

# ***RF-7800I DIGITAL INTERCOM SYSTEM CONTROL CENTER SOFTWARE MANUAL***

**assuredcommunications™**





# **RF-7800I**

## **DIGITAL INTERCOM SYSTEM CONTROL CENTER**

### **SOFTWARE MANUAL**

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# **RF-7800I**

## **DIGITAL INTERCOM SYSTEM CONTROL CENTER**

### **SOFTWARE MANUAL**





## **CHAPTER 1**

### **SYSTEM DESCRIPTION**

#### **1.1 INTRODUCTION**

This manual describes the settings, options and features of the RF-7800I Digital Intercom System Control Center (DCC) software. In addition, a brief explanation of all RF-7800I Central Unit functionalities are provided.

##### **1.1.1 Acronyms and Terms**

All acronyms used are contained in the Glossary at the back of this manual.

#### **1.2 CONFIGURATION**

This utility allows the user to configure the RF-7800I Digital Intercom System (DIS) including the hardware, Central Unit Bridging (CUB) network settings, functionalities and their properties that are available to operators. By default, a basic configuration file is part of the software package. This configuration file contains some basic settings, including configuration for radio and headset models. The file is loaded as soon as the configuration tool is first launched.

The following example configuration file is included with the software and can be loaded for use.

- Default\_RF-7800I-CU1XX\_Phase4.conf

##### **1.2.1 Restricted Symbols**

The symbols ":" (colon), ";" (semicolon) and "|" (vertical bar) are blocked from use throughout the software due to the fact that when used, they may corrupt the configuration file. There is a single editable field that the ":" (colon) and ";" (semicolon) symbols can be used when configuring SIP addresses for the "Contact" Phonebook entry.

#### **1.3 APPLICABLE DOCUMENTS**

Refer to RF-7800I Vehicular Intercom System Reference Guide (10515-0382-4200) and Soft Keypad Application (SKA) for Windows and Android OS Operation Manual (10515-0407-4100). For assistance with specific applications, contact Harris.

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## CHAPTER 2

### INSTALLATION AND STARTUP

#### 2.1 ITEMS INCLUDED

The RF-7800I Digital Intercom System Control Center (DCC) and Software Keypad Application (SKA) for both Windows and Android Operating System (OS) are available on Compact Disk (CD).

#### NOTE

Refer to Software Keypad Application (SKA) for Windows and Android OS Operation Manual (10515-0407-4100).

#### 2.2 INSTALLATION

To install:

- Insert CD, autorun feature will launch installer program. [Figure 2-1](#) will appear.
- Select **Software** and click the install button **DCC for 7800I v4.0**.

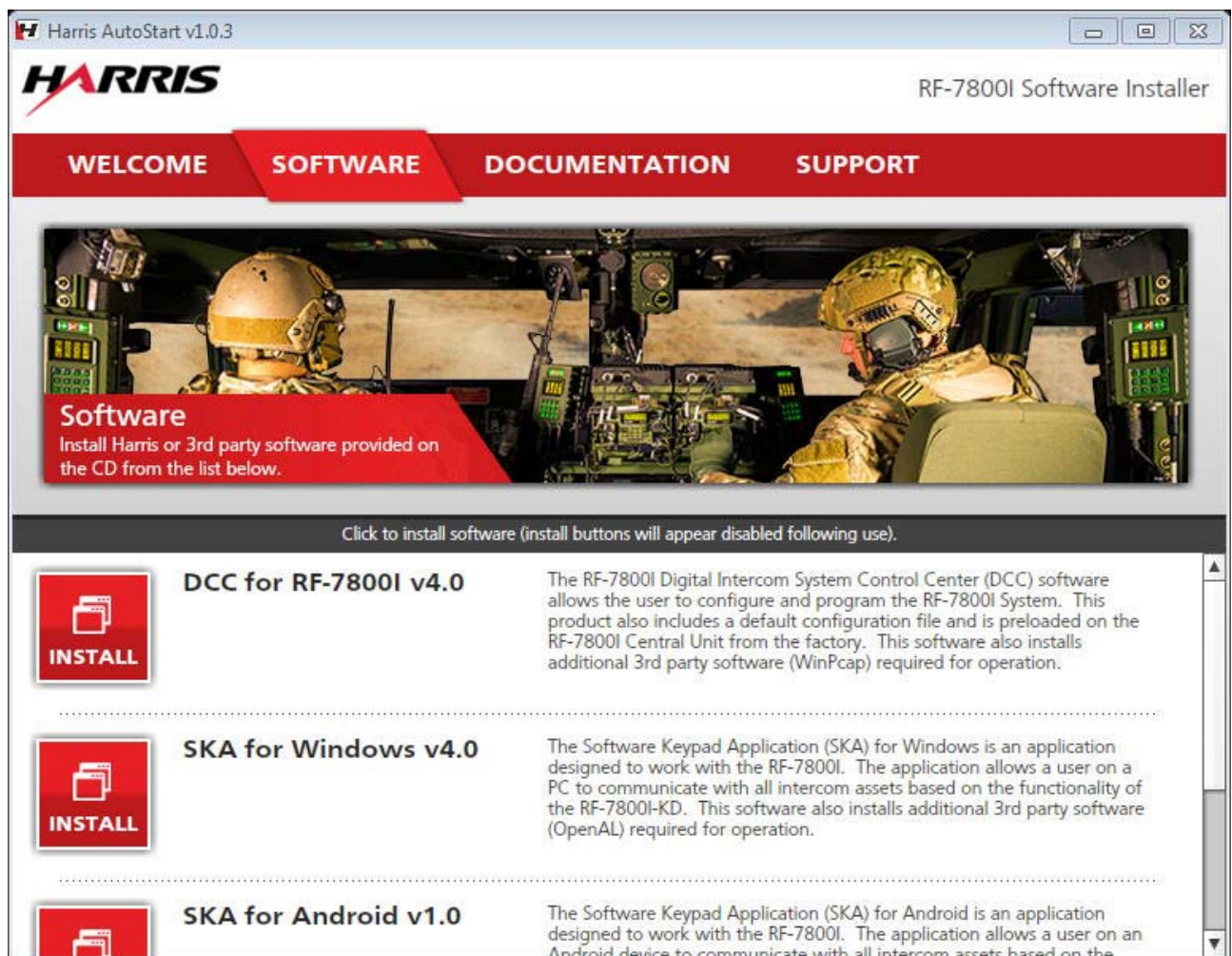


Figure 2-1. DCC Software Installer

- c. WinPcap Installer will appear as shown in Figure 2-3. If WinPcap is already installed on your PC, the installation will skip to Figure 2-7. Click on **Install**. Figure 2-2 will appear.



Figure 2-2. WinPcap Setup

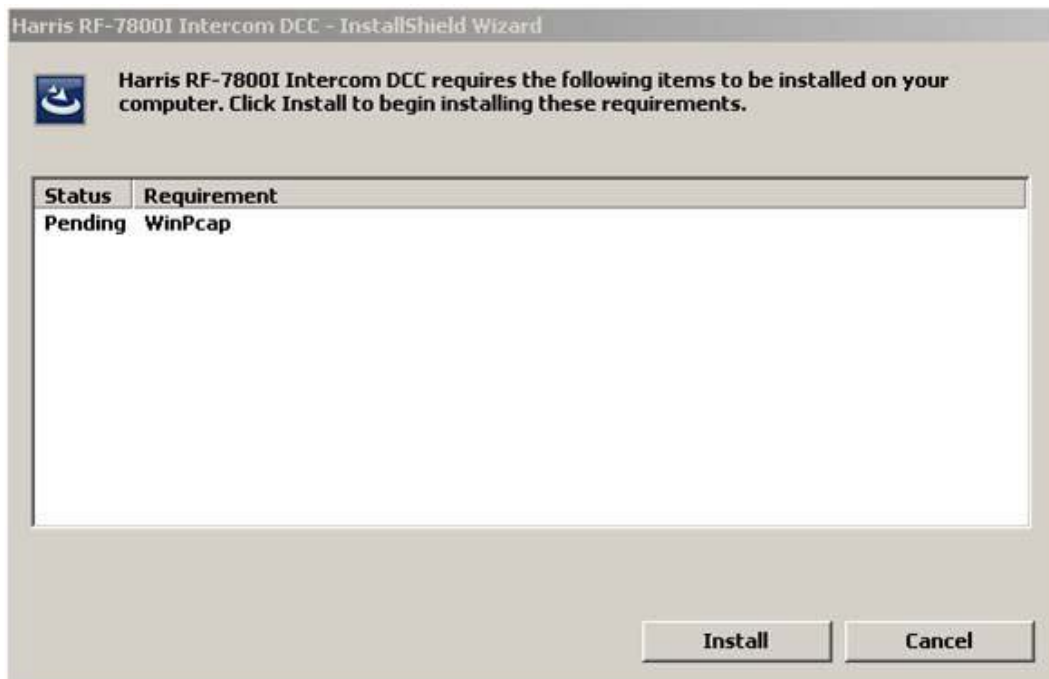
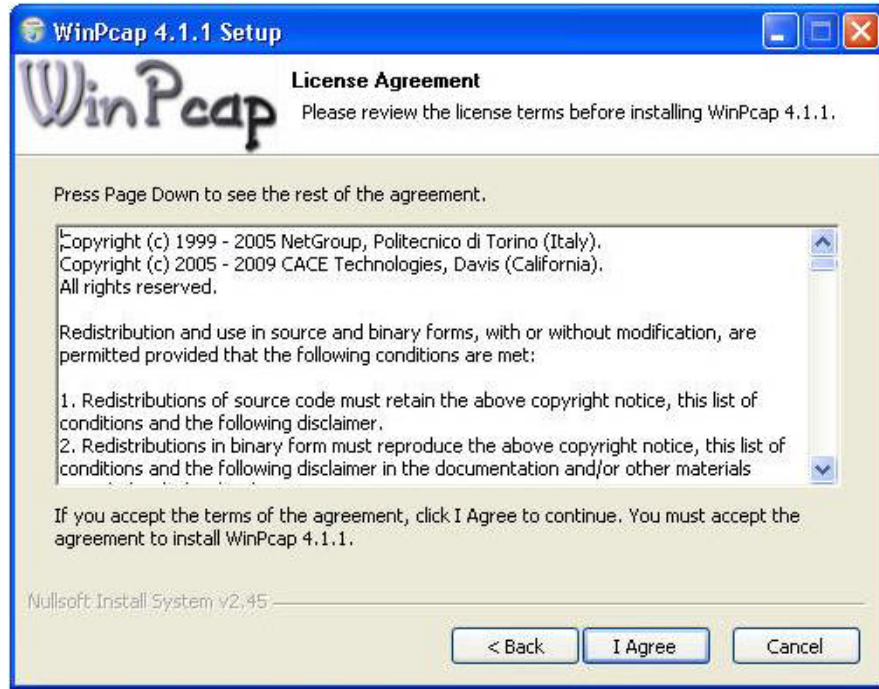


Figure 2-3. WinPcap Installer

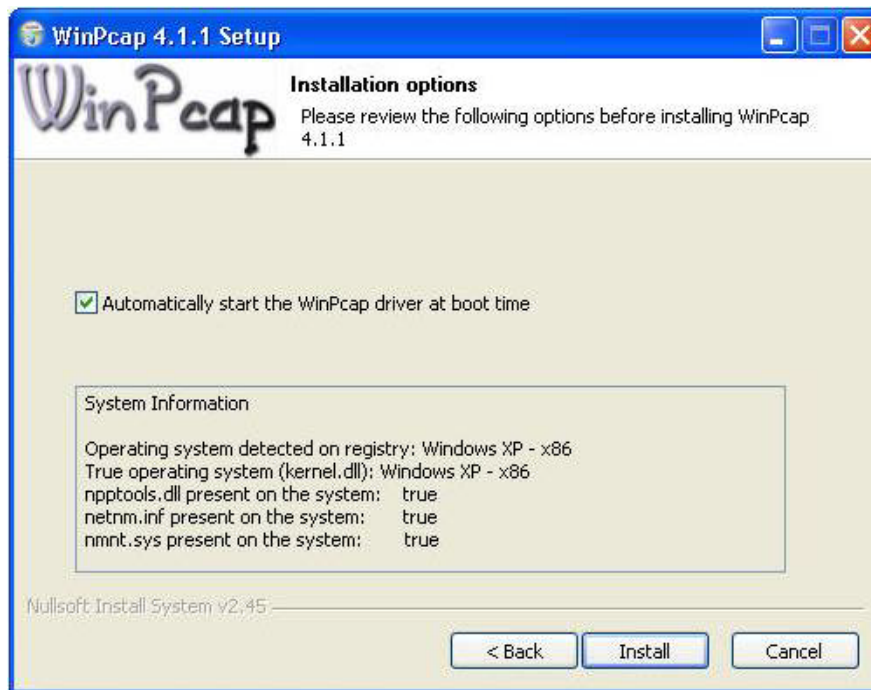
- d. Click on **Next >**. [Figure 2-4](#) will appear.
- e. Read the terms and click on **I Agree**. [Figure 2-5](#) will appear.



**Figure 2-4. WinPcap License Agreement**

**NOTE**

If you already have WinPcap 4.1.1 installed on your PC, click **OK** to force the installation. If you have a newer version of WinPcap installed (for example 4.1.2), a warning will appear. The DCC installation will automatically abort installation of WinPcap 4.1.1 and complete installation of the DCC successfully as shown in [Figure 2-10](#).



**Figure 2-5. WinPcap Options**

- f. Click on **Install**. Figure 2-6 will appear.



**Figure 2-6. WinPcap Install Complete**



- g. Click on **Finish**. Figure 2-7 will appear.



Figure 2-7. DCC Install Wizard

- h. Click on **Next >**. Figure 2-8 will appear.

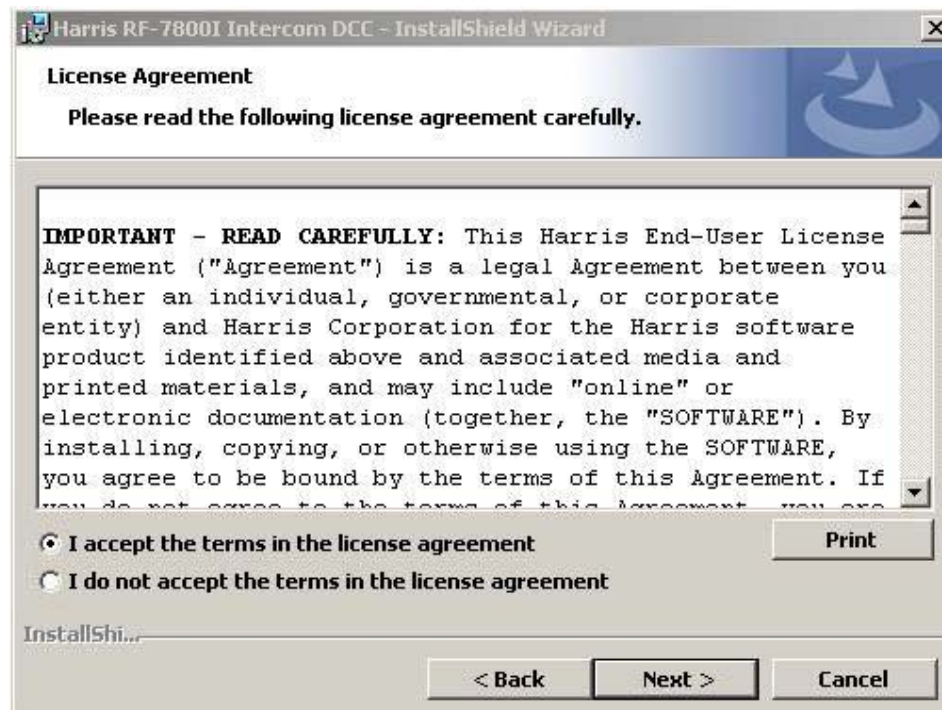
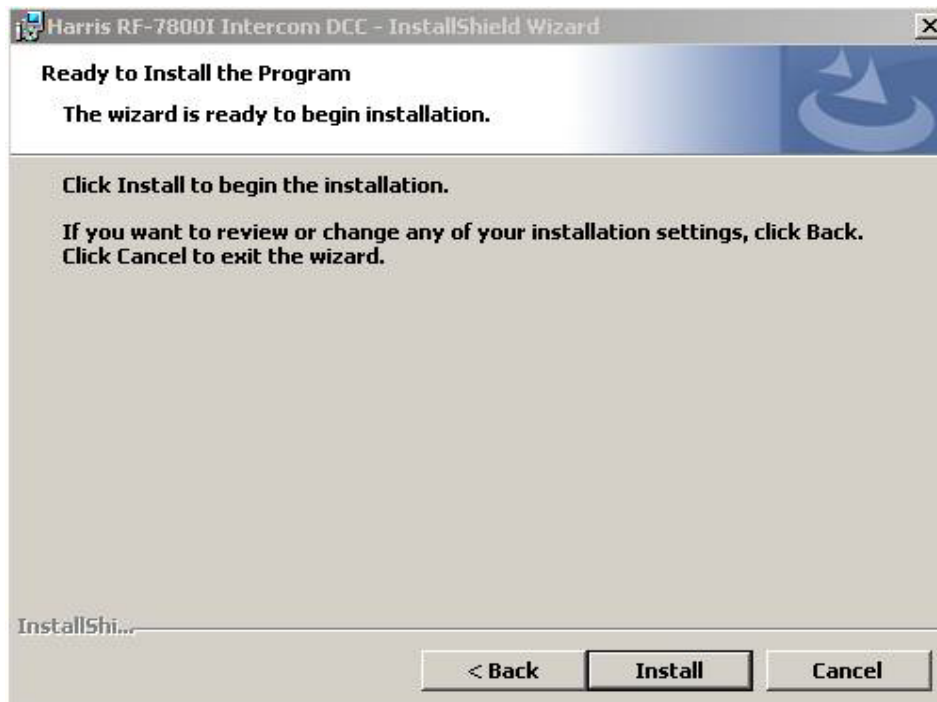


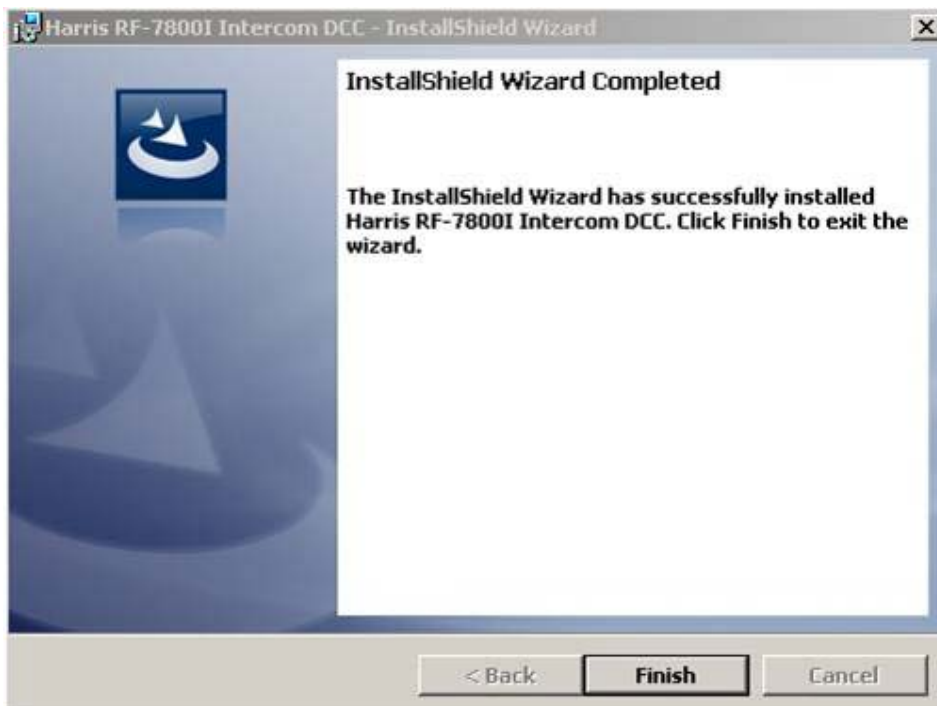
Figure 2-8. DCC License Agreement

- i. Read the terms, select **I accept the terms in the license agreement** button and click on **Next >**. [Figure 2-9](#) will appear.



**Figure 2-9. DCC Ready to install**

- j. Click on **Install**. Installation begins copying new files. [Figure 2-10](#) will appear.



**Figure 2-10. DCC Install Complete**



- k. Click on **Finish**. DCC installation is complete.

## **2.3 LAUNCHING APPLICATIONS**

The RF-7800I Digital Intercom System Center (DCC) can be launched from the Desktop or from the start menu.

### **2.3.1 Desktop**

From the desktop, double-click  to run the RF-7800I DCC.

### **2.3.2 Start Menu**

When using Windows XP, use **Start > Programs > Harris RF Communications > RF-7800I Intercom > DCC** to run the RF-7800I DCC application.

When using Windows 7, use **Start > All Programs > Harris RF Communications > RF-7800I Intercom > DCC** to run the RF-7800I DCC application.

## **2.4 QUICK START SUMMARY**

Once the DCC software and Updater applications are launched, you can proceed through the following menus to configure system components, update system configuration and program the file system of the Central Unit (CU).

- **Configuration (Chapter 3)** - Configure the components of the system
  - File Operations - Name, Open, Save, and Save As the system configuration. Export the Session Initiated Protocol (SIP) phone book.
  - Global - Define system wide settings (radio models, headsets, languages, phonebook entries, conferences, audio, events, languages, and icons).
  - Central Units - Add and define properties for Central Units. Configure Central Unit Bridging (CUB) properties.
  - Devices - Add, define properties and configure crew stations, radios, central units, USB audio, CU serial ports, speakers, and telephone/alarm. Refer to [Appendix B](#) for properties of all supported radio models and the associated modify properties screens.
  - Network - Configure network settings (interfaces, endpoints, routes, static and dynamic routing).
  - Operators - Configure operators general settings, crew stations, USB audio, monitor, rotary dial, and keypad display. Configure profiles and assigns profiles to crew stations. Selects hardware or profile to monitor and configures rotary dial and keypad display crew station.
  - Daemons and Services - Choose and configure daemons such as Digital Intercom System (core), Simple Network Management Protocol (SNMP) support. Configure Point-to-Point Protocol (PPP) daemons. Configure services such as NMEA GPS, Distributed DIS, Harris radio Server, Open Shortest Path First (OSPFv2/v3), Routing Information Protocol (RIP) and RIPng for Central Units, and RF-7800I SKA 3.
  - SIP - Assign Session Initiation Protocol (SIP) extensions and add SIP accounts for operators, conferences and devices for use with a SIP service. Also add and configure SIP trunks.

- **Updater** ([Chapter 4](#)) - Update the system configuration.
  - Download configuration
  - Central Units List - Media Access Control (MAC) address, status.
  - Central Units details - Name/CUB name, base, Internet Protocol (IP) address, language, etc. Upload system configuration firmware and module files to CUs.
  - Upload CUB network configurations (CUB config field).
  - Action features - Reboot Central Unit, Upload Announcements, Lock/Unlock Central Unit
  - View Event Log
- **Curtain - Central Unit Recovery Toolkit Utility** ([Chapter 5](#)) - Upload full software and firmware to CU.
  - Reinstall software and firmware after a malfunction or binary corruption.
  - Update the whole firmware package.
  - Downgrade the software for backwards compatibility.
- **SKA - Software Keypad Application** - Allows a user on a PC to communicate with the intercom, speak with the intercom operators, join conferences, operate radios etc. Refer to Software Keypad Application (SKA) for Windows and Android OS Operation Manual (10515-0407-4100).

## 2.5 CONFIGURATION EXAMPLES

This section provides examples of typical RF-7800I Intercom Vehicular System applications with configuration diagrams and corresponding parts lists. These application types include:

- Intercom Voice Only Configuration, refer to [Paragraph 2.5.1](#).
- Intercom Voice and Data with Alarm/Telephone Configuration, refer to [Paragraph 2.5.2](#).

### NOTE

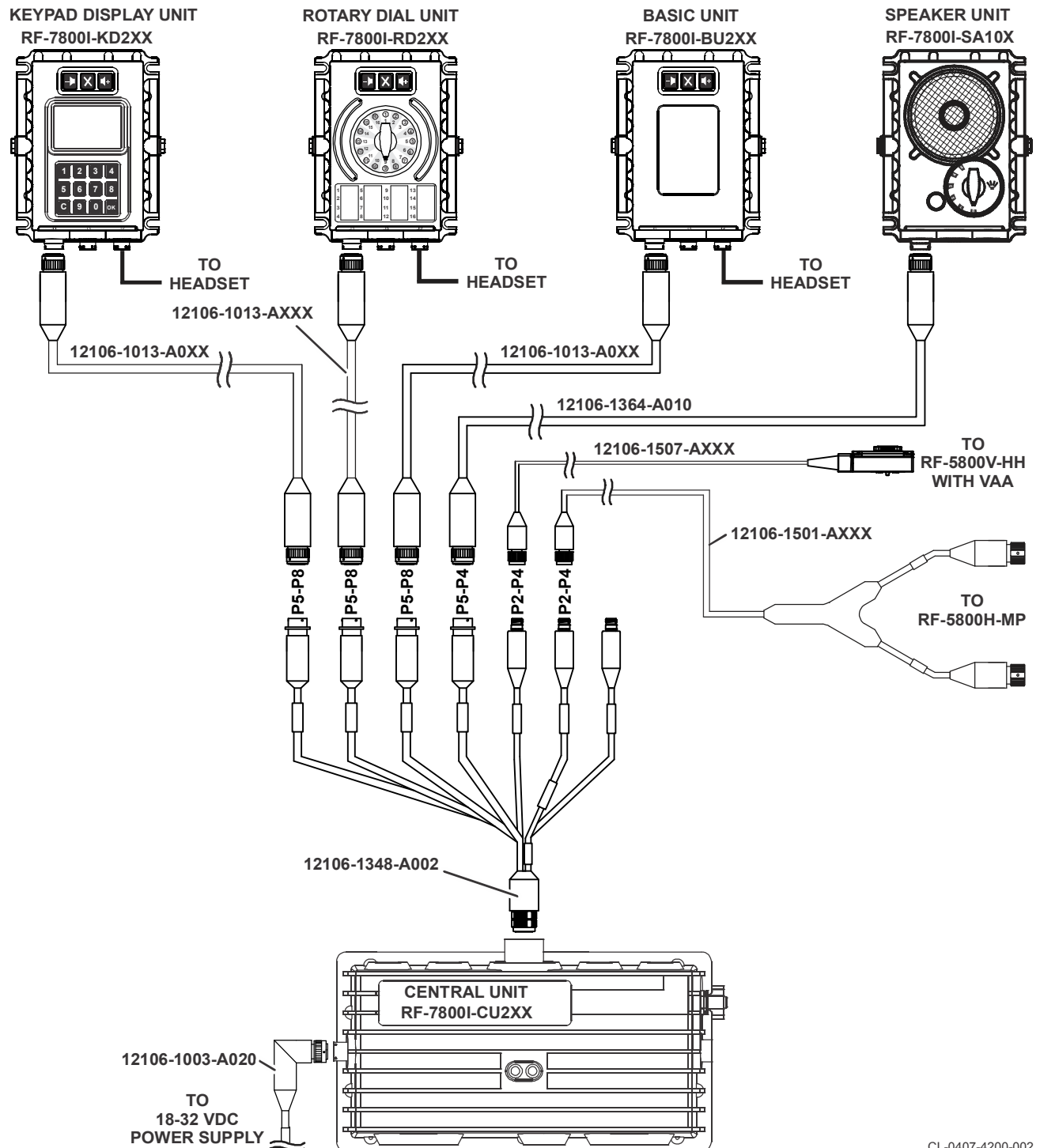
The information provided in this section is for reference only.  
Multiple cable length options are available, but are not called out in the figures and tables. Custom configurations will vary.

### 2.5.1 Intercom Voice Only Configuration

The RF-7800I Intercom Vehicular System Voice Only configuration supports up to two radios and up to four Crew Stations and additional devices. The specific quantity and type of stations are dependent on the individual vehicle configuration and/or mission requirements. In Voice Only configurations, a Central Unit Light is used for voice channel switching between the Crew Stations, devices and two radios.

The vehicle commander uses a RF-7800I-KD Keypad Display Unit for controlling and configuring the system in real-time. The Keypad Display Unit is equipped with a secondary headset connection for changing mission requirements. Subordinate crew stations use a pre-programmed RF-7800I-BU Basic Unit and RF-7800I-RD Rotary Dial Unit with predefined configurations. Cabling is simplified by using the 12106-1348-A002.

See [Figure 2-11](#) for an example of an RF-7800I Intercom Vehicular System Voice Only configuration. Refer to [Table 2-1](#) for corresponding parts list.



CL-0407-4200-002

Figure 2-11. Intercom Voice Only Diagram

**NOTE**

Some radio and accessory part numbers are not included in the table. For additional radio and accessory cable information, refer to RF-7800I Vehicular Intercom System Reference Guide (10515-0382-4200).

**Table 2-1. Intercom Voice Only Parts List**

Part Number	Quantity	Description
RF-7800I-CU2XX	1	Central Unit Light
RF-7800I-KD2XX	1	Keypad Display Unit
RF-7800I-RD2XX	1	Rotary Dial Unit
RF-7800I-BU2XX	1	Basic Unit
RF-7800I-SA10X	1	Speaker Unit
12106-1348-A002	1	Distribution Cable
12106-1013-A0XX	3	Cable, Crew Station to Distribution Box
12106-1003-A020	1	DC Power, Central Unit
12106-1507-AXXX	1	Cable, RF-5800V-HH to 12106-1343-A18 W-Cable
12106-1501-AXXX	1	Cable, RF-5800H-MP to 12106-1343-A18 W-Cable
12106-1364-A010	1	Cable, Speaker

## 2.5.2 Intercom Voice and Data with Alarm/Telephone Configuration

The RF-7800I Intercom Vehicular System Voice and Data with Alarm/Telephone configuration can support up to four radios and up to eight Crew Stations. The Alarm option can be configured to allow maximum of eight custom voice alerts. The specific quantity and type of stations are dependent on the individual vehicle configuration and/or mission requirements. In Voice and Data with Alarm/Telephone configurations, a Central Unit is used for voice channel switching, alarm signal routing, and digital packet routing between three stations. It is also used for voice channel switching between the Crew Stations and additional components and two radios.

The vehicle commander uses a RF-7800I-KD Keypad Display Unit for controlling and configuring the system in real-time, to send/receive data, and to dial telephone numbers. One crew station uses the pre-programmed RF-7800I-RD Rotary Dial Unit to select configuration options. The Rotary Dial Unit also has an unused headset connection that could be used if mission requirements change. Subordinate crew stations use a pre-programmed RF-7800I-BU Basic Unit with predefined configurations. A Telephone and Alarm Unit is used to monitor the vehicle's alarm system and to connect to a Private Branch Exchange (PBX) and a field telephone. A Speaker is also used to broadcast voice and selected messages.

See [Figure 2-12](#) for an example of RF-7800I Intercom Vehicular System Voice and Data with Alarm/Telephone configuration. Refer to [Table 2-2](#) for corresponding parts list.

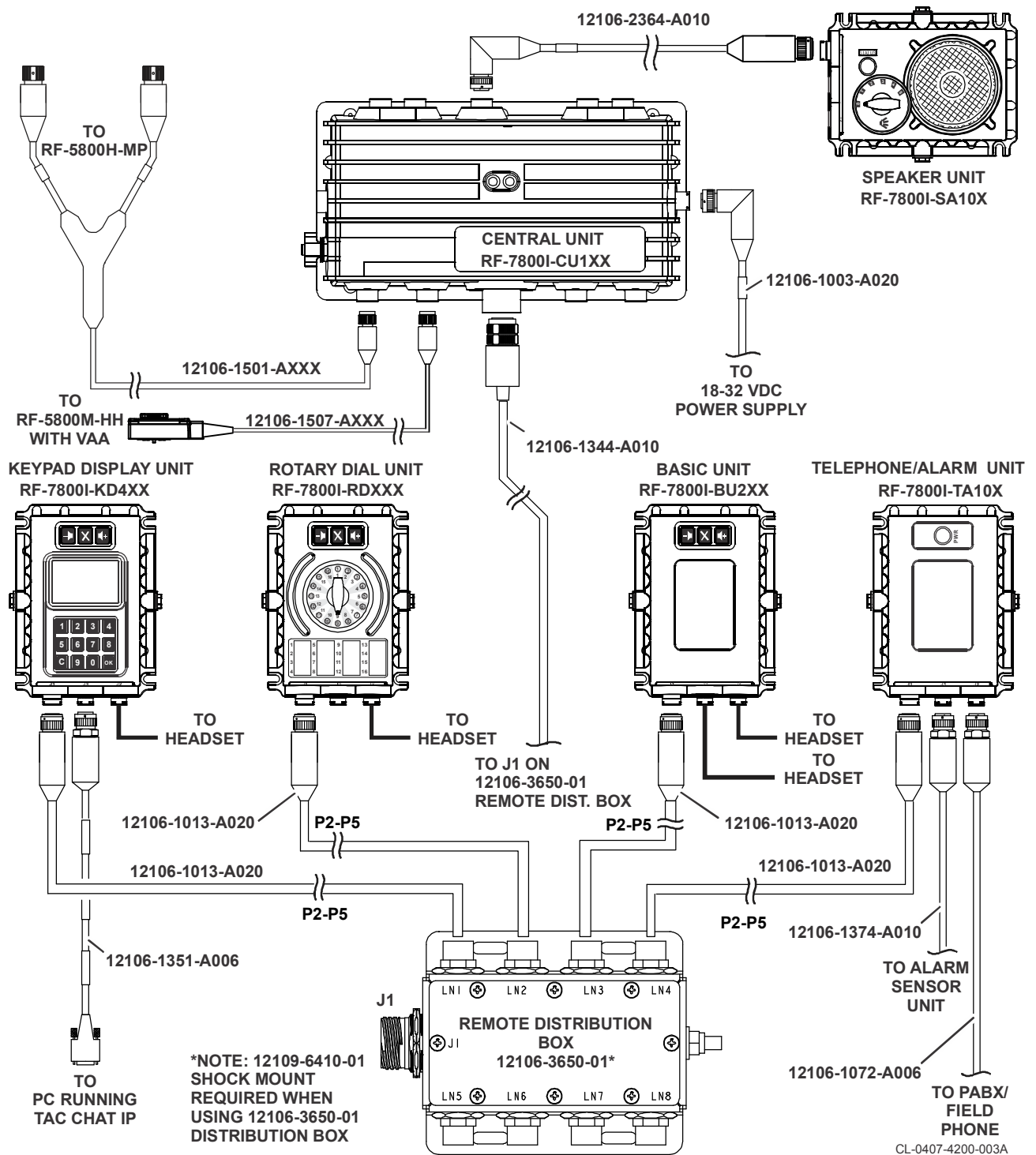


Figure 2-12. Intercom Voice and Data with Alarm/Telephone Diagram

**NOTE**

Some radio and accessory part numbers are not included in the table. For supported radio and accessory cable parts list information, refer to RF-7800I Vehicular Intercom System Reference Guide (10515-0382-4200).

**Table 2-2. Intercom Voice and Data with Alarm/Telephone Parts List**

Part Number	Quantity	Description
RF-7800I-CU1XX	1	Central Unit Standard
RF-7800I-KD4XX	1	Keypad Display Unit
RF-7800I-RDXXX	1	Rotary Dial Unit
RF-7800I-BU2XX	1	Basic Unit
RF-7800I-TA10X	1	Telephone Unit
12106-3650-01	1	Remote Distribution Box, 8-Outlet
RF-7800I-SA10X	1	Speaker Unit
12109-6410-01	1	Shock Mount, VIS, CU/CU Light
12106-1013-A020	4	Cable, Crew Station to Remote Distribution Box
12106-1003-A020	1	DC Power, Central Unit
12106-1344-A010	1	Cable Assembly, CU to Remote Distribution
12106-1501-AXXX	1	Cable, Central Unit to RF-5800H-MP
12106-1507-AXXX	1	Cable, Central Unit to RF-5800M-HH
12106-1351-A006	1	Cable, Keypad Display Unit to PC
12106-2364-A010	1	Cable, Central Unit to Speaker, RT, Angle
12106-1072-A006	1	Cable Assembly, Field Phone and PABX
12106-1374-A010	1	Cable Assembly, Alarm, Open Ended

## CHAPTER 3

### CONFIGURATION MENUS

#### 3.1 INTRODUCTION

This section contains the menu-accessed items as well as the addition, modification, and deletion of devices.

Figure 3-1 shows the RF-7800I Digital Intercom System Control Center screen that appears when first running the application. The three main functions accessed by their buttons are listed below.

- Configuration
- Updater
- Curtain

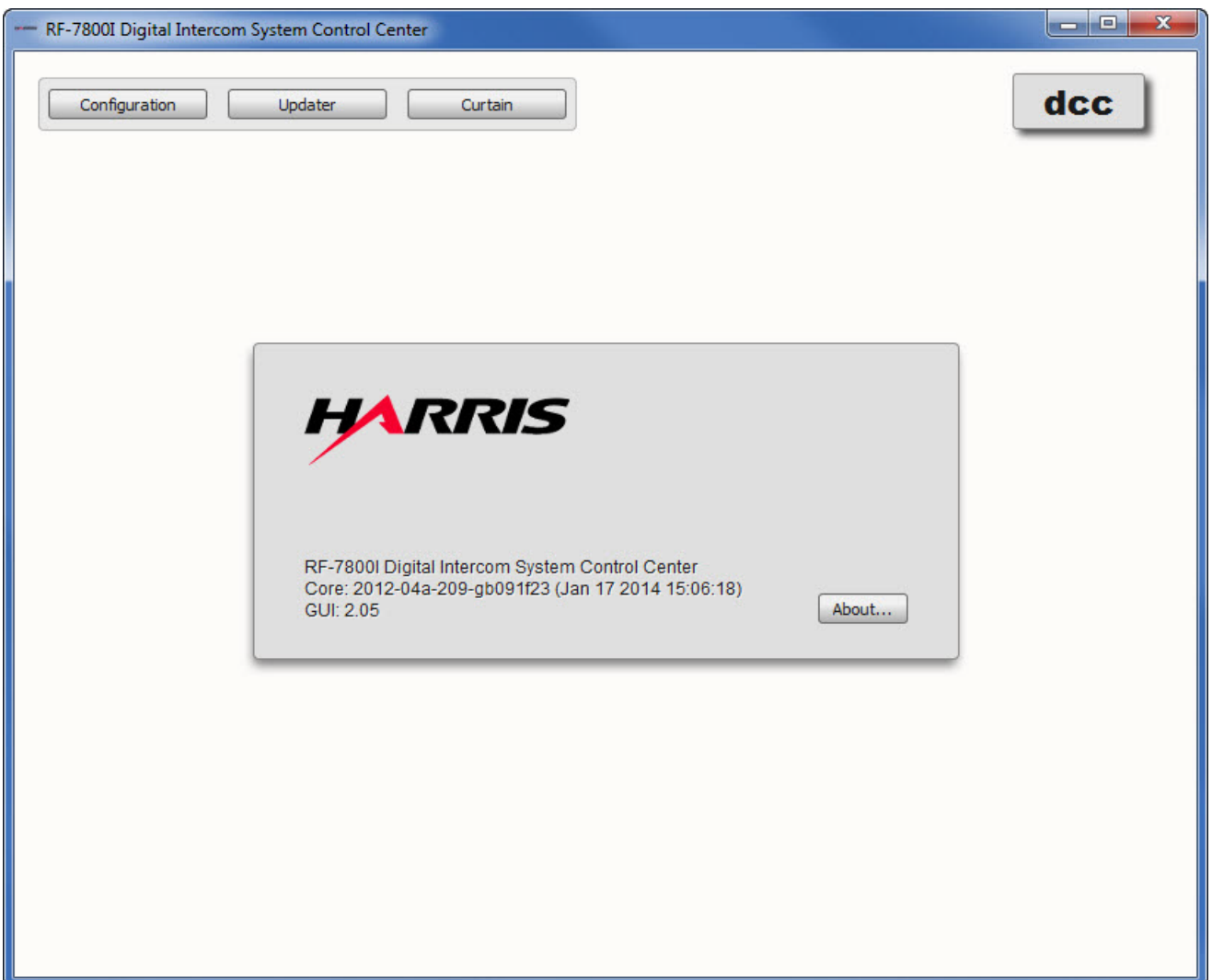
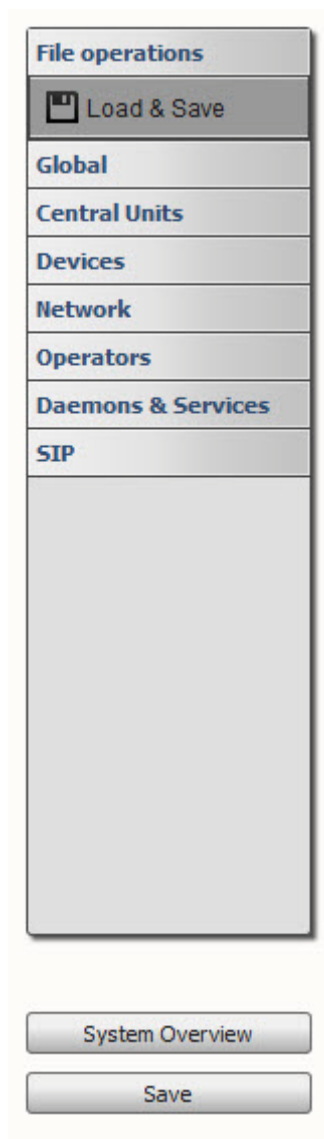


Figure 3-1. RF-7800I DCC Main Screen

### 3.1.1 Configuration Menu Overview

Paragraph 3.2 through Paragraph 3.9 describe the menus shown in Figure 3-2. The System Overview tab is described in Paragraph 3.10.



**Figure 3-2. Configuration Menu Bar and System Overview Tab**

## 3.2 FILE OPERATIONS

The File operations menu allows the user to conduct all file operations related to the configuration including the possibility to export the Session Initiation Protocol (SIP) phonebook from the current configuration.

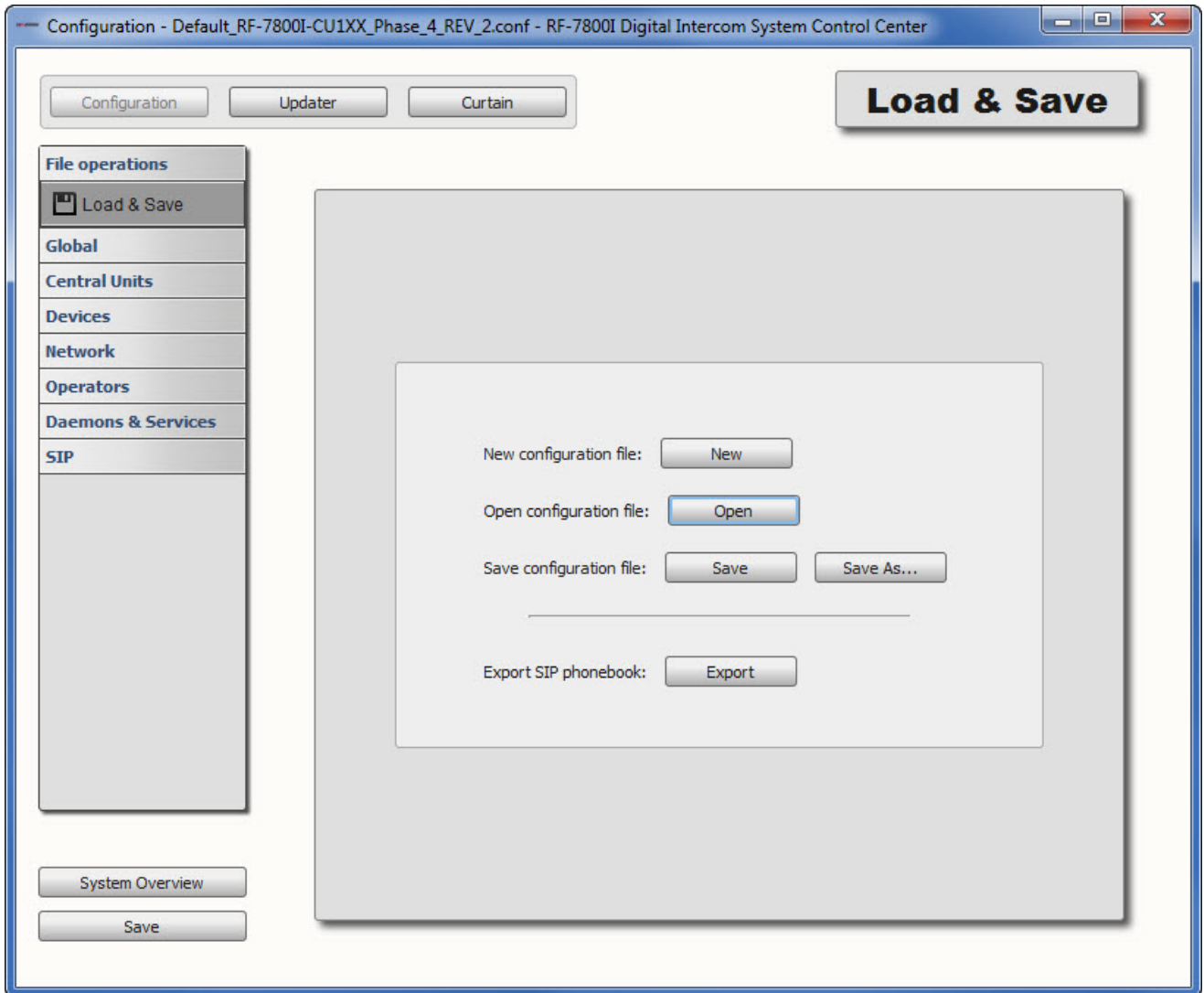
### 3.2.1 Load and Save

See Figure 3-3. The Load and Save tab allows the user to conduct all required configuration file operations, (i.e. saving, and loading the system configuration) as well as exporting the SIP phone book.



## NOTE

Screens shown in this manual are based on a sample configuration. Those developed from a user's configuration will vary.



**Figure 3-3. Load and Save**

### 3.2.2 New Configuration File

Clicking on the **New** button sets the system to an empty or blank configuration if a default configuration is not available.

### 3.2.3 Open Configuration File

Clicking on **Open** opens a file directory dialog. Double-click on the file or click on the file and click on **Open** to load the configuration file. A dialog then appears informing you that the file has loaded; click on **OK**.

### **3.2.4 Save Configuration File**

Clicking on **Save** opens a file directory dialog if the file was not already saved previously. Use the file name that is automatically generated from the name that was entered in the **Configuration name** field.

### **3.2.5 Save As Configuration File**

Clicking on **Save As** allows the user to save the configuration file name to a specified new name.

### **3.2.6 Export SIP Phonebook**

Clicking on **Export** opens a file directory dialog. Enter the name of the phonebook file and click on **Save**. The file is saved as a YAML Ain't Markup Language (YAML) file.

## **3.3 GLOBAL**

The Global menu allows the user to configure general settings of the system (i.e. those properties that are not unique for each device and operator, but are used across the system).

### **3.3.1 Overview**

See [Figure 3-4](#). The Overview tab is used for defining radio models, headsets, phonebook entries, available languages, conferences, and icons that may be used in the system.

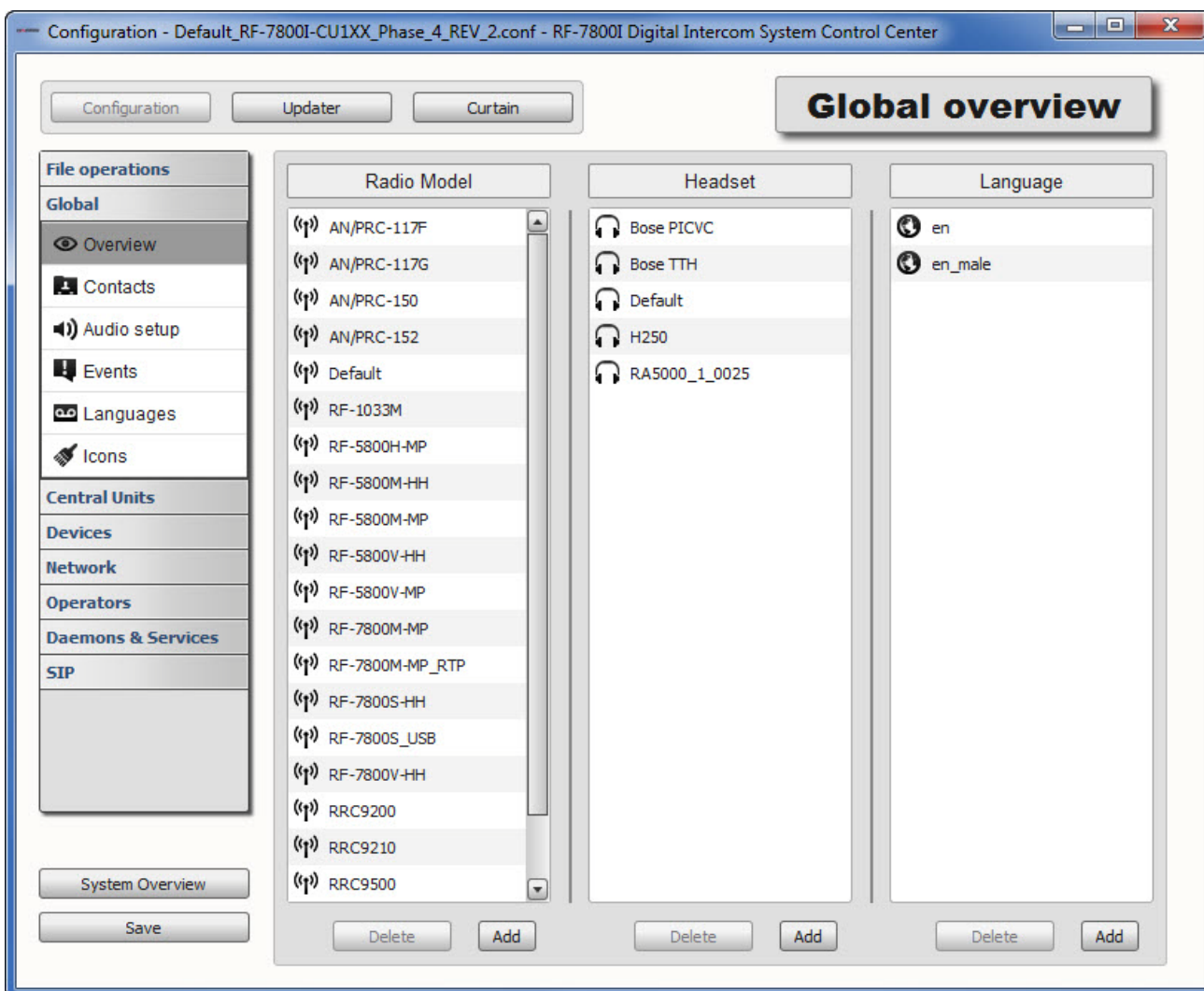


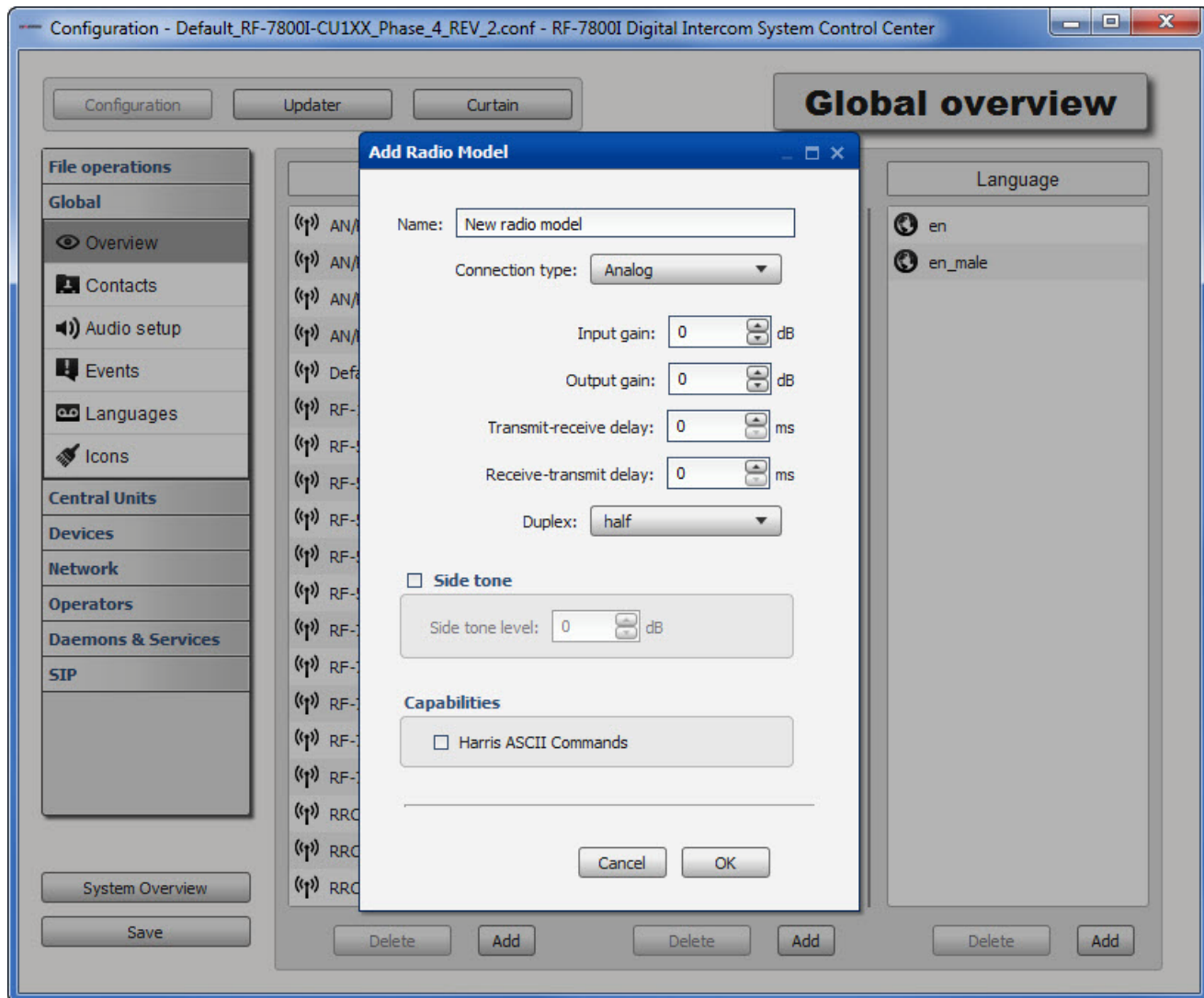
Figure 3-4. Global Overview

### 3.3.1.1 Radio Model

The Radio Model workspace allows the user to manage available radio models, including adding, modifying and deleting radios from the configuration. Click on **Add** to add new radio. Click on **Delete** to delete selected radio. Double-click on radio to modify settings. See [Figure 3-5](#) for the radio model properties.

In the radio properties:

- **Delete** - Deletes radio model listing.
- **Cancel** - Cancels new radio model or modifications to existing radio model.
- **OK** - Save new radio model listing or modifications to existing radio model.



**Figure 3-5. Radio Model Properties**

### 3.3.1.1.1 Name

This is the name of the radio that appears in the Radio Model list.

### 3.3.1.1.2 Connection Type

This is the way that a given Radio model is connected to the system. The available options are Analog, USB, and IP with Analog being the default. Analog Radios can be connected to the Central Unit using the Analog Radio interfaces J9 through J12. USB Radios can be connected to the Central Unit using the J6/J7 Serial/USB interfaces. IP Radios can be connected to the Ethernet interface of a Central Unit, or to the network in which the Central Unit operates.

### NOTE

It is not possible to specify the same Radio model to be used on different interfaces, so it is necessary to properly specify the connection type for Radio models that are to be used in the setup.

- Analog Radios - use one of the radio interfaces of a Central Unit (J9 through J12 for RF-7800I-CU100 units or one of the Radio interfaces on the J3 connector of a RF-7800I-CU200). Features unique to Analog Radios include the ability to configure the Data Port serial interface, configure the Control Port serial/IP interface, allowing for remote control and the ability to configure PPP daemons for that radio.
- USB Radios - use one of the USB interfaces of a Central Unit (J6 or J7 on RF-7800I-CU100 units, not supported on RF-7800I-CU200 units). Only RF-7800S radios can be connected and properly recognized by the intercom as USB Radios. Features unique to USB Radios include the ability to configure the five virtual USB interfaces of the Radio, allowing for remote control and forwarding Situational Awareness data. Also the ability to configure the IP address and netmask of the Radio.
- IP (RTP) Radios - are connected to the Central Unit directly or indirectly through the Ethernet interface. All Central Units provide support for 4 virtual Real-time Transfer Protocol (RTP) interfaces, allowing for up to 4 IP Radios to be connected. Features are the ability to configure the IP address of the Radio or the multicast group IP address through which the Radio will receive and send RTP packets and the ability to configure the remote control IP address and port, allowing for remote control.

#### **3.3.1.1.3 Input Gain**

Increases or decreases the received audio level from the radio in decibels (dB). Increasing this value will make the radio heard louder to all users connected to or monitoring the radio. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.

#### **3.3.1.1.4 Output Gain**

Increases or decreases the transmitted audio level from the radio in dB. Increasing this value will raise the level of the transmitted audio signal by the radio. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.

#### **3.3.1.1.5 Transmit-Receive Delay**

A delay in milliseconds (ms) that allows the radio time to switch from transmit to receive mode. When a user is done transmitting on a radio, this delay will allow the radio time to switch from transmit to receive. Range is 0 ms to 2000 ms with 100 ms as default and increment/decrement in 100 ms steps.

#### **3.3.1.1.6 Receive-Transmit Delay**

A delay in ms that allows the radio time to switch from receive to transmit mode. When a user tries to key the radio, no audio will be sent to the radio until the Receive-Transmit delay is exceeded. If the user tries to talk during this time, the first part of the users audio will not be transmitted until the delay is exceeded. Range is 0 ms to 2000 ms, with 100 ms as default and increment/decrement in 100 ms steps.

#### **3.3.1.1.7 Duplex**

Duplex modes:

- Half - Radio receives and transmits but not at the same time. The current work mode is set by using a Push-To-Talk (PTT) switch. When the radio is keyed by any means, radio Voice Operated Transmit (VOX) or a PTT switch, then the radio is in "transmit" mode. When the radio is not keyed, then the radio is in "receive" mode.
- Receiving - The intercom only receives audio from the radio and will not allow a user to key or send any audio to the radio.
- Transmitting - The intercom only transmits audio to the radio and ignores any incoming audio.
- Full - If supported by radio, the intercom receives and transmits audio to and from the radio at the same time.

### 3.3.1.1.8 Side Tone

This option turns the Radio side tone on or off generated by the intercom for a given Radio model. Side tone level can be increased (only when full duplex is enabled for the radio in Radio model properties) or decreased in dB. For Radios that generate their own side tone, it is possible for the side tone to be heard twice, effectively making it unintelligible. This option works independently from the Intercom side tone.

### 3.3.1.1.9 Capabilities

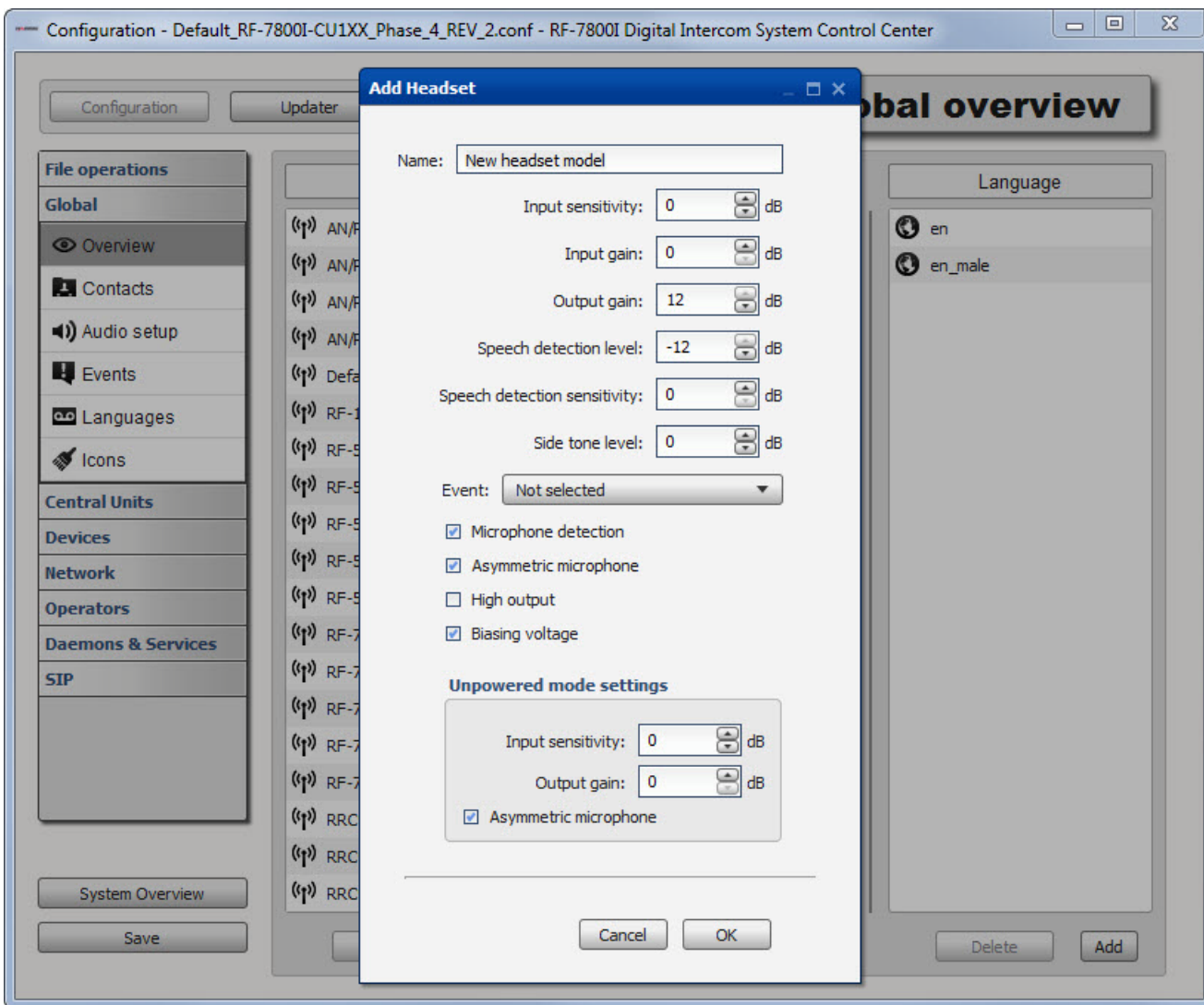
When Harris ASCII Commands is selected, the Harris Radio Server (HRS) is able to remotely control the radio by using American Standard Code for Information Interchange (ASCII) commands.

### 3.3.1.2 Headset

The Headset workspace allows the user to manage available headset models, including adding, modifying and deleting headsets from the configuration. Click on **Add** to add new headset. Click on **Delete** to delete selected headset. Double-click on headset to modify it's settings. See [Figure 3-6](#) for headset properties.

In the headset properties:

- **Delete** - Deletes headset listing.
- **Cancel** - Cancels new headset or modifications to existing headset.
- **OK** - Save new headset or modifications to existing headset.



**Figure 3-6. Headset Properties**

### 3.3.1.2.1 Name

This is the name of the headset that appears in the list.

### 3.3.1.2.2 Input Sensitivity

Increases or decreases the audio level received by the headset microphone to the rest of the intercom. Increasing this value will make the operator's voice heard louder. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.

### 3.3.1.2.3 Input Gain

Increases or decreases the audio level received by the headset microphone to the rest of the intercom in larger steps than input sensitivity. Increasing this value will make the operator hear any incoming signals louder. Values are 0 dB, 6 dB, 12 dB, 18 dB, 20 dB, 26 dB, 32 dB, and 38 dB with 0 dB as default.



#### **3.3.1.2.4 Output Gain**

Increases or decreases the audio level received by the headset earpiece. Increasing this value will make the audio from the intercom heard louder. Values are 0 dB, 3 dB, and 6 dB with 0 dB as default.

