Raven Electronics Corporation

*Specialized Communication Solutions 1968*

# M4x MediLink Manual

February 2014

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# Chapter 1 – Introduction

## Contact Raven Electronics

Thank you for purchasing an M4x Product from Raven Electronics Corporation. Please contact us if you have any questions, concerns, ideas, or suggestions on how to improve this manual. We can be contacted at:

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sales@ravencomm.com

Please contact us when installing your M4x Product for the first time or if you ever have any questions, comments, or concerns. We would love to hear from you.

*We are the "Idea Shop" committed to solving engineering problems and exceeding expectations.*

***Note: Throughout this manual we reference various screens in the program. Depending on the revision of the software received with the shipment, there may be slight variations. This product is always evolving as is the documentation.***

## Raven Electronics' Warranty and Safety Information

Please be ESD protected before starting any procedures contained in this manual.


This warranty expressly precludes any liability by Raven Electronics Corporation for consequential damages however arising after delivery to the purchaser of the affected equipment, and is limited to the expressed warranty, excluding all implied warranties including merchantability. All equipment manufactured by Raven Electronics Corporation is warranted against defective materials and workmanship for a period of two (2) years from the date of delivery to the original purchaser or end-user. Liability under this warranty is limited to servicing, adjusting, repairing or replacing, as necessary, any equipment returned to the factory, transportation prepaid for that purpose. Factory examination must disclose a manufacturing defect. Repaired or replaced items will be returned to the purchaser surface freight prepaid within the continental USA. This warranty does not extend to any equipment which has been subjected to transportation damage, misuse, neglect, accident, improper installation, or any other circumstances reasonably beyond the control of Raven Electronics Corporation.

Beyond the warranty period, repairs will be billed to the purchaser at cost. In such cases, an estimate will be submitted for approval before repair is initiated. Repaired equipment will be returned to the purchaser with transportation charges collect, unless agreed to between the purchaser and Raven Electronics Corporation.

# Chapter 2 – MediLink Product Description

Medilink is designed specifically for an EMS in order to easily cross-patch hospitals, ambulances, and other communications together with an easy to use GUI interface.

### Standard Features

- ♦ Cross-patch/bridge 2: many at one time
- ♦ Have multiple cross-patches/bridges at one time
- ♦ Multiple users/dispatchers see the same screen
- ♦ Drag and Drop locations to make a bridge
- ♦ Mute or unmute a location during an outage or repair
- ♦ Rename all locations to easily recognizable names or locations

### Advanced Features

- ♦ Quickly set up a Quick Connect – with a push of a button, a standard bridge is instantly created

## Raven M4x MediLink Hardware Interface

A Raven M4x Blade can house up to 4 Raven-manufactured, DSP-based (digital signal processing) communication modules (see Figure 1). The types of modules can be mixed and matched to tailor the M4x system to a particular need. Raven Electronics manufactures a number of different types of modules to interface to radios (or other 4-wire devices), 2- and 4-wire telephones, the public telephone network, and other types of communications equipment. Each M4x Blade is a USB device that can accept commands from a host computer. The host computer can also respond to different events that occur on a particular port.

MediLink generally uses either the Raven 476-150 or 476-151 4-wire E&M modules. The 476-150 module has a 600 ohm, 300-3400Hz interface; the 476-151 has a 600 ohm or high impedance input (software-selectable), a 600 ohm output, with a 5-3400Hz frequency range. The Raven 476-150/151 4-wire E&M module is used to interface to 4-wire communication equipment. Each 476-150/151 4-wire E&M module supports two ports of audio.

The main function of the 476-150/151 4-wire E&M module is to convert analog audio to the digital domain on one end and back to analog on the other. Once the audio is converted to the digital domain, it can be bridged with any other port in the system using the switching fabric provided by the backplane upon which the M4x modules ride. The 476-150/151 4-wire module can also provide the following features via software commands from the host computer:

- Notch filtering
- Level control
- PTT generation (for radios)
- COR detection (for radios)
- Audio delay
- Tone Detection (including DTMF and single tones)
- Tone Generation (single tones, call progress tones, DTMF)
- Signal-to-Noise Ratio Analysis for voting applications

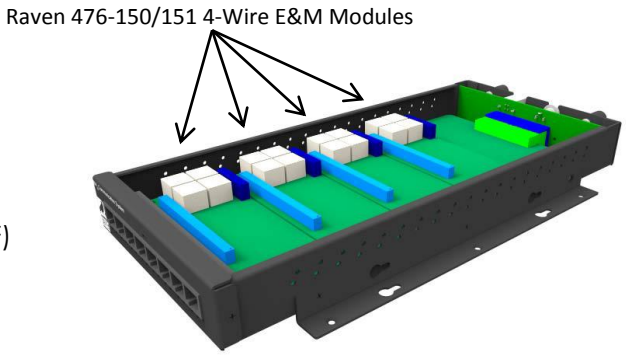



Figure 1: M4x Blade

# Chapter 3 – M4x MediLink Setup

## M4x MediLink Installation

System Requirements:

- Microsoft Windows 7
- One available USB 2.0 Port (M4x System or Expansion Chassis)
- One standard USB A to USB B cable (included)

Software Installation:

- Server
- Client

## M4x MediLink Server Software Installation

In order to set up MediLink, first install the necessary software on the server. All the software necessary to get started is located on the CD provided.

***Note: If an older version of the software has already been installed, it must be uninstalled before the new software is installed.***

Connect the provided USB cable to the M4x Chassis and the Server. Turn on the Server and M4x Expansion Chassis. Insert the provided disk into the Server.

Locate the **MediLink Server Setup.msi** file from the CD. Double-click the file. The Setup Wizard, as shown in Figure 2, will appear. Click "**Next**".

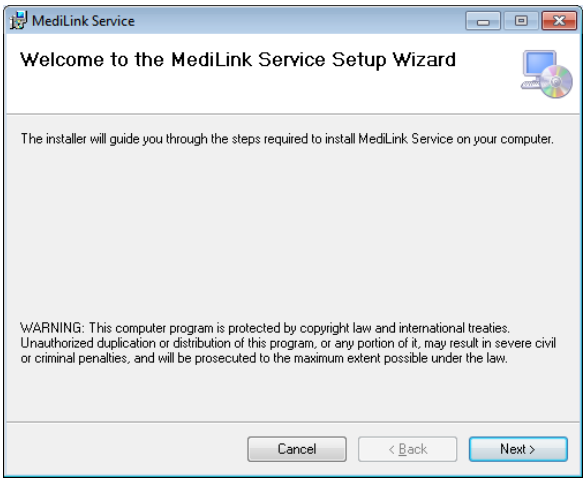



Figure 2: Setup Wizard Screen

Choose a location or keep the default to install the MediLink Server software, as shown in Figure 3. If the location is changed, please notate it as it will be required to locate it. Be sure the "**Everyone**" button is highlighted as shown below. Click "**Next**".

