

RadioCentral™ Online Help

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Chapter 1

RadioCentral System Requirements and Dependencies

1.1

Supported Releases and Services

RadioCentral currently supports the APX NEXT and APX N70 radios.

RadioCentral only supports APX NEXT radios on the 2022.2 release or newer version. The 2022.2 release includes R04.51.00 APX NEXT or R01.22.00 APX N70 firmware and R28.00.00 release of the Customer Programming Software (CPS). All APX N70 versions are supported.

The RadioCentral integrates the CPS as a template editor to eliminate or reduce the learning curve. This feature is available because most of the radio programmers are very familiar with the CPS.

Users can download the Standalone CPS or CPS/RM suite installation package from CustomerHub to preinstall the expected CPS version on the computer. If the user attempts to launch the CPS editor from RadioCentral but encounters the following conditions, the user is prompted to download and install the CPS during the edit workflow.

- The computer does not have any CPS preinstalled.
- The user does not have the appropriate CPS version on the computer.

To make further edits to the templates, the devices must meet additional criteria before the availability of R35.00.00 CPS. Then only can the user assign and write the template to the devices.

- CXF Export or Import between RadioCentral and CPS can be used for devices with firmware greater than or equal to the 2023.2 release. The release corresponds to R04.80.00 APX NEXT or R01.62.00 APX N70 firmware and R31.00.00 CPS. The firmware is assigned or last known.
- Edit in or Publish from CPS between RadioCentral and CPS can be used for devices with firmware greater than or equal to the 2024.2 release. The release corresponds to R07.02.00 APX NEXT or R04.02.00 APX N70 firmware and R34.00.00 CPS. The firmware is assigned or last known.

With R35.00.00 CPS, any device that meets the minimum requirements for importing into RadioCentral can have the template edited or exported, and published or imported for assignments. The minimum requirement is 2022.2 release or R04.51.00.

1.2

Operating System Requirements

RadioCentral is accessible using Chrome and Edge browsers. However, RadioCentral requires using the ASTRO Customer Programming Software (CPS) for editing radio templates and configuration. ASTRO CPS is only supported on Windows. See the ASTRO CPS documentation for operating system and hardware requirements.

1.3

Firewall Configuration

You can access RadioCentral using a web browser. RadioCentral requires the addresses and ports listed in [Table 1: Addresses and Ports for Cloud Regions on page 35](#) to be accessible from the computer. If the

computer that you use to access RadioCentral is behind a firewall, ensure the addresses and ports in [Table 1: Addresses and Ports for Cloud Regions on page 35](#) are allowed by the firewall settings.



NOTE: The addresses vary based on the Cloud region and storage location of the radios and associated configurations.

Table 1: Addresses and Ports for Cloud Regions

Cloud Region	Address	Port	Description
US State and Local Customers only	http://radiocentral.motorolasolutions.com/	443	RadioCentral Web Portal
	http://prod9rmstorage.blob.core.usgovcloudapi.net/	443	Key and Image Upload
	http://cirruscentral.motorolasolutions.com/	443	Single Sign On and Session Management
	http://idm.imw.motorolasolutions.com/	443	Unified Identity
	https://admin2.usgov.commandcentral.com/	443	User Management
	https://customerhub.motorolasolutions.com/	443	ASTRO CPS download
	http://learning.motorolasolutions.com/	443	Documentation and Training
US Federal or State/Local Customers using MSI FedRAMP Authorized Cloud	http://fed.radiocentral.motorolasolutions.com/	443	RadioCentral Web Portal
	http://usfp9rmstorage.blob.core.usgovcloudapi.net/	443	Key and Image Upload
	http://fed.cirruscentral.motorolasolutions.com/	443	Single Sign On and Session Management
	http://idm.fed.commandcentral.com/	443	Unified Identity
	https://admin2.fed.commandcentral.com/	443	User Management
	https://customerhub.motorolasolutions.com/	443	ASTRO CPS Download
	http://learning.motorolasolutions.com/	443	Documentation and Training
Canadian Customers	https://sec.radiocentral.motorolasolutions.ca/	443	RadioCentral Web Portal
	http://cccs9rmstorage.blob.core.windows.net	443	Key and Image Upload
	https://sec.cirruscentral.motorolasolutions.ca/	443	Single Sign On and Session Management

Cloud Region	Address	Port	Description
	http://idm.sec.commandcentral.ca/	443	Unified Identity
	https://admin2.sec.commandcentral.ca/	443	User Management
	https://customerhub.motorolasolutions.com/	443	ASTRO CPS Download
	http://learning.motorolasolutions.com/	443	Documentation and Training

1.4

RC-CPS Bridge Installation

The RC-CPS Bridge is a software component that enables CPS to communicate with RadioCentral.

Pre-installation of this component is not required. When the user launches the CPS editor, the workflow prompts the user on how to download and install the bridge component.

When a new version of the Bridge component is available, a prompt to update appears in the workflow.

1.5

Uploading Advanced System Key (ASK) Driver

A driver installation is required to enable the use of Advanced System Keys (ASKs) with RadioCentral, which allows for the upload of key information from the dongle.

Procedure:

1. Go to **Resources** → **Access Policy** → **Upload Key**.



NOTE: This operation requires permissions that can be granted using the user role. The **Upload Key** button remains grayed out if the user role does not have the required permissions for key upload.

2. Select **Add from Dongle**.
Advanced Key Driver window pops out.
3. Select download or upgrade driver.

Chapter 2

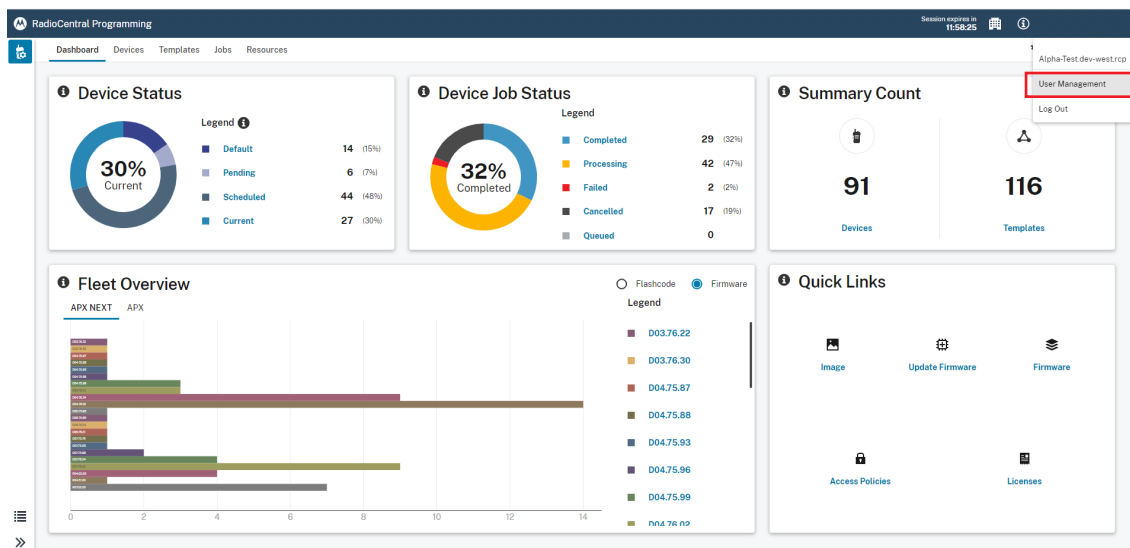
User Management

The administrator of an agency is provisioned through the ordering process to perform the following actions in User Management:

- Create new groups and roles with permission access.
- Create new users and assign groups and roles to the users.
- Update the groups and roles of existing users.

You can access **User Management** by clicking the arrow at the top-right corner of the page.

Figure 1: User Management Link



2.1

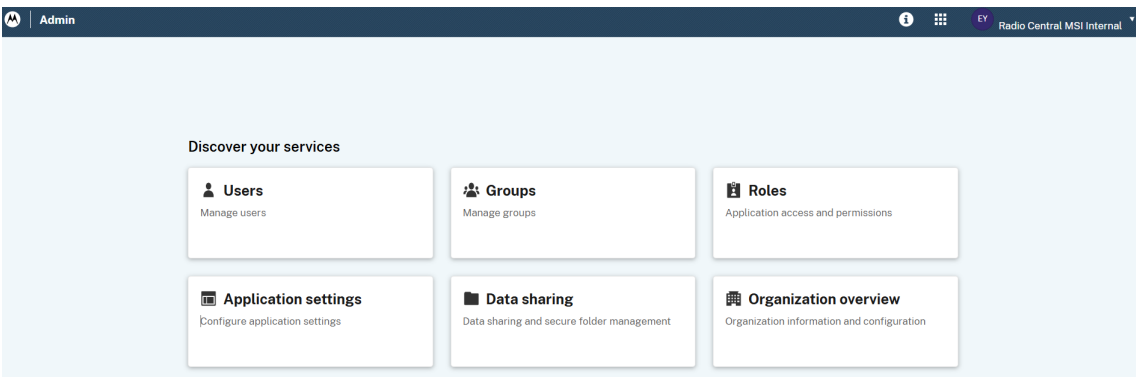
Creating New Groups and Roles

You can create new groups and roles and assign permissions to them.

Procedure:

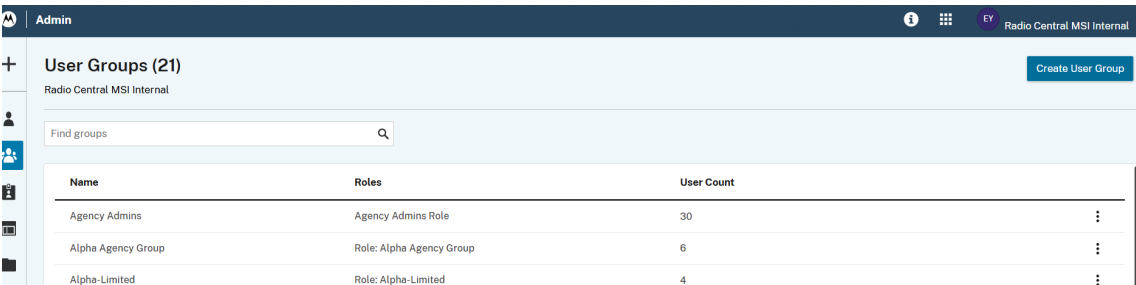
1. Log on RadioCentral.
2. At the top-right corner of the page, click the arrow under your name.
3. Click **User Management**.

Figure 2: CommandCentral Admin Page



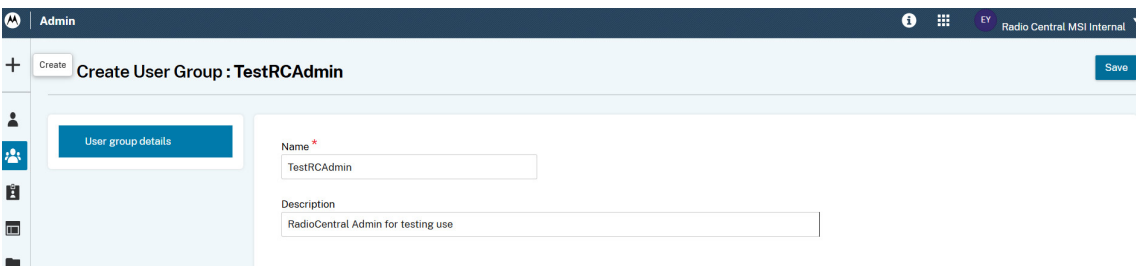
- 4. At the CommandCentral Admin page, click **Groups**.

Figure 3: List of Groups



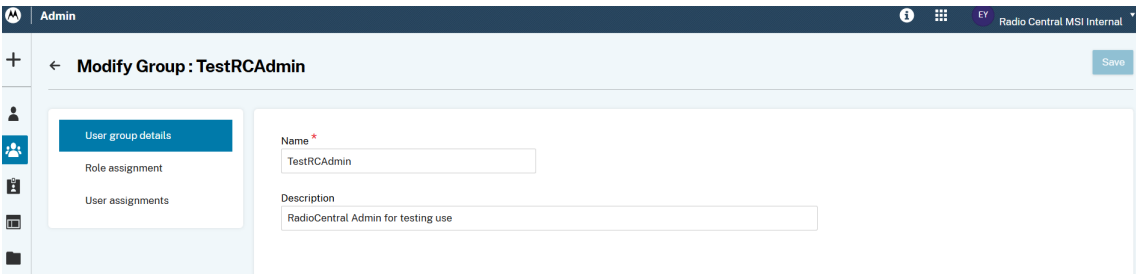
- 5. Click the **Create User Group** button.
- 6. Enter a proper name and description for the new role and click **Save**.

Figure 4: Create User Group Page



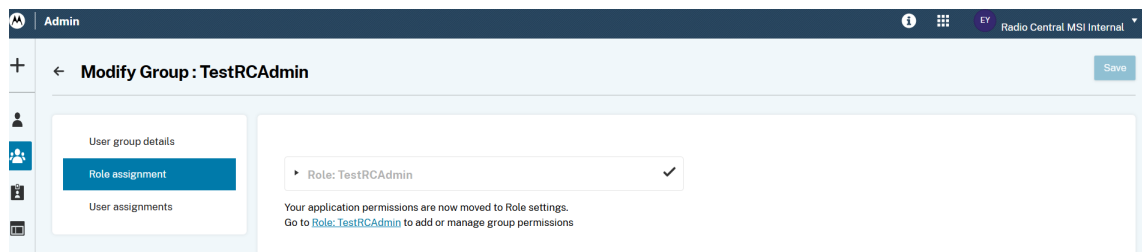
- 7. Click **Role Assignment** in the left-side panel.

Figure 5: Role Assignment



- 8. Click the **Role: xxx** hyperlink.

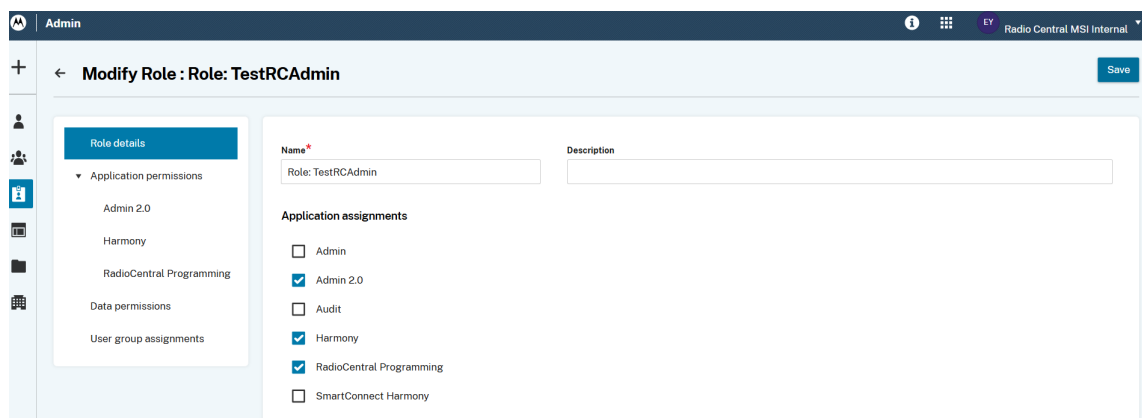
Figure 6: RadioCentral Hyperlink



9. Select **Harmony** and **RadioCentral Programming**.

These selections are required to assign and configure the RadioCentral application settings for this role. The selected items appear under **Application Permissions** in the left-side panel.

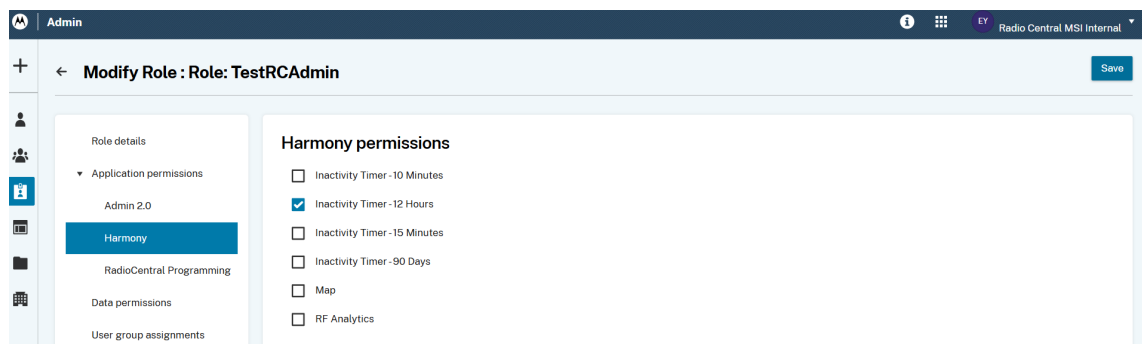
Figure 7: Application Assignments



10. Click the **Harmony** menu to set the inactivity timer for this role.

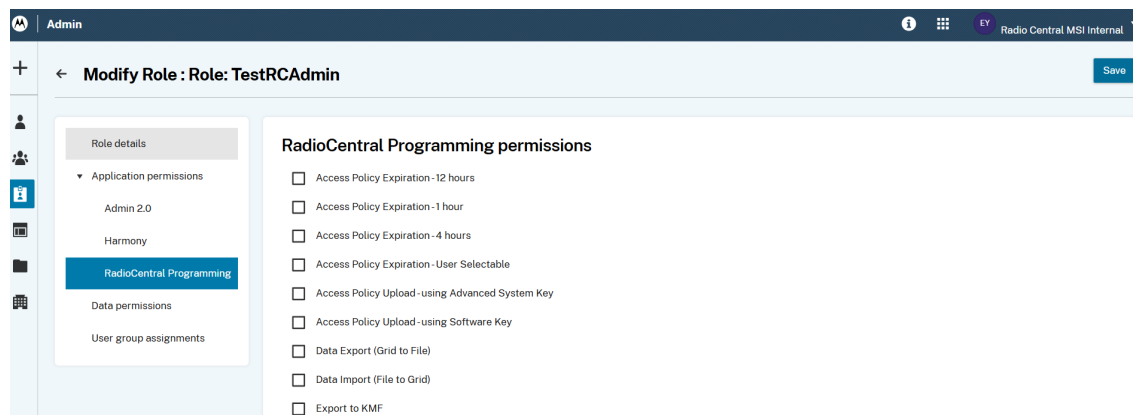
Depending on the timer you choose, the system logs out the user after the specified time if no active operation is found.

Figure 8: Harmony Permissions



11. To select the permissions a role can have from the list, click the **RadioCentral Programming** menu.

Figure 9: RadioCentral Programming Permissions



The explanation of each permission is as follows:

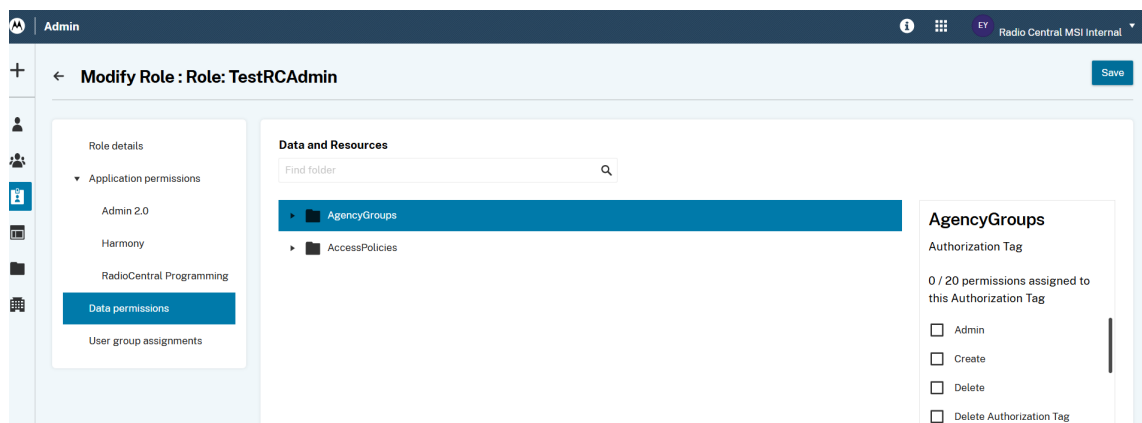
Table 2: RadioCentral Programming Permissions

Name	Description
Export to KMF	Allows this role to export the keys necessary to set up touchless key provisioning in the KMF. This function is applicable if and when purchased and as part of the enhanced APX NEXT ownership experience.
Data Import (File to Grid)	Allows this role to export the Device and System data from RadioCentral to a local drive as a Microsoft Excel file for batch update.
Data Export (Grid to File)	The access policy expires four hours after the key is uploaded.
Access Policy Upload - Using Software Key	Allows this role to use and upload software keys to set up Access Policies in RadioCentral. This setup enables the user to edit the radio IDs for different systems.  NOTE: Access policies are not shara-ble. Each individual must upload their own keys.
Access Policy Upload - Using Advanced System Key	Allows this role to use and upload hardware keys (USB with ASK/AWK/ACK) to configure Access Policies in RadioCentral. This setup al-lows the user to edit the radio IDs for different systems.  NOTE: Access policies are not shara-ble. Each individual must upload their own keys.
Access Policy Expiration - User Selectable	Allows this role to choose from several expi-ration durations when uploading keys. The de-fault is to reuse the same expiration date de-fined on the keys.

Name	Description
Access Policy Expiration - x hours	Sets the expiration duration for the access policy to the selected value. The access policy is uploaded by users assigned to this role. Three options are available: • 4 hours • 1 hour • 12 hours  NOTE: A shorter expiration time requires users to reupload the keys to regenerate the access policy after the expiration.

12. Click **Data Permissions**.

Figure 10: Data Permissions



13. Click **Agency Groups** and assign the appropriate permissions to this role.

 **NOTE:** Any subfolder inherits the assigned permissions.

A list of permissions appears on the right-side panel. Not all these permissions apply to RadioCentral. The following permissions are applicable to RadioCentral:

Table 3: Permissions Applicable to RadioCentral

Permission	Description
Create	Allows the user to create, copy, or upload templates and access policies.
Read	Allows the user to view devices, templates, and access policies.
Update	Allows the user to modify devices, templates, and access policies.
Delete	Allows the user to delete templates and access policies.
Upload	Allows the user to schedule Read jobs.
Download	Allows the user to schedule Write jobs.

- 14. Click **Access Policies** and repeat the permission assignment process such as for Agency Groups.
- 15. To create this new role with the selected permissions, save all changes.

2.2

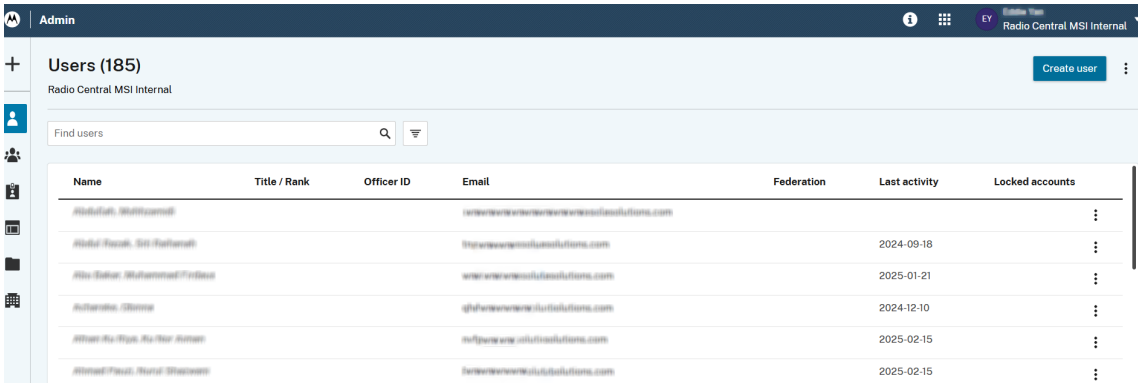
Creating New Users with Groups and Roles

When you create new users, you can assign groups and roles to the user.

Procedure:

- 1. Log on RadioCentral.
- 2. At the top-right corner of the page, click the arrow under your name.
- 3. Click **User Management**.
- 4. At the CommandCentral Admin page, click the **Users** box.
- 5. Click the **Create user** button.

Figure 11: Create User Button



- 6. Enter the name and a valid email address for the user.
This email address is the RadioCentral logon address of the user.

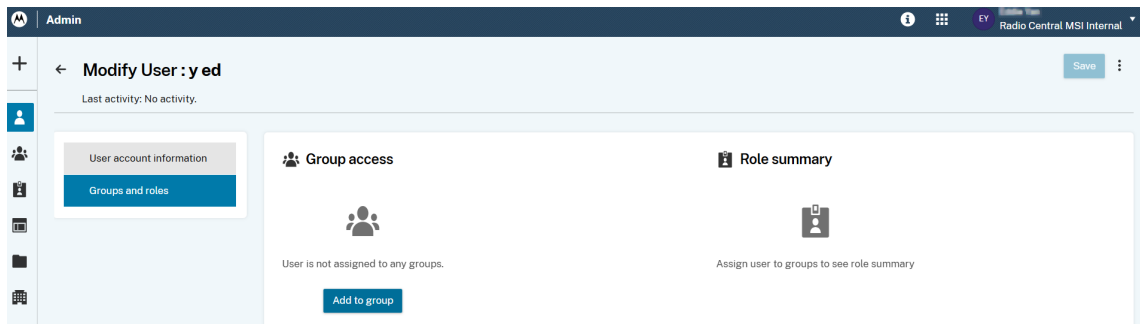
Figure 12: User Account Information

A screenshot of the 'Create user' form in the RadioCentral Admin interface. The form is titled 'Create user' and has a 'Save' button in the top right corner. It is divided into two main sections: 'User account information' and 'Basic information'. The 'Basic information' section includes fields for 'Personal data' (Last name, First name, and an option to add a middle name), 'Email address' (Email address (user name)), and 'Account details' (Authorization type, with options for Password only and Multifactor authentication).

- 7. At the **Authorization type** field, select the preferred option.
- 8. Click **Save**.

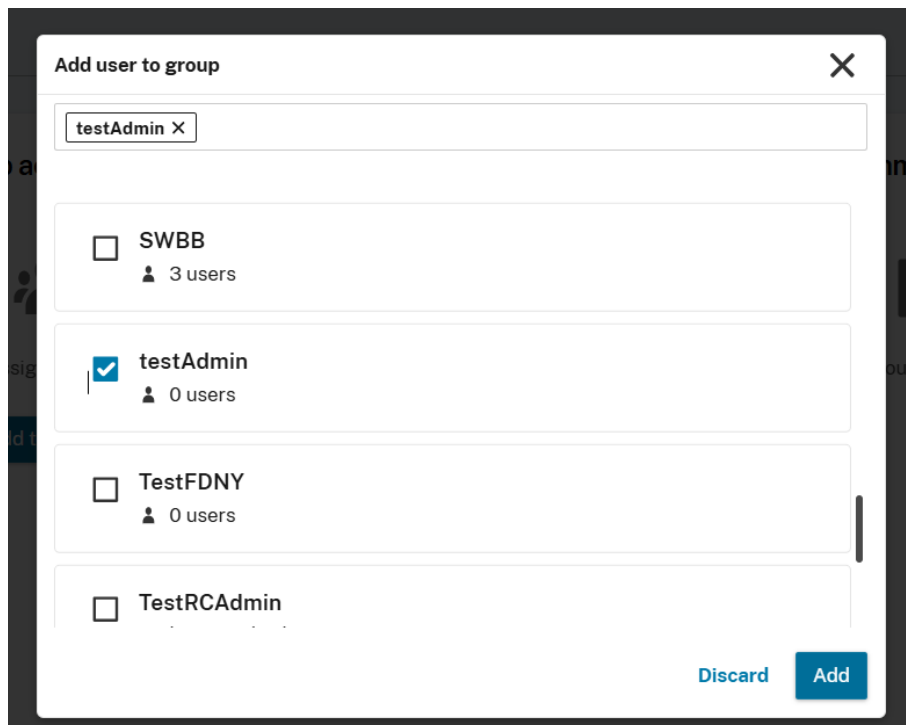
9. On the left pane, click **Groups and roles**.
10. Click **Add to group**.

Figure 13: Add To Group Button



11. Select one or more groups and roles to assign to the user and click **Add**.
If you assign multiple groups and roles to the user, the user has combined permissions from all the selected groups and roles.

Figure 14: Add User To Group Window



Result: The user can log on and operate RadioCentral with the permissions from the assigned groups and roles.

2.3

Updating the Groups and Roles of Users

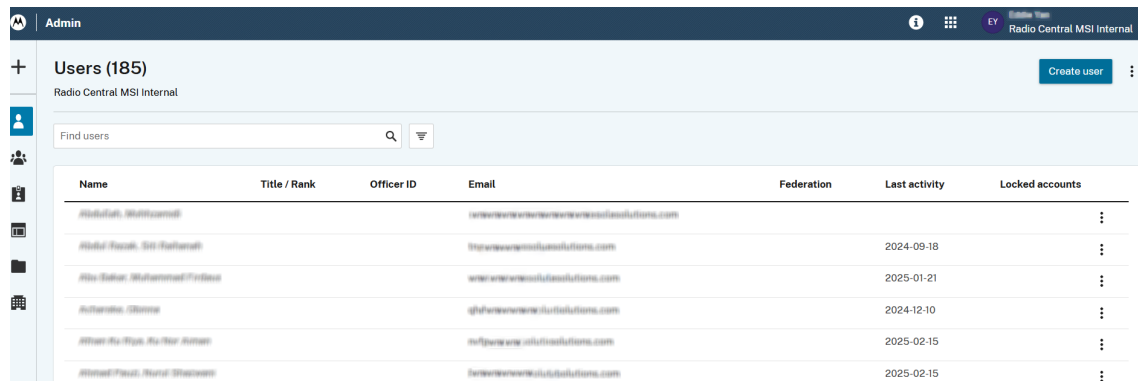
You can add or remove the groups and roles for existing users.

Procedure:

1. Log on RadioCentral.

2. At the top-right corner of the page, click the arrow under your name.
3. Click **User Management**.
4. At the CommandCentral **Admin** page, click the **Users** box.
5. Search for the user and click that row.

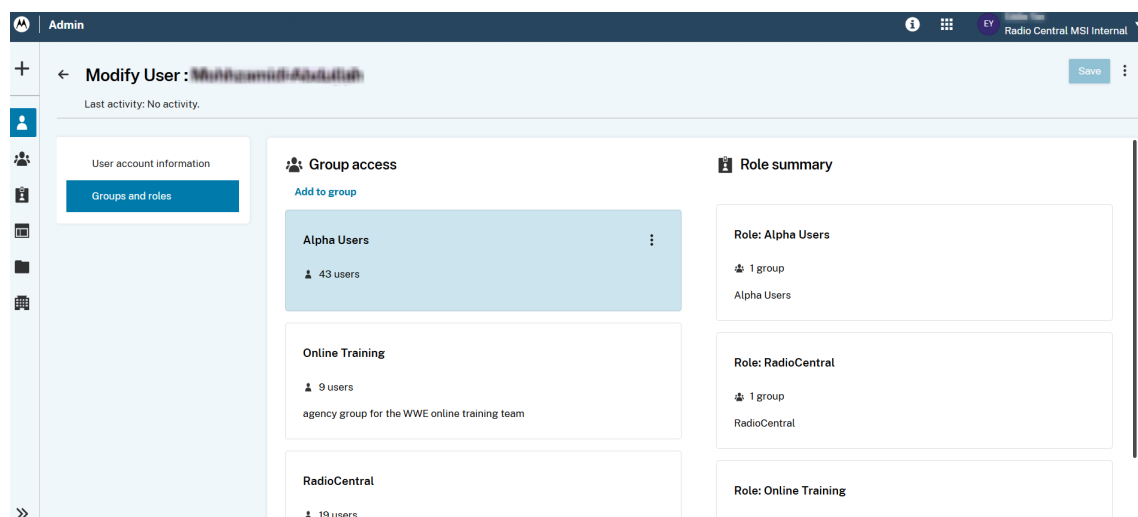
Figure 15: List of Users



- On the left pane, click **Groups and roles**.
- Use the following options:

Option	Actions
Adding the user to a group or role	- Click Add to group. - Select the required group or role. - Click Add.
Removing the user from a group or role	- Select the group or role that you want to remove. - Click the three-dot menu button of the group or role. - Click Remove user from group.

Figure 16: Interface to Add or Remove Groups and Roles from a User



Chapter 3

Cloud Capacity for Radio Programming

The RadioCentral infrastructure includes storage, processing and networking resources that are shared by all customers.

Each RadioCentral deployment is designed and configured to support a variety of radio management functions. A key aspect of this support is the ability to efficiently handle numerous customer radio programming requests concurrently.

There are complex combination of factors that affect programming capacity and processing time including:

- Number of programming requests scheduled at the same time.
- The size and complexity of the codeplug data.
- Type of request such as read, write including Firmware, Configuration and more.

The cloud capacity for programming is therefore determined based on historical data related to these factors, the current size of each deployment, which includes the number of agencies, radios, users, and so on, as well as the projected growth of the ecosystem over time.

Currently, the shared capacity for programming requests is as follows:

- The number of write jobs in any 24-hour period is approximately 12,000.
- The number of read jobs in any 24-hour period is approximately 1,400.



NOTE:

- The factors outlined can affect the actual throughput on any given day.
- The capacity for read jobs is significantly less than the write since it is generally not necessary to read radios when they are programmed only using RadioCentral.

Each environment is continuously monitored, and statistical trends are gathered to assess actual throughput and resource utilization. The overall capacity adjusts over time based on these trends and changes in ecosystem size.

Chapter 4

RadioCentral Overview

RadioCentral is a web-based radio management solution that provides flexible and efficient control over your radio fleet.

You can access your radio fleet through the web client. Your radio can receive firmware, FLASHcode, image files, codeplugs, and more over LTE or Wi-Fi connection.

RadioCentral is offered as subscription service.

4.1

RadioCentral Components

Figure 17: Configuration of RadioCentral



RadioCentral

RadioCentral is a web application that provides you a secured login option to the database. It resides on Microsoft Azure cloud that provides enhanced security, privacy, and availability. The data from RadioCentral database is sent to the APX and APX NEXT series radio through Wi-Fi or LTE.

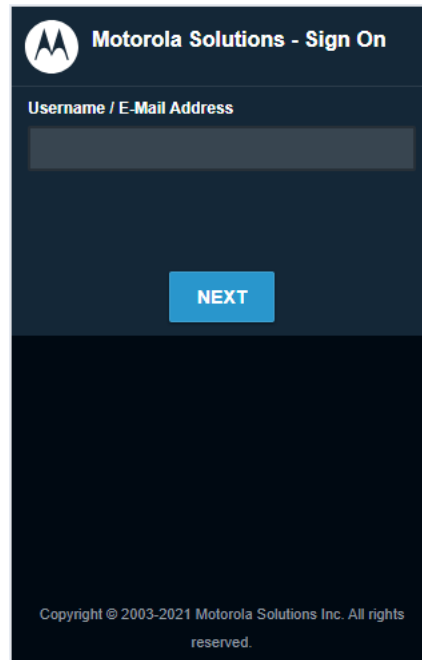
4.2

Accessing RadioCentral

Procedure:

1. Go to one of the following URL:.
 - For US government customer, go to <https://radiocentral.motorolasolutions.com/>.
 - For FedRAMP, go to <https://fed.radiocentral.motorolasolutions.com>.
 - For CCCS, go to <https://sec.radiocentral.motorolasolutions.ca>.
2. Enter your username and password.

Figure 18: Sign On Page

The image shows a mobile application sign-on screen for Motorola Solutions. At the top, there is a dark blue header with the Motorola logo on the left and the text "Motorola Solutions - Sign On" on the right. Below the header, the text "Username / E-Mail Address" is displayed above a dark grey rectangular input field. Centered below the input field is a blue button with the word "NEXT" in white capital letters. At the bottom of the screen, there is a small line of text: "Copyright © 2003-2021 Motorola Solutions Inc. All rights reserved."

NOTE: If multifactor authentication is enabled for your agency, the prompts require you to follow the procedure to get through the second factor authentication.

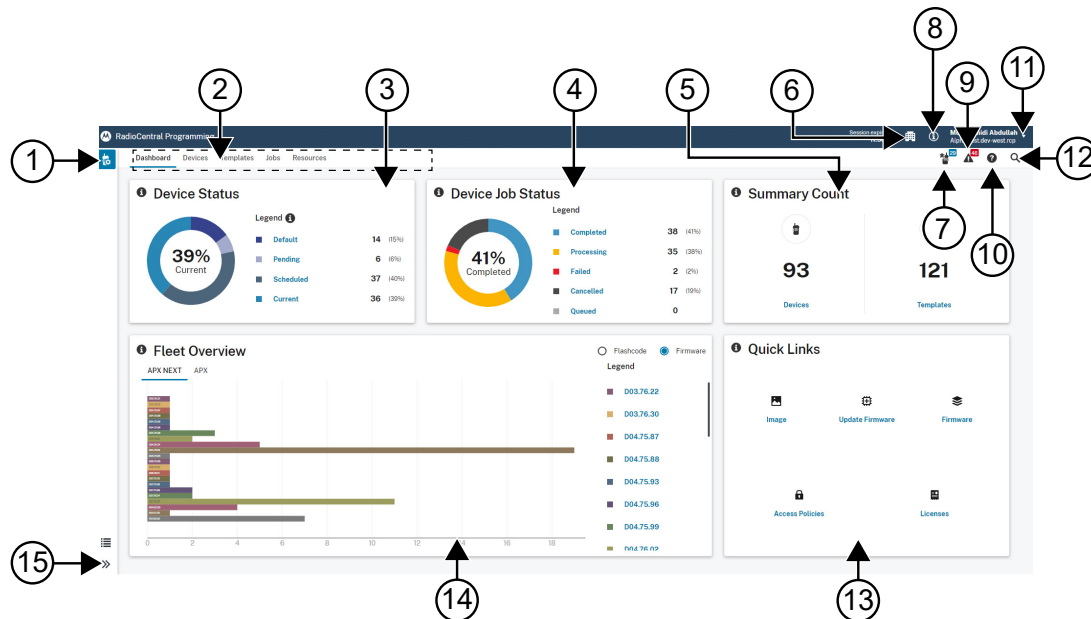
Result: Your display shows the RadioCentral portal.

Chapter 5

Dashboard View

Dashboard view provides fleet level overall insights such as fleet device provisioning status, fleet overall job status, firmware and FLASHcode distribution, and some useful quick links.

Figure 19: Overview of Dashboard



Annotation	Name	Description
1	RadioCentral	Provides access to the RadioCentral application.
2	Menu Bar	Provides access to Dashboard, Devices, Templates, Jobs, and Resources.
3	Device Status	Displays the overview of your devices and their provisioning status.
4	Device Job Status	Displays the overview of your scheduled jobs.
5	Summary Count	Displays the total number of Devices and Templates in your fleet.
6	Agency Group Selector	Displays the list of folders available to load the data.
7	Pending Changes	Displays a list of devices pending changes.
8	Information	Provides access to Feedback, Support, and Training information.
9	Validation Errors	Displays a list of configuration data errors for you to resolve.

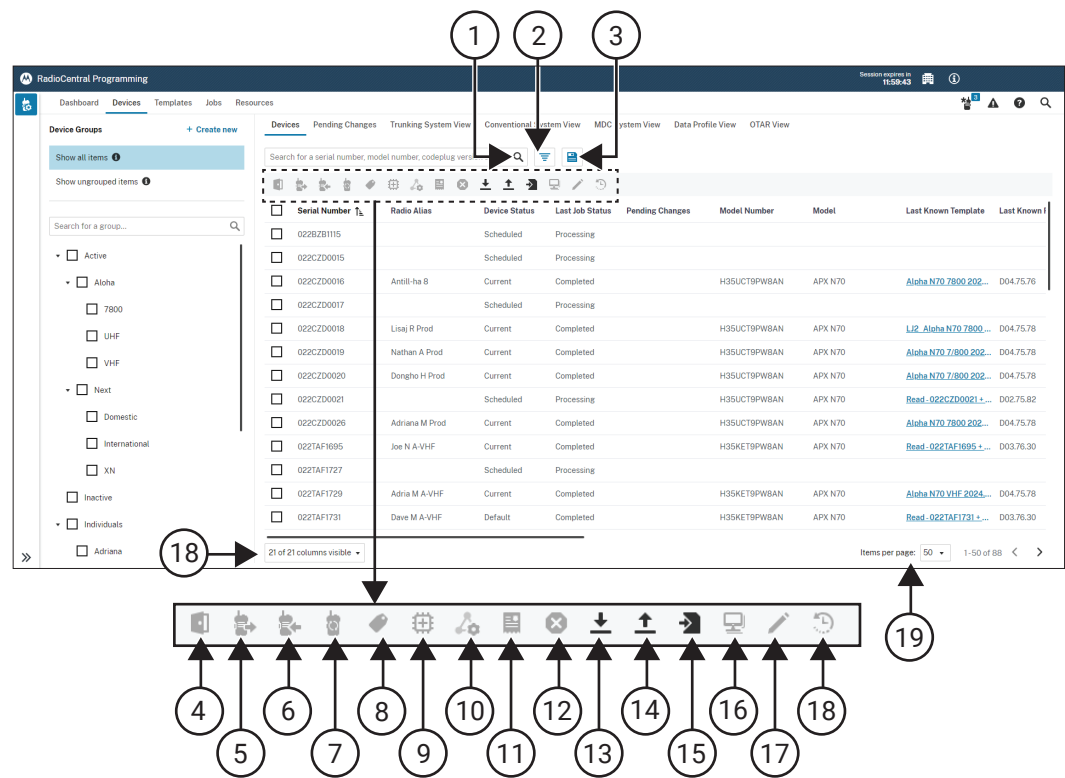
Annotation	Name	Description
10	Online Help	Allows you to access the online help.
11	Log Out	Allows you to log out.
12	Search fields	Allows you to search in RadioCentral.
13	Quick Links	Provides links to quickly access less commonly used features.
14	Fleet Overview	Provides a visualization of your fleet by FLASH-code or Firmware.
15	Expand or Hide Menu	Allows you to expend or hide the side menu.

Chapter 6

Devices View

Devices view provides the complete device list and the corresponding operations that you can perform for the devices.

Figure 20: Overview of Devices



Annotation	Name	Description
1	Search	Allows you to do quick search for information in the device table.
2	Filters	Allows you to create a new filter to narrow down the device list.  NOTE: When setting the filter, you can only use either AND or OR condition.
3	Saved Filters	Shows the list of saved filters.
4	Open	Opens the configuration and information of the selected device.
5	Read Device	Schedules a Read Job for selected radios. The configuration data is updated in the server. If the Apply to Radio option is selected, the configuration data is assigned to the radio through the assigned template and device-specific properties.

Annotation	Name	Description
6	Write Device	Schedules a Write Job for all selected radios.
7	Factory Reset	The radio is restored to the original settings.
8	Assign Labels	Allows you to assign new labels to the selected devices.
9	Assign Firmware	Assigns a firmware to the device.
10	Assign Template	Assigns a template to the device.  NOTE: Template can only be assigned to the device with similar model and CPS version.
11	Assign Features	Allows you to assign feature options to the device.
12	Discard Pending Changes	Delete pending configuration updates.
13	Export xlsx	Exports data of the selected radios to an .xlsx file.
14	Import XLSX	Imports radio data from an .xlsx file.
15	Export to KMF	Exports data of the selected radios to the Key Management Facility (KMF).
16	Export CXF	Allows you to export templates of selected devices as CXF files.
17	Edit in CPS	Allows you to directly edit the selected template in the Customer Programming Software (CPS) without manually exporting and importing the template.
18	Recover License	Allows you to restore device FLASHcode to the value registered in the License Server.
19	Customize column view	Allows you to customize the view of the column. You can change the number of visible columns and move the columns by dragging the column title.
20	Items per page	Allows you to customize the number of rows to display in one page.

6.1

Creating New Label

Procedure:

1. Go to the **Devices** view.
2. Under **Label** section, click **+Create new**.
Create label window displays.
3. Fill in the **Label name** field.
4. Click **Create**.

6.2

Assigning Label to Device

Procedure:

1. Go to the **Devices** view.
2. Under **Devices** tab, select the device.
3. Click on **Assign Labels** icon.
4. Select the label for the label for the device.
5. Click **Apply**.

6.3

Creating Nested Label

Procedure:

1. Go to the **Devices** view.
2. Under **Label** section, select the required label.
3. Click **+ Create nested label**
Create label window displays.
4. Fill in the **Label name** field.
5. Click **Create**.

6.4

Filtering Devices By Labels

Procedure:

1. Go to the **Devices** view.
2. Under **Label** section, select the required label.
The list of the devices under the label displays on the page.

6.5

Scheduling Write Jobs

Procedure:

1. In the **Devices** view, go to **Devices**.
2. Select one or more devices by enabling the checkboxes.
3. Click the **Write Device** icon.

4. Use one of the following options:

Option	Actions
Scheduling jobs that require user confirmation	Select User confirmation .  NOTE: The User confirmation option is selected by default.
Scheduling jobs after a number of power cycles	- Select After a number of power cycles. - Select the number of power cycles before the device accepts the update.
Scheduling jobs that force immediate update	- Toggle on the Force immediate update option. - Read the note to understand this option. - To accept this option, enable the checkbox.

5. Click the **Schedule** button.

Result:

The scheduled jobs appear on the **Jobs** view page.

The job is scheduled based on the option that you select.

Table 4: Job Scheduling

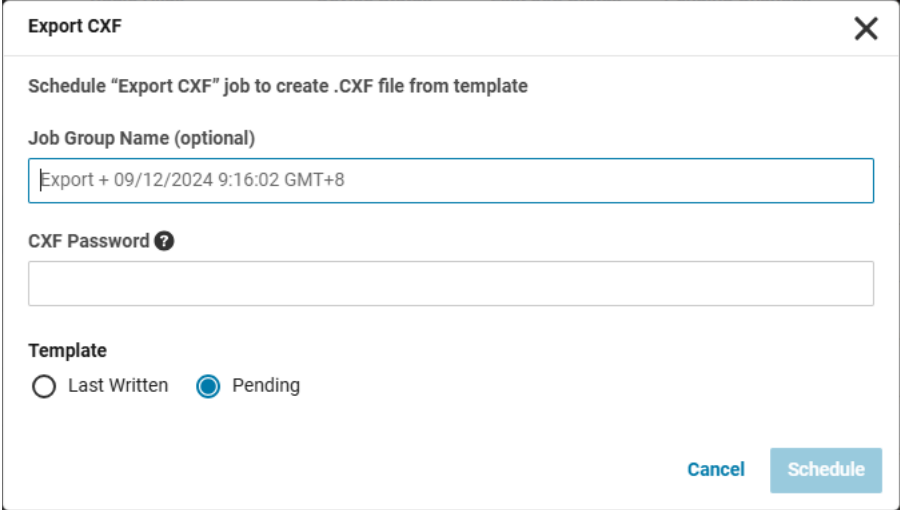
Option	Job Scheduling
User confirmation	The device receives a notification upon initial setup and every time the device is powered up. This notification occurs until the user accepts the update.
After a number of power cycles	The device receives a notification upon initial setup and every time the device is powered up. This notification occurs until the user accepts the update, or until the specified number of power cycles is reached.
Force immediate update	Instantly reboots the device to install the update and overrides the other two options.

6.6

Export CXF

This button allows you to export the selected template as a CXF file. Customer Programming Software (CPS) is able to read and edit CXF files. This feature is applicable to APX NEXT and APX N70.

Figure 21: Export CXF window

The image shows a dialog window titled "Export CXF" with a close button (X) in the top right corner. Inside the window, there is a message: "Schedule 'Export CXF' job to create .CXF file from template". Below this, there is a section for "Job Group Name (optional)" with a text input field containing "Export + 09/12/2024 9:16:02 GMT+8". Underneath is a "CXF Password" field with a question mark icon and an empty text input box. At the bottom, there is a "Template" section with two radio buttons: "Last Written" and "Pending", with "Pending" being selected. In the bottom right corner, there are two buttons: "Cancel" and "Schedule".

6.6.1

Password

The password must be 10 to 32 characters, with a recommended minimum of 16 characters and must not contain leading or trailing spaces.

6.7

Editing Templates in CPS

The **Edit in CPS** button allows you to directly edit the selected template in the Customer Programming Software (CPS) without manually exporting and importing the template.

Prerequisites:



IMPORTANT:

CPS must be installed before performing this procedure. If the CPS is not yet installed, follow the instructions in the dialogue window to perform installation.

First-time users are prompted to install the RC CPS bridge component. An update is required if a newer version is available. Follow the instructions to download and install it.

Procedure:

1. From the **Devices** view, go to **Devices**.
2. Select the preferred device that contains the base template that you want to update.
3. Click the **Edit in CPS** icon.
CPS is automatically launched to open the template.
4. Perform the necessary updates in CPS and correct any validation errors.

5. Click **Publish to RadioCentral** menu in CPS.

Result:

- The user returns to **Job View**.
- **Job View** shows the progress of the **Publish From CPS** job.
- The new template is shown in the **Template** view after the **Publish From CPS** job is successfully completed.
- The new template is linked from the completed **Publish From CPS** job record.



NOTE: If a template with matching contents is found, a duplicate copy is not created. Instead, the job record provides a link to the matching template that is found.

6.8

Exporting Devices Data

The Export XLSX feature enables the export of the devices data in multiple views into password-protected .xlsx file.

Prerequisites: Microsoft Excel must be installed in the computer.

Procedure:

1. From the **Devices** view, perform one of the following actions:
 - To export a certain subset view, go to **Devices** → **Add Filter** → **Set Filter** → **Export XLSX**.
 - To export entire view go to , **Devices** → **Export XLSX**.
2. In the **Export Data** window, specify list of views to export as .xlsx format.
3. Set the password, then click **Export** button.
4. Perform one of the following actions:
 - Click on **View Job** to navigate to job page to monitor the progress.
 - Wait until the job is completed.
5. Perform and save the necessary changes to the exported .xlsx.



NOTE: The saved file must be password-protected for security purposes.

6.9

Importing Devices Data

The Import XLSX feature enables the import of the .xlsx file to update the device data in the corresponding views.

Procedure:

1. From the **Devices** view, go to **Devices** → **Import XLSX**.
2. In the **Import XLSX** window, add the updated .xlsx file as mentioned in [Exporting Devices Data on page 55](#)
3. Fill in the **Owner** and **Password** field.
4. Click the **Upload** button.
5. Check the devices data to ensure that the changes made in the .xlsx file are reflected in the in the corresponding views.

6. If there is error during the import job, go to the **Job Details** page to find the error.
7. Fix the error, then import the .xlsx file again.

6.10

Serial Number

This field indicates the serial number of the selected radio.

6.11

Radio Alias

This field selects recognizable names that identifies this radio.

My Radio Identification menu-selection causes the Radio Alias to appear in the radio's display.

Accessed Only: When the [Radio Alias Enable on page 74](#) field is **Enabled**, and when the radio is model/option capable.



NOTE:

Examples: FTL 32F, NYC 555E, CHI 070P.

Characters, numbers, spaces, and special characters can be used.

The allowable length (number of characters) of the alias is determined by the display size of the radio.

6.12

Model Number

The application retrieves and displays the read-only attached radio's model number.

The model number identifies the type of radio. This information is stored in the radio's codeplug.

6.13

Codeplug Version

The application retrieves and displays the attached radio's current codeplug version number in the the read-only mode.

This is stored in the radio's internal codeplug.

6.14

System ID

This field allows you to view the in-the-field ASTRO 25 - System ID and Type II - System ID for the currently selected Trunking System.

The System Name field selects the desired Trunking System for the current record/row. This value applies to the current Call ID set (record/row) of the current Contact within the Unified Call List. This Call ID set can then be selected from the [Call ID on page 506](#) (ASTRO 25) [Call ID on page 507](#) (Type II) field.

Accessed Only: When the System Name field is not set to **Customized**, and when the radio is model/option capable.

6.15

Peer IP Address

This field allows you to define the Internet Protocol (IP) Address to be assigned to the Mobile Computer (MC) end of the serial link1.

This IP Address is also used to address the MC with over-the-air packet data. This feature applies for the current Conventional - Data Profile.



NOTE:

For Managed Radios this feature is defined in the Subscriber IP Address field.

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Conventional** or **Conventional & Broadband**, the [Auto Generate IP Address on page 331](#) field is **Disabled**, the NAT Enable field is **Disabled** or the Packet Data Mode field is not set to **FNE**, and the radio is model/option capable.

The Network ID octets of this IP Address must match the Network ID octets of the Subscriber IP Address field.

- The Network ID portion of an IP Address is defined as follows:
 - Octet1 is between 0-127, the IP Address = Class A and the Network ID = the first 1 octet
 - Octet1 is between 128-191, the IP Address = Class B and the Network ID = the first 2 octets
 - Octet1 is between 192-223, the IP Address = Class C and the Network ID = the first 3 octets
- This IP Address:
 - Cannot be completely equal to the Subscriber IP Address (see above) for the current Data Profile (record/row),
 - Cannot equal the Bluetooth Subscriber IP Address for the current Data Profile (record/row)
 - Cannot equal the Bluetooth Peer IP Address for the current Data Profile (record/row)
 - Cannot equal the Subscriber Air-Interface IP Address for the current Data Profile (record/row).
- Octet values also:
 - Must be between: [0-255]
 - Cannot all be 0
 - Cannot all be 255

The last octet cannot be 255 which is reserved for directed broadcast for the associated Network ID portion of the Address.

- This IP Address's Default Value = 0 . 0 . 0 . 0, so it must be defined.

6.16

Subscriber IP Address

This field allows you to define the Internet Protocol (IP) Address to be assigned to the Subscriber Unit (SU) end of the serial link1.

This feature applies for the current Conventional Data Profile.



NOTE:

For Managed Radios, this feature is defined in the Subscriber IP Address field.

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or subnets are in use, data features cannot be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Conventional** or **Conventional & Broadband**, the [Auto Generate IP Address on page 331](#) field is **Disabled**, and (when the [NAT Enable on page 321](#) field is **Disabled**, or when the [Packet Data Mode on page 330](#) field is not set to **FNE**), and when the radio is model/option capable.

The Network ID octets of this IP Address must match the Network ID octets of the Peer IP Address field.

- The Network ID portion of an IP Address is defined as follows:
 - Octet1 is between 0-127, the IP Address = Class A and the Network ID = the first 1 octet
 - Octet1 is between 128-191, the IP Address = Class B and the Network ID = the first 2 octets
 - Octet1 is between 192-223, the IP Address = Class C and the Network ID = the first 3 octets
- This IP Address:
 - Cannot be completely equal to the Peer IP Address for the current Data Profile (record/row)
 - Cannot equal the Bluetooth Subscriber IP Address for the current Data Profile (record/row)
 - Cannot equal the Bluetooth Peer IP Address for the current Data Profile (record/row)
 - Cannot equal the Subscriber Air-Interface IP Address for the current Data Profile (record/row)
- Octet Values also:
 - Must be between: [0-255]
 - Cannot all be 0
 - Cannot all be 255
- This IP Address's Default Value = 0.0.0.0, so it must be defined.

6.17

Bluetooth Subscriber IP Address

This field allows you to define the Internet Protocol (IP) Address to be assigned to the Mobile Computer (MC) end of the Bluetooth link.

This feature applies in all cases except Conventional Systems having a selected Data Profile. When a Conventional System has a Data Profile selected in the **Data Profile Selection** field, the Conventional System then uses the Bluetooth Subscriber IP Address defined in the Data Profile **Bluetooth Subscriber IP Address** field.

For Managed Radios, this feature is defined in the RMC **Bluetooth DUN Peer IP** field.



NOTE:

For Managed Radios, this feature is defined in the RMC **Bluetooth DUN Subscriber IP** field.

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or subnets are in use, data features cannot be guaranteed to work reliably.

169 . 254 . X . X . Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169 . 254 . X . X . otherwise this field will be invalid.

Accessed Only:

- When Bluetooth is **Enabled**
- When the **Bluetooth Peer IP Address Assignment Type** field is set to **Dynamic**
- When the radio is model/option capable.

The Network ID octets of this IP Address must match the Network ID octets of the [Bluetooth Peer IP Address](#) field.

- The Network ID portion of an IP Address is defined as follows:
 - When octet1 is between 0-127, the IP Address = Class A and the Network ID = the first 1 octet
 - When octet1 is between 128-191, the IP Address = Class B and the Network ID = the first 2 octets
 - When octet1 is between 192-223, the IP Address = Class C and the Network ID = the first 3 octets
- This IP Address:
 - Cannot be completely equal to the [Bluetooth Peer IP Address](#)
 - Cannot be equal to this page's [Subscriber IP Address on page 58](#) or [Peer IP Address on page 57](#)
- Octet Values also:
 - Must be between: [0-255]
 - Cannot all be 0
 - Cannot all be 255
- This IP Address's Default Value = 192 . 168 . 130 . 1

6.18

Bluetooth DUN Peer IP Address

This field allows you to view or define the Bluetooth Dial Up Network (DUN) Peer Internet Protocol (IP) Address of all radio-codeplug (record/rows) in Radio View.

This IP Address is assigned to the Mobile Computer (MC) end of the Bluetooth (BT) link and is also used to address the MC with over-the-air packet data.



WARNING: This feature applies in all cases except the following:

- [Conventional Systems](#) having a selected [Data Profile](#).
- A Conventional System does have a Data Profile selected in the [Data Profile Selection on page 350](#) field.
- The Conventional System then uses the Peer IP Address defined in the Data Profile View Peer IP Address field.



IMPORTANT: This feature is a non-template type value, from the main application's interface, the Data Wide - [Bluetooth DUN Peer IP Address](#) field is not editable when accessing the application in an Edit Template mode (see Manage Templates).



NOTE:

Each record/row in this Radio View represents one codeplug.

See Radio Management [Column Data Options](#) (Sorting, Hiding and Unhiding columns).

See [Creating and Managing Radio Groups](#).

Accessed Only:

- When Bluetooth is **Enabled**.
- When **Bluetooth Peer IP Address Assignment Type** field is set to **Dynamic**.
- Radio is model/option capable.

The Network ID octets of this IP Address must match the Network ID octets of the [Bluetooth Subscriber IP Address](#) field for the current [Data Profile](#) (record/row).

- The Network ID portion of an IP Address is defined as follows:
 - When octet1 is between 0-127, the IP Address = Class A and the Network ID = the first 1 octet
 - When octet1 is between 128-191, the IP Address = Class B and the Network ID = the first 2 octets
 - When octet1 is between 192-223, the IP Address = Class C and the Network ID = the first 3 octets

The Bluetooth DUN Peer IP Address cannot be the same as the following IP Addresses:

- Bluetooth DUN Subscriber IP Address.
- Bluetooth DUN Peer IP Address.
- Peer IP Address.

The octet values of the Serial Link 1 Subscriber IP Address must comply the following conditions:

- Value is between 0-255.
- Value cannot all be 0.
- Value cannot all be 255.
- Last octet value cannot be 255, which is reserved for directed broadcast for the associated Network ID Portion of the Address.

6.19

Subscriber Air-Interface IP Address

This field allows you to define the Internet Protocol (IP) Address for over the-air-packet data communication with the radio.

This feature applies for the current Conventional - Data Profile.



NOTE:

For Managed Radios this feature is defined in the RMC's Air Interface Subscriber IP Address field.

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Conventional** or **Conventional & Broadband**, the [Auto Generate IP Address on page 331](#) field is **Disabled**, and the radio is model/option capable.

The following applies:

- This IP address:
 - Cannot equal the Bluetooth Subscriber IP Address for the current Data Profile (record/row)
 - Cannot equal the Bluetooth Peer IP Address for the current Data Profile (record/row)
 - Cannot equal the Subscriber IP Address for the current Data Profile (record/row)
 - Cannot equal the [Peer IP Address on page 57](#) for the current Data Profile (record/row)
 - Cannot equal the Data Wide Subscriber IP Address 1 field or the Peer IP Address 1 field
- Octet values also:
 - Must be between: [0-255]
 - Cannot all be 0
 - Cannot all be 255
- This IP Address's Default Value = 0.0.0.0, so it must be defined.

6.20

Custom Power-Up Image

The **Custom Power-Up Image** field allows you to assign an image to the device. When programmed with the assigned image, the radio front display briefly shows the image each time the radio powers on.

To enable this field, you must enable the **Custom Power Up Image Enable** field at **Templates → Radio Wide Collection → Radio Wide** in **Templates** view.

When the **Custom Power Up Image Enable** field is enabled, you must assign an image for **Custom Power-Up Image**. Otherwise, the write job fails.

When the **Custom Power Up Image Enable** field is disabled, the **Custom Power-Up Image** is not applicable.

6.21

Custom Radio Inhibit Display

The **Custom Radio Inhibit Display** field allows you to assign an image to the device. When programmed with the assigned image, the radio front display briefly shows the image each time the radio powers off.

To enable this field, you must enable the **Custom Radio Inhibit Display Enable** field at **Templates** → **Radio Wide Collection** → **Radio Wide** in **Templates** view.

When the **Custom Radio Inhibit Display Enable** field is enabled, you must assign an image for **Custom Radio Inhibit Display**. Otherwise, the write job fails.

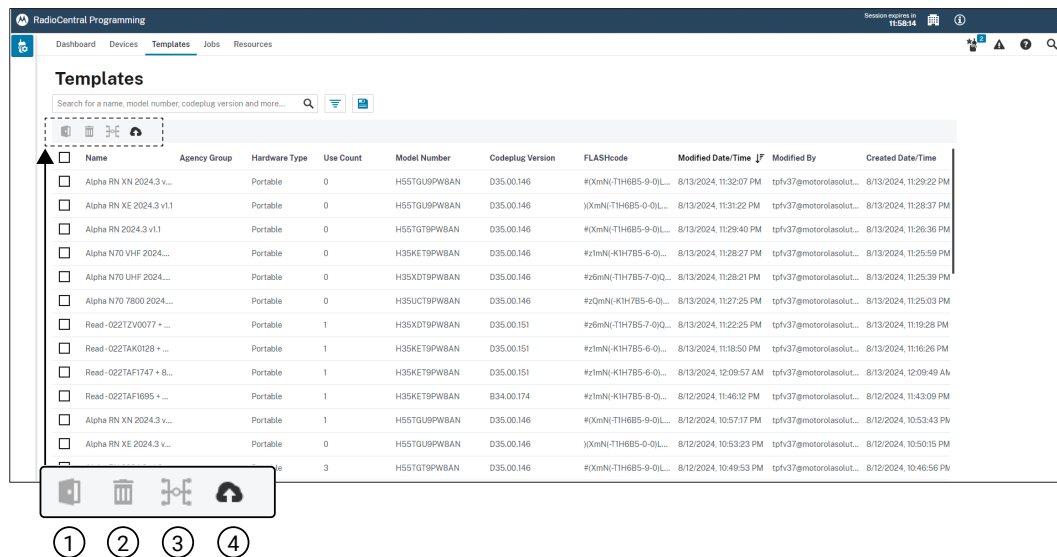
When the **Custom Radio Inhibit Display Enable** field is disabled, the **Custom Radio Inhibit Display** is not applicable.

Chapter 7

Templates View

Templates View displays templates that are accessible to the user. The templates are view-only to prevent accidental changes. If the template requires an update, see [Export CXF on page 54](#) and [Editing Templates in CPS on page 54](#) on how to build a new template.

Figure 22: Overview of Templates



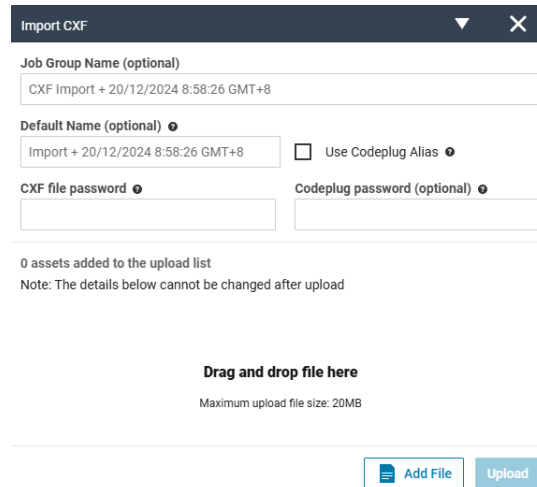
Annotation	Name	Description
1	Open Template	Allows you to open the template to view the information.
2	Delete	Allows you to delete unused templates.
3	Usage	Allows you to view the serial number and radio alias that uses the template.
4	Import CXF	Allows you to import a CXF file from the local computer to the RadioCentral database.

7.1

Import CXF

This button allows you to import a CXF file that Customer Programming Software (CPS) saves in the local computer.

Figure 23: Import CXF window



The screenshot shows the 'Import CXF' window with the following fields and options:

- Job Group Name (optional)**: A text input field containing 'CXF Import + 20/12/2024 8:58:26 GMT+8'.
- Default Name (optional)**: A text input field containing 'Import + 20/12/2024 8:58:26 GMT+8'.
- Use Codeplug Alias**: A checkbox that is currently unchecked.
- CXF file password**: A text input field.
- Codeplug password (optional)**: A text input field.
- Assets**: A section showing '0 assets added to the upload list' and a note: 'Note: The details below cannot be changed after upload'.
- Drag and drop file here**: A large area for dropping files, with a note below it: 'Maximum upload file size: 20MB'.
- Buttons**: 'Add File' and 'Upload' buttons at the bottom right.

7.1.1

Default Name

This field is to input the template name that the user intends to use for the imported CXF file.

7.1.2

Use Codeplug Alias

When this feature is enabled, the codeplug alias value is used as the template name for the imported CXF file. If the codeplug alias is not set in the imported configuration, default name is used for the template.

7.1.3

CXF file password

The password must match the password set at the export stage.

7.1.4

Codeplug password

The password must be 10 to 32 characters, with a recommended minimum of 16 characters.

7.2

Radio Wide Collection

This section allows you to configure parameter settings for features that are on a radio-wide basis.

7.2.1

Radio Wide

This section allows you to view or define radio-wide functionality that applies to both conventional and trunking communication modes.

All features are not common to both communication modes.

7.2.1.1

Log Dispatch Calls Enable

When this field is enabled, IDs received during Dispatch or Scan are logged in the Recent Calls list. When disabled, only IDs received through a Private Call or Call Alert are logged.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.1.2

Ultra Narrow Intermediate Freq Filter

This field selects the appropriate Ultra Narrow Intermediate Frequency Filter Bandwidth value to be used on a radio-wide basis.

The following selections are supported:

7.8 kHz

Designed for radios operating on channels with narrow bandwidths in environments where adjacent channel interference is not a major problem.

5.76 kHz

Designed to provide greater levels of adjacent channel interference protection for radios operating on channels with narrow bandwidths.

7.2.1.3

Programming Path

This field shows that your radio can be programmed by RadioCentral only, or RadioCentral and Customer Programming Software (CPS).



NOTE: This field is only applicable for APX NEXT radios.

7.2.1.4

Block Pending CA/PC

This field enables your call blocking for Call Alert or Private Call.

The first Call Alert or Private Call data received by the unattended radio is held by the radio. Successive Call Alert or Private Call data is ignored unless the source information of the call is identical to the original source data received. This feature applies on a radio-wide basis.

When disabled, the last Call Alert or Private Call data received is the call data that is stored. Therefore, previously stored call information is overwritten in the radio's memory.

7.2.1.5

Rotary Switch (Scan Program)

This field selects which mode element (**Zones** or **Channels**) the Rotary switch on the radio and/or optional Display Remote Speaker Microphone (DRSM) selects while you are operating the radio in the Scan List Programming or Edit mode.

You can access the Scan List Programming or Edit mode with a Long Keypress of the Scan button-press, with a Scan List Programming switch-toggle, or with a Scan List menu-selection. This feature applies on a radio-wide basis.



IMPORTANT: For radios that have a Multi-Function Knob (MFK), this feature is only applicable to the Rotary switch on the optional DRSM accessory.

Accessed Only: When the radio is model or option capable.

The following selections are supported:

- Channel
- Zone

7.2.1.6

Evacuation Tone

This field enables the Evacuation Tone to be heard on the transmitting radio and on any radio that is able to receive the tone instruction.

The tone begins and is transmitted when the PTT button is pressed and held, followed by a press of the "Orange Button". Once the tone begins to sound, if the orange button is released the tone continues to alarm on all radios within the talkgroup, until the PTT button is released.



NOTE:

This evacuation tone instruction is transmitted to the radio entire talkgroup (for the current channel); the type of talkgroup is dependent on the radio's current communications mode. It applies to both analog voice and digital voice channels, in trunking and conventional systems, and both FDMA and TDMA APCO systems.



WARNING: This feature only functions when the current channel is operating in "Clear" mode (not Secure Encryption).

7.2.1.7

Disable Plug and Play

This field disables all the bias voltage from GCAI pins if no GCAI accessory is attached to the radio within 1 minute of power up.



IMPORTANT: If enabled and APX Vehicular Adapter is not connected to the radio after being powered up, the GCAI functionality is disabled. The radio will not be able to detect the present of an APX Vehicular Adapter.

Accessed Only: When the radio is model or option capable.

7.2.1.8

Cyclic Keying

This field enables power ramp up and ramp down of transmit power in order to meet both the ETS-300 and FTZ Cyclic Keying requirements.

This selection applies on a radio-wide basis.



NOTE: Cyclic Keying should be enabled only for radios used in Europe.

7.2.1.9

RF Modem

This field enables the APX NEXT XN radio to operate as a Radio Frequency (RF) Modem. The radio can also track battery levels.

The following selections are supported:

Disabled

This selection disables the radio from operating as an RF Modem.

APCO Project 25 Mode

This selection allows the radio to operate as an RF Modem in APCO Project 25 Mode.

7.2.1.10

Disable Ignition Auto Power Off Alert

When this field is checked, it disables the auto power off audio and visual warnings in the final 2 minutes of the radio powering off due to removal of voltage at Ignition Sense.

This field can be modified when **Ignition Auto Power Off** is accessible and not set to **Disabled**.

7.2.1.11

Display Last Acknowledged User Status or Message

This field allows you to enable or disable the display of the last acknowledged user status or message.

7.2.1.12

Accessory Cable Configuration

This field selects the accessory cable configuration as it applies to the GPIO-3 (General-Purpose Input/Output) and the GPIO-4 pins on the J700 connector of the Mobile radio Transceiver Interconnect Board (TIB).



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The J700 connector is also referred to as the (data-only) Global Common Accessory Interface (GCAI) connector or the Mobile Microphone Port (MMP). This selection applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

4-Wire RS-232 (default)

In addition to the standard RS-232 data lines (TXD and RXD), the GPIO-3 and GPIO-4 pins on the J700 connector provide the accessory cable with access to the two RS-232 hardware flow control lines (RTS and CTS).

2-Wire RS-232 with PTT and HUB

Only 2-wire RS-232 (the TXD and RXD data lines) is available on the radio. The GPIO-3 pin on the J700 connector is configured for Push-to-Talk (PTT). The GPIO-4 pin is configured for Hang-Up Box (HUB) functionality on the accessory cable.

In this configuration, the RS-232 hardware flow control lines (RTS and CTS) are not supported on the J700 connector or the 25-pin J600 connector of the TIB, or on J2, the radio's rear MAP (Mobile Accessory Port).

7.2.1.13

Channel Fallback Enable

This field enables the Auto Channel Fallback feature. This feature allows you to associate a system-based channel with a Fallback Channel. The radio can switch to a Fallback Channel when it is unable to communicate with the Land Mobile Radio (LMR) network.



WARNING: You are **not** recommended to configure a Fallback Channel as a channel on the same system. If the radio automatically cannot communicate with the system on a talkgroup, then the radio is also not able to communicate on a different talkgroup.



IMPORTANT:

The Auto Channel Fallback feature is turned off for all channels by default. After enabling this field, you must choose a Fallback Zone and Fallback Channel for a given channel in the Zone Channel Assignment.

The radio can perform nested fallbacks. If the selected Fallback Channel is unable to communicate with the LMR network, the radio can perform a Channel Fallback if a Fallback Channel is assigned to it.

After the radio performs a Channel Fallback, the radio waits a short duration before attempting another Channel Fallback to avoid switching too frequently.

On a Fallback-enabled channel, the feature can be activated by pressing the **Automatic Channel Fallback Enable/Disable** button. Pressing and holding this button deactivates the feature and reverts the radio back to the last user-selected channel.

Pressing the **Channel Fallback Manual/Revert** button causes the radio to manually switch to the assigned Fallback Channel regardless of current network conditions and activation state. Pressing and holding this button reverts the radio back to the last user-selected channel.

On the following system-based channels, the radio is unable to communicate with the LMR network and switches to the Fallback Channel automatically. On any other channel type, only Manual Channel Fallback is available.

- P25 Trunking
- Type II Trunking
- DVRS-Enabled PSU

7.2.1.14

Overlap Region Band Preference

This field selects the preferred frequency band in a UHF dual-band-capable radio for Rx/Tx frequencies that fall within the overlap region of the two UHF frequency bands, Range 1 (R1) and Range 2 (R2).

This selection applies on a radio-wide basis.



NOTE: The overlap region for UHF R1 and UHF R2 is 450-470 MHz. Therefore, for example, if the Rx/Tx frequencies are set to 450.0625 MHz, the preferred frequency band for these frequencies is defined by this field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

UHF R1

Selects UHF Range 1 (380-470 MHz) as the preferred frequency band for frequencies that fall within the overlap region.

UHF R2

Selects UHF Range 2 (450-520 MHz) as the preferred band for frequencies that fall within the overlap region.

Table 5: Defaults when Dual-Band is UHF R1 Mid Power / UHF R2 Mid Power

Dual Frequency Bands		Default Overlap Region Band Preference
Primary	Secondary	
UHF R2 MP	UHF R1 MP	UHF R2 MP
UHF R1 MP	UHF R2 MP	UHF R2 MP

Table 6: Defaults when Dual-Band is UHF R1 High Power / UHF R2 Mid Power

Dual Frequency Bands		Default Overlap Region Band Preference
Primary	Secondary	
UHF R2 MP	UHF R1 HP	UHF R1 HP
UHF R1 HP	UHF R2 MP	UHF R1 MP

7.2.1.15

Voice Absence Timer

This field selects the amount of time, during a radio transmission, that the Digital Signal Processor (DSP) waits while detecting a lack of voice from the microphone before declaring a No Voice event.

This may be used to trigger End Tx on Voice Absence. This selection applies on a radio-wide basis for all Conventional and Trunking communications channels.

Accessed Only: When the radio is model/option capable.

Table 7: Range

Minimum	Maximum	Increments
5 seconds (default)	60 seconds	1 second

7.2.1.16

External RF Routing

This field is used to determine the RF band that will be routed to the external antenna when the radio is attached to the Vehicular Adapter (VA) or Public Safety Microphone with Antenna (PSM).

This selection applies to Portable radios that support multiple bands. This feature is only editable for multiple bands and uneditable for single band.

The following selections are supported:

7/800

It is valid only if 7/800 MHz is a purchased band.

UHF

It is valid only if either UHF1 or UHF2 is a purchased band.

VHF

It is valid only if VHF is a purchased band. VHF will only be routed externally when a Vehicular Adapter is attached.

ALL_BANDS

Routes all purchased bands externally. Only valid for multiband radios that support the Vehicular Adapter.

7.2.1.17

Radio Certification Type

This feature allows you to configure the Radio Certification Type.

Radio Certification Type is set to None by default. If a mismatched battery is attached, a wrong battery alert is triggered.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

None

Radio supports any kind of batteries.

UL Div 2

Radio only support UL Div 2 certified batteries only.

7.2.1.18

Record Playback Audio Buffer Size

This field specifies the last number of seconds of the current incoming call to be recorded by the Instant Recall feature.

This feature applies on a radio-wide basis. The Instant Recall feature is enabled when this field is set to any value other than **Disabled** default.



WARNING: All calls are recorded for the duration of configured time until next power up cycle or until overwritten by more recent receive audio.

Accessed Only: When the radio is model or option capable.

Table 8: Range

Minimum	Maximum	Increments
10 sec	60 sec	1 sec

7.2.1.19

Power Down Standby Mode (hours)

This feature allows the Land Mobile Radio (LMR) modem to be powered off while the applications processor is in a low-power mode to allow for a quicker device power-up. This feature also allows you to set the time for power down standby mode.

Table 9: Range

Minimum	Maximum	Increments
1 (hour)	8 (hours)	1 (hour)



NOTE: If the radio stays in this mode for the selected duration, the radio is turned off automatically. If the value is set to 0, the radio is powered down immediately. If set to a value other than 0, the radio is kept in a low-power mode for the selected duration. If the radio knob is turned on while the radio is in standby, the radio fully functions within a few seconds.

The radio requires a cold-start power-up in the following shutdown scenarios:

- The battery is disconnected.
- Battery is drained.

- Power Down Standby Mode feature is disabled in the codeplug.
- Radio has been in standby mode for longer than the configured range for Power Down Standby Mode feature.

7.2.1.20

Analog Wideband Data

The Analog Wideband Data (AWD) causes the analog transmit and receive calls to bypass the Digital Signal Processor (DSP) filters as in regular flat audio mode. The filters optimize audio during voice call operation. In AWD mode, audio is processed at 16 KHz sampling rate at all times. In normal analog voice mode, sampling rate is converted to 8 KHz for audio processing.

The AWD prioritizes the key and dekey attack time. This field enables you to use the feature in the Conventional Personality using the radio as a data modem for Transit CAD operations.



WARNING: This field must only be used by XCOMP licensed users. Enabling this feature will disable support for MSI control heads.

7.2.1.21

11.4 kHz VLIF PLOSS

This field selects for better Rx performance.

Accessed Only: When the radio is model or option capable.

The following selections are supported:

Immediate Switching

Fast detection and reduction of adjacent channel interference.

Natural Switching

Detection and smoother reduction of adjacent channel interference.

Fixed High injection

Reduces interference from signals present at 25 kHz lower than the active receive frequency.

Fixed Low injection

Reduces interference from signals present at 25 kHz higher than the active receive frequency.

7.2.1.22

Disable Cloud Services

If this field is enabled, all cloud-based features are disabled. Cloud-based features include Smart Messaging, Smart Mapping, Smart Locate, Virtual Partner, and Geocoded Location Format.

7.2.1.23

ViQi: Virtual Partner Mode



NOTE: This field is only applicable for APX NEXT and APX N70 radios.

The following selections are supported:

Disabled

Disables the Virtual Partner feature from operating.

Broadband

All Virtual Partner requests and responses will only use LTE or Wi-Fi connections.

7.2.1.24

ViQi: Virtual Partner Audio Priority

Configures how the Virtual Partner feedback audio is prioritized against LMR audio.



NOTE: This field is only applicable for APX NEXT and APX N70 radios.

The following selections are supported:

ViQi Only

Plays ViQi at 100% and mutes any LMR RX audio.

ViQi Priority

Plays LMR Rx audio and ViQi audio concurrently. The LMR Rx audio level will be attenuated below the ViQi audio level.

ViQi Equal

Plays LMR Rx audio and ViQi audio concurrently at equal audio levels.

LMR Priority

Plays LMR Rx audio and ViQi audio concurrently. The ViQi audio level will be attenuated below the LMR Rx audio level.

7.2.1.25

ViQi: Virtual Partner Inactivity Timer (sec)

Selects the amount of time that the user will remain inactive in the Virtual Partner feature before exiting and begin listening to the selected dispatch channel.



NOTE: This field is only applicable for APX NEXT and APX N70 radios.

Accessed Only: When **Broadband** is selected in [ViQi: Virtual Partner Mode on page 72](#) field and when the radio is model/option capable.

Table 10: Range

Minimum	Maximum	Increments
5 seconds (default)	255 seconds	1 second



NOTE: While the user is using the Virtual Partner feature, all normal dispatch voice traffic will be missed.

7.2.1.26

SmartMessaging Mode

This field allows the user to select the type of the message transmission routing.

LMR

Messages transmit according to the settings of the Conventional or Trunking channel.



NOTE: LMR is a narrowband network that has limited capability for data intensive applications.

SmartMessaging

Messages transmit through the default broadband messaging application.



NOTE: LTE is a broadband network that can handle data-intensive applications.

7.2.1.27

ViQi: Voice Control Priority

The following selections are supported:

Low

LMR audio has priority. LMR receive audio will cancel or block the voice control feature when the radio is actively receiving.

High

Voice Control has priority. While the voice control button is held down (voice control is active), LMR receive audio will be muted.

Disabled

Voice Control feature is disabled.

7.2.1.28

Custom Power Up Image Enable

This field enables you to upload an image to appear at the end of the power-up sequence.



NOTE:

After enabling the Custom Power Up Image Enable flag, Custom Power-Up Image is assigned at the RCP to make the Custom Splash Screen feature fully functional.

This field is only applicable for APX N70 and APX NEXT radios.

7.2.2

User Information and Passwords

This section allows you to view or define functionality related to **User Information**, **Zone Protection**, **Radio Lock**, **Tactical Inhibit**, and **Password Required**.

7.2.2.1

Radio Alias Enable

This field enables the Radio Alias field.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.3

Codeplug Passwords

7.2.3.1

Archive Read Password Enable

When enabled, the Read/Write Password set for the radio can be archived.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.3.2

Read/Write Password

Allows the user to enter the codeplug Password, thus granting access to the current codeplug's password-protected permissions.

Protected permissions may include any one or all three of the following features:

- reading from the radio
- writing to the radio
- reading a codeplug file

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.3.3

Radio Write Password Enable

When enabled, the user must enter the Read/Write Password set for the radio before any data can be written to the radio.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.3.4

Radio Read Password Enable

When enabled, the user must enter the Read/Write Password set for the radio before any data can be read from the radio.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.4

Radio Wide Alert Tones

7.2.4.1

Alert Tones

This field enables the radio Alert Tone capabilities.

This feature applies on a radio-wide basis.

7.2.4.2

Volume Adjust Tone Offset

This field enables the sampling of the volume level for radio alert tones.

When enabled, the Volume Set Tone button-press allows you to sample the volume level of the radio's alert tones. The alert tone volume can vary from the current volume setting for incoming transmissions based on the Volume Offset (dB) setting. Therefore, when the Volume Set Tone button is pressed, a tone sounds at the current volume level for incoming transmissions plus or minus the Alert Tone Volume Offset amount.



NOTE: The Volume Set Tone follows the Volume Offset (dB) amount only as long as the tone does not go below the Minimum Volume setting.

When disabled, the Volume Set Tone button-press allows you to sample the radio's current volume level for incoming transmissions that unmute to the radio's speaker.

Accessed Only: When the [Alert Tones on page 75](#) field is **Enabled**.

7.2.4.3

Power-Up Self Test Alert Tone

This field enables the radio Self-Test Alert Tone to chirp when the self-test is completed and the radio is ready to transmit or receive.

This feature applies on a radio-wide basis.

Accessed Only: When the [Alert Tones on page 75](#) field is **Enabled**, and when the radio is model/option capable.

7.2.4.4

Scan Alert Tone Enable

This field causes the radio to emit an alert tone each time scan mode is entered or exited with a Scan button-press or Scan switch-toggle.

This alert tone is not applicable for a Scan menu-selection. This feature applies on a radio-wide basis.

Accessed Only: When the [Alert Tones on page 75](#) field is **Enabled**.

7.2.4.5

Call Alert Tone Auto Reset

This field causes the radio to generate just one sequence of the Call Alert tone.

Normally, the Call Alert Tone is a repeating tone. This feature applies on a radio-wide basis.

7.2.4.6

Enhanced Mute Tones Operation

This field selects the types of alert tones, such as keypad tones, that you can disabled (muted).

This Mute feature is available to you with the Mute switch-toggle or Mute menu-selection. This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

The Mute feature is disabled.

Keypad Tones

The Mute feature only mutes keypad and other non-signaling tones.

VA Tones

The Mute feature only mutes Voice Announcements.

All Tones

The Mute feature mutes all signaling and non-signaling tones, including keypad tones, Voice Announcements, talk permit tones, and other tones.

7.2.4.7

Out of Range Tone

This field selects the alert tone that sounds, immediately upon pressing the PTT button, whenever the radio is outside of the coverage range of the Trunking System and cannot sync with a Control Channel.

The alert tone continues to sound for as long as the PTT button is still pressed. See also Out of Range Indicator. This feature applies on a radio-wide basis for Trunking and DVRS-enabled P25 Conventional communications.



IMPORTANT: You can avoid confusion by selecting a desirable tone that is different from the Talk Prohibit Tone.

Accessed Only: When the radio is model or option capable.

The following selections are supported:

OOR Tone 1

The radio plays the legacy Out of Range tone.

OOR Tone 2

Repeating 800 Hz alert tone.

7.2.4.8

Talk Prohibit Tone

This field selects the alert tone that sounds whenever radio transmissions are not allowed, either immediately upon pressing the PTT button, or when the preset Time Out Timer has expired and the radio ends the current transmission.

The alert tone continues to sound for as long as the PTT button is still pressed. This feature applies on a radio-wide basis.

Accessed Only: When the radio is model or option capable.



IMPORTANT: You can avoid confusion by selecting a desirable tone that is different from the Out of Range Tone.

The following selections are supported:

TP Tone 1

Legacy continuous 300 Hz alert tone.

TP Tone 2

Repeating 600 Hz alert tone.

7.2.4.9

PTT Warning Tone

This field selects the alert tone that sounds whenever the following conditions are met:

- The Push-to-Talk (PTT) Warning Timer expires.
- The PTT is depressed while the radio is performing the Inbound Signal Data (ISD) sequence or the Response Pending Timer is active.

The alert tone starts sounding anytime after the conditions are met. The alert tone stops when one of the following situations occurs:

- You release PTT after the PTT Warning Timer expires.
- The radio receives the appropriate grant.
- The radio is busy after the PTT Warning Timer expires.

The following selections are supported:

PTT Warning Tone 1

The radio plays the legacy talk prohibit tone.

PTT Warning Tone 2

The radio plays a repeating 500 Hz alert tone with 100 ms (on) and 700 ms (off).

7.2.4.10

RSM Volume Set Tones

This field allows you to select the alert tone when pressing the button or rocker for volume adjust on a portable radio Remote Speaker Microphone (RSM).

This feature applies on a radio-wide basis.

Table 11: Types of Tones Selection

Tone Selection Types	Description
Volume Set Tone 1	Supports the 911 Hz feedback alert tone. Legacy behavior.
Volume Set Tone 2	Supports the 410 Hz feedback alert tone. Same as the mobile volume set tone.



NOTE: You can select Volume Set Tone 2 to differentiate from the MDC PTT-ID sidetone. Some RSMs are not affected by this field and always play Volume Set Tone 2.

7.2.4.11

Low Battery - LED

This field enables the radio to visually notify you when the radio's battery is running low.

That is, the Transmit LED flashes red when a low battery condition is detected and only while the radio is transmitting. The feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.4.12

Low Battery Tx Chirp

This field enables the radio to sound a beep immediately after the PTT button is released, but only when a low battery condition is detected during the transmission.

See also [Standby Chirp \(sec\) on page 78](#).



IMPORTANT: For Mobile radios, see the DEK VIP Input or Radio VIPs Input "Low Battery Alert" selection.

Accessed Only: When the radio is model/option capable.

7.2.4.13

Standby Chirp (sec)

This field selects how often the radio sounds the Standby low battery alert chirp (a short, high-pitched tone).

Your valid direct entries are also allowed.



IMPORTANT: For Mobile radios, see the DEK VIP Input or Radio VIPs Input **Low Battery Alert** selection.

Accessed Only: When the radio is model/option capable.

Table 12: Range

Minimum	Maximum	Increments
0 seconds	930 seconds	30 seconds

7.2.4.14

Smart-Low Battery Alert

This field selects the point at which the radio's battery power level causes a low battery chirp to be heard.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model or option capable.

The following selections are supported:

Standard

10% battery power left.

Early Warning

15% battery power left.

7.2.5

Location

This section allows you to view or modify settings related to any radio-based (or radio accessory-based) location-determining technology.

For example, Global Positioning System (GPS) is a location-determining technology.

7.2.5.1

Location Enable

This field enables the GPS receiver in the radio for all Location-related features including Location Request Response Protocol (LRRP) requests from the Fixed Network Equipment (FNE) and the Location menu.

The Location menu is available to you with the Location button-press or Location menu-item selection.



NOTE: LRRP is a Motorola Solutions Proprietary protocol used to exchange location information (longitude and latitude) between the radio and a data device such as a Mobile Computer in the Customer Enterprise Network (CEN). This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.5.2

SmartLocate Reporting

This field allows you to select the operation of SmartLocate Reporting.

The following selections are supported:

LMR Only

When [Location Enable on page 79](#) is enabled, the radio is configured to report device location using Motorola Solutions proprietary Location Request Response Protocol (LRRP) over ASTRO system to Command Central Aware.

Broadband Only

When this selection is enabled, the radio is configured to report device location as device-to-cloud telemetry messages using Broadband (WiFi or Cellular LTE) service to Command Central Aware.

Broadband Preferred

When [Location Enable on page 79](#) is enabled and Broadband service is available, the radio is configured to report device location as device-to-cloud telemetry messages using Broadband service to Command Central Aware. If Broadband service is not available, the radio is configured to report device location using Motorola Solutions proprietary Location Request Response Protocol (LRRP) over ASTRO system to Command Central Aware.

Accessed Only: When the [Location Enable on page 79](#) field is enabled, and when the radio is model/option capable.

7.2.5.3

User Selectable Location Enable

This field enables you to turn the radio's location functionality ON or OFF on a radio-wide basis.

Location may be used in conjunction with a location-determining technology such as Global Positioning System (GPS).



WARNING: The Location menu is available to you with the Location button-press or Location menu-selection. One of these controls must be programmed, otherwise, this field will be invalid. This feature applies on a radio-wide basis.

Accessed Only: When the [Location Enable on page 79](#) field is enabled, and when the radio is model/option capable.

7.2.5.4

Location Display Format

This field selects the format for viewing and editing the coordinates in the location menu and to display location formats.



WARNING: The Location menu is available to you with the Location button-press or Location menu-item selection. This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable, and when the [Location Enable on page 79](#) field or the [Display Peer Location](#) field is enabled.

The following selections are supported:

- Latitude/Longitude (DMD)
- Latitude/Longitude (DMS)
- Latitude/Longitude (DD)
- UTM
- MGRS (Military Grid Reference System)

7.2.5.5

Distance Unit

This field selects the unit of measurement to be used when displaying the distance between waypoints in the radio's Location menu.

The Location menu is available to you with the Location button-press or Location menu-item selection. This feature applies on a radio-wide basis.

Accessed Only: When the [Location Enable on page 79](#) field is enabled, and when the radio is model/option capable.

The following selections are supported:

- Kilometers
- Miles

7.2.5.6

P25 Location Reporting

This field enables the radio to process Location Request or Response Protocol (LRRP) messages using the Project 25 (P25) Location Reporting data format, in addition to the legacy Motorola Location Reporting data format.

This is required when the radio exchanges LRRP location information with a Location Server within a Conventional or Trunking communications infrastructure that is only compliant with P25 Tier 2 Location Services Specifications (as published by the Telecommunications Industry Association). This feature applies on a radio-wide basis.

When disabled, the radio only supports LRRP messages using the legacy Motorola Location Reporting data format.



NOTE:

When the Location Server communicates with the radio at the port specified in the P25 Location Reporting UDP Port field, then the radio interprets the data as being P25 Location Reporting data (the default P25-specified port number for this port is 49198).

When the Location Server communicates with the radio at static port 4001, then the radio interprets the data as "Motorola legacy Location Reporting" data.

When the Location Server makes a request for location information from a radio at the port specified in the P25 Location Reporting UDP Port field, then the radio interprets the data as being P25 Location Reporting data (the default P25-specified port number for this port is 49198), and the radio encodes or decodes the LRRP messages between the radio and the Location Server using the "P25 Location Reporting" data format.

Direct Location Registration feature allows the radios to send the Presence notification to the Location Server when the ARS application is not present, by using the "Protocol Version Messaging" LRRP message which is encoded using "P25 Location Reporting" method.

Accessed Only: When the [Location Enable on page 79](#) field is enabled, and when the radio is model/option capable.

7.2.5.7

Mapping Mode

Mapping Mode allows the user to view their location or location of others on the map.

Accessed Only: When the [Location Enable on page 79](#) field is enabled.

The following selections are supported:

- None
- SmartMapping

7.2.5.8

Server Assisted Location

When enabled, the radio uses a broadband internet connection to provide the location of the radio. When GNSS is unavailable, telemetry data is sent to the location server to approximate the position of the radio. Locations are sent to the location server for reverse geocoding.

Accessed Only: When the [Location Enable on page 79](#) field is enabled.

7.2.5.9

Geocoded Location Format

Geocoded Location Format allows user to select format for reverse geocoding.

Accessed Only: When the [Location Enable on page 79](#) field is enabled.

The following selections are supported:

- Disabled
- Street Address
- Intersection

7.2.5.10

Display 6-Figure UTM

This field appends the 6-figure UTM reference to the UTM location display when enabled.

Accessed Only:

- **Location Enable** field is enabled.
- **Peer-Location** is enabled on display.

7.2.6

Radio Wide Audio Options

7.2.6.1

Concurrent Rx Enable

This field enables the radio to remain unmuted even when multiple transmissions occur at the same time and on the same channel.

This is only true when operating on analog Direct/Talkaround channels. These simultaneous transmissions are only heard when their received signal strengths are relatively strong and equal. This feature applies on a radio-wide basis.



IMPORTANT:

Enabling this feature will cause some weak signals that are normally received by the radio to remain muted; therefore, it is only recommended to enable this feature if the ability to receive concurrent transmissions has been identified as necessary.

For radio models containing firmware prior to version R12.00.00, this feature is applicable only to 25 kHz channels (see also the Tx Deviation/Channel Spacing field). For radio models with R12.00.00 firmware or later, this field applies to both 12.5 kHz and 25 kHz channels.



NOTE: The audio from these concurrent transmissions is mostly unintelligible. Receiving simultaneous transmissions is sometimes needed when managing on-scene incidents where it may be very important to receive all communications. For example, having this feature enabled may be crucial to incident management where analog-only communications are used, chaotic conditions are expected, and any received transmission is better than no transmission at all.

7.2.6.2

Tx Digital/Analog Balance

This field enables the audio transmission level to equalize or balance when switching between analog and digital.

This feature may be applied on a radio-wide basis or a per Radio Profile basis.



WARNING: When **Radio Wide** is selected, Digital AGC (Radio), Analog AGC (Radio), Digital AGC (Accessory), and Analog AGC (Accessory) must be "Disabled" for each record of Radio Profiles; otherwise, this selection is considered invalid.

The following selections are supported:

Off

The feature is disabled.

Radio Wide

Balancing of the audio transmission level occurs on a radio-wide basis.

Per Profile

With this selection, the Digital/Analog Balance field may then be enabled or disabled on any of the existing Radio Profile records.

7.2.6.3

Audio Configuration Level

This field allows you to configure the radio's audio level.

Accessed Only: This is a setting which is only available in Full View (see Codeplug View).

The following selections are supported:

Enhanced

Enables the audio enhancement feature.

If you make the selection from **Enhanced** to **Basic**, then Gain Sensitivity Group Settings values and Audio Equalization Group Settings (Speaker) values are synchronized from the Radio column to the Accessory column.

Basic

Choosing **Basic** disables the audio enhancement feature, and the following fields are non-applicable:

The following fields are non-applicable:

- Digital Low Frequency Band for both Radio and Accessory
- Digital Mid Frequency Band for both Radio and Accessory
- Low Frequency Band for Radio and Accessory
- Digital High Frequency Band for Accessory
- Mid Frequency Band for Radio and Accessory
- Securenet Low Frequency Band for both Radio and Accessory
- High Frequency Band for both Radio and Accessory
- Securenet Mid Frequency Band for both Radio and Accessory
- Audio Equalization Group Settings (Mic)
- Analog Low Frequency Band for both Radio and Accessory
- Audio Equalization Group Settings (Speaker)
- Analog Mid Frequency Band for both Radio and Accessory

The following fields are non-editable:

- AGC Gain Control Output for Accessory
- AGC Gain Control Total for Accessory
- Digital / Analog Balance for Accessory
- Analog High Frequency Band for Accessory
- Securenet High Frequency Band for Accessory
- Digital High Frequency Band for Accessory

7.2.6.4

Combine Tx with Rx Filtered Audio

When this field is enabled, Tx audio is combined with Rx audio on the filtered Rx audio output line.

When disabled, only the Rx filtered audio will be available. For TXM3000, this controls the audio provided to the audio recorder output port.

7.2.6.5

Select Bluetooth Mic for Aux PTT Audio Source

This field allows you to select the Bluetooth microphone as the source if the PTT audio source is auxiliary (Aux).

Aux PTT Audio Source selection is used for PTT audio if the Bluetooth microphone is not connected.

7.2.6.6

Noise Sensing Volume Control

If this field is enabled, the radio automatically sets the speaker volume to a level appropriate for the listening environment.

This feature is not supported on wireless speakers or wired Radio Speaker Microphones (RSM).

Accessed Only: When the radio is model or option capable.

7.2.7

Radio Wide Tx Power Levels

This section allows you to set the **Band Plan Selection** and view or define transmit (Tx) low and transmit high power settings, within pre-defined limits within the Transmit Power Levels table.

Within the 7/800 MHz frequency band, certain public safety frequencies have been rebanded as part of the latest Federal Communications Commission (FCC) 7/800 MHz band plan.



IMPORTANT:

There are unique Transmit Power Level configurations (records/rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug apply and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

See the "Ultra Low Power" (ULP) used in codeplug important note for the SRX 2200 radio.

Accessed Only: When the radio is model/option capable, and when the **Band Plan Selection** field is set to **New**.



