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Publication Date

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## Introduction

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## Installation

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Introduction

The PTT Express solution is part of Zebra’s comprehensive portfolio of high performance, feature rich, converged voice and data solutions that provide communication solutions to meet the needs of many different types of enterprises and enterprise users.

The purpose of this document is to describe the installation and configuration procedures necessary in order to prepare a site to take advantage of the PTT Express voice client.

NOTE: This document contains Windows installation instructions for client versions 1.1.x. For Windows installation instructions for client versions 1.2.x, refer to the appropriate section of the Release Notes for your specific device.

Since wireless network infrastructure equipment varies from site to site, detailed network configuration is not included. However, this document provides guidelines to aid in selecting parameters of the wireless infrastructure that should ensure that the PTT Express client performs optimally.

This book provides an overview of the PTT Express solution and procedures for deployment.

Chapter Descriptions

Topics covered in this guide are as follows:

• **Introduction** provides an overview of the PTT Express solution, including the PTT Express Portfolio, the supported enterprise devices, and specific requirements for the solution.

• **Installation** provides instructions for installing the PTT Express client on supported devices.

• **Device Configurations** describes the process for modifying required settings that must be assigned particular values.

• **Verification and Troubleshooting** lists the steps in the validation process and presents a troubleshooting FAQ.

• **License Installation** provides steps to install the PTT Express license for Android devices.

For the latest version of this guide and all guides, go to: [http://www.zebra.com/support](http://www.zebra.com/support).

Notational Conventions

The following conventions are used in this document:

• **Bold** text is used to highlight the following:
  • Dialog box, window and screen names
• Drop-down list and list box names
• Check box and radio button names
• Icons on a screen
• Key names on a keypad
• Button names on a screen.

• Bullets (•) indicate:
  • Action items
  • Lists of alternatives
  • Lists of required steps that are not necessarily sequential.
  • Sequential lists (such as those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.

NOTE: The text here indicates information that is supplemental for the user to know and that is not required to complete a task.

IMPORTANT: The text here indicates information that is important for the user to know.

CAUTION: If the precaution is not heeded, the user could receive minor or moderate injury.

WARNING: If danger is not avoided, the user CAN be seriously injured or killed.

Related Documents and Software

Refer to the following documents for associated information about the system.

The following documents provide more information about the PPT Express software.

• TC52, TC57, TC72, TC77, PS20, EC30, MC93 Voice Deployment Best Practices Guide, p/n MN-003430-xx
• TC51, TC56, TC70X, TC75X, MC33 Voice Deployment Best Practices Guide, p/n MN-003167-xx
• TC5X/TC7X Mobile Computers Best Practices Guide Voice Deployment Optimization with Aruba Infrastructure, p/n MN-003538-xx

For the latest version of this guide and all guides, go to www.zebra.com/support.

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When contacting support, please have the following information available:
About This Document

- Serial number of the unit
- Model number or product name
- Software/firmware type or version number

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If your problem cannot be solved by Zebra Customer Support, you may need to return your equipment for servicing and will be given specific directions. Zebra is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

If you purchased your Zebra business product from a Zebra business partner, contact that business partner for support.
Introduction

The PTT Express solution is one of Zebra’s converged voice and data solutions which provide communication solutions for many different types of enterprises and enterprise users.

PTT Express Solution Portfolio

PTT Express solutions include:

• PTT VoWLAN is a single mode solution designed to provide service to mobile users inside the enterprise without regard to their location inside the facility or throughout a campus environment. The solution provides mobile access over the enterprise Wireless Local Area Network (WLAN) to comprehensive voice and data services. This includes services such as telephony, Push-To-Talk (PTT), email, and text messaging that are typically tethered to the desk.

• PTT Express client creates Push-To-Talk communication capability between different types of devices including PTT Smartphones, and mobile computers. Leveraging existing WLAN infrastructure, this solution delivers simple communications across devices without the need for a voice communication server.

• For most Zebra devices, a license is required to use PTT Express. For some value-tier devices, an MDNA and PTT license is required. Refer to the License Manager User Guide for information on adding a license to the device.

Devices Supported by PTT Express

Refer to the PTT Express User Guide for a list of supported devices.

The PTT Express client allows these devices to create Push-To-Talk communication capability between different types of devices. Some of the devices listed may require a software download/install to add PTT express to the device, but for many of the devices PTT Express comes pre-installed. The solution leverages existing WLAN infrastructure and does not require a server.