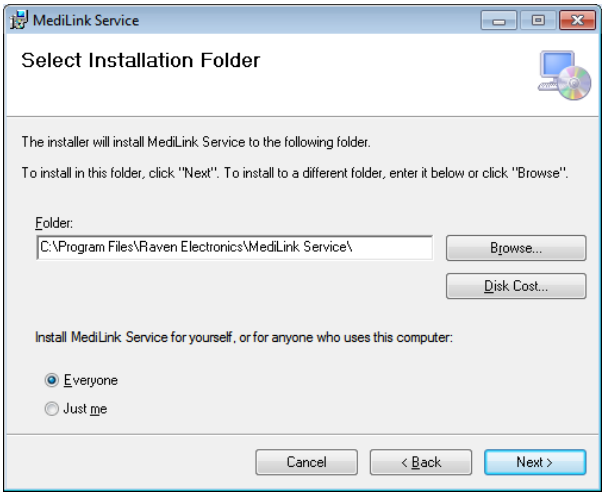



Figure 3: Installation Folder Selection

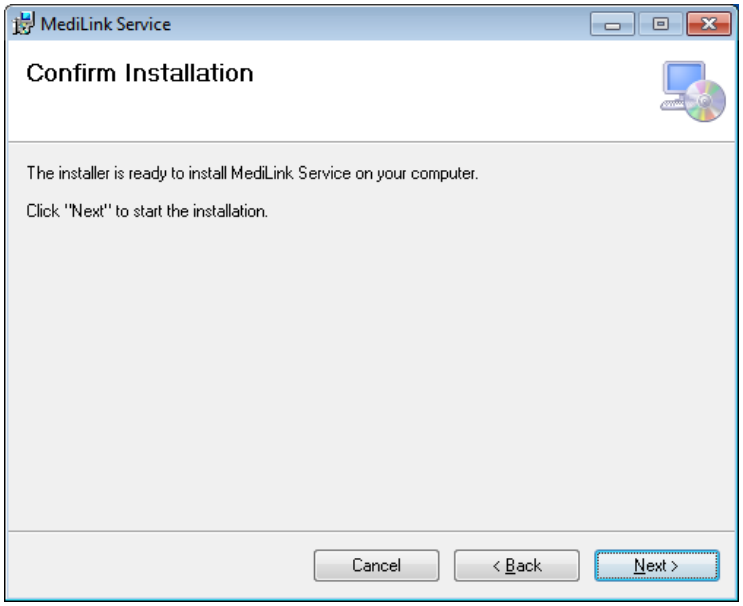



Figure 4: Install Drivers Screen

Once the program is ready to install, the Confirm Installation screen, as shown in Figure 4, appears. Click "**Next**".

M4x MediLink Service is now being installed onto the server, as shown in Figure 5. A "User Control Access" screen may pop up during the installation. Click "**Yes**".

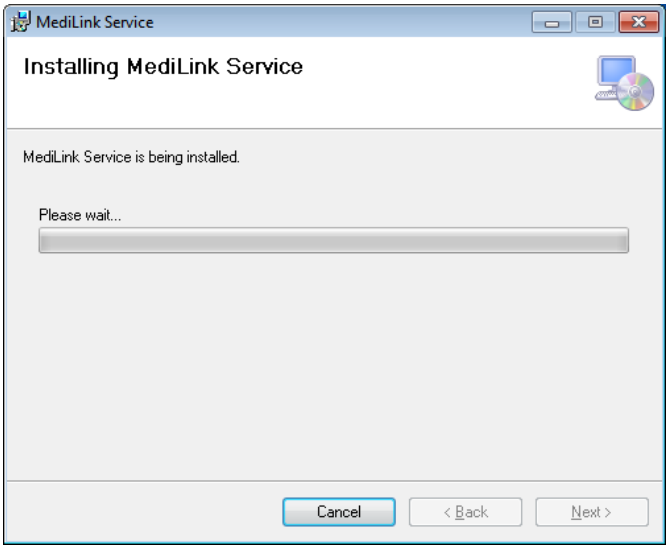



Figure 5: Installation Screen

Congratulations! The M4x MediLink Server Software has been successfully installed, as shown in Figure 6. Click "**Close**".

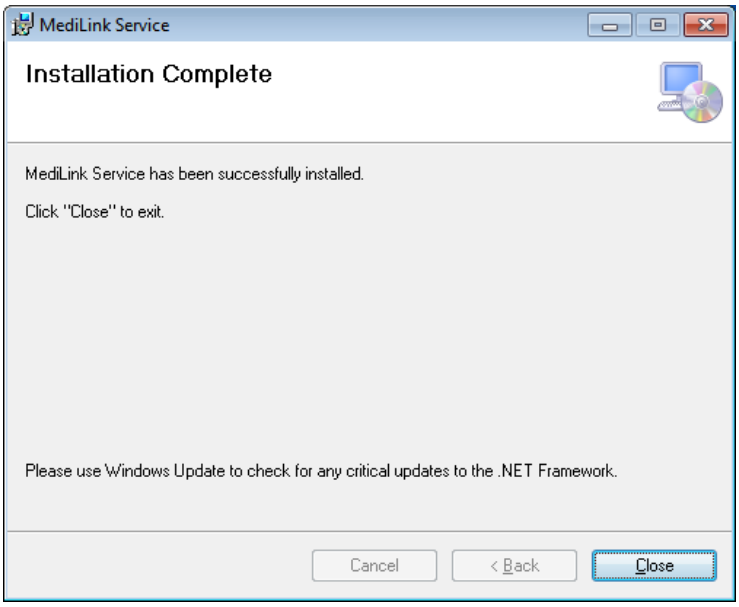



Figure 6: Installation Complete

## M4x Installation Drivers

Open Device Manager. Figure 7 shows what may appear after the installation in the previous section is complete, under "Other devices". An M4x Driver needs to be installed in order for the server to detect the M4x Blades.

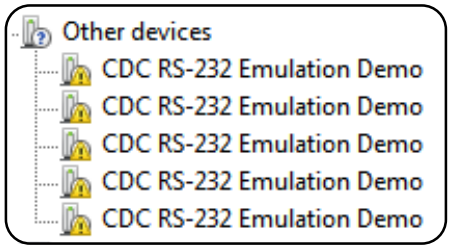



Figure 7: Device Manager

Select the first device, **Right-click** and select "**Update driver software**".

When the screen, in Figure 8 appears, choose "**Browse my computer for driver software**".

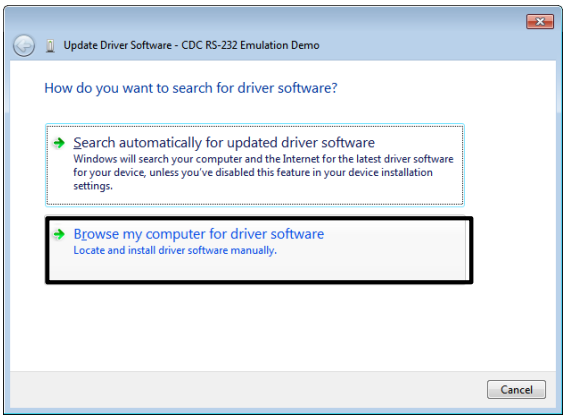



Figure 8: Update Driver Software

Back in Figure 3, a location was chosen or the default was used to save the drivers. Browse to that location or as shown in Figure 9, follow the default to:

- Computer
- Local Disk (C:)
- Program Files
- Raven Electronics
- MediLink Service

Once done, click "**OK**".

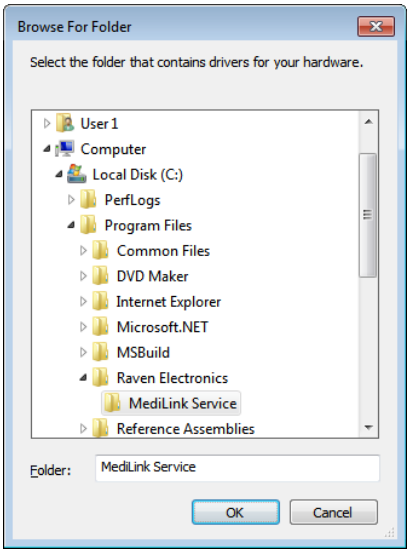



Figure 9: Browse for Folder

Figure 10 shows the chosen directory. Click "**Next**". The driver will then begin installing as shown in Figure 11.

