



*Communications
for today... and tomorrow*

IL959
Section E
Rev. 0 - 04/2015

NC465 Media Gateway VoIP Interface

Installation and Operation Manual

www.tektone.com

Phone: (828) 524-9967
Toll-Free: (800) 327-8466
Sales: Option 2
Tech Support: Option 3

277 Industrial Park Road
Franklin, NC 28734
tektone@tektone.net
Fax: (828) 524-9968

NC465 Media Gateway Installation and Operation Manual

Copyright © 2015 TekTone® Sound & Signal Mfg., Inc., All rights reserved.

No part of this publication may be copied without the express written permission of TekTone® Sound & Signal Mfg., Inc. The content of this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by TekTone® Sound & Signal Mfg., Inc. TekTone® Sound & Signal Mfg., Inc. assumes no responsibility or liability for any errors or inaccuracies that may appear in this documentation.

TekTone, the TekTone logo, Tek-Alert, Tek-Bridge, Tek-Call, Tek-Care, Tek-Check-In, Tek-Com, Tek-Entry, Tek-Guard, Tek-Micro, Tek-MMARS, Tek-Paging, Tek-Safe and Tek-Status are either registered trademarks or trademarks of TekTone® Sound & Signal Mfg., Inc. in the United States and/or other countries. All other trademarks are the property of their respective owners.

TekTone® Sound & Signal Mfg., Inc., 277 Industrial Park Road, Franklin, North Carolina 28734, USA.

Contents

System Overview and Introduction	1
System Overview	1
Important Customer Considerations:	1
Installation and Programming	2
System Requirement Notes	2
Set up the Media Gateway	2
Configure the NC465 Media Gateway	4
Connect the NC465 Media Gateway Using a Terminal Emulator	4
PuTTY	4
HyperTerminal	5
Monitor and Keyboard Setup	5
Log In and Configure the NC465 Media Gateway	6
Enable the NC465 Media Gateway using the LS450 Config Tool	7
Start the LS576 Event Monitor Software	7
Start the LS450 Config Tool software	7
Enable the NC465 Media Gateway	9
Enable Paging	9
Phone Settings	9
Save and Commit the Updated Configuration	10
NC465 Media Gateway Final Setup	11
Add VoIP Extensions	11
Add New Facility Staff in the Config Tool and Assign VoIP Extensions	11
Assign VoIP Extensions to Existing Staff Members	11
Create Staff Groups	12
Create Staff Assignments to Receive Calls	12
Sending Fault Notifications to VoIP Extensions	13
Commit, Save, and Back Up the Configuration	14
PBX System Programming	14
Using the NC465 Media Gateway	15
Answering Automatic Calls	15
In-Call Options	15
Dialing Stations, Zones, and Masters from a VoIP Extension	16
Page the Entire Tek-CARE® 400 system	16
Page a Zone	16
Monitor a Zone	16
Dial a Station	17
Dial a Master Station	17
Sending Text Messages to Connected VoIP Extensions	18
Sending Manual Text Messages to VoIP Extensions (NC402TS/LS576 Event Monitor) ..	18
Sending Manual Text Messages to VoIP Extensions (NC401TS)	18
Sending Manual Text Messages to VoIP Extensions (NC401VFD)	18

List of Figures

Figure 1: NC465 Media Gateway Connections	3
Figure 2: NC465 Media Gateway Network	3
Figure 3: PuTTY Serial Settings	4
Figure 4: PuTTY Session Settings.	4
Figure 5: HyperTerminal Connect To Window	5
Figure 6: HyperTerminal COM Port Properties.	5
Figure 7: NC465 Media Gateway Main Menu	6
Figure 8: Config Tool Splash Screen.	7
Figure 9: Event Monitor Splash Screens	8
Figure 10: E.161 Standard Keypad.	10
Figure 11: Config Tool Staff Groups	12
Figure 12: Fault Reporting	13
Figure 13: Text Message Window.	18

System Overview and Introduction

Welcome to the installation manual for the NC465 Media Gateway. This manual is designed to guide you through adding an NC465 to an existing Tek-CARE®400 system. If a new Tek-CARE®400 is being installed and the NC465 Media Gateway is specified as part of the system, complete the installation process for the rest of the Tek-CARE®400 system before attempting to install the NC465 Media Gateway.

System Overview

The NC465 Media Gateway is designed to offer a VoIP integration for the Tek-CARE®400 system. The NC465 provides call and event notifications to facility VoIP extensions and delivers pertinent information on the telephone display. The NC465 also provides two-way voice communication between patient room stations and facility VoIP extensions.

The NC465 Media Gateway connects the Tek-CARE®400 system to the facility's IP PBX system via the facility's LAN.

Important Customer Considerations:

In order to function properly and consistently, the NC465 Media Gateway requires a reserved DHCP address on the facility LAN. Contact the facility's IT department for assistance in configuring a reserved DHCP address for the NC465 Media Gateway.

While TekTone® has designed the NC465 to communicate with IP PBX systems via SIP protocol, installations of IP PBX systems vary widely between facilities. To ensure the system functions as expected, it is critical to fully understand what capabilities the PBX installed in the facility has.

In order to use the NC465 in your facility, your PBX must support VoIP using standard SIP protocols. It must accept IP—based authentication to inbound calls and be able to route outbound calls destined for the NC465, using a dial prefix if required. The NC465 Media Gateway supports standard SIP signaling in a B2B arrangement with basic IP Authentication per RFC 3261 available at <http://tools.ietf.org/html/rfc3261>.

TekTone® requires that an experienced PBX technician be on-site to supervise PBX integration. Cooperation between the equipment installer, PBX technician, the facility's IT department, and TekTone® Technical Support is critical for a successful installation of the NC465 Media Gateway.

The NC465 Media Gateway is programmed to ring a PBX extension three times and then hang up. This prevents calls placed by patients from being sent to voicemail. TekTone® recommends that voicemail not be enabled for VoIP extensions that will be used with the NC465 Media Gateway.

Installation and Programming

System Requirement Notes

The NC465 Media Gateway operates as a module of the Tek-CARE®400 system. The media gateway cannot be used as a standalone unit. The Tek-CARE®400 system that the Media Gateway is connected to must be equipped with a networked Tek-BRIDGE®.

The networked Tek-BRIDGE® is not required to be connected to the facility LAN, but a facility LAN connection is required for the NC465 Media Gateway.

