TELEX

RADIO DISPATCH PRODUCTS

MTRBi
Installation Manual

up to and including version 1.000

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No liability will be accepted for damages directly or indirectly arising from the use of our materials or from any other causes. Our liability shall be expressly limited to replacement or repair of defective materials.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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CHAPTER 1

Introduction

Overview

The **MTRBi** MOTORBO allows C-Soft consoles to communicate with and control a MOTOTRBO** Professional Digital Two-Way Radio System using an IP-224. The MTRBi connects directly to an IP-224 which transfers data between the MOTOTRBO radio and the C-Soft console. The MTRBi supports MOTOTRBO mobile radios.

Hardware Requirements

The MTRBi interfaces with the following hardware:

- MOTOTRBO Mobile Radio
- IP-224 Adapter Panel

REFERENCE: For more information see the IP-224 Technical Manual, (P/N F01U218562).

Software Requirements

The MTRBi requires the following software:

- C-Soft Software version 5.30 or later
- IP-224 Software version 1.000 or later
- MOTOTRBO Customer Programming Software

**See “Copyright Notice” on page 2.

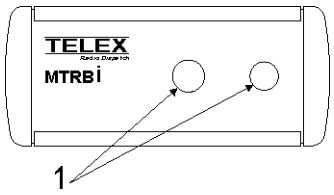
Features

- Receive Audio
- Transmit Audio (Private and Group Calls)
- Zone and Channel Changing
- Transmit Text Message
- Quick Text
- Radio Check
- Radio Disable
- Radio Enable
- Remote Monitor
- Call Alert
- GPS Read
- Radio GPS Location Plotted on Google Earth
- Receive Caller ID
- Call History
- Crosspatch
- Up to 10 Parallel C-Soft Consoles per one (1) MTRBi line.

MTRBi

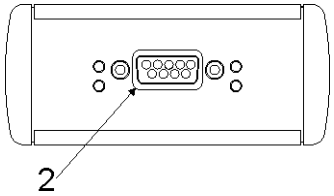
Front Panel

1. **Fixed Cable Connection** - Connects the MTRBi to the MOTOTRBO radio.



Back Panel

2. **DB-9 Connection** - Connects the MTRBi to the IP-224.



Specifications

Power Requirements	10–15Vdc, 70mA, Rated Voltage 12Vdc
Audio Distortion	0.2% at 1Khz
Audio Frequency Response	50Hz–20kHz with Load Resistor 600 Ohm
Operating Temperature	-20°C to +60°C/-4°F to 140°F
Dimensions	3.95 “ (100mm) Wide x 3.39” (86mm) Deep x 1.46” (37mm) High
Actual Weight	.45lbs (220g)
Shipping Weight	1.63lbs (740g)
Shipping Dimensions	11.89” (302mm) Wide x 9.92” (252mm) Deep x 3.23” (82mm) High
USB Version	1.1 and 2.0
Storage Conditions	-40°C to +85C/-40°F to 185°F, Humidity 100%
Operating Conditions	-20°C to +60°C/-4°F to 140°F, Humidity 95%

TABLE 1. DB-9 Connector Specifications

Pin Function	Parameter	Condition	Specifications
RxD and TxD[a]	Output Voltage Swing	-	±5V–±9V
CSQ/COR-PL/Grp[a]	Output Voltage	-	V_{ol} 0V, V_{oh} +5V

a. For more information, see “DB-9 Cable” on page 12.

TABLE 2. 26-Pin Connector Specifications

Pin Function	Parameter	Condition	Specifications
TX Audio Input (Analog)[a]	Microphone Signal Voltage Producing 60% Modulation	1kHz Tone, Low Impedance Voltage Source measurement	70mVrms–90mVrms, 80mVrms Typical
RX Audio Output (Analog)[a]	Level in Default Mode	600 Ohm Load, 100–3400Hz, -20dBm0 Receive Level -10dBV Nominal Consumer Line Level	295mVrms–370mVrms, 330mVrms Typical

a.For more information, see “26-Pin IDC Cable” on page 13.

CHAPTER 2

Installation and Setup

WARNING: Do not open the unit. No user serviceable parts are contained within. Bosch is not be responsible for damage. If the unit is opened, the warranty may be voided. For troubleshooting steps, contact the technical support center. See “Contact Information” on page 2.

Installation

IMPORTANT:

- We recommend the installation is completed while offline and before installing in a live system.
- To save time, always configure the Motorola[1] CPS software before configuring IP-224 and C-Soft.

To **install your MTRBi:**

Step 1 Connect the MTRBi to the **MOTOTRBO Professional Digital Two-Way Radio** and **the IP-224**. See “MTRBi Connections” on page 14.

Step 2 Configure the **MOTOTRBO** software. See.“MOTOTRBO Configuration” on page 14.

Step 3 Configure the **IP-224** software for MTRBi. See “IP-224 Software Configuration” on page 28.

Step 4 Configure a **MOTOTRBO system** in C-Soft. See the C-Soft Technical Manual (P/N F.01U.218.561).

Step 5 Configure **C-Soft** for MTRBi. See “System Reset” on page 45.

Step 6 Mount the **MTRBi**. See “MTRBi Mounting” on page 44.

Step 7 Reset the **system**. See “System Reset” on page 45.

Step 8 Test the MTRBi **connection**. See “Test the MOTOTRBO to C-Soft Communication Status” on page 45.

1. See“Copyright Notice” on page 2

MTRBi Connections

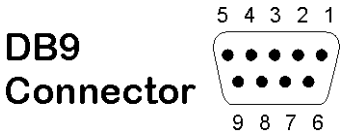
DB-9 Cable

A DB-9 cable interface to connect the MTRBi to the IP-224's DB-37 port is provided with the MTRBi. The DB-9 port is located on the back of the MTRBi, while the DB-37 port is located on the back of the IP-224.

The **DB-9 Connector** pin-outs are shown in Table 3 on page 12.

TABLE 3. DB-9 Connector Pin-outs

Pin	Pin Name	Function
1	RX Audio	Receive Audio from Radio (Output)
2	RXD	Data from Control Device (Input)
3	TXD	Data to Control Device (Input)
4	TX Audio	Transmit Audio to Radio (Microphone Input)
5	Gnd	Ground
6	CSQ/COR—PL/Grp	Signal Quality (TTL, Output)
7	-	Not Used
8	-	Not Used
9	Audio Gnd	Extra Ground for Audio



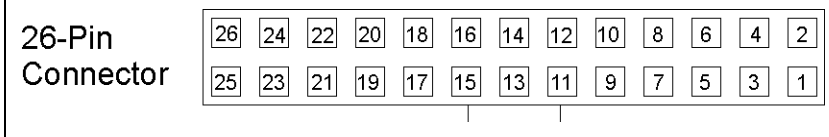
26-Pin IDC Cable

A **26-pin IDC** (Insulation Displacement Connector) **cable**, configured for Motorola **MAP** (Mobile Application) use, is fixed to the front of the MTRBi. This cable is used to connect the MTRBi to the MOTOTRBO radio allowing access to MAP functions programmed in the MOTOTRBO radio.

The 26-pin pin-outs are shown in Table 4 on page 13.

TABLE 4. 26-Pin Connector Pin-outs

Pin	Pin Name	Function
1	USB+	Data (+)
2	USB-	Data (-)
3	VBus	
4	USB Gnd	Ground for USB
5	-	-
6	-	-
7	SW B+	Power Supply
8	Gnd	Ground
9	-	-
10	-	-
11	TX Audio	Transmit Audio (Microphone Input)
12	Audio Gnd	Ground or Audio
13	-	-
14	RX Audio	Receive Audio (Output)
15	-	-
16	Gnd	Ground
17	GPIO_1	PTT (Input)
18	GPIO Gnd	Ground for GPIO (PTT, PL/Grp, CSQ/COR)
19	GPIO_2	PL/Grp (Output)
20	GPIO_6	CSQ/COR for Analog Channel (Output)
21	-	Reserve
22	-	Reserve
23	Emergency	Emergency Switch (Input)
24	-	Reserve
25	Ignition	Ignition Sence (Input)
26	-	Reserve



MTRBi Connections

The **MTRBi cables** are used to connect an IP-224 and MOTOTRBO mobile radio to the unit.

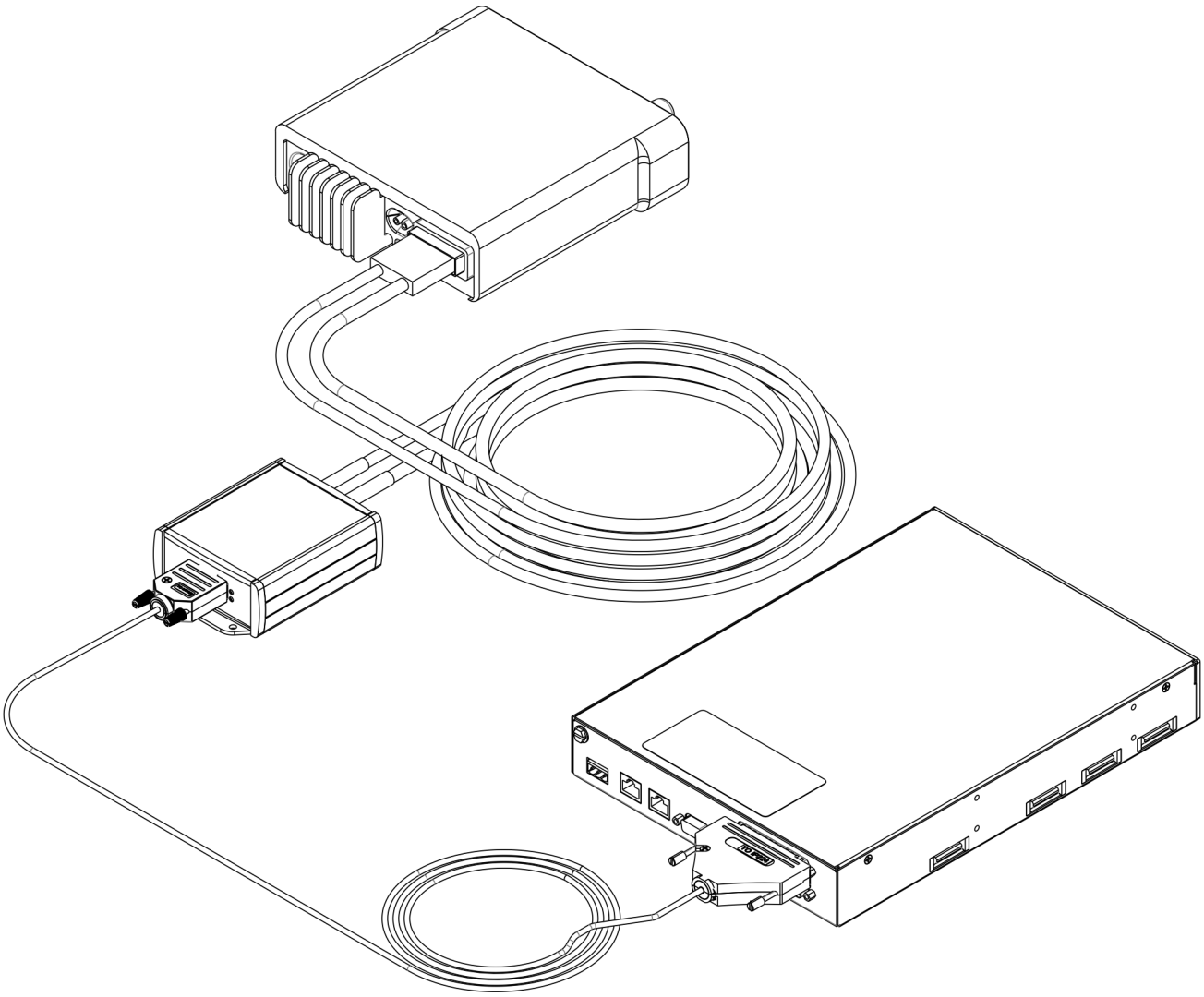


FIGURE 1. MTRBi Connections

MOTOTRBO Configuration

IMPORTANT: The following MOTOTRBO configuration instructions are provided for your convenience and do not replace instructions provided by Motorola's technical documentation. The Motorola software/documentation is subject to change without prior notice.

The MOTOTRBO **CPS** (Customer Programming Software) is used to configure mobile or portable radio(s) to interface with a MTRBi. All fields that affect the MTRBi, required and optional, are discussed. Your specific installation determines other CPS settings.

REFERENCE: For more information, see Motorola's technical documentation.

Get Started

Before you start the configuration process, the MOTOTRBO CPS must be set to expert view.

To **begin the MOTOTRBO configuration**, do the following:

> From the MOTOTRBO CPS menu bar, select **View|Expert** from the menu bar.
The MOTOTRBO software is ready to configure the MOTOTRBO radio(s).

General Settings

The **General Settings** window, shown in Figure 2, is used to configure the Radio's ID and activate GPS. These fields are required for a successful mobile or portable radio interface to the MTRBi. Other settings may be required for your specific installation.

