CREWCOM BY PLIANT

CrewWare

OPERATING MANUAL

Version 1.14

THANK YOU

We at Pliant® Technologies want to thank you for purchasing CrewCom®. Pliant brings our experience, expertise, and commitment to quality technology with the new CrewCom System. In order to get the most out of your new CrewCom product, please take a few moments to read this manual completely so that you better understand the operation of this product. For questions not addressed in this manual, feel free to review the additional support documentation provided on our website (www.plianttechnologies.com) or contact Pliant's Customer Support Department. See "Product Support" on page 131.

While Pliant makes every attempt to maintain the accuracy of the information contained in this manual, this information is subject to change without notice, and published device/system functions and features are subject to firmware version. Please check our website for the latest system specifications and certifications.

Model Information

This document applies to Version 1.14.

Document Reference: D0000248_H

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

This chapter consists of the following sections:

Firmware Release Notes

Find the latest CrewCom firmware release notes on the Pliant Technologies website. Download the latest firmware release from the Pliant Technologies downloads page.

CrewCom Overview

CrewCom is a versatile yet straightforward communications solution built on an intelligent wireless and wired network-based distributed system architecture. Innovative technologies have been specifically developed to facilitate intercom system growth and effortless adaptation, along with unparalleled digital wireless reliability for consistent operation, even in the most demanding production environments.

Decentralized Network Architecture

The CrewCom system utilizes a proprietary network backbone, known as CrewNet™, to coordinate and transport all system timing, audio, signaling, and controls. This efficient, decentralized resource network delivers increased flexibility over that of traditional technologies, using a distributed network-to-device intelligence within a modular building block structure. System components can easily be placed where they are needed or scaled to facilitate system growth, reconfiguration, and effortless adaptation to changing environments. For increased infrastructure flexibility, the CrewNet network is capable of operating over standard Cat 5e (or greater) and/or Single Mode Fiber (SMF) connections.

Flexible RF Platform

CrewCom's RF platform is vast and flexible to meet the needs of virtually any wireless communication challenge facing production and entertainment professionals worldwide. Each CrewCom wireless product is available in the 2.4GHz and 900MHz (North America, Australia, and New Zealand only) ISM bands and any combination of these frequency ranges may be simultaneously used on the same CrewCom system. CrewCom makes it easy to operate in challenging RF environments by combining support for multiple simultaneous frequency bands, while also allowing for simple system setup without the need for an RF engineer.

In addition, a more robust RF link enhances RF range and reliability through a newly developed dual carrier double-send transmission scheme that minimizes the adverse effects of inter-symbol interference. This innovation allows increased useful RF range and improved performance, especially in large, reflective environments.

Intuitive User Experience

CrewCom's family of products is designed around a system architecture that offers a high density of users with a more manageable infrastructure and lower cost per user than typically found in large-scale wireless installations. The CrewCom system not only consists of a range of wired and wireless

hardware products but also incorporates an intuitive software application, known as CrewWare, working together with the system hardware to enhance the experience of system administrators, designers, integrators, and users. Each device's user interface allows a quick learning curve with high functionality, and its ease of use is consistent across all frequency bands, types of users, and applications.

CrewCom Devices

The following is a list of available CrewCom devices. For more information on each of these products and their configuration capabilities, visit the specific device's overview pages linked below.

- Control Unit (CU) – the 1RU foundational element of the CrewCom system that establishes the CrewNet-based infrastructure while also providing external connections to common established intercom systems. Unlike traditional BaseStations, the CU contains no radio and is frequency agnostic, which sets the groundwork for a multi-frequency capable system. For maximum flexibility, any CU can access, control, and monitor any active device across CrewNet. The CU is available in a "CCU-22", "CCU-44", and "CCU-08" models, which simultaneously support up to (2) 2-Wire and (2) 4-Wire, (4) 2-Wire and (4) 4-Wire, or (8) 4-Wire intercom connections, respectively.

- Radio Pack (RP) – the direct portable wireless communication device connecting individual CrewCom users to the CrewCom system. Each RP provides full duplex audio communications and, through customized function buttons, and General Purpose Output (GPO) control. The RP requires a connected headset and access to a Radio Transceiver on the CrewCom system. Devices are available in 2.4GHz and 900MHz bands as well as one, two, and four volume/talk button configurations.

- Radio Transceiver (RT) – a CrewCom radio device that houses a transmitter and receiver (2.4GHz or 900MHz) and its corresponding antennas, enabling RF communications to CrewCom Radio Packs. Using the CrewNet network as the system's backbone, RTs can be positioned throughout a wide coverage area by being linked back to a Control Unit either directly or through a Hub(s). Connectivity is accomplished using either Cat 5e (or greater) or Single Mode Fiber (SMF).

- Copper Hub – a CrewNet-based device with eight ports to allow extended interconnection for a variety of CrewCom hardware. Ports one through seven are copper (RJ-45, Cat 5e, or greater); port eight can be either an additional copper port or a duplex LC Single Mode Fiber port, but only one may be used at a time. The Hub provides for extensive system expansion and flexibility.

- Fiber Hub – a CrewNet-based device with eight ports to allow extended interconnection for a variety of CrewCom hardware. Ports two through eight are duplex LC single-mode fiber ports; port one can be either an additional fiber port or a copper port (RJ-45, Cat 5e, or greater), but only one may be used at a time. The Hub provides for extensive system expansion and flexibility.

CrewWare

CrewCom includes CrewWare, a companion desktop software, to simplify the process of optimizing your CrewCom wireless system. CrewWare is used for monitoring and managing CrewCom wireless intercom systems. The software enables the user to create a CrewCom Configuration File offline and then load the settings to your system from a portable USB drive or from a connected computer. CrewWare provides an intuitive method of accessing all connected CrewCom devices and their associated peripherals. CrewWare allows a user to adjust critical settings from the computer, and only requires connection to your existing computer or computer network.

See "CrewWare " on page 18 for a summary of CrewWare's functions.

Operational Modes (Normal and High Density)

High Density Operational Mode is supported in Version 1.10 or higher. High Density Mode is a selectable mode of operation for existing hardware that will allow user densities to increase by more than fivefold. When selected, this new mode of operation will allow for up to 32 Radio Packs (RPs) to log into a single Radio Transceiver (RT). In addition, users will have the flexibility to mix “Normal” Mode engaged RPs and RTs along with separate High Density Mode engaged RPs and RTs on the same system to allow for application specific setup with ultimate adaptability.

For best system performance with no interaction between Radio Transceivers (RTs) in a mixed (Normal & High Density) system it is recommended that Normal-mode RTs and High Density-mode RTs be separated by at least at 80 feet (24 meters) or greater for 900MHz products and 60 feet (18 meters) for 2.4GHz products. It is possible to operate with less physical separation; however, overall range may be affected as the distance of separation is decreased.

IMPORTANT: Normal Mode is the default setting for devices in CrewWare. In order for proper use of Operational Modes, applicable devices and conferences need to be set using the same mode. Specifically, RP profiles and RT RF modes need to be set appropriately, and for High Density mode, up to four conferences need to be assigned as High Density conferences.

To choose High Density Mode for RTs in CrewWare, double-click on a Radio Transceiver in the Device Management list view to access its **device view** and view/edit its settings. For more information on RT settings, see "RT Management Tab" on page 59. To choose High Density Mode for RP Profiles in CrewWare, double-click on a Profile in the Profile Management list view to access its **detail view** and view/edit its settings. For more information on RP Profiles, see "Profile Management Tab" on page 68.

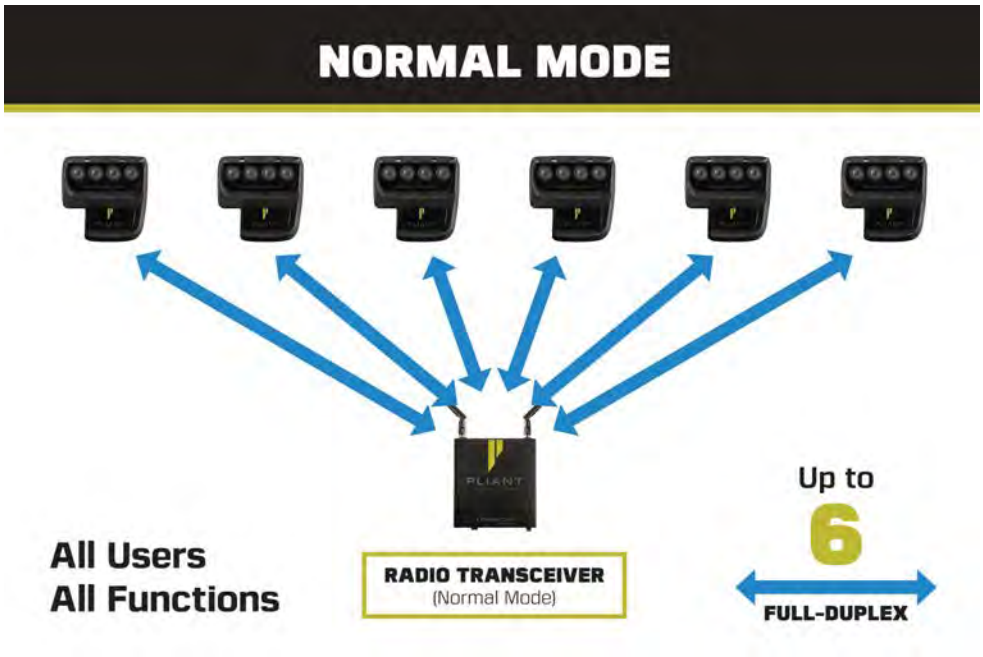


Figure 1 Normal Mode

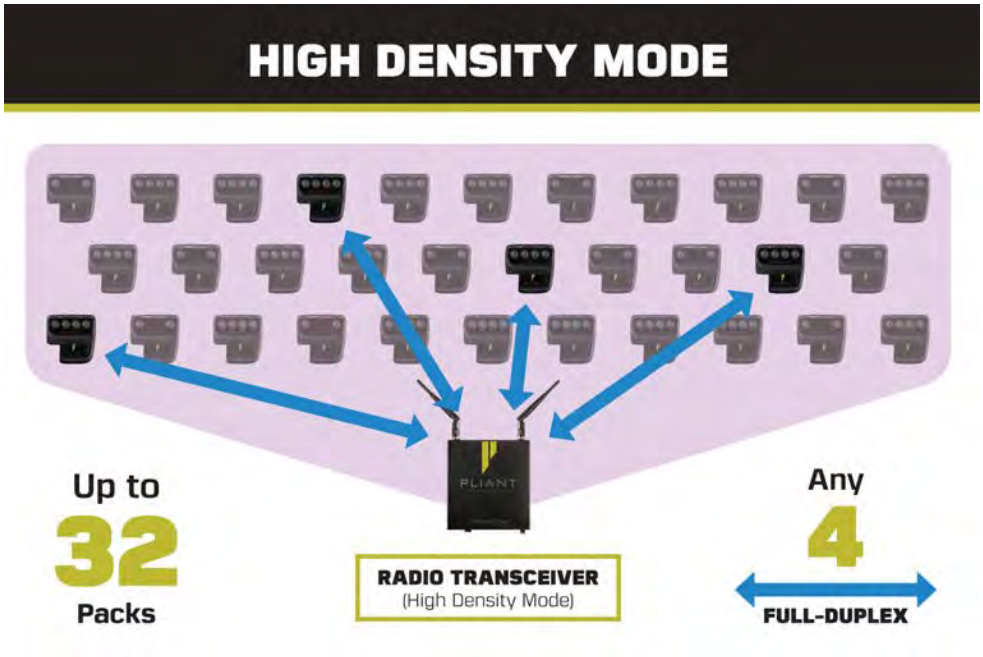


Figure 2 High Density Mode

CHAPTER 2

SETUP AND INSTALLATION

This chapter consists of the following sections:

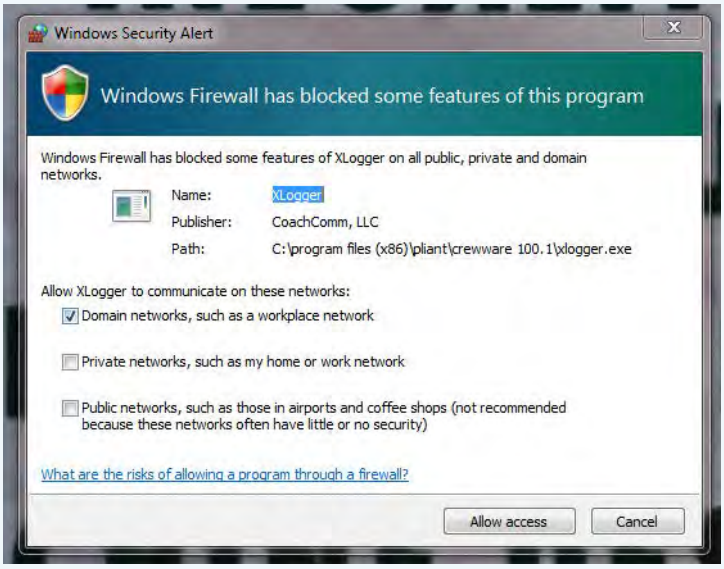
CrewWare Setup and Installation

A copy of CrewWare is available from the USB drive included with your Control Unit or via Pliant's Downloads page.

The CrewWare installation file (“CrewWare_Setup.exe”) includes both CrewWare—the system management software—and CrewCom device firmware. To install or update CrewWare, right-click on the “CrewWare Setup.exe” file, then click ***Run As Administrator*** in the menu that displays. Follow the Windows installer instructions that appear in order to complete installation. When updating CrewWare, be sure to save a copy of your current configuration file before updating.

When using CrewWare with any kind of Windows application, be sure to make an exception for CrewWare in the Windows firewall and/or with your virus protection program.

Note: One of the components of CrewWare, "Xlogger," is published by Pliant's parent company, CoachComm, LLC. Upon installation, it may cause a pop-up message similar to the one below. The Xlogger creates a proprietary log file for your instance of CrewWare, and will not perform any other action on the local system. It is safe to allow as an exception with your firewall and/or virus protection program.



Instructions for updating device firmware are included in "Update Firmware" on page 86.

System Requirements

- Windows 7 SP1 or higher
- 4 GB system memory
- Intel Core2 Duo CPU @ 2.67 GHz or better
- 128-megabyte (MB) graphics card
- .NET version 4.5.2

Additional Recommendation

- XGA video screen; 1024 × 768 or greater resolution

Connect to CrewWare

CrewCom's LAN TCP/IP configuration can be either Manual or via Dynamic Host Configuration Protocol (DHCP).

To use DHCP, the CrewCom Control Unit will need to be configured as a DHCP client. If DHCP is not enabled on your LAN, then the CrewCom system can be configured to use static IP Addresses. After the CrewCom system is fully booted-up, and the Control Unit is assigned an IP Address (either through DHCP or manually), CrewWare can connect to the Control Unit. The procedures for this entire configuration are detailed in the following sections.

LAN Configuration Procedures

Note: If the CU is powering on for the first time or if it has been reset to factory defaults, the LAN Configuration option is found under Load Configuration > Load Configuration via LAN. Otherwise, follow the steps below.

1. **Set the IP Address:** To get started configuring your system's LAN connection, determine if you will use DHCP or manually set your system IP Address:
    A. **For DHCP Configuration:** When the CU is booted, it automatically receives an IP Address from the DHCP server. The CU does not automatically receive an IP Address if it powering on for the first time or if it has been reset to factory defaults. DHCP must be chosen during setup for TCP/IP Mode.
        i. Press the CU's menu button on the bottom right of the LCD to access the menu, then use the CU's navigation buttons to access the LAN Settings option.

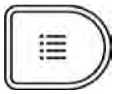


Figure 3 Rendering of CU Menu Button

        ii. Take note of the TCP/IP address for the CU, then skip to Step 3.

> **Note**: For non-factory-configured systems, the default TCP/IP Mode for Control Units is ***DHCP Client***.

B. **For Manual IP Address Configuration:** Enter the IP Address for the connected Control Unit via the CU LCD or via CrewWare.

i. **From the CU LCD:**

a. Press the Menu button on the front of the CU to access the menu.

b. Scroll to select **LAN Settings**.

c. From this menu, edit the TCP/IP Mode to be ***Manual***; then, enter the TCP/IP Address, Subnet Mask, and Default Gateway. You can also view the current setting for MAC Address.

d. Skip to Step 2.

ii. **From CrewWare:**

a. Open the Control Unit detail view from the Device Management tab or by double-clicking the Control Unit from the System Diagram.

b. If needed, edit the LAN Settings (IPv4) Settings panel to set the CU's IP Address, Subnet Mask, Default Gateway, and Control Unit Port. (See Figure 27 on "CU Management Tab" on page 44.) You may only make changes to these settings while CrewWare is offline. If no edits are needed, take note of the current LAN Settings (IPv4) Settings and skip to Step 2.

Note: If you edit the CU default LAN Settings (IPv4) settings, you will need to save your CrewCom Configuration File (CCF) and re-upload it to the CU for the changes to take effect.

2. Set your computer's LAN Settings (IPv4) Manual IP Address.

> **Note**: The steps below are specific to the Windows 10 operating system. Your settings and menus may differ slightly.

A. Right-click your PC's connection icon and select ***Open Network and Sharing Center.*** (Or access the same window from your PC's Control Panel.)
B. Open the ***Local Area Connection*** status information.
C. Click ***Properties***. A Local Area Connection Properties window will display.
D. Double-click the ***Internal Protocol Version 4 (TCP/IPv4)*** option from the list of connection properties. A TCP/IPv4 Properties window will display.
E. Select ***Use the following IP address*** and fill out the appropriate information, making sure that the first three sets of numbers are the same as your CU but that the last number is different. (See Figure 4 below.)

F. Click ***OK***.

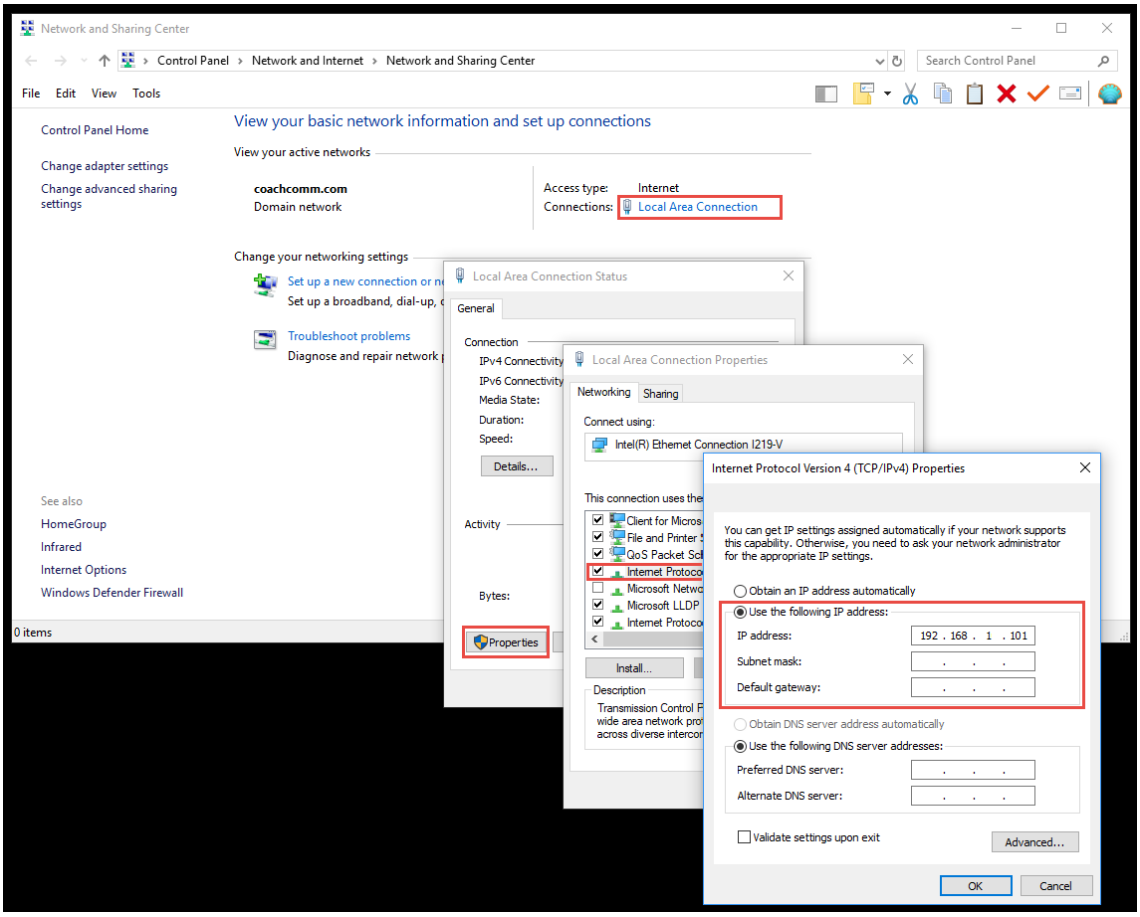


Figure 4 Example IP Address Settings Changes

3. Establish the LAN Connection between CU and CrewWare.
   A. Once the CU IP Address is assigned/set and your computer's Manual IP Address is set (if needed), click the ***Offline*** button in CrewWare. The Login dialog will display. (See Figure 5 below.)
   B. In the ***Device*** field, type the CU's IP Address or select a previously entered IP Address.

> **Tip**: If you need to reference a specific port number after the IP Address, add a colon (":") and add it at the end of the IP Address. The default Port value to connect to a Control Unit is ***2017***. You may change this default using CrewWare if your firewall settings require it.

   C. Click ***OK***. Once a connection is established between CrewWare and the CU, the current configuration will display in the System Diagram tab and the connection status button will display "***Live***."

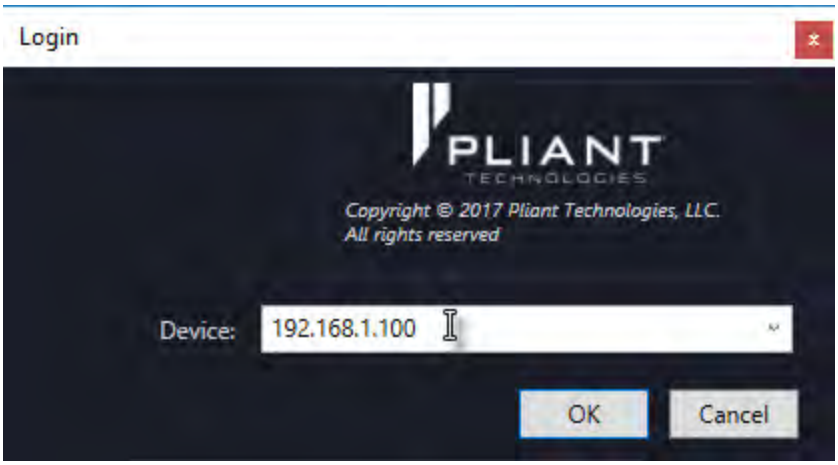


Figure 5 LAN Login Dialog Box

CHAPTER 3

PRODUCT OVERVIEW

This chapter consists of the following sections:

CrewWare

CrewWare functions from a set of one-click navigation panes and tabs. The menu bars located on the top of the screen and the System status and Connection status indicators in the upper right corner are static and remain available while CrewWare is open. The large display in the center of the CrewWare screen and the navigation panes on the left-hand side vary depending on which tab is selected by the user. The image below provides an overview of the basic menus and indicators found throughout CrewWare.

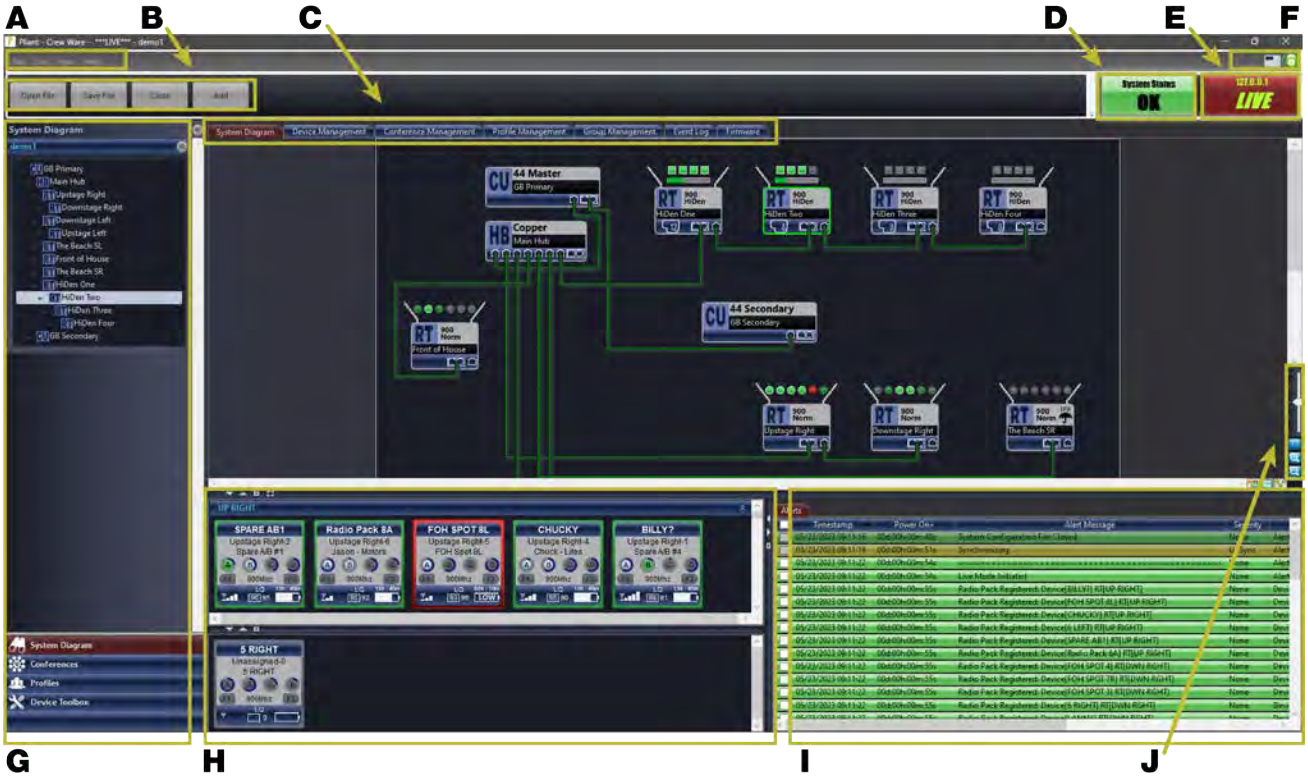


Figure 6 Functional Areas of CrewWare Program

CrewWare Overview		
Label	**Field/Function**	**Description**
A	**Menu Bar**	Located in the top left corner of the screen, and contains command options typically found in most software packages: ***File***, ***Edit***, ***View***, and ***Help***.
B	**Command Buttons**	Located directly under the menu bar, and provide one-click shortcuts to four CrewWare functions: ***Open File, Save File, Close,*** and ***Add***. The ***Add*** button is used to add devices to the System Diagram.