In order to enable NC465 features, the Tek-CARE® Config Tool software must be up to date. Software versions 7254 and later support the NC465 Media Gateway. For more information on updating the config tool software, see the LS450 Config Tool Manual (IL855), available at www.tektone.com.

Before installing the Media Gateway, contact the facility IT department and request the IP address of the PBX system. Note the IP address here: _____.

Set up the Media Gateway

Before connecting any cables to the Media Gateway, refer to [Figure 1](#) for Media Gateway wiring connections.

TekTone® recommends that the Media Gateway be plugged into an uninterruptible power supply (UPS) and dedicated life safety electrical circuit. If a UPS is required, a TekTone® PK250B Uninterruptible Power Supply is recommended.

- Plug the AC power cord from the Media Gateway into the UPS.
- Connect one of the included Ethernet patch cables from the TC400 Network Port on the rear of the Media Gateway to an NC554/5 or NC554/8 Network Switch. Connect the network switch to both the Tek-CARE® 400 network using the PM451 Hub Control Module in the Tek-CARE®400 central equipment and the Tek-BRIDGE®. If the included Ethernet cables are not long enough, CAT5 cable terminated using the T586B standard is acceptable. Maximum wiring distance is 100m.
- Connect the other included Ethernet patch cable from the VoIP Network Port on the rear of the Media Gateway to the facility LAN network or to the PBX network, depending on network topology. If the included Ethernet cables are not long enough, CAT5 cable terminated using the T586B standard is acceptable. Maximum wiring distance is 328 feet (100 meters).



NOTE: Do not connect a monitor, keyboard, or mouse to the NC465 Media Gateway unless configuration is required as described in the following section, [Configure the NC465 Media Gateway](#).

Once all cables have been connected, turn the Media Gateway on. Verify that the facility's IT department has provided a reserved DHCP address for the NC465 Media Gateway.

Figure 1: NC465 Media Gateway Connections

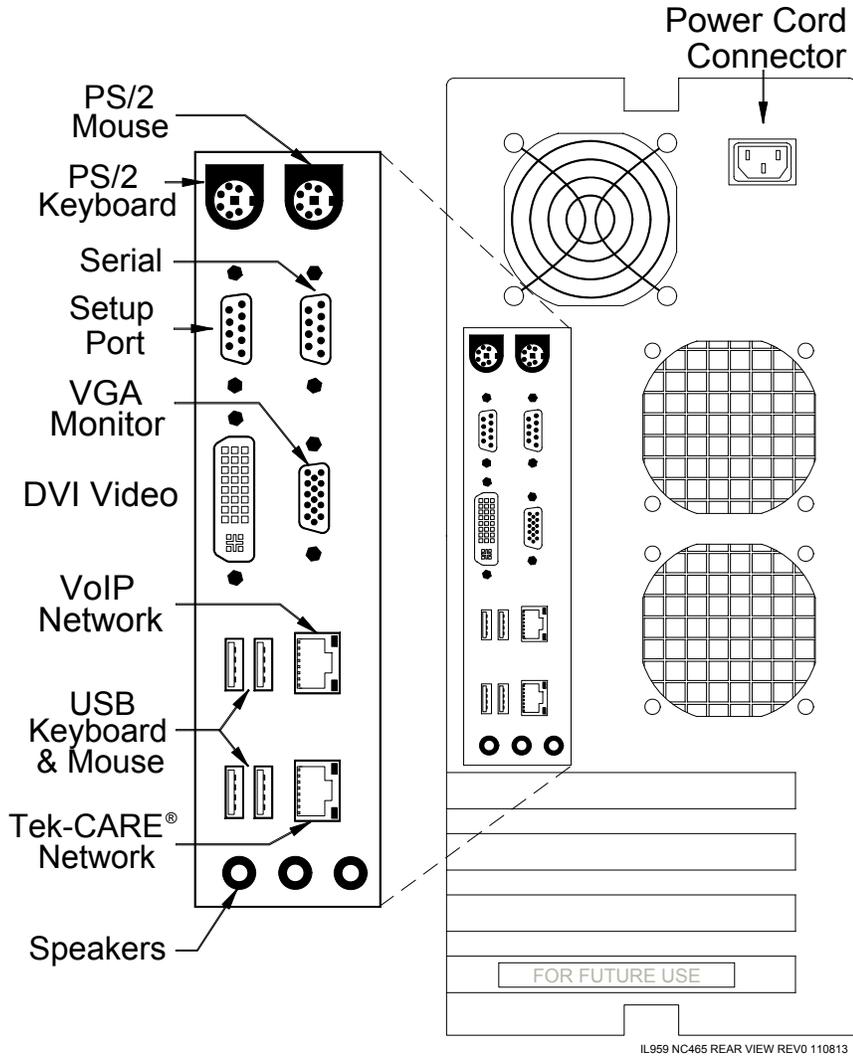
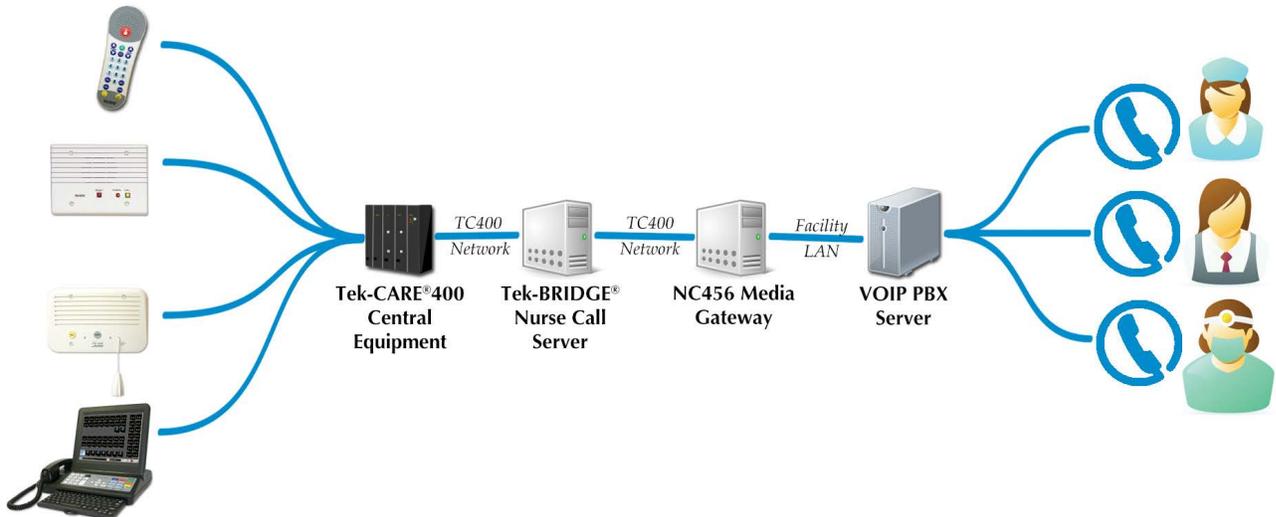