#### **3.3.1.2.5 Speech Detection Level**

The sound level of speech that is required to keep VOX - both radio and local VOX active. Increasing this value closer to 0 will require the operator to speak louder to keep VOX active. Range is -78 dB to -12 dB with -12 dB as default and increment/decrement in 1 dB steps.

#### **3.3.1.2.6 Speech Detection Sensitivity**

The difference between the speech detection level and the level required to activate Radio VOX. If the speech detection level plus speech detection sensitivity are exceeded, then Radio VOX is activated. If your voice level remains above the speech detection level, VOX remains activated. Increasing this value will require the operator to speak louder to activate VOX. Values are 0 dB, 3 dB, and 6 dB with 0 dB as default.

#### **3.3.1.2.7 Side Tone Level**

The sound level of the side tone to be heard in this headset model. Increasing this value will cause the Operator to hear their side tone louder. The value range is -30 to 30 dB with 0 as default and a default step of 1 dB.

#### **3.3.1.2.8 Event**

When an operator has access to multiple headset types and is not able to view the headset, the operator can select an event and assign it to the headset model. The Event will be played in the earpiece of the headset when the headset model is selected from the settings menu. Refer to [Paragraph 3.3.4](#).

#### **3.3.1.2.9 Microphone Detection**

Selecting this option when used with a compatible microphone type will allow the modem board to attempt to auto detect the electric resistance of the microphone. The Crew Station modem board will not be able to detect the microphone of a headset if there is a DC blocking capacitance in the microphone circuit of the headset. Microphone Detect is primarily used for headsets that have dynamic microphones.

#### **3.3.1.2.10 Asymmetric Microphone**

Select this option when using an asymmetric microphone (usually an electret microphone). De-select this option when using a symmetric microphone (usually a dynamic or differential microphone).

#### **3.3.1.2.11 High Output**

Select this option when using a headset with a high impedance earpiece. When not selected, the crew station output range is 5 V peak to peak maximum; when selected, the crew station output range is 15 V peak to peak maximum.

#### **3.3.1.2.12 Biasing Voltage**

Toggle this option on or off to enable or disable biasing voltage (a voltage needed in order to power on and record sound) for the headset microphone. It should be turned on for asymmetric (electret) microphones and turned off for dynamic and differential microphones.



### **3.3.1.2.13 Unpowered Mode Settings**

These settings apply only when an Active Noise Reduction (ANR)-equipped headset is used without an additional power supply.

- **Input sensitivity** - Increases or decreases the audio level received by the headset microphone to the rest of the intercom. Increasing this value will make the operator's voice heard louder. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.
- **Output gain** - Increases or decreases the audio level received by the headset earpiece. Increasing this value will make the operator's voice heard louder. Values are 0 dB, 3 dB, and 6 dB with 0 dB as default.
- **Asymmetric microphone** - Select this option when using a headset that uses an asymmetric microphone.

### **3.3.1.3 Language**

The Language workspace allows the user to manage announcement languages, including adding, modifying and deleting existing languages. Click on **Add** to add new language. Click on **Delete** to delete selected language. Double-click on language to modify settings. See [Figure 3-7](#) for language properties.

In the Language properties:

- **Name** - This is the name of the language that appears in the list.
- **Cancel** - Cancels new language or modifications to existing language.
- **OK** - Save new language listing or modifications to existing language.

To save the settings as a new language, press the **OK** button. To close the window without adding a new language, press **Cancel**.

If an existing language is selected when pressing the **Add** button, its properties will be copied into the newly opened window.

To modify an existing language's properties, double click on it in the list, and adjust its properties as required. To confirm, press **OK**. To close the window without making changes, press **Cancel**.

To delete an existing language, double click on it in the list, and press the **Delete** button.

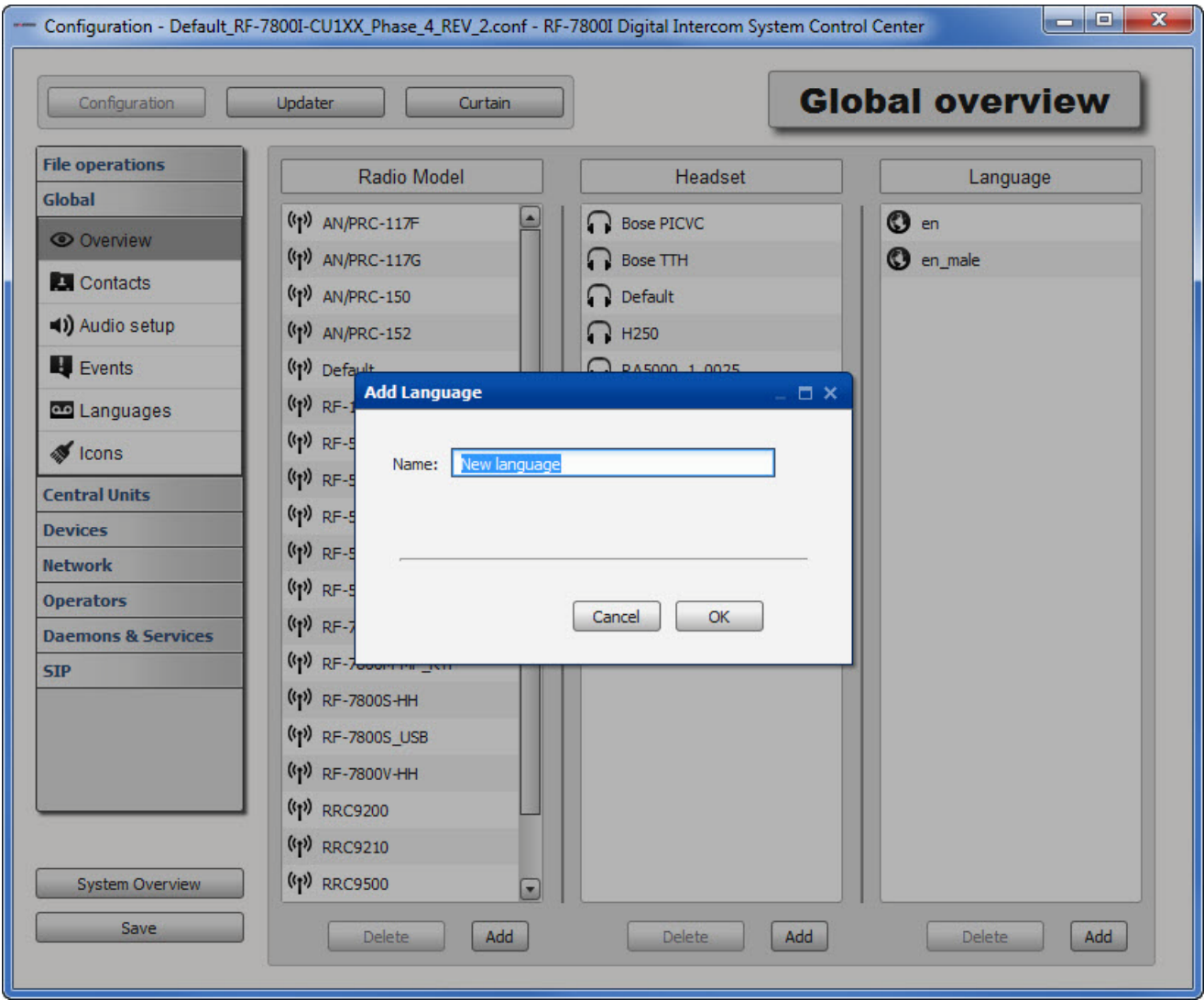
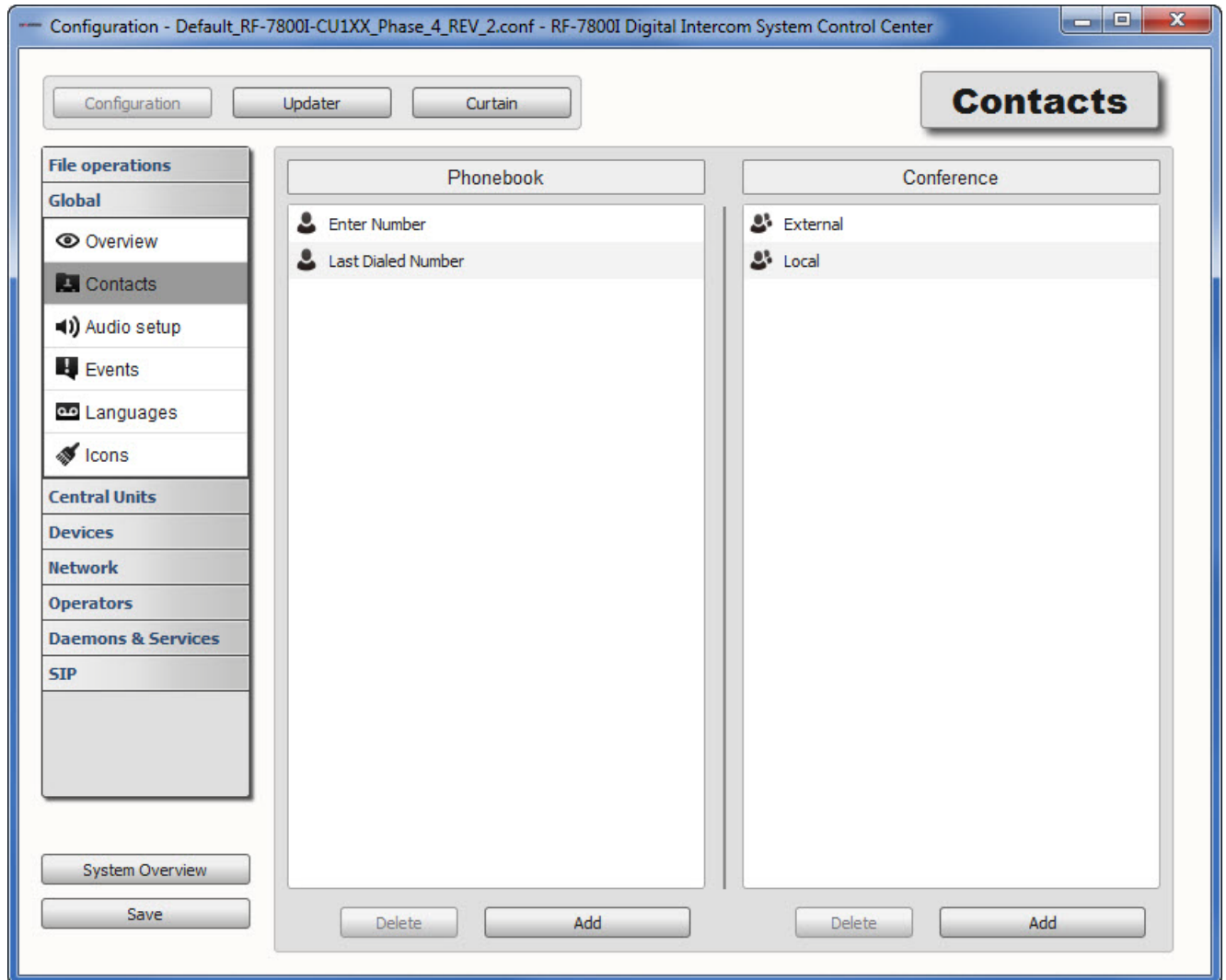


Figure 3-7. Language Properties

## 3.3.2 Contacts

See [Figure 3-8](#). The Contacts tab is used to define the public Phonebook entries and Conferences.



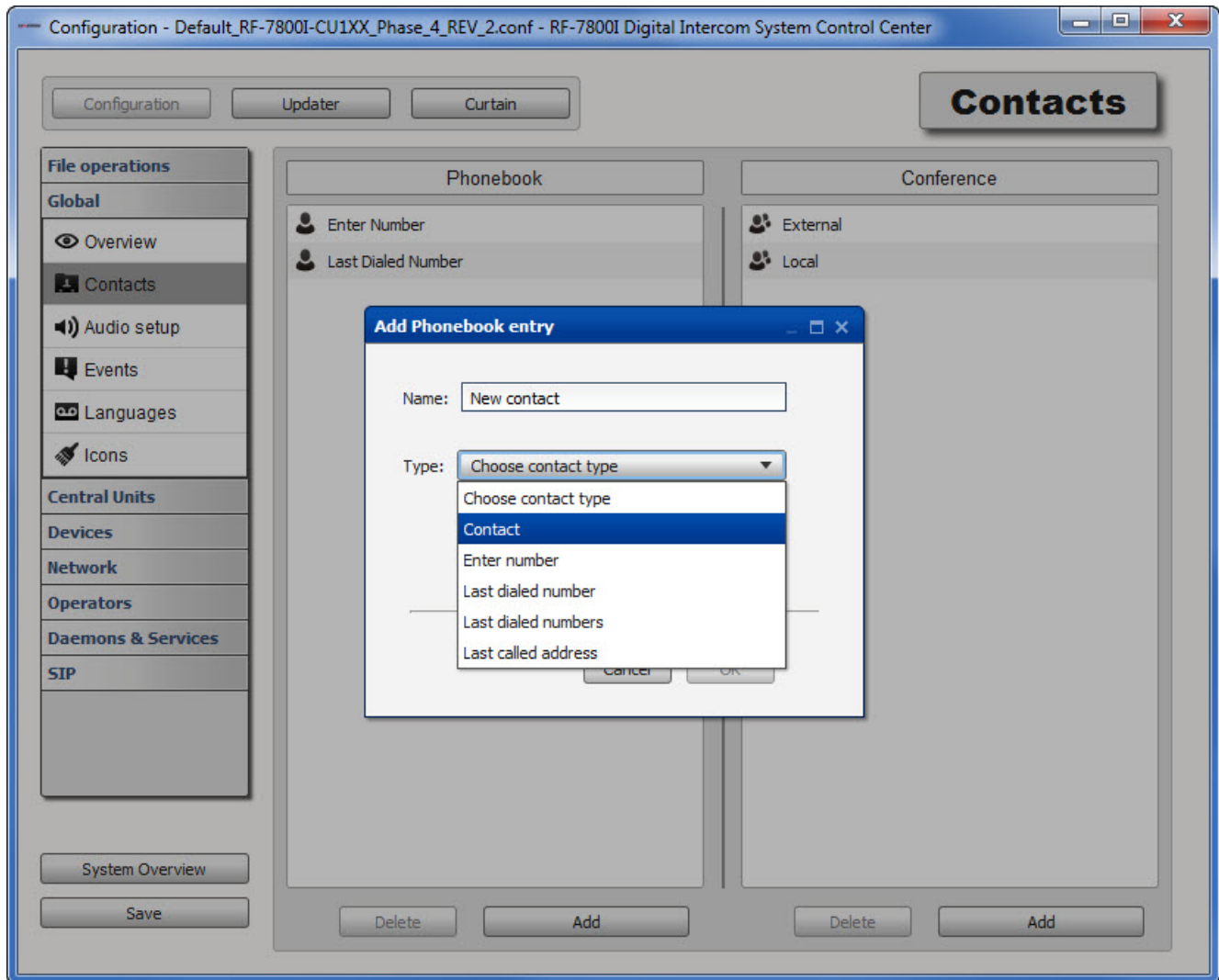
**Figure 3-8. Contacts**

### 3.3.2.1 Phonebook

This Phonebook tab allows the user to manage the public (available to all operators) Phonebook, including adding, modifying and deleting entries. Click on **Add** to add new phonebook entry. Click on **Delete** to delete selected phonebook entry. Double-click on phonebook entry to modify settings. See [Figure 3-9](#) for phonebook properties.

In the phonebook properties:

- **Cancel** - Cancels new phonebook entry or modifications to existing phonebook entry.
- **OK** - Save new phonebook entry or modifications to existing phonebook entry.



**Figure 3-9. Phonebook Properties**

#### 3.3.2.1.1 Name

This is the name of the phonebook entry (contact) that appears in the list.

#### 3.3.2.1.2 Type

Types are as follows:

- **Contact** - Allows the user to assign a Private Automatic Branch Exchange (PABX) number and/or a SIP address to a Contact. The PABX number is used for the "Connect to PABX Phone" function, while the SIP address is used for the "Call Voice over Internet Protocol (VoIP)" function. The numbers used for both fields depend on the configuration of the PABX and/or the SIP server.

#### **NOTE**

Entering a SIP address such as sip:Phone1@192.168.1.20 will not work properly when the Asterisk Call Manager is installed (by default) on the intercom.

- **Enter number** - Allows an operator on an RF-7800I-KD crew station to manually enter a PABX number or a SIP number.
- **Last dialed number** - Used only for the "Connect to PABX Phone" function. This allows an operator on a RF-7800I-KD crew station to display and redial the most recently used PABX number.
- **Last dialed numbers** - Used only for the "Connect to PABX Phone" function. This allows an operator on a RF-7800I-KD crew station to display a list of recently used PABX numbers and select one of them to redial.
- **Last called address** - Used only for the "Call VoIP" function. This allows operator on an RF-7800I-KD type terminal to display and reconnect to the most recently called SIP address.

#### **3.3.2.1.3 PABX Number**

For contacts only, the PABX number is used to store the PABX number of the entry. The PABX number is used for the "Connect to PABX Phone" functionality.

#### **3.3.2.1.4 SIP Address**

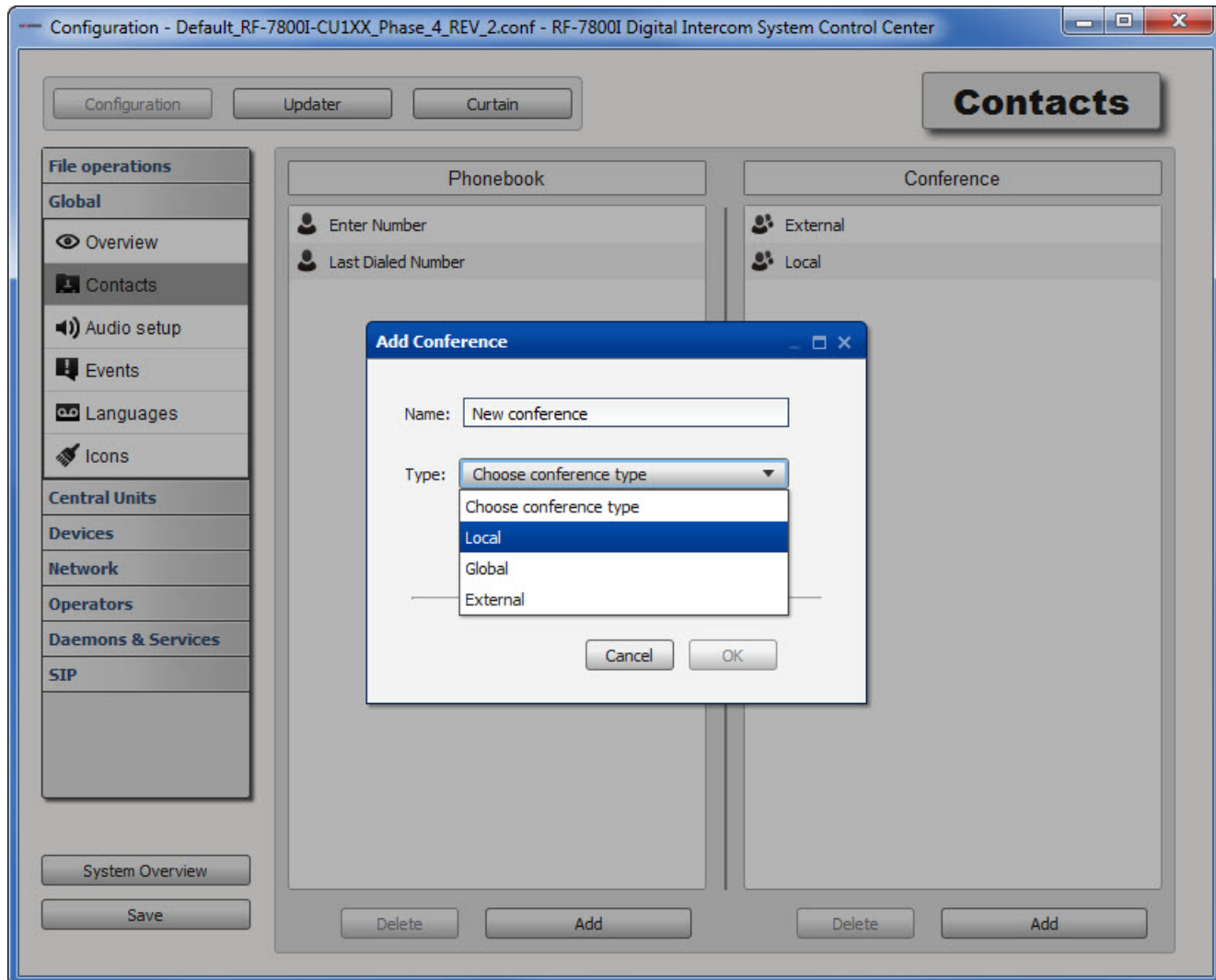
For contacts only, Session Initiation Protocol (SIP) address is used for VoIP connections. The format for entering a SIP address is **sip:name\_of\_phone@IP\_Address\_of\_phone**.

#### **3.3.2.2 Conference**

Conference allows the user to manage conferences, including adding, modifying and deleting existing conferences. A conference allows all operators connected to the conference to communicate with each other simultaneously. Operators can connect to other operators or phones and other hardware in a conference environment. Conferences can be used to connect audio between multiple users. See [Figure 3-10](#) for conference properties.

In the conference properties:

- **Cancel** - Cancels new conference or modifications to existing conference.
- **OK** - Save new conference or modifications to existing conference.



**Figure 3-10. Conference Properties**

#### **3.3.2.2.1 Name**

This is the name of the conference that appears in the list.

#### **3.3.2.2.2 Type**

Types of conferences:

- Local - Available to operators connected to a single central unit only.
- Global - Works based on a multicast address assigned to this conference. All central units that are subscribed to the conference multicast address are able to communicate on this conference which is available to operators connected to central units across a Central Unit Bridging (CUB) network. This means that any number of operators that operate within a single CUB Network, may be able to access a global conference if they are given the option to connect.
- External - Works based on a multicast address assigned to this conference. All central units that are subscribed to the conference multicast address are able to communicate on this conference. An external

conference works outside of the CUB, so other Vehicles (Central Units) that are not in the CUB can be connected together and operators on the connected Central Units can communicate. Also, external subscribers may be able to connect to an external conference (for example, operators working in separate CUB networks) may be able to connect to the same external conference.

### **3.3.2.2.3 Description**

Below are descriptions for the settings in Global and External conferences.

### **3.3.2.2.4 Multicast Group**

A multicast group is an Internet Protocol (IP) address for global and external conferences. The address can be any address from 224.0.0.0 to 239.255.255.255.

### **3.3.2.2.5 Port**

For external conferences only, this can be any port number from 0 to 65535. Some ports below 50000 may be registered to other applications, so it is advisable to use ports from 50000 to 65535 range. Use of port numbers below 50000 may cause issues with other applications.

### **3.3.2.2.6 TTL**

For external conferences only, Time-To-Live (TTL) is the maximum lifetime of a data packet as measured by the number of network nodes the packet passes through before reaching its destination. If the packet does not reach its destination within the given TTL, the packet is dumped. The value range is 1 to 100 with the default value of 12 which is more than enough for most applications. The more network nodes in the system, the higher the value should be.

## **3.3.3 Audio Setup**

The Audio setup tab allows the user to add and delete audio files that are to be used in the system, as well as translate the predefined text messages that can be displayed on the RF-7800I-KD units. See [Figure 3-11](#).

### **3.3.3.1 Adding New Audio Files**

Audio files to be used in the RF-7800I need to have the following properties:

- Format - wav
- Sampling - 8 kbps
- Coding -  $\mu$ Law or PCM-16s
- Mode - mono

Select a language from the dropdown menu labeled "Language". This will specify the language for which the audio file is to be used.

Click on the **Add** button to select the file that is to be used. Navigate through the file exploration window to find the proper file, then double click its icon or tag it and select **Open**. After the file is added, the program will display the filename and its duration.

Click on **Delete** to delete a file that is not needed. Click on **Replace** to replace an existing file with a specific file.

Select language for audio file that will be added, replaced, or deleted. Language needs to be selected before double-clicking on text/translation in right column of screen. These languages were set under [Paragraph 3.3.1.3](#). Audio files are available under the 'Program Files\Harris RF-7800I Utilities\announcements' directory.



3.3.3.2 Text Announcement Translation

This workspace allows the user to add translations for predefined text announcements. Change text translation by first selecting the language followed by double-clicking on the text/translation. Enter the translation text in the translation field. Save translation by clicking on **OK** or clicking on **Cancel** to exit without saving the changes.

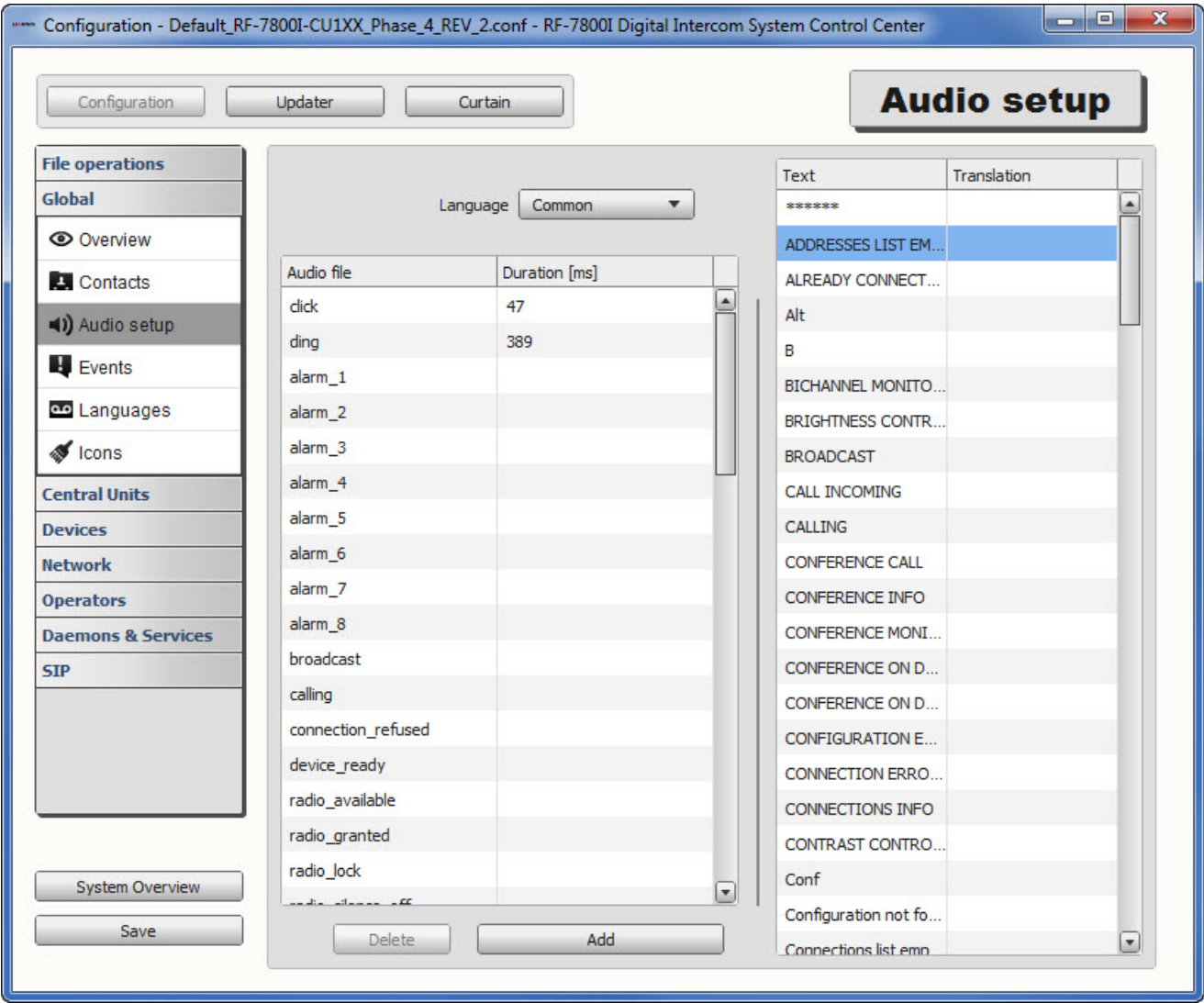


Figure 3-11. Audio Setup

3.3.4 Events

This Events tab allows the user to define and modify events that can occur in the system. See [Figure 3-12](#). Events properties correlate audio and text files to an RF-7800I event. When an event occurs, such as an incoming call, the defined audio file plays or text message is displayed. Click on **Add** to add a new event. Click on **Delete** to delete a selected event. Double-click on an event to modify properties of an event in a separate window. See [Figure 3-13](#) for event properties.



In the event properties:

- **Cancel** - Cancels new event or modifications to an existing event.
- **OK** - Save new event or modifications to an existing event.

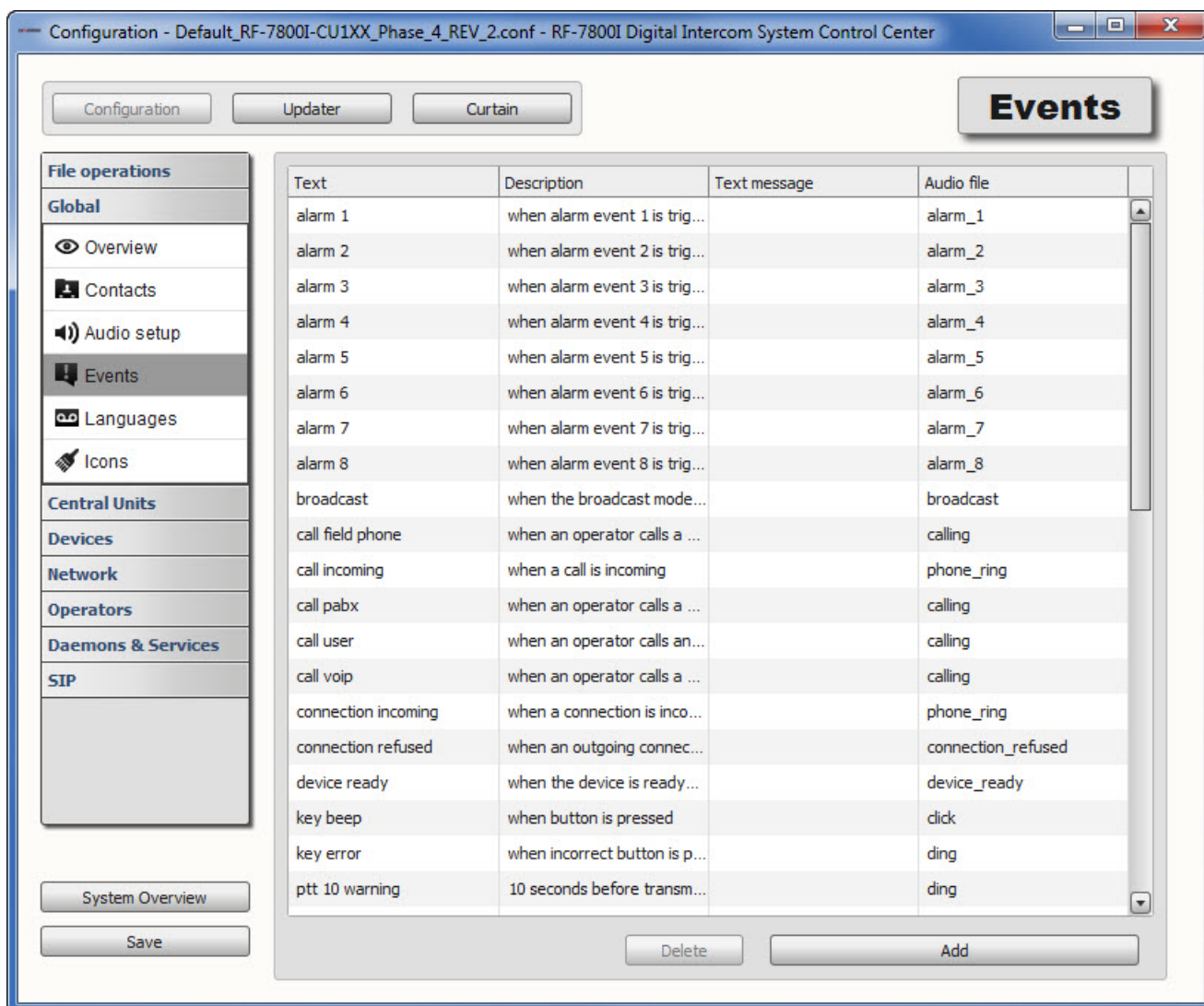
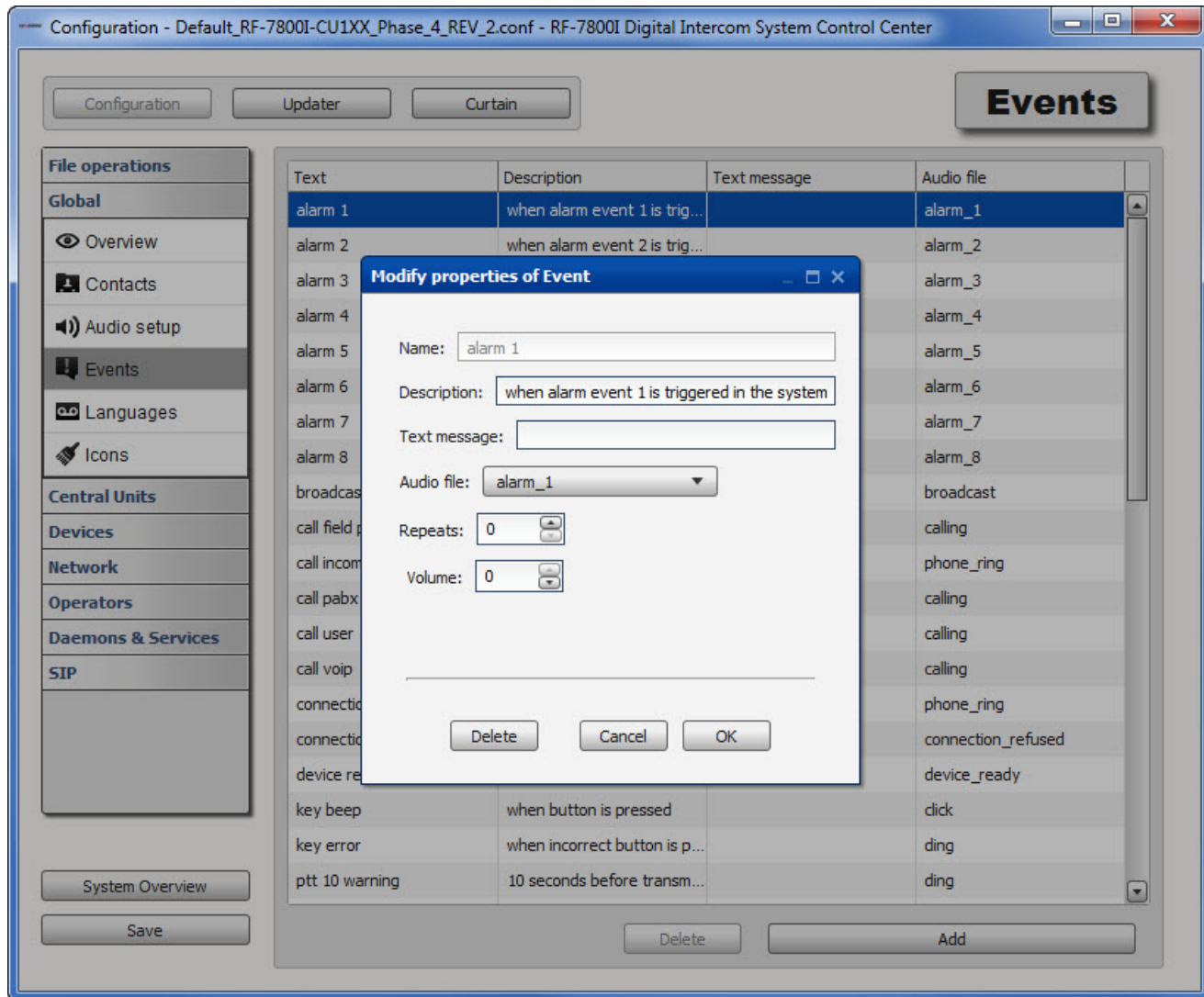


Figure 3-12. Events



**Figure 3-13. Event Properties**

#### 3.3.4.1 Name

This is the name of the event that appears in the list (or new event).

#### 3.3.4.2 Description

This is a description of the event.

#### 3.3.4.3 Text Message

Text message that is displayed when the event occurs.

#### 3.3.4.4 Audio File

Select previously defined audio file ([Paragraph 3.3.3](#)) to associate with the event.

#### **3.3.4.5 Repeats**

Enter number of times audio file is played when event occurs. Range is 0 to 100 with 1 as default. A value of 0 is used to continually repeat the event.

#### **3.3.4.6 Volume**

The base volume of the audio file that will be played once the event is triggered. This volume is also affected by the crew station's own volume settings. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.

#### **3.3.5 Create a New Event**

Perform the following steps to create a new event and associate an audio file with the event so that a user can hear an audio prompt.

1. Navigate to the announcements folder that was installed with the DCC. The announcements folder is found in the following Windows 7 directory:  
C:\Program Files (x86)\Harris RF Communications\Harris RF-7800I Intercom DCC\bin\announcements.
2. Place the wav file of the new event in one of the languages folders or in the root announcements directory.
3. Start up the DCC or restart the DCC so the software will recognize the newly added wav file in the language folder.
4. In the DCC go to **Global > Audio setup** and select the language at the top of the screen that the wav file was added to. Verify that the newly added audio wav file appears as shown in [Figure 3-14](#).
5. Next go to **Global > Events** and select the **Add** button to create a new event. Enter in all the event information and select newly added wav file in the Audio File drop down list.
6. Then go to **Global > Overview** and double click the headset model in the Headset column that the newly created event will be assigned to.
7. In the headset model, select the newly added event in the Event drop down list as shown in [Figure 3-15](#).

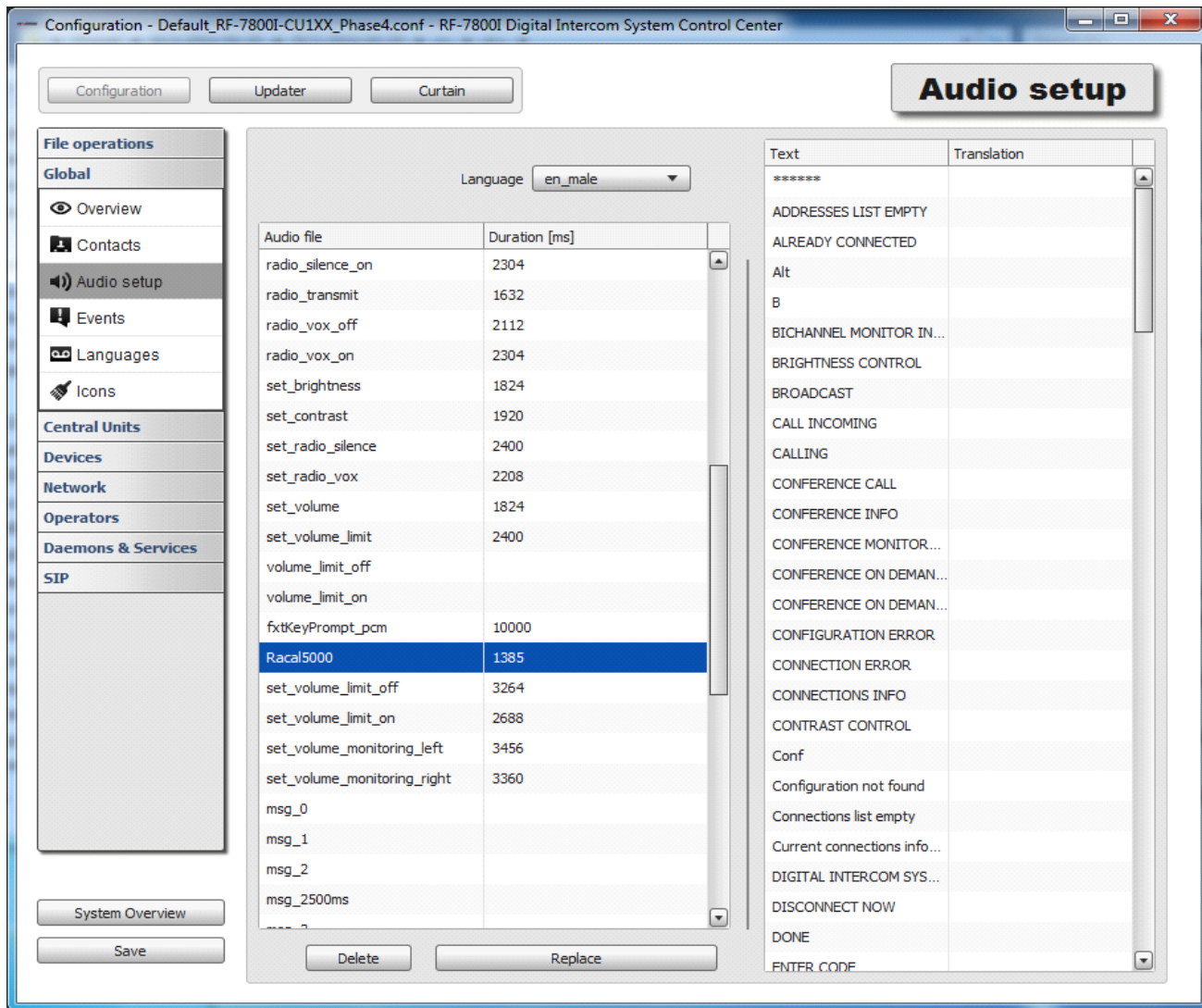


Figure 3-14. Create New Event - Audio Setup

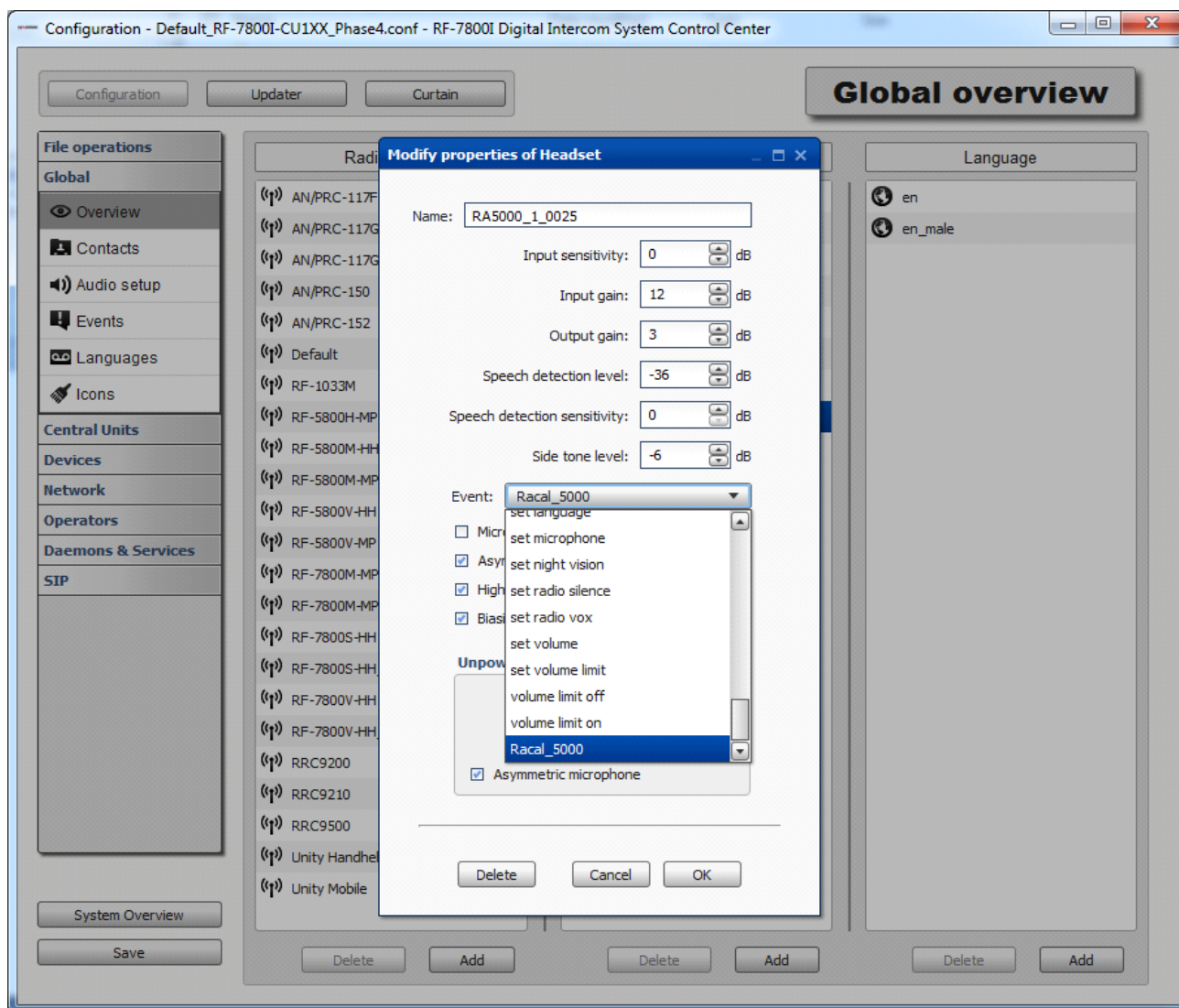

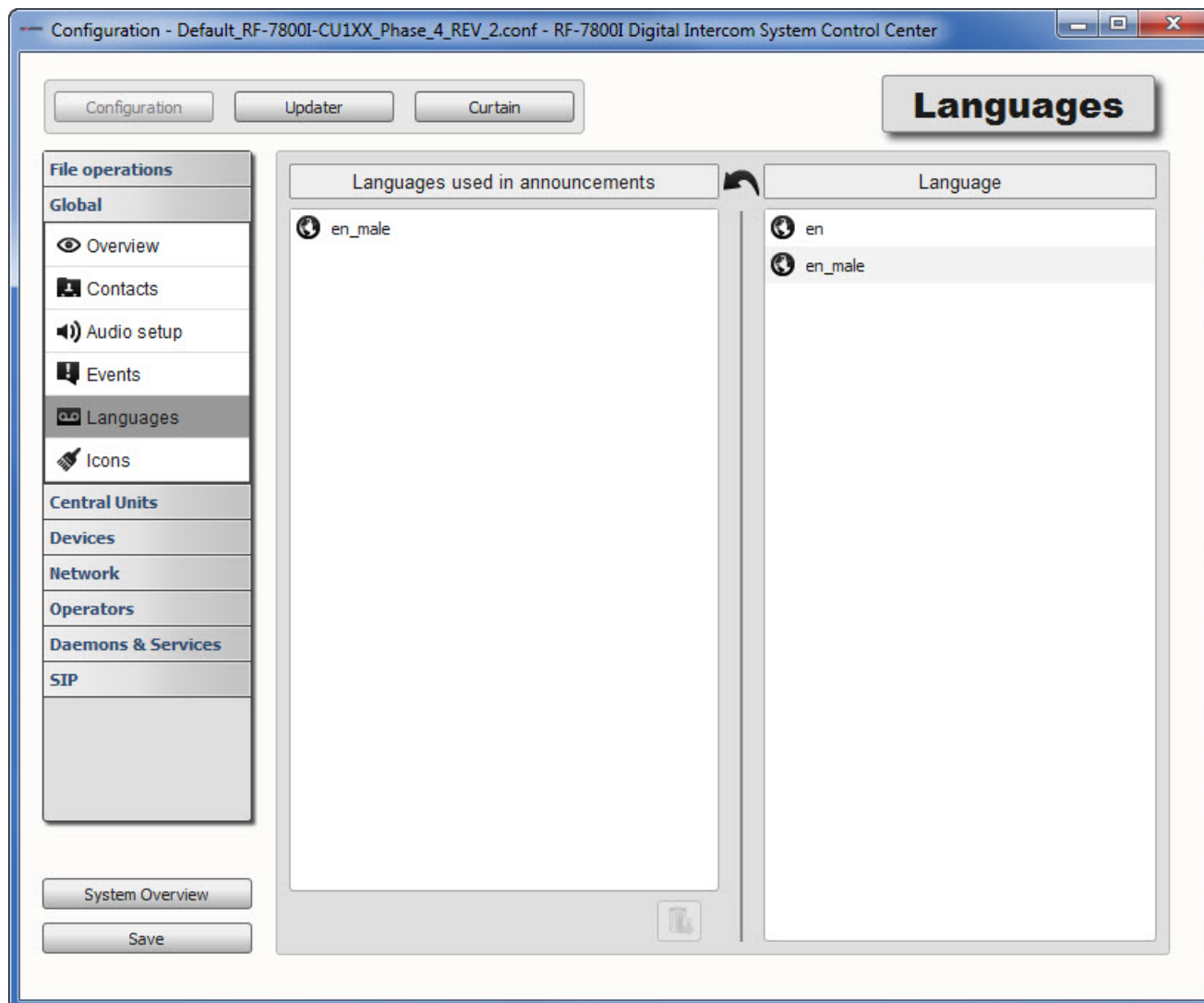


Figure 3-15. Create New Event - Headset Model Assigned

### 3.3.6 Languages

The Language tab allows the user to select which languages will be available to be used in the Central Unit. See [Figure 3-16](#). A language created in [Paragraph 3.3.1.3](#) can be made available for use in announcements by dragging the language to the left under the **Languages used in announcements** workspace. The language can be removed by dragging the language to the trash can (  ). To create a new language, refer to [Paragraph 3.3.7](#).



**Figure 3-16. Languages**

#### NOTE

If a user decides not to add all the supported languages in the **Languages used in announcements** workspace and then updates the announcements from the Updater, the announcements loaded onto the intercom will be the ones in the **Languages used in announcements** workspace.



### **3.3.7 Create a New Language**

Perform the steps below to create a new language that can be loaded in the intercom and will appear in the DCC.

1. Navigate to the announcements folder found in the following Windows 7 directory:  
C:\Program Files (x86)\Harris RF Communications\Harris RF-7800I Intercom DCC\bin\announcements.
2. In the announcements folder, create a new folder (using the name of the new language as the folder name).
3. Record new audio events in the new language and name them the same as the audio events in the other languages folder. For example, if recording device ready in a new language, the recording should be saved as "device\_ready" and put in the new language folder.
4. Once all the audio events are recorded and named properly, they can be used by the DCC and the Central Unit.
5. In the DCC, go to **Global > Overview** and verify that the newly added language appears in the Language column.
6. Next go to **Global > Audio setup** and then select the new language from the Language drop down menu. Any events that have audio will appear with an audio duration in the window below the Language drop down window. Events that do not show any duration do not contain any audio in that language.
7. Go to **Global > Languages** and drag and drop any language in the Language column into the Languages used in announcements column. The Central Unit will now load this new language.

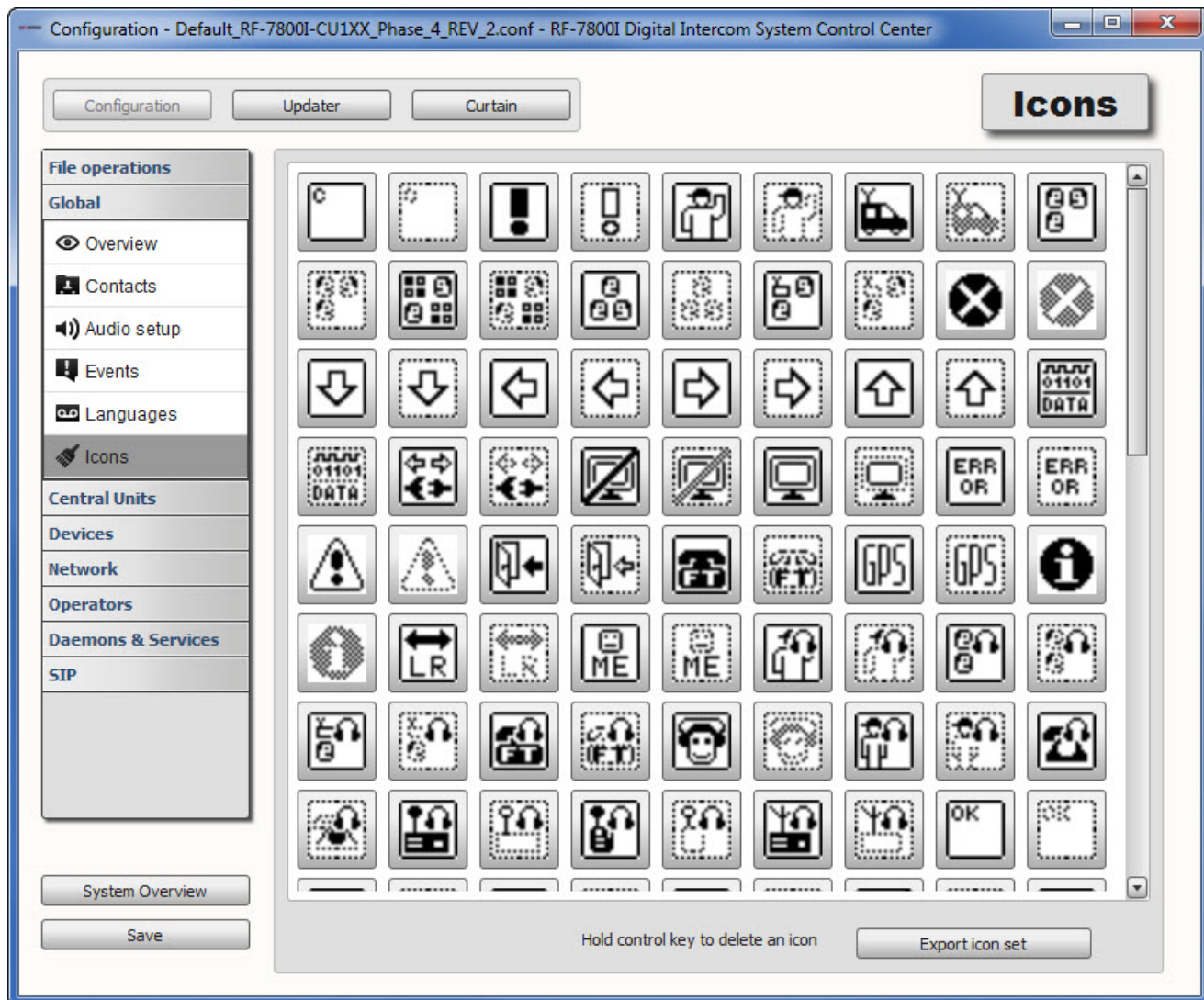
#### **NOTE**

If the language is not added to the Languages used in announcements column, the Central Unit will not have access to the language.

8. Go to **Operators > General settings** and select an operator.
9. In the Modify properties of Operator window, select the newly added language for the operator from the Languages drop down menu. Repeat this step for all operators that will use the newly added language by default.
10. Save and upload the configuration with the newly added language onto the Central Unit.
11. Upload the announcements onto the intercom by dragging the speaker icon in the updater over to the Central Unit.
12. Power cycle the Central Unit so all the operators configured for the new language will apply the new settings.

### 3.3.8 Icons

The Icons workspace allows the user to modify the existing icon set for KD Crew Stations. See [Figure 3-17](#). It is possible to add, remove or change any icon available to be used in Keypad Display menus (does not include indices, as their appearance is generated by the system). The ability to change the icon set is available only for Crew Stations using the terminal software version 2.15 (or above if available), and intercom firmware 12109-8010-06 or higher. Recommended keypad icons for use and their functionality are shown in [Appendix B](#). To create a new icon, refer to [Paragraph 3.3.9](#).



**Figure 3-17. Icons**



Due to memory limitations, only 94 icons and their respective "inactive" versions can be loaded, giving a total of 188 icons altogether.

#### **NOTE**

"Inactive" icons need to be created and added manually - the system does not generate an inactive version of any icon on its own.

All icons are 20 by 20 pixels - including the frame - in perfect monochrome. No colors, grey scale or transparency is allowed. The supported formats are .bmp, .jpg and .png.

To add an icon, click a blank field on the list of icons in the workspace. A new window will appear, allowing the user to navigate to the location of the new icon. Confirm your selection by double clicking the file or pressing **Enter** once the file is selected. The icon is now loaded and available for use when configuring Keypad Display menus.

To swap an existing icon for another one, click the icon to be changed. A new window will appear, allowing the user to navigate to the location of the new icon. Confirm your selection by double clicking the file or pressing **Enter** once the file is selected. The icon is now loaded and available for use when configuring Keypad Display menus.

To remove an icon (swap it for a blank), click the icon to be removed while holding the control key.

It is also possible to export the icon set to an external .zip file containing all icons saved as .bmp files. To do that, press the **Export icon set** button. A navigation window will appear, allowing the user to specify the name of the file to be exported and its location.

The icon set is added to the configuration file when saving the configuration, and is uploaded to the Central Unit along with all other configuration settings. On system startup the intercom verifies the current icon set on each Keypad Display Crew Station connected. If the icon sets match, the system proceeds with normal operation. Otherwise the icon set is uploaded to those Crew Stations that require an update. This can take up to five minutes. Afterwards, the Crew Stations synchronize with the intercom normally and resume operation using the new icon set.

#### **NOTE**

When new icons are added to the RF-7800I configurations, the operator will view an indication that new icons are being loaded. Once the message indicating synchronized can be viewed, the system must be restarted.

### **3.3.9 Create a New Icon**

Perform the steps below to create a new icon.

1. Export the icon set from the DCC by going to **Global > Icons** in the DCC and select the "Export Icon Set" button at the lower right hand corner of the screen.
2. Save the icon zip file.
3. Navigate to where the icon zip file was saved and extract the file.
4. Open Microsoft Paint and go to **File > Open** and then navigate to the extracted icon set.
5. Select one of the icons that does not have disabled in the icon name.
6. Use Paint to modify the icon and then save it as a new name. The icon saved is the enabled version of the icon.
7. In Paint, open the saved icon and create a version of the icon that will be shown when the icon is disabled.
8. Save the disabled icon as the same name as the enabled icon but add "\_disabled" at the end of the name.

9. In the DCC, select one of the empty icons in **Global > Icons** and navigate to the enabled version of the icon that was just created.
10. Select the enabled version of the icon and it will appear in the icons window of the DCC.
11. Next in the DCC, select an empty icon (preferably next to the enabled icon just added) in **Global > Icons** and navigate to the disabled version of the icon that was just created.
12. Select the disabled version of the icon and it will appear in the icons window of the DCC.

**NOTE**

Icons added to the DCC are saved in the configuration file that is made for the intercom. At any time, the configuration file can be opened by any DCC and the icon set can be exported even if the icon was not created on the PC.

**3.3.9.1 Microsoft Paint Tips**

Adding text to icons can be difficult due to the size of the icon. For standard letters, select **Small Fonts** at a size of **6**.

## 3.4 CENTRAL UNITS

See [Figure 3-18](#). The Central Units tab allows the user to set the following.

- Quantities and types of central units to be used in the system.
- Define the properties of central units to be used in the system.
- Configure CUB settings (if applicable).

### NOTE

Add multiple Central Units only in a Central Unit Bridging (CUB) network, or the configuration file loaded on a Central Unit will be very large and slow down boot up time.

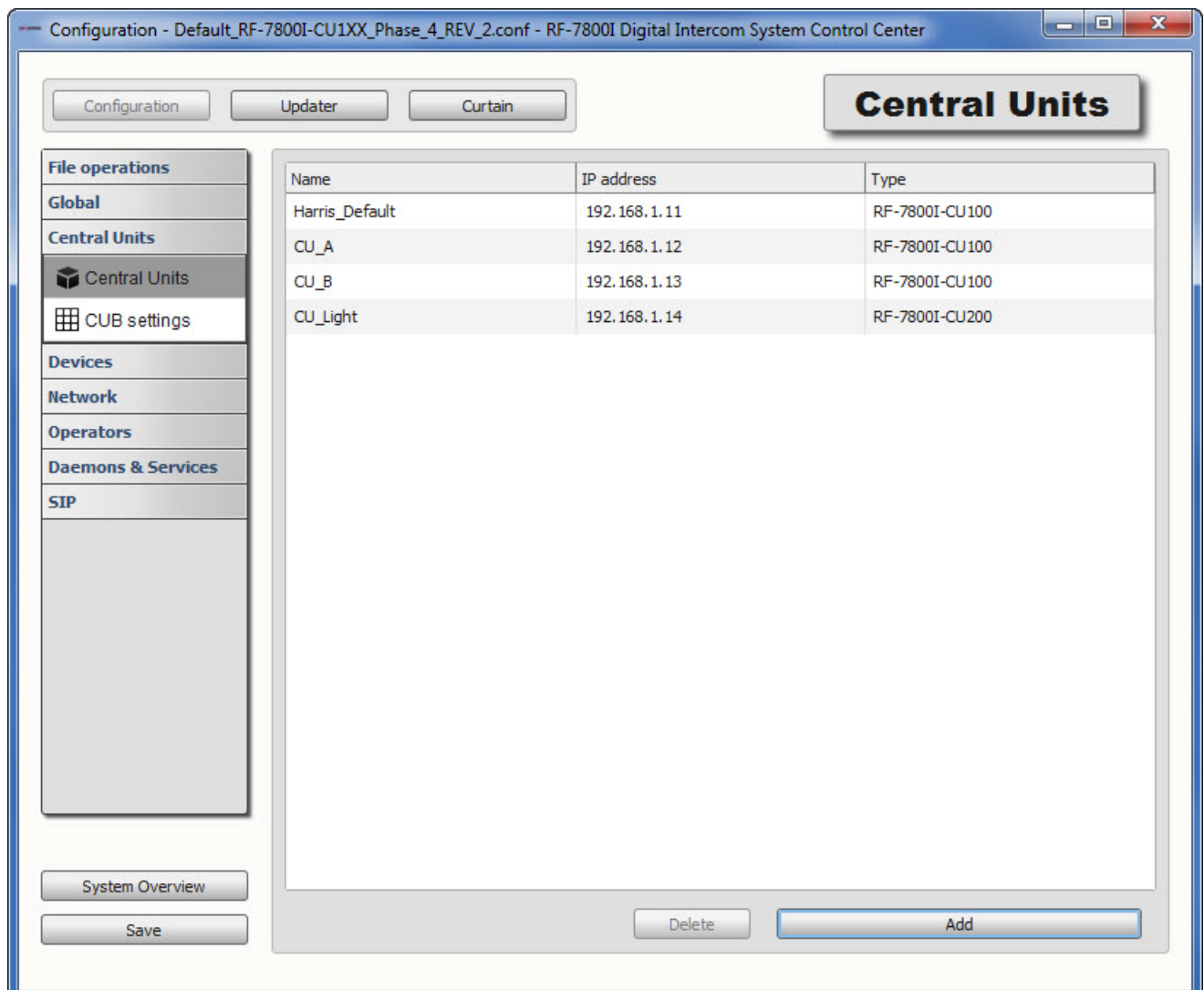


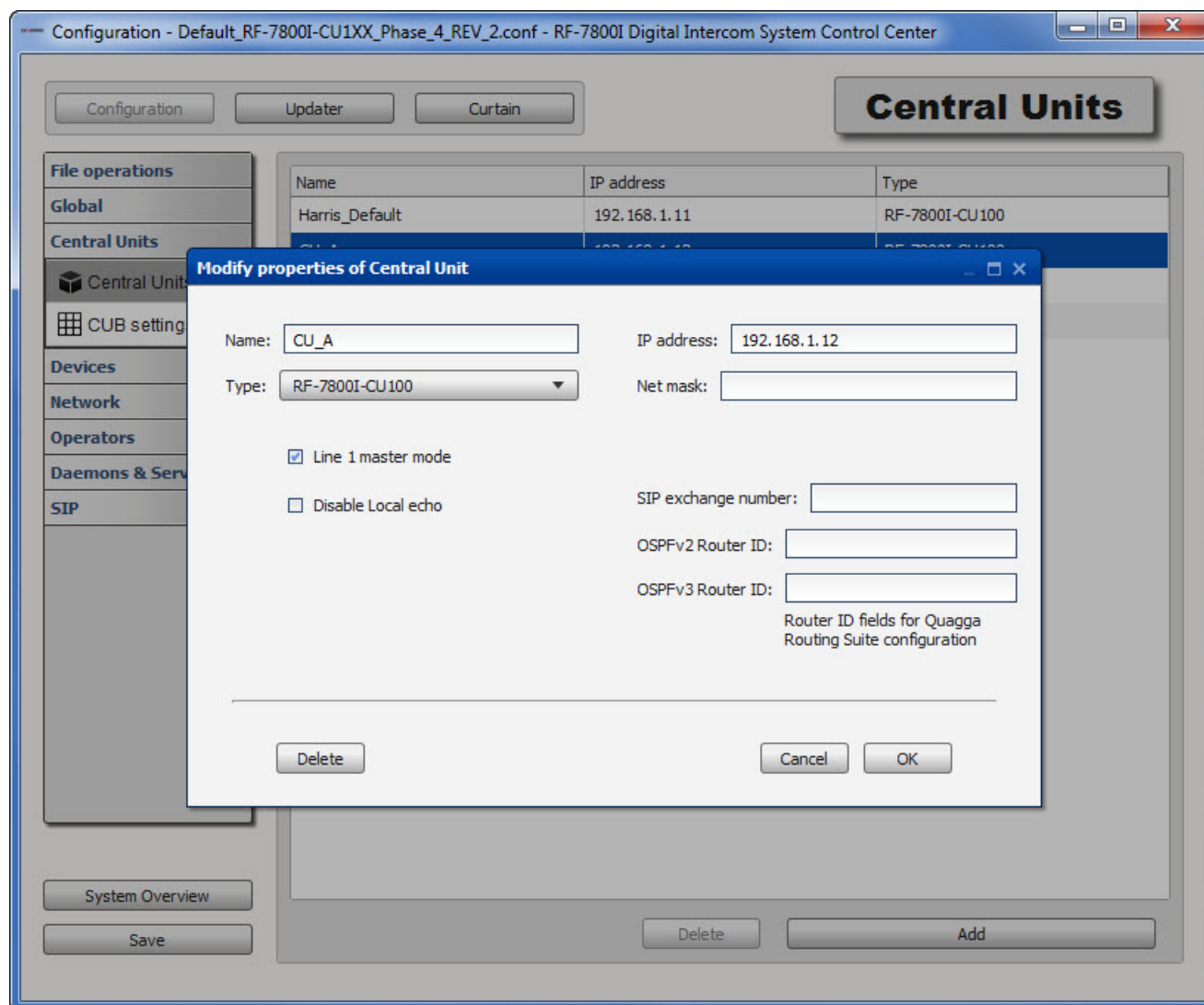
Figure 3-18. Central Units

### 3.4.1 Central Units

Click on **Add** to add new central unit. Click on **Delete** to delete selected central unit. Double-click on central unit to modify settings. See [Figure 3-19](#) for central units properties.