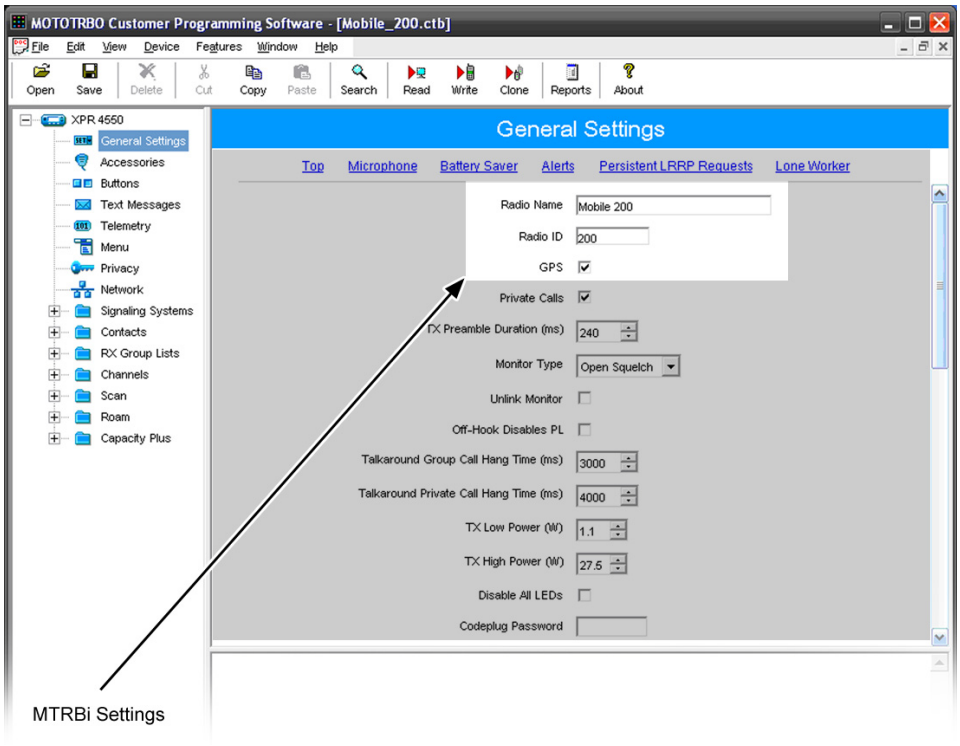


FIGURE 2. General Settings Window—MOTOTRBO

To **configure the radio's ID**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **General Settings**.
The General Settings window appears.
2. In the Radio Name field, enter the **radio's name** (e.g Mobile 200).
3. In the Radio ID field enter the **radio's ID number** (e.g. 200).
4. If the mobile radio is equipped with GPS receivers, select the **GPS** check box to enable the GPS function.

Accessories Window

The **Accessories** window, shown in Figure 3, is used to configure the cable type when a mobile radio is connected. This field is required for a successful mobile radio interface to the MTRBi. Other settings may be required for your specific installation.

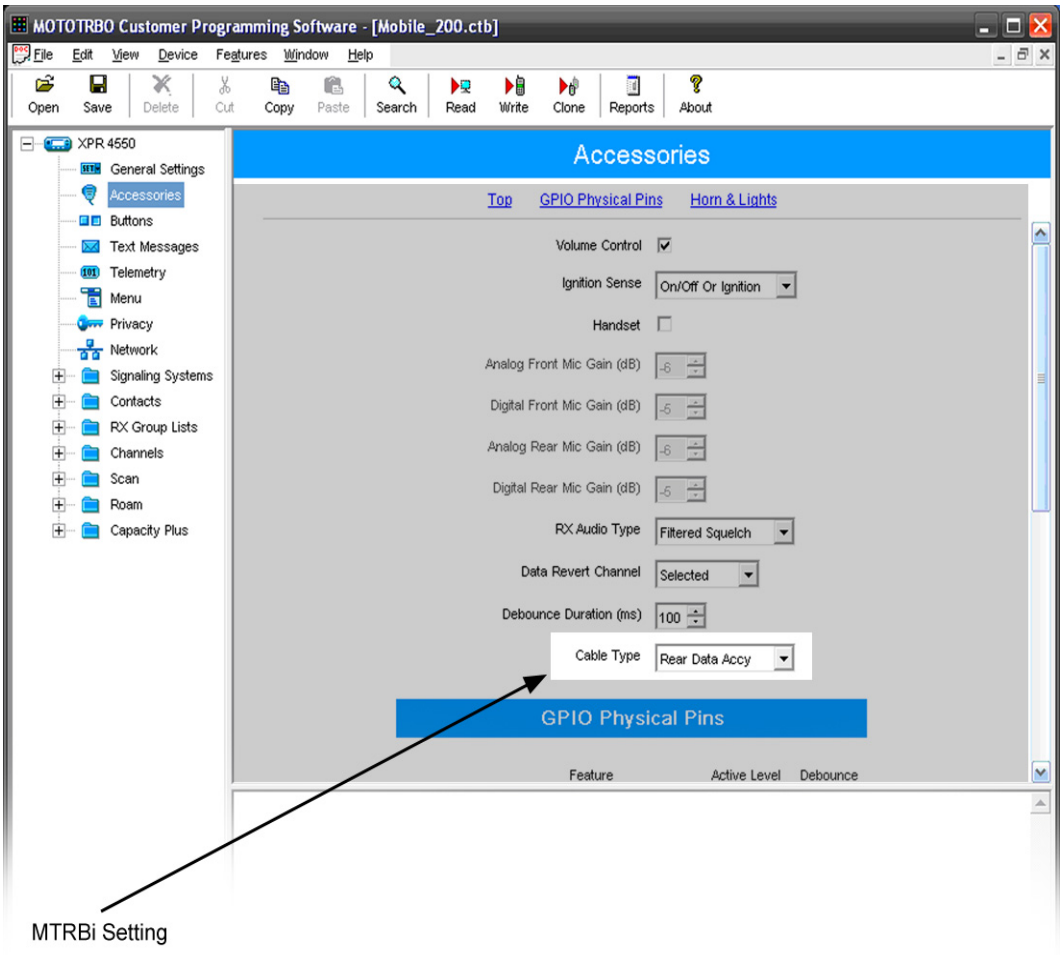


FIGURE 3. Accessories Window—MOTOTRBO

To **configure the cable type**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Accessories**.
   The Accessories window appears.
2. If the radio is a mobile type, from the Cable Type drop down menu, select **Rear Data Accy** for mobile radios.
   The radio operates as a USB device for non-IP communication. The microphone and speaker are muted.

   NOTE: The factory setting for the cable type is typically Motorola.

Accessories—GPIO Physical Pins Window

The **GPIO Physical Pins** window, shown in Figure 4, is used to configure the pins for access to MTRBi features. These fields are required for a successful mobile radio interface to the MTRBi. Other settings may be required for your specific installation.

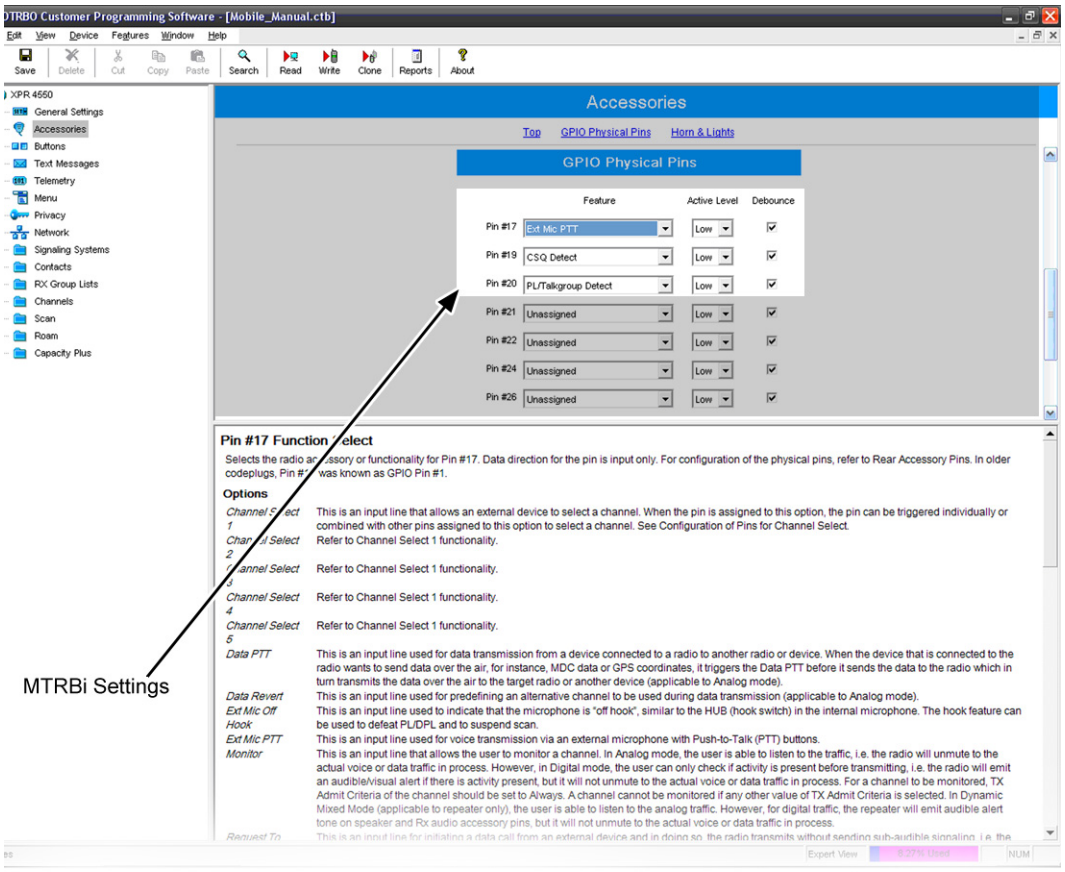


FIGURE 4. Accessories, GPIO Physical Pins Window—MOTOTRBO

To **configure the pins for MTRBi use**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Accessories**.
   The Accessories window appears.
2. Using the scroll bar, scroll to the **GPIO Pins** section.
3. For Pin #17
   a. From the Feature drop down menu, select **Ext Mic PTT**.
   b. From the Active Level drop down menu, select **Low**.
   c. Select the **Debounce** check box.
4. For Pin #19
   a. From the Feature drop down menu, select **CSQ Detect**.
   b. From the Active Level drop down menu, select **Low**.
   c. Select the **Debounce** check box.
5. For Pin #20
   a. From the Feature drop down menu, select **PL/Talkgroup Detect**.
   b. From the Active Level drop down menu, select **Low**.
   c. Select the **Debounce** check box.

Network Window

The **Network** window, shown in Figure 5, is used to configure the **CAI** (Common Air Interface) and **UDP** (User Diagram Protocol) settings. These fields are required for a successful mobile or portable radio interface to the MTRBi. Other settings may be required for your specific installation.

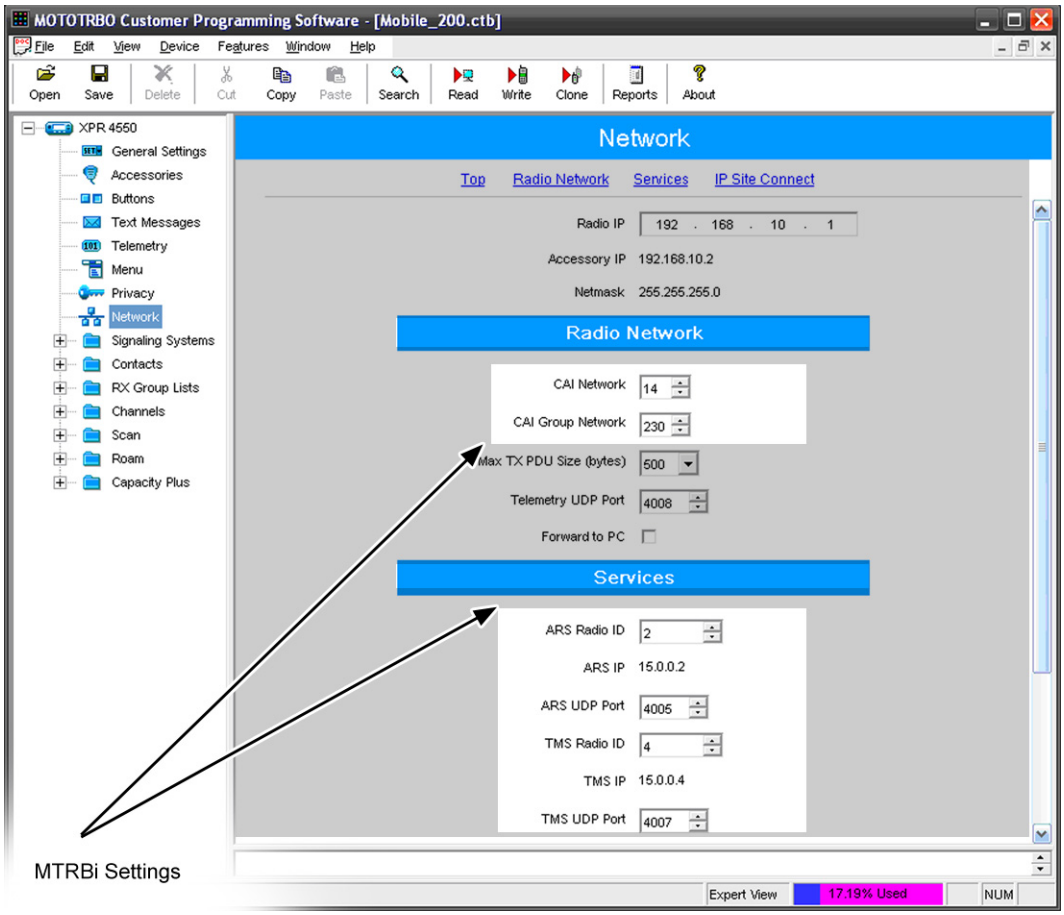


FIGURE 5. Network Window

To **configure the radio's CAI network and CAI group network**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Network**.
   The Network window appears.
2. From the CAI Network drop down menu, select a **CAI Network**[1] for the MOTOTRBO system.
3. From the CAI Group Network drop down menu, select a **CAI Network Group**[1] for the MOTOTRBO system.
4. From the Telemetry UDP Port drop down menu, select **4008**.
5. From the ARS UDP Port drop down menu, select **4005**.
6. From the TMS UDP Port drop down menu, select **4007**.
   Network communication ports are configured.