Figure 2: NC465 Media Gateway Network



Configure the NC465 Media Gateway

NOTE: Many installations will not require configuration of the NC465 Media Gateway. Contact the IT department of the facility the NC465 Media Gateway is installed in to determine if the default TC400 Network of 192.168.1.0/24 has been changed. If the TC400 Network has been assigned a different IP address, use the information in the following section to set the correct TC400 Network IP address on the NC465 Media Gateway.

When configuring the NC465 Media Gateway, interface with the Media Gateway using a terminal emulator on a computer connected to the NC465 using a null modem serial cable or a monitor and keyboard (not supplied) may be temporarily connected to the NC465 Media Gateway.

Connect the NC465 Media Gateway Using a Terminal Emulator

- Connect the included null modem serial cable to the Setup Port shown in [Figure 1](#).
- Connect the other end of the null modem serial cable to either an available serial port or to an available USB port on the computer running the terminal emulator software using a USB to serial adapter.
- Start the terminal emulator software. Instructions for HyperTerminal and PuTTY are provided below.

PuTTY

- In the **Category** list, select **Serial** at the bottom of the list as shown in [Figure 3](#).
- In the **Serial Line to connect to** box, enter the com port that the serial cable or USB to serial adapter is connected to.
- For **Speed (baud)**, type **19200**.
- Set **Data bits** to **8**.
- Set **Stop bits** to **1**.
- Set **Parity** to **None**.
- Set **Flow control** to **None**.
- Once the correct parameters have been set on the **Serial** page, select **Session** from the **Category** list and select **Serial** from the **Connection type** as shown in [Figure 4](#).
- Ensure that the **Serial Line** and **Speed** settings are identical to the setting on the **Serial** page.
- Click **Open** to establish a connection.
- The home screen of the NC465 Media Gateway will appear. See [Log In and Configure the NC465 Media Gateway](#) for more information about logging in to the NC465 and configuring it.

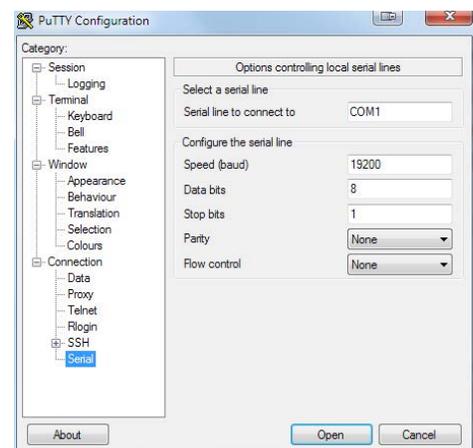


Figure 3: PuTTY Serial Settings

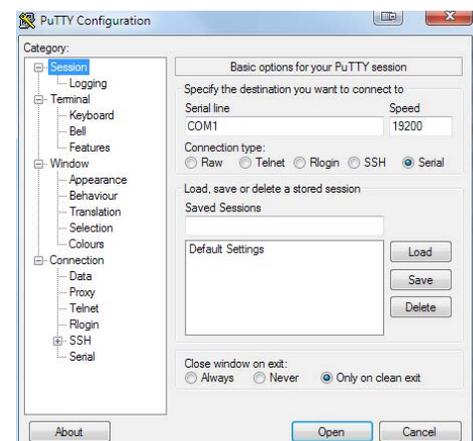


Figure 4: PuTTY Session Settings

HyperTerminal

- Start HyperTerminal, name the connection, choose an icon, and click **OK**.
- On the screen that appears, choose the appropriate COM port from the **Connect using** drop-down menu.
- Click **Configure** to open the configuration settings window.
- Choose **19200** from the **Bits per second** drop-down menu.
- Set **Data bits** to **8**.
- Set **Parity** to **None**.
- Choose **1** from the **Stop bits** drop-down menu.
- Set **Flow Control** to **None**.
- Click **OK** to return to the **Connect To** window.
- Click **OK** in the **Connect To** window to open a connection.
- The home screen of the NC465 Media Gateway will appear. Refer to [Log In and Configure the NC465 Media Gateway](#) for instructions on logging in to the Media Gateway and accessing the Main Menu.

Monitor and Keyboard Setup

- Note that a monitor and keyboard are not supplied with the NC465 Media Gateway.
- Connect a monitor to the VGA monitor port on the rear of the NC465 Media Gateway and turn it on.
- Connect a keyboard to either the PS/2 or USB Keyboard. A mouse is not required.
- Turn the monitor on.
- The home screen of the NC465 Media Gateway will appear. Refer to [Log In and Configure the NC465 Media Gateway](#) for instructions on logging in to the Media Gateway and accessing the Main Menu.

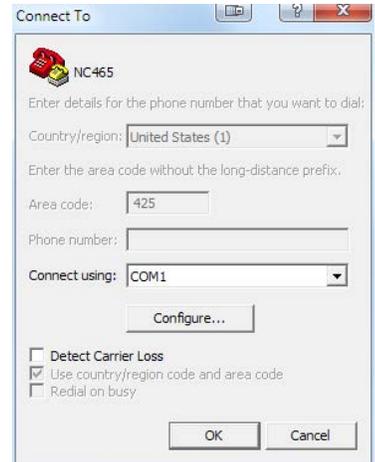


Figure 5: HyperTerminal Connect To Window

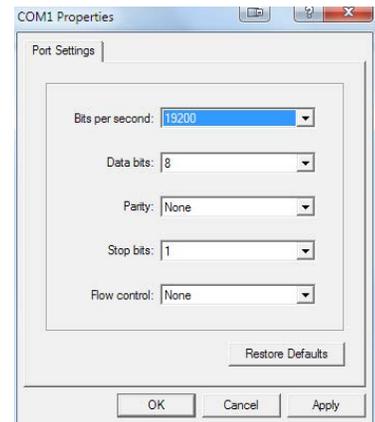


Figure 6: HyperTerminal COM Port Properties

Log In and Configure the NC465 Media Gateway

Once the NC465 Media Gateway has been connected using a terminal emulator or keyboard and monitor, the login screen will appear. Use the following information to log into the NC465 Media Gateway.