<table>
<tr><th colspan="3">CrewWare Overview</th></tr>
<tr><th>Label</th><th>Field/Function</th><th>Description</th></tr>
<tr><td>C</td><td>Tabs</td><td>Located just above the primary viewing area, tabs allow users to easily navigate between the various operational views:
System Diagram
Device Management
Conference Management Tab
Profile Management Tab
Group Management Tab
Event Log Tab
"Update Firmware" on page 86</td></tr>
<tr><td>D</td><td>System Status Indicator</td><td>Located in the top right corner of the screen, and will display a system status message. See the possible statuses listed below. The system status is determined by the highest severity level of any active alerts in the system’s Event Log.<table><tr><th>Color</th><th>Status Wording</th><th>Description</th></tr><tr><td>Red</td><td>Critical</td><td>Critical alert needing immediate attention</td></tr><tr><td>Orange</td><td>Error</td><td>High priority alert</td></tr><tr><td>Yellow</td><td>Warning</td><td>Moderate priority alert</td></tr><tr><td>Green</td><td>OK</td><td>Normal or “OK” events.</td></tr></table></td></tr>
<tr><td>E</td><td>Connection Status (Toggle)</td><td>Located in the top right corner of the screen, and indicates the current status of the CrewWare connection to CrewCom hardware: Offline or Live. When Live, the connected CU’s IP address is displayed at the top of the button, and all updates from the software are reflected in real-time in the hardware. Click this button to toggle the connection between the two options. See "Connect to CrewWare" on page 11 for more information.

Note: CrewWare does not allow users to make system configuration or LAN settings changes while system is in “Live” mode.</td></tr>
</table>

CrewWare Overview		
Label	**Field/Function**	**Description**
F	**Sync In Indicator, Mini View Toggle, and CrewWare Access Rights Lock**	The Sync In Indicator appears in CrewWare when a CrewNet signal is connected to the Sync In port of the Primary CU. See the Control Unit Manual for more information. The “Mini View” Toggle is a rectangular button located in the top right corner of the screen, and it expands or collapses the CrewWare window. The Padlock icon is located in the top right corner of the screen, and it indicates the current system access level. While the system is secured, the icon will display as a red, locked padlock, and the access rights are considered “user level” and are therefore view-only access. While the system is open, the icon will display as a green, unlocked padlock, and the access rights are considered “administrator level” and are therefore open for all changes. Unlocking the access requires entry of a specific access code, which is set from the Edit menu.
G	**Navigation Pane**	Located on the left side of the screen, and expands to display sub-lists within each panel: System Diagram, Conferences, Profiles, and Device Toolbox. Pane can be collapsed if the user wishes to hide it. The display name used atop the system diagram list determines the configuration name stored on the associated primary Control Unit when in “live” mode. This display name can be altered by opening the Diagram Preferences window (click ***Edit*** > ***Diagram Preferences***.)

CrewWare Overview		
Label	**Field/Function**	**Description**
H	**Real-Time Pack View**	Located in the bottom left corner of the screen, and displays a real-time view of each Radio Pack (RP) in operation. The top portion of the window (or "Active panel") displays RPs in operation with “Live” connection status. The bottom portion of the window (or "Inactive panel") displays RPs that are paired to the system, but not yet logged in. Double-click on an individual RP icon to access its Device Management detail view. Right-click on an individual RP in order to modify the list display or to enable the Mic Kill option or unpair the RP. RPs only appear in this view when logged into the system (and CrewWare is online). This view can be resized, expanded, or hidden. See "Real-Time Pack View" on page 98 for more information.
I	**Event Log Table**	Located directly opposite of the Real-Time Pack View in the bottom right corner of the screen. The ***Alerts*** sub-tab repeats the same categories of data available in the Event Log: Timestamp, Power On, Severity, Type, Alert Status, Target, Device ID, Layer, Alert Message, and CCF Name. This view can be resized, expanded, or hidden. See Event Log Tab for more information.
J	**System Diagram View Shortcuts**	Located on the right side of the screen, and toggle between three separate screen views for the System Diagram tab: Diagram View, Port View, and Relays View. These shortcuts are only applicable when viewing the System Diagram tab. See System Diagram for more information on these views.

CrewWare Menu

The CrewWare Menu Bar contains options that are typical to most software applications: ***File***, ***Edit***, ***View,*** and ***Help***. A summary of the options provided in each of those menus is provided in the following sections.

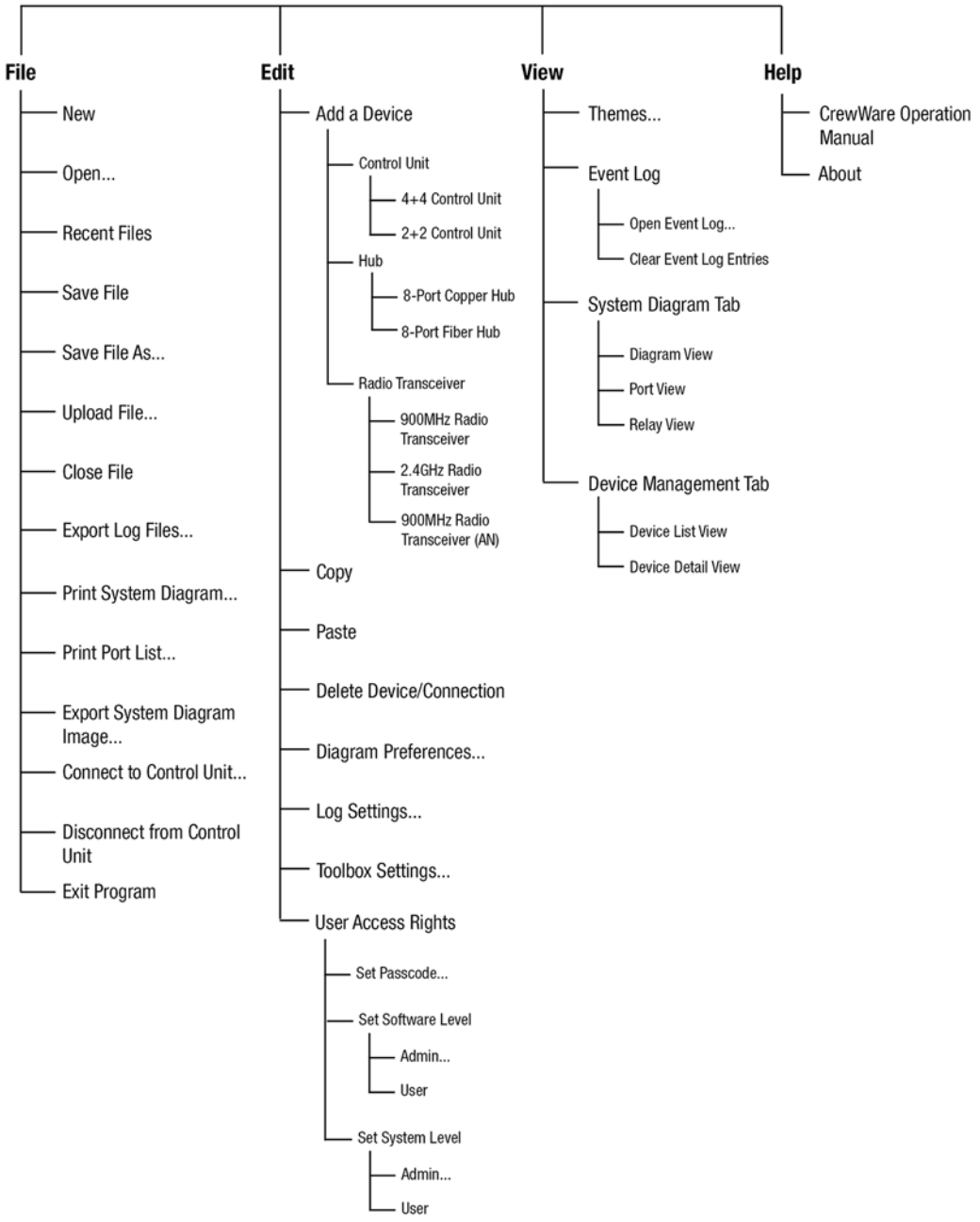


Figure 7 CrewWare Menu

CHAPTER 4

CREWCOM CONFIGURATION FILE (CCF)

This chapter consists of the following sections:

CrewCom Configuration File (CCF)

The CrewCom system operates using a CrewCom Configuration File (CCF) to coordinate the processes and data that make up the system's operation. A default CCF is available for your CrewCom system out-of-the-box to provide your initial settings. You can use CrewWare to customize your configuration to meet your specific needs beyond the default settings. The CCF stores the settings for your Conferences and Profiles, intercom settings, and connection information for your 2-Wire, 4-Wire, and CrewCom devices. See "Conferences" on page 26 and "Profiles" on page 26 for more information.

Conferences and Profiles work together to create channels of communication between CrewCom users. They are defined for each user, stored in the CCF, and available each time you set up. For more information on building a system diagram and creating a Configuration File, see the How to Create a System Diagram Video Tutorial. For more information on using the Configuration File, see "Upload Configuration File (CCF)" on page 26.

CrewCom Configuration File Defaults

Your system may be preconfigured at the factory. Consult the documentation provided with your system for your specific configuration details. Be sure to follow the hardware connections in your configuration; failure to do so may result in system errors.

If your system is not preconfigured, you may elect to use the Auto Configuration function. This function allows the user to configure a basic system (up to 3 RTs with no hubs) very quickly and without using the CrewWare software application. If more customization is required or a larger system needs to be deployed, the CrewWare application can be used to create a tailored system configuration specific to your application. For more information on how to Auto Configure, see the Control Unit Manual.

Determining Which CCF is Active

The CCF that is currently active for the CrewCom system is named in the top banner of the Primary CU's main menu. The Primary CU will also have (Primary) next to the CCF name. If the system was configured using Auto Configuration, the CCF name will show as "AutoCfg." If the unit is a non-primary CU in a system, the CCF name will show as the Primary CU's name with (Non-Primary) at the end. For more information on adding a non-primary CU, see "Add More CrewCom Devices" on page 104.

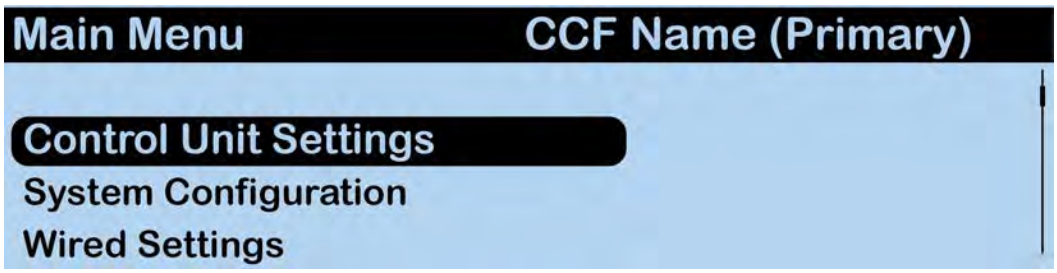


Figure 8 CCF Name in CU Main Menu

Figure 9 AutoCfg in CU Main Menu

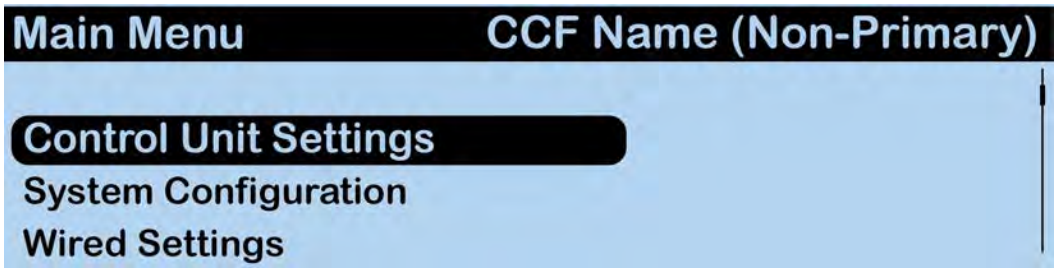


Figure 10 NoCfg in CU Main Menu

The active CCF is also named in CrewWare above the System Diagram left-hand panel.

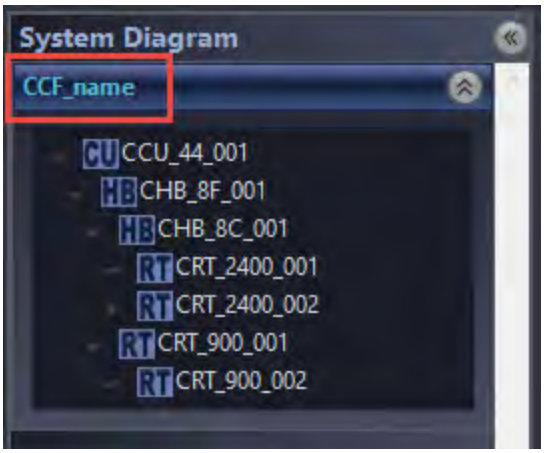


Figure 11 CCF Name in CrewWare

Conferences

A CrewCom Conference is an administrator-defined grouping of audio entities (inputs such as Radio Packs, wired intercom ports, etc.). Conferences are then created dynamically by mixing one or more audio entities and routing them to Conference subscribers accordingly. This method of subscription-based audio using Conferences is very powerful. Point-to-point associations may also be easily constructed using this method. Each association requires a separate, unique Conference. Conferences in CrewCom are full duplex (i.e. bidirectional) and there can be a maximum of 64.

Default Conferences are included as part of a system's "CrewCom Configuration File Defaults" on page 24. New Conferences can be created using CrewWare. (See "Conference Management Tab" on page 65.)

Profiles

Each CrewCom Radio Pack (RP) has a Profile that contains a variety of system settings that are defined as either global profile settings or user settings. An RP Profile determines the functionality of an RP's local controls, knobs, and buttons (including Conference assignments), and allows customization for user preferences, roaming, and operating mode. For more information on modes, see "Operational Modes (Normal and High Density)" on page 6.

- **Global Profile Settings** – These settings are part of the CrewCom Configuration File and are usually assigned by a system administrator through customization in CrewWare during setup. A global profile setting is one that assigns specific operational functions to an RP's Volume knobs, Talk buttons, and Function buttons, along with relay assignments and roaming options.
- **User Settings** – A user setting is one that is classified as being adjustable by the RP user and is limited to local device settings that do not alter the CrewCom Configuration File. The Profile can be used to determine these settings, but they can also be customized directly from an RP (after a Profile is loaded), the Control Unit's (CU's) menu, or CrewWare.

Upload Configuration File (CCF)

Each CrewCom system uses a configuration file (.ccf file extension) to direct the operation of all processes and data. The CCF contains hardware device configuration, Conference and Profile settings, 2-wire port and 4-wire port intercom settings, and all other CrewNet information for all connected CrewCom devices.

When CrewWare is connected to your system, toggling to "live" mode allows you to interact with the currently uploaded CCF. Only one CCF may be active (live) on a given system. Some configuration updates may be made via the front LCD of the Control Unit (CU); however, more advanced

customization and control requires the CrewWare program. CCFs can be created or edited offline using CrewWare on your PC and then uploaded to the primary CU via CrewWare or via a portable USB drive at the front USB port of the CU.

Uploading a CrewCom Configuration File via CrewWare

1. While CrewWare is offline, save the CCF you wish to upload.

> **Important:** CCF file names are limited to 8 characters and no spaces or special characters. The pop-up message below will show if the CCF name is not within these requirements.

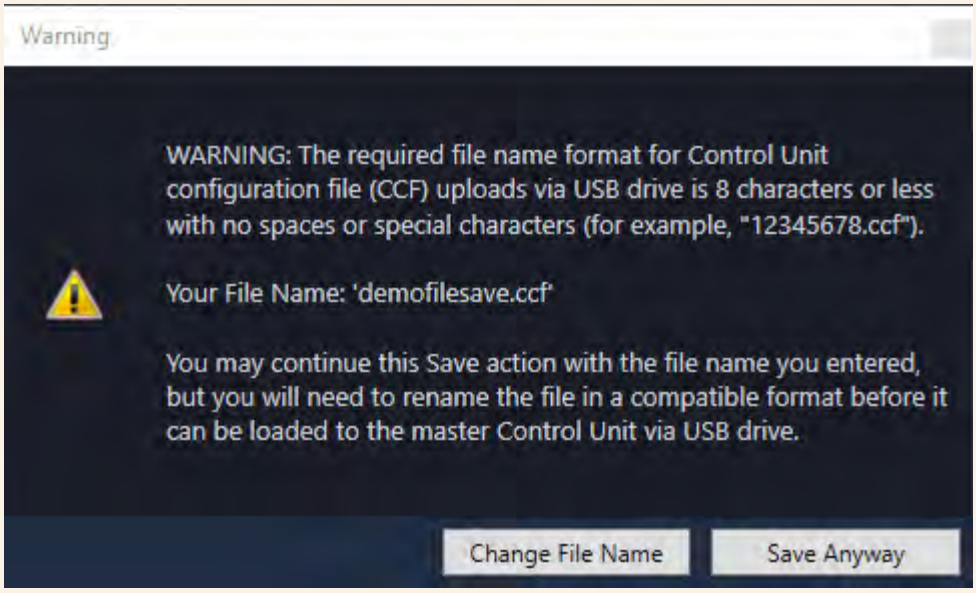


Figure 12 CCF File Name Warning

2. While CrewWare is "live," select ***Upload File...*** from the CrewWare File menu. (For help connecting to CrewWare, see "Connect to CrewWare" on page 11.)

3. Follow the CrewWare prompts to complete the update. While uploading, CrewWare will notify you of any configuration exceptions (e.g., RPs needing to be repaired).

4. A progress bar will display on the CU LCD while the CCF is uploading.

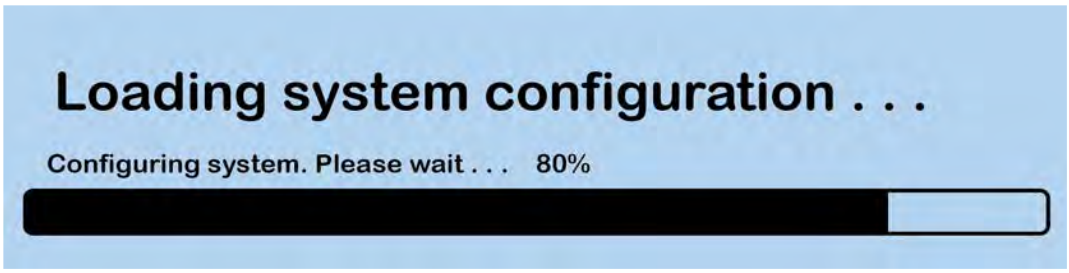


Figure 13 CU LCD CCF Load Progress Bar

5. The CU will automatically reboot.

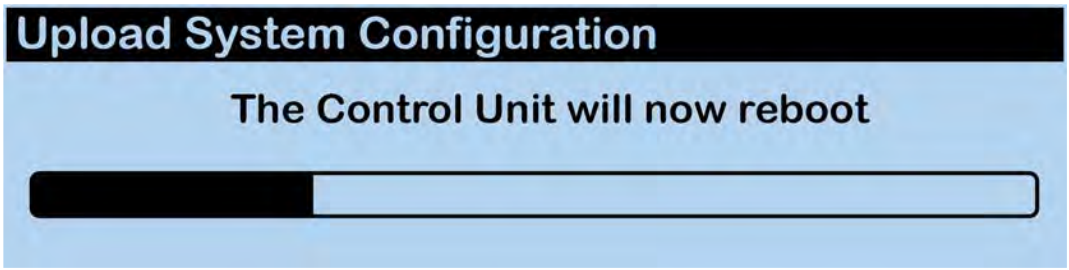


Figure 14 CU LCD Reboot

6. Upon startup, the new configuration file will load and be in use.

Loading a CrewCom Configuration File via USB

See the Control Unit Manual for more information about this process.

Save Configuration File (CCF)

Changes to the configuration during operation will be saved in real-time. However, if you wish to save a copy of the configuration file for later use, follow these procedures using CrewWare.

1. Make sure your Control Unit(s) are powered on.
2. Launch CrewWare and connect to your CU(s).

3. Go to ***File*** and click ***Save File As…*** and save your file to your desired file location.

   Saving to USB drive: The required file name format for a CCF uploaded via USB drive is 8 characters or less with no spaces or special characters (e.g., "12345678.ccf"). Also, make sure the USB drive you are saving to has enough available space to save the file (at least 50 KB).

   Saving to PC: A CCF can be saved to your PC with a longer name (or even renamed outside of CrewWare) and uploaded to your primary CU via CrewWare. However, the file name displays as a truncated version (the first 16 characters) in CrewWare and in the CU LCD main menu.

4. See "Upload Configuration File (CCF)" on page 26 for more information about how to load the saved file onto a system.

CHAPTER 5

SYSTEM DIAGRAM

This chapter consists of the following sections:

System Diagram Tab

The System Diagram tab displays CrewCom hardware topology and related CrewNet connections. From this tab, users can add/delete CrewCom devices and manage CrewNet connections.

Note: CrewWare does not allow users to make configuration changes while system is in “Live” mode.

Create or Modify a System Diagram

Create or modify system diagrams during offline sessions by using a drag and drop procedure:

1. Select and drag a device from the ***Device Toolbox*** pane, then position the device on the grid. (You could perform the same action by clicking ***Edit > Add*** in the menu or the ***Add*** shortcut button from the top of the screen.)

2. Repeat Step 1 to position a second device on the grid, then click and drag the mouse between device ports to draw a simulated connection between devices. The default connection type is copper; change it to fiber when applicable by right-clicking the line and choosing ***Fiber***.

3. Repeat Steps 1 and 2 until a complete diagram is constructed.

> **Tip**: To delete a device or connection, right-click on the item and choose ***Delete***, or select the item, click ***Edit*** > ***Delete Device/Connection***.

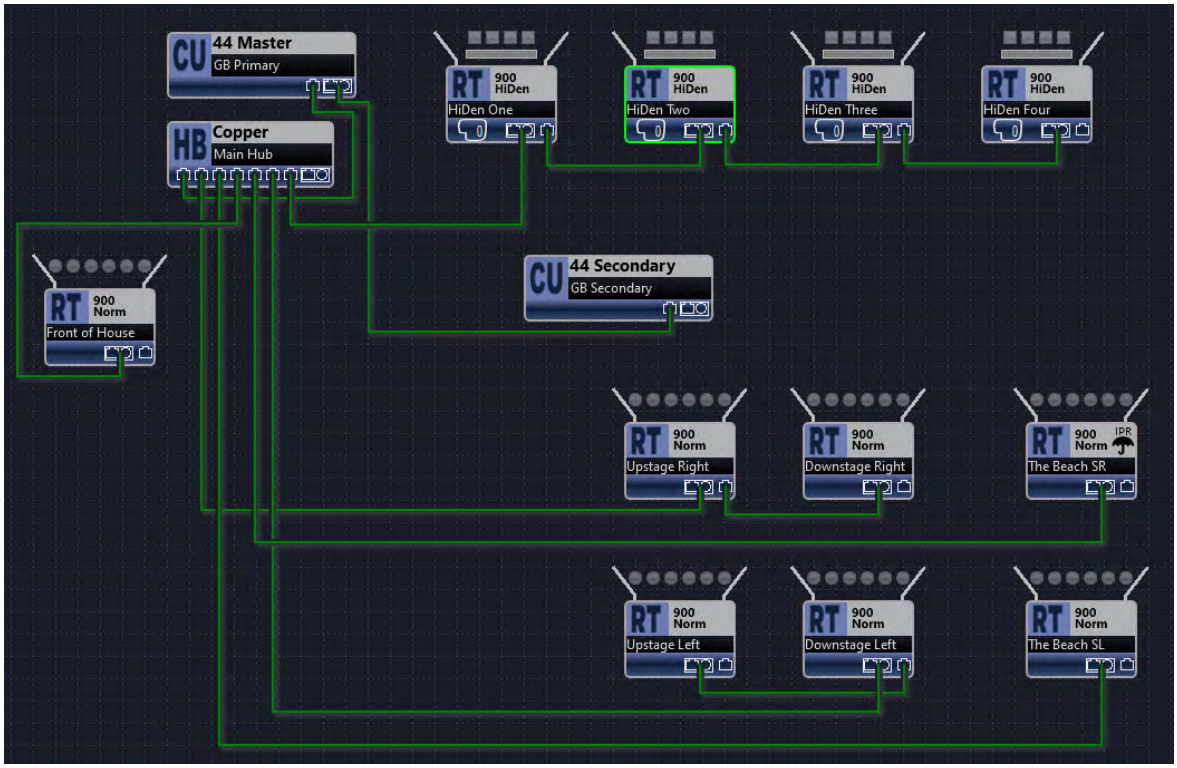


Figure 15 Diagram View

Customizing Your Device Toolbox

Use the “My Toolbox” list in the Navigation Pane to streamline the System Diagram creation/editing process. “My Toolbox” is a customized device list; it is separate from the “Device Toolbox (All)” list.

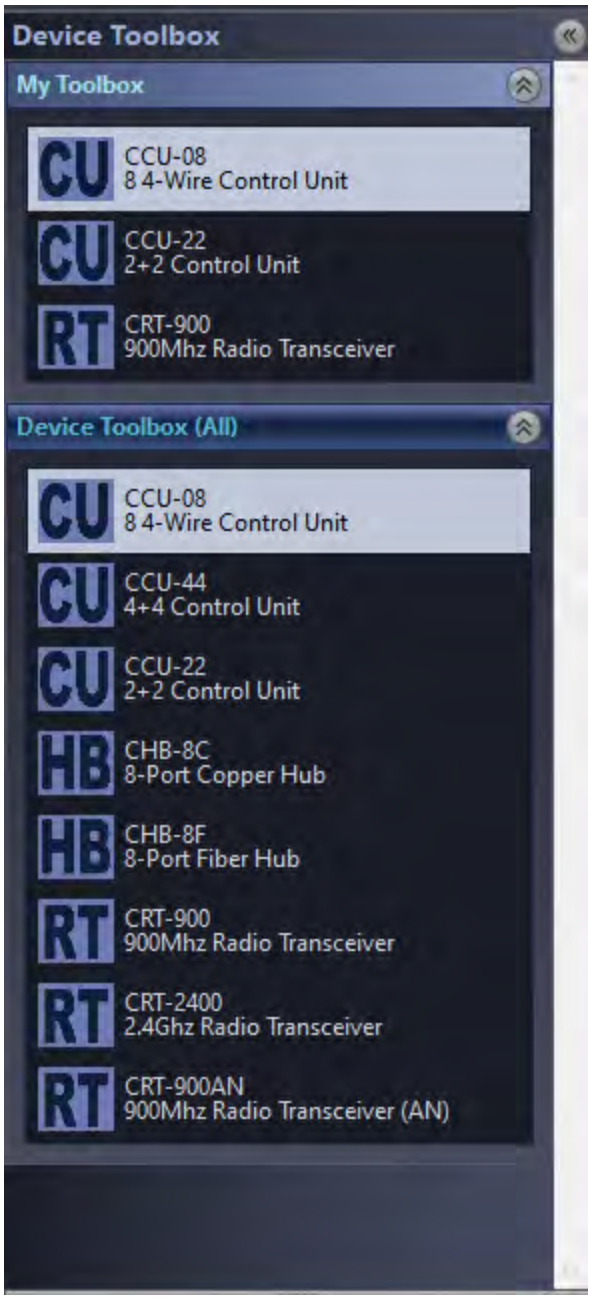


Figure 16 Device Toolbox View with “My Toolbox” Custom List

Add a device to “My Toolbox” by right-clicking it and selecting ***Add to My Toolbox***. Remove a device by selecting ***Remove From My Toolbox***. Each list can be collapsed when not in use.

> **Note**: You can also access this feature’s settings from the CrewWare ***Edit*** menu.