EXAMPLE: The CAI Network and CAI Group Network fields on the MOTOTRBO Setup page in C-Soft are 14 and 230 respectively. See Figure 5.

1. CAI network values must match the CAI settings for all MOTOTRBO radios in the system.

Signaling Systems Window

The **Signaling Systems** window, shown in Figure 6, is used to configure and monitor commands. These fields are optional for a mobile or portable radio interfacing with an MTRBi Other settings may be required for your specific installation.

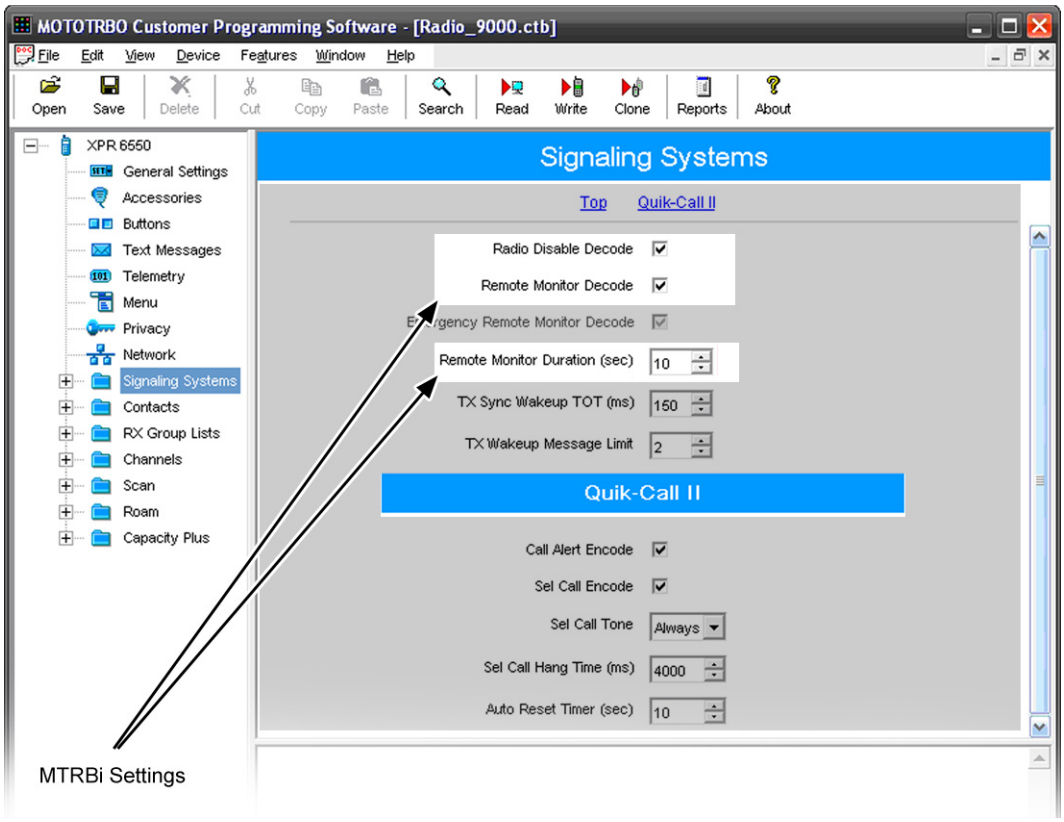


FIGURE 6. Signaling Systems—MOTOTRBO

To **allow radio disable and configure monitoring**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Signaling Systems.**
   The Signaling Systems window appears.
2. Select the **Radio Disable Decode** check box.

   NOTE: This enables the radio to receive and process a disable command sent from another radio. It is useful in the case of a lost or stolen radio. When applied all channels on the radio are disabled.
3. Select the **Remote Monitor Decode** check box.

   NOTE: This enables the radio to receive and process a remote monitor command sent from another radio.
4. From the Remote Monitor Duration spin box, select a **duration**, in seconds, for the monitor function.

   NOTE: The receiving radio activates its microphone and transmitter for the duration specified in the Remote Monitor Duration field. The Remote Monitor Decode check box must be selected to activate this feature.

Channels Window

The **Channels** window, shown in Figure 7, is used to configure a scan list and enable the **ARS** (Automatic Registration Services). Selecting the ARS check box is required to enable a mobile or portable radio with GPS or text messaging capabilities to function properly with an MTRBi. Scan control is optional for a mobile or portable radio. Other settings may be required for your specific installation.

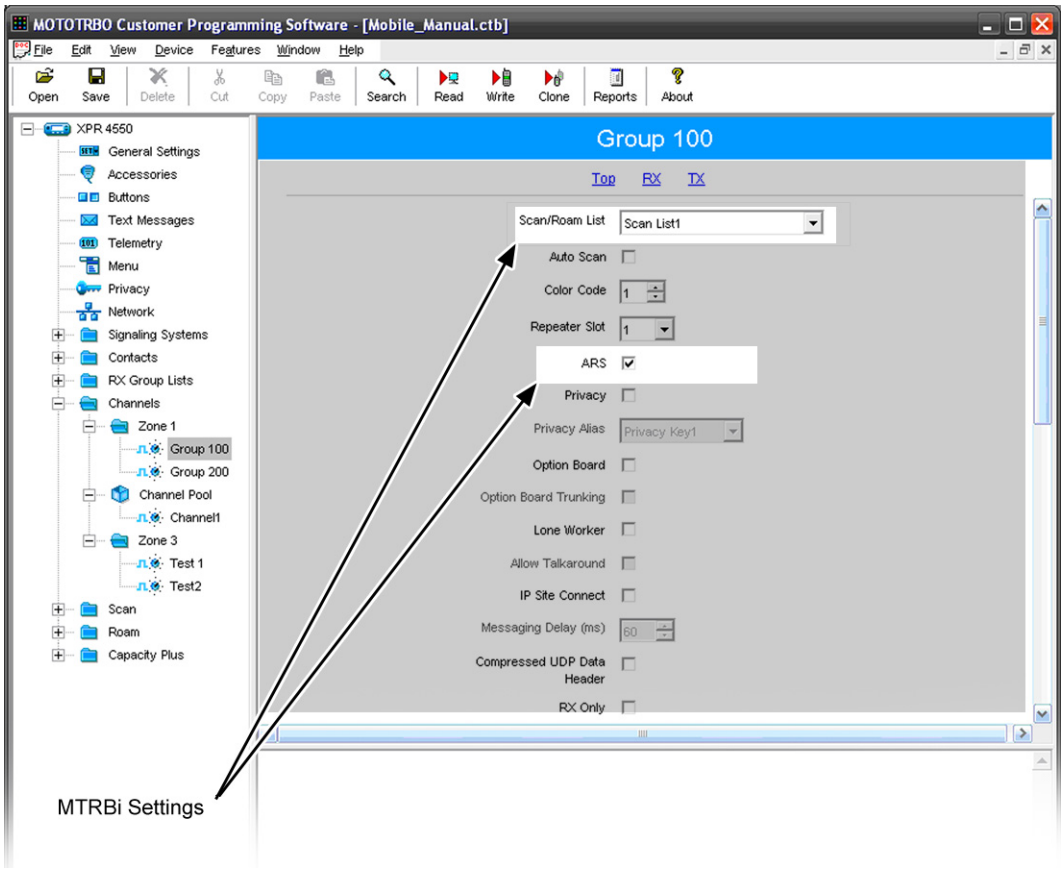


FIGURE 7. Channels Window—MOTOTRBO

To **enable GPS or text messaging**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Channels**.
2. From the navigation pane, select the **zone folder** you created (i.e. zone 1).
3. From the navigation pane, select the **scan list** folder you created (i.e. Group 100).
4. If the mobile radio is equipped with GPS or text messaging receivers, select the **ARS** check box.

Menu Window

The **Menu** window, shown in Figure 8, is used to configure the MOTOTRBO radio's display set up. The settings on this window are optional for a mobile or portable radio interfacing with an MTRBi.

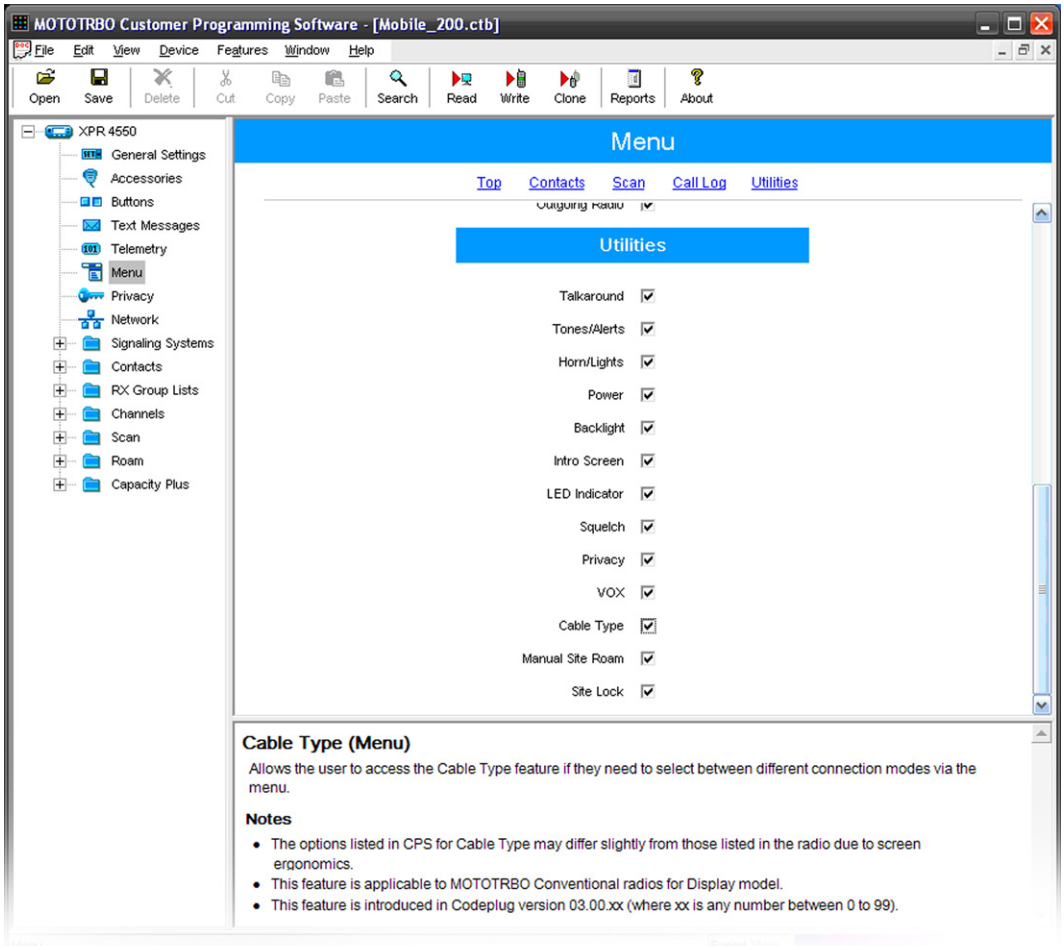


FIGURE 8. Menu Window—MOTOTRBO

To **configure the radio to display information**, do the following:

NOTE: Use this setup for display model mobile radios.

1. From the MOTOTRBO CPS navigation pane, select **Utilities**.
   The Utilities window appears.
2. Using the side scroll bar, scroll to the **Utilities** section.
   The Utilities section appears.
3. In the Utilities group box section, select the desired **Utilities** check boxes (optional).
   The radio is configured to display MTRBi information.
   - Talk around
   - Tones/Alerts
   - Horn/Lights
   - Power
   - Backlight
   - Intro Screen
   - LED Indicator
   - Squelch
   - Privacy
   - VOX
   - Cable Type
   - Manual Site Roam
   - Site Lock

Sys 1 Window

The **Sys1** window, shown in Figure 9, is used to configure a digital emergency. The settings on this window are optional for a mobile or portable radio interfacing with an MTRBi.