NOTE:

To fully comply with regulatory output power level requirements, Part 80 Marine users operating between 154 – 162.025 MHz (VHF Band) and 454 – 470 MHz (UHF Band) must program the transmit power from the defaults to a level not exceeding the values given in the table below.

Note that this reduced power restriction applies only to certain models of the radio and strictly for Part 80 Marine frequencies. Also, check your license for any additional restrictions on output power.

Product Family Description	FCC/IC	Frequency Range/Output Power
APX Next	AZ489FT7147/109U-89FT7147	156 – 162.025 MHz/5 W 454 – 470 MHz/2 W
APX8500 High Power	AZ492FT7118	156 – 162.025 MHz/5 W 454 – 470 MHz/3.2 W
APX8500 Mid Power	AZ492FT7089/109U-92FT7089	156 – 162.025 MHz/50 W 454 – 470 MHz/1 W
APX4500/APX6500 Mid Power (VHF)	AZ492FT7130/109U-92FT7130	156 – 162.025 MHz/47.5 W
APX4500/APX6500 Mid Power (UHF R1)	AZ492FT7129/109U-92FT7129	454 – 470 MHz/1 W

7.2.7.1

Power Levels

This field determines the number of power levels to be used in the Tx Power Level Table.

Accessed Only: For this field to be visible, the **4 Power Level Capable PCI** field must be enabled.

The following selections are supported:

- 2 Power Levels
- 4 Power Levels

7.2.7.2

Frequency Band

The application retrieves and displays the read-only frequency band, where each range has a unique Transmit Power Level configuration (record/row).

The current frequency range is defined by [Frequency Range Start \(MHz\) on page 87](#) and [Frequency Range End \(MHz\) on page 88](#). Dual-band radios have support for more than one frequency band (see also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio). This value applies on a radio-wide basis.



IMPORTANT: There are unique Transmit Power Level configurations (records/rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified.

Accessed Only: When the radio is model/option capable, and when (if applicable) the [Band Plan Selection](#) field is set to **New**.

7.2.7.3

Tx Power Level High (W)

This field allows you to enter the Tx (transmit) high power level.

This value applies only to channels in the frequency band of the current record / row.



WARNING: Tx Power Level High must be less than or equal to [Tx Power Level Maximum \(W\) on page 88](#), and greater than or equal to [Tx Power Level Medium-High \(W\)](#), [Tx Power Level Medium-Low \(W\)](#), [Tx Power Level Low \(W\) on page 87](#), and [Tx Power Level Minimum \(W\) on page 88](#).



IMPORTANT:

There are unique Transmit Power Level configurations (records / rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

If the Tx high power setting is increased, current limits must be re-tuned using the Tuner application so that the desired power level can be achieved.

If the Tx high power setting is decreased, current limits may be re-tuned to increase current-limiting protection.

Accessed Only: When (if applicable) the [Band Plan Selection](#) field is set to **New**.

7.2.7.4

Tx Power Level Medium-High (W)

This field allows you to enter the transmit (Tx) medium-high power level.

To be valid, Tx Power Level Medium-High (W) must be greater than or equal to [Tx Power Level Minimum \(W\)](#), [Tx Power Level Low \(W\)](#), and [Tx Power Level Medium-Low](#), and less than or equal to [Tx Power Level High \(W\)](#) and [Tx Power Level Maximum \(W\)](#).

Accessed Only: If applicable, when the **Band Plan Selection** field is set to **Old** and **Number of Tx Power Levels** is set to **4 Power Levels**.

7.2.7.5

Tx Power Level Medium-Low (W)

This field allows you to enter the transmit (Tx) medium-low power level.



WARNING: To be considered valid, Tx Power Level Medium-Low (W) must be greater than or equal to [Tx Power Level Minimum \(W\)](#) and [Tx Power Level Low \(W\)](#), and less than or equal to [Tx Power Level Medium-High \(W\)](#), [Tx Power Level High \(W\)](#), and [Tx Power Level Maximum \(W\)](#).

Accessed Only: If applicable, when the **Band Plan Selection** field is set to **Old** and **Number of Tx Power Levels** is set to **4 Power Levels**.

7.2.7.6

Tx Power Level Low (W)

This field allows you to enter the Tx (transmit) low power level.

This value applies only to channels in the frequency band of the current record / row.



WARNING: Tx Power Level Low must be greater than or equal to [Tx Power Level Minimum \(W\) on page 88](#), and less than or equal to [Tx Power Level Medium-Low \(W\)](#), [Tx Power Level Medium-High \(W\)](#), [Tx Power Level High \(W\) on page 86](#), and [Tx Power Level Maximum \(W\) on page 88](#).



IMPORTANT: There are unique Transmit Power Level configurations (records / rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

Accessed Only: When the radio is model/option capable, and when (if applicable) the [Band Plan Selection](#) is set to **New**.

7.2.7.7

Frequency Range Start (MHz)

The application retrieves and displays the read-only Frequency Range Start value for the frequency band of the current record/row.

These values are fixed for this radio model. This value applies on a radio-wide basis.



IMPORTANT: There are unique Transmit Power Level configurations (records/rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

Accessed Only: When the radio is model/option capable, and when (if applicable) the [Band Plan Selection](#) field is set to **New**.

7.2.7.8

Frequency Range End (MHz)

The application retrieves and displays the read-only Frequency Range End value for the frequency band of the current record/row.

These values are fixed for this radio model. This value applies on a radio-wide basis.



IMPORTANT: There are unique Transmit Power Level configurations (records / rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

Accessed Only: When the radio is model/option capable, and when (if applicable) the [Band Plan Selection](#) field is set to **New**.

7.2.7.9

Tx Power Level Minimum (W)

The application retrieves and displays the read-only Tx Power Level Minimum value.

This value is fixed for this radio model, and applies only to channels in the frequency band of the current record / row.



IMPORTANT: There are unique Transmit Power Level configurations (records / rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

Accessed Only: When the radio is model/option capable, and when (if applicable) the [Band Plan Selection](#) field is set to **New**.

7.2.7.10

Tx Power Level Maximum (W)

The application retrieves and displays the read-only Tx Power Level Maximum value.

This value is fixed for this radio model, and applies only to channels in the frequency band of the current record / row.



NOTE: There are unique Transmit Power Level configurations (records / rows) for each of the possible frequency ranges within a given frequency band. However, only those Transmit Power Level configurations for the frequency band (or bands) supported by the current codeplug applies and, in some cases, can be modified. See also Primary Frequency Band and Secondary Frequency Band for the frequency band(s) supported by the radio.

Accessed Only: When (if applicable) the [Band Plan Selection](#) field is set to **New**.

7.2.8

Tactical Public Safety

This section allows you to view or modify Tactical Public Safety (TPS) parameters.



NOTE: TPS settings are then defined on an individual Conventional Personality basis. See the Conventional Personality, Incident Signaling Type and Tactical Public Safety UI Enable fields.

Accessed Only: When the radio is model/option capable.

7.2.8.1

Voice Tx End Tone

This field enables the radio to sound an alert tone at the end of a voice transmission.

This tone sounds once the PTT button is released for both Conventional analog and digital mode (see the Tx Voice/Signal Type field), independent of any Incident Signaling Type selection, including "Disabled". This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

7.2.8.2

Audible Emergency Beacon

This field enables you ability to generate emergency alert tones during an Emergency Mode transmission; and allows you to select the amount of time between these unique repeating tones.

These alert tones play from the radio's speaker to provide an audible search-and-rescue mechanism that continues until you cancel the emergency: see also Audible Emergency Beacon Routing. This selection applies on a radio-wide basis. Time is in seconds.



IMPORTANT:

For Mobile radios, the Emergency Beacon sounds at the radio's current volume level.

For Portable radios, the Emergency Beacon sounds at the radio's maximum volume level setting.

Applies only:

- When the radio is operating in Emergency Mode and only when operating on a Conventional Personality where the Tactical Public Safety UI Enable field is enabled.
- (For Mobile radios only) When the "Audible Emergency Beacon" Extended Feature appears in the Extended Feature Name field.

Accessed Only: When the radio is model/option capable.



NOTE: Audible Emergency Beacon is disabled when set to **0 -Disabled** (default).

Table 13: Range

Minimum	Maximum	Increments
1 (seconds)	255 (seconds)	1 second

7.2.8.3

Audible Emergency Beacon Routing

This field selects the routing of "Audible Emergency Beacon" alert tones and incoming audio to a specific speaker when an Emergency Mode transmission is active.

This selection applies on a radio-wide basis.

Applies only: When the radio is operating in Emergency Mode and only when operating on a Conventional Personality where the Tactical Public Safety UI Enable field is enabled.

Accessed Only:

- When the "Audible Emergency Beacon Routing" Extended Feature appears in the Extended Feature Name field.
- When the [Audible Emergency Beacon on page 89](#) field is not set to **Disabled**.
- When the radio is model/option capable.

The following selections are supported:

External Speaker

Emergency Beacon alert tones are routed to an External Speaker (if attached, otherwise the Internal Speaker is used)

Internal Speaker Only

Emergency Beacon alert tones sound on the Internal Speaker only (regardless of External Speaker availability).

7.2.8.4

Emergency Alarm Retry Rate

This field selects the amount of time that the radio waits between Emergency Alarm Retry transmissions. This selection applies on a radio-wide basis.



NOTE:

Once Emergency Mode is entered on a Conventional Personality, this wait time applies to both the Polite and Impolite Emergency retries defined in the referenced Conventional Emergency Profile of the Personality's referenced Conventional System.

Emergency Alarm Retries then continue until an acknowledgment (Ack) of a successful emergency transmission is received back to the radio or until the number of Polite and Impolite Emergency retries has been exhausted.

Applies only: When the radio is operating in Emergency Mode and only when operating on a Conventional Personality where the Tactical Public Safety UI Enable field is enabled.

Accessed Only: When the radio is model/option capable.



NOTE: Emergency Alarm Retry Rate is disabled when set to **4 -Disabled** (default).

Table 14: Range

Minimum	Maximum	Increments
5 (seconds)	64 (seconds)	1 second

7.2.8.5

Emergency Call De-key Sidetone

This field enables the radio to sound a unique alert tone reminding you that Emergency Mode is still active. This alert tone sounds when you release the PTT button from an Emergency Call transmission.



IMPORTANT:

For Mobile radios, this Emergency Sidetone sounds at the radio's current volume level.

For Portable radios, this Emergency Sidetone sounds at the radio's Maximum Volume setting (see also Volume Offset (dB)).

Applies only: When the radio is operating in Emergency Mode and only when operating on a Conventional Personality where the Tactical Public Safety UI Enable field is enabled.

Accessed Only: When the radio is model/option capable.

7.2.8.6

TPS PTT Transmission

This field selects when a Tactical Public Safety (TPS) packet is transmitted in relation to a non-emergency voice transmission.

This feature applies on a radio-wide basis to TPS-enabled channels.

Applies only: When the radio is operating on a Conventional Personality where the Incident Signaling Type field is set to **Tactical Public Safety**.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

None

No TPS packet is transmitted.

Leading Edge

The TPS packet is transmitted once the PTT button is pressed and just prior to any voice transmission.

Trailing Edge

The TPS packet is transmitted just after the PTT button is released.

Both

The TPS packet is transmitted once the PTT button is pressed and just prior to any voice transmission and again just after the PTT button is released.

7.2.8.7

TPS Emergency PTT Transmission

This field selects when a Tactical Public Safety (TPS) packet is transmitted in relation to an Emergency "Call" (voice) transmission (see also Emergency Type).

This feature applies on a radio-wide basis to Emergency "Call" (voice) transmissions on TPS-enabled channels.

Applies only: When the radio is operating in Emergency Mode and only when operating on a Conventional Personality where the Incident Signaling Type field is set to **Tactical Public Safety**.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

None

No TPS packet is transmitted.

Leading Edge

The TPS packet is transmitted once the PTT button is pressed and just prior to any Emergency Call (voice) transmission.

Trailing Edge

The TPS packet is transmitted just after the PTT button is released in any Emergency Call (voice) transmission.

Both

The TPS packet is transmitted once the PTT button is pressed and just prior to any Emergency Call (voice) transmission and again just after the PTT button is released.

7.2.9

Personnel Accountability

The **Personnel Accountability** section of the **Radio Wide** allows the user to view or modify Personnel Accountability parameters.



NOTE: When operating in talkaround/direct mode and in close proximity of other radios, it is recommended to configure additional preamble of 160 to the ASTRO system configured with Personnel Accountability enabled channels.

7.2.9.1

Periodic Update Timer

This field selects the amount of time that determines how often (in minutes) the radio sends out an unsolicited and no-confirmation-required Personnel Accountability (PA) packet to the Incident Command Terminal (ICT).

This is only true once a successful PA Registration has already occurred. If the PA Registration attempt has failed, this timer is then used to determine how often (in minutes) that the radio will retry PA Registration. This feature applies on a radio-wide basis to Personnel Accountability-enabled channels.

Applies only: When the radio is operating on a Conventional Personality where both the Incident Signaling Type field is set to **Personnel Accountability** and the Personnel Accountability Registration field is enabled.

Accessed Only: When the radio is model/option capable.



NOTE: Periodic Update Timer is disabled when set to **0 -Disabled** (default). The radio does not send out unsolicited or no-confirmation-required Personnel Accountability (PA) packets; nor does it retry PA Registration.

Table 15: Range

Minimum	Maximum	Increments
1 minute	20 minutes	1 minute

7.2.9.2

Respond To Polls

This field enables the radio to send back a response immediately after receiving a Personnel Accountability poll.

Personnel Accountability polling is initiated by the Incident Commander (IC) and is used to query radios confirming their ability to communicate. This feature applies on a radio-wide basis to Personnel Accountability-enabled channels.

Applies only: When the radio is operating on a Conventional Personality where the Incident Signaling Type field is set to **Personnel Accountability**.

Accessed Only: When the radio is model/option capable.

7.2.9.3

Evacuation Acknowledgment

This field selects ways the radio responds to Personnel Accountability Evacuation messages.

Personnel Accountability Evacuation messages are sent by the Incident Commander (IC). This feature applies on a radio-wide basis to Personnel Accountability-enabled channels.

Applies only: When the radio is operating on a Conventional Personality where the Incident Signaling Type field is set to **Personnel Accountability**.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

The radio does not respond to an Evacuation message.

Manual

The radio responds to an Evacuation message upon your intervention through a PTT button press.

7.2.9.4

Personnel Accountability PTT Transmission

This field selects when an unconfirmed (no acknowledgment expected) Personnel Accountability (PA) packet is transmitted in relation to a non-emergency voice transmission.

This feature applies on a radio-wide basis to Personnel Accountability-enabled channels.

Applies only: When the radio is operating on a Conventional Personality where the Incident Signaling Type field is set to **Personnel Accountability**.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

None

No PA packet is transmitted.

Leading Edge

The PA packet is transmitted once the PTT button is pressed and just prior to any non-emergency voice transmission.

Trailing Edge

The PA packet is transmitted just after the PTT button is released.

Both

The PA packet is transmitted once the PTT button is pressed and just prior to any non-emergency voice transmission and again just after the PTT button is released.

7.2.9.5

Personnel Accountability Emergency PTT Transmission

This field selects when an unconfirmed (no acknowledgment expected) Personnel Accountability (PA) packet is transmitted in relation to an Emergency.

This feature applies on a radio-wide basis for Emergency Call transmissions on Personnel Accountability-enabled channels.

Applies only: When the radio is operating in Emergency Mode and only when operating on a Conventional Personality where the Incident Signaling Type field is set to **Personnel Accountability**.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

None

No PA packet is transmitted.

Leading Edge

The PA packet is transmitted once the PTT button is pressed and just prior to any Emergency Call transmission.

Trailing Edge

The PA packet is transmitted just after the PTT button is released.

Both

The PA packet is transmitted once the PTT button is pressed and just prior to any Emergency Call transmission and again just after the PTT button is released.

7.2.9.6

Acknowledge Alerts on PTT

This field allows you to configure the PTT button to acknowledge the fireground alerts.

When enabled, the PTT, Side Top (Purple) button on portable radio or accessories, and the 1-Dot Programmable Button on RSM can be used to acknowledge these alerts.

There are 16 programmable alerts that can be sent from the client and received by the radios. The alerts include tone, backlight, vibrating, voice announcement, text, LED, etc.

Accessed Only: When the radio is model/option capable.

7.2.10

Bluetooth

This section allows you to view or modify settings related to Bluetooth technology.



IMPORTANT: Refer to the radio User Guide for list of COTS approved devices and new supported profiles.

Accessed Only: When the radio is model/option capable.

7.2.10.1

Accessory

This field enables the configuration of microphone and speaker gain for the selected accessory.

Accessed Only: When the radio is model or option capable.

7.2.10.1.1

RSM Side Force Secure Mode

This field enables the subscriber to force any connected RSM into a secure only pairing mode. Only NFC Secure or Secure MPP pairing is allowed on that RSM.



IMPORTANT: This change cannot be undone in the RSM. It is a permanent update in that device.

Accessed Only: When the Secure MPP Pairing or NFC Secure is enabled.

7.2.10.1.2

Extra Loud Earpiece In Use

This field enables the earpiece attached to the WRSR to produce audio at an adjusted or limited level of loudness. This level meets the audio safety limit.

When disabled, the earpiece attached to the WRSR produces extra loud volume.

7.2.10.1.3

Secure MPP Pairing

This field enables Low Frequency Motorola Proprietary Pairing mode, typically used by Motorola Solutions proprietary Bluetooth accessories, such as the wireless earpiece. Such pairing is secured against Person-in-the-Middle (PITM) attacks.

Accessed Only: When the radio is Bluetooth enabled, and when the radio is model or option capable.

7.2.10.2

Bluetooth Enable

This field allows you to enable the Bluetooth feature in the radio.

Bluetooth Enable allows the radio to pair and communicate with a Bluetooth-enabled accessory, such as an earpiece or Remote Speaker Microphone (RSM). This feature applies on a radio-wide basis.

7.2.10.3

Remote Speaker Microphone Bluetooth LED

The Remote Speaker Microphone (RSM) Bluetooth LED illuminates when there is radio Bluetooth connectivity.

Accessed Only: When the RSM is model/option capable.

7.2.10.4

Bluetooth Tones

This field allows you to enable the Bluetooth tones.

This feature applies on a radio-wide basis.

Accessed Only: When the [Bluetooth Enable on page 95](#) field is **Enabled**, and when the radio is model/option capable.

7.2.10.5

Bluetooth Pairing Type

The application retrieves and displays the read-only Bluetooth (BT) Pairing Type.

Pairing is the process of establishing a new communications relationship between two Bluetooth-enabled devices. This feature applies on a radio-wide basis.

During this process, a "link key" is exchanged that "bonds" the two devices together. Your radio can be paired with one or more Bluetooth accessories at a time. However, there is a limitation on the type of Bluetooth accessories that can be paired and connected at the same time.

Accessed Only: When the [Bluetooth Enable on page 95](#) field is **Enabled**, when the radio is model/option capable.

The Bluetooth Pairing Type supports the following selections:



NOTE: The availability of selections varies by radio model.

LF MPP

Low Frequency Motorola Proprietary Pairing mode, typically used by Motorola Solutions proprietary Bluetooth accessories, such as the wireless earpiece. Pairing is secured against Person-in-the-Middle (PITM) attacks.

Standard

Industry-standard Secure Simple Pairing (SSP) mode, which supports a variety Commercial Off-The-Shelf (COTS) Bluetooth devices. Pairing is not secured against PITM attacks.

7.2.10.6

Bluetooth Re-Pair Timer

This field determines the pairing behavior of the radio and connected Bluetooth accessory regarding the retention of pairing information.



NOTE:

This feature is only applicable to Motorola Solutions accessories that are paired using Low Frequency Motorola Proprietary Pairing (LF MPP) and Secure Near-Field Communication (NFC).

This feature does not affect the operation of devices that are paired using standard pairing and standard NFC pairing.

Accessed Only: When the [Bluetooth Enable on page 95](#) field is **Enabled**, and when the radio is model/option capable.

The Bluetooth Re-Pair Timer supports the following selections:

Immediate

If any of the following conditions occur, the radio and accessory delete the pairing information for the connected accessory. You must perform a new touch-pairing operation to pair the accessory to the radio again.

- You turn off the Remote Speaker Microphone (RSM).
- The RSM automatically turns off due to a link drop while paired to a radio.
- The radio is properly turned off.

When the radio is properly turned off, the radio deletes the pairing information. If the RSM is connected and in range, the RSM also unpairs and turns off.

If the radio turns off unexpectedly, the pairing information is usually not lost. For example, if the radio unexpectedly turns off due to dropping or battery disconnection.

Infinite

The radio or accessory does not automatically delete pairing information.

7.2.10.7

Bluetooth Friendly Name Editable

This field allows you to edit the contents of the Bluetooth Friendly Name field through the radio menu or keypad.

This feature applies on a radio-wide basis.

Accessed Only: When the [Bluetooth Enable on page 95](#) field is **Enabled**, and when the radio is model/option capable.

7.2.10.8

Bluetooth Replace Pairing Info

This feature is only applicable to Motorola Solutions accessories paired using Low Frequency Motorola Proprietary Pairing (LF MPP) and Secure Near-Field Communication (NFC).

This field allows you to enable existing Bluetooth pairing info to be replaced when another accessory of the same type attempts to pair with the radio.

This occurrence only happens when the previously connected accessory is disconnected, and if Bluetooth Drop Timer expires. Pairing is the process of establishing a new communication relationship between two Bluetooth-enabled devices. This feature applies on a radio-wide basis.

When disabled, the previous pairing information is still saved for the next time when the radio and Bluetooth accessory are in range and able to connect.

Accessed Only: When the [Bluetooth Enable on page 95](#) field is **Enabled**, when the [Bluetooth Re-Pair Timer on page 96](#) field is set to **Infinite**, and when the radio is model/option capable.

7.2.10.9

Legacy Bluetooth PIN Pairing

This field allows you to enable the Legacy Bluetooth PIN pairing.

You can pair the radio with Bluetooth enabled accessory that uses Bluetooth Core Specification 2.0 and earlier.

This feature applies on a radio-wide basis.

7.2.10.10

Standard NFC Touch Pairing

This field allows Commercial-Off-The-Shelf (COTS) and Near Field Communication (NFC) devices to be paired with the radio through touch pairing. Such pairing is not secure against Person-in-the-Middle (PITM) attacks.

The pairing information is stored in your radio. However, you can configure your radio to force a new pairing operation on each power cycle.

Accessed Only: When the radio is Bluetooth enabled, and when the radio is model/option capable.

7.2.10.11

Secure NFC Touch Pairing

This field allows selected Motorola Solutions accessories to pair using Near Field Communication (NFC) with enhanced security. Such pairing is secured against Person-in-the-Middle (PITM) attacks.

The pairing information is stored in your radio. However, you can configure your radio to force a new pairing operation on each power cycle.



NOTE: This field is configurable in RadioCentral only.

Accessed Only: When the radio is Bluetooth enabled, and when the radio is model/option capable.

7.2.10.12

Bluetooth Audio Backwards Compatibility

If this field is enabled, the current operation with LEX, Si500, Si700, and special Self-Contained Breathing Apparatus (SCBA) is maintained. Handsfree Profile (HFP) Mode is disabled.

If this field is disabled, the legacy logic is removed and HFP Mode is enabled. This function allows WM800, future SCBA, and Commercial-Off-The-Shelf (COTS) devices to operate.



NOTE:

This field is configurable in RadioCentral only.

This field affects non-touch radios only. Devices paired with Low Frequency Motorola Proprietary Pairing (LF-MPP) are also not affected by this field.

Accessed Only: When the radio is Bluetooth enabled, and when the radio is model/option capable.

7.2.10.13

Increase Audio Latency

If this field is enabled, the Bluetooth audio link is disconnected and reconnected as needed. This function can cause loss of audio and must only be used in special situations.

Accessed Only: When the radio is Bluetooth enabled, and when the radio is model/option capable.

7.2.10.14

Standard Pairing

This field enables Industry-standard Secure Simple Pairing (SSP) mode, which supports a variety of Commercial Off-The-Shelf (COTS) Bluetooth devices. Such pairing is not secure against Person-in-the-Middle (PITM) attacks.

Accessed Only: When the radio is Bluetooth enabled, and when the radio is model or option capable.

7.2.11

Message Alias Table

This section allows you to view or define message functionality.

You are then able to select and transmit these Messages. Messages can be sent from a dispatcher unit to a portable or mobile unit, or from a portable or mobile unit to a dispatcher unit. However, a Message may not be sent from a portable or mobile unit to a portable or mobile unit.

7.2.11.1

Message Alias Number

This field selects a number that identifies the current Message.

This selection applies for the current message (record/row) which applies for the current Trunking System.



WARNING:

This feature applies only when the Trunking Personality that references this Trunking System has its [Message Enable on page 491](#) field enabled.

Once defined, you can access the Message feature with a Message button-press, a Direct Message button-press, or a Message menu-selection.

Accessed Only: When [Message Alias Enable on page 456](#) field is enabled, and when the System Type field is set to **Type II**, and when the radio is model/option capable.

7.2.11.2

Message Alias Text

This field allows you to define recognizable names for the current Message (record/row).

This selection applies for the current Trunking System.



WARNING:

This feature applies only when the Trunking Personality that references this Trunking System has its [Message Enable on page 491](#) field enabled.

Once defined, you can access the Message feature with a Message button-press, a Direct Message button-press, or a Message menu-selection.



NOTE: The Message Alias must be set up identically (or with the same meaning) for the dispatcher and the portable or mobile units. That is, the Message 1 Alias from the dispatching unit must be identical (or have the same meaning) as the Message 1 Alias for the portable or mobile unit.

Accessed Only: When [Message Alias Enable on page 456](#) field is enabled, and when the System Type field is set to **Type II**, and when the radio is model/option capable.



NOTE:

Examples: MESSAGE-01, Electric1, #510

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.2.12

Status Alias Table

This section allows you to view or define status aliases.

Your status can only be transmitted from a radio unit to a dispatcher (base unit). Your status makes more efficient use of a channel as compared to a voice transmission. This feature applies only when operating in Conventional communications mode.



NOTE:

The Status Alias must be set up identically (or with the same meaning) for the dispatcher and the radio units. That is, the Status 1 Alias from the dispatching unit must be identical (or have the same meaning) as the Status 1 Alias for the radio unit.

MDC, DVRS and ASTRO Messages are enabled individually on a per Conventional System basis from the Status field.

You can then activate the Status feature with a Status button-press, a Direct Status button-press, or a Status menu-selection.

7.2.12.1

Status Alias Number

This field selects a unique number for the current Status (record/row).

This number is matched up between the transmitting and the receiving radios; this match then determines which Status Alias Text appears in the receiving radio's display.

Accessed Only: When the radio is model/option capable.

7.2.12.2

Status Alias Text

This field allows you to define recognizable names for the current Status (record/row).

This selection applies for the current trunking system.



NOTE:

- This feature applies only when the Trunking Personality that references this Trunking System has its Status Enable field enabled.
- Once defined, you can access the Status feature with a Status button-press, a Direct Status button-press, or a Status menu-selection.



IMPORTANT: The Status Alias must be set up identically (or with the same meaning) for the dispatcher and the portable or mobile units. That is, the Status 1 Alias from the dispatching unit must be identical (or have the same meaning) as the Status 1 Alias for the portable or mobile unit.

Accessed Only: When [Status Alias Enable on page 458](#) field is enabled, and when the radio is model/option capable.



NOTE:

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

Examples: STATUS-01, Electric1, #510

7.2.13

Factory Overrides

The **Factory Overrides** is used to enter factory override information for certain radio signal algorithms on a radio-wide basis.



WARNING: Factory overrides should not be entered unless deemed necessary. Procedures to enter factory override information should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

7.2.13.1

Factory Overrides Enable

This field enables you to enter factory override information in the Factory Overrides lists.

This selection applies on a radio-wide basis. When disabled, all Factory Override settings are disregarded.



WARNING: This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Accessed Only: This is an advanced setting which is only available in Expert View.

7.2.13.2

Tx SSI Clock Rate List

This section allows you to enter transmit frequencies, and their respective reference divider values, for frequencies at which a crosstalk phenomenon occurs.

Crosstalk occurs when a signal transmitted on one channel creates an undesired effect on another channel. These fields apply on a radio-wide basis.



WARNING: Factory overrides should not be entered unless deemed necessary. Procedures to enter factory override information should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Tx Frequency

This field allows you to enter a Transmit (Tx) frequency (in MHz) at which a crosstalk phenomenon occurs, for the respective Tx SSI Clock Rate frequency value.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

6.25 kHz step size for the 800 MHz frequency band:

Starting with Release R09.01.00, the application allows a 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band, to meet regulatory compliance in certain (non-FCC) countries; however, be aware that two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.



IMPORTANT:

Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field.

Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model/option capable. This is an advanced setting which is only available in Expert View (see Codeplug View).

Tx SSI Clock Rate

This field selects the Transmit (Tx) synthesizer SSI Clock Rate frequency (in MHz) for the respective Tx Frequency at which the crosstalk phenomenon occurs.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING: This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model/option capable. This is an advanced setting which is only available in Expert View (see Codeplug View).

The following selections are supported:

- 2.40 MHz
- 3.36 MHz
- 8.40 MHz
- 1.92 MHz

7.2.13.2.1

Tx Frequency

This field allows you to enter a Transmit (Tx) frequency (in MHz) at which a crosstalk phenomenon occurs, for the respective Tx SSI Clock Rate frequency value.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

6.25 kHz step size for the 800 MHz frequency band:

Starting with Release R09.01.00, the application allows a 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band, to meet regulatory compliance in certain (non-FCC) countries; however, be aware that two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.



IMPORTANT:

Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field.

Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model/option capable. This is an advanced setting which is only available in Expert View (see Codeplug View).

7.2.13.2.2

Tx SSI Clock Rate

This field selects the Transmit (Tx) synthesizer SSI Clock Rate frequency (in MHz) for the respective Tx Frequency at which the crosstalk phenomenon occurs.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING: This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model/option capable. This is an advanced setting which is only available in Expert View (see Codeplug View).

The following selections are supported:

- 2.40 MHz
- 3.36 MHz
- 8.40 MHz
- 1.92 MHz

7.2.13.3

Rx SSI Clock Rate List

This section allows you to enter transmit frequencies, and their respective reference divider values, for frequencies at which a crosstalk phenomenon occurs.

Crosstalk occurs when a signal transmitted on one channel creates an undesired effect on another channel. These fields apply on a radio-wide basis.

 **WARNING:** Factory overrides should not be entered unless deemed necessary. Procedures to enter factory override information should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Rx Frequency

This field allows you to enter an Receive (Rx) frequency (in MHz) at which a crosstalk phenomenon occurs for the respective Rx SSI Clock Rate frequency value.

This selection applies for the current record / row which applies on a radio-wide basis.

 **WARNING:** This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

From R09.01.00, 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band is allowed to meet the regulatory compliance in certain (non-FCC) countries. Two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.

 **IMPORTANT:** Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field. Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model / option capable.

Rx SSI Clock Rate

This field selects the Receive (Rx) synthesizer SSI Clock Rate frequency (in MHz) for the respective Rx Frequency at which the crosstalk phenomenon occurs.

This selection applies for the current record/row which applies on a radio-wide basis.

 **WARNING:** This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Access Only: When the [Factory Overrides Enable on page 100](#) field is enabled and when the radio is model/option capable.

The following selections are supported:

- 1.2 MHz
- 1.5 MHz
- 1.8 MHz
- 6.4 MHz

- 9.6 MHz

7.2.13.3.1

Rx Frequency

This field allows you to enter an Receive (Rx) frequency (in MHz) at which a crosstalk phenomenon occurs for the respective Rx SSI Clock Rate frequency value.

This selection applies for the current record / row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

From R09.01.00, 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band is allowed to meet the regulatory compliance in certain (non-FCC) countries. Two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.



IMPORTANT:

Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field.

Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model / option capable.

7.2.13.3.2

Rx SSI Clock Rate

This field selects the Receive (Rx) synthesizer SSI Clock Rate frequency (in MHz) for the respective Rx Frequency at which the crosstalk phenomenon occurs.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING: This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Access Only: When the [Factory Overrides Enable on page 100](#) field is enabled and when the radio is model/option capable.

The following selections are supported:

- 1.2 MHz
- 1.5 MHz
- 1.8 MHz
- 6.4 MHz
- 9.6 MHz

7.2.13.4

Rx SSI Clock Rate List : Tx Mode

This section allows you to enter transmit frequencies, and their respective reference divider values, for frequencies at which a crosstalk phenomenon occurs.

Crosstalk occurs when a signal transmitted on one channel creates an undesired effect on another channel. These fields apply on a radio-wide basis.

 **WARNING:** Factory overrides should not be entered unless deemed necessary. Procedures to enter factory override information should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Tx Frequency

This field allows you to enter a Transmit (Tx) frequency (in MHz) at which a crosstalk phenomenon occurs, for the respective Tx SSI Clock Rate frequency value.

This selection applies for the current record/row which applies on a radio-wide basis.

 **WARNING:** This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

From R09.01.00, 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band is allowed to meet the regulatory compliance in certain (non-FCC) countries. Two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.

 **IMPORTANT:** Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field. Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model/option capable. This is an advanced setting which is only available in Expert View (see Codeplug View).

Rx SSI Clock Rate

This field selects the Receive (Rx) synthesizer SSI Clock Rate frequency (in MHz) for the respective Rx Frequency at which the crosstalk phenomenon occurs.

This selection applies for the current record/row which applies on a radio-wide basis.

 **WARNING:** This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled**, and when the radio is model/option capable and when the radio is model/option capable.

The following selections are supported:

- 6.4 MHz
- 9.6 MHz

7.2.13.4.1

Tx Frequency

This field allows you to enter a Transmit (Tx) frequency (in MHz) at which a crosstalk phenomenon occurs, for the respective Tx SSI Clock Rate frequency value.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

From R09.01.00, 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band is allowed to meet the regulatory compliance in certain (non-FCC) countries. Two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.



IMPORTANT:

Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field.

Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model/option capable. This is an advanced setting which is only available in Expert View (see Codeplug View).

7.2.13.4.2

Rx SSI Clock Rate

This field selects the Receive (Rx) synthesizer SSI Clock Rate frequency (in MHz) for the respective Rx Frequency at which the crosstalk phenomenon occurs.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING: This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled**, and when the radio is model/option capable and when the radio is model/option capable.

The following selections are supported:

- 6.4 MHz
- 9.6 MHz

7.2.13.5

Second LO Injection Frequency List

This section allows you to view or modify individual Rx (Receive) frequencies for which the opposite second LO injection frequency will be used instead of the default.

This feature applies on a radio-wide basis.



WARNING: Factory overrides should not be entered unless deemed necessary. Procedures to enter factory override information should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

Second LO Injection Frequency

This field allows you to enter an individual receive (Rx) frequency (in MHz) for which the opposite second LO injection frequency will be used instead of the default.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

From R09.01.00, 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band is allowed to meet the regulatory compliance in certain (non-FCC) countries. Two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled**, and when the radio is model/option capable.

7.2.13.5.1

Second LO Injection Frequency

This field allows you to enter an individual receive (Rx) frequency (in MHz) for which the opposite second LO injection frequency will be used instead of the default.

This selection applies for the current record/row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

From R09.01.00, 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band is allowed to meet the regulatory compliance in certain (non-FCC) countries. Two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.

Accessed Only: When the [Factory Overrides Enable on page 100](#) field is **Enabled**, and when the radio is model/option capable.

7.2.13.6

Out of Band Rejection List

Out-of-band rejection specifies a rejection value centered around dB. It is defined in relation to a filter's peak efficiency.

7.2.13.6.1

Rx Frequency (MHz)

Allows the user to enter an Rx (Receive) frequency (in MHz) at which a crosstalk phenomenon occurs for the respective Out of Band Rejection List frequency value.

This selection applies for the current record / row which applies on a radio-wide basis.



WARNING:

This field should not be enabled unless deemed necessary. Procedures to enter factory override information in the Factory Overrides menu should only be attempted by Qualified Service Personnel. Failure to perform procedures properly may seriously degrade the radio and/or system performance.

6.25 kHz step size for the 800 MHz frequency band:

Starting with Release R09.01.00, allows a 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band, to meet regulatory compliance in certain (non-FCC) countries; however, be aware that two radios operating on adjacent channels separated by 6.25 kHz only may experience an undesirable crosstalk phenomena.



IMPORTANT:

Duplicate frequencies are not allowed. Therefore, when selecting a frequency, if a frequency has already been entered into the list, then that frequency will no longer be a valid choice for the current field.

Refer to the Motorola Solutions Catalog Sheets/Price Pages or Manual for valid Frequencies for the current model.

For optimal performance, the frequencies should be entered in ascending order.

Accessed Only When the [Factory Overrides Enable on page 100](#) field is **Enabled** and when the radio is model / option capable.

7.3

Radio Ergonomics Collection

This section allows you to configure parameter settings for radio-ergonomic features.

7.3.1

Radio Ergo Home Zone Channel

This section allows you to select a specific zone and channel that are then considered the radio's Home Mode.

Mode is another name for a certain zone and channel. Zones and Channels must first be defined in the Zone Channel Assignment Window. This feature then applies on a radio-wide basis.



NOTE: You can access this programmed Home Mode with a long keypress of the radio's Home button. A short keypress of the radio's Home button may also verify a current radio selection when using features such as changing channels, changing zones, or selecting Priority Members/channels for a Scan List.

7.3.1.1

Home Mode Zone

This field allows you to select a Home Mode Zone for the radio.

Once the Zone is selected, the Home Mode Channel may then be selected. Mode is another name for a certain zone and channel. This selection applies on a radio-wide basis.

 **NOTE:** You are then easily able to access this programmed Home Mode with a long keypress of the radio's Home button. A short keypress of the radio's Home button may also verify a current radio selection when using features such as changing channels, changing zones, or selecting Priority Members/channels for a Scan List.

 **WARNING:**
Dynamic Zones are invalid and cannot be selected (zones that have Dynamic Zone Enable enabled).
Remote Site Interface (RSI) zones are invalid and cannot be selected (zones that have RSI Mode enabled).

Accessed Only: When the **Home Mode Selection** field is enabled, and when radio is model/option capable.

7.3.1.2

Home Mode Channel

This field selects a Home Mode Channel for the radio.

The Home Mode Zone must be selected first. Mode is another name for a certain zone and channel. This selection applies on a radio-wide basis.

If **Power Up in Hazard Zone Mode** channel is enabled, then the Home Mode Channel personality must have **Hazard Zone Mode Personality** enabled.

 **NOTE:** You are then easily able to access this programmed Home Mode with a long keypress of the radio's Home button. A short keypress of the radio's Home button may also verify a current radio selection when using features such as changing channels, changing zones, or selecting Priority Members/channels for a Scan List.

Accessed Only: When the **Home Mode Selection** field is **enabled**, and when the [Home Mode Zone on page 109](#) field is not set to a **Dynamic Zone**, and when radio is model/option capable.

7.3.2

Radio Ergonomics Wide

This section allows you to view or define radio-wide functionality that applies to both conventional and trunking communications modes.

7.3.2.1

Home Mode

This section allows you to select a specific zone and channel that are then considered the radio's Home Mode.

Mode is another name for a certain zone and channel. Zones and Channels must first be defined in the Zone Channel Assignment Window. This feature then applies on a radio-wide basis.

 **NOTE:** You can access this programmed Home Mode with a long keypress of the radio's Home button. A short keypress of the radio's Home button may also verify a current radio selection when using features such as changing channels, changing zones, or selecting Priority Members/channels for a Scan List.

7.3.2.2

Short Keypress Duration

This field selects the amount of time that defines how long you must press and hold a radio-button in order for the action to be recognized as a short keypress by the radio.

Time is in milliseconds (ms). This selection applies on a radio-wide basis.



IMPORTANT: This short keypress duration must always be a shorter period of time than the Long Keypress Duration field setting.

The following selections are supported:

Table 16: Range

Minimum	Maximum	Increments
0 (ms)	6200 (ms)	50 (ms)

7.3.2.3

Short Keypress Duration for Emergency

This field selects the amount of time that defines how long you must press and hold the Emergency button before the radio activates the emergency mode operation.

A long keypress of the same Emergency button de-activates the radio's emergency mode. Time is in milliseconds (ms). This feature applies on a radio-wide basis.



NOTE: Either this short keypress duration must be a shorter period of time than the Long Keypress Duration for Emergency field setting, or the Long Keypress Duration for Emergency must be disabled (set to 0).

The following selections are supported:

Table 17: Range

Radio	Minimum	Maximum	Increments
General	50 ms	6200 ms	50 ms
APX NEXT XN	1000 ms	3000 ms	50 ms

7.3.2.4

Long Keypress Duration

This field selects the amount of time that defines how long you must press and hold a programmable button before the radio recognizes a valid long press.

The radio's preprogrammed Home button is an example of a button that takes advantage of Long Keypress functionality. Time is in milliseconds (ms). This feature applies on a radio-wide basis.



IMPORTANT: This long keypress duration must always be a longer period of time than the [Short Keypress Duration on page 110](#) field setting.

The following selections are supported:

Table 18: Range

Minimum	Maximum	Increments
250 (ms)	6250 (ms)	250 (ms)

7.3.2.5

Long Keypress Duration for Emergency

This field selects the amount of time that defines how long you must press and hold an Emergency button before the radio deactivates the radio's emergency mode operation.

A short keypress of the Emergency button activates the radio's emergency mode operation. This feature applies on a radio-wide basis. Time is in milliseconds (ms).



IMPORTANT:

When not set to **0**, this long keypress duration must be a longer period of time than the Short Keypress Duration for Emergency field setting.

Selecting **0** causes emergency mode exit with a long keypress to be disabled. Emergency exit may still be accomplished by powering off the radio.

The following selections are supported:

Table 19: Range

Minimum	Maximum	Increments
0 (ms)	63750 (ms)	250 (ms)

7.3.2.6

Short Keypress Duration for MFK

This field selects the amount of time that defines how long you must press and hold the programmable Multi-Function Knob (MFK) before the radio recognizes a valid short press.

This feature applies on a radio-wide basis. Time is in milliseconds (ms).



NOTE: A Short Keypress Duration button-press toggles between the Multi-Function Knob's Primary and Secondary functions, as defined in the MFK Selections. Upon radio power-up, the Multi-Function Knob always defaults to its programmed Primary function.

Accessed Only: When the radio is model/option capable, and when the Radio Selection field is not set to **Secondary Radio**.

The following selections are supported:

Table 20: Range

Minimum	Maximum	Increments
50 (ms)	6200 (ms)	50 (ms)



NOTE: This [Short Keypress Duration on page 110](#) must always be a shorter period of time than the Long Keypress Duration for MFK field setting (applicable only to portable radios).

7.3.2.7

Long Keypress Duration for MFK

This field selects the amount of time that defines how long you must press and hold the programmable Multi-Function Knob (MFK) before the portable radio recognizes a valid long press.

A Long Keypress Duration button-press is only used to power OFF the radio. This feature applies on a radio-wide basis. Time is in milliseconds (ms).



NOTE: If Rotary Switch Lock Enable is enabled, then the MFK must first be unlocked (with a initiated Keypad/Controls Lock button-press) before powering OFF the radio is possible.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Table 21: Range

Maximum	Minimum	Increments
1000 (ms)	6250 (ms)	250 (ms)



NOTE: This Long Keypress Duration must always be a longer period of time than the Short Keypress Duration for MFK field setting.

7.3.2.8

MFK Inactivity Timeout

This field selects the amount of time the radio waits for your input from the Multi-Function Knob (MFK) before exiting its programmed Secondary function and returning to its Primary function.

This feature applies on a radio-wide basis. Time is in seconds.



NOTE: A Short Keypress Duration for MFK button-press toggles between the Multi-Function Knob's Primary and Secondary functions, as defined in the Multi-Function Knob (MFK) Selections. Upon radio power-up, the Multi-Function Knob always defaults to its programmed Primary function. The MFK's concentric ring LED blinks in green when the MFK is set to the Secondary function, except when Intelligent Lighting is activated.

Accessed Only: When the radio is model/option capable, and when the Radio Selection field is not set to **Secondary Radio**.

The following selections are supported:

Table 22: Range

Minimum	Maximum	Increment
5 seconds	120 seconds	1 second

7.3.2.9

Soft Power Off

This field selects a specific radio button that you must pressed (after the Power knob is placed in the "Off" position) in order to power down the radio.

This selection applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

Positioning the Power knob at the "Off" position shuts the radio off.

Side Button 1

To turn the radio off, the Side Top Button must be pressed after the Power knob is placed in the "Off" position. The User Guide refers to this as Top Side (Select) Button.

Side Button 2

To turn the radio off, the Side Middle Button must be pressed after the Power knob is placed in the "Off" position. The User Guide refers to this as Side Button 1.

Side Button 3

To turn the radio off, the Side Bottom Button must be pressed after the Power knob is placed in the "Off" position. The User Guide refers to this as Side Button 2.

7.3.2.10

Rotary Switch Lock Enable

This field enables either the radio's current Rotary Selection (zone or channel) to be locked in place even when the rotary switch position is moved, or the radio's Multi-Function Knob (MFK) Selections and Short Keypress/Long Keypress functionality to be locked on the Multi-Function Knob.

You can initiate this feature by toggling on and off with the Keypad/Controls Lock button-press or Keypad/Controls Lock switch-toggle. This feature applies on a radio-wide basis.



IMPORTANT: If this feature is enabled on portable radios with a MFK, the MFK must be unlocked before you can power Off the radio.

Accessed Only: When the radio is model/option capable.

7.3.2.11

Toggle Switch Lock Enable

Enables the radio's current Toggle Switch selection to be locked in place even when the toggle switch position is moved.

This feature can be toggled on and off with a radio-user initiated Keypad/Controls Lock button-press or Keypad/Controls Lock switch-toggle. This feature applies on a radio-wide basis.

7.3.2.12

Lock Side Buttons

This field allows you to enable the lock of the side buttons when the keypad is locked.

7.3.2.13

Touch Screen Lock Enable

This field allows you to enable the unlock and lock option of the touch screen.

7.3.2.14

Last Selected Channel Per Zone Enable

This field enables your most recent selected channel for each zone to automatically appear in the radio's display.

When scrolling through the radio's zones, the last-selected channel for each zone is remembered by the radio and is immediately available to you. You may then select any other desired channel within a zone. This feature applies on a your basis.

When disabled, the radio remains on the currently selected channel # when changing to a new zone. For example, the radio is on channel 14 in zone 3; if the zone is changed to zone 15, the channel is now on channel 14 in zone 15. Note that: if zone 15 does not have a channel 14, then **UNPROGRAMMED** appears in the radio's display; you must then change to a channel that is available in the new zone.



NOTE: When this feature is enabled, the [Power Up On Last Selected Zone and Channel on page 114](#) and [Home Mode Channel on page 109](#) field also becomes enabled and view-only/not modifiable.

7.3.2.15

Power Up On Last Selected Zone and Channel

When this field is enabled, it causes the radio's current Zone and Channel switch positions to be ignored during power up.

This field also causes the radio to power up on the radio's last-selected Zone and Channel switch positions just prior to the radio being powered down. When disabled, the radio powers up on the radio's currently-selected Zone and Channel switch positions. This feature applies on a radio-wide basis.



WARNING: The Zone Select and Channel Select Rotary/switch-toggle selections must be programmed.

Accessed Only: When Last Selected Channel Per Zone Enable is **Disabled** and when the radio is model/option capable.



NOTE: When Last Selected Channel Per Zone Enable is **Enabled**, this field also becomes Enabled and view-only/not modifiable.

7.3.2.16

Zone Bank Operation

This field allows you to select the desired Zone Bank Operation type: **Basic**, **Enhanced**, or **Disabled**.

This feature applies on a radio-wide basis.



NOTE:

When assigning Zone Bank Up or Zone Bank Down to a programmable button, Zone Select is automatically assigned to the Three Position A/B/C Toggle switch.

The Rotary may then only be set to the Channel/Sub Select selection. Only 16 channels are possible per zone when using the Rotary as the channel selector.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

Disables multiple Zone Banks. When this feature is disabled and Zone Select is selected for a Two-Position or Three-Position Switch, only the first two or the first three zones defined in Zone Channel Assignment are available on the switch. This selection applies only when the radio's firmware is greater than or equal to R06.00.00 (see also Firmware Version).

Basic

Two Zone Banks are available to you. The first Bank is the first set of three Zones defined in the Zone Channel Assignment window (record/row 1, 2, and 3) and the second Bank is the second set of three Zones defined in the Zone Channel Assignment window (record/row 4, 5, and 6). The Zone/Zone Bank indicator in the top display shows the current zone.

Enhanced

Up to 25 Zone Banks are possible. The first Bank is the first set of three Zones defined in the Zone Channel Assignment window (record/row 1, 2, and 3), the second Bank is the second set of three Zones defined in the Zone Channel Assignment window (record/row 4, 5, and 6).and so on, up to a maximum selected by the Number of Zone Banks field. Allows for faster scrolling through Zone Banks with a Long Keypress Duration of a Zone Bank Up or Zone Bank Down programmable button. The Zone/Zone Bank indicator in the top display shows the current Zone Bank.

Accessed Only: When the radio is model/option capable.

7.3.2.17

Number of Zone Banks

This field selects the number of Zone Banks to be used when "Enhanced" Zone Bank Operation is selected.

A Zone Bank consists of three zones. It is not a required that there be enough Zone Banks to include all of the codeplug's current zones (see the Zone Channel Assignment window); and if there are not enough Zones available to complete a Zone Bank, **Unprogrammed** will appear in the radio's display if and when these empty positions are selected by the Zone Select switch. This feature applies on a radio-wide basis.



NOTE:

When assigning Zone Bank Up or Zone Bank Down to a programmable button, Zone Select is automatically assigned to the Three Position A/B/C Toggle switch.

The Rotary may then only be set to the Channel/Sub Select selection. Only 16 channels are possible per zone when using the Rotary as the channel selector.

Accessed Only: When the Zone Bank Operation field is set to **Enhanced**, and when the radio is model/option capable.

The following selections are supported:

Table 23: Range

Minimum	Maximum	Increments
3	25	1

7.3.2.18

Volume Control Lockout with RSM

This field selects which volume control(s) can set the radio's volume level when an accessory is connected to the radio.

This feature applies on a radio-wide basis.

Accessed Only: When the microphone is model / option capable.

The following selections are supported:

None

Both the radio's and an accessory's volume controls can select the radio volume.

Lock Radio Only

When an accessory with volume control is attached, the radio's volume control becomes inoperable and the accessory's volume control selects the radio volume.

7.3.2.19

Channel Control Lockout with Accessory

This field enables a radio accessory's "channel control" to override and lock out the radio's channel control.

This feature applies on a radio-wide basis.



NOTE: This field should not be enabled if the RMN5067 microphone is in use, since this microphone has no channel control knob.

Accessed Only: When the microphone is model/option capable.

The following selections are supported:

None

Both the radio's and an accessory's channel controls can select the radio channels.

Lock Radio Only

When an accessory with channel control is attached, the radio's channel control becomes inoperable and the accessory's channel control selects the radio channels.

7.3.2.20

Active Mic for Radio PTT

This field selects which microphone is active when you press the PTT button.

This feature applies on a radio-wide basis.



IMPORTANT: This field setting is not supported for third-party accessories. Any changes in the settings must be done through your accessory developer.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Radio Mic

The radio internal microphone is active.

RSM Mic

The Remote Speaker Microphone (RSM) is active.

The radio internal microphone provides contingency operation if an RSM is unavailable when you press the PTT button.

When the radio is plugged into a Vehicular Adapter (VA) that has a microphone attached to its Mobile Microphone Port (MMP), that microphone is active.

Wireless Mic

The wireless microphone is active.

The radio internal microphone provides contingency operation if a wireless microphone is unavailable when you press the PTT button.

Wireless Mic with Fallback to Wired RSM

The wireless microphone is active.

The Remote Speaker Microphone (RSM) provides contingency operation if a wireless microphone is unavailable when you press the PTT button.

The radio internal microphone provides contingency operation if a wireless microphone or RSM is unavailable when you press the PTT button.

7.3.2.21

Active Mic for RSM PTT

This field selects which microphone is active when you press the PTT button on the Remote Speaker Microphone (RSM).

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Radio Mic

The radio's internal microphone will be active.

RSM Mic

The RSM will be active.

The radio's internal microphone provides contingency operation if an RSM is unavailable when you press the PTT button.

When the radio is plugged into a Vehicular Adapter (VA) that has a microphone attached to its MMP (Mobile Microphone Port), that microphone will be active.

Wireless Mic

The wireless microphone will be active.

The radio's internal microphone provides contingency operation if a wireless microphone is unavailable when you press the PTT button.

7.3.2.22

Active Mic for Radio ViQi

This field allows user to configure the microphone that is selected for voice control commands once the voice control button on the radio is pressed.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Radio Mic

The radio internal microphone active.

RSM Mic

The Remote Speaker Microphone (RSM) is active.

The radio internal microphone provides contingency operation if RSM is unavailable when you press voice control button.

When the radio is plugged into a Vehicular Adapter (VA) that has a microphone attached to its Mobile Microphone Port (MMP), that microphone is active.

Wireless Mic

The wireless microphone is active.

The radio internal microphone provides contingency operation if a wireless microphone is unavailable when you press the voice control button.

Wireless Mic with Fallback to Wired RSM

Bluetooth wireless microphone activates when connected to radio. Otherwise, Remote Speaker Microphone (RSM) is active.

The radio internal microphone provides contingency operation if RSM is unavailable when you press voice control button.

7.3.2.23

Keypad/Controls Lock Keypress Type

This field selects your initiated keypress required for a Keypad/Controls Lock button-press to lock (or unlock) the portable radio's controls.

This feature applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Short Keypress

A Short Keypress Duration is required to lock/unlock the radio controls.

Long Keypress

A Long Keypress Duration is required to lock/unlock the radio controls.

7.3.2.24

MOSCAD Data Enable

This field enables the Motorola Supervision, Control, and Data Acquisition (MOSCAD) feature on a radio-wide basis.

When enabled, the radio connects to a MOSCAD data device and it allows MOSCAD data to transmits by the radio.



IMPORTANT: The Radio VIP Out 1 field must be set to **MOSCAD CG** and The Radio VIP Out 2 field must be set to **MOSCAD TXE/CM**.

Accessed Only: When the Expected Number of Control Heads field is set to **1**, and when the RF Modem field is set to **Disabled**, and when the RF Modem field is set to **Disabled**, and when the Number of DEK Boxes field is set to **0**, and when the radio is model/option capable.

7.3.2.25

Active Mic for Indirect PTT

Selects the microphones to be activated when a radio enter indirect PTT event like emergency hot mic.

Radio Mic

Radio internal microphone will be active.

RSM Mic

Radio internal microphone will be active.

Wireless Mic

Bluetooth wireless microphone will be active if connected to a radio. Otherwise, RSM or internal radio microphone will be active if the RSM is not connected.

7.3.2.26

Application Session Lock

When the device becomes idle and reaches a timeout, the device requires the user to type a PIN to unlock SmartMapping, APX CAD, SmartMessaging and ViQi VP Common Queries, which contains sensitive data.



NOTE: This feature is only applicable for APX N70 and APX NEXT radios.

Accessed Only: When the radio is model or option capable.

7.3.2.26.1

Session Lock Enable

When this field is enabled, Session Lock will be enabled for selected applications that contain sensitive data. While locked, it requires the user to enter a PIN to see sensitive data, including notifications. When disabled, sensitive data will be visible.

Accessed Only:

- **Session Lock Enable** field is **Enabled**.
- The radio is model or option capable.

7.3.2.26.2

ViQi: Virtual Partner Session Lock Enable

When this field is enabled, Session Lock is enabled for the ViQi: Virtual Partner application. When disabled, sensitive data is visible through ViQi: Virtual Partner.

Accessed Only:

- [Session Lock Enable on page 118](#) field is **Enabled**.
- **ViQi: Virtual Partner Mode** field is set to **Broadband**.
- The radio is model or option capable.

7.3.2.26.3

SmartMapping Session Lock Enable

When this field is enabled, Session Lock is enabled for the SmartMapping application. When disabled, sensitive data is visible through SmartMapping.

Accessed Only:

- [Session Lock Enable on page 118](#) field is **Enabled**.
- **Mapping Mode** field is set to **SmartMapping**.
- The radio is model or option capable.

7.3.2.26.4

SmartMessaging Session Lock Enable

When this field is enabled, Session Lock is enabled for the SmartMessaging application. When disabled, sensitive data is visible through **SmartMessaging**.

Accessed Only:

- [Session Lock Enable on page 118](#) field is **Enabled**.
- **SmartMessage Mode** field is set to **SmartMessaging**.
- The radio is model or option capable.

7.3.2.26.5

Session Lock User Activity Timeout (Minute)

This field determines the duration of user inactivity before the applications are locked. The duration of the timer is in minutes.

Accessed Only:

- **Session Lock Enable** field is **Enabled**.
- The radio is model or option capable.

7.3.3

Personnel Accountability

The **Personnel Accountability** allows the user to view or define functionality relating to the personnel accountability feature. These settings apply on a radio-wide basis to Personnel Accountability-enabled channels.

When subscriber receives Evacuation (EVAC) or Personnel Accountability Report (PAR) command on voice channel or data channel, it will provide the visible display and audible tone to first responder. When the

first responder press PTT, the radio will transmit an acknowledgement response ("Ack") to inform incident commander that the command is received.



NOTE: Personnel Accountability settings must be defined on an individual Conventional Personality basis. See the Conventional Personality, Incident Signaling Type, Personnel Accountability Registration, and Tx Voice Type fields.

Accessed Only: When the radio is model/option capable.

7.3.3.1

AC List Selection

This field allows you to select 0-16 Action Consolidation for Personnel Accountability List.

Accessed Only: When the radio is model/option capable.



WARNING: This field must reference an Action Consolidation where **Action Type** is set to **Personnel Accountability**.

7.3.3.2

Consolidated Action Name

This field allows you to define recognizable names for the current Consolidated Action.

This field is also used as Personnel Accountability alert alias to highlight text in the display when the Action Consolidation is a Personnel Accountability action type.

Accessed Only: When the radio is model/option capable.



NOTE:

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

Examples: Traffic Stop, In Pursuit, #510

7.3.3.3

Personnel Accountability List Name

This field allows you to create a recognizable name for the current personnel accountability list.

Personnel accountability alert list is selected from the Conventional or Trunking System's Personnel Accountability List Selection field.

Accessed Only: When the radio is model/option capable.

7.3.4

Action Consolidation

The **Action Consolidation** is used to view and define specific sequences of radio actions; known as Consolidated Actions. Within a Consolidated Action, these individual actions may be designed to execute

(in the radio) one-by-one in a specific order. Multiple Consolidation Actions may be created. A Consolidated Action's sequence of radio actions may then be easily executed with minimal effort by the radio-user.



IMPORTANT:

When the radio is powered up, any Consolidated Action assigned to the Response Selector's current position is executed.

No matter if a Consolidated Action is completed or canceled, if there are any required channel/mode changes in the action, the radio always returns to its original channel/mode.

Once initiated, a Consolidated Action may be canceled, however the individual actions typically happen so quickly, that the likelihood of terminating any part of the Action is nearly impossible.

- A Consolidated Action can be terminated by a Home button-press, a menu EXIT, a PTT button-press (provided the Public Address mode is not active), the engagement of Emergency Mode, or a change to the Fallback Zone/Channel. If the Mode Change Action is used, a zone or channel without a Fallback Zone/Channel must be selected.
- The Relay Pattern, Siren Type, or GPS Report actions are the first to launch and are therefore nearly immediate.



NOTE:

The radio-user may execute a Consolidated Action with the Action Consolidation selection defined on the Response Selector or on a button-press.

It is recommended that the Response Selector's "0" position be assigned a Consolidated Action that turns all Relay Patterns, Siren tones, GPS Reports, Mode changes, and Direct Status to an "Unassigned" or ALL OFF state. It may also be desirable to assign this Action to a button-press.

7.3.4.1

Action ID

This field selects the Action type for the current Action ID (record/row) of the current Consolidated Action.

Multiple Action IDs (Direct Status and Mode changes) may be defined within a single Consolidated Action. Multiple Action IDs allow the radio to automatically send a Direct Status on the appropriate radio mode. When defining multiple Action IDs, each action is executed in a top-down order. You may execute a Consolidated Action with the Action Consolidation selection defined on the Response Selector or on a button-press.

Example: This example shows an Action Consolidation containing multiple Action IDs. In this case the radio has three channels (Trunking 800 MHz, Trunking VHF, and Conventional ASTRO) and the goal is to automatically broadcast the **At Scene** status to all three channels from the same Consolidated Action.

Table 24: Examples

Action ID Setting:	Further Action ID Setting:	Radio Action
Row 1 = "Mode"	Mode to desired Trunking 800 MHz channel	Radio changes to desired mode
Row 2 = "Direct Status"	Direct Status to "At Scene"	Radio transmits Status on de-sired mode
Row 3 = "Mode"	Mode to desired Trunking VHF channel	Radio changes to desired mode
Row 4 = "Direct Status"	Direct Status to "At Scene"	Radio transmits Status on de-sired mode
Row 5 = "Mode"	Mode to desired Conventional ASTRO channel	Radio changes to desired mode

Action ID Setting:	Further Action ID Setting:	Radio Action
Row 6 = "Direct Status"	Direct Status to "At Scene"	Radio transmits Status on desired mode
Row 7 = "Mode"	Mode to desired Trunking 800 MHz channel	Radio changes to desired mode

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Direct Status

Transmits a Status for the current Consolidated Action. The Index selection for the current Consolidated Action (record/row) determines which Direct Status is transmitted.

- When operating in Conventional Mode, the Index number selection correlates with the same Status Number within the Conventional Status Alias List. There is only one Status Alias List for Conventional communications; therefore, the Status Alias List's Status Numbers apply for all Conventional Personalities.
- When operating in Trunking Mode, the Index number selection correlates with the same Status Number within the Trunking Mode's Status Alias List. Trunking allows for one Status Alias List per Trunking System; therefore, Status Text may vary with the same Status Number on a per Trunking System basis.

Mode

Causes the radio to change channel/mode as part of the current Consolidated Action. The Zone and Channel selections determine the actual modes available to you. Once the Consolidated Action is exited, the radio returns to the Mode (Zone/Channel) that the radio was operating on just prior to the Consolidated Action being launched.



NOTE: Once the Consolidated Action is exited, the radio returns to the Mode (Zone/Channel) that the radio was operating on just before to the Consolidated Action being launched.

Direct Message

Causes the radio transmit the message defined in Conventional or Trunking Message Alias List as a part of the current Consolidated Action.

Voice Announcement

Causes the radio to play a designed voice announcement as a part of the current Consolidated Action.

Text Message

Allows you to define a text message, which is displayed when the current Consolidated Action is triggered.

Transmit Power Level

Causes the radio to change Transmit Power Level as part of the current Consolidated Action.

Mute Site Selectable Alert

Causes the radio to mute site selectable alert as part of the current Consolidated Action.

When the [Action Type on page 126](#) is set to **General**, **Exit Geofence**, **Control**, or **Invalid SIM** and the [Action ID on page 121](#) is set to **Direct Status** or **Direct Message**.

When **Invalid SIM** is selected as the [Action Type on page 126](#), the valid options for [Action ID on page 121](#) are **Mode**, **Direct Status**, and **Voice Announcement**.

The default value is set to **General**.

7.3.4.2

Zone

This field selects the Zone change for the current Action ID (record/row) of the current Consolidated Action. Once the Zone is selected, the Channel must be for current record/row. You may execute a Consolidated Action with the Action Consolidation selection defined on the Response Selector or on a **button**-press or on the trigger of the Subscriber Unit entry for the Mission Critical Geofence.



WARNING: Remote Site Interface (RSI) zones are invalid and cannot be selected (zones that have RSI Mode enabled).

Accessed Only: When the [Action ID on page 121](#) field for the current record/row is set to **Mode**, and the [Action Type on page 126](#) field is select to **General,Control**, or **Invalid SIM** and when the radio is model/option capable.

7.3.4.3

Channel

This field selects the Channel change for the current Action ID (record/row) of the current Consolidated Action.

The Zone selection for the current record/row must be chosen before defining this channel.

Accessed Only: When the [Action ID on page 121](#) field for the current record/row is set to **Mode**, and the [Action Type on page 126](#) field is select to **General,Control**, or **Invalid SIM** and when the radio is model/option capable.

The Zone field for the current record/row is not unassigned.

7.3.4.4

Error Strategy

This field selects the desired Error Strategy for the current Action ID (record/row) of the current Consolidated Action.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Exit Upon Error

Upon an Error, the radio immediately exits the current Consolidated Action without executing the remainder of the actions.

Continue Upon Error

Upon an Error, the radio does not exit the current Consolidated Action; therefore the remainder of the actions are executed.

7.3.4.5

Index

This field selects the Status or Message to be automatically transmitted for the current Action ID (record/row) of the current Consolidated Action.

You may execute a Consolidated Action with the Action Consolidation selection defined on the Response Selector or on a button-press, on the trigger of Subscriber Unit (SU) entry/exit the Mission Critical Geofence, or on the Personnel Accountability EVAC/PAR command.



IMPORTANT:

- When operating in Conventional Mode, this Index number selection correlates with the same Status Number within the Conventional Status Alias List. There is only one Status Alias List for Conventional communications; therefore, the Status Alias List's Status Numbers apply for all Conventional Personalities.
- When operating in Trunking Mode, this Index number selection correlates with the same Status Number within the Trunking Mode's Status Alias List. Trunking allows for one Status Alias List per Trunking System; therefore, Status Text may vary with same Status Number on a per Trunking System basis.

Example: This example shows an Action Consolidation containing multiple Action IDs. In this case the radio has three channels (Trunking 800 MHz, Trunking VHF, and Conventional ASTRO) and the goal is to automatically broadcast the **At Scene** status to all three channels from the same Consolidated Action.

Table 25: Examples

Action ID Setting:	Further Action ID Setting:	Radio Action
Row 1 = "Mode"	Mode to desired Trunking 800 Mhz channel	Radio changes to desired mode
Row 2 = "Direct Status"	Direct Status to "At Scene"	Radio transmits Status on de-sired mode
Row 3 = "Mode"	Mode to desired Trunking VHF channel	Radio changes to desired mode
Row 4 = "Direct Status"	Direct Status to "At Scene"	Radio transmits Status on de-sired mode
Row 5 = "Mode"	Mode to desired Conventional ASTRO channel	Radio changes to desired mode
Row 6 = "Direct Status"	Direct Status to "At Scene"	Radio transmits Status on de-sired mode
Row 7 = "Mode"	Mode to desired Trunking 800 Mhz channel	Radio changes to desired mode



NOTE:

Once the Consolidated Action is exited, the radio returns to the Mode (Zone/Channel) that the radio was operating on just prior to the Consolidated Action being launched.

Accessed Only: When the [Action Type on page 126](#) is set to **General, Exit Geofence, Control, or Invalid SIM** and the [Action ID on page 121](#) is set to **Direct Status** or **Direct Message**.

The default value is 0.

7.3.4.6

Alert Audio File

This field allows you to select which Motorola Voice Announcement (*.MVA) file as the current personnel accountability alert (record/row) of the personnel accountability list.

The alert prompt plays when the radio receives Evacuation (EVAC) or Personnel Accountability Report (PAR) command from incident commander.

Accessed Only: When [Action Type on page 126](#) is **General**, **Exit Geofence**, or **Personnel Accountability**, and the [Action ID on page 121](#) field for the current record/row is set to **Voice Announcement** and the radio is model/option capable.

7.3.4.7

Alert Interval

This field allows you to select the amount of time between the repeating personnel accountability alerts.

Accessed Only: When [Action Type on page 126](#) is **General**, **Exit Geofence**, or **Personnel Accountability**, and when the [Action ID on page 121](#) field for the current record/row is set to **Voice Announcement** and when the radio is model/option capable.



WARNING: In the current Action Consolidation, only 1 action is allowed which consists of the range from 1 to 254 or "Continuous".

The following selections are supported:

255

 Momentary

0

 Continuous

Table 26: Range

Minimum	Maximum	Increments
1 second	254 seconds	1 second

7.3.4.8

Text Message

This field allows you to view or define Text Message for the current Action ID (record/row) of the current Consolidated Action.

7.3.4.9

Transmit Power Level

If a Transmit Power Level is selected when entering Geofence, the power level switches to the specified power level. The specified power level includes high, medium-high, medium-low, or low.

When exiting Geofence, if the Transmit Power Level of the subscriber unit was changed on entry, it returns to the last user-selected transmit power level.

Accessed Only: When the [Action ID on page 121](#) field for the current record/row is set to **Transmit Power Level**, the [Action Type on page 126](#) is set to **General**, and the radio is model/option capable.

The following selections are supported:

Switch to Low

 Switch the Transmit Power Level to low.

Switch to Medium-Low

Switch the Transmit Power Level to medium-low.

Switch to Medium-High

Switch the Transmit Power Level to medium-high.

Switch to High

Switch the Transmit Power Level to high.

7.3.4.10

Mute Site Selectable Alert

If the Mute Site Selectable Alert is selected in the Action ID field when entering Geofence, the subscriber unit (SU) mutes the current site selectable alert.

When exiting Geofence, if the SU has previously muted a site selectable alert due to the entry actions, the SU shall unmute the site selectable alert.

Accessed Only: When the [Action ID on page 121](#) field for the current record/row is set to **Mute Site Selectable Alert**, and the [Action Type on page 126](#) is set to **General**, and the radio is model/option capable.

7.3.4.11

Action Type

This field determines the type of the current Action Consolidation that will be used.

The following selections are available:

General

The Action Consolidation is applied to Enter Action on Mission Critical Geofence.

Exit Geofence

The Action Consolidation is applied to Exit Action or Enter Action on Mission Critical Geofence.

Personnel Accountability

The Action Consolidation is applied to as AC List Selection on Personnel Accountability or Enter Action on Mission Critical Geofence.

Virtual Partner

The Action Consolidation is applied when the radio receives a Virtual Partner Alert from the system.

ViQi: Virtual Partner

The Action Consolidation is applied when the radio receives a Virtual Partner Alert from the system.

Invalid SIM

You can create UI and/or Voice Announcements for authorized users to fix and/or resolve scenarios when the radio cannot read the SIM card.

Accessed Only: For APX NEXT and APX N70 radios only. APX N70 radios must have LTE HW Enablement option.

7.3.4.12

Consolidated Action Name

This field allows you to define recognizable names for the current Consolidated Action.

This field is also used as Personnel Accountability alert alias to highlight text in the display when the Action Consolidation is a Personnel Accountability action type.

Accessed Only: When the radio is model/option capable.



NOTE:

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

Examples: Traffic Stop, In Pursuit, #510

7.3.4.13

Backlight Color

This field allows you to select a backlight when the consolidated action is triggered.

The following options are supported:

- Disabled
- Red
- Amber
- Green

When **Invalid SIM** is selected as the [Action Type on page 126](#), the valid options for [Action ID on page 121](#) are **Mode**, **Direct Status**, and **Voice Announcement**.

The default value is 0.

7.3.5

Buttons and Switches

The **Buttons and Switches** section allows you to view or select radio-wide programmable button functionality for both Conventional and Trunking communications modes and assign functionality to the radio switches.

Button functionality is selected and operates separately for each of the two radio communications modes. That is, when the radio is operating on a Conventional channel, only the selected Conventional features are available to the user. Likewise, when the radio is operating on a Trunking channel, only the selected Trunking features are available to the user.

The Rotary switch and Multi-Function Knob (MFK) assignment apply while the radio is operating in Conventional or Trunking communications mode. For the radio's Toggle and Concentric switches, there are separate selections for Conventional and Trunking modes.



NOTE: These selections are model/option dependent on a per-radio basis.

This section covers the following buttons and switches:

Table 27: Buttons and Switches Descriptions

Buttons/Switches	Description
Top Button (Conventional/Trunking)	Selects the function for the Top Button.
Side Top Button (Conventional/Trunking)	Selects the function for the Side Top Button.
Side Middle Button (Conventional/Trunking)	Selects the function for the Side Middle Button.
Side Bottom Button (Conventional/Trunking)	Selects the function for the Side Bottom Button.
Speaker Grille Button (Conventional/Trunking)	Selects the function for the Speaker Grille Button.
Rotary Switch	Selects the function of the Rotary Switch for Conventional and Trunking communications mode.

Buttons/Switches	Description
Toggle Switch Position A and B (Conventional/Trunking)	Selects the function for the Portable radio's Toggle Switch Position A and B.
MFK	
Concentric Switch Position A and B (Conventional/Trunking)	Selects the function for the Portable radio's Concentric Switch Position A and B.

7.3.5.1

Button Selections

This section allows you to select the function for the Top and Side Portable radio buttons.

Table 28: Top and Side Portable Radio Functions

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
Audio Playback¹ Audio Playback plays the audio selected.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Beacon¹ This button-press allows you to check the details of any recently received Emergency Beacons.	When the radio model/option capable.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Blank Select this feature for a radio button that is not in use. You will hear a chirp tone when pressing this button.	(Intended for controls that are not in use.)	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons

¹ This feature is available for Conventional or Trunking communications mode.

Button Selections:	This selection is only valid in Radio-Central, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
		● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Bluetooth Audio Reroute¹ This button-press allows you to cycle active speaker audio between a portable radio's internal speaker or external (RSM/DRSM) speaker, and a Bluetooth accessory's wireless speakers.	When the Bluetooth Enable on page 95 field is Enabled.  IMPORTANT: This selection must be set for Conventional and Trunking on the same button; therefore, when selected for Conventional, the Radio-Central automatically sets the corresponding Trunking button selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Bluetooth Configuration¹ This button-press provides you with a list of Bluetooth status/information and Bluetooth options. See Bluetooth Configuration on page 145.	When the Bluetooth Enable on page 95 field is Enabled.  IMPORTANT: This selection must be set for Conventional and Trunking on the same button; therefore, when selected for Conventional, the Radio-Central automatically sets the corresponding Trunking button selection.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory
Bluetooth Headset PTT¹ This button-press serves as the primary, or as an additional, PTT button for a Bluetooth wireless headset; therefore this button-press allows you to key up the radio while using the Bluetooth headset's microphone as the audio source.	When the Bluetooth Enable on page 95 field is Enabled.  IMPORTANT: This selection must be set for Conventional and Trunking on the same button; therefore, when selected for Conventional, the Radio-Central automatically sets the corresponding Trunking button selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Bluetooth Inquiry On/Off¹ This button-press activates or deactivates Bluetooth Inquiry mode.	When the Bluetooth Enable on page 95 field is Enabled.  IMPORTANT: This selection must be set for Conventional and Trunking on the same button; therefore, when selected for Conventional, the Radio-Central automatically sets the corresponding Trunking button selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons

Button Selections:	This selection is only valid in Radio-Central, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
Bluetooth On/Off¹ This button-press activates and deactivates the Bluetooth capabilities of the radio.	When the Bluetooth Enable on page 95 field is Enabled.  IMPORTANT: This selection must be set for Conventional and Trunking on the same button; therefore, when selected for Conventional, the Radio-Central automatically sets the corresponding Trunking button selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons
Call Alert This button-press allows you to transmit a Call Alert for Conventional modes, or a Call Alert/Page for Trunking modes. See Call Alert on page 146.	For Conventional, when the Conventional Personality, ASTRO Call Alert Rx/Tx on page 380 field is set to Encode or Encode & Decode, or when the Conventional Personality, Call Alert Rx/Tx on page 376 field is set to Encode or Encode & Decode for the radio's current channel. For Trunking, when the Trunking Personality, Call Alert/Page Operation on page 489 field is set to List Only or Unlimited for the radio's current channel.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Call Response This button-press allows you to respond to (and hang up from) a received Phone Call (Conventional or Trunking) or Private Call. (Trunking only).	For Conventional, when the Phone Operation field is not set to None for the radio's current channel. For Trunking, when the Trunking Personality, Phone Operation field is not set to Disabled, or when the Trunking Personality, Private Call Type on page 488 field is not set to Disabled for the radio's current channel.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Channel Announcement This button-press allows you to hear the Voice Announcement audio file that is assigned to the radio's current channel/mode.  IMPORTANT: Voice files are assigned to channels from the Zone Channel Assignment, Channel Announcement Channel Announcement field.	When a Voice Announcement file has been selected in the Zone Channel Assignment, Channel Announcement field for the radio's current channel.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
Channel Down² This button-press on the APX™ 3000 Portable allows you to scroll downward through the channels in the radio.	 WARNING: This selection must be set on the Conventional and Trunking features at the same time. If the user set this selection on Conventional, the corresponding Trunking selection is automatically set. Availability is model/option dependent.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Channel Up² This button-press on the APX™ 3000 Portable allows you to scroll upward through the channels in the radio.	 WARNING: This selection must be set on the Conventional and Trunking features at the same time. If the user set this selection on Conventional, the corresponding Trunking selection is automatically set. Availability is model/option dependent.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Contacts This button press allows you to view or edit the Contacts of the radio's current channel. See Contacts on page 146 .	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
DTMF Tone¹ This button-press allows you to send out DTMF code of the assigned DTMF value. There are 12 DTMF tones; namely DTMF Tone 0 to 9, DTMF Tone *, and DTMF Tone #.	There are 12 DTMF tones; namely DTMF Tone 0 to 9, DTMF Tone *, and DTMF Tone #. When selected, the user can send out DTMF code of the assigned DTMF value. For example, when DTMF Tone 9 is selected, the user can send out DTMF Tone 9. Selection is only available when DTMF Mic Enable is Enabled .	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Dynamic ID¹	When operating in Conventional communications mode, and when the Con-	● Keypad/Dual Display

² Faster scrolling is possible with a [Long Keypress Duration on page 110](#) of the button. Upon reaching the last channel in the list, continued scrolling causes the list to wrap around to the first channel. Channels are defined in the Zone Channel Assignment Window's Channels Page.

Button Selections:	This selection is only valid in Radio-Central, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
This button-press allows for entry into the Dynamic ID edit mode, which allows you to view and/or edit the radio's Individual ID and/or MDC Primary ID for the current ASTRO and/or MDC system.	ventional System, Dynamic ID Enable field is enabled for the radio's current channel. Only available for Conventional.	• Accessory • Smart Key Fob Buttons
Dynamic Priority¹ This button-press allows you to select the Dynamic Priority scan assignment.	When Scan Mode is Enabled, and when the Scan Type on page 521 is Conventional, and when the Scan List, Dynamic Priority on page 524 field is Enabled for the radio's current landed scan channel. Only available for Conventional.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory • Smart Key Fob Buttons
Emergency¹ This button-press allows you to enter and also exit emergency mode operation. See also the Short Keypress Duration for Emergency on page 110 and the Long Keypress Duration for Emergency on page 111 features.  WARNING: When the Dual Radio-Radio Selection field is set to Primary Radio or Secondary Radio, this selection is invalid for the Side Top (Purple) button on a .	For Conventional, when the Conventional System, Emergency Profile Selection on page 349 field is not set to Emergency Tx Disabled for the radio's current channel. For Trunking, when the Trunking Personality, Emergency Profile Selection field is not set to Emergency Tx Disabled for the radio's current channel.  IMPORTANT: For Trunking, Emergency is not available when Failsoft Mode is active and Emergency Blocked In Failsoft on page 432 is Enabled.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory • Smart Key Fob Buttons
Emergency Supervisor Clear¹ This button-press is selected for Side Middle Button or Accy 1-dot. Emergency Exit Control is set to "Supervisor".	Selection is only valid in the CPS, and always available to the radio-user. It is selected for Side Middle Button or Accy 1-dot. Emergency Exit Control is set to Supervisor. Only available for Trunking.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
Information This button-press allows you to retrieve and view basic radio information such as IP-related information and buttons/switches control mapping, as well as view or modify the Soft ID. See Information on page 146.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Internet Protocol Address (IP)¹ This button-press allows you to retrieve and view (in the radio's display) the radio's current IP Address, device name and status.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Keypad/Controls Lock¹ This button-press allows you to lock (or unlock) the radio's keypad (when available). See Keypad/Controls Lock on page 146.	When the Radio Ergonomics Wide, Rotary Switch Lock Enable field is Enabled (all models), or when the Radio Ergonomics Wide, Side Buttons Lock Enable field is Enabled (all models), or when the radio has a keypad (model-specific).	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Light/Flip (Display)¹ This button's Short Keypress Duration Light feature allows you to toggle on and off the lights that illuminate the radio's Rotary switch, display, top display and keypad. This button's Long Keypress Duration Flip (Display) feature allows you to toggle back and forth the viewing perspective of the radio's top display by 180 degrees. This is particularly useful for viewing the top	When the Auto Light on page 169 field is Disabled.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
display while the radio is still in the carry holder. See Light/Flip (Display) on page 146		
Location¹ This button-press allows you to determine their current location (latitude, longitude, time and date) and also the distance and bearing to another location. See Location on page 147 .	When the Radio Wide, Location Enable on page 79 field is Enabled .	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
LTE¹ This button-press activates and deactivates the radio's LTE Broadband data capabilities. See LTE on page 147 .	For Conventional, when the Data Profile Type on page 319 of the Conventional System's referenced Data Profile is Conventional & Broadband or Broadband-Only . For Trunking, when the Data Profile Type on page 319 of the Trunking System's referenced Data Profile is Trunking & Broadband or Broadband-Only .	● Keypad/Dual Display ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Fall Alert Clear¹ This button-press allows you to clear (deactivate) the Fall Alert Emergency mode alarm.	When the Emergency Wide, Fall Alert Trigger field is Enabled .	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Message This button-press allows you to select from the Message	For Conventional, when the Conventional System, Message field is Enabled for the radio's current channel. For Trunking, when the Trunking Personality, Message Enable on page 491 field is Enabled for the radio's current channel.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
Alias List of the current channel/mode.  IMPORTANT: While operating in Conventional communications mode with MDC/ASTRO/DVRS Signaling, the Conventional Message Alias List is used. While operating in Trunking communications mode, the Trunking System-Message Alias List selected for the current Trunking Personality is used.		
Monitor This button-press allows you to hear most or even all carrier activity on the radio's current channel. See Monitor on page 147.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection. Only available for Conventional.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
MS01–MS13 These button assignments allows you to program these buttons with frequently used or any desired zone and channel combination. See MS01–MS13 on page 147.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Multiple Private Line (MPL)	When the Conventional Personality, Rx Voice/Signal Type on page 365 field is set to Non-ASTRO or Mixed Mode, and when the Conventional Personality, User Selectable PL [MPL] field is Enabled for the radio's current channel. Only available for Conventional.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
This button-press allows for your access to a listing of the available MPL Lists.  IMPORTANT: Each list is represented by a recognizable name. You are then able to select the desired Alias/PL settings.		
Nuisance Delete¹ This button-press allows you to temporarily remove the channel from the current Active Scan when it continually generates unwanted carrier noise. See Nuisance Delete on page 147.	When Scan Mode is Enabled.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
One Touch 1–4 These four separately programmed button-presses allow you to launch a specific feature with one single button-press. See One Touch 1–4 on page 148.	For Conventional, when at least one Conventional Personality, One Touch Button Feature is not set to Disabled for the radio's current channel. For Trunking, when at least one Trunking System, One Touch Button One Touch Button Feature on page 460 is not set to Disabled for the radio's current channel.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Phone¹ This button-press allows you to initiate Phone Mode while operating in Conventional or Trunking communications mode.	For Conventional, when the Conventional Personality, Phone Operation field is not set to None for the radio's current channel. For Trunking, when the Trunking Personality, Phone Operation field is not set to Disabled for the radio's current channel.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Priority Channel PTT¹ If the radio is currently operating in Scan Mode, and there is Priority Member 1 Scan List Member in the current channel's Scan List, then pressing	When operating in Conventional communications mode, and when there is a Priority Member 1 on page 530 Scan List Member in the current channel's Scan List. Only available for Conventional.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
this button causes the radio to key up on the Priority 1 Scan List Member channel, therefore allowing transmission of voice communications; otherwise, the radio blocks the transmission and sounds the Talk Prohibit Tone. See Priority Channel PTT on page 148. This feature is available while operating in Conventional communications mode.		● Front Display and Menu Buttons ● Accessory
Priority Dispatch	Selection is valid only for Side Top Button, Side Middle Button, and Side Bottom Button. Only available for Trunking.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Radio Profiles¹ This button-press allows you to select one of the programmed Radio Profiles. This feature is available while operating in Conventional communications mode.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Recent Calls¹ This button-press allows you to access the recent incoming and outgoing call information for the following call types: Call Alert, Selective Calls, Private Calls, and (outgoing only) Phone calls. This feature is available while operating in Conventional communications mode.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Rekey Request¹ This button-press allows you to transmit an Over-The-Air-Re-	When the ASTRO OTAR Information, User Selectable Rekey Request on page 277 is not set to Disabled, or when the MDC OTAR, Rekey Request	● Keypad/Dual Display ● Top Display

Button Selections:	This selection is only valid in Radio-Central, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
keying (OTAR) rekey request to the dispatcher's (KMF or KMC) console while operating in Conventional or Trunking communications mode. See Rekey Request on page 149.	Mode on page 261 is not set to Disabled.  NOTE: Requires a Long Key-press Duration on page 110	● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Repeater Access Button 1 (RAB1)¹ This button-press allows you to manually send a repeater access codeword. This feature is available while operating in Conventional communications mode.	When the Conventional Personality, Repeater Access field is Enabled, and when the Access Type is set to Manual for the radio's current channel. Only available for Conventional.  NOTE: This feature is not available on Side Button 1 when Radio Lock Enable is Enabled.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Repeater Access Button 2 (RAB2)¹ This button-press allows you to manually send a repeater access codeword. This feature is available while operating in Conventional communications mode.	When the Conventional Personality, Repeater Access field is Enabled, and when the Access Type is set to Manual for the radio's current channel. Only available for Conventional.  NOTE: This feature is not available on Side Button 1 when Radio Lock Enable is Enabled.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Reprogram Request This button-press allows you to send a request to the dispatcher for reassignment of Dynamic Regrouping. See Reprogram Request on page 149.	When the Trunking System, System Type is ASTRO 25, and when the Trunking System, Dynamic Regrouping Enable field is Enabled for the radio's current channel. Only available for Trunking.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Request-To-Talk (RTT) This button-press allows you to send a Request-To-Talk (RTT) signaling packet to the dispatcher/console, requesting the ability to transmit voice.	When the Conventional Personality, RTT Button Access (Non-ASTRO) field is set to Manual for the radio's current channel, and when that Personality is not a Receive Only Personality on page	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
This selection applies only when operating on an MDC System in Conventional communications mode.	365 , and when Tx Inhibit is not Enabled . Only available for Conventional.	● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Scan Short Key-pressing this button allows you to toggle Scan Mode on and off for the radio's current channel. Long Key-pressing this button allows for entry to the Scan List Edit mode for the radio's current channel's Scan List, which allows you to add or remove individual Scan List Member channels and modify scan priority.	For Conventional, when the Scan Type on page 521 is not set to Voting Scan, and when the Conventional Personality, Scan List Selection on page 515 field is not set to None, and when the Conventional Personality, Automatic Scan on page 388 field is Disabled for the radio's current channel. For Trunking, when the Trunking Personality, Scan List Assignment field is not set to None, and when the Trunking Personality, Automatic Scan on page 491 field is Disabled for the radio's current channel.  IMPORTANT: This selection cannot be set concurrently on Buttons, Switches and Menu Items; however, it can be set concurrently on Portable and Accessory Buttons.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Select Call This button-press allows the radio-user to transmit a Conventional call.	When the radio is model/option capable.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Sensor¹ This button-press allows you to select the time of the Sensor Event Disable Time operation. The Sensor Event Disable Time is a Radio Wide field.	When the radio is model/option capable.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
Site Display/Srch¹	When the Trunking System, Site Alias Enable on page 459 field is Enabled for	● Keypad/Dual Display

Button Selections:	This selection is only valid in Radio-Central, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
This button's Short Keypress Duration Site Display allows you to momentarily view the current Site ID and its corresponding received signal strength indicator (RSSI) on the radio's display. This button's Long Keypress Duration Site Search enables a Site search for SmartZone operation.	the radio's current channel. Only available for Trunking.	• Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory • Smart Key Fob Buttons
Site Lock/Unlock¹ This button-press Short Keypress Duration Site allows you to view the lock status of the current Trunking site. This button's Long Keypress Duration Site Lock/Unlock allows you to toggle between lock and unlock mode when using the SmartZone option.  IMPORTANT: Locking a site inhibits roaming to another site in a wide-area System. This feature is available while operating in Trunking communications mode.	When the Trunking System, Site Alias Enable on page 459 field is Enabled for the radio's current channel. Only available for Trunking.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory • Smart Key Fob Buttons
Status This button-press allows you to select from the Status Alias List of the current channel/mode. See Status on page 149.	For Conventional, when the Conventional System Status on page 355 field is Enabled for the radio's current channel. For Trunking, when the Trunking Personality Status Enable on page 491 field is Enabled for the radio's current channel.	• Keypad/Dual Display • Front Display and Menu/Navigation Buttons • Accessory • Smart Key Fob Buttons
Talkaround/Direct¹ This button-press allows you to enable or disable the Direct/Talkaround mode for the current channel options profile. This feature is available while operating in Conventional communications mode.	When operating in Conventional communications mode, and when the Conventional Personality, Direct/Talkaround on page 407 field is Enabled for	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
	the radio's current channel. Only available for Conventional.  IMPORTANT: This selection cannot be set concurrently on Buttons, Switches and Menu Items; however, it can be set concurrently on Portable and Accessory Buttons.	● Accessory ● Smart Key Fob Buttons
Talkgroup This button-press allows you to switch from the preset Talkgroup to another Talkgroup from within the Conventional Personality's current Talkgroup List. All Conventional Personalities using the same Talkgroup List are automatically switched to the selected Talkgroup.	When the Conventional Personality, AS-TRO Talkgroup Selection Type on page 382 field is set to Selectable for the radio's current channel. Only available for Conventional.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Text Messaging Service (TMS) This button's Short Keypress Duration TMS allows you to access the radio's TMS mode, seen in the radio's display. This button's Long Keypress Duration allows you to directly enter the TMS Inbox, in order to view received text messages and access the programmed Quick Text Message on page 318 entries (seen within the radio's display). See also the Trunking System or Conventional System, Text Messaging Service feature.	For Conventional, when the Conventional System, Text Messaging Service on page 357 field is set to List Only or Unlimited, and when that System's Data Profile Selection on page 350 is not set to Data Disabled for the radio's current channel. For Trunking, when the Trunking System, Text Messaging Service on page 451 field is set to List Only or Unlimited, and when that System's Data Profile Selection on page 449 is not set to Data Disabled for the radio's current channel.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Third Party This button-press allows you to initiate functionality in third-	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
party accessories, such as compatible Whelen® Sirens.  WARNING: When the Dual Radio Radio Selection field is set to Primary Radio or Secondary Radio, this selection must be made for both Conventional and Trunking, where applicable, in order to be considered valid.		
TMS Query This button-press jumps you directly to the programmed Query Message entries of the Text Messaging Service feature. You are then able to select from the list of predefined entries and easily transmit a Query with minimal effort. See TMS Query on page 149.	For Conventional, when the Conventional System, Text Messaging Service on page 357 field is set to List Only or Unlimited, and when that System's Data Profile Selection on page 350 is not set to Data Disabled for the radio's current channel. For Trunking, when the Trunking System, Text Messaging Service on page 451 field is set to List Only or Unlimited, and when that System's Data Profile Selection on page 449 is not set to Data Disabled for the radio's current channel.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
TMS Quick Text This button-press jumps you directly to the Quick Text Message entries of the Text Messaging Service feature. You are then able to select from the list of predefined entries and easily transmit a Quick Text Message with minimal effort. When the Trunking System or Conventional System, Text Messaging Service feature is enabled on the radio's current channel.	For Conventional, when the Conventional System, Text Messaging Service on page 357 field is set to List Only or Unlimited, and when that System's Data Profile Selection on page 350 is not set to Data Disabled for the radio's current channel. For Trunking, when the Trunking System, Text Messaging Service on page 451 field is set to List Only or Unlimited, and when that System's Data Profile Selection on page 449 is not set to Data Disabled for the radio's current channel.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
Unprogrammed¹ Select this feature for a radio button that is not in use. You will hear a chirp tone when pressing this button.	(Intended for controls that are not in use.)	● Keypad/Dual Display ● Top Display

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
		● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory ● Smart Key Fob Buttons
User This button-press allows you to login to a specific Automatic Registration Service server or a User Authentication Unified Network Services (UNS) server with the appropriate Username, PIN/Password, and User Login Unit ID combination. See User on page 149.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	● Keypad/Dual Display ● Front Display and Menu/Navigation Buttons ● Accessory ● Smart Key Fob Buttons
ViQi: Virtual Partner This button allows access to the Virtual Partner feature. See ViQi: Virtual Partner on page 149.	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection. Only available for Trunking.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory
ViQi: Voice Control¹ This button allows access to the Voice Control and the Virtual Partner feature. This feature is available for Conventional or Trunking communications mode. See ViQi: Voice Control on page 149.	When the radio is not in the Virtual Partner feature, all presses of this button will activate the Voice Control feature. When the user enters the Virtual Partner feature through a Voice Control command, the following presses of the button will apply only to the Virtual Partner feature.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons ● Accessory
Voice Mute This button-press allows you to toggle on and off Voice Mute functionality for In-Call User Alert-enabled channels. See Voice Mute on page 150.	For Conventional, when the Conventional Personality, ASTRO Call, In-Call User Alert Enable on page 489 field is Enabled for the radio's current channel, or when the Conventional Personality, Non-ASTRO Call In-Call User Alert Enable (Non-ASTRO) field is Enabled for the radio's current channel.	● Keypad/Dual Display ● Top Display ● Front Display and Menu/Navigation Buttons ● Front Display and Menu Buttons

Button Selections:	This selection is only valid in RadioCentral, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
	For Trunking, when the Trunking Personality, In-Call User Alert Enable on page 489 field is Enabled for the radio's current channel.	• Accessory • Smart Key Fob Buttons
Volume Set Tone This button-press causes one-or-the-other of the following radio behaviors. See Volume Set Tone on page 150 .	When selected, always available to the user, and therefore not dependent on any RadioCentral feature or selection.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory
Wi-Fi On/Off¹ This button-press allows you to activate and deactivate Wi-Fi capability.	This button-press activates and deactivates Wi-Fi capability of the radio.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory • Smart Key Fob Buttons
Zone Bank Down This button-press allows you to move-down (scroll in descending order) through the radio's Zone Banks. See Zone Bank Down on page 150 .	 WARNING: This selection must be set on the Conventional and Trunking features at the same time. If the user set this selection on Conventional, the corresponding Trunking selection is automatically set.  IMPORTANT: In order for Zone Bank Down to be set on an Accessory Button, this selection should first be set on a Portable Button. When Zone Bank Down is set on a Button, Zone Select is automatically set on Conventional and Trunking Toggle Switches and it cannot be set on Conventional and Trunking Concentric Switches, or the Rotary Switch.	• Top Display • Accessory

Button Selections:	This selection is only valid in Radio-Central, and/or available to the user:	Selections are Available in RadioCentral Based on Availability to Current Hardware:
Zone Bank Up This button-press allows you to move-up (scroll in ascending order) through the radio's Zone Banks. See Zone Bank Up on page 150 .	 WARNING: This selection must be set on the Conventional and Trunking features at the same time. If the user set this selection on Conventional, the corresponding Trunking selection is automatically set.  IMPORTANT: In order for Zone Bank Up to be set on an Accessory Button, this selection should first be set on a Portable Button. When Zone Bank Up is set on a Button, Zone Select is automatically set on Conventional and Trunking Toggle Switches and it cannot be set on Conventional and Trunking Concentric Switches, or the Rotary Switch.	• Top Display • Accessory
Zone Down This button-press allows you to scroll downward through the Zones in the radio. See Zone Down on page 150 .	 WARNING: This selection must be set on the Conventional and Trunking features at the same time. If the user set this selection on Conventional, the corresponding Trunking selection is automatically set. Availability is model/option dependent.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory
Zone Up This button-press allows you to scroll upward through the Zones in the radio See Zone Up on page 151 .	 WARNING: This selection must be set on the Conventional and Trunking features at the same time. If the user set this selection on Conventional, the corresponding Trunking selection is automatically set. Availability is model/option dependent.	• Keypad/Dual Display • Top Display • Front Display and Menu/Navigation Buttons • Front Display and Menu Buttons • Accessory

Bluetooth Configuration

The following features are included:

Bluetooth Status

Allows you to turn on and off Bluetooth radio to Bluetooth device functionality.

Device Active

Allows you to view a list of all currently active (paired) Bluetooth devices.

Bluetooth Speaker

Allows you to turn on and off a Bluetooth device's speaker.

Call Alert



NOTE:

Call Alert/Pages allow a dispatcher or radio caller to notify you (or group of users) of a missed call. Receiving radios are targeted based on radio and system information managed by the Contacts and Call IDs in the radio's Call Hot Lists. You can directly enter or select Call IDs from the channel's Hot List. The receiving radio responds with both alert tones and visual alerts to you. The visual alert (flashing LED) persists until reset by your interaction with the radio.

Contacts

Contacts must be programmed in the Unified Call List. Contacts make up the members of Call Hot Lists. Hot List members/Contacts are selectable by you, allowing for call types such as Phone Calls, Selective Calls, Call Alerts, Private Calls and Pages to individual radios or to groups of radios.



IMPORTANT: This feature is not available for Portable radios having only a top display.

Information

This feature applies only when operating on ASTRO - Conventional Systems. This is a Portable radio only feature.



IMPORTANT:

Modifying the Soft ID changes the radio's Username for Automatic Registration Service server or a User Authentication Unified Network Services (UNS) server login. When editing the Username this way, the PIN/Password and Unit ID are blanked. Therefore, this can only be used when the server is expecting a blank PIN/Password and you do not want to use Unit ID.