Username: **root** (Press **Enter**)

Password: **root** (Press **Enter**)

NOTE: No typed characters will appear in the **Password** field.

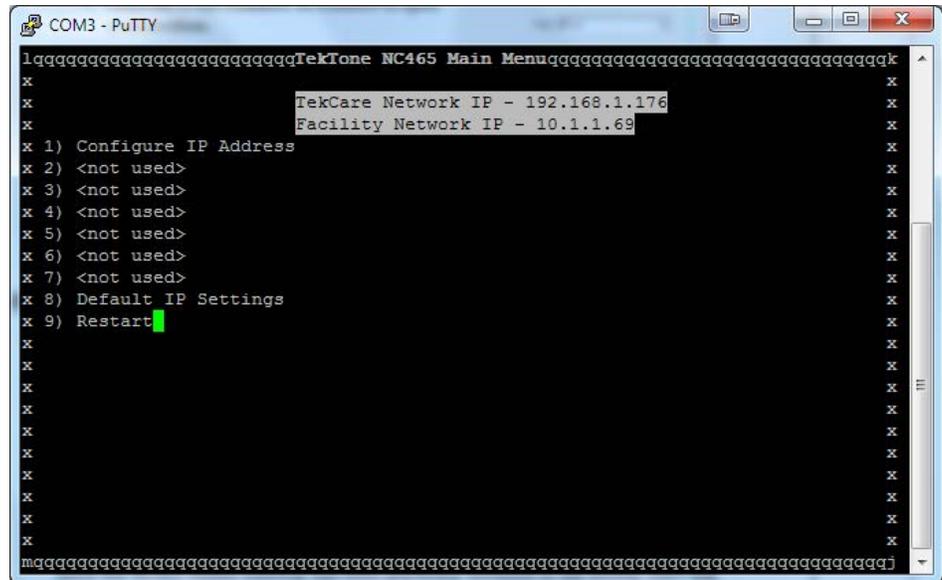


Figure 7: NC465 Media Gateway Main Menu

After entering the password, the home screen of the NC465 Media Gateway shown in [Figure 7](#) will appear.

Press the number key that corresponds to the menu you wish to enter.

- To set the IP address of the TC400 Network, press 1. Enter the first three fields of the TC400 Network and press **Enter**. The final field is always **.176** since the NC465 Media Gateway is always module 76 on the Tek-CARE[®]400 system.
- To revert to the default IP settings, press **8**.
- Press **9** to restart the NC465 Media Gateway.

NOTE: After making any changes to the IP address settings of the media gateway, a restart of the Media Gateway is required.

Enable the NC465 Media Gateway using the LS450 Config Tool

Start the LS576 Event Monitor Software

If the LS576 Event Monitor software is not already running on the Tek-BRIDGE®, double-click the LS576 Event Monitor shortcut on the desktop. When the splashscreen appears, refer to [Figure 9 on page 8](#) for more information on which selections to choose.



NOTE: The Tek-BRIDGE® must be connected to the TC400 Network to route calls from the Tek-CARE®400 system to facility VoIP extensions.

The Tek-BRIDGE® does not have to be connected to the facility LAN, but the NC465 does require a connection to the facility LAN/PBX network.

Start the LS450 Config Tool software

Once the NC465 Media Gateway has been physically installed in the facility and is properly configured, start the LS450 Config Tool software by double-clicking the **LS450 Config Tool** icon on the desktop of the Tek-BRIDGE®. The splash screen for the Config Tool will appear as shown in [Figure 8](#).

Select the IP address of the TC400 Network in the left side of the splash screen. Do not select the IP address of the Tek-BRIDGE®.

On the right side of the Config Tool splash screen, select one of the available options. The available options are explained below.

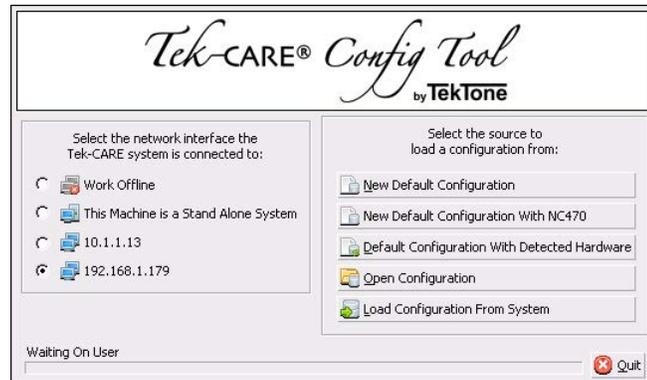


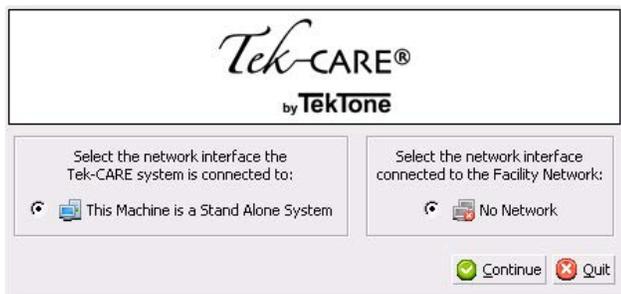
Figure 8: Config Tool Splash Screen

- **New Default Configuration:** Select **New Default Configuration** to open a configuration with no active modules. Not recommended for most installations.
- **New Default Configuration with NC470:** Select **New Default Configuration with NC470** to open a configuration with all available, licensed options. Used when setting up a new system. Not recommended for adding the NC465 Media Gateway to an existing system.
- **New Default Configuration with Detected Hardware:** If the NC465 Media Gateway is being added to an existing Tek-CARE®400 system, and you wish to erase all custom system programming, select **New Default Configuration with Detected Hardware** to detect the hardware connected to the Tek-CARE®400 system and load the default programming for all stations, masters, modules, etc. attached to the system.