PTT Communication Using the PTT Express Client

To establish PTT communication:

1. A user with a PTT Express enabled device presses the Group Broadcast button to initiate communication.

2. The initial message is broadcast to all users in the form of a Group Broadcast.

3. After the initial broadcast message, the users have two options:
• Any user can continue the Group Broadcast by pressing the Group Broadcast button.
• The intended recipient can turn the conversation into a Private Response with the originator of the broadcast, using the Private Response key.

NOTE: While a PTT communication key is pressed the user will not be able to use other device keys to perform separate tasks. In general pressing multiple keys simultaneously will lead to inconsistent client behavior.

Network

Many characteristics of a wireless local-area network (WLAN) impact its ability to be used for deployment of a Voice over Wireless LAN (VoWLAN) solution such as PTT Express. This section describes some of the parameters of the wireless network that should be considered to ensure the network’s ability to successfully deliver voice traffic between devices running the PTT Express client.

PTT Express allows 63 users to communicate across a single sub-net. The Group Broadcast feature only permits a single user to transmit to the other members of the Talkgroup at a given moment in time. Additionally, it is assumed that at most half of the Talkgroup members (that is, approximately 32 users) are served by a single access point. As members in the Talkgroup reply via the Private Call feature, they may communicate privately to one another and Group Broadcasts may continue.

PTT Express Communication has been designed to minimize end-to-end audio delay. However, audio delay may be up to two seconds or more depending on conditions of the network.

The PTT Express client Group Broadcast communication is made possible by transmitting audio packets to a multicast address. Each device is configured to transmit to and receive from this address. The default value for this address on Windows devices is provided in Table 1, along with the IP_PORT_BASE (Group Broadcast port) that is required to be available on each device. These values may be modified from their default values as described in Microsoft Windows Registry Settings on page 15, but each device in the group must be configured with the same values for the parameters.

The PTT Express client Private Response communication utilizes SIP (Session Initiation Protocol) for call signaling and sends audio packets via unicast transmissions between the devices in the Private Response. The PvtLocalPort (SIP Private Response port) listed in Table 1 must be the same value on all devices.

Table 1  Configurable System Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP_ADDRESS_BASE</td>
<td>IP Multicast address used for Group Broadcast communication</td>
<td>239.192.2.2</td>
<td>239.0.0.0 - 239.255.255.255</td>
</tr>
<tr>
<td>IP_PORT_BASE</td>
<td>Port used for receiving Group Broadcasts</td>
<td>5000</td>
<td>1024 - 49151 &lt;65535&gt;</td>
</tr>
<tr>
<td>PvtLocalPort</td>
<td>Port used for receiving SIP signaling</td>
<td>4080</td>
<td>1024 - 49151 &lt;65535&gt;</td>
</tr>
</tbody>
</table>
Network Recommendations

NOTE: In addition to the network's application-specific information below, refer to the following for additional network settings in the Additional Configuration for Voice Multicast Applications sections in the following guides:

- TC51, TC56, TC70x, TC75x, MC33 Voice Deployment Best Practice Guide
- TC52, TC57, TC72, TC77, PS20, EC30, MC93 Voice Deployment Best Practices Guide.

If possible, preference should be given to running PTT Express in an 802.11a network because of common interference sources in the frequency bands used by 802.11b/g. However, many 802.11b/g environments exist and PTT Express can be installed on devices that operate in those frequency bands used by 802.11b/g. When PTT Express is deployed in those 802.11b/g environments, preference should be given to using 802.11g to avoid any 802.11b devices that would force the network to operate at slower speeds.

When using 802.11b/g/n/ac, configure the network to operate on channels 1, 6, and 11 to minimize the frequencies in use that interfere with one another. These channels are recommended when using 802.11b/g/n/ac equipment. Also, some devices which support 802.11b/g/n/ac may be pre-configured to only scan for 802.11 Beacons on these channels.

NOTE: The use of DFS Channels is not recommended.

The country code associated with network Access Points (APs) and the enterprise devices must be in agreement. It is necessary that you assign the country code of the AP based on the country of operation and that the same country code be assigned on the enterprise device.

It is not recommended to use 5.5 or 11 as the lowest basic rates with MPA2.0 and later devices.