This feature is not available for Portable radios having only a top display.

Keypad/Controls Lock

Additional control-locking functionality is possible (for all models) when the [Rotary Switch Lock Enable on page 113](#) field and/or [Side and Speaker Grille Buttons Lock Enable](#) field is **Enabled**.



IMPORTANT:

When Rotary Switch Lock Enable is **Enabled** on radios with a rotary switch, this feature also locks the radio's currently-operating [Rotary Selections on page 151](#) (zone or channel) even when the rotary switch is moved to another position.

When Side Button Lock Enable is **Enabled**, this feature also locks the radio's Side Top, Side Middle, and Side Bottom buttons.

Light/Flip (Display)



IMPORTANT:

The [Display Light Time on page 169](#) determines the amount of time that the lights remain illuminated, when set to **Infinite** pressing this button again turns off the lights.

For all portable radio models, the Light and Flip (Display) features also apply to a portable Accessory that has a display, such as the Display Remote Speaker Microphone (DRSM).

Location

 **IMPORTANT:** If the Radio Wide, [User Selectable Location Enable on page 80](#) field is **Enabled**, you are also allowed to turn the outdoor location/Global Positioning System (GPS) functionality on or off for all location/GPS enabled Conventional or Trunking communications channels.

LTE

 **IMPORTANT:**
This button-selection is only operational when a channel that is configured for LTE Broadband operation is selected. When a non-LTE channel is selected, the menu is hidden from you.
A channel is LTE capable when its Data Profile's [Data Profile Type on page 319](#) field is set to **Conventional & Broadband**, or **Trunking & Broadband**, or **Broadband-Only**.

Monitor

The [Monitor Type on page 335](#) field selection determines if only the channel-receive requirement of a Private Line (PL) encoded match is temporarily ignored, or if the requirement of PL and carrier squelch is temporarily ignored. This feature is available while operating in Conventional communications mode.

 **IMPORTANT:** When holding the Monitor button for the [Latch Enable Time on page 336](#) duration, the radio becomes latched in continuous monitor mode. The radio remains latched in monitor mode until released with a Monitor button short-press. Initiating Emergency, Phone, Scan, or a Call Alert or Selective Call also cancels continuous monitor mode. See also the [Latch Enable Tone on page 336](#) field.

MS01–MS13

The programming and use of these buttons is very similar to the programming and use of a car radio's preset buttons. That is, a long-press programs a button with the radio's current zone and channels; then once programmed, the short-press of that button jumps the radio to the programmed zone and channel.

 **IMPORTANT:**
The [Short Keypress Duration on page 110](#) and [Long Keypress Duration on page 110](#) are both programmed.
The APX™ 3000 Portable only supports MS01 and MS02.

Nuisance Delete

This is accomplished by pressing this Nuisance Delete button while in Landed Scan Mode on the Scan List Member to be removed. This feature applies for the current Scan List while operating in Conventional or Trunking communications mode.

 **IMPORTANT:**
Switching to another channel on the radio's channel selector, turning scan mode off and then back on, or turning the radio off and then back on effectively brings that temporarily removed Scan List Member channel back to an actively scanned status.

Nuisance Delete is not possible:

- For a Priority #1, or Priority #2 Scan List Member channel.
- When the [Designated Voice Tx Member Type on page 525](#) field is set to **Selected Channel** and the Landed Scan channel's Tx Frequency is the same as the Tx Frequency of the radio's currently-selected channel.
- If the current Scan List does not contain at least two members before a Nuisance Delete occurs.

One Touch 1–4

These button-presses allow you to enter One Touch features such as Status, Message, Selective/Private Call, Call Alert/Page, Phone, Repeater Access (RAC), and MDC RTT Button Access with the touch of one button. One to four buttons can be programmed for each Conventional Personality, and one to four buttons can be programmed for each Trunking System.



IMPORTANT: Pressing a One Touch button while the radio is already in the selected feature causes the radio to abort the feature.

Priority Channel PTT



IMPORTANT:

Priority Channel PTT operation is mutually exclusive with the Intercomand Public Address (PA) functions.

For all APX radios, Priority Channel PTT operation will not perform sending/calling operation when any of the following functions are active in the radio:

- Emergency
- Call Alert
- Selective Call
- Recent Call
- Phone
- Stun/Kill
- TMS
- Status/Message
- Siren
- Public Address (PA)
- Unified Call List
- Rekey Request
- Evacuation Tone

For the O3 mobile control head, Priority Channel PTT will not perform Hot Keypad sending operation. This is because the O3 mobile control head does not support multi-button press between the side button, the menu softkey, the arrow key, or the keypad. This limitation also impacts other features that need two or more button press at the same time.

The radio handles the first PTT press and release, and ignores the second PTT press and release when the two PTT actions are a different type; in other words:

- whenever the radio is already transmitting due to a primary PTT button-press, the Priority Channel PTT button-press is ignored by the radio.
- conversely, whenever the radio is already transmitting on the Priority 1 Scan List Member channel, due to a Priority Channel PTT button-press, a primary PTT button-press is ignored by the radio.

Priority Channel PTT button must not be used in DVRS channel.

Rekey Request



IMPORTANT:

For MDC OTAR (Conventional communications) the request protocol is determined by the [Rekey Request Mode on page 261](#) field.

For ASTRO OTAR (Conventional or Trunking communications) the [User Selectable Rekey Request on page 277](#) field must be **Enabled**, and the request protocol is determined by the [OTAR Tx Security Level on page 275](#) field.

Reprogram Request

The available features and settings of the Dynamic Regrouping talkgroup are defined and transmitted back by the dispatcher/console. The radio then automatically changes to the Dynamic Regrouping Zone and Dynamic Regrouping Channel. This feature is available while operating in Trunking communications mode.



IMPORTANT: For Trunking Systems, this Zone and Channel are defined by setting a Zone Channel Assignment's [Trunking Talkgroup on page 511](#) field to **DYN**. The Trunking Personality considered in this scenario must have this same Trunking [System on page 483](#) selected in its System field. Hence, only one Dynamic Regrouping channel may be defined per Trunking System.

Status

For your convenience, as part of this feature the display initially shows the last acknowledged Status call, or the first Status in the list.



IMPORTANT:

While operating in Conventional communications mode with MDC/ASTRO/DVRS Signaling, the Conventional Status Alias List is used.

While operating in Trunking communications mode, the Trunking System-Status Alias List selected for the current Trunking Personality is used.

TMS Query

A TMS Query allows you to specify information in a pre-formatted query template and send this as a Message to a Query Server; the Server then responds with a text message containing the requested information.

When the Trunking System or Conventional System, Text Messaging Service feature is enabled on the radio's current channel, and when the TMS Query Service is currently available to the radio.

User

You may select Usernames and Unit ID from the programmed Data User List entries, or Usernames, PINs/ Password and Unit IDs may be manually entered from the radio's keypad.



WARNING: This feature functions only when the radio's current (Conventional or Trunking) channel has its referenced Data Profile's, [ARS Mode on page 322](#) field is set to **Server**.

ViQi: Virtual Partner

This feature is only available for Trunking if set to **LMR** operation in [ViQi: Virtual Partner Mode on page 72](#). This feature is available for Conventional and Trunking communications mode if set to **Disabled** and Broadband in [ViQi: Virtual Partner Mode on page 72](#).

ViQi: Voice Control

When the radio is not in the Virtual Partner feature, all presses of this button will activate the Voice Control feature. When the user enters the Virtual Partner feature through a Voice Control command, the subsequent

presses of the button will apply only to the Virtual Partner feature. Once Virtual partner session is over, this button will apply to Voice Control.

Accessed Only: When the radio is model/option capable.

Voice Mute

When Voice Mute is active, the radio remains muted to all Conventional communications calls and affiliated Trunking Talkgroup calls. Group and individual Call Alert/Pages do unmute the radio for the alert tone; also, when Voice Mute is active, the radio does unmute to individual radio-to-radio calls such as Selective/Private Calls and Interconnect (phone mode) calls.

Volume Set Tone

When the [Volume Adjust Tone Offset on page 75](#) field is **Disabled**, this button-press allows you to sample the radio's current volume level for incoming transmissions unmuting to the radio's speaker. When this button is pressed, the tone sounds at the radio's current setting for as long as the button is held; as you adjust the volume, the tone's audio level is simultaneously adjusted.

Zone Bank Down

When the Zone Bank Operations field is set to **Enhanced**, faster scrolling (in ascending order) is possible with a [Long Keypress Duration on page 110](#) of the button.



NOTE: The [Zone Bank Up](#) programmable button allows you to move-up (scroll in ascending order) through the radio's Zone Banks.



IMPORTANT:

When assigning Zone Bank Up or Zone Bank Down to a programmable button, [Zone Select](#) is automatically assigned to the Three Position A/B/C Toggle switch.

The Rotary may then only be set to the [Channel Select](#) selection. Only 16 channels are possible per zone when using the Rotary as the channel selector.

Zone Bank Up

When the Zone Bank Operations field is set to **Enhanced**, faster scrolling (in ascending order) is possible with a [Long Keypress Duration on page 110](#) of the button.



NOTE: The [Zone Bank Down](#) programmable button allows you to move-down (scroll in descending order) through the radio's Zone Banks.



IMPORTANT:

When assigning Zone Bank Up or Zone Bank Down to a programmable button, [Zone Select](#) is automatically assigned to the Three Position A/B/C Toggle switch.

The Rotary may then only be set to the [Channel Select](#) selection. Only 16 channels are possible per zone when using the Rotary as the channel selector.

Zone Down

Faster scrolling is possible with a [Long Keypress Duration on page 110](#) of the button. Upon reaching the first Zone in the list, continued scrolling causes the list to wrap around to the last Zone. Zones are defined in the Zone Channel Assignment Window.



NOTE: In certain Portable radios, Zones may also be grouped into Zone Banks, where individual banks can be selected with a [Zone Bank Up](#) or [Zone Bank Down](#) button-press.

Zone Up

Faster scrolling is possible with a [Long Keypress Duration on page 110](#) of the button. Upon reaching the last Zone in the list, continued scrolling causes the list to wrap around to the first Zone. Zones are defined in the Zone Channel Assignment Window's Zone Page.



NOTE: In certain Portable radios, Zones may also be grouped into Zone Banks, where individual banks can be selected with a [Zone Bank Up](#) or [Zone Bank Down](#) button-press.

7.3.5.2

Rotary Selections

Selects the function of the Rotary Switch for Conventional and Trunking communications mode.



WARNING: You should not duplicate a function on multiple controls, i.e., on more than one button, on more than one switch or on a button and a switch. This may cause incorrect radio operation.

The following selections are supported:

Blank

(Intended for controls that are not in use.)

Channel/Sub Select ([Channel Select](#))

When the radio is model/option capable.



WARNING: This selection cannot be set concurrently on the Rotary Switch, Concentric Switches and Toggle Switch.

Zone/Sys Select ([Zone Select](#))

When the radio is model/option capable.



WARNING: This selection cannot be set concurrently on the Rotary Switch, Concentric Switches and Toggle Switch.

This is not a valid selection when [Zone Bank Up](#) or [Zone Bank Down](#) is set on a programmable button.



NOTE: These selections are model/option dependent on a per radio basis, and apply to Conventional and Trunking communications modes.

7.3.5.3

Switch Selections

For portable radios, you can assign a function to Conventional Switches and Trunking Switches. Both Conventional and Trunking have the following switches:

- Concentric Switch Position A
- Concentric Switch Position B
- Toggle Switch Position A
- Toggle Switch Position B
- Toggle Switch Position C

These functions can be selected for Conventional Communication Mode, Trunking Communication Mode, or both.



WARNING: You must not duplicate a function on multiple controls. For example, on more than one button, on more than one switch, or on a button and a switch. Duplicating a function can cause incorrect radio operation.

The following table describes the function and dependencies of each switch selection.

Table 29: Switch Selection Functions and Dependencies

Switch Selection	Function	Dependencies
Blank	For controls that are not in use.	-
Hazard Zone Mode On	Turns on the Hazard Zone Mode.	-
Hazard Zone Mode Off	Turns off the Hazard Zone Mode.	-
Keypad/ Controls Lock	Locks or unlocks the radio keypad.  WARNING: This selection must not be set concurrently on both Position A and Position B of the Concentric Switch, or on all positions of the Toggle Switch. Otherwise, buttons, menu items, and the Rotary Knob are inoperable by the user.	When the Rotary Switch Lock Enable field is enabled, this switch selection also locks the current operating channel of the radio, even when the Rotary Switch is moved to another position. When the Side Button Lock Enable field is enabled, this switch selection also locks the Side Top, Side Middle, and Side Bottom buttons of the radio.
Mute	Enables or disables radio tones, as configured in the Enhanced Mute Tones Operation field. An example of radio tones is keypad tones.	-
Scan	Allows you to select Scan Lists and toggle Scan Mode on or off while operating in Conventional or Trunking Communication Mode.  WARNING: This selection must not be programmed concurrently on buttons, switches, and menu items. However, this selection can be set concurrently on Portable and Accessory Buttons.  IMPORTANT: This selection can be set on one Conventional Concentric Switch only or maximum two Conventional Toggle Switches, but not both. This same condition applies to Trunking Switches. This selection can be set concurrently on Conventional and Trunking Switches, noting the previous condition.	For Conventional Mode, the following conditions must be met: • The Scan Type field is not set to Voting Scan. • The Scan List Selection field of the Conventional Personality is not set to None. • The Automatic Scan field of the Conventional Personality is disabled for the current radio channel. For Trunking Mode, the following conditions must be met: • The Scan List Selection field of the Trunking Personality is not set to None. • The Automatic Scan field of the Trunking Personality is disabled for the current radio channel.
Scan List Prgm	Sets the radio to a Scan List Edit Mode. You can add or remove individual Scan List members from the Scan List and modify the scan priority of any member.	For Conventional Mode, the Scan List Selection field of the Conventional Personality must not be set to None for the current radio channel. For Trunking Mode, the Scan List Selection field of the Trunking Personality

Switch Selection	Function	Dependencies
	When in this mode, Over-the-Air communication is not possible.  IMPORTANT: In the Scan List Edit Mode, the Top Side Button of the radio becomes the designated select button while editing a scan list channel.	must not be set to None for the current radio channel.
Secure Tx Select	Allows you to choose secure encrypted or clear transmissions.	-
Tx Low Power	Changes the radio transmission power from low to high and back on a radio-wide basis. When initiated, this setting takes precedence over all transmit power level settings of the Conventional Personality and Trunking System.	-
Zone Select	Allows you to select a zone. Only the first two or first three zones defined in Channel Assignment are available on the switch.  WARNING: This selection cannot be set concurrently on the Rotary Switch, Concentric Switch, and Toggle Switch.	When assigning Zone Bank Up or Zone Bank Down to a programmable button, Zone Select is automatically assigned to the three Position A, B, and C Toggle Switches. When the Conventional Concentric Switch Position A is set to Zone Select, the following situation occurs: • The Conventional Concentric Switch Position B, and Trunking Concentric Switch Position A and B are automatically set to Zone Select and become view-only. • Only the Conventional Concentric Switch Position A can be modified. When the Conventional Toggle Switch Position A is set to Zone Select, the following situation occurs: • The Conventional Toggle Switch Position B and C, and the Trunking Toggle Switch Position A, B, and C are automatically set to Zone Select and become view-only. • Only the Conventional Toggle Switch Position A can be modified.

7.3.5.4

Multi-Function Knob Selections

For portable radios, you can assign functions to the Multi-Function Knob (MFK). The MFK has a Primary Function and Secondary Function.

The following table describes the function and dependencies of each selection.

Table 30: Multi-Function Knob Selection Functions and Dependencies

Knob Selection	Function	Dependencies
Blank	For controls that are not in use.	-
Channel Select	Allows you to change the channel on the radio.	If this selection is assigned as the Primary Function of the MFK, Volume Select must be assigned as the Secondary Function. Otherwise, this selection is not valid.
Volume Select	Allows you to adjust the volume of the radio.	For single-function operation, you must select Volume Select as the Primary Function and Blank as the Secondary Function. Otherwise, this selection is not valid. For dual-function operation, the following conditions must be met. Otherwise, this selection is not valid. ● If the MFK Primary Function is assigned with either Zone Select or Channel Select, then the Secondary Function must be assigned with Volume Select. ● If the MFK Primary Function is assigned with Volume Select, the Secondary Function must be assigned with either Zone Select or Channel Select.
Zone Select	Allows you to select a zone. Only the first two or first three zones defined in Channel Assignment are available on the knob.  WARNING: This selection cannot be set concurrently on the Rotary Switch, Concentric Switch, and Toggle Switch.	-

7.3.6

Menu Items

This topic covers Conventional and Trunking menu items.

Radio menu functionality is defined and operates separately for each of the two radio communications modes, Conventional and Trunking. That is, when the radio is operating on a Conventional channel, only the

selected Conventional features are available to you. Likewise, when the radio is operating on a Trunking channel, only the selected Trunking features are available.

Available/Selected (Conventional)

This field allows you to add or remove menu item Conventional features.

From the **Available Items** column, you can select the features to appear in the radio's display (available for use) while operating in Conventional communications mode.



NOTE:

Clicking the **Add** or **Remove** button allows you to add or remove selected menu items to or from the **Selected** column.

There must be at least one menu item in the **Selected** column.

Available/Selected (Trunking)

This field allows you to add or remove menu item Conventional features.

From the **Available Items** column, you can select the features to appear in the radio's display (available for use) while operating in Trunking communications mode.



NOTE:

Clicking the **Add** or **Remove** button allows you to add or remove selected menu items to or from the **Selected** column.

There must be at least one menu item in the **Selected** column.

7.3.6.1

Menu Selections

This topic lists the menu items selections.

Battery (BATT)

This menu-selection, allows you to check the battery power level while operating in Conventional or Trunking communications mode.

Bluetooth (BT)

This menu-selection provides you with a list of Bluetooth status/information and Bluetooth options.

This feature is available while operating in Conventional or Trunking communications mode and the Bluetooth Enable field is **Enabled**.

Bluetooth Configuration features include:

Bluetooth Status

Allows you to turn On and Off Bluetooth radio to Bluetooth device functionality.

Device Active

Allows you to view a list of all currently active (paired) Bluetooth devices.

Bluetooth Speaker

Allows you to turn On and Off a Bluetooth device's speaker.

Beacon (BCON)

This menu-selection allows you to check the details of any recently received Emergency beacons.

This feature is available for Conventional or Trunking communications mode and when the radio model or option is capable.

Select/Private Call (CALL)

This menu-selection allows you to transmit a Conventional-Selective Call or a Trunking-Private Call.

Select the required Contact/Call ID and then press the PTT button to initiate the Call.

Select Calls and Private Calls are typically used when the majority of transmissions are between you and a dispatcher, or a group of users.

You can directly enter or select targeted Calls based on the Call ID from the channel's Call Hot List. Select Calls and Private Calls are intended not so much to ensure privacy but rather to eliminate the annoyance of receiving traffic that does not pertain to them. See also Conventional-Selective Call Rx/Tx and Trunking-Private Call.

Channel Down (CHDN)

This menu-selection allows you to scroll down to other channels within the radio's current Zone.

Channels are defined in the Zone Channel Assignment window. This feature is available while operating in Conventional or Trunking communications mode.

Channel Search (CHSR)

This menu-selection allows you to search for a channel/mode based on its programmed channel name, and directly switch to the found channel.

This feature is available while operating in Conventional or Trunking communications mode.



NOTE: The channel name can be viewed in the Zone Channel Assignment window's Channels Page on a per zone basis.

Channel Select (CHAN)

This menu-selection allows you to jump to a channel in the radio by entering the channel number on the radio's keypad

This feature applies while operating in Conventional or Trunking communications mode.



NOTE: These channel numbers must be programmed and can be viewed in the Zone Channel Assignment window's Channels Page on a per zone basis.

Channel Up (CHUP)

This menu-selection allows you to scroll up to other channels within the radio's current Zone. Channels are defined in the Zone Channel Assignment window.

This feature is available while operating in Conventional or Trunking communications mode.

Clock (CLCK)

This menu-selection allows you to view and modify clock settings.

The Time Format defines the default time mode within the radio's display. This feature applies while operating in Conventional or Trunking communications mode.



IMPORTANT: The Clock feature only appears in the radio's display when the Radio Wide, Time Format field is not set to **Disabled**

Contacts (CNTS)

This menu-selection allows you to view/edit the Contacts of the radio's current channel.

You can select Hot List members/Contacts, allowing for call types such as Phone Calls, Selective/Private Calls, and Call Alerts/Pages to individual radios or to groups of radios. This feature applies while operating in Conventional or Trunking communications mode.



IMPORTANT: This feature is not available for Portable radios having only a top display.

Dialer

This menu-section available when the radio model/option capable.

Direct/Talkaround (DIR)

This menu-selection allows you to enable or disable the Direct/Talkaround mode for the current channel options profile.

This feature is available while operating in Conventional communications mode and when the Conventional Personality, Direct/Talkaround field is **Enabled** for the radio's current channel.



IMPORTANT: This selection cannot be programmed concurrently on Buttons, Switches, and Menu Items.

Dynamic ID (DYID)

This menu-selection allows for entry into the Dynamic ID edit mode, which allows you to view and/or edit the radio's Individual ID and/or MDC Primary ID for the current ASTRO and/or MDC system.

This feature is available while operating in Conventional communications mode and when the Conventional System, Dynamic ID Enable field is **Enabled** for the radio's current channel.

Dynamic Priority (DYNP)

This menu-selection allows you to select the Dynamic Priority scan assignment.

This feature is available as the following settings.

- Scan Mode is enabled.
- Scan Type is **Conventional**.
- Scan List, Dynamic Priority field is enabled for the radio's current landed scan channel.

Erase (ERAS)

This menu-selection allows you to remove the current secure encryption key that is being used by the radio, or all of the radio's current encryption keys.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- The Secure Wide, Secure Operation field is set to **Hardware** or **Software**.
- Advanced Encrypted Standard (AES256) is **Enabled**.

Information (INFO)

This menu-selection allows you to retrieve and view basic radio information such as IP-related information and buttons or switches control mapping, as well as view or modify the Soft ID.

This feature applies only when operating on ASTRO - Conventional Systems. This is a Portable radio only feature.



IMPORTANT:

Modifying the Soft ID changes the radio's Username for Automatic Registration Service server or a User Authentication Unified Network Services (UNS) server logon. When editing the Username this way, the PIN/Password and Unit ID are blanked. Therefore, this can only be used when the server is expecting a blank PIN/Password and you do not want to use Unit ID.

This feature is not available for Portable radios having only a top display.

Internet Protocol Address (IP)

This menu-selection allows you to retrieve and view (in the radio's display) the radio's current IP address, device name, and status.

This feature applies while operating in Conventional or Trunking communications mode.

Key (KEY)

This menu-selection allows you to change the secure encryption Key for the current Conventional communications channel.

This feature is available when the Conventional Personality, Voice Key Strapping field is set to **Select** for the radio's current channel.



IMPORTANT:

These selectable Keys are uniquely defined with the CKR Number field.

When you select a new Key, all of the radio's Conventional channels having their Voice Key Strapping field is set to **Select** are automatically re-keyed with your same selected key.

Changing Keys is sometimes useful when an encryption key is known to be compromised.

Keyset (KSET)

This menu-selection allows you to change to an alternate secure encryption Keyset when operating in Conventional or Trunking communications mode.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- The Secure Wide, Secure Operation field is set to **Hardware** or **Software**.
- Advanced Encrypted Standard (AES256) is **Enabled**.
- User Selectable (Keyset) is enabled.

Location (LOC)

This menu-selection allows you to determine their current location (latitude, longitude, time, and date) and also the distance and bearing to another location (waypoint).

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- Radio Wide, Location Enable field is **Enabled**.



IMPORTANT: If the Radio Wide, User Selectable Location Enable field is **Enabled**, you are allowed to turn the outdoor location/Global Positioning System (GPS) functionality on or off for all location/GPS enabled Conventional or Trunking communications channels.

LTE (LTE)

This menu-selection activates and deactivates the radio's LTE Broadband data capabilities.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- Channel that is configured for LTE Broadband operation is selected.
- For Conventional, when the Data Profile Type of the Conventional System's referenced Data Profile is **Conventional & Broadband** or **Broadband-Only**.
- For Trunking, when the Data Profile Type of the Trunking System's referenced Data Profile is **Trunking & Broadband** or **Broadband-Only**.
- Broadband Source field is set to **Internal LTE Modem**.

Message (MSG)

This menu-selection allows you to display the last Message transmitted by the radio and acknowledged by the base station while operating in Conventional or Trunking communications mode.

This feature is available as the following settings.

- For Conventional, when the Conventional System, Message field is **Enabled** for the radio's current channel.
- For Trunking, when the Trunking Personality, Message Enable field is **Enabled** for the radio's current channel.

Mode Select (MS01-MS05)

These five menu-selections (MS01–MS05) allow you to program frequently-used or any desired zone and channel combination.

Each of the menu selections may be programmed with a different zone/channel combination for later retrieval. The programming and use of these menu selections is very similar to the programming and use of a car radio's preset buttons. That is, once you navigate to an MSx option in the menu, a long-press of the Menu Select button programs the radio's current zone and channels into that MSx menu option; then once programmed, a short-press of the Menu Select button jumps the radio to the programmed zone and channel.

This feature is available while operating in Conventional or Trunking communications mode.

Multiple Private Line (MPL)

This menu-selection allows you to access a listing of the available MPL Lists.

This feature is available as the following settings.

- Only available for Conventional mode.
- Conventional Personality, Rx Voice/Signal Type field is set to **Non-ASTRO** or **Mixed Mode**.
- Conventional Personality, User-Selectable PM [MPL] field is **Enabled** for the radio's current channel.

Mute (MUTE)

This menu-selection allows you to enable or disable certain radio tones (for example, the keypad tones), as configured by the Enhanced Mute Tones Operation selection.

This feature is available for Conventional and Trunking communications modes and when the Radio Wide, Enhanced Mute Tones Operation field is not **Disabled**.

My Radio Identification (MyID)

This menu-selection allows you to cause the Radio ID Alias to appear in the radio's display

This feature applies while operating in Conventional or Trunking communications mode and when the Radio Wide, Radio Alias field has an alias name defined.

Nuisance Delete (NUIS)

This menu-selection allows you to temporarily remove a Scan List Member channel that continually generates unwanted carrier noise from the current Active Scan.

This feature applies while operating in Conventional or Trunking communications mode.



IMPORTANT:

Switching to another channel on the radio's channel selector, turning off scan mode and then back on, or turning off the radio and then back on effectively brings that temporarily removed Scan List Member channel back to an actively scanned status.

Nuisance Delete is not possible:

- For a Priority #1, or Priority #2 Scan List Member channel.
- When the Designated Voice Tx Member Type field is set to **Selected Channel** and the Landed Scan channel's Tx Frequency is the same as the Tx Frequency of the radio's currently selected channel.
- If the current Scan List does not contain at least two members before a Nuisance Delete occurs.

Page (PAGE)

This menu-selection allows you to transmit a Call Alert for Conventional modes, or a Call Alert/Page for Trunking modes.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- For Conventional, when the Conventional Personality, ASTRO Call Alert Rx/Tx field is set to **Encode** or **Encode & Decode**, or when the Conventional Personality, Non-ASTRO Call Alert Rx/Tx field is set to **Encode** or **Encode & Decode** for the radio's current channel.
- For Trunking, when the Trunking Personality, Call Alert/Page Operation field is set to **List Only** or **Unlimited** for the radio's current channel.

Password (PSWD)

This menu-selection allows you to modify the Radio Lock/Tactical Inhibit Stun Unlock Password, and to modify the Tactical Inhibit Encode Password.

This feature applies while operating in Conventional or Trunking communications mode and when the Radio Wide, Enable (Radio Lock) field is **Enabled**.



IMPORTANT:

This password must be composed of numeric values only that may be easily entered from the radio keypad. The password's largest possible value is determined in the Maximum Password Length field.

In the secure encryption version of the Radio Lock feature (see the Important Note in the Enable (Radio Lock) topic), the password must be manually set in the hardware encryption module with the radio keypad and this Password menu-selection.

In the clear/Tactical Inhibit version of the Radio Lock feature, the initial password must be programmed in the Unlock Password field.

Phone (PHON)

This menu-selection allows you to initiate Phone Mode.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.

- For Conventional, when the Conventional Personality, Phone Operation field is not set to **None** for the radio's current channel.
- For Trunking, when the Trunking Personality, Phone Operation field is not set to **Disabled** for the radio's current channel.

Power (PWR)

This menu-selection allows you to toggle the radio's transmission power from low to high and back for all Conventional Personalities or referenced Trunking Systems on a radio-wide basis.



IMPORTANT:

Once the setting in the radio's display has been changed, this high or low-power setting takes precedence over all individual Conventional Transmit Power Level settings or Trunking TX Power Level settings. That is, when you made the radio's **PWR** menu-selection, the radio displays **High Power** or **Low Power** depending on the status of the radio's current channel. You may then select to transmit in high or low power by selecting either choice from the radio's display.

Powering off and back-on the radio resets all the radio's channels to their programmed power setting.

Quick Call II (QCII)

This option enables the launching of the QCII application and allows you to choose the tone to be transmitted.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- For Conventional, when the Conventional Personality, Tone Signaling List field is set to a specific Tone Signaling List, and when the radio is model/option capable.
- For Trunking, when the Trunking Personality, Tone Signaling List field is set to a specific Tone Signaling List, and when the radio is model/option capable.

Radio Profiles (PRFL)

This menu-selection allows you to select one of the programmed Radio Profiles in Zone-Channel Assignment, provided that the Radio Profile Selection field is set to Last Selected.

This feature applies while operating in Conventional or Trunking communications mode.

Recent Calls (RCNT)

This menu-selection allows you to access the recent incoming and outgoing call information for the following call types: Call Alerts, Selective/Private Calls, and (outgoing only) Phone calls.

This feature applies while operating in Conventional or Trunking communications mode.

Rekey Request (REKY)

This menu-selection allows you to transmit an Over-The-Air-Rekeying (OTAR) rekey request to the dispatcher's (KMF or KMC) console while operating in Conventional or Trunking communications mode.



IMPORTANT:

For MDC OTAR (Conventional communications), the request protocol is determined by the Rekey Request Mode field.

For ASTRO OTAR (Conventional or Trunking communications), the User Selectable Rekey Request field must be **Enabled**, and the request protocol is determined by the OTAR Tx Security Level field.

Scan (SCAN)

This menu-selection allows you to select Scan Lists and turn Scan Mode ON/OFF

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- For Conventional, when the Scan Type is not set to **Voting Scan**, and when the Conventional Personality, Scan List Selection Assignment field is not set to **None**, and when the Conventional Personality, Automatic Scan field is **Disabled** for the radio's current channel.
- For Trunking, when the Trunking Personality, Scan List Selection Assignment field is not set to **None**, and when the Trunking Personality, Automatic Scan field is **Disabled** for the radio's current channel.



IMPORTANT: This selection cannot be set concurrently on Buttons, Switches, and Menu Items; however, it can be set concurrently on Portable and Accessory Buttons.

Sensor (SNSR)

This button-press allows you to select the time of the Sensor Event Disable Time operation.

The Sensor Event Disable Time is a Radio Wide field. This feature applies while operating in Conventional or Trunking communications mode.

Status (STS)

This menu-selection allows you to select from the Status Alias List of the current channel/mode.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- For Conventional, the Conventional System Status field is **Enabled** for the radio's current channel.
- For Trunking, the Trunking Personality Status Enable field is **Enabled** for the radio's current channel.



NOTE: For your convenience, as part of this feature the display initially shows the last acknowledged Status call, or the first Status in the list. This feature is available while operating in Conventional or Trunking communications mode.



IMPORTANT:

While operating in Conventional communications mode with MDC/ASTRO/DVRS Signaling, the Conventional Status Alias List is used.

While operating in Trunking communications mode, the Trunking System- Status Alias List selected for the current Trunking Personality is used.

Talkgroup (TGRP)

This menu-selection allows you to switch from the preset Talkgroup to another Talkgroup from within the Conventional Personality's current Talkgroup List.

All Conventional Personalities using the same Talkgroup List are automatically switched to the selected Talkgroup.

This feature is available as the following settings.

- Operates in Conventional communications mode only.
- Conventional Personality, ASTRO Talkgroup Selection Type field is set to **Selectable** for the radio's current channel.

Text Messaging Service (TMS)

This menu-selection allows you to access the radio's TMS mode, seen in the radio's display.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- The Text Messaging Service field is set to **List Only** or **Unlimited**

- The System's Data Profile Selection is not set to **Data Disabled** for the radio's current channel.

Tx Inhibit (TxIN)

This menu-selection allows you to disable all radio transmissions

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- For a Mobile codeplug: when the Radio Selection field is not set to **Secondary Radio**, or when the Enable Secondary Radio Tx field is **Enabled**.
- For a Portable codeplug: this selection cannot be set concurrently with a Tx Inhibit Switch selection.



IMPORTANT: This action may be necessary when entering hazardous environments with high sensitivity to RF fields, where a radio transmission could initiate an explosion or other dangerous reaction.



NOTE:

If you attempt to key up the radio while Tx Inhibit is **Enabled**, the radio generates a long, low-pitched Talk Prohibit Tone, indicating that transmissions are currently not allow.

User (USER)

This menu-selection allows you to log in to different Automatic Registration Service (ARS) Servers with the appropriate Username and Password (PIN) combination.

Usernames and PINs may be manually entered from the radio's keypad, or Usernames may be selected from Data User List entries (the PIN is then manually entered).

This feature is available while operating in Conventional or Trunking communications mode.



WARNING: This feature functions only when the Data Profiles, ARS Mode field is not set to **Disabled**.

Voice Mute (VMUT)

This menu-selection allows you to toggle on and off Voice Mute functionality for In-Call User Alert-enabled channels.

When Voice Mute is active, the radio remains muted to all Conventional communications calls and affiliated Trunking Talkgroup calls. Group and individual Call Alert/Pages do unmute the radio for the alert tone; also, when Voice Mute is active, the radio does unmute to individual radio-to-radio calls such as Selective/Private Calls and Interconnect (phone mode) calls.

This feature is available as the following settings.

- Operates in Conventional or Trunking communications mode.
- For Conventional, the Conventional Personality, ASTRO Call, In-Call User Alert Enable field is **Enabled** for the radio's current channel, or when the Conventional Personality, Non-ASTRO Call In-Call User Alert Enable (Non-ASTRO) field is **Enabled** for the radio's current channel.
- For Trunking, the Trunking Personality, In-Call User Alert Enable field is **Enabled** for the radio's current channel.

Web Home (WEBHOME)

This menu-selection specifies quick access to the first URL that is the home page.

This feature is applicable for APX NEXT with H-Option. This feature is available while operating in Conventional or Trunking communications mode.

WEB1 (WEB1)

This menu-selection allows quick access to the second URL when **Web Browser** is enabled, and the radio is model or option capable.

This feature is available while operating in Conventional or Trunking communications mode.

Wi-Fi On/Off (WIFI)

This button-press allows you to activate and deactivate Wi-Fi capability.

This feature is available while operating in Conventional or Trunking communications mode and when Wi-Fi Enable field is **Enabled**.

Zone Down (ZNDN)

This menu-selection allows you to scroll downward through the Zones in the radio.

Upon reaching the first Zone in the list, continued scrolling causes the list to wrap around to the last Zone. Zones are defined in the Zone Channel Assignment window.

This feature is available while operating in Conventional or Trunking communications mode.

Dynamic Zone Programming (ZNPR)

This menu-selection allows you to view or edit the channels in the radio's Dynamic Zones.

Dynamic Zones are enabled in the Zone Channel Assignment window's Zone Page.

This feature is available while operating in Conventional or Trunking communications mode.

Zone Select (ZONE)

This menu-selection allows you to select a Zone. Zones are defined in the Zone Channel Assignment window.

This feature is available while operating in Conventional or Trunking communications mode.

Zone Up (ZNUP)

This menu-selection allows you to advance upward through the Zones in the radio.

Upon reaching the last Zone in the list, continued scrolling causes the list to wrap around to the first Zone. Zones are defined in the Zone Channel Assignment window.

This feature is available while operating in Conventional or Trunking communications mode.

7.3.7

Display

The **Display** allows you to view or modify settings on a radio-wide basis for a radio's display and menu options.

7.3.7.1

Zone Text Size

This field selects the maximum number of characters allocated in the radio's front display for Zone Names.

This selection applies on a radio-wide basis.



NOTE:

Zone names/descriptions are defined in the Zone Channel Assignment [Zone Names on page 509](#) field.

You can select Zones with a [Zone Select](#) switch-toggle or Zone Select menu-selection.

Accessed Only: When the radio is model/option capable.

Whole numbers 0 to 14 are supported.

7.3.7.2

Channel Text Size

This field selects the maximum number of characters allocated in the radio's front display for the Channel names.

This selection applies on a radio-wide basis.



NOTE: Channel names/descriptions are defined in the Zone Channel Assignment Channel Name field. You can select channels with a Channel Select button-press, Channel Select switch-toggle or Channel Select menu-selection.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Range

Whole numbers 1 to 14.

7.3.7.3

Top Display Orientation

This field selects the default orientation of the top display of the radio, allowing you to flip the visual arrangement by 180 degrees, depending on your preference.

The Light/Flip (Display) programmable button selection allows you to change this orientation when needed.

This selection applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

- Normal
- Inverted

7.3.7.4

Slow Scroll Rate

This field selects the rate the display Slow Scrolls through a list.

The radio first Slow Scrolls, then it Fast Scrolls after the Slow Scroll Count expires. This feature applies on a radio-wide basis for Conventional and Trunking communications modes.

Table 31: Range

Minimum	Maximum	Increments
250 (ms)	6250 (ms)	250 (ms)



NOTE: The Slow Scroll Rate must be higher than or equal to the Fast Scroll Rate.

7.3.7.5

Fast Scroll Rate

This field selects the rate the display Fast Scrolls through a list.

The radio first Slow Scrolls, then it Fast Scrolls after the Slow Scroll Count expires. This feature applies on a radio-wide basis for Conventional and Trunking communications modes.

Table 32: Range

Minimum	Maximum	Increments
250 (ms)	6250 (ms)	250 (ms)



NOTE: The Fast Scroll Rate must be lower than or equal to the Slow Scroll Rate.

7.3.7.6

Slow Scroll Count

This field selects the number of menus scrolled through on the display before the radio switches to the Fast Scroll Rate.

This feature applies on a radio-wide basis for Conventional and Trunking communications modes.

Table 33: Range

Minimum	Maximum
0 menus	255 menus

7.3.7.7

Out of Range Indicator

This field selects the alert type used by the radio to indicate when it has left the coverage area of the Trunking System.

This feature applies for Trunking and DVRS-enabled P25 Conventional communications.

The following selections are supported:

No Indication

Feature disabled (in other words, no indication is given to you when the radio is in an out-of-range condition).

Alert Only

Audible indicator only. See also Out of Range Tone.

Display Only

The radio's display alternates between showing **NO SYS** (No System) and the radio's current zone and channel.

Alert & Display

Audible and visual indicators (see "Alert Only" and "Display Only" above).

7.3.7.8

Out Of Range Hold Off Timer

Selects the amount of hold off time for the Out of Range indicators to be prompted.

7.3.7.9

Imbalanced Coverage Indicator

This field selects the alert type used by the radio to indicate reduced communications due to unaffiliated status of the radio.

The unaffiliated status occurs when the radio is operating in an area of imbalanced coverage. This condition is detected upon retry failure of inbound communications. Imbalanced Coverage may take a few minutes to clear. This feature applies for Trunking and DVRS-enabled P25 Conventional communications.



NOTE: An Out of Range Indicator should be enabled when using this feature to indicate to you that Imbalanced Coverage Indicators alerts have stopped because the radio is out of range.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

No Indication

Feature disabled No indication is given to you when the radio is in an imbalanced coverage condition.

Alert Only

Audible indicator only.

Display Only

The radio's display alternates between showing **NO COMMS** (No Communications) and the radio's current zone and channel.

Alert & Display

Audible and Visual indicators (see "Alert Only" and "Display Only" above).

7.3.7.10

Site Trunking Indicator

This field selects the type of Site Trunking Indicator. Site Trunking is a unique Trunking mode that is considered to be an interim mode between SmartZone and Failsoft mode.

On a SmartZone system, if the zone controller goes down, the current site sends out a message indicating that it is now in Site Trunked mode. It will continue to send out this message until the zone controller comes back on-line. This selection applies when in SmartZone operation for all Trunking Systems and Trunking Personalities.



IMPORTANT: If Site Trunking communications should also fail, the radio goes into a Failsoft mode.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

No Indication

Feature disabled.

Alert Only

Audible indicator only.

Display Only

Enables the "Site Trunking" message to appear in the radio's display.

Alert & Display

Audible and Visual indicators (see "Alert Only" and "Display Only" above).

7.3.7.11

System Registration Indicator

This field selects the alert type used by the radio to indicate the status of the system registration process in the event that the subscriber failed to register on the system.

This feature applies to APCO P25 (ASTRO 25) Trunking communications.

The following selections are supported:

No Indication

Feature disabled.

Alert Only

Audible indicator only.

Display Only

The radio's display shows one of two possible messages: "Sys Reg Refused" (System Registration Refused) or "Sys Auth Failed" (System Authentication Failed).

Alert & Display

Audible and visual indicators (see "Alert Only" and "Display Only" above).

7.3.7.12

DVRS Local Only Indicator

This field selects the alert type used by the radio to indicate a Digital Vehicular Repeater System (DVRS) **Local Mode** condition.

This feature applies to DVRS Conventional communications.

Selections

No Indication

Feature disabled.

Alert Only

Audible indicator only.

Display Only

The radio's display shows one of two possible messages.

Alert & Display

Audible and visual indicators (see "Alert Only" and "Display Only" above).

7.3.7.13

Out of Range Early Detection

If this field is checked, the radio performs quicker detection of an Out of Range condition in less than one minute.

If this field is unchecked, the radio performs the traditional detection of an Out of Range condition.

7.3.7.14

Searching Site Indicator

This field allows you to select the alert type used by the radio to indicate when the radio is not usable when searching for a control channel in Land Mobile Radio (LMR) or connecting to SmartConnect.

Table 34: Types of Alert Selections

Alert Selection Types	Description
No Indication	The feature is disabled and no indication is displayed when the radio is searching for an LMR site or connecting to SmartConnect.
Display Only	The display shows <i>Searching Site</i> .

7.3.7.15

Language Selection

This field allows you to select the language to be used in the radio display. This selection applies on a radio-wide basis.

The application supports the following languages: The radios support the following languages:



NOTE:

When the Radio Display Language is first set to a non-English language, the Write, Clone, FLASHing times take noticeably longer.

Depending on the Upgrade Radio Language setting, subsequent updates can be quicker.

7.3.7.16

Auto Light

This field causes the radio front display, keypad, rotary switch, and top display backlight to illuminate each time a button, switch, or keypad button is pressed (except for the PTT button, Emergency button, or Monitor).

The lights stay illuminated for the amount of time specified in the [Display Light Time on page 169](#) field. When disabled, the Light/Flip (Display) selection turns the displays and keypad light on and off.

This selection also applies to a portable Accessory that has a display, such as the Display Remote Speaker Microphone (DRSM). This selection applies on a radio-wide basis.

Accessed Only: When the [Display Light Time on page 169](#) field is not set to **Infinite**, and the radio is model/option capable.

7.3.7.17

Display Light Time

This field selects the amount of time that the radio's Rotary switch, displays, and keypad lights remain illuminated once you press the Light/Flip (Display) button.



NOTE: This feature also applies to the display light on the Display Remote Speaker Microphone (DRSM) accessory. Time is in seconds. This selection applies on a radio-wide basis.

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Infinite**, the display and keypad lights remain on until the [Light/Flip \(Display\)](#) button is pressed.

Table 35: Range

Minimum	Maximum	Increments
	60 sec	5 sec

7.3.7.18

Alternating Display Time

This field selects the length of time that alternating messages appear in the radio's display.

The Emergency Alarm Rx Indicator Type field is an example of a feature that uses the alternating display functionality, but only when it is set to **Display Only** or **Alert & Display**. This selection applies on a radio-wide basis.

Table 36: Selections

Minimum	Maximum	Increments
250 (ms)	6250 (ms)	250 (ms)



NOTE: ms = milliseconds

7.3.7.19

Temporary Message Display Time

This field selects the length of time that a temporary message appears in the radio display.

This selection applies on a radio-wide basis.

Table 37: Range

Minimum	Maximum	Increments
250 (ms)	6250 (ms)	250 (ms)

7.3.7.20

Independent Top Light

This field enables you to initiate radio's Rotary switch to illuminate its rotary light and top display light, and a turn of the Rotary switch on the optional Display Remote Speaker Microphone (DRSM) to illuminate its display light.

The radio's front display and keypad do not light up. This selection applies to both Conventional and Trunking communications modes on a radio-wide basis.



IMPORTANT: The light(s) stay illuminated for the amount of time specified in the Display Light Time field. When the Disable Lights field is enabled, this feature will not turn on.

Accessed Only: When the radio is model/option capable.

7.3.7.21

Status Auto Exit

This field selects the method of how the radio exits the Status configuration menu Status has been sent to the dispatcher.

This selection applies on a radio-wide basis.

The following selections are supported:

On Successful Ack

The Status menu exits and the radio returns to normal dispatch operation only upon a successful acknowledgement from the Fixed Network Equipment (FNE)/dispatcher; the Status menu remains active if an acknowledgment is not received or the Status is denied.

Always

The Status menu automatically exits once an acknowledgement is received, or (in the case of Conventional dispatch) after all Status Number of Attempts have completed.

7.3.7.22

Channel Color Backlight

This field enables the backlight color for supported devices to change per channel.

Colors are configured on a per channel basis from the [Channels - Channel Color Backlight Selection](#) field.

When changing channels, the backlight for the following devices changes to the assigned color:

- Top display
- Keypad (on supported models only)
- Top light bar indicator
- Accessories such as Display Remote Speaker Microphone (DSRM) and Human Interface Device (HID) Keypad Mic that are attached to a Vehicular Adapter (VA)



WARNING: When this field is enabled, the following fields must be enabled;

- [Independent Top Light on page 170](#)
- [Disable Emergency Notification on page 194](#)
- [Disable Critical Notification on page 195](#)
- [Disable Call Notification on page 195](#)

7.3.7.23

PTT ID Display

This field selects the type of incoming transmission that qualifies for PTT ID display.

PTT ID Display enables the Caller ID of a Call List Contact Name to appear within the radio's display; if no Call List Contact Name exists, then the current Caller's PTT ID is displayed. This feature applies on a radio-wide basis for Conventional communications channels.

The following selections are supported:

- Disabled
- Dispatch
- Dispatch and Scan

7.3.7.24

End of Voice Timer

This field selects the amount of time that a PTT ID from another radio appears in this radio's display once the transmission is terminated.

This feature applies on a radio-wide basis for Conventional communications channels.



IMPORTANT: When this field is set to **0** seconds, a PTT-ID set to **Trailing Edge** sent from other radios does not have time to be seen within the current radio's display.

Accessed Only: When the [PTT ID Display on page 171](#) field is set to **Dispatch** or **Dispatch & Scan**, or when the Display Peer Location field is enabled.

Table 38: Range

Minimum	Maximum	Increments
0 seconds	7 seconds	1 second

7.3.7.25

Prefix ID Text Size

This field selects the number of characters to be used for the Radio IDs, Call Alerts, and Emergency Mode numbers.

This feature applies on a radio-wide basis for Conventional communications channels.

Accessed Only: When the PTT ID Display field is set to **Dispatch** or **Dispatch & Scan**

Whole numbers 1 to 6 are supported.

7.3.7.26

Talkgroup Display On PTT

This field enables display of the ASTRO Talkgroup List, Talkgroup Alias Text or the Talkgroup ID when the PTT button is pressed.

If the Talkgroup Alias feature is enabled, then the Talkgroup Alias Text will be displayed. Otherwise, the Talkgroup ID will be displayed. Enabling this field will take precedence over the setting of the Display On PTT field. This feature applies on a radio-wide basis for Conventional communications channels.

Accessed Only: When the radio is model/option capable.

7.3.7.27

Talkgroup Display On Mode Change

This field enables display of the ASTRO Talkgroup List, Talkgroup Alias Text or the Talkgroup ID upon channel change.

If the Talkgroup Alias feature is enabled, then the Talkgroup Alias Text will be displayed. Otherwise, the Talkgroup ID will be displayed. Enabling this field will take precedence over the setting of the Display on Mode Change field. This feature applies on a radio-wide basis for Conventional communications channels.

Accessed Only: When the radio is model/option capable.

7.3.7.28

Talkgroup Display On Receive

This field enables display of the ASTRO Talkgroup List, the Talkgroup Alias Text or the Talkgroup ID upon unmuting to a call.

If the Talkgroup Alias feature is enabled, then the Talkgroup Alias Text will be displayed. Otherwise, the Talkgroup ID will be displayed. This feature applies on a radio-wide basis for Conventional communications channels.

Accessed Only: When the radio is model/option capable.

7.3.7.29

Feature Name

Displays the read-only name for the feature listed in the ID Display table for PTT ID, Emergency ID or Call Alert ID.

Accessed Only: When the [PTT ID Display on page 171](#) field is set to **Dispatch** or **Dispatch and Scan**.

7.3.7.30

Display

This field allows you to define recognizable text that prefixes the displayed PTT ID, Emergency ID or Call Alert ID number in the current record/row of the ID Display Table.

The field's length is determined by the Prefix ID Text Size field. This feature applies on a radio-wide basis for Conventional communications channels.

Accessed Only: When the PTT ID Display field is set to **Dispatch** or **Dispatch and Scan**.



NOTE:

Up to six (6) characters (as determined by the Prefix ID Text Size field), including numbers, letters and special characters may be used.

Examples: ID, EMERG, Elec01, CALL

7.3.8

Radio Noise Reduction Profile

This section allows you to view or define transmit noise reduction parameters for the internal microphones that target specific noise conditions.

These settings apply on a radio-wide basis.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio before transmission (in analog mode) and before voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission. In digital mode, a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.



WARNING:

These custom settings apply only when the Custom Noise Reduction (Radio) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.8.1

Radio Noise Reduction Profile Name

This field allows you to view or define recognizable names for the current Radio Noise Reduction Profile.



IMPORTANT: The [Radio Profiles on page 192](#) - Internal Mic Noise Reduction Settings are recommended for most noise environments.



WARNING:

These custom settings apply only when the Custom Noise Reduction (Radio) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.



NOTE:

Examples: PER-001, #500, Ext Mic NR 3, # A5

Characters, numbers, spaces, and special characters can be used.

A total of 14 characters are possible.

7.3.8.2

E Wind MAXS VECTOR

These settings allow you to adjust noise reduction parameters for specific noise conditions.



IMPORTANT:

The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.

This parameter has an effective range of 31 coefficient values of 16 bits each, which translates into 124 BCH (4-bit nibble) characters. However, this requires entering 32 coefficient values. When entering in the coefficients for this vector, the 32nd value is the right-most (or least significant) value - in other words, the last four BCH characters. Be sure to make this 32nd value the same as the 31st. The digital signal processor (DSP) of the radio ignores the 32nd value.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.8.3

E Wind NBANDS

These settings allow you to adjust noise reduction parameters for specific noise conditions.



IMPORTANT:

The [Radio Profiles on page 192](#) - Radio Noise Reduction Settings are recommended for most noise environments.



WARNING:

These custom settings apply only when the Custom Noise Reduction (Radio) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.8.4

DINC ABF SS

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 39: First Value

Minimum	Maximum	Increments
0	65535	1

Table 40: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.5

DWF MIN GAIN

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 41: First Value

Minimum	Maximum	Increments
0	65535	1

Table 42: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.6

DWF EXPANSION DEGREE

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 43: First Value

Minimum	Maximum	Increments
0	65535	1

Table 44: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.7

HOTBEAM DET THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions.



IMPORTANT:

The [Radio Profiles on page 192](#) - Radio Noise Reduction Settings are recommended for most noise environments.



WARNING:

These custom settings apply only when the Custom Noise Reduction (Radio) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.8.8

Status VAD DET THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.



IMPORTANT:

The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.

Although this field shows the value as an unsigned value, the radio firmware interprets the Hex value as a signed value. Therefore, enter the desired signed value in the Hex (right-most) box, not the Decimal box. For example, if you want to enter -1E00 (-7680), you would enter E200 (the 2's complement) in the Hex box. The Decimal box still shows 57856 but the firmware interprets E200 as a negative number in the radio.

There are two separate values that define the range.

Table 45: First Value

Minimum	Maximum	Increments
0	65535	1

Table 46: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.9

Status VAD DET COUNT

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 47: First Value

Minimum	Maximum	Increments
0	65535	1

Table 48: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.10

Bad Mic INACTIVE THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 49: First Value

Minimum	Maximum	Increments
0	65535	1

Table 50: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.11

Bad Mic SDIFF THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 51: First Value

Minimum	Maximum	Increments
0	65535	1

Table 52: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.12

Bad Mic NDIFF THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 53: First Value

Minimum	Maximum	Increments
0	65535	1

Table 54: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.13

Bad Mic R THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions.



IMPORTANT:

The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.

Although this field shows the value as an unsigned value, the radio firmware interprets the Hex value as a signed value. Therefore, enter the desired signed value in the Hex (right-most) box, not the Decimal box. For example, if you want to enter -1E00 (-7680), you would enter E200 (the 2's complement) in the Hex box. The Decimal box still shows 57856 but the firmware interprets E200 as a negative number in the radio.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 55: First Value

Minimum	Maximum	Increments
0	65535	1

Table 56: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.8.14

DINC OUTPUT EQ VECTOR

This setting allows you to change the DINC (Dual Input Noise Canceller) OUTPUT EQ VECTOR parameter for the external microphone.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.8.15

DINC EP VECTOR

This setting allows you to change the DINC (Dual Input Noise Canceller) EP VECTOR parameter for the internal microphone.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Radio) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail. Go to the Radio Noise Reduction Window.

7.3.8.16

RADIO AUTO NOISE BOUNDS DBQ8

This pair of numbers set the lower and upper noise bounds (in dB relative to full scale) for the automatic control of the noise reduction levels.

The following selections are supported:

- RADIO AUTO NOISE BOUNDS DBQ8 length must be equal to 8, and
- [X] of RADIO AUTO NOISE BOUNDS DBQ8 is from "-23040" to "0", and
- [Y] of RADIO AUTO NOISE BOUNDS DBQ8 is from "-23040" to "0", and
- [X] is NOT greater than [Y].



NOTE: RADIO AUTO NOISE BOUNDS DBQ8 is the vector of two 16-bit integers.

Each four hexadecimal numbers represents a 16-bit signed integer. The range for each of the two numbers ([X] and [Y]) is -23040 to 0 inclusive.

Accessed Only: When the radio is model and option capable.

7.3.8.17

RADIO AUTO MIN GAIN VECTOR

This vector sets the limits on the min gain for the auto mode of noise suppression.

The following selections are supported:

- RADIO AUTO MIN GAIN VECTOR length must be equal to 8, and
- [X] of RADIO AUTO MIN GAIN VECTOR is from "0" to "32767", and
- [Y] of RADIO AUTO MIN GAIN VECTOR is from "0" to "32767", and
- [Y] is NOT greater than [X].



NOTE: RADIO AUTO MIN GAIN VECTOR is the vector of two 16-bit integers:

Each four hexadecimal numbers represents a 16-bit signed integer. The range for each of the two numbers ([X] and [Y]) is from 0 to 32767 in decimal.

Accessed Only: When the radio is model and option capable.

7.3.8.18

RADIO AUTO RELAXATION BOUNDS

This vector sets the limits on relaxation with frequency for the auto mode of noise suppression.

The following selections are supported:

- RADIO AUTO RELAXATION BOUNDS length must be equal to 4, and
- [X] of RADIO AUTO RELAXATION BOUNDS is from "0" to "10", and
- [Y] of RADIO AUTO RELAXATION BOUNDS is from "0" to "10", and
- [X] is NOT greater than [Y].



NOTE: RADIO AUTO RELAXATION BOUNDS is the vector of two 8-bit integers.

Each two hexadecimal numbers represents an 8-bit signed integer. The range for each of the two numbers ([X] and [Y]) is 0 to 10 inclusive.

Accessed Only: When the radio is model and option capable.

7.3.8.19

RADIO PASS FILTER START

This field defines the frequency that is applied by the automatic PASS filter.

Accessed Only: When the radio is model/option capable.

7.3.8.20

RADIO SAM MIX MODE

This parameter controls how the audio input signal from the Speaker-as-Mic is formed.

Accessed Only: When the radio is model/option capable.

7.3.8.21

RADIO SAM CUTOVER FREQUENCY

This field defines the frequency used by the Speaker-as-Mic input.

Accessed Only: When the radio is model/option capable.

7.3.8.22

RADIO HOT BEAM MIX RATE

This field controls the automatic hot-beam detection. The higher number switches slowly

Accessed Only: When the radio is model/option capable.

7.3.8.23

RADIO HOT BEAM MAX ATTENUATION DBQ8

This field sets the maximum level of attenuation that can be applied to either beam.

Accessed Only: When the radio is model/option capable.

7.3.9

Accessory Noise Reduction Profile

The Accessory Noise Reduction Profile allows you to view or define transmit noise reduction parameters for external microphones that target specific noise conditions.

These settings apply on a radio-wide basis.

Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio before transmission (in analog mode) and before voice coding (in digital mode). Reducing background noise not only improves voice clarity for an analog mode transmission. In digital mode, a cleaner speech signal going into the voice-encoder (vocoder) causes clearer voice received and decoded in the receiver.



WARNING:

These custom settings apply only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice. This occurrence can cause communication to fail.

7.3.9.1

Accessory Noise Reduction Profile Name

This field allows you to view or define recognizable names for the current Accessory Noise Reduction Profile.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.



IMPORTANT: The Radio Profiles - External Mic Noise Reduction Settings are recommended for most noise environments.



WARNING:

These custom settings apply only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.



NOTE:

Examples: NRP-001, #500, Ext Mic NR 3, # A5

Characters, numbers, spaces, and special characters can be used.

A total of 14 characters are possible.

7.3.9.2

E Wind DINC EWIND NBANDS

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Noise Reduction Settings (Accessory) are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 57: First Value

Minimum	Maximum	Increments
0	65535	1

Table 58: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.3

E Wind MAXS VECTOR

These settings allow you to adjust noise reduction parameters for specific noise conditions.



IMPORTANT:

The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.

This parameter has an effective range of 31 coefficient values of 16 bits each, which translates into 124 BCH (4-bit nibble) characters. However, this requires entering 32 coefficient values. When entering in the coefficients for this vector, the 32nd value is the right-most (or least significant) value - in other words, the last four BCH characters. Be sure to make this 32nd value the same as the 31st. The digital signal processor (DSP) of the radio ignores the 32nd value.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.9.4

DINC ABF SS

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 59: First Value

Minimum	Maximum	Increments
0	65535	1

Table 60: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.5

DWF MIN GAIN

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 61: First Value

Minimum	Maximum	Increments
0	65535	1

Table 62: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.6

DWF EXPANSION DEGREE

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 63: First Value

Minimum	Maximum	Increments
0	65535	1

Table 64: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.7

HOTBEAM DET THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 65: First Value

Minimum	Maximum	Increments
0	65535	1

Table 66: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.8

Status VAD DET THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.



IMPORTANT:

The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.

Although this field shows the value as an unsigned value, the radio firmware interprets the Hex value as a signed value. Therefore, enter the desired signed value in the Hex (right-most) box, not the Decimal box. For example, if you want to enter -1E00 (-7680), you would enter E200 (the 2's complement) in the Hex box. The Decimal box still shows 57856 but the firmware interprets E200 as a negative number in the radio.

There are two separate values that define the range.

Table 67: First Value

Minimum	Maximum	Increments
0	65535	1

Table 68: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.9

Status VAD DET COUNT

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 69: First Value

Minimum	Maximum	Increments
0	65535	1

Table 70: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.10

Bad Mic INACTIVE THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 71: First Value

Minimum	Maximum	Increments
0	65535	1

Table 72: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.11

Bad Mic SDIFF THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 73: First Value

Minimum	Maximum	Increments
0	65535	1

Table 74: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.12

Bad Mic NDIFF THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions. The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 75: First Value

Minimum	Maximum	Increments
0	65535	1

Table 76: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.13

Bad Mic R THRESH DBQ8

These settings allow you to adjust noise reduction parameters for specific noise conditions.



IMPORTANT:

The Radio Profiles - Accessory Noise Reduction Settings are recommended for most noise environments.

Although this field shows the value as an unsigned value, the radio firmware interprets the Hex value as a signed value. Therefore, enter the desired signed value in the Hex (right-most) box, not the Decimal box. For example, if you want to enter -1E00 (-7680), you would enter E200 (the 2's complement) in the Hex box. The Decimal box still shows 57856 but the firmware interprets E200 as a negative number in the radio.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

There are two separate values that define the range.

Table 77: First Value

Minimum	Maximum	Increments
0	65535	1

Table 78: Second Value

Minimum	Maximum	Increments
0	FFFF (Hex)	1

7.3.9.14

DINC OUTPUT EQ VECTOR

This setting allows you to change the DINC (Dual Input Noise Canceller) OUTPUT EQ VECTOR parameter for the external microphone.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.9.15

DINC EP VECTOR

This setting allows you to change the DINC (Dual Input Noise Canceller) EP VECTOR parameter for the external microphone.



WARNING:

This custom setting applies only when the Custom Noise Reduction (Accessory) field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.9.16

ACCESSORY AUTO NOISE BOUNDS DBQ8

This pair of numbers set the lower and upper noise bounds (in dB relative to full scale) for the automatic control of the noise reduction levels.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The following selections are supported:

- ACCESSORY AUTO NOISE BOUNDS DBQ8 length must be equal to 8, and
- [X] of ACCESSORY AUTO NOISE BOUNDS DBQ8 is from "-23040" to "0", and
- [Y] of ACCESSORY AUTO NOISE BOUNDS DBQ8 is from "-23040" to "0", and

- [X] is NOT greater than [Y].



NOTE: ACCESSORY AUTO NOISE BOUNDS DBQ8 is the vector of two 16-bit integers.

Each four hexadecimal numbers represents a 16-bit signed integer. The range for each of the two numbers ([X] and [Y]) is -23040 to 0 inclusive.

Accessed Only: When the radio is model and option capable.

7.3.9.17

ACCESSORY AUTO MIN GAIN VECTOR

This vector sets the limits on the min gain for the auto mode of noise suppression.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The following selections are supported:

- ACCESSORY AUTO MIN GAIN VECTOR length must be equal to 8, and
- [X] of ACCESSORY AUTO MIN GAIN VECTOR is from "0" to "32767", and
- [Y] of ACCESSORY AUTO MIN GAIN VECTOR is from "0" to "32767", and
- [Y] is NOT greater than [X].



NOTE: ACCESSORY AUTO MIN GAIN VECTOR is the vector of two 16 bit integers:

Each four hexadecimal numbers represents a 16 bit signed integer. The range for each of the two numbers ([X] and [Y]) is from 0 to 32767 in decimal.

Accessed Only: When the radio is model and option capable.

7.3.9.18

ACCESSORY AUTO RELAXATION BOUNDS

This vector sets the limits on relaxation with frequency for the auto mode of noise suppression.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The following selections are supported:

- ACCESSORY AUTO RELAXATION BOUNDS length must be equal to 4, and
- [X] of ACCESSORY AUTO RELAXATION BOUNDS is from "0" to "10", and
- [Y] of ACCESSORY AUTO RELAXATION BOUNDS is from "0" to "10", and
- [X] is NOT greater than [Y].



NOTE: ACCESSORY AUTO RELAXATION BOUNDS is the vector of two 8-bit integers.

Each two hexadecimal numbers represents a 8-bit signed integer. The range for each of the two numbers ([X] and [Y]) is 0 to 10 inclusive.

Accessed Only: When the radio is model and option capable.

7.3.9.19

ACCESSORY PASS FILTER START

This field defines the frequency that is applied by the automatic PASS filter.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

Table 79: Range

Minimum	Maximum	Increments
1	3999	1

Accessed Only: When the radio is model/option capable.

7.3.10

Global Noise Reduction List

The **Global Noise Reduction Profile** allows the user to view or define custom Dual Input Noise Canceller (DINC) parameters.

These settings apply on a radio-wide basis.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio before transmission (in analog mode) and before voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission. In digital mode, a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.



WARNING:

These custom settings apply only when the Custom Global Noise Reduction Enable field is selected in the referenced Radio Profile.

Do not modify Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

The following fields are supported:

7.3.10.1

DINC SPATIAL EQ1 VECTOR

This setting allows you to change the internal DINC (Dual Input Noise Canceller) SPATIAL EQ1 VECTOR parameter.



WARNING:

This custom setting applies only when the Custom Global Noise Reduction Enable field is selected in the referenced [Radio Profiles on page 192](#).

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.10.2

DINC SPATIAL EQ2 VECTOR

This setting allows you to change the internal DINC (Dual Input Noise Canceller) SPATIAL EQ2 VECTOR parameter.



WARNING:

This custom setting applies only when the Custom Global Noise Reduction Enable field is selected in the referenced [Radio Profiles on page 192](#).

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.10.3

DINC BF EQ VECTOR

This setting allows you to change the internal DINC (Dual Input Noise Canceller) BF EQ VECTOR parameter.



WARNING:

This custom setting applies only when the Custom Global Noise Reduction Enable field is selected in the referenced [Radio Profiles on page 192](#).

Do not modify Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.11

Radio Profiles

The **Radio Profiles** section allows you to view or define individual Radio Profiles. Radio profiles allow for intended groupings of audio and indicator settings to be assembled for specific radio channels and or specific in-the-field usage scenarios.



NOTE:

Radio profiles are selected for use on a per channel basis from the Zone Channel Assignment Radio Profile field.

The Radio Profiles button-press or the Radio Profiles menu-selection allows you to modify a channel's Radio Profile assignment.

7.3.11.1

Radio Profile Name

This field allows you to view or define recognizable names for the current Radio Profile.

Radio profiles are selected for use on a per channel basis from the Zone Channel Assignment Radio Profile field.



NOTE: Three pre-named radio profile records have been supplied for your convenience: **Default**, **Surveillance**, and **Loud Audio**. You can rename all suggested names. These profiles should be defined according to your needs; more profiles may be created.



NOTE:

Examples: PROFILE-001, #500, Electric1, # A5.

Characters, numbers, spaces, and special characters can be used.

A total of 14 characters are possible.

The Radio Profile Name appears in the front display.

7.3.11.2

Night Vision Goggles Enable

This field causes the backlight of the radio front display, top display and keypad to illuminate in dim state (see the Night Vision Goggles Backlight Brightness Level field), which allows you to see the display through Night Vision Goggles (NVG).

This selection applies to the current Radio Profile.



WARNING:

When this field is enabled, the following fields must be disabled; otherwise, it considers them invalid: (a) the Disable Lights field. (b) the Permanent Front Display Backlight field.

When this field is enabled, the following fields must be enabled; otherwise, it considers them invalid: (a) the Permanent Disable Tx/Rx LED field. (b) the Intelligent Lighting, Disable Emergency Notification, Disable Critical Notification and Disable Call Notification fields.

Accessed Only: When the radio is model/option capable.

7.3.11.3

Permanent Front Display Backlight

This field causes the radio front display backlight to permanently illuminate.

This selection applies to the current Radio Profile.



IMPORTANT:

When this field is enabled, an approximate 20 minute drain in the standard battery life for a normal duty cycle will occur.

When the Disable Lights field is enabled, this feature will not apply.

Accessed Only: When the radio is model/option capable.

7.3.11.4

Permanent Disable Tx/Rx LED

If this field is enabled, the transmitting and receiving LED permanently does not illuminate.

7.3.11.5

Permanent Top Display Backlight

If enabled, this field allows the radio top display backlight to permanently illuminate.

This selection applies to the current Radio Profile.



IMPORTANT:

When this field is enabled, an approximate 20 minute drain in the standard battery life for a normal duty cycle will occur.

When the Disable Lights field is enabled, this feature will not apply.

Accessed Only: When the radio is model/option capable.

7.3.11.6

Speaker Audio Routing

This field selects the audio routing to the radio's internal speakers.

This selection applies to the current Radio Profile.



IMPORTANT:

The dual-display portable is equipped with two internal speakers, one on either side of the radio. For this model, you can route audio to either (or both) speakers independently.

The top display portable is equipped with a single speaker. For this model, you can enable or disable the audio to this speaker.

Accessed Only: When the radio is model/option capable.

7.3.11.7

Disable Lights

This field causes all of the LEDs and backlights of a radio and its accessories, such as a DRSM, to be disabled for the current Radio Profile.

This feature is useful during covert/surveillance operations.



IMPORTANT:

When disabled, radios equipped with Type 1 Encryption do not function. Type 1 Encryption requires that you are able to distinguish (from LED colors) a Type 1 incoming or outgoing encryption call.

On the Mobile O9 Control Head, the Stealth Mode Disable Lights/LEDs selection overrides this selection whenever the dedicated Stealth Mode button is toggled ON. Once the Stealth Mode is toggled OFF, the radio reverts back to its current Radio Profile settings.

7.3.11.8

Disable Tones

This field causes all of the radio alert tones, sidetones, and keypad tones to be disabled for the current Radio Profile.

This selection is useful during covert/surveillance operations.



NOTE: On the Mobile O9 Control Head, the Stealth Mode Disable Tones selection overrides this selection whenever the dedicated Stealth Mode button is toggled ON. Once the Stealth Mode is toggled OFF, the radio reverts back to its current Radio Profile settings.

7.3.11.9

Disable Emergency Notification

This field causes Intelligent Lighting that indicates Emergency Mode to be disabled.

This selection applies to the current Radio Profile.



NOTE: When the Disable Lights field is enabled, the colored backlight will not turn on.

7.3.11.10

Disable Critical Notification

This field causes Intelligent Lighting for self-diagnostic and failure detection to be disabled. This is applicable when the radio is the latest Fire Service Standards model and in Non-Hazard Mode capable channel.

This selection applies to the current Radio Profile.



NOTE: When the Disable Lights field is enabled, the colored backlight is disabled.

7.3.11.11

Disable Call Notification

This field causes Intelligent Lighting for received calls to be disabled.

This selection applies to the current Radio Profile.



IMPORTANT: When the [Disable Lights on page 194](#) field is enabled, the colored backlight will not turn on.

7.3.11.12

Group Settings (Radio)

The purpose of this field is to predefine a set of value for Audio Equalization Section fields under Speaker / RX Settings Group.

When the Group Setting value changes from **Custom**, the value of the fields on that section change accordingly. When the group setting is not set to **Custom**, then all fields should become view-only.

The following selections list the selections and definitions for the Audio Equalization Group Settings (Radio) and Audio Equalization Group Setting (Accessory) under Speaker / RX Settings Group.

Normal

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **0**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **0**, Digital Low Frequency Band is **0**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **0**, Securenet Low Frequency Band is **0**, Securenet Mid Frequency Band is **0**, and Securenet High Frequency Band is **0**.

Treble Boost

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **0**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **6**, Digital Low Frequency Band is **0**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **6**, Securenet Low Frequency Band is **0**, Securenet Mid Frequency Band is **0**, and SecureNet High Frequency Band is **6**.

Low Cut

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **-9**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **0**, Digital Low Frequency Band is **-9**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **0**, Securenet Low Frequency Band **-9**, Securenet Mid Frequency Band **0**, and Securenet High Frequency Band is **0**.

Reduce Feedback

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **-6**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **-6**, Digital Low Frequency Band is **-6**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **-6**, Securenet Low Frequency Band is **-6**, Securenet Mid Frequency Band is **0**, and Securenet High Frequency Band is **-6**.

Custom

Use the Custom option to individually set unique Speaker Audio Equalization gain settings for the radio that are not supported by the other options in the Group Setting menu. It is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

7.3.11.13

Group Setting (Accessory)

The purpose of Noise Reduction Group Settings is to predefine a set of value for Noise Reduction Section fields under Microphone/TX Settings Group.

When the Group Setting value changes from **Custom**, the value of the fields on that section change accordingly. When the group setting is not set to **Custom**, then all fields will become view-only.



NOTE: For **Custom** setting, expert knowledge of the different Noise Reduction settings is highly recommended before making individual adjustments.

The following list shows the selections and definitions for Noise Reduction Group Settings (Accessory).

Off

The value of the following fields is set to: Custom Noise Reduction is **Disabled**, Background Noise Reduction Level is **Off**, Wind Noise Reduction Level is **Off**, PASS Alarm is **Disabled**, Noise Reduction Profile Selection is **Acc NR 1**, Background Noise Reduction Mode is **On/Applied**, Wind Noise Reduction Mode is **On/Active**, Source Mode is **Mic 1**, and Directivity Mode is **On/Adapting**.

Normal

The value of the following fields is set to: Custom Noise Reduction is **Disabled**, Background Noise Reduction Level is **Normal**, Wind Noise Reduction Level is **Normal**, PASS Alarm is **Disabled**, Noise Reduction Profile Selection is **Acc NR 1**, Background Noise Reduction Mode is **On/Applied**, Wind Noise Reduction Mode is **On/Active**, Source Mode is **Mic 1**, and Directivity Mode is **On/Adapting**.

Aggressive

The value of the following fields is set to: Custom Noise Reduction is **Disabled**, Background Noise Reduction Level is **Aggressive**, Wind Noise Reduction Level is **Normal**, PASS Alarm is **Disabled**, Noise Reduction Profile Selection is **Acc NR 1**, Background Noise Reduction Mode is **On/Applied**, Wind Noise Reduction Mode is **On/Active**, Source Mode is **Mic 1**, and Directivity Mode is **On/Adapting**.

Extreme

The value of the following fields is set to: Custom Noise Reduction is **Disabled**, Background Noise Reduction Level is **Extreme_1-sided**, Wind Noise Reduction Level is **Normal**, PASS Alarm is **Enabled**, Noise Reduction Profile Selection is **Acc NR 1**, Background Noise Reduction Mode is **On/Applied**, Wind Noise Reduction Mode is **On/Active**, Source Mode is **Mic 1**, and Directivity Mode is **On/Adapting**.

Auto

The value of the following fields is set to: Custom Noise Reduction is **Disabled**, Background Noise Reduction Level is **Auto**, Wind Noise Reduction Level is **Normal**, and PASS Alarm is **Enabled**. Enables the auto-aggressiveness profile of noise reduction. This selection applies only when the radio is model/option capable.

Custom

Use the Custom option to individually set unique Speaker Audio Equalization gain settings for the radio that are not supported by the other options in the Group Setting menu. It is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

7.3.11.14

Custom Noise Reduction

This field enables the radio Radio or Accessory microphones to use a custom Radio Noise Reduction Profile or Accessory Noise Reduction Profile that target specific noise conditions.



WARNING: Custom Mic Noise Reduction settings should only be attempted by Qualified Service Personnel. Failure to configure the settings properly may seriously degrade mic noise suppression and consequently the intelligibility of transmitted speech.

The Radio Noise Reduction Settings and Accessory Noise Reduction Settings are recommended for most noise environments.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

7.3.11.15

Custom Noise Reduction (Accessory)

Enables the radio's Radio/Accessory microphones to use a custom Radio Noise Reduction Profile or Accessory Noise Reduction Profile that target specific noise conditions.



WARNING: Custom Mic Noise Reduction settings should only be attempted by Qualified Service Personnel. Failure to configure the settings properly may seriously degrade mic noise suppression and consequently the intelligibility of transmitted speech.

The Radio Noise Reduction Settings and Accessory Noise Reduction Settings are recommended for most noise environments.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

7.3.11.16

Background Noise Reduction Level (Radio)

Selects the level of background noise reduction that is applied to the internal dual-microphones and an external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

Accessed Only: When the Custom Noise Reduction field is disabled.

The following list shows the selections and definitions for Background Noise Reduction Level (Radio).

Off

Disables dual-microphone background noise reduction. Both microphones remain active, and the radio-user can speak into either side of the radio, but no background noise reduction is applied.

Normal

Both microphones are active and continuously adapt to the voice signal for optimal clarity over a wide range of background noise. Recommended setting for most noise environments.

Aggressive

An increased level of background noise reduction is enabled. Recommended for VERY HIGH noise environments.

Xtreme 1_Sided

The Maximum amount of background noise reduction is enabled. Recommended for EXTREME HIGH noise environments, for example: Firefighter PASS (Personal Alert Safety System) alarm, low air alerts, pumper truck, gas fan, saw.



NOTE: This Setting requires the radio-user to speak into the side of the radio containing the large loudspeaker. This selection applies only when the radio is model/option capable.

Auto

Enables the auto-aggressiveness profile of noise reduction.



NOTE: This selection applies only when the radio is model/option capable.

The following list shows the selections and definitions for Background Noise Reduction Level (Accessory).

Off

Disables background noise reduction. The external microphone remains active, but no noise reduction is applied.

Normal

The external microphone continuously adapts to the voice signal for optimal clarity over a wide range of background noise. Recommended setting for most noise environments.

Xtreme 1_Sided

The Maximum amount of background noise reduction is enabled. Recommended for EXTREME HIGH noise environments, for example: Firefighter PASS alarm, low air alerts, pumper truck, gas fan, saw.



NOTE: This Setting requires the radio-user to speak into the side of the radio containing the large loudspeaker. This selection applies only when the radio is model/option capable.

Auto

Enables the auto-aggressiveness profile of noise reduction.



NOTE: This selection applies only when the radio is model/option capable.

7.3.11.17

Background Noise Reduction Level (Accessory)

Selects the level of background noise reduction that is applied to the internal dual-microphones and an external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

Accessed Only: When the Custom Noise Reduction field is disabled.

The following list shows the selections and definitions for Background Noise Reduction Level (Radio).

Off

Disables dual-microphone background noise reduction. Both microphones remain active, and the radio-user can speak into either side of the radio, but no background noise reduction is applied.

Normal

Both microphones are active and continuously adapt to the voice signal for optimal clarity over a wide range of background noise. Recommended setting for most noise environments.

Aggressive

An increased level of background noise reduction is enabled. Recommended for VERY HIGH noise environments.

Xtreme 1_Sided

The Maximum amount of background noise reduction is enabled. Recommended for EXTREME HIGH noise environments, for example: Firefighter Personal Alert Safety System (PASS) alarm, low air alerts, pumper truck, gas fan, saw.



NOTE: This Setting requires the radio-user to speak into the side of the radio containing the large loudspeaker. This selection applies only when the radio is model/option capable.

Auto

Enables the auto-aggressiveness profile of noise reduction.



NOTE: This selection applies only when the radio is model/option capable.

The following list shows the selections and definitions for Background Noise Reduction Level (Accessory).

Off

Disables background noise reduction. The external microphone remains active, but no noise reduction is applied.

Normal

The external microphone continuously adapts to the voice signal for optimal clarity over a wide range of background noise. Recommended setting for most noise environments.

Aggressive

An increased level of background noise reduction is enabled. Recommended for VERY HIGH noise environments.

Xtreme 1_Sided

The Maximum amount of background noise reduction is enabled. Recommended for EXTREME HIGH noise environments, for example: Firefighter PASS alarm, low air alerts, pumper truck, gas fan, saw.



NOTE: This Setting requires the radio-user to speak into the side of the radio containing the large loudspeaker. This selection applies only when the radio is model/option capable.

Auto

Enables the auto-aggressiveness profile of noise reduction.



NOTE: This selection applies only when the radio is model/option capable.

7.3.11.18

Wind Noise Reduction Level (Radio)

Selects the level of wind noise reduction that is applied to the internal dual-microphones and the external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

Accessed Only: When the Custom Noise Reduction field is disabled.

The following list shows the selections and definitions for Wind Noise Reduction Settings (Radio).

Off

Disables dual-microphone wind noise reduction. Both microphones remain active, and the radio-user can speak into either side of the radio, but no wind noise reduction is applied.

Normal

Both microphones are active and continuously adapt to the voice signal for optimal clarity over a wide range of noise.



NOTE: Recommended setting for most environments.

Aggressive

An increased level of wind noise reduction is enabled.



NOTE: Recommended for very high noise environments.

7.3.11.19

Wind Noise Reduction Level (Accessory)

The following table lists the selection and definition for Wind Noise Reduction Level (Accessory).



NOTE: This is a non-configurable field and the default setting is set to **Off**.

Off

Disables wind noise reduction. The external microphone remains active, but no wind noise reduction is applied.

7.3.11.20

PASS Alarm Filter (Radio)

Personal Alert Safety System (PASS) Alarm Filter (Radio) enables background noise reduction for the radio's internal microphone whenever the radio is transmitting in the presence of an active PASS alarm.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

PASS Alarm Filter (Accessory) enables background noise reduction for the radio's external microphone whenever the radio is transmitting in the presence of an active PASS alarm. This selection applies to the current Radio Profile.

The selections supported are **Disabled** and **Enabled**.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

Accessed Only:

When the Custom Noise Reduction Enable field is disabled, and

(When the Background Noise Reduction Level field is not set to **Off**, and when the Wind Noise Reduction Level field is not set to **Off**).

7.3.11.21

PASS Alarm Filter (Accessory)

Personal Alert Safety System (PASS) Alarm Filter enables background noise reduction for the radio's internal microphone whenever the radio is transmitting in the presence of an active PASS alarm.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

PASS Alarm Filter (Accessory) enables background noise reduction for the radio's external microphone whenever the radio is transmitting in the presence of an active PASS alarm. This selection applies to the current Radio Profile.

The selections supported are **Enabled** and **Disabled**.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

Accessed Only:

When the Custom Noise Reduction Enable field is disabled, and

(When the Background Noise Reduction Level field is not set to **Off**, and when the Wind Noise Reduction Level field is not set to **Off**).

7.3.11.22

Noise Reduction Profile Selection (Radio)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless you are a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the **Radio Profile Selection** field of the Zone Channel Assignment, Channel Page.

7.3.11.23

Noise Reduction Profile Selection (Accessory)

Enables the radio's Radio/Accessory microphones to use a custom Radio Noise Reduction Profile or Accessory Noise Reduction Profile that target specific noise conditions.



WARNING: Custom Mic Noise Reduction settings should only be attempted by Qualified Service Personnel. Failure to configure the settings properly may seriously degrade mic noise suppression and consequently the intelligibility of transmitted speech.

The Radio Noise Reduction Settings and Accessory Noise Reduction Settings are recommended for most noise environments.



NOTE: Noise Reduction improves voice clarity by reducing background noise. Noise Reduction occurs on the transmitting radio prior to transmission (in analog mode) and prior to voice coding (in digital mode). Not only does reducing background noise improve voice clarity for an analog mode transmission, in digital mode a cleaner speech signal going into the voice-encoder (vocoder) results in clearer voice being received and decoded in the receiver.

7.3.11.24

Background Noise Reduction Mode (Radio)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the Zone Channel Assignment, Channel Page's **Radio Profile Selection** field.

7.3.11.25

Background Noise Reduction Mode (Accessory)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the Zone Channel Assignment, Channel Page's **Radio Profile Selection** field.

7.3.11.26

Wind Noise Reduction Mode (Radio)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the Zone Channel Assignment, Channel Page's **Radio Profile Selection** field.

7.3.11.27

Wind Noise Reduction Mode (Accessory)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the Zone Channel Assignment, Channel Page's **Radio Profile Selection** field.

7.3.11.28

Source Mode (Radio)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the Zone Channel Assignment, Channel Page's Radio Profile Selection field.

The following selections are supported:

- Beam 1
- Beam 2
- Full Automatic
- Mic 1
- Mic 1 & Mic 2
- Mic 2
- Mic 3
- Off
- Proximity Mic 1
- Proximity Mic 2

7.3.11.29

Source Mode (Accessory)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.11.30

Directivity Mode (Radio)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

Radio Profiles are referenced to a specific channel with the Zone Channel Assignment, Channel Page's **Radio Profile Selection** field.

7.3.11.31

Directivity Mode (Accessory)

These custom settings apply only when the Custom Noise Reduction field is selected in the referenced Radio Profile.



WARNING: Do not modify Custom Noise Reduction settings unless the user is a Qualified Service Personnel. Improper settings can cause high levels of background noise to be transmitted with voice, which can cause communications to fail.

7.3.11.32

SAM Mode (Radio)

Speaker-As-Microphone (SAM) is an alternative audio source.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The audio performance improves in wind noise when you use the SAM Mode.

The available selections are **Off**, **On**, and **Wind_On**.

When you set this feature to **Wind_On**, the SAM audio input functions only in a windy condition.

Accessed Only: When the radio is model/option capable and when [Custom Noise Reduction on page 197](#) is **Enabled**.

7.3.11.33

Auto Mode (Radio)

Radio Mic Auto Mode refers to the automatic setting of the Noise suppression aggressiveness for the radio.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The available selections are **Off** and **On**.

Accessed Only: When the radio is model/option capable and when [Custom Noise Reduction on page 197](#) is **Enabled**.

7.3.11.34

Auto Mode (Accessory)

Accessory Mic Auto Mode refers to the automatic setting of the Noise suppression aggressiveness level for accessory.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The available selections are **Off** and **On**.

Accessed Only: When the radio is model/option capable and when [Custom Noise Reduction \(Accessory\)](#) on page 197 is **Enabled**.

7.3.11.35

Overload Comp (Radio)

This field enables Automatic compensation for mic overload to improve performance of the noise reduction in very loud conditions.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The selections are **Off** and **On**.

Accessed Only: When the radio is model/option capable and when [Custom Noise Reduction on page 197](#) is **Enabled**.

7.3.11.36

Group Setting (Radio)

This field predefines a set of value for Gain Sensitivity Section fields under Microphone/TX Settings Group.

When the Group Setting value is changed other than **Custom**, the value of the fields on that section change accordingly. When the group setting is not set to **Custom**, then all fields will become view-only.

The following lists the selections and definitions for both Gain Sensitivity Group Settings (Radio) and Gain Sensitivity Group Settings (Accessory).

Normal

The value of the following fields is set to: Analog AGC is **Enabled**, Digital AGC is **Enabled**, SecureNet AGC is **Enabled**, Analog Fixed Gain is **0**, Digital Fixed Gain is **0**, SecureNet Fixed Gain is **0**, Gain Control Output is **0**, Gain Control Total is **6**, and Digital / Analog Balance is **Disabled**.

Noise Optimize

The value of the following fields is set to: Analog AGC is **Disabled**, Digital AGC is **Disabled**, SecureNet AGC is **Disabled**, Analog Fixed Gain is **-6**, Digital Fixed Gain is **-6**, SecureNet Fixed Gain is **-6**, Gain Control Output is **0**, Gain Control Total is **6**, and Digital/Analog Balance is **Enabled**.

Loud Output

The value of the following fields is set to: Analog AGC is **Enabled**, Digital AGC is **Enabled**, SecureNet AGC is **Enabled**, Analog Fixed Gain is **0**, Digital Fixed Gain is **0**, SecureNet Fixed Gain is **0**, Gain Control Output is **6**, Gain Control Total is **9**, and Digital/Analog Balance is **Disabled**.

Reduce Feedback

The value of the following fields is set to: Analog AGC is **Disabled**, Digital AGC is **Disabled**, SecureNet AGC is **Disabled**, Analog Fixed Gain is **-9**, Digital Fixed Gain is **-9**, SecureNet Fixed Gain is **-9**, Gain Control Output is **0**, Gain Control Total is **6**, and Digital/Analog Balance is **Enabled**.

7.3.11.37

Group Setting (Accessory)

The purpose of this field is to predefine a set of value for Gain Sensitivity Section fields under Microphone/TX Settings Group.

When the Group Setting value is changed other than **Custom**, the value of the fields on that section change accordingly. When the group setting is not set to **Custom**, then all fields will become view-only.

The following lists the selections and definitions for both Gain Sensitivity Group Settings (Radio) and Gain Sensitivity Group Settings (Accessory).

Normal

The value of the following fields is set to: Analog AGC is **Enabled**, Digital AGC is **Enabled**, SecureNet AGC is **Enabled**, Analog Fixed Gain is **0**, Digital Fixed Gain is **0**, SecureNet Fixed Gain is **0**, Gain Control Output is **0**, Gain Control Total is **6**, and Digital/Analog Balance is **Disabled**.

Noise Optimize

The value of the following fields is set to: Analog AGC is **Disabled**, Digital AGC is **Disabled**, SecureNet AGC is **Disabled**, Analog Fixed Gain is **-6**, Digital Fixed Gain is **-6**, SecureNet Fixed Gain is **-6**, Gain Control Output is **0**, Gain Control Total is **6**, and Digital/Analog Balance is **Enabled**.

Loud Output

The value of the following fields is set to: Analog AGC is **Enabled**, Digital AGC is **Enabled**, SecureNet AGC is **Enabled**, Analog Fixed Gain is **0**, Digital Fixed Gain is **0**, SecureNet Fixed Gain is **0**, Gain Control Output is **6**, Gain Control Total is **9**, and Digital/Analog Balance is **Disabled**.

Reduce Feedback

The value of the following fields is set to: Analog AGC is **Disabled**, Digital AGC is **Disabled**, SecureNet AGC is **Disabled**, Analog Fixed Gain is **-9**, Digital Fixed Gain is **-9**, SecureNet Fixed Gain is **-9**, Gain Control Output is **0**, Gain Control Total is **6**, and Digital/Analog Balance is **Enabled**.

Custom

Use the Custom option to individually set unique Speaker Audio Equalization gain settings for the radio that are not supported by the other options in the Group Setting menu. It is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

7.3.11.38

Analog AGC

This field enables Automatic Gain Control (AGC) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in analog mode. AGC compensates for differences in voice level and operational style. As a result of AGC, audio is transmitted and then received at the same audio/decibel level. This selection applies to the current Radio Profile.



WARNING:

(If you set the Audio Configuration Level to **Basic**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.

(If you set the Audio Configuration Level to **Enhanced**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.



IMPORTANT:

The Tx Gain Control Total level (also known as pure gain) is applied before AGC has occurred. For microphone input below the nominal level: actual microphone output = microphone input + Tx Gain Control Total.

The Tx Gain Control Output level is applied after AGC has occurred. Tx Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter.

7.3.11.39

Analog AGC (Accessory)

Enables Automatic Gain Control (AGC) to be used for the radio's internal or external microphone. This selection only applies while the radio is transmitting in analog mode.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

AGC compensates for differences in voice level and operational style. As a result of AGC, audio is transmitted and then received at the same audio/decibel level. This selection applies to the current Radio Profile.



WARNING:

(If the user set the Audio Configuration Level to **Basic**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.

(If the user set the Audio Configuration Level to **Enhanced**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.



IMPORTANT:

The Tx Gain Control Total level (also known as pure gain) is applied before AGC has occurred. For microphone input below the nominal level: actual microphone output = microphone input + Tx Gain Control Total.

The Tx Gain Control Output level is applied after AGC has occurred. Tx Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set through this parameter.

7.3.11.40

Digital AGC

This field enables Automatic Gain Control (AGC) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in digital mode. AGC compensates for differences in voice level and operational style. As a result of AGC, audio is transmitted and then received at the same audio/decibel level. This selection applies to the current Radio Profile.



NOTE:

(If the user set the Audio Configuration Level to **Basic**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.

(If the user set the Audio Configuration Level to **Enhanced**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.



NOTE:

The Tx Gain Control Total level (also known as pure gain) is applied before AGC has occurred. For microphone input below the nominal level: actual microphone output = microphone input + Tx Gain Control Total.

The Tx Gain Control Output level is applied after AGC has occurred. Tx Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter.

7.3.11.41

Digital AGC (Accessory)

Enables Automatic Gain Control (AGC) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in digital mode. AGC compensates for differences in voice level and operational style. As a result of AGC, audio is transmitted and then received at the same audio/decibel level. This selection applies to the current Radio Profile.



WARNING:

(If the user set the Audio Configuration Level to **Basic**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.

(If the user set the Audio Configuration Level to **Enhanced**) When enabled, the Radio Wide, Tx Digital/Analog Balance field must not be set to **Radio Wide**, and Tx Digital/Analog Balance in the same Radio Profile record/row must be **Disabled**. Otherwise, this selection is considered invalid.



NOTE:

The Tx Gain Control Total level (also known as pure gain) is applied before AGC has occurred. For microphone input below the nominal level: actual microphone output = microphone input + Tx Gain Control Total.

The Tx Gain Control Output level is applied after AGC has occurred. Tx Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter.

7.3.11.42

Securenet AGC (Radio)

This field allows you to enable Automatic Gain Control (AGC) to be used for the radio internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in Securenet mode. AGC compensates for differences in voice level and operational style. As a result of AGC, audio is transmitted and then received at the same audio/decibel level. This selection applies to the current Radio Profile.



IMPORTANT:

The Tx Gain Control Total level (also known as pure gain) is applied before AGC has occurred. For microphone input below the nominal level: actual microphone output = microphone input + Tx Gain Control Total.

The Tx Gain Control Output level is applied after AGC has occurred. Tx Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter.

Accessed Only: When the radio is model/option capable.

7.3.11.43

Securenet AGC (Accessory)

Enables Automatic Gain Control (AGC) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in SecureNet mode. AGC compensates for differences in voice level and operational style. As a result of AGC, audio is transmitted and then received at the same audio/decibel level. This selection applies to the current Radio Profile.



NOTE:

The Tx Gain Control Total level (also known as pure gain) is applied before AGC has occurred. For microphone input below the nominal level: actual microphone output = microphone input + Tx Gain Control Total.

The Tx Gain Control Output level is applied after AGC has occurred. Tx Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter.

Accessed Only: When the radio is model / option capable.

7.3.11.44

AGC Gain Control Output (Radio)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same (0).



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Output level is applied after AGC (Automatic Gain Control) has occurred. AGC Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter. This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Output (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Output (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Output (Radio).

AGC Gain Control Output is applied to any of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Output (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Output (Accessory) field is enabled.

Table 80: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.45

AGC Gain Control Output (Accessory)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same ("0").



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Output level is applied after AGC (Automatic Gain Control) has occurred. AGC Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter. This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Output (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Output (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Output (Radio).

AGC Gain Control Output is applied to any of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user sets the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user sets the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Output (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Output (Accessory) field is enabled.

Table 81: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.46

AGC Gain Control Total (Radio)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same (0), for the current Radio Profile.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Total level (also known as pure gain) is applied before AGC (Automatic Gain Control) has occurred. For microphone input below the nominal level: actual microphone output = microphone input + AGC Gain Control Total.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Total (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Total (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Total (Radio).

There are separate AGC Gain Control Total values for each of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Total (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Total (Accessory) field is enabled.

The following table lists the minimum and maximum values for the AGC Gain Control Output as well as sample audio clips when the user enter specific values.

Table 82: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.47

AGC Gain Control Total (Accessory)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same (0), for the current Radio Profile.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Total level (also known as pure gain) is applied before AGC (Automatic Gain Control) has occurred. For microphone input below the nominal level: actual microphone output = microphone input + AGC Gain Control Total.



NOTE:

If the user sets the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Total (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Total (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Total (Radio).

There are separate AGC Gain Control Total values for each of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Total (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Total (Accessory) field is enabled.

The following selections are supported:

Table 83: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.48

Analog Fixed Gain

This field selects the amount of fixed audio gain (also known as linear) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in analog mode. Linear is useful for adding pure gain to the signal. This selection applies to the current Radio Profile.

Accessed Only: When the Analog AGC field is disabled.

The following selections are supported:

Table 84: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.49

Analog Fixed Gain (Accessory)

Selects the amount of fixed audio gain (also known as linear) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in analog mode. Linear is useful for adding pure gain to the signal. This selection applies to the current Radio Profile.

Accessed Only: When the Analog AGC field is disabled.

The following selections are supported:

Table 85: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.50

Digital Fixed Gain

This field selects the amount of fixed audio gain (also known as linear) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in digital mode. Linear is useful for adding pure gain to the signal. This selection applies to the current Radio Profile.

Accessed Only: When the [Digital AGC on page 207](#) field is disabled.

Table 86: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.51

Digital Fixed Gain (Accessory)

Selects the amount of fixed audio gain (also known as linear) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in Securenet mode. Linear is useful for adding pure gain to the signal. This selection applies to the current Radio Profile.

Accessed Only: When the [Securenet AGC \(Accessory\) on page 208](#) field is disabled and when the radio is model/option capable.

Table 87: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.52

Securenet Fixed Gain (Radio)

Selects the amount of fixed audio gain (also known as linear) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in Securenet mode. Linear is useful for adding pure gain to the signal. This selection applies to the current Radio Profile.

Accessed Only: When the [Securenet AGC](#) field is disabled and when the radio is model/option capable.

Table 88: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.53

Securenet Fixed Gain (Accessory)

Selects the amount of fixed audio gain (also known as linear) to be used for the radio's internal or external microphone.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection only applies while the radio is transmitting in Securenet mode. Linear is useful for adding pure gain to the signal. This selection applies to the current Radio Profile.

Accessed Only: When the Securenet AGC field is disabled and when the radio is model/option capable.

Table 89: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.54

Digital/Analog Balance

This field enables the audio transmission level to equalize or balance when switching between analog and digital and back, on a per Radio Profile basis.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The following table lists the selections and the sample audio clip for Digital/Analog Balance.

The selection is either **disabled** or **enabled**.



WARNING:

(If you set the Audio Configuration Level to **Basic**) When this field is enabled, then the Digital AGC (both Radio and Accessory), Analog AGC (both Radio and Accessory) in the same Radio Profile record / row must all be **Disabled**; otherwise, this selection is considered invalid.

(If you set the Audio Configuration Level to **Enhanced**) When Digital/Analog Balance (Radio) field is enabled, then the Digital AGC (Radio), Analog AGC (Radio) in the same Radio Profile record / row must all be **Disabled**; otherwise, this selection is considered invalid.