In the central unit properties:

- **Delete** - Deletes new central unit.
- **Cancel** - Cancels new central unit or modifications to existing central unit.
- **OK** - Save new central unit or modifications to existing central unit.



**Figure 3-19. Central Unit Properties**

#### 3.4.1.1 Name

This is the name of the central unit that appears in the list.

### **3.4.1.2 Type**

RF-7800I-CU100 - Connect the following devices:

- Up to eight (8) crew stations, including phone terminals
- One (1) speaker
- Four (4) radios
- Four (4) serial devices

RF-7800I-CU200 - Connect the following devices

- Up to four (4) crew stations, including phone terminals
- One (1) speaker
- Two (2) radios - audio only, no data or remote control

### **3.4.1.3 Line 1 Master Mode**

Select to enable line 1 master mode. If enabled, line 1 interface is powered, allowing connection of a crew station or a central unit in secondary mode. With line 1 master mode disabled, the Line 1 interface is not powered and can be used to connect to another Central Unit in master mode.

### **3.4.1.4 Disable Local Echo**

Select to disable local echo effect for connections with PABX phones. When local echo effect is enabled, you hear a slight echo when speaking into your microphones when connected to a PABX phone.

### **3.4.1.5 IP Address**

Enter the IP address of the Central Unit.

### **3.4.1.6 Net Mask**

Enter the subnet mask of the network connected to the Central Unit that it is used in.

### **3.4.1.7 SIP Exchange Number**

This is a number that allows a SIP server to identify the Central Unit and any associated Operators or devices, allowing SIP callers to reach any SIP subscriber associated with that Central Unit. The SIP exchange number is not required for use of the Call VoIP functionality and can be left blank. The SIP Exchange Number, if used, has to be 3 digits. These 3 digits is what the intercom uses for incoming VoIP calls to the intercom. An incoming call that matches the first 3 digits of the intercom SIP Exchange Number will be recognized by the Central Unit and sent to any peripheral device that matches the next 4 digits of the incoming call.

### **3.4.1.8 OSPFv2 Router ID**

This ID is used as a Router Identification for OSPFv2 based networks. It allows the Central Unit to be recognized by this ID in the network. Usually it is the IP address of the Central Unit, but other ID notations can be used.

### **3.4.1.9 OSPFv3 Router ID**

This ID is used as a Router Identification for OSPFv3 based networks. It allows the Central Unit to be recognized by this ID in the network. Usually it is the IP address of the Central Unit, but other ID notations can be used.

### 3.4.2 CUB Settings

The CUB settings tab allows the user to define the Central Unit Bridging settings used in the setup. Initially, all fields are grayed out and are not editable. To change the settings, press the **Edit** button.

When the **Edit** button is pressed, the CUB settings properties window will appear.

To commit the changes made to the CUB property settings, press the **Save** button as shown in [Figure 3-20](#).

Configuration - Default\_RF-7800I-CU1XX\_Phase\_4\_REV\_2.conf - RF-7800I Digital Intercom System Control Center

Configuration Updater Curtain

**CUB settings**

File operations  
Global  
Central Units  
Central Units  
CUB settings  
Devices  
Network  
Operators  
Daemons & Services  
SIP

Name : New CUB  
Organization : Harris RF Communications  
Language : en\_male  
Network key : .....  
Multicast group address : 224.0.0.100  
Multicast TTL : 12  
☒ Broadcast timeout  
15

System Overview  
Save

Save

Figure 3-20. CUB Settings

#### 3.4.2.1 Name

This is the name of the CUB network as recognized in the system.

#### 3.4.2.2 Organization

This is the name of the organization.

### **3.4.2.3 Language**

The default language used in CUB network for all central units.

### **3.4.2.4 Network Key**

Enter the network key for the subnet in which the CUB network will operate. Use a combination of alphanumeric characters (letters and numbers only).

### **3.4.2.5 Multicast Group Address**

Enter the multicast group IP address for CUB network. The address can be any address from 224.0.0.0 to 239.255.255.255.

### **3.4.2.6 Multicast TTL**

Set the Time-To-Live (TTL) in seconds for packets sent to the multicast group address. TTL is the maximum lifetime of a data packet. TTL is measured by the number of network nodes the packet passes through, before reaching its destination. If the packet does not reach its destination within the given TTL, the packet is erased. The range is 1 to 100 with a default of 12. The greater the network nodes in the system, the higher the value should be.

### **3.4.2.7 Broadcast Timeout**

Set the broadcast timeout (or the maximum transmit time in seconds) of a single broadcast initiated from a crew station. If selected, the broadcast is turned off after a fixed amount of time even if the operator is still pressing the broadcast keys. If not selected, broadcasts are not time-limited.

## **3.5 DEVICES**

Devices consist of crew stations, radios, Central Unit (CU) serial ports, speakers, and telephone/alarm.

### **3.5.1 Crew Stations**

The Crew stations tab allows the user to add and define the crew stations that are to be used in the system. See [Figure 3-21](#) for crew station list. Up to eight (8) crew stations can be connected to a single RF-7800I-CU1XX via the line interface and up to four crew stations can be connected to a single RF-7800I-CU2XX via the line interface. Each phone terminal will use a single line interface to connect to a central unit.

To add a crew station to the system, press the **Add** button at the bottom of the workspace. A new window will open, allowing the user to define the crew properties ([Figure 3-22](#)). If an existing crew station is selected when pressing the **Add** button, its properties will be copied into the newly opened window.

Click on **Delete** to delete selected central unit. Double-click on central unit to modify settings.

In the Crew station properties window shown in [Figure 3-22](#):

- **Delete** - Deletes crew station listing.
- **Cancel** - Cancels new crew station or modifications to existing crew station.
- **OK** - Save new crew station entry or modifications to existing crew station. To modify an existing crew station's properties, double click on it in the list, and adjust its properties as required.



### NOTE

You cannot change the type of a previously defined crew station once its settings have been saved. To close the window without adding a new crew station, press **Cancel**. To save the settings as a new crew station, press **OK**.

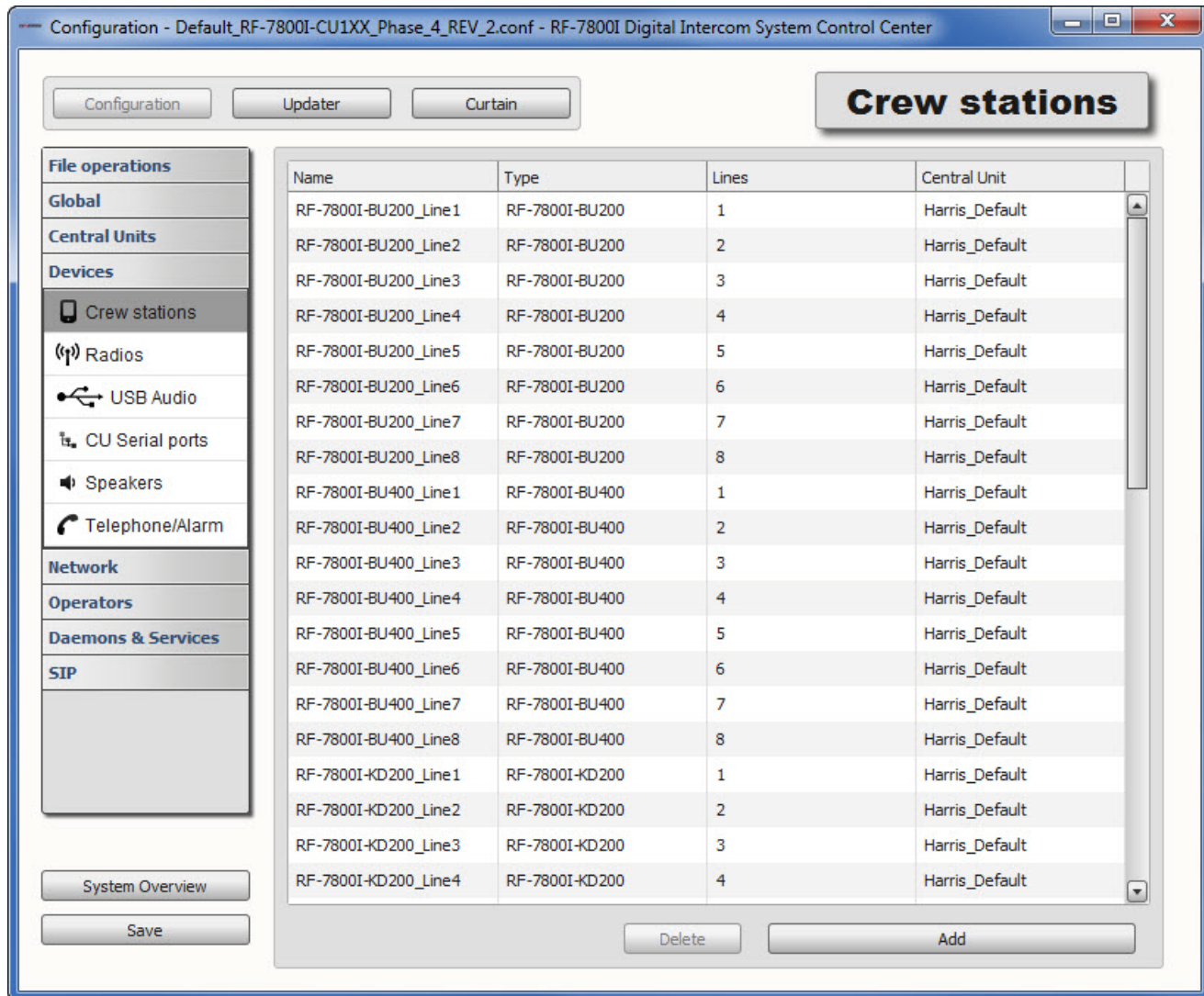
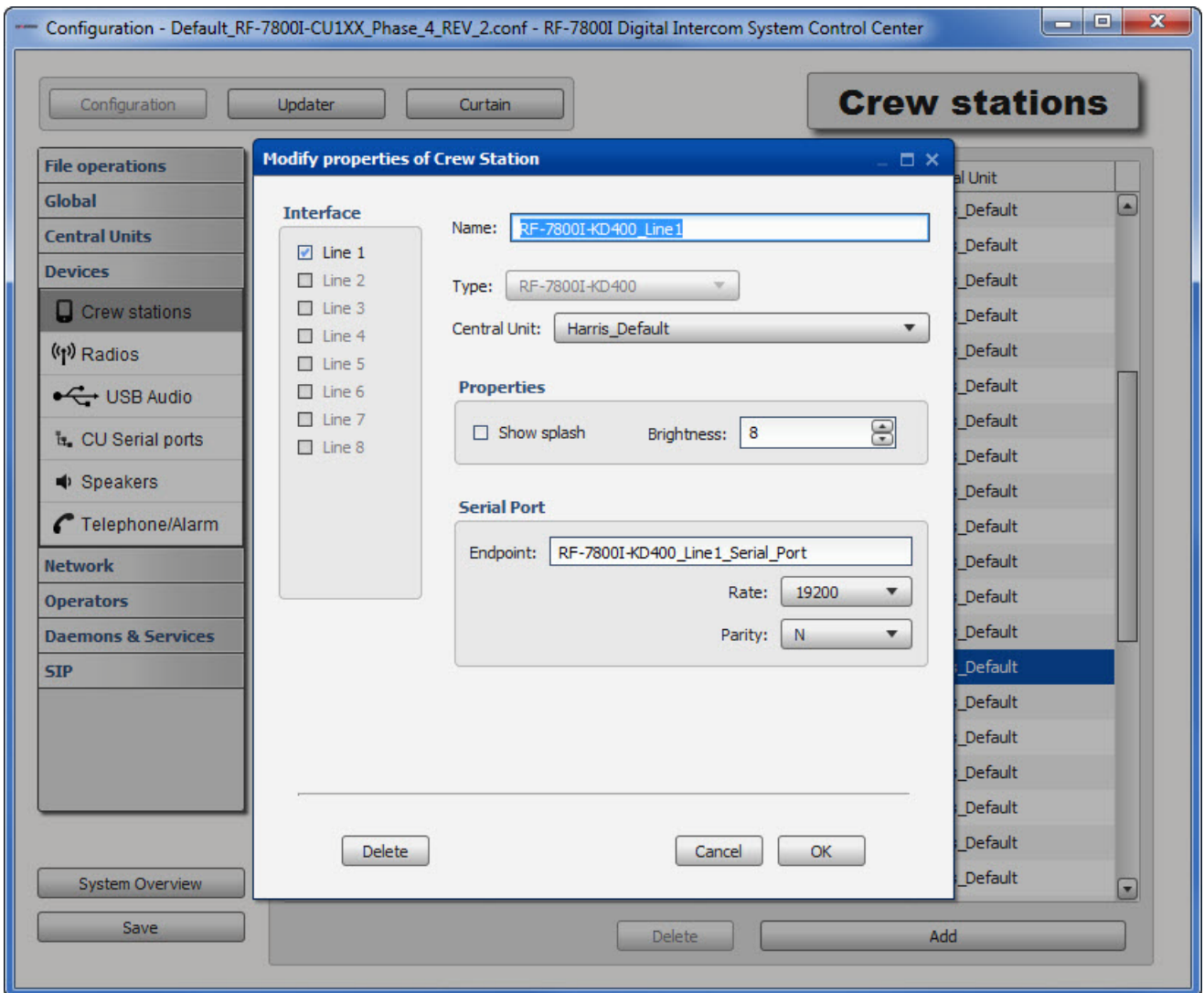


Figure 3-21. Crew Stations





**Figure 3-22. Crew Station Properties**

### 3.5.1.1 Interface

Select line (interface) number that crew station is connected to.

### 3.5.1.2 Name

This is the name of the crew station that appears in the list.

### 3.5.1.3 Type

Types:

- RF-7800I-BU200 - Basic unit with two headset ports.
- RF-7800I-BU400 - Basic unit with one headset port and one RS-232 compatible serial port.
- RF-7800I-RD200 - Rotary Dial unit with two headset ports.
- RF-7800I-RD400 - Rotary Dial unit with one headset port and one RS-232 compatible serial port.

- RF-7800I-KD200 - Keypad Display unit with two headset ports.
- RF-7800I-KD400 - Keypad Display unit with one headset port and one RS-232 compatible serial port.

#### 3.5.1.4 Central Unit

Select central unit that crew station will be connected to.

#### 3.5.1.5 Properties

On RF-7800I-KD type units only, configure the display properties of the keypad display unit:

- Show splash - Select to enable the display of a welcome (splash) screen on system start up. If enabled, a splash screen with Harris logo and Digital Intercom System are displayed when the system boots up and crew station synchronizes with the central unit. At the splash screen, the crew station operator must press any key to continue.
- Brightness - Set default (start-up) brightness of the display. Range is 0 (darkest) to 15 (brightest) with a default of 8.

#### 3.5.1.6 Serial Port

On 400 series units only, configure the serial port properties of a crew station:

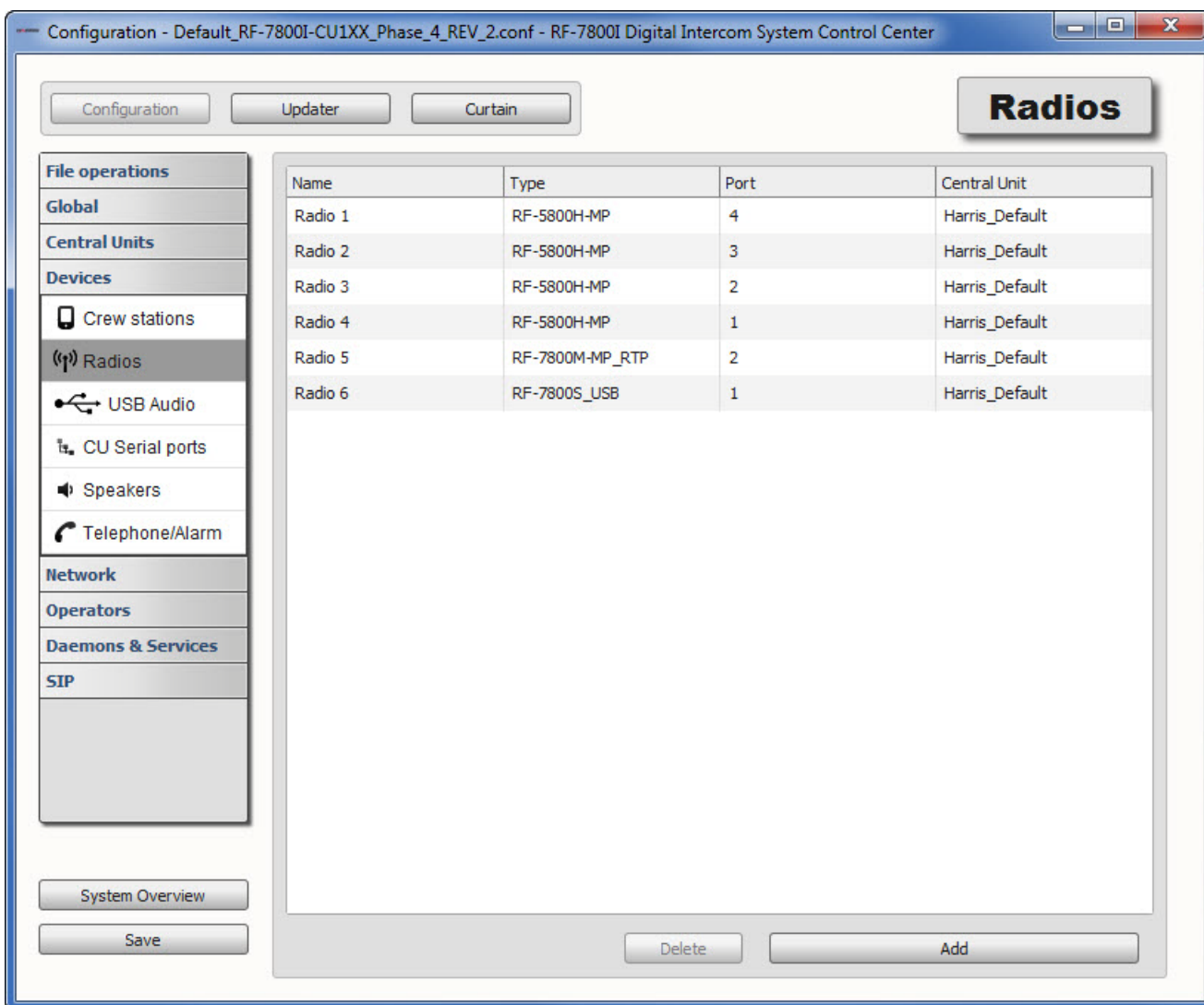
- Endpoint - Name of the endpoint with which the serial port will be associated with. The name must be unique and can contain any characters.
- Rate - Baud rate (speed) of the serial connection. Values are 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, with default of 9600.
- Parity - parity control, may assume the following values:
  - N - None
  - E - Even
  - O - Odd

### 3.5.2 Radios

The Radios tab allows the user to define the radio devices and their properties that are to be used in the system setup. See [Figure 3-23](#) for radio list. Click on **Add** to add new radio. Click on **Delete** to delete selected radio. Double-click on a radio to modify its settings. If an existing radio is selected when pressing the **Add** button, its properties will be copied into the newly opened window.

In the Radio properties:

- **Delete** - Deletes existing radio.
- **Cancel** - Cancels new radio or modifications to existing radio.
- **OK** - Save new radio entry or modifications to existing radio. To modify an existing radio's properties, double click on it in the list, and adjust its properties as required.



**Figure 3-23. Radios**

**NOTE**

Depending on the connection type used for the Radio, different options are available. For additional information on connection of other radio models and the associated radio properties screens, refer to [Appendix A](#).

3.5.3     Analog Radios

See [Figure 3-24](#) for analog radio properties.

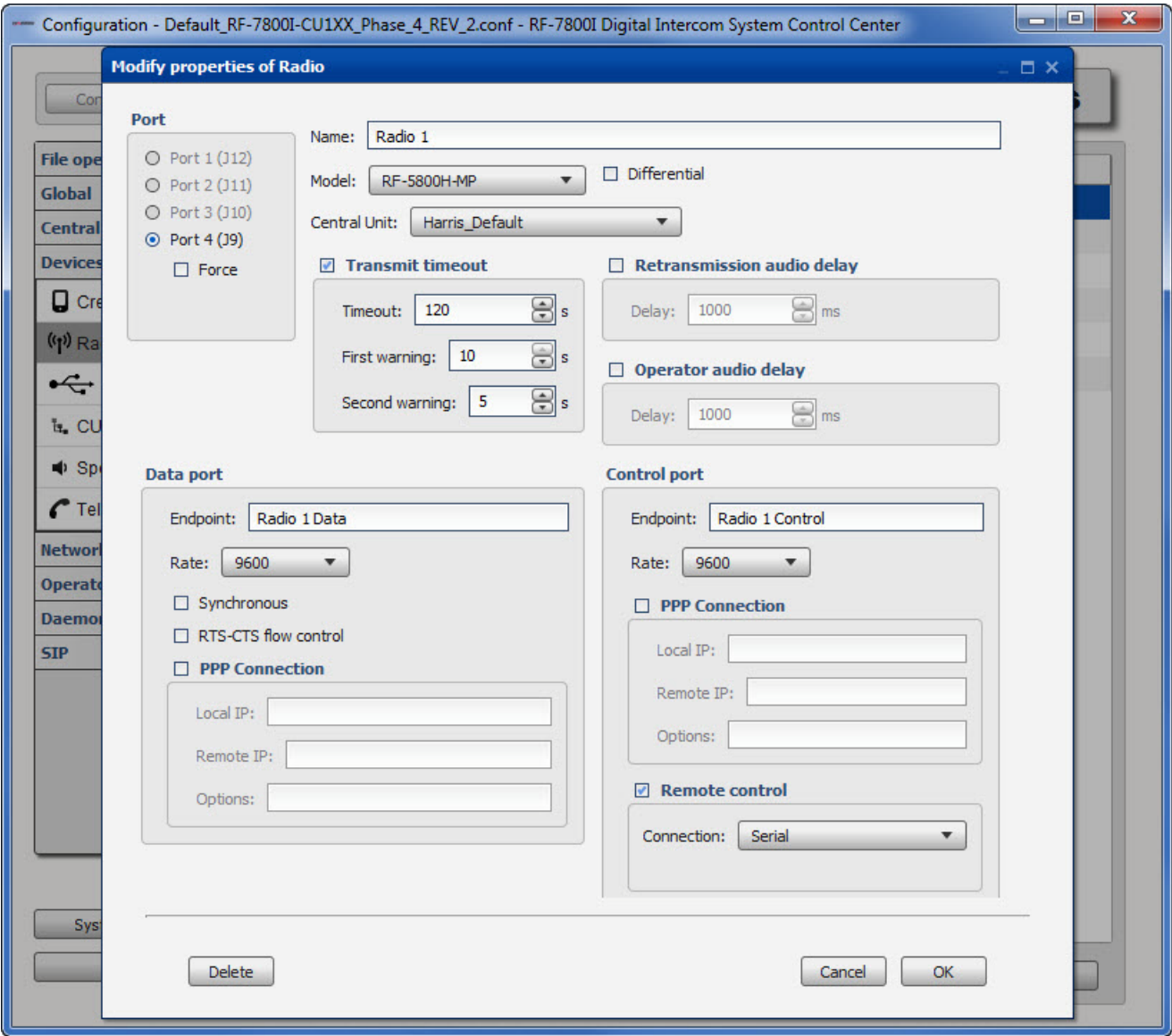


Figure 3-24. Analog Radio Properties

**3.5.3.1 Port**

Select the radio interface of the central unit that the Radio is to be connected to.

**3.5.3.2 Force**

When selected (on), system is forced to see the radio as available for use, whether connected and recognized or not. When not selected (off), the radio is available only when connected and recognized by the system. The radio is recognized by the system only when it detects voltage on the Push-To-Talk (PTT) pin of the radio connector.

**3.5.3.3 Name**

This is the name of the radio recognized in the system appearing in the list.

**3.5.3.4 Model**

Select radio model used for this particular radio device. Depending on the connection type used for the Radio, different options are available and could change the Modify Properties of Radio window.

**3.5.3.5 Differential**

When selected (on), the system recognizes the radio as a differential audio device.

**NOTE**

The RF-7800S is the only Harris radio that supports differential audio.

**3.5.3.6 Central Unit**

Select central unit that the radio is connected to.

**3.5.3.7 Transmit Timeout**

When selected (on), radio transmission is interrupted after a period of time (i.e. the timeout value) when an operator continually holds the PTT switch. The radio can be transmitted (on) again if the PTT switch is released and pressed again. When not selected (off), an operator can transmit indefinitely by holding the PTT switch. Timeout values include:

- Timeout - This is the maximum transmission time. After this time, transmission is terminated. Range is from 10 seconds to 200 seconds with a default of 120 seconds.
- First warning - Set time remaining before the transmission is terminated. Audio alerts the operator when this threshold is reached. Default value is 10 seconds.
- Second warning - Set time remaining before the transmission is terminated. Audio alerts the operator when this threshold is reached. Default value is 5 seconds.

**3.5.3.8 Retransmission Audio Delay**

Select or deselect (on/off) retransmission audio delay. Retransmission audio delay is the time between the retransmit receiving radio receiving the signal and the retransmit transmitting radio transmitting the signal.

When one of the retransmit radios is receiving audio, the other retransmit radio will key up but no audio will be sent to the other radio until the delay has been exceeded. Once the delay has been exceeded, the intercom will send the audio to the transmitting radio.

**NOTE**

The intercom stores the audio during the delay and then sends it so that no audio is lost due to the delay.

- Delay - Range is 0 ms to 10000 ms, with a default of 1000 ms.

### 3.5.3.9 Operator Audio Delay

Select or deselect (on/off) operator audio delay. Operator audio delay is the time between the user pressing PTT and the radio transmitting the signal.

When the user presses PTT to transmit audio, the radio will key up but no audio will be sent to the radio until the delay has been exceeded. Once the delay has been exceeded, the intercom will send the audio to the transmitting radio.

#### NOTE

The intercom stores the audio during the delay and then sends it so that no audio is lost due to the delay.

- Delay - Range is 0 ms to 10000 ms, with a default of 1000 ms.

### 3.5.3.10 Data Port

The following settings are applicable only if the radio is outfitted with a data port, and the system is intended to communicate with the radio using this port.

- Endpoint - Enter the name of the endpoint that the serial port will be associated with. The name can contain any characters and must be unique.
- Rate - Baud rate (speed) of the serial connection. Values are 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, with default of 9600
- Synchronous - Select or deselect (on/off) synchronous mode for the data port.
- RTS-CTS flow control - Select or deselect (on/off) Request-To-Send (RTS)-Clear-To-Send (CTS) flow control.
- Point-to-Point Protocol (PPP) connection - Select or deselect (on/off) PPP connection capability of the radio, if applicable. When enabled, the following properties can be set depending on configuration:
  - Local IP - Enter the IP address of the Radio.
  - Remote IP - Enter the IP address of the Central Unit.
  - Options - Enter text for additional properties of the PPP connection handled by the Point to Point Protocol Daemon (PPPD). If more than one option is used, then they need to be separated by spaces. Any setting compatible with the PPPD can be used, but for most purposes, the following options can be used:
    - **noauth** - Turns off authorization when establishing a connection between the radio and the central unit.
    - **nodefaultroute** - Turns off support for default routes.
    - **noipdefault** - Causes the radio and the central unit to negotiate the IP addresses used for this connection. The radio is the server and the central unit is the host.
    - **nomagic** - Disables the magic number negotiation feature of PPPD. With this option, PPPD cannot detect a loopback line. It may be necessary for some radio models such as RF-5800V-HH or RF-5800V-MP.

### 3.5.3.11 Control Port

For radios containing data ports only:

- Endpoint - Enter name of the endpoint that the serial port associates with. The name can contain any characters.
- Rate - Baud rate (speed) of the serial connection. Values are 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, with default of 9600
- PPP Connection - Select or deselect (on/off) PPP connection capability of the radio (if applicable - not used for Harris radios). When enabled, the following properties need to be set:
  - Local IP - Enter the IP address of the Radio.
  - Remote IP - Enter the IP address of the Central Unit.
  - Options - Enter text for additional properties of the PPP connection handled by the Point to Point Protocol Daemon (PPPD). If more than one option is used, then they need to be separated by spaces. Any setting compatible with the PPPD can be used, but for most purposes, the following options can be used:
    - **noauth** - Turns off authorization when establishing a connection between the radio and the central unit.
    - **nodefaultroute** - Turns off support for default routes.
    - **noipdefault** - Causes the radio and the central unit to negotiate the IP addresses used for this connection. The radio is the server and the central unit is the host.
    - **nomagic** - Disables the magic number negotiation feature of PPPD. With this option, PPPD cannot detect a loopback line. It may be necessary for some radio models such as RF-5800V-HH or RF-5800V-MP.
- Remote control - Select or deselect (on/off) radio remote control (if compatible). If the data port is used for remote control, the remote control setting needs to be activated for the control port.
- Connection - Define the type of the connection that will be used via a serial interface or through an IP interface.
- IP address - Enter the IP address of the Radio if the IP interface is selected.



### 3.5.4 IP (RTP) Radios

See [Figure 3-25](#) for IP or Real-time Transfer Protocol (RTP) radio properties.

The screenshot shows the 'Modify properties of Radio' dialog box. The 'Port' section on the left has 'RTP port 2' selected. The 'Name' field contains 'Radio 5'. The 'Model' dropdown is set to 'RF-7800M-MP\_RTP' and the 'Central Unit' dropdown is set to 'Harris\_Default'. The 'Transmit timeout' section is checked, with 'Timeout' set to 120s, 'First warning' to 10s, and 'Second warning' to 5s. The 'Retransmission audio delay' and 'Operator audio delay' sections are unchecked, both with a 'Delay' of 1000ms. The 'IP address' is 192.168.16.1, 'Transmitting RTP Port' is 4444, and 'Receiving RTP Port' is 5555. The 'Remote control' section is unchecked, with 'IP Address' and 'Port' (3333) fields. At the bottom are 'Delete', 'Cancel', and 'OK' buttons.

**Figure 3-25. IP (RTP) Radio Properties**

#### 3.5.4.1 Port

Select the RTP port number. There is no actual interface; it is over an Ethernet connection to the Central Unit. All Central Units provide four virtual interfaces for IP (RTP) Radios.

#### 3.5.4.2 Name

This is the name of the radio recognized in the system appearing in the list.



### **3.5.4.3 Model**

Select radio model used for this particular radio device. Selecting radio model will change the Radio Properties window depending on which radio model is selected.

### **3.5.4.4 Differential**

When selected, the system recognizes the radio as a differential audio device.

#### **NOTE**

The RF-7800S is the only Harris radio that supports differential audio.

### **3.5.4.5 Central Unit**

Select the central unit that the radio is connected to.

### **3.5.4.6 Transmit Timeout**

When selected (on), radio transmission is interrupted after a period of time (i.e. the timeout value) when an operator continually holds the PTT switch. The radio can be transmitted (on) again if the PTT switch is released and pressed again. When not selected (off), an operator can transmit indefinitely by holding the PTT switch. Timeout values include:

- Timeout - This is the maximum transmission time. After this time, transmission is terminated. Range is from 10 seconds to 200 seconds with a default of 120 seconds.
- First warning - Set time remaining before the transmission is terminated. Audio alerts the operator when this threshold is reached. Default value is 10 seconds.
- Second warning - Set time remaining before the transmission is terminated. Audio alerts the operator when this threshold is reached. Default value is 5 seconds.

### **3.5.4.7 Retransmission Audio Delay**

Select or deselect (on/off) retransmission audio delay. Retransmission audio delay is the time between the retransmit receiving radio receiving the signal and the retransmit transmitting radio transmitting the signal.

When one of the retransmit radios is receiving audio, the other retransmit radio will key up but no audio will be sent to the other radio until the delay has been exceeded. Once the delay has been exceeded, the intercom will send the audio to the transmitting radio.

#### **NOTE**

The intercom stores the audio during the delay and then sends it so that no audio is lost due to the delay.

- Delay - Range is 0 ms to 10000 ms, with a default of 1000 ms.

### **3.5.4.8 Operator Audio Delay**

Select or deselect (on/off) operator audio delay. Operator audio delay is the time between the user pressing PTT and the radio transmitting the signal.

When the user presses PTT to transmit audio, the radio will key up but no audio will be sent to the radio until the delay has been exceeded. Once the delay has been exceeded, the intercom will send the audio to the transmitting radio.

#### **NOTE**

The intercom stores the audio during the delay and then sends it so that no audio is lost due to the delay.

- Delay - Range is 0 ms to 10000 ms, with a default of 1000 ms.

#### **3.5.4.9 IP Address**

Allows the user to specify the IP address of the radio device or the multicast group address to which the radio is subscribed and will be transmitting and receiving audio through.

- Transmitting RTP Port - the port number to which the Central Unit will transmit the RTP stream (the receiving port number for the Radio).
- Receiving RTP Port - the port number through which the Central Unit will receive the RTP stream (the transmitting port number for the Radio).

#### **3.5.4.10 Remote Control**

Allows the user to toggle remote control on and off.

- IP address - the IP address of the Ethernet to Serial converter which allows the Radio and the Intercom to communicate in terms of remote control.
- Port - the port number that is used for communication with the Ethernet to Serial converter.

## 3.5.5 USB Radios

See Figure 3-26 for USB radio properties. Click on **Add** to add new radio. Click on **Delete** to delete selected radio. Double-click on a radio to modify its settings. If an existing radio is selected when pressing the **Add** button, its properties will be copied into the newly opened window.

In the radio properties:

- **Delete** - Deletes existing radio.
- **Cancel** - Cancels new radio or modifications to existing radio.
- **OK** - Save new radio entry or modifications to existing radio. To modify an existing radio's properties, double click on it in the list, and adjust its properties as required.

Configuration - Default\_RF-7800I-CU1XX\_Phase\_4\_REV\_2.conf - RF-7800I Digital Intercom System Control Center

**Modify properties of Radio**

**Port**

☒ Port 1 (36)  
☐ Port 2 (37)

Name: Radio 6

Model: RF-7800S\_USB

Central Unit: Harris\_Default

☐ Differential

☒ **Transmit timeout**

Timeout: 120 s

First warning: 10 s

Second warning: 5 s

☐ **Retransmission audio delay**

Delay: 1000 ms

☐ **Operator audio delay**

Delay: 1000 ms

IP address:

Net mask:

**Remote Control**

Endpoint:

☐ Remote control

**Application port**

Endpoint:

Advanced

Delete Cancel OK

Figure 3-26. USB Radio Properties

### **3.5.5.1 Port**

Select the USB interface of the Central Unit that the Radio is to be connected to. RF-7800I-CU100 Central Units provide two physical USB interfaces on ports J6 and J7. RF-7800I-CU200 Central Units do not have a USB interface and thus provide no support for USB Radios.

### **3.5.5.2 Name**

This is the name of the radio recognized in the system appearing in the list.

### **3.5.5.3 Model**

Select radio model used for this particular radio device.

### **3.5.5.4 Differential**

Differential is not applicable for USB radios.

### **3.5.5.5 Central Unit**

Select central unit that the radio is connected to.

### **3.5.5.6 Transmit Timeout**

When selected (on), radio transmission is interrupted after a period of time (i.e. the timeout value) when an operator continually holds the PTT switch. The radio can be transmitted (on) again if the PTT switch is released and pressed again. When not selected (off), an operator can transmit indefinitely by holding the PTT switch. Timeout values include:

- Timeout - This is the maximum transmission time. After this time, transmission is terminated. Range is from 10 seconds to 200 seconds with a default of 120 seconds.
- First warning - Set time remaining before the transmission is terminated. Audio alerts the operator when this threshold is reached. Default value is 10 seconds.
- Second warning - Set time remaining before the transmission is terminated. Audio alerts the operator when this threshold is reached. Default value is 5 seconds.

### **3.5.5.7 Retransmission Audio Delay**

Select or deselect (on/off) retransmission audio delay. Retransmission audio delay is the time between the retransmit receiving radio receiving the signal and the retransmit transmitting radio transmitting the signal.

When one of the retransmit radios is receiving audio, the other retransmit radio will key up but no audio will be sent to the other radio until the delay has been exceeded. Once the delay has been exceeded, the intercom will send the audio to the transmitting radio.

#### **NOTE**

The intercom stores the audio during the delay and then sends it so that no audio is lost due to the delay.

- Delay - Range is 0 ms to 10000 ms, with a default of 1000 ms.

### **3.5.5.8 Operator Audio Delay**

Select or deselect (on/off) operator audio delay. Operator audio delay is the time between the user pressing PTT and the radio transmitting the signal.

When the user presses PTT to transmit audio, the radio will key up but no audio will be sent to the radio until the delay has been exceeded. Once the delay has been exceeded, the intercom will send the audio to the transmitting radio.

#### **NOTE**

The intercom stores the audio during the delay and then sends it so that no audio is lost due to the delay.

- Delay - Range is 0 ms to 10000 ms, with a default of 1000 ms.

### **3.5.5.9 IP Address**

Allows the user to specify the IP address of the Radio device.

### **3.5.5.10 Net Mask**

Allows the user to specify the Net mask of the Radio device.

### **3.5.5.11 Remote Control**

- Endpoint - allows the user to specify a name for the Remote Control endpoint of the Radio. This is necessary to provide remote control capabilities via the Harris Radio Server.
- Remote Control - allows the user to toggle remote control on and off.

### **3.5.5.12 Application Port**

Allows the user to specify the Application port of the Radio device.

- Endpoint - allows the user to specify a name for the Application Port endpoint of the Radio. This is necessary to allow Situational Awareness information to be forwarded from the Radio.

### **3.5.5.13 Advanced**

Clicking this button opens an additional window allowing the user to create endpoints for virtual serial ports of the USB Radio. See [Figure A-6](#) in Appendix A. Advanced endpoint settings are as follows:

- Status port endpoint - enter the status port endpoint information
- Trace port endpoint - enter the trace port endpoint information
- Debug port endpoint - enter the debug port endpoint information

#### **NOTE**

These endpoints are not used directly by any intercom features and endpoints, but any data transferred through their relevant virtual interfaces can be relayed further by the intercom.

### 3.5.6 USB Audio

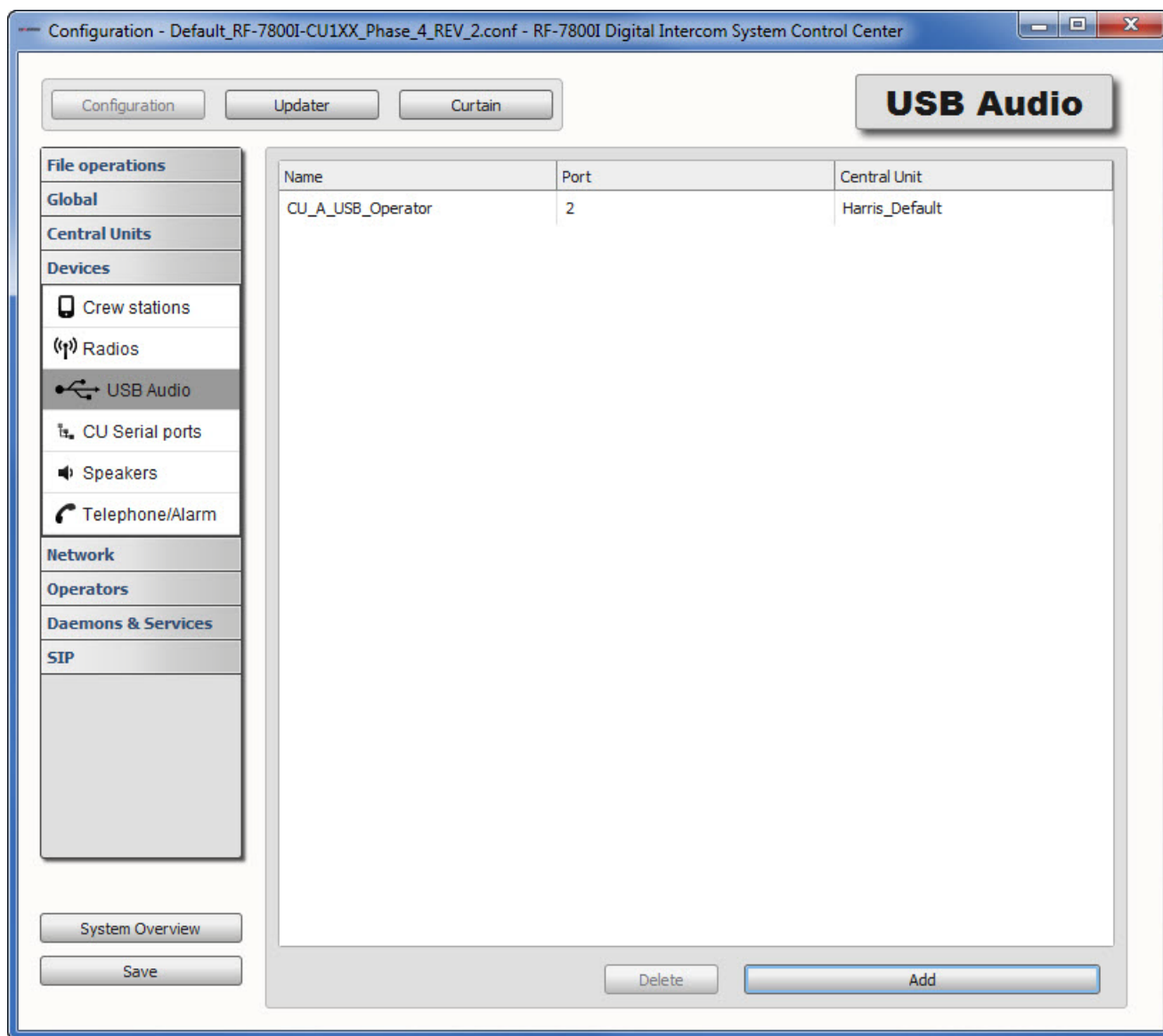
See [Figure 3-27](#). This tab allows the user to define standard audio over USB Devices that are to be connected to the Intercom, as well as specify their input and output gains for USB audio to a headset. Standard Audio over USB devices or USB Audio devices are headsets that can be connected to one of the USB ports of a Central Unit (J6 or J7). The use of a USB Audio device on a given USB port is mutually exclusive with the use of a USB Radio, i.e. it is not possible to configure both a USB Audio device and a USB Radio for the same interface.

The capabilities of a USB headset connected to a USB port are similar to the capabilities of a RF-7800I-BU operator or any secondary operator. They can be connected to an automatic conference, automatically receive calls and can transmit through Radios (only if Radio VOX is enabled for them in the intercom configuration) if connected automatically or remotely. However, the USB headset operators have no access to functions available through the three button keyboard found on Crew Stations. They are unable to broadcast, change volume (other than using their own physical knob or switch if available), turn VOX on or off, or initiate radio silence.

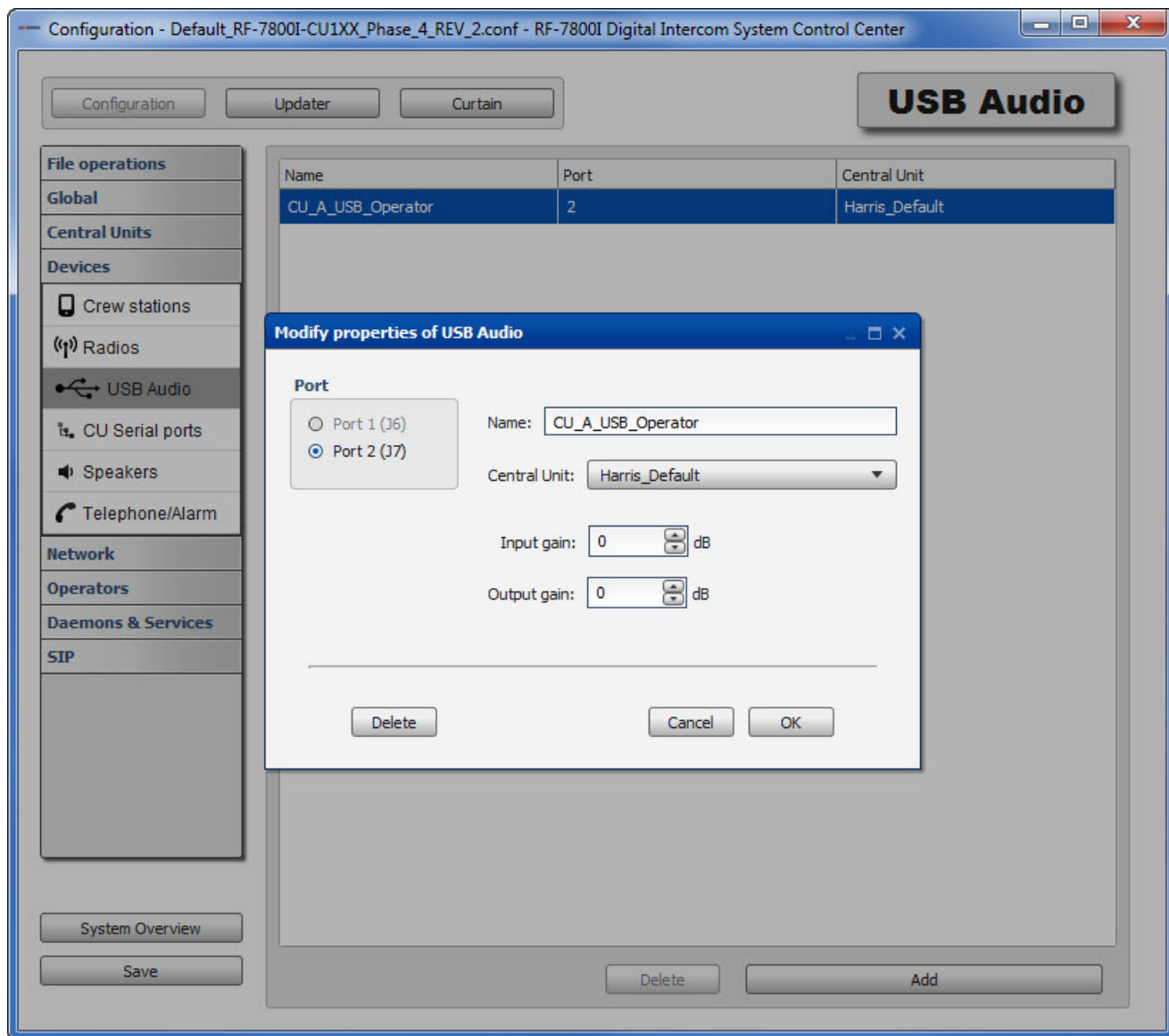
Click on **Add** to add new USB Audio device. Click on **Delete** to delete selected device. Double-click on a device to modify its settings. See [Figure 3-28](#) for USB Audio properties. If an existing device is selected when pressing the **Add** button, its properties will be copied into the newly opened window.

In USB Audio properties:

- **Delete** - Deletes existing device.
- **Cancel** - Cancels new device or modifications to existing device.
- **OK** - Save new device entry or modifications to existing device. To modify an existing radio's properties, double click on it in the list, and adjust its properties as required.



**Figure 3-27. USB Audio**



**Figure 3-28. USB Audio Properties**

### 3.5.6.1 Port

The USB interface of the Central Unit to which the Radio is to be connected to. Two USB ports on the Central Unit.

### 3.5.6.2 Name

The name of the USB Audio Device, as it will be recognized in the system.

### 3.5.6.3 Central Unit

The name of the Central Unit to which the device will be connected to.



### **3.5.6.4 Input Gain**

Increases or decreases the received audio level from the USB Audio device in decibels (dB). Increasing this value will make the USB user heard louder to all users connected to or monitoring the USB user. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.

#### **3.5.6.4.1 Output Gain**

Increases or decreases the transmitted audio level from the USB Audio device in dB. Increasing this value will raise the level of the transmitted audio signal by the device. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.

#### **NOTE**

Headset model settings do not apply to USB Audio Device Operators. This is the only parameter that can be used to increase or decrease the input gain.

### **3.5.7 Central Unit Serial Ports**

This Central Unit serial ports tab allows the user to add serial ports to central units and define the properties of the ports for the purpose of connecting serial devices to them. See [Figure 3-29](#) for CU serial port list. Click on **Add** to add new CU serial port.

Click on **Delete** to delete selected CU serial port. Double-click on CU serial port to modify settings. See [Figure 3-30](#) for CU serial port properties. If an existing serial port is selected and then the **Add** button is selected, the properties of the selected serial port will be copied into the newly opened window.

In the radio properties:

- **Delete** - Deletes existing CU serial port.
- **Cancel** - Cancels new CU serial port or modifications to existing CU serial port.
- **OK** - Save new CU serial port or modifications to CU serial port. To modify settings of an existing CU serial port, double click on it in the list, and adjust its properties as required.

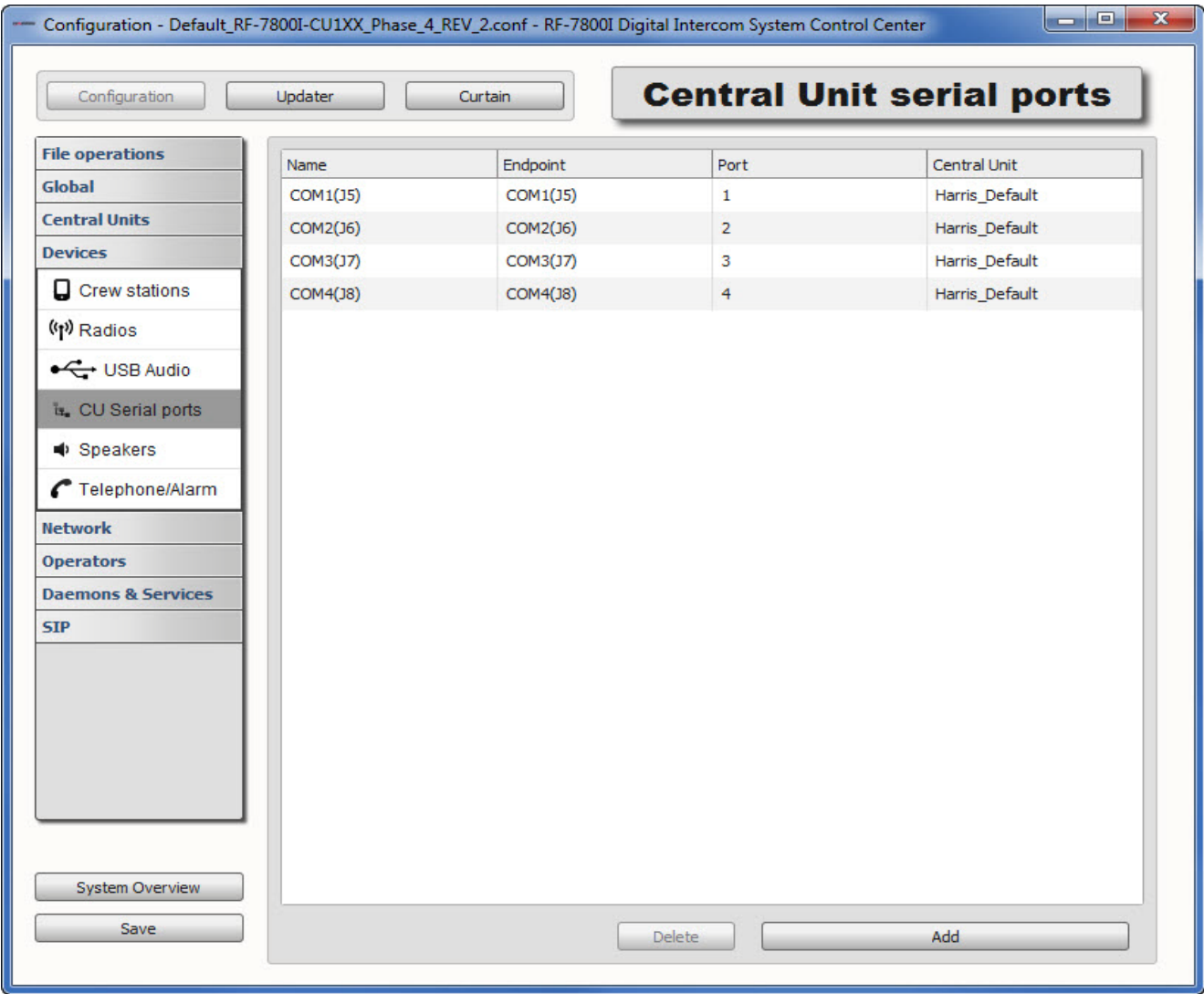
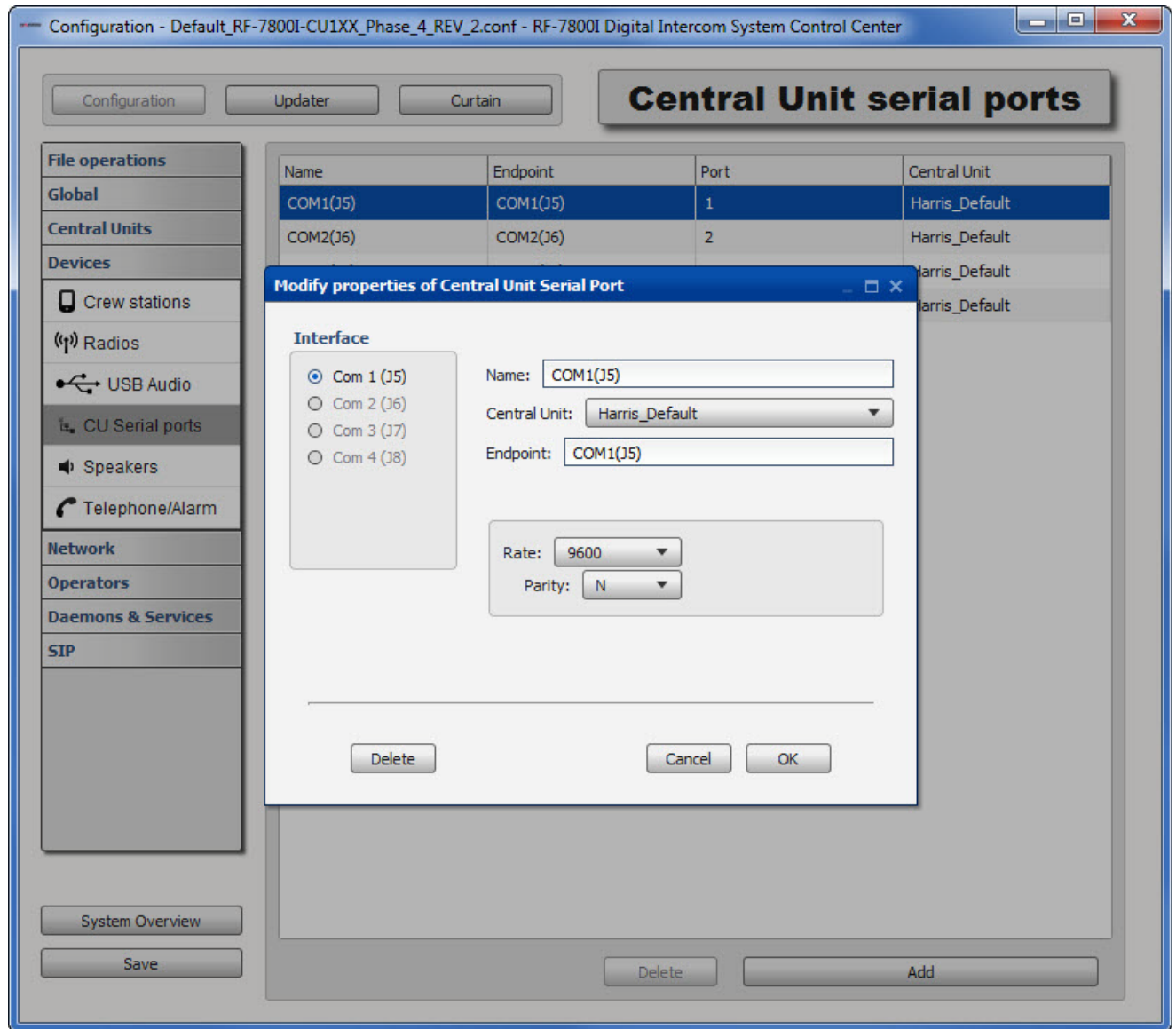


Figure 3-29. Central Unit Serial Ports



**Figure 3-30. Central Unit Serial Port Properties**

### 3.5.7.1 Interface

Select the physical serial port on the central unit that is to be configured.

### 3.5.7.2 Name

Enter the name of the serial port.

### 3.5.7.3 Central Unit

Select the central unit for which the port's properties will be defined.

### 3.5.7.4 Endpoint

Enter the name of the endpoint that the serial port will be associated with. The name must be unique and can contain any characters.

### 3.5.7.5 Rate

Select baud rate (speed) of the serial connection. Values are of 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, with default of 9600.

### 3.5.7.6 Parity

Parity - parity control, may assume the following values:

- N - None
- E - Even
- O - Odd

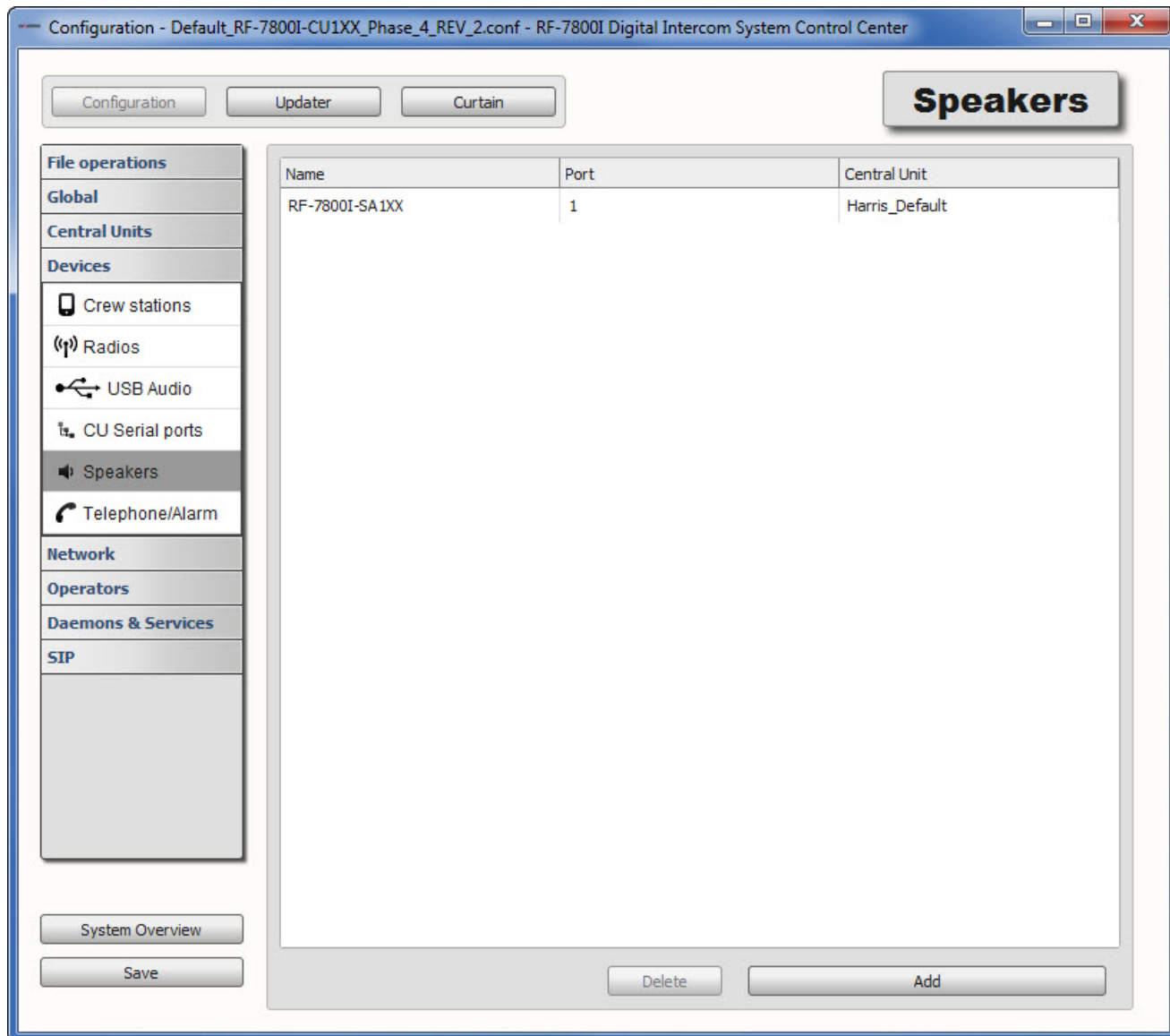
### 3.5.8 Speakers

The Speakers tab allows the user to define the speakers and their properties that are to be used in the system setup. See [Figure 3-31](#) for speaker list.