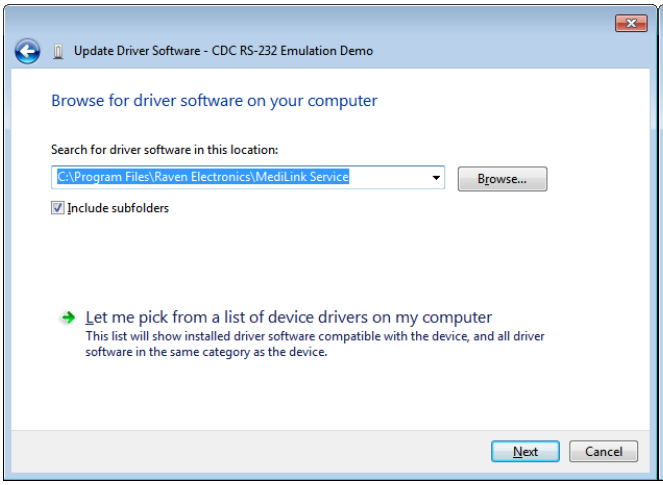



Figure 10: Driver Location on Computer

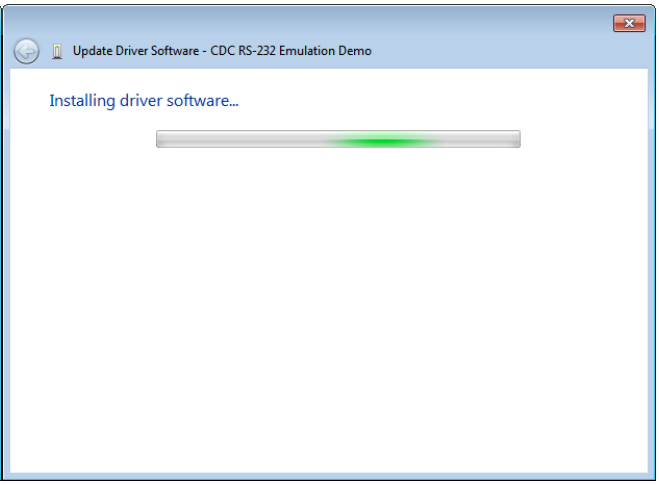



Figure 11: Driver Installation

During the installation of the drivers, if the screen in Figure 12 appears, click "**Install this driver software anyway**" or "**Yes**".

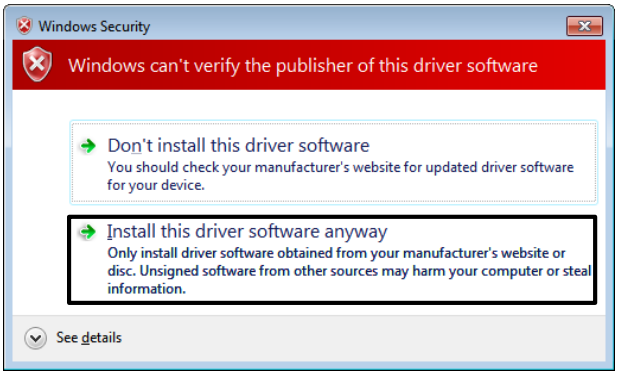



Figure 12: Verify Publisher of Driver Software

The driver is now installed, as shown in Figure 13. Click "**Close**".

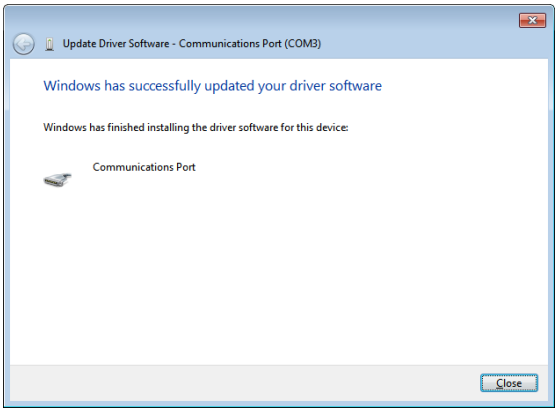



Figure 13: Successfully Installed Driver

**NOTE:** If a single M4x Blade is being used instead of a M4x Multi-Blade Chassis, copy Config.XML (included on CD or in zip file) and paste it into the same path as above (Path: C:\Program Files (x86)\Raven Electronics\MediLink Service). Allow it to overwrite the file already found in this location.

Power cycle the M4x. Opening the Device Manager (optional) will now show the Communication Ports associated with the M4x Blades installed in the M4x Communication Shelf as per the example in Figure 14.

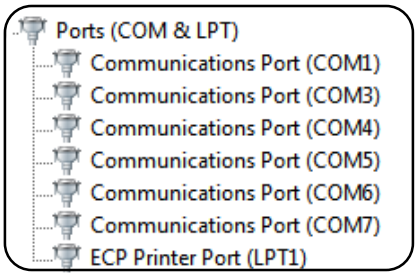



Figure 14: COM and LPT Ports

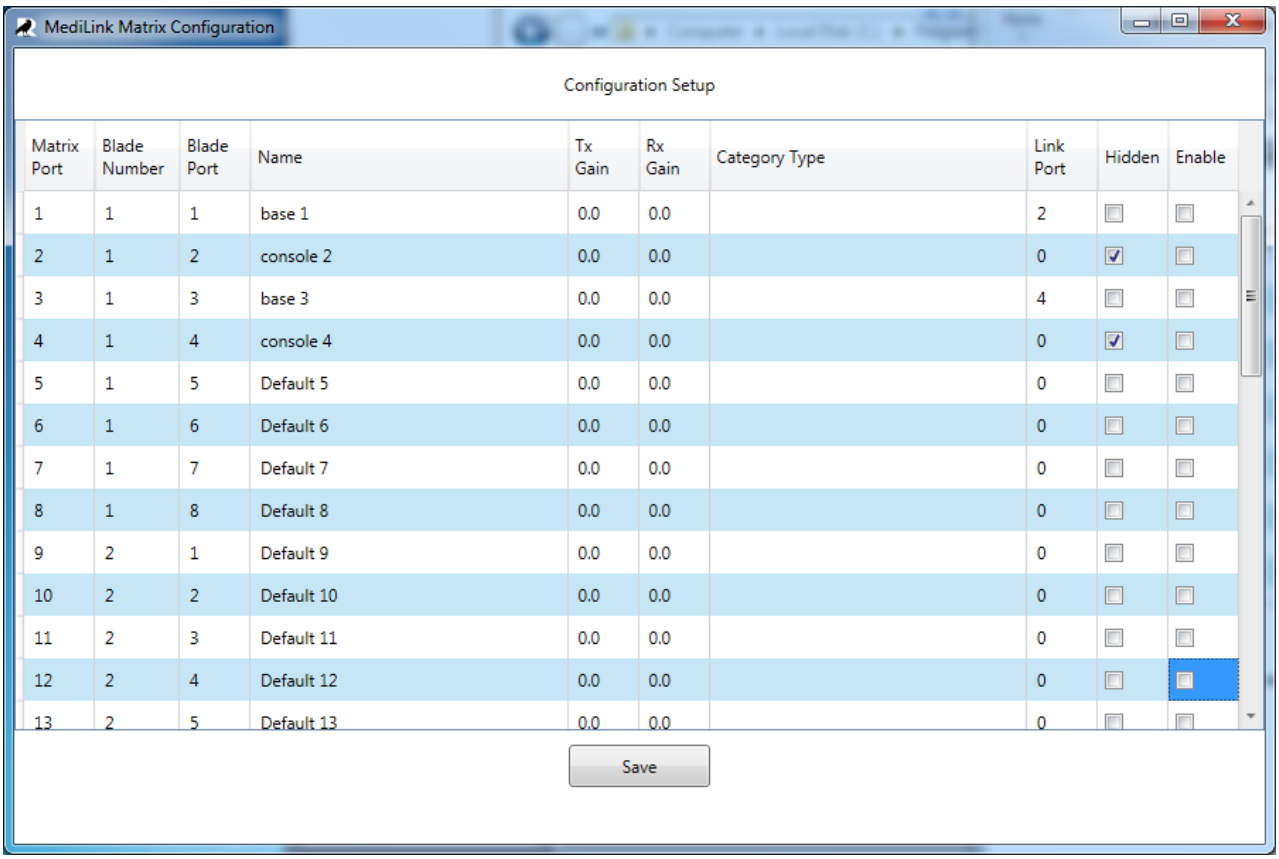
## Configuring M4x MediLink on the Server


Figure 15: Desktop Icon

Configuring Matrix Ports on the Server, double-click the new "**MediLink Config**" icon found on the desktop, as shown in Figure 15.

If a screen pops up asking to verify the Publisher of the software, please click "**Yes**" or "**Install this driver software anyway**".