(If you set the Audio Configuration Level to **Enhanced**) When enabled, Digital/Analog Balance (Accessory) field is enabled, then the Digital AGC (Accessory) and Analog AGC (Accessory) in the same Radio Profile record / row must all be **Disabled**; otherwise, this selection is considered invalid.



NOTE:

If you set the Audio Configuration Level is set to **Basic**, then the Digital/Analog Balance (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Digital/Analog Balance (Accessory) value is synchronized from the Digital/Analog Balance (Radio).

For APX3000 radios, the Digital/Analog Balance (Accessory) value is synchronized to the Digital/Analog Balance (Radio).

AGC Gain Control Total is applied to any of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the Audio Configuration Level is set to **Basic**) When any one of the enable AGC fields is enabled, then the Digital/Analog Balance fields are enabled; or

(If the Audio Configuration Level is set to **Enhanced**) When any one of the enable AGC (Radio) fields is enabled, then the Digital/Analog Balance fields are enabled. When any one of the enable AGC (Accessory) fields is enabled, then the Digital/Analog Balance (Accessory) field is enabled; or

When the Radio Wide, Digital/Analog Balance field is set to **Per Profile**.

7.3.11.55

Digital / Analog Balance (Accessory)

Enables the audio transmission level to equalize or balance when switching between analog and digital and back, on a per Radio Profile basis.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The selection is either **disabled** or **enabled**.



WARNING:

(If the user set the Audio Configuration Level to **Basic**) When this field is enabled, then the Digital AGC (both Radio and Accessory), Analog AGC (both Radio and Accessory) in the same Radio Profile record / row must all be **Disabled**; otherwise, this selection is considered invalid.

(If the user set the Audio Configuration Level to **Enhanced**) When Digital / Analog Balance (Radio) field is enabled, then the Digital AGC (Radio), Analog AGC (Radio) in the same Radio Profile record / row must all be **Disabled**; otherwise, this selection is considered invalid.

(If the user set the Audio Configuration Level to **Enhanced**) When enabled, Digital / Analog Balance (Accessory) field is enabled, then the Digital AGC (Accessory) and Analog AGC (Accessory) in the same Radio Profile record / row must all be **Disabled**; otherwise, this selection is considered invalid.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the Digital / Analog Balance (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Digital / Analog Balance (Accessory) value is synchronized from the Digital / Analog Balance (Radio).

For APX3000 radios, the Digital / Analog Balance (Accessory) value is synchronized to the Digital / Analog Balance (Radio).

AGC Gain Control Total is applied to any of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the Audio Configuration Level is set to **Basic**) When any one of the enable AGC fields is enabled, then the Digital / Analog Balance fields are enabled; or

(If the Audio Configuration Level is set to **Enhanced**) When any one of the enable AGC (Radio) fields is enabled, then the Digital / Analog Balance fields are enabled. When any one of the enable AGC (Accessory) fields is enabled, then the Digital / Analog Balance (Accessory) field is enabled; or

When the Radio Wide, Digital / Analog Balance field is set to **Per Profile**.

7.3.11.56

Bluetooth Mic Gain Level

This field allows you to select the default amount of audio gain to be used by the microphone on both commercial-off-the-shelf (COTS) and Motorola Solutions-proprietary Bluetooth devices when that device is paired and connected to the radio.

This selection applies to the current Radio Profile.



NOTE: In order to be able to select the audio gain in Bluetooth Mic Gain Level, Bluetooth Pairing Type has to be set to either **Standard** or **LF MPP & Standard**. The default setting is **LF MPP**.

Applies only:

When the Bluetooth Enable field is **Enabled**, and when the Bluetooth Pairing Type is **Standard** or **LF MPP & Standard**, and when the radio is not LTE-capable, and when the radio is model/option capable.

Table 90: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.57

Group Settings (Radio)

The purpose of this field is to predefine a set of value for Audio Equalization Section fields under Microphone / TX Settings Group.

When the Group Setting value changes from **Custom**, the value of the fields on that section change accordingly. All fields should become Non-editable, when the group setting is not set to **Custom**.



NOTE: For **Custom** setting, it is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

The following list the selections and definitions for the Audio Equalization Group Settings (Radio) and Audio Equalization Group Settings (Accessory) under Microphone / TX Settings Group.

Normal

Low Frequency Band is **0**, Mid Frequency Band is **0**, and High Frequency Band is **0**.

Treble Boost

Low Frequency Band is **0**, Mid Frequency Band is **0**, and High Frequency Band is **6**.

Low Cut

Low Frequency Band is **-9**, Mid Frequency Band is **0**, and High Frequency Band is **0**.

XTS

Low Frequency Band is **-3**, Mid Frequency Band is **0**, and High Frequency Band is **6**.

7.3.11.58

Group Setting (Accessory)

The purpose of this field is to predefine a set of value for Audio Equalization Section fields under Microphone / TX Settings Group.

When the Group Setting value changes from **Custom**, the value of the fields on that section change accordingly. All fields should become Non-editable, when the group setting is not set to **Custom**.



NOTE: For **Custom** setting, it is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

The following list the selections and definitions for the Audio Equalization Group Settings (Radio) and Audio Equalization Group Settings (Accessory) under Microphone / TX Settings Group.

Normal

Low Frequency Band is **0**, Mid Frequency Band is **0**. and High Frequency Band is **0**.

Treble Boost

Low Frequency Band is **0**, Mid Frequency Band is **0**, and High Frequency Band is **6**.

Low Cut

Low Frequency Band is **-9**, Mid Frequency Band is **0**, and High Frequency Band is **0**.

XTS

Low Frequency Band is **-3**, Mid Frequency Band is **0**, and High Frequency Band is **6**.

Custom

Use the Custom option to individually set unique Speaker Audio Equalization gain settings for the radio that are not supported by the other options in the Group Setting menu. It is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

7.3.11.59

Low Frequency Band

Selects the sound level of calls transmitted in Analog/Digital/SecureNet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 91: Range

Minimum	Maximum
-12	12

7.3.11.60

Low Frequency Band (Accessory)

Selects the sound level of calls transmitted in Analog/Digital/SecureNet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 92: Range

Minimum	Maximum
-12	12

7.3.11.61

Mid Frequency Band

Selects the sound level of calls transmitted in Analog/Digital/SecureNet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 93: Range

Minimum	Maximum
-12	12

7.3.11.62

Mid Frequency Band (Accessory)

Selects the sound level of calls transmitted in Analog/Digital/Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 94: Range

Minimum	Maximum
-12	12

7.3.11.63

High Frequency Band (Radio)

Selects the sound level of calls transmitted in Analog/Digital/Securenet environment.

This selection applies to the current Radio Profile.

The following selections are supported:

Table 95: Range

Minimum	Maximum
-12	12

7.3.11.64

High Frequency Band (Accessory)

Selects the sound level of calls transmitted in Analog/Digital/Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

The following selections are supported:

Table 96: Range

Minimum	Maximum
-12	12

7.3.11.65

Maximum Audio Volume

This field selects the highest possible receive-voice volume level of the radio.

The receive-voice volume level of the radio does not rise above the selected level.



WARNING:

This setting must be higher than the Minimum Audio Volume setting otherwise both fields become invalid.

IMPORTANT INFORMATION FOR MOTORCYCLE HELMET HEADSET CONFIGURATIONS: CAUTION: If your radio is being used with a motorcycle helmet headset, do not set the radio at its highest possible receive-voice volume level. To avoid possible injury to your hearing, you must reduce the receive-voice volume level value to no higher than 130.

IMPORTANT INFORMATION WHEN USING IMPRES SURVEILLANCE AUDIO KITS: RLN4941_XL, RLN5882, RLN5883, RLN5886, RLN6483, RLN6424_XL, RLN6484, PMLN5111, PMLN5112, PMLN6123, PMLN6124, PMLN6129, PMLN6130, PMLN8120, PMLN8650, PMLN8652, PMLN8713, PMLN8714, PMLN8716, PMLN8717, PMLN8718, LOW NOISE KIT RLN5886, ZMN6038, ZMN6039, ZMN6032, ZMN6031, BDN6665, BDN6727, BDN6670, BDN6669, and the BDN6731: If your APX radio is being used with the above audio accessories, do not set the radio at its highest possible receive-voice volume level. To avoid possible injury to your hearing, you must reduce the receive-voice volume level value to no higher than 160.



IMPORTANT:

In order to have the radio's Maximum Volume at a constant level higher or lower than the radio's maximum receive voice volume (set in this field) you must use the Volume Offset (dB) feature.

When the Volume Offset (dB) feature is set to 0 (zero), the radio always uses this Maximum Audio Volume setting for the Maximum Volume, regardless of the Maximum Alert Tone Volume field's setting.



NOTE: See also the Volume Adjust Tone Offset field setting. This selection applies to the current Radio Profile.

The following selections are supported:

Table 97: Range

Minimum	Maximum
1	255



NOTE: 5=1 decibel (dB)

7.3.11.66

Volume Control: Minimum Audio Volume

Selects the radio's minimum Rx (Receive) audio level.

The radio's volume level never falls below this level, even when the radio-user sets the radio's volume control to **0** (Zero). See also the Volume Adjust Tone Offset field setting. This selection applies to the current Radio Profile.

 **WARNING:** This setting must be lower than the Maximum Audio Volume setting otherwise both fields become invalid.

 **IMPORTANT:**
In order to have the radio's Minimum Volume at a constant level higher or lower than the radio's minimum receive voice volume (set in this field) the user must use the Volume Offset (dB) feature.
When the Volume Offset (dB) feature is set to **0** (zero), the radio always uses this Minimum Audio Volume setting for the Minimum Volume, regardless of the Minimum Volume field's setting.

7.3.11.67

Alert Tone Volume Offset (dB)

Selects the value in decibels (dB) that raises or lowers the volume of an alert tone in comparison to the radio-user selected receive audio volume.

See also the Volume Adjust Tone Offset field setting. This selection applies to the current Radio Profile.

When a higher or lower alert tones volume is desired: Set the Maximum Volume field and the Maximum Audio Volume field to the same value, and set the Minimum Volume field and the Minimum Audio Volume field to the same value, then use this Alert Tone Volume Offset setting to have the radio's alert tones at a constant level higher or lower than the radio's receive voice volume.

 **IMPORTANT:** When this Alert Tone Volume Offset field is set to **0** (zero):
The radio always uses Maximum Audio Volume setting for the Maximum Volume, regardless of the Maximum Alert Tone Volume field's setting.
The radio always uses Minimum Audio Volume setting for the Minimum Volume, regardless of the Minimum Alert Tone Volume field's setting.

Accessed Only: When the Alert Tones field is **Enabled**.

The following selections are supported:

Table 98: Range

Minimum	Maximum	Increments
-26 decibels	25 decibels	1 decibel

7.3.11.68

Minimum Alert Tone Volume

Selects the minimum receive alert tone level, regardless of how low the radio-user may set the volume.

See also the Volume Adjust Tone Offset field setting. This selection applies to the current Radio Profile.



WARNING: This setting must be lower than the Maximum Volume setting otherwise both fields become invalid.



IMPORTANT:

In order to have the radio's Minimum Volume (set in this field) at a constant level higher or lower than the radio's minimum receive voice volume (set in the Minimum Audio Volume field) the user must use the Volume Offset (dB) feature.

When the Volume Offset (dB) feature is set to "0" (zero), the radio always uses the Minimum Audio Volume setting for this Minimum Volume, regardless of this Minimum Volume field's setting.

Accessed Only: When the Alert Tones field is **Enabled**.

The following selections are supported:

Table 99: Range

Minimum	Maximum
0	200

7.3.11.69

Maximum Alert Tone Volume

Selects the radio's highest possible alert tone volume level. The Volume Offset (dB) field setting may override this setting.

See also the Volume Adjust Tone Offset field setting. This selection applies to the current Radio Profile.



WARNING: This setting must be higher than the Minimum Volume setting otherwise both fields become invalid.



NOTE:

In order to have the radio's Maximum Volume (set in this field) at a constant level higher or lower than the radio's receive voice volume (set in the Maximum Audio Volume field) the user must use the Volume Offset (dB) feature.

When the Volume Offset (dB) feature is set to **0** (zero), the radio always uses the Maximum Audio Volume setting for this Maximum Volume, regardless of this Maximum Volume field's setting.

The following selections are supported:

Table 100: Range

Minimum	Maximum
0	255



NOTE: 5 = 1 decibel (dB)

7.3.11.70

Group Settings (Radio)

The purpose of this field is to predefine a set of value for Audio Equalization Section fields under Speaker / RX Settings Group.

When the Group Setting value changes from **Custom**, the value of the fields on that section change accordingly. When the group setting is not set to **Custom**, then all fields should become view-only.

The following selections list the selections and definitions for the Audio Equalization Group Settings (Radio) and Audio Equalization Group Setting (Accessory) under Speaker / RX Settings Group.

Normal

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **0**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **0**, Digital Low Frequency Band is **0**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **0**, Securenet Low Frequency Band is **0**, Securenet Mid Frequency Band is **0**, and Securenet High Frequency Band is **0**.

Treble Boost

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **0**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **6**, Digital Low Frequency Band is **0**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **6**, Securenet Low Frequency Band is **0**, Securenet Mid Frequency Band is **0**, and SecureNet High Frequency Band is **6**.

Low Cut

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **-9**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **0**, Digital Low Frequency Band is **-9**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **0**, Securenet Low Frequency Band **-9**, Securenet Mid Frequency Band **0**, and Securenet High Frequency Band is **0**.

Reduce Feedback

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **-6**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **-6**, Digital Low Frequency Band is **-6**, Digital Mid Frequency Band is **0**, Digital High Frequency Band is **-6**, Securenet Low Frequency Band is **-6**, Securenet Mid Frequency Band is **0**, and Securenet High Frequency Band is **-6**.

Custom

Use the Custom option to individually set unique Speaker Audio Equalization gain settings for the radio that are not supported by the other options in the Group Setting menu. It is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

7.3.11.71

Group Setting (Accessory)

The purpose of this field is to predefine a set of value for Audio Equalization Section fields under Speaker / RX Settings Group.

When the Group Setting value changes from **Custom**, the value of the fields on that section change accordingly. When the group setting is not set to **Custom**, then all fields should become view-only.

The following selections list the selections and definitions for the Audio Equalization Group Settings (Radio) and Audio Equalization Group Setting (Accessory) under Speaker / RX Settings Group.

Normal

The value of the following fields is set to: [Analog Low Frequency Band \(Accessory\) on page 223](#) is **0**, [Analog Mid Frequency Band \(Accessory\) on page 224](#) is **0**, [Analog High Frequency Band \(Accessory\) on page 225](#) is **0**, [Digital Low Frequency Band \(Accessory\) on page 226](#) is **0**, Digital Mid Frequency Band

(Accessory) on page 226 is 0, Digital High Frequency Band (Accessory) on page 227 is 0, Securenet Low Frequency Band is 0, Securenet Mid Frequency Band is 0, and Securenet High Frequency Band (Radio) on page 229 is 0.

Treble Boost

The value of the following fields is set to: Analog Low Frequency Band (Accessory) on page 223 is 0, Analog Mid Frequency Band (Accessory) on page 224 is 0, Analog High Frequency Band (Accessory) on page 225 is 6, Digital Low Frequency Band (Accessory) on page 226 is 0, Digital Mid Frequency Band (Accessory) on page 226 is 0, Digital High Frequency Band (Accessory) on page 227 is 6, Securenet Low Frequency Band is 0, Securenet Mid Frequency Band is 0, and Securenet High Frequency Band (Radio) on page 229 is 6.

Low Cut

The value of the following fields is set to: Analog Low Frequency Band (Accessory) on page 223 is -9, Analog Mid Frequency Band (Accessory) on page 224 is 0, Analog High Frequency Band (Accessory) on page 225 is 0, Digital Low Frequency Band is -9, Digital Mid Frequency Band is 0, Digital High Frequency Band is 0, Securenet Low Frequency Band -9, Securenet Mid Frequency Band 0, and Securenet High Frequency Band is 0.

Reduce Feedback

The value of the following fields is set to: Analog Low Frequency Band (Accessory) on page 223 is -6, Analog Mid Frequency Band (Accessory) on page 224 is 0, Analog High Frequency Band (Accessory) on page 225 is -6, Digital Low Frequency Band is -6, Digital Mid Frequency Band is 0, Digital High Frequency Band is -6, Securenet Low Frequency Band is -6, Securenet Mid Frequency Band is 0, and Securenet High Frequency Band is -6.

Custom

Use the Custom option to individually set unique Speaker Audio Equalization gain settings for the radio that are not supported by the other options in the Group Setting menu. It is highly recommended to avoid Maximum settings for same Frequency Bands between the Microphone and Speaker Equalizations.

7.3.11.72

Analog Low Frequency Band (Radio)

Selects the sound level of calls received in an analog environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 101: Range

Minimum	Maximum
-12	12

7.3.11.73

Analog Low Frequency Band (Accessory)

Selects the sound level of calls received in an analog environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 102: Range

Minimum	Maximum
-12	12

7.3.11.74

Analog Mid Frequency Band (Radio)

Selects the sound level of calls received in an analog environment.

This selection applies to the current Radio Profile.

Table 103: Range

Minimum	Maximum
-12	12

7.3.11.75

Analog Mid Frequency Band (Accessory)

Selects the sound level of calls received in an analog environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 104: Range

Minimum	Maximum
-12	12

7.3.11.76

Analog High Frequency Band

This field selects the sound level of calls received in an analog environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE:

If you set the Audio Configuration Level is set to **Basic**, then the Analog High Frequency Band (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Analog High Frequency Band (Accessory) value is synchronized from the Analog High Frequency Band (Radio).

For APX3000 radios, the Analog High Frequency Band (Accessory) value is synchronized to the Analog High Frequency Band (Radio).

Accessed Only:

(If you set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If you set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the Analog High Frequency Band (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the Digital High Frequency Band (Accessory) field is enabled.

The following selections are supported:

Table 105: Range

Minimum	Maximum
-12	12

7.3.11.77

Analog High Frequency Band (Accessory)

Selects the sound level of calls received in an analog environment.

 **WARNING:** The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the Analog High Frequency Band (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Analog High Frequency Band (Accessory) value is synchronized from the Analog High Frequency Band (Radio).

For APX3000 radios, the Analog High Frequency Band (Accessory) value is synchronized to the Analog High Frequency Band (Radio).

Accessed Only:

(If the user sets the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user sets the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the Analog High Frequency Band (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the Digital High Frequency Band (Accessory) field is enabled.

The following selections are supported:

Table 106: Range

Minimum	Maximum
-12	12

7.3.11.78

Digital Low Frequency Band (Radio)

Selects the sound level of calls received in a digital environment.

 **WARNING:** The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 107: Range

Minimum	Maximum
-12	12

7.3.11.79

Digital Low Frequency Band (Accessory)

Selects the sound level of calls received in a digital environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 108: Range

Minimum	Maximum
-12	12

7.3.11.80

Digital Mid Frequency Band (Radio)

Selects the sound level of calls received in a digital environment.

This selection applies to the current Radio Profile.

Table 109: Range

Minimum	Maximum
-12	12

7.3.11.81

Digital Mid Frequency Band (Accessory)

Selects the sound level of calls received in a digital environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 110: Range

Minimum	Maximum
-12	12

7.3.11.82

Digital High Frequency Band

This field selects the sound level of calls received in a digital environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE:

If you set the Audio Configuration Level is set to "Basic", then the Digital High Frequency Band (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Digital High Frequency Band (Accessory) value is synchronized from the Digital High Frequency Band (Radio).

For APX3000 radios, the Digital High Frequency Band (Accessory) value is synchronized to the Digital High Frequency Band (Radio).

Accessed Only:

(If you set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If you set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the Digital High Frequency Band (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the Digital High Frequency Band (Accessory) field is enabled.

Table 111: Range

Minimum	Maximum
-12	12

7.3.11.83

Digital High Frequency Band (Accessory)

Selects the sound level of calls received in a digital environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the Digital High Frequency Band (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Digital High Frequency Band (Accessory) value is synchronized from the Digital High Frequency Band (Radio).

For APX3000 radios, the Digital High Frequency Band (Accessory) value is synchronized to the Digital High Frequency Band (Radio).

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the Digital High Frequency Band (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the Digital High Frequency Band (Accessory) field is enabled.

Table 112: Range

Minimum	Maximum
-12	12

7.3.11.84

Securenet Low Frequency Band (Radio)

Selects the sound level of calls received in an Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 113: Range

Minimum	Maximum
-12	12

7.3.11.85

Securenet Low Frequency Band (Accessory)

Selects the sound level of calls received in an Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 114: Range

Minimum	Maximum
-12	12

7.3.11.86

Securenet Mid Frequency Band

This field selects the sound level of calls received in an Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 115: Range

Minimum	Maximum
-12	12

7.3.11.87

Securenet Mid Frequency Band (Accessory)

Selects the sound level of calls received in an Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.

Table 116: Range

Minimum	Maximum
-12	12

7.3.11.88

Securenet High Frequency Band (Radio)

Selects the sound level of calls received in a Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the Securenet High Frequency Band (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Securenet High Frequency Band (Accessory) value is synchronized from the Securenet High Frequency Band (Radio).

For APX3000 radios, the Securenet High Frequency Band (Accessory) value is synchronized to the Securenet High Frequency Band (Radio).

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or]

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the Securenet High Frequency Band (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the Securenet High Frequency Band (Accessory) field is enabled.

Table 117: Range

Minimum	Maximum
-12	12

7.3.11.89

Securenet High Frequency Band (Accessory)

Selects the sound level of calls received in a Securenet environment.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the Securenet High Frequency Band (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the Securenet High Frequency Band (Accessory) value is synchronized from the Securenet High Frequency Band (Radio).

For APX3000 radios, the Securenet High Frequency Band (Accessory) value is synchronized to the Securenet High Frequency Band (Radio).

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or]

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the Securenet High Frequency Band (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the Securenet High Frequency Band (Accessory) field is enabled.

Table 118: Range

Minimum	Maximum
-12	12

7.3.11.90

Receive AGC Group Setting (Radio)

This field determines the group setting for Receive Automatic Gain Control (AGC) on the radio microphone.

The following selections are available:

Normal

The received audio is automatically adjusted to the optimal level. Audio levels such as Gain Control Total is increased by 15 dB, if required. Gain Control Output such as the target output reference level is not changed.

Extended

The received audio is automatically adjusted to the optimal level. Audio levels such as Gain Control Total is increased by 21 dB, if required. Gain Control Output such as the target output reference level is not changed.

Off

Receive ACG is disabled. Gain compensation is not applied to the received audio.

Custom

The received audio is automatically adjusted to specified levels. The Gain Control Total must be used to increase or decrease the amount of gain. This gain is applied to the received audio level, as required.

The Gain Control Total can be adjusted from 0 dB to 24 dB, in 1 dB increments. The Gain Control Output must be used to increase or decrease the target output reference level. The Gain Control Output can be adjusted from -12 dB to +12 dB, in 3 dB increments.

7.3.11.91

Receive AGC Gain Control Output (Radio)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same (0).



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Output level is applied after AGC (Automatic Gain Control) has occurred. AGC Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is,

for any input above nominal, the output will never go above the level set via this parameter. This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Output (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Output (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Output (Radio).

AGC Gain Control Output is applied to any of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Output (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Output (Accessory) field is enabled.

Table 119: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.92

Receive AGC Gain Control Total (Radio)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same (0), for the current Radio Profile.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Total level (also known as pure gain) is applied before AGC (Automatic Gain Control) has occurred. For microphone input below the nominal level: actual microphone output = microphone input + AGC Gain Control Total.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Total (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Total (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Total (Radio).

There are separate AGC Gain Control Total values for each of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Total (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Total (Accessory) field is enabled.

The following table lists the minimum and maximum values for the AGC Gain Control Output as well as sample audio clips when the user enter specific values.

Table 120: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.93

Receive AGC Group Setting (Accessory)

This field determines the group setting for Receive Automatic Gain Control (AGC) on the radio microphone.

The following selections are available:

Normal

The received audio is automatically adjusted to the optimal level. Audio levels such as Gain Control Total is increased by 15 dB, if required. Gain Control Output such as the target output reference level is not changed.

Extended

The received audio is automatically adjusted to the optimal level. Audio levels such as Gain Control Total is increased by 21 dB, if required. Gain Control Output such as the target output reference level is not changed.

Off

Receive ACG is disabled. Gain compensation is not applied to the received audio.

Custom

The received audio is automatically adjusted to specified levels. The Gain Control Total must be used to increase or decrease the amount of gain. This gain is applied to the received audio level, as required.

The Gain Control Total can be adjusted from 0 dB to 24 dB, in 1 dB increments. The Gain Control Output must be used to increase or decrease the target output reference level. The Gain Control Output can be adjusted from -12 dB to +12 dB, in 3 dB increments.

7.3.11.94

Receive AGC Gain Control Output (Accessory)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same ("0").



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Output level is applied after AGC (Automatic Gain Control) has occurred. AGC Gain Control Output implements an infinity:1 dB ratio when microphone input is above the nominal level. That is, for any input above nominal, the output will never go above the level set via this parameter. This selection applies to the current Radio Profile.



NOTE:

If the user set the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Output (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Output (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Output (Radio).

AGC Gain Control Output is applied to any of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user sets the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user sets the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Output (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Output (Accessory) field is enabled.

Table 121: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.11.95

Receive AGC Gain Control Total (Accessory)

Selects gain for the radio's microphones to either increase (positive values), decrease (negative values), or stay the same (0), for the current Radio Profile.

 **WARNING:** The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

The AGC Gain Control Total level (also known as pure gain) is applied before AGC (Automatic Gain Control) has occurred. For microphone input below the nominal level: actual microphone output = microphone input + AGC Gain Control Total.



NOTE:

If the user sets the Audio Configuration Level is set to **Basic**, then the AGC Gain Control Total (Accessory) field is read-only (except for APX3000 radios only).

For Non-APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized from the AGC Gain Control Total (Radio).

For APX3000 radios, the AGC Gain Control Total (Accessory) value is synchronized to the AGC Gain Control Total (Radio).

There are separate AGC Gain Control Total values for each of the RadioCentral-enabled AGC Fields.

Accessed Only:

(If the user set the Audio Configuration Level to **Basic**) When one of the enable AGC field is enabled, then this field is enabled; or

(If the user set the Audio Configuration Level to **Enhanced**) When one of the enable AGC (Radio) field is enabled, then the AGC Gain Control Total (Radio) field is enabled. When any one of the enable AGC (Accessory) field is enabled, then the AGC Gain Control Total (Accessory) field is enabled.

The following selections are supported:

Table 122: Range

Minimum	Maximum	Increments
-12 decibels	12 decibels	3 decibels

7.3.12

Tone Signaling List

This section allows you to define individual Tone Signaling Lists. A maximum of 1000 records can be added in all Tone Signaling Lists.



NOTE:

When the Tone List Type is **Quik-Call II**, 10 separate Tone Signaling Lists are possible, with a maximum of 100 records each.

Individual Tone Signaling Lists are then selectable for Conventional and Trunking Personalities with their respective Tone Signaling List field.

For trunking communications, tone signaling applies only for trunking personalities that reference a trunking system and has its System Type field set to **ASTRO 25**.

When the Tone List Type is **Singleton**, maximum of 100 entries are allowed in one Tone Signaling List. Singleton Signaling Lists and Tone Alias records are then selectable for Conventional Personalities with their respective Tone Signaling Selection field.



NOTE: The radio can decode 1-10 tones in each list set and can encode all tones when Tone List Type is **Quik-Call II**.

7.3.12.1

Tone List Alias

This field allows you to define recognizable names for the current Tone Signaling List.

Once defined, individual Tone Signaling lists are then selectable for ASTRO Conventional and ASTRO 25 Trunking Personalities with their respective **Tone Signaling List** field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:



NOTE:

EMT-001, #500, Electric1, # A5.

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.3.12.1.1

External Control

This field selects the Vehicular Interface Port (VIP) Output that is activated when the radio decodes the incoming Tone Signaling tones defined in the current record or row.

This field allows you to control an external device attached to the corresponding VIP Output pin.

This selection applies only for ASTRO Conventional and ASTRO 25 Trunking communications.

The following selections are supported:

None

VIP Output control is disabled.

Aux Control 1–3

Selects an "Aux Control" VIP Output activation when the corresponding tone (or tone pair) is decoded.

- The corresponding "Aux Control" VIP Output must be set to match this selection.
- The VIP Output is activated for the duration determined by the **Active Duration** field.



NOTE: The radio can decode and can encode all tones, when model applicable.

Accessed Only: When [Tone List Type on page 235](#) is **Quik-Call II**, and when the radio is model or option capable.

7.3.12.2

Tone List Type

This field selects the tone signaling type in the current Tone Signaling List.

Tone Signaling List are selected in Conventional/Trunking Personalities Tone Signaling List, or selected in Conventional Personalities Repeater Access (RAC) Singletone List Selection.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Singletone

One of the Tone Signaling that allows you to selectively access repeaters in all Conventional analog signaling.

Quik-Call II

One of the individual Tone Signaling.

7.3.13

Signaling Tone

7.3.13.1

Tone Alias

This field allows you to define the Tone text for a single tone in the Tone Signaling Table.

Accessed Only: When the radio is model/option capable.

7.3.13.2

Tone 1 Freq

This field selects the receive Tone 1 frequency for the current Tone Signaling List (record/row).

Once selected, a two-tone sequence requires the selection of the Tone 2 Freq.

This selection applies only for ASTRO Conventional and ASTRO 25 Trunking communications.



WARNING:

The digital AMBE Vocoder technology used by both the dispatch console and the radio does not precisely encode/decode the corresponding (analog) Quik-Call II frequencies; instead, within the relevant range of frequencies available for Tone1 Freq and Tone2 Freq (265.625 Hz – 3109.375 Hz), the vocoder transforms evenly distributed groups of frequencies into a set of "standard" frequencies, where each group has an allowable frequency range, and a standard frequency is defined at the center of each group.

Therefore, when a programmed tone frequency is within the allowable range of one of the standard frequencies, it is decoded by the radio as that frequency.

Optimally, the programmed tone frequencies of the radio should match the tone frequencies programmed into the dispatch console, to avoid potentially missing a call.

Specific tone frequency group definitions are dependent on the Channel Type and, therefore TDMA (Time Division Multiple Access) versus FDMA (Frequency Division Multiple Access) channels.

- For TDMA channels, there are 91 groups, where each group covers a 31.25 Hz range.
- For FDMA channels, there are 72 groups, where some groups cover a 31.25 Hz range, and some groups cover a 62.5 Hz range.

When configuring tone frequencies:

- For a single two-tone frequency record, a combination where both Tone1 Freq and Tone2 Freq are configured as the same tone must be avoided, as that two-tone entry cannot be decoded by the radio.
- For a single two-tone frequency record, a combination where both Tone1 Freq and Tone2 Freq fall within the same frequency group must be avoided as they are decoded as the same tone. For example, a two-tone frequency record having 927 Hz and 940 Hz are both decoded to be 937.5 Hz.
- For two separate tone records, a combination where Tone1 Freq and Tone2 Freq in the two records respectively fall within the same frequency group must be avoided as they are decoded as the same tone sequence. For example, if the first record is 927 Hz and 1240 Hz, and the second record is 940 Hz and 1260 Hz, both records are decoded as 937.5 Hz and 1250 Hz.
- In certain cases, a digital tone frequency cannot be consistently decoded to a specific frequency value, instead it is decoded randomly to one of two different values. The table lists the tone frequencies that must be avoided for both FDMA and TDMA channels.

See [List of Unsupported Tone Frequencies on page 236](#).

Accessed Only: When [Tone List Type on page 235](#) is **Quik-Call II**, and when the radio is model/option capable.

Table 123: Range

Minimum	Maximum	Increments
288.5 Hz	3086.0 Hz	0.1 Hz

See [TDMA-applicable Standard Frequencies and Group Ranges on page 237](#).

See [FDMA-applicable Standard Frequencies and Group Ranges on page 239](#).

7.3.13.3

List of Unsupported Tone Frequencies

Unsupported Frequencies (Hz) for TDMA/FDMA.

Do NOT attempt to program the following frequencies:

Frequencies (Hz)			
296.8	578.1	1140.6	1953.1
296.9	578.2	1171.9	2015.6
297	609.4	1203.1	2046.9
328.1	640.6	1265.6	2171.9
328.2	640.7	1328.1	2234.4
359.3	703.1	1359.4	2296.9
359.4	703.2	1390.6	2328.1
359.5	765.6	1421.9	2390.6
390.6	765.7	1453.1	2546.9
421.8	796.9	1484.4	2609.4
421.9	828.1	1546.9	2671.9
422	859.4	1609.4	2734.4
484.3	890.6	1671.9	2796.9
484.4	921.9	1703.1	2859.4
484.5	984.4	1734.4	2921.9
515.6	1046.9	1765.6	
546.8	1078.1	1828.1	
546.9	1109.4	1890.6	

7.3.13.4

TDMA-applicable Standard Frequencies and Group Ranges

For TDMA channels, there are 91 groups of frequencies, where each group covers a 31.25 Hz range. The table lists the standard frequency, and the corresponding minimum and maximum frequency, for each group.

Table 124: Frequencies

Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)
1	265.7 - 296.8	281.25	32	1234.4 - 1265.6	1250	63	2203.2 - 2234.3	2218.75
2	296.9 - 328.1	312.5	33	1265.7 - 1296.8	1281.25	64	2234.4 - 2265.6	2250
3	328.2 - 359.3	343.75	34	1296.9 - 1328.1	1312.5	65	2265.7 - 2296.8	2281.25
4	359.4 - 390.6	375	35	1328.2 - 1359.3	1343.75	66	2296.9 - 2328.1	2312.5
5	390.7 - 421.8	406.25	36	1359.4 - 1390.6	1375	67	2328.2 - 2359.3	2343.75
6	421.9 - 453.1	437.5	37	1390.7 - 1421.8	1406.25	68	2359.4 - 2390.6	2375

Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)
7	453.2 – 484.3	468.75	38	1421.9 - 1453.1	1437.5	69	2390.7 - 2421.8	2406.25
8	484.4 – 515.6	500	39	1453.2 - 1484.3	1468.75	70	2421.9 - 2453.1	2437.5
9	515.7 – 546.8	531.25	40	1484.4 - 1515.6	1500	71	2453.2 - 2484.3	2468.75
10	546.9 – 578.1	562.5	41	1515.7 - 1546.8	1531.25	72	2484.4 - 2515.6	2500
11	578.2 – 609.3	593.75	42	1546.9 - 1578.1	1562.5	73	2515.7 - 2546.8	2531.25
12	609.4 – 640.6	625	43	1578.2 - 1609.3	1593.75	74	2546.9 - 2578.1	2562.5
13	640.7 – 671.8	656.25	44	1609.4 - 1640.6	1625	75	2578.2 - 2609.3	2593.75
14	671.9 – 703.1	687.5	45	1640.7 - 1671.8	1656.25	76	2609.4 - 2640.6	2635
15	703.2 – 734.3	718.75	46	1671.9 - 1703.1	1687.5	77	2640.7 - 2671.8	2656.25
16	734.4 – 765.6	750	47	1703.2 - 1734.3	1718.75	78	2671.9 - 2703.1	2687.5
17	765.7 – 796.8	781.25	48	1734.4 - 1765.6	1750	79	2703.2 - 2734.3	2718.75
18	796.9 – 828.1	812.5	49	1765.7 - 1796.8	1781.75	80	2734.4 - 2765.6	2750
19	828.2 – 859.3	843.75	50	1796.9 - 1828.1	1812.5	81	2765.7 - 2796.8	2781.25
20	859.4 – 890.6	875	51	1828.2 - 1859.3	1843.75	82	2796.9 - 2828.1	2812.25
21	890.7 – 921.8	906.25	52	1859.4 - 1890.6	1875	83	2828.2 - 2859.3	2843.75
22	921.9 – 953.1	937.5	53	1890.7 - 1921.8	1906.25	84	2859.4 - 2890.6	2875
23	953.2 – 984.3	968.75	54	1921.9 - 1953.1	1937.5	85	2890.7 - 2921.8	2906.25
24	984.4 - 1015.6	1000	55	1953.2 - 1984.3	1968.75	86	2921.9 - 2953.1	2937.5
25	1015.7 - 1046.8	1031.25	56	1984.4 - 2015.6	2000	87	2953.2 - 2984.3	2968.75
26	1046.9 - 1078.1	1062.5	57	2015.7 - 2046.8	2031.25	88	2984.4 - 3015.6	3000
27	1078.2 - 1109.3	1093.75	58	2046.9 - 2078.1	2062.5	89	3015.7 - 3046.8	3031.25

Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)
28	1109.4 - 1140.6	1125	59	2078.2 - 2109.3	2093.75	90	3046.9 - 3078.1	3062.5
29	1140.7 - 1171.8	1156.25	60	2109.4 - 2140.6	2125	91	3078.2 - 3109.3	3093.75
30	1171.9 - 1203.1	1187.5	61	2140.7 - 2171.8	2156.25			
31	1203.2 - 1234.3	1218.75	62	2171.9 - 2203.1	2187.5			



IMPORTANT:

When received by the radio, any tone frequency within a specific group (range) are decoded as the standard frequency for that group. For example, 937.5 Hz is a standard vocoder-supported tone frequency (for TDMA channels); therefore, any received tone frequency between 921.875 Hz and 953.125 Hz is decoded as a 937.5 Hz tone.

The Quik-Call II tone frequency range is 288.5 Hz – 3086 Hz. Per the above table, 288.5 Hz – 296.875 Hz is decoded by radio as 281.25 Hz, while 3046.875 Hz – 3086 Hz is decoded by radio as 3093.75 Hz.

7.3.13.5

FDMA-applicable Standard Frequencies and Group Ranges

For FDMA channels, there are 72 groups of frequencies, where some groups cover a 31.25 Hz, and some groups cover a 62.5 Hz range (bolded text below). The table lists the standard frequency, and the corresponding minimum and maximum frequency, for each group.

Table 125: Frequencies

Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)
1	265.7 - 296.8	283	25	1015.7 - 1046.8	1032.5	49	1828.2 - 1859.3	1838.25
2	296.9 - 328.1	310.75	26	1046.9 - 1078.1	1055	50	1859.4 - 1890.6	1881.25
3	328.2 - 359.3	344.25	27	1078.2 - 1109.3	1103	51	1890.7 - 1953.1	1926.5
4	359.4 - 390.6	376.25	28	1109.4 - 1140.6	1128.75	52	1953.2 - 2015.6	1974
5	390.7 - 421.8	407.5	29	1140.7 - 1171.8	1155.75	53	2015.7 - 2046.8	2021.75
6	421.9 - 453.1	435.25	30	1171.9 - 1203.1	1184.5	54	2046.9 - 2078.1	2065
7	453.2 - 484.3	467.25	31	1203.2 - 1234.3	1219	55	2078.2 - 2140.6	2110
8	484.4 - 515.6	496.25	32	1234.4 - 1265.6	1242.75	56	2140.7 - 2171.8	2156.75

Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)	Index	Freq Range (Hz)	Decoded Freq (Hz)
9	515.7 – 546.8	528.5	33	1265.7 - 1296.8	1293.25	57	2171.9 - 2234.3	2205.75
10	546.9 – 578.1	566	34	1296.9 - 1328.1	1320	58	2234.4 - 2296.8	2257.5
11	578.2 – 609.3	598	35	1328.2 - 1359.3	1347.75	59	2296.9 - 2328.1	2311.75
12	609.4 – 640.6	621.5	36	1359.4 - 1390.6	1376.75	60	2328.2 - 2390.6	2369
13	640.7 – 671.8	660	37	1390.7 - 1421.8	1406.5	61	2390.7 - 2421.8	2409.25
14	671.9 – 703.1	688.25	38	1421.9 - 1453.1	1437.75	62	2421.9 - 2484.3	2461.5
15	703.2 – 734.3	719	39	1453.2 - 1484.3	1470.5	63	2484.4 - 2546.8	2516.25
16	734.4 – 765.6	752.5	40	1484.4 - 1515.6	1505	64	2546.9 - 2609.3	2573.5
17	765.7 – 796.8	789.75	41	1515.7 - 1546.8	1541.25	65	2609.4 - 2671.8	2633.75
18	796.9 – 828.1	806.25	42	1546.9 - 1609.3	1579.25	66	2671.9 - 2734.3	2697
19	828.2 – 859.3	849	43	1609.4 - 1640.6	1616.75	67	2734.4 - 2796.8	2763.75
20	859.4 – 890.6	880.5	44	1640.7 - 1671.8	1650	68	2796.9 - 2859.3	2813.25
21	890.7 – 921.8	914.25	45	1671.9 - 1703.1	1684.75	69	2859.4 - 2921.8	2875.5
22	921.9 – 953.1	932	46	1703.2 - 1734.3	1721	70	2921.9 - 2984.3	2941.25
23	953.2 – 984.3	970	47	1734.4 - 1765.6	1758.25	71	2984.4 - 3046.8	3010
24	984.4 - 1015.6	1011	48	1765.7 - 1828.1	1797.25	72	3046.9 - 3109.3	3082.25



IMPORTANT:

When received by the radio, any tone frequency within a specific group (range) will be decoded as the standard frequency for that group. For example, 932 Hz is a standard vocoder-supported tone frequency (for FDMA channels); therefore, any received tone frequency between 921.875 Hz and 953.125 Hz will be decoded as a 932 Hz tone.

The Quik-Call II tone frequency range is 288.5 Hz – 3086 Hz. Per the above table, 288.5 Hz – 296.875 Hz is decoded by radio as 283 Hz, while 3046.875 Hz – 3086 Hz is decoded by radio as 3082.25 Hz.

7.3.13.6

Tone 2 Freq

This field selects the receive Tone 2 frequency for the current Tone Signaling List (record/row).

This is only required when a two-tone sequence is required, where Tone1 Freq and Tone2 Freq collectively define the desired sequence of tones in the current Tone Signaling List.

This selection applies only for ASTRO Conventional and ASTRO 25 Trunking communications.



WARNING:

The digital AMBE Vocoder technology used by both the dispatch console and the radio does not precisely encode/decode the corresponding (analog) Quik-Call II frequencies; instead, within the relevant range of frequencies available for Tone1 Freq and Tone2 Freq (265.625 Hz – 3109.375 Hz), the vocoder transforms evenly-distributed groups of frequencies into a set of "standard" frequencies, where each group has an allowable frequency range, and a standard frequency is defined at the center of each group.

Therefore, when a programmed tone frequency is within the allowable range of one of the standard frequencies, it is decoded by the radio as that frequency.

Optimally, the programmed tone frequencies of the radio should match the tone frequencies programmed into the dispatch console, to avoid potentially missing a call.

Specific tone frequency group definitions are dependent on the Channel Type and, therefore TDMA (Time Division Multiple Access) versus FDMA (Frequency Division Multiple Access) channels.

- For TDMA channels, there are 91 groups, where each group covers a 31.25 Hz range.
- For FDMA channels, there are 72 groups, where some groups cover a 31.25 Hz range, and some groups cover a 62.5 Hz range.

When configuring tone frequencies:

- For a single two-tone frequency record, a combination where both Tone1 Freq and Tone2 Freq are configured as the same tone must be avoided, as that two-tone entry cannot be decoded by the radio.
- For a single two-tone frequency record, a combination where both Tone1 Freq and Tone2 Freq fall within the same frequency group must be avoided as they are decoded as the same tone. For example, a two-tone frequency record having 927 Hz and 940 Hz are both decoded to be 937.5 Hz.
- For two separate tone records, a combination where Tone1 Freq and Tone2 Freq in the two records respectively fall within the same frequency group must be avoided as they are decoded as the same tone sequence. For example, if the first record is 927 Hz and 1240 Hz, and the second record is 940 Hz and 1260 Hz, both records are decoded as 937.5 Hz and 1250 Hz.
- In certain cases, a digital tone frequency cannot be consistently decoded to a specific frequency value, instead it is decoded randomly to one of two different values. The table lists the tone frequencies that must be avoided for both FDMA and TDMA channels.

See [List of Unsupported Tone Frequencies on page 236](#).

Accessed Only: When [Tone List Type on page 235](#) is **Quik-Call II**, and when the radio is model/option capable.

Table 126: Range

Minimum	Maximum	Increments
288.5 Hz	3086.0 Hz	0.1 Hz

See [TDMA-applicable Standard Frequencies and Group Ranges on page 237](#).

See [FDMA-applicable Standard Frequencies and Group Ranges on page 239](#).

7.3.13.7

Unmute Enable

This field enables the radio to remain muted to all received Conventional dispatch calls and affiliated Trunking group calls until the radio decodes the incoming Tone Signaling tones defined in the current record or row.

This selection applies only for ASTRO Conventional and ASTRO 25 Trunking communications.



NOTE:

- In situations where dispatch needs to sequentially transmit multiple signaling tones, the first qualified single tone or tone pair that matches the defined tones, unmutes the radio. You can hear subsequent tones before the voice message. An example of a situation is during an All-Call.
- This feature only operates on In-Call User Alert enabled channels where Voice Mute is active.
- The **Voice Mute** button or **Voice Mute** menu selection allows you to toggle on and off the Voice Mute functionality for In-Call User Alert enabled channels.
- The radio can decode and can encode all tones, when model applicable.

Accessed Only: When [Tone List Type on page 235](#) is **Quik-Call II**, and when the radio is model or option capable.

7.3.13.8

Alert Tone

This field selects a specific alert tone to play on receiving the Tone Signaling tones defined in the current record or row.

When the radio decodes the tones, it unmutes the speaker and plays the associated alert tone, followed by any voice audio.

This selection applies only for ASTRO Conventional and ASTRO 25 Trunking communications.

The following selections are supported:

- Disabled
- Standard
- Continuous
- Tone 1 to Tone 8



NOTE: The radio can decode and can encode all tones, when model applicable.

Accessed Only: When [Tone List Type on page 235](#) is **Quik-Call II**, and when the radio is model or option capable.

7.3.13.9

Tone Freq

This field allows you to define the Singletone frequency for the Tone Signaling List.

Accessed Only: When [Tone List Type on page 235](#) is **Singletone**, and when the radio is model/option capable.

Table 127: Range

Minimum	Maximum	Increments
288.5 Hz	3086.0 Hz	0.1 Hz

7.3.13.10

Tone Duration

This field allows you to define the amount of time that the radio transmits a Singletone frequency tone.

Accessed Only: When [Tone List Type on page 235](#) is **Singletone**, and when the radio is model/option capable.

Table 128: Range

Minimum	Maximum	Increments
25 ms	6375 ms	25 ms

7.3.13.11

Tone Pretime

This field allows you to define the amount of time that the radio waits before sending a Singletone frequency tone.

Accessed Only: When [Tone List Type on page 235](#) is **Singletone**, and when the radio is model/option capable.

Table 129: Range

Minimum	Maximum	Increments
25 ms	6375 ms	25 ms

7.3.14

ViQi: Virtual Partner Alert

The **ViQi: Virtual Partner Alert** set allows users to create a ViQi Virtual Partner Alert list with corresponding Alert Actions that are defined under **Action Consolidation**. ViQi Virtual Partner handles the initiation of a ViQi Virtual Partner Call by a user and remains active until the call ends.



NOTE:

The Alert list is a fixed set of 16 alerts that correspond to ViQi Virtual Partner Alerts from the system.

Each Alert has an Alert Action which is a ViQi Virtual Partner action in the Action Consolidation table, and is performed on the radio when the corresponding ViQi Virtual Partner Alert is received from the system.

7.3.14.1

Virtual Partner Alert List Name

This field allows you to view or define the user recognizable name for the current Virtual Partner Alert List.



NOTE:

The default value is "Virtual Partner List 1".

Characters, numbers, spaces, and special characters can be used.

A total of 14 characters are possible.

7.3.14.2

Alert Alias

This field allows you to define the radio-user recognizable name when a Virtual Partner alert is received from the system.



NOTE:

Characters, numbers, spaces, and special characters can be used.

A total of 14 characters are possible.

7.3.14.3

Alert Action

This field allows you to specify the action to be performed on the radio when a Virtual Partner alert is received from the system.



IMPORTANT: This field is a reference to a Virtual Partner action record in the Action Consolidation table. The default value is **Unassigned**.

7.3.15

Voice Announcement Wide

This section allows you to view or assign Motorola Voice Announcement (*.MVA) files to specific radio features.

You can hear these voice prompts when one of the assigned features is selected. These selection apply on a radio wide basis.



NOTE: The Voice Announcement List allows you to load Motorola Voice Announcement (*.MVA) files into the current codeplug.

7.3.15.1

Voice Announcement Priority

This field selects whether or not Voice Announcement audio playback takes priority over the radio normal Receive (Rx) audio.

This selection applies on a radio wide basis.



IMPORTANT: This setting does not influence Voice Announcement interactions with alert tones. Momentary alert tones have higher priority than Voice Announcement audio, while Voice Announcement audio has higher priority than continuous alert tones.

The following selections are supported:

Low

Normal radio receive audio has priority.

High

Voice Announcement audio playback has priority.

7.3.15.2

Scan On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Scan Mode ON operation.

When you toggle Scan Mode On, a voice prompt plays.

You can toggle Scan Mode On with a Scan button-press or a Scan switch-toggle or a Scan menu-selection. If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. This feature is not applicable when Automatic Scan is enabled on the operating channel of the radio.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (*.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Scan On is played as audio.

Motorola Voice Announcement (*.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.3

Scan Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Scan Mode OFF operation.

When you toggle Scan Mode Off, a voice prompt plays.

You can toggle Scan Mode Off with a Scan button-press or a Scan switch-toggle or a Scan menu-selection. If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. This feature is not applicable when Automatic Scan is enabled on the operating channel of the radio.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Scan Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.4

Monitor On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to Monitor Mode On operation.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. Monitor Mode is also known as PL Defeat. Monitor Mode allows you to monitor all carrier squelch activity on the current channel of the radio.

When you toggle Monitor Mode/PL Defeat On, a voice prompt plays. This selection applies only to Conventional communications.



WARNING:

- For Mobile radios the Voice Announcement file is only initiated on a Monitor button-press or a Monitor menu-selection.
- For Portable radios the Voice Announcement file is only initiated on a PL Disable switch-toggle.



NOTE:

- The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.
- In Mobiles radios, you can toggle Monitor Mode Off with a Monitor button-press or a Monitor menu-selection.
- In Portable radios, you can toggle PL Defeat Off with a PL Disable switch-toggle.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Monitor On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.5

Monitor Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to Monitor Mode OFF operation.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. Monitor Mode is also known as PL Defeat. Monitor Mode allows you to monitor all carrier squelch activity on the current channel of the radio.

When you toggle Monitor Mode/PL Defeat Off a voice prompt plays. This selection applies only to Conventional communications.



WARNING:

- For Mobile radios the Voice Announcement file is only initiated on a Monitor button-press or a Monitor menu-selection.
- For Portable radios the Voice Announcement file is only initiated on a PL Disable switch-toggle.



NOTE:

- The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.
- In Mobiles radios, you can toggle Monitor Mode Off with a Monitor button-press or a Monitor menu-selection.
- In Portable radios, you can toggle PL Defeat Off with a PL Disable switch-toggle.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Monitor Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.6

Direct Mode On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Direct Mode ON operation.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Direct Mode On, a voice prompt plays. You can toggle Direct Mode On with a Direct Mode DEK (Direct Entry Keypad) button-press.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Direct Mode On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.7

Direct Mode Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Direct Mode OFF operation.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Direct Mode Off, a voice prompt plays. You can toggle Direct Mode Off with a Direct Mode DEK (Direct Entry Keypad) button-press.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Direct Mode Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.8

Tx Inhibit On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Tx Inhibit On operation.

If Text-to-Speech(TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Tx Inhibit On, a voice prompt plays. You can toggle Tx Inhibit On with a Tx Inhibit switch-toggle or a Tx Inhibit menu-selection.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Tx Inhibit On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.9

Tx Inhibit Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Tx Inhibit Off (disabled) operation.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Tx Inhibit Off, a voice prompt plays. You can toggle Tx Inhibit Off with a Tx Inhibit Disabled switch-toggle or a Tx Inhibit menu-selection.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Tx Inhibit Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.10

Emergency On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to an Emergency Mode ON operation.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Emergency Mode On, a voice prompt plays.

You can initiate an Emergency transmission with an Emergency button-press, or a press of a footswitch, or even without your direct interaction with the emergency alarm Fall Alert feature.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Emergency On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.11

In-Call User Alert On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned when Voice Mute functionality is toggled ON for In-Call User Alert-enabled channels.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Voice Mute On for an In-Call User Alert-enabled channel, a voice prompt plays.

You can toggle Voice Mute On with a Voice Mute button-press or the Voice Mute menu-selection. This selection applies on a radio wide basis.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for In-Call User Alert On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.12

In-Call User Alert Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned when Voice Mute functionality is toggled OFF for In-Call User Alert-enabled channels.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggles Voice Mute Off for an In-Call User Alert-enabled channel, a voice prompt plays.

You can toggle Voice Mute Off with a Voice Mute button-press or the Voice Mute menu-selection.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for In-Call User Alert Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.13

Secure Tx Select On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to toggling secure encrypted transmissions ON.

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle secure encrypted transmissions On, a voice prompt plays.

You can toggle secure encrypted transmissions with a Secure Tx Select button-press or a Secure Tx Select switch-toggle, or the Secure menu-selection.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Secure Tx Select On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.14

Secure Tx Select Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to toggling secure encrypted transmissions OFF (in other words, enabling "clear" transmissions).

If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Secure Encrypted Transmissions Off, a voice prompt plays.

You can toggle Secure Encrypted Transmissions OFF with a Secure Tx Select button-press or a Secure Tx Select switch-toggle, or the Secure menu-selection.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Secure Tx Select Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.15

Keypad/Controls Lock On

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Keypad/Controls Lock On operation.

If Text-to-Speech(TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Keypad/Controls Lock ON, a voice prompt plays.

You can toggle Keypad/Controls Lock On with a Keypad/Controls Lock button-press or a Keypad/Controls Lock switch-toggle.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Keypad/Controls Lock On is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.16

Keypad/Controls Lock Off

This field selects which Motorola Voice Announcement (.MVA) file, if any, is assigned to a Keypad/Controls Lock Off operation.

If Text-to-Speech(TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. When you toggle Keypad/Controls Lock Off, a voice prompt plays.

You can toggle Keypad/Controls Lock Off with a Keypad/Controls Lock button-press or a Keypad/Controls Lock switch-toggle.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Keypad/Controls Lock Off is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.17

Multi-Functional Button Primary Mode

When you toggle Primary Mode On, a voice prompt plays.

You can toggle Primary Mode On with a Multi Function Button Toggle button-press.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Multi-Functional Button Primary Mode is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.18

Multi-Functional Button Secondary Mode

When you toggles Secondary Mode On, a voice prompt plays.

You can toggle Secondary Mode On with a Multi Function Button Toggle button-press.

This selection applies on a radio wide basis.



NOTE: The Voice Announcement List Page allows you to load Motorola Voice Announcement (.MVA) files into the application's current codeplug.

The following selections are supported:

None

No voice prompt is needed for this radio feature.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Multi-Functional Button Secondary Mode is played as audio.

Motorola Voice Announcement (.MVA) file

Lists all possible voice files defined in the Voice Announcement File List Page.

7.3.15.19

Wrong Battery

This drop-down list allows the user to configure voice announcement for Wrong Battery button choice. The choices are "None" and all available Voice Announcement files.



NOTE: This feature is disabled if None is the only choice.

7.3.15.20

Power Down

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Power Down event. The radio prompts voice announcement when the event occurs.

 **NOTE:** For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.21

Out of Range

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Out of Range event. The radio prompts voice announcement when the event occurs.

 **NOTE:**

For the latest Fire Service Standards models, selecting **NONE** is disabled.

The Voice Over is heard when the Out of Range Indicator is set to **Alert** or **Alert & Display**.

When out of range is on the **Hazard Zone Mode** channel, the radio prompts voice announcement when the event occurs.

7.3.15.22

Self Check Failure

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Self Check Failure operation. The radio prompts voice announcement when any of the operations fails.

The Self Check operation verifies the following:

- RSM Connection to the RF device.
- Loss of antenna connection to the RF device.
- Temperature is over the manufacturer recommended overheat temperature.
- Battery with at least 50% of the total capacity available (power-up only).

 **NOTE:** For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.23

Accessory Failure

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Accessory Failure event. The radio prompts voice announcement when the event occurs.

 **NOTE:** For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.24

Antenna Failure

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Antenna Failure operation. The radio prompts voice announcement when the operations occur.

 **NOTE:** This field is applicable for APX NEXT NFPA radios only.

7.3.15.25

Over Temperature

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Over Temperature event. The radio prompts voice announcement when the event occurs.



NOTE: For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.26

RF Device Cumulative Over Temperature

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the RF Device Cumulative Over Temperature event. The radio prompts voice announcement when the event occurs.



NOTE:

This field is only applicable for APX NEXT XN radios.

For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.27

Optional Component Cumulative Over Temperature

This field allows you to select the Motorola Voice Announcement (.MVA) file that is assigned to the Optional Component Cumulative Over Temperature operation. The radio prompts voice announcement when the operation occurs.



NOTE:

This field is only applicable for APX NEXT XN radios.

For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.28

Battery Cumulative Over Temperature

This field allows you to select the Motorola Voice Announcement (.MVA) file that is assigned to the Battery Cumulative Over Temperature event. The radio prompts voice announcement when the event occurs.



NOTE:

This field is only applicable for APX NEXT XN radios.

For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.29

Exit Hazard Zone Mode

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Exit Hazard Zone Mode event.

The radio prompts voice announcement when you toggle the two-way concentric switch to exit the mode.



NOTE: For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.15.30

Non-Hazard Mode Accessory

This field allows you to select the predefined Motorola Voice Announcement (.MVA) file that is assigned to the Non-Hazard Mode Accessory event. The radio prompts voice announcement when the event occurs.



NOTE:

This field is only applicable for APX NEXT XN radios.

For the latest Fire Service Standards models, selecting **NONE** is disabled.

7.3.16

Voice Announcement File Collection

This section allows you to load Motorola Solutions Voice Announcement files, .MVA, into the current codeplug.

A Motorola Solutions Voice Announcement file, .MVA, can only be generated from a .WAV file using the Voice Announcement Converter Utility.

When loaded into a list, voice or audio files are available for selection from any of the Voice Announcement fields on the Voice Announcement Wide Set. These fields include the Alert Audio File field of the Site Selectable Alert List, and the Channel Announcement and Zone Announcement fields from Zone Channel Assignment.

In a codeplug comparison operation, the Voice Announcement List only supports the Copy All Fields functionality. Individual **Copy** buttons are not available beside the voice file names. When the Copy All Fields feature is initiated, all voice files in the secondary codeplug are copied into the primary codeplug.

7.3.16.1

Voice File Name

This field allows you to view the name of the Motorola Solutions Voice Announcement file, .MVA, or the audio file.

By default, each voice or audio file record inherits the original filename of the loaded .mva file.

7.4

Secure Collection

This section allows you to configure parameter settings for security features.

7.4.1

Secure Operation

This field selects the secure encrypted communications mode that is used on a radio-wide basis.



NOTE: When a [Secure/Clear Strapping](#) field is set to **Select** for a certain channel, either the Secure Tx Select button-press, [Secure Tx Select](#) switch-toggle, or the Secure menu-selection allows you to toggle between Secure or Clear communications for that channel.



WARNING: When the Tactical Inhibit Enable field is enabled, this field can only be set to **Disabled** or **Hardware**. Otherwise, the application considers it invalid.

Accessed Only: When the radio is a model/option capable.

The following selections are supported:

Disabled

Secure encryption is not possible.

Hardware

Encryption Services are performed by a separate hardware IC that is certified at FIPS (Federal Information Processing Standard) 140-2 levels 2 and 3, depending on the configuration of the Red Key Fill parameter, and can support multiple drop-in encryption algorithms for higher security.

Software



WARNING: Not possible for Type II Trunking.

The following software encryption algorithms are supported:

7.4.2

Keyloading Source

This field allows you to select the Keyloading Source.

The following selections are supported:

Encryption Key List

Allows you to enter secure keys in Encryption Key List. Only available for Advanced Digital Privacy (ADP).

KVL

Allows you to load software keys using Key Variable Loader (KVL) or Encryption Key List (only available for ADP).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Software**, and when the radio is model or option capable.

7.4.3

OTAR Enable

Enables the Conventional - ASTRO OTAR (Over-The-Air-Rekeying) and/or the Conventional MDC OTAR and/or the Trunking - ASTRO 25 OTAR feature on a radio-wide basis.



WARNING: Either the ASTRO OTAR Enable or the MDC OTAR Enable field must then be enabled, otherwise they both become invalid.



NOTE:

On an individual Conventional Personality basis, ASTRO OTAR and or MDC OTAR is enabled with the personality's ASTRO OTAR and OTAR Tx fields.

On an individual Trunking System basis, OTAR is enabled from the ASTRO OTAR field and the OTAR Tx fields.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** and the radio is a model/option capable, or when the [Secure Operation on page 255](#) field is set to **Software** and the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.

7.4.4

Enhanced SW Key Erase on Radio Inhibit

When enabled, the radio erases all Advanced Digital Privacy (ADP) or Advanced Encryption Standard (AES) encryption keys when the radio enters a Radio Inhibit state.

Radio Inhibit is enabled on a per Conventional System and/or Trunking System basis.

When disabled, all ADP or AES encryption keys are retained by the radio when the radio enters a Radio Inhibit state.



WARNING: This field is mutually-exclusive with [Over-The-Air-Rekeying \(OTAR\) Operation](#) being **Enabled**.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Software** and the radio is a model/option capable, and

when the [Advanced Digital Privacy on page 258](#) field is enabled, or

when the [Advanced Encrypted Standard \(AES256\) on page 258](#) is enabled but the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is **Disabled**.

7.4.5

Infinite UKEK Retention

This field enables the radio to permanently store UKEK (Unique Key Encryption Key) keys even when the radio's battery is removed.

A radio that possesses only UKEKs can be Over The Air Rekeyed (OTAR) but can not transmit or receive any other secure voice or data calls. When disabled, encryption keys are erased or retained according to the setting of the Infinite Key Retention field. When both fields are disabled, all encryption keys are erased whenever the radio's battery is removed or when the radio is reprogrammed.



WARNING: When the [Infinite Key Retention on page 263](#) field is enabled, this field must be disabled. Otherwise, the application considers it invalid. These two features are mutually exclusive.



WARNING: Changes to the setting for this field may potentially impact the FIPS Mode of operation in the device, which will cause all critical security parameters (key material and password) to be erased. See FIPS Modes of Operation for more information.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** and the radio is model/option capable.

7.4.6

OTAR Generate Key-Loss-Key

This field enables the radio to automatically transmit a Key-Loss Key signal notifying the ASTRO Over-The-Air-Rekeying (OTAR) Key Management Facility (KMF) or the MDC OTAR Key Management Controller (KMC) that the radio needs a new encryption key.

This new encryption key is used for encrypting OTAR messages. Once the Key-Loss Key signal is received, a new encryption key is transmitted to the radio for the purpose of receiving additional encryption keys. OTAR is possible from an MDC or ASTRO - Conventional channel, or an ASTRO 25 - Trunking channel.



WARNING: When disabled, the OTAR rekey of the radio is prevented if the radio loses all of its keys.



WARNING: Changes to the setting for this field may potentially impact the FIPS Mode of operation in the device, which will cause all critical security parameters (key material and password) to be erased. See FIPS Modes of Operation for more information.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** and when the OTAR Operation field is not set to **Disabled**, and the radio is model/option capable.

7.4.7

KVL - FIPS Level 3 Approved Mode

This field enables Federal Information Processing Standard (FIPS) Level 3 encryption requiring that key fills with the Key-Variable Loader (KVL) transfer the keys to the radio in an encrypted mode.



WARNING: This requires that a KVL 3000 Plus or KVL 4000 that also supports and is configured for FIPS Level 3 encryption are used.



WARNING: Changes to the setting for this field may potentially impact the FIPS Mode of operation in the device, which will cause all critical security parameters (key material and password) to be erased. See FIPS Modes of Operation for more information.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** and the radio is model/option capable.

7.4.8

Advanced Digital Privacy

This field enables the radio to use SW ADP Algorithm for encrypted voice.



WARNING: When the [Secure Operation on page 255](#) field is set to **Software**, enable Advanced Digital Privacy (ADP), [Advanced Encrypted Standard \(AES256\) on page 258](#), or [Data Encryption Standard \(DES\) on page 258](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Software**, and when the radio is model/option capable.

7.4.9

Advanced Encrypted Standard (AES256)

This field enables the radio to transmit and received encrypted voice and data.



WARNING: When the [Secure Operation on page 255](#) field is set to **Software**, enable [Advanced Digital Privacy on page 258](#), [Data Encryption Standard \(DES\) on page 258](#), or Advanced Encrypted Standard (AES256).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Software**, and when the radio is model/option capable.

7.4.10

Data Encryption Standard (DES)

This field enables the radio to transmit and received encrypted voice and data.



WARNING: When the [Secure Operation on page 255](#) field is set to **Software**, enable [Advanced Digital Privacy on page 258](#), [Advanced Encrypted Standard \(AES256\) on page 258](#), or Data Encryption Standard (DES).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Software**, and when the radio is model/option capable.

7.4.11

ASTRO OTAR Enable

Enables the Conventional - ASTRO OTAR (Over-The-Air-Rekeying) and/or the Conventional MDC OTAR and/or the Trunking - ASTRO 25 OTAR feature on a radio-wide basis.



WARNING: Either the ASTRO OTAR Enable or the MDC OTAR Enable field must then be enabled, otherwise they both become invalid.



NOTE:

On an individual Conventional Personality basis, ASTRO OTAR and or MDC OTAR is enabled with the personality's ASTRO OTAR and OTAR Tx fields.

On an individual Trunking System basis, OTAR is enabled from the ASTRO OTAR field and the OTAR Tx fields.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the [OTAR Enable on page 256](#) field is enabled, and the radio is model/option capable, or

When the [Secure Operation on page 255](#) field is set to **Software**, the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled, the [OTAR Enable on page 256](#) field is enabled, and the radio is model/option capable.

7.4.12

Radio Inhibit via ASTRO OTAR

This field enables the radio to receive and respond to an ASTRO Over-The-Air-Rekeying (OTAR) radio inhibit command.

This command is typically transmitted from a dispatcher or Key Management Facility (KMF) operator causing the radio to be inoperable. This feature applies to secure encrypted mode for ASTRO - Conventional and ASTRO 25 - Trunking communications.



WARNING:

When this field is enabled and the [ASTRO OTAR Enable](#) field is enabled for any Trunking Systems, Radio Inhibit is accomplished "via ASTRO OTAR".

When this field is enabled and the [ASTRO OTAR Enable on page 259](#) field is disabled for any Trunking Systems, the Radio Inhibit fields for those Trunking Systems must be enabled. This ensures that Radio Inhibit is possible via standard "Clear" (non-secure encrypted) ASTRO 25 Trunking.

When the [ASTRO OTAR Enable on page 259](#) is enabled for any Trunking Systems and the Radio Inhibit field for those Trunking Systems is disabled, this field becomes view locked in an enabled state. This ensures that for those systems, Radio Inhibit is accomplished "via ASTRO OTAR".



IMPORTANT: In order to clear the inhibited state of the radio, send an uninhibit command to the radio or redo the Read/Write process of the radio.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the [OTAR Enable on page 256](#) field is enabled, the [ASTRO OTAR Enable on page 259](#) field is enabled, and the radio is model/option capable, or

When the [Secure Operation on page 255](#) field is set to **Software**, the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled, the [OTAR Enable on page 256](#) field is enabled, the [ASTRO OTAR Enable on page 259](#) field is enabled, and the radio is model/option capable.

7.4.13

MDC OTAR Enable

Enables the MDC signaling version of the OTAR (Over-The-Air-Rekeying) feature.

This feature applies to secure encrypted mode for MDC OTAR communications.



WARNING: When the [OTAR Enable on page 256](#) field is enabled, the Radio Manager requires that either this field or the [ASTRO OTAR Enable on page 259](#) field must be enabled. Otherwise, they both become invalid. This ensures that OTAR is possible from an MDC or ASTRO - Conventional channel.



NOTE: MDC OTAR is enabled on a per Conventional Personality by way of the Non-ASTRO Signaling Type field. The radio is further configured to initiate OTAR commands by enabling that Personality's OTAR Tx field.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the [OTAR Enable on page 256](#) field is enabled, and the radio is model/option capable.

7.4.14

Radio Inhibit via MDC OTAR

This field enables the radio to receive and respond to an MDC Over-The-Air-Rekeying (OTAR) radio inhibit command that temporarily causes the radio to be inoperable.

This command is typically transmitted from a dispatcher or Key Management Controller (KMC) operator. This feature applies to secure encrypted mode MDC OTAR communications.



IMPORTANT: In order to clear the inhibited state of the radio, send an uninhibit command to the radio or redo the Read/Write process of the radio.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

7.4.15

OTAR Acknowledgements Enable

This field enables the radio to acknowledge all MDC OTAR (Over-The-Air-Rekeying) messages that request an acknowledgement.

This feature applies to secure encrypted mode MDC OTAR communications.



WARNING: When disabled, you must ensure that all Stat-Alert features are also disabled in order to prevent compromising security. Stat-Alert features include: Radio Check, Remote Radio Mode; MDC Auto Select Call Transmit, Call Alert Rx/Tx, and Selective Call Rx/Tx.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

7.4.16

OTAR Acknowledgements Encrypted Only

This field enables the radio to encrypt all MDC OTAR acknowledgements.

This feature applies to secure encrypted mode MDC OTAR communications. When disabled, the radio sends MDC OTAR encrypted or clear acknowledgements as directed by the Key dispatcher's Key Management Controller (KMC).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and when the [OTAR Acknowledgements Enable on page 260](#) field is enabled, and the radio is model/option capable.

7.4.17

OTAR Acknowledgements Power-Up

This field selects exactly when the radio sends an MDC Over-The-Air-Rekeying (OTAR) Power-up acknowledgement to the Key Manager Controller (KMC).

This acknowledgement (Ack) allows the radio to log into the KMC for OTAR purposes. This feature applies to secure encrypted mode MDC OTAR communications.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

The following selections are supported:

Disabled

No Power-up Acks are sent.

Immediate

The Power-up Ack is sent when the radio is turned-on and once the radio has completed its power-up sequence.

Delayed

The radio transmits the Power-up Ack when a PTT button transmission is sent on an OTAR-enabled channel.

7.4.18

Rekey Request Mode

This field selects the protocol that is used when the radio transmits the MDC Over-The-Air-Rekeying (OTAR) Rekey Request.

A data transmission is sent to the dispatcher's Key Management Controller (KMC) console requesting OTAR rekeying of the radio. These features apply to secure encrypted mode MDC OTAR communications.



NOTE: You can initiate a Rekey Request with either a Rekey Request button-press or a [Rekey Request](#) menu-selection.

Accessed Only:

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

The following selections are supported:

Encrypted

The Rekey Request is secure encrypted.

Clear

The Rekey Request is not encrypted.

Disabled

The Rekey procedure may only be initiated by the KMC operator.

7.4.19

Rekey Request Status Alert Tone

This field enables the radio to generate a success or failure alert tone once the Rekey Request process is completed.

Selecting to enable this feature only affects the sounding of this alert tone when the Rekey Request section of the radio's menu is exited before the rekey request process is completed. Note that when the Rekey Request section of the radio's menu is not exited prior to the rekey request process being complete, the status alert tone is sounded regardless of the setting of this field. The status of the Rekey process also

appears as a visual alert in the radio's display. These features apply to secure encrypted mode MDC OTAR communications.



NOTE: You can initiate the Rekey Request command with the Rekey menu-selection.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

7.4.20

Erase Previous On User Change

This field enables the erasing of ALL secure encryption keys in the previously active keyset (see Slot A, Slot B, and Indexed fields) after you initiate the keyset change.

You can initiate the keyset change with a Keyset menu-selection. This feature applies on a radio-wide basis.



WARNING:

When this field is enabled and when the MDC OTAR Erase Previous Index on Index Change is enabled, it is possible for you to erase both keysets and be momentarily without any secure encryption keys.

EXAMPLE:

The radio is currently operating on Keyset 1 when an OTAR Keyset Change occurs. It changes the radio to Keyset 2 and erases the radio's previous Keyset 1. Then, if you manually change back to Keyset 1 that has been erased, and the Erase Previous on User Change feature erases the previous Keyset 2, the radio remains keyless until you manually load new keys or request a manual OTAR Rekey.

Accessed Only: When the radio is model /option capable.

7.4.21

KMC ID

This field selects the radio's Key Manager Controller (KMC) ID allowing the radio to be uniquely identified by the KMC.

Each radio in a system should have a unique KMC ID, allowing each radio to communicate MDC OTAR commands to and from the KMC on an individual basis. This feature applies to secure encrypted mode MDC OTAR communications.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

Table 130: Range

Minimum	Maximum
0000 Hex	FFFF Hex

7.4.22

MDC OTAR System

This field selects the MDC Conventional System to be used by MDC Over-The-Air-Rekeying (OTAR) commands.

This feature applies to secure encrypted mode conventional communications.



IMPORTANT: An MDC OTAR System must have its Expanded MDC ID Range feature **Disabled**. Otherwise, the selection is considered to be invalid. These two features are incompatible.



NOTE:

Only MDC type Conventional Systems may be selected (see the System Type field). Once defined, Conventional Systems are referenced to Conventional Personalities.

MDC OTAR is then enabled on a per conventional personality by way of the Non-ASTRO Signaling Type field. The radio is further configured to initiate OTAR commands by enabling that personality's OTAR Tx field.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, the OTAR Operation field is set to **MDC Only** or **ASTRO & MDC**, and the radio is model/option capable.

7.4.23

Infinite Key Retention

If this field is enabled, the radio permanently stores encryption keys, even when the radio battery is removed or when the radio is reprogrammed. This feature requires hardware encryption.

When disabled, Unique Key Encryption Key (UKEK) encryption keys are erased or retained according to the setting of the Infinite UKEK Retention field.



WARNING:

When this feature is enabled, enabling the Infinite UKEK Retention field causes that field to become invalid. These two features are mutually exclusive.

Changes to the setting for this field can potentially impact the FIPS Mode of operation in the device. This impact causes all critical security parameters (key material and password) to be erased. See FIPS Modes of Operation for more information.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** and the radio is model/option capable.

7.4.24

Periodic Keyfail Alert Tone

This field enables a periodic alert tone to sound whenever the current radio channel has lost its secure encryption key.

And, when either of the following conditions is met: The current channel's [Secure/Clear Strapping](#) is set to **Secure**. Or when the current channel's [Secure/Clear Strapping](#) is set to **Select** and the radio's Secure Tx Select button-press or Secure Tx Select switch-toggle or Secure menu-selection is set to Secure mode (not clear).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

7.4.25

Disable Hard Key Zeroize

This field allows you to zeroize the encryption keys on a radio by pressing the Side Top (Purple) and Orange Button simultaneously.

Press the Side Top (Purple) first to prevent initiating an emergency call.

Accessed Only: When the Secure Operation field is set to **Hardware**, and when the [Infinite Key Retention on page 263](#) field is set to **Enabled**, and when the [Tactical Inhibit Enable](#) field is set to **Disabled**,

Or the Secure Operation field is set to **Software**, and when the [Tactical Inhibit Enable](#) field is set to **Disabled**.

7.4.26

Clear Alert Tones

This field enables an alert tone to sound having to do with transmitting and or receiving secure encrypted mode communications versus clear mode communication.

Clear mode refers to standard non-encrypted communications. This selection applies on a radio-wide basis.



NOTE: When a Secure/Clear Strapping field is set to **Select** for a certain channel, the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows you to toggle between Secure or Clear communications for that channel.



WARNING: When the Tactical Inhibit Enable field is enabled, this field can only be set to **Rx Only** or **Tx & Rx**. Otherwise, the application considers it invalid.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

The following selections are supported:

None

No Clear Alert Tones are enabled.

Tx Only

Enables an alert tone to sound when the PTT button is pressed, alerting you when the radio is about to transmit in clear mode.

Rx Only

For Conventional analog signaling (MDC, DTMF, Quik-Call II), this feature applies only when the radio's current operating channel's analog Conventional Systems has its System Pretime set less than 1500 ms.

Tx & Rx

See "Tx Only" and "Rx Only" definitions above.

7.4.27

Ignore Secure/Clear Switch When Strapped

This field enables the radio to ignore the setting of the Secure Tx Select switch-toggle.

This causes the radio's transmission mode to be based on the current channel's - [Secure/Clear Strapping](#) field setting, **Secure** or **Clear**. This feature applies on a radio-wide basis.



WARNING: If this feature is disabled and the radio's active channel/mode is strapped to **Secure** or **Clear** (not selectable), the radio checks the position of the **Secure Tx Select** switch. If the active channel's strapped value does not match the setting of the switch, the radio will not transmit. The factory default is Disabled.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, a Conventional or Trunking "Position A" Concentric Switch is set to **Secure Tx Select**, and the radio is model/option capable.

7.4.28

Non-XL Scan Unsquelch Duration

This field selects the amount of time that the radio waits in active scan mode for a SecureNet-encrypted Non-XL (non-range extended) Cipher Feedback signal to be detected following a carrier detect.

This feature applies for conventional communications on a radio-wide basis. Time is in milliseconds.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

Table 131: Range

Minimum	Maximum	Increments
0 (ms)	6375 (ms)	25 (ms)

7.4.29

XL Scan Unsquelch Duration

This field selects the amount of time that the radio waits in active scan mode for a SecureNet-encrypted Non-XL (non-range extended) Cipher Feedback signal to be detected following a carrier detect.

This feature applies for Conventional communications on a radio-wide basis. Time is in milliseconds.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Advanced Digital Privacy** and the radio is model/option capable.

Table 132: Range

Minimum	Maximum	Increments
0 (ms)	6375 (ms)	25 (ms)

7.4.30

Display On Secure Switch Select

This field selects the type of information that appears in the radio's display when you switch the radio's current channel to secure encrypted mode.

When a Secure/Clear Strapping field is set to **Select** for a certain channel, a Secure Tx Select button-press or a [Secure Tx Select](#) switch-toggle or a Secure menu-selection to secure mode causes this information to appear in the radio's display. This selection applies on a radio-wide basis.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Advanced Digital Privacy**, and the radio is model/option capable.

The following selections are supported:

Key Name

The content defined in the Key Name field appears in the radio's display.



WARNING: This selection is only valid when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

Keyset Name

The Keypset Name appears in the radio's display. Keypset assignments are typically organized by a Key Management Facility (KMF) operator and transmitted with Over-the-Air Rekeying (OTAR). Keypset Names are by default "kset 1" and "kset 2".



WARNING: This selection is only valid when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** with the [Advanced Encrypted Standard \(AES256\) on page 258](#) field enabled.

Disabled

Nothing appears in the radio's display.

7.4.31

Display On PTT

This field selects the type of information that appears in the radio's display when you press the PTT button while the radio's current channel is operating in secure encryption mode.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

The following selections are supported:

Key Name

The content defined in the Key Name field appears in the radio's display.



WARNING: This selection is only valid when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

Keyset Name

The Keypset Name appears in the radio's display. Keypset assignments are typically organized by a Key Management Facility (KMF) operator and transmitted with Over-the-Air Rekeying (OTAR). Keypset Names are by default "kset 1" and "kset 2".



WARNING: This selection is only valid when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** with the [Advanced Encrypted Standard \(AES256\) on page 258](#) field enabled.

Disabled

Nothing appears in the radio's display.

7.4.32

Display On Mode Change

This field selects the type of information that appears in the radio's display when you change the radio's channel or mode to a channel that is strapped to secure encrypted mode (see Secure/Clear Strapping).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

The following selections are supported:

Key Name

The content defined in the Key Name field appears in the radio's display.



WARNING: This selection is only valid when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

Keyset Name

The Keypset Name appears in the radio display. Keypset assignments are typically organized by a Key Management Facility (KMF) operator and transmitted with Over-the-Air Rekeying (OTAR). Keypset Names are by default "kset 1" and "kset 2".



WARNING: This selection is only valid when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** with the [Advanced Encrypted Standard \(AES256\) on page 258](#) field enabled.

Disabled

Nothing appears in the radio's display.

7.4.33

PID Key Management for ASN Mode

When this field is selected, it enables the use of Physical ID (PID) Key Management in the radio.

This field is automatically enabled and becomes visible when the [MDC OTAR Enable](#) field is enabled. This feature applies to secure encryption mode on a radio-wide basis. PID key management is a legacy mechanism for managing keys that limits the radio to 16 keys with Physical IDs. When disabled, CKR (Common Key Reference) Key Management is used solely by the radio during secure encrypted communications. CKR Key management allows for more than 16 keys to be referenced and is required to be used with ASTRO OTAR (Over-The-Air-Rekeying).



IMPORTANT: When using the ASN (Advanced SecureNet) mode in the KVL 3000 or the KVL 3000 Plus Key-Variable Loader (KVL) device, encryption keys can only be loaded to the radio when PID Key Management has been enabled in the radio.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** and the radio is model/option capable.

7.4.34

Key ID - Rx Hang Time

This field selects the amount of time that the radio waits once a received secure call has ended before reloading your last selected or saved encryption key.



IMPORTANT: This hang time is only needed when the radio had to temporarily switch to another encryption key in order to receive a call that was transmitted with a different key. This feature applies to secure encryption mode for Conventional communications. Time is in milliseconds.



NOTE: This feature applies to secure encryption mode ([Secure Wide](#)) for Conventional and Trunking communications when [Auto Key ID Rx on page 476](#) is enabled.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

Table 133: Range

Minimum	Maximum	Increments
0 (ms)	10000 (ms)	250 (ms)

7.4.35

Keyset ID - Tx Hang Time

This field selects the amount of time that the radio waits once a transmitted secure call has ended before reloading your last selected or saved encryption key.



IMPORTANT: This hang time is only needed when the radio temporarily switches to another encryption key in order to receive a call that was transmitted with a different key, and then the radio continued to use that switched-to encryption key for the return transmission. Time is in milliseconds.



NOTE: This feature applies to secure encryption mode ([Secure Wide](#)) for Conventional and Trunking communications when [Auto Key ID Rx on page 476](#) is enabled.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

Table 134: Range

Minimum	Maximum	Increments
0 (ms)	10000 (ms)	250 (ms)

7.4.36

Keyset - User Selectable

This field enables the radio to transmit the ASTRO Over-The-Air-Rekeying (OTAR) Rekey Request.

The request is sent to the dispatcher's Key Management Facility (KMF) console. This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).



NOTE: You can initiate a Rekey Request with either a [Rekey Request](#) button-press or a [Rekey Request](#) menu-selection.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

7.4.37

Keyset - Erase Previous On User Change

This field enables the erasing of **all** secure encryption keys in the previously active keyset (see Slot A, Slot B, and Indexed fields) after you initiate the keyset change.

You can initiate the keyset change with a keyset menu-selection. This feature applies on a radio-wide basis.

Accessed Only: When the radio is model /option capable.



WARNING:

If the following conditions are met, you can erase both keysets and be momentarily without any secure encryption keys.

- This field is enabled.
- MDC OTAR Erase Previous Index on Index Change is enabled.

The radio is currently operating on keyset 1 when an OTAR keyset change occurs. It changes the radio to keyset 2 and erases keyset 1 from the radio. If you manually change back to the erased keyset 1, and the Erase Previous On User Change feature erases keyset 2, the radio remains keyless. You must manually load new keys or request a manual OTAR Rekey.

7.4.38

Encryption Key List

This section allows you to configure multiple Hardware or Software encryption keys for the purpose of secure encrypted voice and data communications.



NOTE:

The number of available encryption keys depends on the model tier of the radio: High tier = 128, Mid tier = 64, and Low tier = 48.

When a Secure/Clear Strapping field is set to **Select** for a certain channel, either the Secure Tx Select button-press, Secure Tx Select switch-toggle, or the Secure menu-selection allows you to toggle between Secure or Clear communications for that channel.

Accessed Only: When the radio is a model/option capable.

7.4.38.1

Indexed

This field enables indexing for the current Hardware encryption key (record/row) within the Encryption Key List.

Indexing allows for two unique sets of keys (Keysets) to exist within the radio. One Keyset exists in the Slot A field and the other exists in the Slot B field. Once Indexing is enabled for the current key (row/record), a second and unique encryption key is populated in the alternate Keyset "Slot B". Indexing also allows for two unique keys to exist per radio channel, instead of one key.



IMPORTANT:

When the Conventional Key menu-selection is programmed and when a pair of "Indexed" keys is selected for a certain channel, you are then able to alternate from the encryption key in Keyset A to the encryption key in Keyset B (and back) without changing the radio's channel. This is only possible for Conventional channels.

When the Keyset menu-selection is programmed on either Conventional or Trunking communications, then rekeying of the radio's current keyset is only possible on that type of communications channel. A Keyset does apply on a radio-wide basis and to both types of channels.

When both the Conventional and the Trunking Keyset selections are programmed, you can then change the Keyset for the entire radio, regardless of which channel the radio is currently operating.

Only eight keys can be indexed to Slot B and only 16 keys total are possible between Slot A and Slot B.

Accessed Only: When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Hardware**, or

When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Software**, and the [Keyloading Source on page 256](#) field is set to **KVL**.

7.4.38.2

Slot A

The application retrieves and allows you to view the Physical Identification (PID) Hardware key number for the current key (record/row) within the Encryption Key List.

This value is affected by the Indexed field's setting for the current record/row, enabled or disabled. When the Indexed field is enabled, it allows for two unique sets of keys ('Keysets') to exist, one in Slot A and one in Slot B.



IMPORTANT:

When the Conventional Key menu-selection is programmed and when a pair of "Indexed" keys is selected for a certain channel, you are then able to alternate from the encryption key in Keyset A to the encryption key in Keyset B (and back) without changing the radio's channel. This is only possible for conventional channels.

When the Conventional or Trunking Keyset menu-selection is programmed, you are able to change the Keyset on a radio-wide basis.

When both the Conventional and the Trunking Keyset selections are programmed, you can then change the Keyset for the entire radio, regardless of which channel the radio is currently operating.

Only eight keys can be indexed to Slot B and only 16 keys total are possible between Slot A and Slot B.

Accessed Only:

When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and when the [Keyloading Source on page 256](#) field is set to **KVL**, and when the [PID Key Management for ASN Mode on page 267](#) field is enabled,

And

When the number of records in the Encryption Key List is less than 9, or when the record number of the key in the [Secure Hardware Encryption Key References List on page 281](#) is between 9 and 16, and

- If anyone of the first eight [Indexed on page 269](#) fields is "Enabled", then Slot A of record 16 is inapplicable, or
- If any two of the first eight Indexed fields are "Enabled", then Slot A of records 15 and 16 is inapplicable, or
- If any three of the first eight Indexed fields are "Enabled", then Slot A of records 14, 15 and 16 is inapplicable (the remaining records follow the same rule,

Or

when the record number of the key in the Secure Hardware Encryption Key References List is greater than 16, then Slot A of that record cannot be accessed),

And, when the radio is model/option capable.

7.4.38.3

Slot B

The application retrieves and allows you to view the Physical Identification (PID) Hardware key number for the current key (record/row) within the Encryption Key List.

This value is affected by the Indexed field's setting for the current record/row, enabled or disabled. When the Indexed field is enabled, it allows for two unique sets of keys ('Keysets') to exist; one in Slot A and one in Slot B.



IMPORTANT:

When the Conventional Key menu-selection is programmed and when a pair of "Indexed" keys is selected for a certain channel, you are then able to alternate from the encryption key in Keyset A to the encryption key in Keyset B (and back) without changing the radio's channel. This is only possible for Conventional channels.

When the Conventional or Trunking Keyset menu-selection is programmed, you are then able to change the Keyset on a radio-wide basis.

When both the Conventional and the Trunking Keyset selections are programmed, you can then change the Keyset for the entire radio, regardless of which channel the radio is currently operating.

Only eight keys can be indexed to Slot B, and only 16 keys total are possible between Slot A and Slot B.

Accessed Only: When the radio is model/option capable.

7.4.38.4

Key Name

This field allows you to define recognizable Key names for the current key (record/row) within the Encryption Key List.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software** and the radio is model/option capable.

The following selections are supported:

- Characters, numbers, spaces, and special characters can be used.
- The number of possible characters is radio model dependent.

7.4.38.5

CKR Number

This field allows you to define a key number for the current Common Key Reference (CKR) key (record/row) within the Encryption Key List.

This CKR number is referenced to personalities, talkgroups, or features, independent of the physical storage location of the key. This removes the radio programmer's need for mapping encryption keys to physical storage locations for different secure devices in the same in-the-field communications system.



WARNING: The application automatically assigns a "Blank" default "CKR Number" value. Each CKR number that exists must be defined as a number value in order to write or save to the current codeplug. Each CKR Number must have a unique value.

Accessed Only: When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Hardware**, or

When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Software**, and the [Keyloading Source on page 256](#) field is set to **KVL**.

Table 135: Range

Minimum	Maximum
0001	4095

7.4.38.6

Selectable ADP Key Data

This field allows you to define the Advanced Digital Privacy (ADP) key pattern for the current key (record or row) within the Encryption Key List.

Key patterns are a required element within the ADP secure algorithm for successful voice encryption communications.



NOTE:

ADP Keys are not cloned to the target radio when the source codeplug is read from a radio. When a codeplug containing ADP Keys is read from a radio, the ADP Keys are not loaded, which causes these ADP keys to appear in all asterisks (*). In this situation, the key data will not be cloned to a target radio. To send ADP Key Data to the target radio, you must reenter the appropriate ADP Keys prior to initiating the Clone Radio process. Source codeplug ADP Key Data will overwrite the target radio's ADP Key Data when present.

When a codeplug file containing ADP Keys is opened, the ADP Keys are loaded and can be cloned to the target radio. Source codeplug ADP Key Data will overwrite the target radio's ADP Key Data when present.



IMPORTANT:

When this field shows ten (10) asterisks "*****", there is no pattern defined.

To enter no Key Data pattern, enter ten (10) asterisks "*****".

For security purposes, when a codeplug is read from a radio, "*****" is displayed in this field, regardless of the data pattern that might be saved in the radio.

Whenever the Selectable ADP Key ID is modified, the Key Data pattern for the same row/record becomes invalid and must be redefined.

For details about maximum key count, refer to [Encryption Key List on page 268](#).

There is no mechanism to erase an ADP key from the radio. A field with "*****" simply implies it will not overwrite whatever key might actually be in the radio.

Accessed Only: When the [Secure Operation on page 255](#) field is set to either one of the following:

- **Software** and the [Keyloading Source on page 256](#) field is set to **Encryption Key List**, and the radio is model or option capable.
- **Hardware** and the [Algorithm on page 273](#) field for the current key (record or row) within the [Encryption Key List on page 268](#) is set to **ADP/RC4**, and the radio is model or option capable.
- The following conditions are met:
 - **Software** and the [Keyloading Source on page 256](#) field is set to **KVL**.
 - [Advanced Digital Privacy on page 258](#) is enabled.
 - The [Algorithm on page 273](#) field for the current key (record or row) in the [Encryption Key List on page 268](#) is set to **ADP/RC4**.
 - The radio is model or option capable.

Table 136: Range

Minimum	Maximum
0000000000 Hex	FFFFFFFF Hex

7.4.38.7

Selectable ADP Key ID

This field allows you to define the ID number that represents the Advanced Digital Privacy (ADP) key for the current key (record or row) within the Encryption Key List.

The Key ID is transmitted along with the encrypted voice communications. Receiving radios recovering the Key ID are able to load the correct Selectable ADP Key Data pattern and thus decrypt the incoming voice call.



IMPORTANT:

All Selectable ADP Key IDs must be unique.

For details about maximum key count, refer to [Encryption Key List on page 268](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to either one of the following:

- **Software** and the [Keyloading Source on page 256](#) field is set to **Encryption Key List**, and the radio is model or option capable.
- **Hardware** and the **Algorithm** field for the current key (record or row) within the [Encryption Key List](#) is set to **ADP/RC4**, and the radio is model or option capable.
- The following conditions are met:
 - The **Software** and the [Keyloading Source](#) field is set to **KVL**.
 - The [Advanced Digital Privacy on page 258](#) field is enabled.
 - The [Algorithm](#) field for the current key (record or row) within the [Encryption Key List](#) is set to **ADP/RC4**.
 - The radio is model or option capable.

Table 137: Range

Minimum	Maximum
0000 Hex	FFFF Hex

7.4.38.8

Algorithm

This field allows the Advanced Digital Privacy (ADP) key data of the selected entry to be sent to the Hardware Security Module (HSM) of the radio.

All other keys must be delivered to the radio from a Key Variable Loader (KVL) or Key Management Facility (KMF).

Accessed Only: When the [Secure Operation on page 255](#) field is set to either one of the following:

- **Software** and the [Keyloading Source on page 256](#) field is set to **KVL**, and the [Advanced Digital Privacy on page 258](#) is enabled, and the radio is model or option capable.
- Hardware and the radio are model or option capable.

7.4.39

ASTRO OTAR

Enables the radio's ability to receive ASTRO 25 Over-The-Air-Rekeying (OTAR) for the current Trunking System.



IMPORTANT:

When this ASTRO OTAR field is **Enabled** for the current Trunking System, Hardware Key Select values are chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that the RadioCentral is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is enabled, must first be defined in the Secure Hardware Encryption Key References List.

When this ASTRO OTAR field is **Disabled** for the current Trunking System, Hardware Key Select values are directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: This feature can be accessed only when the following conditions are met:

- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [ASTRO OTAR Enable on page 259](#) field is enabled.
- The ASTRO OTAR field is enabled.
- The current Trunking System has a referenced Data Profile.
- The radio is model/option capable.

7.4.39.1

ASTRO OTAR Profile

This field allows you to create recognizable names for the current ASTRO Over-The-Air-Rekeying (OTAR) Profile.



NOTE:

Once defined, ASTRO OTAR Profiles are selected from the Trunking [ASTRO OTAR Profile Index on page 345](#), the Conventional [ASTRO OTAR Profile Index on page 345](#), and the ASTRO Talkgroup List [ASTRO OTAR Profile Index on page 345](#) fields.

Accessed Only: When the radio is model/option capable.

The following selections are supported:



NOTE:

Examples: Profile-05, Electric1, #510

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.4.39.2

Erase Previous Keyset on OTAR Changeover

This field enables the erasing of ALL encryption keys in the previously active Keyset after an ASTRO OTAR (Over-The-Air-Rekeying) keyset change has occurred.

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).



NOTE: You can initiate an OTAR keyset change from the Key Management Facility (KMF) or a programmable Rekey menu selection.



IMPORTANT:

When this Erase Previous Keyset on OTAR Changeover field is enabled and when the Erase Previous On User Change is enabled, it is possible for you to erase both keysets and be momentarily without any secure encryption keys.

Example: The radio is operating on Keyset 1 when an OTAR Keyset Change occurs; it changes the radio to Keyset 2 and erases the radio's previous Keyset 1. Then if you manually change back to Keyset 1 that has been erased, and the Erase Previous on User Change feature erases the previous Keyset 2, then the radio would remain keyless until you manually load new keys, or request a manual OTAR Rekey.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

7.4.39.3

Number of Attempts

This field selects the number of attempts that the radio makes while waiting for registration confirmation from the Key Management Facility (KMF).

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the [Response Kind on page 276](#) field is set to **Confirmed**, and when the radio is model/option capable.

Table 138: Range

Minimum	Maximum
1	10

7.4.39.4

OTAR Inactivity Timer

This field selects the amount of time that the Key Management Facility (KMF) has to communicate with the radio.

If the radio does not receive any information from the KMF when the timer has expired, the radio will try to re-establish communication.

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

Table 139: Range

Minimum (hours)	Maximum (hours)
1	10

7.4.39.5

OTAR Rx Security Level

This field selects the receive security policy levels for Key Management Messages (KMMs).

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).



NOTE: At this time Rekey Request, Registration and Unable to Decrypt KMMs are always **Encrypted and Authenticated**.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

The following selections are supported:

Basic

The radio receives any format of KMM that is allowed by the Project 25 standard.

Enhanced

This selection is invalid when [Secure Operation on page 255](#) is set to **Software**.

The radio only receives the following KMMs:

- **Encrypted and Authenticated**
- **Encrypted Only**
- **Authenticated Only**

7.4.39.6

OTAR Tx Security Level

This field selects the receive security policy levels for Key Management Messages (KMMs).

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).



NOTE: At this time Rekey Request, Registration and Unable to Decrypt KMMs are always **Encrypted and Authenticated**.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

The following selections are supported:

Basic

The radio receives any format of KMM that is allowed by the Project 25 standard.

Enhanced

This selection is invalid when [Secure Operation on page 255](#) is set to **Software**.

The radio only receives the following KMMs:

- **Encrypted and Authenticated**
- **Encrypted Only**
- **Authenticated Only**

7.4.39.7

Rekey Request Status Alert Tone

This field enables the radio to generate a success or failure alert tone regarding rekey request completion.

This feature only affects the sounding of this alert tone when the Rekey Request section of the radio's menu is exited before the rekey request process is completed. When the Rekey Request section of the radio's menu is not exited before the rekey request process being complete, this status alert tone is sounded regardless of the setting of this field. This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).



NOTE:

The status of the Rekey process also appears as a visual alert in the display of the radio.

An OTAR encryption rekey operation is performed from the Key Management Facility (KMF) by the dispatcher upon receiving a rekey request from you.

You can initiate a Rekey Request with either a [Rekey Request](#) button-press or a [Rekey Request](#) menu-selection.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

7.4.39.8

Response Kind

This field selects the kind of response used when the radio communicates with the Key Management Facility (KMF).