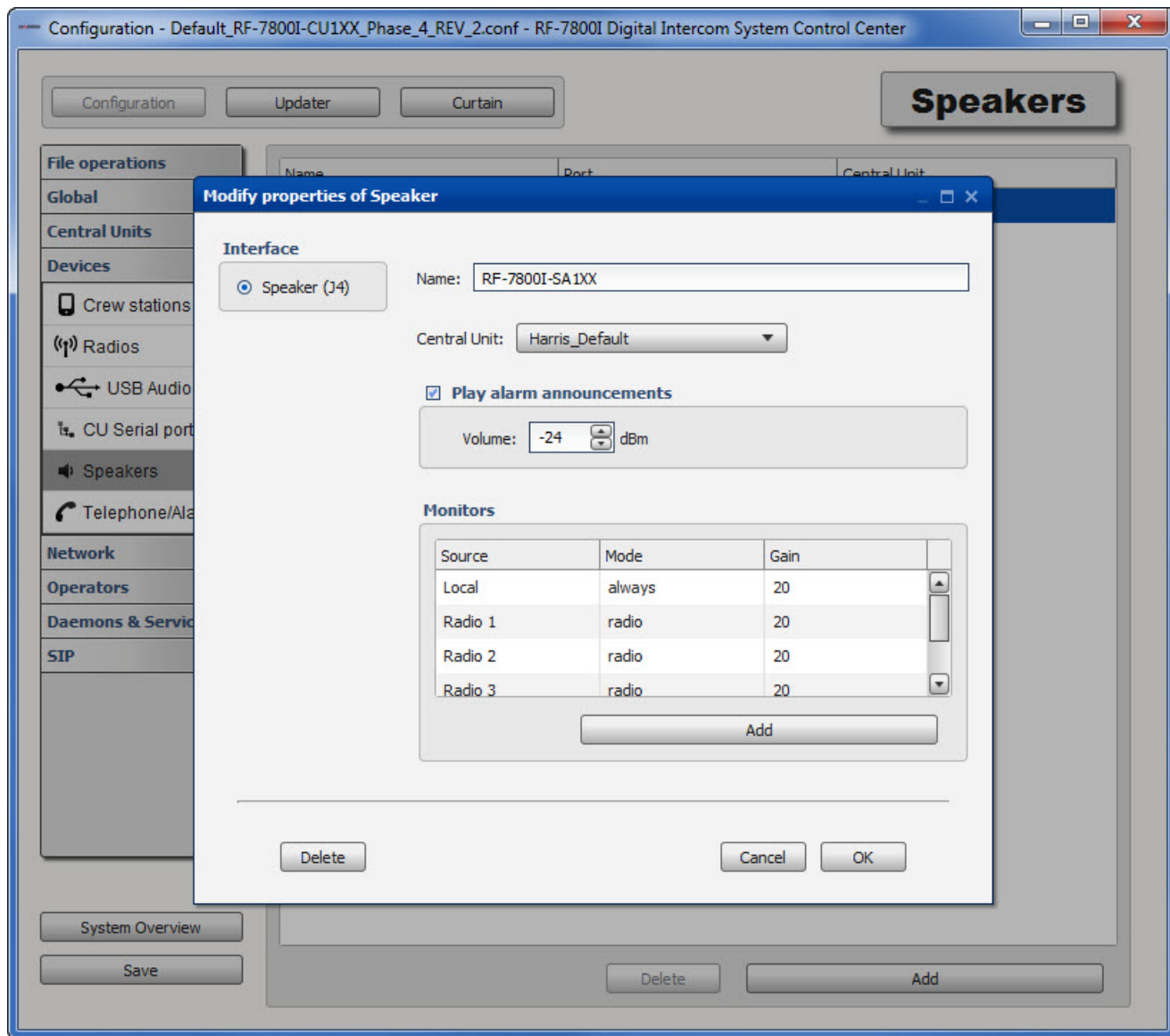
Click on **Add** to add new speaker. Click on **Delete** to delete selected speaker. Double-click to modify a speaker. If an existing Speaker is selected and then the **Add** button is pressed, the selected speakers properties will be copied into the newly opened window. See [Figure 3-32](#) for speaker properties.

In the Speaker properties:

- **Delete** - Deletes existing speaker.
- **Cancel** - Cancels new speaker or modifications to existing speaker.
- **OK** - Save new speaker or modifications to speaker.



**Figure 3-31. Speakers**



**Figure 3-32. Speaker Properties**

### 3.5.8.1 Interface

Select physical interface that speaker is connected to. Both RF-7800I-CU100 and RF-7800I-CU200 units are outfitted with a single speaker interface which is automatically selected.

### 3.5.8.2 Name

Enter name of speaker that appears in the list.

### 3.5.8.3 Central Unit

Select central unit that speaker will be connected to.

### **3.5.8.4 Play Alarm Announcements**

When selected, speaker plays alarms as triggered in the system. When not selected, no alarms are played by the speaker.

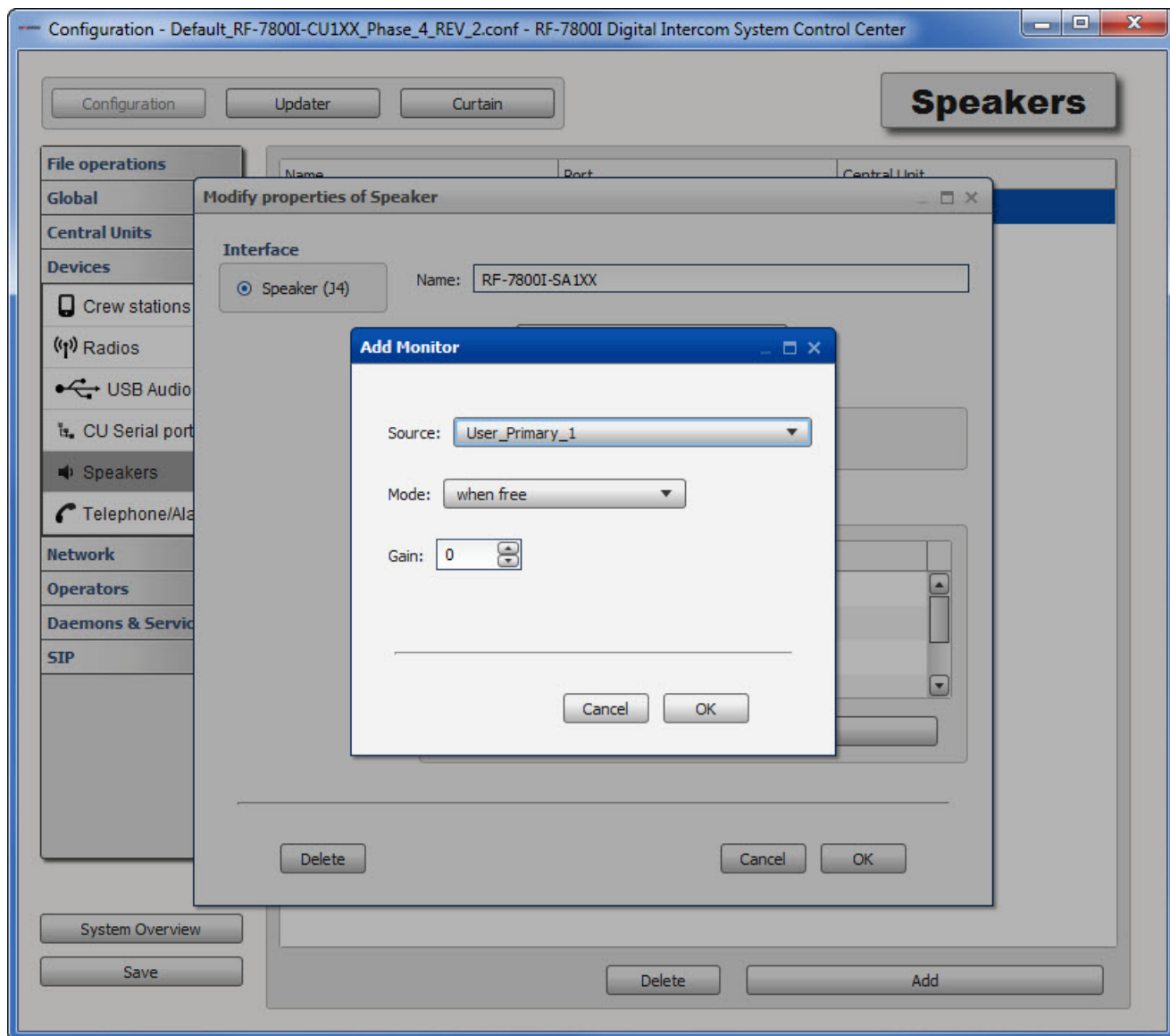
### **3.5.8.5 Monitors**

Use the Monitors tab to assign monitoring sources to the speaker as well as configure the monitoring modes and volume gains. Any monitored signal (i.e. operators, conferences, radios, or telephones) can be heard on the speaker. In the speaker properties screen ([Figure 3-32](#)) under Monitors, click on **Add** to add a monitor. Double-click on monitor to modify settings. If an existing monitor is selected and then the **Add** button is pressed, the selected monitors properties will be copied into the newly opened window.

See [Figure 3-33](#) for Monitor properties.

In Monitor properties:

- **Delete** - Deletes existing monitor. To delete the existing settings of a monitor, double click it on the list in the workspace and press the **Delete** button in the newly opened window.
- **Cancel** - Cancels new monitor or modifications to existing monitor.
- **OK** - Save new monitor or modifications to monitor.



**Figure 3-33. Monitor Properties**

In Monitor properties, the following can be defined:

- Source - a dropdown list of available signal sources. Any of the following can be a source of a monitored signal:
  - Operator - the monitored signal is the voice of the Operator, not what they hear in their headset.
  - Conference - the monitored signal is all audio incoming to the conference.
  - Radio - the monitored signal is the audio received by the radio; unless in "Radio" mode where both the received and transmitted audio will be monitored.
  - Telephone - the monitored signal is the voice of the telephone user. If a local echo effect occurs, then the voice also from the other end of the phone line can be heard. However, it will be significantly quieter than the voice of the telephone user.



- **Mode** - defines when the audio signal is monitored and heard on the speaker. Available modes are:
  - **When Free** - this mode is available for operators and radios.
    - For operators, the when free mode means that the operator will be monitored when he is not connected to another operator, conference or telephone.
    - For radios, the when free mode means that the signal received by the radio will be monitored when an operator is connected to it in "shared" mode or the radio or no operator is connected to the radio.
  - **When Busy** - this mode is available for operators and radios.
    - For operators, the when busy mode means that the operator will be monitored when he is connected to another operator, conference or telephone.
    - For radios, the when busy mode means that the signal received by the radio will be monitored when an operator is connected to it in "exclusive" mode.
  - **Always** - this mode is available for operators, conferences, radios and telephones:
    - Operators - the operator will be monitored regardless of his current connections.
    - Conferences - the conference will be monitored at all times. Effectively, the Conference is heard on the speaker whenever any audio signal is incoming to the Conference.
    - Radios - the receive audio from the radio will be monitored at all times.
    - Telephone - the receive audio from the external telephone will be monitored at all times.
  - **Radio** - this mode is available only for radios.
    - Causes the radio to be heard at all times (as in "Always" mode), but both received and transmitted audio will be heard on the speaker - as opposed to other modes where only audio received by the Radio is heard.
- **Gain** - increases or decreases the audio level received by the Speaker in dB (on a scale from -30 dB to 30 dB).

### **3.5.9 Telephone/Alarm**

The Telephone/Alarm tab allows the user to define the RF-7800I-TA1XX terminals and their corresponding telephone lines that are to be used in the system setup. See [Figure 3-34](#) for Telephone/Alarm list.

Click on **Add** to add new telephone/alarm. Click on **Delete** to delete selected telephone/alarm. Double-click on telephone/alarm to modify settings. If an existing telephone/alarm is selected and then the **Add** button is pressed, the selected telephone/alarm properties will be copied into the newly opened window.

See [Figure 3-35](#) for Telephone/Alarm properties.

In the Telephone/Alarm properties:

- **Delete** - Deletes existing telephone/alarm.
- **Cancel** - Cancels new telephone/alarm entry or modifications to existing telephone/alarm.
- **OK** - Save new telephone/alarm or modifications to existing telephone/alarm.

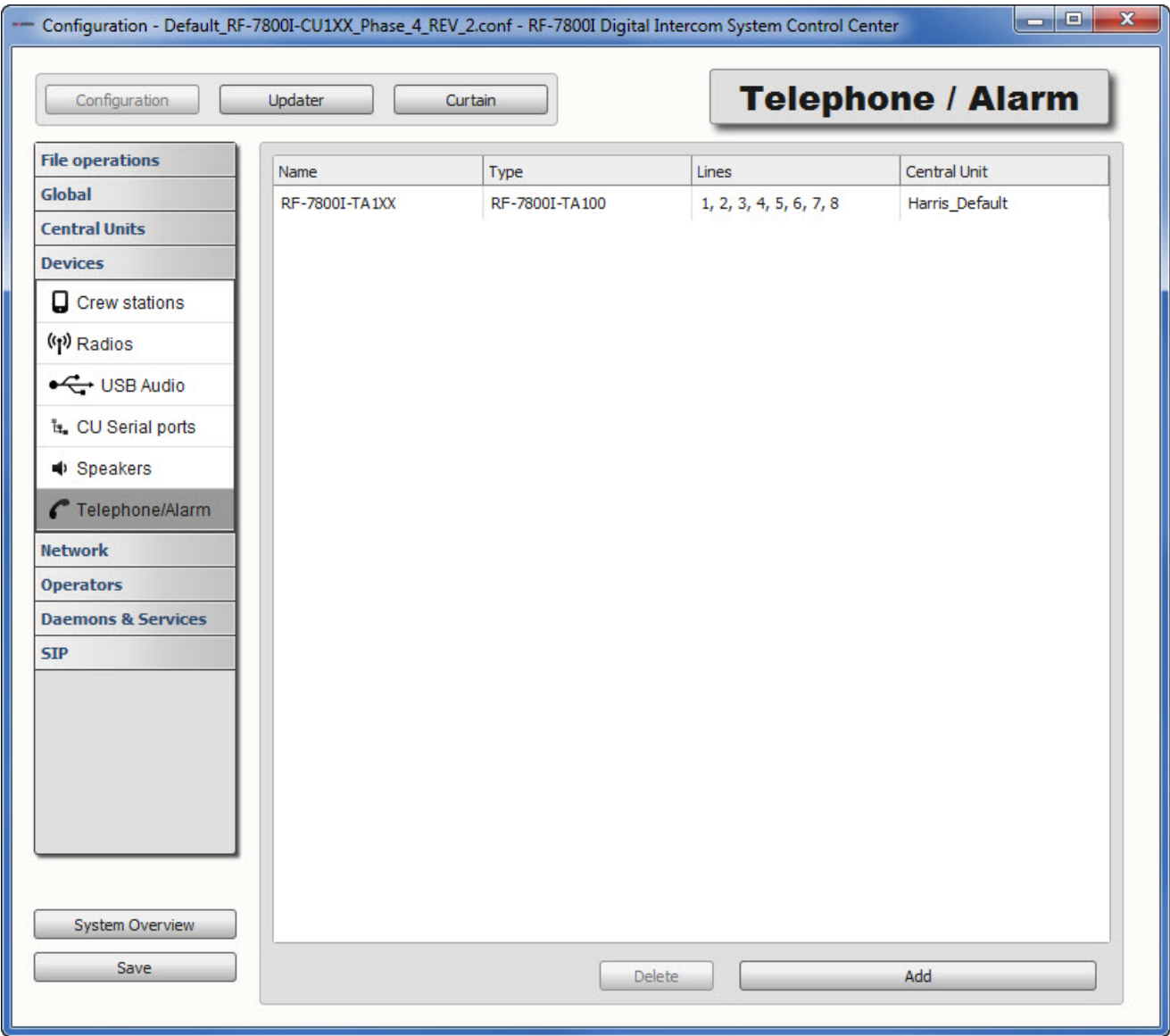
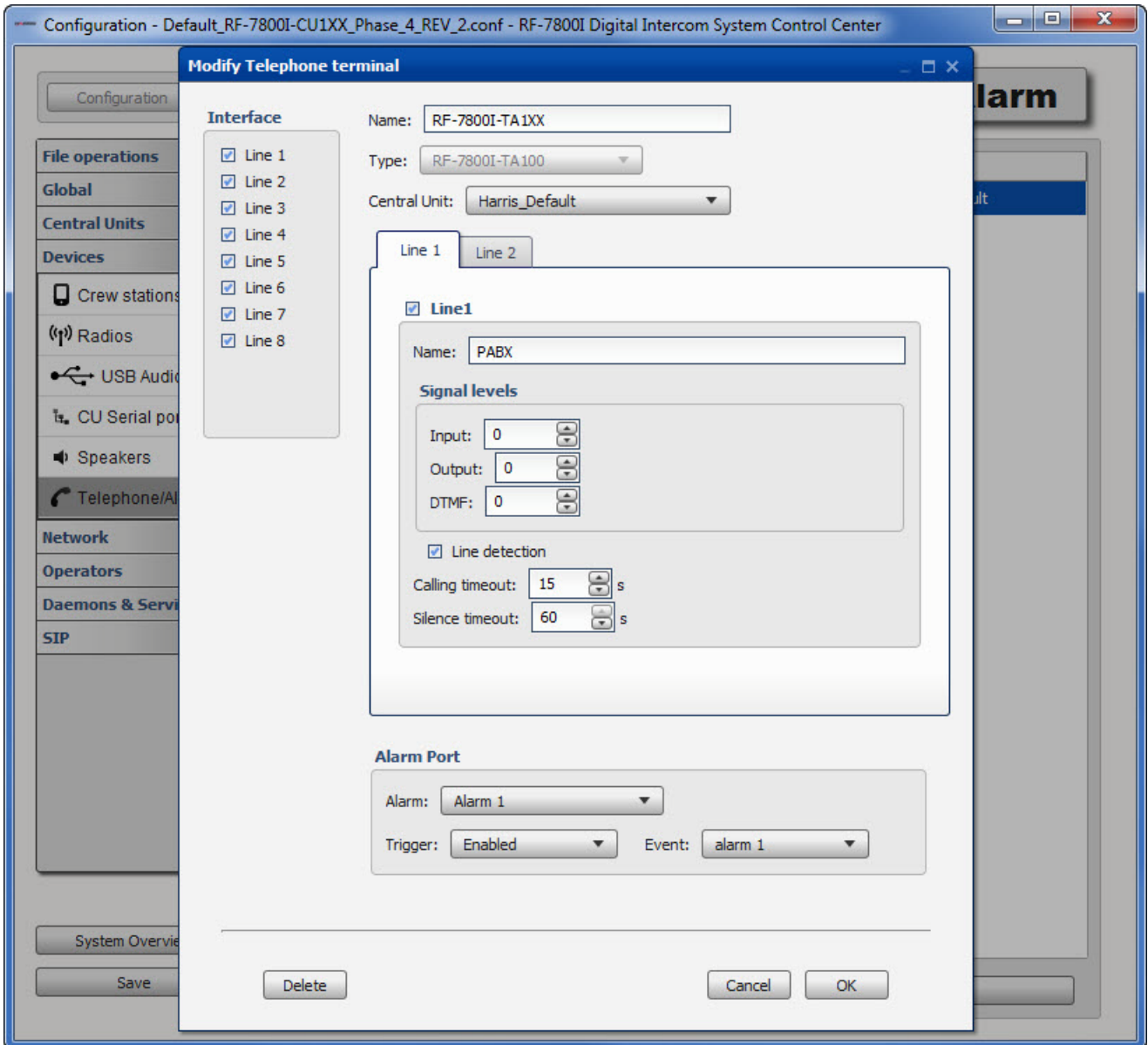


Figure 3-34. Telephone/Alarm



**Figure 3-35. Telephone /Alarm Properties**

### 3.5.9.1 Interface

Select the number of the line interface that the RF-7800I-TA100 connects to. The RF-7800I-TA100 uses the same interfaces as crew stations, so the interface must be available to be able to configure a telephone/alarm.

### 3.5.9.2 Name

This is the name of the telephone/alarm that appears in the list.

### 3.5.9.3 Type

This is the type of terminal and the RF-7800I-TA100 is only currently available.

#### 3.5.9.4 Line 1, Line 2

Select or deselect (enable/disable) Line 1 or Line 2 and allow for its further configuration.

- Name - Enter the name of the telephone line as it will be recognized by the system.
- Signal levels - The audio level of incoming/outgoing audio. The following properties can be set:
  - Input - Increase or decrease of the audio level incoming from an external phone. A negative number can be used for attenuation. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.
  - Output - Increase or decrease of the audio level outgoing to the external phone. A negative number can be used for attenuation. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.
  - Dual Tone Multi Frequency (DTMF) - Increase or decrease of the DTMF signal level sent by the Intercom to the external phone. Range is -30 dB to 30 dB with 0 dB as default and increment/decrement in 1 dB steps.
  - Login - Enter DTMF code for logging in to a PABX central.
  - Logout - Enter DTMF code for logging out from a PABX central.
  - Line detection - Select or deselect (on/off) line detection. If enabled, the system makes the related telephone connection available only when it detects a connected telephone. This applies only to PABX phones and works when voltage is detected on the telephone line interface.
  - Calling timeout (in seconds) - Enter the amount of time that the call will continue when attempting to connect and someone answers before it will timeout. If the phone is not answered within this time, the system cancels the connection attempt.
  - Silence timeout (in seconds) - Enter the amount of time that the call will continue when there is no audio before it will timeout. If no voice is transferred between the telephone and the system for a period longer than the silence timeout, the connection is terminated. If the silence timeout is set to zero, the call will never timeout.
  - Field phone - Select or deselect (on/off) Field phone. If set to on, only a Field phone will work with this line, and if set to off, only a PABX phone will work with this line.

#### NOTE

The Field phone option only applies to Line 2.

#### 3.5.9.5 Alarm Port

Set up alarm port for telephone/alarm as follows:

- Alarm - Select alarm to use.
- Trigger - Choose enable or disable.
- Event - Select event. (Refer to [Paragraph 3.3.4](#) for events.)

## 3.6 NETWORK

The Network menu allows the user to define network settings of the system including endpoints, the routes between them, and the static route tables.

### 3.6.1 Interfaces

The Interfaces tab allows the user to review and modify all of the available network interfaces in the configuration.

Double clicking any item in the workspace opens the relevant configuration window for that device, allowing the user to quickly adjust all settings without reverting to previous tabs. See [Figure 3-36](#).

- **Delete** - Deletes existing interface
- **Cancel** - Cancels any modifications to existing interfaces
- **OK** - Save new modifications to existing interfaces.

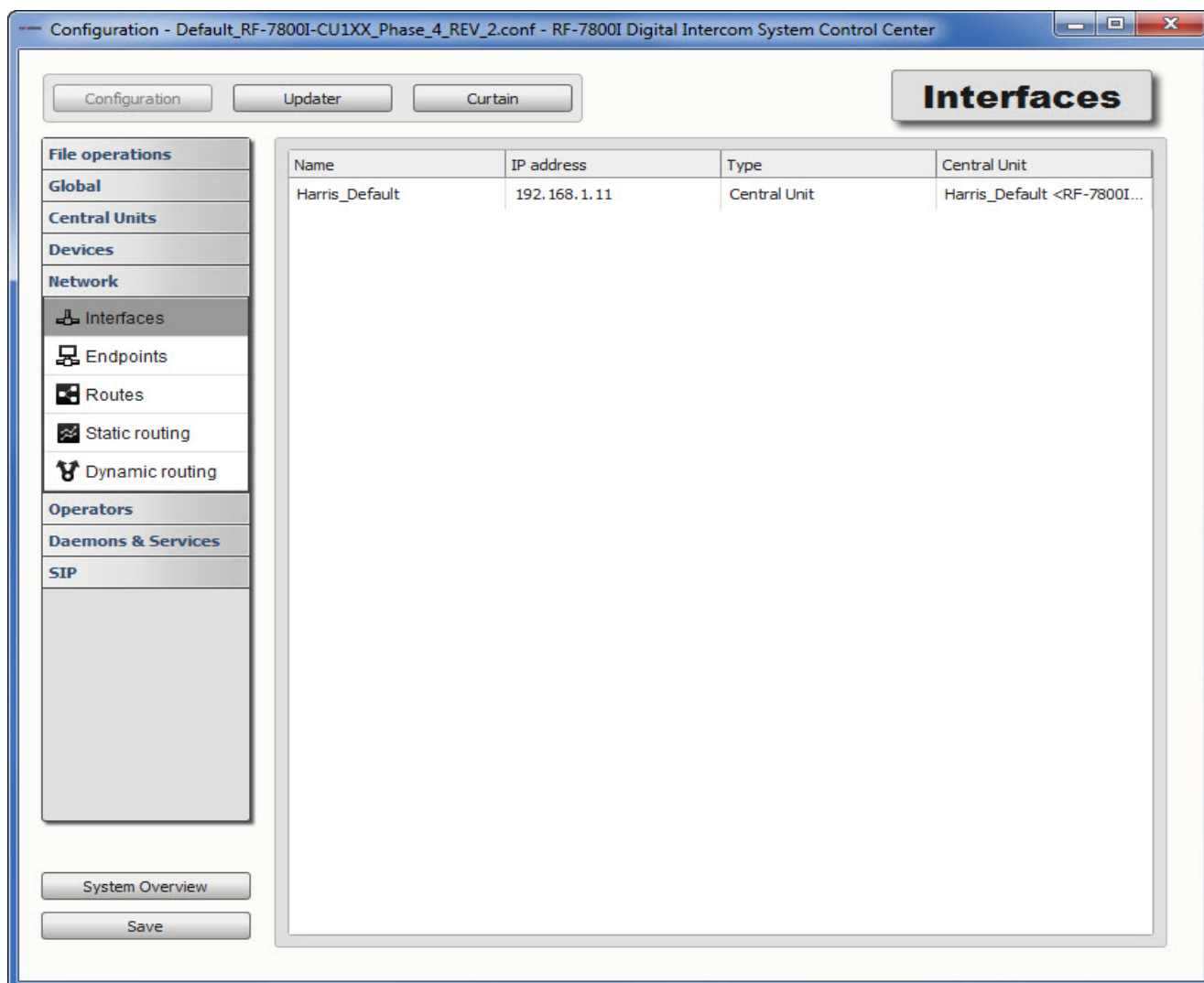


Figure 3-36. Interfaces

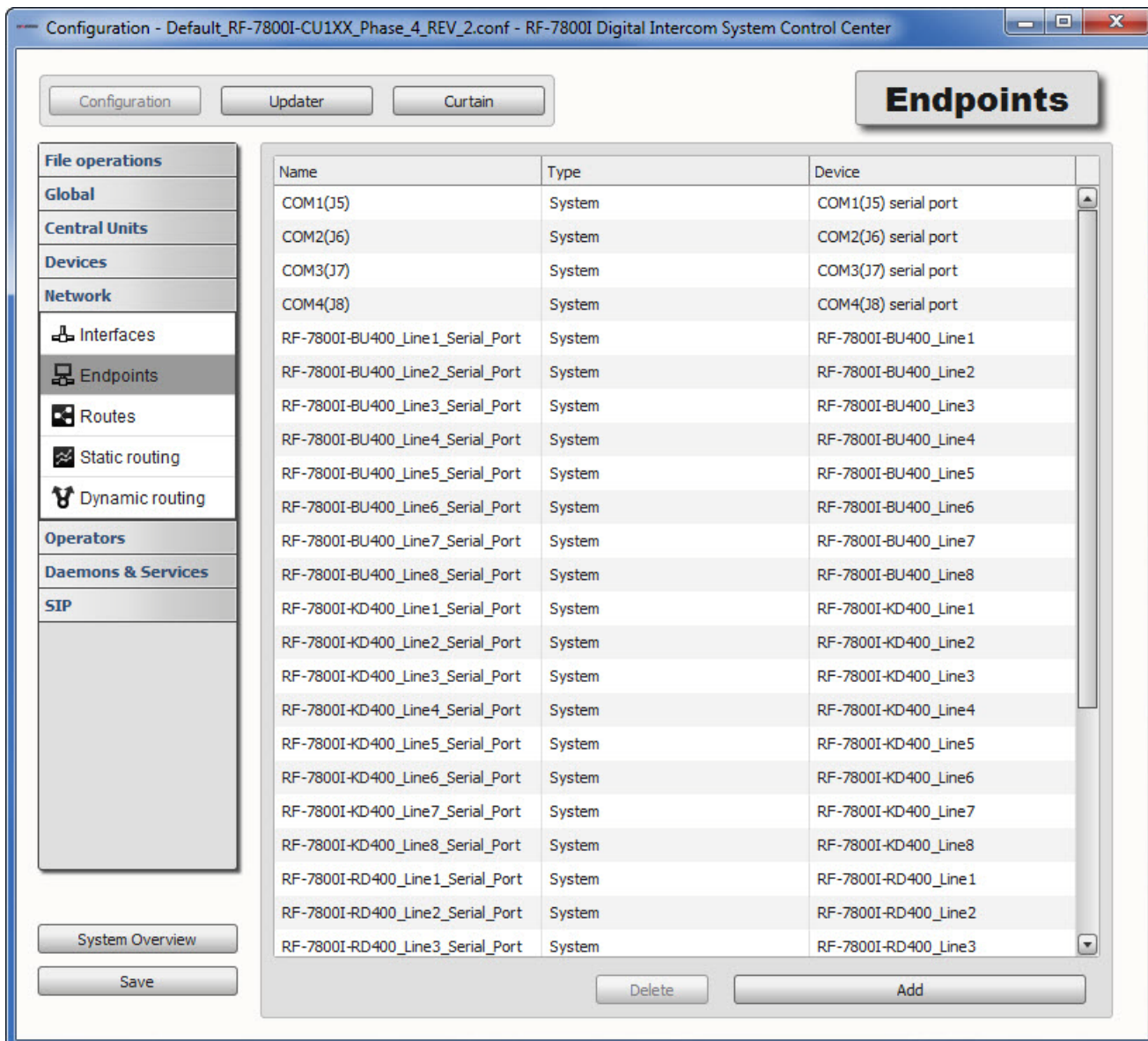
### 3.6.2 Endpoints

The Endpoints tab allows the user to define RF-7800I endpoints for data transfer destinations and sources. Some endpoints may represent physical interfaces of the CUs, crew stations and radio. Others are software based such as Transmission Control Protocol (TCP) or User Datagram Protocol (UDP). See [Figure 3-37](#) for Endpoints. Click on **Add** to add new endpoint. Click on **Delete** to delete endpoint. Double-click on an endpoint to modify settings.

See [Figure 3-38](#) for Add Endpoint window. This tab allows the user to create and configure software endpoints. Hardware endpoints are configured for each serial interface separately. TCP and UDP endpoints can be used to transfer data from the RF-7800I Intercom to a computer connected to the RF-7800I via the Ethernet interface.

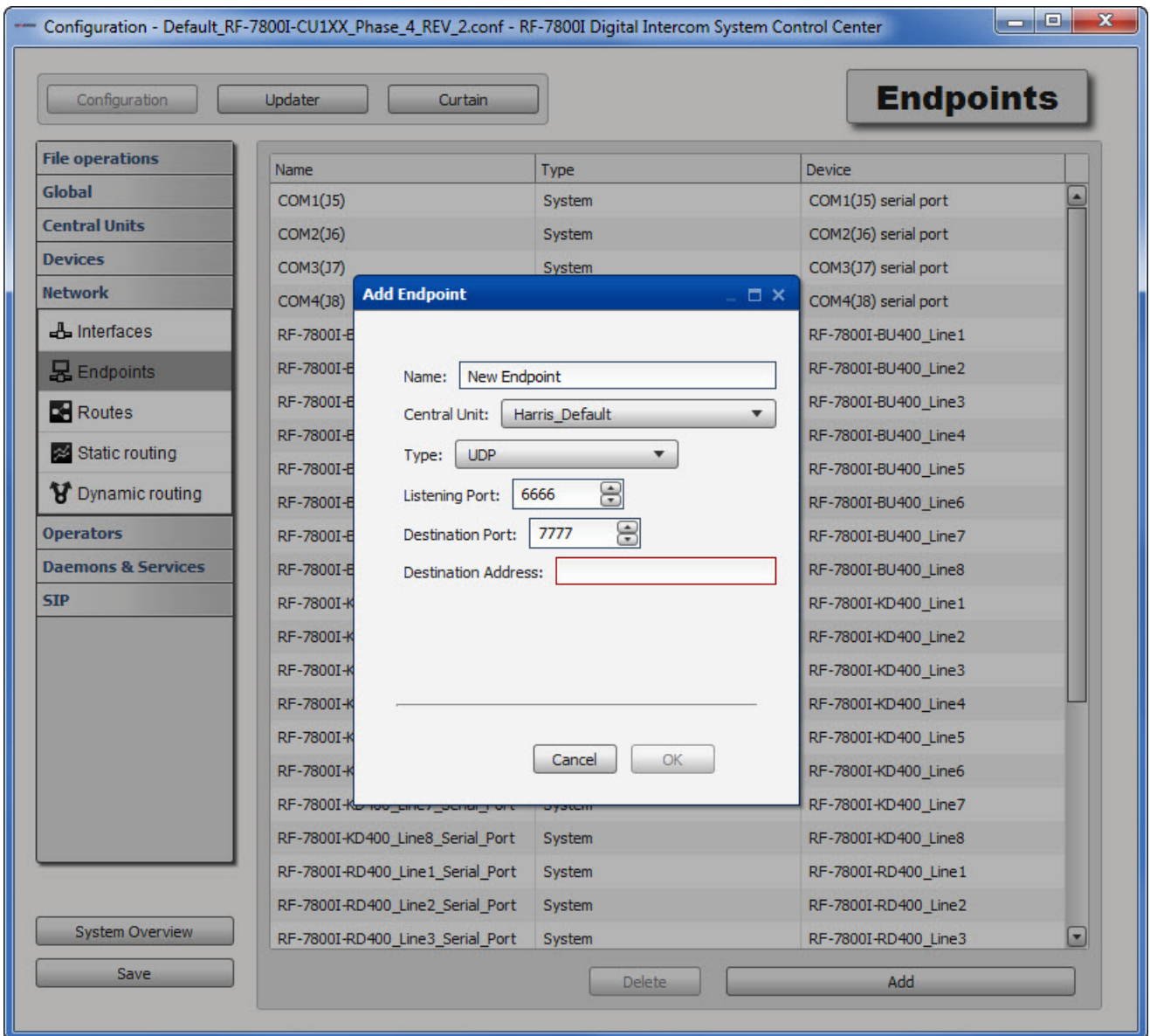
In the Endpoints properties:

- **Cancel** - Cancels new endpoints entry or modifications to existing endpoints.
- **OK** - Save new endpoints or modifications to existing endpoints.



**Figure 3-37. Endpoints**





**Figure 3-38. Add Endpoint**

### 3.6.2.1 Name

This is the name of the endpoint that appears in the list.

### 3.6.2.2 Central Unit

Select the central unit for which the endpoint is defined.

### 3.6.2.3 Type

Select software endpoint type:

- TCP - is more reliable than UDP, as it requires confirmation from the destination address that the data packet was received, if no confirmation is received, the packet is resent. The use of this protocol is preferable when dealing with sensitive data such as coordinates or targeting information. TCP is slightly slower than UDP.
- UDP - is less reliable than TCP as confirmation of receipt is not required. Any packets lost along the way are not resent. The use of this protocol is preferable when maximum speed is required and the loss of minuscule amounts of data does not affect comprehension. Examples include audio or video transfer.

### 3.6.2.4 Listening Port (UDP and TCP)

Enter any port number from 0 to 65535. Some ports below 50000 may be registered to other applications so it is advisable to use ports from 50000 to 65535 range. Use of port numbers below 50000 may cause interference.

### 3.6.2.5 Destination Port (UDP only)

Enter any port number from 0 to 65535. Some ports below 50000 may be registered to other applications so it is advisable to use ports from 50000 to 65535 range. Use of port numbers below 50000 may cause interference.

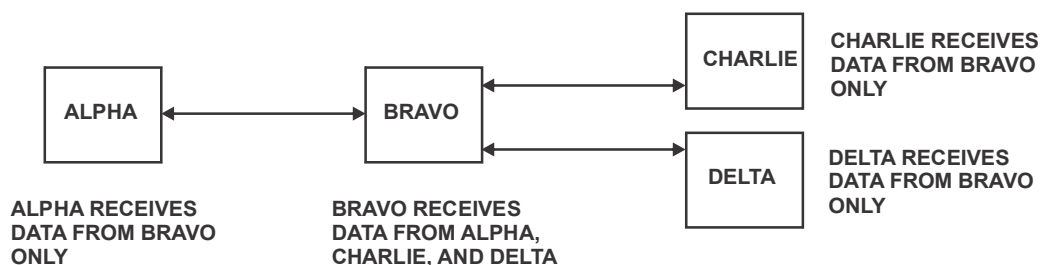
### 3.6.2.6 Destination Address (UDP only)

Enter the destination's IP address.

### 3.6.2.7 Endpoint Example

In the example shown in [Figure 3-39](#), endpoint Alpha is connected to endpoint Bravo, and endpoint Bravo is also connected to endpoints Charlie and Delta. All data on endpoint Alpha is sent to endpoint Bravo, but not sent further on to endpoints Charlie and Delta. Data on endpoint Bravo is sent to endpoints Alpha, Charlie, and Delta.

For ease and clarity of configuration, endpoints are labeled as Source and Destination, but whether an endpoint is a source or destination is irrelevant for any pair of two endpoints because data is transferred both ways (bidirectional).



CL-0407-4200-001

**Figure 3-39. Endpoint Configuration Example**


## 3.6.3 Routes

This Routes tab allows the user to define data transfer routes between the RF-7800I Digital Intercom System endpoints. See [Figure 3-40](#).

Endpoints can be connected to any other endpoints regardless of type. All routes are bidirectional. A route is created by clicking on a source and dragging an endpoint to a destination.



To create a new route, first select an endpoint on the Source list on the left side on the workspace. If any destinations are assigned to that endpoint, they will be displayed on Destinations list in the middle of the workspace. To add a new destination to the route, select an endpoint from the Endpoints list on the right side of the workspace, then drag and drop it onto the Destinations list.

To remove a destination, first select the source endpoint on the Source list on the left side on the workspace. All destination endpoints assigned to that source endpoint will be displayed on the Destination list in the middle of the workspace. Now select an endpoint from the Destinations list and drag and drop it to the trash can (  ).

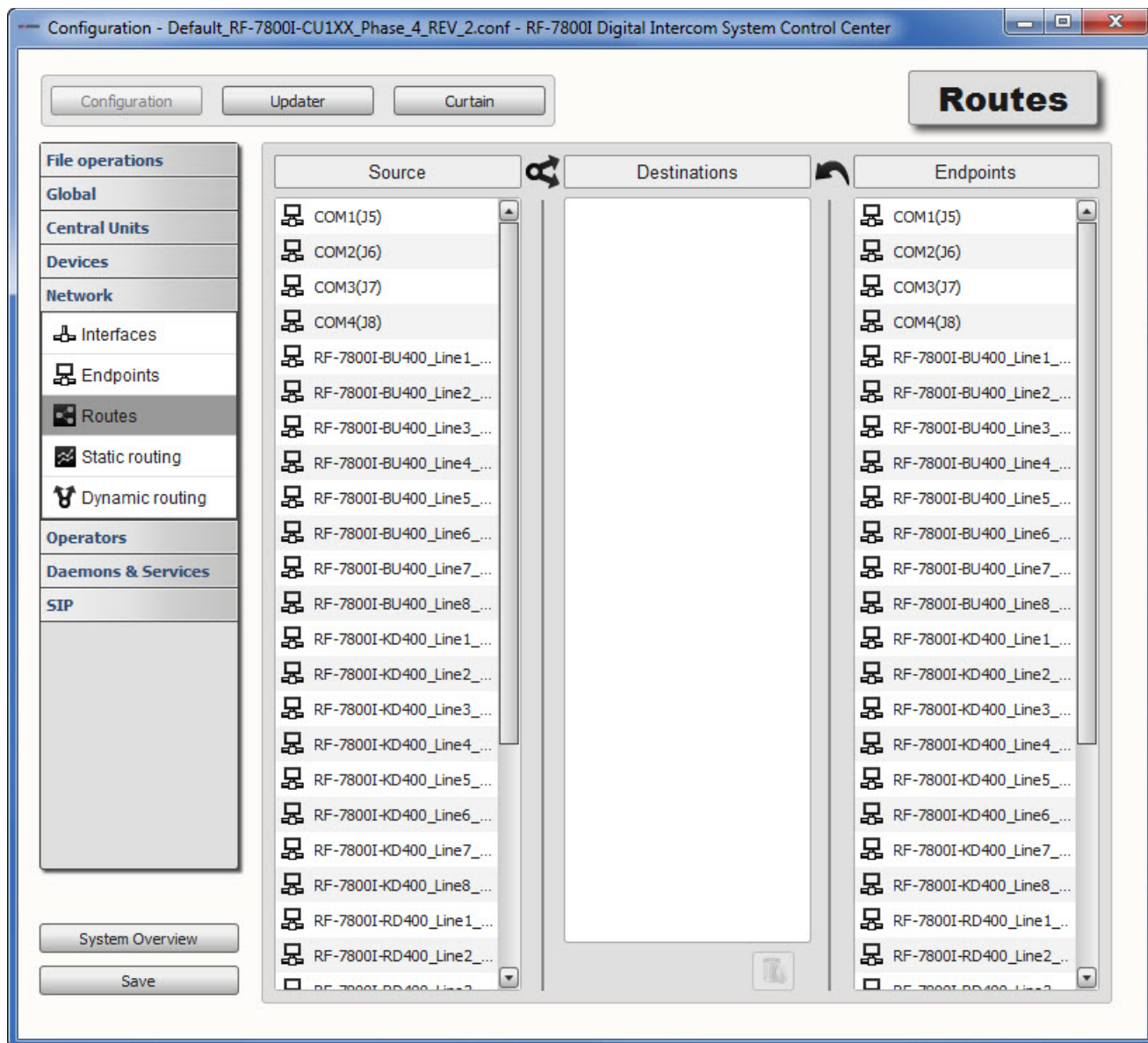


Figure 3-40. Routes

### 3.6.4 Static Routing

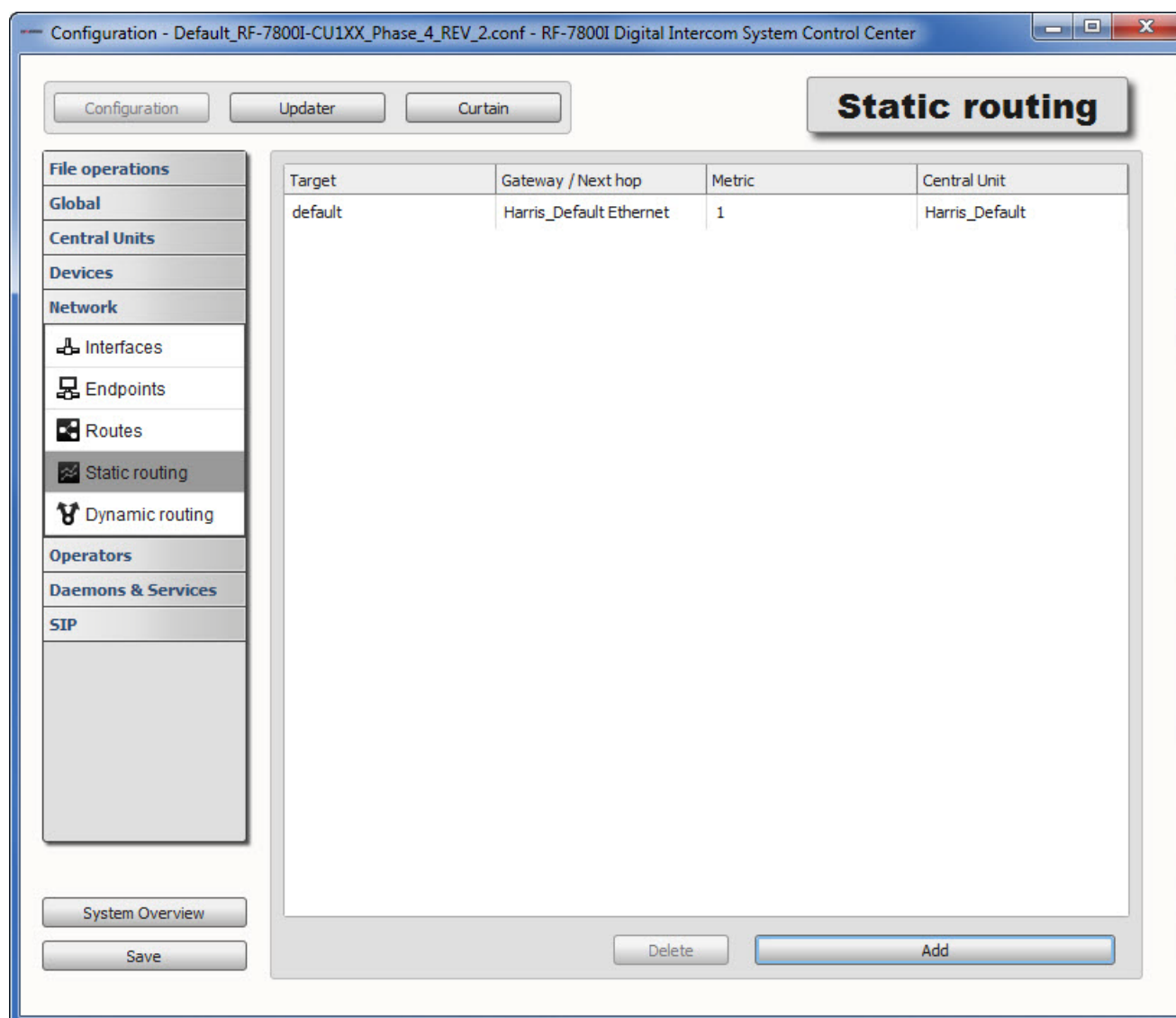
This Static routing tab allows the user to define Static Routes for a Static Route Table to be used by all Central Units. See [Figure 3-41](#) for Static routing.

Click on **Add** to add new static routing. Click on **Delete** to delete selected static routing. Double-click on static routing to modify settings. If an existing Static Route is selected when pressing the **Add** button, its properties will be copied into the newly opened window.

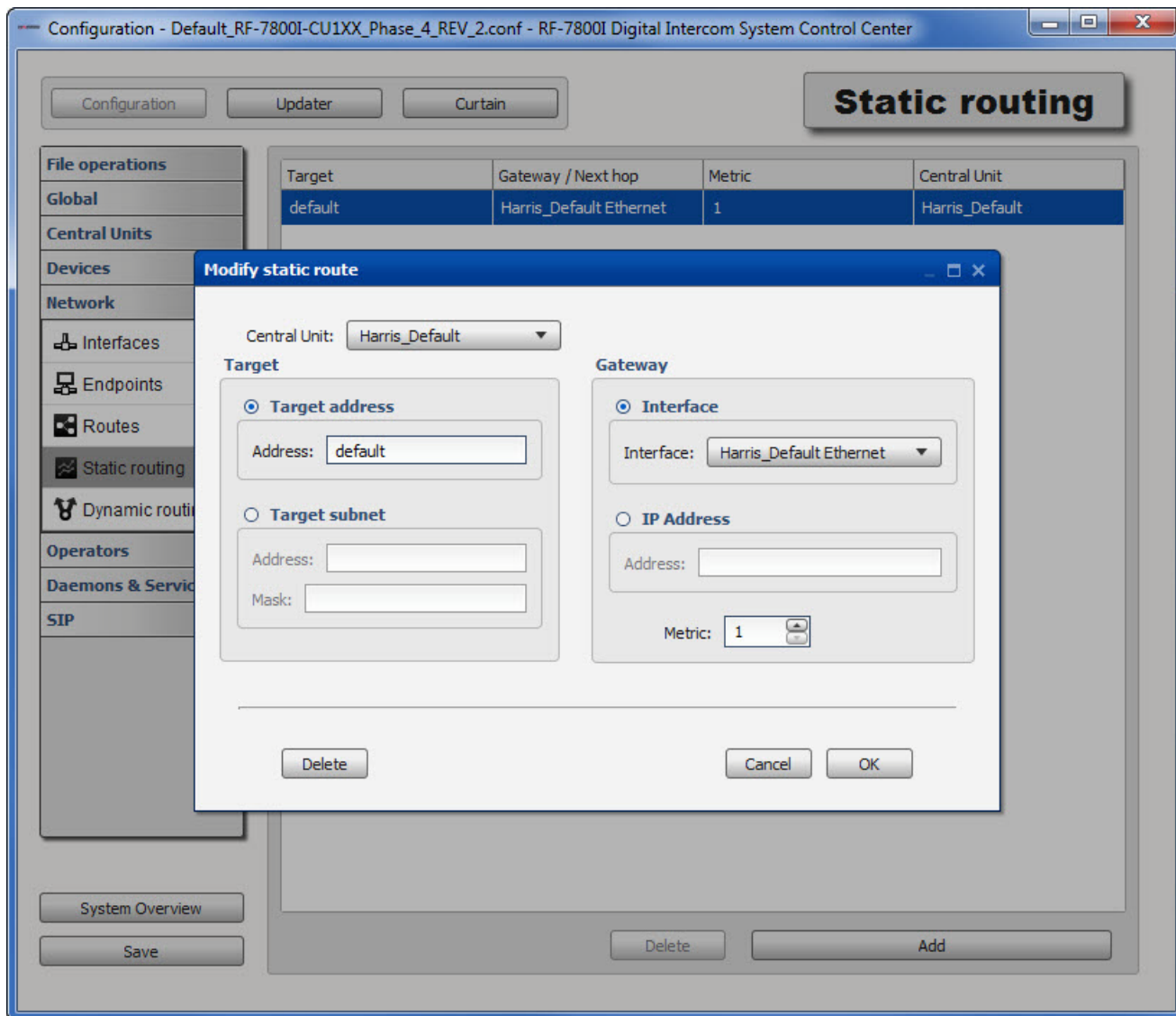
See [Figure 3-42](#) for Static routing properties.

In the Static routing properties:

- **Delete** - Deletes existing static routing.
- **Cancel** - Cancels new static routing entry or modifications to existing static routing.
- **OK** - Save new static routing or modifications to existing static routing.



**Figure 3-41. Static Routing**



**Figure 3-42. Static Routing Properties**

### 3.6.4.1 Target

Enter settings for target of static route:

- Target address - If selected, indicates that the target of the static route is an IP address.
  - Address - Enter the IP address of the static route's target address.
- Target subnet - if selected, indicates that the target of the static route is a subnet.
  - Address - Enter the IP address of the static route's target subnet.
  - Mask - Enter the IP address of the target subnet's mask.

### 3.6.4.2 Gateway

Enter settings for gateway to the target of the static route.

- Interface - If selected, indicates that the gateway is a Central Unit Ethernet interface.
  - Interface - Select central unit Ethernet interface to be used as a Gateway.
- IP address - If selected, indicates that the gateway is an IP address.
  - Address - Enter the gateway's IP address.
- Metric - Enter the metric, or quality, of the static route. The higher the value, the lower the quality. When a routing protocol is tasked with relaying data, the best quality routes are tried first, then goes down the list if the routes are unavailable.

### 3.6.5 Dynamic Routing

This Dynamic Routing tab allows the user to define dynamic routes to be used by all Central Units. See [Figure 3-43](#) for Dynamic routing.

#### NOTE

Quagga software module (12109-8290-01) needs to be installed for dynamic routing setting to take affect on the Central Unit. Verify the Quagga module is installed on the Central Unit using the Updater.

The following dynamic routing parameters are displayed:

- Name - the name of the device for which the interface is being configured.
- Type - the type of device
- Interface name - the name of the interface being configured.

The following dynamic routing parameters can be configured:

- RIP - toggle on and off to enable or disable support for the Routing Information Protocol.
  - Send version - allows the user to select RIP version 1 or 2 to be used for sending routing information.
  - Receive version - allows the user to select RIP version 1 or 2 to be used for receiving routing information.
- RIPng - toggle on and off to enable or disable support for the Routing Information Protocol next generation
- OSPFv2 - Open Shortest Path First version 2
- OSPFv3 Open Shortest Path First version 3

See [Figure 3-44](#) for Dynamic routing protocols configuration. Double-click on dynamic route in list to configure protocols.

In the Dynamic routing protocols configuration:

- **Cancel** - Cancels new routing protocol entry or modifications to existing routing protocol configuration.
- **OK** - Save new routing protocol or modifications to existing routing protocol configuration.

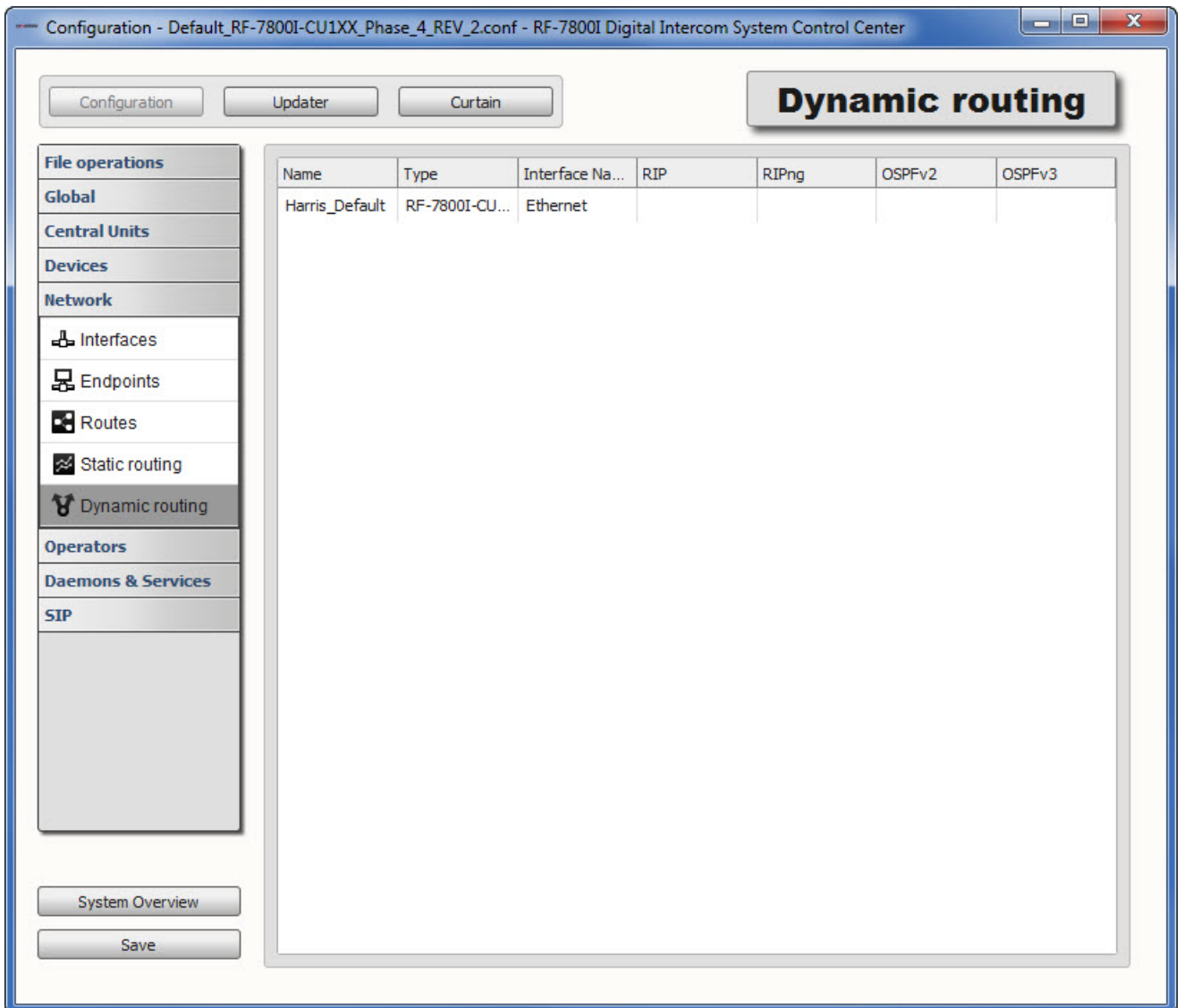
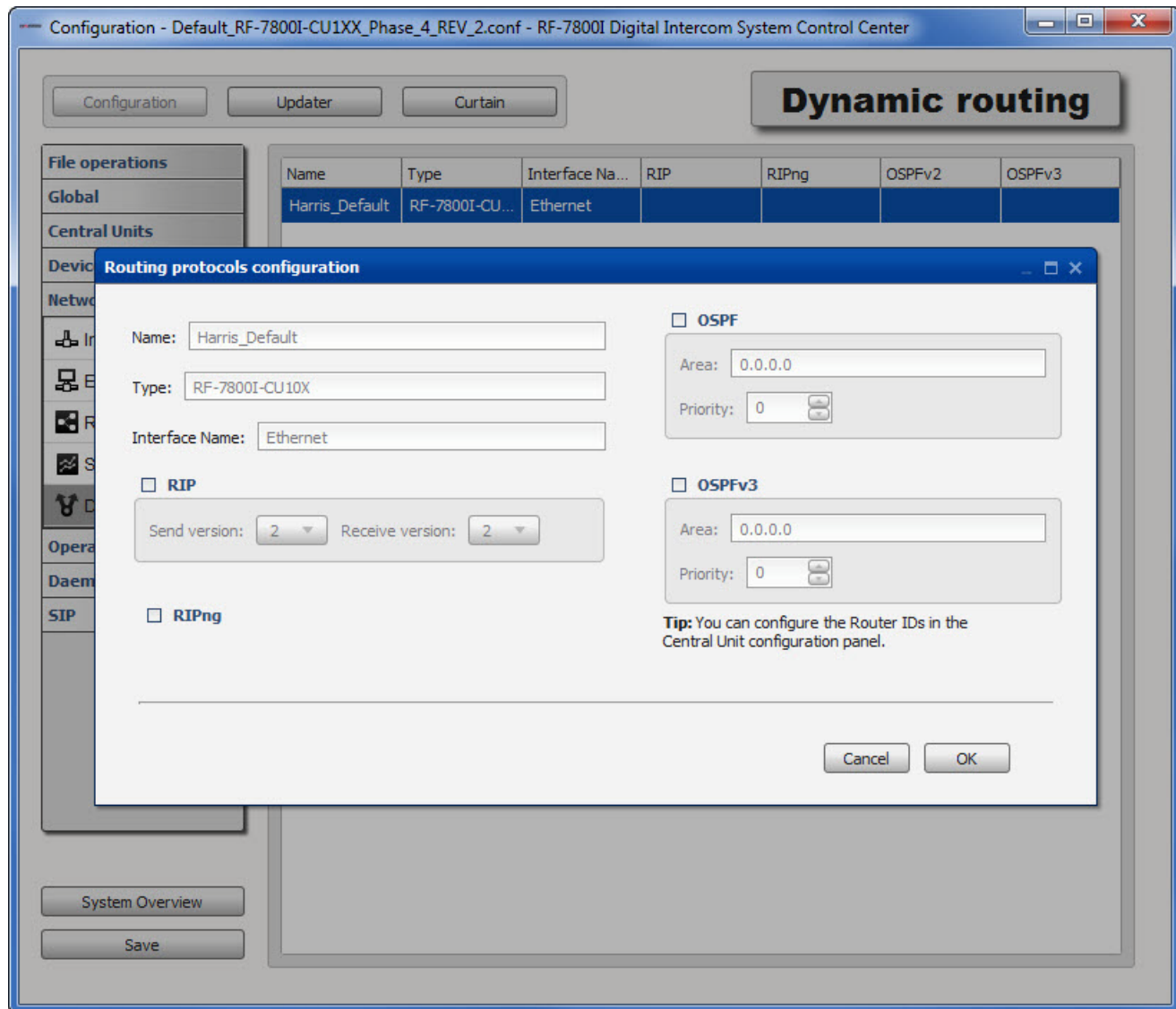


Figure 3-43. Dynamic Routing



**Figure 3-44. Dynamic Routing - Protocols Configuration**

#### **3.6.5.1 Name**

This is the name of the device for which the interface is being configured.

#### **3.6.5.2 Type**

This is the type of device.

#### **3.6.5.3 Interface Name**

The name of the interface being configured.

#### **3.6.5.4 RIP**

Toggle on and off to enable or disable support for the Routing Information Protocol (RIP).

Enter send and receive versions:

- Send version - allows the user to select RIP version 1 or 2 to be used for sending routing information.
- Receive version - allows the user to select RIP version 1 or 2 to be used for receiving routing information.

### **3.6.5.5 RIPng**

Toggle on and off to enable or disable support for the Routing Information Protocol next generation (RIPng).

### **3.6.5.6 OSPFv2**

Toggle on and off to enable or disable support for Open Shortest Path First version 2 (OSPFv2).

Enter the area and priority values.

- Area- allows the user to enter the area value.
- Priority- allows the user to select a priority from the drop down list.

### **3.6.5.7 OSPFv3**

Toggle on and off to enable or disable support for Open Shortest Path First version 3 (OSPFv3).

Enter the area and priority values.

- Area- allows the user to enter the area value.
- Priority- allows the user to select a priority from the drop down list.

## **3.7 OPERATORS**

The Operators menu allows the user to add operators to the system setup, define their capabilities within the system, the functionalities that they will have access to, and the properties of those functionalities.

### **3.7.1 General Settings**

The Operator settings tab allows the user to create Operator profiles and define the general settings for each operator. See [Figure 3-45](#). Click on **Add** to add new general settings. Click on **Delete** to delete selected general settings. Double-click on general settings to modify settings. If an existing operator is selected when pressing the **Add** button, their properties will be copied into the newly opened window. See [Figure 3-46](#) for Operator settings properties.

In the Operator settings properties:

- **Delete** - Deletes existing general settings.
- **Cancel** - Cancels new general settings entry or modifications to existing general settings.
- **OK** - Save new general settings or modifications to existing general settings.



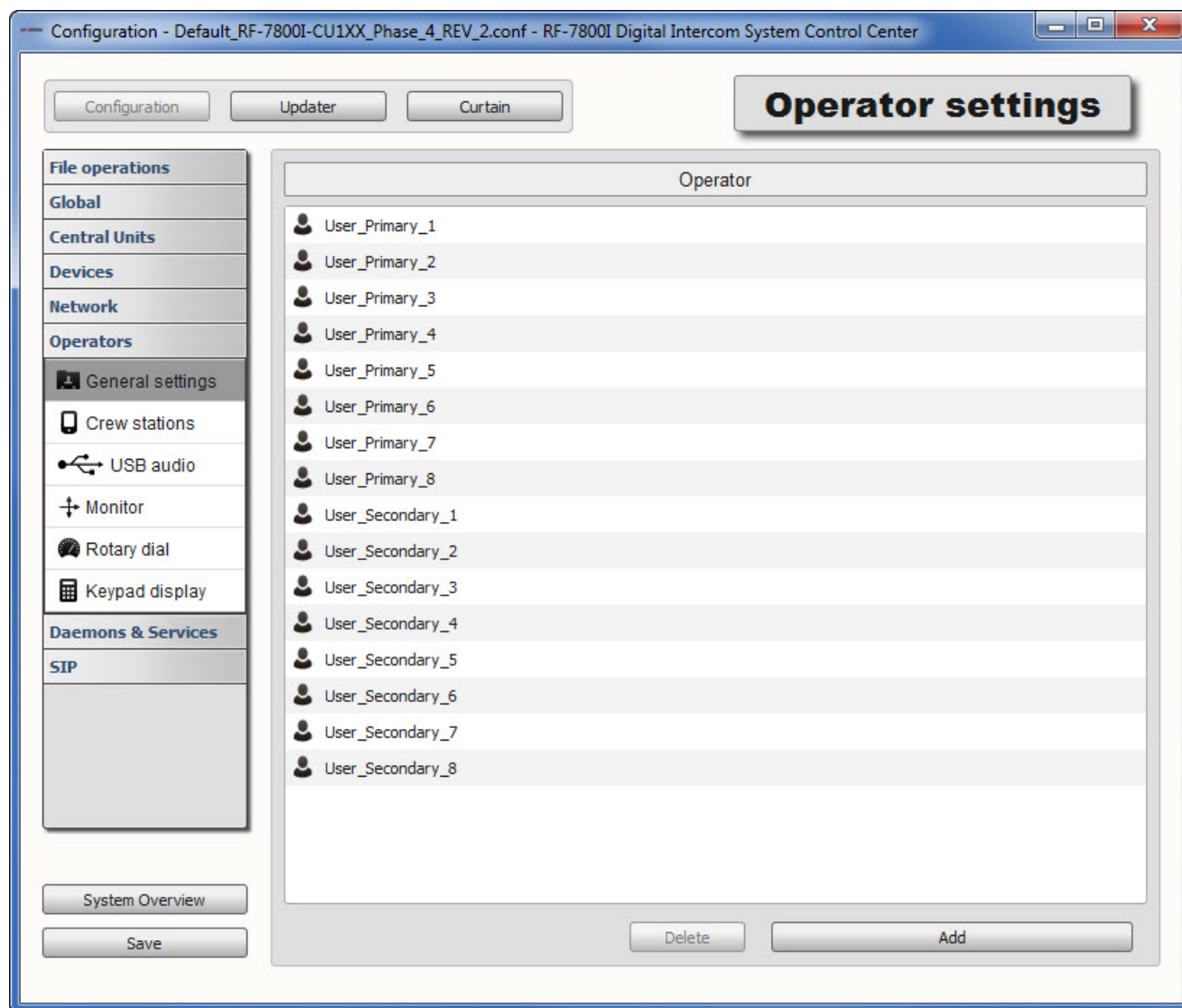
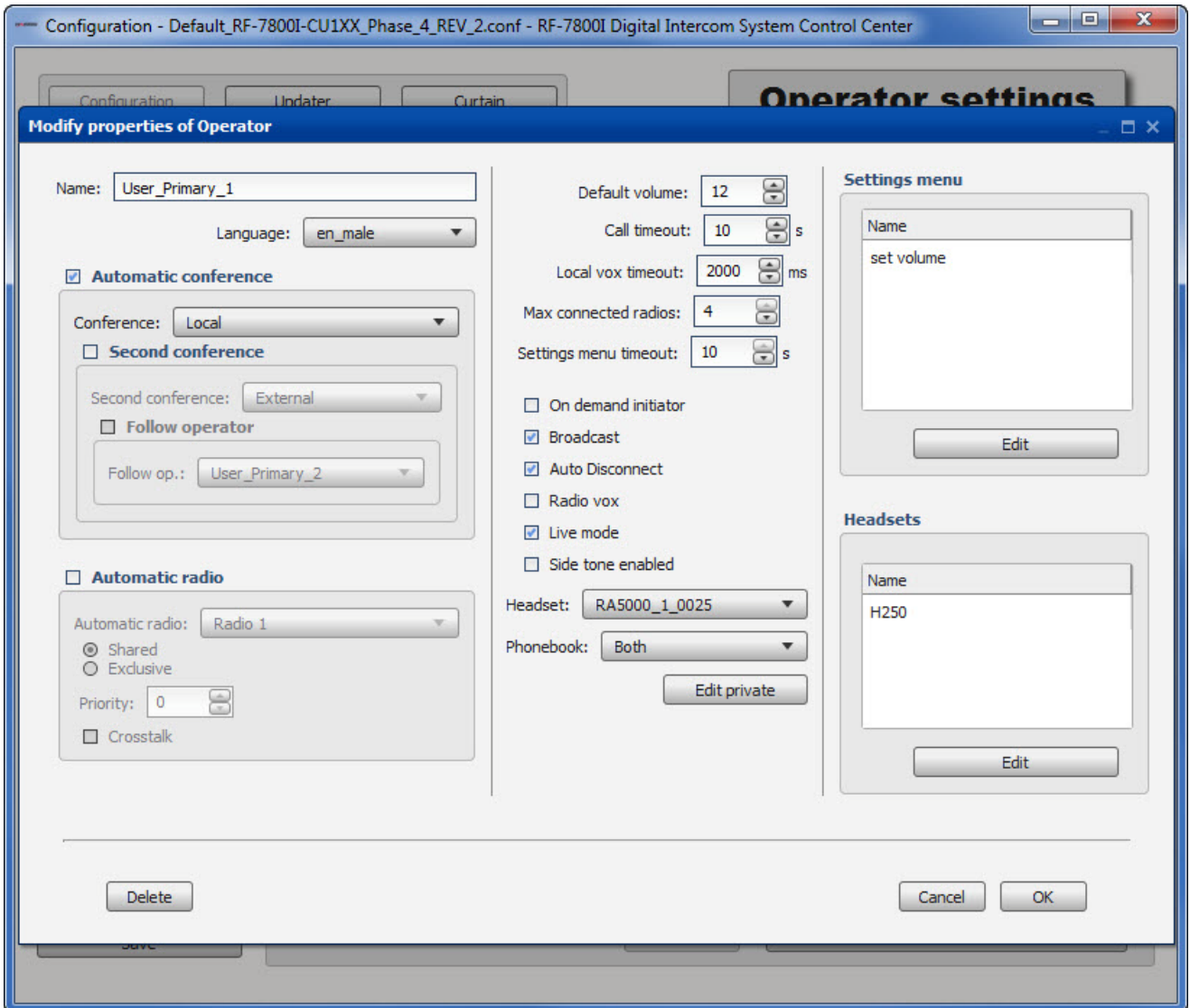


Figure 3-45. Operator Settings





**Figure 3-46. Operator Settings Properties**

### 3.7.1.1 Name

This is the name of the operator that appears in the list.