The M4x MediLink Matrix Configuration Setup Screen appears. This allows the user to configure all the matrix ports as shown in Figure 16.




| Matrix Port | Blade Number | Blade Port | Name | Tx Gain | Rx Gain | Category Type | Link Port | Hidden | Enable |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | base 1 | 0.0 | 0.0 | | 2 | ☐ | ☐ |
| 2 | 1 | 2 | console 2 | 0.0 | 0.0 | | 0 | ☑ | ☐ |
| 3 | 1 | 3 | base 3 | 0.0 | 0.0 | | 4 | ☐ | ☐ |
| 4 | 1 | 4 | console 4 | 0.0 | 0.0 | | 0 | ☑ | ☐ |
| 5 | 1 | 5 | Default 5 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 6 | 1 | 6 | Default 6 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 7 | 1 | 7 | Default 7 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 8 | 1 | 8 | Default 8 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 9 | 2 | 1 | Default 9 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 10 | 2 | 2 | Default 10 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 11 | 2 | 3 | Default 11 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 12 | 2 | 4 | Default 12 | 0.0 | 0.0 | | 0 | ☐ | ☐ |
| 13 | 2 | 5 | Default 13 | 0.0 | 0.0 | | 0 | ☐ | ☐ |

Figure 16: MediLink Matrix Configuration Screen

This screen allows some customization, including Name, TX Gain, RX Gain, and Category Type.

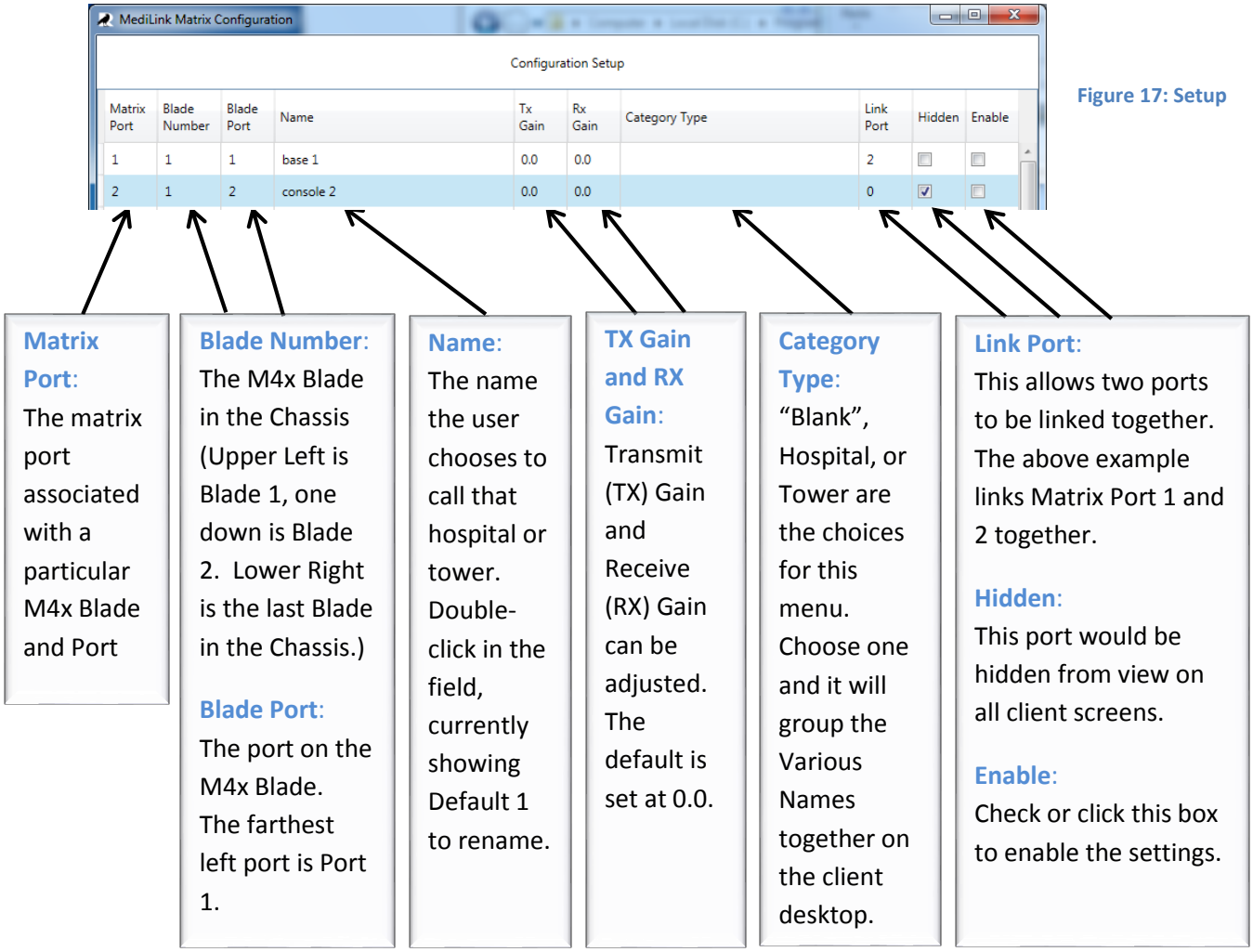



Figure 17: Setup

***Note: When the configuration is complete, click on "Save" as shown in Figure 18. Close the window.***

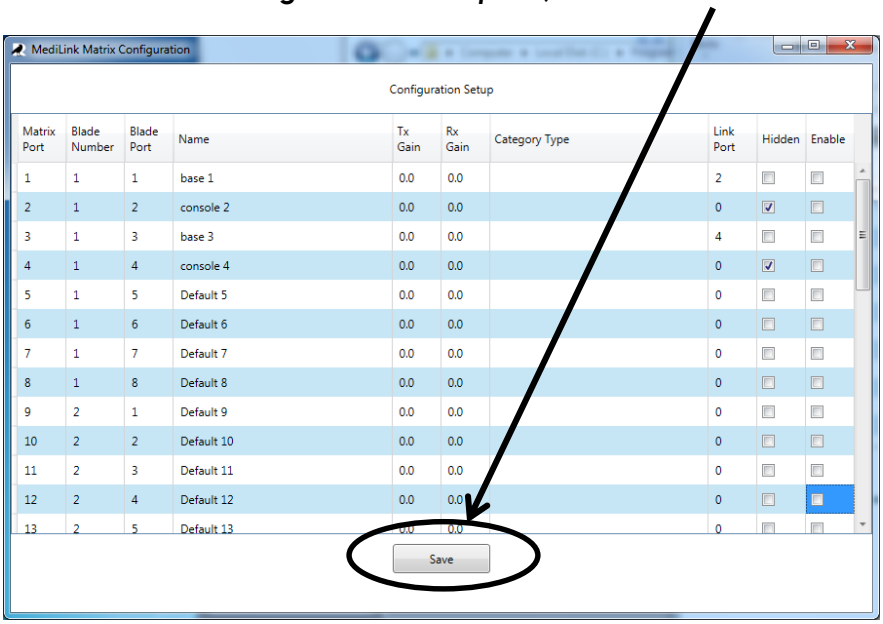



Figure 18: Save New Configuration

The server now needs to be either rebooted or else the services must be started.

To Start Service, click on the "**Start Menu**", type in **Services** as shown below in Figure 19 and it will show up towards the top of the Start Menu as shown below. Click on "**Services**".

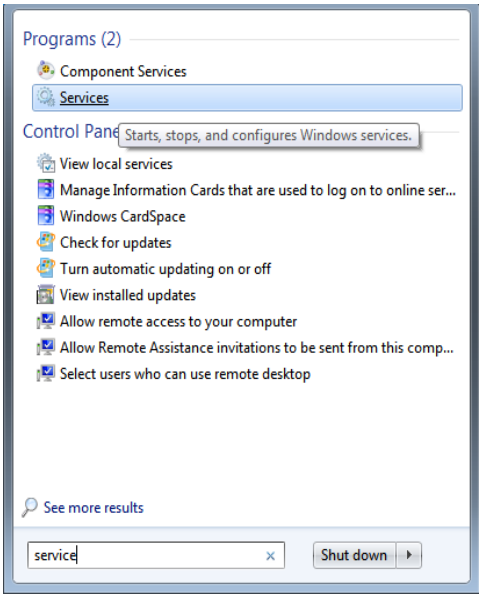



Figure 19: Start Menu and Services

Scroll down to "**MediLink Service**" as shown in Figure 20. Click on "**Start** the service" or Right-Click on "**MediLink Service**". After the services have started, the LEDs on the M4x Blades will light and then turn off, but in no particular order. If LEDs do not turn on or an M4x Blade LEDs do not turn on, click on "**Restart** the Service".