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).

The following selections are supported:

Unconfirmed

ASTRO OTAR transmissions sent to the KMF (from the radio) are not confirmed/acknowledged indicating a transmission successfully received.

Confirmed

ASTRO OTAR transmissions sent to the KMF (from the radio) require a confirmation/acknowledgement be sent back to the radio indicating a transmission successfully received.

When the [OTAR Transport on page 280](#) field is set to **Broadband Only** or **Broadband Preferred** and the radio performs Over-The-Air-Rekeying (OTAR) using broadband, the radio uses **Confirmed** as the Response Kind.

When the radio performs OTAR over Land Mobile Radio (LMR), the radio uses the value of this field as the Response Kind.

Accessed Only: When the following conditions are met:

- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**.
- The [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**.

- The radio is model or option capable.

7.4.39.9

Time Between Attempts

This field selects the amount of time that the radio waits before sending a retry of the last message.

This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the [Response Kind on page 276](#) field is set to **Confirmed**, and radio is model/option capable.

Table 140: Range

Minimum	Maximum	Increments
5 seconds	90 seconds	5 seconds

7.4.39.10

User Selectable Rekey Request

This field enables the radio to transmit the ASTRO Over-The-Air-Rekeying (OTAR) Rekey Request.

The request is sent to the dispatcher's Key Management Facility (KMF) console. This feature applies to ASTRO OTAR operation for the current [ASTRO OTAR Profile](#).



NOTE: You can initiate a Rekey Request with either a [Rekey Request](#) button-press or a [Rekey Request](#) menu-selection.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

7.4.39.11

TKP Enabled

This field enables radio to perform Touchless Key Provisioning (TKP) that delivers end to end encryption keys to radios from a Key Management Facility (KMF) without first requiring Key Variable Loader (KVL) configuration of the radio.



NOTE:

The radio must have been provisioned at the Motorola factory for the capability to perform this function. Some radios may not be capable even if the feature is enabled if the radios are shipped prior to factory introduction of the feature.

The KMF operator must enable the Touchless Key Provisioning for that radio within the KMF configuration.

When this field is enabled, KMF server is notified during OTAR Registration.

Accessed Only:

- When the [Secure Operation on page 255](#) field is set to **Hardware**.

- When the radio is model or option capable.



WARNING:

For each non-Independent Astro OTAR Profile, the value of **Touchless Key Provisioning Enabled** field via ASTRO OTAR Information must be the same.

When the **Touchless Key Provisioning** is enabled, it is only valid when **OTAR RX Security Level** and **OTAR TX Security Level** are both set to **Basic**.

7.4.39.12

OTAR Parameters Source

When this field is set to **KVL**, the radio KMF RSI and Message Number Period (MNP) can only be updated through Key Variable Loader (KVL).

When it is set to **Parameter Management**, the radio is updated with the RadioCentral KMF RSI and MNP values, overwriting the current radio values. A subsequent KVL update overwrites the Radio Central provided values again.

Accessed Only:

- When the [Secure Operation on page 255](#) field is set to **Hardware**.
- When the radio is model or option capable.



WARNING:

For each non-Independent Astro OTAR Profile, the value of **OTAR Parameters Source** field via ASTRO OTAR Information must be the same.

When the **Touchless Key Provisioning** is enabled, OTAR Parameter Source cannot be set to **KVL**.

7.4.39.13

KMF RSI

The Key Management Facility Radio Set Indicator (KMF RSI) is the identifier of the KMF for OTAR, and must match the value assigned within the KMF. A radio with an improper setting for this value will have its messages ignored by the KMF.

The radio is programmed with the KMF RSI value in this field. OTAR feature uses this value during the operations.

Table 141: Range

Minimum	Maximum	Default
1	9999999	9999999

Accessed Only:

- When the [Secure Operation on page 255](#) field is set to **Hardware**.
- When the [OTAR Parameters Source on page 278](#) field is set to **Parameter Management**.
- When the radio is model or option capable.



WARNING: For each non-Independent Astro OTAR Profile, the value of **KMF RSI** field via ASTRO OTAR Information must be the same.

7.4.39.14

Message Number Period

Message Number Period (MNP) defines a window of messages that can be accepted from a Key Management Facility (KMF). The radio is programmed with the MNP value in this field.

OTAR feature uses this value during the operations.

The intent of a small window size is to prevent an attacker from causing misconfiguration of the radio's keys by capturing messages sent from the KMF and re-sending them at a later time to the radio.

If the window is very small and messages are missed from the KMF due to the radio are out of the radio system coverage or turned off, the radio ignores the KMF messages, and force the KMF to initiate a recovery procedure.

Table 142: Range

Minimum	Maximum	Default
2	65535	65535



NOTE: A value of 65535 effectively disables protection from replay.

Accessed Only:

- When the [Secure Operation on page 255](#) field is set to **Hardware**.
- When the [OTAR Parameters Source on page 278](#) field is set to **Parameter Management**.
- When the radio is model or option capable.



WARNING: For each non-Independent Astro OTAR Profile, the value of **MNP** field via ASTRO OTAR Information must be the same.

7.4.39.15

KMF IP Address

This field selects the Internet Protocol (IP) address of the Key Management Facility (KMF).

This selection applies to ASTRO Over-The-Air-Rekeying (OTAR) functionality and for the current [ASTRO OTAR Profile](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

The following selections are supported:

- Valid IP Addresses whose values for each octet is between: [0-223] . [0-255] . [0-255] . [0-255]

7.4.39.16

KMF UDP Port

This field selects the User Datagram Protocol (UDP) port number.

The radio transmits KMMs (Key Management Messages) to this port when communicating to the KMF (Key Management Facility). This selection applies to ASTRO OTAR (Over-The-Air-Rekeying) functionality and for the current [ASTRO OTAR Profile](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-](#)

[Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

Table 143: Range

Minimum	Maximum
0	65535

7.4.39.17

Subscriber OTAR Port

This field selects the Mobile Subscriber Unit (MSU) Over-The-Air-Rekeying (OTAR) port number to be used.

The radio receives KMMs (Key Management Messages) to this port when communicating with the KMF (Key Management Facility). This selection applies to ASTRO OTAR functionality and for the current [ASTRO OTAR Profile](#).

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is set to **Enabled**, and when the [Over-The-Air-Rekeying \(OTAR\) Operation](#) field is set to **ASTRO Only** or **ASTRO & MDC**, and when the radio is model/option capable.

Table 144: Range

Minimum	Maximum
0	65535

7.4.39.18

OTAR Transport

This field selects the transport type for Over-The-Air-Rekeying (OTAR).

The following options are available:

LMR Only

OTAR is performed over Land Mobile Radio (LMR) only.

Broadband Only

OTAR is performed over Cellular Long Term Evolution (LTE) or Wi-Fi.

Accessed Only: When the following conditions are met:

- The radio model supports OTAR such as the Radio Next model.
- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [ASTRO OTAR Enable on page 259](#) field is enabled.

7.4.39.19

KMF Broadband ID

This field allows you to enter a globally unique identifier of the Key Management Facility (KMF). The radio communicates with the KMF for Over-The-Air-Rekeying (OTAR) using broadband.

Accessed Only: When the following conditions are met:

- The radio model supports OTAR such as the Radio Next model.
- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [ASTRO OTAR Enable on page 259](#) field is enabled.
- The [OTAR Transport on page 280](#) field is not set to **LMR Only**.

7.4.39.20

Secure Hardware Encryption Key References List

The **Secure Hardware Encryption Key References** section of the Secure KMF Profile allows you to view or define the set of CKRs (Common Key References) that this Secure Key Management Facility (KMF) Profile can access.

Encryption keys are thus referenced for use through a KMF Profile's Secure Hardware Encryption Key References List, which in turn references the underlying hardware keys of the Secure Encryption Key List. Each Key References List assigned to a KMF profile is configured to communicate with a specific KMF. When a KMF maintains the same CKRs, the KMF operator is able to control that radio from an ASTRO OTAR (Over-The-Air-Rekeying) perspective. Other KMF profiles communicate to other KMFs that can control different sets of CKRs for the radio.



IMPORTANT:

The maximum number of Secure Hardware Encryption Keys possible is equal to the current number of Secure Hardware Keys available in the Secure Encryption Key List.

Once defined, KMF Profiles are selected from the Trunking KMF Profile Index, the Conventional KMF Profile Index, and the ASTRO Talkgroup List KMF Profile Index fields.

For Conventional - channels having their Voice Key Strapping field set to **Select**, you can select a new Encryption Key from the menu-selection.

7.4.40

CA Certificate

This section allows you to load CA Certificate files into the current codeplug.

The maximum number of CA Certificate files that can be added in a codeplug is 20. CA Certificate files in the radio's codeplug are used by the radio to authenticate the SmartConnect Gateway server during a TLS session.

7.4.40.1

Certificate Name

This field allows you to define recognizable names of the CA Certificate file.

The following selections are supported:



NOTE:

Examples: EMT-001, #500, Electric1, # A5.

Maximum of 50 ASCII characters, numbers, spaces, and special characters can be used.

7.4.40.2

Certificate Filename

This field allows you to view or rename the CA Certificate file.

The following selections are supported:



NOTE:

Examples: EMT-001, #500, Electric1, # A5.

Maximum of 255 characters, numbers, spaces, and special characters can be used.

7.5

Emergency Collection

This section allows you to configure parameter settings for emergency features.

7.5.1

Emergency Wide

This section allows you to view or define emergency mode functionality that applies for both Conventional Emergency Profiles and Trunking Emergency Profiles.

These Emergency Profiles can then apply while operating in Conventional and Trunking communications.



NOTE:

Conventional Emergency Profiles are selected for use from the Conventional System Emergency Profile Selection field.

Trunking Emergency Profiles are selected for use from the Trunking Personality Emergency Profile Selection field.

Emergency mode functionality is launched with a programmed radio or by you initiating the feature.

7.5.1.1

Emergency Alarm Rx Indicator Type

This field selects the type of notification that you hear and or see when an Emergency alarm is received from another radio.

This feature must also be enabled (when appropriate) for the Individual MDC System or ASTRO System from the Emergency Alarm Rx Indicator field, or for the Trunking System from the Emergency Alarm Rx Indicator field. This selection applies while operating in Emergency Mode for both Conventional and Trunking communications.



IMPORTANT:

The Emergency Alarm Rx Indicator time lasts for 10 seconds. During these 10 seconds, you can deactivate the indicator by pressing any of the buttons of the radio except **Volume** and **Light** buttons.

Once the indicator clears or is cleared, retried emergency alarms from the same MDC Primary ID, or ASTRO System Individual ID, or Trunking Unit ID are ignored for the next 20 seconds.

Emergency alarms are not detected while the radio is in scan mode.

Emergency alarms are not detected while the radio is active on a voice channel.

The following selections are supported:

No Indication

No alerts are heard or seen.

Alert Only

Sounds an audio alert.

Display Only

A visual alert appears. The visual alert applies only for display model radios.

Alert & Display

Emergency alarms are not detected while the radio is active on a voice channel.



NOTE:

For the **Display Only** and the **Alert and Display** selections the following are true:

- When the radio detected an Emergency Alarm, EA-RCVD (Emergency Alarm Received) appears in the display of the radio.
- When the radio detected an Emergency Beacon, BCON RX (Emergency Find Me Beacon Received) appears in the display of the radio.

EA-RCVD is displayed alternately with either the MDC Primary ID, ASTRO System Individual ID, or the Trunking Unit ID of the radio that sent the Emergency Alarm, and continues for ten seconds. Reverse Aliasing/Caller ID is also possible.

7.5.1.2

Keep Alive

This field enables the radio to remain powered-on during an emergency mode transmission, regardless of the position of the power switch.

If the power switch of the radio is turned to the **OFF** position, the radio powers down once emergency mode is exited with a long keypress of the Emergency button. This selection applies while operating in emergency mode for both Conventional and Trunking communications.

Accessed Only: When the radio is model/option capable.

7.5.1.3

Silent Alarm

This field enables the radio to operate in a stealth-like manner while transmitting in an emergency alarm state (see Emergency Type), including the emergency alarm state of a Fall Alert situation.

During this emergency alarm state, there is no audible or visual indication of the emergency alarm transmission.

This selection applies when the following conditions are met:

- While operating in Emergency mode for both Conventional and Trunking communications.
- While the current personality has the **Hazard Zone Mode Personality** field disabled.



WARNING:

This Silent Emergency Alarm mode continues until either one of the following occurs:

- Pressing and releasing the radio's PTT button to exit this mode and enter Emergency Call or regular dispatch mode.
- Pressing and holding the Emergency button for the programmed Long Keypress Duration for Emergency to exit emergency mode (if enabled).
- Initiating Hot Mic Emergency transmission (if enabled).

Accessed Only: When the Emergency Call Receive field is disabled.

7.5.1.4

Disable Emergency Call Indications

This field enables all indications (display, LED alerts, and tones) normally associated with an Emergency Call (see Emergency Type) to be disabled when operating in Silent Alarm mode.

Only the audible and visual indications which occur during a standard Talkgroup/Conventional call are available; therefore, during the Emergency Call, it appears like an ordinary dispatch call is taking place. This selection applies while operating in emergency mode for both Conventional and Trunking communications.



WARNING: This Silent Emergency Call mode continues until you press and hold the Emergency button for the programmed Long Keypress Duration for Emergency to exit emergency mode.



IMPORTANT: When this selection is Enabled, the Disable Emergency Call Indications Extended Feature is **Used in Codeplug = Yes**.

Accessed Only:

When **Silent Alarm** is enabled.

Disable Emergency Call Indications is invalid if the following conditions occur:

- **Disable Emergency Call Indications** is enabled and **Silent Alarm** is disabled.
- **Emergency Beacon** does not equal 0.
- **Call De-Key Sidetone** is enabled.

7.5.1.5

Unmute Option

This field allows the radio to unmute to voice traffic when operating in Silent Alarm mode.

The Unmute Option allows the dispatcher to provide feedback to your initiated emergency state through code words, and without drawing undesirable attention.

This selection applies while operating in Emergency Mode for both Conventional and Trunking communications.



WARNING: When the [Disable Emergency Call Indications on page 284](#) field is enabled, this Unmute Option field must be enabled; otherwise the application considers the value invalid.

Accessed Only: When the Silent Alarm field is enabled.

- Unmute Option is disabled.
- **Emergency Configuration** → **Emergency Wide** → **General** → **Disable Emergency Call Indicator** is enabled.
- **Emergency Configuration** → **Emergency Wide** → **General** → **Silent Alarm** is disabled.

7.5.1.6

Channel Delay

This field selects the amount of time that the radio waits before transmitting emergency mode data when you are changing the channel of the radio.

This feature prevents the radio from unintentionally transmitting emergency data on channels when in emergency mode, and when you are changing the channel of the radio. This selection applies while operating in emergency mode for both Conventional and Trunking transmissions. Time is in second.

Accessed Only: When the radio is model/option capable.

Table 145: Range

Minimum	Maximum	Increment
0 sec	7 sec	1 sec

7.5.1.7

Distinguish Emergency Type

This field enables the radio to receive emergency alerts to distinguish the type of emergency triggered by the source radio.

The radio status events include textual display of the condition, and the received emergency tone plays on the selected speaker for the duration of alarms.

Accessed Only: When the **Emergency Alarm Rx Indicator Type** field is **Display Only** or **Alert & Display**.

7.5.1.8

Emergency Call Receive

This field causes the display of the radio to alternate between EMER RECEIVED and the current Trunking channel when it unmutes on an emergency call.

This selection applies while operating in Emergency Mode on a Trunking communications channel.

Accessed Only: When the [Silent Alarm on page 283](#) field is **Disabled**.

7.5.1.9

Fall Alert Trigger

This field selects the type of Fall Alert condition that initiates the Emergency Mode Fall Alert feature.

This selection applies for both Conventional and Trunking communications.

The following selections are supported:

Disabled

Disables the Fall Alert feature.

Horizontal Only

An emergency is transmitted when the radio is tilted to a horizontal position.

Horizontal and Motionless

An emergency is transmitted if the radio is tilted to a horizontal position, and the measured movement of the radio does not reach the factory-programmed movement sensitivity threshold. Any radio motion that does not meet the movement threshold is considered as "Motionless".

The motion sensitivity threshold is factory programmed.



NOTE: The angles of operation that determine an upright radio versus a horizontal radio are factory programmed.

Accessed Only: When the radio is model or option capable.

7.5.1.10

Pre-Alert Timer

This field selects the amount of time that a Fall Alert condition must be present before you are notified with the selected Pre-Alert Tone.

This alert tone is also complimented visually with `Fall Alert` text appearing in the display of the radio. These alerts are to warn you that an Emergency Mode is about to be activated, therefore allowing you to bring the radio into a more vertical position and possibly avoid a false Emergency transmission.

This selection applies for both Conventional and Trunking communications.



IMPORTANT: In-the-field: If the Fall Alert condition is interrupted due to repositioning of the radio, or by you initiating the Fall Alert Clear button-press, then the Fall Alert condition, the timers and alerts are reset, and the Emergency Mode transmission is canceled.

Accessed Only: When the radio is model/option capable and when the [Fall Alert Trigger on page 285](#) field is not **Disabled**.

Table 146: Range

Minimum	Maximum	Increment
5 seconds	120 seconds	1 second

7.5.1.11

Post-Alert Timer

This field selects the amount of time after the Pre-Alert Timer has expired that a radio needs to remain in a Fall Alert condition before the Emergency Mode transmission begins.

This selection applies while operating for both Conventional and Trunking communications. Time is in seconds.



IMPORTANT: In-the-field: If the Fall Alert condition is interrupted due to repositioning of the radio, or by you initiating the Fall Alert Clear button-press, then the Fall Alert condition, the timers, and alerts are reset, and the Emergency Mode transmission is canceled.

Accessed Only: When the radio is model/option capable and when the [Fall Alert Trigger on page 285](#) field is not **Disabled**.

Table 147: Range

Minimum	Maximum	Increment
1 second	120 seconds	1 second

7.5.1.12

Pre-Alert Tone

This field selects the type of alert tone that sounds after the Pre-Alert Timer has expired.

The Pre-Alert Timer begins once the programmed Fall Alert condition is met (see [Fall Alert Trigger on page 285](#)). Once this timer period expires, this selected alert tone is sounded. This alert tone is also complimented visually with `Fall Alert` text appearing in the display of the radio.

These audible and visual alerts are to warn you that an Emergency Mode is about to be activated, therefore allowing you to bring the radio into a more vertical position and possibly avoid a false Emergency transmission. This selection applies for both Conventional and Trunking communications.

 **IMPORTANT:** To ensure that you hear this tone even when the radio volume is low, it is recommended to increase the Minimum Volume setting or the Volume Offset (dB) setting.

Accessed Only: When the radio is model/option capable and when the [Fall Alert Trigger on page 285](#) field is not **Disabled**.

The following selections are supported:

Single Warning Tone

One tone is sounded at the expiration of the [Pre-Alert Timer on page 286](#).

Continuous Warning Tone

A continuous tone is sounded at the expiration of the [Pre-Alert Timer on page 286](#) and for the duration of the [Post-Alert Timer on page 286](#). Therefore, this alert tone ends once the Emergency Mode transmission begins.

7.5.1.13

Fall Alert Configurability Level

This field selects either the Emergency Mode Fall Alert feature is defined on a radio-wide basis or on a per Emergency Profile basis.

This selection applies for both Conventional and Trunking communications.

The following selections are supported:

Radio Wide

The Fall Alert feature operates on a radio-wide basis.

Per Emergency Profile

Allows the Fall Alert feature to be enabled on a per Conventional Emergency Profile or per Trunking Emergency Profile basis by selecting the corresponding **Fall Alert Enable** field. See also the [Fall Alert Emergency Tone Trigger on page 287](#).

Accessed Only: When the radio is model or option capable and when the [Fall Alert Trigger on page 285](#) field is not **Disabled**.

7.5.1.14

Fall Alert Emergency Tone Trigger

This field enables a customizable Emergency Tone List to be used, on a per Emergency Profile basis, when Emergency Mode is initiated by a Fall Alert situation.

This selection applies while operating in Emergency Mode for both Conventional and Trunking communications.

Accessed Only: You can access this field only when the following conditions are met:

- The [Fall Alert Trigger on page 285](#) field is not set to **Disabled**.
- The [Fall Alert Configurability Level on page 287](#) field is set to **Per Emergency Profile**.
- The radio is model or option capable.

7.5.1.15

Impact Detection

This section allows you to view or define the Emergency Mode impact detection feature.

When working with Dual radios, the Impact Detection feature is only supported by the primary radio.

The Emergency Radio feature is always set to Primary radio if the Impact Detection feature is enabled in the **Primary radio**.

This feature is not supported in the **Secondary Radio**.

7.5.1.16

Configurability Level

The following are the options available:

Disabled

The feature is disabled for the radio.

Radio Wide

The feature is enabled for the radio on all channels or personality.

Per Emergency Profile

The emergency profile controls the Impact Detection feature through the Impact Detection Enable field.

This option allows the ability to enable or disable the Impact Detection feature in an emergency profile assigned to channels or personalities.

7.5.1.17

Emergency Tone Trigger

This field enables the use of a customizable Emergency Tone List, on a per Emergency Profile basis, when Emergency Mode has been initiated by an impact detected situation.

This selection applies while operating in Emergency Mode for both Conventional and Trunking communications.

Accessed Only: When Configurability Level is set to **Per Emergency Profile**.

7.5.1.18

Pre-Alert Timer

This field displays the amount of time, in seconds, from when the initial impact detected situation is detected until you are alerted.

This is a non-configurable field and set to **0** seconds, by default.

7.5.1.19

Post-Alert Timer

This field sets the amount of time a radio remains in a impact detected condition before the Emergency Mode transmission begins.

This selection applies while operating for both Conventional and Trunking communications. Time is in seconds.

7.5.1.20

Pre-Alert Tone

This field sets the alert tone that sounds once a radio enters into the post alert stage.

This alert tone is also complimented visually with **Impact Detected** text appearing in the radio's display. These audible and visual alerts are intended to warn you that an emergency mode is about to be activated, therefore allowing you to clear the **Impact Detected** stage and possibly avoid a false emergency transmission.

This selection applies for both Conventional and Trunking communications.

The following selections are supported:

Single Warning Tone

One tone is played at the moment the radio enters the post alert stage.

Continuous Warning Tone

A continuous tone is played once the radio enters the post alert stage and for the duration of the Post-Alert Timer. Therefore, this alert tone ends once the Emergency Mode transmission begins.

7.5.2

Conventional Emergency Profiles

The **Conventional Emergency Profiles** allows you to view or modify Conventional - emergency mode functionality.

Emergency transmissions have many possible defined settings. A variety of emergency profiles may be created.



NOTE: [Emergency Wide on page 282](#) features and settings apply to these profiles.

Emergency Conventional Profiles are selected from the Conventional System's Emergency Profile Selection field.

Conventional Systems are referenced to Conventional Personalities from either the ASTRO System field or the Non-ASTRO System field; only ASTRO and MDC are capable of emergency mode transmissions.

Emergency mode functionality is launched with a programmed radio or by initiating the feature.

7.5.2.1

Emergency Profile Name

This field allows you to create recognizable names for the current Conventional Emergency Profiles.

Conventional Emergency Profiles are selected for use from the Conventional System Emergency Profile Selection field.



NOTE:

Examples: EMT-001, #500, Electric1, # A5.

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.5.2.2

Emergency Type

This field selects the desired radio functionality that occurs when you initiate emergency mode.

This selection applies for the current [Conventional Emergency Profiles on page 289](#).



IMPORTANT:

Both selections support Emergency Revert Channel, that is, transmitting emergency on a predetermined channel.

Once the radio has begun Emergency Call operation, only your long-press of the emergency button (see the Long Keypress Duration for Emergency field) or a radio power-down ceases this functionality.

The following selections are supported:

Alarm Only

Upon an Emergency button-press, an emergency alarm data packet initiating an emergency communication is repeatedly sent to the base station until it is canceled by one of the following choices:

- Both the programmed [Polite Retries on page 291](#) and [Impolite Retries on page 291](#) have been exhausted.

- An acknowledgement confirming the successful transmission of the emergency data packet is received back from the base station.
- A PTT button-press.
- A long-press of the emergency button (see the Long Keypress Duration for Emergency field).

Alarm & Call

Upon an Emergency button-press an emergency alarm data packet initiating an emergency communication is repeatedly sent to the base station until it is canceled by one of the following choices:

- Both the programmed [Polite Retries on page 291](#) and [Impolite Retries on page 291](#) have been exhausted.
- An acknowledgement confirming the successful transmission of the emergency data packet is received back from the base station.
- A PTT button-press.

When the Alarm data packet has ceased, then voice (Call) is able to transmit on the channel.

7.5.2.3

Console Ack Required (DVRs)

This field causes an extra console acknowledgement response ("console Ack") to be required when you initiate emergency mode.

When an emergency alarm has been sent (see the Emergency Type field), the radio always requires an acknowledgement from the Fixed Network Equipment (FNE); this feature requires an extra console Ack to be required from the dispatch/console application.

Receiving an FNE Ack confirms to you that the radio's current site has received the emergency alarm packet; receiving a console Ack ensures that the dispatch/console application is displaying the emergency condition to the dispatcher. Once the console Ack is received the radio sounds a four-beep alert tone.

This selection applies for the current Conventional Emergency Profile.



IMPORTANT:

This field is only applicable when the radio's current channel is operating on a Conventional Digital Vehicular Repeater System (DVRs) (that is, the current Conventional Personality references a DVRs Conventional System). This field has no impact on a non-DVRs Conventional System.

This feature must be disabled for **Hot Mic Emergency** or **Emergency via Silent Audio** to function properly. See the [Emergency Auto Transmit Mode on page 292](#) field.

7.5.2.4

Acknowledge Alert Tone

This field enables the radio to sound an audio tone once an emergency mode message has been received and a confirmation of the received message has arrived back to the radio from the base station.

An emergency acknowledge is a confirmation that the radio Emergency Alarm (see [Emergency Type on page 289](#)) has been successfully received by the base station. This feature applies for the current Conventional Emergency Profile.

7.5.2.5

Polite Retries

This field selects the number of times that the radio attempts to transmit a polite emergency mode Call (see Emergency Type).

A polite call is when the radio waits for a channel to be free of radio traffic before attempting to transmit. Polite Retries are aborted when an acknowledgment (Ack) of a successful emergency transmission is received back to the radio.

This selection applies for the current [Conventional Emergency Profiles on page 289](#).



IMPORTANT: If impolite emergency retries are complete before the Limited Patience timer expires, the radio will use polite transmission until the timer expires. After the timer expires, any remaining polite retries will be sent impolitely.

Table 148: Range

Minimum	Maximum	Increment
0 Attempt	15 Attempts	1 Attempt

Table 149: Range

Minimum	Maximum
0 Attempt	14 or infinite attempts

7.5.2.6

Impolite Retries

This field selects the number of times that the radio attempts to transmit an impolite emergency mode Call (see the Emergency Type field selections).

An impolite call is when the radio sends a transmission even when the channel is busy with other radio traffic. These transmissions proceed by stepping on other channel traffic. Impolite Retries are aborted when an acknowledgment (Ack) of a successful emergency transmission is received back to the radio.

This selection applies for the current [Conventional Emergency Profiles on page 289](#).



IMPORTANT: If impolite emergency retries are complete before the Limited Patience timer expires, the radio will use polite transmission until the timer expires. After the timer expires, any remaining polite retries will be sent impolitely.

Table 150: Range

Minimum	Maximum	Increment
1 Attempt	15 Attempts	1 Attempt

7.5.2.7

Fall Alert Enable

This field enables Emergency Mode Fall Alert operation for the current Conventional Emergency Profiles.

Accessed Only: You can access this field only when the following conditions are met:

- The **Fall Alert Trigger** field is not set to **Disabled**.
- The **Fall Alert Configurability Level** field is set to **Per Emergency Profile**.

- The radio is model or option capable.

7.5.2.8

Emergency Exit on Channel Change

This field allows the radio to exit Emergency on mode change.

7.5.2.9

Impact Detection Enable

This field enables Emergency Mode Impact Detection operation for the Conventional Emergency Profile.

Accessed Only:

- When H-Option QA01843 is enabled
- when the Impact Detection Configurability Level field is set to **Per Emergency Profile**
- When the radio is model/option capable

7.5.2.10

Emergency Auto Transmit Mode

This field selects an additional and specific emergency transmission operation for the current Conventional Emergency Profiles set.

Emergency Hot Mic or Hot Mic Silent Audio are possible.



WARNING: When this feature is not disabled, the selected functionality overrides/enhances the emergency functionality described for the [Emergency Type on page 289](#) field's **Alarm and Emergency Call** selection.

The following selections are supported:

Disabled

No additional Auto Transmit functionality is selected.

Hot Mic Emergency

Once you initiate emergency mode with an Emergency button-press, after only one emergency alarm impolite transmission, this selection causes the radio to automatically key-up and transmit an emergency Call (see [Emergency Type on page 289](#)). The radio transmits with its microphone remaining automatically unmuted/open for the time selected by the Hot Mic Tx Period field. The radio is then in normal emergency Call mode. This is also known as Emergency with Voice to Follow.

When the Long Keypress for Emergency field is not set to **0**, the Emergency Call Mode is exited with a long-keypress of the Emergency button.

Available For: ASTRO and MDC - Conventional Systems.



WARNING:

The Emergency Type field for the current profile must be set to **Alarm and Call** or this selection becomes invalid.

Conventional Personalities using Hot Mic should have their transmit Time Out Timer set to a value greater than Hot Mic Tx Period; otherwise the Hot Mic transmission aborts when the Time Out Timer expires.



NOTE: The settings of [Polite Retries on page 291](#)/[Impolite Retries on page 291](#) are ignored when entering the Hot Mic state. Once Hot Mic or the emergency call state is exited, the values of the Polite Retries/Impolite Retries fields are restored to the profile/radio channel.

Emergency via Silent Audio

Once you initiate emergency mode with an Emergency button-press, after only one emergency alarm impolite transmission, this selection causes the radio to automatically key-up into emergency mode with its microphone remaining muted/closed. This transmission continues for the amount of time specified in the Silent Audio Tx Period field. The radio is then in normal emergency Call mode.

When the Long Keypress for Emergency field is not set to 0, the Emergency Call Mode is exited with a long-keypress of the Emergency button.

Available For: ASTRO - Conventional Systems only.



WARNING:

The Emergency Type field for the current profile must be set to **Alarm and Call** or this selection becomes invalid.

Conventional Personalities using this feature should have the Time Out Timer set to a value greater than [Silent Audio Tx Period on page 293](#), otherwise the transmission aborts when the Time Out Timer expires.



NOTE: The settings of [Polite Retries on page 291](#)/[Impolite Retries on page 291](#) are ignored when entering the Silent Audio state. Once Silent Audio or the emergency call state is exited, the values of the Polite Retries/Impolite Retries fields are restored to the profile/radio channel.

7.5.2.11

Hot Mic Tx Period

This field selects the amount of time that the radio automatically keys-up and transmits while operating in the Hot Mic emergency mode (see Emergency Auto Transmit Mode).

This selection applies for the current [Conventional Emergency Profiles on page 289](#).



IMPORTANT: Conventional Personalities using this feature should have the Time Out Timer set to a value greater than [Silent Audio Tx Period on page 293](#), otherwise the transmission aborts when the Time Out Timer expires.

Accessed Only: When the [Emergency Type on page 289](#) field is set to **Alarm and Call**, and when the [Emergency Auto Transmit Mode on page 292](#) field is set to **Hot Mic Emergency**.



IMPORTANT: Older version of the codeplug must use the parameters below:

Table 151: Range

Minimum	Maximum	Increments
10 seconds	120 seconds	10 seconds



IMPORTANT: This applies to the codeplug version 19.00.00 and above:

Table 152: Range

Minimum	Maximum	Incremenst
1 seconds	120 seconds	10 seconds

7.5.2.12

Silent Audio Tx Period

This field selects the amount of time that the radio automatically keys-up and transmits while operating in the **Emergency via Silent Audio** Enable Emergency Mode.

See [Emergency Auto Transmit Mode on page 292](#).

This selection applies for the current [Conventional Emergency Profiles on page 289](#) and is only possible for ASTRO signaling systems.

Accessed Only: When the [Emergency Type on page 289](#) field is set to **Alarm and Call**, and when the [Emergency Auto Transmit Mode on page 292](#) field is set to **Emergency via Silent Audio**.

Table 153: Range

Minimum	Maximum	Increment
1 seconds	5 seconds	1 seconds

Table 154: Range

Minimum	Maximum
1 seconds	5 seconds

7.5.2.13

Tx Multiplier Enable

This field causes the selected Tx Multiplier Factor value to be doubled, which then determines how long the radio automatically continues to key up and transmit an Impolite Emergency Call (see Emergency Type).

This selection applies for the current [Conventional Emergency Profiles on page 289](#).

7.5.2.14

Tx Multiplier Factor

This field selects how long the radio to automatically continues to key up and transmit an Impolite Emergency Call (see Emergency Type).

This time begins only once the radio has exhausted all Emergency [Polite Retries on page 291](#) and [Impolite Retries on page 291](#) without receiving an acknowledge.

This selection applies for the current [Conventional Emergency Profiles on page 289](#).



IMPORTANT: When the Remote Radio Mode field is set to **Radio Trace** or **Radio Monitor**, this number is multiplied by the Tx Base Time to give a value in seconds.

The following selections are

Table 155: Range

Minimum	Maximum
0	3

7.5.2.15

Transmit Enable

When this field is enabled, the radio can transmit the Emergency Find Me Beacon during emergency.

Emergency Beacon transmission is triggered through the Emergency feature such as pressing the Emergency switch or button, and Fall Alert Emergency. When you enter emergency, no additional action is required. When the radio enters emergency mode, Bluetooth is automatically turned on, and the beacons are sent. Emergency Beacons are sent every two seconds while the radio is in emergency mode.

For more information on the Emergency Find Me Feature, refer to [Emergency Find Me](#).

Accessed Only: When the radio is model/option capable.

7.5.2.16

Receive Enable

When this field is enabled, the radio receives the Emergency Find Me Beacon during emergency.

When you change to a channel in which Beacon Receive is enabled, Bluetooth is automatically turned on.

When you receive an emergency beacon, the radio plays a tone and displays **Beacon Received** on the Top Display and Front Display Radio Control widget. The radio continues to play a tone every ten seconds while actively receiving beacons.

If the receiver dismisses the notification or if no beacons are received for four minutes, the Beacon Received notification disappears. If multiple beacons are available, the display shows the ID or alias of the device that enters emergency most recently.

For more information on the Emergency Find Me Feature, refer to [Emergency Find Me](#).



NOTE:

On APX Standard radios with front display, you can use the menu to view the radio ID of the transmitting radio and the Bluetooth Received Signal Strength Indicator (RSSI) level.

On APX NEXT radios, you can dismiss the beacon by tapping **DISMISS** in the notification. You can also view the list of senders by tapping **DETAILS**.

Accessed Only: When the radio is model/option capable.

7.5.2.17

Emergency Exit Control

This field allows configuration in the radio to exit emergency by you, console or both.

The following selections are supported:

Subscriber Only

Default value

Console Only

Selectable if Emergency Operation is set to Emergency Alarm and Call, System Type is DVRS and Signal Type is ASTRO.

Both Subscriber and Console

Selectable if Emergency Operation is set to Emergency Alarm and Call, System Type is DVRS and Signal Type is ASTRO.

Accessed Only: When the radio is model/option capable.

7.5.2.18

Emergency Hot Mic Restart

This field allows hot mic audio to be retransmitted upon emergency button press while in an emergency.

Accessed Only: When [Emergency Type on page 289](#) field is set to **Alarm and Call**, and when the System Type field is set to **DVRS**, and when the Rx Voice/Signal Type and Tx Voice/Signal Type field is set to **ASTRO**, and when the radio is model/option capable.

7.5.2.19

Emergency PTT-ID Sidetone

This field enables an alert tone to sound while transmitting an Emergency PTT ID and when the radio is in emergency mode.

The alert tone sounds when PTT button is pressed and continues until the Emergency PTT ID has transmitted. During this brief time, the radio's microphone and therefore voice transmission is automatically disabled. When the alert tone stops, it is meant to notify you that the radio's speaker is ready to accept voice for transmission.

This selection applies for the current [Conventional Emergency Profiles on page 289](#).



WARNING: This feature applies only when the Non-ASTRO Emergency PTT ID field is enabled in a Conventional Personality that references a Conventional System that references this Conventional Emergency Profile.

Accessed Only: When the [Emergency Type on page 289](#) field is set to **Alarm and Call**.

7.5.2.20

Trigger

This field selects the condition or trigger that initiates Emergency Mode in the current Conventional Emergency Profile.

Depending on the selected Emergency Tone type, the Tone Minimum Volume, Tone Period, and Audio Routing may also be configured in the same record/row of the Emergency Tone List.

Accessed Only: When the Fall Alert Trigger field is not set to **Disabled**, and when the Fall Alert Emergency Tone Trigger is **Enabled**, and when the radio is model/option capable.

The following selection is supported:

Fall Alert

A Fall Alert condition initiates Emergency Mode in the current [Conventional Emergency Profiles on page 289](#).

Applies Only: When the [Fall Alert Enable on page 291](#) field is enabled in the current Conventional Emergency Profile.

7.5.2.21

Tone

This field selects the type of Alert Tone that sounds once an Emergency Mode transmission has commenced with the corresponding Trigger selection.

This selection applies for the current Conventional Emergency Profile.

Accessed Only: When the Fall Alert Trigger field is not set to **Disabled**, and when the Fall Alert Emergency Tone Trigger is enabled, and when the radio is model/option capable.

The following selections are supported:

Legacy Emergency Tone

The legacy Emergency Alert Tone and audio levels are used.

Critical Emergency Tone

The Critical Emergency Alert Tone sounds. The Tone Minimum Volume, Tone Period, and Audio Routing must also be defined.

7.5.2.22

Tone Minimum Volume

This field selects the minimum audio level for sounding the corresponding Emergency Mode Alert Tone.

If the value is higher than the radio's current volume level, then the value is used, otherwise, the radio's current volume level is used. This feature applies for the current [Conventional Emergency Profiles on page 289](#).

Accessed Only: When the [Tone on page 296](#) field is set to **Critical Emergency Tone**, and when the radio is model/option capable.

Table 156: Range

Minimum	Maximum	Increments
0	255	1

7.5.2.23

Tone Period

This field allows you to select the specified Emergency Mode Alert Tone to a temporary tone or a repetitive tone.

User can determine the periodic timer of the repetitive tone. This feature applies for the current Conventional Emergency Profile.

Accessed Only: When the [Tone on page 296](#) field is set to **Critical Emergency Tone**, and when the radio is model/option capable.



NOTE: When set to **0-Once** (Zero Time), the alert tone specified in the Tone field sounds only once while emergency mode is active.

Table 157: Range

Minimum	Maximum	Increment
5	255	1

7.5.2.24

Audio Routing

This field selects the routing of the Alert Tone and incoming audio to a specific speaker when an Emergency Mode transmission begins through the corresponding Trigger selection.

This selection applies for the current Conventional Emergency Profile Set.

Accessed Only: When the [Tone on page 296](#) field is set to **Critical Emergency Tone**, and when the [Tone Period on page 297](#) field is not set to **Once**, and when the radio is model/option capable.

The following selections are supported:

Normal Audio Routing

The Alert Tone and any incoming audio are routed according to the radio's current speaker audio routing selections (see also Speaker Audio Routing and the Bluetooth Audio Reroute button-press).

Internal Speaker Audio Routing

The Alert Tone and any incoming audio are routed to the radio's internal speaker, regardless of any external accessory that may be connected, or the channel's current Speaker Audio Routing selection.

7.5.3

Trunking Emergency Profiles

This section allows you to view or modify Trunking Emergency features for individual Trunking Emergency Profiles.

Both Trunking communications Protocol Types **ASTRO 25** and **Type II** are capable of emergency mode transmissions.



NOTE: Emergency Wide features and settings apply to these profiles.

Emergency Trunking Profiles are selected from the Trunking Personality's Emergency Profile Selection field.

Emergency mode functionality is launched with a programmed radio or by you initiating the feature.

7.5.3.1

Trunking Emergency Profiles

This section allows you to view or modify Trunking Emergency features for individual Trunking Emergency Profiles.

Both Trunking communications Protocol Types **ASTRO 25** and **Type II** are capable of emergency mode transmissions.



NOTE: Emergency Wide features and settings apply to these profiles.

Emergency Trunking Profiles are selected from the Trunking Personality's Emergency Profile Selection field.

Emergency mode functionality is launched with a programmed radio or by you initiating the feature.

7.5.3.2

Emergency Operation

This field selects the desired radio functionality that occurs when you initiate emergency mode.

This selection applies for the current Trunking Emergency Profile.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Alarm Only

Upon an Emergency button-press, transmits an Emergency Alarm packet to the dispatcher. The emergency alarm packet is retried until an acknowledgement is received or until a number of attempts specified by the Retry Counter are exhausted. The type of acknowledgement expected is governed by the **Console Acknowledge Required** field.

Call Only

Upon an Emergency button-press, the radio enters into the Emergency Call mode. In this mode, PTT requests and voice transmissions from you or other radios are marked as emergency, and it gets emergency level priority on the current Trunking - Talkgroup.

Alarm and Call

Upon an Emergency button-press, once the Emergency Alarm sequence has been acknowledged or retries have been exhausted, the radio enters into Emergency Call mode.

7.5.3.3

Retry Counter

This field selects how many times that the Emergency Alarm is transmitted when an acknowledgement "Ack" of a successful emergency alarm transmission has not been received.



NOTE: For a normal Trunking call, if the radio is unsuccessful in sending a transmission, the radio retries for one Inbound Signal Data (ISD) sequence before quitting. For Emergency Alarms, the radio retries for the number of ISD sequences selected for this counter.

This selection applies for the current Trunking Emergency Profile.

Accessed Only: When the radio is model/option capable.

Table 158: Range

Minimum	Maximum	Increments
1	255	1



NOTE: When set to **Infinite**, the Number of Retries is Unlimited.

7.5.3.4

Console Ack Required

This field causes an additional console acknowledgement response ("console Ack") to be required.

When an emergency alarm has been sent, the radio always requires an acknowledgement from the Fixed Network Equipment (FNE). This feature requires an additional Ack to be required from the dispatch application. Receiving an FNE Ack assures you that the radio's current site has received the emergency alarm packet. Receiving a console Ack ensures that the dispatch application is displaying the emergency condition to the dispatcher. Once the console Ack is received the radio sounds a four beep alert tone. This selection applies for the current Trunking Emergency Profile.



IMPORTANT: This feature must be disabled for **Hot Mic Emergency** or **Emergency via Silent Audio** to function properly.

Accessed Only: When the Emergency Operation field is set to **Alarm Only** or **Alarm and Call**, and when the radio is model/option capable.

7.5.3.5

Emergency Talkback

This field selects the desired transmit channel/channel type (Tactical or Non-Tactical) that the radio uses while operating in emergency mode.

This selection applies for the current Trunking Emergency Profile.



IMPORTANT: If emergency mode is entered from an Announcement Group or from a Dynamic Regrouping, the Emergency Talkback Revert Talkgroup (of the Trunking Personality that references this Trunking Emergency Profile) is used for these transmissions, whether this field is set to **Tactical** Emergency or **Revert** Non-Tactical Emergency.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Tactical

Emergency Alarms and Emergency Calls are transmitted on the radio's currently selected channel/Talkgroup.

This is also known as Tactical Emergency.



WARNING: Tactical does not work if the radio's current Trunking channel has its Transmit Mode field set to **TG/AG Disabled**.

Revert (Non-Tactical)

Emergency Alarms and Emergency Calls are transmitted on a specific channel. This channel is determined by the Emergency Revert Type field selection of the Trunking Personality that references this Trunking Emergency Profile.



NOTE: This is also known as Non-Tactical Emergency.

7.5.3.6

Revert PTT ID

This field causes the Emergency Talkback Revert Talkgroup of the Trunking Personality that references this Trunking Emergency Profile to use the "PTT-ID" Conversation Type while in Emergency Call mode.

This selection applies for the current Trunking Emergency Profile.

When disabled and while operating in Emergency Call mode, if the Trunking Personality that references this Emergency Profile is using the "Transmission" Conversation Type, the radio forces the "PTT-ID" Conversation Type. This selection applies for the current Trunking Emergency Profile or this personality's selected Announcement Group.



NOTE: This feature is also known as "Default PTT ID".



WARNING: This feature applies only when the Emergency Talkback field is set to **Revert**.

Accessed Only: When the radio is model/option capable.

7.5.3.7

Emergency Exit on Channel Change

This field allows the radio to exit Emergency on mode change.

7.5.3.8

Impact Detection Enable

This field enables Emergency Mode Impact Detection operation for Trunking Emergency Profile.

Accessed Only:

- When H-Option QA01843 is enabled
- when the Impact Detection Configurability Level field is set to **Per Emergency Profile**
- When the radio is model/option capable.

7.5.3.9

Emergency Auto Transmit Mode

This field selects an additional and specific emergency mode transmission operation for the current Trunking Emergency Profile.

Emergency Hot Mic or Hot Mic Silent Audio is possible.



WARNING: When this feature is not disabled, the selected functionality overrides/enhances the emergency functionality described for the **Emergency Operation** field's "Alarm and Call" selection.

Accessed Only: For radio models with R16.00.00 or higher software version, when the [Emergency Operation on page 298](#) field is set to **Alarm and Call**, and when the [Console Ack Required on page 299](#) field is **Disabled**, and when the [Revert PTT ID on page 300](#) field is **Enabled**.

The following selections are supported:

Disabled

No additional Auto Transmit functionality is selected.

Hot Mic Emergency

Once emergency mode has been initiated with an Emergency button press, and then once an Emergency Alarm acknowledge has been received back to the radio (from the dispatcher/console), or all alarm retries have been exhausted, Hot Mic Emergency causes the radio to automatically key-up and transmit an emergency Call. The radio transmits with its microphone remaining automatically unmuted/open for the time selected by the **Hot Mic Tx Period** field. The radio is then in normal emergency Call mode. This is also known as Emergency with Voice to Follow.

When the Long Keypress for Emergency field is not set to **0**, the Emergency Call Mode is exited with a long-keypress of the Emergency button.



NOTE: This is also known as "Trunking Emergency with Voice to Follow".



WARNING:

Another press of the Emergency button does not re-initiate another Emergency Hot Mic transmission. Emergency mode must be exited and then re-initiated in order for the "automatic key-up" Hot Mic transmission to re-occur.

Exiting emergency mode is accomplished with a Long Keypress Duration of the Emergency Button or by powering-off the radio.

Emergency via Silent Audio

Once emergency mode has been initiated with an Emergency button-press, and then once an emergency alarm acknowledge has been received back to the radio (from the dispatcher/console), or all alarm retries have been exhausted, the radio automatically keys-up into this emergency mode with its microphone remaining muted/closed. This transmission continues for the amount of time specified in the Silent Audio Tx Period field. The radio is then in normal emergency Call mode.

When the Long Keypress for Emergency field is not set to **0**, the Emergency Call Mode is exited with a long-keypress of the Emergency button.



IMPORTANT: Available for ASTRO 25 Trunking communications ONLY.

7.5.3.10

Hot Mic Tx Period

This field selects the amount of time that the radio automatically keys up/transmits during "Hot Mic Emergency" operation.

Selects a specific emergency mode transmission operation for the current Trunking Emergency Profile.

Accessed Only: When the Emergency Auto Transmit Mode field is set to **Hot Mic Emergency**, and when the Emergency Operation field is **Alarm and Call**, and when the Revert PTT ID field is **Enabled**, and when the Console Acknowledge Required field is **Disabled**, and when the radio is model/option capable.



IMPORTANT: Older version of the codeplug must use the parameters below:

Table 159: Range

Minimum	Maximum	Increment
10 seconds	120 seconds	10 seconds



IMPORTANT: This applies to the codeplug version 19.00.00 and above:

Table 160: Range

Minimum	Maximum	Increment
1 seconds	120 seconds	10 seconds

7.5.3.11

Silent Audio Tx Period

This field selects the amount of time that the radio automatically keys- up/transmits (with its microphone remaining muted/closed) during **Emergency via Silent Audio** operation.

Selects a specific emergency mode transmission operation for the current Trunking Emergency Profile.

Accessed Only: When the Emergency Auto Transmit Mode field is set to **Emergency via Silent Audio**, and when the Emergency Operation field is **Alarm and Call**, and when the Revert PTT ID field is **Enabled**, and when the Console Acknowledge Required field is **Disabled**, and when the radio is model/option capable.

Table 161: Range

Minimum	Maximum
1 sec	5 sec

7.5.3.12

Fall Alert Enable

This field enables Emergency Mode Fall Alert operation for the current Trunking Emergency Profile.

Accessed Only: You can access this field only when the following conditions are met:

- The **Fall Alert Trigger** field is not set to **Disabled**.
- The **Fall Alert Configurability Level** field is set to **Per Emergency Profile**.
- The radio is model or option capable.

7.5.3.13

Transmit Enable

When this field is enabled, the radio can transmit the Emergency Find Me Beacon during emergency.

Emergency Beacon transmission is triggered through the Emergency feature such as pressing the Emergency switch or button, and Fall Alert Emergency. When you enter emergency, no additional action is required. When the radio enters emergency mode, Bluetooth is automatically turned on, and the beacons are sent. Emergency Beacons are sent every two seconds while the radio is in emergency mode.

For more information on the Emergency Find Me Feature, refer to [Emergency Find Me](#).

Accessed Only: When the radio is model/option capable.

7.5.3.14

Receive Enable

When this field is enabled, the radio receives the Emergency Find Me Beacon during emergency.

When you change to a channel in which Beacon Receive is enabled, Bluetooth is automatically turned on.

When you receive an emergency beacon, the radio plays a tone and displays **Beacon Received** on the Top Display and Front Display Radio Control widget. The radio continues to play a tone every ten seconds while actively receiving beacons.

If the receiver dismisses the notification or if no beacons are received for four minutes, the Beacon Received notification disappears. If multiple beacons are available, the display shows the ID or alias of the device that enters emergency most recently.

For more information on the Emergency Find Me Feature, refer to [Emergency Find Me](#).



NOTE:

On APX Standard radios with front display, you can use the menu to view the radio ID of the transmitting radio and the Bluetooth Received Signal Strength Indicator (RSSI) level.

On APX NEXT radios, you can dismiss the beacon by tapping **DISMISS** in the notification. You can also view the list of senders by tapping **DETAILS**.

Accessed Only: When the radio is model/option capable.

7.5.3.15

Trigger

This field selects the condition or trigger that initiates Emergency Mode in the current Trunking Emergency Profile.

Depending on the selected Emergency Tone type, the Tone Minimum Volume, Tone Period, and Audio Routing can also be configured in the same record or row of the Emergency Tone List.

The following selections are supported:

Fall Alert

A Fall Alert condition initiates Emergency Mode in the current Trunking Emergency Profile.

Applies Only: When the **Fall Alert Enable** field is **Enabled** in the current Trunking Emergency Profile.

Accessed Only: You can access this field only when the following conditions are met:

- The **Fall Alert Trigger** field is not set to **Disabled**.
- The **Fall Alert Emergency Tone Trigger** field is set to **Enabled**.
- The radio is model or option capable.

7.5.3.16

Tone

This field selects the type of Alert Tone that sounds once an Emergency Mode transmission has commenced with the corresponding Trigger selection.

This selection applies for the current Trunking Emergency Profile.

Accessed Only: When the Fall Alert Trigger field is not set to **Disabled**, and when the Fall Alert Emergency Tone Trigger is **Enabled**, and when the radio is model/option capable.

Legacy Emergency Tone

The legacy Emergency Alert Tone and audio levels are used.

Critical Emergency Tone

The Critical Emergency Alert Tone sounds. The Tone Minimum Volume, Tone Period, and Audio Routing must also be defined.

7.5.3.17

Tone Minimum Volume

This field selects the minimum audio level for sounding the corresponding Emergency Mode Alert Tone.

If this value is higher than the radio's current volume level, then this value is used; otherwise, the radio's current volume level is used. This feature applies for the current Trunking Emergency Profile.

Accessed Only: When the Tone field is set to **Critical Emergency Tone**, and when the radio is model/option capable.

Table 162: Range

Minimum	Maximum	Increments
0	255	1

7.5.3.18

Tone Period

This field selects whether the specified Emergency Mode Alert Tone will be a temporary tone or a repetitive tone.

You can determine the periodic timer of the repetitive tone.

This feature applies for the current Trunking Emergency Profile.

Accessed Only: When the Tone field is set to **Critical Emergency Tone**, and when the radio is model/option capable.



NOTE: When set to **0 = Once** (Zero Time), the alert tone specified in the Tone field sounds only once while Emergency Mode is active.

Table 163: Range

Minimum	Maximum	Increments
5	255	1

7.5.3.19

Audio Routing

This field selects the routing of the Alert Tone and incoming audio to a specific speaker when an Emergency Mode transmission has commenced with the corresponding Trigger selection.

This selection applies for the current Trunking Emergency Profile.

Accessed Only: When the Tone field is set to **Critical Emergency Tone**, and when the Tone Period field is not set to **Once**, and when the radio is model/option capable.

Normal Audio Routing

The Alert Tone and any incoming audio are routed according to the radio's current speaker audio routing selections.

Internal Speaker Audio Routing

The Alert Tone and any incoming audio are routed to the radio's internal speaker, regardless of any external accessory that may be connected, or the channel's current Speaker Audio Routing selection.

7.6

Data Collection

This section allows you to configure parameter settings for data such as the following items:

- Data Profile
- Wi-Fi Network
- Data User List
- Quick Text Message
- Protocol Assembler or Disassembler
- Conventional and Trunking Data Features
- Enhanced Data Port List

7.6.1

Data Wide

This section allows you to view or modify data settings that apply for all Data Profiles.

Data Profiles are defined to communicate radio data over Conventional or Trunking channels, and communicate radio data over an LTE Broadband network.



IMPORTANT:

Data Profiles are selected from the Trunking System Data Profile Selection field, or from the Conventional System Data Profile Selection field.

For Conventional communications, Data Profiles apply only for Conventional Systems that have their System Type field set to **ASTRO**.

For Trunking communications, Data Profiles apply only for Trunking Systems that have their System Type field set to **ASTRO 25**.

7.6.1.1

SNMP Traps

When this field is selected, it enables Simple Network Management Protocol (SNMP) trap generation over the serial link.

This feature applies for all Data Profiles.

When not selected, the radio does not generate traps unless requested with the trap registration Management Information Base (MIB).

7.6.1.2

Context Deactivation Alert Tone

This field enables the radio to sound an alert tone when a data session has ended.

A data session is considered active once data communications are established. This feature applies for all Data Profiles.

7.6.1.3

ICMP Echo

This field enables the radio to send back an acknowledgement (Ack) when an Internet Control Message Protocol (ICMP) echo request (ping) has been received.

For APX NEXT and APX N70 radios, this feature only applies to LMR data.

This feature applies for all Data Profiles.

7.6.1.4

Serial Link 1 Peer IP Address Assignment Type

This field selects the Internet Protocol (IP) Address assignment method assigned to the Subscriber Unit (SU) end of serial link1.

This feature applies in all cases except Conventional Systems having a selected Data Profile. When a Conventional System has a Data Profile selected, the Conventional System uses the Peer IP Address defined in the Data Profile Peer IP Address field.



NOTE:

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

The following selections are supported:

Dynamic

The radio assigns the Peer IP Address to the Mobile Computer (MC) upon serial link establishment.

Static

The MC inserts an IP Address to use upon serial link establishment. This selection applies only for RS-232/PPP based serial links.

7.6.1.5

Bluetooth Dial-up Networking Peer IP Address Assignment Type

This field allows you to select the Internet Protocol (IP) Address Assignment method assigned to the Mobile Computer (MC) end of the Bluetooth link.

This feature applies in all cases except Conventional Systems having a selected Data Profile. When a Conventional System has a Data Profile selected in the **Data Profile Selection** field, the Conventional System then uses the Peer IP Address Assignment Type defined in the Data Profile [Bluetooth Peer IP Address Assignment Type](#) field.



NOTE:

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or subnets are in use, data features cannot be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When Bluetooth Enable is **Enabled** and the radio is model/option capable.

The Bluetooth Peer IP Address Assignment Type supports the following selections:

Dynamic

The radio assigns the Bluetooth Peer IP Address to the MC upon Bluetooth link establishment.

Static

The MC inserts an IP Address to use upon Bluetooth link establishment. This selection applies only for RS-232/PPP based serial links.

7.6.1.6

Delete Messages On Session Ends

This field enables the radio to delete all Text Messaging Service (TMS) messages from the Inbox, Drafts, and Sent Items folders when your session ends with the server.

Session end scenarios include: logout, radio power-down, registration failure, server-initiated logout, and changing or clearing the Username with the Soft ID Feature. This feature applies for all Data Profiles and for both Automatic Registration Service and User Authentication communication protocols.

When disabled, you are prompted with the option whether or not to delete TMS messages upon manually logging out with the User Login feature. If the login session ends for some other reason (such as canceling a login process or a server-initiated timeout), then the TMS messages are not deleted (there is no prompt).

7.6.1.7

APCO Avalanche Time

This field selects the upper bound of the minimum time after leaving an LTE Broadband network (possibly due to an out-of-range condition) before switching to an APCO (digital land mobile radio) network.

The lower bound is implied to be zero. The radio will choose a random value between the lower bound and the upper bound. This selection applies for all **Broadband** Data Profile Type - Data Profiles. Time is in seconds.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled:

There is no APCO Avalanche time - 0 (zero seconds)

Timed Selections Include:

1 (second) To 3600 (seconds)

In Increments = 1 (second)

7.6.1.8

External Text Messaging Broadcast

This field enables a Text Messaging Service (TMS) capable radio to broadcast TMS messages received from another radio or TMS Server to all attached third-party external accessories that are TMS-capable.

This feature applies for all Data Profiles.



NOTE: This selection does not affect the ability of an attached TMS-capable accessory to send text messaging requests to the radio for transmission to another radio.

Accessed Only: When the radio is model/option capable.

7.6.1.9

Acknowledged Weapon Fired Event Reporting Enable

This feature enables weapon fired events to be transmitted in the control channel.

Accessed Only: When the radio is model/option capable and Sensor Measurement Reporting field is enabled.

7.6.1.10

Acknowledged Gun Holster State Reporting Enable

This feature enables sending gun holster state to Fixed Network Equipment (FNE) by Trunking Signalling Blocks (TSBK) in control channel.

Accessed Only: When the radio is model/option capable and Sensor Measurement Reporting field is enabled.

7.6.1.11

Acknowledged Stun Gun State Reporting Enable

This feature enables sending taser state to Fixed Network Equipment (FNE) by Trunking Signalling Blocks (TSBK) in control channel.

Accessed Only: When the radio is model/option capable and Sensor Measurement Reporting field is enabled.

7.6.1.12

Auto Reset Enable

This field enables the mobile transceiver inside the Consolette to automatically reset after the in-the-field radio has been programmed with the POP25 feature.

This feature applies for all Data Profiles.

Accessed Only: When the [Consolette Enable](#) field is **Enabled**, and when the radio is model/option capable.

7.6.1.13

Data On Roaming

Data On Roaming allows the user to enable user data (not attach) while roaming.

7.6.1.14

Position

This read-only field is assigned by RadioCentral and identifies the order of the item in a list.



NOTE: Accessed Only: When the radio is model or option dependent.

7.6.1.15

Wi-Fi Network

This section allows you to view or modify Wi-Fi settings that apply for all Data Profiles.



IMPORTANT:

Data Profiles are selected from the Trunking System's Data Profile Selection field, or from the Conventional System's Data Profile Selection field.

For Conventional communications, Data Profiles apply only for Conventional Systems that have their System Type field set to **ASTRO**.

For Trunking communications, Data Profiles apply only for Trunking Systems that have their System Type field set to **ASTRO 25**.

For security reasons, assigning templates and importing *.csv files are allowed if you enter the correct password(s) of each network entry in the Wi-Fi table. You must also enter the correct password(s) in the Standalone application for Clone/Clone Express and Batch Programming tasks.

7.6.1.16

Hidden Network

This field can be enabled to allow APX Wi-Fi enabled radios to access the hidden Wi-Fi Networks.

Accessed Only: You can access this field when the following conditions are met:

- [Wi-Fi Enable on page 309](#) is **Enabled**.
- The radio is model or option capable.

7.6.1.17

Wi-Fi Enable

This field specifies whether Wi-Fi is enabled or disabled on the radio.

This feature applies for all Data Profiles.

Accessed Only: When the radio is model/option capable.

7.6.1.18

Allow User Control

This field allows user to control the Wi-Fi.

This feature applies for all Data Profiles.

Accessed Only: When the radio is model/option capable.

7.6.1.19

LAN Port

This field selects the Local Area Network (LAN) Port for the current Network Address Translation (NAT) rule (record/row) of the NAT List.

Example: Static NATing can forward all external requests coming into port 90 of the radio to port 80 of the MC (Mobile Computer). In this example, the static NAT IP Address would be the MC's IP Address, the LAN Port would be the MC's port (80), and the WAN port would be the radio's external port (90).

Applies Only:

- For all Trunking-Data Profiles
- For all Conventional-Data Profiles when the Data Profiles NAT Enable field is **Enabled**.

Accessed Only: When the radio is model/option capable.

Table 164: Range

Minimum	Maximum
1	65535



WARNING: The Default of "0" is considered to be invalid by the Radio Manager and must be properly defined.

7.6.1.20

Static NAT IP Address

This field selects the Network Address Translation (NAT) Local Area Network (LAN) Internet Protocol (IP) address that provides a mapping between internal application or Mobile Computer (MC) IP Addresses and system-assigned IP Addresses.

This selection applies for the current NAT rule (record/row) of the NAT List.

Example: Static NATing can forward all external requests coming into port 90 of the radio to port 80 of the MC. In this example, the static NAT IP Address would be the MC's IP Address, the LAN Port would be the MC's port (80) and the WAN port would be the radio's external port (90).

Applies Only:

- For all Trunking - Data Profiles
- For all Conventional - Data Profiles when the Data Profiles NAT Enable field is **Enabled**

Accessed Only: When the radio is model/option capable.

 **NOTE:** Each Octet of the IP Address must be between: [0-223] . [0-255] . [0-255] . [0-255]

 **WARNING:** The Default of 0.0.0.0 is considered invalid by the Radio Manager and must be properly defined.

7.6.1.21

WAN Port

This field selects the Wide Area Network (WAN) Port for the current Network Address Translation (NAT) rule (record/row) of the NAT List.

Example: Static NATing can forward all external requests coming into port 90 of the radio to port 80 of the mobile computer. In this example, the static NAT IP Address would be the MC's IP Address, the LAN Port would be the MC's port (80), and the WAN port would be the radio's external port (90).

Applies Only:

- For all Trunking - Data Profiles
- For all Conventional - Data Profiles when the Data Profiles NAT Enable field is **Enabled**

Accessed Only: When the radio is model/option capable.

Table 165: Range

Minimum	Maximum
1	65535

 **WARNING:** The Default of "0" is considered to be invalid by the Radio Manager and must be properly defined.

7.6.1.22

Max # of Non-TCP IP Header Compression Contexts

This field selects the maximum number of non-TCP IP (Transmission Control Protocol - Internet Protocol) header compression contexts allowed per subscriber.

Guidelines are in accordance with document RFC2507 created and maintained by the IETF (Internet Engineering Task Force). The RFC2507 document describes standards for IP Header Compression Algorithms. This selection applies for all Data Profiles.



WARNING: This field should only be modified when deemed necessary by Qualified Service Personnel. Failure to accurately configure the Data Protocol Configuration may seriously degrade the radio and/or system performance.

Table 166: Range

Minimum	Maximum
0	16

7.6.1.23

Max # of Compressed Headers Between Full Headers

This field selects the maximum number of compressed non-TCP IP (Transmission Control Protocol - Internet Protocol) headers sent between full headers.

Guidelines are in accordance with document RFC2507 created and maintained by the IETF (Internet Engineering Task Force). The RFC2507 document describes standards for IP Header Compression Algorithms. This selection applies for all Data Profiles.



WARNING: This field should only be modified when deemed necessary by Qualified Service Personnel. Failure to accurately configure the Data Protocol Configuration may seriously degrade the radio and/or system performance.

Table 167: Range

Minimum	Maximum	Increments
0	4080	16

7.6.1.24

Max Header Size Allowed for Compression

This field selects the maximum header size that may be compressed for header compression.

Guidelines are in accordance with document RFC2507 created and maintained by the IETF (Internet Engineering Task Force). The RFC2507 document describes standards for IP (Internet Protocol) Header Compression Algorithms. This selection applies for all Data Profiles.



WARNING: This field should only be modified when deemed necessary by Qualified Service Personnel. Failure to accurately configure the Data Protocol Configuration may seriously degrade the radio and/or system performance.

Table 168: Range

Minimum	Maximum
60	255

7.6.1.25

Max Time Between Full Headers

This field selects the maximum time between full headers compression contexts.

Compressed non-TCP headers may not be sent after this amount of time has expired after sending the last full header. Guidelines are in accordance with document RFC2507 created and maintained by the IETF (Internet Engineering Task Force). The RFC2507 document describes standards for IP (Internet Protocol) Header Compression Algorithms. This selection applies for all Data Profiles. Time is in seconds.



WARNING: This field should only be modified when deemed necessary by Qualified Service Personnel. Failure to accurately configure the Data Protocol Configuration may seriously degrade the radio and/or system performance.

Table 169: Range

Minimum	Maximum	Increments
0 (seconds)	1275 (seconds)	5 (seconds)

7.6.1.26

Max Setup Time for Controlled Channel Access

This field selects the time required to access the controlled channel access packet data channel for slotted data transmission.

The radio uses this field to determine if packet data channel access timing can delay the transmission past the required slot. If so, controlled channel access procedures are not initiated. This selection applies for all Data Profiles. Time is in milliseconds.



WARNING: This field should only be modified when deemed necessary by Qualified Service Personnel. Failure to accurately configure the Data Protocol Configuration may seriously degrade the radio and/or system performance.

Table 170: Range

Minimum	Maximum
0 (ms)	65535 (ms)

7.6.1.27

Time Source Variation

This field selects the amount of time (microslots) before and after microslot zero during which the two clock sources that generate sync broadcast time are misaligned.

This entire time period is considered a vulnerability window during which sync broadcasts may contain faulty or misleading information. All sync broadcasts received during this period are ignored by the DSP (Digital Signal Processor) and are not used to establish or maintain synchronization with the system time. This selection applies for all Data Profiles.



WARNING: This field should only be modified when deemed necessary by Qualified Service Personnel. Failure to accurately configure the Data Protocol Configuration may seriously degrade the radio and/or system performance.

Table 171: Range

Minimum	Maximum	Increments
0 (microslots)	268 (microslots)	2 (microslots)



NOTE: One microslot is equal to 7.5 milliseconds.

7.6.1.28

Authentication UDP Port

This field selects the User Datagram Protocol (UDP) port number for the port used to communicate with the Key Variable Loader (KVL).

A KVL is used for supplying Authentication Keys to the radio. This feature applies for APCO P25 (ASTRO 25) Trunking Systems.

Accessed Only: When the radio is model/option capable.

Table 172: Range

Minimum	Maximum
49152	65535

7.6.1.29

P25 Location Reporting UDP Port

This field selects the User Datagram Protocol (UDP) port number for the Location Server to which the radio listens to and transmits P25 Location Reporting data.

This feature applies for ASTRO 25 (APCO P25) Trunking Systems.



WARNING: This selection is only valid when it is not equal to the value of the Authentication UDP Port, LAN Port, WAN Port, PAD Destination Port, Subscriber OTAR Port, KMF UDP Port, or the KMF/OTAR Server Port (64414) and when it is not equal to the reserved UDP Port values used by any other Service, as follows:

- 0161 SNMP Agent Application – GET/SET
- 0162 SNMP Agent – Traps reported
- 4000 UDP Loopback Port (for internal tests)
- 4001 Position Services Application within the Global Core Platform
- 4002 Diagnostics Application – expected to handle diagnostics delivered from internal radio components to a Mobile Computer.
- 4003 System Application – offers services for accessing internal resources of the subscriber unit such as keys, displays, communications, etc.
- 4004 A "proxy" port number that the System Application starts on behalf of a third-party application running on a non-IP capable peripheral device.
- 4005 PN Server (ARS)
- 4006 Dynamic Host Configuration Protocol (DHCP) Server
- 4007 APCO Text Messaging Service
- 4011 UDP Diagnostic Request Reply
- 4012 UDP Diagnostic Broadcast
- 4050 OTAR Application
- 49223 Send/Receive User Authentication messages

Accessed Only: When the Location Enable field is enabled, the P25 Location Reporting field is enabled, and the radio is model/option capable.

Table 173: Range

Minimum	Maximum
1	65535

7.6.1.30

Wireless Programming TCP Port

This field holds the port number used for wireless programming Over-the-Air-Programming (OTAP) over Wi-Fi.

This feature applies only to APX8000.

7.6.1.31

Allow LTE Configurability

This field allows the editability of the **LTE HW Enable** codeplug field. When **LTE HW Enable** is enabled, the user can then configure the LTE option on the radio.



NOTE: This feature is always applicable for APX NEXT and only applicable for APX N70 radios that are ordered with LTE HW Enabled QA08887(Model Option).

7.6.1.32

Web Browser

This field enables the Web Browsing capability in the radio.

The following selections are supported:

Disabled

This selection disables the Web Browsing capability in the radio.

List Only

This selection allows you to select from a preconfigured list of Bookmark URLs.

Accessed Only: This field is applicable when the radio is model or option capable.

7.6.1.33

Bookmark Name

This field depicts a list of URL names for bookmark links.

7.6.1.34

Bookmark URL

This field depicts a list of URLs. Each URL is a bookmark link that you use to navigate directly to the web page.

7.6.1.35

Control Name

This field depicts a list of control names pointing to URLs for quick access.

The following control names are available:

Web Home

This control specifies the home page for the web browser application, if the radio is model or option capable.

WEB1

This control allows quick access to the URL when **Web Browser** is enabled and the radio is model or option capable.

7.6.1.36

Bookmark Selection

This field selects the bookmark URL that is loaded when the associated menu is pressed.

The available selections are from the [Bookmark Name](#) item list.

Accessed Only: This field is applicable when the following conditions are met:

- The [Web Browser on page 315](#) field is set to **List Only**.

- The radio is model or option capable.

7.6.2

Wi-Fi

This section allows you to view or modify Wi-Fi settings that apply for all Data Profiles.



IMPORTANT:

Data Profiles are selected from the Trunking System's Data Profile Selection field, or from the Conventional System's Data Profile Selection field.

For Conventional communications, Data Profiles apply only for Conventional Systems that have their System Type field set to **ASTRO**.

For Trunking communications, Data Profiles apply only for Trunking Systems that have their System Type field set to **ASTRO 25**.

For security reasons, assigning templates and importing *.csv files are allowed if you enter the correct password(s) of each network entry in the Wi-Fi table. You must also enter the correct password(s) in the Standalone application for Clone/Clone Express and Batch Programming tasks.

7.6.2.1

Network SSID

This field specifies the network name (SSID) of a Wi-Fi network in the list of configured networks.



NOTE:

The SSID cannot be saved if left blank or empty.

The SSID must be ASCII characters and duplicated SSIDs are not accepted.

Accessed Only: When the [Wi-Fi Enable on page 309](#) field is **Enabled** and the radio is model/option capable.

7.6.2.2

Security Type

This field specifies the security protocol used for the Wi-Fi network.

The following selections are supported:

- **None**
- **WEP**
- **WPA/WPA2**
- **WPA3-SAE** – Applicable only for APX NEXT and APX N70 radios.

Accessed Only: When the [Wi-Fi Enable on page 309](#) field is **Enabled** and the radio is model or option capable.

7.6.2.3

Encrypted Network Password

The 63-characters password for the Wi-Fi network.



NOTE:

For Security Type **WEP**, the password will be either 5 characters or 13 characters long. For every other type, password will be at least 8 characters and cannot be left blank or null. For all security types, ASCII are allowed.

The Subscriber Unit (SU) supports WEP key configuration in ASCII mode only for the WEP security. Therefore, WEP40 (5-character key such as "abcde") or WEP104 (13-character key such as "1234567890123") ASCII configuration are supported in the SU. The SU does not support the WEP Hex key configuration.

Accessed Only: When the [Wi-Fi Enable on page 309](#) field is **Enabled**, the [Security Type on page 316](#) is anything other than **None**, and the radio is model/option capable.

7.6.3

Data User List

This section you to view or define Automatic Registration Service and for User Authentication Usernames and Unit IDs to be selected for use when alternate-server login credentials are needed.

Additionally, targeted radio Radio IDs (see Conventional System - ASTRO - Individual IDs, and the Trunking System - ASTRO 25 - Unit IDs) can also be defined for selection. These Usernames and Unit IDs and Radio IDs are used for data-related applications such as Text Messaging.



NOTE:

Default Usernames and Unit ID values can be programmed.

Data Profiles may be selected from the Trunking System's Data Profile Selection field.

Data Profiles may be selected from the Conventional System's Data Profile Selection field.

The User button-press and the User menu-selection allow you to login to a specific Automatic Registration Service server or a User Authentication UNS (Unified Network Services) server with the appropriate Usernames, PIN/Password, and User Login Unit ID combination. Usernames, PINs and Unit IDs may also be manually entered from the radio's keypad.

7.6.3.1

Data User Name

This field allows you to view or define Automatic Registration Service and for User Authentication Usernames and Unit IDs to be selected for use when alternate server login credentials are needed.

Additionally, targeted radio Radio IDs (see Conventional System - ASTRO - Individual IDs, and the Trunking System - ASTRO 25 - Unit IDs) can also be defined for selection. These Usernames, Unit IDs, and Radio IDs are used for data-related applications such as Text Messaging.



NOTE:

Default Usernames and Unit ID values can be programmed.

Data Profiles may be selected from the Trunking System's Data Profile Selection field.

Data Profiles may be selected from the Conventional System's Data Profile Selection field.

The User button-press and the User menu-selection allows you to login to a specific Automatic Registration Service server or a User Authentication UNS (Unified Network Services) server with the appropriate Usernames, PIN/Password, and User Login Unit ID combination. Usernames, PINs and Unit IDs may also be manually entered from the radio's keypad.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: EMT-001, #500, DATAUSER 1, # A5

A to Z, a to z, 0 to 9, -, *, #, &, \$, /, +, % and spaces can be used for Usernames.

Up to 40 characters are possible.

Minimum number of List entries is 1, to a Maximum of 100.

7.6.4

Quick Text Message List Set

The **Quick Text Message List** set allows the user to view or define Quick Text / Query Messages that contain frequently needed Text Message Service content. The radio-user is then able to select from the list of Quick Text / Query Messages and easily transmit a message with minimal effort. Once selected, a Quick Text / Query Messages may be edited by the radio-user prior to transmission (provided the Text Messaging Service is set to **Unlimited**). Edits apply only for that transmission. The original remains as defined in the Quick Text Message List. A TMS (Text Messaging Service) Query allows the radio-user to specify information in a pre-formatted query template and send this as a Message to a Query Server; the Server then responds with a text message containing the requested information.

Accessed Only: When the TMS Query Service is only available with Single Factor or Two Factor User Authentication and SmartMessaging Mode is set to **LMR**.



NOTE:

The TMS feature is enabled on a per Trunking System or Conventional System basis.

Text Messaging is accessed by the radio-user with the Text Messaging Service button-press, or the Text Messaging Service menu-selection.

The TMS Quick Text and TMS Query button-press allows for direct radio-user access to the Quick Text and the Query Message features.

The following field is supported:

7.6.4.1

Quick Text Message

This field allows you to view or define Quick Text/Query Messages that contain frequently needed Text Message Service content.

You are then able to select from the list of Quick Text/Query Messages and easily transmit a message with minimal effort.

Once selected, you may edit a Quick Text/Query Messages prior to transmission (provided the Text Messaging Service is set to **Unlimited**). Edits apply only for that transmission. The original remains as defined. A TMS Query allows you to specify information in a pre-formatted query template and send this as a Message to a Query Server. The Server then responds with a text message containing the requested information.

Accessed Only: When the radio is model/option capable and when the TMS Query Service is only available with Single Factor or Two Factor User Authentication.



NOTE:

The Text Messaging Service feature is enabled on a per [Trunking System on page 446](#) or [Conventional System on page 347](#) basis.

You can access Text Messaging with the [Text Messaging Service](#) button-press, or the [Text Messaging Service](#) menu-selection.

The [TMS Quick Text](#) and [TMS Query](#) button-press allows you to directly access to the Quick Text and the Query Message features. Default Usernames and Unit ID values can be programmed.

7.6.5

Data Profiles

The **Data Profiles** allows you to define individual data profiles for different types and requirements of data communications.

Ultimately, Data Profiles are defined to communicate radio data over Conventional or Trunking channels, and/or communicate radio data over an LTE Broadband network.



IMPORTANT:

Data Wide Features and Selections can apply to all Data Profiles.

Depending on the Data Profile Type selection, Data Profiles are selected from the Trunking System's Data Profile Selection field and/or from the Conventional System's Data Profile Selection field.

For Conventional communications, Data Profiles apply only for Conventional Systems that have their System Type field set to **ASTRO**.

For Trunking communications, Data Profiles apply only for Trunking Systems that have their System Type field set to **ASTRO 25**.

7.6.5.1

Data Profile Name

This field allows you to create a recognizable name for the current Data Profile.

Data Profiles are selected from the Trunking System's Data Profile Selection field, or from the Conventional System's Data Profile Selection field.

The following selections are available:

- Characters, numbers, spaces, and special characters can be used.
- Up to 14 characters are possible.
- **Examples:** EMT-001, #500, Electric1, # A5
- See also: Name Field Data Validation.

7.6.5.2

Data Profile Type

This field selects the radio data communications capabilities for the current Data Profile.

Data Profiles are selected from the Trunking System's Data Profile Selection field, or from the Conventional System's Data Profile Selection field.

Accessed Only: When the radio is model/option capable.

The following selections are available:

Conventional

The radio sends and receives data (and voice) only over an ASTRO Conventional FNE (Fixed Network Equipment) System.

Trunking

The radio sends and receives data (and voice) only over an ASTRO 25 Trunking IV&D (Integrated Voice & Data) System.

Broadband-Only

The radio sends and receives data only over an LTE Broadband data network (voice operations continue over the ASTRO Conventional or ASTRO 25 Trunking System).

Conventional & Broadband

The radio can send and receive data over an ASTRO Conventional FNE system or an LTE Broadband data network (voice operations continue over the ASTRO Conventional FNE System). When both systems/networks are available for data transmissions, the LTE network is given priority.



WARNING: When selected, the Packet Data Mode field must be set to "FNE".

Trunking & Broadband

The radio can send and receive data over an ASTRO 25 Trunking IV&D System or an LTE Broadband data network (voice operations continue over the ASTRO 25 Trunking System). When both systems/networks are available for data transmissions, the LTE network is given priority.

7.6.5.3

Queue Dwell Timer

This field selects the amount of time an IP (Internet Protocol) datagram stays in the radio's queue.

This setting determines how long data is allowed to wait in the radio without being transmitted before the data is purged from the queue. When data is sent from the Mobile Computer (MC) to the radio, the radio sometimes receives the data faster than it can send it, and the data must then wait in the radio's queue. This selection applies for the current Data Profile. Time is in seconds.

Accessed Only: When the [Data Profile Type on page 319](#) field is not set to **Broadband-Only** and the radio is model/option capable.

Table 174: Range

Minimum	Maximum
15 seconds	120 seconds

7.6.5.4

Limited Broadcast

This field enables the radio to route limited broadcast datagrams from the Mobile Computer (MC) over the air. The feature applies for the current Data Profile.

When disabled, limited broadcast datagrams from the MC are blocked from being sent over the air.

Accessed Only: When the [Data Profile Type on page 319](#) field is not set to **Broadband-only** and when the radio is model/option capable.

7.6.5.5

NAT Enable

This field enables the current Data Profile to use Network Address Translation (NAT).

See also the Data Wide, [NAT List](#) Page.



WARNING: When the [Data Profile Type on page 319](#) is set to **Conventional & Broadband** or **Broadband-Only**, the Broadband Source is **Internal LTE Modem**. This field must be **Enabled**, otherwise, the RM considers it to be invalid.

Accessed Only: When the radio is model/option capable, the [Data Profile Type on page 319](#) field is set to **Conventional** or **Conventional & Broadband**, and the [Packet Data Mode on page 330](#) field is set to **FNE**, or when the [Data Profile Type on page 319](#) field is set to **Broadband-Only**.

7.6.5.6

Terminal Data

This field enables the Mobile Computer (MC) to transmit or receive packet data over-the-air.

This feature applies for the current Data Profile.

When disabled, the MC is still able to communicate with radio internal data applications; radio internal data applications can still communicate over-the-air.

Accessed Only: When the radio is model/option capable.

7.6.5.7

Context Activation Holdoff Mode

This field selects the conditions as to when the Context Activation Hold Off Time is used by the radio.

The timer and this selected Holdoff Mode limit radio requests for system context activation. The Random Hold Off Time field setting determines how the Context Activation Holdoff Time is used for the current Trunking System. This selection applies for the current Data Profile.

The following selections are available:

Holdoff Always

The radio uses the Context Activation Hold Off Time: failed attempt at initial System Context Activation, context has failed, or loss of context due to a context deactivation command received by the system and reactivation is needed.

Holdoff Upon Failure

The radio uses the Context Activation Hold Off Time only once System Context Activation has failed.

7.6.5.8

Retry Long Timer

This field selects the amount of time that the radio waits after all registration retries to the Automatic Registration Server fail.

There are a total of five registration tries hard-coded (not modifiable) in the radio, one initial try and four retries. The timer begins after the fourth retry is transmitted. This selection applies for the current Data Profile.

Accessed Only: When the radio is model/option capable.

The following selections are available:



NOTE: When set to **0-Disabled**, the radio no longer waits for ARS Server registration to occur - 0 (zero minutes)

Table 175: Range

Minimum	Maximum	Increments
5 (minutes)	300 (minutes)	1 (minute)

Table 176: Range

Disabled	Minimum	Maximum
4 - Disabled	5 minutes	300 minutes

7.6.5.9

Retry Short Timer

This field selects the amount of time between the Retry Number of Attempts.

Retries are sometimes needed for certain data application procedures. This selection applies for the current Data Profile.

Accessed Only: When the radio is model/option capable.

Table 177: Range

Minimum	Maximum	Increments
5 seconds	90 seconds	5 seconds

7.6.5.10

Retry Number of Attempts

This field selects the number of attempts that the radio pursues (until successful) for certain data application procedures.

The amount of time that the radio waits between these attempts is determined by the [Retry Short Timer on page 322](#) field. This selection applies for the current Data Profile.

Accessed Only: When the radio is model/option capable.

Table 178: Range

Minimum	Maximum
1	10

7.6.5.11

ARS Mode

This field selects the Automatic Registration Service (ARS) mode for the current Data Profile.

Accessed Only: When the radio is model/option capable.

The following selections are available:

Disabled

ARS mode is disabled.

Server

Use this setting when an ARS is being utilized in the system. This selection is applicable to both a legacy ARS Presence Notification (PN) server and a User Authentication server.

Non-Server

Use this setting when name resolution services are required and an ARS is not available. This selection is only valid: When the Data Profile Type is **Conventional** or **Conventional & Broadband**, and when the Packet Data Mode field is not set to **FNE**.

Enhanced Server

Enables the enhanced ARS registration that is only supported by UNS software version 5.1 or above.

7.6.5.12

Automatic Registration Server Address

This field allows you to define the IP (Internet Protocol) address of the Automatic Registration Server (ARS) for the current Data Profile.

Accessed Only: When the [ARS Mode on page 322](#) field is set to **Server** and the radio is model/option capable.

Selections are valid when the following is true:

- The four octets must be in the range: [1-223] . [0-255] . [0-255] . [0-255]
- IP Address cannot be the Limited Broadcast Address: 255 . 255 . 255 . 255

And, IP Address must be a valid Class A, B, or C address:

- The IP Address is considered Class A when octet 1 is between 0-127; the Network ID is then this first octet:
 - When the IP Address is Class A, then the IP Address can be 1 . 0 . 0 . 1 to 126 . 255 . 255 . 254
 - When the IP Address is Class A, then the IP Address cannot be 0 . XXX . XXX . XXX or XXX . 255 . 255 . 255 or XXX . 0 . 0 . 0 or 127 . XXX . XXX . XXX
- The IP Address is considered Class B when octet 1 is between 128-191; the Network ID is then the first 2 octets:
 - when the IP Address is Class B, then the IP Address can be 128 . 1 . 0 . 1 to 191 . 255 . 255 . 254
 - when the IP Address is Class B, then the IP Address cannot be 128 . 0 . XXX . XXX or XXX . XXX . 255 . 255 or XXX . XXX . 0 . 0
- The IP Address is considered Class C when octet 1 is between 192 -223; the Network ID is then the first 3 octets:
 - when the IP Address is Class C, then the IP Address can be 192 . 0 . 1 . 1 to 223 . 255 . 255 . 254
 - when the IP Address is Class C, then the IP Address cannot be 192 . 0 . 0 . XXX or XXX . XXX . XXX . 255 or XXX . XXX . XXX . 0

7.6.5.13

Direct Location Registration

This field enables the radio to directly register on a Location Server that supports the P25 (Project 25) Location Reporting data format (see also P25 Location Reporting).

The radio notifies the Location Server through an LRRP (Location Request/Response Protocol) message about its availability and then registers on the Server. This feature applies for the current Data Profile.

Accessed Only: When the Location Enable field is enabled, the P25 Location Reporting field is enabled, the [ARS Mode on page 322](#) field is not set to **Server**, and the radio is model/option capable.

7.6.5.14

Location Server IP Address

This field allows you to define the IP (Internet Protocol) Address of the Location Server to which the radio will directly register when an ARS (Automatic Registration Server) or UNS (Unified Network Services) server is unavailable (see also Direct Location Registration).

This feature applies for the current Data Profile.



NOTE:

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169 . 254 . X . X Subnet is reserved for Zone to Zone Cloning, so any IP address cannot start with 169 . 254 . X . X otherwise this field will be invalid.

Accessed Only: When the following fields are enabled: Location Enable, P25 Location Reporting, and Direct Location Registration. The [ARS Mode on page 322](#) field is not set to **Server**. The radio is model/option capable.

Selections are valid when the following is true:

- The four octets must be in the range: [1-223] . [0-255] . [0-255] . [0-255], and
- this IP Address cannot be the Limited Broadcast Address: 255 . 255 . 255 . 255

And, this IP Address:

- Cannot be completely equal to the Subscriber IP Address 1, and
- Cannot be completely equal to the Subscriber IP Address, and
- Cannot be equal to the Subscriber Air-Interface IP Address, and
- Cannot be equal to the Bluetooth Subscriber IP Address, or the Bluetooth Subscriber IP Address, and
- Cannot be equal to the Bluetooth PAN Network Base Address, and
- Cannot be completely equal to the Internal Radio Subnet on any Data Profile.
- Cannot be equal to the Serial Link IP Address 1 and Serial Link IP Address 2

And, the IP Address must be a valid Class A, B, or C address:

- **The IP Address is considered Class A when octet 1 is between 0-127; the Network ID is then this first octet:**
 - when the IP Address is Class A, then the IP Address can be 1 . 0 . 0 . 1 to 126 . 255 . 255 . 254
 - when the IP Address is Class A, then the IP Address cannot be 0 . XXX . XXX . XXX or XXX . 255 . 255 . 255 or XXX . 0 . 0 . 0 or 127 . XXX . XXX . XXX
- **The IP Address is considered Class B when octet 1 is between 128-191; the Network ID is then the first 2 octets:**
 - when the IP Address is Class B, then the IP Address can be 128 . 1 . 0 . 1 to 191 . 255 . 255 . 254
 - when the IP Address is Class B, then the IP Address cannot be 128 . 0 . XXX . XXX or XXX . XXX . 255 . 255 or XXX . XXX . 0 . 0
- **The IP Address is considered Class C when octet 1 is between 192 -223; the Network ID is then the first 3 octets:**
 - when the IP Address is Class C, then the IP Address can be 192 . 0 . 1 . 1 to 223 . 255 . 255 . 254
 - when the IP Address is Class C, then the IP Address cannot be 192 . 0 . 0 . XXX or XXX . XXX . XXX . 255 or XXX . XXX . XXX . 0

7.6.5.15

Bypass List

This section allows you to view or modify the Internet Protocol version 4 (IPv4) source address, destination address, or both, of data packets that should bypass secure processing.

The Bypass List feature applies only to **Trunking, Broadband Only** and **Trunking & Broadband** Data Profile Types where profiles are defined to communicated radio data over Trunking channels, and/or communicate radio data over an LTE Broadband network.

Accessed Only: When the radio is model/option capable, and

- When the [Data Profile Type on page 319](#) is set to **Trunking**, and when the [Secure/Clear Strapping](#) field is set to **Secure**, or
- When the Data Profile Type is set to **Broadband Only** or **Conventional & Broadband**, and when the [VPN Secure/Clear Strapping](#) field is set to **Secure**, or
- When the Data Profile Type is set to **Trunking & Broadband**, and when the [Secure/Clear Strapping](#) field is set to **Secure** or the [VPN Secure/Clear Strapping](#) field is set to **Secure**.

7.6.5.16

IP Address

This field allows you to define Bypass Internet Protocol version 4 (IPv4) addresses for the current Data Profile.

Bypass IP Addresses are designed for data packets that are allowed to bypass secure processing. Multiple Bypass IP Address (record/rows) may be created for the Bypass list/table of each Data Profile.



NOTE:

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When the radio is model/option capable. and

- The [Data Profile Type on page 319](#) is set to **Trunking** and the [Secure/Clear Strapping](#) field is set to **Secure**, or
- The [Data Profile Type on page 319](#) is set to **Broadband Only** or **Conventional & Broadband** and the [VPN Secure/Clear Strapping](#) field is set to **Secure**, or
- The [Data Profile Type on page 319](#) is set to **Trunking & Broadband** and the [Secure/Clear Strapping](#) field is set to **Secure** or the [VPN Secure/Clear Strapping](#) field is set to **Secure**

Selections are valid when the following is true:

- The four octets must be in the range: [1-223] . [0-255] . [0-255] . [0-255]
- This IP Address can be the Limited Broadcast Address: 255.255.255.255
- The IP Address must be a valid Class A, B, or C address:
 - The IP Address is considered Class A when:
 - Octet 1 is between 0-127; the Network ID is then this first octet
 - The IP Address can be 1.0.0.0 to 126.255.255.255
 - The IP Address cannot be 0 . XXX . XXX . XXX or 127 . XXX . XXX . XXX

- The IP Address is considered Class B when octet 1 is between 128-191; the Network ID is then the first 2 octets
 - The IP Address is Class B, then the IP Address can be 128.0.0.0 to 191.255.255.255
- The IP Address is considered Class C when octet 1 is between 192-223; the Network ID is then the first 3 octets
 - The IP Address is Class C, then the IP Address can be 192.0.0.0 to 223.255.255.255

7.6.5.17

Address Type

This field selects the IP Bypass Address Type for the current Bypass IP address (record/row).

Bypass IP Addresses are designed for data packets that are allowed to bypass secure processing. Multiple Bypass IP Address (record/rows) may be created within the Bypass list/table of each Data Profile.

Accessed Only: When the radio is model/option capable and:

- The [Data Profile Type on page 319](#) is set to **Trunking** and the [Secure/Clear Strapping](#) field is set to **Secure** or
- The [Data Profile Type on page 319](#) is set to **Broadband Only** or **Conventional & Broadband** and the [VPN Secure/Clear Strapping](#) field is set to **Secure**, or
- The [Data Profile Type on page 319](#) is set to **Trunking & Broadband** and the [Secure/Clear Strapping](#) field is set to **Secure** or the [VPN Secure/Clear Strapping](#) field is set to **Secure**

The following selections are supported:

Source

Allows the current Bypass IP Address (record/row) to not require secure encryption when receiving data packets. Therefore, data packets may be received in an un-encrypted clear mode.

Destination

Allows the current Bypass IP Address (record/row) to not require secure encryption when transmitting data packets. Therefore, data packets may be transmitted in an un-encrypted clear mode.

Both

Allows the current Bypass IP Address (record/row) to not require secure encryption when both transmitting and receiving data packets. Therefore, data packets may be both transmitted and received in an un-encrypted clear mode.

7.6.6

Broadband Data Features Selection

This section allows you to view or define LTE (Long Term Evolution) functionality. These settings apply only to individual Data Profiles.



IMPORTANT:

Data Profiles are selected from the Trunking System's Data Profile Selection field.

For Trunking communications, Data Profiles apply only for Trunking Systems that have their System Type field set to **ASTRO 25**.

7.6.6.1

SmartConnect Gateway Hostname

SmartConnect Gateway Hostname defines the location of the SmartConnect Gateway in the form of a fully qualified domain hostname (FQDN).

The maximum number of ASCII characters is 63.

Accessed Only: When the radio is model/option capable.

7.6.6.2

SmartConnect Gateway TLS Port Number

This field allows you to select the TLS port number used for the SmartConnect feature.

The SmartConnect Gateway TLS Port Number should be unique to any other configurable port in the application.

Table 179: Range

Default	Minimum	Maximum	Increments
49665	1	65535	1

Accessed Only: When the radio is model/option capable.

7.6.7

Protocol Assembler/Disassembler

This section allows you to view or modify data settings for Protocol Assembler or Disassembler.

7.6.7.1

PAD Mode

This field selects the mode of operation for Protocol Assembler/Disassembler (PAD) application.

The [PAD Destination Address on page 329](#) and the [PAD Destination Port on page 330](#) must be defined whenever this field is not **Disabled**. This selection applies for the current Data Profile.

 **WARNING:** When the [Data Profile Type on page 319](#) is **Broadband-Only** or **Conventional & Broadband** or **Trunking & Broadband**, this field must be set to **Disabled**. Otherwise, the application considers it to be invalid.

The following selections are supported:

Disabled

PAD Mode is not used.

Continuous

Used for devices/applications that need to transmit packet data of certain fixed length every time.

Sentence

Used for sending packet data based on certain start and stop characters (like a sentence in GPS data). The PAD Start Sequence and the PAD Stop Sequence must be defined.

Immediate

A raw data transfer where all the data (regardless of the size) is transmitted as is.

7.6.7.2

PAD Start Sequence

This field allows you to enter the Start Sequence for the **Sentence** Protocol Assembler/Disassembler (PAD) Mode.

This entry is used by the Networking PAD Application to detect the Start of the 'Sentence' in the Data by matching up this sequence of byte values. The Start and [PAD Stop Sequence on page 328](#) must both be defined for the "Sentence" PAD Mode. This selection applies for the current Data Profile.

Accessed Only: When the [PAD Mode on page 327](#) field is set to **Sentence**.

The following selections are supported:

- Entries must be hexadecimal, (0 thru 9 and A thru F)
- Entries must be an even number of characters
- Entries must be:
 - a minimum of 2 characters
 - a maximum of 18 characters

7.6.7.3

PAD Stop Sequence

This field allows you to enter the Stop Sequence for the **Sentence** Protocol Assembler/Disassembler (PAD) Mode.

This entry is used by the Networking PAD Application to detect the Stop of the 'Sentence' in the Data by matching up this sequence of byte values. The [PAD Start Sequence on page 328](#) and Stop Sequence must both be defined for the "Sentence" PAD Mode. This selection applies for the current Data Profile.

Accessed Only: When the [PAD Mode on page 327](#) field is set to **Sentence**.

The following selections are supported:

- Entries must be hexadecimal, (0 thru 9 and A thru F)
- Entries must be an even number of characters
- Entries must be:
 - a minimum of 2 characters
 - a maximum of 18 characters

7.6.7.4

PAD Escape Sequence

This field allows you to enter the Escape Sequence for the **Sentence** Protocol Assembler/Disassembler (PAD) Mode.

This optional byte sequence is used to 'escape' or bypass the detection of any Start and the Stop Sequences should they occur as part of regular data, so that they are not mistaken as Sentence Start or Stop. This selection applies for the current Data Profile.

Accessed Only: When the [PAD Mode on page 327](#) field is set to **Sentence**.

The following selections are supported:

- Entries must be hexadecimal, (0 thru 9 and A thru F)
- Entries must be an even number of characters
- Entries must be between:

- a minimum of 0 characters
- a maximum of 10 characters

7.6.7.5

PAD Receive Idle TimeOut

This field selects the timeout value used in the **Continuous** and **Sentence** Protocol Assembler/Disassembler (PAD) Modes .

In **Continuous PAD Mode on page 327**, this timeout is used to trigger the transmission of the data collected by the PAD Application even though it has not reached the Maximum buffer threshold. This selection applies for the current Data Profile. Time is in milliseconds.

Accessed Only: When the **PAD Mode on page 327** field is set to **Sentence** or **Continuous**.

Table 180: Range

Minimum	Maximum
0 (ms) (0 = Disabled)	15000 (ms)

7.6.7.6

PAD Transmission Inhibit Value

This field selects the amount of time that a data chunk transmission (sent from the Protocol Assembler/Disassembler (PAD) Application) is delayed from the previous data chunk transmission, evenly spacing these transmissions (flow control).

Therefore, the PAD application can only send (at most) one data chunk within this amount of time. This amount of time is used to delay transmissions in all PAD Modes. This selection applies for the current Data Profile.

Accessed Only: When the **PAD Mode on page 327** field is not set to **Disabled**.

Table 181: Range

Minimum	Maximum
0 (ms) (0=Disabled)	15000 (ms)

7.6.7.7

PAD Destination Address

This field allows you to enter the IP Destination Address (remote end) for the PAD (Protocol Assembler/Disassembler) application.