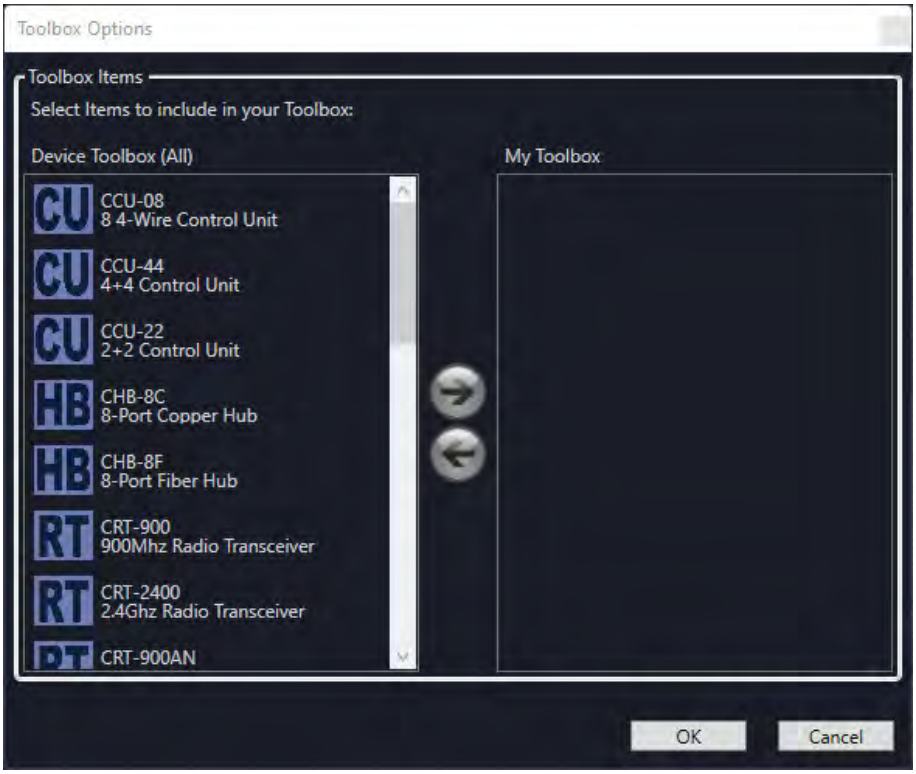


Figure 17 Customize Toolbox Popup Window

System Diagram View Options

The System Diagram tab may be viewed in one of three ways: Diagram View, Port View, or Relay View. Change the view by 1.) choosing an option from the ***View*** menu; 2.) choosing a shortcut button in the bottom right corner of the System Diagram panel; or 3.) choosing an option after right-clicking on the diagram.

Diagram View

This view displays all devices currently connected to the CrewCom system.

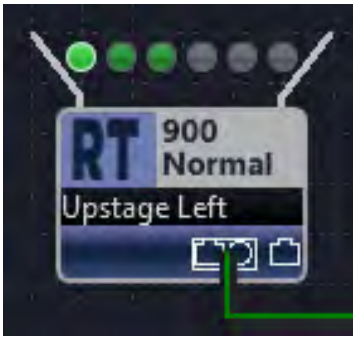


Figure 18 A Normal RT in a System Diagram

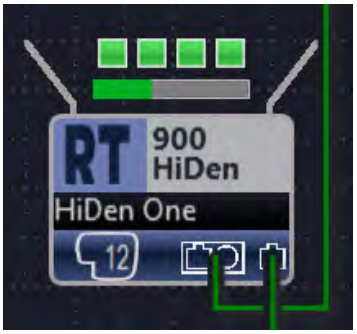


Figure 19 A High Density RT in a System Diagram

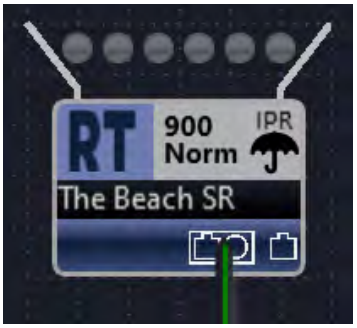


Figure 20 An IP RT in a System Diagram

- Green connector lines represent copper connections.
- Purple connector lines represent fiber connections.

- Device icons display the device abbreviation, frequency, mode, device name, and port symbols.
    - A dual port symbol on the icon represents a copper/fiber (either/or) CrewNet port. A single port symbol represents a copper-only or fiber-only port.
- Normal Operational Mode Radio Transceivers (RTs) display green circles to represent each of the Radio Packs (RPs) currently logged into that RT. The circles light up when any of the RP's Talk buttons are engaged (ISO being an exception). Each RT supports a maximum of six RPs.
    - Hover the mouse over an individual RP circle to view additional information about that device such as Profile Name, Device ID, Model Number, Operating Mode, etc.
- High Density Operational Mode Radio Transceivers (RTs) display a green bar to visually represent the amount of Radio Packs (RPs) currently logged into that RT and an RP icon at the bottom left to numerically represent the RPs currently logged into that RT. Each RT supports a maximum of 32 RPs. The green squares above the green bar indicate the maximum four simultaneous full-duplex RP talk paths. The green squares light up when any of the RP's Talk buttons are engaged (ISO being an exception). The square will be red if the active talker(s) has a low battery.
    - Hover the mouse over an individual RP square to view additional information about that device such as Profile Name, Device ID, Model Number, Operating Mode, etc.
- An IP RT will show an umbrella icon and IPR inside the icon.
- If desired, print this data by clicking ***File*** then ***Print System Diagram***.

Note: There are some limitations on building system diagrams and connecting CrewCom devices (e.g., fiber connections may only be drawn between fiber ports, and Control Units may only be daisy-chained when connected directly from the primary Control Unit). CrewWare provides a helpful pop-up alert message when an erroneous action is attempted, notifying you of the error so you can rectify it. (See the specific device's manual for more information on adding it to a CrewCom system.)

Monitor devices from the System Diagram tab during live sessions. If an issue is found, the System Diagram assists in troubleshooting the cause. Double-click an individual device on the diagram to view Device Management information.

Port View

This view displays the port, port ID, port name, port type, connected device, and Conference information for each device connected to the system. If desired, print this data by clicking ***File*** then ***Print Connection List***.

> **Note**: Devices cannot be deleted while working in port view.

In the figure below, you can see that the CU's CrewNet Port 1 ("CN-1") is connected to a CRT-2400's port 1. In addition, you can see the Port Type setting and Conference assignments for each of the CU's 2-wire and 4-wire ports.

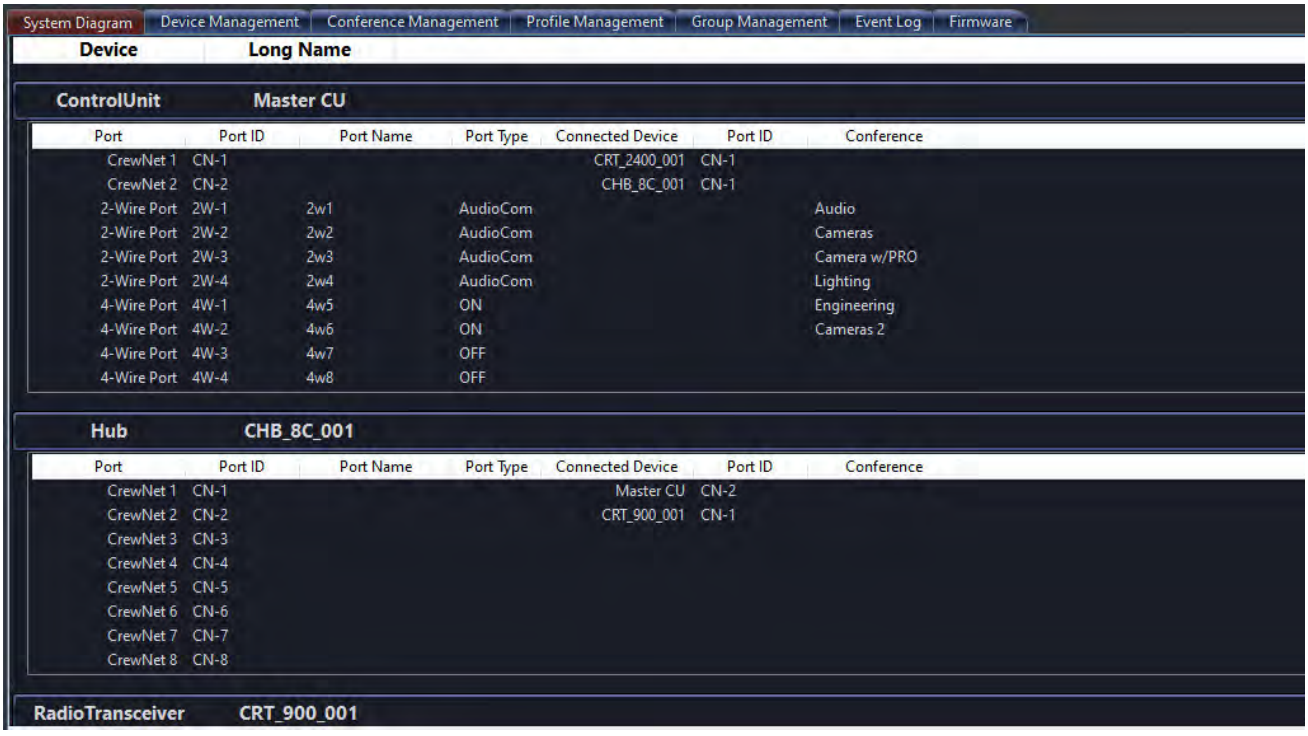


Figure 21 Port View

Relay View

This view displays the Relay (#1 through #5), Trigger Button Assignment, and Display Name. See Relay Assignments for more information about customizing these assignments. Users may click on the rectangle ***R2, R3, R4,*** or ***R5*** diagram buttons to test the contact closure. (Clicking the ***Stage R1*** diagram does not test its closure.)

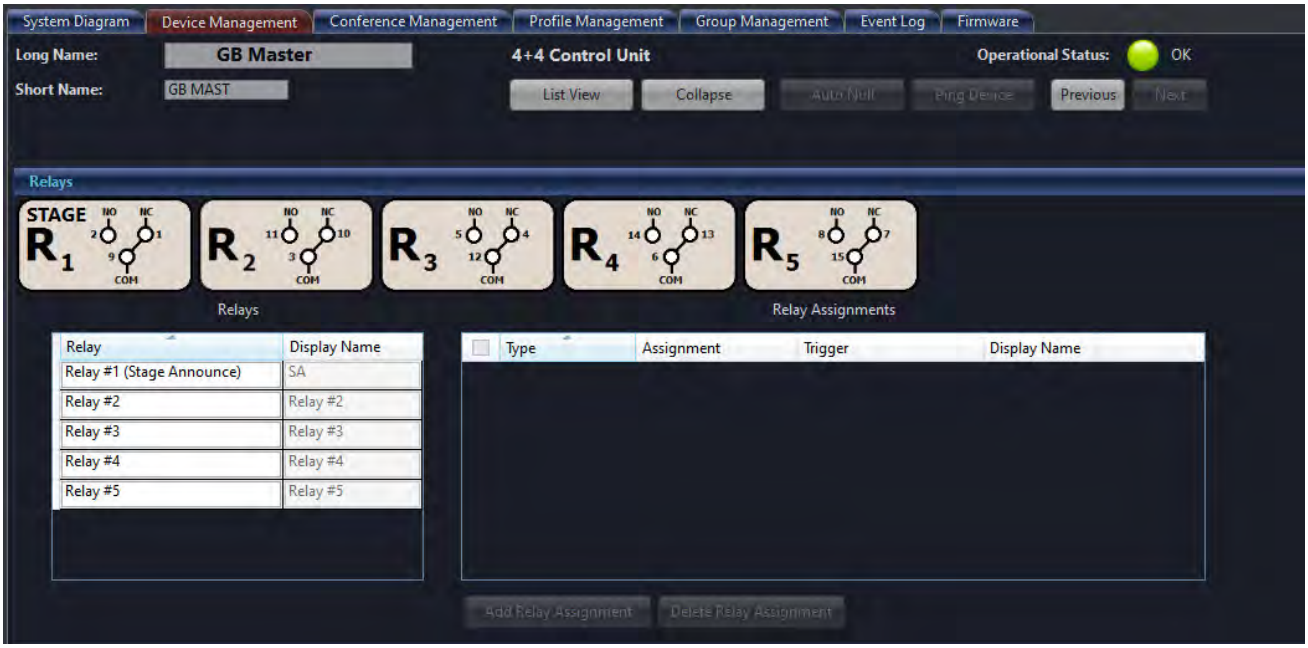


Figure 22 Relay View

Diagram Preferences

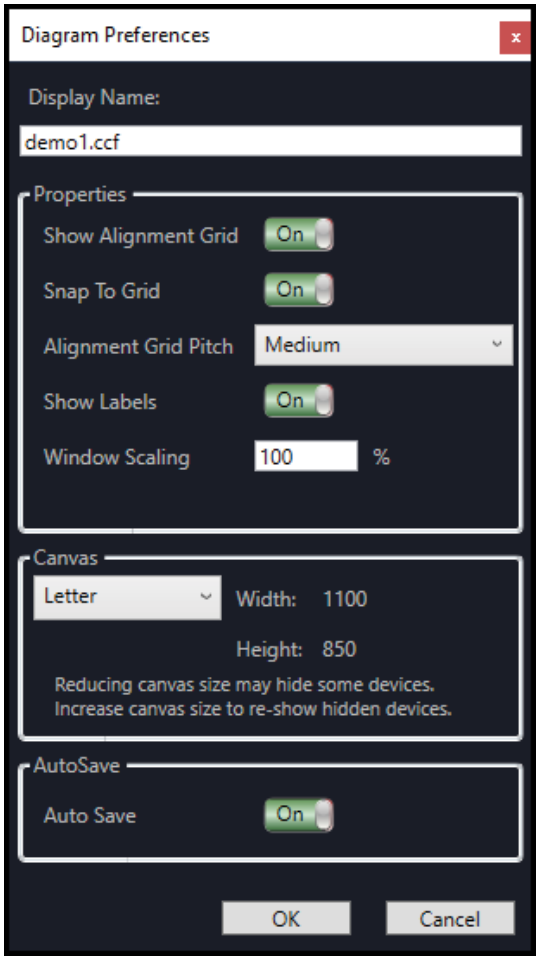


Figure 23 Diagram Preferences Dialog Box

Customize user preferences for the system diagram by opening the Diagram Preferences from the ***Edit*** menu. Within this window, you can edit the following:

Diagram Preferences	
Field/Function	**Description**
Display Name	Displays the active CCF name.
Show Alignment Grid	Toggles the system diagram display grid on and off.
Snap To Grid	Toggles the automatic alignment of devices when moved on the system diagram.
Alignment Grid Pitch	Choose from ***Fine***, ***Medium*** or ***Coarse*** to set the alignment grid size.

Diagram Preferences	
Field/Function	**Description**
Show Labels	This function is not currently implemented.
Window Scaling	Enter a number in this field to adjust the CrewWare interface scale.
Canvas	Choose a canvas size for the system diagram tab.
AutoSave	Toggles the auto-save function. When on, the CCF file will automatically save in the following file location every 30 seconds: C:\Users\ [username]\AppData\Roaming\Pliant\CrewWare X.X\BKUP

CHAPTER 6

DEVICE MANAGEMENT

This chapter consists of the following sections:

Device Management Tab

View and edit the settings for each hardware component connected to the system while working in the Device Management tab. This tab can be viewed either in list view or in device view.

Figure 24 Sample Device Management Tab List View

The list view displays sub-tabs of each device currently connected to the system. To see the Device Management list view, select ***View*** from the top bar menu, choose ***Device Management Tab***, then click ***Device List View*** or you may click the ***List View*** button from any device's Detail View.

The device view displays a detail view of each device currently connected to the system. To see this view, select ***View*** from the top bar menu, choose ***Device Management Tab***, then click ***Device Detail View*** or double-click any device from the Device Management List View or System Diagram pane.

Figure 25 Sample Device Management Tab Device View

CU Management Tab

List View

The Device Management list view of Control Units displays a summary of each Control Unit's settings as well as Radio Pack Pairings.

Figure 26 Control Unit List View

Device View

Double-click on a Control Unit in the Device Management list view to access its **device view** and view/edit its settings. In this view, clicking each sub-heading expands or collapses the panels containing more information and configurable settings. The top section of the Control Unit detail view provides an overview of the selected Control Unit.

Figure 27 Top Section of CU Detail View

Control Unit - Detail View	
Field/Function	**Description**
Long Name	Type a name for the selected Control Unit. There is a 16 character limit on the device name.
Operational Status Indicator	View-only status indication with the following possible statuses: ***OK*** (green) and ***Missing*** (red).
Short Name	Type an abbreviated version of the device name to display when needed. There is an 8 character limit on the device short name.
List View Button	Return to the Control Unit list view.
Expand /Collapse All Button	Opens all collapsed settings panels for the selected device. When clicked again, returns to collapsed panels.

Control Unit - Detail View	
Field/Function	**Description**
Auto Null Button	Nulls Control Unit 2-wire ports. Nulling only impacts 2-wire hard wired intercom connections. Activate Auto Null for new connections or whenever the 2-wire system changes, such as when additional non-CrewCom wired belt packs are added or removed, or when cable lengths are changed.
Ping Device Button	Function is not currently available.
Previous/Next Buttons	Navigate through the device views for each individual Control Unit from the list.
Sync Priority	Set a label for the relationship between Control Units working together on a system. Available options are ***Master***, ***Secondary***, and ***Tertiary***. By default, the first Control Unit added to the CCF is automatically assigned the ***Master*** sync priority. Every CCF must contain one primary Control Unit, which is set either through the CU menu or CrewWare. **Secondary** and **Tertiary** sync priority assignments are not currently operational.
LCD Contrast	Increase or decrease the level of contrast in the CU's LCD.
LCD Brightness	Set the LCD backlight brightness level to ***High***, ***Med***, ***Low,*** or ***Off***.
LCD Timeout	Set the LCD backlight to power off ***60 seconds***, ***30 seconds***, or ***10 seconds*** after engaging the CU interface. The user may disable the timeout by selecting ***Disabled***.
Front Panel Lock Check Box	The buttons and knobs on the front of the Control Unit will not function when locked—except for the power switch (which will power the unit off) and the Volume knob and Talk button (which will allow communication with a connected local headset.)
LAN Settings (IPv4)	Settings in this box determine the IP Address, Default Gateway, Subnet Mask, Port and DHCP status for CrewCom LAN configuration between your Control Unit and PC operating CrewWare. You may only make changes to these settings while CrewWare is offline, and you will need to save your CCF and re-upload it to the primary CU for the changes to take effect.  **Note**: The default Port value to connect to a Control Unit is ***2017***. You may change this default using CrewWare if your firewall settings require it.

Control Unit - Detail View	
Field/Function	**Description**
Device information (Mac Address, Serial Number, Firmware Version, Model, and Device ID)	Read-only list.

Headset

The user may modify the settings below to control a local headset connected to the Control Unit.

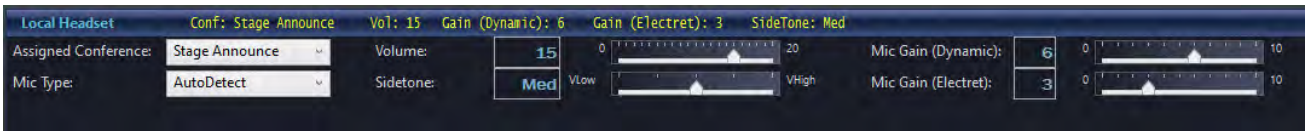


Figure 28 Expanded CU Headset Panel

Control Unit - Headset Panel	
Field/Function	**Description**
Assigned Conference	Set the Conference to which the local headset is listening.
Volume	Set the volume of the headset audio.
Dynamic and Electret Mic Gain	When the Mic Gain is set too high, it is possible to induce feedback or echo. When set too low, words can be clipped by the low level noise gate, or may sound too quiet to other listeners. Different models of headsets will require widely varying mic gain settings.
Mic Type	Select either **Auto Detect**, **Dynamic**, or **Electret**. Selecting ***Auto Detect*** is highly recommended.
Sidetone	Speak into the headset microphone at a typical speaking level and adjust the sound of your own voice in the headset using this setting.

Intercom Settings: 2-Wire and 4-Wire Ports

The number of available 2- and 4-wire port setting panels will vary depending on your Control Unit model. The CCU-44 has four 2-wire ports and four 4-wire ports, the CCU-22 has two of each, and the CCU-08 has eight 4-wire ports. The settings shown below are repeated for each port in CrewWare.

Figure 29 Expanded CU 2-Wire Port Panel

Figure 30 Expanded CU 4-Wire Port Panel

Control Unit Intercom Settings			
Field/Function	**Description**	**2Wire**	**4Wire**
Assigned Conference	Set the individual port's Conference assignment, to which wireless users or the CU's local headset port are able to communicate with external intercom systems routed through this port.	X	X

Control Unit Intercom Settings			
Field/Function	**Description**	**2Wire**	**4Wire**
Type	For 2-wire ports, select intercom system type (***RTS Ch1***, ***RTS Ch2, AudioCom***, and ***Clear-Com***,). For 4-wire ports, enable the port (***On/Off***).	X	X
Audio Mode	Set the audio mode in this field. **Duplex** is the standard, default operating method for a 2- or 4-wire audio port. The input side will feed the assigned Conference audio content while the output side gets the audio from all other input entities on that conference, minus its own input (mix minus).	X	X
Port Name	Set a name for the port. Limited to 16 characters.	X	X
Level In	The IN level control adjusts the incoming level (from the connected wired intercom) of the currently selected wired intercom channel. If an intercom port is disabled, changes to the IN Level do not affect any audio.	X	X
Level Out	The OUT level control adjusts the outgoing level (from CrewCom) of the currently selected wired intercom channel. If an intercom port is disabled, changes to the OUT Level do not affect any audio.	X	X
Echo Cancellation (ECAN)	The default setting for ECAN is on for 2-wire ports and off for 4-wire ports. ECAN may be turned off if desired; however, Pliant recommends leaving ECAN on for all 2-wire ports at all times. When toggled off, this button is red. When a device null is in progress to optimize 2-wire ports, ECAN is disabled.	X	X
Inbound/Outbound Call Enabled	Each wired intercom port (2-wire only) can be individually set to send and receive a CrewCom-generated call signal to/from a connected wired intercom system. To do so, turn that port's Call function ***ON***. Turning the Call function ***OFF*** only prevents the signal from entering or leaving CrewCom via the respective port. Call signals can still be generated and transmitted by entities across CrewNet. The default setting for Call is OFF.	X	
Mic Kill Enabled	Toggle the port's Mic Kill function. This function is not currently available.	X	

Control Unit Intercom Settings			
Field/Function	**Description**	**2Wire**	**4Wire**
Null Port	The user can null all individual ports on a selected device by using this button on each port panel, or by clicking the **AutoNull** button at the top of the tab. Running this command will temporarily disrupt communications for the affected 2-wire ports.	X	

Auxiliary Audio

Allows the user to add or delete assignments to both the auxiliary audio input and output. Do this by clicking the **Add Assignment** or **Delete Assignment** buttons below each box on the panel. Audio supplied to Aux IN can be assigned to any combination of up to 10 possible Aux Conferences. Audio supplied from Aux OUT can be assigned from any single Conference. Individual level adjustment for each Auxiliary Audio assignment is not currently operational; rather, the Aux In or Aux Out Master Level settings will determine the levels for all assignments below them. When checked, the Lock Sliders checkbox on this panel preserves the proportions of the current audio level sliders if one is moved. (Unchecking the Lock Sliders checkbox is not currently available.) The user can also mute the assignment levels from this panel.

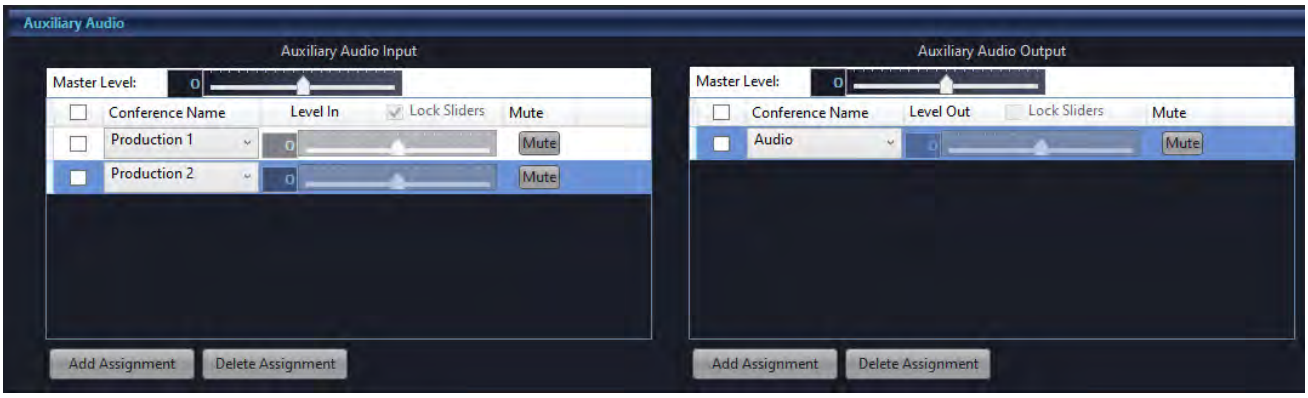


Figure 31 Expanded CU Auxiliary Audio Panel

Stage Announce

Allows the user to select the Conference assigned to the STAGE ANNOUNCE port of the primary CU and adjust its output levels. There is only one global Stage Announce.

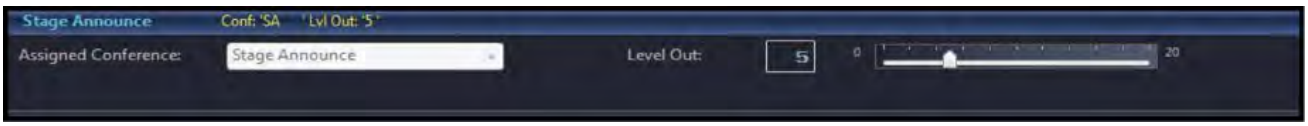


Figure 32 Expanded CU Stage Announce Panel

Relay Assignments

Adds or deletes relay assignments and configures each relay assignment, trigger, and Profile. Relay #1 is reserved for the Stage Announce Relay. In addition to this one, CrewCom includes four additional General Purpose Output (GPO) contact closures for interfacing with other external devices. Up to 160 relay assignments can be created. The user has access to both the normally open and the normally closed contacts for each relay, and user Profile and trigger can be set from this window. Rated load for all relay contacts: 0.3 Amp at 125VAC, 1 Amp at 30VDC.