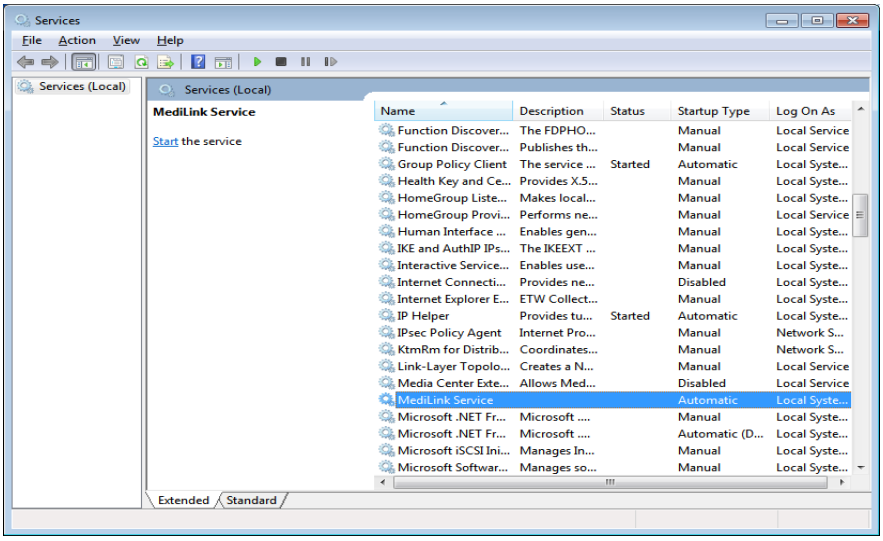



Figure 20: MediLink Services

Click on the Start Menu and type in "**IP Config**" in the box and hit "**Enter**". Write down the IP Address of the Server as it will be necessary when setting up the client.

Server IP Address: _____ . _____ . _____ . _____

## M4x MediLink Client Software Installation

In order to set up MediLink, first install the necessary software on the server. All the software necessary to get started is located on the CD provided. Before installing any new software, please verify that the OS is Windows XP or Windows 7 and it is up to date.

***Note: If an older version of the software has already been installed, it must be uninstalled before the new software is installed.***

Locate the **MediLink Client Setup.msi** file from the CD. Double-click the file. The Setup Wizard, as shown in Figure 21, will appear. Click "**Next**".

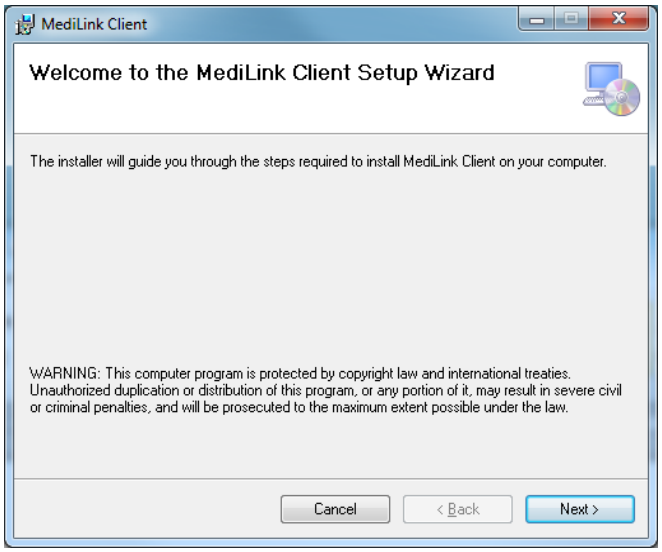



Figure 21: Setup Wizard Screen

Choose a location or keep the default to install the MediLink Client software, as shown in Figure 22. If the location is changed, please notate it as it will be required to locate it. Be sure the "**Everyone**" button is highlighted as shown below. Click "**Next**".

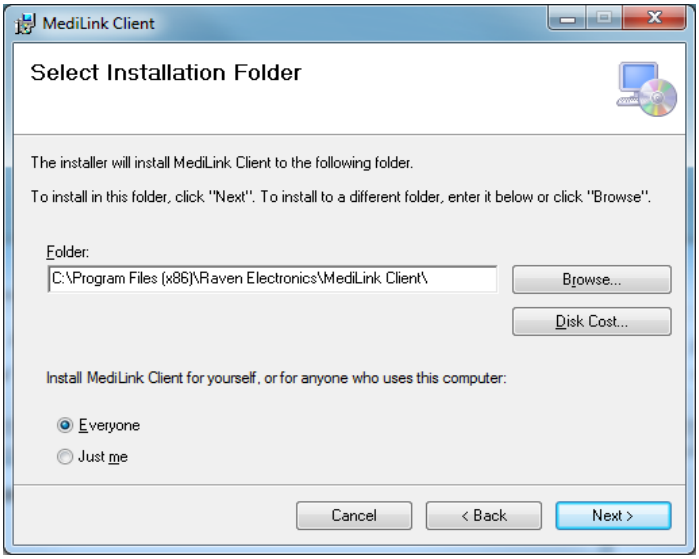



Figure 22: Installation Folder Selection

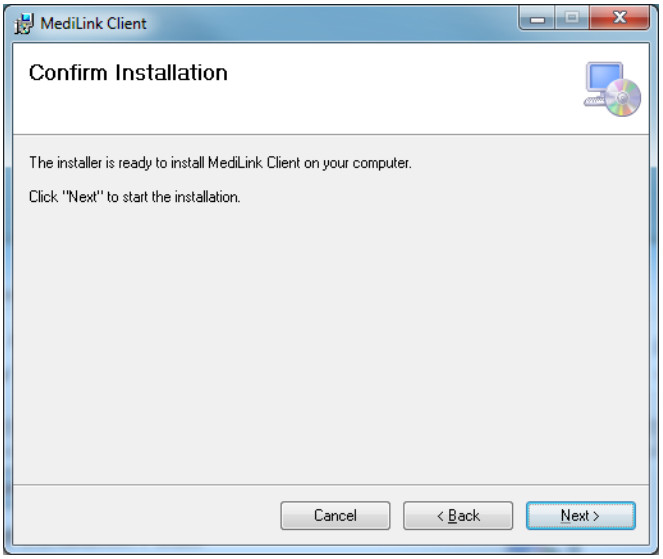



Figure 23: Install Drivers Screen

Once the program is ready to install, the Confirm Installation screen, as shown in Figure 23, appears. Click "**Next**".

M4x MediLink Service is now being installed onto the client, as shown in Figure 24. A "User Control Access" screen may pop up during the installation. Click "**Yes**".

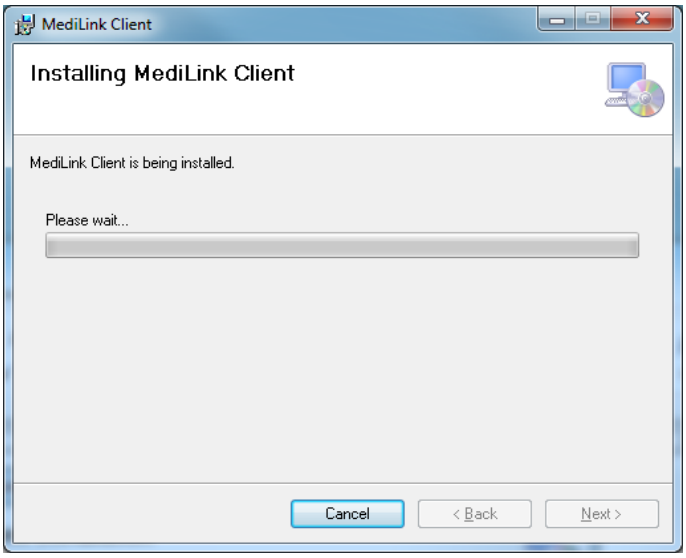



Figure 24: Installation Screen

Congratulations! The M4x MediLink Client Software has been successfully installed, as shown in Figure 25. Click "**Close**".