This entry represents the address part in the address-port combination that makes up the destination (remote end) for the data packets generated by the PAD application. This selection applies for the current Data Profile.

Accessed Only: When the **PAD Mode on page 327** field is not set to **Disabled**.



NOTE:

The IP address can be any valid address entered in dotted decimal format.

7.6.7.8

PAD Destination Port

This field allows you to enter the IP Destination Port (remote end) for the PAD (Protocol Assembler/Disassembler) application.

This entry represents the port part in the address-port combination that makes up the destination (remote end) for the data packets generated by the PAD application. This selection applies for the current Data Profile.

Accessed Only: When the [PAD Mode on page 327](#) field is not set to **Disabled**.

Table 182: Range

Minimum	Maximum
1	65535



IMPORTANT: The Default Value of "0" is an invalid entry. When this field is applicable, the value must be changed to a valid entry.

7.6.7.9

Maximum Buffer Threshold

This field selects the maximum buffer threshold (in bytes) that is used to trigger transmissions in the "Continuous" PAD Mode.

This selection represents the length of data collected in the "Continuous" PAD Mode before the data is sent out. As soon as this buffered data threshold is reached, the PAD application sends the buffer (only applicable in Continuous Mode). This selection applies for the current Data Profile.

Accessed Only: When the [PAD Mode on page 327](#) field is set to **Sentence** or **Continuous**.

Table 183: Range

Minimum	Maximum
1 byte	3000 bytes

7.6.8

Conventional Data Features

This section allows you to view or modify data settings for conventional data features.

7.6.8.1

Packet Data Mode

This field selects the type of Packet Data Mode that is used for the current Conventional - Data Profile.



WARNING: When the [Data Profile Type on page 319](#) field is set to **Conventional & Broadband**, this field must be set to **FNE**. Otherwise, the application considers this selection to be invalid.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Conventional** or **Conventional & Broadband** and the radio is model/option capable.

The following selections are available:

FNE

The radio communicates with the Fixed Network Equipment (the FNE is also referred to as the "System") on the repeater frequency programmed in the radio.

Repeated

The radio communicates with another radio through the repeater (i.e., on the repeater frequency programmed in the radio).

Direct

The radio communicates with another radio on the direct (or talkaround) frequency programmed in the radio.

7.6.8.2

ATAK Data Enable/Disable

This field enables or disables ATAK Data from the ATAK application on the radio.

7.6.8.3

Data Scan Preamble Length

This field selects a number that determines the length of time that Data Scan Preambles are transmitted by the radio.

The number selected is multiplied by 100 to give the preamble time in milliseconds. These Data Scan Preambles allow transmitting and receiving radios to synchronize with each other, and are therefore transmitted just prior to transmitting conventional packet data. This selection applies for the current Conventional - Data Profile.



IMPORTANT: Data Scan Preambles are only transmitted on a Designated Data Member channel when the "Designated Data" channel is Data enabled (see the Data Profile Selection field) and does not have its [Packet Data Mode on page 330](#) field set to **FNE**. The Designated Data Member channel of a Conventional Personality's selected Scan List can be set to always default to the radio's currently "Selected Channel" or to a specific channel within the Scan List.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Conventional** or **Conventional & Broadband** and when the radio is model/option capable.

Table 184: Range

Disabled	Minimum	Maximum
0 - meaning no preambles are transmitted	1	100

7.6.8.4

Auto Generate IP Address

This field enables the Subscriber Air-Interface Internet Protocol (IP) Address and the Mobile Computer (MC) IP Address to be generated by the radio's Host Software for the current Conventional - Data Profile.



NOTE:

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Conventional** or **Conventional & Broadband** and the radio is model/option capable.

7.6.8.5

Auto Generate Target IP Address

This field enables the Internet Protocol (IP) Address of a target radio to be generated by the radio Host Software for the current Conventional - Data Profile.



NOTE:

When assigning an IP address, ensure that the IP address does not conflict with any other IP address or Subnet used by the radio. External devices such as Wi-Fi, External Data Modem, and Si500 can assign IP Addresses to some interface. If conflicting IP addresses or Subnets are in use, data features can not be guaranteed to work reliably.

169. 254. X. X. Subnet is reserved for Zone to Zone Cloning feature, so any IP address cannot start with 169. 254. X. X. otherwise this field will be invalid.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Conventional** or **Conventional & Broadband**, the [Auto Generate IP Address on page 331](#) field is **Enabled**, and the radio is model/option capable.

7.6.9

Trunking Data Features

This section allows you to view or modify data settings for trunking data features.

7.6.9.1

Rx Voice Interrupts Data

This field enables a received (Rx) voice transmission to interrupt a data communication.

Data communications are interrupted whenever an appropriate incoming voice transmission is sensed by the radio. This feature applies for the current Trunking - Data Profiles.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Trunking** or **Trunking & Broadband** and the radio is model/option capable.



IMPORTANT: If the radio is in Priority Monitor Scan (see Scan Type), only the selected talkgroup voice activity interrupts a data communication.

7.6.9.2

Priority Scan RX Voice Interrupts Data

This field enables a received (Rx) voice transmission to interrupt a data communication when radio is in priority monitor scan and receiving the priority member activity.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Trunking** or **Trunking & Broadband** and [Rx Voice Interrupts Data on page 332](#) is enabled.

7.6.9.3

IP Header Compression Enable

This field enables the radio to provide a more efficient transfer of messages by reducing a relatively large number of active data users per packet data channel.

Excess UDP (User Datagram Protocol)/IP (Internet Protocol) headers are compressed before transmission to their destination. This selection applies only for the current Trunking - Data Profile.



WARNING: This feature is not compatible with Secure/Clear Strapping being set to **Secure**.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Trunking** or **Trunking & Broadband**, and when the [Packet Data Registration Version on page 333](#) field is set to **SNDCPv3**.

7.6.9.4

Intersystem Data

This field enables a radio to automatically attempt context activation while roaming on a foreign Trunking System.

Facilitates access to data services (such as Location and OTAR) on that system (see also Inter-WACN Roaming). Applies only to ISSI 8000-connected ASTRO 25 systems that operate within a combined (foreign + home system) Customer Enterprise Network (CEN). Selection applies for the current Trunking - Data Profile.



IMPORTANT: If context activation succeeds on the foreign Trunking System, the radio can typically access all available data services on that system. It does not respond to system-wide data broadcasts.

Accessed Only: When the [Data Profile Type on page 319](#) field is set to **Trunking** or **Trunking & Broadband** and the radio is model/option capable.

7.6.9.5

Random Holdoff Time

This field enables the radio to calculate a random hold off value between 0 (zero) and the Context Activation Hold Off Time that is used during system context activation.

This feature applies only for the current Trunking - Data Profile. When disabled, the Context Activation Hold Off Time value is used.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Trunking** or **Trunking & Broadband**.

7.6.9.6

Context Activation Holdoff Time

This field selects the maximum amount of time that the radio may hold off attempts at system context activation.

The timer starts following the first rejected context activation request. The Random Hold Off Time field may further define how this value is used. The Context Activation Holdoff Mode selection may further determine when this value is used. This selection applies only for the current Trunking - Data Profile. Time is in minutes.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Trunking** or **Trunking & Broadband**.

Table 185: Range

Disabled	Minimum	Maximum
0 - Disabled	1 min	60 min

7.6.9.7

Packet Data Registration Version

This field selects between two Sub Network Dependent Convergence Protocol (SNDCP) versions for slotted data.

This selection applies only for the current Trunking - Data Profile.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Trunking** or **Trunking & Broadband**.

The following selections are available:

SNDCPv1

SNDCP Version 1 allows for packet data registration messages to be exchanged with a pre-7.3 ASTRO 25 system. This selection is invalid if the following scenario is true: Data Profile Type is set to **Trunking** or **Trunking & Broadband** and the Enhanced Data - Port List Selection is not **Disabled**.

SNDCPv3

SNDCP Version 3 allows for packet data registration messages to be exchanged with an ASTRO 25 7.3 system or later.

7.6.9.8

ASTRO 25 Data Group ID

This field selects (in decimal or hex format) the ASTRO 25 Common Air Interface (CAI) Data Group ID for the current record/row (1 through 8).

This Group ID is used for address decoding pertaining only to receiving data. Data Groups allow the radio to receive group data messages sent to these Data Group IDs and to receive broadcast packets sent to the radio's ALL CALL ID (IP = 255.255.255.255). This selection applies only for the current Trunking - Data Profile.

 **IMPORTANT:** 6777215 (0xFFFFF Hex) is the ALL CALL ID; this ID may not be entered because it already exists in the radio.

Accessed Only: When the [Data Profile Type on page 319](#) is set to **Trunking** or **Trunking & Broadband**.

Table 186: Range

Minimum	Maximum
10000000 (989680 Hex)	16777214 (FFFFFE Hex)

7.6.10

Enhanced Data Port List

The **Enhanced Data Port List** allows you to view or define lists of UDP (User Datagram Protocol) destination ports for which Enhanced Data transmission is allowed. Up to twenty Enhanced Data Port Lists are possible.

 **NOTE:** Once defined, an Enhanced Data Port List is then selectable on a per Data Profile basis from the Port List Selection field.

7.6.10.1

Port Number

This field selects a UDP (User Datagram Protocol) destination port number for a port associated with sending Enhanced Data for the current record/row of the current Enhanced Data Port List.

Once defined, an Enhanced Data Port List is then selectable on a per [Data Profiles on page 319](#) basis from the [Port List Selection](#) field.



WARNING:

This selection is only valid:

When the value is unique for each Enhanced Data Port List record/row, and

When it is not equal to the value of the [Authentication UDP Port on page 313](#), [Subscriber OTAR Port on page 280](#), or [KMF UDP Port on page 279](#), and

When it is not equal to the value of a Port used by any other Service: **4005** (PN Server (ARS)), **4007** (Text Messaging Service), **4000** (UDP Loopback Port), **64414** (KMF Server (OTAR)), **162** (SNMP (Simple Network Management Protocol) Agent), **49223** (User Authentication), and **49165** (Radio Authentication).

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Table 187: Range

Minimum	Maximum	Increments
1	65535	1

7.7

Conventional Collection

This section allows you to configure parameter settings for features related to the Conventional Mode.

7.7.1

Conventional Wide

This section allows you to view or define functionality applying on a radio-wide basis to all Conventional Personalities.

This functionality does not apply while operating in Trunking communications mode.

7.7.1.1

Monitor Type

This field selects how the radio unmutes when the Monitor button is pressed. Silent Monitor, also called PL Defeat, allows you to monitor the channel before transmitting.

This selection applies for Conventional communications.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Silent

Disables PL or DPL

Open Squelch

Disables squelch which unmutes the radio speaker to any carrier signal currently on the channel regardless of signal strength. If no carrier signal is present, then the radio unmutes to noise.

7.7.1.2

Direct Frequency Enable

This field allows the Direct/Talkaround Direct Talkaround parameters to be individually defined for all Frequency Options profile.

When disabled, all Direct/Talkaround parameters revert to the settings of the Rx parameter fields for Direct/Talkaround functionality. This feature applies on a radio-wide basis only while operating in Conventional communications mode.



NOTE:

The Conventional Personality Direct/Talkaround field toggles Direct/Talkaround mode on or off on a per Conventional Personality Frequency Options basis.

You can select Direct/Talkaround with the Direct/Talkaround button-press, the Talkaround /Direct switch-selection, or the Direct/Talkaround menu-selection.

This field is not applicable to cloneable personalities.

7.7.1.3

Squelch Per Personality

This field enables the radio's squelch setting to be defined on a per Conventional Personality basis.

Once this field is enabled, the Squelch (Fine Tune) may then be defined for each personality. This feature applies on a radio-wide basis only while operating in Conventional communications mode.

Accessed Only: When the radio is model/option capable.

7.7.1.4

Latch Enable Tone

This field causes the radio to emit an alert tone each time the "Monitor" feature is latched (see the Monitor Type feature).

Pressing the Monitor button for the Latch Enable Time latches the Monitor feature; this alert tone indicates that latching has occurred. Once "Monitor" is latched, pressing the Monitor button again cancels the latched mode. This feature also applies for Conventional communications.

Accessed Only: When the radio is model/option capable.

7.7.1.5

Latch Enable Time

This field selects the amount of time that you must press the Monitor button in order for the **Monitor** feature to remain continuously latched.

When this time threshold is reached, you may release the Monitor button and the "Monitor" mode remains active. If this time threshold is not reached, then releasing the Monitor button, ends the Monitor mode (latching does not occur) and the radio returns to normal operation. Once "Monitor" is latched, pressing the Monitor button again cancels the latched mode. This feature also applies for Conventional communications.

See the [Monitor Type on page 335](#) selection for further reference.

Accessed Only: When the radio is model/option capable.



NOTE: When set to Disabled, there is no timer - 0 (zero seconds). "Monitor" latches immediately with a Monitor button-press.

Table 188: Range

Minimum	Maximum	Increments
0.5 sec	6 sec	0.5 sec

7.7.1.6

MPL Recall Mode

This field selects whether your most-recently selected MPL Configuration List applies on a per Conventional analog channel basis, or applies to all Conventional channels.

You can select MPL Lists with the Multiple Private Line button-press or the Multiple Private Line menu-selection.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Per MPL List

Your most recent MPL List selection applies to all of the radio's Conventional analog channels.



IMPORTANT: When the channel is changed on the radio, the momentary display of the **MPL Alias** is disabled.

Per Channel

Your most recent MPL List selection applies to the radio's current Conventional analog channel only; therefore it is possible for different MPL List selections to apply to different channels.



IMPORTANT: When the channel is changed on the radio, the momentary display of the **MPL Alias** is enabled.

7.7.1.7

Smart PTT Quick Key Timer

This field selects the maximum amount of time between PTT button-presses that determines how fast you must press the PTT button to effect a Quick Key press.

A Quick Key (double press) of the PTT button can override the Smart PTT Type, **Tx Inhibit** on selection for a chosen Conventional Personality, thus allowing the radio to transmit when the current channel is busy (see also Smart PTT Retry Timer).

Table 189: Range

Minimum	Maximum	Increments
100 ms	5000 ms	100 ms

7.7.1.8

Smart PTT Retry Timer

This field selects the amount of time at which the radio samples for an empty channel (with no carrier).

This timer is used when one of the Smart PTT Type, **Tx Inhibit** on selections is chosen for a Conventional Personality. When the PTT button is pressed, and this sampling time determines that the current channel is busy, the radio automatically sounds a continuous alert tone until the PTT button is released.



IMPORTANT: The Quick Key Override field is an override feature that allows you to transmit regardless of the currently-selected Smart PTT Type, Tx "Inhibit on" rule. See also Smart PTT Quick Key Timer.

Table 190: Range

Minimum	Maximum	Increments
0 ms	5000 ms	25 ms

7.7.1.9

Soft ID Feature Enable

This field enables the Soft ID to be transmitted with each PTT button-press and for other features.

The Soft ID is programmed in the Radio Wide Soft ID/Username field. When this feature is enabled, the Information (INFO) menu-item or Information (Info) button-press, also allows you to edit the radio's Soft ID. This feature applies for all ASTRO - Conventional Systems.

Accessed Only: When the radio is model/option capable.

7.7.1.10

Status Number of Attempts

This field selects the maximum number of times that the radio attempts to send an Status.

The radio continues these retries until it receives an acknowledgement confirming the successful receipt of the Status transmission, or until the selected number of Status attempts is reached. See also Status Auto Exit. This selection applies for all Conventional Systems.

Table 191: Range

Minimum	Maximum
1 attempt	14 attempts

7.7.1.11

CAI Data Max Tx Attempts

This field selects the maximum number of times that the radio attempts to send a Common Air Interface (CAI) data packet transmission.

The radio continues these retries until it receives an acknowledgement confirming the successful receipt of transmission, or until the selected number of Tx Attempts is reached.



NOTE: This selection applies for all ASTRO type Conventional Systems.

Table 192: Range

Minimum	Maximum	
2 attempts	10 attempts	

7.7.1.12

CAI Data Response Timer

This field selects the amount of time that the radio waits for an acknowledge of a successful Common Air Interface (CAI) transmission before re-sending another CAI data packet.



NOTE: This selection applies for all ASTRO type Conventional Systems.

Table 193: Range

Minimum	Maximum	Increments
100 ms	5000 ms	100 ms

7.7.1.13

CAI Data Min Response Timer

This field selects the minimum amount of time that the radio waits for an acknowledgment of a successful Common Air Interface (CAI) to be sent across the channel.

This parameter should be slightly greater than the Data Throughout Delay from the RNC (Radio Network Controller) to the radio. This selection applies for all ASTRO type Conventional Systems.



IMPORTANT: Do not attempt to change this setting without first verifying the particular throughout the system.

Table 194: Range

Minimum	Maximum	Increments
50 ms	2000 ms	50 ms

7.7.1.14

Max Packet Size

This field selects the maximum number of bytes that can be transported in a single Common Air Interface (CAI) data packet. This selection applies for all ASTRO type Conventional Systems.

Table 195: Range

Minimum	Maximum	Increments
16 bytes	512 bytes	16 bytes

7.7.1.15

Frame Sync Seek Period

This field selects the amount of time that the radio listens for a Frame Sync Sequence. A Frame Sync Sequence on the channel indicates that there is channel activity.

If a Frame Sync Sequence is not detected within this time, the radio assumes the channel is idle and then transmits the next Common Air Interface (CAI) packet queued for transmission. This selection applies for all ASTRO type Conventional Systems. Time is in milliseconds.



IMPORTANT: This value should be set to the maximum over-the-air Data Packet Duration. Example: For a maximum CAI packet size of 512 bytes, this value should be set to 750 ms. For proper operation on a channel with ASTRO voice present, due to the ASTRO voice frame size, this value should be set greater than 200 ms.

Table 196: Range

Minimum	Maximum	Increments
0 ms	5000 ms	50 ms

7.7.1.16

Tx Short Random Range

This field selects the maximum amount of time that the radio waits to transmit once the first qualified Frame Sync Sequence has been received indicating that the channel is clear.

The radio randomly checks channel access status based on this maximum wait time. This selection applies for all ASTRO type Conventional Systems. Time is in milliseconds.



IMPORTANT: Increasing this value reduces the potential of collision with other radios attempting to transmit data (seize the channel), but it also increases the channel access delay.

Table 197: Range

Minimum	Maximum	Increments
50 ms	500 ms	50 ms

7.7.1.17

Tx Long Random Range

This field selects the maximum amount of time the radio waits before rechecking a channel's status once a Busy Channel Status Symbol has been received.

Once a clear channel status has been received, the radio is then able to transmit the next Common Air Interface (CAI) packet queued for transmission. The radio randomly checks channel access status based on this maximum wait time. This selection applies for all ASTRO type Conventional Systems. Time is in milliseconds.

Table 198: Range

Minimum	Maximum	Increments
50 ms	5000 ms	50 ms

7.7.1.18

Tx Resp Random Range

This field selects the maximum amount of time the radio waits before rechecking a channel's status once a busy Channel Status Symbol has been received.

This selection applies only to Common Air Interface (CAI) acknowledgements. Once a clear channel status has been received, the radio is then able to transmit the next Common Air Interface (CAI) acknowledgment queued for transmission. The radio randomly checks channel access status based on this maximum wait time. This selection applies for all ASTRO type Conventional Systems. Time is in milliseconds.



IMPORTANT: Increasing this value reduces the potential of conflict with other radios attempting to transmit data (seize the channel), but it also increases the channel access delay.

Table 199: Range

Minimum	Maximum	Increments
50 ms	1000 ms	50 ms

7.7.1.19

Tx Limited Patience

This field selects the maximum amount of time that the radio attempts to transmit a Common Air Interface (CAI) data packet.

Once this time expires, the radio ceases to attempt transmissions. This selection applies for all ASTRO type Conventional Systems. Time is in seconds.

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Infinite**, no timer is used, therefore there is no transmit time limit.

Table 200: Range

Minimum	Maximum	Increments
2 secs	255 secs	1 sec

7.7.1.20

ARP Cache Depth

This field selects how many entries are stored in the radio's Address Resolution Protocol (ARP) Table.

The radio's ARP Table is a memory cache that stores mappings between IP addresses and Individual IDs. The ARP Cache Depth allows the radio to be most efficient when its number equals the expected number of devices (with unique IP addresses) that the radio communicates with. This selection applies for all ASTRO type Conventional Systems.

Accessed Only: When the radio is model/option capable.

Table 201: Range

Minimum	Maximum
0	50



NOTE: Selecting a Cache Depth of "0" indicates that no IP Addresses can be cached; thus effectively disabling ARP caching.

7.7.1.21

ARP Cache Time

This field selects the amount of time that cache entries are stored in the ARP Cache Depth. If all communicating devices in a network have static/fixed IP addresses, then it is recommended to set this Cache Time to **Infinite** (an infinite cache time), this allows the ARP Cache entries to continually remained cached.

If the ARP Cache Time is not set to **Infinite**, then ARP Cache entries are purged when this timer expires. This selection applies for all ASTRO type Conventional Systems. Time is in hours.

Accessed Only: When the radio is model/option capable, and when the ARP Cache Depth field is not set to 0.



NOTE: When set to Infinite, the ARP Cache entries remain cached indefinitely.

Table 202: Range

Minimum	Maximum	Increments
1 hour	24 hours	1 hour

7.7.1.22

Conventional Customer ID (hex)

This field selects a valid Advanced Conventional Key (ACK) "System ID" number (see System Key Report) which allows for Tactical Services Operation - Inhibit command.

An ACK's "System ID" number can only be selected when the ACK is currently loaded. ACKs are loaded through the USB port of the computer with the use of Key Devices inserted into a USB Port Key Device Reader. This selection applies radio wide for all ASTRO - Conventional Systems.



WARNING:

Once the Tactical Services Operation field is either **Decode** or **Decode and Encode**, and the Radio Uninhibit Decode Action is **Disabled**, this field must contain a valid ACK number.

7.7.1.23

ASTRO Group ID

This section allows you to view or modify functionality that can apply to all ASTRO type Conventional Systems and therefore to all Conventional Personalities having ASTRO System functionality.

Accessed Only: When the radio is model/option capable.

7.7.1.24

Group ID

This field selects (in decimal or Hex format) the Common Air Interface (CAI) Data Group ID used only when address decoding on data receives.

This Group ID number associates the radio with a specific data group for group addressing of data messages. When data is being transmitted by the radio, the Data Group ID is not used. This selection applies for the current Group ID (record/row) which applies for ASTRO type Conventional Systems.

7.7.1.25

OTACS Feature

Enables the (OTACS) Over-The-Air-Channel-Steering feature. This selection applies for all ASTRO type Conventional Systems.

Accessed Only: When the radio is model/option capable.

7.7.1.26

OTACR Feature

Enables the (OTACR) Over-The-Air-Channel-Reassignment feature. This selection applies for all ASTRO type Conventional Systems.

Accessed Only: When the radio is model/option capable.

7.7.2

Conventional Status Alias List

The **Conventional Status Alias List** allows you to view or define Conventional Statuses.

Your status can only be transmitted from a radio unit to a dispatcher (base unit). Your status makes more efficient use of a channel as compared to a voice transmission. This feature applies only when operating in Conventional communications mode.



NOTE:

The Status Alias must be set up identically (or with the same meaning) for the dispatcher and the radio units. That is, the Status 1 Alias from the dispatching unit must be identical (or have the same meaning) as the Status 1 Alias for the radio unit.

MDC, DVRS and ASTRO Messages are enabled individually on a per [Conventional System on page 347](#) basis from the [Status on page 355](#) field.

You can then activate the Status feature with a Status button-press, a Direct Status button-press, or a Status menu-selection (see also [Status Number of Attempts on page 338](#) and [Status Auto Exit on page 171](#)).

7.7.3

Repeater ID List

The **Repeater ID List** allows you to view or define IDs for accessing repeaters while operating in conventional communications mode.

This is only true when one or both of the Conventional Personality repeater access Code Type fields is set to **MDC** for any individual Conventional Personality.



NOTE: Repeater IDs are selected for use in the Conventional Personality MDC Repeater ID fields.

7.7.4

Repeater ID

This field selects the Repeater ID (record/row) that is transmitted by the radio to gain repeater access to a Conventional communications channel.

Repeater IDs must then be selected for use with specific Conventional channels from the Conventional Personality MDC Repeater ID fields. A Repeater Access Code (RAC) allows the radio to access a specific repeater(s).

 **IMPORTANT:** This is only true when one or both of the Conventional Personality repeater access Code Type (Repeater Access Button 1/PTT) and Code Type (Repeater Access Button 2) fields are set to **MDC** for any individual [Conventional Personality on page 364](#).

Table 203: Range

Minimum	Maximum	Increments
1	9999	1

7.7.5

ASTRO Talkgroup List

The **ASTRO Talkgroup List** allows you to define functionality for individual talkgroup members within the current ASTRO Talkgroup List. ASTRO Talkgroups are only used with Conventional Personalities using ASTRO type Conventional Systems.

 **NOTE:**
A Talkgroup List may be referenced to a Conventional Personality with the Talkgroup List field.
Once a Talkgroup List is selected for a personality, a default Talkgroup may then be selected for that same personality from the Frequency Option's ASTRO Talkgroup ID field.
Depending on the Conventional Personality Selection Type field choice, you will have the ability to access an entire Talkgroup List or a single Talkgroup strapped to that channel.

7.7.5.1

ASTRO Talkgroup List Name

This field allows you to create recognizable names for the current ASTRO Talkgroup List.
ASTRO Talkgroup List are selected for use from the Conventional Personality's ASTRO Talkgroup List field.

 **NOTE:**
Characters, numbers, spaces, and special characters can be used.
Up to 14 characters are possible.

7.7.5.2

Talkgroup Alias

This field enables the Talkgroup Alias Text information to appear in the display.
This feature applies for the current ASTRO Talkgroup List.
Talkgroup Alias allows your recognizable name to appear when you are scrolling through the ASTRO Talkgroup List.
When disabled, the Talkgroup IDs appear in the radio display.
Accessed Only: When the radio is model/option capable.

7.7.5.3

ASTRO OTAR Profile Index

This field selects the Secure KMF Profile to be used by the current ASTRO Talkgroup List.



IMPORTANT:

When this field is not set to **Disabled**, the Key Select field for the current ASTRO Talkgroup List can only select keys from the Secure Hardware Encryption Key References List of this selected Secure KMF Profile

Be aware that The RadioCentral is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field . Therefore any key selected when this field is not set to **Disabled**, must first be defined in the Secure Hardware Encryption Key References List .

When this field is set to **Disabled** or not applicable (grayed-out), the Key Select field value is directly chosen from the Encryption Key List of the Secure Wide Window

Accessed Only: This feature can be accessed only when the following conditions are met:

- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- [Advanced Encrypted Standard \(AES256\) on page 258](#) is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [ASTRO OTAR Enable on page 259](#) field is enabled.
- The radio is model/option capable.

7.7.6

ASTRO Talkgroup

This section allows you to view or define ASTRO System ASTRO Talkgroup List functionality for individual Conventional Personalities.



NOTE:

Conventional Systems defined as having the **ASTRO** System Type can be selected from the Conventional Personality's ASTRO System field, allowing for ASTRO Systems communications to occur.

Once the features of the Conventional Personalities have been uniquely defined, each personality can then be assigned to the desired position of the radio's channel selector. This is accomplished from the Zone Channel Assignment's Channels Page.

7.7.6.1

Talkgroup Alias Text

This field enables the Talkgroup Alias Text information to appear in the display.

This feature applies for the current ASTRO Talkgroup List.

Talkgroup Alias allows your recognizable name to appear when you are scrolling through the ASTRO Talkgroup List.

When disabled, the Talkgroup IDs appear in the radio display.

Accessed Only: When the radio is model/option capable.

7.7.6.2

Talkgroup ID

This field selects (in decimal or hex format) a unique identification number for the current talkgroup.

This selection applies for the current talkgroup (record/row) of the current [ASTRO Talkgroup List](#) on page 344.

Table 204: Range

Minimum	Maximum
0	65535



IMPORTANT:

Talkgroup "65535" (FFFF Hex) is a System Wide "All-Call" Talkgroup. All other talkgroups unmute to a Talkgroup "65535" transmission and a talkgroup set to "65535" unmutes to any Talkgroup IDs..

Talkgroup "0" is a System Wide 'Receive-Only' talkgroup that receives "All-Call" transmissions sent on the "65535" talkgroup. Talkgroup "0" also receives Selective Call transmissions sent to your particular ASTRO Individual ID. This condition is only possible when the ASTRO Rx Unmute Rule of a channel/ personality that has this Talkgroup ID selected is set to **Selective Squelch**.

Accessed Only: When the radio is model/option capable.

7.7.6.3

Voice Secure/Clear Strapping

This field selects the transmit mode for the current talkgroup.

This selection applies for the current talkgroup (record/row) of the current [ASTRO Talkgroup List](#) on page 344.

The following selections are supported:

Select

Allows you to toggle on or off secure encrypted communications.



NOTE:

Either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows for your access to secure-encrypted communications.

Clear

Straps or commits the channel to normal (non-secure) Conventional communications operation.

Secure

Straps or commits the channel to secure encrypted operation.

Accessed Only: When the [Secure Operation](#) on page 255 field is set to **Hardware** or **Software**.

7.7.6.4

Key Select

This field selects the secure encryption key to be used in secure encryption mode for the current talkgroup (record/row).

This selection applies for the current talkgroup of the current Trunking Personality.



IMPORTANT:

When the [ASTRO OTAR Profile Index on page 345](#) field is not Disabled for the current ASTRO Talkgroup List, this Key Select value is chosen from the [Secure Hardware Encryption Key References List on page 281](#) of the Secure KMF Profile selected in the KMF Profile Index field.



WARNING: Be aware that the RadioCentral is actually pointing to the Keys of the [Encryption Key List on page 268](#) for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the [Encryption Key Reference](#) field. Therefore any key selected when ASTRO OTAR is enabled, must first be defined in the Secure Hardware Encryption Key References List.

When the KMF Profile Index field is Disabled or not applicable (grayed-out) for the current ASTRO Talkgroup List, this Key Select value is directly chosen from the Secure Encryption Key List.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Voice Secure/Clear Strapping on page 346](#) field is set to **Secure** or **Select**, and when the radio is model/option capable.

7.7.7

Conventional System

The **Conventional Systems** allows you to view or define individual Signaling Systems.

Signaling system types include: **ASTRO**, **MDC**, **DVRS**, and **Quik-Call II**. Individual Signaling Systems are selected for use with Conventional Personalities.



NOTE: Conventional Systems are selected for use from the Conventional Personality's ASTRO System field or Non-ASTRO System field.

7.7.7.1

Conventional System Name

This field allows you to create recognizable names for the current Conventional System.

Conventional Systems are selected for use from the Conventional Personality's ASTRO System field or Non-ASTRO System field.



NOTE:

Examples: Byrne004, Power03, #510

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.7.7.2

System Type

This field allows you to select the desired System Type for the current Conventional System.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

- ASTRO

- MDC
- DVRS
- DTMF
- Quik-Call II
- Singletone



NOTE: These selections are model/option dependent.

7.7.7.3

System Group Number

This field allows you to define a System Group Number for an ASTRO Conventional System not defined in the current codeplug.

The System Group Number provides a way to logically group multiple Conventional Systems in the codeplug that are really the same over-the-air system.



IMPORTANT:

This selection only applies when the System Name field is set to **Customized** for the current record/row. Therefore, this selection corresponds to an in-the-field ASTRO Conventional System. This selection applies to the current Call ID set (record/row) of the current Contact within the Unified Call List. This Call ID set can then be selected from the [Call ID on page 508](#) field.

Accessed Only: When the System Type field is set to **Customized** or when the radio is model/option capable.

7.7.7.4

System Wide Talkgroup Hang Time

This field selects the amount of time that the radio waits once a system wide Talkgroup call has ended.

During this wait time, Talkgroup ID 65535 (FFFF Hex) is used for all ASTRO Talkgroup calls. This selection applies while operating on the current ASTRO Conventional System. Time is in seconds.

Accessed Only: When the System Type field is set to **ASTRO**, and when the radio is model/option capable.

The following selections are supported:

- Disabled
- 12 Hour
- 24 Hour



NOTE: The time is in seconds.

7.7.7.5

Preamble Length

This field selects the amount of time that determines the minimum number of bit sync preamble packets that are sent at the beginning of all ASTRO transmissions.

These packets allow transmitting and receiving radios to synchronize with each other prior to an ASTRO Systems transmission. The amount of time is equal to this Preamble Length setting multiplied by 0.2083 milliseconds (ms). This selection applies while operating on the current ASTRO Conventional System.



IMPORTANT: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Advanced Digital Privacy (ADP)**, the radio transmits a minimum of 50 milliseconds of preamble due to the delays encountered when encrypting the data stream.

Accessed Only: When the System Type field is set to **ASTRO** or **DVRS**.

Table 205: Range

Minimum	Maximum
0	1275

7.7.7.6

Limited Patience

This field selects the amount of time that the radio politely waits for the current channel traffic to clear.

Examples of transmissions using this value are: Call Alerts, Selective Calls, Messages, Statuses, and Emergency transmissions. This selection applies for the current Conventional System. In the emergency case, the radio politely waits after the Impolite Retries expires.

Accessed Only: When the System Type field is set to **ASTRO**, **DVRS** or **MDC**.



NOTE: When set to Infinite, no timer is used, therefore there is an infinite wait period.

Table 206: Range

Minimum	Maximum	Increments
1 s	255 s	1

7.7.7.7

Emergency Profile Selection

This field allows you to select the appropriate Conventional Emergency Profile to be used with the current Conventional System.

You can initiate Emergency Mode with the Emergency button-press



NOTE: The name(s) that appear for selection are defined in the Emergency Profile Name field.

Accessed Only: When the System Type field is set to **DVRS** or **MDC**, or (when the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled).

The following selections are supported:

- Emergency Tx Disabled
- Available Conventional Emergency Profiles

7.7.7.8

Data Profile Selection

This field allows you to select the appropriate Data Profile to be used with the current ASTRO or DVRS Conventional System.



WARNING:

For the **DVRS** System Type, a Data Profile is only valid when Data Profile Type is set to **Trunking**, and when Rx Voice Interrupts Data is **Enabled**, and when Limited Broadcast is **Disabled**, and when IP Header Compression Enable is **Disabled**, and when Terminal Data is **Disabled**, and when PAD Mode is set to **Disabled**, and when all of the DAC List entries have Operational Mode set to **Classic APCO 25**, and when the (Packet Data APCO 25) Secure/Clear Strapping is set to **Clear** or **Secure**, and when the Port List Selection is set to **Disabled**.

When the Dual Radio - Radio Selection field is set to **Secondary Radio** and the Enable Secondary Radio Tx field is **Disabled**, this field must be set to **Data Disabled** to be considered valid.



IMPORTANT: ASTRO and DVRS Conventional Systems are selected for use from the Conventional Personality's ASTRO System field.

Accessed Only: When the System Type field is set to **DVRS**, or (when the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled).

The following selections are supported:

- Data Disabled
- Available Data Profiles

7.7.7.9

Secondary ID

This field selects the unique Secondary ID in hex format that identifies the radio while transmitting or receiving MDC calls on the current Conventional System.

Examples of transmissions using this value are: Call Alerts, Selective Calls, Messages, Statuses, and Emergency transmissions.

Accessed Only: When the System Type field is set to **MDC**.

Table 207: Range

Minimum	Maximum
00000000 (Hex)	0EEEEEEE (Hex)

7.7.7.10

Variable ID

This field selects the three digit ID (in decimal or hex format) that identifies the radio as belonging to a unique group while receiving and transmitting MDC calls on the current MDC Conventional System.

Examples of transmissions using this value are: Call Alerts, Selective Calls, Messages, Statuses, and Emergency transmissions.



IMPORTANT: On a dispatched system which uses fleets and groups, the first digit of the ID represents the fleet, and the last two digits represent the group; for example: Variable ID = FGG, where F = Fleet and G = Group.



NOTE: When receiving an MDC transmission, the Variable ID allows the radio to identify the incoming call as being addressed to it, as well as being addressed to other radios in the Group.

Accessed Only: When the System Type field is set to **MDC**, and when the Expanded MDC ID Range field is **Disabled**.

Table 208: Range

Minimum	Maximum
000 (Hex)	EEE (Hex)

 **IMPORTANT:** This is a hexadecimal (Hex) number where F is reserved by the base station system.

7.7.7.11

Expanded MDC ID Range

This field enables additional MDC Primary ID's by allowing the range to contain E (Hex) in the least significant (right most) position and F in any other position.

This selection applies for the current MDC Conventional System.



WARNING:

Selective Call Rx/Tx and Call Alert Rx/Tx must be set to **Disabled** when this feature is enabled.

An MDC Conventional System with this feature enabled cannot be selected as an MDC OTAR System.

The Contacts menu-selection and Contacts button-press are blocked from you when the selected channel has this feature enabled.

The radio decodes the target address with an MDC Primary ID which contains F in any position or E in the most significant position as being an individual ID.

Accessed Only: When the System Type field is set to **MDC**, and when the **Expanded MDC1200 E & F** Extended Feature appears in the Extended Feature Name field.

7.7.7.12

Sidetones

This field selects the type or types of alert tone that sounds while the DTMF or MDC or Quik-Call II PTT ID is being transmitting.

During PTT ID transmission the radio's microphone is disabled and therefore voice transmission is not possible. Sidetone selections should be based-on your preference. This feature applies only while operating on the current Conventional System.



WARNING: For MDC and DTMF Systems, Sidetones only apply when the PTT-ID field is set to "Leading Edge" or "Both"



NOTE: For MDC and DTMF, following each of your PTT button-press, the radio then transmits the radio's current PTT ID (the CPS-defined Primary ID).

Accessed Only:

When the System Type field is set to "MDC" and "DTMF":

When the PTT-ID field is set to **Leading Edge** or **Both**, and when the radio is model/option capable.

When the System Type field is set to "Quik-Call II":

when the radio is model/option capable.

The following selections are supported:

None

No sidetones are sounded.

PTT-ID Sidetone

Causes the radio to sound an alert tone while the PTT ID is being transmitting; the PTT ID is the Primary ID of the current System. The PTT ID begins transmitting as soon as the PTT button is pressed; therefore the alert tone begins sounding as soon as PTT is pressed, and continues until the PTT ID data has completely transmitted. The tone ceasing is an indication to you that the microphone is open and voice transmission is now possible.

PTT-ID Short Sidetone

Causes the radio to sound one short alert tone immediately after the PTT ID is transmitted; the PTT ID is the Primary ID of the current System. The PTT ID begins transmitting as soon as the PTT button is pressed. This short alert tone sounds as soon as the PTT ID data has completely transmitted. This short tone is an indication to you that the microphone is open and voice transmission is now possible.

Both

Causes the radio to sound both the PTT ID Sidetone and the PTT ID Short Sidetone (see above).

7.7.7.13

PTT-ID

This field selects the method of transmitting a PTT ID data packet with a DTMF or MDC transmission.

Following each of your PTT button press, the radio then transmits the radio's current PTT ID (the programmed Primary ID) using this selected method. Transmitting the Primary ID allows for Caller ID on the receiving radio. This feature applies while operating on the current DTMF or MDC Conventional System.



WARNING: This feature only applies when Conventional Personality that references this system has its Non-ASTRO PTT ID field enabled.

Accessed Only: When the System Type field is set to **MDC** or **DTMF**.

The following selections are supported:

None

PTT IDs are not sent.

Leading Edge

Causes the radio to transmit a PTT ID data packet prior to the transmission of other packet data. Therefore, immediately following each of your PTT button press, the radio then transmits the radio's current PTT ID (Primary ID).

Trailing Edge

Causes the radio to transmit a PTT ID data packet following each transmission of other packet data. Therefore, each time you release the PTT button the radio then transmits the radio's current PTT ID (Primary ID).

Both

Combines both the Leading and Trailing method for transmitting PTT IDs (Primary ID)



NOTE: The Sidetones field allows you to define **PTT-ID Sidetones** and **PTT-ID Short Sidetones** when selecting **Leading Edge** or **Both**.

7.7.7.14

MDC System Pretime

This field selects the amount of time between PTT button-press and transmission of the first digit of an MDC data packet.

This time allows the receiving radio time to receive carrier and stabilize before receiving data. This applies for the current MDC Conventional System. Time is in milliseconds.



IMPORTANT: When **Repeater Access** is enabled for a Conventional Personality, the RAC data packet is transmitted, and then this timer begins.

Accessed Only: When the System Type field is set to **MDC**.

Table 209: Range

Minimum	Maximum	Increments
0 ms	6350 ms	50 ms

7.7.7.15

MDC Ack Pretime

This field selects the amount of time the radio waits before sending an acknowledge back to the system/repeater.

This timer begins once an MDC data packet has been received. This selection applies while operating on the current MDC Conventional System. Time is in milliseconds.

Accessed Only: When the System Type field is set to **MDC**.

Table 210: Range

Minimum	Maximum	Increments
0 ms	6350 ms	50 ms

7.7.7.16

Inter-Packet Time

Selects the amount of time that will separate consecutively transmitted MDC Messages.

This feature applies for the current MDC Conventional System. Time is in milliseconds.

Accessed Only: When the System Type field is set to **MDC**.

Table 211: Range

Minimum	Maximum	Increments
0 ms	6350 ms	50 ms

7.7.7.17

Repeater Access Pretime (ms)

Sets the duration that the radio waits, after a Push-to-Talk (PTT) button press, before it starts transmitting the MDC signaling system data packet (e.g. preamble bit sync) and data.

When communicating via a repeater system or console, this feature allows the repeater to stabilize before the radio starts transmitting the data. Additionally, this timer gives scanning radios time to land on the channel prior to the reception of MDC data. This pretime is used while transmitting the MDC Repeater Access ID, instead of the general MDC Pretime.

Range:

Maximum	Minimum	Increment
4500 ms	0 ms	25 ms



NOTE:

This feature is enabled if Repeater Access Type is set to Auto.

This feature is supported in Analog mode only.

7.7.7.18

Preamble Enable

This field enables synchronized packets to be sent during MDC System Pretime.

Synchronizing packets allow transmitting and receiving radios to synchronize with each other prior to MDC data packet transmission. This selection applies for the current MDC Conventional System.



WARNING: Do not attempt to modify this setting unless you have complete knowledge of the radio's system configuration.

Accessed Only: When the System Type field is set to **MDC**.

7.7.7.19

Preambles

This field selects the number of synchronizing packets sent during the MDC System Pretime for the current MDC Conventional System.

Synchronizing packets allow transmitting and receiving radios to synchronize with each other prior to MDC data packet transmission.

Accessed Only: When the System Type field is set to **MDC**.

Table 212: Range

Minimum	Maximum
0	255

7.7.7.20

Quik-Call II

This section allows you to view or define Quik-Call II (QCII) Tone functionality for individual QCII Conventional Systems.



NOTE: Quik-Call II Conventional Systems are selected for use from the Conventional Personality's Non-ASTRO System field.

Accessed Only: When the System Type field is set to **Quik-Call II**, and when the radio is model/option capable.

7.7.7.21

QCII Decode

This feature refers to the available Quik-Call II (QCII) system that will co-exist with the selected Motorola Data Communications (MDC). This feature provides the ability to decode and encode QCII, and to encode or decode MDC on the same channel.

If this feature is enabled, you can select Call Format. It also allows you to select the different tones available in Digital Tone Signaling in Analog.



NOTE: This feature cannot be enabled with Instant Recall.

7.7.7.22

Radio Inhibit

This field enables the radio to receive a remote Inhibit signal while operating on the current Conventional System.

This inhibit signal is a shutdown command sent from the dispatcher unit. Upon receipt of this command, the radio transmits a quick acknowledgement to the dispatch equipment. The radio then goes into a dormant state during which the receiver audio is muted and the transmit audio path is blocked. While inhibited all your controls are rendered inoperative; Scan mode is stopped on the operating mode/channel which received the command, and all Radio LED's are turned off.



IMPORTANT: In order to clear the inhibited state of the radio, send an uninhibit command to the radio or redo the Read/Write process of the radio.

Accessed Only: When the System Type field is set to **DVRS** or **MDC**) or (when the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled.)

7.7.7.23

Radio Check

This field allows the radio to decode and automatically respond to a Radio Check.

Radio Checks allow a dispatcher to check the state of the radio (turned on or off), as long as the radio is within the range of the system. This feature applies for the current Conventional System.

Accessed Only: When the System Type field is set to **DVRS** or **MDC**) or (when the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled.)

7.7.7.24

Status

This field enables the Status feature for the current Conventional System.

The Status feature allows you to select and transmit a specific Status from the programmed Status Alias List Window. You can activate the Status feature with a Status button-press, a Direct Status button-press, or a Status menu-selection (see also Status Number of Attempts and Status Auto Exit).

Accessed Only: When the radio is model/option capable, and ((when the System Type field is set to **DVRS** or **MDC**), or (when the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled)).

7.7.7.25

Status Request

This field enables the radio to automatically respond to a remote status interrogation with the last attempted status. This feature applies for the current Conventional System.

Accessed Only: When the radio is model/option capable, and when the Status field is enabled, and ((when the System Type field is set to **DVRS** or **MDC**), or (when the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled)).

7.7.7.26

Emergency Alarm Rx Indicator

This field selects the type of notification that you hear and sees when an Emergency alarm is received from another radio.

This feature must also be enabled (when appropriate) for the Individual MDC System or ASTRO System from the Emergency Alarm Rx Indicator field, or for the Trunking System from the Emergency Alarm Rx Indicator field. This selection applies while operating in Emergency Mode for both Conventional and Trunking communications.



IMPORTANT:

The Emergency Alarm Rx Indicator time lasts for 10 seconds. During these 10 seconds, you can deactivate the indicator by pressing any of the radio's buttons except **volume** and **light**.

Once the indicator clears or is cleared, retried emergency alarms from the same MDC Primary ID, or ASTRO System Individual ID, are ignored for the next 20 seconds.

Emergency alarms are not detected while the radio is in scan mode.

Emergency alarms are not detected while the radio is active on a voice channel.

The following selections are supported:

No Indication

No alerts are heard or seen.

Alert Only

Sounds an audio alert.

Display Only

A visual alert appears. The visual alert applies only for display model radios.

Alert & Display

Sounds an audio alert and a visual alert appears. The visual alert applies only for display model radios.



NOTE:

For the **Display Only** and the **Alert and Display** selections the following are true: When an Emergency Alarm is detected by the radio, **EA-RCVD** (Emergency Alarm Received) appears in the radio's display. When an Emergency Fine Me Beacon is detected by the radio, **BCON RX** (Emergency Beacon Received) appears in the radio's display.

EA-RCVD is displayed alternately with either the MDC Primary ID, ASTRO System Individual ID, or the Trunking Unit ID of the radio that sent the Emergency Alarm, and continues for ten seconds. Reverse Aliasing / Caller ID is also possible.

7.7.7.27

Qualify Emergency Alarm Rx

If this field is enabled, the radio is restricted from receiving Motorola Data Communications (MDC) Emergency Alarms when the incoming transmission fails to be Private Line (PL) or Digital Private Line

(DPL) qualified by the radio. This qualification means that the incoming transmission must match the RX/TA Squelch Type and RX/TA Squelch Code of the Conventional Personality.

When appropriate, you must also enable this feature from the **Emergency Alarm Rx Indicator** field. This selection applies to the current Conventional MDC System.



IMPORTANT: If this field is enabled and the incoming signal fails the PL or DPL qualification, the emergency alarms are not detected.

7.7.7.28

CAI Data Registration

This field enables the radio to register on the data portion of the Fixed Network Equipment (FNE) infrastructure; the FNE is also referred to as "The System".

The data portion of the system then sends a Common Air Interface (CAI) Data Registration response or acknowledgement confirming the registration back to the radio. The radio events that trigger this registration include: radio power up, mode change, exiting scan, and radio power down. This feature applies for the current Conventional System.



WARNING:

This field becomes invalid if one of the following scenarios is true:

- When the System Type is set to **ASTRO**, when the referenced Data Profile's Data Profile Type is **Broadband-Only**, and when this field is set to **Enabled**.
- When the System Type is set to **ASTRO**, and when the referenced Data Profile's Data Profile Type is **Conventional & Broadband**, and when this field is set to **Disabled**.



IMPORTANT:

The radio only attempts CAI Data Registration when there is a data feature enabled on the radio's selected personality/channel.

The radio's data features are only available once the radio successfully registers with the system, and then when the radio receives back an acknowledgement of successful registration from the system.

Accessed Only: When the System Type field is set to **ASTRO**, when the Remote Site Interface System field is disabled, and when the radio is model/option capable.

7.7.7.29

Text Messaging Service

This field selects the Text Messaging mode for the current ASTRO Conventional System.



WARNING: When Text Messaging Service is used while in Data Scan and the Data Scan Preamble Length is increased or decreased from the default value, the Retry Short Timer needs to be increased or decreased accordingly. For example in Direct Data Mode of operation (see Packet Data Mode), if the value of the Data Scan Preamble Length is increased to 30 (from the default of 20), then the Retry Short Timer should be increased to 25 seconds (from the default of 15). For every 10 units added for Data Scan Preamble Length, the Retry Short Timer should be increased by 10 seconds.



IMPORTANT:

You can access Text Messaging with the Text Messaging Service button-press, or the Text Messaging Service menu-selection.

You can access Quick Text Messaging with the TMS Quick Text button-press.

You can access Query Messaging with the TMS Query button-press.

Accessed Only: When the System Type field is set to **ASTRO**, and when a valid referenced Data Profile has been selected for the current System, when Data Profile Selection is not set to **Data Disabled**, SmartMessaging Mode is set to **LMR**, and when the radio is model/option capable.

The following selections are supported:

None

Feature is disabled.

List Only

Allows you to only select Text Messages from the programmed Quick Text Messages List.

Unlimited

Allows you to select from the Quick Text Messages, and enter your own text message from the radio keypad.



WARNING: This selection is only available on radios that have a keypad or Keypad Mic.



NOTE: This selection is not applicable to APX N70.

7.7.7.30

Group Text Messaging Service

This field selects the Group Text Messaging mode for the current ASTRO or DVRS Conventional System.

Accessed Only: When the System Type field is set to **ASTRO** or **DVRS**, and when the radio is model/option capable.

The following selections are supported:

Disabled

Group Text Message will not be received.

Full Decode

Group Text Message will be received.

7.7.7.31

Send Location to Peer/on PTT

ASTRO system enables a transmitting radio to encode its location coordinates in its ASTRO voice transmissions in a manner similar to PTT ID (see also Display Peer Location).



WARNING: ARS Mode must be set as **Enhanced Server** in the Data Profile record to prevent invalid Fields Report when System Type is DVRS.



IMPORTANT:

In ASTRO system, the radio-to-radio voice transmissions support encoding the location coordinates in the voice stream; in other words, Conventional Pages and Selective Calls support Display Peer Location, however, DVRS, phone mode and other infrastructure-dependent features do not support Display Peer Location. In DVRS system, the radio-to-infrastructure voice transmission supports encoding the location coordinates in the voice stream.

If location coordinates are not obtainable from the radio's GPS receiver (either because the GPS signal is disrupted in some way, or User Selectable Location Enable is enabled and you have turned OFF the GPS feature with Location button-press or Location menu-selection), the radio encodes the last-saved location coordinates into the voice stream.

If the update interval since the last-saved location coordinates exceeds an internal timer, then the radio marks the location coordinates in the voice stream as being "stale"; if there are no saved location coordinates, the radio sends the voice stream without any location data.



NOTE: The location on PTT transmits the location information unencrypted.

Accessed Only: When the radio is model/option capable, and when the System Type field is set to **ASTRO**, and when the System Type field is set to **DVRS**, and ARS Mode is **Enhanced Server** in its Data Profile, and when the Location Enable field is enabled.

7.7.7.32

Select Call/In-Call Reset

This field selects a timed or manual unmute-exception to the programmed Conventional Personality ASTRO Rx Unmute Rule, and a timed or manual Unmute-exception for call alerts when you activate the channel Voice Mute (see the Conventional Personality In-Call User Alert Enable feature).

The exception time (timed or manual) is known as the Release Squelch State. For the two timed selections below, the Auto Reset Time field partially determines how long the Release Squelch State continues. This selection applies for the current Conventional System.



NOTE: ASTRO and DVRS Conventional Systems are selected for use from the Conventional Personality's ASTRO System field.



IMPORTANT:

For call alerts, the Release Squelch State begins when the Voice Mute In-Call User Alert Enable feature is active and the radio has unmuted.

For ASTRO System Calls when the Voice Mute In-Call User Alert feature is not active, the Release Squelch State begins when the Personality's ASTRO Rx Unmute Rule are met and the radio has unmuted. When you activate the Voice Mute In-Call User Alert feature, the Release Squelch state applies only to Call Alerts. This is true due to the Voice Mute feature only allowing the radio to unmute to Call Alerts.

Accessed Only:

- When the System Type field is set to **DVRS**, or
- When the System Type field is set to **ASTRO**, and when the Remote Site Interface System field is disabled.

The following selections are supported:

Selective Call : For the two timed selections, while the Auto Reset Time is running, whenever the radio's PTT button is pressed the timer is stopped and reset; once the PTT button is released the timer is then re-started (from zero) thus extending the Release Squelch State even further.

Manual

- For Mobile: Currently this selection does not apply for Selective Calls.
- For Portable: Pressing the "Monitor" button ends the Release Squelch State.

Auto

If the timer expires regardless of whether the radio is muted or unmuted, the Release Squelch State is ended and the radio's ASTRO Rx Unmute Rules are again required in order to unmute to any future transmissions.

Auto w/carrier

If the radio is unmuted when the timer expires (due to carrier override) the radio remains unmuted until carrier is dropped. Once carrier is dropped and the radio is muted, the timer is reset and re-started in-effect extending the Release Squelch state again; if the radio then remains muted for an entire timer period (without any carrier override), the Release Squelch State is ended and the ASTRO Rx Unmute Rules are again required in order to unmute to any future transmissions.

Call Alert

Manual

The following two manual methods of ending the Release Squelch State, also apply to you when "Auto" or "Auto w/carrier" are selected.

- When the Voice Mute In-Call User Alert Enable feature is active, pressing the Voice Mute button, or the Voice Mute menu-selection deactivates Voice Mute and ends the Release Squelch State.
- Pressing the PTT button ends the Release Squelch State.

Auto

If the timer expires, regardless of whether the radio is muted or unmuted, the Release Squelch State is ended and the Voice Mute In-Call User Alert Enable rules are again required in order to unmute to any future transmissions.

Auto w/carrier

If the radio is unmuted when the timer expires (due to carrier override) the radio remains unmuted until carrier is dropped. Once carrier is dropped and the radio is muted, the timer is reset and re-started in-effect extending the Release Squelch state again; if the radio then remains muted for an entire timer period (without any carrier override), the Release Squelch State is ended and the Voice Mute In-Call User Alert Enable rules are again required in order to unmute to any future transmissions.

7.7.7.33

Auto Reset Time

This field selects an amount of time used during the unmute-exception to the programmed ASTRO Rx Unmute Rule or Non-ASTRO Unmute Type and selects an amount of time used during the Unmute-exception for Call Alerts when you activate the channel Voice Mute (see the ASTRO In-Call User Alert Enable field or the Non-ASTRO In-Call User Alert Enable).

The exception time is known as the Release Squelch State. This timer is only relevant to the two Select Call/In-Call Reset timed selections. This selection applies for the current Conventional System. Time is measured in seconds.

Accessed Only: When the Select Call/In-Call Reset field is not set to **Manual**, when the System Type field is set to **DVRS, MDC, DTMF, Quik-Call II, or ASTRO**, and when the Remote Site Interface System field is disabled.

Table 213: Range

Minimum	Maximum
0 s	255 s

7.7.7.34

Remote Radio Mode

This field allows the radio to decode a Remote Monitor or Radio Trace command for the current Conventional System.



NOTE:

The radio's Tx LED becomes solid red indicating that the radio is transmitting in this Remote Monitor mode. You can break out of a Remote Monitor mode with a manual channel change or by powering-off the radio.

Accessed Only: When the System Type field is set to **ASTRO** or **MDC**, and when the radio is model/option capable.

The following selections are supported:

Disabled

Remote Radio Mode is not available.

Radio Trace (Not possible for MDC)

The radio automatically keys-up sending unmodulated carrier allowing a lost or stolen radio to be found. The radio keys-up for the time selected by the Tx Base Time.

Remote Monitor

The radio automatically keys-up transmitting audio. This is especially useful in an emergency Fall Alert situation. The radio keys-up for the time selected by the Tx Base Time.

7.7.7.35

Remote Monitor/Radio Trace Tx Base Time

This field enables the dispatcher to remotely key up the radio to listen over the PTT.

Accessed Only: When the Remote Monitor/Radio Trace Enable field is enabled, and when the radio is model/option capable.

7.7.7.36

Data Operated Squelch (DOS)

This field causes the radio to automatically mute while receiving MDC signaling data.

This muting period is known as the Data Operated Squelch (DOS) period. This feature applies for the current Conventional System.

Accessed Only: When the System Type field is set to **MDC**.

7.7.7.37

DOS Operation

This field selects the frequency type used to determine Data Operated Squelch (DOS) activation for the current Conventional System.



WARNING: If you do not have complete knowledge of the system configuration that this radio will be operating on, do not attempt to modify this setting.

Accessed Only: When the System Type field is set to **MDC** and when the Data Operated Squelch (DOS) field is enabled.

The following selections are supported:

1800 hz

This selection is needed for backward compatibility to earlier radios. Therefore it is rarely used.

1200 / 1800 Hz

7.7.7.38

DOS Coast Time

This field selects an amount of time that the radio continues to wait in a muted state when the Data Operated Squelch (DOS) signal has faded.

If DOS is re-detected while this timer is running, this timer and the Rx Unmute Delay timer are stopped and reset. This helps to prevent temporary loss of Data in areas of poor signal strength, or high multi-path distortion. This selection applies for the current Conventional System. Time is in milliseconds.



WARNING: If you do not have complete knowledge of the system configuration that this radio will be operating on, do not attempt to modify this setting.

Accessed Only: When the System Type field is set to **MDC**, and when the Data Operated Squelch (DOS) field is enabled.

Table 214: Range

Minimum	Maximum	Increments
0 ms	6375 ms	25 ms

7.7.7.39

Talkaround Audio Mode

This field allows the user to select the talkaround audio mode in the Conventional System.

Selections:

Phase 1 FDMA

All talkaround calls must use Phase 1 FDMA audio.

Phase 2 TDMA Compatible

All talkaround calls must use Phase 2 TDMA compatible audio.

Last Granted

Talkaround calls use the last granted rate. Use this option when using Dynamic Dual Mode talkgroups on the trunking system. In this mode, the PSU default to Phase1 FDMA before it's first inbound transmission through the DVR.

7.7.8

Quik-Call II Tones Table

7.7.8.1

Quik-Call II

This section allows you to view or define Quik-Call II (QCII) Tone functionality for individual QCII Conventional Systems.



NOTE: Quik-Call II Conventional Systems are selected for use from the Conventional Personality's Non-ASTRO System field.

Accessed Only: When the System Type field is set to **Quik-Call II**, and when the radio is model/option capable.

7.7.8.1.1

Call Format

This field selects the Quik-Call II (QCII) Call Format (the specific sequence of tone frequencies) used by the current QCII Conventional System.



NOTE: Once the appropriate Call Format is selected, the corresponding QCII Codes/Frequencies for Tone A and Tone B, and possibly for Tone C and Tone D, must be defined.

Accessed Only: When the [System Type on page 347](#) field is set to **Quik-Call II**.

The following selections are supported:

- A-B
- A-B/A-C
- A-B/C-B
- A-B/Long B
- A-B/Long C
- A-B/A-C/Long C

- A-B/Long B/Long C
- A-B/A-C/Long B/Long C
- A-B/A-D/C-D
- A-B/C-D

7.7.8.2

Frequency

This field selects the receive Tone frequency for the current record/row, Tone A, B, C, or D, which collectively define the Quik-Call II (QCII) Call Format for the current QCII Conventional System.



NOTE: Where applicable, selecting a value for this field automatically selects a value for the corresponding Tone [Code on page 363](#) field (some Frequency vales do not have a corresponding Code, causing "None" to display in the Code field).

Accessed Only: When the [System Type on page 347](#) field is set to **Quik-Call II**.

Table 215: Range

Minimum	Maximum	Increments
288.5 Hz	3086.0 Hz	0.1 Hz

7.7.8.3

Code

This field selects the receive Tone Code for the current record / row (Tone A, B, C, or D) for the current Quik-Call II (QCII) Conventional System.

Accessed Only: When the [System Type on page 347](#) field is set to **Quik-Call II**.

See [Quik-Call II Standard Codes/Frequency Tones on page 363](#) for a list of standard codes.

7.7.8.4

Quik-Call II Standard Codes/Frequency Tones

Freq (Hz)	Code	Freq (Hz)	Code	Freq (Hz)	Code	Freq (Hz)	Code	Freq (Hz)	Code	Freq (Hz)	Code
288.5	138	441.6	EA	582.1	HZ	716.7	KZ	892.5	A5	1357.6	197
296.5	108	445.7	146	584.8	151	726.8	155	903.2	159	1395.0	198
304.7	139	457.1	EB	592.5	A1	727.5	A8	907.5	C5	1433.4	199
313.0	109	457.9	116	600.9	121	741.3	KA	912.0	MA	1472.9	170
321.7	140	470.5	147	602.6	HA	746.8	125	922.5	B5	1513.5	171
330.5	110	473.2	FZ	607.5	B1	757.5	A2	928.1	129	1555.2	172

339. 6	141	483. 5	117	617. 4	152	767. 4	156	937. 5	A6	1598 .0	173
346. 7	CZ	489. 8	FA	622. 5	C9	772. 5	C2	944. 1	MB	1642 .0	174
349. 0	111	496. 8	148	623. 7	HB	787. 5	B2	952. 5	C6	1687 .2	175
358. 6	142	507. 0	FB	634. 5	122	788. 5	126	953. 7	160	1733 .7	176
358. 9	CA	510. 5	118	637. 5	A9	794. 3	LZ	967. 5	B6	1781 .5	177
368. 5	112	517. 5	B7	645. 7	JZ	802. 5	A3	979. 9	130	1830 .5	178
371. 5	CB	524. 6	149	651. 9	153	810. 2	157	1006 .9	161	1881 .0	179
378. 6	143	524. 8	GZ	652. 5	B0	817. 5	C3	1034 .7	131	1930 .2	200
384. 6	DZ	532. 5	C7	667. 5	C0	822. 2	LA	1063 .2	162	1989 .1	201
389. 0	113	539. 0	119	668. 3	JA	832. 5	127	1092 .4	189	2043 .8	202
398. 1	DA	543. 3	GA	669. 9	123	847. 5	A4	1122 .5	190	2094 .5	203
399. 8	144	547. 5	A7	682. 5	A0	851. 1	LB	1153 .4	191	2155 .6	204
410. 8	114	553. 9	150	688. 3	154	855. 5	158	1185 .2	192	2212 .2	205
412. 1	DB	562. 3	GB	691. 8	JB	862. 5	C4	1217 .8	193	2271 .7	206
422. 1	145	562. 5	B8	697. 5	B9	877. 5	B4	1251 .4	194	2334 .6	207
426. 6	EZ	569. 1	120	707. 3	124	879. 0	128	1285 .8	195	2401 .0	208
433. 7	115	577. 5	C8	712. 5	C1	881. 0	MZ	1321 .2	196	2468 .2	209

7.7.9

Conventional Personality

The **Conventional Personality** allows you to create and delete Conventional Personalities, as well as define individual Conventional Personalities. Conventional and Trunking are the two radio communications modes.

Conventional Personalities types include **ASTRO**, **DVRS**, **Mixed Mode**, **MDC**, **Quik-Call II**, and **No Signaling**.



NOTE:

Once the features of the Conventional Personalities have been uniquely defined, each personality may then be assigned to the desired position of the radio's channel selector. This is accomplished from the Zone Channel Assignment's Channels Page.

7.7.9.1

Conventional Personality Name

This field allows you to define a recognizable name for the current Conventional Personality.



NOTE:

Examples: Fire005, Electric1, #510.

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.7.9.2

Receive Only Personality

This field causes the radio to not have transmit capability while operating on the current Conventional Personality.

Receiving calls will be the only operation permitted on this personality.



NOTE: If the personality is created by the Zone Cloning feature, the personality cannot be a Receive Only Personality.

Accessed Only: When the personality is not created by the Zone Cloning feature.

7.7.9.3

Rx Voice/Signal Type

This field selects the signaling mode when receiving (Rx) voice for the current Conventional Personality.



WARNING:

When the Remote Site Interface (RSI) System field in the referenced Conventional System is **Enabled**, this field must be set to **ASTRO**; otherwise the considers this field's value invalid.

When the Analog Flat Audio field is **Enabled**, this field must be set to **Non-ASTRO**; otherwise the considers this field's value invalid.

When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled**, this field must be set to **Non-ASTRO** or **ASTRO**; otherwise the considers this field's value invalid.

The following selections are supported:

Non-ASTRO

Only Non-ASTRO analog type signals are received.

An **MDC** or **QCII** System Type must be selected in the Non-ASTRO Signaling Type and then a Non-ASTRO System must be selected.

Mixed Mode

Both ASTRO digital and Non-ASTRO analog type signals can be received.

An ASTRO - Conventional Systems must be selected in the ASTRO System field, and an **MDC** or **QCII** System Type must be selected in the Non-ASTRO Signaling Type and then a Non-ASTRO System must be selected.



IMPORTANT: ASTRO communications take priority over receiving Non-ASTRO Signaling Type communications.

ASTRO

Only ASTRO digital type signals are received.

An ASTRO - Conventional Systems must be selected in the [ASTRO System](#) field.

7.7.9.4

Unmute/Mute Type

This field selects the rule that determines when a radio opens and closes its speaker to receive audio for the current Conventional Personality.

The Unmute/Mute rules apply only when PL is the selected [Rx/TA Squelch Type on page 413](#) for the current Conventional channel.



NOTE: Unmuting opens the radio's speaker to receive audio. Muting closes the radio's speaker to receive audio.

The following selections are supported:

Standard

To unmute on Proper Private Line (PL) code detection, and to mute on loss of proper PL code.

Unmute, Standard Mute

To unmute on Proper PL code detection and carrier squelch detect, and to mute on loss of proper PL code.

Unmute, Or Mute

To unmute on Proper PL code detection and Carrier Squelch detect, and to mute on loss of proper PL code or loss of Carrier Squelch detect.



NOTE: Proper refers to there being a code match between the transmitting radio's [Tx PL Code on page 422](#), and the receiving radio's [Rx/TA PL Code on page 416](#). The transmitting radio's [Tx Squelch Type on page 420](#) and the receiving radio's Rx/TA Squelch Type must also be a match; that is, Tx TPL for Rx TPL, or Tx DPL for Rx DPL.

7.7.9.5

Rx Unmute Delay

This field selects the amount of time that the radio stays muted once carrier squelch has been detected for the current Conventional Personality.

This delay is sometimes needed to allow signaling data to arrive silently. Time is in milliseconds.

Table 216: Range

Minimum	Maximum
0 ms	2150 ms

7.7.9.6

Squelch (Fine Tune)

This field selects the value that is combined with the master squelch value that determines the overall carrier squelch threshold for the current Conventional Personality.

The higher this number is set, the tighter the squelch threshold. A tighter threshold causes a stronger carrier signal to be required for the radio's speaker to unmute. This helps to reduce interference.

Accessed Only: When the Squelch Per Personality field is **Enabled**.

Table 217: Range

Minimum	Maximum
0	15

7.7.9.7

Busy LED

This field enables the yellow LED to indicate the presence of a carrier (busy channel) for the current Conventional Personality.

7.7.9.8

Rx De-Emphasis

This field enables Receive (Rx) De-Emphasis for the current Conventional Personality.



NOTE:

De-emphasis reverses a pre-emphasized signal when received by the radio.

Transmit emphasis audio filtering ([Transmit Pre-Emphasis on page 369](#)) increases the signal-to-noise ratio for higher frequencies. More simply put, the lower frequency's "noise" is reduced and the higher frequency's "voice" is increased.

7.7.9.9

HearClear

This field selects to enhance audio clarity by applying a compression/expansion algorithm to the transmitted and received signals respectively.

This feature applies for the current Conventional Personality.



IMPORTANT: With companding, the dynamic range of the transmit audio is compressed and then expanded to its original level in the receive audio. Therefore, companding must be enabled on both the transmitting and the receiving radios or distorted audio will result. Since the compression/expansion algorithm is active both on transmit and receive audio, expanding uncompressed audio or compressing audio without subsequently expanding it will both result in unnatural-sounding audio output. The audio path to the dispatcher must also be companded.

This feature applies only for analog signals.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is set to **Non-ASTRO** or **Mixed Mode**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type, and when the DVRS Hardware Enable field is **Disabled**.

The following selections are supported:

Disabled

No noise canceling or companding is applied to the transmit/receive signals.

Companding Only

Companding is applied to both the transmit and receive audio (see Important Note).

Noise Cancellation Only

Noise cancellation is applied to the receive audio.

Companding and Noise Cancellation

Companding is applied to both the transmit and receive audio (see Important Note) and noise cancellation is applied to the receive audio.



NOTE: The **Noise Cancellation Only** and **Companding and Noise Cancellation** settings can only be applied if all frequencies on the current personality are in the 900 MHz range.

7.7.9.10

Concurrent Rx Enable

When this field is enabled together with the [Concurrent Rx Enable](#) field in Radio Wide, you can control Concurrent Rx on a personality basis instead of a radio-wide basis.



NOTE: This field is enabled by default.

Accessed Only: When Concurrent Rx Enable field in Radio Wide is enabled.

7.7.9.11

Tx Voice/Signal Type

This field selects the voice-transmit (Tx) signaling mode that applies when the Rx Voice/Signal Type field for the current Conventional Personality is set to **Mixed Mode**.



IMPORTANT:

When the [Rx Voice/Signal Type on page 365](#) field is set to **Non-ASTRO** or **ASTRO** mode, this selection must exactly follow the Rx Voice/Signal Type selection for the current Conventional Personality in order to be considered valid by the .

This field remains accessible even when this personality's [Receive Only Personality on page 365](#) field is **Enabled**, because this personality will still be capable of initiating Emergency Mode when the [Emergency Revert Type on page 373](#) is set to **Revert Channel**, [Emergency Revert Zone](#) and [Emergency Revert Channel](#) assignments are defined for this personality.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

ASTRO

Only ASTRO System digital signals are transmitted.

Non-ASTRO

Analog signals are transmitted.



NOTE: Depending on the version in use and/or the capability of the radio, Phone Mode operation may be unavailable in **ASTRO** mode.

7.7.9.12

Time Out Timer

This field selects the amount of time that the radio is able to transmit.

When this timer expires, the radio is automatically de-keyed and a continuous alert tone is sounded for as long as the PTT button is pressed. To continue transmitting, the PTT button must be released and the radio re-keyed. This feature applies for the current Conventional Personality. Time is in seconds.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and (if the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, then the Remote Site Interface System field in the referenced Conventional System must be **Disabled**).

7.7.9.13

Transmit Pre-Emphasis

This field enables transmit (Tx) pre-emphasis audio filtering for the current Conventional Personality.



NOTE: Pre-emphasis increases the signal-to-noise ratio for higher frequencies; that is, the lower frequencies noise is reduced and the higher frequencies voice is increased.



NOTE: [Rx De-Emphasis on page 367](#) reverses a pre-emphasized signal when received by the radio.



WARNING: When this feature is enabled, it becomes invalid when the Analog Flat Audio field is also **Enabled**. Therefore both features may not be enabled on the same Personality.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**.

7.7.9.14

Reverse Burst/Turn-Off Code

This field enables either the Tone Private Line (TPL) Reverse Burst or Digital Private Line (DPL) Turn-Off Code to be transmitted when the radio is de-keyed.

This is based on the [Tx Squelch Type on page 420](#) (TPL or DPL) selected for the current Conventional Personality.



NOTE: Both features transmit a sub-audible tone that causes the receiving radio to mute its speaker before loss of a carrier is detected. Muting the speaker eliminates unwanted noise (squelch tail) during loss of carrier detection.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**.

7.7.9.15

Transmit Power Level

This field selects the radio's power level for transmitting while operating on the current Conventional Personality.



NOTE:

The Tx Low Power button-press, the Tx Low Power switch-toggle, and the Power menu-selection take precedence over this setting when selected by you.

During Emergency Mode, the radio automatically transmits at high power.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**.

The following selections are supported:

Low

Used when communicating in close proximity, and to keep the radio from transmitting into other geographical groups operating on the same frequency.

Medium-Low

Used when communicating in close proximity, but more power is required than the Low Power setting provides.

Medium-High

Used when a stronger signal is needed to extend transmission distances, but the High Power setting is excessive.

High

Used when a stronger signal is needed to extend transmission distances.

7.7.9.16

Adaptive Power

This field enables the radio to use a mid-power operation level if the signal strength report from the dispatch station indicates a strong received signal.

The radio always transmits initially with full power. Once the radio de-keys it looks for a data message from the station. If the station reports that the last reception was strong, the radio automatically switches to a mid-power setting. This feature applies while operating in ASTRO Signaling mode and when on the current Conventional Personality.



NOTE: Adaptive power is only available on ASTRO Tx channels.

Accessed Only: (When the radio is model/option capable, and when the [Transmit Power Level on page 369](#) field is **High**), and ((when the [Rx Voice/Signal Type on page 365](#) field is **Mixed Mode**), or (when the Rx Voice/Signal Type field is **ASTRO**, and when the Remote Site Interface System field in the referenced Conventional System is **Disabled**)).

7.7.9.17

ASTRO Digital Modulator Type

This field selects the Digital Modulator Type while operating in ASTRO signaling mode and on the current Conventional Personality.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **ASTRO** or **Mixed Mode**, and when the radio is model/option capable.

The following selections are supported:

C4FM

Continuous 4-Level Frequency Modulation for non-simulcast operation.

CQPSK

Compatible Quadrature Phase Shift Keying for narrowband simulcast operation. Available when the radio model is equipped for Common Air Interface (CAI) Digital Operation.

WIDE

Wideband simulcast operation. Available when the [Tx Deviation/Channel Spacing on page 409](#) field is not set to **2.5 kHz**.



WARNING: This selection is invalid if the following is true when the Rx Voice/Signal Type field is **ASTRO** or **Mixed Mode**, and ((when the Primary Frequency Band is **900 MHz**), or (when the Allow Invalid Frequencies field is **Enabled**, and when the 900 MHz Used in Codeplug field is **Enabled**)).

7.7.9.18

ASTRO Rx Unmute Rule

This field selects the radio's ASTRO receive (Rx) unmute mode while operating in ASTRO or DVRS signaling mode and when on the current Conventional Personality.



WARNING:

When the System Wide All-Call Talkgroup ID **65535** is selected for the current channel/personality (selected in the ASTRO Talkgroup ID field), and when the [Selection Type on page 382](#) field is **Strapped**, **Normal Squelch** is the only valid selection for this field.

When the System Wide Receive-Only Talkgroup ID **0** (a receive-only Talkgroup) is selected for the current channel/personality, **Selective Squelch** is the only valid selection for this field.



NOTE: When transmitting on the System Wide All-Call Talkgroup ID **65535** (for the current channel/personality), the radio automatically receives ASTRO voice on the **Normal Squelch** setting, regardless of the setting of this field.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **ASTRO** or **Mixed Mode**, and when the radio is model/option capable.

The following selections are supported:

Normal Squelch

The radio unmutes upon decoding a [Rx Network ID on page 409](#) match. The radio unmutes even when it is expecting DES-XL but receives DES-OFB (see the [DES-XL Tx Default on page 396](#) field).



NOTE: Available when the [Talkgroup](#) field or the [Selective Call Rx/Tx](#) field is **Enabled**.

Selective Squelch

The radio unmutes upon decoding a Network ID match and (either a Talkgroup ID match or a Selective Call.) If the DES-XL Tx Default selection determines the type of encryption algorithm that the radio expects to receive when in this mode.



NOTE: Available when the [Talkgroup](#) field or the [Selective Call Rx/Tx](#) field is **Enabled**.

Data And Squelch

The radio unmutes upon decoding a Network ID match and a Selective Call.



NOTE: Available when the [Selective Call Rx/Tx](#) field is **Enabled**.

Digital CSQ

The radio unmutes to all Digital CAI Operation compliant voice signals.

7.7.9.19

ASTRO Late Entry Fast Unmute

This field enables the radio to unmute to a call already in progress prior to determining if the call is a Secure call.

This feature allows calls to unmute 180 to 360 ms faster. This feature applies while operating in ASTRO signaling mode and on the current Conventional Personality.



IMPORTANT: It is recommended that this feature only be used on non-secure channels because radios receiving secure calls will unmute to unintelligible audio until the call is recognized as secure.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **ASTRO** or **Mixed Mode**, and when the radio is model/option capable.

7.7.9.20

Non-ASTRO Signaling Type

This field selects the type of analog signaling system used for receive and transmit communications while operating on the current Conventional Personality.



WARNING: When the Analog Flat Audio field is **Enabled**, this field must be set to **None**; otherwise it becomes invalid. Therefore both features may not be enabled on the same Personality.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode** and the personality is not automatically created by the Zone Cloning feature.

The following selections are supported:

- None
- MDC
- DTMF
- Quik-Call II



NOTE: Selections are radio model/option dependent.

7.7.9.21

Non-ASTRO System Number

Allows the user to select an existing conventional system set.

7.7.9.22

Non-ASTRO PTT ID

This field enables the MDC or DTMF PTT ID to transmit with each outbound communication.



NOTE: The PTT ID is equivalent to the Primary ID. Transmitting the Primary ID allows for Caller ID on the receiving radio. This feature applies for the current Conventional Personality.



NOTE:

When the PTT-ID field selection is **Leading Edge** or **Both**, the PTT ID is transmitted each time the PTT button is pressed/keyed.

When the PTT-ID field selection is **Trailing Edge** or **Both**, c



WARNING: The PTT-ID must not be set to **None** in the referenced MDC or DTMF Conventional System.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is **MDC** or **DTMF**, and when the [Receive Only Personality on page 365](#) field is **Disabled**.

7.7.9.23

Non-ASTRO Emergency PTT ID

This field enables the radio's currently-selected MDC Unit/Primary ID Primary ID to transmit with each Emergency Mode Call.

Therefore, Emergency PTT ID only applies when the Emergency Type field is set to **Alarm & Call**. This feature applies for the current Conventional Personality.



NOTE: The actual transmitted Emergency PTT ID is determined by the current Conventional Personality's selected (MDC only) System Number.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is **MDC**, and when an **MDC** System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected, and when that referenced Emergency Profile has its Emergency Type field set to **Alarm & Call**.

7.7.9.24

Emergency Revert Type

This field selects the type of emergency revert to be used for the current Conventional Personality.

Accessed Only: (When the [Tx Voice/Signal Type on page 368](#) field is set to **ASTRO**, and when an ASTRO System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected) or (when the Tx Voice / Signal Type field is set to **Non-ASTRO**, and when the Non-ASTRO Signaling Type field is set to **MDC**, and when an MDC System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected.)

The following selections are supported:

Selected Channel

No Revert Channel is used; emergencies transmit on the radio's currently-selected channel.

Revert Channel

The [Emergency Revert Zone](#) and [Emergency Revert Channel](#) selected for this Personality are used for emergency transmissions.

Revert Talkgroup

The Revert Talkgroup selected for this Personality is used for emergency transmissions.

This selection is Accessed Only when the radio is DVRS Portable Subscriber Unit (PSU) capable.



WARNING: This selection is only valid when a **DVRS** System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected, and the [Talkgroup](#) field is **Enabled**.

7.7.9.25

Emergency Revert Talkgroup

This field selects (in decimal or hex format) the ID for the Revert Talkgroup to be used while operating in emergency mode.

Emergency Alarms and Emergency Calls revert and transmit on this Talkgroup.



IMPORTANT: This only applies when the referenced Trunking Emergency Profile has its Emergency Talkback field set to **Revert**.



NOTE: Revert Emergency Talkback is also known as **Non-Tactical Emergency**. This selection applies for the current Conventional Personality.



IMPORTANT: This Revert Talkgroup ID is also used when emergency mode is entered from an Announcement Group or from a Dynamic Regrouping. This is true no matter if the referenced Trunking Emergency Profile has its Emergency Talkback field set to **Tactical** Emergency or **Revert** Emergency.

Accessed Only: When a **DVRS** System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected, and when the [Talkgroup](#) field is **Enabled**, and when the radio is model/option capable.

Table 218: Range

Minimum	Maximum
1 Hex	FFFE Hex

7.7.9.26

Emergency Revert TG Secure/Clear Strapping

This field selects the transmit mode while operating in emergency mode for the Revert Talkgroup.

This selection applies for the current Conventional Personality.

Accessed Only: When a DVRS System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected, and when the [Emergency Revert Type on page 373](#) field is set to **Revert Talkgroup**, and when the Secure Operation field is not set to **None**, and when the radio is model or option capable.

The following selections are supported:

Clear

Straps or commits the [Emergency Revert Talkgroup on page 373](#)/channel to normal (non-secure) Conventional operation.

Select

Allows you to toggle on or off secure encrypted operation for the current the talkgroup.

The Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows you to toggle on or off Secure encrypted communications.

Secure

Straps or commits the talkgroup to Secure encrypted operation.

7.7.9.27

Emergency Revert TG Key Select

This field selects the secure encryption key used while operating in emergency mode for the Revert Talkgroup.

This selection applies for the current Conventional Personality.



IMPORTANT:

When the [ASTRO OTAR Profile Index](#) is applicable for the current Conventional Personality, this Key Select value is chosen from a Encryption Key Reference in the Secure Hardware Encryption Key References List of the selected Secure KMF Profile.

When the KMF Profile Index is not applicable, this Key Select value is directly chosen from a key in the Secure Wide Window's Encryption Key List.

Accessed Only: When a DVRS System Type referenced Conventional System having a referenced Conventional Emergency Profile has been selected, and when [Emergency Revert TG Secure/Clear Strapping on page 374](#) is applicable and not set to **Clear**, and when the radio is model/option capable.

7.7.9.28

Non-ASTRO Call: Selective Call Rx/ Tx

This field selects whether Non-ASTRO (MDC, DTMF, and Quik-Call II) Selective Calls can be transmitted or received (or both) for the current Conventional Personality.



WARNING:

When the Expanded MDC ID Range field is **Enabled**, this field must be set to **Disabled** otherwise it is considered to be invalid by the RadioCentral. These two features are incompatible.

When the Non-ASTRO Signaling Type field is **Quik-Call II**, and when the DVRS Hardware Enable field is **Enabled**, and when the current Personality's referenced DVRS Profile has its DVRS Remote Activation field set to **Via Call Alert**, this feature must be **Disabled** otherwise it is considered to be invalid by the RadioCentral. These two features are incompatible.

When the Non-ASTRO Signaling Type field is **Quik-Call II**, this feature and [Call Alert Rx/Tx on page 376](#) are mutually exclusive; therefore, one of these features must be **Disabled**, otherwise both features are considered to be invalid.



NOTE: You can activate a Selective Call encode (transmit) with a Select/Private Call button-press or Select/Private Call menu-selection.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is **MDC**, **DTMF**, or **Quik-Call II**, and when the radio is model/option capable.

The following selections are supported:

Disabled

No Call Alerts are possible on the current Personality.

Decode

Selective Calls may only be received (decoded).

Encode

Selective Calls may only be transmitted (encoded).



WARNING: When the Non-ASTRO Signaling Type field is **Quik-Call II**, this selection is invalid.

Decode & Encode

Selective Calls may be received and transmitted.



WARNING: When the Non-ASTRO Signaling Type field is **Quik-Call II**, this selection is invalid.

7.7.9.29

Selective Call Unmute Type

This field selects the unmute condition for the current Non-ASTRO (MDC, DTMF, or Quik-Call II) Conventional Personality.

This unmute rule applies only to the detection of Selective Calls.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is **MDC**, **DTMF**, or **Quik-Call II**, and when the [Selective Call Rx/Tx](#) field is set to **Decode** or **Decode & Encode**, and when the radio is model/option capable.

The following selections are supported:

And

Both the current personality's selected [Unmute/Mute Type on page 366](#) rule, and Selective Call detection must be satisfied before unmute occurs.

Or

Either the current personality's selected Unmute/Mute Type rule, or Selective Call detection will unmute the radio's speaker to receive audio.

7.7.9.30

Call Alert Rx/Tx

This field selects whether Non-ASTRO (MDC, DTMF, Quik-Call II, and Singletone) Call Alerts can be transmitted or received (or both) for the current Conventional Personality.



WARNING:

When the Expanded MDC ID Range field is **Enabled**, this field must be set to **Disabled** otherwise it is considered to be invalid by the RadioCentral. These two features are incompatible.

When the Non-ASTRO Signaling Type field is **Quik-Call II**, this feature and [Selective Call Rx/Tx](#) are mutually exclusive; therefore, one of these features must be **Disabled**, otherwise both features are considered to be invalid by the RadioCentral.



NOTE: Call Alert is activated with a Call Alert button-press or Page (Call Alert) menu-selection.

Accessed Only: (When the radio is model/option capable, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is **MDC**, **DTMF**, or **Quik-Call II** for the current personality), and (when the DVRS Hardware Enable field is **Disabled**), or (when the DVRS Hardware Enable field is **Enabled**, and when the current Personality's referenced DVRS Profile has its DVRS Remote Activation field set to **Disabled**.)

The following selections are supported:

Disabled

No Call Alerts are possible on the current Personality.

Decode

Call Alerts may only be received (decoded).

Encode

Call Alerts may only be transmitted (encoded).



WARNING: When the Non-ASTRO Signaling Type field is **Quik-Call II**, this selection is invalid.

Decode & Encode

Call Alerts may be received and transmitted.



WARNING: When the Non-ASTRO Signaling Type field is **Quik-Call II**, this selection is invalid.

7.7.9.31

In-Call User Alert Enable

This field causes the radio to remain muted to normal dispatch calls whenever you activate the Voice Mute functionality.

Group and individual Call Alerts do unmute the radio for the alert tone to sound. The radio also unmutes to individual radio-to-radio calls such as Selective Calls and Interconnect (Phone Mode) calls. This feature is very useful when you prefer not to hear normal dispatch traffic, however needs to remain in radio contact. This feature applies while operating in Non-ASTRO System mode (MDC, DTMF, and QCII) and when on the current Conventional Personality.

When disabled, you are not able to toggle-on this feature for the current Conventional Personality.



NOTE: The Voice Mute button-press or the Voice Mute menu-selection allows you to toggle on and off the Voice Mute functionality for an In-Call User Alert enabled channel.



WARNING: This Non-ASTRO In-Call User Alert field must be **Enabled** when the [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode** and when the Signaling Type field is set to either **MDC** or **DTMF** or **Quik-Call II**.



IMPORTANT: When Voice Mute is Active, Individual or Group Call Alerts decoded by the radio do unmute the radio for the Release Squelch period. The Release Squelch period is defined by this personality's ASTRO System Select Call/In-Call Reset field selection. Once the Call Alert (sent as an individual call or a group call) unmutes the radio, a voice call that follows can then be a group call that is heard over the speaker of the radio, but only until the Release Squelch period has ended.

If the radio's channel is changed, Voice Mute is deactivated by the radio; Voice Mute must be reactivated if desired when returning to the channel.

If you press the PTT button, launch Emergency Mode, or power the radio off and back on, Voice Mute is deactivated by the radio.

MDC Radio Inhibit functionality is available.

The Scan mode and Monitor mode features are not available.

Other display indications (from group calls) such as receiving LED and PTT-ID (if enabled) function normally.

Accessed Only: When the [Call Alert Rx/Tx on page 376](#) field is set to **Decode** or **Decode & Encode**, and when the [Rx Voice/Signal Type on page 365](#) field is set to **Non-ASTRO** or **Mixed Mode**, and when the [Non-ASTRO Signaling Type on page 372](#) field is set to **MDC** or **Quik-Call II** or **DTMF**.

7.7.9.32

MDC RTT Button Access

This field selects the Request-To-Talk (RTT) mode for the current Conventional Personality.

When enabled with either the **Manual** (the MDC RTT button-press or [Request-To-Talk](#) menu-selection) or the **Auto** (PTT button) selections, the radio sends an RTT signaling packet to the dispatcher requesting the ability to transmit voice on the channel. The radio's microphone then immediately keys-up for 2 to 3 seconds allowing you the time to pick up the microphone and begin a voice transmission. From this point, the radio has "normal" voice access to this channel.



NOTE: This feature allows the dispatcher to manage channel traffic for voice communications. This feature applies while operating in MDC System mode and on the current Conventional Personality.



WARNING: If the [Access Type on page 383](#) field is set to **Auto**, this field may not be set to **Auto**. These two field settings are mutually exclusive.

Accessed Only: When the [Tx Voice/Signal Type on page 368](#) is set to **Non-ASTRO**, and when the Non-ASTRO Signaling Type field for the current personality is set to **MDC**.

The following selections are supported:

None

Feature is disabled.

Manual

Each time you initiate the RTT button-press or RTT menu-selection, the RTT signaling packet is transmitted to the dispatcher/console requesting the ability to transmit voice.



WARNING: This selection is only valid when [Receive Only Personality on page 365](#) is **Disabled**, and when [Repeater Access](#) is **Enabled**.

Auto

Each time you press the PTT button, the RTT signaling packet is transmitted to the dispatcher/console requesting the ability to transmit voice.



WARNING: This selection is only valid when Receive Only Personality is **Disabled**, when Repeater Access is **Enabled**, and when [Access Type on page 383](#) is not set to **Auto**.

7.7.9.33

MDC Auto Select Call Transmit

When enabled, once you select to send an MDC - Selective Call, and selects a call recipient from the Non-ASTRO Call Hot List, a Selective Call data packet is transmitted each time the radio's PTT button is pressed.

This feature applies while operating in MDC System mode and on the current Conventional Personality.

When disabled, an MDC Selective Call data packet is transmitted only when a Selective Call is initiated. That is, the Selective Call data packet is transmitted once you select to send a Selective Call, selects a call recipient from the Call List, and then presses the PTT button. Subsequent PTT presses do not send a Selective Call data packet.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type for the current personality is set to **MDC**, and when the [Selective Call Rx/Tx](#) field is set to **Encode** or **Decode & Encode**, and when the radio is model/option capable.

7.7.9.34

MDC Unlimited Calling

This field allows you to manually enter the ID of a targeted radio for a Selective Call or a Call Alert, also known as a direct entry.

Once the Call type is selected and the MDC Call Hot List appears in the radio display, direct entry of a desired MDC Radio ID (with a keypad) is then possible. Pressing the PTT button then transmits the call to the target radio(s) of the entered ID. This feature applies while operating in MDC System mode and on the current Conventional Personality.

Accessed Only: When the [Selective Call Rx/Tx](#) field is set to **Encode** or **Decode & Encode**, or when the [Call Alert Rx/Tx on page 376](#) field is set to **Encode** or **Decode & Encode**, and when the [Rx Voice/Signal Type on page 365](#) field is set to **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is set to **MDC**, and when the radio is model/option capable.

7.7.9.35

Non-ASTRO Call Hot List

This field selects the Non-ASTRO Hot List (MDC, DTMF, or Quik-Call II) to be used for the current Conventional Personality.

You are then able to select individual Call Hot List members while operating in Conventional communications mode. Call Hot List Members allow for Selective Call or Call Alert communications to individual or groups of radios.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the Non-ASTRO Signaling Type field is not equal to **None**.

7.7.9.36

ASTRO Call: Selective Call Rx/Tx

This field selects whether an ASTRO/DVRS - Call can be transmitted, received, or both.

This feature applies while operating in ASTRO System or DVRS mode and on the current Conventional Personality.



IMPORTANT:

When the referenced Conventional System is an ASTRO System Type, this feature enables Conventional Selective Call functionality.

When the referenced Conventional System is a DVRS System Type, this feature enables Trunking Private Call functionality.



NOTE: You can activate a Selective or Private Call with a Select/Private Call button-press or a Select/Private Call menu-selection.

Accessed Only: When the radio is model/option capable, and when the personality is not automatically created by Zone Cloning feature, and

((when the [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**), or (when the Rx Voice/Signal Type field is set to **ASTRO**, and when the Remote Site Interface System field in the referenced Conventional System is **Disabled**)).

The following selections are supported:

Disabled

No Selective/Private Calls are possible on the current Personality.

Decode

Selective/Private Calls may only be received (decoded).

Encode

Selective/Private Calls may only be transmitted (encoded).

Decode & Encode

Selective/Private Calls may be received and transmitted.

7.7.9.37

Auto Selective Call Transmit

When enabled, once you select to send an ASTRO - Selective Call and selects a call recipient from the ASTRO Call Hot List, a Selective Call data packet is transmitted each time the radio's PTT button is pressed.

This feature applies while operating in ASTRO System mode and when on the current Conventional Personality.

When disabled, a Selective Call data packet is transmitted only when you initiate a Selective Call. That is, when you select to send a Selective Call, selects a call recipient from the Call Hot List, and then presses the PTT button, the Selective Call data packet is transmitted once. Subsequent PTT presses do not send a Selective Call data packet.



NOTE: You can activate Selective Call with a Select/Private Call button-press or a Select/Private Call menu-selection.

Accessed Only: (When the radio is model/option capable, and when the [Selective Call Rx/Tx](#) field is **Encode** or **Decode and Encode**, and when the referenced Conventional System selected in the ASTRO System field is not a **DVRS** System Type), and ((when the [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**), or (when the Rx Voice/Signal Type field is set to **ASTRO**, and when the Remote Site Interface System field in the referenced Conventional System is **Disabled**)).

7.7.9.38

Call Alert Rx/Tx

This field selects whether Call Alerts (also known as Pages), can be transmitted or received, (or both).

This feature applies while operating in ASTRO System mode and when on the current Conventional Personality.



NOTE: You can activate Call Alert with a Call Alert button-press or Page (Call Alert) menu-selection.

Accessed Only: When the radio is model/option capable, and ((when the [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**), or (when the Rx Voice/Signal Type field is set to **ASTRO**, and when the Remote Site Interface System field in the referenced Conventional System is **Disabled**)), and ((when the DVRS Hardware Enable field is **Disabled**), or (when the DVRS Hardware Enable field is **Enabled**, and when the current Personality's referenced DVRS Profile has its DVRS Remote Activation field set to **Disabled**)).

The following selections are supported:

Disabled

No Call Alerts are possible on the current Personality.

Decode

Call Alerts may only be received (decoded).

Encode

Call Alerts may only be transmitted (encoded).

Decode & Encode

Call Alerts may be received and transmitted.

7.7.9.39

In-Call User Alert Enable

This field causes the radio to remain muted to normal dispatch calls whenever you activate the Voice Mute functionality.

Group and individual Call Alerts do unmute the radio for the alert tone to sound. The radio also unmutes for individual radio-to-radio calls such as Selective Calls, Tone Signaling calls and Interconnect (Phone Mode) calls. This feature is useful when you prefer not to hear affiliated talkgroup traffic but need to be in radio contact. This feature applies while operating in ASTRO System mode and on the current Conventional Personality.

When disabled, you are not able to toggle-on this feature for the current Conventional Personality.



NOTE: The Voice Mute button-press or Voice Mute menu-selection allows you to toggle on and off the Voice Mute functionality for an In-Call User Alert enabled channel.



WARNING: This ASTRO In-Call User Alert field must be **Enabled** when the [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode** and when the Signaling Type field is set to either **MDC** or **DTMF** or **Quik-Call II**.



IMPORTANT: When Voice Mute is active, Individual or Group Call Alerts decoded by the radio unmute the radio for the Release Squelch period. The Release Squelch period is defined by this personality's ASTRO System Select Call/In-Call Reset field selection. When the Call Alert (sent as an individual call or a group call) unmutes the radio, a voice call that follows can then be a group call. This group call is heard over the radio speaker but only until the Release Squelch period ends.

If the radio channel is changed and the radio deactivates Voice Mute, Voice Mute must be reactivated if desired when returning to the channel.

If you press the **PTT** button, launch Emergency Mode, or turn the radio off and back on, the radio deactivates Voice Mute.

ASTRO Radio Inhibit functionality is available.

The Scan mode and Monitor mode features are not available.

Other display indications from group call such as receiving LED and PTT-ID (if enabled) function normally.

Accessed Only: You can access this field only if the following conditions are met:

- The radio is model or option capable.
- The [Call Alert Rx/Tx on page 380](#) field is set to **Decode** or **Decode and Encode**.
- The [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**, or the **Call Alert Rx/Tx** field is set to **Decode** or **Decode and Encode**.
- The **Rx Voice/Signal Type** field is set to **ASTRO**.
- The **Remote Site Interface System** field in the referenced Conventional System is set to **Disabled** or the **Rx Voice/Signal Type** field is not set to **Non-ASTRO**.
- The **Tone Signaling List** field of the current Conventional Personality is referencing a Tone Signaling List that has at least one record or row where **Unmute Enable** is **Enabled**.

7.7.9.40

ASTRO Unlimited Calling

This field allows you to manually enter the ID of a targeted radio for a Selective Call, Call Alert, or Tactical Services. The action is known as a direct entry.

Once the call type is selected and the ASTRO Call Hot List appears in the radio display, direct entry of a desired ASTRO Radio ID (with a keypad) is possible. For Selective Call and Call Alert, pressing the **PTT** button transmits the call to one or more target radios of the entered ID. For Tactical Services, pressing the **Send** softkey menu transmits the Tactical Services command to one or more target radios of the entered ID.

The feature applies while operating in ASTRO System or DVRS mode, and on the current Conventional Personality.