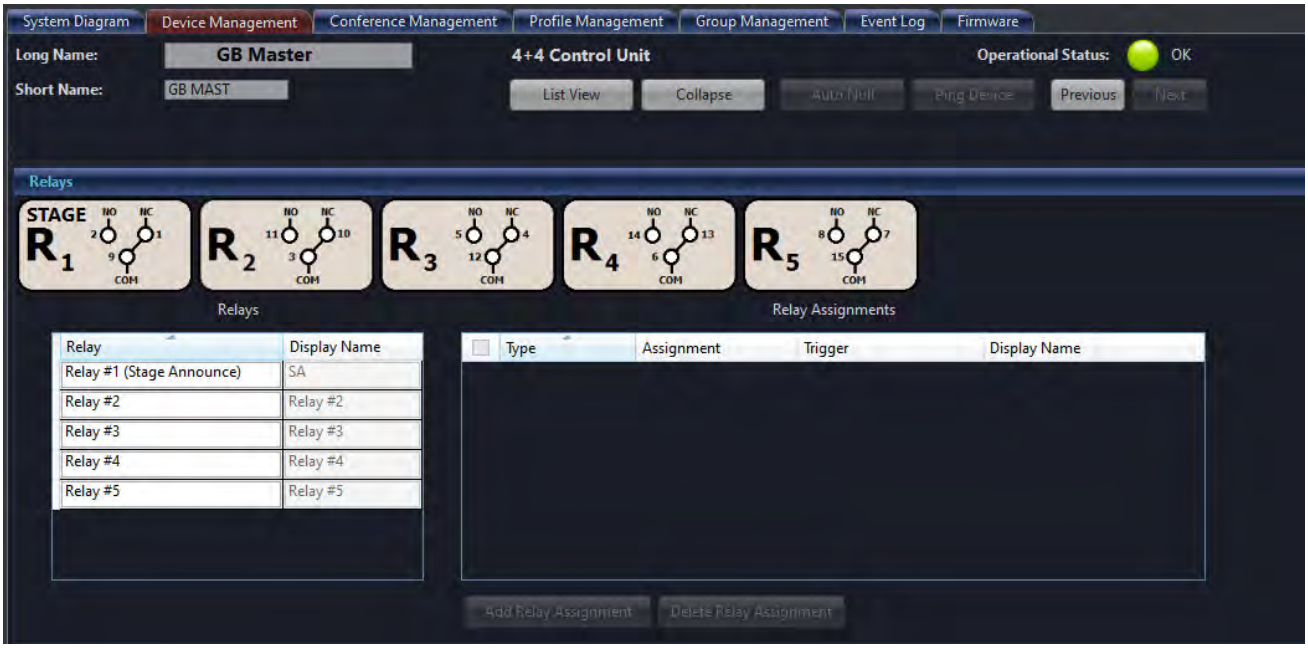


Figure 33 Expanded CU Relay Assignments Panel

Nulling

The Nulling panel displays a table of the selected Control Unit's 2-wire ports, and when nulling is initiated, the table will display the progress of the process. You can initiate null for a single port or for all ports.

Activate Auto Null for new connections or whenever the 2-wire system changes, such as when additional non-CrewCom wired packs are added or removed, or when cable lengths are changed.

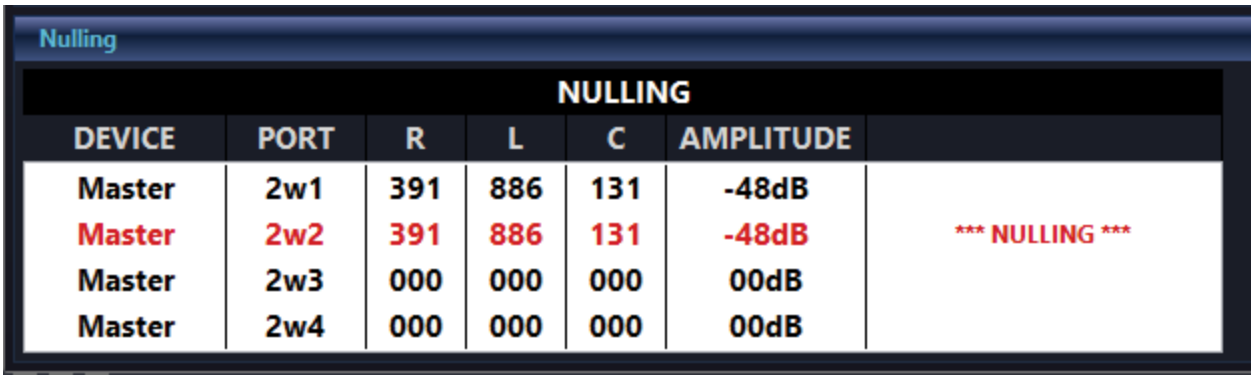


Figure 34 Auto Null in Process

RP Management Tab

List View

The Device Management list view of Radio Packs displays a summary of each Radio Pack's settings.

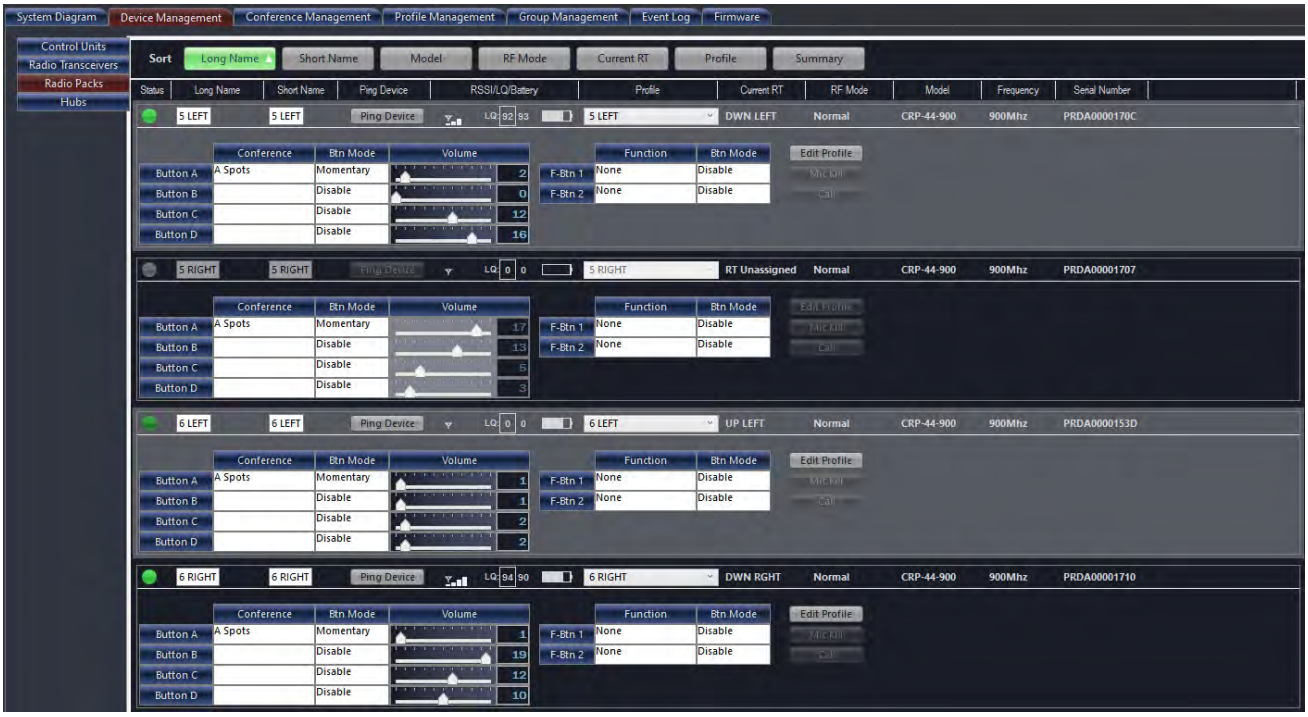


Figure 35 Radio Pack List View

Clicking on the ***Summary*** button of this view simplifies the view into a summary of the Radio Packs' settings. To view more details, you'll need to view the individual Device View (outlined in the next section).

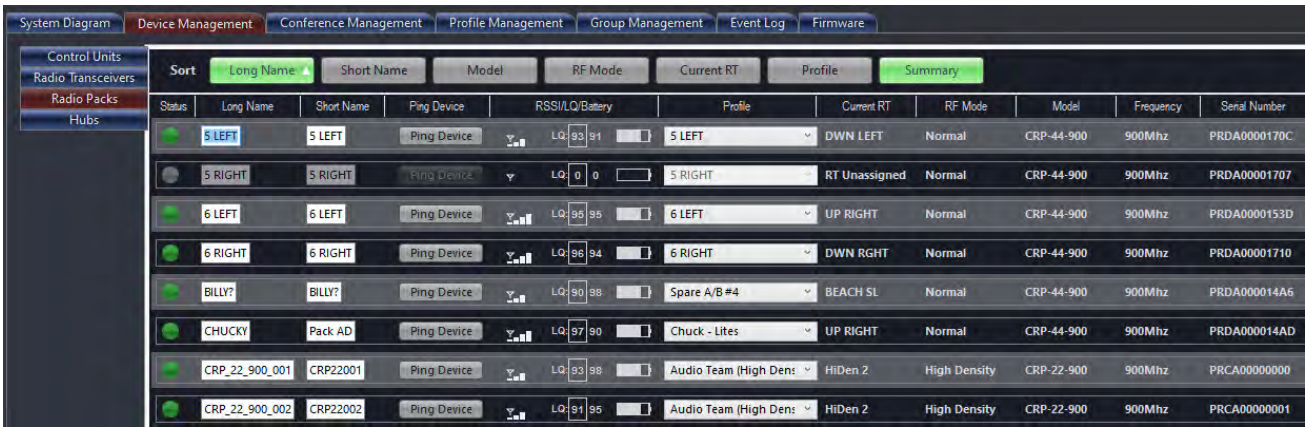


Figure 36 Radio Pack List View "Summary"

Device View

Double-click on a Radio Pack in the Device Management list view to access its **device view** and view/edit its settings. You must be in “live” mode to edit RP settings. In this view, clicking each sub-heading expands or collapses the panels containing more information and configurable settings. The top section of the detail view provides an overview of the selected Radio Pack, including buttons to interact with other CrewWare functions.

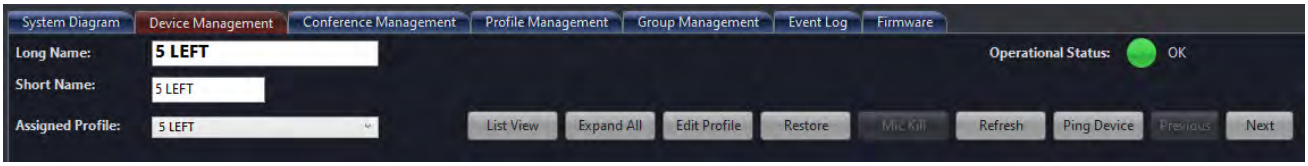


Figure 37 Top Section of Radio Pack Detail View

Radio Pack - Detail View	
Field/Function	**Description**
Long Name	Type a name for the selected Radio Pack. There is a 16 character limit on the device name.
Operational Status Indicator	View-only status indication with the following possible statuses: ***OK*** (green), ***Low Battery*** (red), ***High Temperature*** (red), ***Logged Out*** (blue), or ***Inactive/Unknown*** (gray).
Short Name	Type an abbreviated version of the device name to display when needed. There is an 8 character limit on the device short name.

Radio Pack - Detail View	
Field/Function	**Description**
Assigned Profile	Select a Profile assignment for the RP from the drop-down list. If the assigned profile is changed while the system is live, you will be prompted to choose whether or not this change should overwrite user-level settings with the new profile's defaults.
List View Button	Return to the Radio Pack list view.
Edit Profile Button	Go directly to the Profile Management settings for the RP's assigned Profile.
Restore Button	Restore profile defaults for the selected RP. When restoring profile defaults, you will be prompted to choose whether or not to override and update the RP's user-level settings as well as the profile settings.
Mic Kill Button	Send a mic kill signal to the selected RP.
Ping Device Button	Device location function where, when activated, will cause the backlight of the selected RP's LCD display (or LEDs in the case of the CRP-12) to blink until deactivated by the operator. Ping Device Button is also shown after Short Name in List View.
Previous/Next	Navigate through the device views for each individual Radio Pack from the list.

User Level Device Settings

Select the Radio Pack device settings and view a read-only list of device information (Mode, Firmware Version, Current RT, Model, Serial Number, and Device ID).This panel also includes a graphical representation of the real-time RP LCD. (When in "live" mode, you can click the RP's triangle menu button and view the secondary screen, just like with a real RP.)

Tip: Changing user-level settings here does not make an identical change to the Profile. When user-level settings on the device do not match those on its assigned Profile, CrewWare displays a yellow circle indicator in this view beside that setting to alert the user that it differs from the RP's profile. The user may restore the Profile's default for that setting by clicking on the green indicator.

When changing a setting while using High Density Mode, at least one return data path must be open (one of the four talk slots on a HiDen RT) for CrewWare to confirm that the change has been made on a Radio Pack. CrewWare displays a yellow indicator box around the changed setting and an exclamation point to the right of the setting to alert the user that the confirmation of change is pending. Once a talk slot is open, CrewWare will confirm that the setting has been changed on the Radio Pack and the indicator will go away.

Figure 38 Radio Pack User Level Settings

Note: The CRP-12 will show different settings/functions than shown above and listed below.

User-Level Device Settings	
Field/Function	**Description**
Mic Gain (Dynamic and Electret)	When the Mic Gain is set too high, it is possible to induce feedback or echo. When set too low, words can be clipped by the low level noise gate, or may sound too quiet to other listeners. Different models of headsets will require widely varying mic gain settings.

User-Level Device Settings	
Field/Function	**Description**
Noise Gate	Set the minimum audio threshold necessary to allow audio to pass from the headset microphone to the rest of the system. Pliant recommends setting the noise gate as low as possible for best operation.
Side Tone	Speak into the headset microphone at a typical speaking level and adjust the sound of your own voice in the headset using this setting.
LCD Contrast	(CRP-22 & CRP44 only) Increases or decreases the level of contrast in the RP LCD.
LCD Brightness	(CRP-22 & CRP44 only) Sets the LCD backlight brightness level to ***High***, ***Med***, ***Low*** or ***Off***.
LED Brightness	(CRP-12 only) Sets the LED brightness level to ***High***, ***Med***, ***Low*** or ***Off***.
LCD Timeout	(CRP-22 & CRP44 only) Sets the LCD backlight to power off ***30 seconds***, ***10 seconds***, or ***3 seconds*** after engaging the RP interface. The user may disable the backlight time out by selecting ***Disabled.***
Battery Alert	Select the type of alert the Radio Pack displays to notify user of low battery life level. A battery alert will be sent when there are 30 minutes remaining on the battery. Options include the following: ***Audible***, ***Vibrate,Both***, or ***Off***.
Mic Type	Select either ***Auto Detect***, ***Dynamic*****,** or ***Electret*****.** Selecting ***Auto Detect*** is highly recommended.
Talk Tone	Enabling Talk Tones gives the user audible feedback when a talk button is pressed to communicate on a Conference. Talk Tone is not currently operational with ISO and Stage Announce.

Talk/Volume/ISO Controls

Displays the RP talk button/volume knob/ISO button settings established by the Profile. Allows the user to modify the RP's volume settings. Changing these settings will NOT make an identical change to the Profile.

Figure 39 Expanded Radio Pack Volume Knob/Talk Buttons Panel

Device Talk/Volume/ISO Controls	
Field/Function	**Description**
Call on Talk	When on, a call signal is sent when the Talk Button is pressed and is turned off when it is released. To toggle this setting, edit the Profile on the Profile Management tab.
ISO Allowed	Reflects whether or not a user can access the assigned conference's ISO function. To enable this setting, enable ISO for the conference on the Conference Management Tab, and then toggle on ISO via the Profile on the Profile Management tab.
Current Volume	Displays and adjusts the current volume for the selected RP
Min/Max Volume	Displays and adjusts the minimum and maximum volume for the selected conference volume knob.

Function Button Panels

Displays the function button settings established by the Profile.

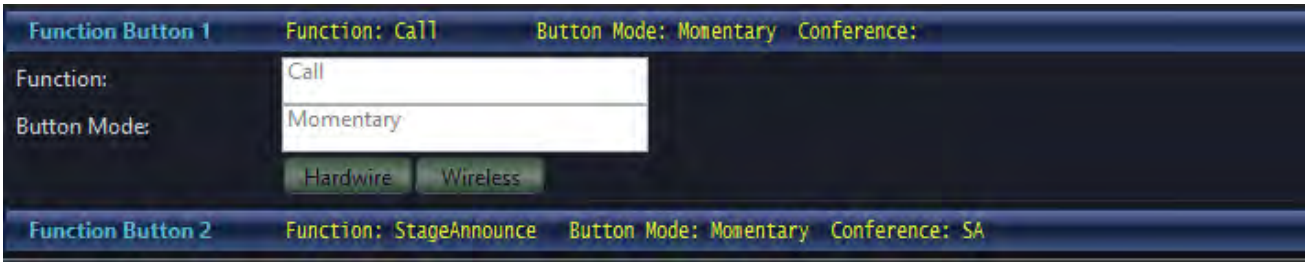


Figure 40 Expanded Radio Pack Function Button Panel

RT Management Tab

List View

The Device Management list view of Radio Transceivers displays a summary of each Radio Transceivers's settings.

Status	Long Name	Short Name	Ping Device	RF Mode	Radio Band	Bandwidth	Hop Pattern	Transmit Power	Antenna Diversity	Model	Serial Number
	Downstage Left	DWN LEFT	Ping Device	Normal	Full	902-928 MHz	14	24 dBm	Dual Antenna	CRT-900	PTNA0000140A
	Downstage Right	DWN RGHT	Ping Device	Normal	Full	902-928 MHz	6	24 dBm	Dual Antenna	CRT-900	PTNA00001406
	Front of House	FOH	Ping Device	Normal	Full	902-928 MHz	2	24 dBm	Dual Antenna	CRT-900	PTNA00001436
	HiDen Four	HiDen 4	Ping Device	High Density	Full	902-928 MHz	3	24 dBm	Dual Antenna	CRT-900	PTNA00000003
	HiDen One	HiDen 1	Ping Device	High Density	Full	902-928 MHz	11	24 dBm	Dual Antenna	CRT-900	PTNA00000000
	HiDen Three	HiDen 3	Ping Device	High Density	Full	902-928 MHz	1	24 dBm	Dual Antenna	CRT-900	PTNA00000002
	HiDen Two	HiDen 2	Ping Device	High Density	Full	902-928 MHz	13	24 dBm	Dual Antenna	CRT-900	PTNA00000001
	The Beach SL	BEACH SL	Ping Device	Normal	Full	902-928 MHz	12	24 dBm	Dual Antenna	CRT-900	PTNA00001412
	The Beach SR	BEACH SR	Ping Device	Normal	Full	902-928 MHz	8	24 dBm	Dual Antenna	CRT-900	PTNA00000006
	Upstage Left	UP LEFT	Ping Device	Normal	Full	902-928 MHz	4	24 dBm	Dual Antenna	CRT-900	PTNA00001433
	Upstage Right	UP RIGHT	Ping Device	Normal	Full	902-928 MHz	10	24 dBm	Dual Antenna	CRT-900	PTNA00001421

Figure 41 Radio Transceiver List View

Device View

Double-click on a Radio Transceiver in the Device Management list view to access its **device view** and view/edit its settings. The top section of this view provides an overview of the selected RT, including a list of device information (Serial Number, Model, Firmware Version, and Device ID).

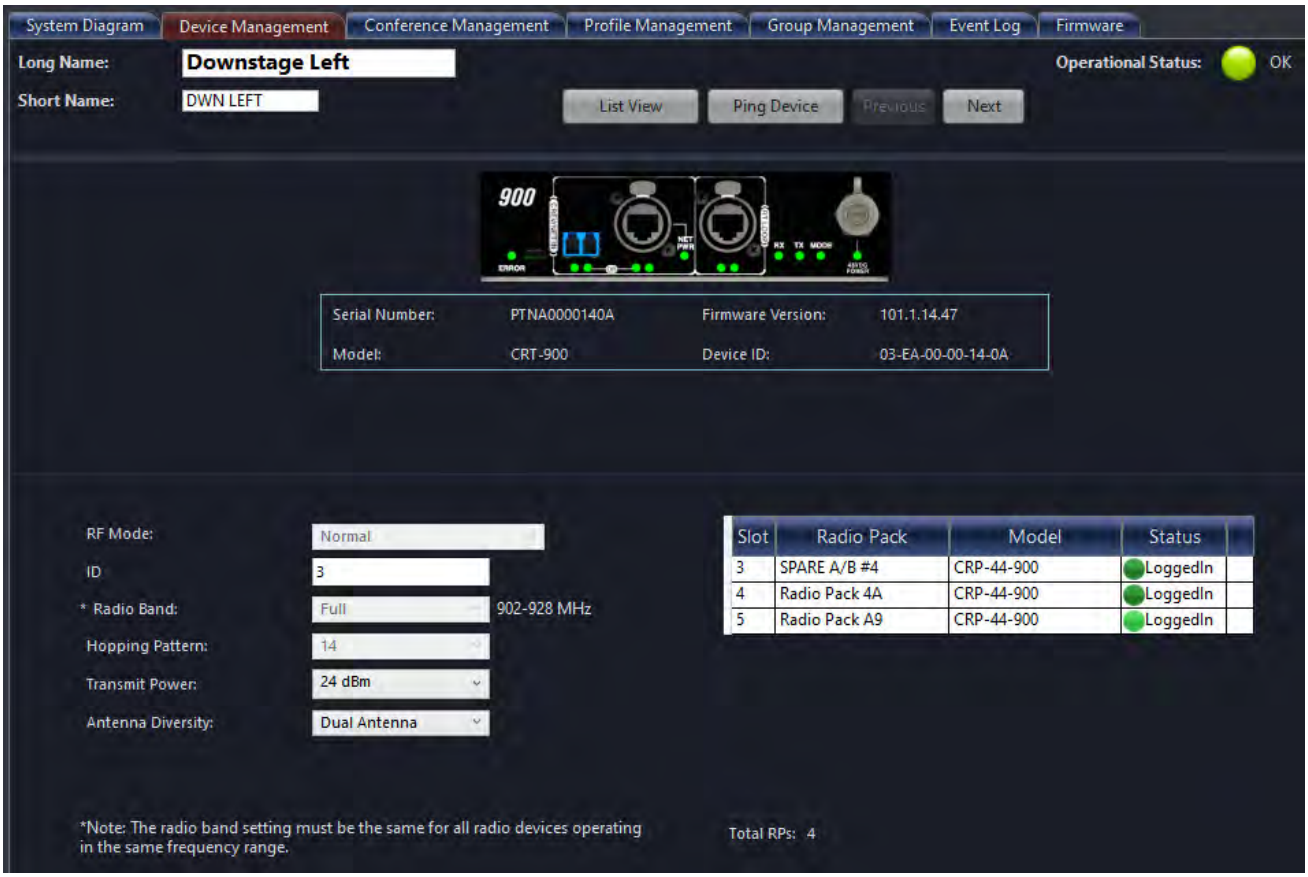


Figure 42 Radio Transceiver Device View

Note: User-defined settings are not saved by device, rather they are saved with the CCF. Therefore, a replacement device receives the same settings as the original device, as long as it is placed in the same location within the configuration.

Radio Transceiver - Detail View	
Field/Function	**Description**
Long Name	Type a name for the selected RT. There is a 16 character limit on the device name.
Operational Status Indicator	View-only status indication with the following possible statuses: ***OK*** (green) and ***Missing*** (red).
Short Name	Type an abbreviated version of the device name to display when needed. There is an 8 character limit on the device short name.
List View Button	Return to the RT list view.

Radio Transceiver - Detail View	
Field/Function	**Description**
Ping Device Button	Device location function where, when activated, both the top ping light and the mode LED on the bottom of the RT will blink until deactivated by the operator. Ping Device Button is also shown after Short Name in List View.
Previous/Next	Navigate through the device views for each individual Radio Transceiver from the list.
Operational Mode	Set to ***Normal*** by default. ***High Density*** is only available for systems upgraded to Version 1.10 or higher.
ID	View-only field used to identify the RT's location within the configuration file and system topology.
Radio Band	Select which segment of the frequency band the RT will operate within. (RF frequency range varies depending on RT frequency.) This setting can only be changed while offline, and may require re-pairing RPs if their radio band is changed. • Full (902–928 MHz), High (915–928 MHz), Low (902–915 MHz), or Mixed (902–915 MHz/915–928 MHz). • Full (2400–2483.5 MHz), High (2440–2483.5 MHz), or Low (2400–2442 MHz) The Mixed radio band setting allows simultaneous use of both high and low 900MHz bands without limiting the roaming ability of the system's 900MHz RPs.
Hopping Pattern	Select which Hopping Pattern the RT will operate on. Hopping Patterns must be properly coordinated. CrewCom systems will assist users in assigning compatible hopping patterns as RTs are added to the configuration. It is highly recommended to use these assigned hopping patterns to properly coordinate the system's RF. This setting can only be changed while offline, and may require re-pairing RPs if their radio band is changed.
Transmit Power	Selects the RF output power for the selected RT

Radio Transceiver - Detail View	
Field/Function	**Description**
Antenna Diversity	Select an option to determine the behavior of the selected RT's connected antennas: ***Antenna (R)***, ***Antenna (L)***, ***Dual Antenna***, or ***Tx:Rx***. These options are defined as follows: • Antenna (R) or Antenna (L) - The single selected antenna handles both transmit and receive for the RT. • Dual Antenna - The RT utilizes dual antenna operation, meaning both antennas alternate both transmit and receive. • Tx:Rx - The transmit function is dedicated to the L antenna, while the receive function is dedicated to the R antenna. This option is useful if you are feeding into an RF distribution system.

Hub Management Tab

Double-click on a Hub in the Device Management list view to access its **device view** and view its settings. The top section of this view provides an overview of the selected Hub, including a list of device information (Serial Number, Model, Firmware Version, and Device ID).

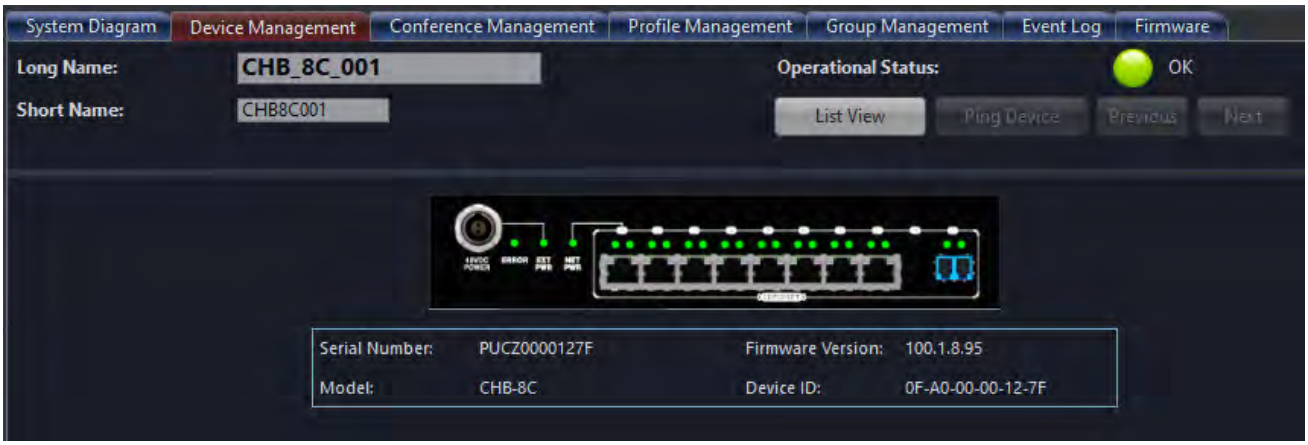


Figure 43 Hub Device Management

Hub - Detail View	
Field/Function	**Description**
Long Name	Type a name for the selected Hub. There is a 16 character limit on the device name. "Live" Hub name changes are not currently supported.
Operational Status Indicator	View-only status indication with the following possible statuses: ***OK*** (green) and ***Missing*** (red).
Short Name	Type an abbreviated version of the device name to display when needed. There is an 8 character limit on the device short name. "Live" Hub name changes are not currently supported.
List View Button	Return to the Hubs list view.
Ping Device Button	Function is not currently available.
Previous/Next	Navigate through the device views for each individual Hub from the list.

