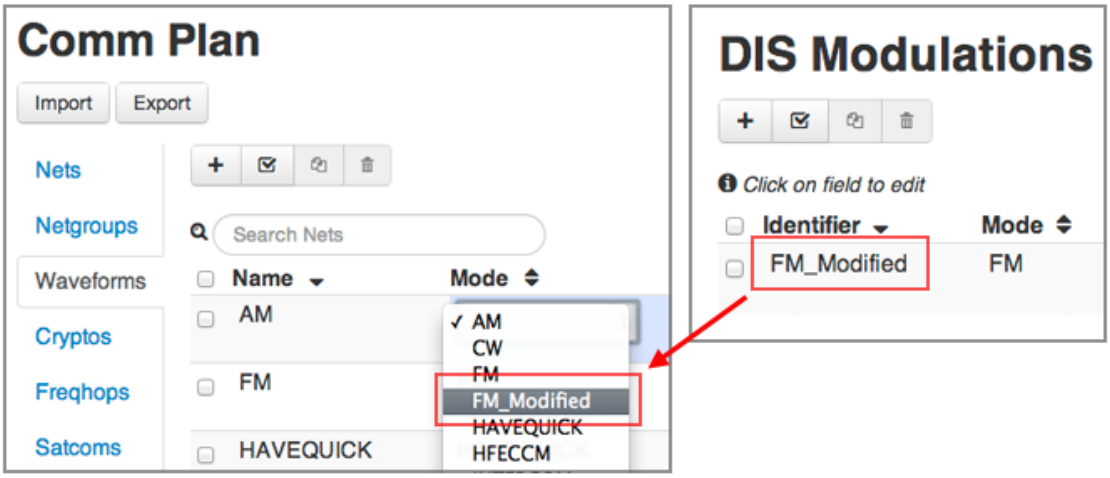

Figure 78:

3. Use the "Mode" drop-down menu to select the mode you wish to modify.
4. Enter new values for Major Modulation, Detail, System, and Spread Spectrum.
5. On the Comm Plan page, open the Waveforms tab and assign the new mode to a waveform.

Wildcards

Create a wildcard for a parameter in the DIS Modulation Type record by using a negative number. The wildcard applies to PDU-to-waveform (Rx) mapping, while the number following the "-" is applied to waveform-to-PDU (Tx) mapping. For example:

Figure 79:

- During PDU-to-waveform mapping, the Voisus DIS Gateway will receive any value in the Detail field.

- During waveform-to-PDU mapping, the Voisus DIS Gateway will transmit the Detail parameter as 2.

5 Appendix B: Voisus Chat

The Voisus server supports both IRC- and XMPP-based chat.

5.1 IRC Chat

The default IRC port is 6667.

To enable IRC chat on the Voisus server:

1. Log in to the server as `root`.
2. Run `acecontrol feature_enable acechat`
3. Reboot the server when prompted

IRC Chat in the Voisus Client for Desktops & Tablets

The Voisus Client for Desktops & Tablets (section 2.6) features a built-in IRC client. Chat is enabled by default for each new role created in the Voisus Client app, but it can be disabled on a per-role basis.

By default, IRC chat operates in conference mode, with all users connecting to IRC channel #voisus on the Voisus server. If multiple servers are connected in a cloud[5], all clients in the cloud will connect to the same IRC channel.

IRC Chat with a Third-Party Client

Third-party IRC clients can join IRC channels hosted on the Voisus server by connecting to the server's IP address.

5.2 XMPP Chat

XMPP chat is hosted on the Voisus server for use by third-party clients.

To enable and configure XMPP chat on the Voisus server:

1. Log in to the server as `root`.
2. Run `acecontrol feature_enable acexmpp`
3. Reboot the server when prompted
4. Edit `etc/ejabberd/ejabberd.cfg` to add the server's IP address to the "hosts" config section.
5. Bounce the daemon, which will open ports 5222, 5269, and 5280 per the CFG:

[5] getstarted.html#cloudmulti-serverconfiguration

```
/etc/init.d/ejabberd restart
```

6. Register the desired users:

   ```
   ejabberdctl register [username] <IP address> [password]
   ```

   where:

   - `[username]` is the name the client will use to connect
   - `<IP address>` is the IP address of the server itself (the same as that added to the CFG file)
   - `[password]` is client-specific, and is required

Once configured, users can connect to the XMPP client as `[username]@<IP address>`. Follow the third-party client-specific instructions for more details.