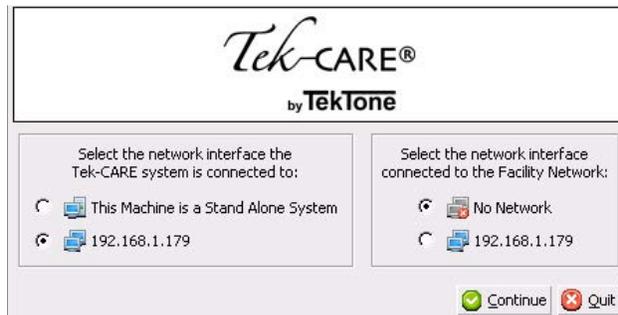
NOTE: Choosing **New Default Configuration with Detected Hardware** detects the hardware connected to the Tek-CARE®400 system without any custom programming. To retain custom programming, see **Load Configuration from System**.

Figure 9: Event Monitor Splash Screens



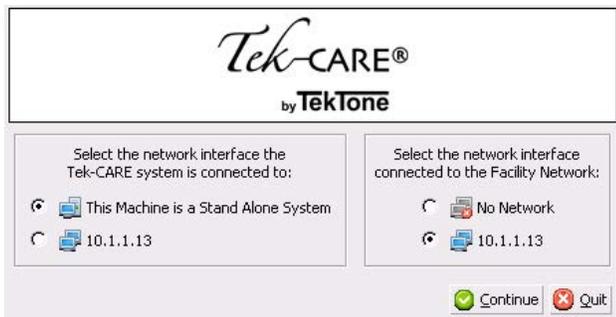
Tek-BRIDGE® Not Connected to the TC400 Network
Tek-BRIDGE® Not Connected to Facility LAN

If the Tek-BRIDGE® is not connected to the Facility LAN or a TC400 Network, this splash screen will appear. If this splash screen appears, stop and determine why the Tek-BRIDGE® is not connected to the TC400 Network.



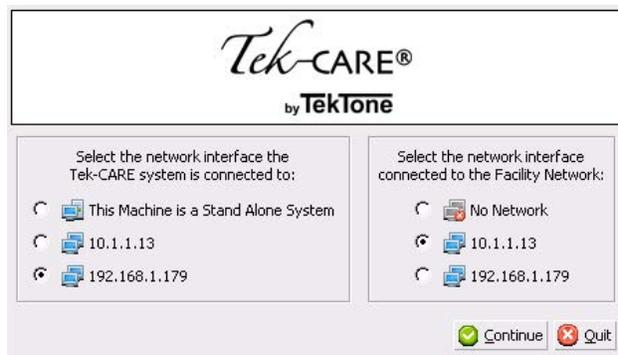
Tek-BRIDGE® connected to the Tek-CARE®400 System
Tek-BRIDGE® Not Connected to LAN

If the Tek-BRIDGE® is connected to the TC400 Network but not to the Facility LAN, this splash screen will appear. Select the IP address of the TC400 Network as the Tek-CARE® System Interface and choose No Network for the Facility Network interface.



Tek-BRIDGE® Not Connected to the Tek-CARE®400 Network
Tek-BRIDGE® Connected to Facility LAN

If the Tek-BRIDGE® is connected to the Facility LAN but not to the TC400 Network, this splash screen will appear. If this splash screen appears, stop and determine why the Tek-BRIDGE® is not connected to the TC400 Network.



Tek-BRIDGE® connected to the Tek-CARE®400 System
Tek-BRIDGE® Connected to Facility LAN

If the Tek-BRIDGE® is part of the TC400 Network and is connected to the Facility LAN, choose the IP address of the TC400 Network as the Tek-CARE® system interface and choose the IP address of the port connected to the facility LAN as the Facility Network interface.

- **Open Configuration:** Select **Open Configuration** to open a saved configuration file.
- **Load Configuration from System:** If the NC465 Media Gateway is being added to an operational Tek-CARE®400 system, select **Load Configuration from System** to load the current working configuration with all custom programming from the existing Tek-CARE®400 system into the Config Tool. This option is used for most installations where a Media Gateway is being added to an existing Tek-CARE®400 system.

Once the Config Tool has fully loaded, select **File>Save Configuration As** and choose a file name for the configuration you will be creating.

Enable the NC465 Media Gateway

Once the configuration has been loaded and saved in the Config Tool, follow the steps below to enable the Media Gateway.

1. Choose **Modules** from the page selection pane.
2. In the **Modules** list, scroll down to **Media Gateway** (Number **76**) and select the entry.
3. Click the **Edit** button in the **Details** pane and select **NC465** from the **Type** drop-down menu.
4. Click **Apply** to accept the changes.

Enable Paging

Before the Media Gateway can begin routing calls to VoIP extensions, paging must be enabled on the Tek-CARE®400 system. A NC369 Paging Transmitter is not required—enabling paging is simply a software setting to enable call output via the Media Gateway.

To enable paging, choose **Pagers** from the page selection pane of the Config Tool. The **Pagers** page will open.

1. Click the **Edit** button in the **RF Paging Settings** editing pane and check the **Enabled** box to turn paging on.
2. Click **Apply** to save the changes.

Phone Settings

Once paging has been enabled, choose **Phones** from the page selection pane of the Config Tool.

1. Click the Edit button in the **Phone Settings** editing pane to unlock the pane for editing.
2. If the facility PBX requires a dial prefix, type the appropriate number(s) into the **Dial Prefix** box.
3. Under **Global Settings**, ensure that the **Phone Out Mode** is **NC465**. If it is not, set it now.
4. If the facility desires to control access to the Tek-CARE®400 system with an access code, type the code into the **Access Code** box. This access code must be entered before dialing stations, zones, or masters on the system from a VoIP extension.

5. If the VoIP telephones in the facility use the E.161 standard keypad (illustrated in [Figure 10](#)), check the **E.161Layout** box. If the facility uses telephones without “Q” and “Z” on the keypad, or if “Q” and “Z” are on the 1 key, uncheck the **E.161Layout** box.
6. If the facility desires routine calls to be acknowledged from a VoIP extension, check the box labeled **Enable Acknowledgment**.



Note: The use of the enable acknowledgment option for ancillary devices is not in accordance with the UL®1069 standard.



Figure 10: E.161 Standard Keypad

7. In the **PBX IP Address** field, type the IP address provided by the facility IT department exactly as it was provided. See [Page 2](#) for the IP address of the PBX system.
8. Once all appropriate settings have been entered, click **Apply** to save the changes.