Recommended WLAN Access Point (AP) Configuration for PTT Express

PTT Express communicates half-duplex voice traffic at a QoS of VOICE with sample rates of 200 ms for Group and 100 ms for Private calls. It is recommended that the network support a DTIM of 2 based on a Beacon Interval of 100 ms. To ensure timely delivery against lower priority traffic a QoS of VOICE should be honored across the network by supporting WMM.

Multicast rates on the AP configuration should be optimized. There is some variation between manufacturers (Cisco, Extreme, etc.). Customers should use the following guidelines to set the multicast rates on their APs to optimize performance.

Multicast Rate Selection

1. Choosing a Multicast Rate

PTT Express uses multicast distribution to implement Group Call. In contrast to unicast mode, each AP in the ESS transmits the multicast packet once (no retries), at a fixed rate. Choice of MC rate is similar to picking a Beacon rate, and should strike a balance between:

   a. Lower rates propagate further. Multicast Tx rate should be low enough for a reception rate of at least 90% anywhere within a cell, by all of the target mobile devices.

   b. However, an MC rate lower than necessary wastes airtime, and contributes to co-channel interference.

2. Setting the Multicast Rate

The MC rate policy varies with AP vendor, but usually cues on the Basic Rate settings. Two examples:

   a. Extreme WLAN infrastructure: The MC rate is the lowest basic rate.
b. Cisco: MC rate is different for the Wireless Controllers and standalone APs:
   • Access points running recent Cisco IOS versions are transmitting multicast and management frames at the highest configured basic rate, and is a situation that could cause reliability problems.
   • Access points running LWAPP or autonomous IOS should transmit multicast and management frames at the lowest configured basic rate. If reliable reception is a goal, then multicasts should be transmitted at a low data rate.

3. Summary
   Determine how the MC rate is derived, typically from the Basic Rate settings, for the specific vendor, model, and firmware Rev in play. Then, apply section 1 above.
   
a. Quick Start
      Use just one basic rate. Start with 24 Mb/s basic, and adjust downwards for good performance. As a safety margin, drop the rate one more step.

Other Settings

IGMP Snooping

IGMP Snooping can be enabled to avoid forwarding multicast packets to all associated APs. When IGMP Snooping is enabled, IGMP queries are sent to the device and IGMP report is expected. Doze mode in device to be disabled to process the IGMP queries when device is in idle state. If Doze mode is not disabled, then the device entries might be removed from IGMP Multicast Group and multicast packets might not be delivered to the device.

NOTE: When multicast packets are not forward to APs after device roamed, consult with WLAN/APs vendor. IGMP Snooping can be disabled as a mitigation.
Installation

Introduction

It is recommended (but not required) that the enterprise device is associated on the network before installing the PTT Express client on the device. Since at the end of the installation procedure, the device reboots and a start up tone is played to indicate that the PTT Express application is functional.

Installing the PTT Express Client

**NOTE:** Zebra does not support installations performed using 3rd party Device Manager solutions.

The default keys used for triggering PTT Express calls need to be remapped when installing PTT Express on the devices listed in Device Configurations on page 15.

For Windows devices, the use of ActiveSync is recommended for installation on the Mobile Computing devices. This method is straightforward in that the files are copied to the target device and then run from the target device.

In order to obtain application software or any available update files please go to the Zebra website www.zebra.com/support. Once purchased, the requestor is assigned a username and password to access and download the client.

Windows Devices Using ActiveSync

To install the client software on a Windows Mobile Computing device:

1. Establish **ActiveSync** connection by connecting your device to a computer with **ActiveSync** installed.
2. From the **ActiveSync** window click on the **Explore** icon.
3. Click on the **My Windows Mobile-Based Device** icon for full folder list.
4. Open the Temp folder and copy the **installer_VC_FB_XXXX.cab** file to the device.
5. From the device, use the **File Explorer** to select and run the **installer_VC_FB_XXXX.cab** file.
6. After execution of the installer cab file, the device reboots. After reboot, if the device is connected to a Wi-Fi network a tone is heard, indicating that the PTT Express services are available on the device.

Windows Devices Using an SD Card

To install the PTT Express client using SD cards:

1. Remove the SD card from the device and connect to a host computer. For information on removing the SD card refer to device’s user guide.
2. Copy the installer_VC_FB_XXXX.cab file to the SD card.
3. Reinsert the SD card into the device.
4. From the device, use the File Explorer to select and run the installer_VC_FB_XXXX.cab file.
5. After the execution of the installer cab file, the device reboots. After reboot, if the device is connected to a Wi-Fi network a tone is heard, indicating that the PTT Express services are available on the device.