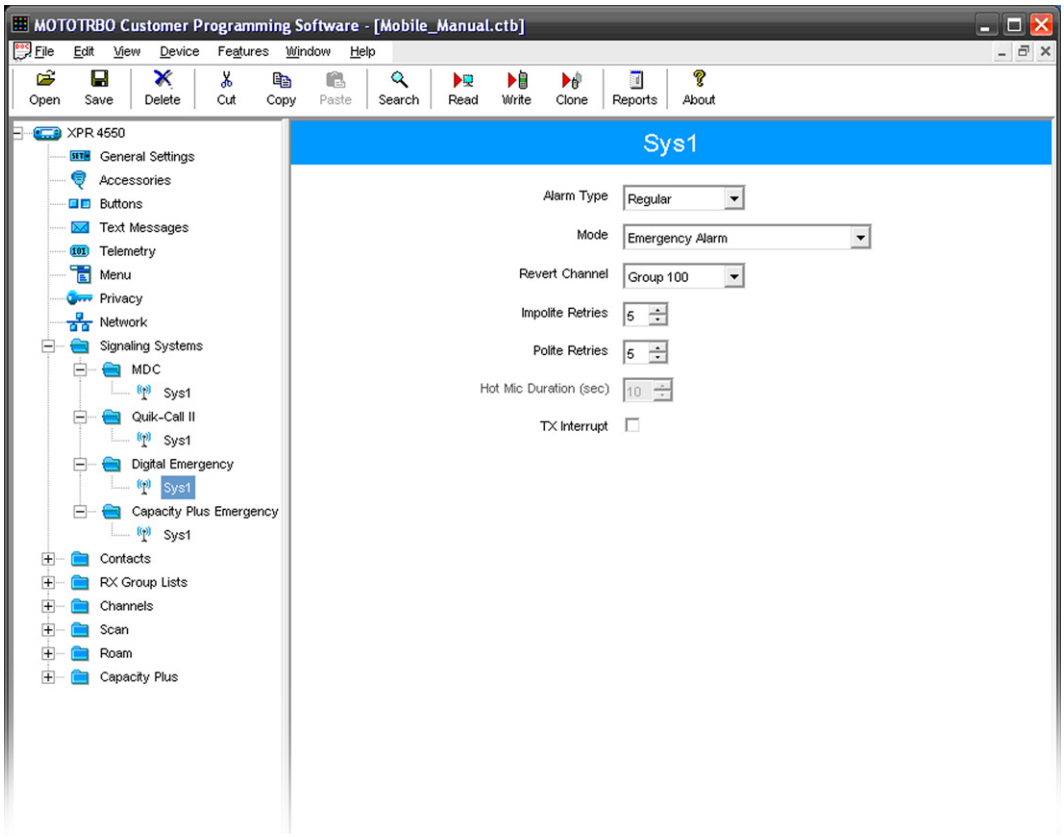


FIGURE 9. Sys 1 Window—Signaling Systems; Digital Emergency Example, MOTOTRBO

To **configure an emergency**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Signaling Systems|Digital Emergency|Sys 1**.
   The Sys 1 window appears.
2. From the Alarm Type drop down menu, select an **alarm type** (i.e. Regular).
3. From the Mode drop down menu, select an **Alarm** (i.e. Emergency Alarm).
4. From the Revert Channel drop down menu, select a **channel** (i.e. Group 100).
5. From the Impolite Tries spin box, select a **quantity** for impolite tries (i.e. 5).
6. From the Polite Tries spin box, select a **quantity** for polite tries (i.e. 5).
7. Clear the **TX Interrupt** check box.
   The Emergency alarm is configured.

REFERENCE: For more information about the Hot Mic Disable spin box, see Motorola's technical documentation.

Contacts Window

The **Contacts** window, shown in Figure 10, is used to configure group calls to be triggered by C-Soft. For example, if a Group ID of 300 is set up in C-Soft, but not in the MOTOTRBO CPS, then the group call does not work in C-Soft Runtime. The settings on this window are optional for a mobile or portable radio interfacing with an MTRBi.

NOTE: The radio's unit ID and group ID can not be read from the C-soft console. The unit and group IDs must be entered in C-Soft manually. We recommend the IDs are entered in C-Soft before connecting to a live system.

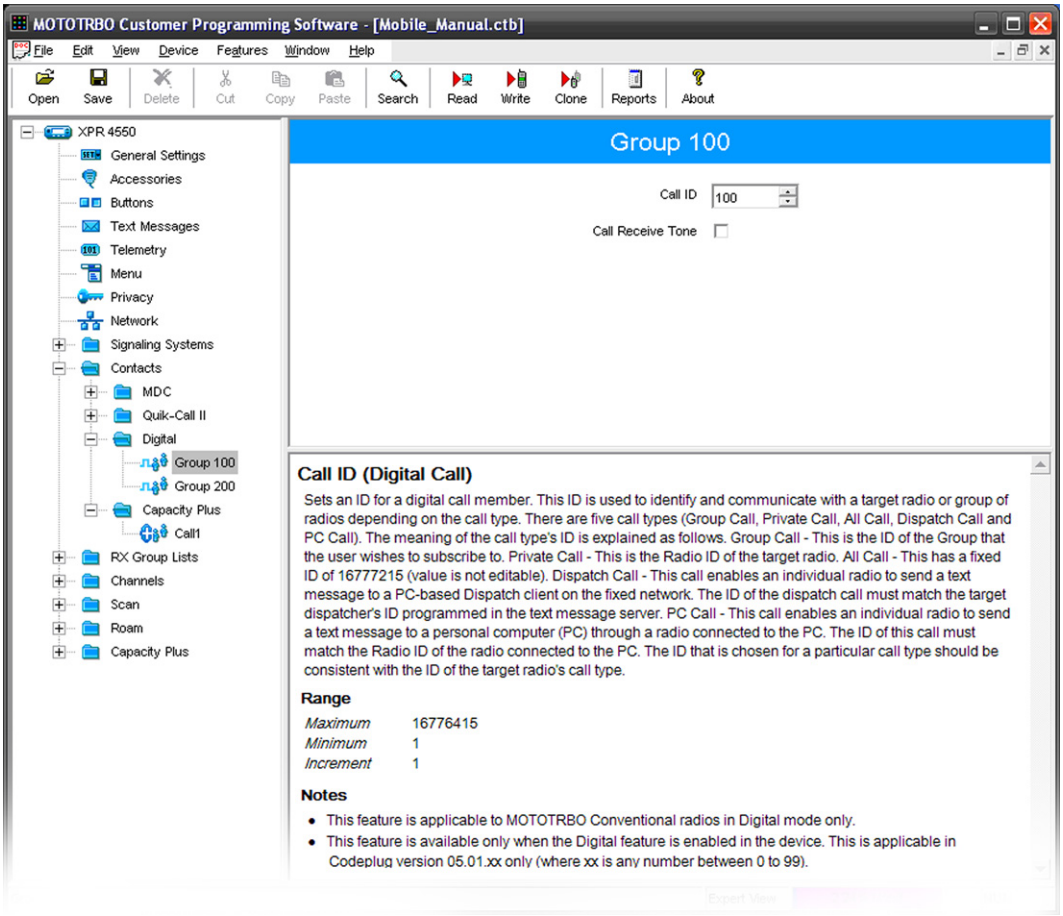


FIGURE 10. Digital Contacts Window, Call ID—MOTOTRBO

To **define a digital call in the system**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Contacts|Digital**.
2. From the left navigation bar, select the **digital call folder** you created (i.e. Group 100).
3. From the Call ID drop down menu, select the **group ID** to assign to the system (i.e. 100).

NOTE:

- The call (group) ID must also be configured in C-Soft. This is accomplished in the Group ID window.
- Group, Private, All, Dispatch, and PC calls can be added to the Digital folder.

REFERENCE:

- For more information, see Motorola's technical documentation.
- For more information, see the C-Soft Technical Manual (P/N F.01U.218.561).

RX Group List Window

The **RX Group Lists** window, shown in Figure 11, is used to configure the receiver group list. The settings on this window are optional for a mobile or portable radio interfacing with an MTRBi.

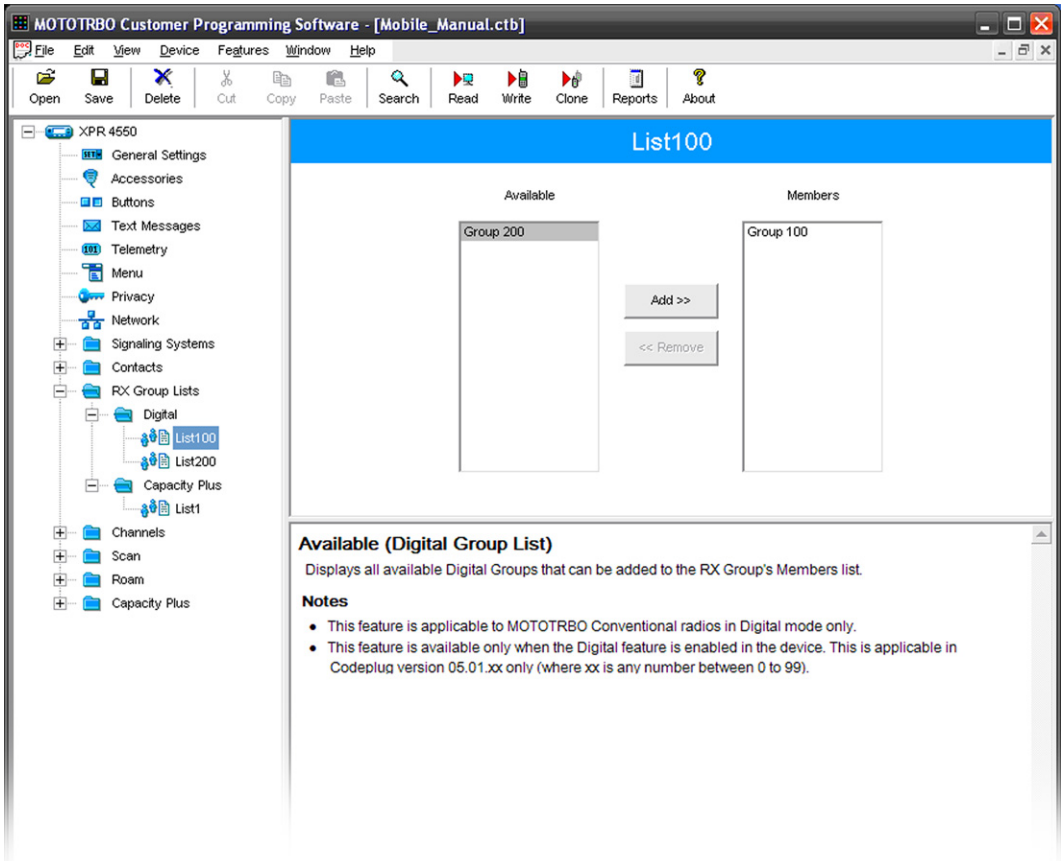


FIGURE 11. RX Group List Window—Receiver Group List Example, MOTOTRBO

To **configure RX group lists**, do the following:

1. From the left navigation pane, expand the **RX Group Lists folder**.
2. Right-click the **Digital** folder.
   A flyout menu appears.
3. Click **Add|RX Groups**.
   The RX group list is added to the Digital folder.

Channels Window

The **Channels** window, shown in Figure 12, is used to configure the acknowledgement channel for digital emergency calls. At least one (1) acknowledgement channel must be configured in this window to send digital emergency calls.

NOTE: The settings on this window are optional for a mobile or portable radio interfacing with an MTRBi. Other settings may be required for your specific installation.

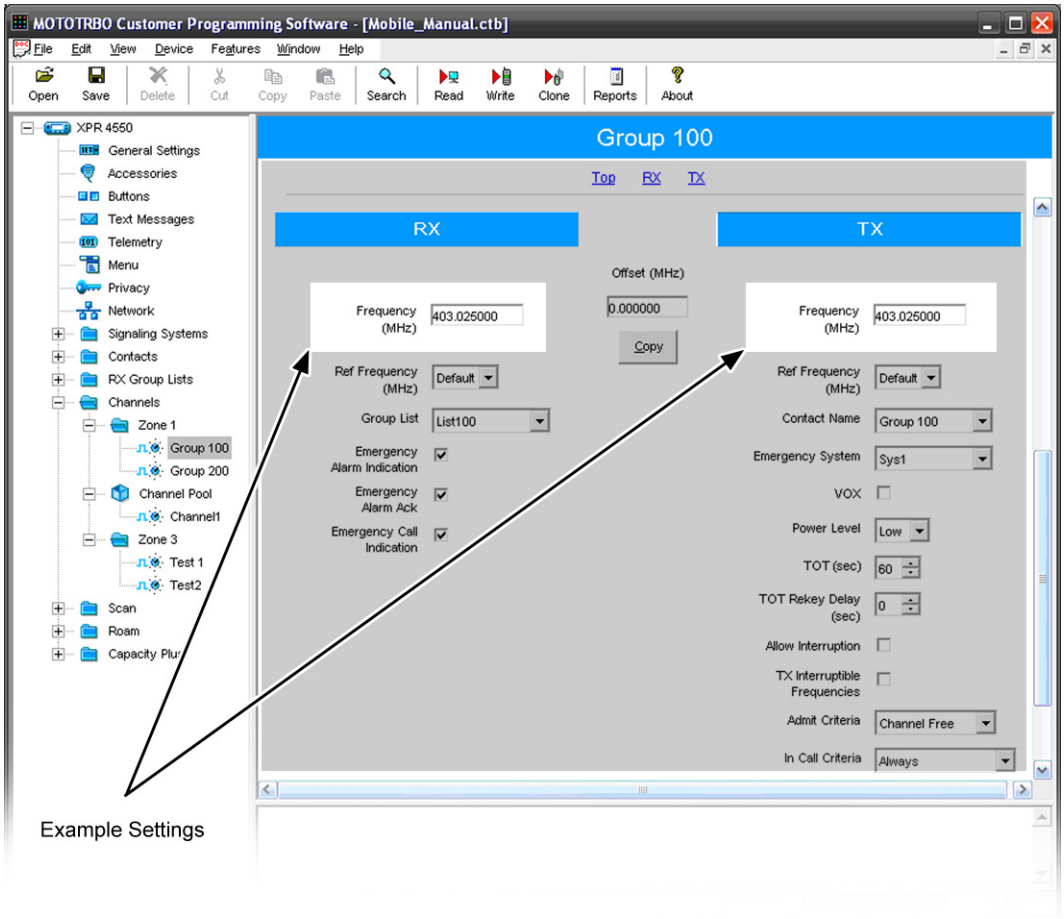


FIGURE 12. Channels Window, RX and TX—MOTOTRBO

To **configure an acknowledgement channel**, do the following:

NOTE: An acknowledgement channel is required to send and receive emergencies.