### 3.7.1.2 Language

Select language used for the operator. Refer to [Paragraph 3.3.1.3](#) for languages.

### 3.7.1.3 Automatic Conference

Select this option to enable the use of an automatic conference:

- **Conference** - Select the default conference the operator is connected to when no other connection is active. Radios connections are independent from the other connections. On system start, the operator is connected to the automatic conference. When selecting a different connection such as operator, telephone, SIP

subscriber, or different conference, the connection to the automatic conference is terminated. Once the connection to any other destination is terminated, the operator is reconnected to the automatic conference.

- Second conference - Select to enable the use of a secondary automatic conference.
  - Second conference - Select second conference, if available. This can only be used with RF-7800I-BU Crew Stations or for operators connected to the secondary headset ports on 200 series crew stations. When enabled, the operator can participate in two conferences simultaneously, or automatically switch between the first and second automatic conference as dictated by the followed operator.
  - Follow operator - Allows operator to select which operator the secondary should follow. An operator that is following another operator automatically attempts to connect to the same conference as the operator that is being followed. If an operator that is being followed connects to a different conference or establishes any other connection that disables the connection to the conference, the following operator reconnects to the first automatic conference. If this option is not selected, the operator that has both an automatic and secondary conference selected, participates in both conferences simultaneously.

#### **3.7.1.4 Automatic Radio**

Select to enable the use of an automatic radio. An automatic radio is the radio to which the operator is automatically connected to on system startup. This is a permanent selection for RF-7800I-BU and secondary headset ports on 200 series crew stations unless another operator remotely connects a radio to an RF-7800I-BU operator or a secondary headset port on a 200 series crew station. For a RF-7800I-KD, this works only on system startup. The operator can freely disconnect from the automatic radio or connect to any other as required.

- Automatic Radio - Select automatic radio.
  - Shared - When selected, operator connects to the radio in shared mode. A shared radio is locked for use when a user is keying the radio from the PTT switch on the headset. The radio lock can be overridden by an operator with a higher priority or by using exclusive mode at any priority.
  - Exclusive - When selected, the operator connects to the radio in exclusive mode. An exclusive radio is locked for use only when connected. The user does not have to be transmitting for the radio to be locked. The radio lock can be overridden only by an operator that is also connecting to the radio in exclusive mode, but at a higher priority.
  - Priority - Enter an operator's priority to use the radio connection. The higher the value, the higher the priority. Range is from -100 to 101.

When the priorities of two operators wanting to use the same radio are equal, the operator who first started transmission through the radio in shared mode or connected to the radio in exclusive mode continues transmission, locking out the other operator. The other operator is locked out until the first operator either terminates transmission in shared mode, or terminates the connection in exclusive mode.

An operator given a higher priority value can override the transmission in shared mode or connection in exclusive mode.

An operator attempting to use a radio that is currently being used by an operator with a higher priority (transmitting in shared mode, connected in exclusive mode) receives a voice message that the radio is locked.

An operator connecting to a radio in exclusive mode will always override a connection or an ongoing transmission in shared mode regardless of the priority value. An operator connecting to a radio in shared mode will never be able to override a connection made in exclusive mode regardless of the priority.

- Crosstalk - Select to enable crosstalk. When crosstalk is disabled and an operator is connected to a radio and another operator (conference or telephone), pressing PTT causes the operator to transmit on the radio only. The operator cannot be heard within the intercom or through the telephone. When crosstalk is enabled and an operator is connected to a radio and another operator (conference or telephone), pressing PTT causes the operator to transmit on the radio and be heard within the Intercom or telephone simultaneously.

### **3.7.1.5 Headset**

Select the default headset model that the operator is to use.

### **3.7.1.6 Phonebook**

Select the phonebook that the operator is to have access to. The following options can be selected:

- Private - The operator only has access to their private phonebook. To create a private phonebook, click on **Edit Private** and select **Add** to create private phonebook entries. Refer to [Paragraph 3.3.2.1](#) for a general description of phonebook entries.
- Global - The operator only has access to the global phonebook.
- Both - The operator has access to both phonebooks and the contacts from both phonebooks are displayed on one list with only unique contacts visible.

### **3.7.1.7 Default Volume**

Set the default volume setting of the crew station used by the operator. This value is the point on the volume settings scale of a crew station that was used on system start. The range is 0 to 15.

### **3.7.1.8 Call Timeout**

This is the time after which a call made by a user is not answered and will be canceled. The range is 0 to 60 seconds with a default of 10. When the value is set to 0, there is no timeout and a connection attempt is never canceled.

### **3.7.1.9 Local VOX Timeout**

An operator's microphone that is activated by receiving an audio signal remains active for the timeout duration (in milliseconds) specified, unless the operator keeps their voice above a threshold set for the headset. If local VOX timeout is left at the default of 0, the microphone will always be active and any audio including noise is passed to the intercom.

### **3.7.1.10 Max Connected Radios**

This is the maximum number of radios to which an operator can be simultaneously connected and transmit through. This setting is not related to monitoring radios as the number of monitored radios is not limited. Range is 0 to 4, with a default value of 1.

### **3.7.1.11 Settings Menu Timeout**

This is the time (in seconds) the settings menu is active once being opened and no action is taken. The menu can also be deactivated on RF-7800I-KD crew stations by pressing any of the keypad softkeys. Range is 1 to 10 seconds with a default of 10 seconds.

### **3.7.1.12 On Demand Initiator**

Select to enable the operator's ability to be a conference on demand initiator. A conference on demand initiator can create a conference and invite other operators to the conference. Only RF-7800I-KD primary operators are able to receive calls to on demand conferences.

### **3.7.1.13 Broadcast**

Select to enable the operator's ability to use the broadcast functionality. An operator initiates a broadcast by simultaneously pressing the two green speaker buttons (- and +) at the top of the terminal. The operator is then heard by all other operators and all other communication is overridden during the broadcast.

### **3.7.1.14 Auto Disconnect**

Select to enable the auto disconnect option. When disabled, an operator is prompted to confirm breaking their current connection if trying to establish another connection to another operator, conference, SIP subscriber, or telephone. If this option is enabled, no warning prompt is displayed and the current connection is terminated immediately.

### **3.7.1.15 Radio VOX**

When selected (enabled), radio VOX is turned on when the system starts. When disabled, radio VOX is turned off when the system starts. If the operator is not given access to the VOX option setting, this choice is permanent and cannot be changed without modifying the system configuration.

### **3.7.1.16 Live Mode**

Live Mode is used for compatibility with three-way PTT switches. When selected, compatible PTT switches will work as follows:




- Microphone only - This happens when the PTT signal is connected to ground through a 470 ohm resistor. This position means that the microphone is active and PTT is inactive (typically the locked PTT position on a three-way PTT switch).
- PTT - This happens when the PTT signal is connected to ground without a resistor. This position means that both the microphone and PTT are active (typically the momentary PTT position on a three-way PTT switch).
- No microphone - This happens when the PTT signal is not grounded. This position means that both the microphone and PTT are inactive (typically the center position on a three-way PTT switch).

### **3.7.1.17 Side Tone Enabled**

Select to enable or disable (on/off) Radio side tone.

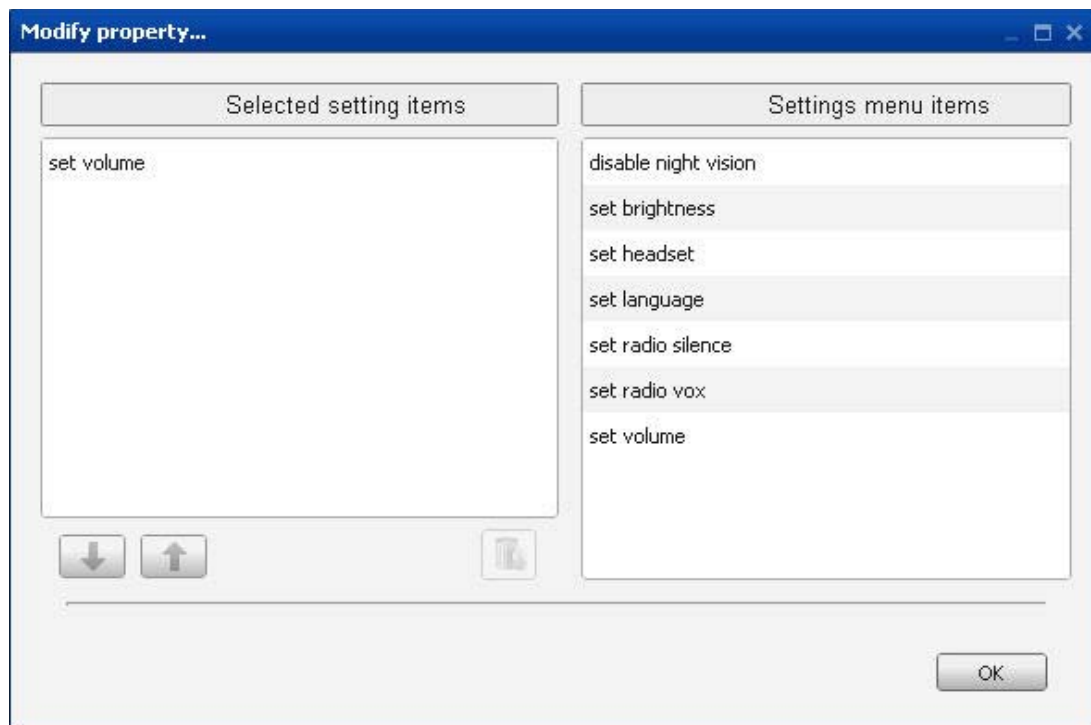
## 3.7.1.18 Settings Menu

The settings menu allows you to configure the options available to an operator from a voice prompt. To manage the available options, click on **Edit**. See [Figure 3-47](#). To add an option to the settings menu, drag settings menu items from right pane to the selected settings items in the left pane. When an item in left pane is selected, you can:

- Move selected item up in the list by clicking on .
- Move selected item down in the list by clicking on .
- Delete selected settings items by dragging to the trash can ().


Settings menu items include:

- Set volume - Use the voice prompt to adjust the volume of the audio level heard.
- Set Radio silence - Use the voice prompt to turn radio silence on or off. When radio silence is active, operators are able to connect to radios and can listen to any received communication but are unable to transmit. When radio silence is active, a voice message is played.
- Set Radio VOX - The operator can turn radio VOX on or off, regardless of the default setting.
- Disable night vision - (Only applicable for RF-7800I-KD Crew Stations.) When night vision is active, this option becomes available in the voice prompt as the first option available once the voice prompt is activated. When given access to this option, the operator can use the voice prompt to disable night vision.
- Set brightness - (Only applicable for RF-7800I-KD Crew Stations.) When given access to this option, the operator can use the voice prompt to adjust screen brightness.
- Set language - (Only applicable for RF-7800I-KD Crew Stations.) The operator can select an announcement language from a previously configured list.
- Set headset - The operator can select a headset model from a previously configured list.

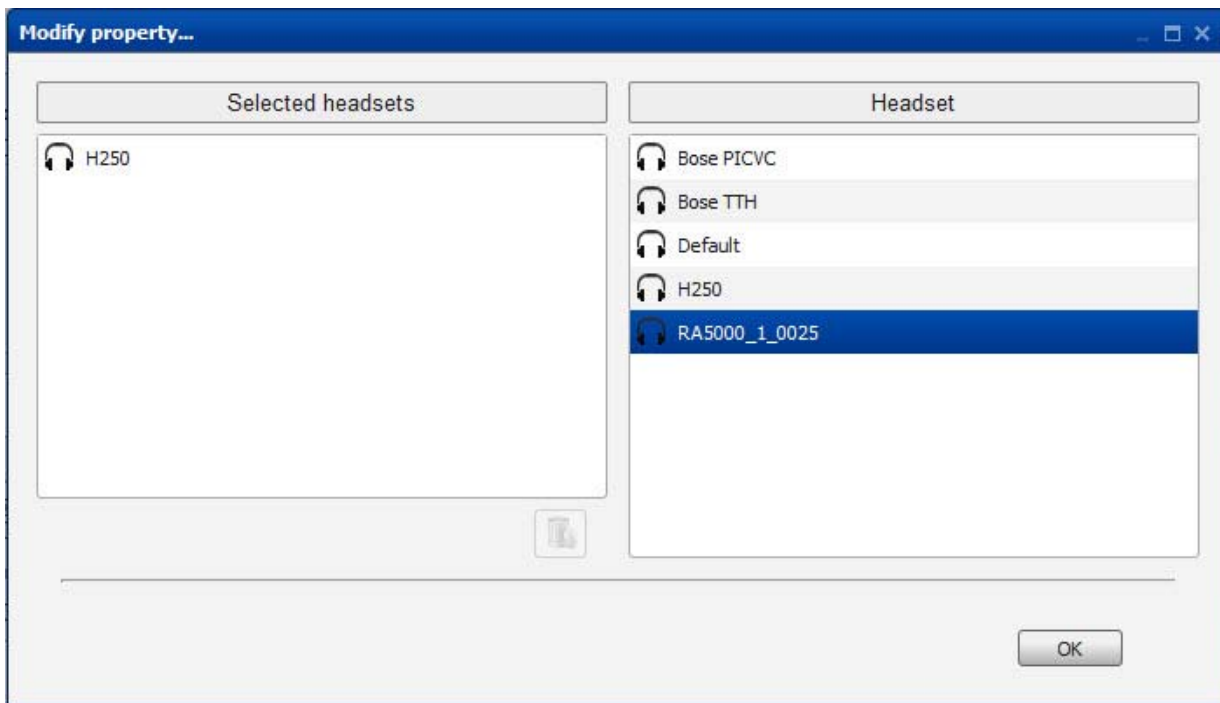


**Figure 3-47. Settings Menu Properties**

### 3.7.1.19 Headsets

The headsets menu allows you to configure which headsets are available to the operator. To manage the available headsets, click on **Edit**. See [Figure 3-48](#). To add an headset to the selected headsets list, first select it on the list of headsets on the right side of the window, then drag and drop it onto the list of available headsets. When a headset in the left pane is selected, you can delete the selected headset by dragging to the trash can (  ).


Only the input sensitivity and high output parameters of a headset change during operation. Other headset settings can be changed only if the crew station is reconfigured to use a different headset by default.



**Figure 3-48. Headsets Properties**

### 3.7.2 Crew Stations

See [Figure 3-49](#). You can assign or unassign operators to and from crew stations. To assign an operator to a crew station, first select the central unit tab you wish to configure. Next, select the crew station in the list at the left side of the window. Then select an operator from the list at the right side of the window and drag it to the primary operator list.

To assign a secondary operator to 200 series crew stations, drag an operator from the list at the right side of the window to the secondary operator list. When a primary or secondary operator is selected, delete by dragging to the trash can (  ).

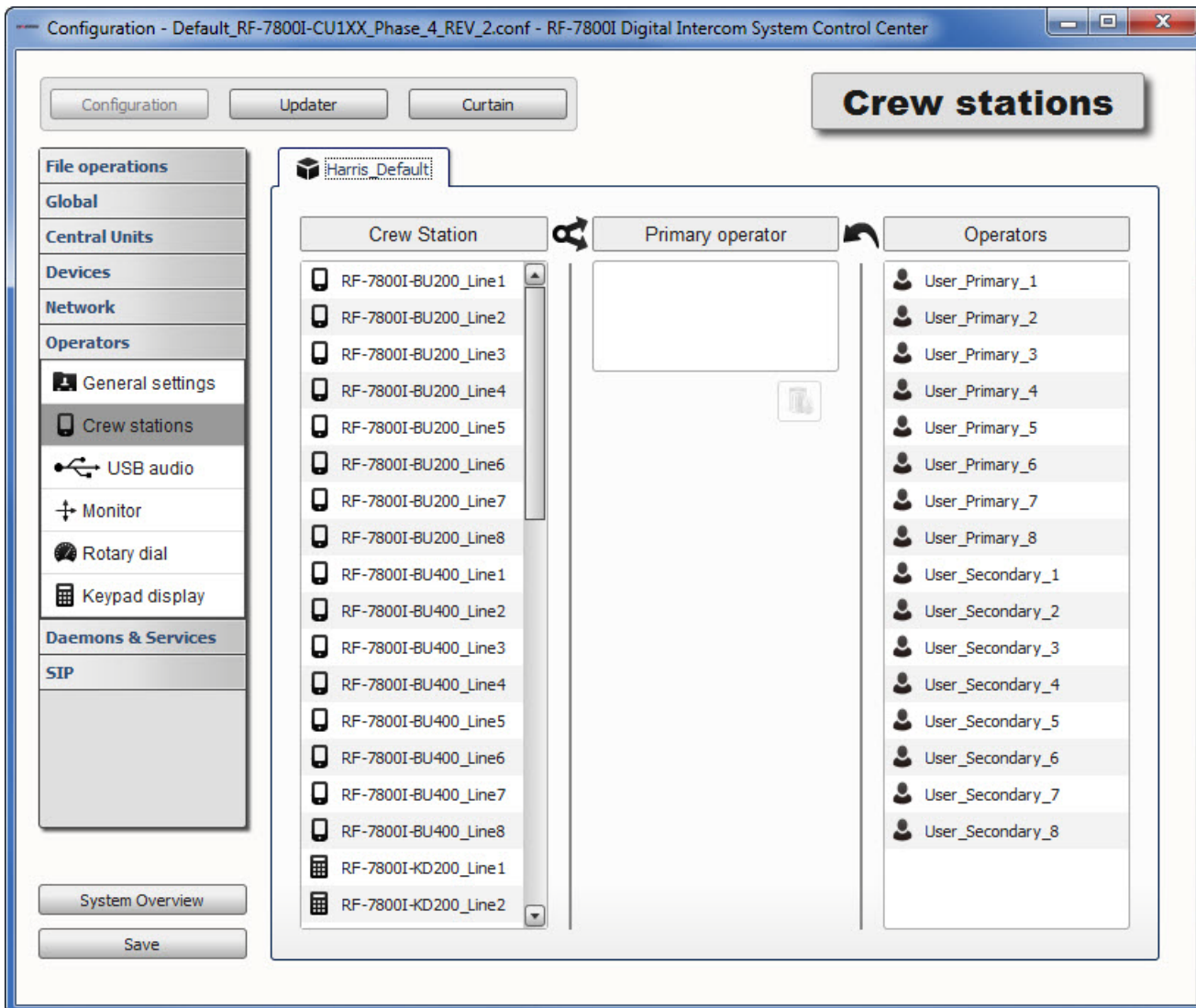


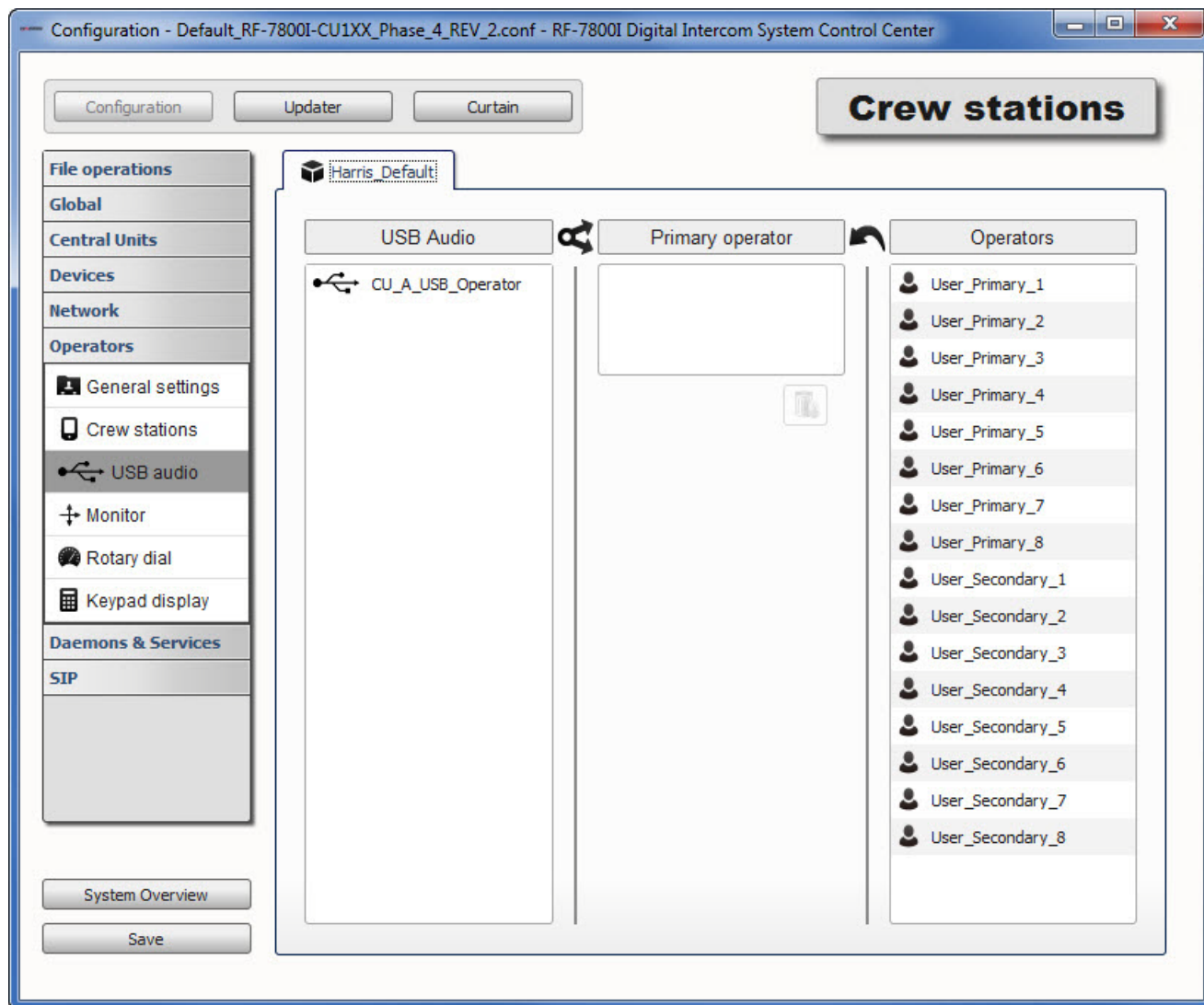
Figure 3-49. Crew Stations

### 3.7.3 USB Audio

See [Figure 3-50](#). This tab allows the user to assign or un-assign Operators to and from Standard Audio over USB Devices. To assign an Operator to a USB Audio Device, first select the Central Unit for which the Operator assignments are to be configured, by clicking the name of the Central Unit on one of the bookmarks at the top of the workspace. Next, select the USB Audio Device on the list at the left side of the workspace by clicking its name. Once it is selected (the name of the USB Audio Device is highlighted), select an Operator from the list at the right side of the workspace and drag and drop their name to the Primary operator list.

To un-assign an Operator from a USB Audio Device, first select the Central Unit for which the Operator assignments are to be modified, by clicking the name of the Central Unit on one of the bookmarks at the top of the workspace. Next, select the USB Audio Device on the list at the left side of the workspace by clicking its name. Once it is selected (the name of the Crew Station is highlighted), select an Operator from the Primary operator list and drag and drop their name on to the trash bin icon.






**Figure 3-50. USB Audio**

### 3.7.4 Monitors

See [Figure 3-51](#). You can assign monitoring sources to operators as well as configure the monitoring modes and volume gains. Monitoring allows the operator to listen to other operators, conferences, radios and telephones while not communicating with them. Monitoring establishes a one-way connection. Monitoring set up here is permanent, it cannot be deactivated without modifying the configuration.

To add a new monitored source, select an operator from the list on the left side of the window. Next, select a source from the list on the right side of the window and drag onto the monitored source list in the middle of the window. When a monitored source is selected, delete by dragging to the trash can (  ).

Double-click on monitored source to modify settings. See [Figure 3-52](#) for monitored source properties.



In the monitored source properties:

- **Delete** - Deletes existing monitored source.
- **Cancel** - Cancels new monitored source entry or modifications to existing monitored source.
- **OK** - Save new monitored source or modifications to existing monitored source.

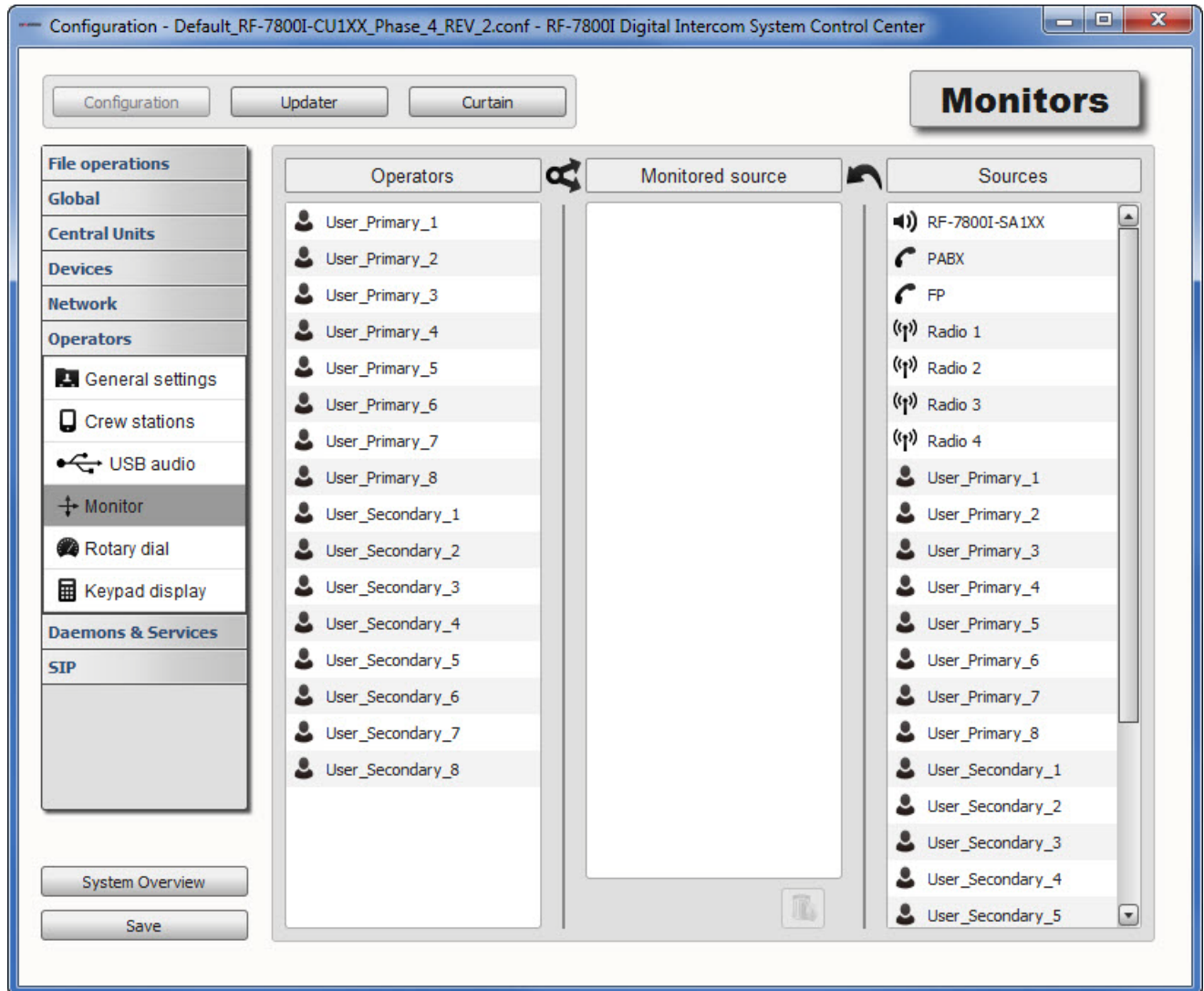
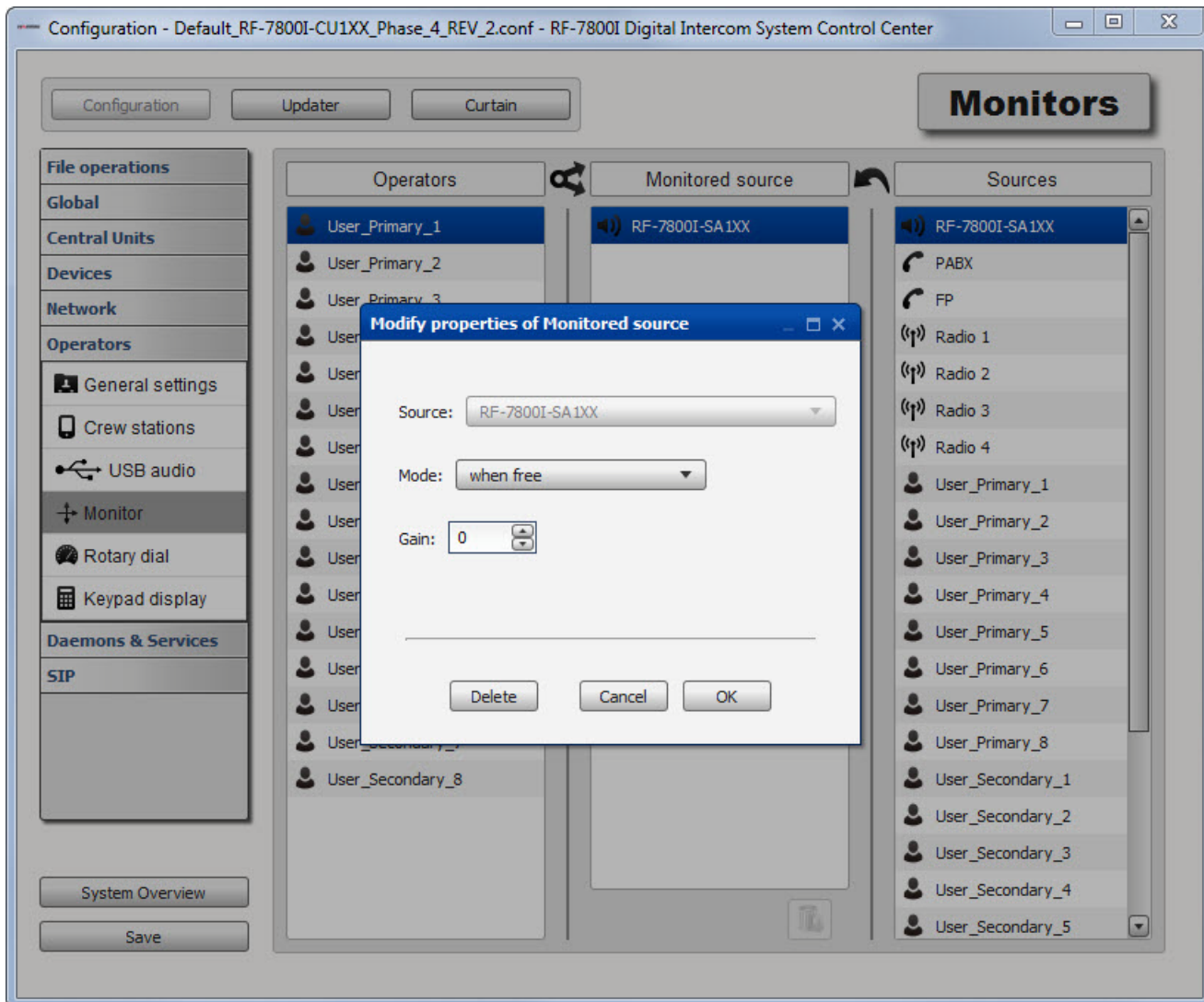


Figure 3-51. Monitors



**Figure 3-52. Monitored Source Properties**

#### 3.7.4.1 Source

The source is a fixed parameter set in the first step when selecting a monitored source. Depending on the type of source, monitoring will behave differently:

- Operator - The monitored signal is the voice of the operator, not what is heard in their headset.
- Conference - The monitored signal is all audio incoming to the conference.
- Radio - The monitored signal is the audio received by the radio, unless in radio mode. In radio mode, both the received and transmitted audio are monitored.
- Telephone - The monitored signal is the voice of the external telephone user. If a local echo effect occurs, then the voice from the other end of the phone line can also be heard. The other end of the line is significantly quieter than the voice of the telephone user.

### 3.7.4.2 Mode

Mode defines when the audio signal is monitored and heard by the operator. The following modes are available:

- When free - Mode is available for operators and radios.
  - For Operators, when free mode means the operator is monitored when not connected to another operator, conference or telephone.
  - For Radios, when free mode means the audio received by the radio is monitored when an operator is connected to the radio in shared mode, or no operator is connected to the radio.
- When busy - Mode is available for operators and radios.
  - For operators, when busy mode means the operator is monitored when connected to another operator, conference or telephone.
  - For radios, when busy mode means the audio received by the radio is monitored when an operator is connected to radio in exclusive mode.
- Always - Mode is available for operators, conferences, radios and telephones.
  - For Operators, always mode means the operator is monitored regardless current connections.
  - For Conferences, always mode means the conference is monitored at all times. The conference is heard by the operator whenever any audio signal is incoming to the conference.
  - For Radios, always mode means the audio received from the radio is monitored at all times.
  - For Telephone, always mode means the external telephone is monitored at all times.
- Radio - this mode is available only for Radios.
  - This mode causes the Radio to be heard at all times (as in Always mode), but both received and transmitted audio will be heard by the Operator (as opposed to other modes where only audio received by the Radio is heard).

### 3.7.4.3 Gain

Increases or decreases the audio level received by the monitoring source. Range is -30 dB to 30 dB.

### 3.7.5 Rotary Dial

See [Figure 3-53](#) for the Rotary dial tab. This workspace allows the user to define and configure the functionalities available to Operators using the RF-7800I-RD type terminals. To configure a rotary dial position, click on the operator on the left side of the workspace, then double click their name. A set of 16 buttons will appear on the right side of the workspace, each button representing a position of the rotary dial. Select a button (or square) on the right side of the screen with the number of the rotary dial position to be configured. A new window will open allowing the user to select one of the possible options. Select the mode:

- Only radio - Selecting this mode means the operator only connects up to two radios when the rotary dial is in the corresponding position. If the operator is configured for an automatic conference, the operator can speak to the conference whenever the microphone is active, unless PTT on the headset is pressed. When PTT is pressed, the operator transmits on the radio. If the crosstalk option is turned on, the operator transmits on the radio(s) and speaks to the conference whenever PTT is pressed. When configured, it is also possible to initiate a rebroadcasting session when two radios are assigned to this position. It is also possible to assign monitoring to this position.

- **Talk to** - Selecting this mode for a dial position means the operator connects to another operator when the rotary dial is in this position. Also all of the options from the only-radio mode are available. If a radio (or radios) is also configured for this position, the operator speaks to the other operator whenever the microphone is active, unless PTT on the headset is pressed. When PTT is pressed, the operator transmits through the radio. If the crosstalk option is turned on, the operator transmits on the radio and speaks to the other operator whenever PTT is pressed.
- **Conference** - Selecting this mode for the dial position means the operator joins a conference when the rotary dial is in this position. Also, all of the options from the only-radio mode are available. If a radio (or radios) is also configured for this position, the operator speaks to the conference whenever the microphone is active unless PTT on the headset is pressed. When PTT is pressed, the operator transmits through the radio. If the crosstalk option is turned on, the operator transmits on the radio and speaks to the conference whenever PTT is pressed.
- **Phone** - Selecting this mode for the dial position means the operator calls a telephone (field phone or PABX phone) when the rotary dial is in this position. Also, all of the options from the only-radio mode are available. If a radio (or radios) is also configured for this position, the operator speaks to the telephone whenever the microphone is active, unless PTT on the headset is pressed. When PTT is pressed, the operator transmits through the radio. If the crosstalk option is turned on, the operator transmits on the radio and speaks to the telephone whenever the PTT switch is pressed.

Refer to [Paragraph 3.7.5.1](#) through [Paragraph 3.7.5.4](#) for descriptions of the screens that appear after first selecting the mode. See [Figure 3-54](#) for Rotary dial properties.

In the Rotary dial properties:

- **Delete** - Deletes the configured rotary dial function for the position selected.
- **Cancel** - Cancels new rotary dial entry or modifications to existing rotary dial.
- **OK** - Save new rotary dial function or entry or modifications to existing rotary dial function or entry.

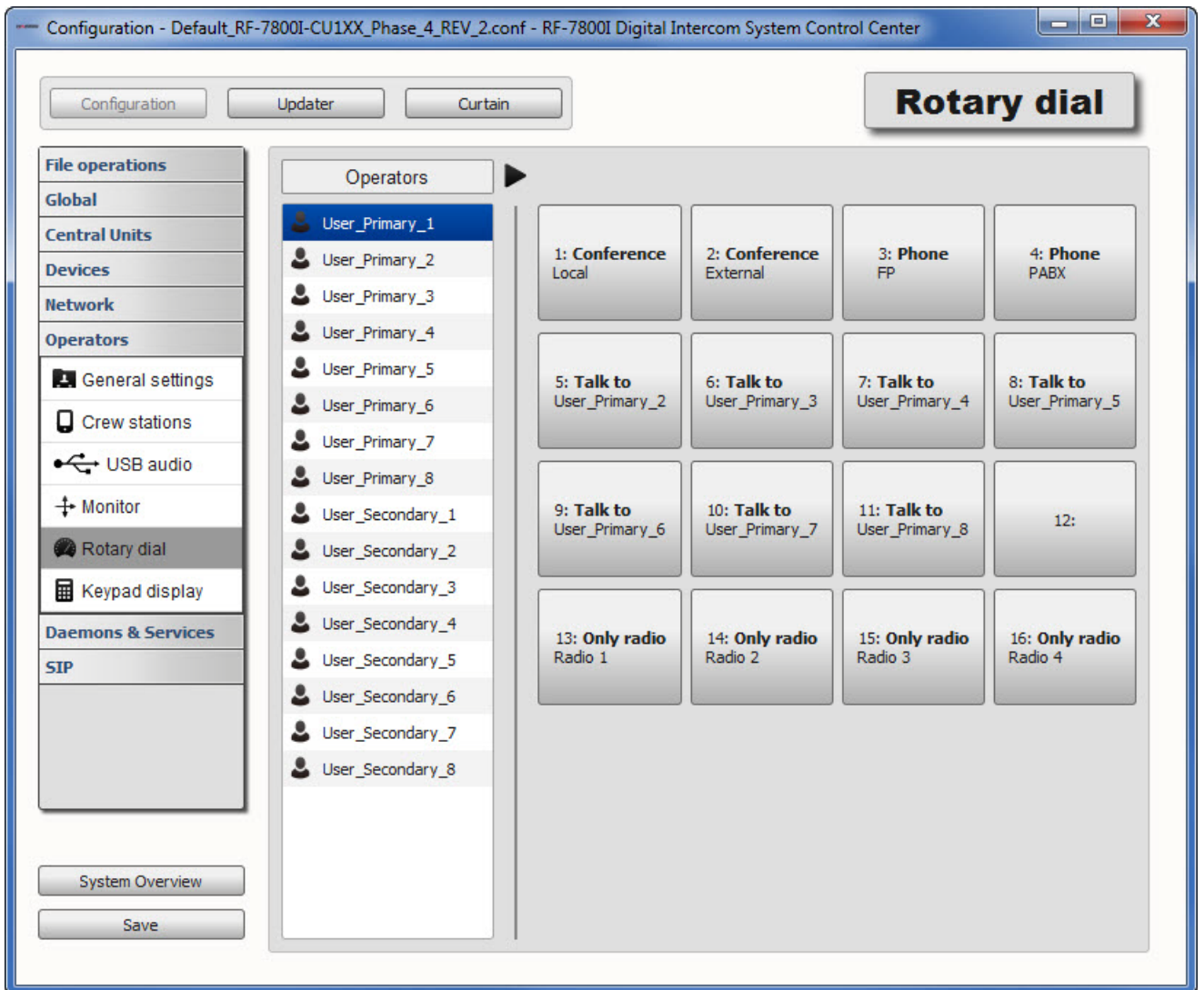


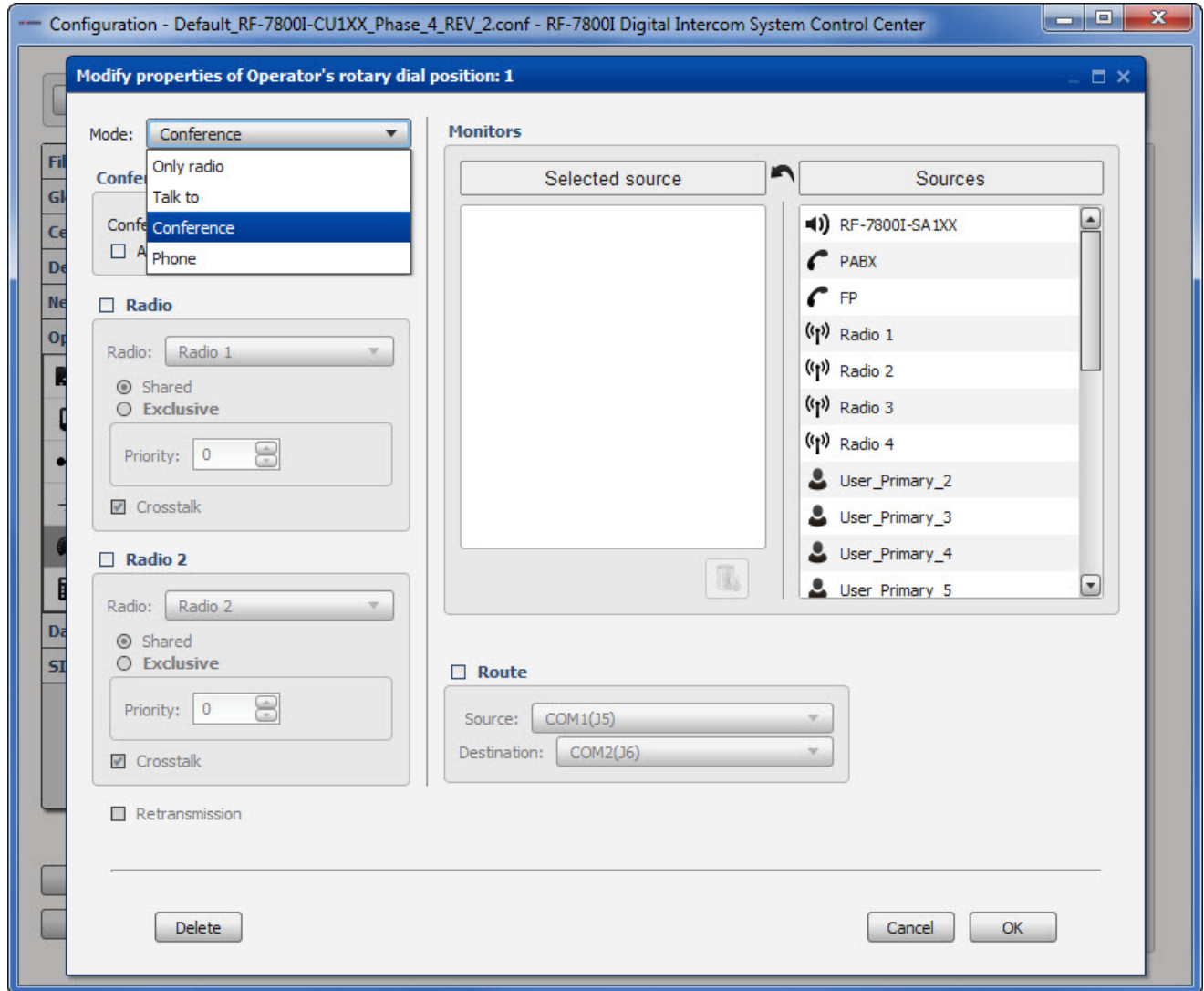
Figure 3-53. Rotary Dial

### 3.7.5.1 Only Radio

See [Figure 3-54](#). The following settings are available when the chosen mode for the rotary dial position is only radio:

- Radio 1/Radio 2 - Select to enable radio connection. Radio 2 becomes available for configuration only after radio 1 is enabled.
- Radio - Select previously configured radio device.
- Shared - If selected, the operator connects to the radio in shared mode, meaning that the radio is locked for use only when pressing PTT on the headset. The radio lock can be overridden by an operator with a higher priority or using the exclusive mode at any priority.
- Exclusive - If selected, the operator connects to the radio in exclusive mode, meaning the radio is locked for use only when connected (not necessarily transmitting). The radio lock can be overridden only by an operator that is also connecting to the radio in exclusive mode but at a higher priority.
- Priority - This value defines an operator's priority to use the radio connection. The higher the value, the higher the priority. The range is from -100 to 101.
  - When the priority value of two operators wanting to use the same radio is equal, the operator who first started transmission through the radio in shared mode or connected to the radio in exclusive mode continues transmission, and the other operator is unable to use the radio until the first operator either terminates transmission (in shared mode) or terminates the connection (in exclusive mode).
  - An operator with a higher priority value can override the transmission in shared mode or connection in exclusive mode over any operator with a lower priority level.
  - When an operator attempts to use a radio that is currently being used by an operator with a higher priority (transmitting in shared mode, connected in exclusive mode), a voice message that the radio is locked is received.
  - An operator connecting to a radio in exclusive mode always overrides a connection or an ongoing transmission in shared mode regardless of the priority value. An operator connecting to a radio in shared mode will never be able to override a connection made in exclusive mode, regardless of the priority value.
- Crosstalk - Select to enable crosstalk. When crosstalk is disabled and an operator is connected to a radio and another operator, conference or telephone, pressing the PTT switch causes the operator to transmit on the radio only. The operator cannot be heard within the intercom or through the telephone. When crosstalk is enabled and an operator is connected to a radio, another operator, conference, or telephone, pressing the PTT switch causes the operator to transmit on the radio and speak to the intercom or telephone simultaneously.
- Retransmission - Select to enable the radio pair for retransmission. Retransmission allows a pair of radios to function as an ad-hoc retransmission relay, with all audio signals received by one radio to be broadcasted by the other radio. This is a bidirectional connection and it is functionally irrelevant which radios are radio 1 and radio 2.





**Figure 3-54. Rotary Dial Properties Position 1 (Conference Shown)**

### 3.7.5.2 Talk To

This mode allows the operator to directly connect to another operator. Setting the rotary dial to this position sends a call signal to an operator on another crew station for notification about an incoming call. If the call is accepted, the connection is established and direct communications are held. If the call is not accepted or times out, the caller receives a voice message that the connection is refused. Operators on RF-7800I-BU units and secondary headset ports on other crew stations units are unable to accept or reject incoming calls so they are automatically connected. The incoming call will only be rejected, if someone else is already connected to them. Configuration options in [Paragraph 3.7.5.1](#) are available for this mode as well as one additional parameter, operator.

- Operator - the connection target of the talk-to functionality is selected from a drop down list of previously configured operators.

To communicate with another operator, the RF-7800I-RD crew station operator only needs to speak into an active microphone. If any of the radios are also configured for this position, the operator can transmit through the radios by pressing PTT.

It is important to note that an RF-7800I-RD operator is only able to accept a call from another operator, if a talk-to-dial position corresponding to that operator is configured.

### 3.7.5.3 Conference

This mode allows the operator to join a conference. Setting the rotary dial to this position connects the operator to the conference. All configuration options from [Paragraph 3.7.5.1](#) are available for this mode as well as two additional parameters:

- Conference - The conference that is to be joined by the conference functionality is selected from this list of all previously configured conferences.
- Auto call - Select to enable auto call. When auto call is enabled, setting the rotary dial to this position sends a call signal to operators on other crew stations and notifies them about an incoming call. If the call is accepted, the conference can be joined. The operator that has made the call will not be notified if another operator rejects the call. Operators on RF-7800I-BU units and secondary headset ports on other crew stations units are unable to accept or reject incoming calls and are limited to automatic or secondary automatic conferences.

To communicate with the Conference, the RF-7800I-RD crew station operator only needs to speak into an active microphone. If any radios are configured for this position, the operator can transmit through the radios by pressing PTT.

### 3.7.5.4 Phone

This mode allows the operator to directly connect to a Field phone or PABX phone using the TA1XX crew station. Setting the rotary dial to this position sends a call signal to the telephone. If the connection is accepted, direct communication will be maintained. If the call is not accepted or the call times out, the caller receives a voice message that connection is refused. All configuration options from [Paragraph 3.7.5.1](#) are available for this mode as well as two additional parameters:

- Telephone - This is the connection target of the phone functionality which is selected from a drop down list of all previously configured telephone lines.
- Telephone number - This is the telephone number (applicable only for PABX phones) that the operator calls.

To communicate with telephones, the RF-7800I-RD crew station operator only needs to speak into an active microphone. If any radios are configured for this position, the operator can transmit through the radios by pressing PTT.

A RF-7800I-RD operator is only be able to accept a call from a telephone, if a dial position corresponding to that telephone is configured.

### 3.7.5.5 Monitors

This workspace allows the user to assign monitoring sources to Operators, as well as configure the monitoring modes and volume gains. Monitoring allows the Operator to listen to other Operators, Conferences, Radios and Telephones while not communicating with them - monitoring establishes a one-way connection. Monitoring set up here is active only when the rotary dial is set to the proper position. Refer to previous section [Paragraph 3.7.4](#).

### 3.7.5.6 Route

This functionality allows the user to define a dynamically activated data transfer route that can be enabled by the RF-7800I-RD operator by turning the rotary dial to the corresponding position.



To assign a dynamic data route to a rotary dial position, select one of the following parameters, available in the lower middle of the workspace:

- **Route** - Select to enable or disable the data transfer route option.
- **Source** - Select any one of the hardware or software endpoints from this list as one end of the data transfer route.
- **Destination** - Select any one of the hardware or software endpoints from this list as the other end of the data transfer route.

To modify the settings of the dynamic data transfer route, select a different endpoint from either of the dropdown lists. To remove a dynamic data transfer route, uncheck the route parameter. A main function, only radio, talk to, conference, or phone, needs to be assigned to a rotary dial position for routing in the position to be active.

### **3.7.6 Keypad Display**

See [Figure 3-55](#) for keypad display. You can define and configure the functionalities available to operators using the RF-7800I-KD type terminals. To add a new function to the keypad display, click on the operator on the left side of the window, then click on a button (or square) on the right side of the screen. Next, select the function.

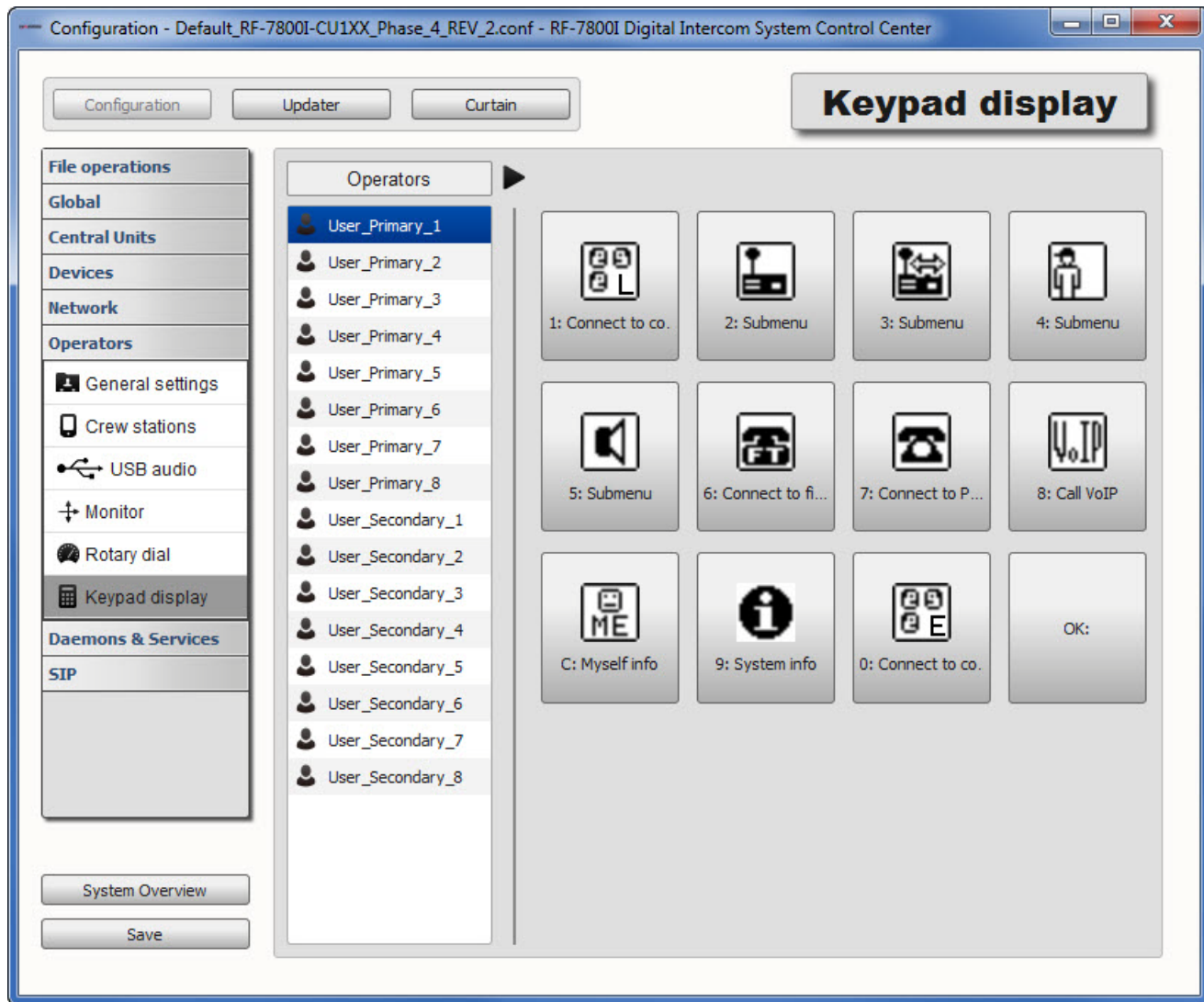
Functionalities are presented as icons on the crew station display and may be activated by pressing the corresponding twelve keys on the keypad.

If required, it is possible to expand the available list of options by adding submenus (refer to [Paragraph 3.7.6.2.22](#)). There are also secondary functionalities that can be accessed by pressing and holding a key or using a shift key first and then pressing a key assigned to a primary functionality.

Refer to [Paragraph 3.7.6.1](#) through [Paragraph 3.7.6.3.8](#) for descriptions of the screens that appear after first selecting the function.

In the keypad display properties:

- **Delete** - Deletes selected keypad display function assigned.
- **Cancel** - Cancels new keypad display or modifications to existing keypad display.
- **OK** - Save new keypad display function or modifications to existing keypad display.



**Figure 3-55. Keypad Display**

### 3.7.6.1 General Functionality

To assign a function to a key, first select an operator on the list at the left side of the workspace. Twelve icons representing the keys of the RF-7800I-KD crew station are displayed on the right side of the workspace. Clicking any one of the icons opens a new window, enabling the user to select the primary function of the key.

#### NOTE

For additional information on keypad icons, refer to [Appendix B](#).

Once the primary function is selected, the window expands and allows the user to configure the properties of the function, its icon presentation, and its secondary functionalities.

Some functions feature default to specific icons which will represent the function on the RF-7800I-KD display, but all icons can be changed. It is possible to configure the following options:

- **Icon** - This is represented by a white square below the icon window. Clicking in the window allows the user to select an icon from a thumbnail list of icons.

- **Indices** - The icon can have two indices, upper and lower. The indices are represented by two rectangles, upper and lower, to the right of the icon square. Clicking in the upper or lower indices window allows the user to select an index from a thumbnail list of indices.

A subicon is the icon that is displayed when a function is active. This is used to help differentiate between active and inactive functions. Generally, most functions are marked as active by inverted colors of the icons. When a function is inactive, the icon is a yellow drawing on a black background. When active, the icon is a black graphic on a yellow background. Some functions, such as mute intercom, feature a modified version of the default subicon instead. Just like icons, subicons can be freely changed and configured, and also feature indices:

- **Subicon** - This is represented by a white square below the subicon window. Clicking on allows you to select a subicon from a thumbnail list of icons.
- **Indices** - The icon can have two indices, upper and lower. They are represented by two rectangles, upper and lower, to the right of the subicon square. Clicking in the upper or lower indices window allows the user to select an index from a thumbnail list of indices.

To configure the secondary functionalities, select them from the appropriate list: Hold or Shift function (refer to [Paragraph 3.7.6.3](#)). Once selected, they may, in some cases, give additional configuration options.

### **3.7.6.2 Primary Functions**

Primary functions for the operator are described in the following sections.

#### **3.7.6.2.1 Call Conference**

This function allows an operator who is in a conference to broadcast a call to all operators that can join that conference or that are not currently connected. This function has one configurable parameter.

- **Conference** - This is a list of all previously configured conferences.

#### **3.7.6.2.2 Call Field Phone**

This function allows an operator to send a single call signal to a field phone, but does not try to establish a connection with the field phone. The connection only sends an additional call signal and it is usually used when the connect to field phone function (which sends a single call signal on its own) has already been used, but the call has not been answered. This function has one configurable parameter:

- **Field Phone** - This is dropdown list of all previously configured field phones.

#### **3.7.6.2.3 Call VoIP**

Call VoIP allows an operator to make VoIP calls to, and disconnect from, SIP subscribers. The use of this function requires a proper previous configuration of SIP exchange numbers (for central units), SIP extension numbers (for operators, conferences and devices) and the phonebook (predefined contacts or the ability to enter a number). This function does not have any configurable parameters of its own.

#### **3.7.6.2.4 Conference on Demand**

Conference on demand allows Operators to create ad-hoc conferences and invite other operators to participate. To use this function to create such conferences, some prerequisites must be met.

The operator that is to be able to create a conference on demand needs to have the on demand initiator option enabled in the operator's general settings.

To invite other operators to the conference, the operator needs to have the connect to operator functions defined in the same menu (or submenu) as the conference on demand function, because to invite participants, the operator first presses the conference on demand function button. The operator then presses the connect to operator function buttons for the relevant operators.

This function does not have any configurable parameters of its own.

### **3.7.6.2.5 Connections Info**

Connections info allows operators to display information about their current connections. Depending on the current connections, a list of active connections including their types (operator, conference, telephone, and radio) and names is displayed as defined in the configuration. This function does not have any configurable parameters of its own.

### **3.7.6.2.6 Connect to Conference**

This function allows operators to join and leave conferences. See [Figure 3-56](#). It is also possible to add a conference radio that is a connection to a radio activated simultaneously with joining the conference. This means that when the operator presses PTT, they will transmit through the radio and will not be heard in the conference. When PTT is inactive, the operator can be heard in the conference and not through the radio. This function has several configurable parameters:

- Conference - Select the conference which the operator is able to join from a list of all previously configured conferences.
  - Autocall - Select to enable the auto call feature. This option works a lot like the call conference function. When enabled, the connect to conference function is used which broadcasts a call to all operators that are able to join the conference but are not currently participating.
  - Conference Radio -Select to enable a conference radio connection. If enabled, the operator is simultaneously connected to a radio whenever the connect to conference function is used.
  - Radio - This is a dropdown list of the previously configured radio devices.
  - Shared - When selected, the operator connects to the radio in shared mode. This means the radio is locked for use only when pressing PTT on the headset. The radio lock can be overridden by an operator with a higher priority or using the exclusive mode at any priority.
  - Exclusive - When selected, the operator connects to the radio in exclusive mode. This means the radio is locked for use only when connected (not necessarily transmitting). The radio lock can be overridden only by an operator that is also connecting to the radio in exclusive mode, but at a higher priority.
  - Priority - The Priority defines an operator's priority to use the radio connection. The higher the value, the higher the priority. Range is from -100 to 101.
    - When the priority value of two operators wanting to use the same radio is equal, the operator who first started transmission through the radio in shared mode or connected to the radio in exclusive mode can continue transmission. The other operator is unable to use the radio until the first operator either terminates transmission (in shared mode) or terminates the connection (in exclusive mode).
    - An operator with a higher priority value is able to override the transmission (in shared mode) or connection (in exclusive mode) of any operator with a lower priority level.

- When an operator attempts to use a radio that is currently being used by an operator with a higher priority (transmitting in shared mode, connected in exclusive mode), radio locked voice message is received.
- An operator connecting to a radio in exclusive mode can always override a connection or an ongoing transmission in shared mode regardless of the priority value. An operator connecting to a radio in shared mode can never override a connection made in exclusive mode, regardless of the priority value.
- Crosstalk - Select to enable crosstalk. When crosstalk is disabled and an operator is connected to a radio and another operator, conference or telephone, pressing PTT causes the operator to transmit on the radio only. The operator cannot be heard within the intercom or through the telephone. When crosstalk is enabled and an operator is connected to a radio and another operator, conference or telephone, pressing the PTT switch causes the operator to transmit on the radio and speak to the intercom or telephone simultaneously.