CHAPTER 7

CONFERENCE MANAGEMENT

This chapter consists of the following sections:

Conference Management Tab

About Conferences

A Conference is an administrator-defined grouping of audio entities that include inputs such as Radio Packs, wired intercom ports, and other CrewCom devices and equipment. Audio outputs are created dynamically by mixing one or more audio entities and then routing them to Conference subscribers. Conferences are full duplex and work bi-directionally.

Selective talk-around is possible with the wireless isolation (ISO) function. ISO means that selected users can have an isolated conversation with other ISO-enabled users. While an ISO conversation occurs, the main Conference audio can still be heard. ISO must be separately enabled on both the Conference and each desired Profile. From the Radio Pack, ISO is used by pressing and holding the corresponding Volume Knob.

The default CCF includes default Conferences, yet users may add, delete, or edit Conferences based on the needs of their staff and personnel.

Conference Management Tab Views

The Conference Management tab displays a list of available Conferences on the CrewCom system.

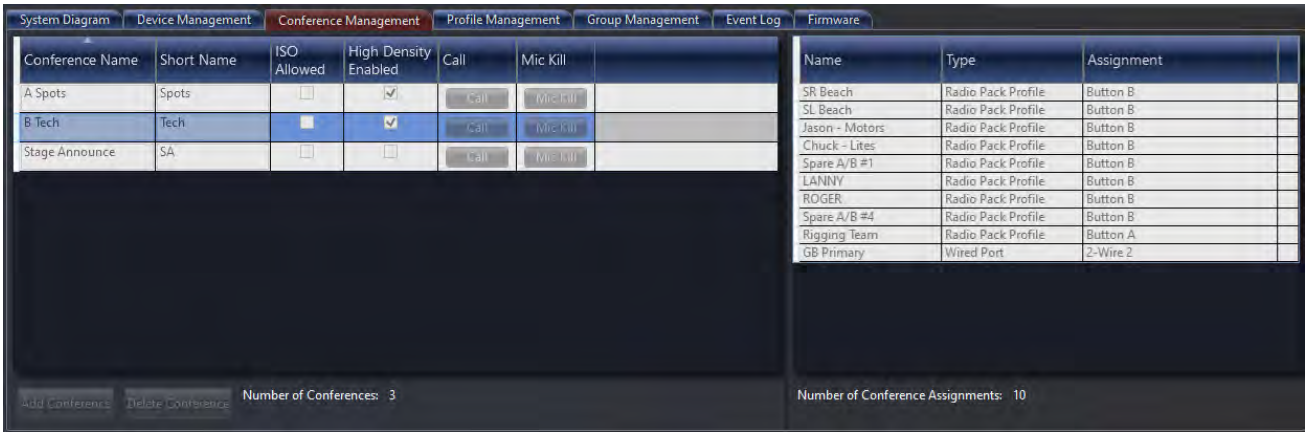


Figure 44 Conference Management Tab

Conference Management Tab	
Field/Function	**Description**
Conference Name and **Short Name**	Rename a Conference by highlighting its name and typing the new name in the field.
ISO Allowed	Select the check boxes beside each Conference name to enable ISO. (Enabling ISO here enables ISO on the Conference. Each individual Profile utilizing the Conference must also have ISO enabled.)
High Density Enabled	See "Operational Modes (Normal and High Density)" on page 6.
Call	See "Set Up Call" on page 122 and "Call" on page 121.
Mic Kill	See Wired Settings.

- To remove a Conference assignment from a Profile, navigate to the CrewWare Profile Management tab. (See Profile Management Tab for more information.)
- Use the buttons along the bottom of the Conference Management tab window to add a new Conference or delete an existing Conference.
- To access this view, click on a Conference and a list of all Conference subscribers will display in a separate table to the right of the screen.

CHAPTER 8

PROFILE MANAGEMENT

This chapter consists of the following sections:

Profile Management Tab

About Profiles

A Radio Pack (RP) Profile assigns functionality to an RP's local controls, knobs, and buttons (including Conference assignments), and allows customization for user preferences, roaming, and operational mode. RP Profiles are part of the CrewCom Configuration File (CCF) and contain two types of settings: Global or User. Refer to the table below for a complete list of these settings.

- **Global Profile Settings –** These settings are part of the CrewCom Configuration File and are usually assigned by a system administrator through CrewWare during setup. Find a full list of the global profile settings available for each Radio Pack in the table below.
- **User Settings–** A user setting is one that is classified as being adjustable by the Radio Pack user and is limited to local device settings that do not alter the CrewCom Configuration File. The Profile can be used to determine these settings, but they can also be customized directly from a Radio Pack after a Profile is loaded.

Profile Management - Global Profile Settings	
Global Profile Settings	**Description**
Profile Name	Name assigned to the Profile
Radio Transceiver Assignments (or Scan List)	List of available Radio Transceivers each Radio Pack can log into and function with
Conference Assignments	Which Conferences are assigned to Volume knobs and corresponding Talk buttons
ISO	Enables selection of specific Profiles to be included in a Conference ISO. This function is either Enabled or Disabled. (ISO must also be enabled for the Conference.)
Function Buttons	Functions such as Stage Announce, Call, or Relays are assigned to the Pack's F1 or F2 button **Note**: Relays can only be assigned from the CU Management Tab (See CU Management Tab) or the System Diagram Tab's Relay View. (See Relay View.)

Profile Management - Global Profile Settings	
Global Profile Settings	**Description**
Button Mode	Determines the talk button behavior as either “Disabled,” “Momentary,” “Latch,” or “Always On.”
Operational Mode	Set to ***Normal*** by default. ***High Density*** is only available for systems upgraded to Version 1.10 or higher.
Profile Group	Enables selection of specific Profiles to include in a Profile Group, so that Profiles in a Group can be organized together in CrewWare’s Real-Time Pack Display for efficient visual monitoring.

Profile Management - User Settings	
User Settings	**Description**
Sidetone	Level adjustment that determines the amount of your own voice that you will hear in your headset.
Mic Gain	Adjusts the amount of microphone input gain into the Radio Pack.
Noise Gate	Adjusts the Noise Gate threshold on the input of the Radio Pack.
Volume Limit	Determines the minimum and maximum headset volume settings for the user.
Talk Tones	Enables or Disables a set of tones (single tone for talk press and double tone for talk release) when the talk button is pressed.

Profile Management List View

The Profile Management **List View** displays the CrewWare Profiles available to any Radio Packs currently connected to the CrewCom system.

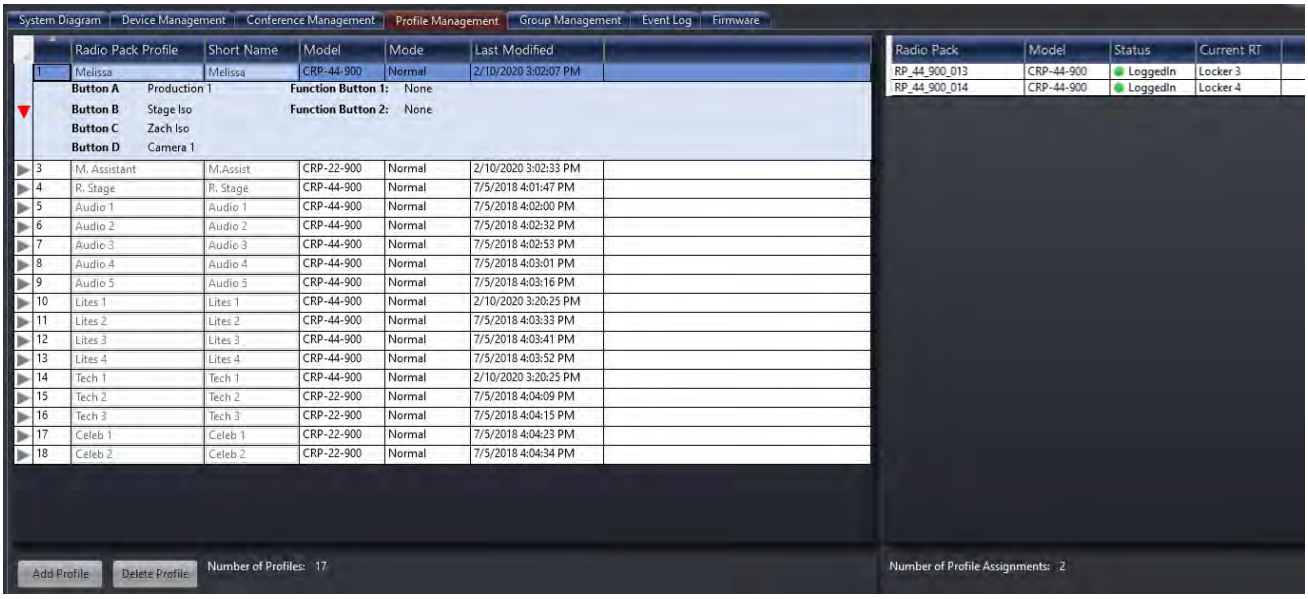


Figure 45 Profile Management Tab: List View

- Click on an individual entry from the Profile table to view a list of all assigned Radio Packs in a separate table to the right of the screen.
- Use the buttons along the bottom of the Profile Management tab window to add a new Profile or delete an existing Profile.
    - Once a Profile is added to the list, double-click the new Profile to access its detail view and further customize its settings. (See the next section for more information.)
- To assign a new or different Profile to an RP, change the RP's Assigned Profile from Device Management tab. (See RP Management Tab for more information.)

Profile Management Detail View

Double-click on a Profile in the list to access its **detail view** and view/edit its settings. In this view, clicking each sub-heading expands or collapses the panels containing more information and configurable settings. The top section of the detail view provides an overview of the selected Profile, including buttons to interact with other CrewWare functions, and a timestamp of the last modification.

Making edits to a Profile updates those settings for all Radio Packs using that Profile.

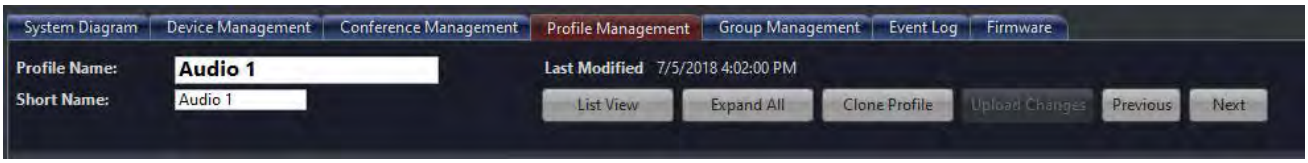


Figure 46 Top Section of Profile Management Detail View

Profile Management - Detail View	
Field/Function	**Description**
Profile Name	Type a name for the selected Profile. There is a 16 character limit on the Profile name.
Short Name	Type an abbreviated version of the Profile name to display when needed. There is an 8 character limit on the Profile short name.
List View Button	Return to the Profile Management list view.
Expand/Collapse All Button	Opens all collapsed settings panels for the selected profile. When clicked again, returns to collapsed panels
Clone Profile	Duplicate the selected Profile. The clone does not duplicate the profile name, using a default “RPProfile” instead.
Upload Changes	Upload the Profile settings to all assigned RPs.

Note: RPs are only viewable and accessible when CrewWare is in a “Live” state with the system or if a system configuration has been saved while in “Live” mode after RPs have been paired.

Global Profile Settings

Figure 47 Expanded Profile Management Global Profile Settings Pane

Adjust the following global settings from this panel:

Global Profile Settings	
Field/Function	**Description**
Model	Select a Radio Pack model from the available options in the drop-down list. Profiles are model-specific. For example, a CRP-44 will not have access to a profile created for a CRP-22. In addition, profiles are frequency-specific. Therefore, a CRP-44-900 will not have access to a profile created for a CRP-44-2400.
Operational Mode	Set to ***Normal*** by default. ***High Density*** is only available for systems upgraded to Version 1.10 or higher.
Call Alert	Set to ***Off***, ***Audible***, ***Vibrate***, or ***Both.*** (***Vibrate*** and ***Both*** options are not available on the CRP-12.)
Profile Group	Enables selection of specific Profiles to include in a Profile Group, so that Profiles in a Group can be organized together in CrewWare's Real-Time Pack Display for efficient visual monitoring.
Scan List	Use the scan list to set up specific coverage areas for RPs or allow RPs to access any RT. Profiles can be used to determine users' access to certain areas through allowing or restricting them from logging in to certain RTs. Since this determination is profile-based, RT access can be quickly updated for users if necessary.

For more information about managing user coverage and the CrewCom scan list, see the Managing User Coverage informational video.

Talk/Volume/ISO Controls

Buttons A, B, C, and D represent the (up to) four Volume Knobs and Talk Buttons available on each Radio Pack. The number of available Button setting panels will vary depending on the selected Radio Pack model. The CRP-44 has four Volume knobs and four Talk buttons, the CRP-22 has two of each, and the CRP-12 has one Talk button.

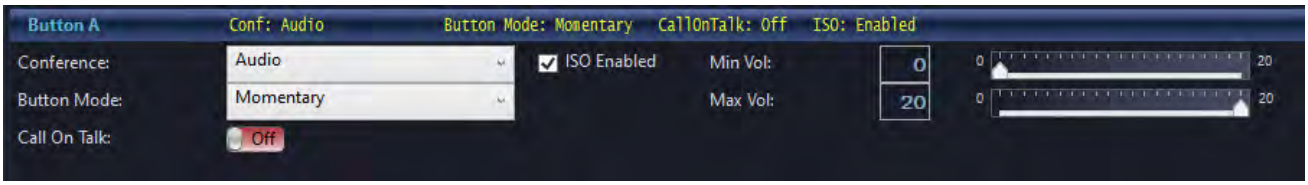


Figure 48 Expanded Profile Management Volume Knob/Talk Button Panel

Profile Talk/Volume/ISO Controls	
Field/Function	**Description**
Conference	Select a Conference assignment from the available options in the drop-down list.
Button Mode	Select either ***Latch,Momentary, Disable,*** or ***Always On*** from the drop-down list. **Note:** Always On is not an option in High Density mode.
Call on Talk	Toggle the Call on Talk function for the profile ***On*** or ***Off*** . When enabled, a call signal will remain active while the Talk button is active. This function is commonly used in applications where a two-way radio interface is connected.
ISO Allowed	Checking this box enables ISO on the corresponding button in the Profile. The selected Conference assignment must also have ISO enabled. From the Radio Pack, ISO is used by pressing and holding the corresponding Volume Knob.
Min/Max Volume	Displays and adjusts the minimum and maximum volume for the selected Profile

Function Buttons

The Function Button panels allow the user to select and modify the settings for the two Function Buttons of all assigned Radio Packs.

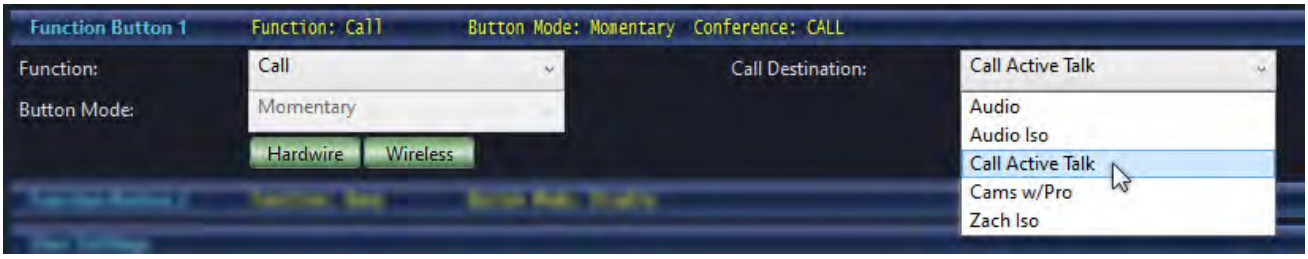


Figure 49 Expanded Profile Management Function Button Panel

Function Buttons	
Field/Function	**Description**
Function	Select a Function assignment from the available options in the drop-down list. • Function options include the following: ***None, Call, Relay,*** and ***Stage Announce.*** (The ***Relay*** and **Stage Announce** options are not available on the CRP-12.) • When ***Call*** is selected, a ***Call Destination*** field will display with a drop-down menu of options. (This field will not display otherwise.) The default field selection, ***Call Active Talk***, means that a Call is sent out on all Conferences for which the Talk Button is active. If a Conference is selected in this drop-down, a Call is sent out on that Conference only (regardless of Talk Button status). (Conferences cannot be selected for the CRP-12.) • When ***Call*** is selected, the user must also choose whether call is sent to ***Hardwire*** or ***Wireless*** users or both. • **Relay** is selected automatically when a Relay Assignment for the Profile has been created from the CU Management Tab or from the System Diagram Tab Relay screen. When Relay is active on a function button, CrewWare will display the function button's mode, the relay's display name, and the associated Control Unit and relay number.
Button Mode	Either ***Momentary*** or ***Disable*** will be selected, depending on whether or not the Function Button has a Function selected.

User Settings

Tip: When changing a setting while using High Density Mode, at least one return data path must be open (one of the four talk slots on a HiDen RT) for CrewWare to confirm that the change has been made on a Radio Pack. CrewWare displays a yellow indicator box around the changed setting and an exclamation point to the right of the setting to alert the user that the confirmation of change is pending. Once a talk slot is open, CrewWare will confirm that the setting has been changed on the Radio Pack and the indicator will go away.

User Settings are optional when assigning a profile. During profile assignment, users will have the option to accept the profile's settings or keep the current user settings on that particular RP.

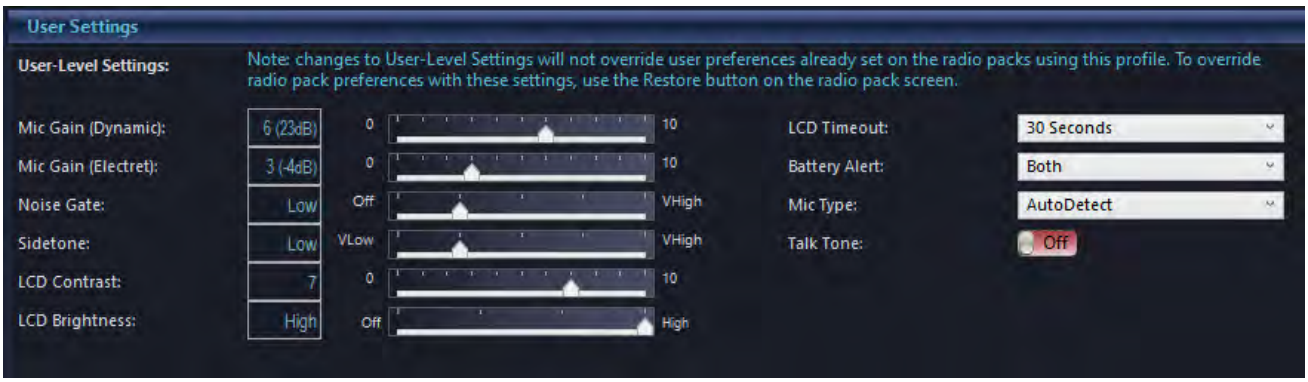


Figure 50 Expanded Profile Management User Settings Panel

Note: The CRP-12 will show different settings/functions than shown above and listed below (ex. there is no LCD information since the CRP-12 does not have a screen.)

User Settings allow the user to set their preferences for the following functions:

User Settings	
Field/Function	**Description**
Dynamic and Electret Mic Gain	When the Mic Gain is set too high, it is possible to induce feedback or echo. When set too low, words can be clipped by the low level noise gate, or may sound too quiet to other listeners. Different models of headsets will require widely varying mic gain settings.

User Settings	
Field/Function	**Description**
Noise Gate	Set the minimum audio threshold necessary to allow audio to pass from the headset microphone to the rest of the system. Pliant recommends setting the noise gate as low as possible for best operation.
Side Tone	Speak into the headset microphone at a typical speaking level and adjust the sound of your own voice in the headset using this setting.
LCD Contrast	Increases or decreases the level of contrast in the RP LCD.
LCD Brightness	Sets the LCD backlight brightness level to ***High***, ***Med***, ***Low,*** or ***Off***.
LCD Timeout	Sets the LCD backlight to power off ***30 seconds***, ***10 seconds***, or ***3 seconds*** after engaging the RP interface. The user may disable the backlight time out by selecting ***Disabled***.
Battery Alert	Select either ***Audible***, ***Vibrate***, ***Both***, or ***Off*** as the type of alert the Radio Pack displays to notify user of low battery life level.
Mic Type	Select either ***Auto Detect***, ***Dynamic***, or ***Electret***. Selecting ***Auto Detect*** is highly recommended.
Talk Tone	Enabling Talk Tones gives the user an audible tone when a talk button is pressed to communicate on a Conference. Talk Tone is not currently operational with ISO and Stage Announce.

Assigning Radio Pack Profile

The Radio Pack LCD prompts the user to assign a Profile each time a Radio Pack is paired with a Control Unit. The list of available Profile assignments populates with either default Profiles (based on the Radio Pack model) or custom Profiles created by the user in CrewWare. There are several ways you can change an RP's Profile assignment after this initial Profile selection at pairing. See the two CrewWare options detailed below.

Tip: Create new Profiles on the CrewWare Profile Management tab. (See "Profile Management Tab" on page 68 for more information.) Select ***Upload Changes*** after editing or adding a Profile to push your changes to the affected (and powered) RPs.

Method 1: From CrewWare

1. Open ***Detail View*** for the Radio Pack on the Device Management tab.

   Important: To make changes to the assigned profile, CrewWare must be in a "Live" state.

2. Select a new assignment from the ***Assigned Profile*** drop-down menu.

3. Confirm your change in the alerts that display to notify you of "live" system changes.

Method 2: From CrewWare

1. Open ***List View*** for the Radio Pack on the Device Management tab.

   Important: To make changes to the assigned profile, CrewWare must be in a "Live" state.

2. On the selected RP's row, find the ***Assigned Profile*** field (on the right), and select a new profile from the drop-down list.

3. Confirm your change in the alerts that display to notify you of "live" system changes.

You may also assign a profile from the Control Unit LCD and from the Radio Pack, if needed. See the Control Unit and Radio Pack Manuals for more information.

CHAPTER 9

GROUP MANAGEMENT

This chapter consists of the following sections:

Group Management Tab

About Groups

A Group is an administrator-defined grouping of Profiles. The real-time pack display (see "Real-Time Pack View" on page 98) can be organized by Group from its right-click menu. When organizing by Group, the Group color selections are reflected in the real-time pack display's group banners.

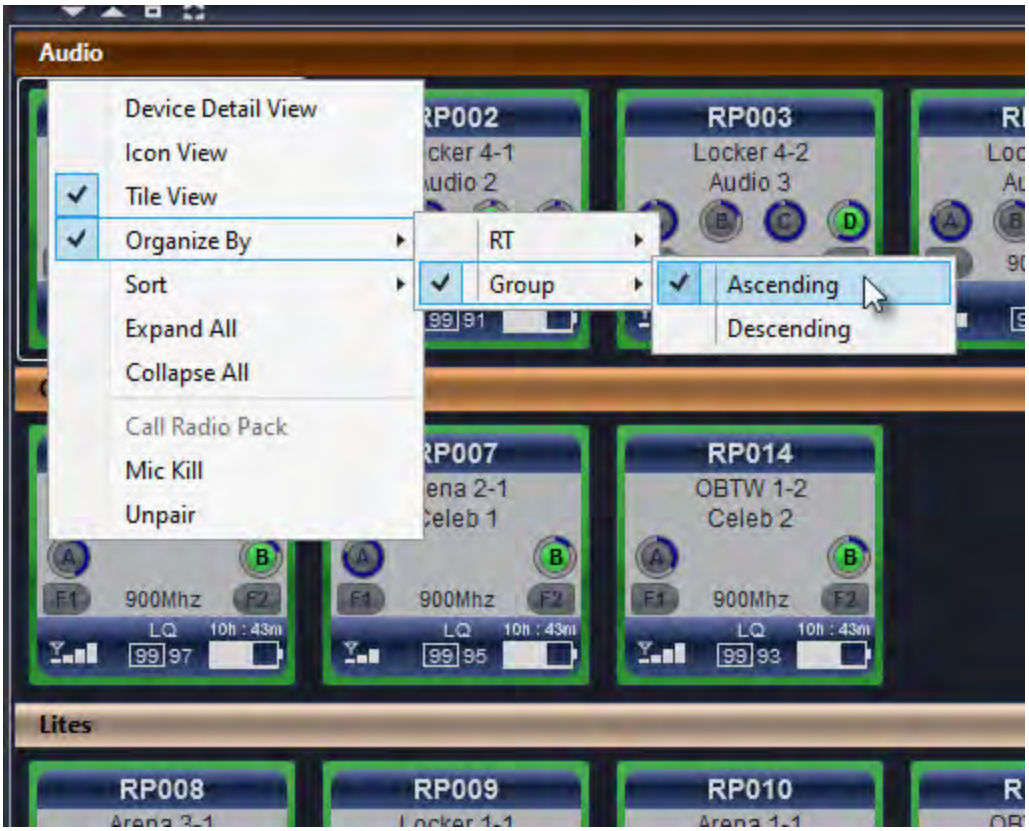


Figure 51 Real-Time Pack View: Organize by "Group"

Group Management List View

The Group Management **List View** displays the CrewWare Groups available to any Profiles in the configuration file.

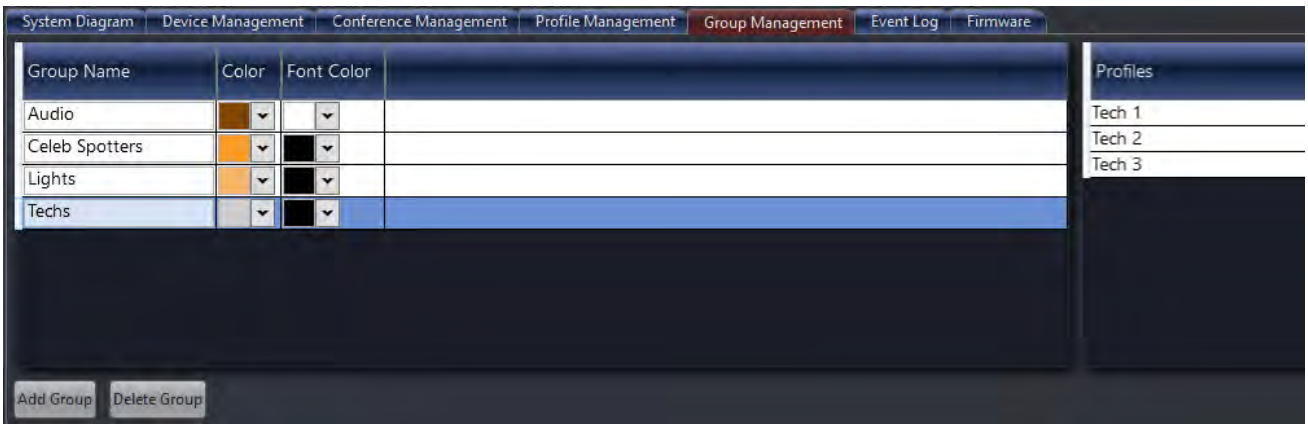


Figure 52 Group Management Tab: List View

- Click on an individual entry from the Group table to view a list of all member Profiles in a separate table to the right of the screen.
- Use the buttons along the bottom of the Group Management tab window to add a new Group or delete an existing Group.
    - Once a Group is added to the list, double-click the new Group to access its detail view and further customize its settings. (See the next section for more information.)
- To add/remove the Profiles that are part of a Group, double-click on the Group to access its detail view and add/remove Profiles en masse. Or you can change an individual Profile's ***Profile Group*** field from its Profile Management tab.