IMPORTANT: When the referenced Conventional System is a DVRS System Type, then this feature enables Trunking Private Call functionality.

Accessed Only: This field can be accessed when the radio is model or option capable, and when one of the following conditions are met:

- The [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**.

- The Rx Voice/Signal Type field is set to **ASTRO**, and the Remote Site Interface System field in the referenced Conventional System is **Disabled**.
- The [Selective Call Rx/Tx](#) field, or the [Call Alert Rx/Tx on page 380](#) field is set to **Encode**, or **Decode & Encode**.
- The Kill Operation field, or the Stun Operation field is set to **Encode**, or **Decode & Encode**.
- The Tactical Services Operation field is set to **Encode**, or **Decode & Encode**.

7.7.9.41

ASTRO Call Hot List

This field selects the ASTRO Conventional Hot List to be used for the current Conventional Personality.

You are able to select individual Call List members while operating in Conventional communications mode. Call List Members allow for Selective Call, Call Alert, or Tactical Services communications to one or more radios. The feature applies while operating in ASTRO System mode and on the current Conventional Personality.

Accessed Only: This field can be accessed when the radio is model or option capable, and when one of the following conditions are met:

- The [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**.
- The Rx Voice/Signal Type field is set to **ASTRO**, and when the Remote Site Interface System field in the referenced Conventional System is **Disabled**.

7.7.9.42

ASTRO Talkgroup

This section allows you to view or define ASTRO System ASTRO Talkgroup List functionality for individual Conventional Personalities.



NOTE:

Conventional Systems defined as having the **ASTRO** System Type can be selected from the Conventional Personality's ASTRO System field, allowing for ASTRO Systems communications to occur.

Once the features of the Conventional Personalities have been uniquely defined, each personality can then be assigned to the desired position of the radio's channel selector. This is accomplished from the Zone Channel Assignment's Channels Page.

7.7.9.43

Selection Type

This field allows you the ability to choose a talkgroup from the selected ASTRO Talkgroup List, or to not give you the ability to change the talkgroup.

The Talkgroup List is selected from the [Talkgroup List](#) on this same page. This selection applies while operating in ASTRO System mode and on the current Conventional Personality.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO** or **Mixed Mode**, and when the [Talkgroup](#) field is **Enabled**, and when the personality is not automatically created by the Zone Cloning feature.

The following selections are supported:

Strapped

The Talkgroup selected by the ASTRO Talkgroup ID field is strapped to the current Conventional Personality and cannot be changed.

Selectable

You are able to switch from the preset Talkgroup ID to another Talkgroup ID from within the Conventional Personality's Talkgroup List, selected on this same page.

You are only able to switch Talkgroups with a Talkgroup button-press or Talkgroup menu-selection.

7.7.9.44

Repeater Access

This section allows you to view or define repeater access for individual Conventional Personalities.



NOTE:

Once the features of the Conventional Personalities have been uniquely defined, each personality can then be assigned to the desired position of the radio's channel selector. This is accomplished from the Zone Channel Assignment's Channels Page.

You can initiate RAC access with a Repeater Access Button 1 or Repeater Access Button 2 button-press, or a Repeater Access Button 1 or Repeater Access Button 2 menu-selection, or automatically with the PTT button-press transmission.

The following fields are supported:

7.7.9.45

Access Type

This field selects whether repeater access is gained manually, or automatically.

This selection applies for the current Conventional Personality.



IMPORTANT: If this field is set to **Auto**, and the MDC RTT Button Access field is also set to **Auto**, then the MDC RTT Button Access field becomes invalid (see also the [Invalid Fields Report](#)). These two field settings are mutually exclusive.

Accessed Only: When [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type, and when the [Repeater Access](#) field is **Enabled**.

The following selections are supported:

Manual

The MDC Repeater Access Codeword or Singletone Repeater Access Codeword is sent when the Repeater Access Button 1 button-press, or Repeater Access Button 2 button-press, or Repeater Access Button 1 menu-selection or Repeater Access Button 2 menu-selection is selected.

Auto

A PTT button-press automatically sends the selected Repeater Access Codeword defined for Repeater Access Button 1. The codeword then automatically precedes for all your initiated transmission for the current Conventional Personality.



IMPORTANT: The Repeater Access Codeword is still sent in an "Automatic" mode for data transmissions such as Emergency, MDC Status, or Message transmissions.

7.7.9.46

Singleton List Selection

This field selects the Tone Signaling List to be used for the current Conventional Personality Repeater Access Control.

Accessed Only: When [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the [Repeater Access](#) field is **Enabled**.



WARNING: The Tone List Type in the Tone Signaling List must be "Singleton".



NOTE: Tone Signaling List functionality is defined in the Tone Signaling List Page.

The following selections are supported:

- Tone Signaling Disabled
- Available Tone Signaling Lists

7.7.9.47

RAB1 Code Type

This field selects the Signaling System type used during Repeater Access (RAC) for the current Conventional Personality.

When the [Access Type on page 383](#) field is **Auto**, this selection applies to a PTT button press. When the Access Type field is **Manual**, this selection applies to the Repeater Access Button 1 button-press or Repeater Access Button 1 menu-selection.

Accessed Only: When [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type, and when the [Repeater Access](#) field is **Enabled**.

The following selections are supported:

- MDC
- Singleton

7.7.9.48

RAB1 MDC Repeater ID

This field selects an MDC Repeater ID List number corresponding to a Repeater ID.

This Repeater ID is used for MDC Repeater Access for the current Conventional Personality. When the [Access Type on page 383](#) field is **Auto**, this selection applies to a PTT button-press. When the Access Type field is **Manual**, this selection applies to the Repeater Access Button 1 button-press or Repeater Access Button 1 menu-selection.

Accessed Only: When the [Repeater Access](#) field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the Non-ASTRO Signaling Type field is **MDC**, and when the [Code Type 1 for Repeater Access Button 1 \(RAB1\) or PTT](#) field is **MDC**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type.

7.7.9.49

RAB1 Singletone Alias Selection

This field selects the Tone Alias record in one of the pre-selected Tone Signaling List for the current Conventional Personality Repeater Access Control.

Accessed Only: When the [Repeater Access](#) field is **Enabled**, and when [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when [Singletone List Selection on page 384](#) is referencing to a Tone Signaling record that Tone List Type is "Singletone", and when [Code Type 1 for Repeater Access Button 1 \(RAB1\) or PTT](#) is **Singletone**, and when the radio is model/option capable.



WARNING: The Tone List Type in the Tone Signaling List must be "Singletone".



NOTE: Tone Signaling List functionality is defined in the Tone Signaling List Page.

The following selections are supported:

- Available Tone Signaling Lists
- Disabled



NOTE: Disabled is always invalid when Singletone Alias Selection field is applicable.

7.7.9.50

RAB2 Code Type

This field selects the Signaling System type used during Repeater Access (RAC) for the current Conventional Personality.

When the [Access Type on page 383](#) field is **Manual**, this selection applies to the Repeater Access Button 2 button-press or Repeater Access Button 2 menu-selection. When the Access Type field is **Auto**, this selection does not apply.

Accessed Only: When [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the [Repeater Access](#) field is **Enabled**, and when the Access Type field is set to **Manual**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type.

The following selections are supported:

- None
- MDC
- Singletone



WARNING:

- The MDC selection is only valid when the Non-ASTRO Signaling Type field is **MDC**

7.7.9.51

RAB2 MDC Repeater ID

This field selects an MDC Repeater ID List number corresponding to a Repeater ID.

This Repeater ID is used for MDC Repeater Access for the current Conventional Personality. When the [Access Type on page 383](#) field is **Manual**, this selection applies to the Repeater Access Button 2 button-press or Repeater Access Button 2 menu-selection. When the Access Type field is **Auto**, this selection does not apply.

Accessed Only: When the [Repeater Access](#) field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the Non-ASTRO Signaling Type field is set to **MDC**, and when the Access Type field is **Manual**, and when the [Code Type 2 for RAB2](#) field is set to **MDC**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type.

7.7.9.52

RAB2 Singleton Alias Selection

This field selects an MDC Repeater ID List number corresponding to a Repeater ID.

This Repeater ID is used for MDC Repeater Access for the current Conventional Personality. When the [Access Type on page 383](#) field is **Manual**, this selection applies to the Repeater Access Button 2 button-press or Repeater Access Button 2 menu-selection. When the Access Type field is **Auto**, this selection does not apply.

Accessed Only: When the [Repeater Access](#) field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the Non-ASTRO Signaling Type field is set to **MDC**, and when the Access Type field is **Manual**, and when the [Code Type 2 for RAB2](#) field is set to **MDC**, and when the referenced Conventional System selected in the ASTRO System field is not a DVRS System Type.

7.7.9.53

OTACR/OTACS Messaging

Enables Over-The-Air-Channel-Reassignment (OTACR) and Over-The-Air-Channel-Steering (OTACS) Messaging.



WARNING: This feature is currently not available.

This feature applies while operating on the current [Conventional Personality on page 364](#).



WARNING: When the referenced [Conventional System on page 347](#) (selected in the [ASTRO System](#) field) has a referenced [Data Profile](#) whose [Data Profile Type on page 319](#) is **Conventional & Broadband** or **Broadband-Only**, this field must be set to **Disabled**; otherwise, it is considered invalid.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) is **ASTRO** or **Mixed Mode**, and when the [OTACR Feature on page 343](#) is **Enabled** or the [OTACS Feature on page 343](#) is **Enabled**, and when the referenced [Conventional System on page 347](#) selected in the [ASTRO System](#) field is not a DVRS [System Type on page 347](#), and when the radio is model/option capable.

7.7.9.54

Tactical Rekey Enable

This field enables the radio to receive Rekey commands that have been sent from other radios or Subscriber Units (SUs) rather than from a Fixed Network Equipment (FNE) or a Key Management Facility (KMF).

Rekeying is the process of changing the radio's current secure encryption keys. Secure encryption keys allow for secure communications to occur.



NOTE: In order to use this radio as an RF modem to transmit Tactical Rekey commands, please refer to the Terminal Data field.

Accessed Only: When the Secure Operation field is **Hardware**, and when the [Rx Voice/Signal Type on page 365](#) is **ASTRO** or **Mixed Mode**, and when the [Tx Voice/Signal Type on page 368](#) field is **ASTRO**, and when an ASTRO System Type referenced Conventional System having a valid referenced Data Profile has been selected, and when the Data Profile Type is **Conventional** in that referenced Data Profile, and when the radio is model/option capable.

7.7.9.55

Hot Keypad

This field enables you to enter telephone numbers using the radio's keypad, even when the radio is not in Phone Mode.

This hot keypad mode is initiated by pressing and holding the PTT button while pressing the required numbers. This feature applies while operating on the current Conventional Personality.

Accessed Only: When [Receive Only Personality on page 365](#) field is **Disabled**, and Tone Signaling H-Option is present, and when the radio is model/option capable.

7.7.9.56

DTMF Mic Enable

This field allows you to transmit DTMF tones using the radio's keypad, even when the radio is not in Phone Mode.

You can initiate DTMF Mic by pressing and holding the Top or Side or Control Head button, while the required DTMF keypad number is sent out. This selection applies while operating on the current Conventional Personality.

Accessed Only: When [Receive Only Personality on page 365](#) field is **Disabled**, and Tone Signaling H-Option is present, and when the radio is model/option capable.

7.7.9.57

End Tx on Voice Absence

This field enables the radio, during a Conventional voice transmission, to automatically de-key when its on-board Digital Signal Processor (DSP) detects a lack of voice from the microphone for a period that exceeds the Voice Absence Timer.

This selection applies while operating on the current Conventional Personality.



WARNING: The feature does not operate when an in-the-field radio:

- Is operating in Emergency Mode and either **Hot Mic Emergency** or **Emergency via Silent Audio** is currently active (see also Emergency Auto Transmit Mode), or
- Is currently being remotely-monitored (see also Remote Radio Mode and Emergency Remote Monitor Enable).

Accessed Only: When the radio is model/option capable.

7.7.9.58

RF Modem

This field enables the APX NEXT XN radio to operate as a Radio Frequency (RF) Modem. The radio can also track battery levels.

The following selections are supported:

- **Disabled**
- **APCO Project 25 Mode**

7.7.9.59

Automatic Scan

This field causes the radio to automatically enter scan mode when you select (with the channel selector) the current Conventional Personality.

Auto Scan is also invoked when the radio is powered-on to the current Personality.

When disabled, you are able to invoke Scan Mode operation through a Scan button-press, a Scan switch-toggle or a Scan menu-selection, while operating on the current Conventional Personality.

Accessed Only: When the [Scan List Selection on page 515](#) field is not set to **None**.

7.7.9.60

Mixed Vote Scan Enable

This field enables Conventional Mixed Vote Scan for the current Conventional Personality.

When this field is **Enabled**, all of the Frequency Options (records/rows) in the current Personality are used to form the Voting Scan list.



IMPORTANT: Additionally, when this field is enabled, the maximum number of Frequency Options is limited to 15.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the Personality is selected in the Personality field, and then the Frequency Options profile is selected in the Frequency Options field.

Accessed Only: When the radio is model/option capable, and when the personality is not automatically created by the Zone Cloning feature, and

(when the Remote Site Interface System field in the referenced Conventional System is **Disabled**; if **Enabled**, then the [Rx Voice/Signal Type on page 365](#) field must be set to **ASTRO**, and this Mixed Vote Scan Enable selection must be **Disabled**; else, this field becomes invalid).

7.7.9.61

Mixed Vote Scan Tx Steering

This field enables the Frequency Options profiles of the current Conventional Personality to vary when that Personality has been Conventional Mixed Vote Scan enabled.

See the [Mixed Vote Scan Enable on page 388](#) field. When disabled, all Tx Frequency Options, and specific Rx Frequency Options, for the current Conventional Personality must be the same.

Accessed Only: When the Mixed Vote Scan Enable field is **Enabled**.

7.7.9.62

Smart PTT Type

This field allows you to select a channel lockout rule that prevents the radio from transmitting while the selected Tx **Inhibit On** condition exists.

This selection applies while operating on the current Conventional Personality.



IMPORTANT: The [Smart PTT Quick Key Override on page 390](#) field is an override feature pertaining to these Tx **Inhibit On** selections. This override feature allows you to transmit regardless of the currently-selected **Inhibit On** rule.



NOTE:

If you attempt to transmit (by pressing the PTT Button) while a selected Tx **Inhibit On** rule is disallowing that transmission, the radio will exhibit one of two behaviors:

- If the selected Tx **Inhibit On** condition is met but the radio is currently muted, a continuous alert tone sounds until the PTT button is released. This would include, for example, cases where the repeater is busy with an encrypted conversation, but the radio remains muted due to a lack of secure support (**Inhibit on Status Symbols**).
- If the radio is currently receiving and unmuted to a voice transmission, pressing the PTT button causes a short alert tone to sound; this is because the radio unmutes to the higher-priority voice audio after a brief interval.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the referenced Conventional System is not a DVRS System Type, and (if the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, then the Remote Site Interface System field in the referenced Conventional System must be **Disabled**).

The Smart PTT Type supports the following selections:

Disabled

Allows transmission when any transmission is detected on the current channel.

Inhibit On Wrong PL

For analog (Non-ASTRO) voice calls: Prevents transmission when carrier squelch is detected with a PL code that does not match for the current personality/channel; If the busy channel PL code is a match for the current personality, radio transmissions are permitted.

For digital (ASTRO) voice calls: Prevents transmission when the radio does not unmute due to receiving a Talkgroup ID that does not match the current personality/channel's Talkgroup ID. If the busy channel Talkgroup is a match for the current personality/channel's Talkgroup ID, radio transmissions are permitted.



NOTE: Permissible Talkgroups are determined by the personality's referenced ASTRO Talkgroup List.

Inhibit On Carrier

Prevents transmission when carrier squelch is detected on the current channel.

Inhibit on Correct NAC

Prevents transmission while the radio is receiving a digital (ASTRO) voice call that has a matching Network Access Code (NAC) for the current channel (see [Rx Network ID on page 409](#)).

Inhibit on Status Symbols

Prevents transmission while receiving a digital (ASTRO) voice call and when the 'last-received' signal status bit recorded was either **inbound busy** or **unknown**.

This setting is not applicable for analog (Non-Astro) voice calls.



NOTE:

Receiving analog signals is only possible when the Rx Voice/Signal Type field is **Non-ASTRO** or **Mixed Mode**, and an MDC or QCII System Type has been selected in the Non-ASTRO Signaling Type field, and the corresponding Non-ASTRO System has been selected for the current Conventional Personality.

Receiving digital signals is only possible when the Rx Voice/Signal Type field is set to **ASTRO Mode** or **Mixed Mode**, and an ASTRO - Conventional System has been selected in the **ASTRO System** field.

7.7.9.63

Smart PTT Quick Key Override

This field allows you to override the selected Smart PTT Type field **Inhibit On** rule, thus allowing a transmission to be sent on a busy channel in an impolite fashion.

You can accomplish this by quick-keying the PTT button. Quick-keying is when the PTT button is pressed, released and quickly re-pressed, within the time specified by the Smart PTT Quick Key Timer field. This feature applies for the current Conventional Personality.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Smart PTT Type on page 389](#) field is not **Disabled**, and when the referenced Conventional System is not a DVRS System Type, and (if the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, then the Remote Site Interface System field in the referenced Conventional System must be **Disabled**).

7.7.9.64

Incident Signaling Type

This field selects either the Personnel Accountability or the Tactical Public Safety (TPS) signaling type for the current Conventional Personality.



NOTE: None of these selections have any influence on the [Tactical Public Safety UI Enable on page 391](#) feature.

Accessed Only: When the personality is not automatically created by the Zone Cloning feature and when the radio is model/option capable.

The following selections are supported:

Disabled

No Personnel Accountability or TPS Signaling is available to the radio.

Personnel Accountability

Enables Personnel Accountability Signaling for the current Conventional Personality.



WARNING: This selection is only valid when [Phone Operation](#) is set to **None**, and when [Tx Voice/Signal Type on page 368](#) is set to **ASTRO**, and

when the referenced Conventional System is not a DVRS System Type, and

when that Conventional System's referenced Data Profile has the **Conventional & Broadband** or **Broadband Only**.

Personnel Accountability with MDC

Enables Personnel accountability with MDC for the current Conventional Personality



WARNING: This selection is only valid when [Phone Operation](#) is set to **None**, and when [Tx Voice/Signal Type on page 368](#) is set to **ASTRO**, and when the Rx Voice / Signal Type is set to **Mixed Mode**, and when the Personnel Accountability Tx voice Type is set to **Analog** and when the Non-ASTRO signalling type is set to **MDC** and when the RAC/Repeater Access is disabled, and when the referenced Conventional System is set to ASTRO System Type, and when that Conventional System's referenced Data Profile has the **Conventional & Broadband** or **Broadband Only**.

Tactical Public Safety

Enables TPS Signaling for the current Conventional Personality.



WARNING: This selection is only valid when [Rx Voice/Signal Type on page 365](#) is set to **Mixed Mode**, and when Tx Voice/Signal Type is set to **ASTRO**, and when Non-ASTRO Signaling Type is set to **None**, and when the [Talkgroup](#) field is **Disabled**, and when the [Selective Call Rx/Tx](#) field is set to **Disabled** or **Decode**, and when the referenced Conventional System is not a DVRS System Type, and when that Conventional System's referenced Data Profile has the **Conventional & Broadband** or **Broadband Only**, and (when Secure Operation field is **Disabled**), or (when Secure Operation is set to **Hardware** or **Advanced Digital Privacy**, and when [Voice Secure/Clear Strapping on page 397](#) is set to **Clear**.)

7.7.9.65

Tactical Public Safety UI Enable

This field enables several Tactical Public Safety (TPS) features that are related to Emergency Mode operation for the current Conventional Personality.

These features include the Radio Wide, Tactical Public Safety: Audible Emergency Beacon, Audible Emergency Beacon Routing, Emergency Call De-key Sidetone, and Emergency Alarm Retry Rate.



IMPORTANT: This feature applies for the current Conventional Personality regardless of this Personality's [Incident Signaling Type on page 390](#) selection.

Accessed Only: When the radio is model/option capable.

7.7.9.66

Personnel Accountability Registration

This field enables the radio to register with the Personnel Accountability (PA) Incident Command Terminal (ICT).

Registration is accomplished by transmitting PA registration packets to the ICT with the expectation of receiving an

acknowledgement from the ICT of a successful registration transmission. If the registration packet transmission is not acknowledged, the radio continues to retry the packet transmission for the number of times defined in the Trunking Wide, [Max Tx Attempts on page 440](#) field. This feature applies when operating on the current Conventional Personality.



NOTE: The Radio Wide, Respond to Polls field determines how often (in minutes) that the registration attempt will re-occur.

Accessed Only: When the [Incident Signaling Type on page 390](#) field is set to **Personnel Accountability** or **Personnel Accountability with MDC**, and when the CAI Data Registration field in the current Conventional Personality's referenced Conventional System is **Disabled**, and when that Conventional System's referenced Data Profile has its ARS Mode field **Disabled**, and when the radio is model/option capable.

7.7.9.67

Tx Voice Type

This field selects the Transmit (Tx) Voice mode that is used during Personnel Accountability operation for the current Conventional Personality.

Accessed Only: When the [Incident Signaling Type on page 390](#) field is set to **Personnel Accountability** or **Personnel Accountability with MDC**, and when the radio is model/option capable.

The following selections are supported:

Digital

ASTRO digital mode is used to transmit voice during Personnel Accountability operation. ASTRO digital mode is not valid for Personnel Accountability with MDC.

Analog

Non-ASTRO analog mode is used to transmit voice during Personnel Accountability operation.



WARNING: This selection is only valid per a Conventional Personality basis when the [Rx Voice/Signal Type on page 365](#) field is set to **Mixed Mode**, and when the [Talkgroup](#) field is **Disabled**, and when the [Selective Call Rx/Tx](#) field is not set to **Encode** or **Decode & Encode**.

7.7.9.68

OTA Radio Alias Type

This field configures the encoding (transmitting) and decoding (receiving) of the Over-the-Air (OTA) Radio Alias feature.



WARNING: Radio cannot display alias if the radio receives duplicated IDs until the duplication is removed. Writing the codeplug to the radio will cause the call list to return to its original state and all OTA alias updates will be lost.



IMPORTANT: If OTA alias update did not show up on the display, you must update the radio call list in RadioCentral or provisioning manager.

The following selections are supported:

Disabled

The radio does not transmit or receive the Radio Alias data.

Leading Only

Radio Alias data transmits before voice only.



WARNING: This selection is only valid when the [Tx Voice/Signal Type on page 368](#) field is set to **ASTRO**, and when the referenced Conventional System is not DVRS.

Trailing Only

Radio Alias data transmits after voice only.



WARNING: This selection is only valid when the Tx Voice/Signal Type field is set to **ASTRO**, and when the referenced Conventional System is not DVRS.

Leading and Trailing

Radio Alias data transmits before and after voice.



WARNING: This selection is only valid when the Tx Voice/Signal Type field is set to **ASTRO**, and when the referenced Conventional System is not DVRS.

Decode Only

Radio Alias data receives the data without limitation.

Accessed Only: When the radio is model/option capable.

7.7.9.69

OTA Radio Alias Update Enable

This field allows the current system to update the radio alias.

Accessed Only: When the Radio ID Enable is enabled, and when [Rx Voice/Signal Type on page 365](#) is not **Non-ASTRO**, and [ASTRO System](#) is referencing a DVRS system, and when [OTA Radio Alias Type on page 392](#) is not **Disabled**, and when the radio is model/option capable.

7.7.9.70

Hazard Zone Mode Personality

This field allows you to turn on the Hazard Zone Mode (HZM) using the concentric switch while operating on the current Conventional Personality.



NOTE: This field is only applicable for APX NEXT XN radio.



IMPORTANT: When HZM is **Enabled**, the following conditions must be fulfilled.

ASTRO System field in Conventional Personality is set to an ASTRO system with the following settings:

- Emergency Profile Selection field is connected to a conventional emergency profile.
- Emergency Profile Selection field is not set to **Emergency Tx Disabled**.
- Emergency Alarm Rx Indicator field is **Enabled**.

Tx Voice/Signal Type and Rx Voice/Signal Type field is set to **ASTRO** or Incident Signaling Type field is not set to **Disabled**.

When HZM Personality field is checked, the Emergency Revert Type field is set to **Selected Channel**, or to another channel tied to a HZM personality.

Accessed Only: When the radio is the latest Fire Service Standards model.

7.7.9.71

One Touch Button

Displays the view-only the assigned name for the One Touch button-press or One Touch menu-selection.



NOTE: Individual Trunking Systems are referenced to a Trunking Personality. These Trunking Systems settings can then become functional for all channel types within that Trunking Personality.

7.7.9.72

One Touch Button Feature

This field selects the One Touch Feature for your One Touch button-press or One Touch menu-selection.

This selection applies for the current record/row, which applies for the current Trunking System.



IMPORTANT: Conventional One Touch Button 1, in other words, the first record/row would correspond to a One Touch 1 button-press, and/or a TCH1 or SIG1 menu-selection, and so on.



NOTE:

When any of the following One Touch Button Feature types is selected, a [One Touch Button Index on page 395](#) Index/List Member selection is also required for the current personality: Phone, Selective Call, Call Alert, Status, or Message.

The available One Touch Button Feature selections are model/option dependent.

Accessed Only: When the radio is model/option capable and (if the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, then the [Remote Site Interface System](#) field in the referenced Conventional System must be **Disabled**).

The following selections are supported:

Disabled

One Touch is not available for the current Button selection.

Phone

The [Phone Operation](#) feature is enabled for the current personality.

Select Call

The [Selective Call Rx/Tx](#) feature is set to **Decode & Encode** or **Encode**.



IMPORTANT: When the referenced Conventional System is a "DVRs" System Type, then this feature associates Trunking Private Call functionality with the One Touch button-press or [One Touch \(SIG1-SIG4/DISP\)](#) menu-selection.

Call Alert

The [Call Alert/Page Operation on page 489](#) field is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Status

The [Status on page 355](#) feature of the referenced Conventional System (to the current personality) is **Enabled**.

Message

The [Message](#) feature of the referenced Conventional System (to the current personality) is **Enabled**.

RAB1 (Repeater Access Button)

The [Repeater Access](#) feature is enabled for the current personality. When the [Access Type on page 383](#) field is set to **Auto**, this selection becomes invalid. When the Access Type field is **Manual**, the Code Type 1 for RAB1 selection applies to this button-press.

RAB2

The Repeater Access feature is enabled for the current personality. When the Access Type field is set to **Auto** and or Code Type 2 for RAB2 is set to **None**, this selection becomes invalid.

RTT (Request-To-Talk)

The Repeater Access feature is enabled and the Access Type feature is set to **Manual** for the current personality.

7.7.9.73

One Touch Button Index

This field selects the One Touch Index/List member for your One Touch button-press or One Touch menu-selection, pertaining to the selected One Touch Button Feature.

Index refers to the actual record/row of the list determined by the One Touch Button Feature selection. This selection applies for the current Conventional Personality.

 **IMPORTANT:** Conventional One Touch Button 1, the first record/row will correspond to a One Touch 1 button-press, and a TCH1 or SIG1 menu-selection.

Accessed Only: When the [One Touch Button Feature on page 394](#) field is not **Disabled**, **RAB1**, **RAB2**, or **RTT**, and if the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, then the [Remote Site Interface System](#) field in the referenced Conventional System must be disabled.

The following selections are supported:

Select Call

This "Index" number correlates to the row number of the Call Hot List.

Available to you when the [Selective Call Rx/Tx](#) is set to **Decode & Encode** or **Encode** for the current personality.

 **IMPORTANT:** The Hot List Selection fields determine which Call Hot List is used for the current Personality.

Call Alert

This "Index" number correlates to the row number of the Call Hot List.

Available to you when the [Call Alert Rx/Tx on page 376](#) is set to "Decode & Encode" or "Encode" for the current personality.

 **IMPORTANT:** The Hot List Selection fields determine which Call Hot List is used for the current Personality

Phone

This "Index" number correlates to the row number of the Phone Call Hot List.

Available to you when the [Phone Operation](#) feature is enabled for the current personality.

Status

This "Index" number correlates to the row number of the Status Alias List.

Available to you when the [Status on page 355](#) feature of the referenced [Conventional System on page 347](#) (to the current personality) is enabled.

Message

This "Index" number correlates to the row number of the Message Alias List.

Available to you when the [Message](#) feature of the referenced [Conventional System on page 347](#) (to the current personality) is enabled.

7.7.9.74

Secure Voice/Signal Type

This field selects the secure encrypted voice signaling mode for the current Conventional Personality.

 **WARNING:** When the [Rx Voice/Signal Type on page 365](#) field is **ASTRO** or **Mixed Mode**, ASTRO becomes the valid Secure Voice/Signal mode.

When the Rx Voice/Signal Type field is **Non-ASTRO**, SecureNet becomes the valid Secure Voice/Signal mode.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, or (when the [Secure Operation on page 255](#) field is set to **Software**, and when the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO** or **Mixed Mode**).

The following selections are supported:

ASTRO

When the Rx Voice/Signal Type field is set to **ASTRO** or **Mixed Mode**.

SecureNet

When the Rx Voice/Signal Type field is set to **Non-ASTRO**.

7.7.9.75

XL Transmit

This field enables analog/SecureNet™ Data Encryption Standard - Extended Range (DES-XL) for the current Conventional Personality.

DES XL is a Type 3 encryption standard (mid-level).

When disabled, analog/SecureNet Data Encryption Standard (DES) applies for the current Conventional Personality.



NOTE: The receive communications of the secure XL chip need not be configured since it automatically decrypts both XL and Non-XL data streams.

Accessed Only: When the Secure Operation field is set to **Hardware**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO**, and when the [Voice Secure/Clear Strapping on page 397](#) field is not **Clear**, and when the [Secure Voice/Signal Type on page 395](#) field is **Securenet**, and when the radio is model/option capable.

7.7.9.76

DES-XL Tx Default

This field enables digital Data Encryption Standard - Extended Range (DES-XL) algorithm as the default for all encrypted voice and data transmissions while operating on the current Conventional Personality.

This is only true when you do not initiate transmission during the Key ID - Rx Hang Time. DES XL is a Type 3 encryption standard (mid-level).

When disabled, digital Data Encryption Standard - Output Feedback (DES-OFB) applies for the current Conventional Personality.



IMPORTANT: This feature only applies when the radio is equipped with a DES-XL/DES-OFB dual algorithm encryption module.

Accessed Only: When the radio is model/option capable, and when the [Rx Voice/Signal Type on page 365](#) is **ASTRO** or **Mixed Mode**, and when the [Secure Operation on page 255](#) field is set to **Hardware**, and (when the [Secure Voice/Signal Type on page 395](#) field is **ASTRO**, and when the [ASTRO Talkgroup](#) field is **Enabled**, or when the [Voice Secure/Clear Strapping on page 397](#) field is **Select** or **Secure**, or (when an **ASTRO** System Type referenced Conventional System having a valid referenced Data Profile has been selected, and when the Terminal Data field in that Data Profile is **Enabled**), and when the [Packet Data Secure/Clear Strapping on page 398](#) field is **Select** or **Secure**)).

7.7.9.77

Voice Secure/Clear Strapping

This field selects the secure encryption transmit mode for the current Conventional Personality.



WARNING:

When the Analog Flat Audio field is **Enabled**, this field must be set to **Clear**; otherwise, it becomes invalid. Therefore both features may not be enabled on the same Personality.

(When the Primary Frequency Band is **900MHz**), or (when Allow Invalid Frequencies is **Enabled**, and when 900 MHz Used in Codeplug is **Enabled**), and (when the Secure Operation field is set to **Hardware**, and when the [Rx Voice/Signal Type on page 365](#) field is set to **Non-ASTRO**, and when the [Tx Deviation/Channel Spacing on page 409](#) for one of the current Frequency Options profiles (records/rows) is set to **2.5khz / 12.5khz**), then this field must be set to **Clear**; otherwise, it becomes invalid.

Accessed Only: (When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Talkgroup](#) field is disabled, and when the personality is not automatically created by the Zone Cloning feature, and

(when the [Rx Voice/Signal Type on page 365](#) field is **Mixed Mode** or **ASTRO**, and

when the Remote Site Interface System field in the referenced Conventional System is disabled)),

Or

(when the [Secure Operation on page 255](#) field is set to **Hardware**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO**).

The following selections are supported:

Select

Allows you to toggle on or off secure encrypted communications.

Either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows you to toggle between Secure or Clear communications for that channel.

Clear

Straps or commits the channel to normal (non-secure) Conventional operation.

Secure

Straps or commits the channel to secure encrypted operation.

7.7.9.78

Voice Key Strapping

This field selects if you can select the voice encryption key or not while operating on the current Conventional Personality.

Accessed Only: When the [Voice Secure/Clear Strapping on page 397](#) field is applicable and not set to **Clear**, and when the radio is model/option capable.

The following selections are supported:

Select

Allows you to select the appropriate secure encryption key.

Strapped

The key selected from the [Voice Key Select on page 398](#) field is permanently strapped to the current Conventional Personality.



WARNING: The key menu-selection must be chosen in order for you to be able to select keys for the current Conventional Personality.

7.7.9.79

Voice Key Select

This field selects the voice encryption key that applies while operating on the current Conventional Personality.

These keys are programmed in the Secure Encryption Key List.



IMPORTANT:

When the [ASTRO OTAR](#) field is **Enabled** for the current Conventional Personality, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the KMF Profile Index field for the current Conventional Personality.



WARNING: Be aware that the application is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is **Enabled**, must first be defined in the Secure Hardware Encryption Key References List.

When the ASTRO OTAR field is **Disabled** for the current Conventional Personality, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: When the [Voice Secure/Clear Strapping on page 397](#) field is applicable and not set to **Clear**, and when the radio is model/option capable.

7.7.9.80

Ignore Rx Clear Voice

This field causes the radio to ignore all "Clear" (non-secure encrypted) voice communication while operating on the current Conventional Personality.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and (IF the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, THEN the Remote Site Interface System field in the referenced Conventional System must be disabled).

7.7.9.81

Packet Data Secure/Clear Strapping

This field selects the Association of Public-Safety Communications Officials (APCO) Packet Data transmit mode for the current Conventional Personality.

The following selections are supported:

Clear

The radio transmits APCO Packet Data in non-secure mode.

Secure

The radio transmits APCO Packet Data in secure encryption mode.

Accessed Only: This feature can be accessed only when the following conditions are met:

- The radio is model or option capable.
- The [Rx Voice/Signal Type on page 365](#) is set to **ASTRO Mode** or **Mixed Mode**.
- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The referenced Conventional System is not a DVRS System Type.
- The personality is not automatically created by the Zone Cloning feature.
- The **Tactical Inhibit Enable** field is enabled, or when the referenced Conventional System has a valid referenced [Data Profiles on page 319](#) selected.

- The [Terminal Data on page 321](#) field in that Data Profile is enabled.

7.7.9.82

Packet Data Key Select

This field selects the encryption key to be used for Association of Public-Safety Communications Officials (APCO) Packet Data transmissions.

This selection applies for the current Conventional Personality.



IMPORTANT:

When the [ASTRO OTAR](#) field is **Enabled** for the current Conventional Personality, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index](#) field for the current Conventional Personality.



WARNING: Be aware that the application is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is **Enabled**, must first be defined in the Secure Hardware Encryption Key References List.

When the ASTRO OTAR field is **Disabled** for the current Conventional Personality, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: (When the radio is model/option capable, and when the [Rx Voice/Signal Type on page 365](#) is set to **ASTRO Mode** or **Mixed Mode**, and when the [Secure Operation on page 255](#) field is set to **Hardware**, and when the referenced Conventional System is not a DVRS System Type), and ((when the Tactical Inhibit Enable field is **Enabled**), or (when the referenced Conventional System has a valid referenced Data Profile selected, and when the Terminal Data field in that Data Profile is **Enabled**)).

7.7.9.83

Ignore Rx Clear Packet Data

This field causes the radio to ignore all "Clear" (non-secure encrypted) ASTRO Conventional Packet Data communications while operating on the current Conventional Personality.



NOTE: For more information on ASTRO Conventional Packet Data, see the Data Profile Window and the Conventional System. ASTRO, Data Profile Selection field.

Accessed Only: (When the [Rx Voice/Signal Type on page 365](#) is set to **ASTRO Mode** or **Mixed Mode**, and when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Packet Data Secure/Clear Strapping on page 398](#) field is **Secure**, and when the radio is model/option capable),

And

(when the referenced Conventional System is not a DVRS System Type, and when that referenced Conventional System has a valid referenced Data Profile selected, and when the [Terminal Data on page 321](#) field in that Data Profile is enabled).

7.7.9.84

Proper Code Detect

This field causes the radio's speaker to unmute only on SecureNet™ data when the data is encrypted with the correct security key.

The encrypted security key is hard-coded to the radio with an internal encryption chip or a Key-Variable Loader (KVL) device. This feature applies for the current Conventional Personality.

Accessed Only: When the Secure Operation field is set to **Hardware**, and when the [Secure Voice/Signal Type on page 395](#) field is **Securenet**, and when the radio is model/option capable.

7.7.9.85

Broadband ASTRO OTAR

If this field is enabled, you can use Over-The-Air-Rekeying (OTAR) over broadband on analog channels.

Accessed Only: When the following conditions are met.

- The radio is model/option capable.
- The Secure Operation field is set to **Hardware** or it is set to **Software** and Advanced Encryption Standard (AES) Enable is enabled.
- The ASTRO OTAR Enable field is enabled.
- The Conventional Personality, Rx Voice/Signal Type field is set to **Non-ASTRO**.
- The Receive Only Personality is disabled.

7.7.9.86

OTAR Tx

This field enables the radio to transmit ASTRO and MDC Over-The-Air-Rekeying (OTAR) for the current Conventional Personality.

OTAR transmissions include: Rekey Requests, Delayed Acks, or Power-up Acks.



WARNING: Your ability to initiate Rekey Requests must be programmed.



NOTE:

Rekey Requests: When the [ASTRO OTAR](#) field is enabled for the current channel, and ASTRO and MDC are both available to the channel (see [Rx Voice/Signal Type on page 365 Mixed Mode](#)), your initiated Rekey Requests are always transmitted using ASTRO OTAR. However, when the radio is responding to an OTAR transmission, the radio always transmits using the same type of OTAR that it had received.

Setting Up ASTRO and MDC Mixed Mode: When the Rx Voice/Signal Type field is set to **Mixed Mode**, an ASTRO System Type Conventional System must be selected in the [ASTRO System](#) field, and **MDC** must be selected in the Non-ASTRO Signaling Type field allowing an MDC System Type Conventional System to be selected in the Non-ASTRO System field.

Conventional System is not a DVRS System Type

Accessed Only: This feature can be accessed only when the following conditions are met:

- The [Secure Operation on page 255](#) field is **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [Receive Only Personality on page 365](#) field is disabled.
- The radio is model/option capable
- One of the following sets of conditions is met:
 - The [ASTRO OTAR Enable on page 259](#) field and [MDC OTAR Enable on page 260](#) field are enabled.
 - The [ASTRO OTAR Enable on page 259](#) field is enabled, the **MDC OTAR Enable** field is disabled, and the [Rx Voice/Signal Type on page 365](#) is **ASTRO** or **Mixed Mode**.
 - The [ASTRO OTAR Enable on page 259](#) field is disabled, the **MDC OTAR Enable** field is enabled, the Rx Voice/Signal Type is **Non-ASTRO** or **Mixed Mode**, and the [Non-ASTRO Signaling Type on page 372](#) field is **MDC**.

Conventional System is a DVRS System Type

Accessed Only: This feature can be accessed only when the following conditions are met:

- The [Secure Operation on page 255](#) field is **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [Receive Only Personality on page 365](#) field is disabled.
- The radio is model/option capable.
- One of the following sets of conditions is met:
 - The [ASTRO OTAR Enable on page 259](#) field and [MDC OTAR Enable on page 260](#) field are enabled, the [Rx Voice/Signal Type on page 365](#) is **Mixed Mode**, and the [Non-ASTRO Signaling Type on page 372](#) field is **MDC**.
 - The [ASTRO OTAR Enable on page 259](#) field is enabled and the [Rx Voice/Signal Type on page 365](#) is not set to **Non-ASTRO**.

7.7.9.87

ASTRO OTAR Profile Index

This field selects the Secure Key Management Facility (KMF) to be used while operating in ASTRO Over-The-Air-Rekeying (OTAR) mode.

This selection applies for the current DVRS Conventional System. All ASTRO OTAR parameters specified in the selected KMF profile then apply for the current Conventional System.



IMPORTANT:

When this KMF Profile Index is applicable and not set to **Disabled** for the current Conventional System, DVRS Hardware Key Select values for this System are chosen from a Encryption Key Reference in the Secure Hardware Encryption Key References List of the selected Secure KMF Profile.

When this KMF Profile Index is non-applicable or **Disabled**, DVRS Hardware Key Select values are directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: This field can be accessed only when the following conditions are met:

- The [System Type on page 347](#) field is set to **DVRS**.
- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [ASTRO OTAR Enable on page 259](#) field is enabled.
- The current Conventional System has a referenced Data Profile.
- The radio is model/option capable.

7.7.9.88

Echo Mute Time

This field selects the amount of time that the radio's speaker remains muted immediately following a secure encrypted transmission.

That is, for repeater systems having a large amount of data throughput delay, the tail end of your encrypted voice transmission may be heard again following de-keying. This time can allow for repeater system delays thus muting this possible echoing effect. This time begins once the PTT button is released. This selection applies for the current Conventional Personality.

Accessed Only: (When the ASTRO [Talkgroup](#) field is **Enabled**, or when the ASTRO Talkgroup field is **Disabled**, and when the [Voice Secure/Clear Strapping on page 397](#) field is **Select** or **Secure**), and
(when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO** or **Mixed Mode**).

Table 219: Range

Minimum	Maximum	Increments
0 ms	1500 ms	50 ms

7.7.9.89

Scan Select

This field selects the amount of time that the radio waits during active scan mode for a SecureNet™ encoded (Non- ASTRO) transmission to be detected.

This wait period begins once carrier squelch has been detected. This feature applies to the selected [Scan List Selection on page 515](#) of the current Conventional Personality and only when scanning a SecureNet-encoded scan list member channel.

Accessed Only: When the Secure Operation field is set to **Hardware**, and when the [XL Transmit on page 396](#) field is **Disabled**, and when the [Secure Voice/Signal Type on page 395](#) field is **Securenet**, and when the radio is model/option capable.

The following selections are supported:

Non-XL

If a Scan List member channel is set to Non-XL SecureNet, the radio waits for the time period specified by the Non-XL Scan Unsquelch Duration field.

Non-XL & XL

If a Scan List member channel is set to Non-XL & XL SecureNet, then it waits for the time period specified by the field XL Scan Unsquelch Duration.



NOTE: XL requires a longer wait period.

7.7.9.90

Scan Holdoff Strapping

This field selects to optimize the scan unmuting algorithm having to do with SecureNet™ (Non-ASTRO) encoded calls.

The algorithm is also based on the selected [Unmute Type](#) setting for the current Conventional Personality. This functionality applies when attempting to unmute on Scan List Member (Conventional only) channels. This selection applies for the current Conventional Personality.

Accessed Only: When the Secure Operation field is set to **Hardware**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO**, and when the radio is model/option capable.

The following selections are supported:

Both

This selection is the least efficient due to the consideration of all possible scan types.

Clear Only

Internal radio settings apply for PL, DPL, carrier squelch (CSQ) and Signaling.

Secure Only

Uses the appropriate Unsquelch Duration based on the XL or Non-XL [Scan Select on page 402](#) field selection.

7.7.9.91

Key ID

This field selects the Key ID method while operating on the current Conventional Personality.

Accessed Only: When the Secure Operation is set to **Hardware**, and when the Non-ASTRO Signaling Type field is **MDC**, and when the field is **Securenet**, and when the radio is model/option capable.

The following selections are supported:

Tx Only (Transmit)

Transmit the Key ID at the start of each transmission.

Rx Only (Receive)

Change its Key ID to that specified at the start of each receive message. If the received message does not specify a Key ID, the radio will use its current Key ID.

Tx & Rx (Receive/Transmit)

Selects both of the above features.

None

Selects none of the above features.

7.7.9.92

XL Delay Following Key ID

This field selects the amount of time that the radio waits following a Key ID opcode transmission before transmitting extended range (XL) encrypted audio.

This selection applies while operating on the current Conventional Personality.

Accessed Only: When the Secure Operation field is set to **Hardware**, and when the [Rx Voice/Signal Type on page 365](#) is **Non-ASTRO**, and when the Non-ASTRO Signaling Type is **MDC**, and when the [Voice Secure/Clear Strapping on page 397](#) field is not **Clear**, and when the [XL Transmit on page 396](#) field is **Enabled**, and when the [Secure Voice/Signal Type on page 395](#) field is **Securenet**, and when the [Key ID on page 403](#) field is **Tx Only** or **Tx & Rx**, and when the radio is model/option capable.

Table 220: Range

Minimum	Maximum
0	200

7.7.9.93

Advanced RF AGC

This field selects the type of Receive Frequency (RF) Automatic Gain Control (AGC) that applies for the current Conventional Personality.

The following selections are supported:

Disabled

Even when **Disabled**, the radio uses a basic form of AGC built into the radio's receiver. This built-in protection helps to avoid signal clipping and receiver saturation that may damage radio components.

Standard

Enables an Advanced form of RF AGC, which attempts to protect against intermodulation (IM) interference by detecting and removing any received interference due to external sources.

Enhanced

Enables the radio to use additional schemes to reduce IM interference, which cleans up the signal.

Smart

Enables the radio to use a unique scheme to improve interference immunity when close to Linear Simulcast and APCO phase 2 Base stations. Smart option is mutually exclusive to the Broadband Protection checkbox.



IMPORTANT: **Standard** and **Enhanced** Advanced RF AGC may degrade performance on channels that do not experience any IM interference. Therefore, only enable these selections on channels known to experience IM interference.

7.7.9.94

Broadband Protection

This field allows you to enable Broadband Protection of the current Conventional Personality.

Broadband Protection enhances Advanced Radio Frequency Automatic Gain Control (RF AGC) by adding a high selectivity broadband filter when receiving at selected frequencies in the 700 MHz and 800 MHz bands.



NOTE: This feature is only available for radio models that have the required hardware.

7.7.9.95

Analog Wideband Data

The analog wideband data prioritizes the key and deque attack time to be under 30 ms. It applies when operating on the current Conventional Personality using the radio as a data modem for transit computer aided dispatch (CAD) operations.

Analog Wideband Data is to be used with third-party control heads.

Moreover Bluetooth is not supported if the mobile radio has at least one conventional personality with the Analog Wideband Data feature enabled.

7.7.10

Frequency Option

7.7.10.1

Frequency Options Name



NOTE:

Examples:

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are supported.

7.7.10.2

Rx/TA Frequency

This field selects the designated frequency used for receiving the carrier signal of a radio communication, and optionally for transmitting the carrier signal while Direct/Talkaround is activated on the channel.

This selection applies only for the current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: 6.25 kHz step size for the 800 MHz frequency band:

Starting with Release R09.01.00, when the [Tx Deviation/Channel Spacing on page 409](#) is **2.5 kHz / 12.5 kHz**, the allows a 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band, to meet regulatory compliance in certain (non-FCC) countries; however, be aware that two radios operating on adjacent channels separated by 6.25 kHz only may experience undesirable crosstalk phenomena.



NOTE: Frequency Option profiles are selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT: (applicable to ASTRO Signaling)

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct Network ID can then be modified on a per Frequency Options profile basis. When you initiates Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency instead of this Rx/TA Frequency.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Disabled**, the Rx/TA Frequency and [Rx Network ID on page 409](#) settings are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.



IMPORTANT: applicable to Non-ASTRO (MDC, DTMF, Quik-Call II, and Singletone) Signaling

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the Direct/Talkaround button-press, the Talkaround/Direct switch-selection, or the Direct/Talkaround menu-selection.

Accessed Only: When the radio is model/option capable.

7.7.10.3

Tx Frequency

This field selects the designated frequency used for transmitting the carrier signal of a radio communication. This selection applies only for current [Frequency Options](#) profile (record/row) of the current [Conventional Personality on page 364](#).



WARNING:

When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the application considers this field's value invalid.

6.25 kHz step size for the 800 MHz frequency band:

Starting with Release R09.01.00, when the [Tx Deviation/Channel Spacing on page 409](#) is **2.5 kHz / 12.5 kHz**, the application allows a 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band, to meet regulatory compliance in certain (non-FCC) countries; however, be aware that two radios operating on adjacent channels separated by 6.25 kHz only may experience undesirable crosstalk phenomena.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the radio is model/option capable.

7.7.10.4

Direct/Talkaround

This field enables Direct/Talkaround functionality for the current Frequency Options profile.

Direct/Talkaround is typically initiated by you for direct radio-to-radio communications in close proximity or when a repeater is not operational or is out of range. This feature applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT: (applicable to ASTRO Signaling)

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct Network ID can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Disabled**, the Rx/TA Frequency and [Rx Network ID on page 409](#) settings are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.



IMPORTANT: applicable to Non-ASTRO (MDC, DTMF, Quik-Call II, and Singletone) Signaling

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the Direct/Talkaround button-press, the Talkaround/Direct switch-selection, or the Direct/Talkaround menu-selection.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and (if the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO**, then the Remote Site Interface System field in the referenced Conventional System must be **Disabled**), and (when the [Tx Voice/Signal Type on page 368](#) field is **Non-ASTRO**, and when the [Rx/TA Frequency on page 405](#) field is not equal to the [Tx Frequency on page 406](#) field, or when the [Rx/TA Squelch Type on page 413](#) index is not equal to the [Tx Squelch Type on page 420](#) index, or when Rx/TA Squelch Type is not **CSQ**, and ((when Rx/TA Squelch Type is not PL or the [Rx/TA PL Frequency on page 414](#) index is not equal to the [Tx PL Frequency on page 420](#) index), and (when Rx/TA Squelch Type is not **DPL** or the [Rx/TA PL Code on page 416](#) index is not equal to [Tx DPL Code on page 423](#) index or the [Rx/TA DPL Invert on page 419](#) value is not equal to the [Tx DPL Invert on page 424](#) value.))) or (when [Tx Voice/Signal Type on page 368](#) is not **Non-ASTRO**, and (Rx/TA Frequency is not equal to Tx Frequency, or [Rx Network ID on page 409](#) is not equal to [Tx Network ID on page 410](#))).

7.7.10.5

Direct Frequency

This field selects a substitute transmit/receive frequency, which may be different from the Rx/TA Frequency, to be used when operating in Direct/Talkaround mode.

This selection applies only for the current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: 6.25 kHz step size for the 800 MHz frequency band:

Starting with Release R09.01.00, when the [Tx Deviation/Channel Spacing on page 409](#) is **2.5 kHz / 12.5 kHz**, the CPS allows a 6.25 kHz step size for Conventional frequencies in the 800 MHz frequency band, to meet regulatory compliance in certain (non-FCC) countries; however, be aware that two radios operating on adjacent channels separated by 6.25 kHz only may experience undesirable crosstalk phenomena.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT: (applicable to ASTRO Signaling)

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Enabled**, the [Direct Network ID on page 411](#) can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on this Direct Frequency instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the Rx / TA Frequency and [Rx Network ID on page 409](#) settings are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.



IMPORTANT: (applicable to Non-ASTRO (MDC, DTMF, Quik-Call II, and Singletone) Signaling)

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiates Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the Direct/Talkaround button-press, the Talkaround/Direct switch-selection, or the Direct/Talkaround menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the Direct/Talkaround field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, or when the Radio is no slaved, or when the [User Selectable PL \[MPL\]](#) is not **Disabled**, and when the radio is model/option capable.

7.7.10.6

Tx Deviation/Channel Spacing

This field selects the transmit (Tx) deviation and corresponding channel spacing for the current Frequency Options profile (record/row) of the current Conventional Personality.

The Tx deviation is the maximum variation (in kHz) that the selected carrier - frequency can differ or swing from its un-modulated center frequency. Channel spacing refers to the allotted frequency difference between adjacent channels within a specific frequency band.

 **NOTE:** The radio also uses the selected Tx Deviation/Channel Spacing values when this personality is operating in [Direct/Talkaround on page 407](#) mode.

 **WARNING:** When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.

 **NOTE:** Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**.

The following selections are supported:

4 kHz / 20 kHz

821 MHz Band using 20 kHz Channel Spacing.

 **WARNING:** This selection is invalid if the following scenario is true when the 12.5 kHz FCC Narrowbanding Mandate applies for this codeplug, and when the value of the [Tx Frequency on page 406](#) or ([Direct Frequency on page 408](#) or [Rx/TA Frequency on page 405](#) when enabled for Direct/Talkaround operation) falls into one of the FCC Requirement ranges.

5 kHz / 25 kHz

VHF, UHF, and 800 MHz Bands using 30/25/25 kHz Channel Spacing.

 **WARNING:** This selection is invalid if the following scenario is true when the 12.5 kHz FCC Narrowbanding Mandate applies for this codeplug, and when the value of the Tx Frequency or (Direct Frequency or TA Frequency when enabled for Direct/Talkaround operation) falls into one of the FCC Requirement ranges.

2.5 kHz / 12.5 kHz

VHF, UHF, 800 MHz, and 900 MHz Band Analog and 12.5 kHz Channel Spacing.

 **WARNING:** When Tx Frequency falls within the 900 MHz Band, this is the only valid selection and this field becomes view-only.

This selection is invalid if either of the following scenarios is true:

(When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO Mode**, and when the [Secure Operation on page 255](#) field is set to **Hardware**, and when the [Voice Secure/Clear Strapping on page 397](#) field is not set to **Clear**) or (when the [Rx Voice/Signal Type on page 365](#) field is **Mixed Mode** or **ASTRO Mode**, and when the [ASTRO Digital Modulator Type on page 370](#) field is **Wide**).

7.7.10.7

Rx Network ID

This field selects (in decimal or hex format) a Receive (Rx) Network Access Code (NAC) ID to be used while operating in ASTRO System (digital) mode.

This allows the radio to selectively access one of several repeaters within overlapping coverage areas, thus allowing the radio to listen to a specific repeater. Ultimately, this ID allows for the separation of addressing

modes among co-channel and adjacent channel users; this serves the same purpose as Private Line (PL), which is used in analog mode. This selection applies only for the current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the application considers this field's value invalid.



NOTE: Frequency Options profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct Network ID can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency (MHz) instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Disabled**, the Rx/TA Frequency and this Rx/TA Network ID setting are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **ASTRO Mode** or **Mixed Mode**, and when the radio is model/option capable.

The following selections are supported:

Table 221: Range

Minimum	Maximum	NAC Monitor
0 Hex	FFF Hex	F7E Hex



IMPORTANT: When this Rx NAC ID is set to **F7E**, the radio unmutes to any ASTRO call regardless of the call's NAC ID or the radio's [ASTRO Rx Unmute Rule on page 371](#) set for the current Frequency Options profile.

7.7.10.8

Tx Network ID

This field selects (in decimal or hex format) a transmit (Tx) Network Access Code (NAC) ID number to be used while operating in ASTRO System (digital) mode.

This allows the radio to selectively access one of several repeaters within overlapping coverage areas, thus allowing the radio to cause a specific repeater to re-transmit the signal. Ultimately, this ID allows for the separation of addressing modes among co-channel and adjacent channel users; this serves the same purpose as Private Line (PL), which is used in analog mode. This selection applies only for the current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **ASTRO** or **Mixed Mode**, and when the radio is model/option capable.

The following selections are supported:

Table 222: Range

Minimum	Maximum
0 Hex	FFF Hex



WARNING: F7E is an invalid selection; for more information see the [Rx Network ID on page 409](#) field.

7.7.10.9

Direct Network ID

This field selects (in decimal or hex format) a Network ID number to be used when the Conventional Wide, Direct Frequency field is **Enabled** and while operating in Direct/Talkaround mode and ASTRO System (digital) mode.

This ID signifies that a [Direct Frequency on page 408](#), which may be different from the [Rx/TA Frequency on page 405](#), is in use. Ultimately, this ID allows for the separation of addressing modes among co-channel and adjacent channel users; this serves the same purpose as Private Line (PL), which is used in analog mode. This selection applies only for the current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, this Direct Network ID can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency instead of the Rx/TA Frequency.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Disabled**, the Rx/TA Frequency and the [Rx Network ID on page 409](#) settings are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Rx Voice/Signal Type on page 365](#) field is **ASTRO Mode** or **Mixed Mode**, and when the Direct/Talkaround field is **Enabled**, and when the radio is model/option capable.

The following selections are supported:

Table 223: Range

Minimum	Maximum
0 Hex	FFF Hex



WARNING: F7E is an invalid selection; for more information see the Rx/TA Network ID field.

7.7.10.10

ASTRO Talkgroup Type

Talkgroup Selections

Talkgroups appearing for selection are based on the ASTRO Talkgroup List selected in this personality's Talkgroup List field.

DYN (Dynamic Regrouping)



WARNING: A Dynamic Regrouping configuration is only valid when Dynamic Regrouping Enable is enabled.



NOTE:

Only one Dynamic Regrouping channel may be defined per referenced Trunking System.

You may request a new Dynamic Regrouping assignment from the dispatcher with a Reprogram Request button-press or a Reprogram Request menu-selection. The available features and settings of the Dynamic Regrouping talkgroup are defined and transmitted back by the dispatcher

For the Dynamic Regrouping talkgroup to be capable of transmitting in Secure mode, either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection is needed; otherwise Dynamic Regrouping talkgroup transmissions are strapped to transmitting in "Clear" mode.

ATG (Announcement Group)

Currently not supported

7.7.10.11

ASTRO Talkgroup ID

This field selects a default talkgroup from the ASTRO Talkgroup List selected in this personality's Talkgroup List field.

This selection always applies for you when the Talkgroup [Selection Type on page 382](#) field is set to **Strapped**. However, when the Selection Type field is set to **Selectable**, this talkgroup only applies until you choose another ID from the selected Talkgroup List. This selection applies only for current Frequency Options profile (record / row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the [Channels](#) section of the [Zones Channel Assignment](#) page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the Frequency Options field.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is set to **ASTRO** or **Mixed Mode**, and when the Talkgroup field is enabled, and when the personality is not automatically created by the Zone Cloning feature.

The following selections are supported:

Talkgroup Selections

Talkgroups appearing for selection are based on the ASTRO Talkgroup List selected in this personality's Talkgroup List field.

DYN (Dynamic Regrouping)



WARNING: A Dynamic Regrouping configuration is only valid when Dynamic Regrouping Enable is enabled.



NOTE:

Only one Dynamic Regrouping channel may be defined per referenced Trunking System.

You may request a new Dynamic Regrouping assignment from the dispatcher with a Reprogram Request button-press or a Reprogram Request menu-selection. The available features and settings of the Dynamic Regrouping talkgroup are defined and transmitted back by the dispatcher

For the Dynamic Regrouping talkgroup to be capable of transmitting in Secure mode, either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection is needed; otherwise Dynamic Regrouping talkgroup transmissions are strapped to transmitting in "Clear" mode.

ATG (Announcement Group)

Currently not supported

7.7.10.12

Rx/TA Squelch Type

This field selects the type of receive Private Line (PL) or carrier squelch needed to communicate with another radio.



IMPORTANT: The selected [Unmute/Mute Type on page 366](#) for the personality also determines if a call can be received. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the User-Selectable PL [MPL] field is **Disabled** or **Tx**.

The following selections are supported:

- CSQ (Carrier Squelch)
- PL (Tone Private Line)
- DPL (Digital Private Line)

7.7.10.13

Rx/TA PL Frequency

This field selects a designated frequency used when receiving a Private Line (PL) communication from another radio.



NOTE: This frequency directly correlates to the [Rx/TA PL Code on page 416](#); selecting a value for this field automatically selects an Rx PL Code and vice versa. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency (MHz) using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiates Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the [Rx/TA Squelch Type on page 413](#) field is **PL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Tx**.

The following selections are supported:

Table 224: TPL Squelch Frequencies & Codes

Freq (Hz) = Code		Freq (Hz) = Code	
67.0	XZ	159.8	159.8
69.3	WZ	162.2	5B
71.9	XA	165.1	165.1
74.4	WA	165.5	165.5
77.0	XB	167.9	6Z
79.7	WB	170.9	170.9
82.5	YZ	171.3	171.3
85.4	YA	173.8	6A
88.5	YB	176.9	176.9
91.5	ZZ	177.3	177.3
94.8	ZA	179.9	6B
97.4	ZB	183.1	183.1
100.0	1Z	183.5	183.5

Freq (Hz) = Code		Freq (Hz) = Code	
103.5	1A	186.2	7Z
105.4	105.4	189.5	189.5
107.2	1B	189.9	189.9
109.1	109.1	192.8	7A
110.9	2Z	196.6	196.6
114.8	2A	198.2	198.2
118.8	2B	199.5	199.5
123.0	3Z	203.5	M1
127.3	3A	206.5	8Z
129.6	129.6	210.7	M2
131.8	3B	213.8	213.8
134.2	134.2	218.1	M3
136.5	4Z	221.3	221.3
138.9	138.9	225.7	M4
141.3	4A	229.1	9Z
143.8	143.8	233.6	M5
146.2	4B	237.1	237.1
148.8	148.8	241.8	M6
150.0	150.0	245.5	245.5
151.4	5Z	250.3	M7
156.7	5A	254.1	0Z
159.5	159.5		

7.7.10.14

Rx/TA PL Code

This field selects the specific code accepted when receiving a Private Line (PL) communication from another radio.



NOTE: This code directly correlates to the [Rx/TA PL Frequency on page 414](#); selecting a value for this field automatically selects an Rx/TA PL Frequency and vice versa. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency (MHz) using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the [Rx/TA Squelch Type on page 413](#) field is **PL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Tx**.

The following selections are supported:

Table 225: TPL Squelch Frequencies & Codes

Freq (Hz) = Code		Freq (Hz) = Code	
67.0	XZ	159.8	159.8
69.3	WZ	162.2	5B
71.9	XA	165.1	165.1
74.4	WA	165.5	165.5
77.0	XB	167.9	6Z
79.7	WB	170.9	170.9
82.5	YZ	171.3	171.3
85.4	YA	173.8	6A
88.5	YB	176.9	176.9
91.5	ZZ	177.3	177.3
94.8	ZA	179.9	6B
97.4	ZB	183.1	183.1
100.0	1Z	183.5	183.5

Freq (Hz) = Code		Freq (Hz) = Code	
103.5	1A	186.2	7Z
105.4	105.4	189.5	189.5
107.2	1B	189.9	189.9
109.1	109.1	192.8	7A
110.9	2Z	196.6	196.6
114.8	2A	198.2	198.2
118.8	2B	199.5	199.5
123.0	3Z	203.5	M1
127.3	3A	206.5	8Z
129.6	129.6	210.7	M2
131.8	3B	213.8	213.8
134.2	134.2	218.1	M3
136.5	4Z	221.3	221.3
138.9	138.9	225.7	M4
141.3	4A	229.1	9Z
143.8	143.8	233.6	M5
146.2	4B	237.1	237.1
148.8	148.8	241.8	M6
150.0	150.0	245.5	245.5
151.4	5Z	250.3	M7
156.7	5A	254.1	0Z
159.5	159.5		

7.7.10.15

Rx/TA DPL Code

This field selects the specific code accepted when receiving a Digital Private Line (DPL) communication from another radio.

This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the application considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511 Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency (MHz) using these frequency parameters.

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the [Rx/TA Squelch Type on page 413](#) field is **DPL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Tx**.

The following selections are supported:

Table 226: DPL Squelch Codes

Code	Code	Code	Code
023	152	343	565
025	155	346	606
026	156	351	612
031	162	364	624
032	165	365	627
043	172	371	631
047	174	411	632
051	205	412	645*
054	223	413	654
065	226	423	662
071	243	431	664
072	244	432	703
073	245	445	712
074	251	464	723

Code	Code	Code	Code
114	261	465	731
115	263	466	732
116	265	503	734
125	271	506	743
131	306	516	754
132	311	525*	
134	315	532	
143	331	546	

 **NOTE:** The codes marked with an asterisk are not part of the 83 standard EIA/TIA-603 codes.

7.7.10.16

Rx/TA DPL Invert

This field causes Digital Private Line (DPL) signals to be inverted when they are received by the radio.

 **NOTE:** Inverted coding allows for more traffic/usage on frequencies.

 **IMPORTANT:** DPL Invert must be set on both receiving and transmitting radios for communication to occur. This feature applies only for current Frequency Options profile (record/row) of the current Conventional Personality.

 **WARNING:** When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.

 **NOTE:** Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

 **IMPORTANT:**
When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the Direct/Talkaround parameters can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the Direct Frequency using these frequency parameters.

When Direct / Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency field is **Disabled**, the settings for the Rx parameter fields are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the [Rx/TA Squelch Type on page 413](#) field is **DPL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Tx**.

7.7.10.17

Tx Squelch Type

This field selects the type of transmit Private Line (PL) or carrier squelch needed to communicate with another radio.



IMPORTANT: The selected [Unmute/Mute Type on page 366](#) for the personality also determines if a call can be received. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO** or **Mixed Mode**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the User-Selectable PL [MPL] field is **Disabled** or **Rx**.

The following selections are supported:

- Disabled
- PL (Tone Private Line)
- DPL (Digital Private Line)

7.7.10.18

Tx PL Frequency

This field selects a designated frequency used to transmit a Private Line (PL) communication to another radio.



NOTE: This frequency directly correlates to the [Tx PL Code on page 422](#); selecting a value for this field automatically selects a Tx PL Code and vice versa. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Squelch Type on page 420](#) field is **PL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Rx**.

The following selections are supported:

Table 227: TPL Squelch Frequencies & Codes

Freq (Hz) = Code		Freq (Hz) = Code	
67.0	XZ	159.8	159.8
69.3	WZ	162.2	5B
71.9	XA	165.1	165.1
74.4	WA	165.5	165.5

Freq (Hz) = Code		Freq (Hz) = Code	
77.0	XB	167.9	6Z
79.7	WB	170.9	170.9
82.5	YZ	171.3	171.3
85.4	YA	173.8	6A
88.5	YB	176.9	176.9
91.5	ZZ	177.3	177.3
94.8	ZA	179.9	6B
97.4	ZB	183.1	183.1
100.0	1Z	183.5	183.5
103.5	1A	186.2	7Z
105.4	105.4	189.5	189.5
107.2	1B	189.9	189.9
109.1	109.1	192.8	7A
110.9	2Z	196.6	196.6
114.8	2A	198.2	198.2
118.8	2B	199.5	199.5
123.0	3Z	203.5	M1
127.3	3A	206.5	8Z
129.6	129.6	210.7	M2
131.8	3B	213.8	213.8
134.2	134.2	218.1	M3
136.5	4Z	221.3	221.3
138.9	138.9	225.7	M4
141.3	4A	229.1	9Z
143.8	143.8	233.6	M5
146.2	4B	237.1	237.1
148.8	148.8	241.8	M6
150.0	150.0	245.5	245.5
151.4	5Z	250.3	M7
156.7	5A	254.1	0Z
159.5	159.5		

7.7.10.19

Tx PL Code

This field selects the specific code used when transmitting a Private Line (PL) communication to another radio.



NOTE: This code directly correlates to the [Tx PL Frequency on page 420](#); selecting a value for this field automatically selects a Tx PL Frequency and vice versa. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Squelch Type on page 420](#) field is **PL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Rx**.

The following selections are supported:

Table 228: TPL Squelch Frequencies & Codes

Freq (Hz) = Code		Freq (Hz) = Code	
67.0	XZ	159.8	159.8
69.3	WZ	162.2	5B
71.9	XA	165.1	165.1
74.4	WA	165.5	165.5
77.0	XB	167.9	6Z
79.7	WB	170.9	170.9
82.5	YZ	171.3	171.3
85.4	YA	173.8	6A
88.5	YB	176.9	176.9
91.5	ZZ	177.3	177.3
94.8	ZA	179.9	6B
97.4	ZB	183.1	183.1
100.0	1Z	183.5	183.5
103.5	1A	186.2	7Z
105.4	105.4	189.5	189.5
107.2	1B	189.9	189.9
109.1	109.1	192.8	7A
110.9	2Z	196.6	196.6
114.8	2A	198.2	198.2
118.8	2B	199.5	199.5
123.0	3Z	203.5	M1

Freq (Hz) = Code		Freq (Hz) = Code	
127.3	3A	206.5	8Z
129.6	129.6	210.7	M2
131.8	3B	213.8	213.8
134.2	134.2	218.1	M3
136.5	4Z	221.3	221.3
138.9	138.9	225.7	M4
141.3	4A	229.1	9Z
143.8	143.8	233.6	M5
146.2	4B	237.1	237.1
148.8	148.8	241.8	M6
150.0	150.0	245.5	245.5
151.4	5Z	250.3	M7
156.7	5A	254.1	0Z
159.5	159.5		

7.7.10.20

Tx DPL Code

This field selects the Digital Private Line (DPL) code that transmits once the PTT button is pressed.

This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Squelch Type on page 420](#) field is **DPL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Rx**.

The following selections are supported:

Table 229: DPL Squelch Codes

Code	Code	Code	Code
023	152	343	565
025	155	346	606
026	156	351	612
031	162	364	624
032	165	365	627
043	172	371	631
047	174	411	632

Code	Code	Code	Code
051	205	412	645*
054	223	413	654
065	226	423	662
071	243	431	664
072	244	432	703
073	245	445	712
074	251	464	723
114	261	465	731
115	263	466	732
116	265	503	734
125	271	506	743
131	306	516	754
132	311	525*	
134	315	532	
143	331	546	



NOTE: The codes marked with an asterisk are not part of the 83 standard EIA/TIA-603 codes.

7.7.10.21

Tx DPL Invert

This field causes Digital Private Line (DPL) signals to be inverted before they are transmitted.



NOTE: Inverted coding allows for more traffic/usage on frequencies.



IMPORTANT: Tx DPL Invert must be set on both receiving and transmitting radios for communication to occur. This feature applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



WARNING: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** and the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled**, this field must be a match for all Frequency Options in the current Personality; otherwise the considers this field's value invalid.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.

Accessed Only: When the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Tx Squelch Type on page 420](#) field is **DPL**, and when the User-Selectable PL [MPL] field is **Disabled** or **Rx**.

7.7.10.22

Direct Squelch Type

This field selects the type of receive and transmit Private Line (PL) or carrier squelch that the radio uses when operating in Direct/Talkaround mode.

This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the [Direct Network ID on page 411](#) can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the [Direct Frequency on page 408](#) instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the Rx/TA Frequency and the [Rx Network ID on page 409](#) setting are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO Mode** or **Mixed Mode**, and when the Direct/Talkaround field is **Enabled**, and when the [User Selectable PL \[MPL\]](#) field is **Disabled** or **Rx**.

The following selections are supported:

- Disabled
- PL (Tone Private Line)
- DPL (Digital Private Line)

7.7.10.23

Direct PL Frequency

This field selects a designated frequency used to receive and transmit Private Line (PL) communication from another radio when operating in Direct/Talkaround mode.



NOTE: This code directly correlates to the [Direct PL Code on page 427](#); selecting a value for this field automatically selects a Direct PL Code and vice versa. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the [Direct Network ID on page 411](#) can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the [Direct Frequency on page 408](#) instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the Rx/TA Frequency and the [Rx Network ID on page 409](#) setting are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO Mode** or **Mixed Mode**, and when the Direct/Talkaround field is **Enabled**, and when the [User Selectable PL \[MPL\]](#) field is **Disabled** or **Rx**, and when the [Direct Squelch Type on page 425](#) field is **PL**.

The following selections are supported:

Table 230: TPL Squelch Frequencies & Codes

Freq (Hz) = Code		Freq (Hz) = Code	
67.0	XZ	136.5	4Z
69.3	WZ	141.3	4A
71.9	XA	146.2	4B
74.4	WA	151.4	5Z
77.0	XB	156.7	5A
79.7	WB	162.2	5B
82.5	YZ	167.9	6Z
85.4	YA	173.8	6A
88.5	YB	179.9	6B
91.5	ZZ	186.2	7Z
94.8	ZA	192.8	7A
97.4	ZB	203.5	M1
100.0	1Z	206.5	8Z

Freq (Hz) = Code		Freq (Hz) = Code	
103.5	1A	210.7	M2
107.2	1B	218.1	M3
110.9	2Z	225.7	M4
114.8	2A	229.1	9Z
118.8	2B	233.6	M5
123.0	3Z	241.8	M6
127.3	3A	250.3	M7
131.8	3B	254.1	0Z

7.7.10.24

Direct PL Code

This field selects the specific code accepted when receiving a Private Line (PL) communication from another radio when operating in Direct/Talkaround mode.



NOTE: This code directly correlates to the [Direct PL Frequency on page 426](#); selecting a value for this field automatically selects a Direct PL Frequency and vice versa. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the [Direct Network ID on page 411](#) can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the [Direct Frequency on page 408](#) instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the Rx/TA Frequency and the [Rx Network ID on page 409](#) setting are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the field is **Non-ASTRO Mode** or **Mixed Mode**, and when the Direct/Talkaround field is **Enabled**, and when the [User Selectable PL \[MPL\]](#) field is **Disabled** or **Rx**, and when the [Direct Squelch Type on page 425](#) field is **PL**.

The following selections are supported:

Table 231: TPL Squelch Frequencies & Codes

Freq (Hz) = Code		Freq (Hz) = Code	
67.0	XZ	136.5	4Z
69.3	WZ	141.3	4A
71.9	XA	146.2	4B

Freq (Hz) = Code		Freq (Hz) = Code	
74.4	WA	151.4	5Z
77.0	XB	156.7	5A
79.7	WB	162.2	5B
82.5	YZ	167.9	6Z
85.4	YA	173.8	6A
88.5	YB	179.9	6B
91.5	ZZ	186.2	7Z
94.8	ZA	192.8	7A
97.4	ZB	203.5	M1
100.0	1Z	206.5	8Z
103.5	1A	210.7	M2
107.2	1B	218.1	M3
110.9	2Z	225.7	M4
114.8	2A	229.1	9Z
118.8	2B	233.6	M5
123.0	3Z	241.8	M6
127.3	3A	250.3	M7
131.8	3B	254.1	0Z

7.7.10.25

Direct DPL Code

This field selects the specific code accepted when receiving a Digital Private Line (DPL) communication from another radio when operating in Direct/Talkaround mode.

This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the [Direct Network ID on page 411](#) can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the [Direct Frequency on page 408](#) instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the Rx/TA Frequency and the [Rx Network ID on page 409](#) setting are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO Mode** or **Mixed Mode**, and when the Direct/Talkaround field is **Enabled**, and when the [User Selectable PL \[MPL\]](#) field is **Disabled** or **Rx**, and when the [Direct Squelch Type on page 425](#) field is **DPL**.

The following selections are supported:

Table 232: DPL Squelch Codes

Code	Code	Code	Code
023	152	343	565
025	155	346	606
026	156	351	612
031	162	364	624
032	165	365	627
043	172	371	631
047	174	411	632
051	205	412	645*
054	223	413	654
065	226	423	662
071	243	431	664
072	244	432	703
073	245	445	712
074	251	464	723
114	261	465	731
115	263	466	732
116	265	503	734
125	271	506	743
131	306	516	754
132	311	525*	
134	315	532	
143	331	546	



NOTE: The codes marked with an asterisk are not part of the 83 standard EIA/TIA-603 codes.

7.7.10.26

Direct DPL Invert

This field causes Digital Private Line (DPL) signals to be inverted before they are transmitted and once they are received while operating in Direct/Talkaround mode.



NOTE: Inverted coding allows for more traffic/usage on frequencies.



IMPORTANT: Direct DPL Invert must be set on both receiving and transmitting radios for communication to occur. This selection applies only for current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the [Personality on page 511](#) field, and then the Frequency Options profile is selected in the [Conventional Frequency Option on page 512](#) field.



IMPORTANT:

When [Direct/Talkaround on page 407](#) is **Enabled** for this Frequency Options profile and the [Direct Frequency Enable on page 336](#) field is **Enabled**, the [Direct Network ID on page 411](#) can then be modified on a per Frequency Options profile basis. When you initiate Direct/Talkaround mode, the radio then transmits and receives on the [Direct Frequency on page 408](#) instead of the [Rx/TA Frequency on page 405](#).

When Direct/Talkaround is **Enabled** for this Frequency Options profile and the Direct Frequency Enable field is **Disabled**, the Rx/TA Frequency and the [Rx Network ID on page 409](#) setting are used whenever you initiate Direct/Talkaround mode.

Direct/Talkaround must be **Enabled** on a Frequency Options profile in order to be available to you for a radio channel. You can select Direct/Talkaround mode with the [Talkaround/Direct](#) button-press, the [Talkaround/Direct](#) switch-selection, or the [Direct/Talkaround](#) menu-selection.

Accessed Only: When the Direct Frequency field is **Enabled**, and when the [Receive Only Personality on page 365](#) field is **Disabled**, and when the [Rx Voice/Signal Type on page 365](#) field is **Non-ASTRO Mode** or **Mixed Mode**, and when the Direct/Talkaround field is **Enabled**, and when the [User Selectable PL \[MPL\]](#) field is **Disabled** or **Rx**, and when the [Direct Squelch Type on page 425](#) field is **DPL**.

7.7.10.27

Mixed Vote Scan Persistent Member

This field causes the radio to always check the selected Rx/TA Frequency (of this record/row) when operating in Scan Mode and actively scanning this Mixed Vote Scan Enabled Conventional Personality.

This is even true when there are stronger frequencies/channels found in the same Scan List where this Conventional Personality is selected. This feature applies only for the current Frequency Options profile (record/row) of the current Conventional Personality.



NOTE: Frequency Option profiles can be selected for use within the Zone Channel Assignment's Channels Page; first, the personality is selected in the Personality field, and then the Frequency Options profile is selected in the Frequency Options field.

Accessed Only: When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled**.

7.8

Trunking Collection

This section allows you to configure parameter settings for trunking features.

7.8.1

Trunking Wide

This section allows you to view or define functionality that can apply to all Trunking Systems and therefore to all Trunking Personalities.

7.8.1.1

Individual Call Max Target Ring Time

This field selects the maximum amount of time that the subscriber unit (SU) rings upon receipt of an Individual Call request.



IMPORTANT: An Individual Call includes both Phone and unit-to-unit calls. If you answer the call before the timer expires, the timer and ring are both stopped. This selection applies for all Trunking Systems and therefore to all Trunking Personalities. Time is in seconds.

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Infinite**, the ring time is unlimited.

Table 233: Range

Minimum	Maximum	Increments
61 sec	120 sec	1 sec

7.8.1.2

Private Call Max Initial Ring

This field selects the amount of time that the subscriber unit rings after initiating a unit-to-unit call request.



IMPORTANT: Phone call requests are not included. If the timer expires before the call is answered by the intended radio, the call attempt is dropped. The timer and the ring are both stopped if the target unit answers the call before the timer expires. This selection applies for all Trunking Systems and therefore to all Trunking Personalities. Time is in seconds.

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Infinite**, the ring time is unlimited.

Table 234: Range

Minimum	Maximum	Increments
1 sec	255 sec	1 sec

7.8.1.3

AFC Disable

This field causes the radio Automatic Frequency Control (AFC) algorithm to be disabled.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

AFC automatically corrects drifting of the radio's Reference Oscillator (RO) by resolving the frequency of the received RF signal and providing feedback on an error signal proportional to the degree to which the RO is mistuned, which in turn reduces the tuning error. However, it may be beneficial to disable AFC for noisy environments, where the error signal may track to an interference frequency instead of the allocated one.



IMPORTANT: When AFC is **Disabled**, the Reference Oscillator must be kept accurately tuned. This selection applies for all Trunking Systems and therefore to all Trunking Personalities.

Accessed Only: When the radio is model/option capable.

7.8.1.4

Bypass Quick Key Voice Channel Access

When enabling this field, the Quick Key feature is disabled (bypassed) for group voice calls.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

Therefore, upon receiving a Voice Channel access grant to a Dispatch Voice channel request, and the PTT button is no longer pressed, the radio ends the request sequence and returns to the idle state. This selection applies for all Trunking Systems and therefore to all Trunking Personalities.

When disabled, the Quick Key feature is enabled during group voice calls.



IMPORTANT:

Since, especially in a busy condition, a significant amount of time may pass between the initial PTT button-press that sends a Dispatch Voice request to the Trunking System and receipt of the Voice Channel access grant that allocates a voice channel to the requesting radio, you may decide to de-key the radio rather than allow the [Time Out Timer on page 368](#) to expire. When the Voice Channel access grant is eventually received, the radio plays a [Talk Permit Tone on page 492](#) and the Quick Key feature causes the radio to begin transmitting silent audio for three seconds, even though the PTT button is no longer pressed. If you press the PTT button before the Quick Key timer expires, the radio continues transmitting but with an active microphone; otherwise, the radio stops transmitting.

The Quick Key feature is always enabled for private calls and phone mode.

Accessed Only: When the radio is model/option capable.



NOTE: This is an advanced setting which is only available in Expert View (see Codeplug View).

7.8.1.5

Emergency Blocked In Failsoft

This field causes the radio to ignore any attempt to enter the Trunking communications Emergency Mode feature when the network is in the Failsoft condition.

This selection applies for all Trunking Systems and therefore to all Trunking Personalities.

Accessed Only: When the radio is model/option capable.

7.8.1.6

Filter Constant K1

This field selects the K1 Filter Constant value, which is used when less than eight seconds elapses between the Received Signal Strength Indication (RSSI) samples.

The selected Filter Constant K1 value is used by the [Filter Threshold Constant T1 on page 434](#). This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Modifications of Filter Constants should only be performed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the radio is model/option capable.

Table 235: Range

Minimum	Maximum
0	9



NOTE:

The RSSI filter has the following characteristic $\text{Filter Val.} = (\text{Filter Val.} * K + \text{Current Reading} * (10 - K)) / 10$ where the domain of K is {K: K = K1, K2, K3} and 0 (no filter) $\leq K3 \leq K2 \leq K1 \leq 9$ (heavily damped filter).

In a SmartZone system, the constants K1, K2, and K3 are designed to reduce filter damping as time between sampling increases.

- K1 is used when less than 8 seconds elapses between RSSI samples.
- [Filter Constant K2 on page 433](#) is used when 8 to 16 seconds elapse between RSSI samples.
- [Filter Constant K3 on page 434](#) is used when more than 16 seconds elapse between RSSI samples.

7.8.1.7

Filter Constant K2

This field selects the K2 Filter Constant value, which is used when 8 to 16 seconds elapse between Received Signal Strength Indication (RSSI) samples.

The selected Filter Constant K2 value is used by the [Filter Threshold Constant T2 on page 435](#). This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Modifications of Filter Constants should only be performed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the radio is model/option capable.

Table 236: Range

Minimum	Maximum
0	9



NOTE:

The RSSI filter has the following characteristic Filter Val. = (Filter Val. * K + Current Reading * (10 - K))/10 where the domain of K is {K: K = K1, K2, K3} and 0 (no filter) <= K3 <= K2 <= K1 <= 9 (heavily damped filter).

In a SmartZone system, the constants K1, K2, and K3 are designed to reduce filter damping as time between sampling increases.

- [Filter Constant K1 on page 433](#) is used when less than 8 seconds elapses between RSSI samples.
- K2 is used when 8 to 16 seconds elapse between RSSI samples.
- [Filter Constant K3 on page 434](#) is used when more than 16 seconds elapse between RSSI samples.

7.8.1.8

Filter Constant K3

This field selects the K3 Filter Constant value, which is used when more than 16 seconds elapse between Received Signal Strength Indication (RSSI) samples.

The selected Filter Constant K3 value is used by the [Filter Threshold Constant T3 on page 436](#). This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Modifications of Filter Constants should only be performed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the radio is model/option capable.

Table 237: Range

Minimum	Maximum
0	9



NOTE:

The RSSI filter has the following characteristic Filter Val. = (Filter Val. * K + Current Reading * (10 - K))/10 where the domain of K is {K: K = K1, K2, K3} and 0 (no filter) <= K3 <= K2 <= K1 <= 9 (heavily damped filter).

In a SmartZone system, the constants K1, K2, and K3 are designed to reduce filter damping as time between sampling increases.

- [Filter Constant K1 on page 433](#) is used when less than 8 seconds elapses between RSSI samples.
- [Filter Constant K2 on page 433](#) is used when 8 to 16 seconds elapse between RSSI samples.
- K3 is used when more than 16 seconds elapse between RSSI samples.

7.8.1.9

Filter Threshold Constant T1

This field selects a value that creates a timed window that Received Signal Strength (RSS) samples must fall within to be considered valid.

This window is centered on the selected Received Signal Strength Indication (RSSI) [Filter Constant K1 on page 433](#) value. The window size is twice the value of the threshold constant. This T1 constant is used when

less than eight seconds elapses between RSSI samples. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.

 **WARNING:** Modifications of Filter Constants should only be performed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the radio is model/option capable.

Table 238: Range

Minimum	Maximum
0 (hex)	FF (hex)

 **IMPORTANT:** The Filter Threshold Constants (T1, T2, T3) are hexadecimal numbers ranging from 0 to FF and should only be modified in accordance with the following: (00 <= T1 <= T2 <= T3 <= FF)

 **NOTE:** T1, T2, and T3 create a window that RSS samples must fall within to be considered valid. The window is centered on the current RSSI Filter Constant value ([Filter Constant K1 on page 433](#), [Filter Constant K2 on page 433](#), or [Filter Constant K3 on page 434](#)). The window size is twice the value of the threshold constant.

- T1 is used when less than 8 seconds elapse between RSSI samples.
- [Filter Threshold Constant T2 on page 435](#) is used when 8 to 16 seconds elapse between RSSI samples.
- [Filter Threshold Constant T3 on page 436](#) is used when more than 16 seconds elapse between RSSI samples.

7.8.1.10

Filter Threshold Constant T2

This field selects a value that creates a timed window that Received Signal Strength (RSS) samples must fall within to be considered valid.

This window is centered on the selected Received Signal Strength Indication (RSSI) [Filter Constant K2 on page 433](#) value. The window size is twice the value of the threshold constant. This T2 constant is used when 8 to 16 seconds elapse between RSSI samples. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.

 **WARNING:** Modifications of Filter Constants should only be performed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the radio is model/option capable.

Table 239: Range

Minimum	Maximum
0 (hex)	FF (hex)



IMPORTANT: The Filter Threshold Constants (T1, T2, T3) are hexadecimal numbers ranging from 0 to FF and should only be modified in accordance with the following: (00 <= T1 <= T2 <= T3 <= FF)



NOTE: T1, T2, and T3 create a window that RSS samples must fall within to be considered valid. The window is centered on the current RSSI Filter Constant value ([Filter Constant K1 on page 433](#), [Filter Constant K2 on page 433](#), or [Filter Constant K3 on page 434](#)). The window size is twice the value of the threshold constant.

- [Filter Threshold Constant T1 on page 434](#) is used when less than 8 seconds elapse between RSSI samples.
- T2 is used when 8 to 16 seconds elapse between RSSI samples.
- [Filter Threshold Constant T3 on page 436](#) is used when more than 16 seconds elapse between RSSI samples.

7.8.1.11

Filter Threshold Constant T3

This field selects a value that creates a timed window that Received Signal Strength (RSS) samples must fall within to be considered valid.

This window is centered on the selected Received Signal Strength Indication (RSSI) [Filter Constant K3 on page 434](#) value. The window size is twice the value of the threshold constant. This T3 constant is used when more than 16 seconds elapse between RSSI samples. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Modifications of Filter Constants should only be performed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the radio is model/option capable.

Table 240: Range

Minimum	Maximum
0 (hex)	FF (hex)



IMPORTANT: The Filter Threshold Constants (T1, T2, T3) are hexadecimal numbers ranging from 0 to FF and should only be modified in accordance with the following: (00 <= T1 <= T2 <= T3 <= FF)



NOTE: T1, T2, and T3 create a window that RSS samples must fall within to be considered valid. The window is centered on the current RSSI Filter Constant value ([Filter Constant K1 on page 433](#), [Filter Constant K2 on page 433](#), or [Filter Constant K3 on page 434](#)). The window size is twice the value of the threshold constant.

- [Filter Threshold Constant T1 on page 434](#) is used when less than 8 seconds elapse between RSSI samples.
- [Filter Threshold Constant T2 on page 435](#) is used when 8 to 16 seconds elapse between RSSI samples.
- T3 is used when more than 16 seconds elapse between RSSI samples.

7.8.1.12

RSSI OSW Counter

This field selects the number of Outbound Signal Word (OSW) - (23 ms) intervals that the radio remains inactive on the Control Channel, before a set of Received Signal Strength Indication (RSSI) samples is taken. Once these OSW intervals are completed, RSSI samples measure the strength of the current incoming signal. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.

 **WARNING:** Do not attempt to modify this RSSI setting unless you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).

Accessed Only: When the radio is model/option capable.

Table 241: Range

Minimum	Maximum
60	255

7.8.1.13

RSSI OSP Counter

This field selects the number of ASTRO 25 OSPs RSSI Outbound Signaling Packets (OSP) for which the radio must remain inactive on the Control Channel before a set of RSSI samples is taken.

This value should be set with the assumption of single Trunking Signaling Block (TSBK) channel format (1 OSP = 37.5 ms). If the channel is actually double or triple TSBK format, the codeplug value will be scaled so that the time interval the radio uses to remain inactive is equal to: RSSI OSP Counter * 37.5 ms. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.

 **WARNING:** Do not attempt to modify this RSSI setting unless you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).

Accessed Only: When the radio is model/option capable.

Table 242: Range

Minimum	Maximum
40	255

7.8.1.14

Desense Timer

This field selects the amount of time the radio continues scanning the current site after it has become desensed.

The radio is considered to be desensed if it encounters a strong RF signal which muffles out the control channel. Such a condition may arise if another high-power radio is transmitting in close physical proximity, not necessarily on the same frequency. The radio exits the desense condition if it finds a valid control channel at the home site or it finds failsoft. If the timer expires while the radio is still desensed, it looks for

a valid control channel at an adjacent site, if any exist. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities. Time is in seconds.



WARNING: Do not attempt to modify this RSSI setting unless you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).



IMPORTANT: This field's value will not be copied when a Drag and Drop Across Frequency Bands procedure is performed (e.g. 700/800 to UHF).

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Disabled**, the timer is disabled (0 sec).

Table 243: Range

Minimum	Maximum	Increments
1 sec	30 sec	1 sec

7.8.1.15

RSSI Acceptable Threshold

This field selects a signal strength that defines a receive SmartZone signal to be at the Poor/Acceptable Threshold.

The SmartZone Trunking System then uses this information when determining signal priority. Received Signal Strength Indication (RSSI) is a measurement of incoming signal strength. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Do not attempt to modify this RSSI setting unless the you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).

Accessed Only: When the radio is model/option capable.

Table 244: Range

Minimum	Maximum
0 (hex)	FF (hex)

7.8.1.16

RSSI Good Threshold

This field selects a signal strength that defines a receive SmartZone signal to be at the Acceptable/Good Threshold.

The SmartZone Trunking System then uses this information when determining signal priority. Received Signal Strength Indication (RSSI) is a measurement of incoming signal strength. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Do not attempt to modify this RSSI setting unless you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).

Accessed Only: When the radio is model/option capable.

Table 245: Range

Minimum	Maximum
0 (hex)	FF (hex)

7.8.1.17

RSSI Very Good Threshold

This field selects a signal strength that defines a receive SmartZone signal to be at the Good/Very Good Threshold.

The SmartZone Trunking System then uses this information when determining signal priority. Received Signal Strength Indication (RSSI) is a measurement of incoming signal strength. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Do not attempt to modify this RSSI setting unless you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).

Accessed Only: When the radio is model/option capable.

Table 246: Range

Minimum	Maximum
0 (hex)	FF (hex)

7.8.1.18

RSSI Excellent Threshold

This field selects a signal strength that defines a receive SmartZone signal to be at the Very Good/Excellent Threshold.

The SmartZone Trunking System then uses this information when determining signal priority. Received Signal Strength Indication (RSSI) is a measurement of incoming signal strength. This selection can apply for all Trunking Systems and therefore to all Trunking Personalities.



WARNING: Do not attempt to modify this RSSI setting unless you are very knowledgeable in the workings of this feature. Incorrect settings may cause your radio to be incapable of communications with the Fixed Network Equipment (FNE).

Accessed Only: When the radio is model/option capable.

Table 247: Range

Minimum	Maximum
0 (hex)	FF (hex)

7.8.1.19

Strong Signal Roaming

When enabled this field activates additional Receive Signal Strength Indication (RSSI).

Thresholds derived at regular intervals above the currently configured Very Good/Excellent Thresholds. This provides additional site switching among Strong Signal sites. Although there will be additional site switches when this field is enabled, two levels of improvement are required for a site switch to occur, to prevent excessive site switching.

When disabled, RSSI-based site switching is limited to improving signals up to the configured Excellent level. This selection applies for all Trunking Systems, and therefore to all Trunking Personalities.

7.8.1.20

Leave LMR RSSI Threshold

When the radio detects that all LMR sites filtered RSSI signal strength is less than the Leave LMR RSSI Threshold, the radio will automatically switch from LMR operation to broadband operation if available.

Table 248: Range

Default	Minimum	Maximum	Increments
34 (Hex)	0	FF (Hex)	1

Accessed Only: When the radio is model/option capable.

7.8.1.21

Return To LMR RSSI Threshold

Return To LMR RSSI Threshold feature is the signal strength that is used by the radio to determine that an LMR site has recovered sufficiently to switch from broadband to LMR operation.

Table 249: Range

Default	Minimum	Maximum	Increments
41 (Hex)	0	FF (Hex)	1

Accessed Only: When the radio is model/option capable.

7.8.1.22

Max Tx Attempts

This field selects the maximum numbers of times that the radio attempts to send a Common Air Interface (CAI) data packet transmission.

The radio continues these retries until it receives an acknowledgement confirming the successful receipt of transmission, or until this selected number of Tx Attempts is reached. This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities.

Accessed Only: When the radio is model/option capable.

Table 250: Range

Minimum	Maximum
2	10

7.8.1.23

Response Timer

This field selects the amount of time that the radio waits for an acknowledge of a successful Common Air Interface (CAI) transmission before re-sending another CAI data packet.

This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities. Time is in milliseconds.

Accessed Only: When the radio is model/option capable.

Table 251: Range

Minimum	Maximum	Increments
100 ms	5000 ms	100 ms

7.8.1.24

Min Response Time

This field selects the minimum amount of time that the radio waits for an acknowledgement of a successful Common Air Interface (CAI) to be sent across the channel.

This parameter should be slightly greater than the Data Throughput Delay from the Radio Network Controller - RNC (the data controller) to the radio. This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities. Time is in milliseconds.



WARNING: Do not attempt to change this setting without first verifying the particular throughout of your system.

Accessed Only: When the radio is model/option capable.

Table 252: Range

Minimum	Maximum	Increments
50 ms	2000 ms	50 ms

7.8.1.25

Frame Sync Seek Period

This field selects the amount of time that the radio listens for a Frame Sync Sequence (FSS).

The presence of an FSS on a channel indicates that voice or data is currently being transmitted. If an FSS is not detected within this seek period, the radio assumes the channel is idle and then transmits the next Common Air Interface (CAI) packet queued for transmission. This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities. Time is in milliseconds.

Accessed Only: When the radio is model/option capable.

Table 253: Range

Minimum	Maximum	Increments
0 ms	5000 ms	50 ms

7.8.1.26

Tx Short Random Range

This field selects the maximum amount of time that the radio waits to transmit once the first qualified Frame Sync Sequence (FSS) has been received indicating that the channel is clear.

The radio randomly checks channel access status based on this maximum wait time. This selection applies when in Common Air Interface (CAI) operation for all Trunking Systems and Trunking Personalities. Time is in milliseconds.

Accessed Only: When the radio is model/option capable.

Table 254: Range

Minimum	Maximum	Increments
50 ms	500 ms	50 ms

7.8.1.27

Tx Long Random Range

This field selects the upper bound of the uniform random range.

When the radio senses a busy channel-status, the radio then uses a random-time selection process within this range known as the "back off delay", to determine when to re-attempt to transmit the Common Air Interface (CAI) data message. This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities. Time is in milliseconds.



IMPORTANT: The minimum value of this range is automatically set to 50 ms, and the uniform values of this range are in 50 ms increments.

Accessed Only: When the radio is model/option capable.

Table 255: Range

Minimum	Maximum	Increments
50 ms	5000 ms	50 ms

7.8.1.28

Tx Resp Random Range

This field selects the upper bound of the uniform random range.

When the radio senses a busy channel-status, the radio then uses a random-time selection process within this range known as the "back off delay", to determine when to re-attempt to transmit the Response Common Air Interface (CAI) data message. The Response is usually an Acknowledgment "Ack" to a message sent from the system. This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities. Time is in milliseconds.



IMPORTANT: The minimum value of this range is automatically set to 50 ms, and the uniform values of this range are in 50 ms increments.

Accessed Only: When the radio is model/option capable.

Table 256: Range

Minimum	Maximum	Increments
50 ms	1000 ms	50 ms

7.8.1.29

Tx Limited Patience

This field selects the maximum amount of time that the radio attempts to transmit a Common Air Interface (CAI) data packet.

Once this time expires, the radio ceases to attempt transmissions. This selection applies when in CAI operation for all Trunking Systems and Trunking Personalities. Time is in seconds.

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Infinite**, no timer is used; therefore, there is no transmit time limit.

Table 257: Range

Minimum	Maximum	Increments
1 sec	255 sec	1 sec

7.8.1.30

Failsoft Inactivity

This field selects the amount of Failsoft Mode inactivity time that determines when the radio attempts to search for a valid and active control channel.