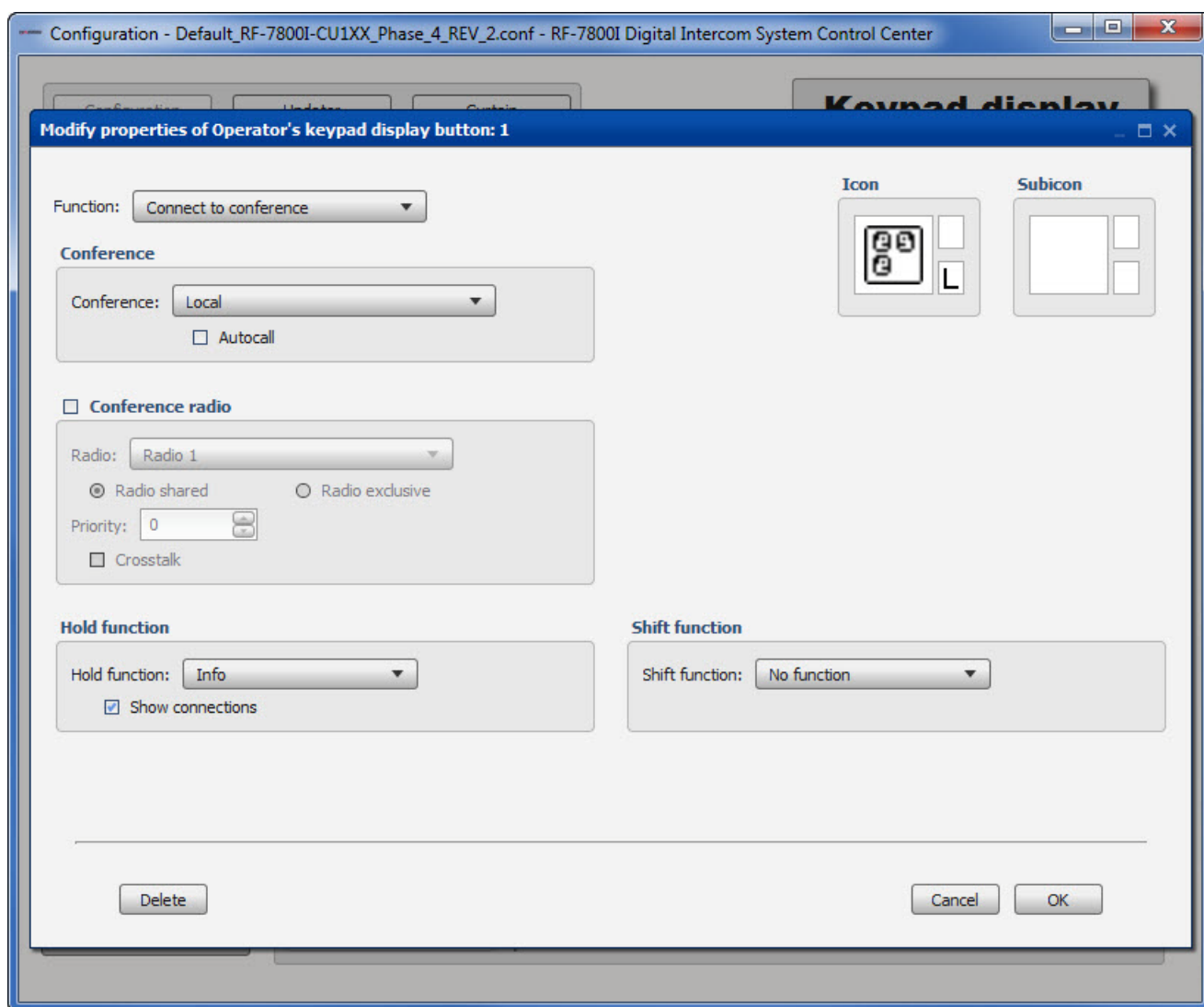


Figure 3-56. Operators Keypad Display Properties (Connect to Conference Function Shown)

### **3.7.6.2.7 Connect to Field Phone**

This function allows an operator to call and connect to a field phone as well as terminate the connection. This function has two configurable parameters:

- **Field phone** - Select a field phone to which the operator is to be able to connect to from the list of all previously configured field phones.
- **Receive calls** - Select to enable an operator's ability to receive incoming calls from the field phone. Calls incoming from a field phone to the intercom may be received by any RF-7800I-KD operator that has the connect to field phone function set for this field phone with this option enabled. Calls may also be received by any RF-7800I-RD operator that has the phone function set for this field phone.

### **3.7.6.2.8 Connect to Operator**

This function allows an operator to call and connect to another operator directly, provided that they accept the call. The function also allows an operator to terminate the relevant connection.

When the call is accepted, the connection is established. When the call is rejected, the caller receives a voice message "connection refused" and an appropriate text message is also displayed. The call can be rejected by RF-7800I-KD operators by pressing the C button on their keypad, or, after the time specified as the call timeout is exceeded. RF-7800I-RD operators refuse the connection by simply not switching the rotary dial to the relevant position. After the time specified for the call timeout is exceeded, the call is refused. RF-7800I-BU operators automatically accept calls when not busy (not connected to other operators). If already connected to another operator, the call is automatically refused. This function has one configurable parameter:

- **Operator** - Select an operator to which the RF-7800I-KD operator is to be able to connect to from this dropdown list of previously configured operators.

### **3.7.6.2.9 Connect to PABX Phone**

This function allows an operator to call and connect to a PABX phone as well as terminate the connection. This function has two configurable parameters:

- **PABX Phone** - Select a PABX phone to which the operator is able to connect to from the list of previously configured PABX phones.
- **Receive calls** - Select to enable an operator's ability to receive incoming calls from the PABX phone. Calls incoming from a PABX phone to the intercom may be received by any RF-7800I-KD operator that has the connect to PABX phone function set for this PABX phone and with this option enabled. The RF-7800I-RD operator is also able to accept an incoming PABX call (if it is configured to).

### **3.7.6.2.10 Connect to Radio**

This function allows an operator to connect to a radio and hear any audio the radio may receive and transmit through the radio. This connection may be maintained simultaneously with other types of connections. An operator can be connected to up to four radios at a time. This function has several configurable parameters:

- **Radio** - Select radio from list of the previously configured radio devices.
- **Shared** - If selected, the operator can connect to the radio in shared mode. This means the radio is locked for use when pressing PTT on the headset by other operators. The radio lock can be overridden by an operator with a higher priority or using the exclusive mode (at any priority).
- **Exclusive** - When selected, the operator connects to the radio in exclusive mode. This means the radio is locked for use by other operators only when connected (not necessarily transmitting). The radio lock can be overridden only by an operator that also connects to the radio in exclusive mode but at a higher priority.



- **Priority** - This value defines an operator's priority to use the radio connection. The higher the value, the higher the priority. Range is from -100 to 101.
  - When the priority value of two operators wanting to use the same radio is equal, the operator who first started transmission through the radio in shared mode or connected to the radio in exclusive mode can continue transmission. The other operator is unable to use the radio until the first operator either terminates transmission (in shared mode) or terminates the connection (in exclusive mode).
  - An operator with a higher priority value is able to override the transmission (in shared mode) or connection (in exclusive mode) of any operator with a lower priority level.
  - When an operator attempts to use a radio that is currently being used by an operator with a higher priority (transmitting in shared mode, connected in exclusive mode), radio locked voice message is received.
  - An operator connecting to a radio in exclusive mode can always override a connection or an ongoing transmission in shared mode regardless of the priority value. An operator connecting to a radio in shared mode can never override a connection made in exclusive mode, regardless of the priority value.
- **Crosstalk** - Select to enable crosstalk. When crosstalk is disabled and an operator is connected to a radio and another operator, conference or telephone, pressing PTT causes the operator to transmit on the radio only. The operator cannot be heard within the intercom or through the telephone. When crosstalk is enabled and an operator is connected to a radio and another operator, conference or telephone, pressing PTT causes the operator to transmit on the radio and speak to the intercom or telephone simultaneously.
- **Show activity** - Select to enable the show activity feature. When enabled, an additional upper index is displayed over the connect to radio function icon to indicate the status of the radio:
  - Arrow up - The radio is transmitting.
  - Arrow down - The radio is receiving.
  - No arrow - The radio is idle.

### **3.7.6.2.11 Connect to Radio Remotely**

This function allows an operator to connect another operator to a radio in order to transmit and receive through that radio. This function is most commonly used to remotely connect RF-7800I-BU operators and secondary headset ports on 200 series crew station units to radios they do not have access to. This connection may be maintained simultaneously with other types of connections. An operator can be connected to a maximum of four radios at a time. This function has several configurable parameters:

- **Radio** - Select radio from list of the previously configured radio devices.
- **Shared** - If selected, the operator can connect to the radio in shared mode. This means the radio is locked for use when pressing PTT on the headset. The radio lock can be overridden by an operator with a higher priority or using the exclusive mode (at any priority).
- **Exclusive** - When selected, the operator connects to the radio in exclusive mode. This means the radio is locked for use only when connected (not necessarily transmitting). The radio lock can be overridden only by an operator that also connects to the radio in exclusive mode but at a higher priority.
- **Priority** - This value defines an operator's priority to use the radio connection. The higher the value, the higher the priority. Range is from -100 to 101.

- When the priority value of two operators wanting to use the same radio is equal, the operator who first started transmission through the radio in shared mode or connected to the radio in exclusive mode can continue transmission. The other operator is unable to use the radio until the first operator either terminates transmission (in shared mode) or terminates the connection (in exclusive mode).
- An operator with a higher priority value is able to override the transmission (in shared mode) or connection (in exclusive mode) of any operator with a lower priority level.
- When an operator attempts to use a radio that is currently being used by an operator with a higher priority (transmitting in shared mode, connected in exclusive mode), radio locked voice message is received.
- An operator connecting to a radio in exclusive mode can always override a connection or an ongoing transmission in shared mode regardless of the priority value. An operator connecting to a radio in shared mode can never override a connection made in exclusive mode, regardless of the priority value.
- Crosstalk - Select to enable crosstalk. When crosstalk is disabled and an operator is connected to a radio and another operator, conference or telephone, pressing PTT causes the operator to transmit on the radio only. The operator cannot be heard within the intercom or through the telephone. When crosstalk is enabled and an operator is connected to a radio and another operator, conference or telephone, pressing PTT causes the operator to transmit on the radio and speak to the intercom or telephone simultaneously.
- Remote Operator - Select an operator to which the radio is to be connected to or from a list of all previously configured operators.

#### **3.7.6.2.12 Data Port Info**

Data port info allows an operator to display information about the status of their data port. This is for RF-7800I-KD400 crew stations only. The information displayed contains the following:

- Name - The endpoint name, as defined in the configuration.
- Mode - Work mode of the serial port, including:
  - Number of data bits - Displayed as the first digit.
  - Parity - Displayed as a letter in the middle. May be one of the following: N - none, E - even, O - odd.
- Baud - the baud rate (speed) of the serial data port, as defined in the configuration.

This function does not have any configurable parameters of its own.

#### **3.7.6.2.13 Data Route**

Data route allows an operator to dynamically enable or disable a particular data route, as required. Data routes are used to transfer data between previously declared endpoints. To be used, previously defined endpoints are needed. There are two configurable parameters for this function:

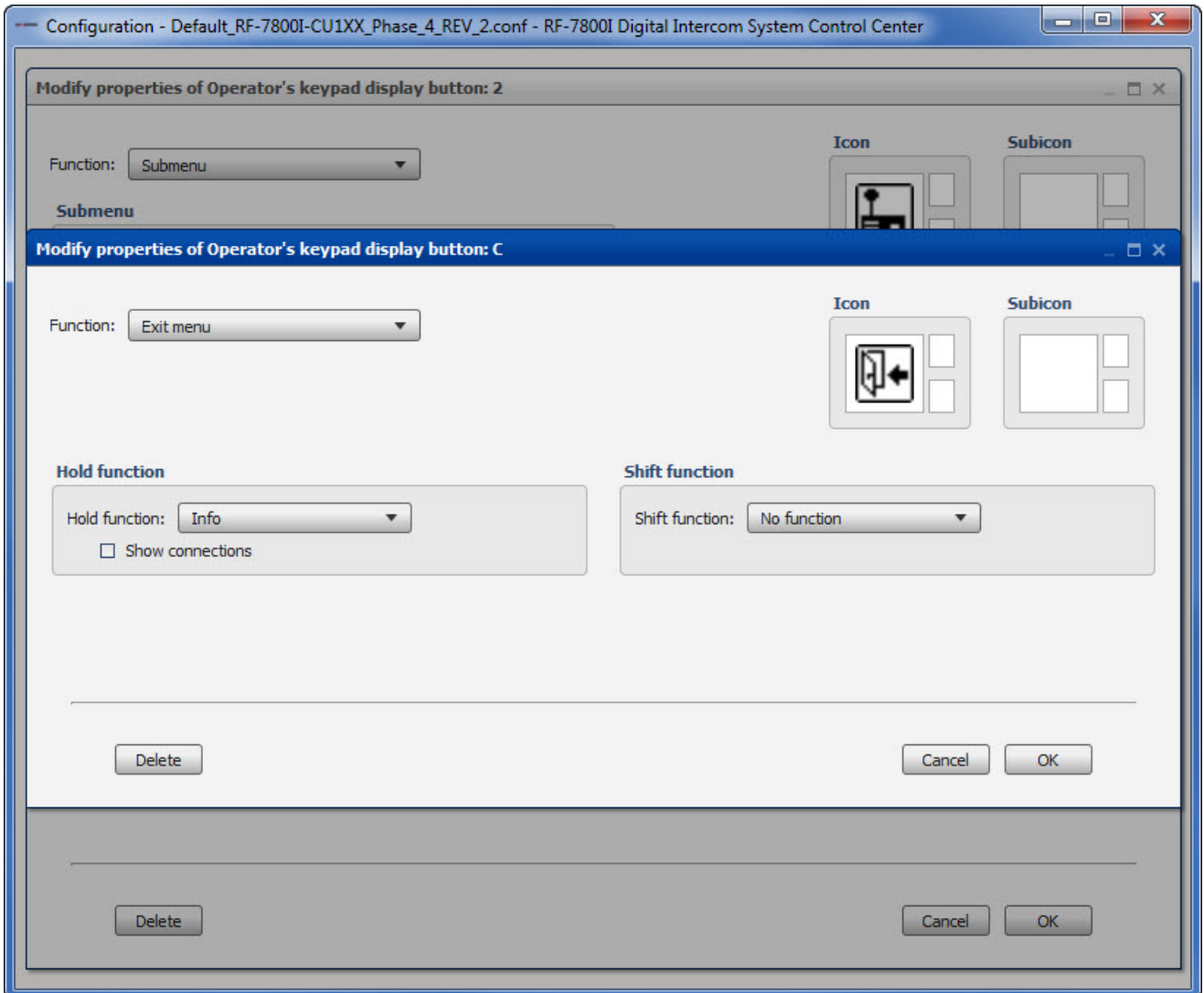
- Source Endpoint - Select the source end of the data route from a list of all previously configured endpoints.
- Destination Endpoint - Select the destination end of the data route from the list of all previously configured endpoints.

The data route works both ways and is irrelevant which endpoint is the source or destination.



## 3.7.6.2.14 Exit Menu

Exit menu allows an operator to exit submenus. This should be placed in a submenu so an operator is able to return to a higher level menu. By default, this function is assigned to the C key when creating a submenu. This function does not have any configurable parameters of its own. See [Figure 3-57](#).



**Figure 3-57. Operators Keypad Display Properties (Exit Function Shown)**

### 3.7.6.2.15 Monitor

Monitor allows an operator to dynamically activate or deactivate monitoring. Monitoring is a one way connection that allows someone to listen in on operators, conferences, radios, or telephones. The audio may be received by the operator or sent to another destination. This function has several configurable parameters:

- Source - This is the source of the monitored audio signal. Depending on the type of the source, monitoring will behave differently:
  - Operator - The monitored audio is the voice of the operator, not what the selected operator is hearing in the headset.
  - Conference - The monitored audio is all audio incoming to the conference.
  - Radio - The monitored audio is the audio received by the radio, unless the radio monitor mode is selected. If radio monitor mode is selected, both the received and transmitted audio to and from the radio is monitored.
  - Telephone - The monitored audio is the voice of the telephone user. If a local echo effect occurs, the voice from the other end of the phone line can also be heard though it will be significantly quieter than the voice of the telephone user.
- Destination - The destination where the monitored signal will be heard. The destination can be set so that an operator initiates the monitor so that they themselves listen in to the monitored signal, or send the signal to another operator, speaker, radio (the radio needs to be keyed manually to be able to receive the signal), or telephone. For a PABX phone, this requires the user to first establish and then maintain connection. For field phone, it is not necessary to establish a connection first, but the field phone user will not hear any indication once monitoring is initiated.
- Mode - The mode defines when the audio signal is monitored and heard by the operator. The following modes are available:
  - When free - This mode is available for operators and radios.  
For operators, the when-free mode means the operator is monitored when not connected to another operator, conference or telephone.  
For radios, the when free-mode means the audio received by the radio is monitored when an operator is connected in shared mode or no operator is connected to the radio.
  - When busy - This mode is available for operators and radios.  
For operators, the when-busy mode means the operator is monitored when connected to another operator, conference, or telephone.  
For radios, the when-busy mode means the audio received by the radio is monitored when an operator is connected in exclusive mode.
  - Always - This mode is available for operators, conferences, radios and telephones.  
For operators, the always mode means that the operator is monitored regardless of current connections.  
For conferences, the always mode means that the conference is monitored at all times. Basically, the conference is heard by the operator whenever any audio signal is incoming to the conference.  
For radios, the always mode means that the receive audio from the radio will be monitored at all times.  
For Telephone, the always mode means that the external telephone will be monitored at all times.

- **Radio** - This mode is available only for radios.

This mode causes the radio to be heard at all times (like in always mode), but both received and transmitted audio is heard by the operator (as opposed to other modes where only audio received from the radio is heard).

**Gain** - Increases or decreases the audio level received by the speaker. Range is from -30 dB to 30 dB.

#### **3.7.6.2.16 Mute Intercom**

Mute Intercom allows an operator to mute all signals incoming from the intercom to the operators headset. This means the operator will not hear any audio from the intercom but the operators microphone is still active and other operators on the intercom will still hear the audio from the operator. (Operator can still be heard over the intercom.) This function has no configurable parameters of its own.

#### **3.7.6.2.17 Myself Info**

Myself info allows an operator to display information about themselves, including:

- **Name** - The operator's name, as defined in the configuration.
- **Dev** - The device type.
- **Slot** - The line interface number.
- **Language** - The currently selected announcement language.
- **Status** - The connection status of the Crew Station.

This function does not have any configurable parameters of its own.

#### **3.7.6.2.18 Night Vision**

Night vision allows an operator to turn night vision mode on or off. When turned on, night vision mode dims the display to minimal brightness and turns off the keypad backlight.

#### **3.7.6.2.19 Retransmission**

Retransmission allows an operator to turn on or off a retransmission session between a preconfigured pair of radios. Retransmission allows a pair of radios to function as an ad-hoc retransmission relay where all audio received by one radio is re-broadcasted by the other radio. This is a bidirectional connection, and it is functionally irrelevant which radios are radio 1 and radio 2.

- **Radio 1** - Select the first radio device for retransmission from the previously configured radio devices.
- **Radio 2** - Select the second radio device for retransmission from the previously configured radio devices.
- **Show activity** - Select to enable the show activity feature. When enabled, an additional upper index is displayed over the connect to radio function icon to indicate the status of the radio:
  - **Arrow up** - Radio is transmitting.
  - **Arrow down** - Radio is receiving.
  - **No arrow** - Radio is idle.

### **3.7.6.2.20 Shift**

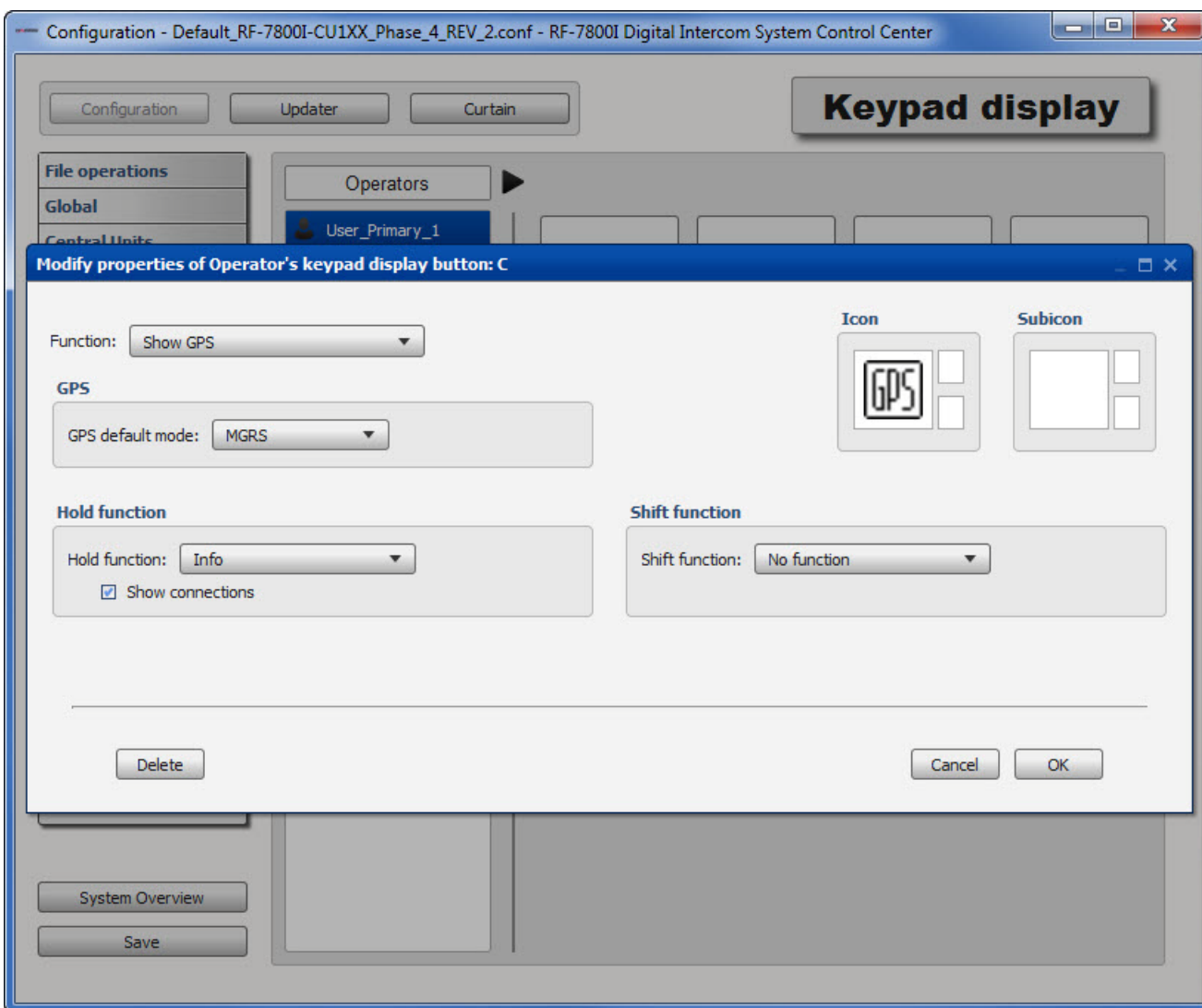
This function allows an operator to start any secondary functions assigned in the shift field of the primary function. To start a secondary function, the operator first presses the shift function button followed by the primary function button with a proper secondary function in the shift field. This function has one configurable parameter:

- Shift timeout - This is the maximum time that the shift is active. This means the operator can activate a shift secondary function in this time frame. The default value is 0 milliseconds. When set to 0, the shift is active indefinitely until deactivated by pressing the button again or until a shift secondary function is used.

### **3.7.6.2.21 Show GPS**

Show Global Positioning System (GPS) allows an operator to display GPS data from an available GPS device. See [Figure 3-58](#). GPS service needs to be active and configured. Refer to applicable Harris radio operation manual for details. This function has one configurable parameter in addition to the secondary functions:

- GPS default mode - Select the GPS mode:
  - Military Grid Reference System (MGRS)
  - Geographical
  - Universal Transverse Mercator (UTM)

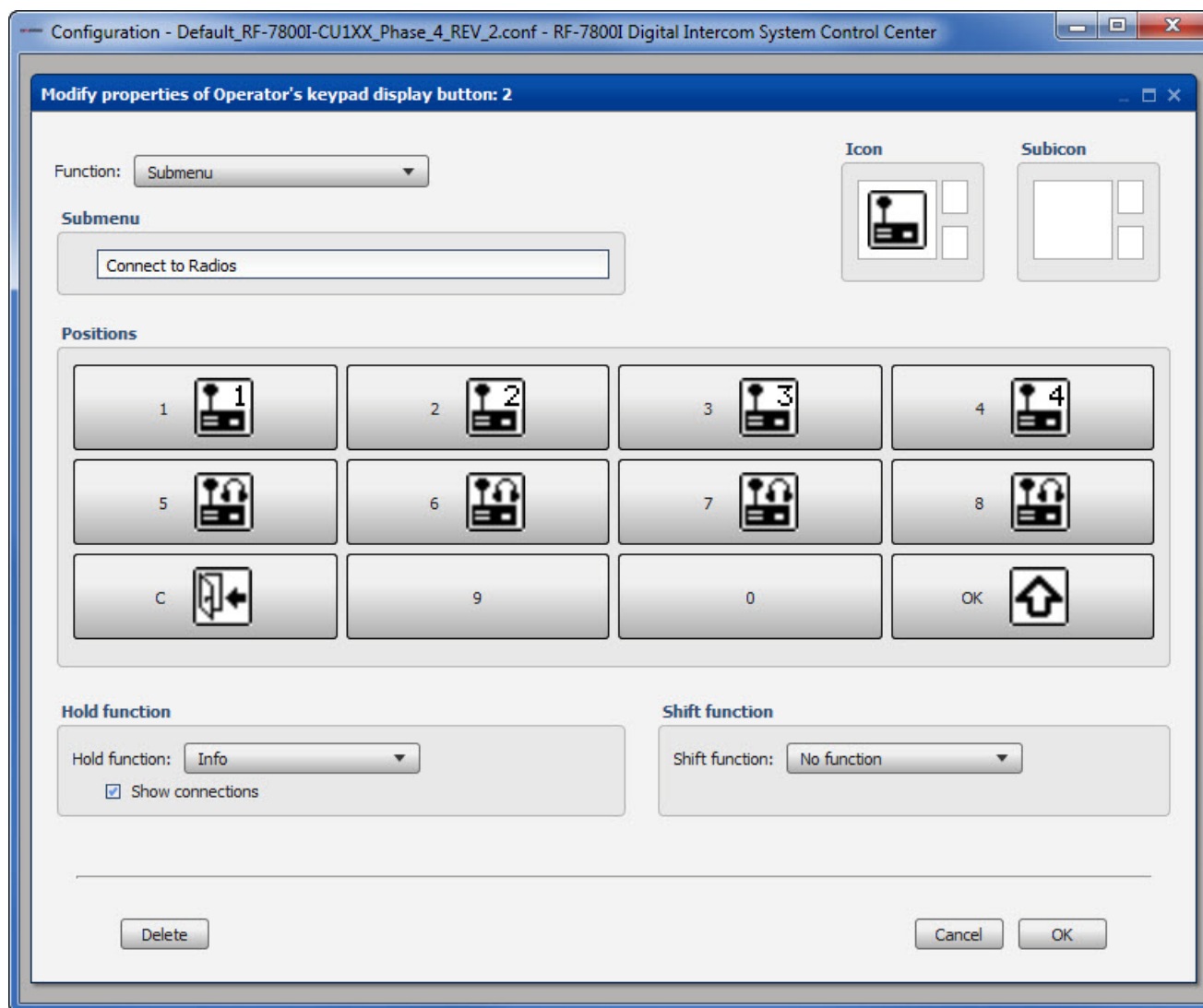


**Figure 3-58. Operators Keypad Display Properties (Show GPS Function Shown)**

### 3.7.6.2.22 Submenu

Submenu allows an operator to access a submenu. See [Figure 3-59](#). By default, all submenus contain an exit menu function assigned to the C button. Submenus may contain further submenus. The submenu has one configurable parameter of its own and can contain additional functions.

- Name - This is the name of the submenu as it will be recognized by the system and displayed when using the Info function.
- Submenu positions - This is configured the same way with all functions.



**Figure 3-59. Operators Keypad Display Properties (Submenu Function Shown)**

### **3.7.6.2.23 System Info**

System info allows an operator to display information about the system, including:

- Name of the Central Unit
- Date of the configuration
- Software version
- Software version date
- Hardware version

This function has no configurable parameters of its own.

### **3.7.6.3 Secondary Functions**

Secondary functions are initiated by the operator by either pressing and holding a primary function key (to initiate a hold secondary function associated with that primary function key) or by pressing a key mapped to a shift function. Then followed by a press of a primary function key to initiate a shift secondary function associated with that primary function key.

#### **3.7.6.3.1 Connections Info**

Connections info allows operators to display information about their current connections. Depending on the current connections, a list of active connections including their types (operator, conference, telephone and radio) and names is displayed. This function does not have any configurable parameters of its own.

#### **3.7.6.3.2 Data Port Info**

Data port info allows an operator to display information about the status of their Data Port - for RF-7800I-KD400 crew stations only. The information displayed contains the following:

- Name - This is the endpoint name, as defined in the configuration.
- Mode - This is the work mode of the serial port, including:
  - Number of data bits - displayed as the first digit;
  - Parity - displayed as a letter in the middle. May be one of the following: N - none, E - even, O - odd.
- Baud - the baud rate (speed) of the serial Data Port, as defined in the configuration.

This function does not have any configurable parameters of its own.

#### **3.7.6.3.3 Exit Menu**

Exit menu allows an operator to exit submenus. This should be placed in a submenu so an operator is able to return to a higher level menu. By default, the menu is assigned to the C key when creating a submenu. This function does not have any configurable parameters of its own.

#### **3.7.6.3.4 Harris Radio Server**

The Harris Radio Server (HRS) allows an operator to set the central unit to work as a Harris radio server, provided that the function is attached to the connect to radio primary function and the radio configured in the connect to radio function is compatible with this function.

When the allow to modify option is turned on, the operator is able to change the configuration settings of the radio.

#### **3.7.6.3.5 Info**

The info function allows an operator to display information about the primary function to which the info function is attached to.

- Show connections - Select or deselect (enable/disable) displaying of related connection information if applicable.

#### **3.7.6.3.6 Myself Info**

This function allows an operator to display information about them, including:

- Name - the Operator's name, as defined in the configuration.
- Dev - device type.
- Slot - line interface number.
- Language - the currently selected announcement language.
- Status - connection status of the Crew Station.

This function does not have any configurable parameters of its own.

#### **3.7.6.3.7 Send DTMF**

This function allows an operator to send Dual Tone Multi Frequency (DTMF) signals to a PABX phone. To use the function, the operator needs to be connected to a PABX phone. Initiating this function displays an additional interface window allowing the operator to type in the DTMF signals.

#### **3.7.6.3.8 System Info**

This function allows an operator to display information about the system, including:

- Name of the central unit
- Date of the configuration
- Software version
- Software version date
- Hardware version

This function has no configurable parameters of its own.



## 3.8 DAEMONS AND SERVICES

You can choose and configure the daemons and services used by each Central unit.

### 3.8.1 Daemons

The Daemons tab allows the user to choose and configure the daemons used by each Central Unit. See [Figure 3-60](#). To configure the daemons for a central unit, first select the central unit using the tabs available at the top of the workspace. The following options are available:

- Daemons - All daemons other than the PPP daemons are enabled or disabled here.
  - Digital Intercom System (core) - Select to enable digital intercom system. When disabled, the core firmware of the central unit is started, causing the system to not work as an intercom. This may be used for some diagnostics. When turned on, the intercom works as normal.
  - SNMP support - Select to enable support for the Simple Network Management Protocol (SNMP).
- PPP daemons - Refer to [Paragraph 3.8.1.1](#).

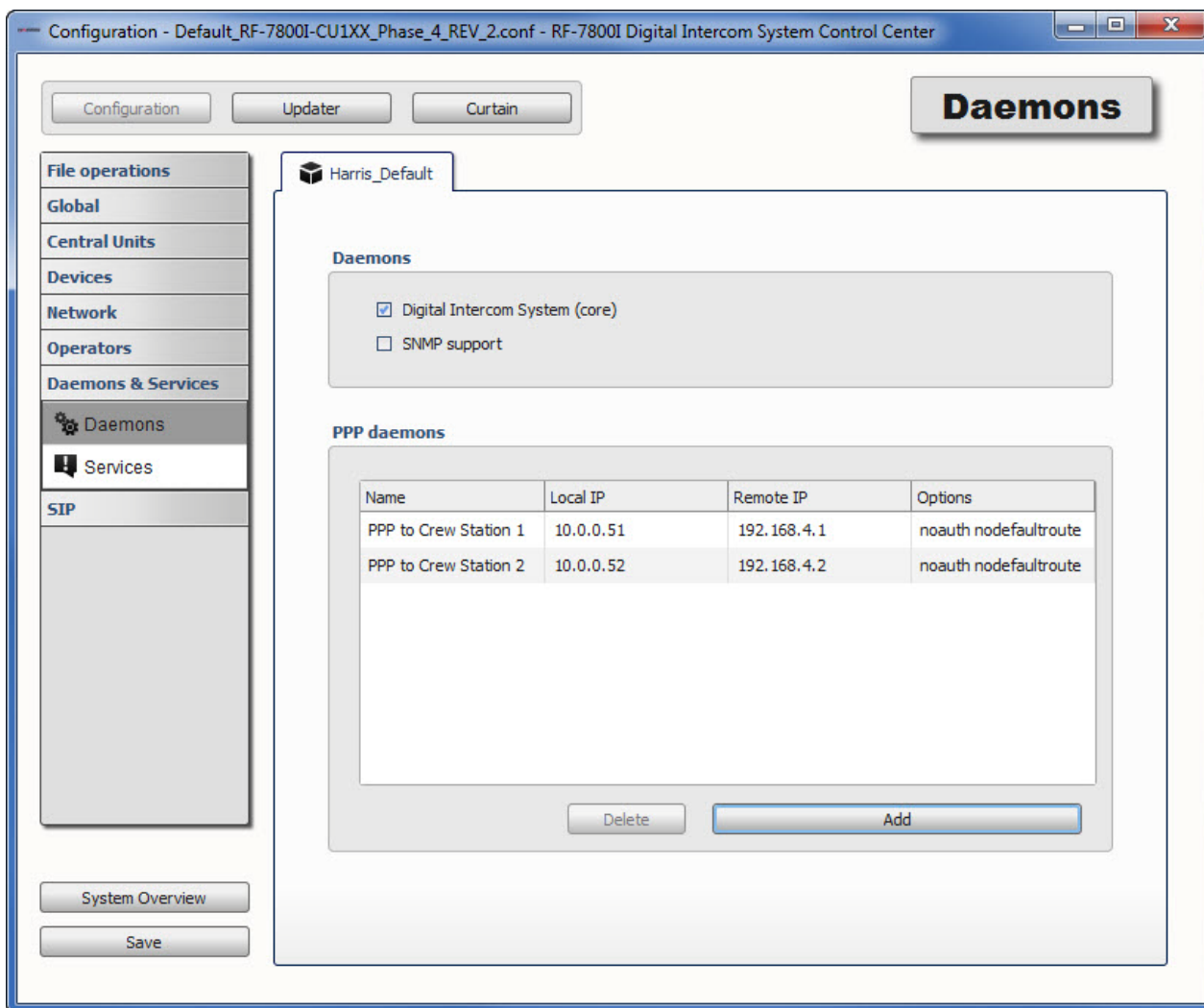


Figure 3-60. Daemons

### 3.8.1.1 PPP Daemons

Point-to-Point Protocol (PPP) daemons can be configured in this workspace. PPP daemons can be used to set up a connection between a PC and the intercom via PPP, allowing them to communicate with each other and share data.

To remove a PPP daemon, click on **Delete**. To add a new PPP daemon, click on **Add**. Double-click on a PPP daemon to modify. In the newly opened window, the following properties of the PPP daemon can be set (see [Figure 3-61](#)):

- Name - This is the name of the PPP daemon as recognized in the system.
- Local IP Address - This is the IP address of the device that is to make a PPP connection with the central unit.
- Remote IP Address - This is the IP address of the central unit for the purposes of the PPP connection.
- Options - Additional options are entered as text into the options field. If more than one option is used, they need to be separated by spaces. All configuration settings compatible with the PPPD can be used, however, for most purposes, the following options are used:
  - **noauth** - This turns off authorization when establishing a connection between the device and the central unit.
  - **nodeltaulroute** - Turns off support for default routes.
  - **noipdefault** - Causes the device and the central unit to negotiate between them the IP addresses used for this connection. The device enforces its address, becoming the server and the central unit being the host.

In the PPP daemons properties:

- **Delete** - Deletes existing PPP daemon.
- **Cancel** - Cancels modifications to existing PPP daemon.
- **OK** - Save new PPP daemon or modifications to existing PPP daemon.

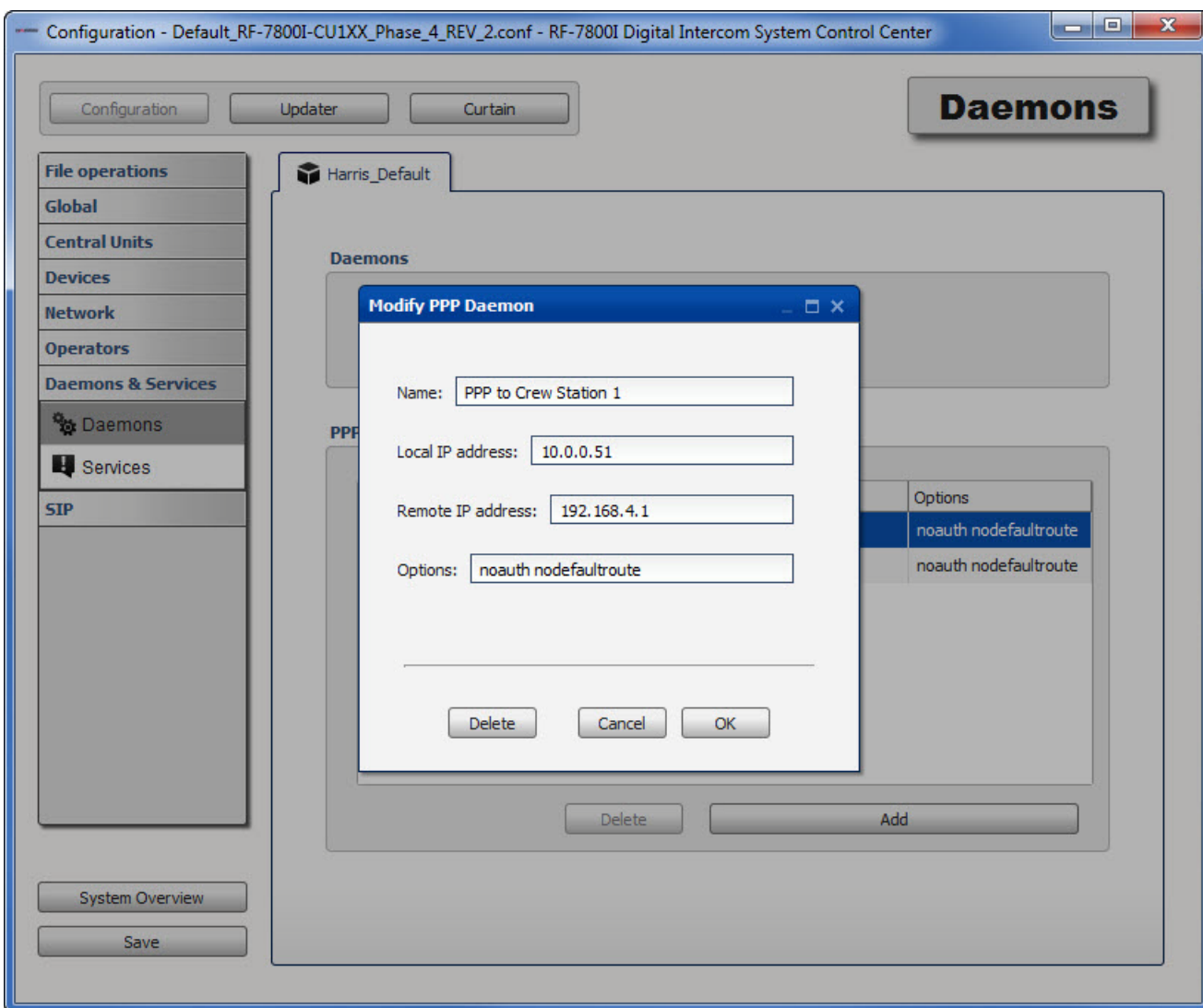
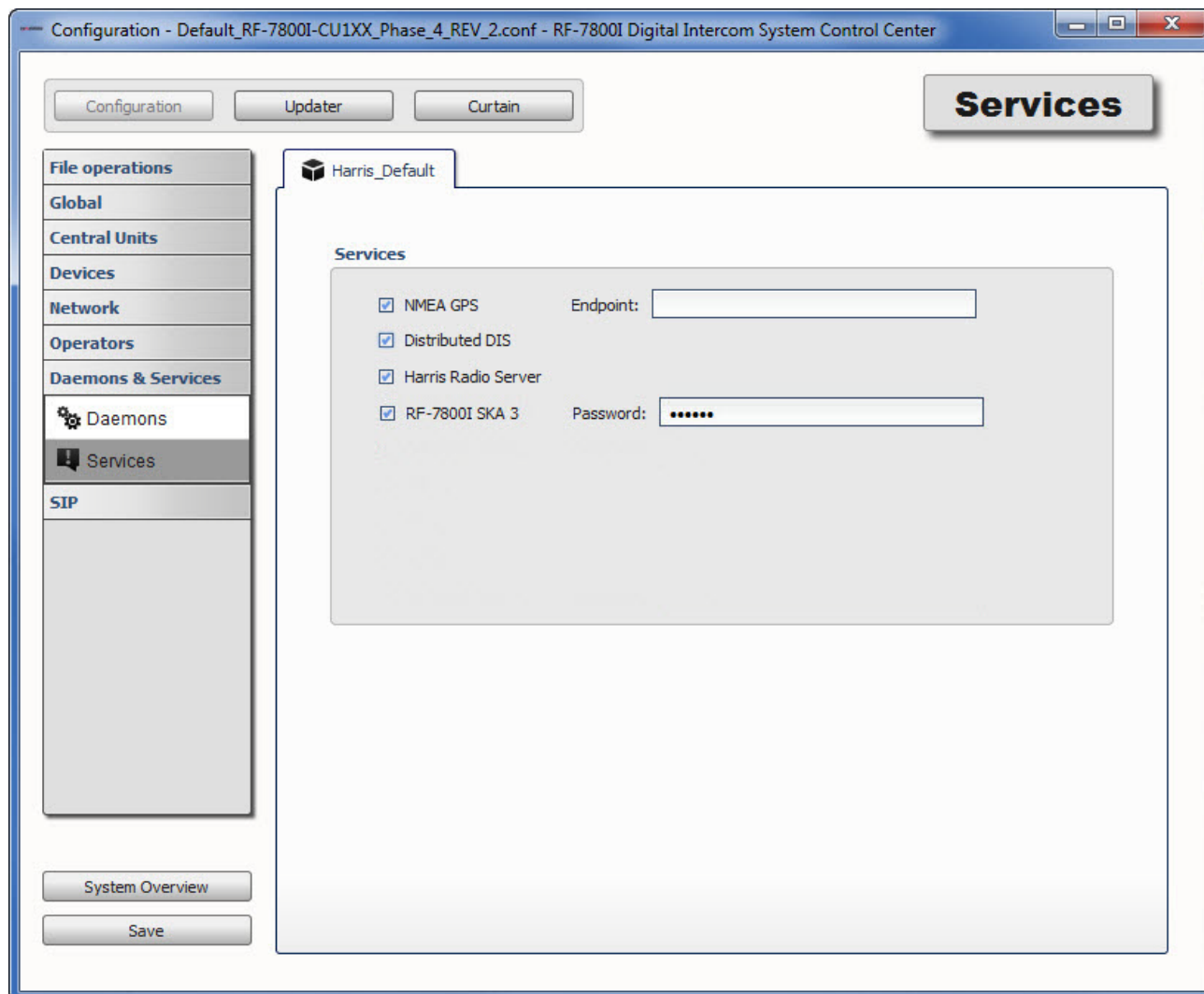


Figure 3-61. PPP Daemons Properties

### 3.8.2 Services

See [Figure 3-62](#). The Services tab allows the user to choose and configure the services available to each Central Unit. To configure the services for a central unit, select the central unit using the tabs available at the top of the workspace. The following options are available:

- National Marine Electronics Association (NMEA) GPS - Select or deselect (enable/disable) support for NMEA GPS. This allows an external GPS device to be connected to a serial port (any serial port on the central unit or any 400 series crew station).
  - Endpoint - This is the NMEA GPS endpoint name. This is not the name of a physical interface. This is a software endpoint for the NMEA GPS service. To operate the GPS, a route needs to be established between the NMEA GPS endpoint and the hardware endpoint to which the GPS device is physically connected. Refer to [Paragraph 3.6.3](#) for information on creating routes.
- Distributed DIS - Select or deselect (enable/disable) support for distributed Digital Intercom System (DIS). This is required for CUB functionality to work and is applicable only when two or more central units are to share information and communicate with each other. This is not required for external conferences (but is mandatory for global conferences to work).
- Harris Radio Server - Select or deselect (enable/disable) support for the Harris radio server. This is required to allow operators to remotely control and configure Harris radios.
- RF-7800I SKA 3 - Select or deselect (enable/disable) support for the Soft Keypad Application (SKA) software. When enabled, a user of the SKA is able to connect to any central unit with SKA support enabled. Any central unit without SKA support is inaccessible to an SKA user.
  - Password - Enter an SKA access password here. The SKA user needs to provide this password when attempting to connect to this central unit.



**Figure 3-62. Services**

### 3.9 SIP

See [Figure 3-63](#). The Session Initiation Protocol (SIP) tab allows the user to assign SIP extensions to operators and devices for use with a SIP service. It also allows the user to create accounts for external SIP subscribers (e.g. Software IP Phones) and for SIP trunks used by the Central Units.

#### 3.9.1 SIP Extensions

A SIP extension is a four digit number assigned to each operator or device. SIP extensions are used in conjunction with a SIP exchange number (assigned to central units) to allow calls to any operator/device within the system from an external SIP phone registered with the intercom or an external call manager. All entities that can have a SIP extension number assigned to them are automatically added to the list in this window.

Double-click on a SIP entry to modify. See [Figure 3-64](#) for the SIP extensions properties.

- **Delete** - Deletes SIP extension.
- **Cancel** - Cancels modifications to existing SIP extension.
- **OK** - Save modifications to SIP extension.

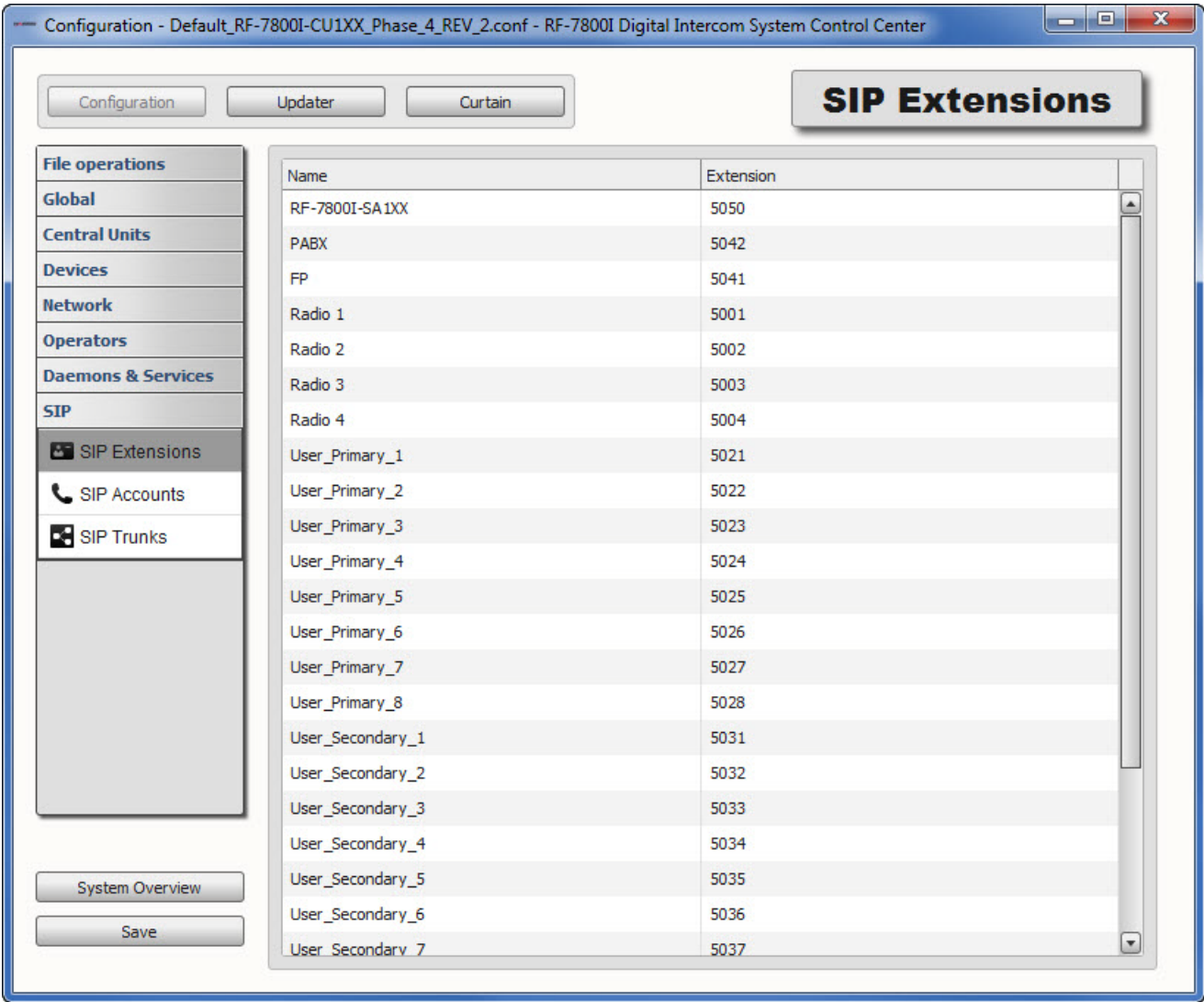
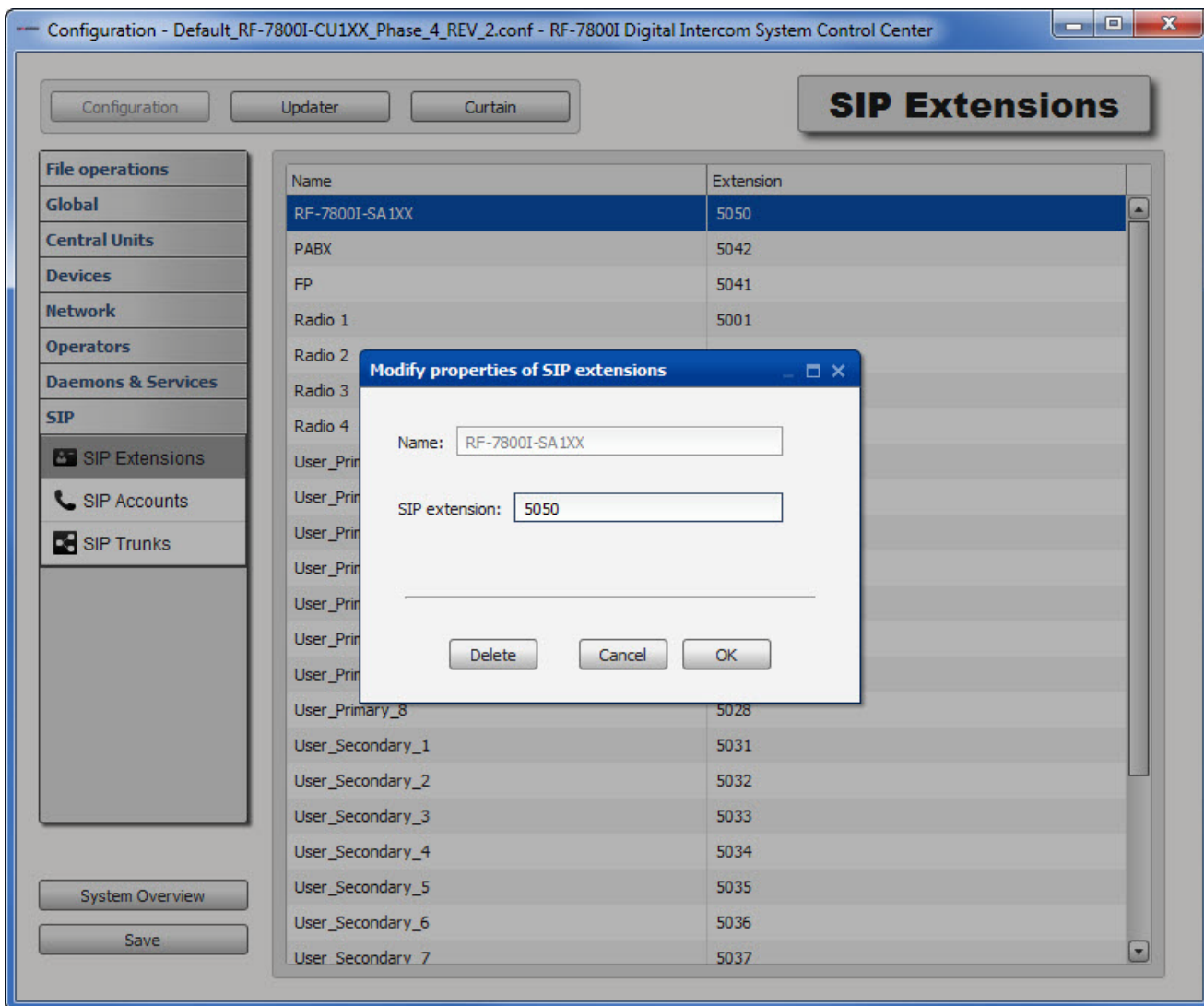


Figure 3-63. SIP Extensions



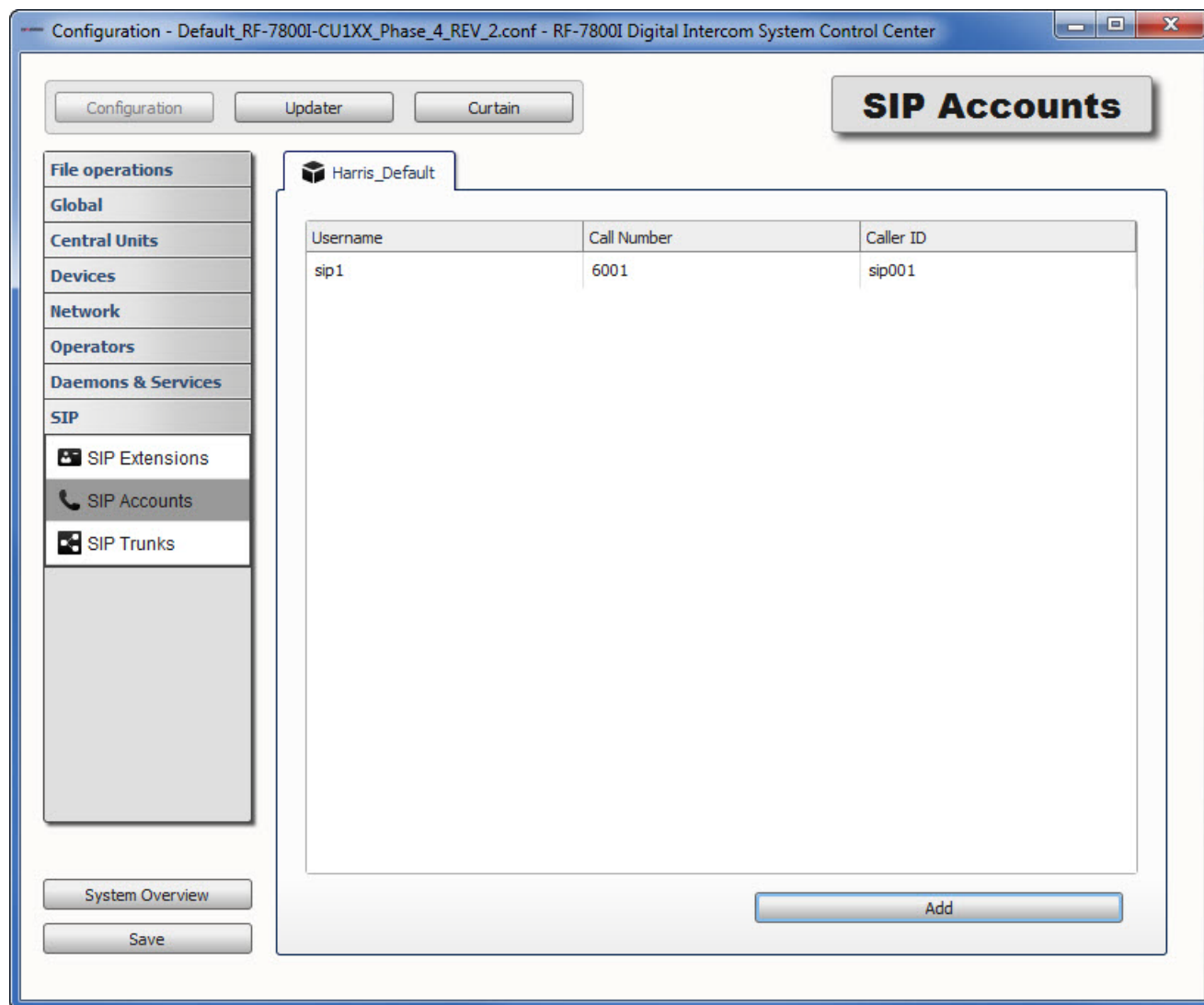
**Figure 3-64. SIP Extensions Properties**

### 3.9.2 SIP Accounts

See [Figure 3-65](#). This workspace allows the user to create accounts for external SIP subscribers (e.g. Software IP Phones). These accounts are tied to particular Central Units. The external subscriber needs to provide the IP address of the Central Unit as the address of the SIP server and their username as defined here to be able to call other entities with SIP extensions in the Intercom.

Double-click on a SIP account entry to modify.

- **Delete** - Deletes SIP account.
- **Cancel** - Cancels modifications to existing SIP account.
- **OK** - Save modifications to SIP account.



**Figure 3-65. SIP Accounts**

The bookmarks at the top of the workspace allow the user to select the Central Unit for which the accounts will be configured.

See [Figure 3-66](#). To add a new SIP account, press the **Add** button at the bottom of the workspace. In the newly opened window, the following properties of the SIP account can be set:

- Username - the username that the external SIP subscriber will use to register at on the Central Unit acting as their SIP server. The user can use numbers, lower and upper case letters and the dash symbol. Special characters and spaces are not supported. The name needs to be between 3 and 20 characters long.
- Password (optional) - the password, if used, needs to be between 6 and 20 characters long. The same limitations as elsewhere in the intercom configuration apply, (i.e. it is not possible to use the ":" (colon), ";" (semicolon) and "|" vertical bar symbols in this field).
- Call number - the number assigned to this account, used to call this external SIP subscriber.



- Caller ID (optional) - the name of the caller as displayed to other SIP subscribers when calling them. If left blank, the receiver of the call will see the SIP accounts call number instead. The user can use numbers, lower and upper case letters and the dash symbol. Special characters and spaces are not supported. The name needs to be between 3 and 20 characters long.

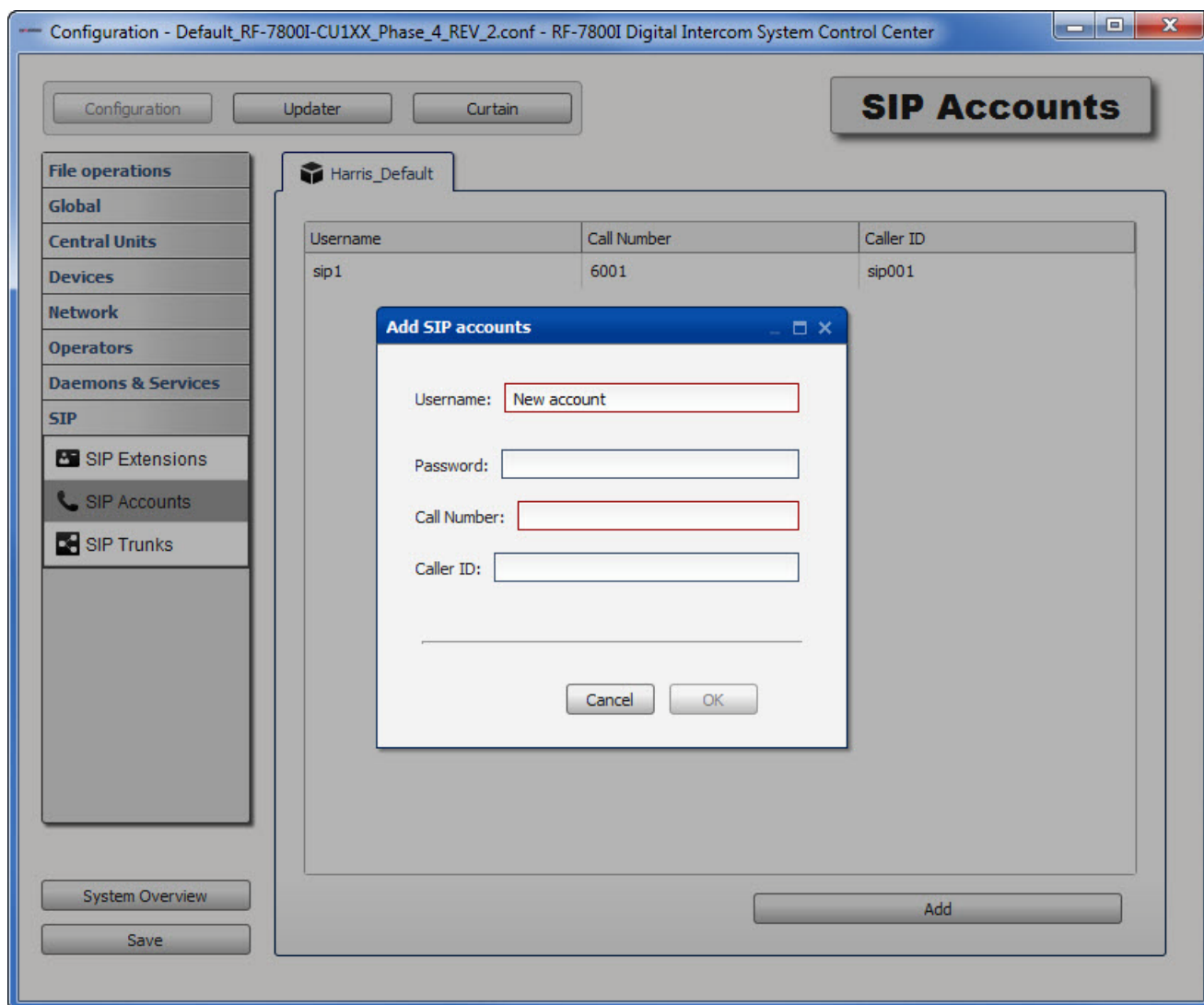


Figure 3-66. SIP Accounts - Add SIP Accounts

### 3.9.3 SIP Trunks

**Figure 3-67.** This workspace allows the user to create accounts for SIP trunks used by the Central Units. It is possible to configure an external SIP trunk, (which needs to be configured separately), or set Central Units used in the system to trunk to each other, allowing the internal SIP subscribers to communicate with each other across a network of Central Units. Either method allows external SIP subscribers to call and be called by Intercom operators, if all pieces are configured correctly (that includes SIP exchange and extension numbers, external SIP accounts and SIP trunks).

Double-click on a SIP trunk entry to modify.

- **Delete** - Deletes SIP trunk.
- **Cancel** - Cancels modifications to existing SIP trunk.
- **OK** - Save modifications to SIP trunk.