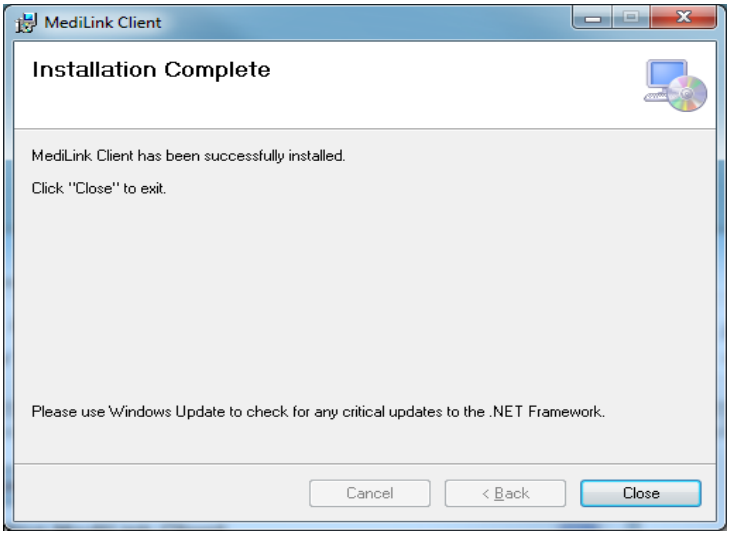



Figure 25: Installation Complete

## Configuring M4x MediLink on the Client

Configuring MediLink Client Application, double-click the new "**MediLink**" icon found on the desktop, as shown in Figure 26.


Figure 26: Client Icon

The MediLink Client Application opens, as shown in Figure 27. Please note, the first time opening the application will take a moment longer than usual.


Figure 27: MediLink Client Application

Click on the "**Config**" button. This changes the screen to the Configuration Page, as shown in Figure 28.

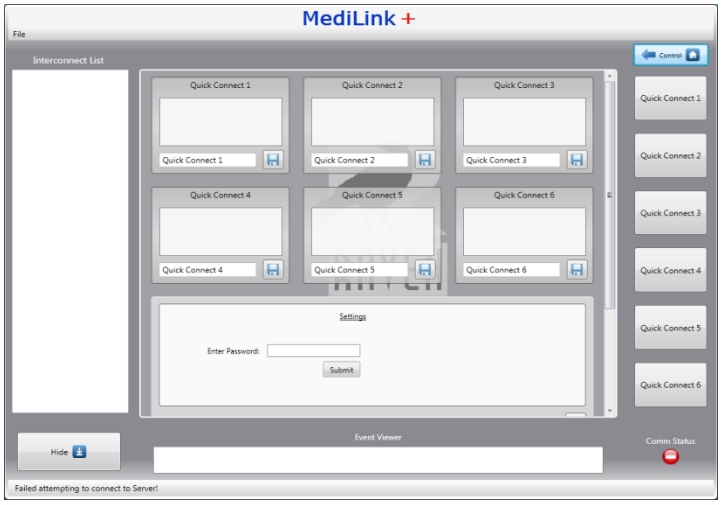



Figure 28: MediLink Configuration Screen

In the Network Options section, enter system Password (default password: admin) and click "**Submit**". Once the correct password has been submitted, enter in the IP Address of the Server hosting the Matrix Service (Page 9) followed by a colon and the port number (default is 13000). Example: 127.0.0.1:13000

This screen allows the administrator to change the Selection Timer (multiple locations clicked within this time automatically form a connection). The Password can be changed here as well.

Scroll down on the Network Options section and Click "Save" or the Save Disk icon to save the changes as shown in Figure 29. Click the "**Control**" button to return to the home screen.

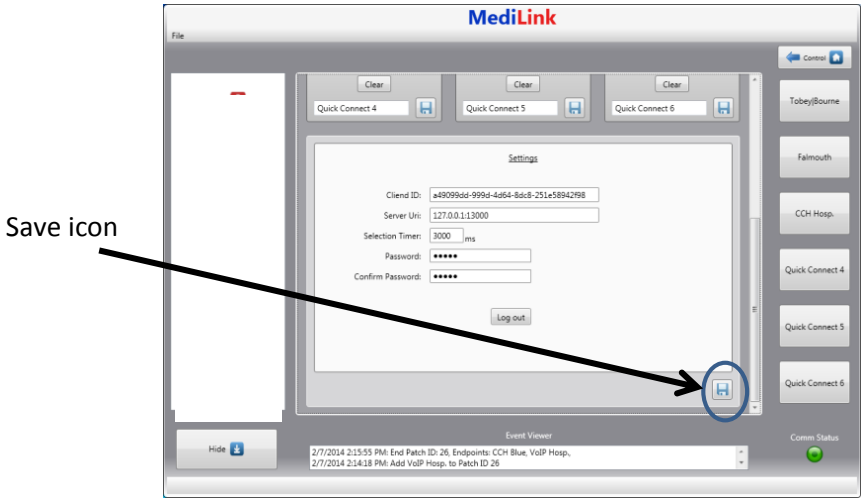



Figure 29: Save Network Options

Once the Client is connected to the server, "Comm Status" will indicate connection status, as shown below in Figure 30.

Red = No Connection to Server

Green = Connected to Server


Figure 30: Application Screen

## Setup Quick Connects

Setting up Quick Connects allows the user to quickly make conferences between the same locations with a click of a button. To configure Quick Connects, click on the "**Config**" button. The screen, as shown in Figure 32, will appear.

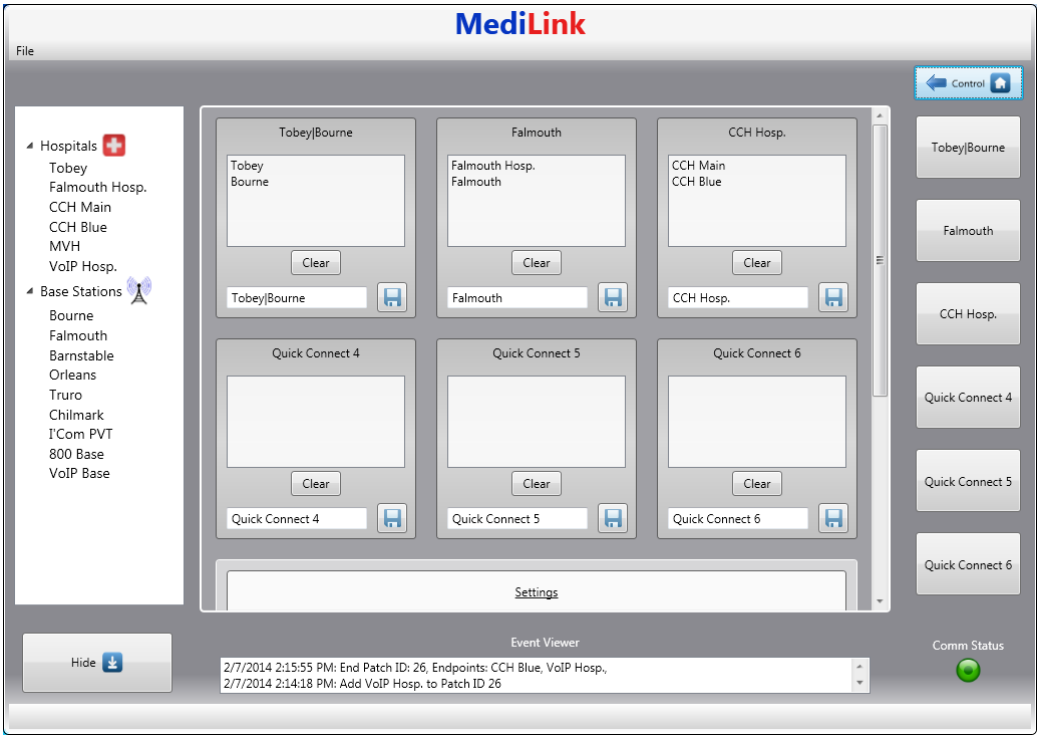



Figure 31: Configuring Quick Connects

The names of Hospitals as well as Base Stations that appear are configured when setting up the server. To create a Quick Connect, click a Hospital and/or Base Station and drag it into a Quick Connect box.