Save and Commit the Updated Configuration

Initial setup of the NC465 Media Gateway is now complete.

Save the updated configuration to the Tek-BRIDGE® hard drive by selecting **File>Save As** in the config tool. Choose a destination for the configuration and click **Save**.

Once the configuration has been saved, it must be committed to the Tek-CARE® system to take effect. Before the configuration is committed, coordinate with the facility to ensure that the brief nurse call system outage during the committing process will not interfere with patient care and facility operation.

To commit the configuration, select **File>Commit Configuration To System**. The system will perform a consistency check and automatically update the nurse call system.

Once the commit process is complete, proceed to the next section, [NC465 Media Gateway Final Setup](#).

The PBX system of the facility must now be programmed to accept and route the calls placed from the Tek-CARE®400 system.

NC465 Media Gateway Final Setup

Add VoIP Extensions

After initial setup and PBX programming are complete, add VoIP extensions for facility staff. Choose **Phones** from the page selection pane in the Config Tool.

- To add a single extension, click the **Add** button and type an extension number into the **Extension** box in the **Details** pane. Click **Apply** to accept the changes.
- To add multiple, consecutive extension numbers, click the **Add Multiple** button and enter a beginning number and ending number. Click **Apply**. All extensions between the starting and ending values will be entered automatically.

Add New Facility Staff in the Config Tool and Assign VoIP Extensions

In order to add VoIP extensions to the Tek-CARE®400 system, facility staff must first be added if they are not already present in the Tek-CARE®400 system. For NC465 setup purposes, add facility staff using the Config Tool, not the Event Monitor.

If staff members are already programmed into the Tek-CARE®400 system, proceed to [*Assign VoIP Extensions to Existing Staff Members*](#).

1. Choose **Staff** from the page selection pane of the Config Tool.
2. To add a new staff member, click the **Add** button to unlock the **Details** editing pane. Type the staff member's name in the **Name** field, select the correct type (if any) from the **Staff Type** drop-down menu, and check the **Active** box to enable the staff member.
3. Check the box in the **Phones** list to choose which VoIP extensions to associate with the new staff member. If the staff member is to be assigned to one or more home zones, check the appropriate boxes in the **Home Zones** list as well. If the staff member is to be assigned to all zones, leave all zones checked.
4. Click **Apply** to add the new staff member to the system.
5. Repeat for each additional staff member.

Assign VoIP Extensions to Existing Staff Members

Once staff have been added to the Tek-CARE®400 configuration, follow these steps to associate VoIP extensions with the existing staff members.

1. Choose **Staff** from the page selection pane of the Config Tool.
2. Select a staff member from the Staff list.
3. Click the **Edit** button in the **Details** pane to unlock the selected staff record for editing.
4. Check the box in the **Phones** list to choose which VoIP extensions to associate with the new staff member. If the staff member is to be assigned to one or more home zones, check the appropriate boxes in the **Home Zones** list as well. If the staff member is to be assigned to all zones, leave all zones checked.
5. Click **Apply** to save the changes.
6. Repeat for each additional existing staff member.

Select File>Save Configuration to save your programming changes, then choose File>Commit Configuration to System to send the programming changes to the Tek-CARE®400 system.

Create Staff Groups

A staff group is a group of facility staff members that have similar characteristics—for example, the staff members work the same shift, cover the same zone, are all nurses, or are all aides. A staff member may be added to multiple staff groups.

Staff groups are used to send calls from the NC465 Media Gateway to the phones of a specific group of staff members. They may also be used to create staff assignments for automatic text messages.

1. With the Event Monitor software running, open the Config Tool software. When prompted, choose **Load Configuration from System** on the splash screen. If the Config Tool is already running, choose **File>Load Configuration from System** to ensure that the most current system configuration is open for editing.
2. Select **Staff** from the page selection pane and click **Add** in the **Staff Groups** pane, shown in *Figure 11*.
3. Type a name in the **Name** field of the **Staff Groups-Details** pane to give a name to the new staff group.
4. Check the boxes of the staff members to add to the new staff group.



NOTE: Staff members may be added to multiple staff groups.

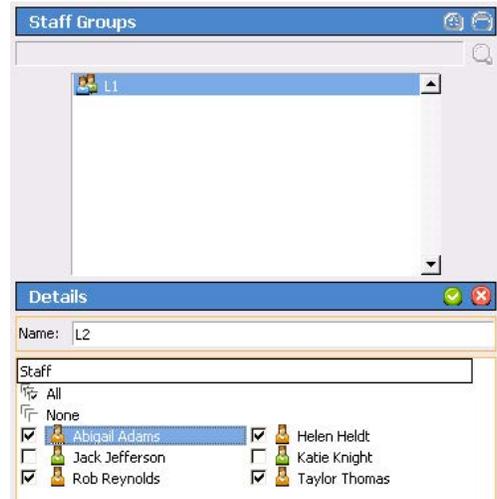


Figure 11: Config Tool Staff Groups

5. Once all staff members have been selected, click **Apply** to create the new staff group.
6. Repeat for each additional staff group.
7. When all updates have been made, choose **File>Save Configuration** to save the configuration to the Tek-BRIDGE® hard drive. Once the configuration has been saved, choose **File>Commit Configuration to System** to send the offline configuration to the Tek-CARE®400 system.

Create Staff Assignments to Receive Calls

Once all staff members have been entered into the system and phone extensions have been added, staff members must be associated with call devices to receive calls over the PBX network.

1. Choose **Assignments** from the page selection pane.
2. Click the **Add** button in the **Assignments** pane to add a new staff assignment.
3. In the **Details** editing pane, choose the **Type (Staff, Group, or All Staff)** and the **Staff Name** (the name of a staff member or a staff group) from their respective drop-down menus.
4. In the **Details** editing pane, select the appropriate **Type (Station, Transmitter, Zone, Foreign, or All Devices)**, **Name** (determined by the **Type** selection), **Call Filter (All Calls, No Calls, Only Code, High Priority Calls, or All But Presence)**, and **Fault Filter (All Faults, No Faults, Missing, or Maintenance)** settings. To send a page when the call is reset, check the **Page Resets** box.