1. In the RX Frequency field, enter the **frequency** used to receive an emergency (i.e. 403.025000).
2. In the TX Frequency field, enter the **frequency** used to send an emergency (i.e. 403.025000).

Scan Window

The **Scan** window, shown in Figure 13, is used to make scan list(s) available for scan control. The settings on this window are optional for a mobile or portable radio interfacing with an MTRBi. Other settings may be required for your specific installation.

NOTE: At least one (1) scan list is required in order to execute scan control.

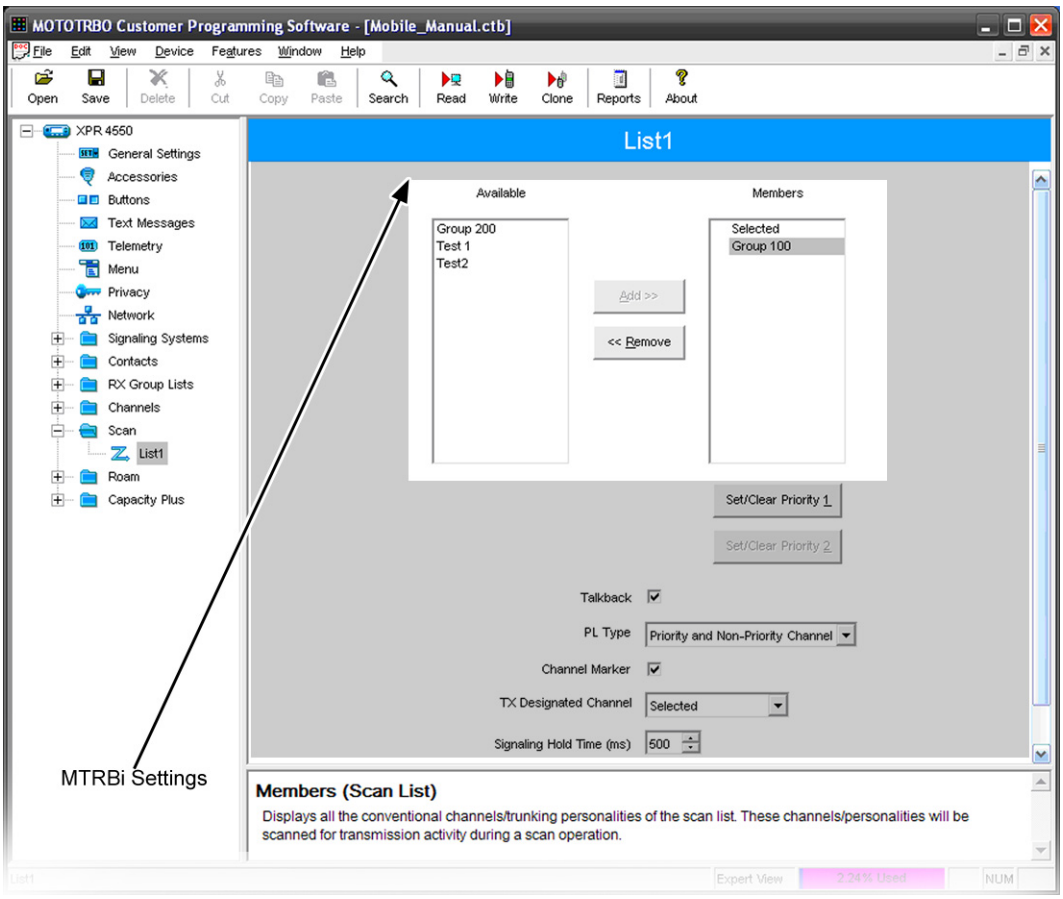


FIGURE 13. List Window—MOTOTRBO

To **configure a list for scan control**, do the following:

1. From the MOTOTRBO CPS navigation pane, select **Scan|List1**.
   The List1 window appears.
2. From the Available field, select a **list**.
   The Add button becomes active.
3. Click **Add**.
   The selected list is added to the Members list.

To **remove a list from the Members field**, do the following:

1. From the Member's list select the **list**, you want to remove.
2. Click **<<Remove**.
   The list appears in the Available list.

IP-224 Software Configuration

The MTRBi and the IP-224 exchange serial data over the network. The following IP-224 fields are required to enable the MTRBi to communicate with the IP-224.

NOTE: These instructions do not contain the entire IP-224 configuration process.

REFERENCE: For more information, see the IP-224 Technical Manual (P/N F.01U.218.562).

Multicast Setup Page

NOTE:

- The IP-224 parameters may be setup using the Telex System Manager or the IP-224 web page.
- There are no internal jumpers to set by the user.

Auto Configuration Check Box

The hardware parameters are displayed on the **"Hardware Setup" on page 30.**

Line Setup

Before the installation, specific parameters are selected, and the line type and serial type must be set.

To **configure IP-224 Line Setup section**, do the following:

1. Open the **IP-224 Multicast Setup Page**.
2. In the Line Name field, enter **Line 1** or the **name** of the line.
3. From the Line Type drop down menu, select **Local Mode**.
4. From the Serial Type drop down menu, select **MTRBi**.
5. From the Vocoder Type drop down menu, select the **ADPCM 32K**.
6. Repeat **steps 2 through 5** for Line 2, if applicable.
7. In the RX Mcast field, enter the **RX Multicast Address**.
8. In the RX Port field, enter the **RX port number**.
9. In the TX Mcast field, enter the **TX Multicast Address**.
10. In the TX Port field, enter the **TX port number**.
11. In the TX Group Port field, enter the **TX Group Port number**, if applicable.
12. In the TTL field, enter the **TTL jumps** you want.

Serial Over IP Setup

The **Serial Over IP** section is used to configure the IP-224 to receive serial data through the serial data port and send the data to the IP network. **SOIP** (Serial Over Internet Protocol) can also take data from an IP Network and send it to the serial port.

When **MTRBi** is selected as the serial type, the **Multicast Setup** web page will change to show the **Serial Over IP Setup** Section as shown in Figure 14.

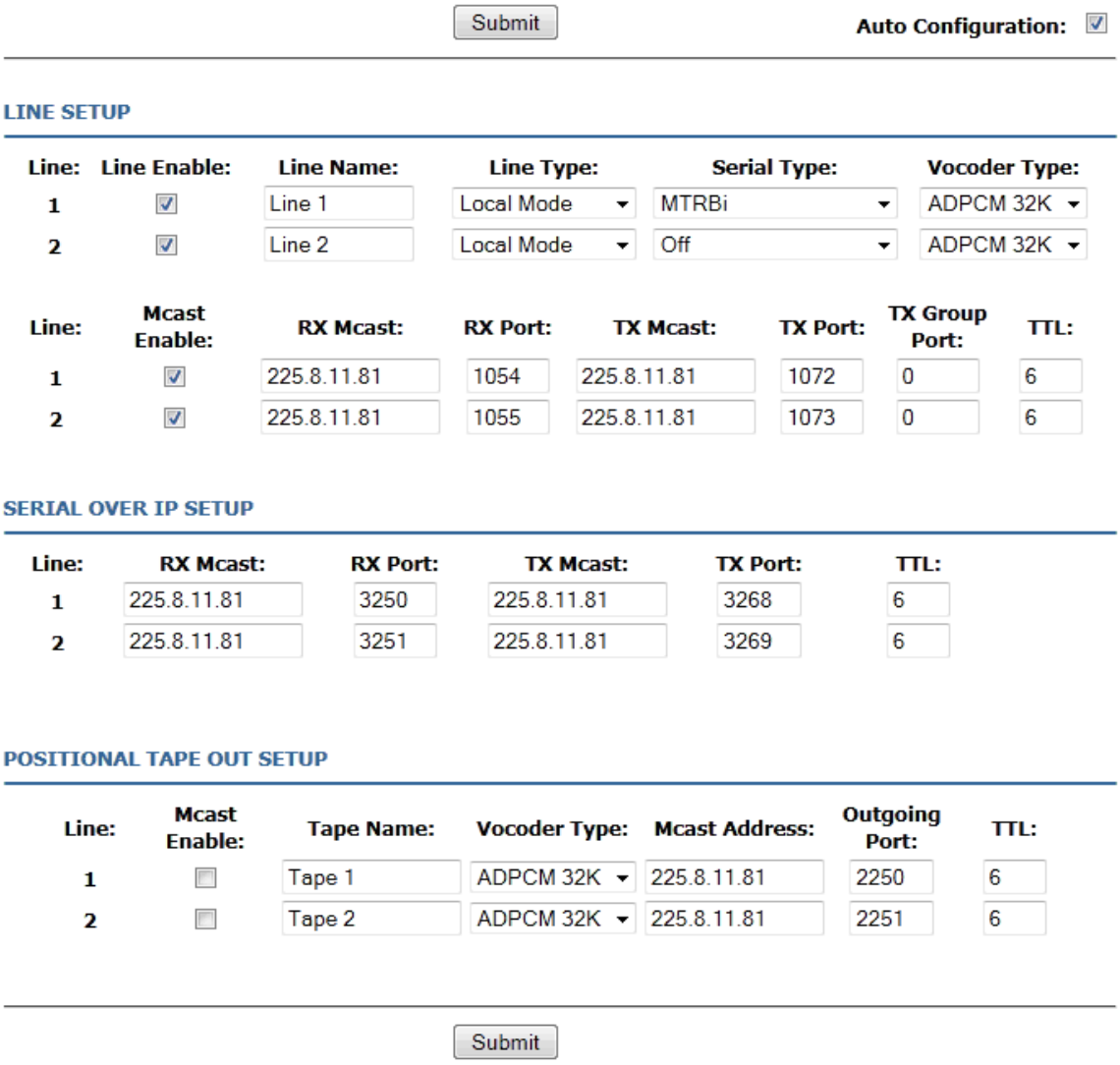


FIGURE 14. IP-224 Multicast Setup Page

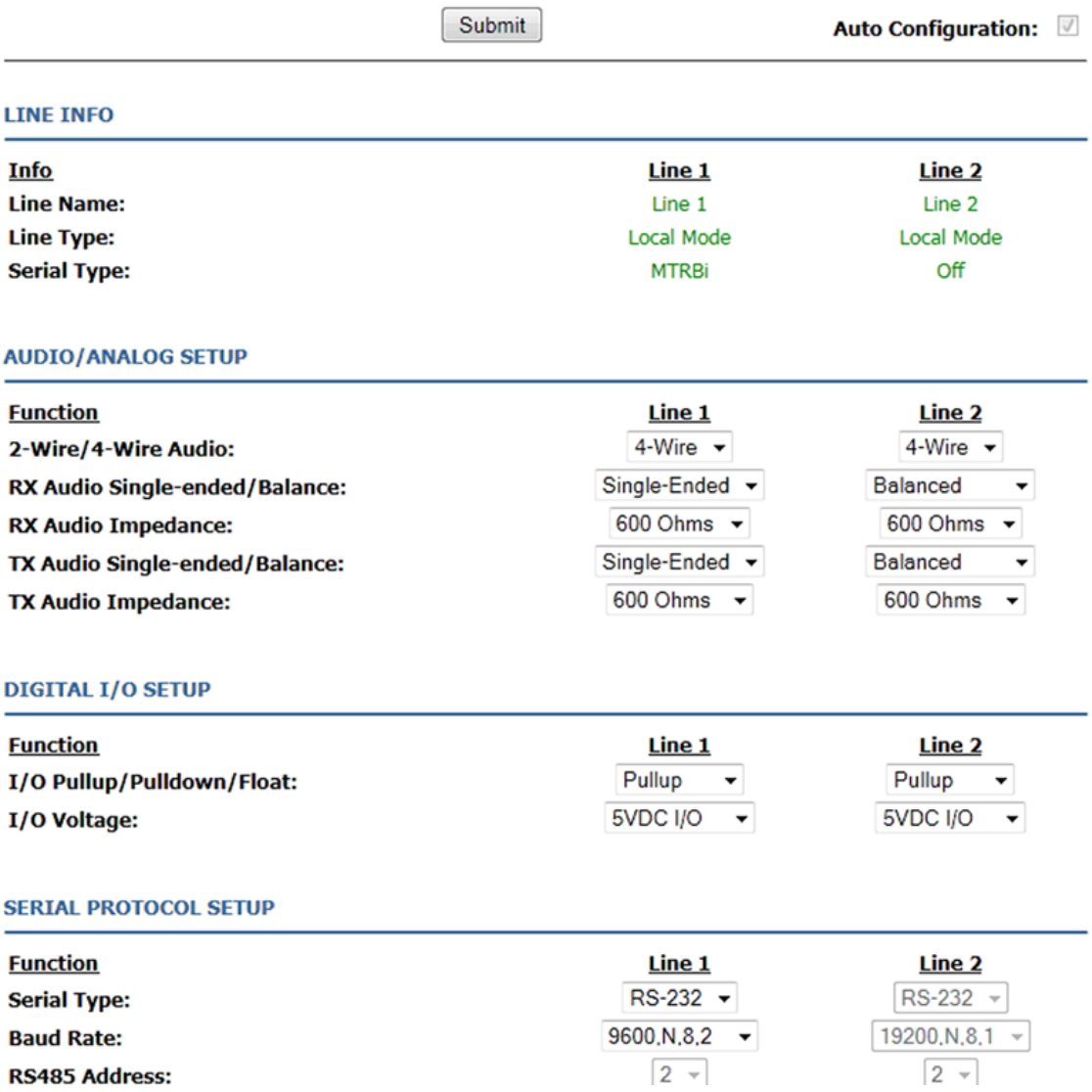


FIGURE 15. IP-224 Hardware Setup Page

Hardware Setup

Once the serial type has been entered and submitted and if the Auto Configuration box is checked, the IP-224 automatically configures the system for all audio and control requirements of an MTRBi radio. The parameters may be reviewed or, if required for a specific installation, modified from Figure 15.