Group Management Detail View

Double-click on a Group in the list to access its **detail view** and view/edit its settings. The top section of the detail view provides an overview of the selected Group, including buttons to return to the list view and navigate to the previous and next Groups.

Figure 53 Group Management Tab: Detail View

- Use the color-picker boxes to change the Group's banner and banner text color (reflected in the real-time pack display panel with "Organize By Group" is enabled).
- Rename a Group by highlighting its name and typing the new name in the field.
- Add members to the Group by selecting them from the "All Profiles" list and dragging them to the "In this group" list. (Or by clicking the right-facing arrow.) You'll notice that each Profile's "Current Group" column changes to reflect its Group membership.
- You can select multiple Profiles from either list by holding down the SHIFT or CTRL keys while clicking to make your selection.

CHAPTER 10

EVENT LOG

This chapter consists of the following sections:

Event Log Tab

The Event Log records messages for events that occur within the CrewNet system hardware or software. Event Log Alert Messages appear for both live and offline sessions, and they will be considered “Active” until resolved. Multiple errors can be active at one time. Select an Alert Message from the log to view an expanded, detailed record of the event in the Event Log Tab.

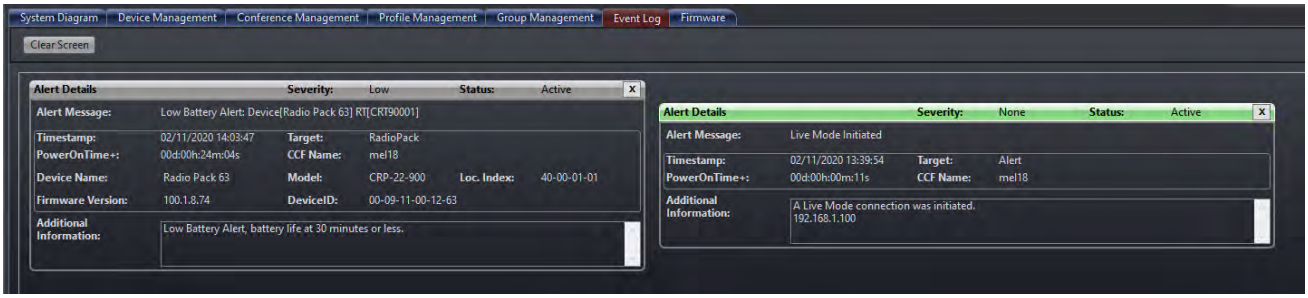


Figure 54 Event Log Tab Displaying Details of Selected Alerts

Each alert is assigned a color related to the severity of the event. (See table below.) The highest severity of all active alerts is mirrored in the System Status indicator in the upper-right corner of CrewWare.

Alert Messages		
Color	**Alert Status**	**Description**
Red	Critical	Critical alert needing immediate attention
Orange	High	High priority alert
Yellow	Warning	Moderate priority alert
Gray	Low	Low priority alert
Green	OK	Normal or “OK” events.

Adjusting Log Settings

Access the Log Settings dialog box from the CrewWare ***Edit*** menu. This box allows customization of the CrewWare Event Log, including archive and file backup settings.

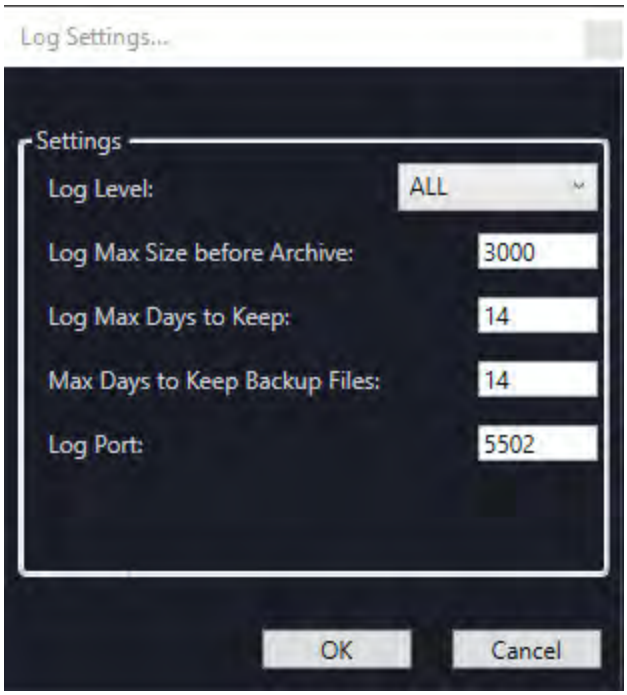


Figure 55 Log Settings Dialog Box

Viewing Log History

The system also stores the event log in a separate ".ccdiag" file. View this history while offline by choosing ***Event Log*** then ***Open Event Log...*** from the CrewWare ***View*** menu. A directory window will display, where you can select the appropriate ".ccdiag" file and open it.

You may export an entire system log history as a zip file by choosing ***Export Log Files*** from the CrewWare ***File*** menu. A confirmation window will display, where you can enter a time frame of logs you wish to export.

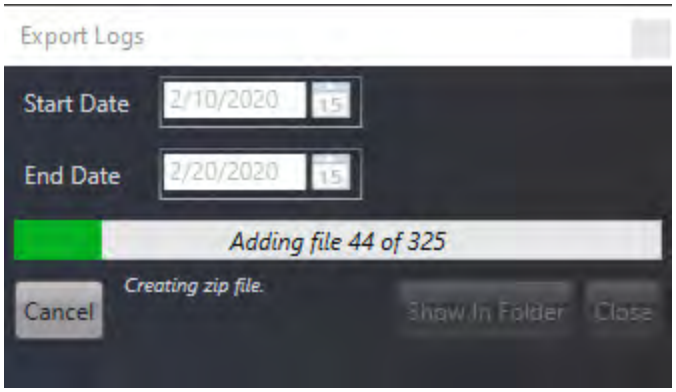


Figure 56 Export Logs Pop-Up Window

CHAPTER 11

FIRMWARE TAB

This chapter consists of the following sections:

Update Firmware

The CrewWare Firmware tab gives the user the ability to update the firmware for all devices connected to the system.

IMPORTANT: To work together as a system, all connected CrewCom devices must have firmware that matches the version installed on the primary Control Unit.

Process Prerequisites

IMPORTANT: Always follow any specific firmware update instructions delivered with the new release. Firmware release notes and any separately published update procedures supersede the information provided below.

- Make sure that the most recent version of CrewWare is installed on your PC. See "CrewWare Setup and Installation" on page 9 for more information about how to update CrewWare.
- If updating an integrated CrewCom system, before opening CrewWare to update device firmware, connect any Radio Transceivers and Hubs to the system, and then power on the Control Units and allow them to load their system configuration entirely.
- Alternatively, you may elect to connect a PPS-48V-02 power supply (sold separately) to each RT and Hub so it directly receives power during this update.
- Pliant recommends saving a backup copy of your CCF file before beginning the firmware update process.
- When updating firmware from version 1.2 or older, Pliant recommends an incremental firmware update to version 1.4 before updating to version 1.8. Updating directly from version 1.3 to 1.8 is supported.

USB Firmware Update Process (for all devices)

This process requires connecting devices directly to the PC USB for firmware updates. Update times may vary by device.

IMPORTANT: It does not matter whether CrewWare is “live” or “offline” during this procedure. If updating a configured CrewCom system, the system requires you to update your devices in this order: Control Units, Hubs, RTs, and finally RPs. When updating RPs, power off all other equipment.

Tip: You can utilize a USB “hub” in order to connect and update multiple devices at once; in this case, be sure all devices are connected prior to Step 3. (When updating multiple RTs via USB "hub" (and those RTs are powered via PoC), a reset could occur if an upstream RT finishes its update ahead of downstream RTs. In this situation, the downstream RT(s) may experience an update failure, which you can rectify by restarting their update.)

IMPORTANT: When updating each CU's firmware to version 1.8, an additional file upload directly to the CU (via front panel USB) will be required. Upon clicking "Scan for Devices" in CrewWare's firmware tab, you will find step-by-step instructions for this process.

1. In CrewWare, navigate to the “Firmware” tab. Select the ***USB Devices*** sub-tab.

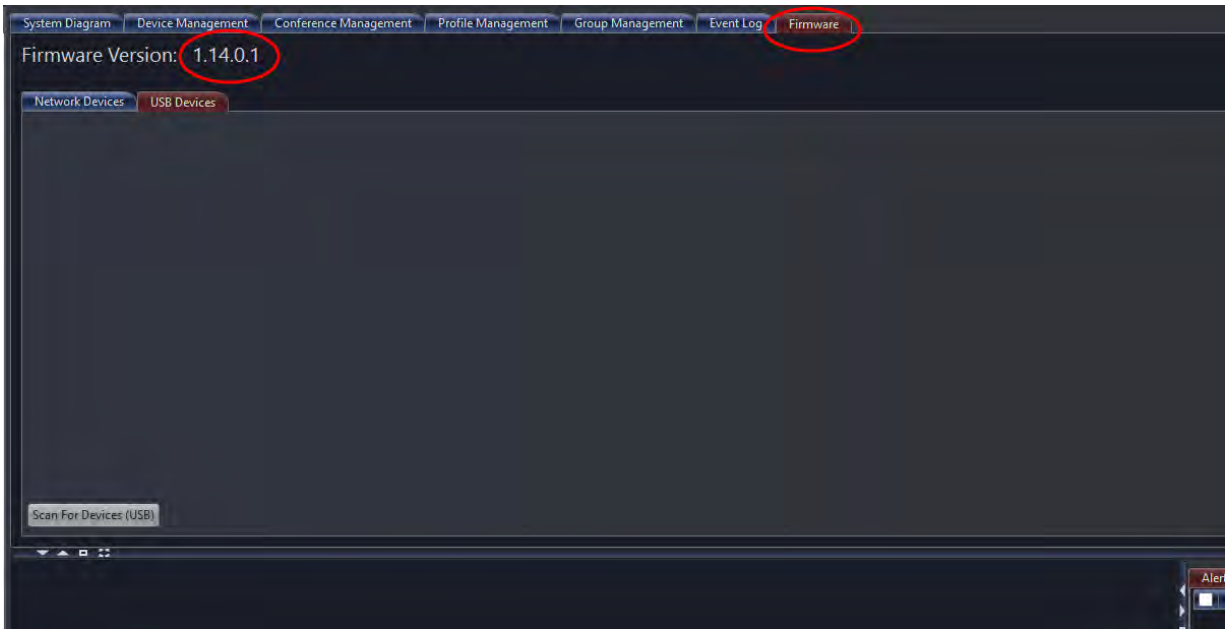


Figure 57 CrewWare Firmware Tab

2. Connect a USB-to-Micro-USB cable from the PC to the device (micro end goes into the CrewCom device).

> **IMPORTANT:** When updating the Pliant 6+6 Drop-In Radio Pack and Battery Charger (PBT-RPC-66), do not connect power to the Charger until AFTER you have completed Steps 1 and 2.

3. Click the ***Scan For Devices*** button at the bottom of the tab. If you are updating a CU on version 1.4 or older, proceed to step 3.A. below. If you are updating a CU on version 1.4 or newer or updating an RT, Hub, or RP skip to step 4.
    A. The connected Control Unit will display on the tab with an alert message about front-panel USB file update procedure. Click ***Next***.

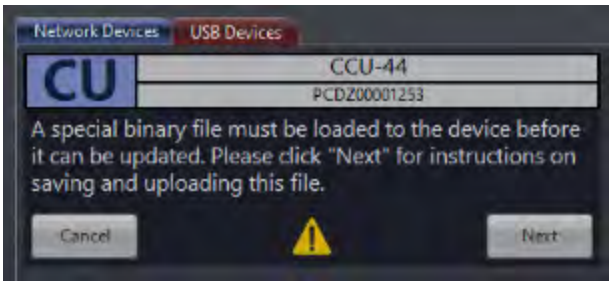


Figure 58 CU Front-Panel File Update Prompt

    B. Connect a FAT32-formatted USB drive to your PC. Click ***Next***.

Figure 59 Insert USB Drive Prompt

    C. Select the USB drive from the drop down box, then click ***Save***.

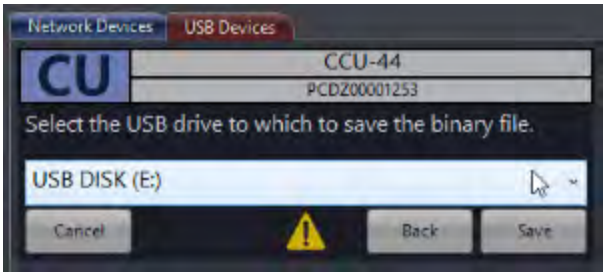


Figure 60 Select USB Drive Prompt

D. When the file is saved to the USB drive, eject the drive from your PC and plug it into the front panel of the CU. (You may click ***Next*** in CrewWare to view instructions for the next steps in this procedure in addition to reading them below.)

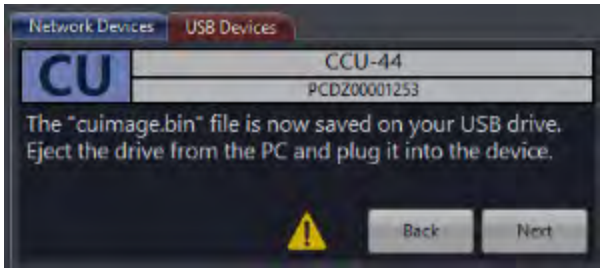


Figure 61 File Saved Prompt

E. Use the CU's navigation buttons to scroll and select ***Upload Firmware*** from the menu that displays on the CU LCD.

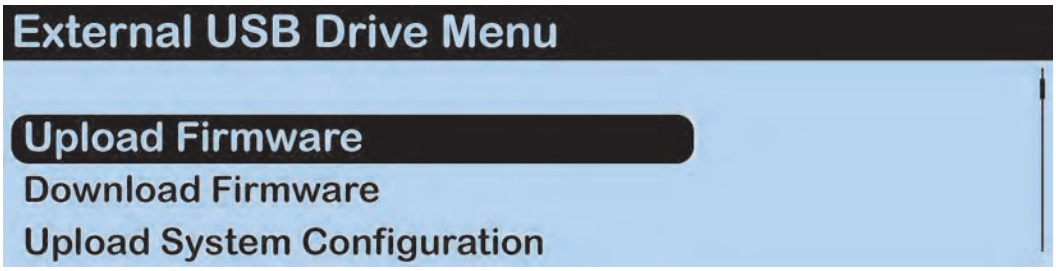


Figure 62 CU LCD "Upload Firmware" Menu

F. Select ***cuimage.bin*** in the next menu that displays.

G. Select ***Yes*** in response to the CU's "Are you sure you wish to upload firmware?" prompt. A progress bar will display the progress of the upload.

H. After the upload completes, disconnect the USB drive from the CU and power cycle the device.

> **Note**: After the update completes, a prompt will display, confirming the change and asking "Do you want to reboot the DSP?" You may disregard this prompt. Power cycling the CU at this step will automatically reboot the DSP, so no response is required.

I. After the CU has finished powering up, ensure it is still connected to the PC via USB cable, then click ***Scan for Devices*** in CrewWare to initiate the next phase of the firmware update.

J. The connected Control Unit will display on the tab with an alert message about the transitional procedure. Click ***OK***.

4. Each connected device will display on the tab along with their current firmware version.

Figure 63 USB-Connected Device

5. Click the ***Update*** button under each device to initiate its update. A progress bar will display.

Note: For RPs, you can also initiate the update from the device by pressing F2 when prompted.

Note: For CUs updating to 1.8, the progress bar will halt at 50% awaiting user input. Once the CU LCD displays a "Waiting for Rescan" message, you can click ***Scan For Devices*** then ***Update*** again to continue with the second half of the CU update.

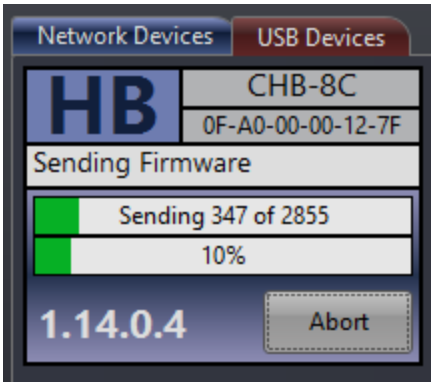


Figure 64 USB Firmware Update In Progress

6. Wait for the device to complete its update. DO NOT disconnect the device or click ***Abort*** until all of the device's updates are complete and an "Update Complete" message displays in the progress bar.

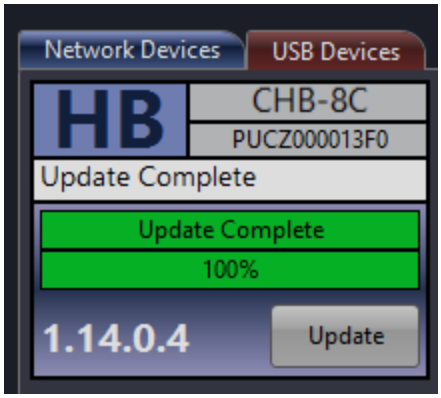


Figure 65 USB Firmware Update In Progress

> **Caution**: When updating RTs, you must also wait for the RX and TX LEDS to finish alternating flashes and return to a normal state before clearing the CrewWare screen and continuing to step 7.

7. Click the ***Clear*** button to remove the updated device(s) from the Firmware tab.

8. Verify the firmware installation by repeating steps 3 and 4 to rescan the devices. Confirm that the rescanned devices now display the new firmware version number in CrewWare.

Figure 66 Rescanned Updated Device

9. Disconnect the USB cable from the device without clicking on anything in CrewWare. Once the device is disconnected, click the ***Clear/Abort*** button to remove the device from the Firmware tab.

10. Repeat steps 2–9 above until each Control Unit (CU), Hub, Radio Transceiver (RT), and Radio Pack (RP) is updated.

11. If updating from firmware version 1.1 or older, you must also save your CCF in the new version to match existing settings to added features. Use the recommended procedure from "Save Configuration File (CCF)" on page 28.

CrewNet Firmware Update Process (for RTs only)

Device firmware must be 1.1 or higher for network update capability.

1. Update any system Control Units and Hubs via USB before updating RTs.
2. Connect the CrewCom system, power on the devices, and verify that all RTs you are updating are receiving power.
3. Open CrewWare and click on the ***Offline*** button in the upper right corner. The Login window will display.
4. Enter the primary CU's IP address in the ***Device*** field of the Login window. Click ***OK***.
5. Once connected, all RTs will be grayed out since their firmware version does not match the CU's firmware version yet. An error will display in the upper right system status region.

Figure 67 "Error" System Status

6. Click on CrewWare's Firmware tab. On the ***Network Devices*** sub-tab, check the ***Show All Network Devices*** box. All connected RTs will display.
7. Click the ***Update Listed Devices*** button at the bottom of the tab to initiate the update for all connected RTs. CrewWare will automatically begin the process of updating the RTs one at a time, and a progress bar will display for each.

8. Wait for the devices to complete their update. As each update finishes, you should see the RT's firmware version change to the new version number within CrewWare. DO NOT disconnect the device or click ***Abort*** until all of the device's updates are complete and an "Update Complete" message displays in the progress bar.

> **Caution**: When updating RTs, you must also wait for all devices' RX and TX LEDS to finish alternating flashes and return to a normal state before clearing the CrewWare screen and continuing to step 9.

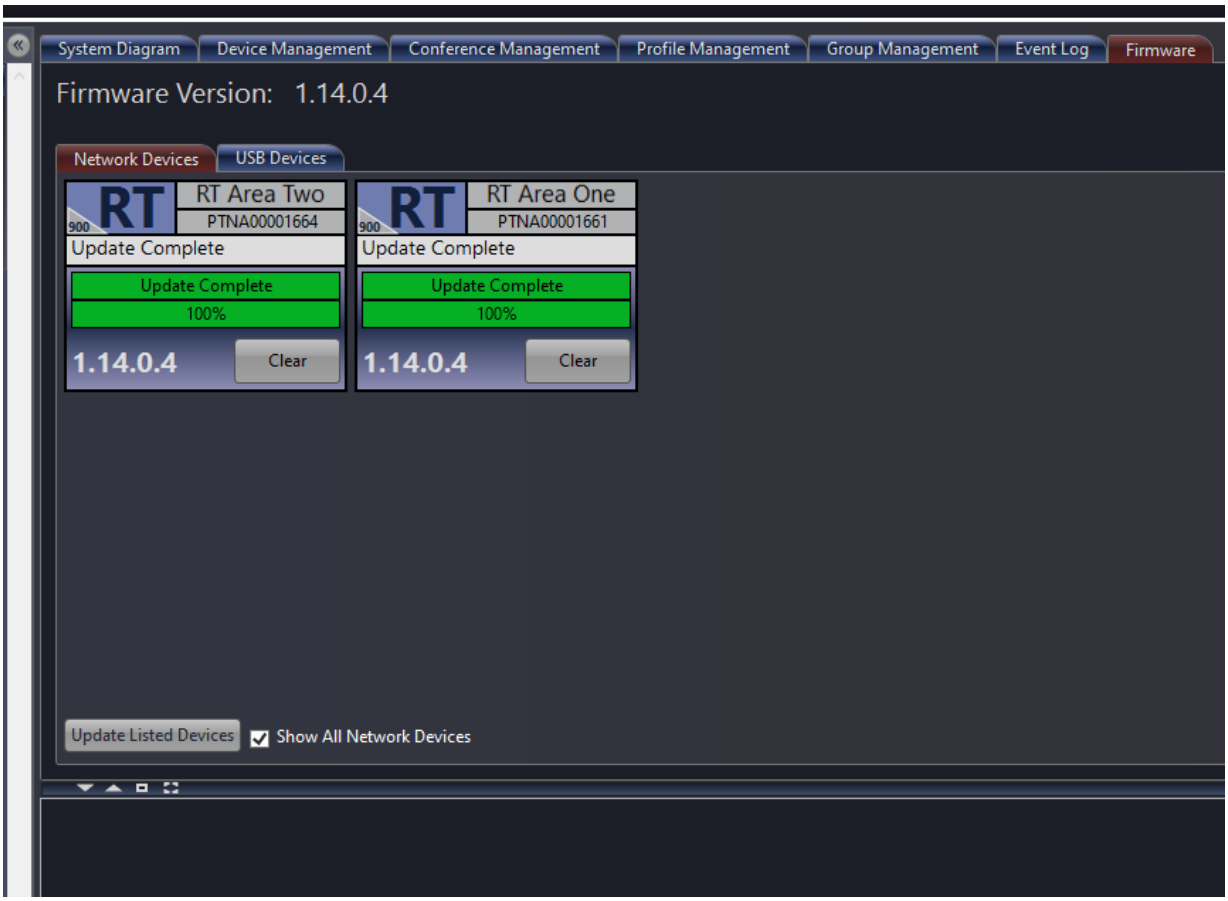


Figure 68 CrewWare Firmware Tab - Network Devices Sub-Tab

9. Click the ***Live*** button and go offline.

10. After all RTs are updated, reboot your system by powering off and powering on all CUs, Hubs, and locally powered RTs.

11. If updating from firmware version 1.1 or older, you must also save your CCF in the new version to match existing settings to added features. Use the recommended procedure from"Save Configuration File (CCF)" on page 28.

CHAPTER 12

REAL-TIME PACK VIEW

This chapter consists of the following sections:

Real-Time Pack View

CrewWare's RP display is a real-time view of each Radio Pack (RP) paired to the system.

- The top portion of the window (or "Active panel") displays RPs in operation with “Live” connection status. (These RPs remain in the "Active" panel until CrewWare has been disconnected or closed, regardless of whether the RP is powered off.)
- The bottom portion of the window (or "Inactive panel") displays RPs that are paired to the system, but not yet logged in.

See Figure 69 for information about what is displayed on each RP icon. You may also hover the mouse over an individual RP icon to view additional information such as Profile Name, Device ID, Model Number, Operational Mode, etc. Double-click on an individual RP icon to access its Device Management detail view. Right-click on an individual RP in order to modify the list display, enable the Mic Kill option, or unpair the RP.

The Active and Inactive panels can be customized by right-clicking: In the menu that displays, hover over the ***Organize By*** option, and then choose ***RT*** (ascending or descending order) to display the RP icons under RT headers. Choose ***Group*** (ascending or descending order) to display the RP icons under Group headers (with color settings determined from the "Group Management Tab" on page 79.)