Android Devices

The PTT Express client comes pre-installed on all Android devices that support PTT.

Uninstalling the PTT Express Client

Windows Devices

You can only uninstall a client that was previously installed on the mobile computer. Clients that are part of the factory image cannot be uninstalled.

1. Go to Start > Settings > System > Remove Program.
2. Select the PTT Express application and touch Remove. The Remove Program window appears. “Are you sure you want to remove it?”
3. Select Yes.

NOTE: For some versions of PTT Express the following message may appear. The application is currently being used... Re run after reboot. Press OK to restart the device. After restart, follow steps 1 through 3 again to uninstall the application.
4. After successful removal, the device restarts.

Updating PTT Express from a Prior Version

Windows Devices

To update PTT Express from a prior version on a Windows device:

1. Uninstall the old version of PTT Express. See Uninstalling the PTT Express Client on page 13.
2. After Uninstallation completes, install the new version of PTT Express. See Installing the PTT Express Client on page 12.

Installation/Operation Verification

Ensure the device is connected to the network, with at least one other PTT Express enabled device and perform the following tests to confirm successful operation:

1. Confirm that a Group Broadcast, or page communication can be initiated and that other devices receive the spoken voice from the originating device.
2. Once a Group Broadcast communication has been successfully established, confirm that a page-to-private, or Private Response, can be established.
3. While in a WAN call, ensure that page communication cannot be heard.
Installation Using Mobile Device Managers

The PTT Client installation file automatically reboots the device after installation. When installing the PTT Express client application using a Mobile Device Management (MDM) tool, it might be desired not to reboot the device after the PTT Express Client application installation. Especially when installing other applications after the PTT Express Client.

To disable the reboot, the client must be set to a Silent Install mode. Silent Install disables the automatic reboot after the PTT Express Client installation.

Using a text editor, create a text file with the following:

```
[installation]
reboot=false
```

Save the text file with the filename: `pttexpress.ini`.

Using the MDM push the file to the Application folder before installing the PTT Express Client application.

**NOTE:** After all applications are installed using the MDM, the MDM must reboot the device.
Introduction

This chapter provides information for configuring PTT Express on Microsoft Windows devices and Android devices.

Microsoft Windows Registry Settings

A registry editor is required to view and modify the registry settings on a device. Note that after modifying registry settings, a warm boot or cold boot of the device is required in order to have the changes take effect.

**NOTE:** Altering any registry items other than those described in this manual are not supported and could result in the impaired operation of the device.

If installing PTT Express on the MC3190, the buttons for initiating PTT Express group calls and private calls must be remapped.

There are two types of mobile computer devices for PTT; those with side grey buttons used for PTT Group Calls and those without.

The devices with the side buttons are the MC55 and MC75; for these devices, after installation the side gray button is used for PTT group and the green key for PTT private call. For the rest of the devices, after installation, the user needs to define which keys to use, normally users use the =5’ key (Group) and the =9’ (Private) keys. They define the keys by modifying values in the registry; the values are hex codes obtained from a key check application which displays the hex code upon pressing a key. The application is obtained from the [www.zebra.com/support](http://www.zebra.com/support) web site as part of the EMDK sample applications.
Call Timer Registry Settings

Use a registry key to modify the parameters indicated in Table 2. The registry path is:
HKEY_LOCAL_MACHINE\Software\Motorola\CVC

Table 2  Call Timer Registry Settings

<table>
<thead>
<tr>
<th>Key</th>
<th>Type</th>
<th>Range/Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrivateTalkTimeOut</td>
<td>DWORD</td>
<td>10000 - 90000 ms default = 60000 ms</td>
<td>The amount of time that has to elapse after which the Private Response terminates and the unit switches to PTT mode. Decimal Value in milliseconds. disable = 0</td>
</tr>
<tr>
<td>TalkTimeOut</td>
<td>DWORD</td>
<td>10000 - 90000 ms default = 60000 ms</td>
<td>The amount of time the user is allowed to hold the floor (talk without interruption). Decimal Value in milliseconds. disable = 0</td>
</tr>
<tr>
<td>END_SESSION</td>
<td>DWORD</td>
<td>1000 - 10000 ms default = 10000 ms</td>
<td>The amount of time that has to elapse after which a Private Response cannot be made to the last known talker in the session. Decimal Value in milliseconds.</td>
</tr>
</tbody>
</table>

NOTE: Note that the hang time represents a minimum value and may vary by up to 1 second due to possible network and protocol delays. For example, if a value of 5 is entered, the hang time is actually between 5 and 6 seconds.