See **Figure 3-68.** To add a new SIP Trunk, press the **Add** button at the bottom of the workspace. In the newly opened window, the following properties of the SIP trunk can be set:

- **Trunk name** - this is the name of the SIP trunk as it will be recognized in the configuration. Note that while trunk names configured on each Central Unit need to be unique, it is not necessary across the CUB (e.g. if there are three Central Units in a configuration, Alpha, Beta and Gamma, then Alpha can trunk to Beta-trunk and Gamma-trunk, Beta can trunk to Alpha-trunk and Gamma-trunk etc.)
- **Target IP** - this is the IP address of the trunk.
- **Prefix digits** - whenever calling a subscriber registered on a different trunk, the operator or user needs to provide the prefix digits used by the other trunk. Filling in this field will add the prefix digits to the front of the Dial pattern.
- **Dial pattern** - all calls following the dial pattern specified here will be forwarded to this SIP trunk. This allows to precisely specify what calls should be handled by which device, e.g. if the configuration has a Central Unit that uses the SIP exchange 301, then the user probably wants all calls beginning with 301 to be forwarded to that Central Unit used as a trunk, so they can type in "301". This will cause all calls beginning with 301 to be forwarded to that trunk. If extension numbers must also follow a certain rule, it is possible to include that - e.g. 301XX0X, will cause all calls that use a 7 digit long call number, that begins with 301 and has a 0 at the second to last place, to be forwarded to that trunk. However, any call that does not adhere to all of these requirements, will not be forwarded to that trunk.
- **Force codec** - this allows the user to specify which codec kind should be forced for use in audio compression when communicating with that trunk. The available options are:
  - **None** - does not force any codecs;
  - **G.711 - ?-law** - uses the standard G.711 - ?-law codec, commonly used in North America;
  - **G.711 - A-law** - uses the standard G.711 - A-law codec, commonly outside North America.

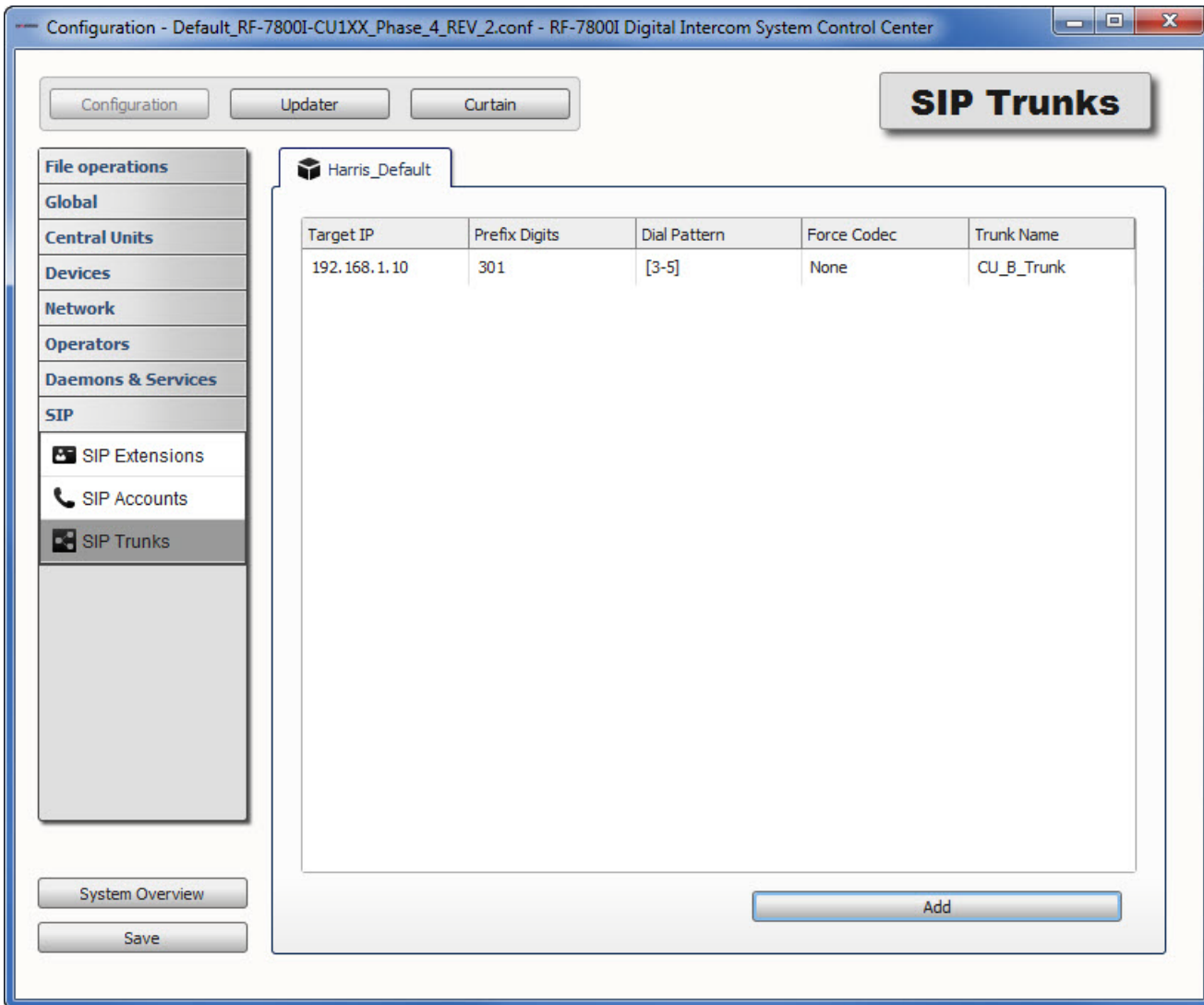


Figure 3-67. SIP Trunks

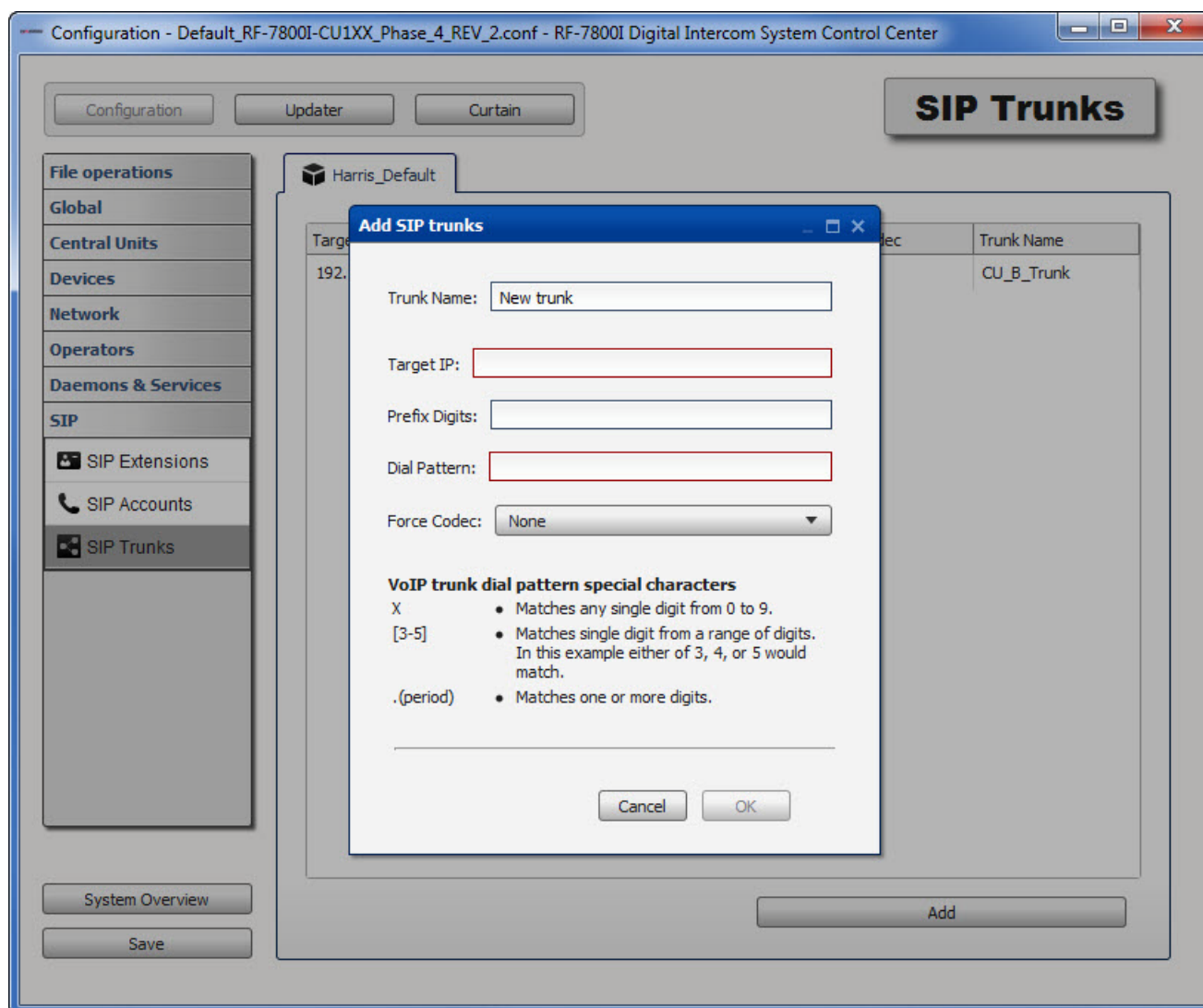


Figure 3-68. SIP Trunks - Add SIP Trunks

## 3.10 SYSTEM OVERVIEW

The System Overview tab displays all elements of the system as a tree view, including:

- CUB Network name
  - Names of the Central Units within the CUB Network.
    - Names of the Crew Stations connected to each Central Unit.

If the **Show additional item data** checkbox is selected, then the overview also displays the models of the devices used in the configuration. See [Figure 3-69](#).

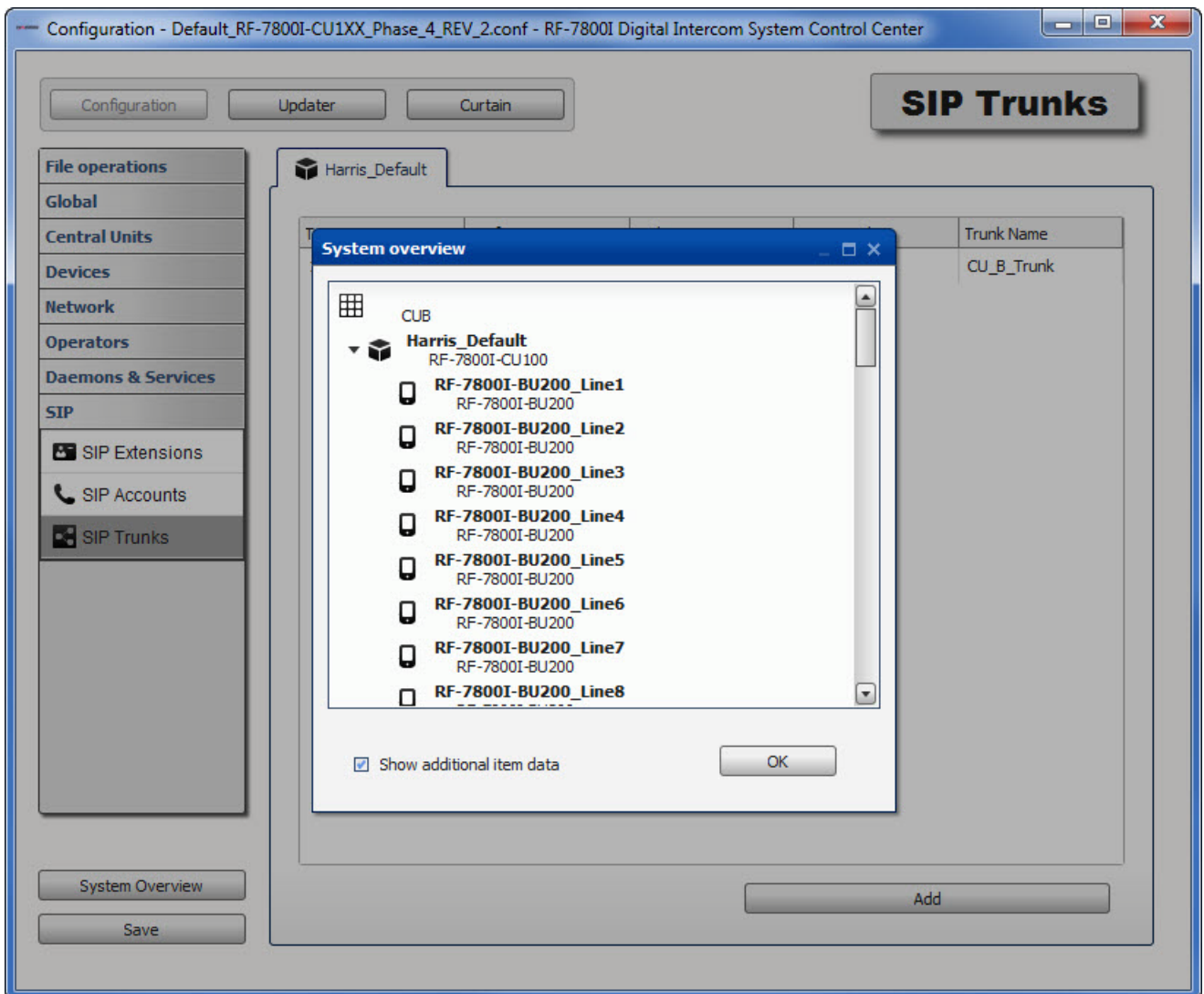


Figure 3-69. System Overview

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## CHAPTER 4

### UPDATER

#### 4.1 INTRODUCTION

This section provides information on configuration roles of the Updater utility. The Updater utility allows the user to update the system configuration, upload system configuration firmware and module files to Central Units, and upload CUB network configurations. Action features are provided for Central Units that include reboot, upload announcements, and lock/unlock. The user can also view event log information.

Helpful tooltips within the program are available to the user, and can be viewed by hovering the mouse cursor over labels and icons. The tooltips are visible by default, but can be disabled as described in [Paragraph 4.11](#).

#### 4.2 CENTRAL UNITS LIST

See [Figure 4-1](#). On the left side of the window there is a list of available central units visible to the Updater utility.

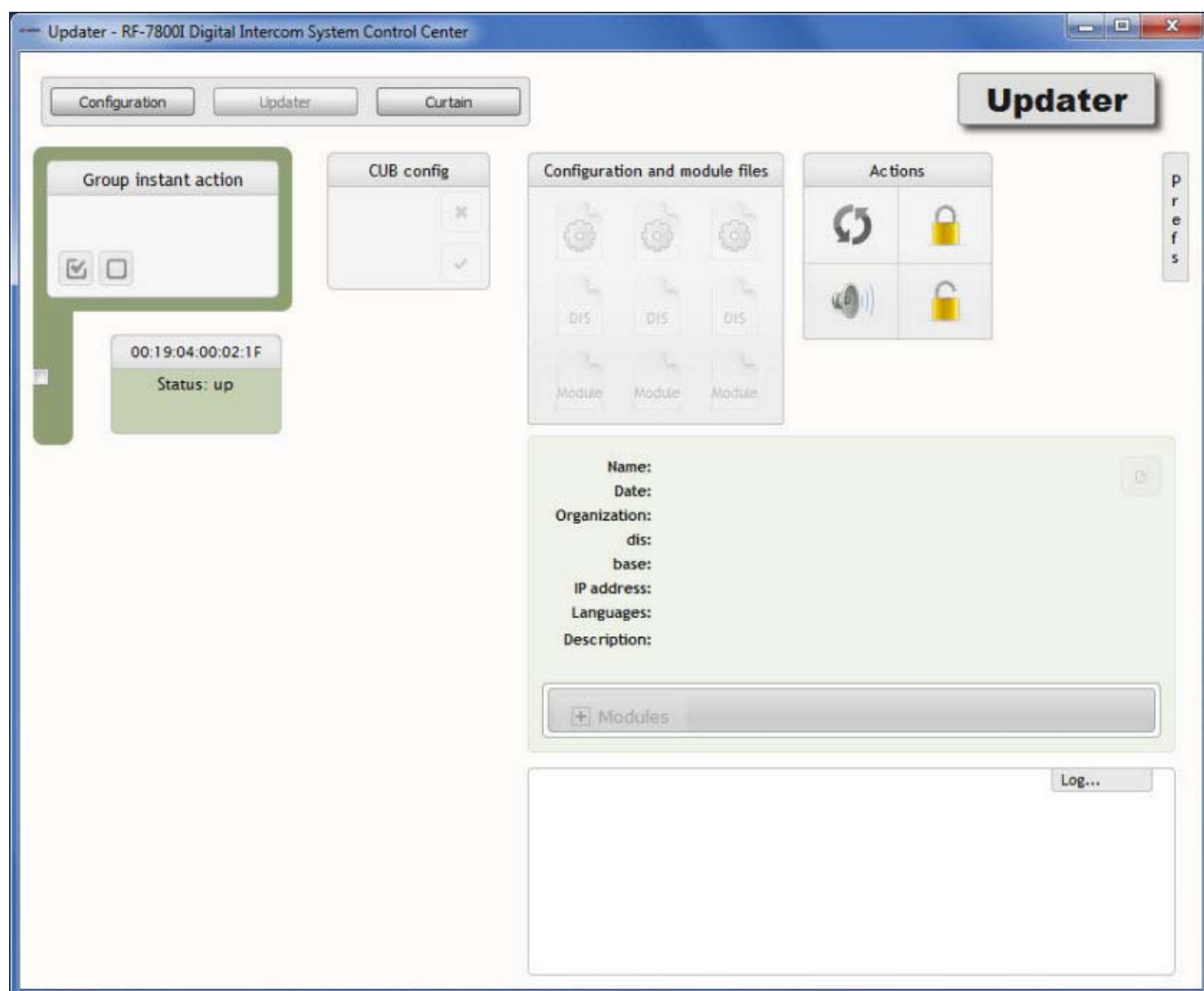


Figure 4-1. Updater - Central Units List

Each box displays two basic pieces of information:



- MAC address – This is the heading of the box containing the MAC (physical) address of the central unit. For example: 00.00:C3:AB:91:B9 in the figure.
- Status – This can display any of the following:
  - Up - Central unit is currently working correctly and is not occupied with updates. The box is green colored.
  - Updating - Central unit is currently working correctly and is occupied with an update launched by the user. The box is green colored.
  - Locked - Central unit is currently working correctly and is invisible to other users in the local network. The box is green colored.
  - Busy – Central Unit is currently working correctly and is busy with a task that makes it unavailable to accept any updates. The box is olive colored.
  - Down – Communication between the updater utility and the central unit has been lost. This means the central unit is unavailable because it has been restarted or its power supply has been turned off. If the updater utility is unable to communicate within several seconds with the central unit, the central unit in question disappears from the list. The box is red colored.

Clicking on a central unit box selects the unit to display detailed information about it in the information screen. A purple vertical bar to the right of a central unit box indicates the currently selected unit.

To the left of each box is a checkbox. Checking selects a central unit for group instant action. When checked with a green frame surrounding the box, the central unit is selected for group instant action.

### 4.3 CENTRAL UNITS DETAILS

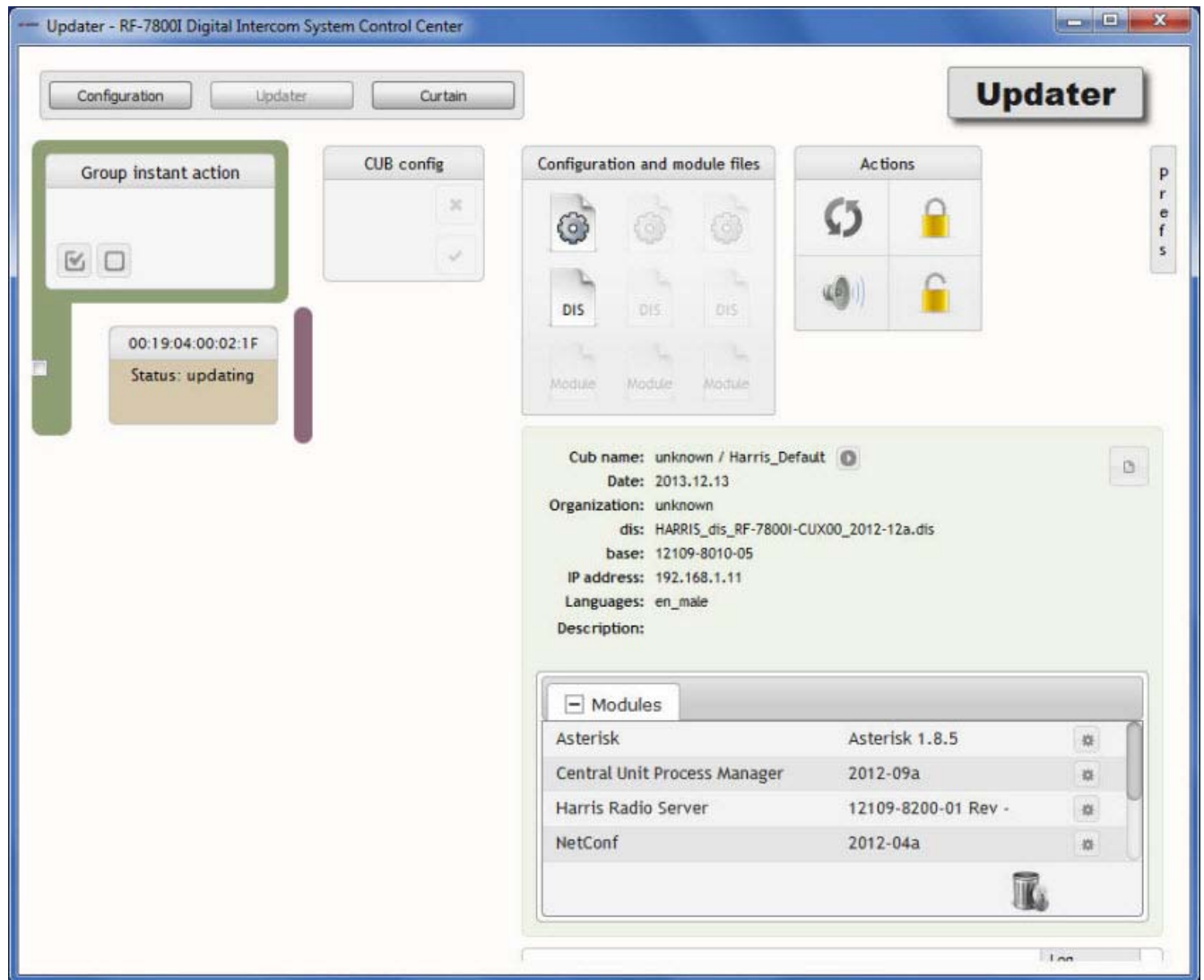
See [Figure 4-2](#). On the upper right side of the workspace, a collapsible menu labeled Prefs (preferences) is available. To expand the menu, hover the mouse cursor over the Prefs label. It allows the user to enable or disable the following:

- Tooltips visibility – This is represented by the letter i in a circle (  ). When enabled, all tooltips available in the updater utility are displayed. When disabled, all tooltips are hidden. It is enabled by default.
- Confirmation – This is represented by an exclamation mark in a triangle (  ). When enabled, actions require the user to confirm their usage. When disabled, no confirmations are required.

In the middle of the right side of the window a green area displays detailed information about the currently selected central unit.

In the same area, in the upper right corner, there is a file icon. Clicking on the icon allows the user to download the current configuration from the selected central unit. The file download screen is shown in [Figure 4-3](#).



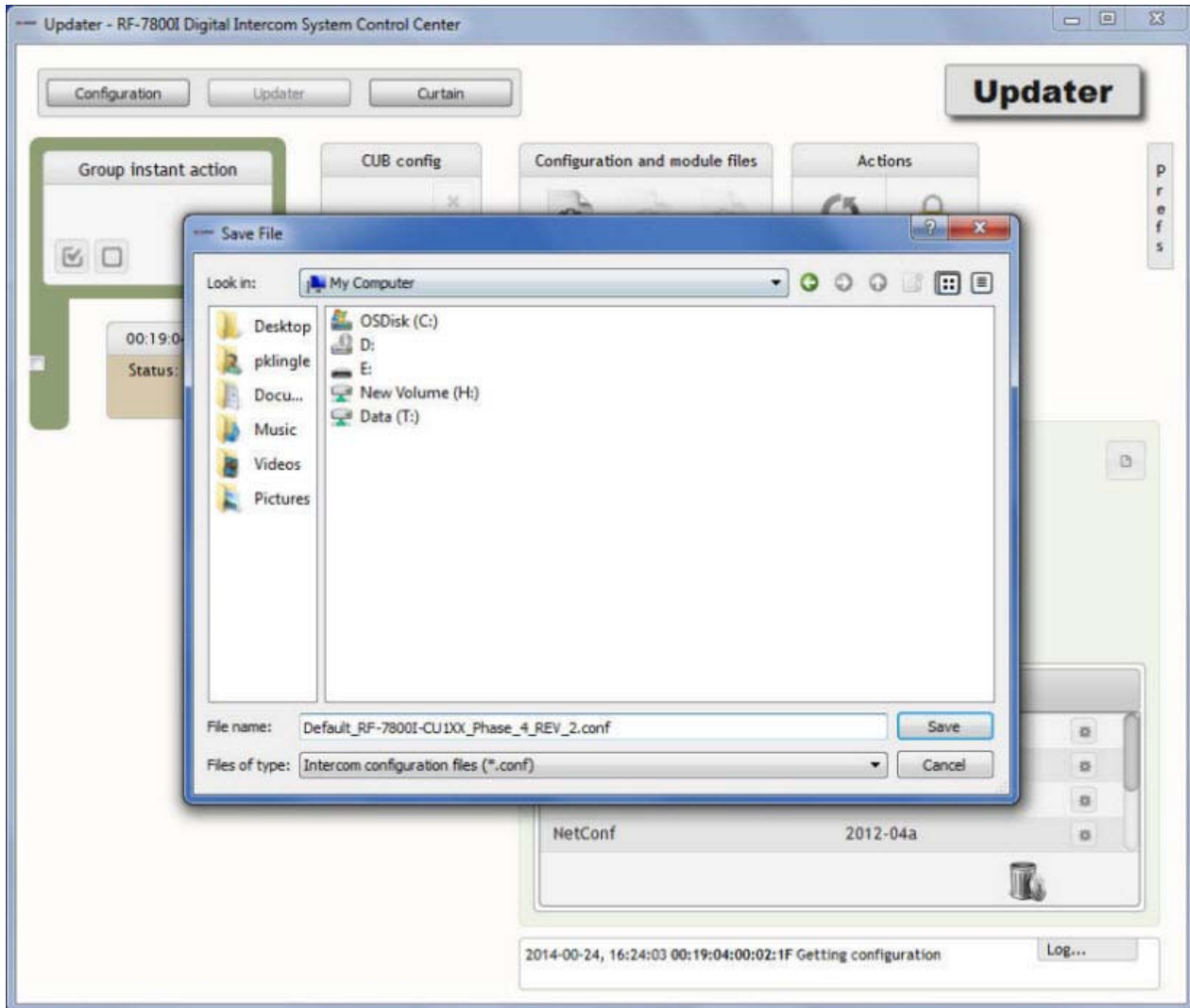


**Figure 4-2. Updater - Central Units Details**

Details include:

- Name or Central Unit Bridging (CUB) name:
  - Name - This is the name of the central unit as set in the configuration.
  - CUB name - This is the name of the CUB network that the central unit is a part of. After the slash, the current role within the CUB is displayed. The role can be changed by clicking on the arrow icon next to the current role and selecting one of the available roles.
- Date – Indicates the date of the last modification of the configuration file that is used by the central unit.
- Organization – This is the name of the organization that is used by the central unit, as set in the configuration.
- dis – This is the current version of the firmware installed on the central unit.
- base – This is the current version of the core firmware installed on the central unit.
- Internet Protocol (IP) address – This is the IP address of the central unit, as set in the configuration.


- Languages - Provides the language(s) used in the configuration.
- Description – This field displays and allows modification of the description of a central unit. To change the current description, click on the current description and edit in any text editor. To confirm and save the changed description, press the **Enter** key on the keyboard.




**Figure 4-3. Updater - File Download Configuration Screen**

#### 4.3.1 Configuring Modules

At the bottom of the green area there is an expandable bar labeled modules. Clicking on the modules tab expands an additional menu that displays the currently installed modules and their versions.

The module can be removed by dragging to the trash can (  ).

Open a configuration menu for the selected module using the gear icon (  ).

After opening the menu, a list of module components is displayed:

- Add – Installs a new component into the module.
- Remove – Removes a currently installed component from the module.
- Download – Downloads a component from the module, allowing the user to modify and later install back in the module.

## 4.4 CONFIGURATION, FIRMWARE AND MODULE FILES

See Figure 4-4. The following section describe configuration, firmware and module files.

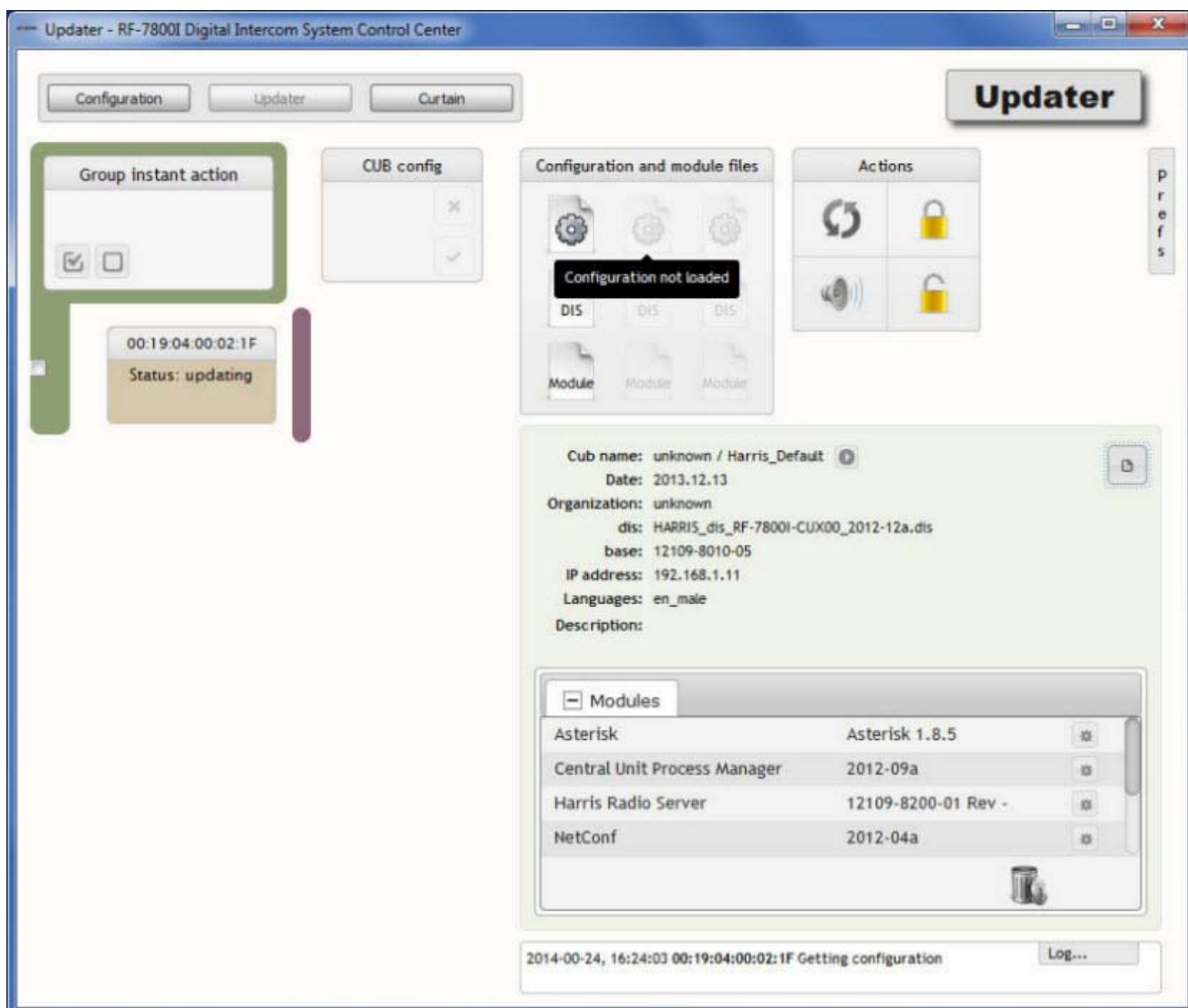




Figure 4-4. Updater - Configuration and Module Files

### 4.4.1 Configuration (.conf) Files

Clicking on one of the gear icons (  ) allows the user to load.conf files for later use.

After clicking the icon, a new window appears allowing the user to search for the proper file. The .conf files are prepared in the configuration utility and may be prepared for both individual central units as well as CUB networks.

### 4.4.2 Firmware (.dis) Files

Clicking on one of the Digital Intercom System (DIS) icons (  ) allows the user to load.dis files for later use.

After clicking the icon, a new window appears allowing the user to search for the proper file.

#### 4.4.3 Module (.mod) Files

Clicking on one of the module icons (Module) allows the user to load .mod files for later use. After clicking the icon, a new window appears allowing the user to search for the proper file.

#### 4.5 ADDING A RADIO MODULE TO A CENTRAL UNIT

Follow the instructions below to add a radio module to the Central Unit. See [Figure 4-5](#).

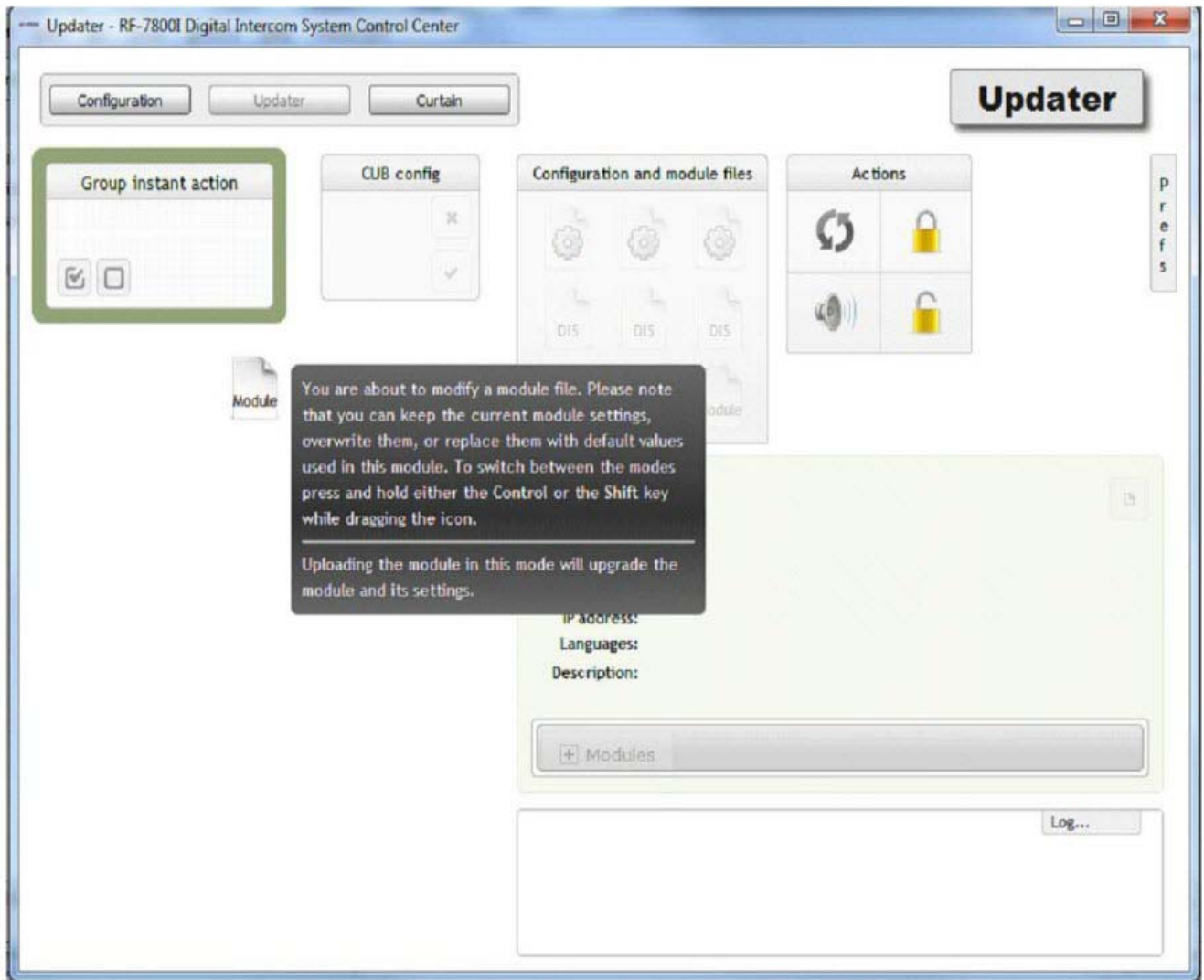
- a. In the Configurations and modules files window, select the icon that has the word "Module" grayed out.
- b. Navigate to where the radio module is stored on the PC and then select the **OK** button.
- c. Using the mouse, left click and select the Module that is no longer grayed out while also holding the **Shift** key before dragging the module over to the Central Unit.

#### NOTE

The following message will appear while dragging the module over to the Central Unit "You are about to modify a module file. Please note that you can keep the following module settings, overwrite them, or replace them with default values used in the module. To switch between the modes press and hold either the Control or the Shift key while dragging the icon."

Underneath the message above is an indication if the module will either:

- Keep the current settings (not holding down any key while moving the module to the Central Unit).
  - Upgrade the current settings (holding down on the **Shift** key while moving the module to the Central Unit).
  - Overwrite the current settings (holding down on the **Control** Key).
- d. While still holding the **Shift** key, release the left click on the mouse. The Central Unit will start to update.
  - e. When the file is completely transferred, release the **Shift** key.



**Figure 4-5. Updater - Modify Module File**

#### **4.6 UPLOADING FILES TO A SINGLE CENTRAL UNIT**


To upload any of the previously loaded configuration, firmware or module files to a central unit, drag and drop the corresponding icon onto a central unit box on the left side of the screen. When a particular central unit is available to receive an update, its box representation flashes slowly. When an update is initiated, a message appears in the event log in the bottom right of the screen giving the details of the operation.

When uploading modules, the user is able to upload the file in two ways:

- With a settings overwrite - If the same module (earlier version) is already on the Central Unit, the configuration settings of that module will be overwritten with default values (holding the Control key when loading).
- Without a settings overwrite - If the same module is already on the Central Unit, the configuration settings of that module will be kept (holding the Shift key when loading).

## 4.7 UPLOADING FILES TO CENTRAL UNITS (GROUP INSTANT ACTION)

To upload any of the previously loaded files to multiple central units, first select the boxes next to each central unit box on the left side of the screen. Next, drag and drop the corresponding icon onto the group instant action box. This action is initiated for all central units instantly and simultaneously. A message appears in the event log in the bottom right of the screen giving the details of the operation when an update is initiated.

Select all available central units for group instant action by clicking on the checkbox icon (  ).


To deselect all selected central units, click on the empty checkbox icon (  ).

To deselect a central unit for group instant action, uncheck the checkbox beside the group.

## 4.8 UPLOADING CUB NETWORK CONFIGURATIONS (CUB CONFIG)

To upload a CUB network configuration to one or more central units, a CUB network configuration needs to be loaded. After the configuration file is loaded, drag and drop the corresponding icon onto the CUB config field or onto a particular central unit that is to be used for that network. Any compatible location start flashing as soon as the user picks up the configuration icon.

If the CUB configuration is put onto the CUB config field, all compatible central units will be available to select a role that appears to the right of each compatible central unit box. If no role is selected, the configuration will not be uploaded to that central unit.

To confirm the upload of the CUB configuration to the units which have their defined roles, click on the checkbox (  ).in the CUB config field.


To remove the CUB configuration from the CUB config field (to select another one), click on the (X) button in the CUB config field.


If the CUB configuration is put onto a central unit by directly dragging and dropping the configuration file onto the central unit box, a new window appears, prompting the user to select a role for that particular central unit. Clicking the dropdown list expands the list and allows the user to select an available role. Clicking on **OK** button confirms and initiates the operation. Clicking on the (X) button closes the window and cancels the procedure.


## 4.9 CENTRAL UNIT ACTION FEATURES


The following paragraphs describe the central unit action features that are initiated from the Updater.

### 4.9.1 Reboot

Using the reboot action (  ) restarts a central unit's software. It is most commonly used to commit some of the changes made in the configuration of the central unit or the modules used by this central unit.


To reboot a single central unit, drag and drop the reboot action icon (  ) onto the central unit box.


To reboot a group of central units, first select the checkboxes next to each central unit to be restarted or select all available central units at once by clicking on the group instant action checkbox icon (  ).


After the central units are selected, drag and drop the reboot action icon (  ) onto the group instant action field.




### 4.9.2 Upload Announcements

Using the upload announcements action (  ) uploads the announcement files stored in the announcements folder on the central unit.

To upload announcements to a single central unit, drag and drop the upload announcements action icon (  ) onto the central unit box.


To upload announcements to a group of central units, first select the checkboxes next to the central unit to have their announcements updated or select all available central units at once by clicking the group instant action checkbox icon (  ).


After the central units are selected, drag and drop the upload announcements action icon (  ) onto the group instant action field.


#### NOTE


Only the announcements configured in the current configuration file will be loaded on the intercom, even if more announcements are in the announcements folder.

### 4.9.3 Lock


Using the lock action (  ) renders a central unit invisible to other users in the network. This may be useful to prevent several technicians working on various central units within one network interfering with each other's work.


To lock a single central unit, drag and drop the lock action icon (  ) onto the central unit box. A new window appears, prompting the user to enter a password. After entering a password, clicking **OK** initiates the action and locks the central unit. To cancel the operation, click on the **(X)** button in the upper right corner of the window.


To lock a group of central units, select the checkboxes next to the central units that are to be locked, or select all available central units at once by clicking the group instant action checkbox icon (  ).

After the Central Units are selected, drag and drop the lock action icon (  ) onto the group instant action field. A window appears, prompting the user to enter a password. After entering a password, clicking on **OK** in the bottom right of the window initiates the action and locks the central unit. To cancel the operation, click on the **(X)** button in the upper right corner of the window. It is possible to lock central units without specifying a password (by leaving the password field empty).

### 4.9.4 Unlock

Using the unlock action (  ) cancels the effects of the lock action.

If the central unit is visible to the user, it is possible to drag and drop the unlock action (  ) onto the central unit box. A new window appears, prompting the user to enter a password. After entering a password, clicking on **OK** in the bottom right of the window initiates the action and unlocks the central unit (provided that the password is valid). To cancel the operation, click on the **(X)** button in the upper right corner of the window.

If the central unit is not visible to the user, it is possible to unlock a central unit provided that the user knows the central unit Media Access Control (MAC) address and the password. To unlock an invisible central unit, click on the unlock action icon (  ). A new window appears, prompting the user to enter a MAC address and password.

After entering the MAC address and password, clicking on **OK** in the bottom right of the window initiates the action and unlocks the central unit (provided that the password is valid). To cancel the operation, click the **(X)** button in the upper right corner of the window.

To unlock a group of Central Units, first tick the checkboxes next to the Central Units that are to be unlocked, or select all available Central Units at once by clicking the group instant action checkbox icon. After the Central Units are selected, drag and drop the lock action icon onto the “Group instant action” field. A new window will appear, prompting the user to enter a password. After entering a password, left-clicking the OK button in the bottom right of the window will initiate the action and unlock the Central Unit. To cancel the operation, click on the **(X)** button in the upper right corner of the window.

If the central units were locked without providing a password, then no password is required to unlock them (the password field should be left empty).

#### 4.10 EVENT LOG

The event log is located in the lower right-hand side of the updater window. It displays short descriptions of events that affect the central units and were initiated by the user. This does not mean that the action was successful; it only indicates the event and the time at which it has been initiated.



All events are logged separately for each central unit. When a group operation is executed, each event for every central unit are also labeled as a group action.

Events that are logged include the following:

- Configuration upload – Includes the date, time, MAC address of the central unit involved, and the file used. If a CUB configuration has been used, the assigned role is also included.
- Firmware upload – Includes the date, time, MAC address of the central unit involved, and the file used.
- Module upload – Includes the date, time, MAC address of the central unit involved, and the file used.
- Changing the role of a Central Unit within a CUB network – Includes the date, time, MAC address of the central unit involved, and the role selected.
- Downloading the configuration file from a Central Unit – Includes the date, time, and MAC address of the central unit involved.
- Rebooting a Central Unit – Includes the date, time, and MAC address of the central unit involved.
- Locking a Central Unit – Includes the date, time, and MAC address of the central unit involved.
- Unlocking a Central Unit – Includes the date, time, and MAC address of the central unit involved.

#### 4.11 PREFERENCES

On the upper right side of the workspace, a collapsible menu labeled prefs is available. To expand the menu, hover the mouse cursor over the prefs label. It allows the user to enable or disable the following:

- Tooltips visibility – This is represented by the letter i in a circle (  ). When enabled, all tooltips available in the updater utility are displayed. When disabled, all tooltips are hidden. It is enabled by default.
- Confirmation – This is represented by an exclamation mark in a triangle (  ). When enabled, actions require the user to confirm their usage. When disabled, no confirmations are required.



## CHAPTER 5

### CURTAIN

#### 5.1 INTRODUCTION

The Curtain (central unit recovery toolkit) utility is used to upload full firmware images to a central unit. This may be used for:

- Reinstalling the firmware after a malfunction or binary corruption
- Updating the whole firmware package
- Downgrading the firmware for backward compatibility



Using this software with any RF-7800I Central Processing Unit (CPU) firmware version newer than **12109-8010-05** will erase all contents from the storage partition of the Central Unit! Make sure you have backup copies of any special modules or configuration files that were uploaded earlier before attempting to reprogram a Central Unit.

Reprogramming will cause the central unit to revert to its default settings, including the configuration file, Digital Intercom System (DIS), and only the basic modules.

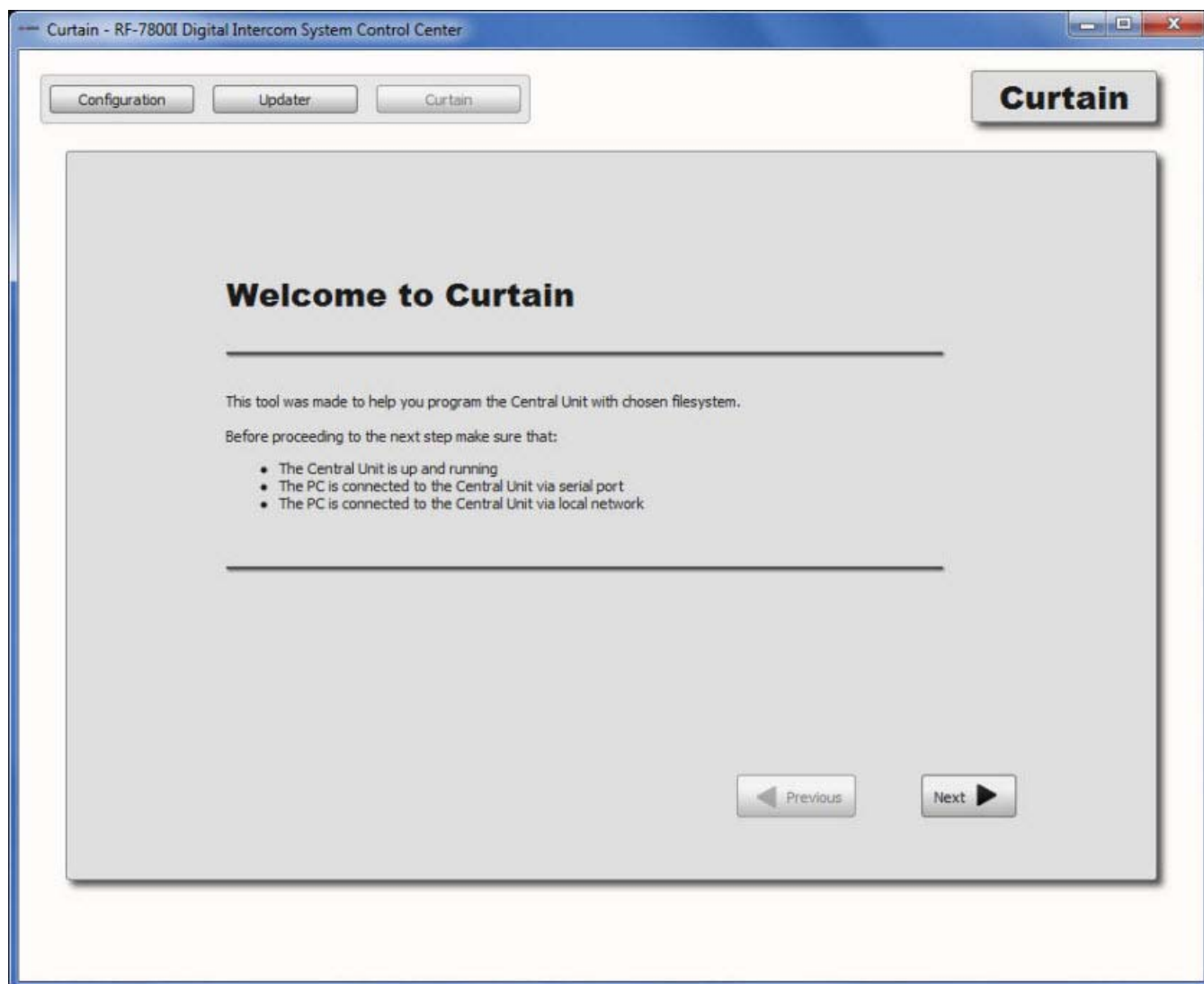
#### 5.2 WELCOME SCREEN - PREPARATION

See [Figure 5-1](#). After accessing the curtain, the user is prompted to prepare the central unit for reprogramming.

To begin the process of uploading a full image to a central unit, ensure the following prerequisites:

- The central unit needs to be powered up.
- The central unit needs to be connected via Ethernet to the user's computer (or must be available within the same subnet).
- The central unit needs to be connected via serial interface to the user's computer.

After satisfying the requirements, click on **Next** to continue.



**Figure 5-1. Curtain - Welcome Screen**

## 5.3 SERIAL CONNECTION

See [Figure 5-2](#). After the welcome screen, a list of serial connections appears, prompting for selection of a serial port to which the central unit is connected.

- On selecting a port, the status reports the port has been opened and the software is searching for a connection.
- If an invalid port has been selected (example, a port to which another serial device is connected), status reports the port is open, and the device is unresponsive.
- If a valid port (one to which a powered-up central unit) has been selected, status reports the port is ready and the central unit's Media Access Control (MAC) address is displayed.

When a valid port has been selected and the port is open, click on **Next** to continue.

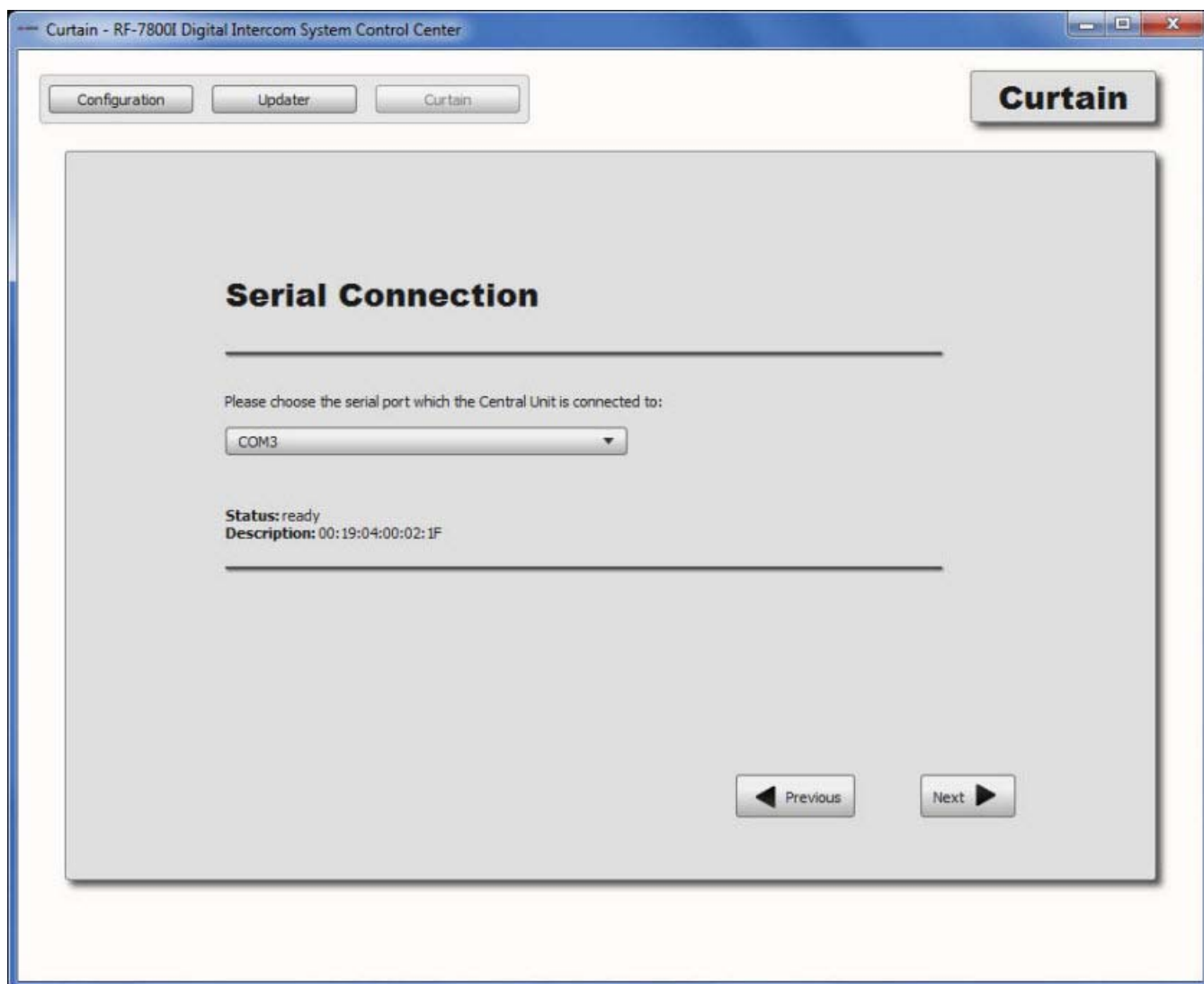


Figure 5-2. Curtain - Serial Connection

## 5.4 NETWORK CONNECTION

See [Figure 5-3](#). After serial connection, you are prompted to fill out the two editable fields:

- Server IP – This is the Internet Protocol (IP) address of the user's computer.
- Central Unit IP – This is the IP address of the central unit.

The central unit IP should be unique within the subnet. When both fields have been filled out with valid IP addresses, press **Next** to continue.

Curtain - RF-7800I Digital Intercom System Control Center

Configuration Updater Curtain

**Curtain**

### Network Connection

Server (our) IP Address: 192.168.1.55

Central Unit IP Address: 192.168.1.11

**NOTE:** The Server IP Address should match the IP Address of this computer and should not be changed unless it is incorrect. The Central Unit IP is a suggestion. If this computer and Central Unit are connected to a larger network, this address should be changed if there is another device in the network with that IP address. If this computer is directly connected to the Central Unit then suggested Central Unit IP Address can be used.

Previous Next

Figure 5-3. Curtain - Network Connection

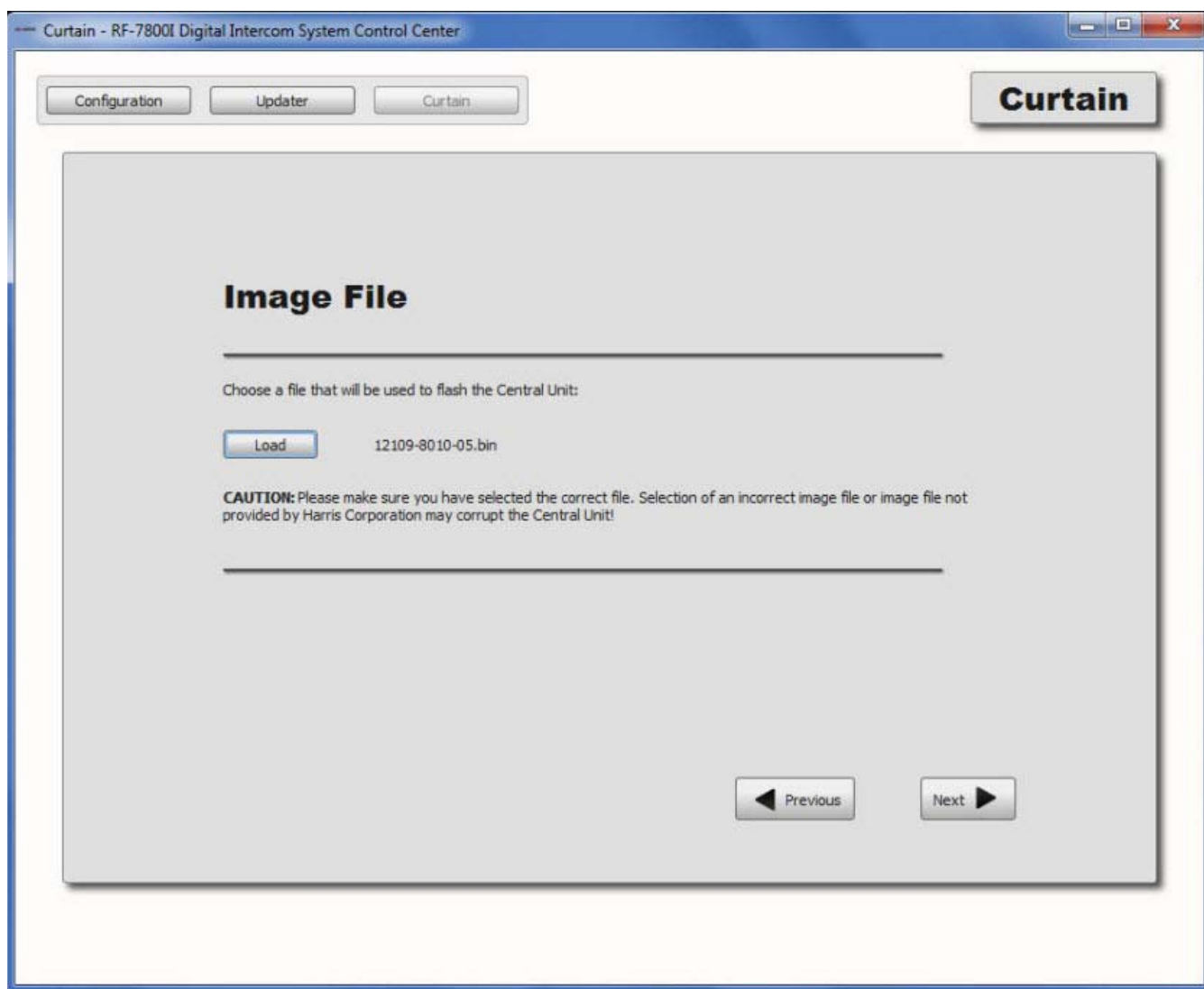
## 5.5 IMAGE FILE

See [Figure 5-4](#). After the network connection screen, you are prompted to select an image file. To select a file, click **Load** and navigate through the explorer to the proper .bin file.

### NOTE

The file that is to be used for this procedure should have a .bin extension. Do not use files other than those supplied by Harris RF Communications, as improper files may render the Central Unit inoperable.

When a valid image file (12109-8010-05.bin) has been selected, click on **Next** to continue.



**Figure 5-4. Curtain - Image File Load**

## 5.6 PARAMETERS SETUP

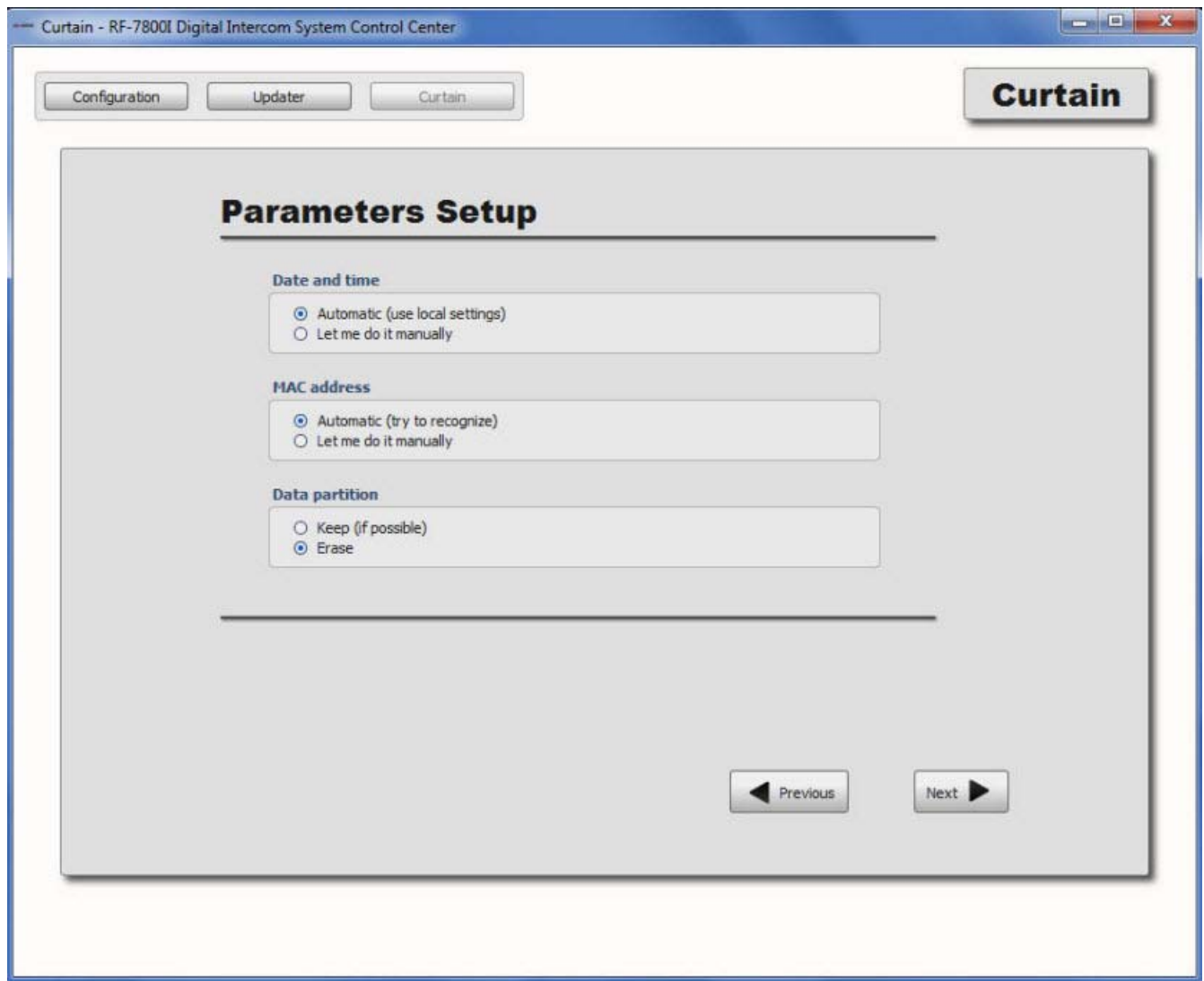
See [Figure 5-5](#). After the image file screen, you are prompted to choose additional settings that are to be used during the operation. Parameters include:

- Date and time – This is the time setting that is to be used by the central unit clock.
  - Automatic – This setting causes the central unit to get the current date and time settings from the server (the user’s computer).
  - Manual – This setting causes the RF-7800I to prompt the user to enter the date and time settings manually during the image upload.
- MAC address – This is the central unit’s physical address.
  - Automatic – This setting cause the central unit to automatically detect its own physical address.
  - Manual – This setting will causes the RF-700I to prompt the user to enter the MAC address manually during the image upload.
- Data partition – This includes any files that are stored on the data partition of the central unit, including modules and configuration files.
  - Keep (if possible) – This setting causes the curtain utility to try and keep the contents of the data partition. This is possible only for older versions of the firmware (Phase 2 version 9 or older).
  - Erase – This setting causes the curtain utility to completely clear the data partition.

Once the settings have been chosen, click on **Next** to continue.

### NOTE

The default settings for Parameters Setup are “Automatic” for Date/ time, MAC address and “Keep” for Data partition.



**Figure 5-5. Curtain - Parameters Setup**

## 5.7 SUMMARY

See [Figure 5-6](#). After the parameters setup screen, a summary of all previous choices is displayed. If all information is correct, click on **Finish** to start programming the central unit. It is a good time to write down the MAC address if it is not on a label on the central unit.