5. From the **Details-Settings** pane, choose the **Level (Primary, Secondary, or Tertiary)** and the **Shift** from the drop-down menus.
6. Click **Apply** to add the assignment
7. Repeat for all additional staff assignments.

Once staff members have been associated with call devices, choose **File>Save Configuration** to save the configuration to the Tek-BRIDGE® hard drive. Once the configuration has been saved, choose **File>Commit Configuration to System** to send the offline configuration to the Tek-CARE®400 system.

Sending Fault Notifications to VoIP Extensions

Connected telephones are also capable of receiving calls with information about faults that occur on the system. This feature is useful for notifying maintenance staff or administrators of system status.

To allow a VoIP extension to receive faults, edit its respective assignment in the **Assignments** page of the Config Tool software. For more information about setting up staff assignments, see the LS450 Config Tool Manual (IL855), available at www.tekton.com.

To add fault reporting to a staff member's VoIP extension, navigate to the **Assignments** page of the LS450 Config Tool. Select the assignment that will report faults, and edit the assignment's **Fault Filter** to include **All Faults, Missing, or Maintenance** as shown in *Figure 12*.

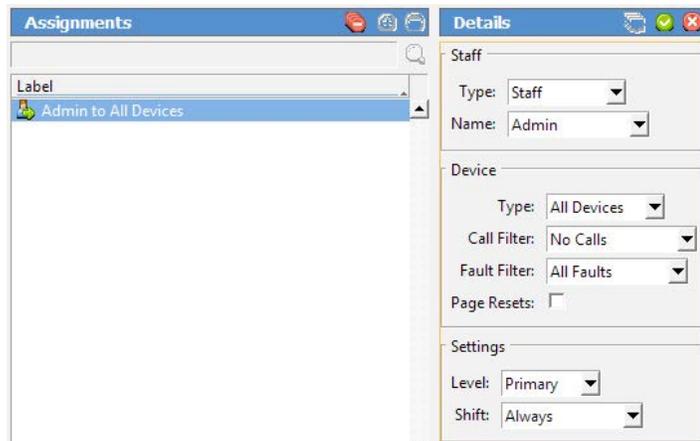


Figure 12: Fault Reporting

Once VoIP extensions have been assigned to receive faults, the assigned extension will ring each time a fault occurs on the system. Answering the call will not have any effect on the fault. It is a notification system only.

Commit, Save, and Back Up the Configuration

Initial setup of the NC465 Media Gateway is now complete.

Save the updated configuration to the Tek-BRIDGE® hard drive by selecting **File>Save** in the config tool.

After the configuration has been saved locally, create a backup copy. TekTone® recommends backing up the configuration to a USB flash drive.

Once the configuration has been saved and backed up, it must be committed to the Tek-CARE® system to take effect. Before the configuration is committed, coordinate with the facility to ensure that the brief nurse call system outage during the committing process will not interfere with patient care and facility operation.

To commit the configuration, select **File>Commit Configuration To System**. The system will perform a consistency check and automatically update the nurse call system.

PBX System Programming

Once the Media Gateway has been physically installed and programmed in the Tek-CARE® Config Tool, contact the PBX Technician to configure the facility PBX to receive and route messages between the Media Gateway and the facility PBX.

Once programming of the PBX is complete, test the Media Gateway by placing calls, receiving calls, and dialing stations as described in the following section, [Using the NC465 Media Gateway](#).

Using the NC465 Media Gateway

Once the NC465 Media Gateway is installed and programmed, calls are placed from stations on the Tek-CARE®400 system will ring the VoIP extensions that are associated with the initiating station.

Answering Automatic Calls

To accept an incoming call from the nurse call system, simply pick up the handset of the telephone. A voice connection will be established.

To end the call, hang up the telephone. The call will not clear from the master stations. To reset a call using a VoIP extension, see the next section, *In-Call Options*, for more information about call acknowledgment.

In-Call Options

In addition to offering two-way voice communication when calls are received by VoIP telephones, the NC465 Media Gateway also offers several in-call control options.

During a call, pressing the number in the left side of the table will result in the action on the right side of the table.

Button	Behavior
4	Places L1 Service Request for the connected call.
5	Places L2 Service Request for the connected call.
6	Places L3 Service Request for the connected call.
7	Places STAT Request for the connected call.
8	Sets Attend for the connected call, indicating staff presence.
9	Acknowledges a and resets routine call, clearing the call from any masters that are annunciating the call. Audio connection continues until the telephone receiver is replaced on its hook. This feature is only available if call acknowledgment has been enabled in the Config Tool. Call acknowledgment is not in accordance with the UL® 1069 standard.

Dialing Stations, Zones, and Masters from a VoIP Extension

The NC465 Media Gateway also enables VoIP extensions that have been programmed into the Tek-CARE®400 system to directly dial stations, zones, masters, or the entire system for paging, monitoring, and 2-way voice communication.

When dialing stations, zones, or masters with alphanumeric characters, it is not necessary to press buttons multiple times. For example, to type a **B** in a dial string, do not press **2** twice. Simply press **2** once, then continue with the rest of the dial string. The NC465 Media Gateway uses smart alphanumeric prediction technology to match the keypad strokes to the names of stations, zones, and masters programmed into the Tek-CARE®400 system.

 **NOTE:** In most cases, the NC465 will be able to match keystrokes with alphanumeric names, however, if two location names use the same keystrokes (such as 101A and 101B both using the dialstring **1012**), the system requires manual long-form dialing. To use long-form dialing, press the key that corresponds to the letter you want to dial, followed by up to 4 # signs to indicate the desired letter. For example, for 101A, dial **1012#** and for 101B dial **1012##**.

 **NOTE:** If the PBX connected to the NC465 requires a dial prefix, enter the dial prefix before dialing any of the following commands.

Page the Entire Tek-CARE®400 system

To page the complete system, dial the following:

- **#1*** to select the system, then press the dial button or pick up the handset to place the call.
- Once the display on the VoIP telephone shows that the call is connected, press **1** to page the entire system. Every master and station capable of audio on the system will announce the page.

Page a Zone

To page a zone, dial the following:

- Dial the name of the zone as it is programmed in the Tek-CARE®400 system, then press *****. For example:
 - To dial zone **Z12**, dial **912*** on the keypad of the phone, since **Z** is on the **9** key. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **1**.
 - To dial a zone named **ICU**, dial **428***. The Media Gateway automatically matches your keystrokes with the alphanumeric name of the zone. Pick up the handset or press the dial button and when the call connects, pause briefly, and then press **1**.
 - The **0** key will put a space in the dial string. For example, to page a zone named "West Wing", dial **937809464***. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **2**.
- Hang up the phone to end the page.