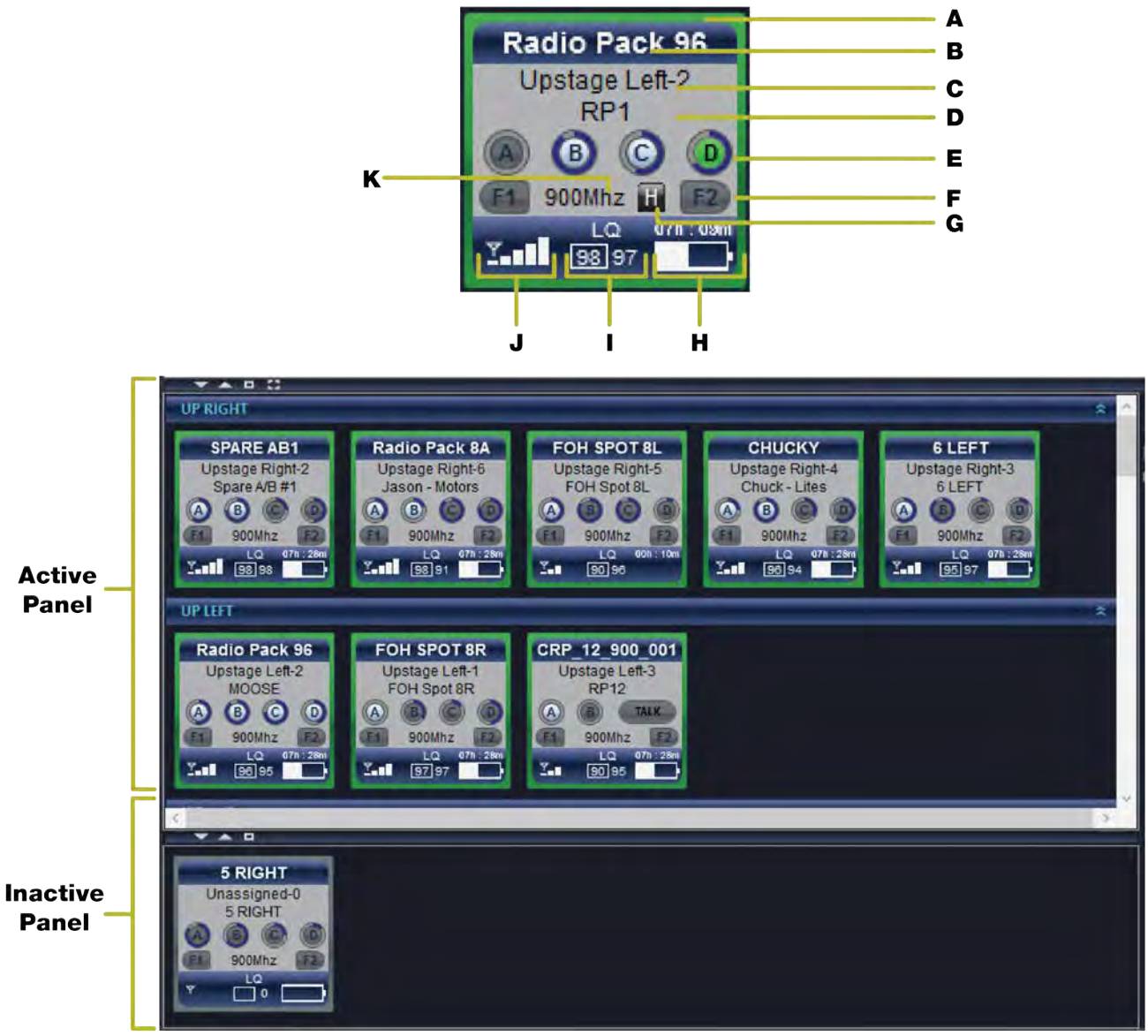


Figure 69 Real-Time Pack View Pane ("Tile" View)

Pack Display Overview	
Label	**Field/Function**
A	**RP "Glow" Indicator** – When the RP icon is illuminated green, that RP is active on the system. Red means the RP has a low battery. Blue means the RP is logged out of the CU. Gray means that RP is powered off.
B	**RP Name (long name)**
C	**RT Name (long name)**
D	**Profile Name (long name)**

Pack Display Overview	
Label	**Field/Function**
E	**Volume Knob/Talk Button Indicators** – Displays indicators A–D or A–B (depending on RP model), and illuminates individual indicators green when their Talk function is active. Indicators illuminate light blue when the button has been assigned a conference and the user is currently listening to that conference. Indicators illuminate gray to indicate that no conference has been assigned to that button. Displays a volume level indicator surrounding the individual indicator. In the “tile” view, an “I” will display over the indicator to represent ISO when the button is pressed. On the CRP-12, displays a dedicated TALK button indicator.
F	**Function Button Indicators** – Display indicators for F1 and F2, which each illuminate green when their function is active.
G	**High Density Indicator** - Indicates that the RP is using a profile set to High Density Operational Mode.
H	**Battery Running Time and Level**
I	**Link Quality** – Provides a diagnostic measurement of actual packet transmission from RP to RT and vice versa. The outlined LQ represents the RT’s Receive LQ. The other number represents the RP’s Receive LQ. **Note:** When using a High Density profile (indicated by the "H"), the outlined LQ display will be blank until a talk button is pushed.
J	**Radio Signal Strength Indicator (RSSI)**
K	**RP Frequency**

Alternate Real-Time Pack Views

Figure 70 Real-Time Pack View Pane (“Device Detail View”)

Figure 71 Real-Time Pack View Pane (“Icon” View)

CHAPTER 13

OPERATION

This chapter consists of the following sections:

Add More CrewCom Devices

If you need to add additional CrewCom devices (e.g., a Hub, RT, or additional CUs) after you've applied your CrewCom Configuration File, you'll need to do the following:

> **Note**: To add more CrewCom devices to a system that has been Auto Configured, restore factory defaults on the CU and Auto Configure again with all devices connected. Up to 3 RTs can be Auto Configured; Hubs cannot be Auto Configured. See the Control Unit Manual . To add a non-primary CU to a system that has been Auto Configured, use steps below.

1. Add the device(s) to your system diagram in CrewWare, then save the Configuration File change and apply the new Configuration File to your system. (Remember, you cannot make System Diagram changes while CrewWare is "live.") (See "System Diagram Tab" on page 31 and "Upload Configuration File (CCF)" on page 26.)
2. Connect the additional CrewCom device(s) via an available CrewNet RJ-45 Copper or duplex LC Fiber port.

Adding a Radio Transceiver (RT)

When adding an RT, any advanced system configuration and customization of radio bands and hopping patterns must be done via the "RT Management Tab" on page 59 in CrewWare. These settings are part of the CrewCom Configuration File, but they are not adjustable in "Live" mode.

- **Radio Band** – All radios on a CrewCom system of the same frequency must be set to the same Radio Band. The default Radio Band is selected automatically by choosing the widest Radio Band setting for that frequency range. The Radio Band you use should follow the rules governing radio use in your country. You can change the system Radio Band selection from the Control Unit or CrewWare, choosing either ***Full, High, Low***, or ***Mixed***. The Mixed Band allows for the simultaneous use of both the Low and the High bands on the same CrewNet-based system. Using this mode allows Radio Packs to roam from Low Band to High Band and vice-versa. This is especially useful when coordinating hopping patterns and bands on more than one collocated and synced CrewCom or X-System/CrewCom system.

Radio Band Options		
	900MHz Radio Bands	**2.4GHz Radio Bands**
Full	902–928 Mhz	2400–2483.5 Mhz
High	915–928 Mhz*	2445–2483.5 Mhz
Low	902–915 Mhz	2400–2444 Mhz
Mixed	902–915 Mhz / 915–928 Mhz	2400–2444 Mhz / 2445–2483.5 Mhz

*The -900AN device models use only the High 900MHz radio band.

Note: Changes to the Radio Band setting will require all Radio Packs to be re-paired. See the Radio Pack Manual for more information about that process.

- **Hopping Pattern** – The RT's Hopping Pattern is selected automatically by CrewCom when comparing all the existing RTs and assigning the next compatible number (within the same frequency range) available on CrewNet. You can either leave the Hopping Pattern that the system selects or edit the Hopping Pattern to your preference. If you select a Hopping Pattern that is not compatible with the Control Unit's setting, a warning will display prompting you to confirm your preferred settings.

Connecting Multiple Control Units

Every CCF must contain one primary CU. By default, the first Control Unit (CU) added to the CCF is automatically assigned as the primary CU. Any additional CUs will need to be added through CrewWare and CCF loaded to CUs or auto configured on the non-primary CU. Up to 3 non-primary CUs can be added to a system. See diagrams below steps and "System Diagram Tab" on page 31 for more information on building system diagrams in CrewWare.

1. Restore Factory Defaults on the non-primary CU. See Restore Factory Defaults for more information.

   > **Caution:** Loading or having a previously loaded CCF on any CU other than the primary CU will cause a configuration malfunction. You may also Delete System Configuration from the External USB Drive menu; see Delete Configuration File (CCF).

2. Once the non-primary CU has powered on, select ***Use as Non-primary CU***.

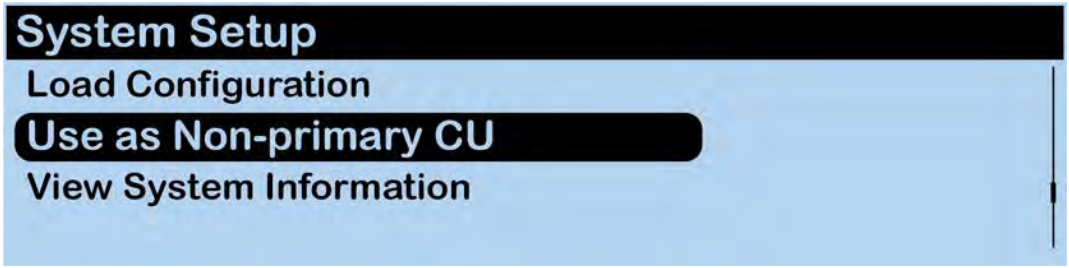


Figure 72 CU LCD Use as Non-primary CU

3. Connect the non-primary CU to a configured system. Make sure to connect the non-primary CU exactly as drawn in the system's configuration file.

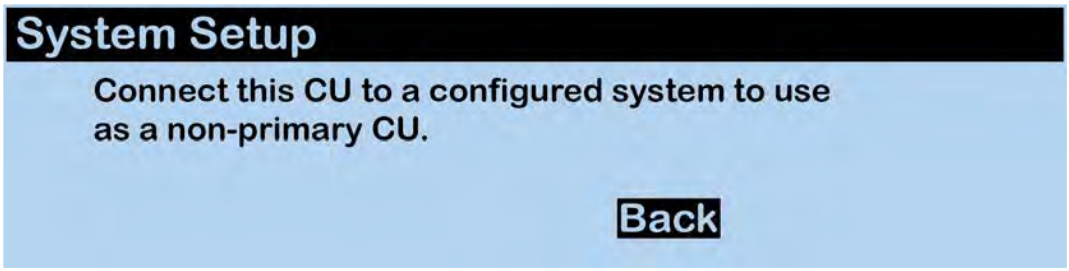


Figure 73 CU LCD Connect to Configured System

4. Once connected, the CU will automatically begin loading the CCF.

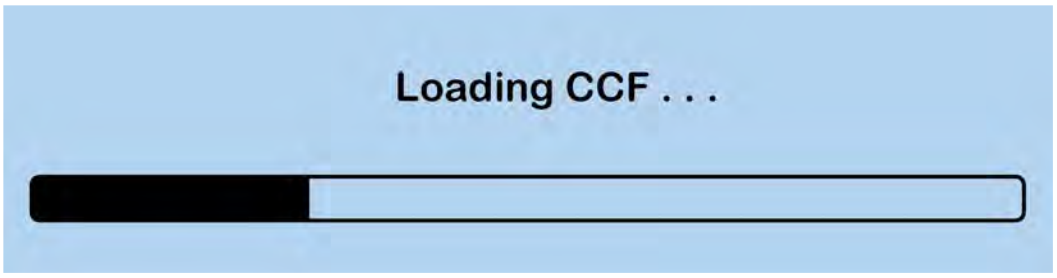


Figure 74 CU LCD Loading CCF

5. The CU will show a blank home screen when the CCF loading is complete.

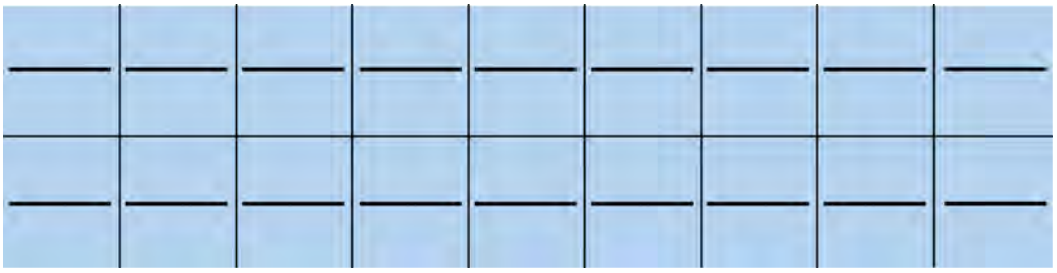
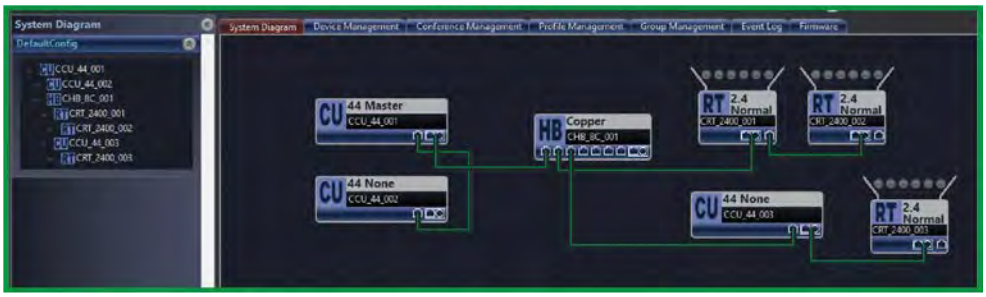


Figure 75 CU LCD Home Screen

CrewNet supports up to 4 CUs. These additional CUs can be connected to the network via an available CrewNet port on another CU or a CrewCom Hub. No CU additions can be made via an RT's CrewNet or Loop ports. Multiple Control Units may only be connected together (i.e., daisy-chained) when they are connected directly from the primary CU. A single CU may be connected from a CrewCom Hub; this configuration is not considered to be daisy-chaining the CUs. See the images below for examples of acceptable and unacceptable multi-CU system diagrams. See "System Diagram Tab" on page 31 for more information on building system diagrams in CrewWare.

Acceptable



Unacceptable

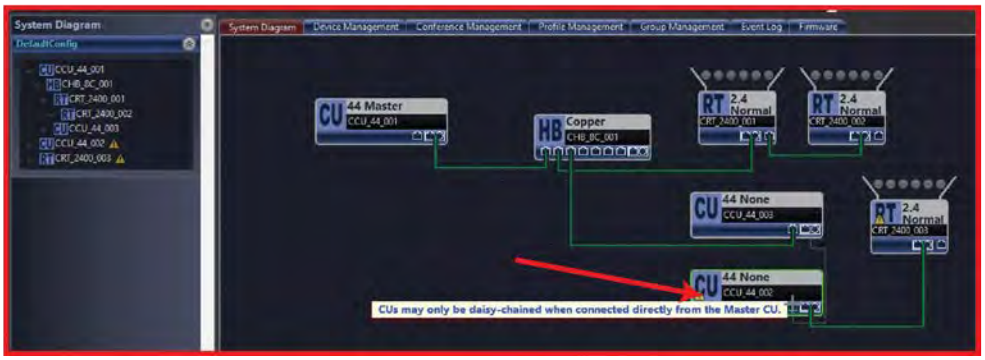


Figure 76 Control Unit Configuration Limitations

Name a Device

CrewCom devices can be given a 16-character long name and an 8-character short name for display in the various CrewWare menus and diagrams.

Note: This is a different procedure than editing the RP Profile's name. (See "Profile Management Tab" on page 68.)

Change Device Names from CrewWare

Access the respective device's Device Management Detail View via CrewWare, and type a long and/or short name in the designated name field. Save and upload your CCF changes if you aren't already in "Live" mode. See "Device Management Tab" on page 42.

Note: "Live" Hub name changes are not currently supported.

2-Wire Intercom Connectivity

Note: If you are *not* connecting a hardwire system, be sure the ***2-Wire Type*** is set to ***OFF***, or the system could experience termination-related issues and poor audio. See the procedure below for more information on how to change this setting.

Connect to the Control Unit

Connect a 2-Wire intercom system to the Control Unit's (CU) 2-Wire intercom ports (labeled 1–2 on CCU-22 and labeled 1–4 on CCU-44). Then, configure the connection either via CU or CrewWare.

Configure a 2-Wire Connection via CrewWare

Always confirm that the non-Pliant 2-Wire intercom system and the CrewCom wireless system are functioning properly separately before connecting them together. Use the procedures below to configure the 2-Wire connection from CrewWare.

On the Device Management tab, open the Control Unit's detail view:

Figure 77 Expanded CU 2-Wire Port Panel

1. Find the "2-Wire" panel and click to expand it (if not already expanded).
2. Locate the desired setting for a 2-Wire port (CCU-22 ports 1 and 2; CCU-44 ports 1 through 4).
    A. Select a conference for the port in the ***Assigned Conference*** drop-down field. If you need conferences for 2-Wire other than the defaults, you will need to create new conferences from the Conference Management Tab and choose the new conferences in this field.
    B. For the ***2-Wire Type*** field, select from the list of compatible types: ***OFF***, ***RTS_Ch1***, ***RTS_Ch2***, ***AudioCom***, or ***Clear-Com***.
    C. The ***Audio Mode*** field is limited to only selecting ***Duplex*** at this time.
    D. If desired, type a 16-characters or less ***Port Name*** in that field.
    E. Adjust IN/OUT audio levels between the CrewCom System and the 2-Wire intercom system as needed. Within CrewWare, adjust the CrewCom levels for each 2-Wire port via the ***Level In*** and ***Level Out*** fields.With appropriate mic gain settings and expected nominal levels from the interfaced system, the 2-Wire settings you can expect to see for RTS, Clear-Com, and AudioCom are provided in the table below.

2-Wire Intercom Settings			
	RTS	**Clear-Com**	**AudioCom**
2W OUT	0	0	+3
2W IN	0	0	-3

    F. Determine if you would like to send and receive Call signals from CrewCom to the connected 2-Wire intercom system. Toggle the ***Call Enabled: (Inbound)*** and ***Call Enabled: (Outbound)*** functions on or off for each CU 2-Wire port. See "Set Up Call" on page 122 for more information.
    G. If desired, set ***Mic Kill*** to send and receive signals from a connected 2-Wire intercom system by toggling the function to ***On***. Mic Kill is defined in more detail in the Control Unit Manual.

Note: CrewCom does not send Mic Kill settings to Clear-Com 2-Wire systems.

    H. The Echo Cancellation (ECAN) setting for the 2-Wire ports is ***On*** by default. Pliant highly recommends that ECAN remain on even if a 2-Wire system is not in use. If you wish to change this setting, you may toggle it to Off. Echo Cancellation is defined in more detail in the Control Unit Manual.

3. Now that your settings are established, connect the 2-Wire intercom system to the appropriate ports via 3-pin XLR cables/connectors.
4. After connecting the 2-Wire intercom system, initiate Auto Null for the appropriate ports or all ports of this particular CU. See "Nulling" on page 115 for more information.

4-Wire Intercom Connectivity

Connect to the Control Unit

Connect a matrix intercom system to the CU's 4-Wire intercom ports (labeled 3–4 on CCU-22, labeled 5–8 on CCU-44, and labeled 1-8 on CCU-08). Then, configure the connection either via CU or CrewWare.

Configure a 4-Wire Connection via CrewWare

Always confirm that the non-Pliant 4-Wire intercom system and the CrewCom wireless system are functioning properly separately before connecting them together. Use the procedures below to configure the 4-Wire connection from CrewWare.

On the Device Management tab, open the Control Unit's detail view:

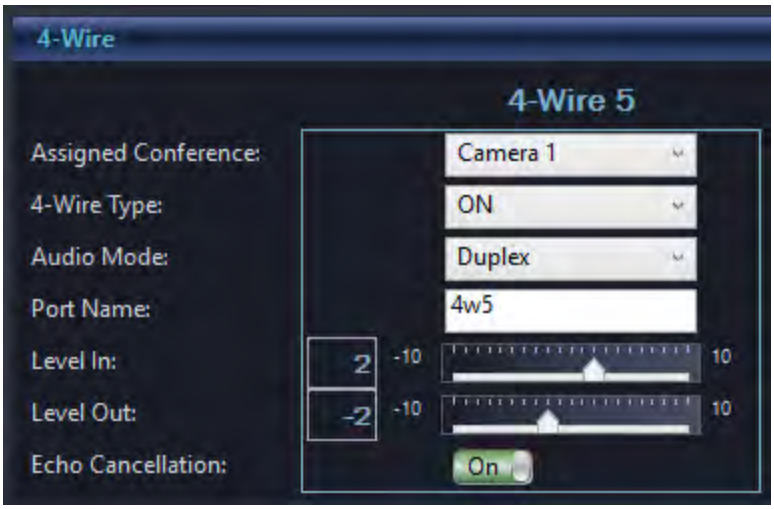


Figure 78 Expanded CU 4-Wire Port Panel

1. Find the "4-Wire" panel and click to expand it (if not already expanded).
2. Locate the desired setting for a 4-Wire port (CCU-22 ports 3 and 4; CCU-44 ports 5 through 8).
    A. Select a conference for the port in the ***Assigned Conference*** drop-down field. If you need conferences for 4-Wire other than the default conferences, you will need to create new conferences from the Conference Management Tab and choose the new conferences in this field.
    B. For the ***4-Wire Type*** field, select either ***ON*** or ***OFF***.
    C. The ***Audio Mode*** field is limited to only selecting ***Duplex*** at this time.
    D. If desired, type a 16-characters or less ***Port Name*** in that field.
    E. Adjust in/out audio levels between the CrewCom System and the 4-Wire intercom system as needed. Within CrewWare, adjust the CrewCom levels for each 4-Wire port via the ***Level In*** and ***Level Out*** fields.

       With appropriate mic gain settings and expected nominal levels from the interfaced system, the 4-wire settings you can expect to see for RTS, Clear-Com, and Riedel are provided in the table below.

4-Wire Intercom Settings			
	RTS	**Clear-Com**	**Riedel**
4W OUT	+2	-3	+1
4W IN	-2	+3	-1

    F. If desired, enable Echo Cancellation (ECAN) for the 4-Wire ports. Echo Cancellation is defined in more detail in the Control Unit Manual.
3. Now that your settings are established, connect the 4-Wire intercom system to the appropriate ports via RJ-45 cables/connectors.

Nulling

In order to minimize echo resulting from connection to an external 2-Wire system, it is necessary to optimize the hardware of the hybrid circuitry in the Control Unit (CU) to match line impedance. CrewCom provides a user-initiated Auto Null feature that automatically optimizes the 2-Wire interface. Nulling only impacts 2-Wire hard wired intercom connections. Auto Null sends a series of tones to each of the 2-Wire intercom channel connections. Activate Auto Null for new connections or whenever the 2-Wire system changes, such as when additional non-CrewCom wired packs are added or removed, or when cable lengths are changed.

During the nulling process, the CU DSP monitors the echo and adjusts the line characteristics (Resistance, Inductance, and Capacitance) to optimize the interface to the external 2-Wire system. When Auto Null is initiated, all of the functions, including communication, of the intercom channel being nulled are interrupted. The nulling process takes approximately 10–15 seconds per channel. You may need to re-adjust the intercom levels to a proper level after the 2-Wire intercom lines have been nulled.

Optimize 2-Wire port hardware connections by nulling them in order to minimize echo in the physical link and to enable the software to remove any residual echo. You may null from the CU or from CrewWare.

Auto Null from CrewWare

During the Auto Null process, the CU LCD will display each 2-Wire port's resistance (R), inductance (L), capacitance (C) and amplitude.

There are two options for auto nulling your CrewCom system – ***Auto Null*** all 2-Wire ports on the Control Unit and ***Null Port***. The following steps detail how to initiate the Auto Null process from CrewWare:

1. Turn off all Talk buttons on wired equipment. Since CrewCom monitors a self-generated tone to adjust the null characteristics, any sounds entering through the wired intercom system will interfere with the nulling process.
2. In CrewWare, open the CU's Device Management detail view. (See "CU Management Tab" on page 44 for more information.)

3. Click on the ***Auto Null*** button at the top of the window to initiate nulling for all 2-Wire ports on the selected Control Unit. Normal functions will be interrupted for about 60 seconds during the Auto Null process (about 15 seconds per channel). An alert will display, asking you to confirm that you want to proceed.
    A. Auto Null with CrewCom will send a mic kill signal to connected AudioCom and RTS wired systems, but not to Clear-Com wired systems. Auto Null operation will mute the audio from CrewCom Radio Packs as it connects to connected wired systems; however, those wireless Radio Packs will still communicate with one another while the null is in progress.
    B. After you confirm that you want to proceed, progress of the null process can be observed on the CU's LCD Display and in CrewWare's "Nulling" panel at the bottom of the CU's detail view. The CU's display will indicate “Auto Null Complete” once the Auto Null process is completed.

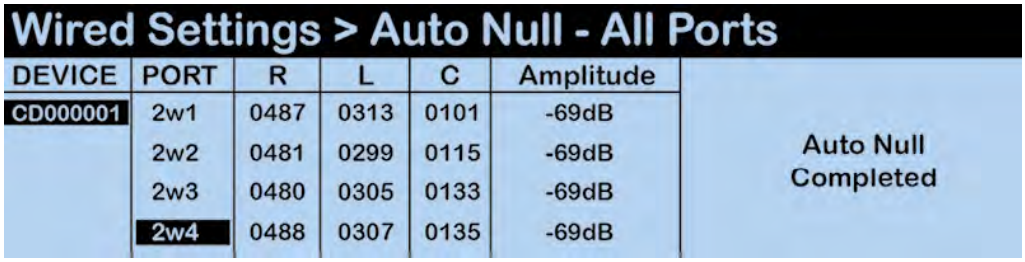


Figure 79 CU Screen: Auto Null in Process

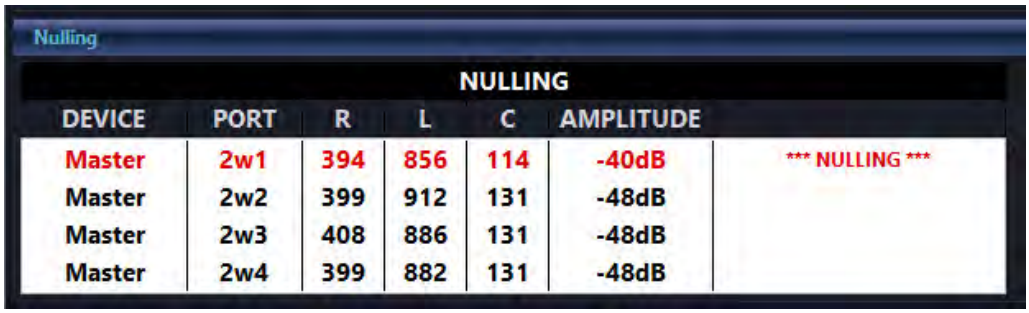


Figure 80 CrewWare: Auto Null in Process

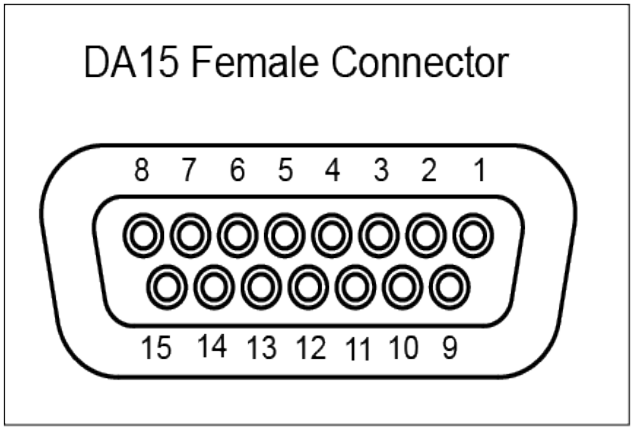
4. If nulling “by port,” click the ***Null Port*** button under the 2-Wire port you wish to null.

Relays

CrewCom includes five General Purpose Output (GPO) contact closures for interfacing with other external devices (the Stage Announce (SA) Relay and four additional GPO relays). The user has access to both the normally open and the normally closed contacts for each relay. The rated load for all relay contacts is 0.3 Amp at 125VAC, 1 Amp at 30VDC.

The following pinout is for the DA-15 connector on the rear of the CU:

Pins	Connections
1	Relay 1 Normally Closed*
2	Relay 1 Normally Open*
3	Relay 2 Common
4	Relay 3 Normally Closed
5	Relay 3 Normally Open
6	Relay 4 Common
7	Relay 5 Normally Closed
8	Relay 5 Normally Open
9	Relay 1 Common*
10	Relay 2 Normally Closed
11	Relay 2 Normally Open
12	Relay 3 Common
13	Relay 4 Normally Closed
14	Relay 4 Normally Open
15	Relay 5 Common



*Relay 1 is Stage Announce Relay (Pins 1, 2, and 9)

Figure 81 Relay Pin Diagram

Relay Setup

To connect and enable relays to external General Purpose Output (GPO), connect any (or all) of the relays via the DA-15 Relay connection on the back of the CU. Then, configure the connection via CrewWare.

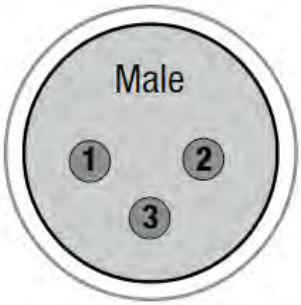
Configure the triggers for each relay via CrewWare's CU Management tab. See "CU Management Tab" on page 44.

Stage Announce

The Stage Announce (SA) function in the Control Unit (CU) is used to send a Radio Pack's (RP) microphone signal to a dedicated external audio output. When a user activates the SA function from an assigned button on an RP, their microphone is re-routed from any selected Conferences and is sent to each connected CU's SA audio output.