Gain Setup

IP-224 gains are set to default values upon initial power up. Final settings are installation specific.

NOTE: Press **Submit** for any gain changes to take effect and before exiting the web page.

Per Line Setup

The Per Line Setup page contains no parameters that need modification for the MTRBi. Each parameter relates to any common radio installation. For more information, see the IP-224 Technical Manual (P/N F.01U.218.562).

Save Parameters

When all of the IP-224 setup parameters have been entered, go to the Save Parameters page and press Save Parameters. The IP-224 resets and saves the system information.

To **permanently save changes**, do the following:

1. Click **Submit**.
   The changes are sent to the IP-224 in temporary storage.
2. From the navigation pane, click **Save Parameters**.
   The Save Parameters page appears.
3. Click **Save Parameters**.
   The entries are saved to permanent memory and the IP-224 is reset.

IP-224/MTRBi Connection

The MTRBi interface box connects to the IP-224 using the cable provided with the IP-224 MTRBi Interface kit. There are two connectors on the cable:

- DB37 Male – labeled To IP-224
  - Connect to the programmed line connector on the rear panel of the IP-224.
- DB9 Male – labeled To MTRBi
  - Connect to the MTRBi Interface box.

C-Soft Configuration

Once the IP-224 and MOTOTRBO radio are configured, C-Soft requires specific per line parameters to enable communication to the MOTOTRBO radio through the IP-224 and MTRBi. At the minimum, one (1) MOTOTRBO line, one (1) MOTOTRBO Select button and one (1) MOTOTRBO Window button must be configured in C-Soft Designer for use in the C-Soft console.

NOTE:

- A MOTOTRBO system must be configured before proceeding with configuring a MOTOTRBO line, a MOTOTRBO Select button, and MOTOTRBO Window button.
- These instructions contain a portion of the entire C-Soft configuration process.

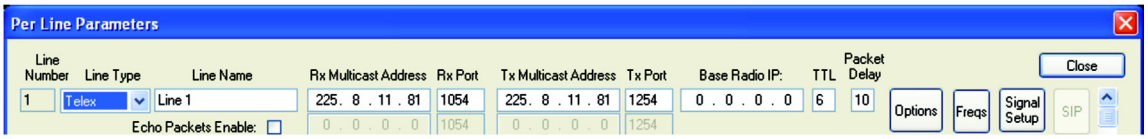
REFERENCE: For more information, see the C-Soft Technical Manual (P/N F.01U.218.561).

Per Line Parameters Window

The **Per Line Parameters** window, is used to set the line name, line type, address, Multicast Address and port number for the line.

To **configure the C-Soft Per Line Parameters**, do the following:

1. From C-Soft Designer menu bar, select **Edit|Setup Per Line Parameters** from the menu bar.
   The Per Line Parameters window appears.
2. From the Line Type drop down menu, select **Telex**.
3. Select the **Enable** check box.
   The line is enabled.
4. In the Line Name field, enter a **name** for the line.
5. Enter the **appropriate values** in the following fields[1].
   - RX Multicast Address
   - Rx Port
   - TX Multicast Address
   - TX Port
6. In the TTL field, enter the **number of routers** each packet passes through before being discarded.
7. Click **Signal Setup.**
   The Signaling Parameters window appears.



1. *These values must match the IP-224 parameters. See "Multicast Setup Page" on page 28. Contact your network administrator for these values.*

Signaling Parameters Window

The **Signaling Parameters** window, shown in Figure 16, is used to program a MOTOTRBO system type at the per line level.

General Signal Setup Page. When the Signal Setup button on the Per Line Parameters window is clicked, the General Signal Setup page appears.

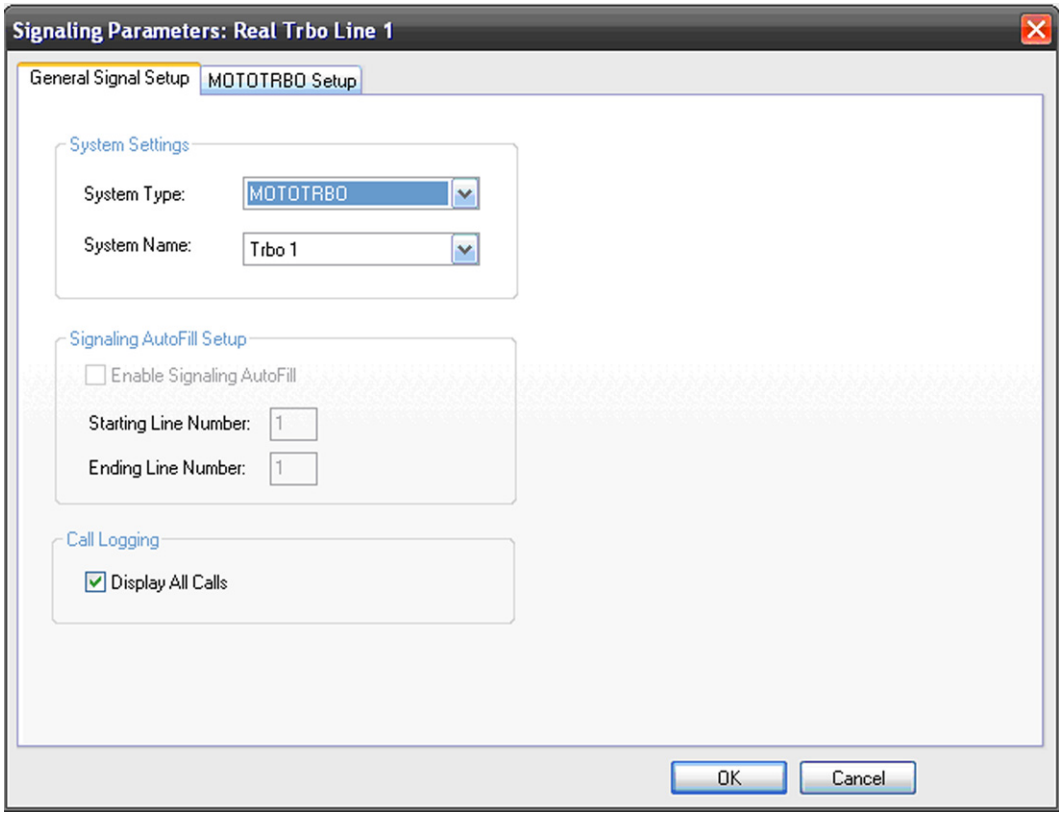


FIGURE 16. Signaling Parameters—General Signal Setup Page

To **configure signaling parameters for a MOTOTRBO line**, do the following:

1. From the System Type drop down menu, select **MOTOTRBO**.
   The System Name field becomes active and the MOTOTRBO Setup tab appears.
2. From the System Name drop down menu, select the **system** you want to use for the line (i.e. Trbo1).

   NOTE: Before a system name can be selected, a MOTOTRBO system must already be set up in C-Soft.
3. Click the **MOTOTRBO Setup** page.
   The MOTOTRBO Setup page appears.

   REFERENCE: For more information, see the C-Soft Technical Manual (P/N F.01U.218.561).

MOTOTRBO Setup Page. When MOTOTRBO is selected from the System Type drop down menu, the MOTOTRBO Setup page appears.

The MOTOTRBO Setup page, shown in Figure 17, is used to configure the Multicast Address for SOIP, allowing C-Soft to communicate with the MTRBi and MOTOTRBO radio through the IP-224.

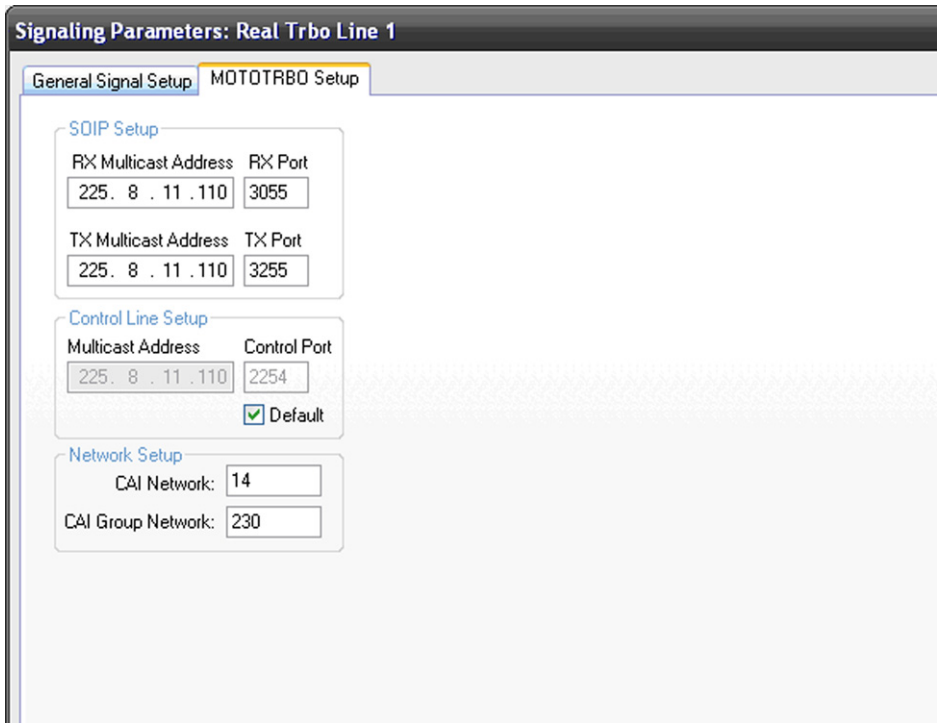


FIGURE 17. MOTOTRBO Setup Page Example

To **set up the SOIP parameters for the line**, do the following.

NOTE: The CAI Network and CAI Group Network values are initially configured in the MOTOTRBO CPS.

1. Enter the **appropriate values** in the following fields[1].
   - RX Multicast Address
   - TX Multicast Address
   - RX Port
   - TX Port
2. Clear the Default check box if your system requires a default Control Port number.
   The control port field is active.
   a. In the Control Port field enter a **port number**.
      Parallel consoles can send information back and forth.
3. In the CAI Network field, enter the **same CAI Network value**[2] configured in the MOTOTRBO CPS.
4. In the CAI Group Network field, enter the **same CAI Group Network value**[2] configured in the MOTOTRBO CPS.
5. Click **OK**.

1. *These values must match the Serial Over IP section of the Multicast Address Setup window on the IP-224. See "Serial Over IP Setup" on page 28.*
2. *These values must match the CAI Network and CAI Group Network fields in the MOTOTRBO CPS. See "Network Window" on page 18.*

MOTOTRBO Radio Setup Page. When the MOTOTRBO function is selected from the UI Element drop down menu, the MOTOTRBO Radio Setup page appears.

The MOTOTRBO Radio Setup page, shown in Figure 18, is used for setting Dispatch Window features and entering time intervals to check for the Master Console.

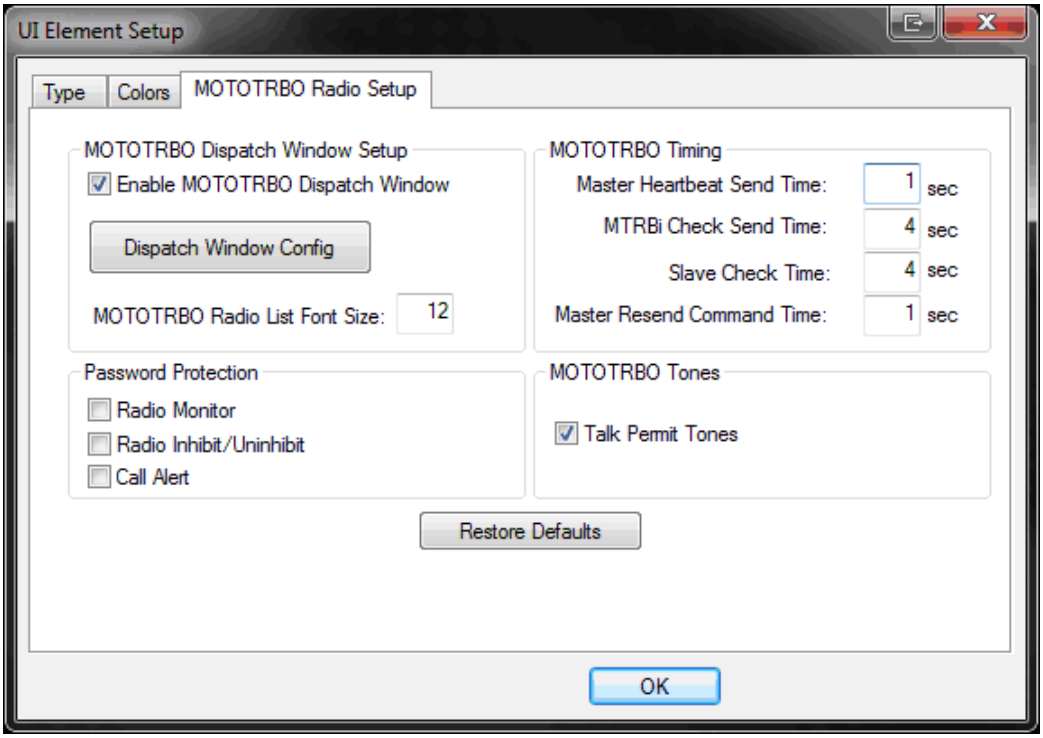


FIGURE 18. MOTOTRBO Radio Setup Page Example

MOTOTRBO Dispatch Window Setup Group

ENABLE MOTOTRBO Dispatch Window Check Box

The **Enable Mototrbo Dispatch Window** check box, if selected, allows the user to open the Dispatch Window in Runtime. If not selected, the user will not ba able to open the Dispatch Window in Runtime.