When the locations are correct, the name Quick Connect can be changed to identify the locations in the connection.

When the Quick Connect is complete, press the Save button ( ) in order to save the new Quick Connect. To remove a location, double-click the location or else press the "**Clear**" button to remove all of the locations from that Quick Connect. Be sure to save when done making changes.

When all Quick Connects have been configured, press the "**Control**" button to return to the original screen as shown in Figure 30.

# Chapter 4 – M4x MediLink Application

## Creating Connections

There are several different ways to set up bridges (conferences, patches, connections). As connections (Patches) are made, the color of the highlighted location will match with its respective Patch.

- Quick Connects are the easiest way to setup a connection between locations.
- Another way to make a connection is clicking on a location and then other connection. If the clicks are within time limit setup in the "Selection Timer", all of the locations clicked will form a connection as shown in Figure 32. To make another connection separate from the first one, wait after the Selection Timer time (default is 3 seconds).
- The third way to make a connection is by clicking a location and then dragging and dropping other locations into the Patch as shown in Figure 32.

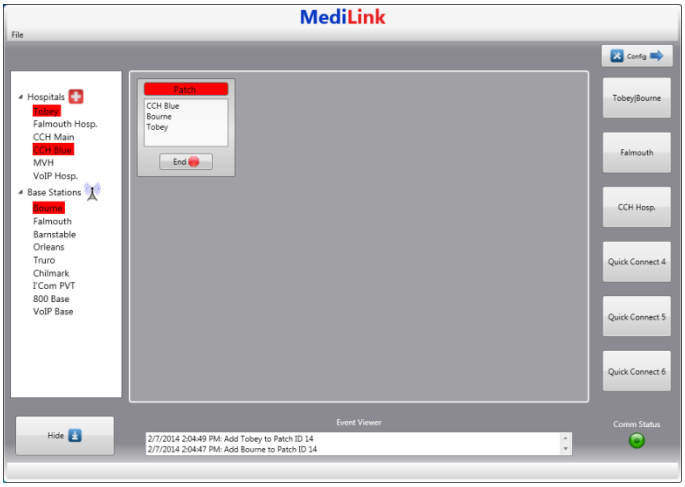



Figure 32: Manual Connection

### Removing Locations from Connection

To remove a location from an existing connection or patch, double-click the location in the Patch or right-click the location in the Patch and select "**Remove**".

### Moving Locations Between Patches

To move a location between patches, click on the name in the Patch, then drag and drop it into another Patch as shown in Figures 33 and 34. Another way would be to remove the location and then dragging the location into the new Patch. Either way works.

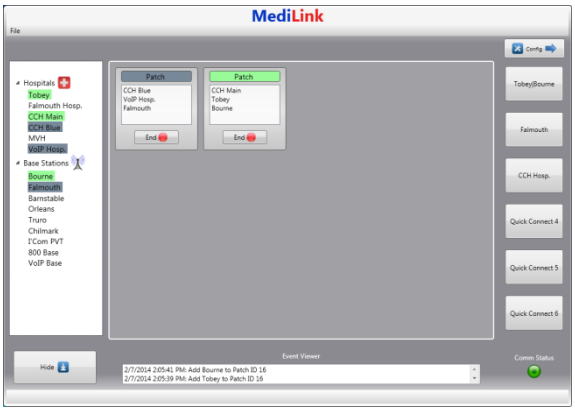



Figure 34: Two Patches (Before)

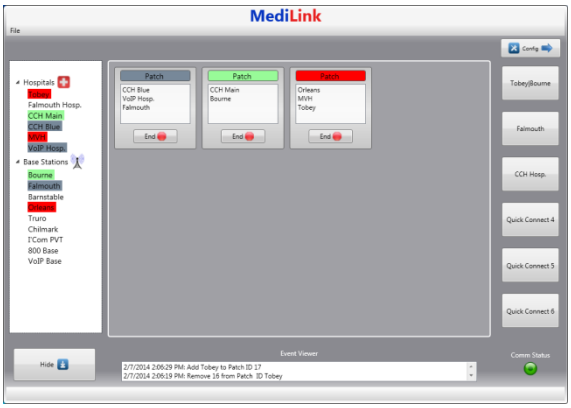



Figure 33: Three Patches (After)

### Ending a Connection

The quickest and easiest way to end a connection is to click the "**End**" button as shown in Figure 35. This will clear the entire Patch all at once. Another way would be to remove locations as mentioned in "Removing Locations from a Connection".

### Minimize and Maximize MediLink

Clicking the "**Hide**" button, as shown in Figure 35, the screen will minimize as shown in Figure 36. Press the "**Open**" button and the screen will reappear.


Figure 35: MediLink Minimized

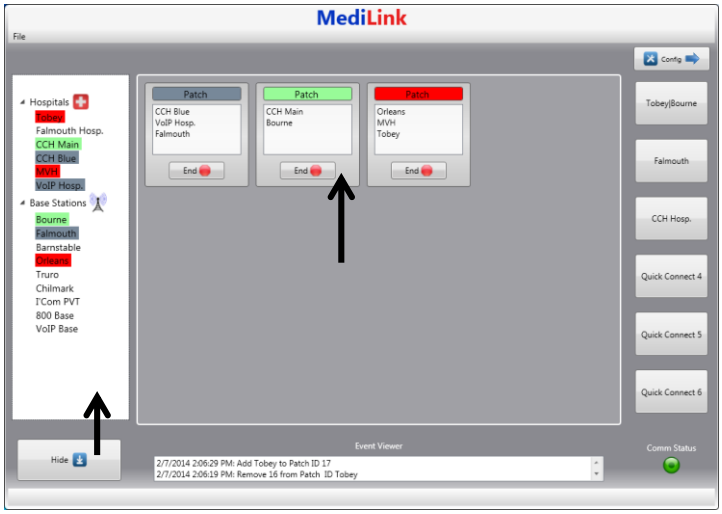



Figure 36: End a Patch

### Park or Unpark Location

When a connection is bad or needs to be taken offline, right-click on the location and select Park. As shown in Figure 37, an X will be next to the location to notify the user the location is not transmitting any voice. Pressing a Quick Connect will continue adding the parked location, however, the voice will not transmit.