In addition, a relay closure contact is available via the Relay connector on the CU. Pressing the SA button enables the headset microphone, regardless of the status of the Talk buttons. If enabled, all RPs can access this feature. If more than one CU is present, SA audio will be routed out both (or all) of the CUs' SA ports simultaneously. The SA audio is identical on all CUs system-wide.

The SA output connector is an XLR-3M. The SA connector is balanced and transformer isolated and outputs nominal line level audio on a numerical scale from -10 to +10. The default setting for SA Relay is "Enabled." The default setting for SA Audio is "0."



Pins	Connections
1	Ground
2	Audio +
3	Audio –

Figure 82 Stage Announce Audio Wiring Diagram

Stage Announce Setup

To connect Stage Announce (SA), connect an audio destination to the SA output via the XLR-3M on the back of the CU. Then, configure the connection either via CU or CrewWare.

Configure and set the SA audio level via CrewWare's CU Management tab. See "CU Management Tab" on page 44.

Auxiliary In

Aux IN (sometimes referred to as Program Audio) can be used to bring the program or other audio into the Control Unit (CU). Audio from the Aux IN connection is routed only to CrewCom devices and is not routed externally to other intercom systems.

Audio supplied to Aux IN can be assigned to any combination of up to 10 possible Conferences. The default setting for Aux IN Level is "0." Conference assignment changes and level adjustments can be performed via CU menu or CrewWare.

The Aux IN connector is a 1/4 in. (6.35 mm) Tip/Ring/Sleeve jack. The Aux IN connector is balanced and transformer isolated. Nominal line level is +5 dBu.

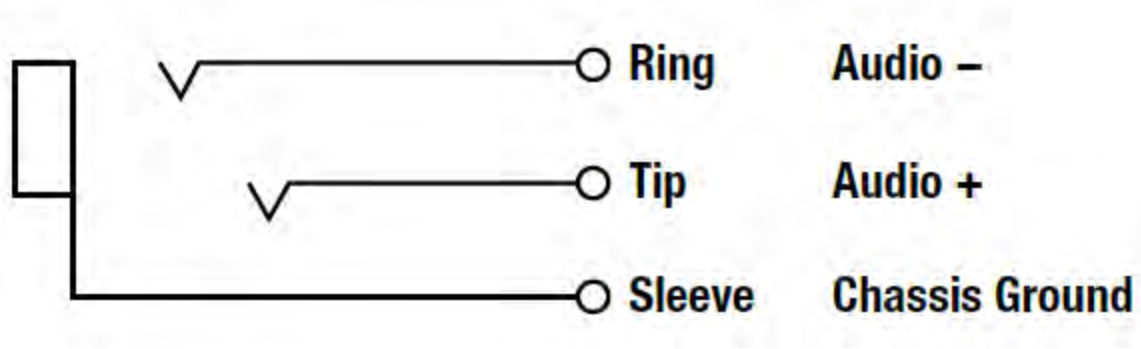


Figure 83 Auxiliary IN/OUT Audio Wiring Diagram

Aux In Connection

To connect Aux IN, connect an audio source to Aux IN via the 1/4 in. (6.35 mm) TRS jack. Then, configure the connection using either the CU or CrewWare.

Configure Aux In via CrewWare

Audio supplied to Aux IN can be assigned to any combination of up to 10 possible Conferences. Choose the destination(s) for Aux IN via CrewWare's CU Management Tab; then, set the Master Aux In audio level using the slider bar. The default setting for Aux IN Level is "0."

Note: Individual Aux In assignment level adjustments are not currently supported.

Auxiliary Out

Audio from the Aux OUT connection can be assigned from any single Conference other than Stage Announce, but no audio sourced from the hard-wired intercom ports is routed to Aux OUT. Audio from the Aux OUT connection comes from any CrewCom audio entity such as Radio Packs (RPs) and the local headset of a Control Unit (CU). The default setting for Aux OUT Level is "0." Conference assignment changes and level adjustments can be performed via CU menu or CrewWare.

The Aux OUT connector is a 1/4 in. (6.35 mm) Tip/Ring/Sleeve jack. The Aux OUT connector is balanced and transformer isolated. Nominal line level is +5 dBu.

See Figure 83 for an Aux In/Out audio wiring diagram.

Aux Out Connection

To connect and configure Aux OUT, connect an external device to Aux OUT via the 1/4 in. (6.35 mm) TRS jack. Then, configure the connection using either the CU or CrewWare.

Configure Aux Out via CrewWare

Audio supplied from Aux OUT can be assigned from any single Conference. Choose the Conference to be routed to Aux OUT via CrewWare's CU Management Tab; then, set the Master Aux Out level via the slider bar. The default setting for Aux OUT Level is "0."

Note: Individual Aux Out assignment level adjustments are not currently supported.

Call

Call signals may be initiated by entities across CrewNet. Each 2-Wire intercom port may be individually set to send and receive a CrewCom-generated call signal to or from a connected wired intercom system by enabling the Call function for that port. Disabling the Call function for that port prevents the signal from leaving CrewCom via the respective port.

- **Call**: An RP Function button option. When enabled for wireless devices, the user can elect to send a call signal to the RPs of each conference whose Talk button is currently active on that individual RP, or the user can elect to send a call signal to the RPs of a single assigned conference (regardless of the associated Talk button's status). When enabled for external hardwired intercom devices, a signal will be sent to any connected 2-wire devices associated with a conference whose Talk button is currently active on that individual RP (as long as outbound call is enabled for the CU port associated to the conference) or a signal will be sent to any connected 2-wire devices associated with that conference (as long as outbound call is enabled for the associated CU port). Call can be enabled for both wireless and hardwired devices or limited to only one type.
- **Call on Talk**: An RP Talk button function. When enabled, a call signal will remain active while the Talk button is active. This function is commonly used in applications where a two-way radio interface is connected.

See "Set Up Call" on the next page.

Enable Call on CU 2-Wire Port

Each CU wired intercom port (2-wire only) can be individually set to send and receive a CrewCom-generated call signal to/from a connected wired intercom system. To do so, turn on that port's Call function (inbound or outbound) via CrewWare's Control Unit view (see "CU Management Tab" on page 44). Turning the Call function off only prevents the signal from entering or leaving CrewCom via the respective port. Call signals can still be generated and transmitted by entities across CrewNet. The default setting for Call is ***OFF***.

Figure 84 Expanded CU 2-Wire Port Panel

Set Up Call on Radio Pack Profile

From the Profile Management Tab, you can determine the following Call settings:

- **Call Alert**: Set to ***Off***, ***Audible***, ***Vibrate***, or ***Both*** under the Profile's Global Profile Settings banner.

Figure 85 Expanded Profile Management Global Profile Settings Panel

> **Note:** ***Vibrate*** option is not available on the CRP-12.

- **Call on Talk**: Toggle the Call on Talk function for the profile ***On*** or ***Off***.

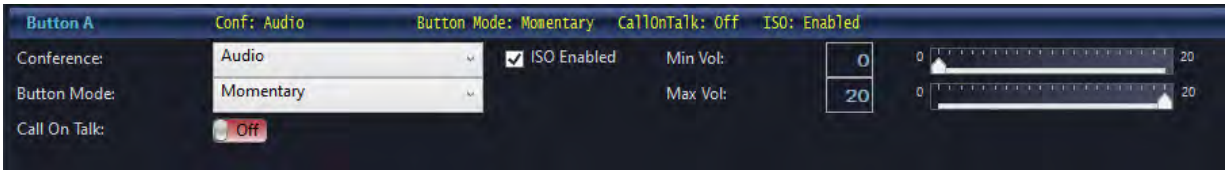


Figure 86 Expanded Profile Management Volume Knob/Talk Button Panel

- **Function Button**: When ***Call*** is selected as a Function Button function, a ***Call Destination*** field will display with a drop-down menu of options. (This field will not display otherwise.) The default field selection, ***Call Active Talk***, means that a Call is sent out on all Conferences for which the Talk Button is active. If a Conference is selected in this drop-down, a Call is sent out on that Conference only (regardless of Talk Button status).

  When ***Call*** is selected as a Function Button function, the user must also choose whether call is sent to ***Hardwire*** or ***Wireless*** users or both.

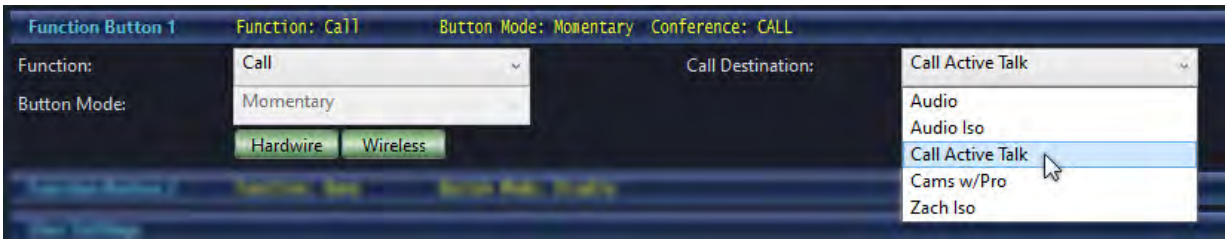


Figure 87 Expanded Profile Management Function Button Panel

Note: On the CRP-12, Function Button 1 options are ***Call*** or ***None*** and Function Button 2 options are ***Stage Announce*** or ***None***.

Wireless ISO

Selective talk-around is possible with the wireless isolation (ISO) function. ISO means that selected users can have an isolated conversation with other ISO-enabled users. While an ISO conversation occurs, the main Conference audio can still be heard.

From the Radio Pack, ISO is used by pressing and holding the corresponding Volume Knob.

ISO must be separately enabled on both the Conference and each desired Profile. See "Set Up ISO" below for that process.

Set Up ISO

ISO means that selected users can have an isolated conversation with other ISO-enabled users. While an ISO conversation occurs, the main Conference audio can still be heard. Wireless ISO must be separately enabled on both the Conference and each desired Profile. See "Wireless ISO" above for more information about using the feature.

Set Up ISO on Conference

On CrewWare's "Conference Management Tab" on page 65, select the check boxes beside each Conference name to enable ISO. Enabling ISO here enables ISO on the Conference. Each individual Profile utilizing the Conference must also have ISO enabled. See the next section for that process.

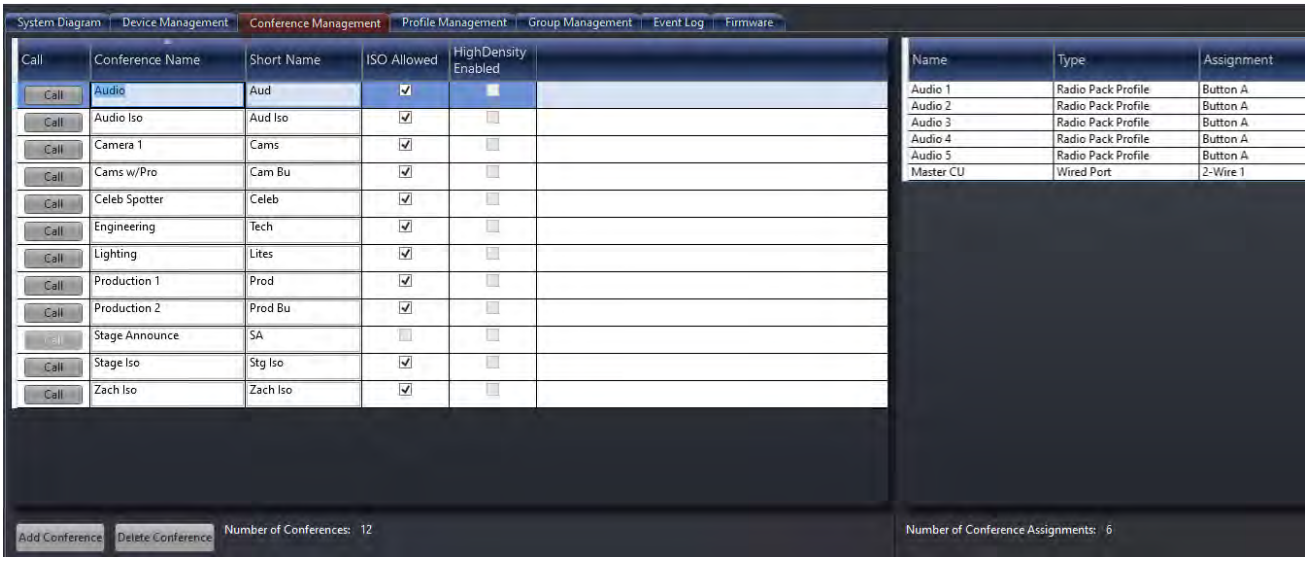


Figure 88 Conference Management Tab List View

Set Up ISO on Profile

Checking the ***ISO Allowed*** check box in CrewWare's "Profile Management Tab" on page 68 (detail view) enables ISO on the corresponding button in the Profile. The selected Conference assignment must also have ISO enabled. See the previous section for that process.

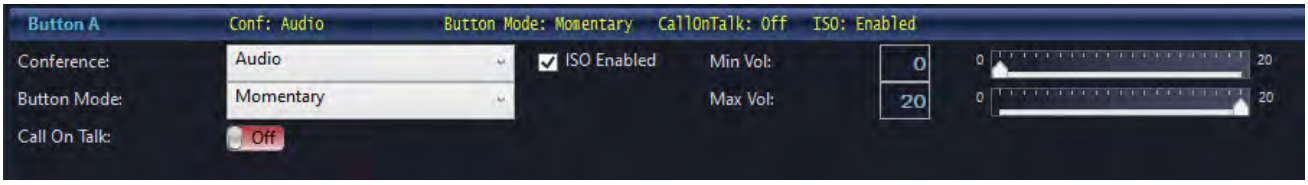


Figure 89 Expanded Profile Management Volume Knob/Talk Button Panel

Adjusting Access Rights

Access rights allow customized access for specific user types. CrewCom utilizes two levels of access (Admin and User) in two ways: Software Access Rights and System Access Rights.

Levels of Access

CrewCom provides users with two levels of system Access Rights: Admin and User.

- **Admin Level** – CrewCom default system access level and the least restrictive. Grants all users with access to enter the system and modify all available device and system settings. Does not require a passcode.
- **User Level** – Highest level of access restrictions. A passcode is required to modify all available system settings and all devices.

Software Access Rights

CrewWare utilizes a software-only access designation, which does not alter the System Access setting (i.e., does not alter access to the Control Unit (CU) and Radio Pack (RP) menus for those users).

CrewCom settings within CrewWare are "view only" when CrewWare is locked (i.e., set to "User Level"). To lock CrewWare, click the small padlock icon in the upper right-hand corner. While the system is secured, the padlock icon will display as a red, locked padlock.

To unlock CrewWare, click the padlock icon again. (If a passcode has been created, you will be prompted to enter it here.) While CrewWare is open, the icon will display as a green, unlocked padlock, and the access rights are considered “Administrator Level” and are therefore open for all changes.

Users can also lock/unlock CrewWare by selecting ***Edit*** from the CrewWare Menu Bar, choosing ***User Access Rights***, choosing ***Set Software Level***, then clicking on ***Admin*** or ***User***. (A passcode is required to change from ***User*** to ***Admin***.)

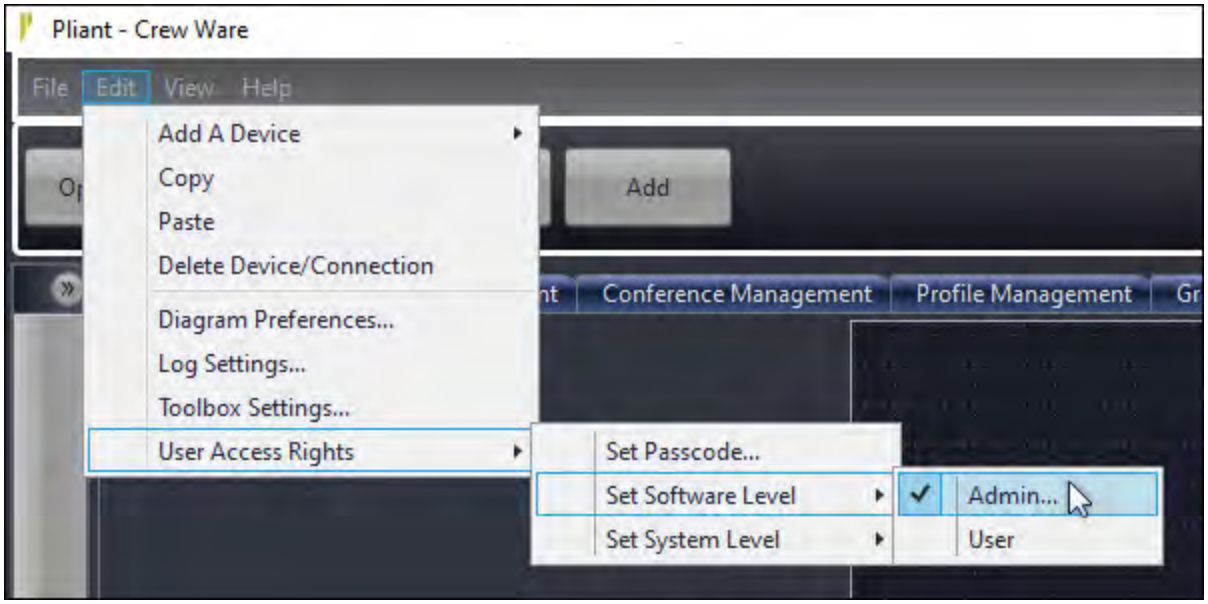


Figure 90 Setting Software Level Access Rights

System Access Rights

System Access rights determine access to edit settings in your system's device menus. CrewCom settings in the CU and RP menus are "view only" when the system is locked (i.e., set to "User Level").

A user who wishes to make a CrewCom Settings change to a locked system can choose one of three options:

1. Change the whole system level to "Admin" to allow settings changes throughout all devices;
2. Leave the System Level locked ("User Level"), but unlock CrewWare and make the setting change from CrewWare; OR
3. Navigate to the appropriate menu in the device, select the setting you wish to change, and enter the system passcode one time to access that particular setting. (In this case, the device will revert back to its "locked" state when you exit the menu or when the temporary access times out.)

Set System Access Level from Primary Control Unit

See the Control Unit Manual for more information about this process.

Set System Access Level from CrewWare

You can lock/unlock the access to your system's device menus from CrewWare by selecting ***Edit*** from the CrewWare Menu Bar, choosing ***User Access Rights***, choosing ***Set System Level***, then clicking on ***Admin*** or ***User***. (A passcode is required to change from ***User*** to ***Admin***.)

> Note: This option is only available when CrewWare's Software Rights are set to Admin level.

Setting Passcode

Set Passcode from Primary Control Unit

See the Control Unit Manual for more information about this process.

Set Passcode from CrewWare

To set the system passcode from CrewWare, select ***Edit*** from the CrewWare Menu Bar, choose ***User Access Rights***, then click ***Set Passcode***. In the dialog box that displays, assign a unique four-digit passcode for your system.

> Note: Transitioning from User Level to Admin Level does not require a passcode if you set the passcode to "0000." Doing so is considered "disabling" user access rights.

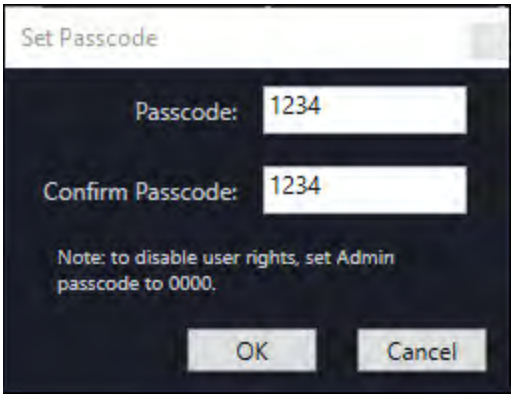


Figure 91 Set Passcode Prompt

CHAPTER 14

PRODUCT SUPPORT

This chapter consists of the following sections:

Product Support

Pliant Technologies, LLC support and service personnel are ready to help you with any issues you may have regarding products purchased from authorized dealers or authorized distributors. All requests and questions should be directed to our Customer Service department via phone, fax, or email. Support and service personnel may require that you provide proof of purchase from an authorized dealer or authorized distributor and the serial number, where applicable, for your product, and Pliant Technologies reserves the right to refuse to provide support or service without this information.

Pliant Technologies, LLC
Customer Service Department
Phone: +1.334.321.1160
Toll-Free: 1.844.475.4268 or 1.844.4PLIANT
Fax: +1.334.321.1162
Email: customer.service@plianttechnologies.com

Visit www.plianttechnologies.com for product support, documentation, and live chat for help. (Live chat available 08:00 to 17:00 Central Time (UTC−06:00), Monday–Friday.)

CHAPTER 15

LICENSE AND COMPLIANCE INFORMATION

This chapter consists of the following sections:

End User License Agreement

This End-User License Agreement (the “EULA”) is a legal agreement between you (the “Licensee”), an individual, and Pliant Technologies, LLC (the “Company”), the author of CrewWare (the “Software”), including the deliverables provided pursuant to this EULA, which may include data files, scripts, programs, associated media, printed materials, “online” or electronic documentation.

By installing, copying, or otherwise using the Software, Licensee agrees to be bound by the terms and conditions set forth in this EULA. If Licensee does not agree to the terms and conditions set forth in this EULA, then Licensee may not download, install, or use Software.

Please read this EULA agreement carefully before completing the installation process and using CrewWare. It provides a license to use CrewWare and contains warranty information and liability disclaimers.

This EULA agreement shall apply only to the Software supplied by Pliant Technologies, LLC herewith regardless of whether other software is referred to or described herein. The terms also apply to any Pliant Technologies, LLC updates, supplements, Internet-based services, and support services for the Software, unless other terms accompany those items on delivery. If so, those terms apply.

If you are entering into this EULA agreement on behalf of a company or other legal entity, you represent that you have the authority to bind such entity and its affiliates to these terms and conditions. If you do not have such authority or if you do not agree with the terms and conditions of this EULA agreement, do not install or use the Software, and you must not accept this EULA agreement.

License Grant

1. **Software Product License.** Subject to the terms of this EULA, Company hereby grants to Licensee a royalty-free, non-exclusive, non-transferable license to possess and to use a copy of the Software. Software is being distributed by Company. Licensee is not allowed to make a charge for distributing this Software, either for profit or merely to recover media and distribution costs.

2. **Installation and Use.** Licensee may install and use an unlimited number of copies of Software on a shared computer or concurrently on different computers, and make multiple back-up copies of Software, solely for Licensee’s use within Licensee’s business or personal use.

Description of Rights and Limitations

1. **Limitations**. The user shall use CrewWare strictly in accordance with the terms of the related Agreements and shall not (a) decompile, reverse engineer, disassemble, attempt to derive the source code of, or decrypt CrewWare; (b) make any modification, adaptation, improvement, enhancement, translation or derivative work from CrewWare; (c) violate any applicable laws, rules or regulations in connection with the user's access or use of CrewWare; (d) reproduce, copy, distribute resell, or otherwise use the software for any commercial purpose; (e) use any other proprietary information interfaces of Pliant Technologies or other intellectual property of Pliant Technologies in the design, development, manufacture, licensing, or distribution of any applications or devices for use with CrewWare.

2. **Separation of Components.** Software is licensed as a single product. Its components may not be separated for use on more than one computer.

3. **Software Transfer.** Licensee may permanently transfer all rights under the EULA, provided recipient agrees to the terms of this EULA.

Intellectual Property

All rights, title, interest, and copyrights in and to the Software, including but not limited to all images, photographs, animations, video, audio, music, text, data, computer code, algorithms, and information, are owned by Company. The Software is protected by all applicable copyright laws and international treaties. Therefore, Licensee is required to treat Software like any other copyrighted material, except as otherwise provided for in this EULA.

Infringement Acknowledgment. The user and Pliant acknowledge and agree that, in the event of a third party claim that CrewWare or the user's possession or use of CrewWare infringes any third party's intellectual property rights, the user (and not Pliant) will be responsible for the investigation, defense, settlement, and discharge of any such claim of intellectual property infringement. You will, however, promptly notify Pliant in writing of such a claim.

Modifications to CrewWare

Pliant reserves the right to modify, suspend, or discontinue, temporarily or permanently, CrewWare or any service to which it connects, with or without notice and without liability to the user.

Termination

Pliant may, in its sole and absolute discretion, at any time and for any reason, suspend or terminate this License and the rights afforded to the user hereunder with or without prior notice. Furthermore, if the user fails to comply with the terms and conditions of this License, then this License and any rights afforded to the user hereunder shall terminate automatically, without any notice or other action by Pliant. Upon termination of this License, the user shall cease all use of CrewWare and uninstall CrewWare.

Integration

Both parties agree that this EULA is the complete and exclusive statement of the mutual understanding of the parties and supersedes and cancels all previous written and oral agreements and communications relating to the subject matter of this EULA.

Jurisdiction

This EULA shall be deemed to have been made in, and shall be construed pursuant to the laws of the State of Alabama, without regard to conflicts of laws provisions thereof. Any legal action or proceeding relating to this EULA shall be brought exclusively in courts located in Auburn, Alabama, and each party consents to the jurisdiction thereof. The prevailing party in any action to enforce this EULA shall be entitled to recover costs and expenses including, without limitation, attorneys' fees. This EULA is made within the exclusive jurisdiction of the United States, and its jurisdiction shall supersede any other jurisdiction of either party's election.

Non-Transferable

This EULA is not assignable or transferable by Licensee without the prior written consent of Company; any attempt to do so shall be void. Any notice, report, approval or consent required or permitted hereunder shall be in writing and will be deemed to have been duly given if delivered personally or mailed by first-class, registered or certified mail, postage prepaid to the respective addresses of the parties as set forth herein (or such other address as a party may designate by ten (10) days' notice.

Severability

No failure to exercise, and no delay in exercising, on the part of either party, any privilege, any power or any rights hereunder will operate as a waiver thereof, nor will any single or partial exercise of any right or power hereunder preclude further exercise of any other right hereunder. If any provision of this

EULA shall be adjudged by any court of competent jurisdiction to be unenforceable or invalid, that provision shall be limited or eliminated to the minimum extent necessary so that this EULA shall otherwise remain in full force and effect and enforceable.

Disclaimer of Warranties

The user acknowledges and agrees that CrewWare is provided on an “as is” and “as available” basis, and that the user’s use of or reliance upon the application and any third party content and services accessed thereby is at your sole risk and discretion. Pliant and its affiliates, partners, supplies, and licensors hereby disclaim any and all representations, warranties, and guaranties regarding CrewWare and third party content and services, whether express, implied, or statutory, and including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement. Furthermore, Pliant and its affiliates, partners, suppliers, and licensors make no warranty that i) the application or third party content and services will meet your requirements; ii) CrewWare or third party content and services will be uninterrupted, accurate, reliable, timely, secure, or error-free; iii) the quality of any products, services, information, or other material accessed or obtained by you through CrewWare will be as represented or meet your expectations; or iv) any errors in CrewWare or third party content and services will be corrected.

Limitation of Liability

Company shall not be liable to Licensee, or any other person or entity claiming through Licensee any loss of profits, income, savings, or any other consequential, incidental, special, punitive, direct or indirect damage, whether arising in contract, tort, warranty, or otherwise. Even if Company has been advised of the possibility of such damages. These limitations shall apply regardless of the essential purpose of any limited remedy. Under no circumstances shall Company’s aggregate liability to Licensee, or any other person or entity claiming through Licensee, exceed the financial amount actually paid by Licensee to Company for the Software.