Dispatch Window Config Button

The **Dispatch Window Config** button is used to open the Dispatch Window settings. The button text and color of the Dispatch Window can be updated in this view.

REFERENCE: For more information, see Figure 19.

MOTOTRBO Radio List Font Size Field

The **MOTOTRBO Radio List Font Size** field is used to enter the font size of the ID List. The user sees when the Dispatch Window is open in Runtime.

MOTOTRBO Timing Group

Master Heartbeat Send Time Field

The **Master Heartbeat Send Time** field is used to enter an interval, in seconds, for the master console to send its heartbeat out to all other consoles on the control line (i.e. 1).

MTRBi Check Send Time Field

The **MTRBi Check Send Time** field is used to enter an interval, in seconds, for C-Soft to verify the MTRBi on a certain line is alive (i.e 4).

NOTE: Allow one (1) second for the check function to complete.

EXAMPLE: If this field is set to four (4) seconds, the console sends an MTRBi check command then waits for four (4) minus one (1) second, or three (3) seconds for a response.

Slave Check Time Field

The **Slave Check Time** field is used to enter an interval, in seconds, for the console to wait to receive a heartbeat from the master before it turns into the master (i.e 4).

EXAMPLE: At startup, the console waits four (4) seconds for a heartbeat, if nothing is received, the console changes to the master console. If a heartbeat is detected, the console remains a slave and resets to four (4) seconds.

Master Resend Command Time Field

The **Master Resend Command Time** field is used to enter an interval, in seconds, for C-Soft to resend a MOTOTRBO command (i.e 1).

EXAMPLE: If C-Soft sends a MOTOTRBO command and does not get a response in one (1) second, it sends the command again, waits one (1) second, if nothing sends again, waits one (1) second. If no response is received after three (3) tries the command is cleared and goes to the next command to send to the buffer. The maximum tries is three (3).

Password Protection Group Box

The **Password Protection** group box enables the user to set up functions that require a user password before allowing the user access.

If not selected, no password is required.

Radio Monitor Check Box

The **Radio Monitor** check box is used to verify that to use the function the user will need to enter a password.

Radio Inhibit/Uninhibit Check Box

The **Radio Inhibit/Uninhibit** check box is used to verify that to use the function the user will need to enter a password.

Call Alert

The **Call Alert** check box is used to verify that to use the function the user will need to enter a password.

MOTOTRBO Tones Group Box

Talk Permit Tones Check Box

The **Talk Permit Tones** check box, if selected, enables the user to hear go ahead Tones when PTT is pressed in Runtime.

To **permanently save changes**, do the following:

1. Click **OK**.
2. Select **File | Save** from the menu bar.
   The Save As window appears.
3. In the File Name field, enter the **name** for the file.
4. Click **OK**.
   The C-Soft file is saved.

Dispatch Window

The **Dispatch Window**, shown in Figure 19, is used to select the color, font and font size of the Dispatch Window settings.

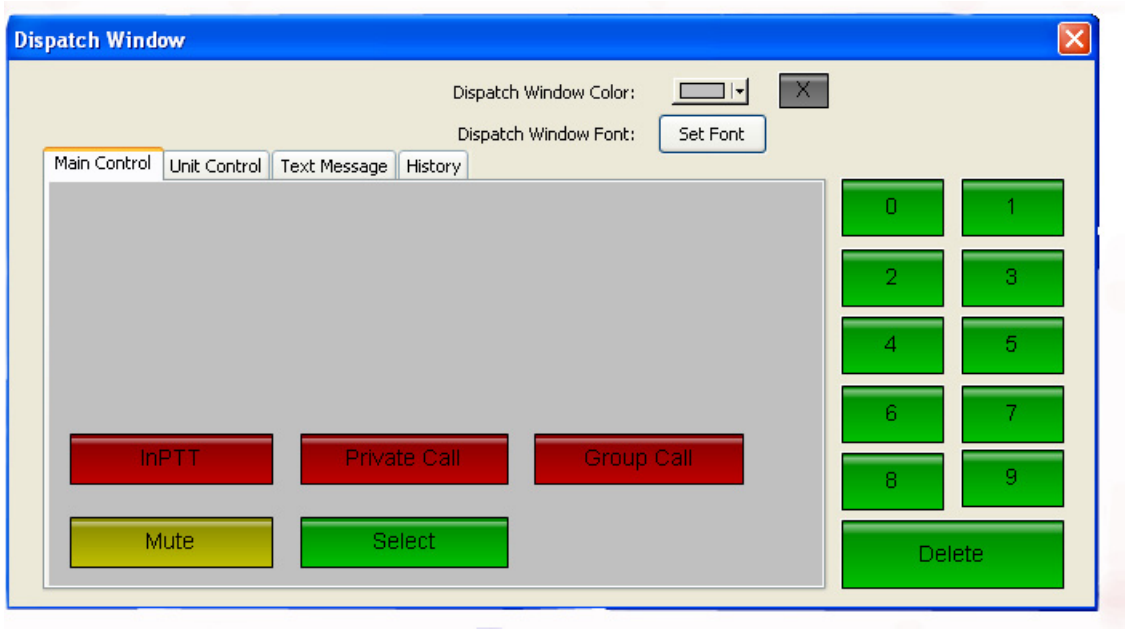


FIGURE 19. Dispatch Window Example

Dispatch Window Color Drop Down Menu

The **Dispatch Window Color** drop down menu is used to select the color of the Dispatch Window.

To **select color** of the **Dispatch Window** do the following:

>From the Dispatch Window Color drop down menu, select the **desired color** for the dispatch window.

Dispatch Window Font Button

The **Dispatch Window Font** buttons opens the Dispatch Window Font drop down menu.

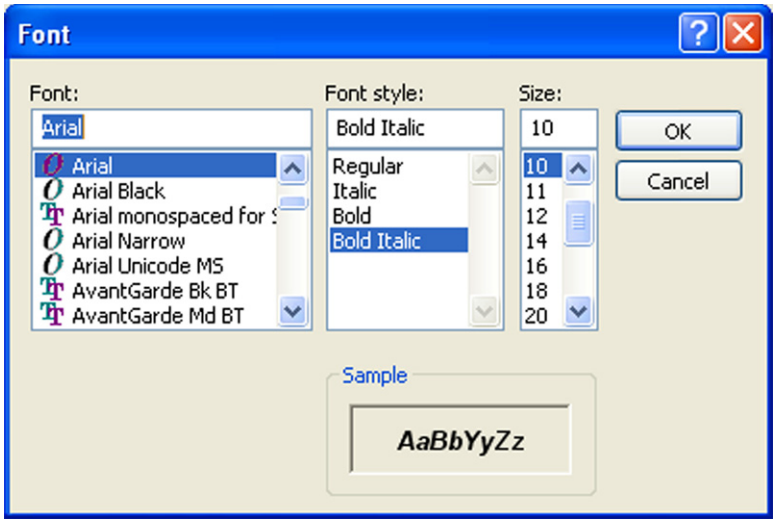


FIGURE 20. Dispatch Window Font Drop Down Menu.

To **set the font of the Dispatch Window** do the following:

>From the Dispatch Window Font drop down menu, select the **desired font** for your text.

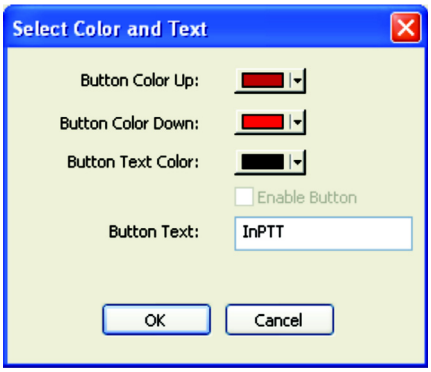
Main Control Page

The **Main Control** page, shown Figure 19, is used to change the color, font and font size for the following buttons.

- InPtt
- Private Call
- Group Call
- Mute
- Select
- Numerical Pad
- Delete

To **select color and text of the desired button**, do the following:

1. From the Main Control menu, press the **desired button**
   Select Color and Text appears.



2. From the Button Color Up drop down menu, select the **desired color**.
3. From the Button Color Down drop down menu, select the **desired color.**
4. From the Button Text Color drop down menu, select the **desired color.**
5. Select the **Enable Button** check box to enable the selected color and text of the button.
6. In the Button Text field, enter the **desired text** for the button.
7. Click **OK**.
   The entries are saved.

Unit Control Page

The **Unit Control** page, shown in Figure 21 is used to change the color, font and font size for the following buttons.

- Radio Check
- Remote Monitor
- Call Alert
- Radio Disable
- Radio Enable
- Open Google Earth
- GPS Trigger On
- GPS Read
- GPS Trigger Off

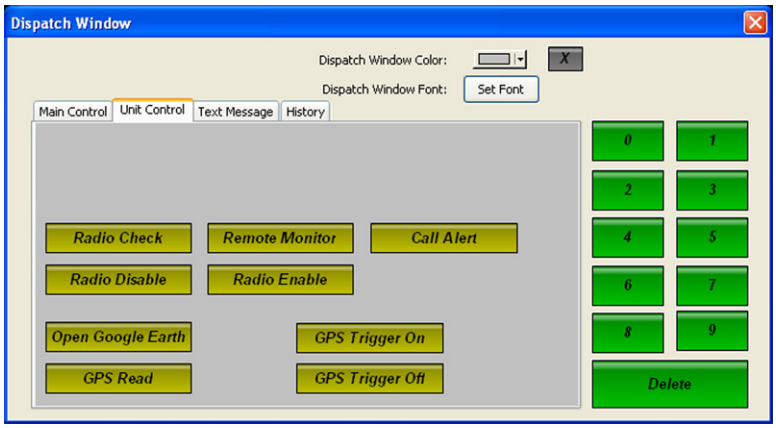


FIGURE 21. Unit Control Page Example

To **select color and text of the desired button,** do the following:

1. From the Unit Control window, select the **desired button.**
   Select Color and Text appears.
2. From the Button Color Up drop down menu, select the **desired color**.
3. From the Button Color Down drop down menu, select the **desired color**.
4. From the Button Text Color drop down menu, select the **desired color**.
5. Select the **Enable Button** check box to enable the selected color and text of the button.
6. In the Button Text field, enter the desired text for the button.
7. Click **OK**.
   The entries are saved.

Text Message Page

The **Text Message** page, shown in Figure 22, is used to access the settings and options.

- Clear History
- Send Unit
- Send Group Text

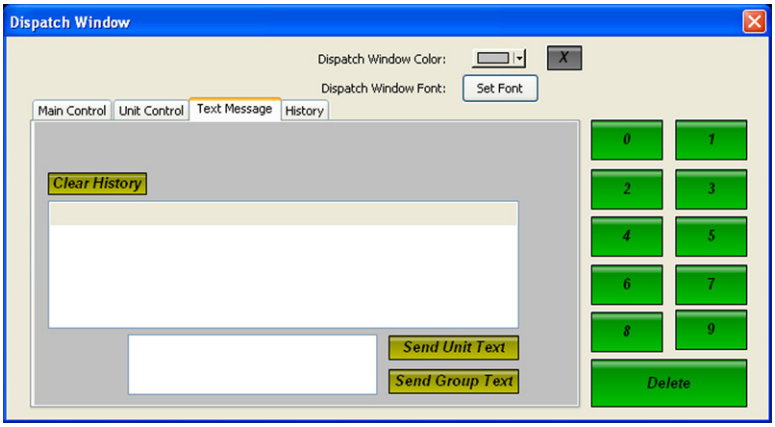


FIGURE 22. Text Message Page Example

To **select color and text of the desired button,** do the following:

1. From the Text Message menu press the **desired button**.
   Select Color and Text appears.
2. From the Button Color Up drop down menu, select the **desired color**.
3. From the Button Color Down drop down menu, select the **desired color**.
4. From the Button Text Color drop down menu, select the **desired color**.
5. Select the **Enable** check box to enable the selected color and text of the button.
6. In the Button Text field, enter the **desired text** for the button.
7. Click **OK**.
   The entries are saved.

History Page

The **History Message** page, shown in Figure 23, is used to change the color, font and font size for the following buttons.