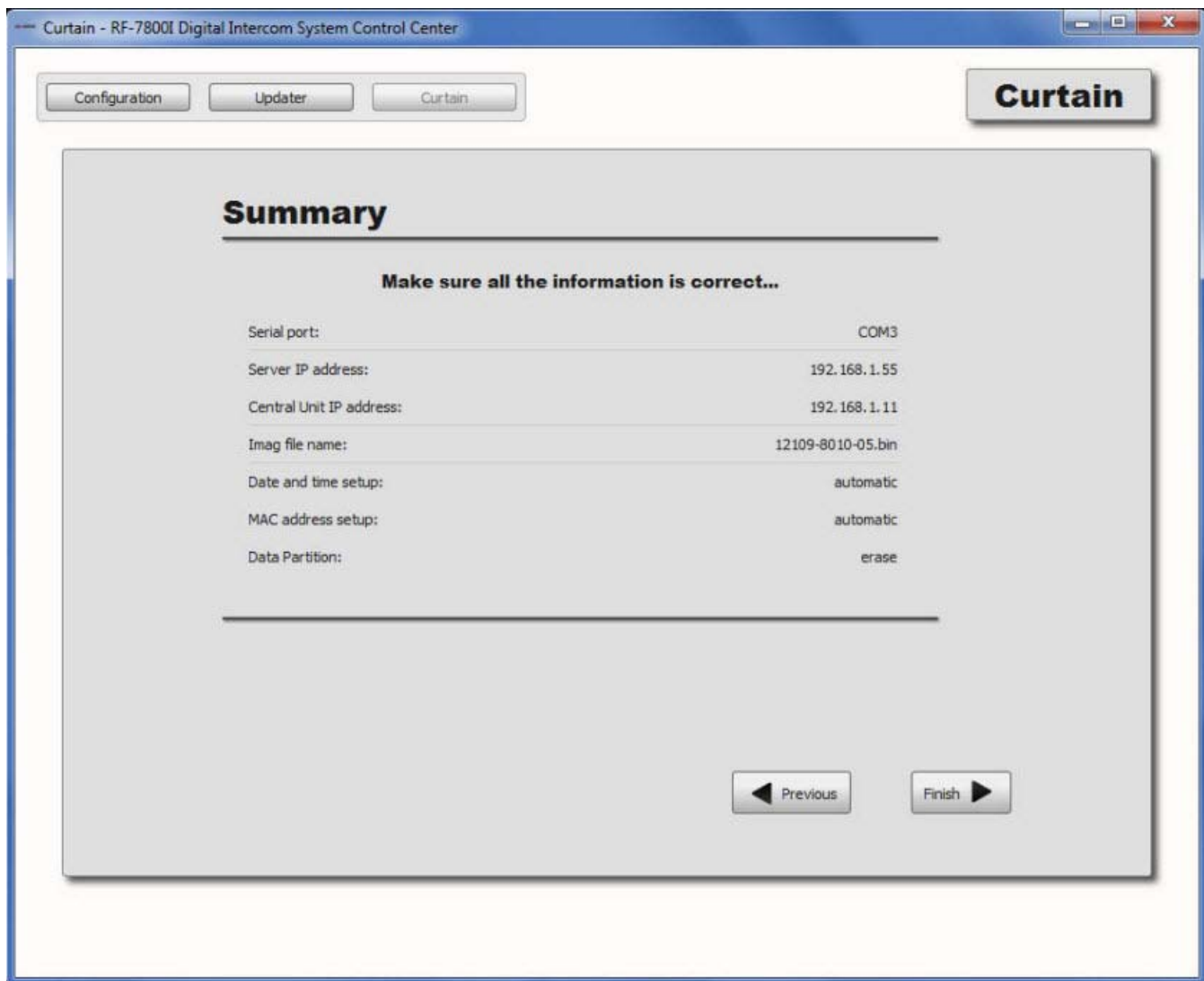


Figure 5-6. Curtain - Summary



## 5.8 PROGRESS

See [Figure 5-7](#). After the summary screen, two progress bars appear:

- Total progress – displays the total progress of the operation; this is dependent on the version of the Central Unit’s hardware, and the version of the binary file. On Phase 4 hardware and software, this procedure typically takes about 8 minutes.
- Current task – displays the progress of the current task, along with the details of the task.

You can elect to stop programming of the central unit by clicking on the STOP button in the lower right corner of the screen. A message will appear which will allow you to start the programming process over. Refer to the warning below (a message will be displayed on the screen).



### WARNING

Stopping the programming process may cause damage to the central unit.

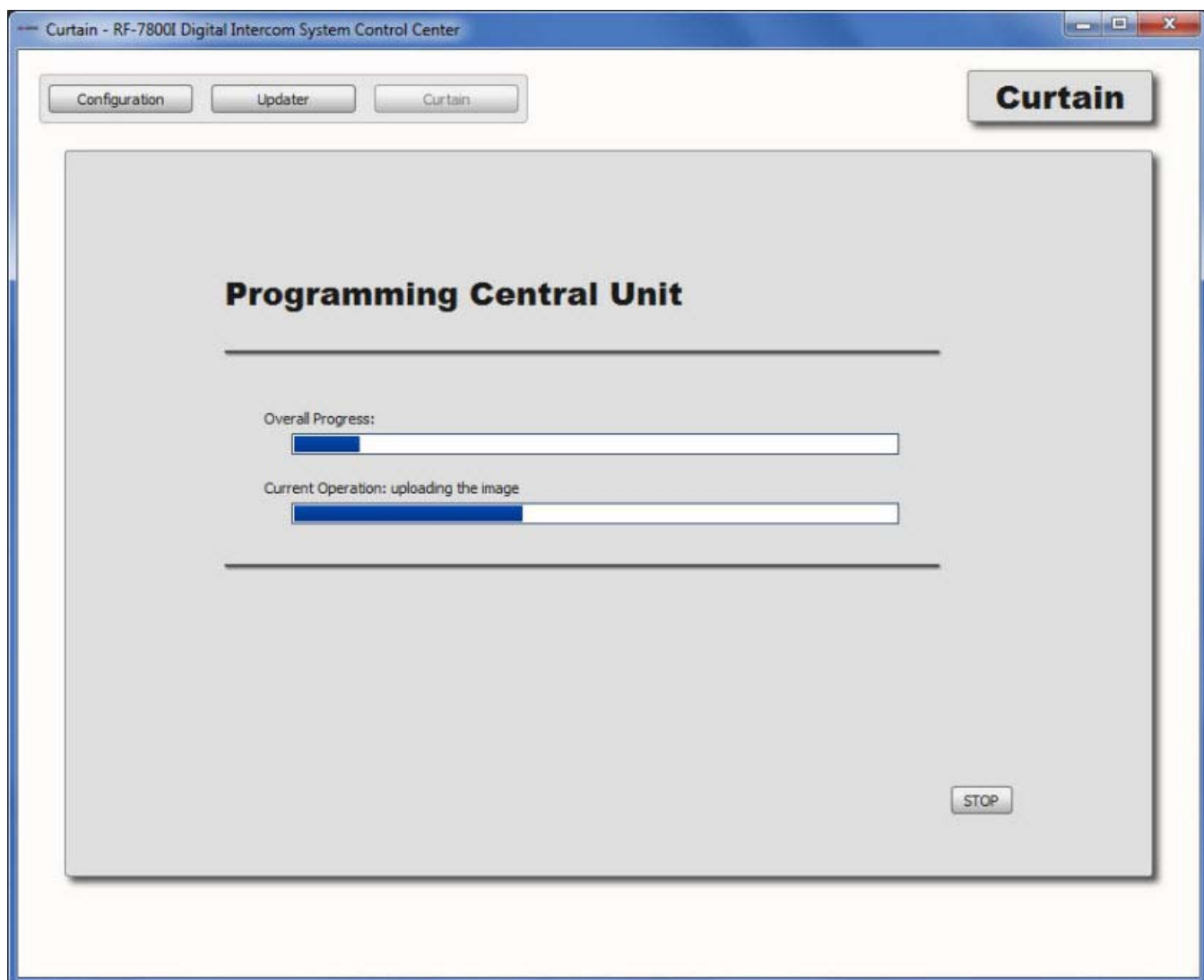
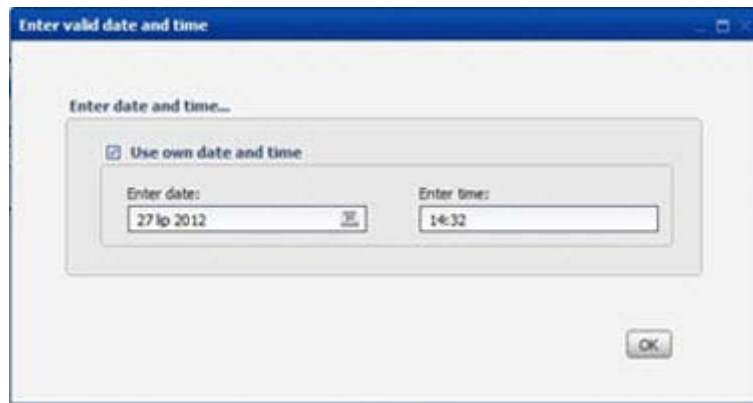


Figure 5-7. Curtain - Programming Progress

## 5.9 SETTING DATE AND TIME

See [Figure 5-8](#). If the option to set the date and time manually has been selected, then the user will be prompted to enter the date. The curtain will, by default, suggest the date and time used by the server (the user's computer). The date and time can be changed by selecting use own date and time.

After the date and time have been set, click on **OK** to continue.



**Figure 5-8. Setting Date and Time**

## 5.10 SETTING MAC ADDRESS

See [Figure 5-9](#). If the option to set the MAC address manually has been selected, the user is prompted to enter a MAC address in the following format: (aa:bb:cc:dd:ee:ff), where each two-digit indicates two hexadecimal digits. The central unit's MAC address is typically visible on a label located on the top of the central unit's chassis.

After a valid MAC address has been filled, click on **OK** to continue.



**Figure 5-9. Setting MAC Address**

## 5.11 COMPLETING THE PROCESS

See [Figure 5-10](#). When the programming process is finished, a successful status appears.

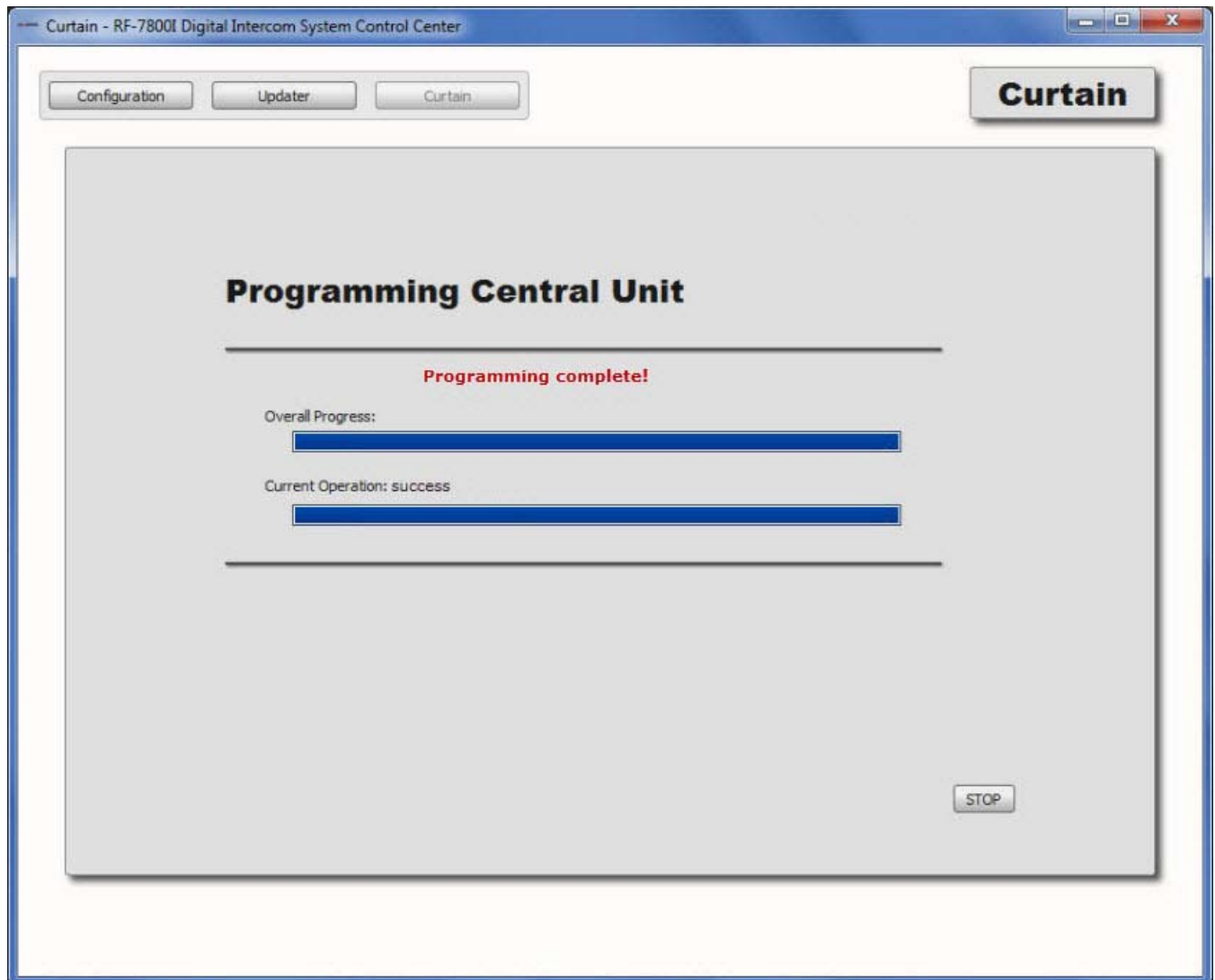


Figure 5-10. Curtain - Programming Complete

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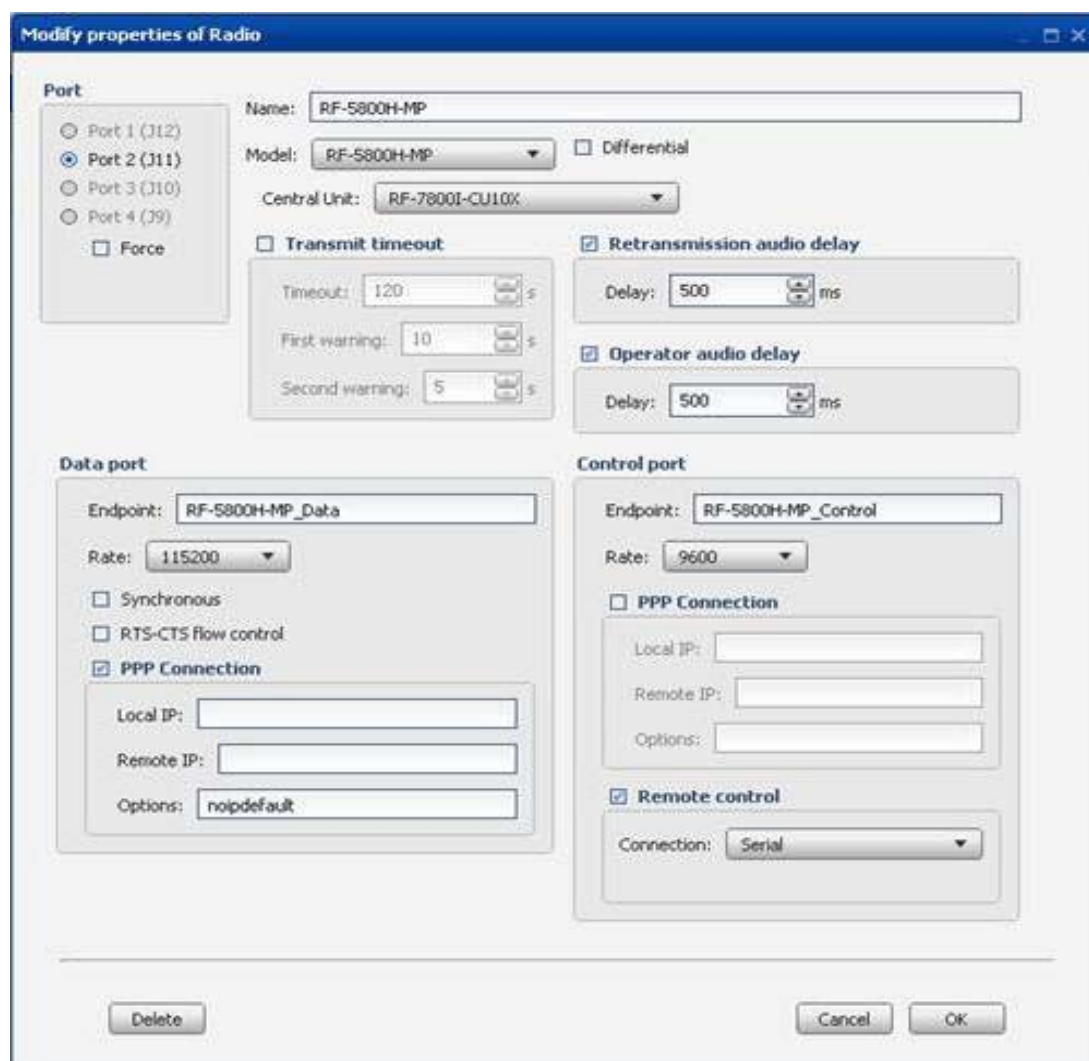
## APPENDIX A

### RADIO PROPERTIES

This appendix describes setting up connection to all supported radio models and the associated Modify properties of Radio screens. The Data port and Control port settings will be different for each grouping of radios.

#### A.1 RF-5800H-MP, AN/PRC-150

See [Figure A-1](#) for radio properties of RF-5800H-MP and AN/PRC-150.



**Modify properties of Radio**

**Port**

- ☐ Port 1 (J12)
- ☒ Port 2 (J11)
- ☐ Port 3 (J10)
- ☐ Port 4 (J9)
- ☐ Force

Name: RF-5800H-MP

Model: RF-5800H-MP

Central Unit: RF-7800I-CU10X

☐ Differential

☐ Transmit timeout

Timeout: 120 s

First warning: 10 s

Second warning: 5 s

☒ Retransmission audio delay

Delay: 500 ms

☒ Operator audio delay

Delay: 500 ms

**Data port**

Endpoint: RF-5800H-MP\_Data

Rate: 115200

☐ Synchronous

☐ RTS-CTS flow control

☒ PPP Connection

Local IP:

Remote IP:

Options: noipdefault

**Control port**

Endpoint: RF-5800H-MP\_Control

Rate: 9600

☐ PPP Connection

Local IP:

Remote IP:

Options:

☒ Remote control

Connection: Serial

Delete Cancel OK

Figure A-1. Modify Properties of Radio: RF-5800H-MP, AN/PRC-150

### **A.1.1 Transmit Timeout**

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

### **A.1.2 Retransmission Audio Delay Settings**

Retransmit audio delay and Operator audio delay should be set to at least **500** ms so that when the radio is set to Cipher Text (CT), the first part of the transmission is not missed.

### **A.1.3 Data Port Settings**

The recommended Data port baud rate is **115200**, which is also default for the radio. For the intercom to get the Internet Protocol (IP) address from the radio when making a Point-to-Point Protocol (PPP) connection, "noipdefault" should be entered in the **Options:** parameter window.

### **A.1.4 Control Port Settings**

The recommended Control port baud rate is **9600**.

#### **NOTE**

The RF-5800H-MP supports remote control over IP. The AN/PRC-150 radio does not support remote control over IP.

## A.2 RF-5800M-HH, RF-5800V-HH, RF-5800V-MP

See [Figure A-2](#) for radio properties of RF-5800M-HH, RF-5800V-HH, and RF-5800V-MP.

**Figure A-2. Modify Properties of Radio: RF-5800M-HH, RF-5800V-HH, RF-5800V-MP**

### A.2.1 Transmit Timeout

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

### A.2.2 Retransmission Audio Delay Settings

Retransmit audio delay and operator audio delay should be set to at least **500** ms so that when the radio is set to CT, the first part of the transmission is not missed.

### A.2.3 Data Port Settings

The recommended Data port baud rate is **19200**. For the intercom to get the IP address from the radio when making a PPP connection, "noipdefault" should be entered in the **Options:** parameter window. To keep the PPP connection active, "nomagic" also needs to be entered in the **Options:** parameter window as shown in [Figure A-2](#).

A.2.4 Control Port Settings

The recommended Control port baud rate is 19200.

NOTE

The RF-5800M-HH, RF-5800V-HH and RF-5800V-MP radios do support remote control over IP.

A.3 RF-7800M-MP, AN/PRC-117G, RF-7800V-HH, AN/PRC-152A

See [Figure A-3](#) for radio properties of RF-7800M-MP, AN/PRC-117G, RF-7800V-HH, AN/PRC-152A.

The screenshot shows the 'Modify properties of Radio' dialog box. It is divided into several sections: 'Port', 'Data port', and 'Control port'. In the 'Port' section, 'Port 2 (J11)' is selected. The 'Name' field contains 'RF-7800M-MP', 'Model' is 'RF-7800M-MP', and 'Central Unit' is 'RF-7800I-CU10X'. There are checkboxes for 'Differential', 'Transmit timeout', 'Retransmission audio delay', and 'Operator audio delay'. The 'Transmit timeout' section has input fields for 'Timeout' (120s), 'First warning' (10s), and 'Second warning' (5s). The 'Retransmission audio delay' and 'Operator audio delay' sections have input fields for 'Delay' (500ms). The 'Data port' section has an 'Endpoint' field, a 'Rate' dropdown (115200), and checkboxes for 'Synchronous', 'RTS-CTS flow control', and 'PPP Connection'. The 'Control port' section has an 'Endpoint' field (RF-7800M-MP\_Control), a 'Rate' dropdown (115200), a checked 'PPP Connection' checkbox, and a checked 'Remote control' checkbox with a 'Connection' dropdown set to 'Serial'. At the bottom are 'Delete', 'Cancel', and 'OK' buttons.

Figure A-3. Modify Radio Properties: RF-7800M-MP, AN/PRC-117G, RF-7800V-HH, AN/PRC-152A

A.3.1 Transmit Timeout

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).



### A.3.2 Retransmission Audio Delay Settings

Retransmit audio delay and operator audio delay should be set to at least **500 ms** so that when the radio is set to CT, the first part of the transmission is not missed.

### A.3.3 Data Port Settings

The RF-7800M-MP, AN/PRC-117G, RF-7800V-HH, AN/PRC-152A radios are typically connected to the intercom using Ethernet, so PPP connection settings are not shown in [Figure A-3](#).

### A.3.4 Control Port Settings

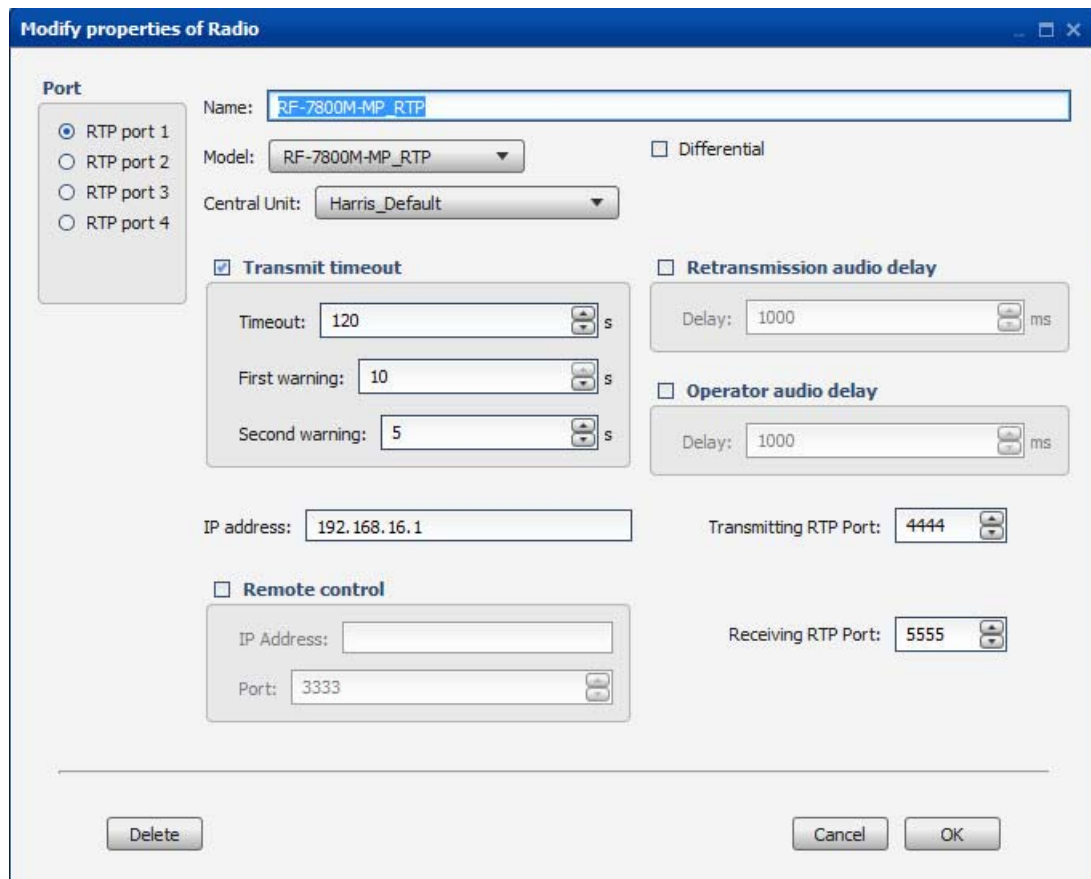
The recommended Control port baud rate is **115200**.

#### NOTE

The RF-7800M-MP, AN/PRC-117G, RF-7800V-HH, and AN/PRC-152A radios do not support remote control over IP.

## A.4 RF-7800M-MP\_RTP

See [Figure A-4](#) for radio properties of RF-7800M-MP\_RTP.



**Modify properties of Radio**

**Port**

- ☒ RTP port 1
- ☐ RTP port 2
- ☐ RTP port 3
- ☐ RTP port 4

Name:

Model:

Central Unit:

☐ Differential

☒ **Transmit timeout**

Timeout:  s

First warning:  s

Second warning:  s

☐ **Retransmission audio delay**

Delay:  ms

☐ **Operator audio delay**

Delay:  ms

IP address:

Transmitting RTP Port:

☐ **Remote control**

IP Address:

Port:

Receiving RTP Port:

**Figure A-4. Modify Radio Properties: RF-7800M-MP\_RTP**

#### **A.4.1 Transmit Timeout**

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

#### **A.4.2 Retransmission Audio Delay Settings**

Retransmit audio delay and operator audio delay should be set to at least **1000** ms so that when the radio is set to CT, the first part of the transmission is not missed.

#### **A.4.3 IP Address**

Enter the IP address of the radio.

#### **A.4.4 Transmitting RTP Port**

Transmitting RTP port is set to **4444** by default.

#### **A.4.5 Remote Control**

Enter the remote control IP address and port number. Default port number is **3333**.

#### **A.4.6 Receiving RTP Port**

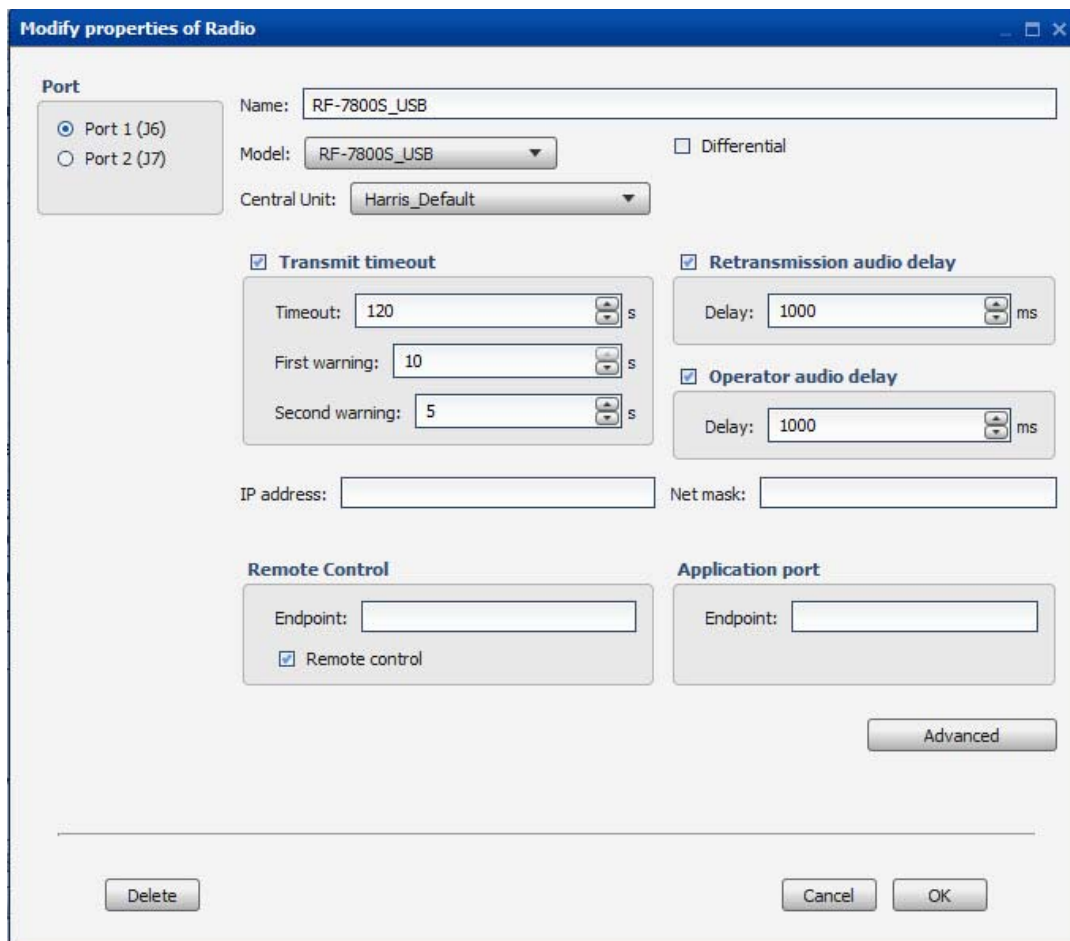
Receiving RTP port is set to **5555** by default.

#### **NOTE**

The RF-7800M-MP\_RTP and RF-7800S\_USB radios support remote control over IP.

### **A.5 RF-7800S\_USB**

See [Figure A-5](#) for radio properties of RF-7800S\_USB.



**Figure A-5. Modify Radio Properties: RF-7800S\_USB**

#### **A.5.1 Transmit Timeout**

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

#### **A.5.2 Retransmission Audio Delay Settings**

Retransmit audio delay and operator audio delay should be set to at least **1000** ms so that when the radio is set to CT, the first part of the transmission is not missed.

#### **A.5.3 IP Address**

Enter the IP address of the radio.

#### **A.5.4 Netmask**

Enter the Netmask of the radio.

#### **A.5.5 Remote Control**

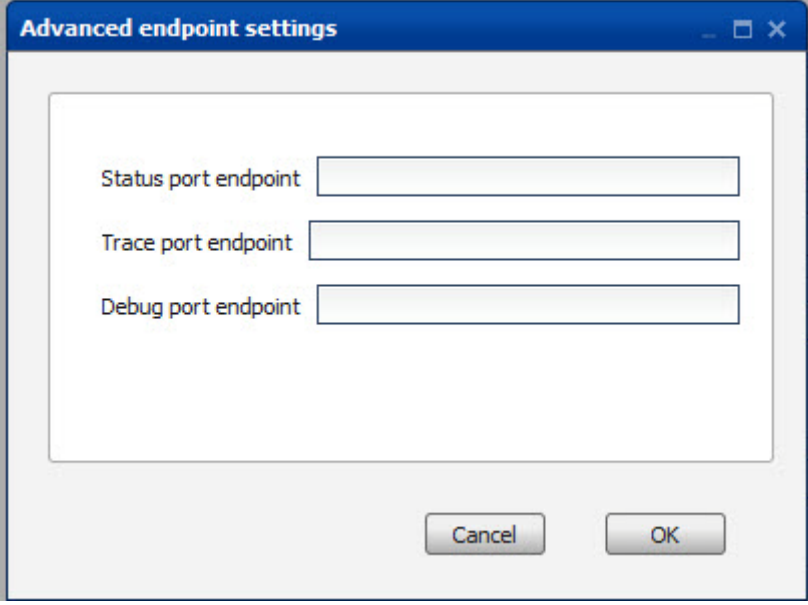
Enter the remote control endpoint. Also selection of Remote Control checkbox.

#### **A.5.6 Application Port**

Enter the application port endpoint.

### A.5.7 Advanced (Endpoint Settings)

Click the Advanced tab and the Advanced endpoint settings window will display as shown in [Figure A-6](#). Enter the advanced endpoint settings for Status port endpoint, Trace port endpoint, and Debug port endpoint.



The image shows a Windows-style dialog box titled "Advanced endpoint settings". It has a blue title bar with standard window controls (minimize, maximize, close). The main area is white and contains three text input fields, each preceded by a label: "Status port endpoint", "Trace port endpoint", and "Debug port endpoint". At the bottom right of the dialog, there are two buttons: "Cancel" and "OK".

**Figure A-6. RF-7800S\_USB - Advanced Endpoint Settings**

## A.6 AN/PRC-152

See [Figure A-7](#) for radio properties of AN/PRC-152.

**Figure A-7. Modify Radio Properties: AN/PRC-152**

### A.6.1 Transmit Timeout

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

### A.6.2 Retransmission Audio Delay Settings

Retransmit audio delay and operator audio delay should be set to at least **500** ms so that when the radio is set to CT, the first part of the transmission is not missed.

### A.6.3 Data Port Settings

The recommended Data port baud rate is **115200**, which is also default for the radio.

For the intercom to get the IP address from the radio when making a PPP connection, "noipdefault" should be entered in the **Options:** parameter window.

## A.6.4 Control Port Settings

The recommended Control port baud rate is **115200**.

### NOTE

The AN/PRC-152 does not support remote control over IP.

## A.7 RRC9200, RRC9210, RRC9500

See [Figure A-3](#) for radio properties of RRC9200, RRC9210, RRC9500.

**Modify properties of Radio**

**Port**

☒ Port 1 (J12)  
☐ Port 2 (J11)  
☐ Port 3 (J10)  
☐ Port 4 (J9)  
☐ Force

Name: RRC9200  
Model: RRC9200  
Central Unit: Harris\_Default  
☐ Differential

☒ **Transmit timeout**  
Timeout: 120 s  
First warning: 10 s  
Second warning: 5 s

☐ **Retransmission audio delay**  
Delay: 1000 ms

☐ **Operator audio delay**  
Delay: 1000 ms

**Data port**

Endpoint:  
Rate: 9600  
☐ Synchronous  
☐ RTS-CTS flow control  
☒ **PPP Connection**  
Local IP:  
Remote IP:  
Options:

**Control port**

Endpoint:  
Rate: 9600  
☐ **PPP Connection**  
Local IP:  
Remote IP:  
Options:  
☐ **Remote control**  
Connection: Serial

Delete Cancel OK

**Figure A-8. Modify Radio Properties: RRC9200, RRC9210, RRC9500**

### A.7.1 Transmit Timeout

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

### A.7.2 Retransmission Audio Delay Settings

Retransmit audio delay and operator audio delay settings are not applicable for RRC radios.

### A.7.3 Data Port Settings

The recommended Data port baud rate is **9600**.

### A.7.4 Control Port Settings

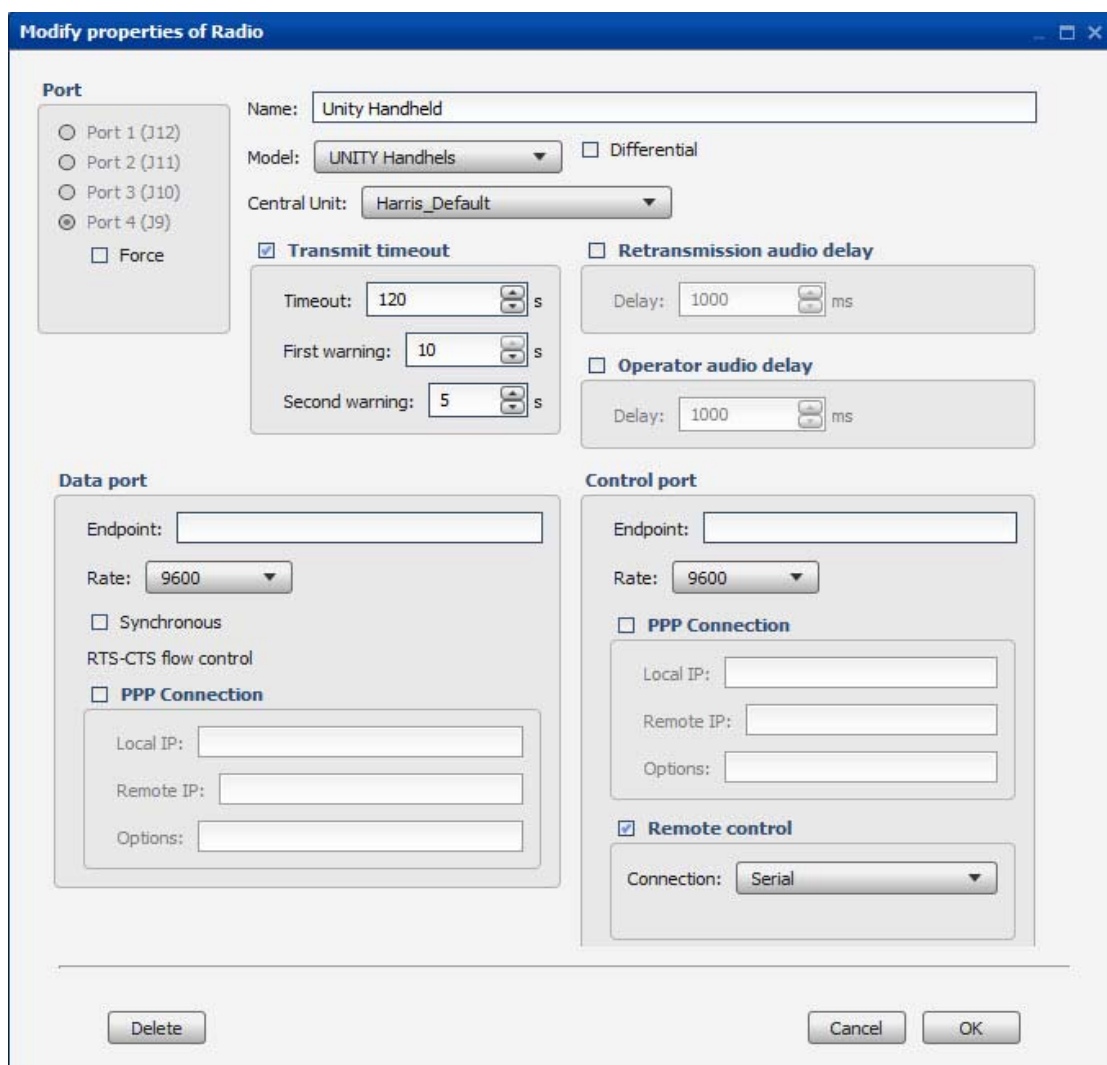
The recommended Control port baud rate is **9600**.

#### NOTE

The RRC radios do not support remote control over IP.

## A.8 UNITY HANDHELD, UNITY MOBILE

See [Figure A-3](#) for radio properties of Unity Handheld and Unity Mobile.



**Modify properties of Radio**

**Port**

Name:

Model:  ☐ Differential

Central Unit:

☐ Port 1 (J12)  
☐ Port 2 (J11)  
☐ Port 3 (J10)  
☒ Port 4 (J9)  
☐ Force

☒ **Transmit timeout**

Timeout:  s  
First warning:  s  
Second warning:  s

☐ **Retransmission audio delay**

Delay:  ms

☐ **Operator audio delay**

Delay:  ms

**Data port**

Endpoint:

Rate:

☐ Synchronous  
RTS-CTS flow control

☐ **PPP Connection**

Local IP:   
Remote IP:   
Options:

**Control port**

Endpoint:

Rate:

☐ **PPP Connection**

Local IP:   
Remote IP:   
Options:

☒ **Remote control**

Connection:

**Figure A-9. Modify Radio Properties: Unity Handheld and Unity Mobile**

### **A.8.1 Transmit Timeout**

Transmit timeout settings (if selected) in seconds for initial timeout, first warning and second warning (120, 10, 5 seconds respectively).

### **A.8.2 Retransmission Audio Delay Settings**

Retransmit audio delay and operator audio delay should be set to at least **500** ms.

### **A.8.3 Data Port Settings**

The recommended Data port baud rate is **115200**

### **A.8.4 Control Port Settings**

The recommended Control port baud rate is **9600**.

## **A.9 CONFIGURING SESSIONLESS AUDIO FOR RF-7800M-MP, AN/PRC-117G, AN/PRC-152A**

When configuring the intercom for sessionless RTP audio for the RF-7800M-MP, AN/PRC-117G, and AN/PRC-152A radios, the transmitting RTP port must be 5004, since this port is hard coded into all of the radios. Also, the radios only support sessionless RTP audio in certain waveforms. Consult the radio manuals to determine which waveforms support sessionless RTP audio and or Intercom Mode.

The receiving RTP port has to match what was configured in the Communications Planning Application (CPA) for the radio or what was entered in at the front panel of the radio. The IP address has to be the Ethernet IP address of the radio and not the wireless IP address of the radio. See [Figure A-10](#).



The screenshot shows the 'Configuration - Default\_RF-7800I-CU1XX\_Phase4.conf - RF-7800I Digital Intercom System Control Center' window. The 'Radios' tab is active, displaying a table with columns: Name, Type, Port, and Central Unit. An 'Add Radio' dialog box is open, allowing configuration for a new radio.

**Add Radio Dialog Box Fields:**

- Port:**
  - ☒ RTP port 1
  - ☐ RTP port 2
  - ☐ RTP port 3
  - ☐ RTP port 4
- Name:** New radio
- Model:** RF-7800M-MP\_RTP
- Central Unit:** Harris\_Default
- ☐ Differential
- ☒ **Transmit timeout**
  - Timeout: 120 s
  - First warning: 10 s
  - Second warning: 5 s
- ☐ **Retransmission audio delay**
  - Delay: 1000 ms
- ☐ **Operator audio delay**
  - Delay: 1000 ms
- IP address:** 192.168.2.1
- Transmitting RTP Port:** 5004
- ☐ **Remote control**
  - IP Address:
  - Port: 3333
- Receiving RTP Port:** 9050

Buttons: Cancel, OK

Figure A-10. Add Radio - RF-7800M-MP\_RTP

## A.10 FORWARDING GPS INFORMATION FROM RF-7800S TO AN IP ADDRESS

In the configuration window for the RF-7800S radio, the "Application port" is the port that Situational Awareness (SA) information from the radio is sent. To send the Situational Awareness information from the RF-7800S to an IP address, do the following:

- Enter an Endpoint name for the Application port for the RF-7800S.
- Go to **Network > Endpoints** and add a new endpoint by selecting the **Add** button.
- In the Add Endpoint window, enter a Name for the endpoint such as SA\_PC and then select the central unit that the endpoint will be configured for. See [Figure A-11](#).

The endpoint type is typically User Datagram Protocol (UDP) and the Destination Port is the port that the application is looking for the Situational Awareness data on. The Destination IP address is the IP address of the computer that is running the application that will use the Situational Awareness.

- Select **OK** to save the information entered.

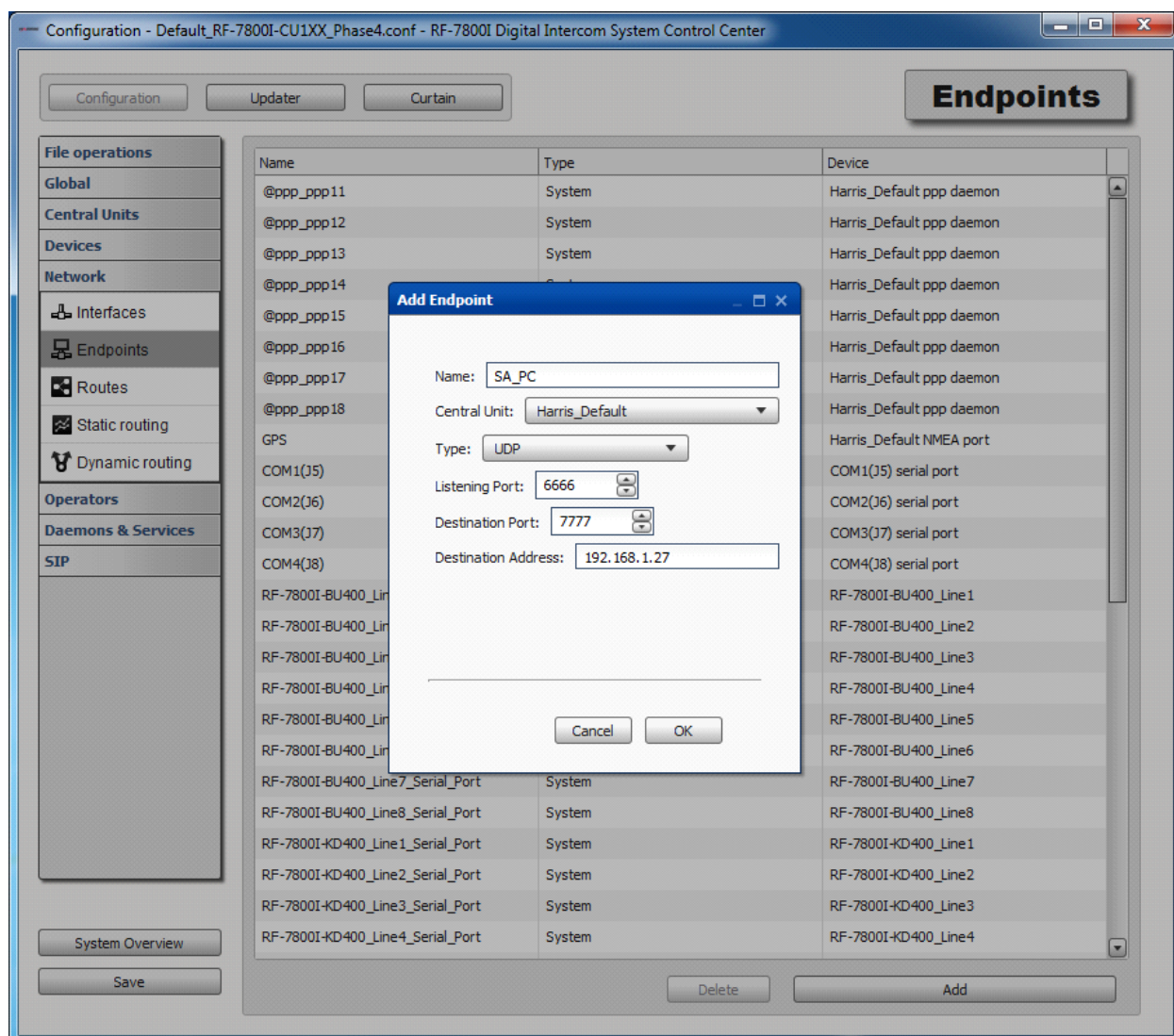
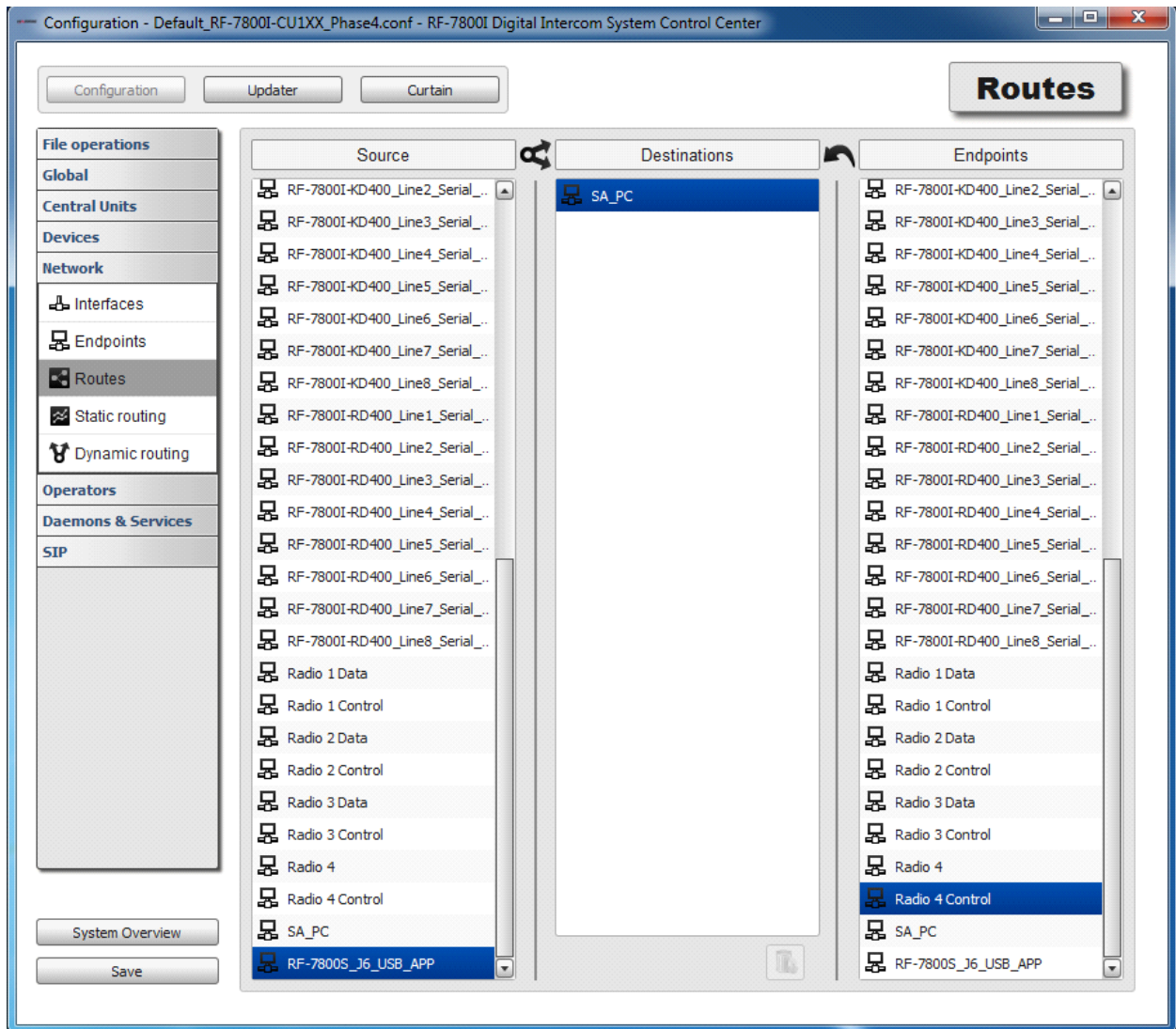


Figure A-11. RF-7800S - Add Endpoint

- e. Go to **Network > Routes** and in the Source column find and select the RF-7800S application port name that was entered previously. See [Figure A-12](#).
- f. In the Endpoints Column, find the name given to the UDP endpoint and drag it over to the Destinations Column.



**Figure A-12. RF-7800S - Network Routes**

- g. A route is then created between the RF-7800S application port and the UDP endpoint. To view the GPS data at the IP address of the PC, a software application such as Hercules SETUP utility can be used.

[Figure A-13](#) shows what needs to be configured in Hercules to view the GPS information from the SPR that is being sent to a PC IP address using UDP. The Module IP address would be the IP address of the PC running the Hercules software and the port has to be the same as the one configured for the UDP endpoint in the Central Unit.

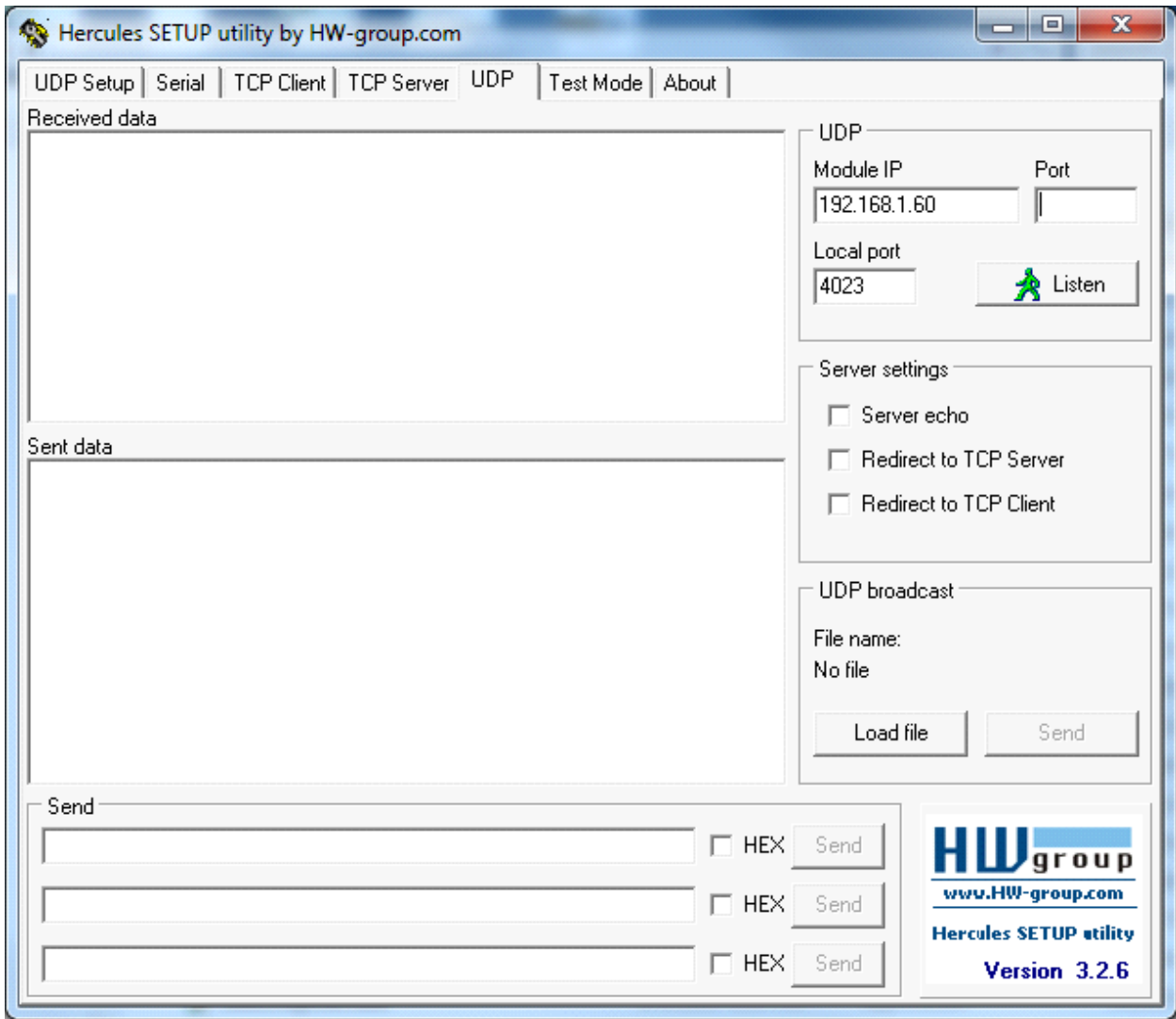


Figure A-13. Hercules Setup Utility

## APPENDIX B

### KEYPAD ICONS

Figure B-1 shows recommended keypad icons (highlighted) for use. Table B-1 lists the functionality of these icons.

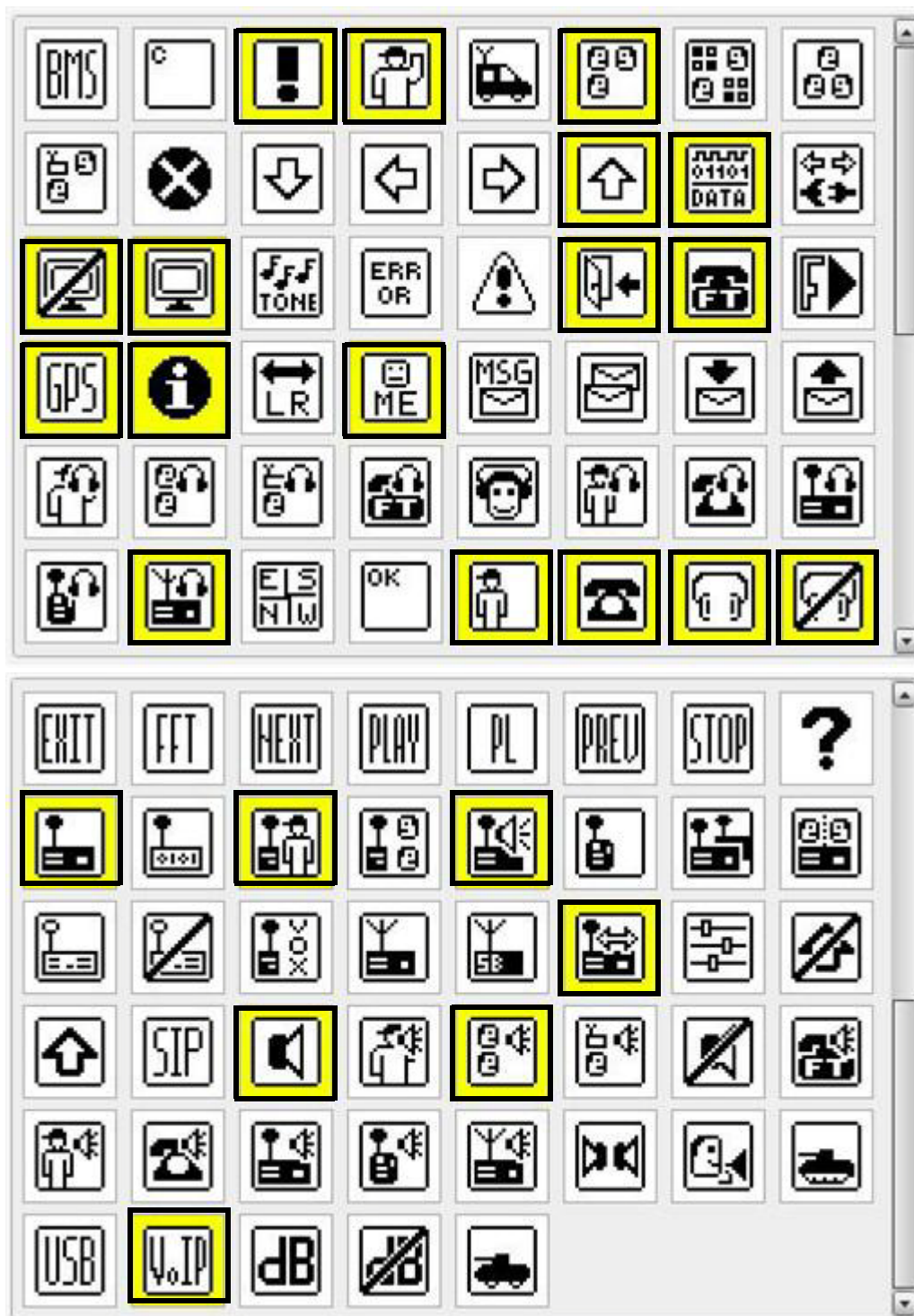











Figure B-1. Recommended Keypad Display Icons














## B.1 FUNCTIONALITY OF RECOMMENDED KEYPAD ICONS

Refer to [Table B-1](#) for functional descriptions of recommended keypad icons. To create a new icon, refer to [Paragraph 3.3.9](#).





**Table B-1. Recommended Keypad Icons - Functional Descriptions**

Icon	Function
	Conference
	Speaker Monitor Conference
	Radio Submenu
	Monitor Radio
	Radio Retransmission Submenu
	Connect Users to Radio Submenu
	Return to Main Menu
	Shift Function
	Speaker Submenu

**Table B-1. Recommended Keypad Icons - Functional Descriptions (Continued)**

	Speaker Monitors Radio
	Connect to Field Telephone
	Connect to Private Branch Exchange (PBX) phone
	Voice Over Internet Protocol (VoIP) Call
	Connect to Crew Stations Submenu
	Connect User to Crew Station Headset Port
	Data
	Night Vision Selection
	Night Vision Enabled
	Information Submenu
	System Information

**Table B-1. Recommended Keypad Icons - Functional Descriptions (Continued)**

	Show Global Positioning System (GPS)
	Crew Station Information
	Mute Intercom
	Intercom Muted



**GLOSSARY****-A-**

<b>AN/PRC</b>	Army/Navy Portable Radio Communication (Component)
<b>ANR</b>	Active Noise reduction
<b>ASCII</b>	American Standard Code for Information Interchange

**-B-**

<b>bit</b>	A binary digit that can have a value of 0 or 1.
<b>bmp</b>	Bit mapped picture (image file)
<b>BU</b>	Basic Unit

**-C-**

<b>CD</b>	Compact Disk
<b>CPA</b>	Communications Planning Application
<b>CPU</b>	Central Processing Unit
<b>CT</b>	Cipher Text (crypto radio mode)
<b>CTS</b>	Clear-To-Send
<b>CU</b>	Central Unit
<b>CUB</b>	Central Unit Bridging

**-D-**

<b>Daemon</b>	Program that runs as a background process.
<b>dB</b>	Decibel, power increase or decrease.
<b>DC</b>	Direct Current
<b>DCC</b>	Digital Intercom System Control Center
<b>Dev</b>	Device
<b>DIS, dis</b>	Digital Intercom System
<b>DTMF</b>	Dual Tone Multi Frequency

**-E-****-F-**

<b>FPGA</b>	Field Programmable Gate Array
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**-G-**

<b>GPS</b>	Global Positioning System
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**-H-**

<b>HH</b>	HandHeld radio
<b>HRS</b>	Harris Radio Server

**-I-**

<b>ID</b>	Identification
<b>IP</b>	Internet Protocol
<b>ITAR</b>	International Traffic In Arms Regulations

**-J-**

<b>jpg (JPEG)</b>	Joint Photograph Experts Group (image file)
-------------------	---

**-K-**

<b>kbps</b>	One thousand bits per second
<b>KD</b>	Keypad Display (RF-7800I-KD unit)

**-L-**

**-M-**

<b>MAC</b>	Media Access Control
<b>MGRS</b>	Military Grid Reference System
<b>MP</b>	ManPack radio
<b>ms</b>	Milli-second or $10^{-3}$ seconds

**-N-**

<b>NMEA</b>	National Marine Electronics Association
-------------	---

**-O-**

<b>OS</b>	Operating System
<b>OSPF</b>	Open Shortest Path First

**-P-**

<b>PBX</b>	Private Branch Exchange
<b>PABX</b>	Private Automatic Branch Exchange
<b>PC</b>	Personal Computer
<b>png</b>	Portable network graphics (image file)
<b>PPP</b>	Point-to-Point Protocol
<b>PPPD</b>	Point-to-Point Protocol Daemon
<b>PTT</b>	Push-To-Talk

**-Q-****-R-**

<b>RD</b>	Rotary Dial
<b>RF</b>	Radio Frequency
<b>RIP</b>	Routing Information Protocol
<b>RIPng</b>	Routing Information Protocol next generation
<b>RTP</b>	Real-time Transfer Protocol
<b>RTS</b>	Request-To-Send

**-S-**

<b>s</b>	Seconds
<b>SA</b>	Situational Awareness
<b>SIP</b>	Session Initiation Protocol
<b>SKA</b>	Soft Keypad Application
<b>SNMP</b>	Simple Network Management Protocol

**-T-**

<b>TA</b>	Telephone Alarm
<b>TAC CHAT</b>	Tactical Chat
<b>TCP</b>	Transmission Control Protocol
<b>TTL</b>	Time-To-Live (related to life of data packets)

**-U-**

<b>UDP</b>	User Datagram Protocol
<b>USB</b>	Universal Serial Bus
<b>UTM</b>	Universal Transverse Mercator

**-V-**

<b>V</b>	Volt(s), voltage
<b>VAA</b>	Vehicle Amplifier Adapter
<b>VoIP</b>	Voice Over Internet Protocol
<b>VOX</b>	Voice Operated Transmit

**-W-**

**-X-**

**-Y-**

**YAML**

YAML Ain't Markup Language - an alternative to Extensible Markup Language (XML). Known previously in early development as Yet Another Markup Language.

**-Z-**





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**assuredcommunications™**



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