Monitor a Zone

To monitor a zone, dial the following:

- Dial the name of the zone as it is programmed in the Tek-CARE®400 system, then press *. For example:
 - To dial zone **Z12**, dial **912*** on the keypad of the phone, since **Z** is on the **9** key. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **2**.
 - To dial a zone named **ICU**, dial **428***. The Media Gateway automatically matches your keystrokes with the alphanumeric name of the zone. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **2**.
 - The **0** key will put a space in the dial string. For example, to monitor a zone named "West Wing", dial **937809464***. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **2**.
- Hang up the phone to end the monitor.



NOTE: If Tek-CARE®400 P5 stations are used on the system, monitoring is limited to one P5 station per CE port. Zones with more than one P5 station on a single port cannot be monitored. This restriction applies only to P5 stations.

Dial a Station

To connect directly to a single station with audio capability, dial the following:

- Dial the name of the station as it is programmed in the Tek-CARE®400 system, then press *. For example:
 - To dial station 200, dial **0200*** on the keypad of the phone. (Three digit station numbers must be prefaced with a 0.) Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **1**.
 - To dial a station named **ER1**, dial **371***. The Media Gateway automatically matches your keystrokes with the alphanumeric name of the zone. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **1**.
 - The **0** key will put a space in the dial string. For example, to dial a station named **RM108**, dial **760108***. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **1**.
- Once the audio connection is active, any of the dial commands in the table on [Page 15](#) are available.
- Hang up the phone to end the connection.

Dial a Master Station

To connect directly to a single master station, dial the following:

- Dial the name of the master as it is programmed in the Tek-CARE®400 system, then *. For example:
 - To dial master **02M1**, dial **0261*** on the keypad of the phone. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **1**.
 - The **0** key will put a space in the dial string. For example, to dial a master named **ER DESK**, dial **3703375***. Pick up the handset or press the dial button, and when the call connects, pause briefly, and then press **1**.
- Hang up the phone to end the connection.

Sending Text Messages to Connected VoIP Extensions

Text messages are sent to VoIP extensions as calls. The body of the text message will appear on the display of the telephone.

Text messages may be either automated or manual. For more information on setting up automatic text messages, see the Tek-CARE®400 User Guide (IL843U).

Sending Manual Text Messages to VoIP Extensions (NC402TS/LS576 Event Monitor)

To send a manual text message to one or more connected VoIP extensions, follow these steps:

- For NC402TS Master Stations and the LS576 Event Monitor, select the Text Message  button. The Text Message window will appear as shown in [Figure 13](#).
- Select the staff members and/or staff groups that the text message will be sent to. If desired, filter the staff group selection by selecting staff types from the **Staff Types** list.
- Select a preprogrammed text message from the drop-down menu, or type in a custom text message.
- Select a priority level for the message and click the **Send** button.



Figure 13: Text Message Window

Sending Manual Text Messages to VoIP Extensions (NC401TS)

To send a manual text message to one or more connected VoIP extensions, follow these steps:

- Touch the **Text Message** button on the toolbar of the NC401TS display. The **Text Message** window will appear.
- Select the Staff Members and/or Staff Groups from the list that appears.
- If desired, filter the staff group selections by selecting staff types from the **Staff Types** list.
- Select a preprogrammed text message from the drop-down menu, or type in a custom text message.
- Select a priority level for the message and click the **Send** button.

Sending Manual Text Messages to VoIP Extensions (NC401VFD)

Select staff that will receive the message via predefined Staff Assignments, Group Assignments and Level Assignments.

- **Select the Staff Assignment:** From the User Options menu page, choose *Text Msgs*, *Select Staff* and then *Staff Assignment*. The top line displays the staff member's name. A plus (+) indicates that the staff member is selected; a minus (-) indicates that the staff member is not selected. *Next Staff* scrolls through the list of available staff members. To select a staff member, navigate to that staff entry, move the selector to *Toggle Assignment*, and press **ENTER** to change the selection status to a plus (+). The *Tgl All/None* option toggles between selecting all the staff and none of the staff. A question mark (?) indicates that some staff members are selected and some are not.

- **Select the Group Assignment:** From the User Options menu page, choose *Text Msgs*, *Select Staff* and then *Group Assignment*. The top line displays the group's name. A plus (+) indicates that the current group is selected; a minus (-) indicates that the group is not selected. *Next Group* scrolls through the list of available groups. To select a group, navigate to that group entry, move the selector to *Toggle Assignment*, and press **ENTER** to change the selection status to a plus (+). The *Tgl All/None* option toggles between selecting all the groups and none of the groups. A question mark (?) indicates that some groups are selected and some are not.
- **Select the Level Assignment:** From the User Options menu page, choose *Text Msgs*, *Select Staff* and then *Level Assignment*. The top line displays the level. A plus (+) indicates that the current level is selected; a minus (-) indicates that the level is not selected. *Next Level* scrolls through the list of available levels. To select a level, navigate to that level entry, move the selector to *Toggle Assignment*, and press **ENTER** to change the selection status to a plus (+). The *Tgl All/None* option toggles between selecting all the groups and none of the groups. A question mark (?) indicates that some groups are selected and some are not.
- **Set the Message Priority:** From the User Options menu page, choose *Text Msgs*, *Select Message* and then *Priority*. Press **ENTER** to cycle through the three priority levels: Low, Medium and High.
- **Select a Predefined Text Message:** From the *Select Message* menu page, choose *Select Pre-DefMsg*. Press **ENTER** to cycle through the predefined text messages. To include a patient station/room number, select the station either by direct dialing or by pressing a preprogrammed button. To clear the selected station, press **RESET**. To clear the predefined message, choose *Clear Message* and press **ENTER**.
- **Enter a Custom Text Message:** From the *Select Message* menu page, choose *Edit Message* and press **ENTER**. Type your custom message, choose *Select Message*, and press **ENTER**. If a station has been selected, the station name will be included at the beginning of the message. To clear the selected station, press **RESET**. To clear the custom message, choose *Clear Message* and press **ENTER**.
- **Send the Text Message:** Exit back to the *Text Msgs* menu page, choose *Send* and press **ENTER**.