- Emergency ACK
- Alert Cancel
- Private Call

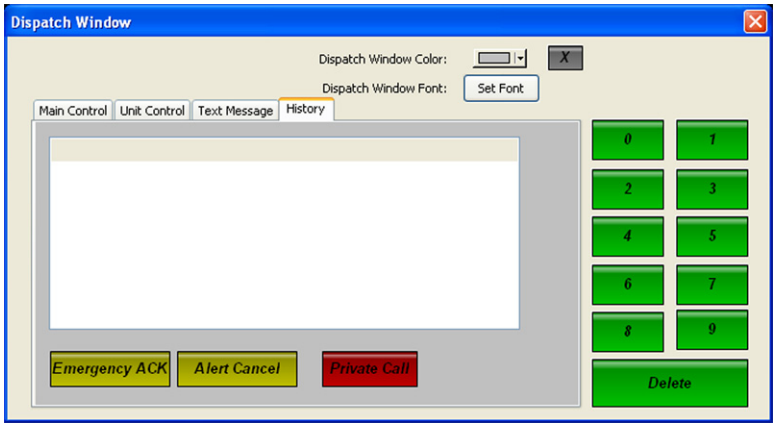


FIGURE 23. History Message Page Example

To **select color and text of the desired button,** do the following:

1. From the History menu press the **desired** button.
   Select Color and Text *appears.*
2. From the Button Color Up drop down menu, select the **desired color**.
3. From the Button Color Down drop down menu, select the **desired color**.
4. From the Button Text Color drop down menu, select the **desired color**.
5. Select the **Enable Button** check box to enable the selected color and text of the button.
6. In the Button Text field enter the **desired text** for the button.
7. Click **OK**.
   The entries are saved.

GPS Installation

The GPS location of the MOTOTRBO radio can be mapped using Google Earth and C-Soft at the same time.

To **install Google Earth**, do the following:

1. Using an Internet browser, go to **http://earth.google.com/**.
2. Download the **latest version** and accept all default file locations.

NOTE:

- When installing Google Earth, the default file locations must be accepted in order for C-Soft to read information from Google Earth.
- When running C-Soft runtime, a KML file called *Mototrbo.kml* is created. This file is updated each time a radio's GPS location is read.
- The KML file location for Windows XP is C:\Documents and Settings\All Users\Application Data\Telex Communications design-folder, or, for Windows 7 is C:\ProgramData\Telex Communications\design-folder.

MTRBi Mounting

The **MTRBi** can be mounted underneath or on top of a desk using the MTRBi's built-in brackets.

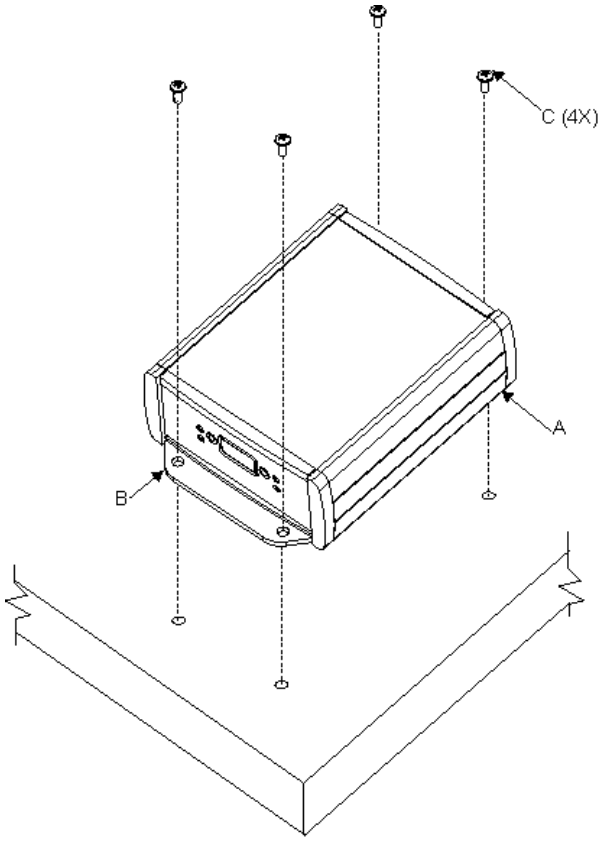
NOTE:

- Screws are not supplied with the unit.
- The MTRBi can be flipped 180 degrees to mount under the desk.

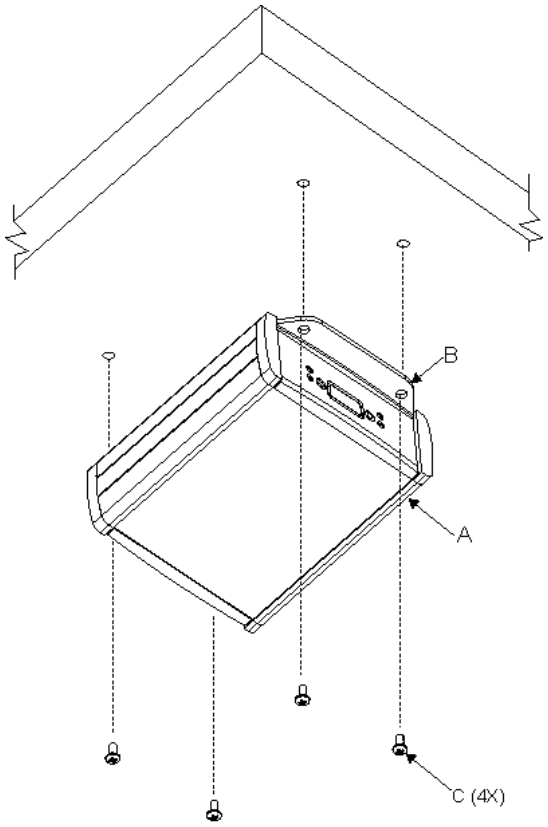
Mounting

To **install the MTRBi on the desk topside or underside**, do the following:

1. Ensure there is enough **clearance** for back and front panel connections.
2. Place the **MTRBi** in position.
3. Mark **hole positions** on the mounting surface.
4. Drill **holes** to accept a #8 screw (C).
5. Using the built-in bracket (B), attach the **MTRBi (A)** to the mounting surface.



Topside Mounting



Underside Mounting

System Reset

Once the installation, configuration and mounting are complete, the system should be reset.

To **reset the system**, do the following:

1. Turn **off** power to the MOTOTRBO radio and the IP-224.
2. Turn **on** power to the IP-224.
   The user assigned "Line Name' appears on the IP-224 display.
3. Turn **on** power to the MOTOTRBO radio.
   Power is supplied to the MOTOTRBO radio and the MTRBi.

Test the MOTOTRBO to C-Soft Communication Status

Once the configuration process is complete, communication between the MOTOTRBO radio and C-Soft can be checked with the MOTOTRBO dispatching window in C-Soft Runtime.

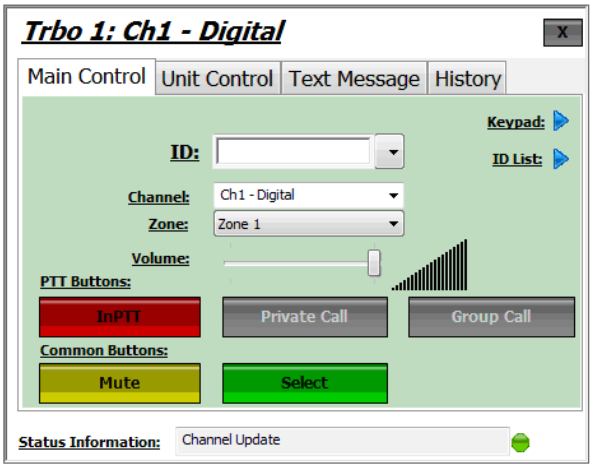
To **verify communication status**, do the following:

1. Click the **MOTOTRBO** window button.
   The MOTOTRBO dispatching window appears.
2. View the **successful connection indicators**:
   - *The Zone and Channel fields populate with the zone and channel configured on the selected line.*
   - *The channel name appears on the PTT button.*
   - *The status indicator is green.*

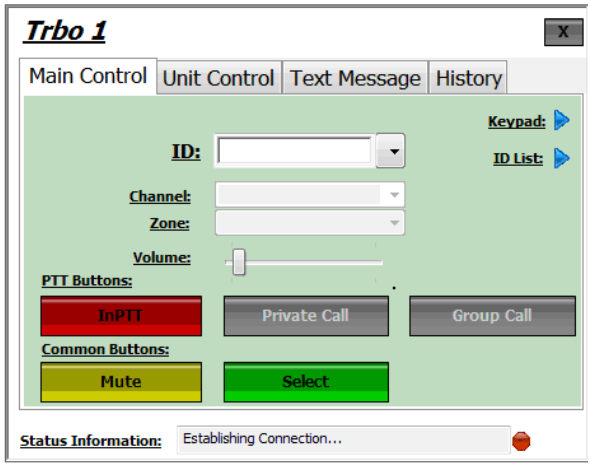
   OR
   View the **failed** connection indicators:
   - *The Zone and Channel fields are disabled and blank.*
   - *PTT appears on the PTT button.*
   - *The Status indicator is red.*

   NOTE: For technical support, see "Contact Information" on page 2.

Successful Status Indicators



Failure Status Indicators



Initiate a MOTOTRBO Call

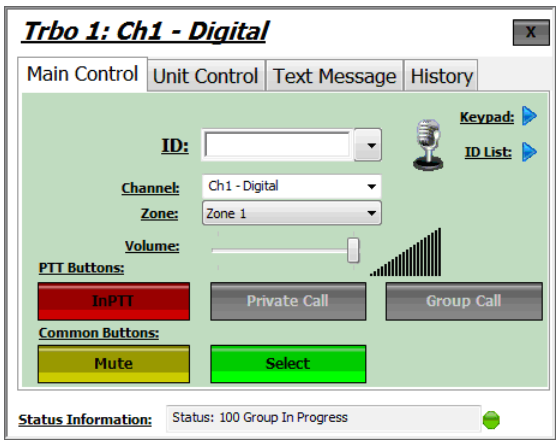
When the MOTOTRBO radio and C-Soft are in communications, a call can be initiated.

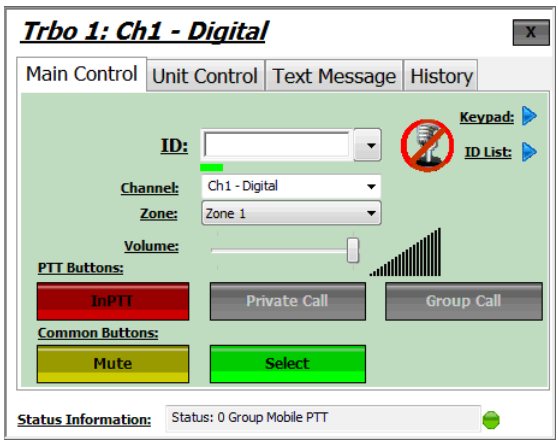
To **initiate a MOTOTRBO call**, do the following:

1. Click the **MOTOTRBO window** button.
   The MOTOTRBO dispatching window appears. The Zone and Channel fields are automatically populated.
2. Click the dispatching window's **PTT** button.
   The dispatching window and select buttons display the following information:
   - *A universal no symbol appears on the microphone icon indicating it is closed.*
   - *The Status Information field updates with call name and ID.*
   - *A WAIT icon momentarily appears on the line's select button.*
   - *When all devices are in communication with each other, a TALK icon appears on the line's select button, the universal symbol no longer appears on the microphone icon, and the Status Information field includes In Progress to indicate the console can communicate with the radio.*

   NOTE: The console's PTT can also be clicked.

REFERENCE: For more information, see the C-Soft Technical Manual (P/N F.01U.218.561).





CHAPTER 3

MTRBi Updates

MTRBi Firmware Updates

The **MTRBI Firmware** version is updated using a flash software file provided on our downloads page.

To **update the MTRBi firmware**, do the following:

1. From the Radio Dispatch website, download the **current version of the MTRBi firmware**.
   A new version of the MTRBi's .hex file is saved to the default download location on your computer.
2. Using the R232 serial cable, connect the **MTRBi** to the PC.
3. Double-click the **MTRBiFlasher.exe file.**
   The MTRBi Flasher window appears.
4. From the COM Port drop down menu, select a **COM port** (i.e. COM1).
5. Click **Open**.
   The Find window appears.
   OR
   In the Hex file field, enter the **path** to the .hex file.
6. Click **Start Flash**.
   The new file version is saved to the MTRBi. An Update successful message appears.
7. Click **Exit**.
8. Reset the **MOTOTRBO** radio.
   The device is reset. The MTRBi is updated.

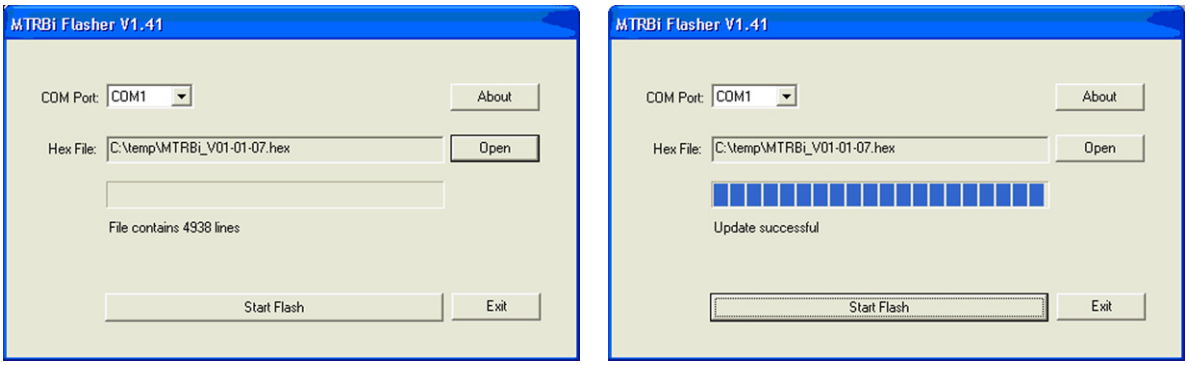


FIGURE 24. MTRBi Flasher Windows - Hex File and Success Messages

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