Private Response Registry Settings

Use a registry key to modify the parameters indicated in Table 3. The registry path is:
HKEY_LOCAL_MACHINE\Software\Motorola\CVC\DCMe

Table 3  Private Response Registry Settings

<table>
<thead>
<tr>
<th>Key</th>
<th>Type</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PvtHangTimerDuration</td>
<td>DWORD</td>
<td>1000 - 10000 ms default = 10000 ms</td>
<td>The amount of time that has to elapse after which the Private Response will terminate and the device will switch to Group Broadcast mode. Decimal Value in milliseconds.</td>
</tr>
<tr>
<td>PvtLocalPort</td>
<td>DWORD</td>
<td>4080</td>
<td>IP Port to be used for Private Response communications. Decimal value.</td>
</tr>
</tbody>
</table>
Group Broadcast Multicast Registry Settings

Use a registry key to modify the indicated parameters in Table 4. The registry path is: HKEY_LOCAL_MACHINE\Software\Motorola\CVC\WTM.

<table>
<thead>
<tr>
<th>Key</th>
<th>Type</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP_ADDRESS_BASE</td>
<td>239.192.2.2</td>
<td>Multicast address to be used for Group Broadcast communications.</td>
<td></td>
</tr>
<tr>
<td>IP_PORT_BASE</td>
<td>DWORD</td>
<td>5000</td>
<td>IP Port number of the multicast address being used for Group Broadcast communications. Decimal value</td>
</tr>
</tbody>
</table>

User Configurable Device Key for Private Response and Group Broadcast

A registry editor is required to view and modify the user configurable device keys. Note that after modifying the configurable device key, a soft-reset of the device is required in order to have the changes take effect.

The registry path is: HKEY_LOCAL_MACHINE\Software\Motorola\CVC\Keys

**NOTE:** The following key settings apply to Zebra Mobile Computing devices only. Only one button can be assigned as the pttPrivateCall (Private Response) key and one button can be assigned as the pttGroupCall (Group Broadcast) key.

<table>
<thead>
<tr>
<th>KEY</th>
<th>Type</th>
<th>Range/Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pttPrivateCall</td>
<td>DWORD</td>
<td>7E (hex) 126 (decimal) 20 (hex) 32 (decimal)</td>
<td>Hex/decimal value of physical key to be pressed for usage in Private Call. Green Key (most MCs) Space Bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D (hex) 13 (decimal)</td>
<td>Enter/Return Key</td>
</tr>
<tr>
<td>pttGroupCall</td>
<td>DWORD</td>
<td>7E (hex) 126 (decimal) 20 (hex) 32 (decimal)</td>
<td>Hex/decimal value of physical key to be pressed for usage in Group Call. Space Bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D (hex) 13 (decimal)</td>
<td>Enter/Return Key</td>
</tr>
</tbody>
</table>
NOTE: Registry key values need to be updated after installing PTT Express on the MC3190 as it lacks dedicated keys for PTT Express group calls and private calls:

To determine key codes, the KeyCheck.exe application is run on the device, key to be used is pressed and keycode in hex is displayed. For example, the =5' key will show 0x35 and the =9' will show =0x39' in the WM_KEYUP and WM_KEYDOWN events, it is the 0x35, 0x39 values that will be set in the registry key(s).

The KeyCheck.exe application is obtained from the zebra.com/support web site as part of the EMDK/SMDK sample applications.

Private Key Configurations

A registry editor is required to view and modify the user configurable device keys. Note that after modifying the configurable device key, a soft-reset of the device is required in order to have the changes take effect.

The registry path is: HKEY_LOCAL_MACHINE\Software\Motorola\CVC\Keys.