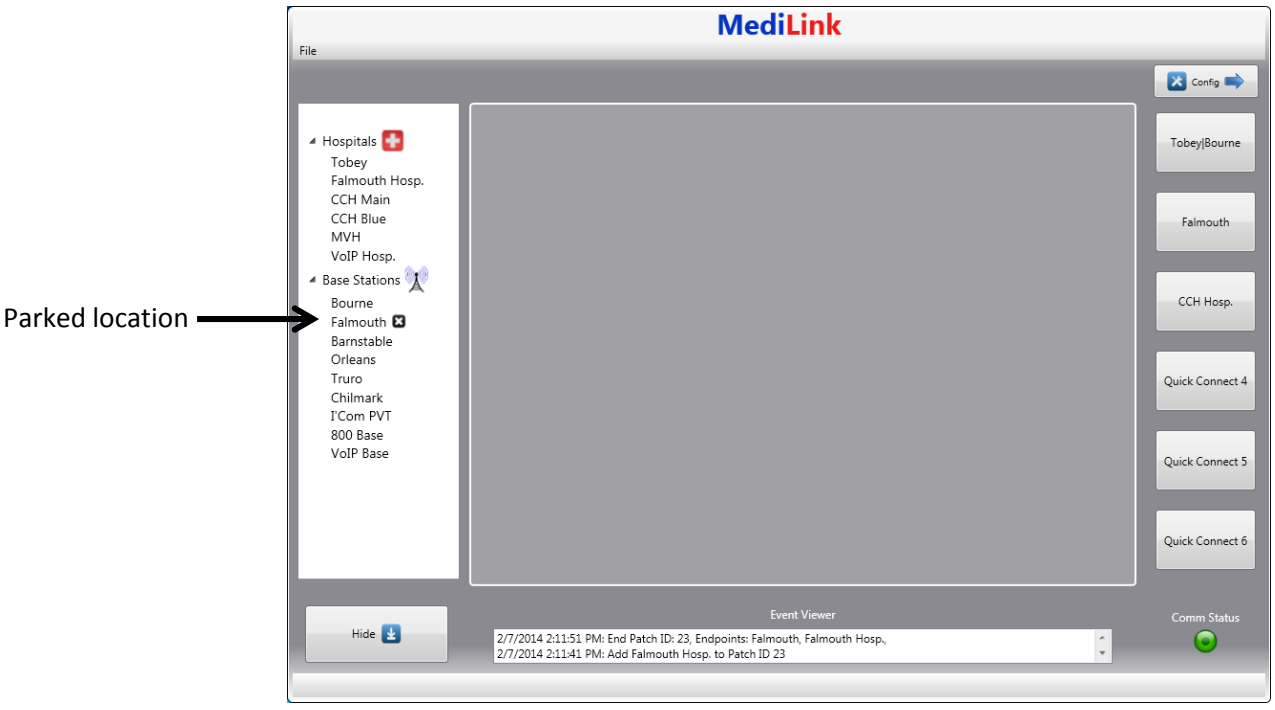



Figure 37: Location on Park

### Other Information

If all locations are in various Patches, as shown in Figure 38, pressing a Quick Connect will remove those specified locations out of their current patches and place them into the new one, as shown in Figure 39.

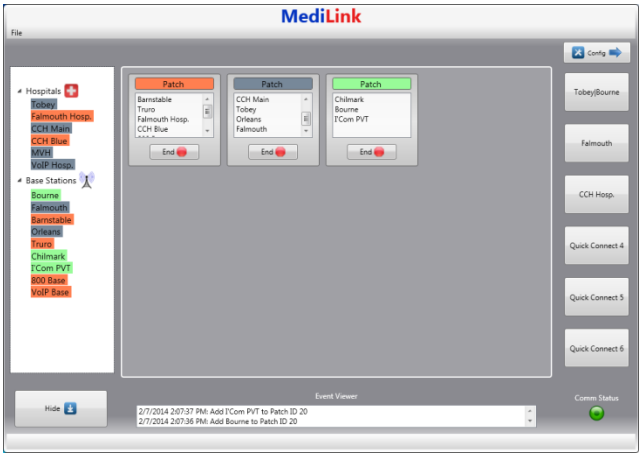



Figure 38: All Locations Used

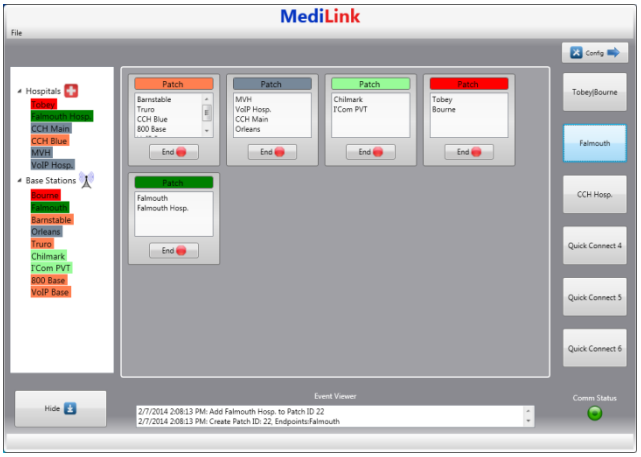
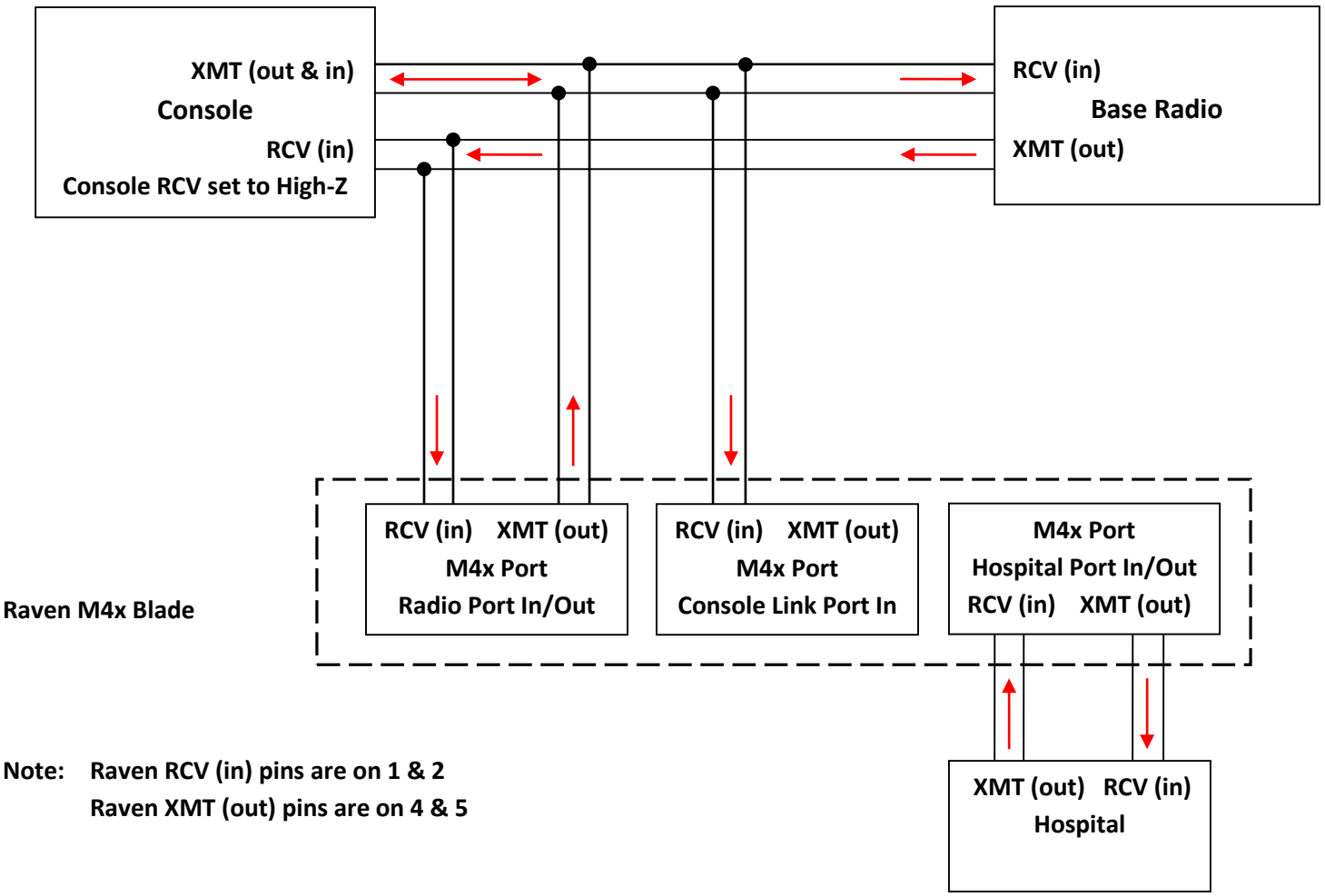



Figure 39: Add Quick Connect

# Chapter 5 – Example Console to Base Wiring Scheme




Note: Raven RCV (in) pins are on 1 & 2
Raven XMT (out) pins are on 4 & 5

**Red arrows indicate audio direction. Note that console XMT port both transmits and receives.**

**Note that RCV (in) on base radio is in reference to audio received from the console or the hospital. XMT (out) on the base radio is in reference to base radio audio outbound to the console and, if patched, to the hospital.**

## END OF DOCUMENT