Table 6  User Configurable Device key to be used for Private Response on a Mobile Computer

<table>
<thead>
<tr>
<th>KEY</th>
<th>Type</th>
<th>Range/Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrivateKeyConfig</td>
<td>DWORD</td>
<td>0, 1, NP or any other value</td>
<td>Disable private calls. Private Call is made using 1.5 Key press of Group Call button. 1.5 Key press implies Group Call button pattern: Press + Release + Press back within durations specified by PrivatecallOffset1 and PrivatecallOffset2. Dedicated keys for Group Call and Private Call.</td>
</tr>
<tr>
<td>PrivatecallOffset1</td>
<td>DWORD</td>
<td>NP, NP, 0, 0, t1, t2</td>
<td>300ms and 500 ms respectively (default) 300ms and 500 ms respectively (default) (T2-T1) ms, (T3-T2) ms The total window (T3 – T1) will be t2 ms.</td>
</tr>
<tr>
<td>PrivatecallOffset2</td>
<td>DWORD</td>
<td>t1, t2</td>
<td>Valid when Private Call is made using 1.5 key press of Group Call button. (i.e. when PrivateKeyConfig = 1).</td>
</tr>
</tbody>
</table>

Key press timings in milliseconds:

- T1 - 1st Group Call button press
- T2 - Group Call button release
- T3 - 2nd Group Call button press.

1. By default, PrivatecallOffset1 and PrivatecallOffset2 shall not be present in the registry. In this case and when PrivatecallOffset1 and PrivatecallOffset2 are set to zero, default values of 300 ms and 500 ms are assigned respectively.

2. If PrivatecallOffset1 = 0, then the total window (T3 - T1) will be PrivatecallOffset2 ms.

3. If PrivatecallOffset1 and PrivatecallOffset2 are non-zero, then T2 - T1 should be PrivatecallOffset1ms and T3 - T2 should be PrivatecallOffset2 ms.

4. T3 - T1 should always be less than 1000 ms., if it's more, then we will set to default : T2-T1 = 300 ms and T3-T2 = 500 ms.
5. On the VC70, by default, PrivateKeyConfig = 1 and PrivatecallOffset1 = NP and PrivateCallOffset2 = NP.

6. All other devices, by default, PrivateKeyConfig = NP and PrivatecallOffset1 = NP and PrivateCallOffset2 = NP.

7. On the VC70, the microphone button is used for Group Call and the 1.5 key press of the microphone button for Private Calls.

**Do Not Disturb**

A registry editor is required to view and modify the user configurable device keys. Note that after modifying the configurable device key, a soft-reset of the device is required in order to have the changes take effect. The registry path is: HKEY_LOCAL_MACHINE\Software\Motorola\CVC\.

**Table 7**  Do Not Disturb

<table>
<thead>
<tr>
<th>KEY</th>
<th>Type</th>
<th>Range/Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNDSupport</td>
<td>DWORD</td>
<td>0, NP</td>
<td>Disabled (default)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Enabled</td>
</tr>
<tr>
<td>NP = Not present.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Android Configuration File Settings**

Configuration of the PTT Express voice client is controlled by a configuration XML file. The configuration file is divided into:

- Application settings
- Profile List settings
- Channel settings.

Refer to Client Configuration in the PTT Express User Guide for information on the Android configuration file settings.

**Talk Group Configuration**

Up to 32 talk groups can be created by PTT Express users. However, only one talk group may be enabled at a time. To toggle between desired talk groups:

1. From the enterprise device Start button, select **Programs > PTT Express Configuration**.

   The PTT Express Configuration window opens showing the default values of:

   - Voice Client Enable: selected
   - Current Talk Group: 1

2. To determine the PTT Express version at any time, select the **About** button at the bottom of the screen.

3. To disable the PTT Express voice client PTT communication, select or deselect the **Voice Client Enable** field. This toggles the service between active and inactive.

4. To select a different talk group, click the drop down menu of the **Current Talk Group** field.

   Talk groups 1 through 32 are displayed.
5. Select the desired talk group.
   The newly selected talk group is the one that is enabled.

6. Press **Save** to activate changes.
   An audible service tone indicates the Voice Client status.
Verification and Troubleshooting

Introduction

It is important to verify the operation of the PTT Express after installing the PTT Express client on the enterprise devices. Verify that on a Group Broadcast, the target devices are able to receive/playback audio from the originator and that the user is able to respond to Group Broadcast requests. Then verify that a Private Response request and response can be established.

The following sections list the verification procedures used to validate the successful installation and configuration of the PTT Express client and a Frequently Asked Questions (FAQ) related to installation and configuration.

Verification

The following list indicates the tests recommended to validate the installation and configuration of the PTT Express Client.

- Download client software from a pre-defined web site.
- Install PTT Express Client software.
- Hold a Private Conversation. See the PTT Express Users Guide for instructions. The guide can be downloaded from: www.zebra.com/support.
- Provision Mobility Services Platform Server with PTT Express client package (for subsequent download)
- Enable/ disable PTT Express client.
- Dual Mode (Cellular/Express) call interactions.
- Roaming
- Set Group/Private Response Key.
- Configure handset device parameters.
- Configure WLAN parameters.
- Configure Multicast Traffic Processing router/device parameters.
- PTT Express interaction with Line of Business application.
## Troubleshooting

Table 8 provides solutions to frequently encountered problems.

### Table 8  Frequently Asked Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What should the WLAN Adapter be set to?</td>
<td>WLAN Adapter should be set to Fast PowerSafe.</td>
</tr>
</tbody>
</table>
| What if you hear a “bonk” tone when pressing Group Broadcast key?        | Check following items on the device”  
Check that the Wi-Fi is enabled.  
MCxx devices: check the Wi-Fi icon on bottom right hand corner of the screen. If there is a red “X” it means that Wi-Fi is disabled.  
If disabled click the Wi-Fi icon and click on enable option.  
Check that the device is associated to Wi-Fi network and has acquired an IP address.  
For MCxx devices, click on Wi-Fi icon on bottom right hand corner of the screen.  
Click Wireless status.  
Click Current Profile [This will show ESSID: Channel Number: & Signal Strength].  
Click on back arrow on top right hand corner.  
Click on IPv4 Status (This shows the Device IP address: Dynamic Host Configuration Protocol IP address: DNS IP address etc.). |
| What if you hear non-intelligible audio?                                | Check signal strength, packet loss, and speaker/microphone position.                                                                                                                                     |
| What if there are association issues?                                    | Check country code settings on both the device and the access point.                                                                                                                                     |
| What happens if I perform a clean boot?                                 | The PTT Express client is stored in persistent storage on supported devices. The client remain loaded and in operation after a device warm or cold boot. A user must re-install the client after a clean boot. |
| What happens if I press multiple keys simultaneously?                   | While a PTT communication key is pressed the user will not be able to use other device keys to perform separate tasks. In general pressing multiple keys simultaneously will lead to inconsistent client behavior. |
Installation procedures are for customers that:

• have purchased a PTT Express version 3.1.46 or higher for Android which is managed by the Zebra Software License Manager.

• use StageNow for staging or a similar EMM profile.

• Activate their license and associate it with their devices.

Prerequisites

• Clock and network on the devices are configured properly.

• PTT Express license is purchased, and you have the Activation ID from the entitlement notification email. This is typically sent out to the partner and the end-user on the Purchase Order. Please contact your partner or your administrator for this email.

Installation

1. To install the license:
2. Launch the StageNow utility.
3. Select Create new Profile.
4. Select the MX version compatible to device.
5. Select Xpert Mode.
6. Select Create.
7. Enter a profile name and select Start.
8. Under LicenseMgr, select Perform Zebra license action and proceed to set the various parameters to activate the license required. For example:
   a> For the licensing cloud option: Activate AID > Use Zebra Licensing cloud option > Zebra Production Cloud > Enter your AID and Quantity.
9. Select Continue.

This is the recommended option since the device will be synced with the cloud for visibility from the licensing portal.
b. For the local licensing (on-prem) option: Activate AID -> Use a local license server option -> Enter the URL, friendly name, AID and Quantity. Select Continue. If you choose this option [to cater to a fire-walled network or don't have access to the cloud]. More details on installing and configuring the Local License Server can be found on Zebra.com's Licensing Page. Once you set up the LLS, please use the URL of that LLS in your staging profile.

5. Complete profile creation and scan the staging barcode.

Validating the Above Profile

1. Launch the License Manager application on the device. Ensure the license activated shows up there.

2. PTT Express client on your device should be fully activated. You do not need to configure anything in the PTT Express client for the license.

3. The quantity is typically 1 since the device is activating only one license for itself. Based on the number of devices activated, the Available quantity visible on the portal will decrease. The list of device ids will also show up there.
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