This timer begins once all Failsoft receive and transmit communications have ceased; if the timer expires before any Failsoft communications occur, the radio begins searching for an available control channel. If communications do occur during this timer period, the timer is reset. This selection applies when in SmartZone operation for all Trunking Systems and Trunking Personalities. Time is in seconds.

Accessed Only: When the radio is model/option capable.

Table 258: Range

Minimum	Maximum
0 sec	255 sec

7.8.1.31

Affiliation Hold Off

This field selects the amount of time that the radio waits before connecting to a new Trunking site.

This timer begins once the radio leaves the current Trunking site due to a control channel connection failure. This selected time is used by the radio as a randomized average. This selection applies only when in SmartZone operation for "Type II" Trunking Systems and therefore to all "Type II" Trunking Personalities.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

- 1 sec
- 3 sec
- 7 sec
- 15 sec
- 31 sec
- 63 sec

- 127 sec
- 255 sec

7.8.1.32

Full Spectrum Control Channel Scan

This field enables the radio to automatically perform a Full Spectrum Control Channel Scan when the radio goes out of range of all its currently programmed controller information.

This feature causes the radio to search its entire codeplug for all channel definitions, while also scanning for any valid control channel activity on each channel definition found. This selection applies when in SmartZone operation for all Trunking Systems and Trunking Personalities.

Accessed Only: When the radio is model/option capable.

7.8.1.33

Full Spectrum Control Channel Scan Timer

This field selects the amount of time that the radio is allocated to perform a Full Spectrum Control Channel Scan.

Once this timer has expired, the radio returns to normal control channel operations. This selection applies when in SmartZone operation for all Trunking Systems and Trunking Personalities. Time is in seconds.

Accessed Only: When the radio is model/option capable.

Table 259: Range

Minimum	Maximum
5 sec	31 sec

7.8.1.34

Internal Radio Holdoff

This field selects the amount of Internal Radio Random Holdoff Time (IRHOT) that the radio should delay before registering at a new site when leaving a site which just incurred a failure or returning to a site which just recovered from a failure.

The radio then calculates a random value between 0 and the IRHOT value to wait before it registers after a site failure or recovery. IRHOT is only used if the [Holdoff Delay on page 445](#) expires without the radio receiving an over-the-air packet indicating the holdoff period. This selection applies when in SmartZone operation and only to APCO Trunking Systems and Trunking Personalities. Time is in minutes.

Accessed Only: When the radio is model/option capable.

Table 260: Range

Minimum	Maximum
0 min	60 min

7.8.1.35

Holdoff Delay

This field selects the amount of time that the radio should delay starting a holdoff time for registration or affiliation.

During this time, the radio waits for an over-the-air packet indicating the holdoff period. If an over-the-air value is not received by the end of the Holdoff Delay, the [Internal Radio Holdoff on page 444](#) time will be used. This selection applies when in SmartZone operation and only to APCO Trunking Systems and Trunking Personalities. Time is in seconds.

Accessed Only: When the radio is model/option capable.

Table 261: Range

Minimum	Maximum
5 sec	60 sec

7.8.1.36

ISW Window Adjustment

This field selects in decimal or hex format, a value that fine tunes the Inbound Signal Word (ISW) Window for the purpose of improving Trunking System performance.

The ISW Window is an amount of time that is synchronized between the radio and the Central Controller. This amount of time is allotted for the purpose of synchronizing the ISW transmission within the Central Controller's expected ISW arrival time. This selection applies only for Type II Trunking Systems and therefore to all Type II Trunking Personalities.

 **WARNING:** Do not modify unless you are a Motorola Solutions Field Technical Representative. Improper adjustment can reduce Trunking System performance.

Accessed Only: When the radio is model/option capable.

Table 262: Range

Minimum	Maximum
0 (Hex)	FFFF (Hex)

7.8.1.37

ViQi: Virtual Partner Call Activity Timer

This field allows you to select the amount of time that you can remain active in the Virtual Partner channel before reverting to the selected talkgroup.

 **NOTE:** This field is only applicable for APX NEXT and APX N70 radios.

Table 263: Range

Default Value	Minimum Value	Maximum Value	Increments
5 sec	5 sec	30 sec	1 sec

7.8.2

Trunking System

The **Trunking System** allows you to create and delete Trunking Systems, as well as define individual Trunking System functionality.

Trunking Systems are virtual configurations that mirror actual (in-the-field) Trunking System configurations and functionality; defining the systems enables the radio to communicate with the actual systems.



WARNING:

If a Trunking System's, System Type field is modified, any Trunking Personalities previously assigned to that specific Trunking System will have to be reassigned to another system that carries the appropriate System Type selection. Otherwise, a codeplug error will occur when writing the codeplug to the radio. Trunking System addressing schemes can be either Type II, or ASTRO 25.



NOTE:

Trunking Systems are referenced to a Trunking Personality. Trunking Systems settings can then become functional for all Trunking - channel types.

7.8.2.1

Trunking System Name

This field allows you to define a recognizable name for the current Trunking System.



NOTE:

Individual Trunking Systems are assigned to a Trunking Personality through the System field by selecting this name. These Trunking Systems settings can then become functional for all channel types within that Trunking Personality.

When **Priority Monitor** is selected as the Scan Type for Scan List Member channels, this Trunking System name must be selected for the current Scan List through the Trunking System Record field.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: EMT-001, #500, Electric1, # A5

Characters, numbers, spaces, and special characters can be used.

Leading blanks are substituted with underscores in the radio's display.

Leading periods do not appear in the radio's display.

7.8.2.2

System Key Type

This field displays the read-only of selected System Key Type for the current Trunking System; either **System Key** or **WACN Key**.

When the [Coverage Type on page 446](#) is set to **Intra-WACN Roaming**, then the System Key Type is **WACN Key**, otherwise it is **System Key**.

Accessed Only: When the radio is model/option capable.

7.8.2.3

Coverage Type

This field selects the geographic Coverage Type of the radio and therefore specific methods of determining radio-to-radio communications within Trunking Systems.

Coverage Type applies for the current Trunking System.

Accessed Only: When the radio is model/option capable, and when a Software System Key File or an Advanced System Key with access is selected in the System ID field or, an Advanced WACN Key with access is selected in the Home WACN ID field.

 **NOTE:** These selections are radio model/option dependent.

The following selections are supported:

Disabled = SmartNet

When the radio is model/option capable of SmartZone, disabling this field causes the Trunking System to use SmartNet.

 **NOTE:** SmartNet operation amounts to single site SmartZone.

SmartZone

SmartZone operation allows the radio to determine through Received Signal Strength Indication (RSSI) polling samples, the best Trunking Site to be used for SmartZone-enabled Trunking channels.

 **NOTE:**
For ASTRO 25 Systems: Operation is limited to Sites within a single Zone of a single Trunking System.

For Type II Systems: Operation is limited to the Sites within a single Trunking System.

SmartZone and OmniLink

gives the SmartZone-capable radio the ability to roam from one SmartZone Zone to another SmartZone Zone within the same OmniLink System. OmniLink applies for OmniLink-enabled Trunking channels.

 **NOTE:**
For ASTRO 25 Systems: Operation is limited to Sites and Zones within a single OmniLink System.
For Type II Systems: Operation is limited to Sites within a set of interconnected Trunking Systems.

Intra-WACN Roaming

Intra-WACN Roaming gives the Project 25-capable radio the ability to automatically roam between all the System IDs within the same Wide Area Communication Network (WACN) without any of your intervention. See also Home WACN ID.

 **NOTE:** For ASTRO 25 Systems: Operation is limited to Trunking Systems within a single WACN.



WARNING: Intra-WACN Roaming is invalid if one of the following scenarios is true:

When the System Type is Type II, or

When the DVRS Hardware Enable field is **Enabled**, or

When the Dual Radio - Radio Selection field is set to **Secondary Radio** and when the Enable Secondary Radio Tx field is **Disabled**.

Inter-WACN Roaming

Inter-WACN Roaming gives Project 25-capable radios on selected talkgroups the ability to automatically roam across different Wide Area Communications Networks (WACNs) without any of your intervention.



WARNING: Inter-WACN Roaming is invalid if one of the following scenarios is true:

When the System Type is Type II, or

When the DVRS Hardware Enable field is **Enabled**, or

When the Dual Radio - Radio Selection field is set to **Secondary Radio** and when the Enable Secondary Radio Tx field is **Disabled**, or

When this System is LTE Broadband **Enabled**.

A Trunking System is LTE enabled when a referenced Data Profile having a Data Profile Type selection equal to **Trunking and Broadband** or **Broadband-Only**, and when that Data Profile's Broadband Source is **Internal LTE Modem**.

SmartZone-capable and Project 25-capable systems are also configured from the Trunking Wide SmartZone fields and from the Trunking Wide Filter Constants fields.

7.8.2.4

RFSS Response Time

This field selects the Radio Frequency Sub-System (RFSS) Response Time.

This is the base (minimum amount of) response time that the receiving radio (fixed end) waits between retries for the Fixed Network Equipment (FNE) to respond to the radio's Inbound Signaling Packet.



NOTE: An additional random time is added to this base time to prevent all radios in the system from attempting a retry at the same time. This selection applies for the current Trunking System. Time is in milliseconds.

Accessed Only: When the radio is model/option capable.

Table 264: Range

Minimum	Maximum	Increments
25 ms	6375 ms	25 ms

7.8.2.5

RFSS Debounce Timer

This field selects the minimum amount of time that the radio's Radio Frequency Sub-System (RFSS) Debounce Timer holds off its registration/affiliation when bouncing between different RF Sub-Systems.



NOTE: After a radio affiliates with an RFSS, a request to switch to a different RFSS will not be sent to the system until this timer has expired. This selection applies for the current Trunking System.

Accessed Only: When the [Coverage Type on page 446](#) field is set to **SmartZone and OmniLink** or **Intra-WACN Roaming** or **Inter-WACN Roaming**, and when the radio is model/option capable.

Table 265: Range

Minimum	Maximum
1 sec	10 sec

7.8.2.6

Non-Adjacent Site Search

This field enables the radio to search its programmed list of Control Channels for a site with a stronger signal. This allows the radio the ability to roam-to and use a site that is not Fixed Network Equipment (FNE) defined as being adjacent to the radio's current home site, but does have an "Acceptable" or stronger signal.



NOTE: This is only true when the current home site and its FNE-defined adjacent sites are all registering at a certain threshold amount below the RSSI Acceptable Threshold level. This feature applies for the current Trunking System.



IMPORTANT: When operating in a poor coverage area, this feature causes the radio to search the programmed list of Control Channels approximately once every two minutes. During this search time, the radio is not monitoring the home site's control channel and therefore may miss some audio. Based on the number of Control Channels contained within the appropriate Control Channels list for this Trunking System, this search could take up to four seconds.

Accessed Only: When the [Coverage Type on page 446](#) field is not set to **Disabled**, and when the radio is model/option capable.

7.8.2.7

Data Profile Selection

This field selects the Data Profile to be used with the current ASTRO 25 - Trunking System.



WARNING: When the Dual Radio - Radio Selection field is set to **Secondary Radio** and the Enable Secondary Radio Tx field is **Disabled**, this field must be set to **Data Disabled**, otherwise it is considered invalid.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable. The following selections are supported:

Data Disabled

No data capabilities.

Available Data Profiles



WARNING:

An LTE Broadband-enabled Data Profile cannot be selected when the current Trunking System's [Coverage Type on page 446](#) is set to **Inter-WACN Roaming**, or when the current Trunking System's LTE Interference Frequency Present field is **True**.

A Data Profile is LTE enabled for a Trunking System when the Data Profile has a Data Profile Type selection equal to **Trunking & Broadband** or **Broadband-Only**.

7.8.2.8

Control Channels

This section allows you to view or define Receive and Transmit frequencies for Control Channels.

Up to a maximum of 250 Control Channels may be created for individual Trunking Systems, as required.



NOTE: For radio models containing firmware prior to version R12.01.00, the maximum number of Control Channels is 128.



IMPORTANT:

Individual Trunking Systems are referenced to a Trunking Personality. Once reference, these Trunking Systems settings can become functional for all channel types within that Trunking Personality.

It is beneficial to sort the control channel frequencies in ascending order in a SmartZone system. In a Failsoft situation, the radio uses the first channel from the Control Channel as its Failsoft channel. If channels are sorted (or at least sorted in an order designed to facilitate Failsoft operations), potential problems such as having multiple radios on different Failsoft channels can be avoided.

7.8.2.9

Radio Inhibit

This field enables the radio to receive and respond to a Remote Inhibit command while operating on the current Trunking System.

This inhibit command is sent from the dispatcher. Upon successful receipt, the radio transmits an acknowledgement back to the dispatch equipment and then goes into a dormant state. While inhibited, the receiver audio is muted and the transmit audio path is blocked; all your controls are rendered inoperative; scan mode is stopped on the operating channel which received the command, and all Radio LED's are turned off.



WARNING:

When the System Type field is set to **ASTRO 25** and when the **ASTRO OTAR Profile Index** field is enabled (for the current Trunking System), and when the Secure Configuration, **Radio Inhibit via ASTRO OTAR** is enabled, this field may be disabled. In this case, Radio Inhibit is accomplished "via ASTRO OTAR".

When the System Type field is set to **ASTRO 25** and when the **ASTRO OTAR Profile Index** field is disabled (for the current Trunking System), this field must be enabled. This insures that Radio Inhibit is possible with **ASTRO 25** Trunking.

When the System Type field is set to **Type II** and when the value of the Trunking System's System ID field matches the **Key ID** of one of the loaded Software System Key Files or Advanced System Keys (see the System Key Report), this field may be disabled. In this case, Radio Inhibit commands received on this Trunking System will be ignored, and the radio continues to operate normally.

When the Secure Configuration, **Radio Inhibit via ASTRO OTAR Profile Index** is enabled, and when the **ASTRO OTAR Profile Index field** is enabled (for the current Trunking System), this field may be disabled. In this case Radio Inhibit is accomplished "via ASTRO OTAR".

When the **ASTRO OTAR Profile Index** field is disabled (for the current Trunking System), this field must be enabled. This insures that Radio Inhibit is possible with **ASTRO 25** Trunking.



IMPORTANT: In order to clear this inhibited state on the radio, an uninhibit command must be sent to the radio.

Accessed Only: When the radio is model/option capable.

7.8.2.10

Text Messaging Service

This field selects the Text Messaging mode for the current Trunking System.



NOTE:

Text Messaging is accessed by you with the Text Messaging Service button-press, or the Text Messaging Service menu-selection.

Quick Text Messaging is accessed by you with the TMS Quick Text button-press.

Query Messaging is accessed by you with the TMS Query button-press.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the current Trunking System has a referenced Data Profile, and when Data Profile Selection is not set to **Data Disabled**.

The following selections are supported:

None

The feature is disabled.

List Only

Allows you to only select Text Messages from the Quick Text Messages List.

Unlimited

Allows you to select from the Quick Text Messages, and enter your own text message from the radio keypad.



WARNING: This selection is only available on radios that have a keypad or Keypad Mic.



NOTE: This selection is not applicable to APX N70.

7.8.2.11

Group Text Messaging Service

This field selects the Group Text Messaging Service mode for the current ASTRO25 Trunking System.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

The following selections are supported:

Disabled

Group Text Message will not be received.

Full Decode

Group Text Message will be received.

7.8.2.12

OTA Radio Alias Type

Configures the encoding (transmitting) and decoding (receiving) of the OTA (Over the Air) Radio Alias feature.



WARNING: Radio cannot display alias if the radio receives duplicated IDs until the duplication is removed. Writing to the radio will cause the call list to return to its original state and all OTA alias updates will be lost.



IMPORTANT: If OTA alias update did not show up on the display, radio-user must update the radio call list in RadioCentral or provisioning manager.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

The radio does not transmit or receive the Radio Alias data.

Decode Only

Radio Alias data receives the data without limitation.

7.8.2.13

OTA Radio Alias Update Enable

Allows the current system to update the radio alias.

Accessed Only: When Radio Alias Enable is enabled, System Type is **ASTRO 25**, OTA Radio Alias Type field is not **Disabled**, and when the radio is model/option capable.

7.8.2.14

Enable Intermediate Hunt

When this field is enabled, your radio uses a dynamically sorted list of frequencies while searching for a valid control channel. The list is populated with the control channel frequencies provisioned in the Trunking System of the codeplug configuration and frequencies that the radio learns through Over-The-Air (OTA) events. Some examples of frequencies through OTA events are the adjacent site frequency broadcasts, backup control channel frequency broadcasts, and frequencies found using full spectrum scan. The radio manages the intermediate hunt list by prioritizing control channels that have higher activities.

If this field is disabled, the radio acts as before by using the last CC ACC list. Then, it uses the programmed list of control channel frequencies from the Trunking System in the codeplug configuration, searching for a valid control channel in the listed order while monitoring for OTA events. Dynamic sorting of frequencies will not occur.



NOTE: This field can only be enabled for ASTRO 25 system types.

Accessed Only: On portable and mobile radios that are microcontroller based.

7.8.2.15

TX Power Level

This field selects the radio's power level for transmitting for the current Trunking System.

The Tx Low Power button-press, the Tx Low Power switch-toggle, and the Power menu-selection take precedence over this setting when selected by you.



NOTE:

During Emergency Mode the radio automatically transmits at high power.

The transmit power may be reduced 1 watt for 800 models, and 2 watts for VHF and UHF models.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Low

Used when communicating in close proximity, and to keep the radio from transmitting into other geographical groups operating on the same frequency.

Medium-Low

Used when communicating in close proximity, but the Low Power setting is not sufficient.

Medium-High

Used when a stronger signal is needed to extend transmission distances, but the High Power setting is excessive.

High

Used when a stronger signal is needed to extend transmission distances.

7.8.2.16

HearClear

This field selects to enhance audio clarity by applying noise cancellation and/or a companding algorithm to the radio signal.

This feature applies for the current Trunking System.



IMPORTANT: With companding, the dynamic range of the transmit audio is compressed and then expanded to its original level in the receive audio. Therefore, companding must be enabled on both the transmitting and the receiving radios or distorted audio will result. Since the compression/expansion algorithm is active both on transmit and receive audio, expanding uncompressed audio or compressing audio without subsequently expanding it will both result in unnatural-sounding audio output. The audio path to the dispatcher must also be companded.

Accessed Only: When the System Type field is set to **Type II**, and when the DVRS Hardware Enable field is disabled.

The following selections are supported:

Disabled

No noise canceling or companding is applied to the transmit/receive signals.

Companding Only

Companding is applied to both the transmit and receive audio. See Important Note.

Noise Cancellation Only

Noise cancellation is applied to the receive audio.

Companding and Noise Cancellation

Companding is applied to both the transmit and receive audio (see Important Note) and noise cancellation is applied to the receive audio.



NOTE: The **Noise Cancellation Only** and **Companding and Noise Cancellation** settings can only be applied if all frequencies on the current personality are in the 900 MHz range.

7.8.2.17

Remote Monitor/Radio Trace Enable

This field enables the radio to decode a Remote Monitor or Radio Trace command for the current Trunking System.



WARNING: **Radio Trace** applies only for System Type **Type II**. Also only for a **Type II** System, and applying to both **Remote Monitor** and **Radio Trace**, the radio keys-up for the time selected by the Remote Monitor/Radio Trace Tx Base Time.



NOTE:

For a **ASTRO 25** System Type, the in-the-field radio's transmit time is defined by a dispatcher and contained within the transmitted **Remote Monitor** command.

When a **Remote Monitor** command has been received, the radio automatically keys-up and transmits surrounding audio from its "hot" microphone. This is especially useful in an emergency Fall Alert situation.

Remote Monitor is also known as **Radio Unit Monitor**.

When a **Radio Trace** command has been received, the radio automatically keys-up, sending unmodulated carrier, allowing a lost or stolen radio to be found. **Radio Trace** applies only for System Type **Type II**.

Applies only:

For APX 7000XE and APX 6000, this feature applies only when System Option H43 is available to the radio. In addition, the radio requires firmware version R05.xx.xx or higher, and the APX must be R05.xx.xx or higher.

For APX 6500 this feature applies only when System Option G170 is available to the radio. In addition, the radio requires firmware version R05.xx.xx or higher, and the APX must be R05.xx.xx or higher.

7.8.2.18

Remote Monitor/Radio Trace Tx Base Time

This field enables the dispatcher to remotely key up the radio to listen over the PTT.

Accessed Only: When the Remote Monitor/Radio Trace Enable field is enabled, and when the radio is model/option capable.

7.8.2.19

Emergency Alarm Rx Indicator

This field enables an audio or visual, or both indicator to occur on the radio when an Emergency Alarm is detected and received from another radio.

The type of Emergency Indicator is determined by the Emergency Alarm Rx Indicator Type setting. This feature applies for the current Trunking System.



IMPORTANT:

The Emergency Alarm Rx Indicator time lasts for 10 seconds. During these 10 seconds, you can deactivate the indicator by pressing any of the radio's buttons except Volume and Light/Flip (Display).

Once the indicator clears or is cleared, retried emergency alarms from the same Trunking System Unit ID are ignored for the next 20 seconds.

Emergency alarms are not detected while the radio is in scan mode.

Emergency alarms may not be detected any time the radio is not monitoring or decoding the control channel, for example, activity on a voice or data channel, RSSI sampling, etc.

Accessed Only: When the Emergency Alarm Rx Indicator Type field is not set to **No Indication**, and when the radio is model/option capable.

7.8.2.20

Secure LED

This field enables the yellow busy LED to flash whenever a secure encrypted voice call is received, and will continue to flash as long as the current voice activity is secure.

The yellow busy LED will flash under these conditions regardless of whether the specific radio can unmute the voice signal. Secure LED applies for the current Trunking System.

Accessed Only: When the radio is model/option capable.

7.8.2.21

ICUA Reset

This field selects a timed or manual unmute, exception for Trunking call alerts/pages when the channel is Voice Mute In-Call User Alert Enabled.

The exception time (timed or manual) is known as the Release Squelch State. For the two timed selections, the [ICUA Auto Reset Time on page 455](#) field (for this Trunking System) partially determines how long the Release Squelch State continues. The Release Squelch State begins when the Voice Mute In-Call User Alert feature is active and the radio has unmuted. This selection applies for the current Trunking System.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Manual

When the Voice Mute In-Call User Alert Enabled feature is active, Voice Mute button is pressed, or the Voice Mute menu-selection deactivates Voice Mute and ends the Release Squelch State. Pressing the PTT button ends the Release Squelch State.

Auto

If the timer expires regardless of whether the radio is muted or unmuted, the Release Squelch State is ended and the Voice Mute In-Call User Alert Enabled rules are again required in order to unmute to any future transmissions.

Auto with carrier

If the radio is unmuted when the timer expires due to Carrier Squelch being satisfied, the radio remains unmuted until carrier is dropped. Once carrier is dropped and the radio is muted, the timer is reset and re-started, in effect extending the Release Squelch State again; if the radio then remains muted for an entire timer period without any carrier override, the Release Squelch State is ended and the Voice Mute In-Call User Alert Enabled rules are again required in order to unmute to any future transmissions.

7.8.2.22

ICUA Auto Reset Time

This field selects an amount of time used during the unmute-exception for Trunking call alerts/pages when the channel is Voice Mute In-Call User Alert Enabled.

The exception time is known as the Release Squelch State. This timer is only relevant to the two In-Call Reset timed selections. This selection applies for the current Trunking System. Time is in seconds.

Accessed Only: When the [ICUA Reset on page 454](#) field is not set to **Manual**, and when the radio is model/option capable.

Table 266: Range

Minimum	Maximum	Increments
0 sec	255 sec	1 sec

7.8.2.23

Dynamic Regrouping Enable

This field enables a Dynamic Regrouping talkgroup for a Trunking Personality or channel that references the current Trunking System.



NOTE:

When this field is enabled, a **Dynamic Regrouping Zone** and **Dynamic Regrouping Channel** must be selected for that Trunking System.



WARNING: A Dynamic Regrouping configuration is only valid: when one of the Trunking Personalities referenced to a channel has its Trunking Talkgroup field set to **DYN** (Dynamic Regrouping), and that Personality's selected Zone and Channel match the selections for Dynamic Regrouping Zone and Dynamic Regrouping Channel in the Personalities' referenced Trunking System.



IMPORTANT: Therefore, only one channel within a given Trunking System, can be the Dynamic Regrouping channel.

You may request a new Dynamic Regrouping assignment from the dispatcher with a Reprogram Request button-press or a Reprogram Request menu-selection. The actual features and settings of the Dynamic Regrouping talkgroup are defined and transmitted back by the dispatcher.

For the Dynamic Regrouping talkgroup to be capable of transmitting in Secure mode, the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection is needed; otherwise Dynamic Regrouping talkgroup transmissions are strapped to transmitting in **Clear** mode.

Accessed Only: When the radio is model/option capable.

7.8.2.24

Location on PTT

ASTRO 25 system enables APX radios to transmit the GPS location to infrastructure through voice frames on the voice channel after PTT operation.

This allows the transmitting radio's location to be seen on the mapping application.



WARNING: ARS Mode must be set as **Enhanced Server** in the Data Profile record to prevent invalid Fields Report.



NOTE: The location on PTT transmits the location information unencrypted.

Accessed Only: When the radio is model/option capable, and when the System Type field is set to **ASTRO 25**, and when the ARS Mode is **Enhanced Server** in its Data Profile, and when the [Location Enable on page 79](#) field is enabled.

7.8.2.25

Message Alias Enable

This field enables the ability to define Messages for the current Trunking System.



WARNING:

This feature applies only when the **Type II Trunking Personality** that references this Trunking System has its Message Enable field enabled.

Once enabled, you must then set up each radio Message Alias (Message Alias Name and Message Alias Number of the same record/row) to match identically (or have the same meaning) as the corresponding dispatcher unit Message Alias.

Once defined, you can access the Message feature with a button-press, a Direct Message button-press, or a Message menu-selection.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is model/option capable.

7.8.2.26

Splinter Channel

This field enables Splinter Channel operation for supporting Trunking Systems that operate as a "splinter system" (800 MHz only).



NOTE: In this case, Control channel frequencies and Failsoft frequencies operate using "splinter channels" which are in between the "normal" frequencies of the 800 MHz band plan, and are hence shifted down 12.5 kHz. The radio then interprets the channel numbers received over the air as splinter channels. This feature applies to the current Trunking System.

Accessed Only: When the radio is operating within the 800 MHz frequencies band, and when a Software System Key File or an Advanced System Key with access has been selected in the System ID field, and when the System Type field is set to **Type II**, and when the radio is model/option capable.

7.8.2.27

Legacy Transit System

This field enabling this feature restricts the use of the current Trunking System to the legacy frequency format for compatibility with legacy transit systems.



WARNING: DO NOT MODIFY this feature unless explicitly instructed by a Motorola Solutions Field Technical Representative.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is model/option capable.

7.8.2.28

Channel Bandwidth

This field selects the Channel Bandwidth for the current Trunking System.

For the 800 MHz domestic trunked system configuration, this field is the designated 806 Channel Bandwidth; that is, this selection specifies the Channel Bandwidth of the frequencies in the range of 806 MHz–821 MHz.



IMPORTANT:

The bandwidth for the frequencies in the range 821 MHz to 824 MHz are set in the [NPSPAC Channel Bandwidth on page 458](#) field.

When **12.5 kHz** is selected and when a group's Voice and Signal Type is set to **Analog**, the [AG Secure/Clear Strapping](#) field and the Talkgroup Secure/Clear Strapping fields are forced to **Clear**.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is not operating within the 900 MHz frequency band, and when the radio is model/option capable.

The following selections are supported:

25.0 kHz

20.0 kHz



WARNING:

20.0 kHz and 25.0 kHz are invalid if the following scenario is true:

When the 12.5 kHz FCC Narrowbanding Mandate applies for this codeplug, and

when the Trunking System, [Type II Frequency Band on page 466](#) is Other Band Trunking (OBT), and

when any of the records/rows on the OBT Channel Assignment Page has its: ([Tx Enable on page 481](#) field **Enabled**, and [Tx Start Frequency on page 482](#) OR [Tx End Frequency on page 482](#) falls into one of FCC Requirement ranges).

12.5 kHz

Always available

7.8.2.29

NPSPAC Channel Bandwidth

This field selects the National Public Safety Planning Advisor Committee (NPSPAC) Channel Bandwidth for the current Trunking System.

This selection specifies the Channel Bandwidth of the frequencies in the range of 821 MHz to 824 MHz.



NOTE:

The bandwidth for the frequencies in the range 806 MHz to 821 MHz are set in the [Channel Bandwidth on page 457](#) field.

When **12.5 kHz** is selected and when a group's Voice and Signal Type is set to **Analog**, the [AG Secure/Clear Strapping](#) field and the Talkgroup Secure/Clear Strapping fields are forced to **Clear**.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is operating within the 800 MHz frequency band, and when the radio is model/option capable.

The following selections are supported:

- 20.0 kHz
- 12.5 kHz

7.8.2.30

Channel Assignment Type

This field selects a slight variation in frequency band split (in MHz) and also adjusts channel spacing bandwidth (in kHz).

This selection applies for the current Trunking System.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is operating within the 800 MHz frequency band, and when the radio is model/option capable.

The following selections are supported:

Domestic

25.0 kHz Channel Spacing used in the USA.

International

12.5 kHz Channel Spacing used outside the USA.

7.8.2.31

Status Alias Enable

This field enables the ability to define Status for the current Trunking System.



WARNING:

This feature applies only when the Trunking Personality that references this Trunking System has its Status Enable field enabled.

Once enabled, you must then set up each radio Status Alias (Status Alias Name and Status Alias Number of the same record/row) to match identically or have the same meaning as the corresponding dispatcher unit Status Alias.

Once defined, you can access the Status feature with a Status button-press, a Direct Status button-press, or a Status menu-selection.

For non-keypad models, the Status feature can be used only with the One Touch Button feature.

Accessed Only: When the radio is model/option capable.

7.8.2.32

Site Alias Enable

This field enables the Site Alias fields for the current Site ID (record/row), which also applies to the current Trunking System.



NOTE:

Viewing the current Site Alias and its corresponding received signal strength indicator (RSSI), or changing the current site, is activated with a Site Display/Srch button-press.

A Site Lock/Unlock button-press or a Site menu-selection can view or change the current site lock status.



NOTE: Automatic Multiple Site Select (AMSS) is not supported in this product.

Accessed Only: When the System Type field is set to **Type II**, and when the [Coverage Type on page 446](#) field is set to **SmartZone**, and when the radio is model/option capable,

Or when the System Type field is set to **ASTRO 25**, and when the Coverage Type field is not set to **Disabled**, and when the radio is model/option capable.

7.8.2.33

Site Alias Text

This field allows you to define recognizable names for the current Site Alias (record/row) which applies to the current Trunking System.

See also [Site Alias Type on page 459](#). You can activate the Site Alias Text with Site Display/Srch button-press, Site Lock/Unlock button-press, and the Site menu-selection features.

Accessed Only: When the [Site Alias Enable on page 459](#) field is enabled, and when the System Type field is set to **Type II**, and when the Coverage Type field is set to **SmartZone**, and when the radio is model/option capable,

Or when the [Site Alias Enable on page 459](#) field is enabled, and when the System Type field is set to **ASTRO 25**, and when the Coverage Type field is not set to **Disabled**, and when the radio is model/option capable.



NOTE:

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

Examples: EMT-001, #500, Electric1, Site Alias 01

7.8.2.34

Site Alias Type

This field selects the assignment of the Site Alias Text, either to a Trunking System or a site within a System.

You may view the radio's current site alias or system alias with the Site Display/Srch button-press. This selection applies for the current site alias (record/row) which applies for the current Trunking System.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the Coverage Type is not set to **Disabled**, and when the [Site Alias Enable on page 459](#) field is enabled, and when the radio is model/option capable,

The following selections are supported:

Site

The is used as a "Site alias" for the radio's currently registered site. The Trunking System's Coverage Type selection determines how a site must be defined for site aliasing.

- For **SmartZone**, only the Site ID is needed.
- For **SmartZone & OmniLink**, the RFSS Alias Number and Site ID are needed.
- For **Intra-WACN Roaming**, the System Number, RFSS Alias Number, and Site ID are needed.
- For **Inter-WACN Roaming**, the System Number, RFSS Alias Number, Site ID and Home RAS WACN Number are needed.

System

The [Site Alias Text on page 459](#) is used as a system alias for the radio's currently registered foreign Trunking System. System aliases are defined by their Home RAS WACN Number and System Number. Only the Trunking System Coverage Type of **Inter-WACN Roaming** is possible for the System Alias Type. System Aliases are used to create a PTT-ID or a site alias:

- When the radio receives a call from a foreign radio, and a site alias for the site in the specified Trunking System is not defined, then this system alias and the Unit ID appears in the receiving radio's display, identifying the calling radio. If a system alias is not defined, the entire Subscriber Unit ID (SUID) of the foreign radio appears in the receiving radio's display; the SUID is a combination of the Home WACN ID, System ID and Unit ID.
- If the radio has roamed to a foreign Trunking System where no site alias is available for the current site, then this system alias, the Site ID and its corresponding received signal strength indicator (RSSI) level appears in the radio's display when you initiates a Site Display/Srch button-press. If a system alias is not defined for the currently registered foreign system, then the entire site ID (Home RAS WACN Number + System Number + Site ID + RSSI level) appears in the radio's display.

7.8.2.35

One Touch Button

Displays the view-only the assigned name for the One Touch button-press or One Touch menu-selection.



NOTE: Individual Trunking Systems are referenced to a Trunking Personality. These Trunking Systems settings can then become functional for all channel types within that Trunking Personality.

7.8.2.36

One Touch Button Feature

This field selects the One Touch Feature for your One Touch button-press or One Touch menu-selection.

This selection applies for the current record/row, which applies for the current Trunking System.



IMPORTANT: Trunking One Touch Button 1, in other words, the first record/row would correspond to a One Touch 1 button-press, and/or a TCH1 or SIG1 menu-selection, and so on.



NOTE: With any of these Feature selections, the One Touch Button Index selection must also be defined.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

One Touch is not available for the current Button selection.

Phone

The [Phone Operation](#) feature is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Private Call

The [Private Call Type on page 488](#) is not **Disabled**, and the [Private Call Operation on page 488](#) field is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Call Alert

The [Call Alert/Page Operation on page 489](#) field is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Status

The [Status Alias Enable on page 458](#) feature is enabled for the current Trunking System.

Message

The Message feature is enabled for the current Trunking System.



NOTE: The available One Touch Button Feature selections are model/option dependent.

7.8.2.37

One Touch Button Index

This field selects the One Touch Index/List member for your One Touch button-press or One Touch menu-selection, pertaining to the selected One Touch Button Feature.

Index refers to the actual record/row of the list determined by the One Touch Button Feature selection. This selection applies for the current Trunking System.



IMPORTANT: Trunking One Touch Button 1, the first record/row will correspond to a One Touch 1 button-press, and a TCH1 or SIG1 menu-selection.

Accessed Only: When the [One Touch Button Feature on page 460](#) field for the current record/row is not set to **Disabled**, and when the radio is model/option capable.

The following selections are supported:

Private Call

This Index number correlates to the row number of the Type II, or ASTRO 25 Call Hot List.



IMPORTANT: The [Trunking Call Hot List on page 489](#) selection determines which Call Hot List is used for the referenced Trunking Personality.

Available to you when the [Private Call Type on page 488](#) is not **Disabled**, and the [Private Call Operation on page 488](#) field is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Call Alert

This Index number correlates to the row number of the Type II, or ASTRO 25 Call Hot List.



IMPORTANT: The Trunking Call Hot List selection which Call Hot List is used for the referenced Trunking Personality.

Available to you when the [Call Alert/Page Operation on page 489](#) field is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Phone

This Index number correlates to the row number of the Phone Call Hot List.

Available to you when the [Phone Operation](#) feature is set to **List Only** or **Unlimited** for the referenced Trunking Personality.

Status

This Index number correlates to the position/row number of the Status Alias List members.

Available to you when the [Status Alias Enable on page 458](#) feature is **Enabled** for the current Trunking System.

Message

This Index number correlates to the position/row number of the Message Alias List members.

Available to you when the Message feature is **Enabled** for the current Trunking System.

7.8.2.38

ISP Sequence Length

This field selects the maximum time allowed per site for an Inbound Signaling Packet (ISP) retry sequence.

The radio retries five times or until this time expires, whichever comes first. This selection applies for the current Trunking System. Time is in seconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.



NOTE: When set to **Infinite**, timer does not expire.

Table 267: Range

Minimum	Maximum	Increments
10 (second)	255 (seconds)	1 (second)

7.8.2.39

Maximum Slot Size

This field selects the maximum Inbound Signaling Packet (ISP) slot size the radio can use.



IMPORTANT: This value cannot be greater than the slot size allowed by the System.



NOTE: This value is used to speed the radio firmware's slot finding process. This selection applies for the current Trunking System. Time is in milliseconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.



NOTE: When set to **Unbounded**, the slot size is unlimited.

Table 268: Range

Minimum	Maximum	Increments
37.5 (milliseconds)	142.5 (milliseconds)	7.5 (milliseconds)

7.8.2.40

Force Unmute Time

This field selects the maximum amount of time a radio remains muted to receive audio in anticipation of system throughput delay.

The timer begins just after the radio sends a transmission. If the radio's firmware confirms by other means that incoming audio is not its own, this time is disregarded. This selection applies for the current Trunking System. Time is in milliseconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.



NOTE: When set to **Immediate** which means 0 (Zero Time), there is no mute time after transmission.

Table 269: Range

Minimum	Maximum	Increments
25 (ms)	6375 (ms)	25 (ms)

7.8.2.41

Quick Fade Protect

This field selects the amount of time the radio remains on the control channel once synchronization is lost and before attempting to re-synch.

This allows the radio time to recover the signal without a full re-synchronization of the channel. This selection applies for the current Trunking System. Time is in milliseconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

Table 270: Range

Minimum	Maximum	Increments
200 ms	6375 ms	25 ms

7.8.2.42

PTT Warning Time

This field selects the amount of time that the radio waits before sounding a Talk Prohibit Tone to warn you that a PTT request is being processed and you should release the PTT button.

This selection applies for the current Trunking System. Time is in milliseconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.



NOTE: When set to **Disabled**, no warning is sounded.

Table 271: Range

Minimum	Maximum	Increments
	6375 ms	25 ms

7.8.2.43

Busy Update Time

This field selects the amount of time that the radio waits in the busy state for a grant, reject, or another busy update from the Fixed Network Equipment (FNE).

If this time expires, the radio no longer expects a response from the FNE and retries the transmission. This selection applies for the current Trunking System. Time is in seconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.



NOTE: When set to **Infinite**, the radio waits indefinitely for a response.

Table 272: Range

Minimum	Maximum	Increments
15 (seconds)	945 (seconds)	15 (seconds)

7.8.2.44

Response Pending Time

This field selects the amount of time that the radio waits when expecting a further response to a request from the Fixed Network Equipment (FNE).

This situation occurs when the FNE sends an indication to the radio that its request is being processed and that further signaling is on the way. If this time expires, the radio no longer expects a response from the FNE and returns to an idle state. This selection applies for the current Trunking System. Time is in seconds.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.



NOTE: When set to **Infinite**, the radio waits indefinitely for a further response from the FNE.

Table 273: Range

Minimum	Maximum	Increments
10 (second)	255 (seconds)	1 (second)

7.8.2.45

Phase 2 Voice Capable

This field enables the radio to transmit on a Trunking System that supports Project 25-standard Phase 2 Time Division Multiple Access (TDMA) voice communications.



NOTE: Phase 2 TDMA uses a two-slot TDMA protocol on a 12.5 kHz channel, which allows double the voice capacity compared to the Phase 1 Frequency Division Multiple Access (FDMA) implementation. This selection applies for the current Trunking System.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

7.8.2.46

End Phase 2 TDMA Transmit On Out Of Range

This field enables the radio to stop an ongoing Phase 2 TDMA (Time Division Multiple Access) transmission.



WARNING: The value in this field must only be modified by Qualified Service Personnel. Improper settings can cause unpredictable results in the radio.

This function also alerts you that during the transmission, the radio has roamed outside of the coverage range of the Fixed Network Equipment (FNE). An audible alert tone persists for as long as the PTT button is held. This selection applies for the current Trunking System.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the [Phase 2 Voice Capable on page 464](#) field is **Enabled**.

7.8.2.47

Validate NAC Against System ID

This field causes the radio to validate the upper 8 bits of the 16-bit System ID against the upper 8 bits of the 12-bit Network Access Code (NAC) received on the Trunking - control channel.

If a match is not found, the radio does not attempt to register/affiliate to the Trunking site. Therefore enabling this field allows the radio to quickly match a site's NAC code with its System ID and quickly reject interfering Trunking System control channels. This selection applies for the current Trunking System.



WARNING: If any site in the Trunking System is not configured this way then this field must be disabled.

When disabled, the radio does not attempt to match the upper 8 bits of the 16-bit System ID with the upper 8 bits of the 12-bit NAC code. This allows the radio to operate on control channels having a NAC that is independent of this Trunking System's System ID. The radio may take longer to reject interfering Trunking System control channels. This selection applies for the current Trunking System.



WARNING:

When the [Coverage Type on page 446](#) field is set to **Inter-WACN Roaming**, this selection must be disabled; otherwise it considers this selection invalid.

When the [Coverage Type on page 446](#) field is set to **Intra-WACN Roaming**, and DVRS Hardware Enable field is enabled, this selection must be disabled; otherwise it considers this selection invalid.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

7.8.2.48

WUID Validity Support

This field causes the radio to periodically revalidate its Working Unit ID (WUID) with the Fixed Network Equipment (FNE).

A WUID is assigned to a radio during initial FNE registration/affiliation activity; any inbound Signaling Packet (ISP) request to the FNE containing the radio's WUID revalidates it with its current in-the-field Trunking System.



IMPORTANT: This selection is only required for an FNE that relies on the radio to track periods of inactivity and revalidate its WUID before it expires. This selection applies for the current Trunking System.

When disabled, the radio does not automatically revalidate its WUID because it is expecting the type of FNE that queries the radio after a period of inactivity before de-registering and removing the WUID from the Trunking System.



WARNING: When the [Coverage Type on page 446](#) field is set to **Inter-WACN Roaming**, this selection must be disabled; otherwise it considers this selection invalid.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

7.8.2.49

Motorola Proprietary Features

This field enables Motorola Proprietary Inbound Signaling Packet (ISP) transmissions to be sent by the radio. This feature applies for the current Trunking System.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

7.8.2.50

Default RCM ID

This field selects the Radio Control Manager (RCM) address used as the target address of Inbound Signaling Packet (ISP) transmissions directed to the FNE, for example, Status and Message transmissions.

This selection applies for the current Trunking System.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

Table 274: Range

Minimum	Maximum
000000 (Hex)	FFFFFF (Hex)

7.8.2.51

Type II Frequency Band

This field selects the operating frequency band of the current Type II Trunking System.



IMPORTANT: Type II Trunking Systems may only operate on a single frequency band. This selection applies for the current Trunking System.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is model/option capable.

The following selection is supported: VHF, UHF1, UHF2, 700/800 MHz, 900 MHz

7.8.2.52

Connect Tone

This field selects the Connect Tone frequency for the current Type II Trunking System.

This selection must match the tone expected on the traffic channel by the Trunking System's central controller, to verify that a radio transmission is occurring. Frequency is in Hz.

Accessed Only: When a Software System Key File or an Advanced System Key with access has been selected in the System ID field. When the System Type field is set to **Type II**, and when the radio is model/option capable.

7.8.2.53

Failsoft Connect Tone

This field selects the Failsoft Mode Connect Tone frequency for the current Trunking System.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is model/option capable.

The following selection is supported:

Default

When the System Coverage Type is set to **SmartZone**, the "Default" selection uses 105.88 Hz.

When the System Coverage Type is set to **Disabled**, the "Default" selection uses the [Connect Tone on page 466](#) as the Failsoft Connect Tone.

7.8.2.54

Network ID

The application retrieves and allows you to view (in decimal and hex format) the Type II Network ID for the current Trunking System.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is model/option capable.

7.8.2.55

Adaptive Power

This field enables the radio to automatically adjust its transmitter power level on the voice channel, not on the control channel, based on the signal strength of the Auto Power Adaptation Link Control (APA LC) information received over the air.

If the signal strength is better than the acceptable threshold, the radio transmits in mid power instead of high power. This selection applies for the current Trunking System.



NOTE: If you press the PTT button a second time within 30 seconds when APA is enabled for F2 TDMA secure mode, the radio transmits on medium power if the current power level is set to high. If the time exceeds 30 seconds, the power level remains high.

Accessed Only: When the [TX Power Level on page 452](#) Tx Power Level field is not set to **Low**, and when the radio is model/option capable.

7.8.2.56

High Deviation Tx

This field enables the radio to transmit ASTRO voice and/or data with increased deviation.

A high transmit deviation is only necessary if the radio is to be used in vehicles or applications which subject the unit to a speed in excess of 160 mph (approx. 257 km/h). This feature applies for the current Trunking System.



WARNING: Do not enable this field unless the physical radio system has been similarly configured and increased transmit deviation has been identified as necessary. Enabling this parameter indiscriminately may result in severe degradation of radio performance.

Accessed Only: When the System Type field is set to **Type II**, and when the radio is model/option capable.

7.8.2.57

Preamble Length

This field selects a number that determines the amount of time that bit sync preamble packets are sent at the beginning of all ASTRO 25 Voice Channel transmissions for the current Trunking System.

These packets allow transmitting and receiving radios to synchronize with each other before an ASTRO 25 transmission.



NOTE: The Preamble duration is equal to this Preamble Length value multiplied by 0.2083 ms.

Accessed Only: When the radio is model/option capable.

Table 275: Range

Minimum	Maximum
0	255

7.8.2.58

Digital Modulator Type

This field selects the Digital Modulator Type for the current Trunking System.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

C4FM (Factory Default for Type II Trunking)

Continuous 4-Level Frequency Modulation for non-simulcast operation.

CQPSK (Factory Default for ASTRO 25 Trunking)

Compatible Quadrature Phase Shift Keying for narrowband simulcast operation and non-simulcast operation.



IMPORTANT: This selection is only available to radio models equipped with Common Air Interface (CAI) Digital Operation.

WIDE

Wideband simulcast operation.



IMPORTANT: This selection cannot be chosen if a Channel Bandwidth of 12.5 kHz is selected.

7.8.2.59

FDMA Frame Sync/NID BER Threshold

This field selects the maximum allowable Frequency Division Multiple Access (FDMA) Frame Sync/Network ID (NID) Bit Error Rate (BER) tolerated by a radio on a Trunking site.

This maximum applies to both the control channel and the voice channel. If a BER greater than this maximum is detected, the radio attempts to switch to a better site when available. This selection applies for the current Trunking System.

Accessed Only: When the [Coverage Type on page 446](#) field is not set to **Disabled**, and when the radio is model/option capable.

Table 276: Range

Minimum	Maximum	Increments
Disabled	25.4%	0.1%

7.8.2.60

DES-XL Tx/Rx Default

This field enables only digital Data Encryption Standard - Extended Range (DES-XL) to be used for all secure encrypted voice calls.

DES-XL is a Type 3 encryption standard (mid-level). This selection applies for the current Trunking System.

When disabled, only digital Data Encryption Standard - Output Feedback (DES-OFB) is used for all secure encrypted voice calls. DES-OFB is a Type 3 encryption standard (mid-level).



WARNING: This feature only applies when the radio is equipped with a DES-XL/DES-OFB dual algorithm encryption module.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, and when the radio is model/option capable.

7.8.2.61

ASTRO OTAR

Enables the radio's ability to receive ASTRO 25 Over-The-Air-Rekeying (OTAR) for the current Trunking System.



IMPORTANT:

When this ASTRO OTAR field is **Enabled** for the current Trunking System, Hardware Key Select values are chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that the RadioCentral is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is enabled, must first be defined in the Secure Hardware Encryption Key References List.

When this ASTRO OTAR field is **Disabled** for the current Trunking System, Hardware Key Select values are directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: This feature can be accessed only when the following conditions are met:

- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- The [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled.
- The [OTAR Enable on page 256](#) field is enabled.
- The [ASTRO OTAR Enable on page 259](#) field is enabled.
- The ASTRO OTAR field is enabled.
- The current Trunking System has a referenced Data Profile.
- The radio is model/option capable.

7.8.2.62

OTAR Tx

This field enables the radio to transmit ASTRO Over-The-Air-Rekeying (OTAR) information for the current Trunking System.

OTAR transmissions include: Rekey Requests and Delayed Acks.



WARNING: Your ability to initiate Rekey Requests must be programmed.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Advanced Encrypted Standard \(AES256\) on page 258](#) field is enabled, and when the OTAR Operation field is set to **ASTRO Only** or **ASTRO & MDC**, and when the System Type field is set to **ASTRO 25**, and when the ASTRO OTAR Profile Index field is enabled, and when the current Trunking System has a referenced Data Profile, and when the radio is model/option capable.

7.8.2.63

ASTRO OTAR Profile Index

This field selects the Secure Key Management Facility (KMF) Profile to be used while operating in ASTRO OTAR mode.

This selection applies for the current Trunking System. All ASTRO OTAR parameters specified in the selected KMF profile then apply for the current Trunking System.



WARNING:

This field is invalid when this system references a Data Profile having a Data Profile Type of **Trunking**, **Trunking & Broadband** or **Broadband Only**, and when the KMF IP Address field is set to 0.0.0.0.

Be aware that it is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Hardware Key Reference field. Therefore any key selected when ASTRO OTAR is enabled, must first be defined in the Secure Hardware Encryption Key References List.



IMPORTANT:

When the **ASTRO OTAR Profile Index** field is **Disabled** for the current Trunking System, Hardware Key Select values are directly chosen from the Secure Wide Window's Encryption Key List.

When the **ASTRO OTAR Profile Index** is selected for the current Trunking System, Hardware Key Select values for this System use the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in this [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.

Accessed Only: This field can be accessed when the following conditions are met:

- The [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.
- [Advanced Encrypted Standard \(AES256\) on page 258](#) is enabled.
- The System Type is **ASTRO 25**.
- The current Trunking System has a referenced Data Profile.
- The radio is model/option capable.

The following selections are supported:

- **Disabled**
- **ASTRO OTAR Profiles**

7.8.2.64

Patch Key Select

This field selects the secure encryption key to be used during Patch Talkgroup communications while operating in secure encrypted mode. This field is also referred to as the SuperGroup Call Secure Key in infrastructure.

Patch Talkgroups allow a dispatcher to join multiple talkgroups or users together so that all may communicate as one talkgroup. This selection applies for the current Trunking System.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the current Trunking System, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that it is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is enabled, must first be defined in the Secure Hardware Encryption Key References List.

When this ASTRO OTAR field is **Disabled** for the current Trunking System, Hardware Key Select values are directly chosen from Encryption Key List from the Secure Wide window.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, and when the radio is model/option capable,

Or when the [Secure Operation on page 255](#) field is set to **Software**, and when the System Type field is set to **ASTRO 25**, and when the radio is model/option capable.

7.8.2.65

Failsoft Secure/Clear Strapping

This field selects the strapping type used for Failsoft.

When the radio is model/option capable.

Select

Allows you to toggle on or off secure encrypted communications.



NOTE:

Either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows for your access to secure-encrypted communications.

Clear

Straps or commits the channel to normal (non-secure) Conventional communications operation.

Secure

Straps or commits the channel to Secure encrypted operation.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

7.8.2.66

Failsoft Key Select

This field selects the secure encryption key to be used for failsoft mode while operating in secure encrypted mode.

This selection applies for the current Trunking System.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the current Trunking System, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that it is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Hardware Key Reference field. Therefore any key selected when ASTRO OTAR is enabled must first be defined in the Secure Hardware Encryption Key References List.

When the ASTRO OTAR field is **Disabled** for the current Trunking System, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Hardware**,

Or when the [Secure Operation on page 255](#) field is set to **Software**, and when the System Type field is set to **ASTRO 25**, and when the Failsoft Secure/Clear Strapping field is not set to **Clear**

7.8.2.67

Private Call Secure/Clear Strapping

This field selects the strapping type used for Private Call.

When the radio is model/option capable.

Select

Allows you to toggle on or off secure encrypted communications.



NOTE:

Either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows for your access to secure-encrypted communications.

Clear

Straps or commits the channel to normal (non-secure) Conventional communications operation.

Secure

Straps or commits the channel to Secure encrypted operation.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

7.8.2.68

Private Call Key Select

This field selects the secure encryption key to be used for Private Call while operating in secure encrypted mode.

This selection applies for the current Trunking System. When the ASTRO OTAR Profile Index field for the current Trunking System is set to **Enabled**, the value for this field is selected from the Secure Encryption Key Reference List.



IMPORTANT: The application points to the Keys of the Encryption Key List for this selection. Individual Keys from the Secure Encryption Key References List reference the keys of the Encryption Key List from the Encryption Key References field. Therefore, keys must be defined in the Secure Encryption Key References List before the keys are available for selection. Keys taken from OTAR Profile with Independent Key List field enabled are available.

When the ASTRO OTAR Profile Index field for the current Trunking system is **Disabled**, the value for this field is selected from the Encryption Key List within the Secure Wide window.

Accessed Only: When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Hardware**,

Or when the [Secure Operation on page 255](#) field is set to **Software**, and when the System Type field is set to **ASTRO 25**, and when the Private Secure/Clear Strapping field is not set to **Hardware**

7.8.2.69

Interconnect Secure/Clear Strapping

This field selects the strapping type used for Interconnect.

When the radio is model/option capable.

Select

Allows you to toggle on or off secure encrypted communications.



NOTE:

Either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows for your access to secure-encrypted communications.

Clear

Straps or commits the channel to normal (non-secure) Conventional communications operation.

Secure

Straps or commits the channel to Secure encrypted operation.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

7.8.2.70

Interconnect Key Select

This field selects the secure encryption key to be used for an Interconnect call (phone mode) while operating in secure encrypted mode.

This selection applies for the current Trunking System.



IMPORTANT:

When the ASTRO OTAR Profile Index field is **Enabled** for the current Trunking System, this Key Select value is chosen from the Secure Encryption Key References List of the ASTRO OTAR Profile selected in the ASTRO OTAR Profile Index field for the current Trunking System.



WARNING: Be aware that it is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Encryption Key References List reference the Encryption Key List's Keys from the Hardware Key Reference field. Therefore any key selected when ASTRO OTAR Profile Index is enabled must first be defined in the Secure Encryption Key References List. Keys taken from OTAR Profile with Independent Key List field enabled are available.

The application points to the Keys of the Encryption Key List for this selection. Individual Keys from the Secure Encryption Key References List reference the keys of the Encryption Key List from the Encryption Key References field. Therefore, keys must be defined in the Secure Encryption Key References List before the keys are available for selection.

When the ASTRO OTAR Profile Index field for the current Trunking system is **Disabled**, the value for this field is selected from the Encryption Key List within the Secure Wide window.

Accessed Only: When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Hardware**,

Or when the [Secure Operation on page 255](#) field is set to **Software**, and when the System Type field is set to **ASTRO 25**, and when the Interconnect Secure/Clear Strapping field is not set to **Hardware**

7.8.2.71

System Wide Key Select

This field selects the secure encryption key to be used for a System Wide call while operating in secure encrypted mode.

This selection applies for the current Trunking System.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the current Trunking System, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that the RM is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is enabled must first be defined in the Secure Hardware Encryption Key References List.

When the ASTRO OTAR field is **Disabled** for the current Trunking System, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware**, and when the radio is model/option capable.

7.8.2.72

Dynamic Regrouping Secure/Clear Strapping

This field selects the strapping type used for Dynamic Regrouping.

When the radio is model/option capable.

7.8.2.73

Dynamic Regrouping Talkgroup Key Select

This field selects the secure encryption key to be used for a Dynamic Regrouping (Dynamic Talkgroup) while operating in secure encrypted mode.

This selection applies for the current Trunking System.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the current Trunking System, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that it is actually pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Encryption Key Reference field. Therefore any key selected when ASTRO OTAR is enabled must first be defined in the Secure Hardware Encryption Key References List.

When the ASTRO OTAR field is **Disabled** for the current Trunking System, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: When the radio is model/option capable, when the [Dynamic Regrouping Enable](#) field is **Enabled**, and when the Secure Operation field is set to **Hardware**,

Or when the [Secure Operation on page 255](#) field is set to **Software**, and when the System Type field is set to **ASTRO 25**, and when the Dynamic Regrouping Secure/Clear Strapping field is not set to **Hardware**

7.8.2.74

Dynamic Regrouping AG Key Select

This field selects the secure encryption key to be used for a Dynamic Announcement Grouping while operating in secure encrypted mode.

This selection applies for the current Trunking System.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the current Trunking System, this Key Select value is chosen from the [Secure Hardware Encryption Key References List on page 281](#) of the Secure KMF Profile Set selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that it is actually pointing to the Keys of the [Encryption Key List on page 268](#) for this selection; individual Keys from the [Secure Hardware Encryption Key References List on page 281](#) reference the Encryption Key List's Keys from the [Encryption Key Reference](#) field. Therefore any key selected when ASTRO OTAR is enabled must first be defined in the Secure Hardware Encryption Key References.

When the ASTRO OTAR field is **Disabled** for the current Trunking System, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: When the [Dynamic Regrouping Enable](#) field is enabled, and when the [Secure Operation on page 255](#) field is set to **Hardware**, and when the System Type field is set to **Type II**, and when the Dynamic Regrouping Secure/Clear Strapping field is set to **Type II**, and when the radio is model/option capable.

7.8.2.75

ViQi: Virtual Partner Secure/Clear Strapping

This field allows you to select the strapping type used for ViQi: Virtual Partner.

Clear

Straps or commits the channel to normal (non-secure) Conventional communications operation. This is the default setting.

Select

Allows the radio-user to toggle on or off secure encrypted communications.



NOTE:

Either the Secure Tx Select button-press or the Secure Tx Select switch-toggle or the Secure menu-selection allows for radio-user access to secure-encrypted communications.

Secure

Straps or commits the channel to Secure encrypted operation.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the radio is model/option capable.

7.8.2.76

ViQi: Virtual Partner Key Select

This field allows you to select the secure encryption key to be used for a ViQi: Virtual Partner while operating in secure encrypted mode.

This selection applies for the current Trunking System.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the current Trunking System, this Key Select value is chosen from the Secure Hardware Encryption Key References List of the Secure KMF Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field for the current Trunking System.



WARNING: Be aware that the program is pointing to the Keys of the Encryption Key List for this selection; individual Keys from the Secure Hardware Encryption Key References List reference the Encryption Key List's Keys from the Hardware Key Reference field. Any key selected when ASTRO OTAR is enabled must first be defined in the Secure Hardware Encryption Key References List.

When the ASTRO OTAR field is **Disabled** for the current Trunking System, this Key Select value is directly chosen from the Secure Wide Window's Encryption Key List.

Accessed Only: When the radio is model/option capable, and when the [Secure Operation on page 255](#) field is set to **Hardware** or when the [Secure Operation on page 255](#) field is set to **Software** for an [ASTRO 25 Trunking System](#).

7.8.2.77

Auto Key ID Rx

This field allows the radio to unmute Key ID (KID) and Algorithm ID (ALGID) received Over the Air (OTA) and Talkback using the OTA KID and ALGID during the configured Rx or Tx Key ID Hang Time.



NOTE: Receiving another call with a different Mismatch Key during either [Key ID - Rx Hang Time on page 267](#) or [Keyset ID - Tx Hang Time on page 267](#) overwrites the previously Mismatch Key with the new Key.

Accessed Only: When the [Secure Operation on page 255](#) field is not **Disabled**, and when the System Type field is set to "ASTRO 25", and the radio is model/option capable.

7.8.3

Trunking System Infrastructure

7.8.3.1

Trunking System Name

This field allows you to define a recognizable name for the current Trunking System.



NOTE:

Individual Trunking Systems are assigned to a Trunking Personality through the System field by selecting this name. These Trunking Systems settings can then become functional for all channel types within that Trunking Personality.

When **Priority Monitor** is selected as the Scan Type for Scan List Member channels, this Trunking System name must be selected for the current Scan List through the Trunking System Record field.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: EMT-001, #500, Electric1, # A5

Characters, numbers, spaces, and special characters can be used.

Leading blanks are substituted with underscores in the radio's display.

Leading periods do not appear in the radio's display.

7.8.3.2

Home WACN ID

This field selects (in decimal or hex format) the identification number of the ASTRO 25 Home WACN (Wide Area Communication Network) within which the radio normally operates.

The [System Name on page 501](#) field selects the desired Trunking System for the current record/row. This value applies to the current Call ID set (record/row) of the current Contact within the Unified Call List. The Call ID set can then be selected from the [Call ID on page 506](#) field.

Accessed Only: When the [System Name on page 501](#) field is not set to **Customized**, and when the radio is model/option capable.

7.8.4

ASTRO 25 Channel ID

This section allows you to view or define frequency-related parameters for ASTRO 25 communications.



WARNING: These parameters are used to validate all Other Band Trunking (OBT) or 700/800/900 MHz ASTRO 25 Control Channel and Failsoft frequencies that are entered. These settings apply for individual Trunking Systems.



NOTE:

Once the parameters for these ASTRO 25 Channel IDs are defined, Trunking System Control Channel frequencies and Trunking Personality Failsoft frequencies may be defined.

Individual Trunking Systems are referenced to a Trunking Personality. These Trunking Systems settings can then become functional for all channel types within that Trunking Personality.



WARNING: Each record of Channel ID selections contains frequency-related parameters that are used - Trunking frequency constraint rules to validate all ASTRO 25 OBT or 700/800/900 MHz Control Channel and Failsoft frequencies entered.

Accessed Only: When the System Type field is set to **ASTRO 25**.

7.8.4.1

Identifier Enable

This field enables the Channel Identifier (ID) selections for the same Channel ID (record/row).

This selection applies for the current ASTRO 25 Trunking System.



WARNING: Each record of Channel ID selections contains frequency-related parameters - trunking frequency constraint rules to validate all ASTRO 25 OBT or 700/800/900 MHz Control Channel and Failsoft frequencies entered.



NOTE:

The first record/row within this ASTRO 25 Channel ID page must be enabled to be considered valid.

Once the records/rows of ASTRO 25 Channel ID parameters are defined, Trunking System Control Channel frequencies and Trunking Personality Failsoft frequencies may be defined.

Accessed Only: When the System Type field is set to **ASTRO 25**, and when a Software System Key File or an Advanced System Key with access is selected in the System ID field or an Advanced WACN Key with access is selected in the Home WACN ID field, and when the radio is model/option capable.

7.8.4.2

Channel Type

This field selects the type of traffic channel protocol to be used for the current ASTRO 25 Channel ID (record/row), either Frequency Division Multiple Access (FDMA) or Time Division Multiple Access (TDMA).

Accessed Only: When the System Type field is set to **ASTRO 25**, and when the [Identifier Enable on page 478](#) field is enabled for the current ASTRO 25 Channel ID (record/row), and when the radio is model/option capable.

The following selections are supported:

FDMA

Selects for Frequency Division Multiple Access Trunking System compatibility.

TDMA

Selects for Time Division Multiple Access Trunking System compatibility.



NOTE: This applies to the voice channel.

7.8.4.3

Transmit Offset Sign

This field selects the Transmit Offset Sign (plus or minus) for the current ASTRO 25 Channel ID (record/row).

This selection applies for the current ASTRO 25 Trunking System.



WARNING: Each record of Channel ID selections contains frequency-related parameters - trunking frequency constraint rules to validate all ASTRO 25 OBT or 700/800/900 MHz Control Channel and Failsoft frequencies entered.

Accessed Only: ((When a Software System Key File or an Advanced System Key with access is selected in the System ID field) or (an Advanced WACN Key with access is selected in the Home WACN ID field)),when the System Type field is set to **ASTRO 25**, and when the [Identifier Enable on page 478](#) field is enabled for the current ASTRO 25 Channel ID (record/row), and when the radio is model/option capable.

7.8.4.4

Transmit Offset

This field allows you to enter the Transmit Offset value (in MHz) for the current ASTRO 25 Channel ID (record/row).

This selection applies for the current ASTRO 25 Trunking System.



WARNING: Each record of Channel ID selections contains frequency-related parameters - trunking frequency constraint rules to validate all ASTRO 25 OBT or 700/800/900 MHz Control Channel and Failsoft frequencies entered.

Accessed Only: ((When a Software System Key File or an Advanced System Key with access is selected in the System ID field) or (an Advanced WACN Key with access is selected in the Home WACN ID field)), when the System Type field is set to **ASTRO 25**, and when the [Identifier Enable on page 478](#) field is enabled for the current ASTRO 25 Channel ID (record/row), and when the radio is model/option capable.

7.8.4.5

Channel Spacing

This field allows you to enter the Channel Spacing value for the current ASTRO 25 Channel ID (record/row).

This selection applies for the current ASTRO 25 Trunking System.



WARNING: Each record of Channel ID selections contains frequency-related parameters - trunking frequency constraint rules to validate all ASTRO 25 OBT or 700/800/900 MHz Control Channel and Failsoft frequencies entered.

Accessed Only: ((When a Software System Key File or an Advanced System Key with access is selected in the System ID field) or (an Advanced WACN Key with access is selected in the Home WACN ID field)), when the System Type field is set to **ASTRO 25**, and when the [Identifier Enable on page 478](#) field is enabled for the current ASTRO 25 Channel ID (record/row), and when the radio is model/option capable.

7.8.4.6

Base Frequency

This field allows you to enter any frequency within the range of the radio's frequency band(s) as the Base Frequency value for the current ASTRO 25 Channel ID (record/row).



WARNING: Each record of Channel ID selections contains frequency-related parameters - trunking frequency constraint rules to validate all ASTRO 25 OBT or 700/800/900 MHz Control Channel and Failsoft frequencies entered.



IMPORTANT:

Once the records/rows of ASTRO 25 Channel ID parameters are defined, Trunking System Control Channel frequencies and Trunking Personality Failsoft frequencies may be defined.

In order for the internal algorithm to be valid, this Base Frequency must be equal to or smaller in value than the Control Channel and Failsoft Receive frequencies.

Accessed Only: When the System Type field is set to **ASTRO 25**, and ((when a Software System Key File or an Advanced System Key with access is selected in the System ID field) or (an Advanced WACN Key with access is selected in the Home WACN ID field)), and when the [Identifier Enable on page 478](#) field is enabled for the current ASTRO 25 Channel ID (record/row), and when the radio is model/option capable.

Any frequency within the range of the radio's frequency band(s).

7.8.5

OBT Channel Assignment

The **Other Band Trunking (OBT) Channel Assignment** section allows you to view or define frequency-related parameters for OBT Type II communications.



IMPORTANT: The OBT Channel Assignment section is only viewable when the radio is operating within a UHF/VHF - frequency band.



NOTE:

These parameters are used to validate all OBT Type II Control Channel and Failsoft frequencies that are entered. These settings apply for individual Trunking Systems.

Once the parameters for the OBT channel assignments are defined, Trunking System Control Channel frequencies and Trunking Personality Failsoft frequencies may be defined.

Trunking Systems are referenced to a Trunking Personality. Trunking Systems settings can then become functional for all Trunking - channel types.

Accessed Only: When the System Type Field is set to **Type II**, and when the Type II Frequency Band field is set to a VHF/UHF - frequency band.

7.8.5.1

Rx Enable

This field enables a frequency split for the current OBT Receive (Rx) Channel Range.

This selection applies for the current [Type II Trunking System](#).



WARNING:

The first record/row within this OBT Channel Assignment section must be enabled to be considered valid.

This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a VHF, UHF1 or UHF2 OBT - frequency band, and when the radio is model/option capable.

7.8.5.2

Rx Spacing

This field selects the spacing (in kHz) between Receive (Rx) frequencies for the current OBT - Channel Range.



IMPORTANT: The [Rx Start Frequency on page 481](#) and [Rx End Frequency on page 481](#) define the current receive frequency range. This selection applies for the current Trunking System.



NOTE: The ([Rx End Frequency on page 481](#) - [Rx Start Frequency on page 481](#)) range value must be evenly divisible by this channel spacing. This allows the range to be divided into an integer value to properly assign the Control Channel number.



WARNING: This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a VHF, UHF1 or UHF2 OBT - frequency band, and when the radio is model/option capable.

7.8.5.3

Rx End Frequency

This field allows you to enter the end point (in MHz) for the Receive (Rx) frequency range for the current OBT - Channel Range.



IMPORTANT: The Rx End Frequency must be greater than or equal to the [Rx Spacing on page 480](#). This selection applies for the current Trunking System.



WARNING: This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a **VHF, UHF1** or **UHF2** OBT - frequency band, and when the radio is model/option capable.

7.8.5.4

Rx Start Frequency

This field allows you to enter the start point (in MHz) for the Receive (Rx) frequency range for the current OBT - Channel Range.



IMPORTANT: The Rx Start Frequency must be less than or equal to the [Rx End Frequency on page 481](#). This selection applies for the current Trunking System.



WARNING: This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a **VHF, UHF1** or **UHF2** OBT - frequency band, and when the radio is model/option capable.

7.8.5.5

Tx Enable

This field enables a frequency split for the current OBT Receive (Tx) Channel Range.

This selection applies for the current [Type II Trunking System](#).



WARNING:

The first record/row within this OBT Channel Assignment section must be enabled to be considered valid.

This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a **VHF, UHF1** or **UHF2** OBT - frequency band, and when the radio is model/option capable.

7.8.5.6

Tx Spacing

This field selects the spacing (in kHz) between Receive (Tx) frequencies for the current OBT - Channel Range.



IMPORTANT: The [Tx Start Frequency on page 482](#) and [Tx End Frequency on page 482](#) define the current receive frequency range. This selection applies for the current Trunking System.



NOTE: The ([Tx End Frequency on page 482](#) - [Tx Start Frequency on page 482](#)) range value must be evenly divisible by this channel spacing. This allows the range to be divided into an integer value to properly assign the Control Channel number.



WARNING: This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a **VHF**, **UHF1** or **UHF2** OBT - frequency band, and when the radio is model/option capable.

7.8.5.7

Tx End Frequency

This field allows you to enter the end point (in MHz) for the Receive (Tx) frequency range for the current OBT - Channel Range.



IMPORTANT: The Tx End Frequency must be greater than or equal to the [Tx Spacing on page 481](#). This selection applies for the current Trunking System.



WARNING: This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a **VHF**, **UHF1** or **UHF2** OBT - frequency band, and when the radio is model/option capable.

7.8.5.8

Tx Start Frequency

This field selects the spacing (in kHz) between Receive (Tx) frequencies for the current OBT - Channel Range.



IMPORTANT: The [Tx Start Frequency on page 482](#) and [Tx End Frequency on page 482](#) define the current receive frequency range. This selection applies for the current Trunking System.



NOTE: The ([Tx End Frequency on page 482](#) - [Tx Start Frequency on page 482](#)) range value must be evenly divisible by this channel spacing. This allows the range to be divided into an integer value to properly assign the Control Channel number.



WARNING: This setting must exactly match the same Central Controller setting for Trunking System communications to be possible.

Accessed Only: When the System Type field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) field is set to a **VHF**, **UHF1** or **UHF2** OBT - frequency band, and when the radio is model/option capable.

7.8.6

Trunking Personality

The **Trunking Personality** allows you to create and delete Trunking Personalities, as well as define individual Trunking Personalities.

Trunking and Conventional are the two radio communications modes.



NOTE:

Trunking Systems are referenced to a Trunking Personalities. Trunking System settings can then become functional for all Trunking - channel types.

Once the features of the Trunking Personalities have been uniquely defined, each Personality may then be assigned to the desired position of the radio's channel selector with the Zone Channel Assignment feature.

7.8.6.1

Trunking Personality Name

This field allows you to define a recognizable name for the current Trunking Personality.



NOTE: Once the features of the Trunking Personalities have been uniquely defined, each Personality may then be assigned to the desired position of the radio's channel selector with the Zone Channel Assignment feature. This name is used to select the current Personality on the Channels Page of that feature.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: Personality-01, #500, Electric1, # A5

Characters, numbers, spaces, and special characters can be used.

Leading blanks are substituted with underscores in the radio's display.

Leading periods do not appear in the radio's display.

7.8.6.2

System

This field selects the programmed Trunking System for the current Trunking Personality.



IMPORTANT:

Only Trunking Systems having a System Type matching the current Personalities' Protocol Type should be selected.

Only Trunking Systems with Software System Key Files or Advanced (Hardware) Keys that have no field or feature protection (unlimited access) can be selected; otherwise this field is marked invalid.

When this field's value is marked invalid, all System Key protected fields in the current Trunking Personality are displayed as read-only.

Accessed Only: When the radio is model/option capable.

7.8.6.3

Protocol Type

This field selects the addressing scheme type for the current Trunking Personality.



IMPORTANT: If this Protocol Type is modified, any previously referenced Trunking Systems (selected in the [System on page 483](#) field) may have to be re-selected. Trunking System selections require a Protocol Type and a Trunking System, [System Type](#) match otherwise an error will occur when saving the codeplug.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Type II

Available when the radio is model/option capable.

ASTRO 25

Available when the radio is model/option capable.

7.8.6.4

Time Out Timer

This field selects the amount of time that the radio can continuously transmit for the current Trunking Personality.

When this time is about to expire, the radio sounds an alert tone and automatically stops transmitting. Time is in seconds.

Accessed Only: When the radio is model/option capable.



NOTE: When set to **Infinite**:

No timer used for Radios; therefore an infinite talk time.

7.8.6.5

Advanced RF AGC

This field selects the type of Receive Frequency (RF) Automatic Gain Control (AGC) for the current Trunking Personality.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Disabled

When **Disabled**, the radio uses a basic form of AGC built in to radio's receiver. This built-in protection helps to avoid signal clipping and receiver saturation that may damage radio components.

Standard

Enables an Advanced form of RF AGC, which attempts to protect against intermodulation (IM) interference by detecting and removing any received interference due to external sources.

Enhanced

Enables the radio to use additional schemes to reduce IM interference, which cleans up the signal.

Smart

Enables the radio to use a unique scheme to improve interference immunity when close to Linear Simulcast and APCO phase 2 Base stations. Smart option is mutually exclusive to the Broadband Protection checkbox.



IMPORTANT: **Standard** and **Enhanced** Advanced RF AGC may degrade performance on channels that do not experience any IM interference. Therefore, only enable these selections on channels known to experience IM interference.

7.8.6.6

Broadband Protection

This field allows you to enable Broadband Protection of the current Trunking Personality.

Broadband Protection enhances Advanced Radio Frequency Automatic Gain Control (RF AGC) by adding a high selectivity broadband filter when receiving at selected frequencies within the 700 MHz and 800 MHz bands.

7.8.6.7

Conversation Type

This field selects the communication mode for the current Trunking Personality.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Message

The system assigns a traffic channel for the duration of a single transmission by one radio. When the radio de-keys, all radio remain on the traffic channel until the traffic channel hang time expires. Once the hang time expires the radios return to the control channel. Any radio involved in the call may key up while it is on the traffic channel without returning to the control channel. Message trunking is available on 3600 baud control channel systems.



WARNING: Message trunking is not compatible with ASTRO 25 Systems.

Transmission

The system assigns a traffic channel for the duration of a single transmission by one radio. When the radio de-keys, the traffic channel is deallocated and all subscribers involved in the call return to the control channel. Any subsequent traffic channel requests are sent in on the control channel by the requesting radio.

PTT ID

The system assigns a traffic channel for the duration of the entire conversation as follows. After a radio de-keys, the voice channel stays active (hang time) during which time the radios stay idle on the voice channel. Any radio responding during this hang time will first key up on the control channel to send a message with the unit's PTT-ID (Unit ID) indicating the radio wants to send audio now for this call; the system then sends a grant message directing the radio back to the same voice channel acting as the new source.

7.8.6.8

Failsoft Type

This field selects the type of Failsoft for the current Trunking Personality.



NOTE: Failsoft offers two-way Conventional Mode operation during Trunking system failure. The Radio automatically returns to the Trunked mode once the Trunking System is restored.

Accessed Only: When the referenced Trunking System has a Software System Key File or an Advanced System Key with access selected in the System ID field, or an Advanced WACN Key with access selected in the Home WACN ID field, and when the radio is model/option capable.

The following selections are supported:

Selections	Definitions	Available to you when	
		Protocol Type Equals	Coverage Type Equals
Disabled	No Failsoft is used.	Any	Any
Personality	When the Coverage Type on page 446 is Disabled, which is SmartNet, Failsoft uses the Personality Failsoft Frequencies for all Talkgroups within this Trunking personality. When the Coverage Type equals SmartZone the Personality Failsoft Frequencies are not used; instead: - When the radio is Site Locked, Failsoft uses the last active control channel. - When the radio is Site Unlocked, Failsoft uses the last active control channel. If Failsoft is still not found, the radio scans the List of Control Channels for Failsoft.	Type II	Any
Talkgroup	When the Coverage Type is Disabled , which is SmartNet:	Any	Any

Selections	Definitions	Available to you when	
		Protocol Type Equals	Coverage Type Equals
	- Failsoft uses the Failsoft Talkgroup Frequencies, or  WARNING: The Talkgroup Failsoft field must be Enabled. - Failsoft may use the Announcement Group Failsoft Frequencies when Failsoft is called from an Announcement Group.  WARNING: The Announcement Group Failsoft field must be Enabled. - If neither of above fields are Enabled, the radio uses the last active control channel. When the Coverage Type equals SmartZone: - When the radio is Site Locked and when the Talkgroup Failsoft field is Enabled, Failsoft uses the Failsoft Talkgroup Frequencies; if Failsoft is still not found, Failsoft uses the last active control channel. If the Talkgroup Failsoft field is not Enabled, Failsoft uses the last active control channel. - When the radio is Site Unlocked and when the Talkgroup Failsoft field is Enabled, Failsoft uses the Failsoft Talkgroup Frequencies; if Failsoft is still not found, Failsoft uses the last active control channel. If Failsoft is still not found, the radio scans the List of Control Channels from the referenced Trunking System for Failsoft. If the Talkgroup Failsoft field is not Enabled, Failsoft uses the last active control channel and then may still need to scan the list of Control Channels.		

7.8.6.9

Strict Failsoft by Talkgroup

This field enables strict failsoft by talkgroup (try failsoft TG 1 and TG 2 only during failsoft hunt) if failsoft type is talkgroup.

7.8.6.10

Transmit Mode

This field selects whether the personality or channel will have full transmit functionality, or will be restricted from transmitting Talkgroup (TG) and Announcement Group (AG) voice communications.

This selection applies for the current Trunking Personality.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Unrestricted

No limits are placed on the transmit functionality.

TG/AG Disabled (Listen-only)

The radio is not able to transmit on the selected TG or AG. See the Trunking Talkgroup field. The radio is able to receive voice transmissions on the channel's selected mode.



WARNING:

Dynamic Regrouping is not compatible with this selection.

This Personality's [Emergency Profile Selection](#) must either be set to **Emergency Tx Disabled**, or the selected Profile must have its [Emergency Talkback on page 299](#) field set to **Revert**; otherwise the Emergency Profile field selection is considered invalid.

This Personality's referenced Scan List must not have its [Designated Voice Tx Member Type on page 525](#) field set to **Selected Channel**, meaning this channel; otherwise the [Scan List Assignment](#) becomes invalid.

The [Hot Keypad \(DTMF\) on page 492](#) is not possible with this selection.

7.8.6.11

Trunking Emergency Profiles

This section allows you to view or modify Trunking Emergency features for individual Trunking Emergency Profiles.

Both Trunking communications Protocol Types **ASTRO 25** and **Type II** are capable of emergency mode transmissions.



NOTE: Emergency Wide features and settings apply to these profiles.

Emergency Trunking Profiles are selected from the Trunking Personality's Emergency Profile Selection field.

Emergency mode functionality is launched with a programmed radio or by you initiating the feature.

7.8.6.12

Emergency Revert Type

This field selects the **Non-Tactical** emergency revert type to be used while operating in emergency mode on the current Trunking Personality.

See also [Emergency Talkback on page 299](#).



WARNING: You can initiate Emergency mode functionality or launch it with a programmed radio.

Accessed Only: When the **Multiple Emergency Revert** Extended Feature appears in the Extended Feature Name field, and when a referenced Trunking Emergency Profile is selected for the current Trunking Personality, and when that Trunking Emergency Profile has its Emergency Talkback field set to **Revert**, and when the radio is model/option capable.

The following selections are supported:

Talkgroup Revert

The radio uses the Emergency Talkback Revert Talkgroup ID defined for the current Trunking Personality to transmit Emergency Alarms and/or Emergency Calls.

System Revert

The radio uses the [Emergency System Revert Zone](#) and the [Emergency System Revert Channel](#) to transmit Emergency Alarms and/or Emergency Calls. Emergency transmissions are also sent to the dispatcher console.



WARNING: Dynamic Regrouping is not compatible with this selection.

7.8.6.13

Private Call Type

This field selects the type of Private Call for the current Trunking Personality.

You can initiate a Private Call with a Select/Private Call button-press or a [Select/Private Call](#) Call menu-selection. User in turn responds to a Private Call with a [Call Response](#) button-press.

The following selections are supported:

Disabled

The Private Call feature is disabled.

Available When the Protocol Type is Type II, or ASTRO 25

PC II

Private Call II permits call between two individual radios, regardless of talkgroups, without requiring the receiving radio to acknowledge the incoming call.

Available When the Protocol Type is Type II, or ASTRO 25

Enhanced Unit-to-Unit

Enhanced Private Call or Unit-to-Unit Private Call permits calls between two individual radios, regardless of talkgroup. The receiving radio will ring and is required to acknowledge the incoming call.

Available When the Protocol Type is Type II, or ASTRO 25

PC with CA

Enhanced Private Call or Unit-to-Unit Private Call, followed by an optional private Call Alert. See [Automatic Call Alert on page 490](#).

Available When the Protocol Type is Type II, or ASTRO 25



NOTE:

PC II is supported in "Analog" Trunking operation. See [AG Voice/Signal Type](#) and [Talkgroup](#) fields in the [Type II Trunking Personality](#).

There is a two minute delay for a PC II and Enhanced Private Call when operating in a 3600 trunking system, and six second delay when operating in a 9600 trunking system. No indication is displayed during the delay.

Accessed Only: When the radio is model/option capable.

7.8.6.14

Private Call Operation

This field selects the operation mode of the Private Call feature for the current Trunking Personality.

You can initiate a Private Call with a Select/Private Call button-press or a [Select/Private Call](#) menu-selection. User in turn responds to a Private Call with a [Call Response](#) button-press.

Accessed Only: When [Private Call Type on page 488](#) field is not set to **Disabled**, and when the radio is model/option capable.

The following selections are supported:

Response Only (Resp Only)

Allows the radio to accept Pages only.

List Only

Allows you to send Pages from the Call Hot List. For non-keypad models this option can be used only with the One Touch Button Feature. This feature is model/option dependent.

Unlimited

Allows you to send Pages from the Call Hot List and from the radio's keypad. This feature is model/option dependent.



WARNING: This selection is not available for Portable radios having only a top display.

7.8.6.15

Call Alert/Page Operation

This field selects Call Alert/Page functionality for the current Trunking Personality.

You can activate Call Alert Page Operation with a [Call Alert](#) button-press or [Page](#) menu-selection.

Accessed Only: When the radio is model/option capable, and when the DVRS Hardware Enable field is **Disabled**, or when the DVRS Hardware Enable field is **Enabled**, and when the current Trunking Personality's referenced DVRS Profile has its DVRS Remote Activation field set to **Disabled**.

The following selections are supported:

Disabled

Call Alert/Page functionality is unavailable.

Response Only (Resp Only)

Allows the radio to accept Pages only.

List Only

Allows you to send Pages from the Call Hot List. For non-keypad models this option can be used only with the One Touch Button Feature. This feature is model/option dependent.

Unlimited

Allows you to send Pages from the Call Hot List and from the radio's keypad. This feature is model/option dependent.



WARNING: This selection is not available for Portable radios having only a top display.

7.8.6.16

Trunking Call Hot List

This field selects the Call Hot List to be used for the current Trunking Personality.

The Call Hot List that is used is dependent on the Protocol Type field selection **Type II** or **ASTRO 25** for the current Trunking Personality. User uses the Call Hot List to transmit Private Calls and Pages.

Accessed Only: When [Private Call Operation on page 488](#) field is set to **List Only** or **Unlimited**, or when [Call Alert/Page Operation on page 489](#) field is set to **List Only** or **Unlimited**, and when the radio is model/option capable.

7.8.6.17

In-Call User Alert Enable

This field allows the radio to remain muted to affiliated talkgroup calls while operating on the current Trunking Personality.

Group and individual pages do unmute the radio for the alert tone to sound. The radio also unmutes to individual radio-to-radio calls such as Private Calls, Tone Signaling calls and Interconnect phone mode calls. This feature is useful when you prefer not to hear affiliated talkgroup traffic but need to be in radio contact.

The [Voice Mute](#) button-press or the [Voice Mute](#) menu-selection allows you to toggle-on and off Voice Mute functionality for an In-Call User Alert enabled channel.



WARNING: When disabled, you are not able to toggle-on this feature for the current Trunking Personality.



IMPORTANT:

When Voice Mute is active, an individual or group page received by the radio unmutes the radio. When the page unmutes the radio, a voice call that follows can then be a group call that is heard over the radio speaker.

If the channel of the radio is changed, the radio deactivates Voice Mute. Voice Mute must be reactivated if desired, when returning to the channel.

If you press the **PTT** button, launch Emergency Mode, or turn the radio off and back on, the radio deactivates Voice Mute.

The following call types may also be received:

- [Dynamic Regrouping Enable](#)
- [Radio Inhibit on page 450](#)
- [Out of Range Indicator on page 166](#)
- Failsoft
- [Site Trunking Indicator on page 167](#)
 - The Scan feature is not available.
 - Other display indications from group call such as receiving LED and PTT-ID (if enabled) function normally.

Accessed Only: When the radio is model/option capable, and when the [Call Alert/Page Operation on page 489](#) field is not set to **Disabled**,

Or when the Protocol Type field is set to **ASTRO 25**, and when the current Trunking Personality's [Tone Signaling List](#) field is referencing a Tone Signaling List that has at least one record/row where Unmute Enable is **Enabled**.

7.8.6.18

Automatic Call Alert

This field enables the radio to automatically transmit a private Call Alert in the event that the recipient of an enhanced or unit-to-unit Private Call did not respond to that call within a certain time period.

This feature applies for the current Trunking Personality and is applicable for both the ASTRO 25 and Type II Protocol Types.

Accessed Only: When the [Private Call Type on page 488](#) field is set to **PC with CA**, and when the radio is model/option capable.

7.8.6.19

Hazard Zone Mode Personality

This field allows you to turn on the Hazard Zone Mode (HZM) using the concentric switch while operating on the current Trunking Personality.



NOTE: This field is only applicable for APX NEXT XN radio.



IMPORTANT: When HZM is **Enabled**, the following conditions must be fulfilled:

The system selected for the current trunking personality is set to an ASTRO25 system and the Emergency Alarm Rx Indicator field is enabled in the selected system.

Trunking Emergency Profile Selection field is connected to a trunking emergency profile, and is not set to **Emergency Tx Disabled**.

If Emergency Revert Type field is set to **System Revert**, the Revert Channel must set to match the HZM personality when HZM Personality field is checked.

Accessed Only:

7.8.6.20

Automatic Scan

This field causes the radio to automatically enter the Scan Mode, when you select (with the Channel Selector) the current Trunking Personality.

Automatic Scan is also invoked when the radio powers-up to the current channel.

When disabled, you are able to invoke the Scan Mode operation through a Scan button-press, a Scan switch-toggle or a Scan menu-selection, while operating on the current Trunking personality.

Accessed Only: When [Scan List Assignment](#) field is not set to **None**, and when the radio is model/option capable.

7.8.6.21

Status Enable

This field enables you to select and transmit a programmed Status for the current Trunking Personality.

The statuses available to you are dependent the Personality's referenced Trunking System.

You can initiate the Status feature with a Status button-press, a Direct Status button-press, or Status menu-selection.

Accessed Only: When the radio is model/option capable.

7.8.6.22

Message Enable

This field enables you to select and transmit a programmed message for the current Trunking Personality.

The messages available to you are dependent on the personality's referenced Trunking System. You can activate the Message feature with a [Message](#) button-press, a [Direct Message](#) button-press, or [Message](#) menu selection.

Accessed Only: When the Protocol Type field is set to **Type II**, and when the radio is model/option capable.

7.8.6.23

Talk Permit Tone

This field enables the radio to sound an alert tone when a Control Channel access grant has been received from a repeater.

The feature applies for the current Trunking Personality.

Accessed Only: When the radio is model/option capable.

7.8.6.24

Secure Proper Code Detect

This field enables the radio to unmute to SecureNet™ encrypted communications.

This feature applies for the current Trunking Personality.

Accessed Only: When the Protocol Type field is set to **Type II**, and when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and the radio is model/option capable.

7.8.6.25

Ignore Rx Clear Voice

This field causes the radio to ignore all **Clear** (non-secure encrypted) voice communication while operating on the current Trunking Personality.

Accessed Only: When the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**.

7.8.6.26

Hot Keypad (DTMF)

This field allows you to transmit DTMF tones using the radio's keypad, even when the radio is not in Phone Mode.

You can initiate Hot Keypad mode by pressing and holding the PTT button while dialing the required DTMF keypad numbers. This feature applies for the current Trunking Personality.

Accessed Only: When the radio is model/option capable.



WARNING:

This feature does not work when the [Transmit Mode on page 486](#) field is set to **TG/AG Disabled (Listen-only)** mode.

7.8.6.27

DTMF Mic Enable

This field allows you to transmit DTMF tones using the radio's keypad, even when the radio is not in Phone Mode.

You can initiate DTMF Mic by pressing and holding the Top or Side or Control Head button while the required DTMF keypad number is sent out.

DTMF Mic Enable applies for the current Trunking Personality.



WARNING: This feature does not work when the [Transmit Mode on page 486](#) field is set to **TG/AG Disabled (Listen-only)** mode.

7.8.6.28

End Tx on Voice Absence

This field enables the radio, during a Trunking voice transmission, to automatically de-key when its on-board Digital Signal Processor (DSP) detects a lack of voice from the microphone for a period that exceeds the Voice Absence Timer.

This selection applies while operating on the current Trunking Personality.



WARNING: The feature does not operate when:

- An in-the-field radio is operating in Emergency Mode and either **Hot Mic Emergency** or **Emergency via Silent Audio** is currently active (see also Emergency Auto Transmit Mode), or
- The in-the-field radio is currently being remotely-monitored (see also Remote Monitor/Radio Trace Enable).

Accessed Only: When the radio is model/option capable.

7.8.6.29

SmartConnect Operation

Enables the SmartConnect feature for the current Trunking personality.

The Protocol Type for the personality must be set to "ASTRO 25".

The following selections are supported:

LMR

The talkgroups contained in the current personality operate as LMR only.

LMR Preferred

The talkgroups in the current personality will automatically switch from LMR to broadband based on the [Leave LMR RSSI Threshold on page 440](#) configuration. The talkgroups in the current personality will automatically switch from broadband back to LMR based on the [Return To LMR RSSI Threshold on page 440](#) configuration. LMR Preferred and Broadband Only are valid selections when the current Trunking Personality is referencing an ASTRO 25 Trunking System. The Data Profile Selection must reference to a valid data profile in which the SmartConnect Gateway Hostname and SmartConnect Gateway TLS Port Number are configured.

Broadband Only

The talkgroups in the current personality will operate on broadband only.

Accessed Only: When the Protocol Type is set to "ASTRO 25" and when the radio is model/option capable.

7.8.6.30

Tactical Public Safety UI Enable

This field enables several Tactical Public Safety (TPS) features that are related to Emergency Mode operation for the current ASTRO 25 Trunking Personality.

These features include the Radio Wide, Tactical Public Safety: Audible Emergency Beacon, Audible Emergency Beacon Routing, and Emergency Call De-key Sidetone.

Accessed Only: When the radio is model/option capable.

7.8.6.31

Ignore Site Resource Preference

This field enables the radio to ignore site resources information received in adjacent Control Channel Outbound Signal Words (OSWs), i.e. if the site has ASTRO, 12 Kbit Secure, or Analog Clear repeaters.

The feature applies for the current Trunking Personality and only when operating in SmartZone operation.

If **Disabled**, the radio selects sites based on this site resources information. For example, if a radio has selected an ASTRO Talkgroup.

Accessed Only: When the referenced Trunking System has its [Coverage Type on page 446](#) field not set to **Disabled**, and when the radio is model/option capable.

7.8.6.32

Site List Type

This field allows you to select the type of Site List for the Trunking Personality.

The Site List Type defines the way that the radio will use the sites identified in the following Site List. Site Preference and Mobility (Roaming) access is defined by the Site List Type.

Accessed Only: When the referenced Trunking System has its [Coverage Type on page 446](#) field not set to **Disabled**, and when the radio is model/option capable.

The following selections are supported:

Preferred List

This is the legacy and default selection. There is no access restrictions or preference implied for the sites that are not listed.

Allowed List

Radio is allowed to roam to listed sites only and defined preferences will be applied. The system may still deny access to a site in the allowed list after 'attachment' to the system is attempted on the site. If the radio is not in range of at least one of the sites listed, the radio will remain out of range.

Blocked List

Radio is not allowed to roam to any sites listed. All other sites are treated as allowed sites with no defined preference.

7.8.6.33

Affiliation Tone Enable

This field enables the radio to sound an alert tone when a radio has successfully affiliated to a trunking talkgroup for the first time after power up or mode change. The feature applies for the current Trunking Personality.

7.8.7

Preferred Sites (ASTRO 25 Trunking Personality)

The **Preferred Sites** section of the ASTRO 25 Trunking Personality set allows the user to view or define multi-site Trunking Site preferences for individual Trunking Personalities. When a radio roams into an overlapped coverage area of multiple Sites within a Trunking System or Wide Area Communications Network (WACN), it searches for a Site that is operationally preferred by evaluating all other available sites on a priority

basis, according to their corresponding Preferred Status selection. This capability provides more intelligent management and conservation of repeater resources in coverage overlap areas.



IMPORTANT:

The referenced Trunking System's Coverage Type field determines the single site (SmartNet) or multi-site configuration. In a multi-site configuration, SmartZone operation allows the radio to determine, through RSSI polling samples, the best site to be used for Trunking communications.

Also see the Trunking System's Trunking Wide Advanced fields and the Filter Constant fields.

Once the features of the Trunking Personalities have been uniquely defined, each Personality may then be assigned to the desired position of the radio's channel selector with the Zone Channel Assignment feature.

7.8.7.1

Preferred Status

This field selects the preferred status for the SmartZone site when determining through RSSI polling samples, the best site to be used for Trunking communications.

This selection applies for the current site (record/row) which applies for the current Trunking Personality.

Accessed Only: When the referenced Trunking System has its [Coverage Type on page 446](#) field not set to **Disabled**, and when the radio is model/option capable.

The following selections are supported:

None

The site is given no preference.



IMPORTANT: If a site is not listed here, the radio automatically assigns it no preference.

Least-Preferred

The site will be avoided unless it is the only usable site for operation.

Preferred

The site will be used over all non-preferred sites. Radio will leave this site if it goes into Site Trunking.

Always-Preferred

The site will be used over all non-preferred sites, even if the site goes into Site Trunking.

7.8.7.2

RAS WACN ID

This field allows you to enter in decimal or hex format, the Remote Access Server (RAS) Wide Area Communications Network (WACN) ID for the current Site ID (record/row).



WARNING: To support roaming between different WACNs, each WACN must have a unique number.



NOTE: A WACN is made up of one or more Trunking Systems. This selection also applies for the current Trunking Personality.

Accessed Only: When the Protocol Type field is set to **ASTRO 25**, and when the referenced Trunking System has its [Coverage Type on page 446](#) field set to **Inter-WACN Roaming**, and when the radio is model/option capable.

Table 277: Range

Minimum	Maximum
0	FFFFE hex

7.8.7.3

Wildcard

This field defines the type of entry in the Site List. The selection is a wildcard type that will determine which site or group of sites will be **Preferred**, **Allowed** or **Blocked**.

Accessed Only: When the referenced Trunking System has its [Coverage Type on page 446](#) field not set to **Disabled**, and when the radio is model/option capable.

The following selections are supported:

No Wildcard

This is the default selection.

Any Site

All sites in a RFSS, System, WACN applicable based on Coverage Type field selection

Any RFSS

All sites, RFSS in a System, WACN applicable based on Coverage Type field selection

Any System

All sites, RFSS, Systems in a WACN applicable based on Coverage Type field selection

7.8.8

Talkgroup (Type II Trunking System)

The **Talkgroup** section of the Type II Trunking System set allows the user to view or define individual Talkgroup functionality for individual Trunking Systems. A Talkgroup is an RadioCentral defined grouping of radios created for the purpose of frequent and convenient communication with each other.



NOTE: Talkgroup frequencies are determined by the in-the-field Trunking System and are not setup in RadioCentral.



NOTE:

Trunking Personality Failsoft Frequencies must be setup within RadioCentral.

Once defined, a Talkgroup can be assigned to one or more channels of the radio's Channel Selector from the [Zones Channel Assignment](#) and Channel List Set Trunking Talkgroup field.

The following field is supported:

7.8.8.1

Talkgroup Name

This displays the Talkgroup alias and allows the user to edit the alias.



NOTE:

This feature is software system key protected.

This feature is disabled if System is disabled.

This feature is applicable to 3600 Trunking capable radios in Trunked mode only.

7.8.8.2

Failsoft Rx Frequency

This field allows you to enter the failsoft Receive (Rx) frequency for the current talkgroup (record/row).

This selection applies for the current Trunking Personality.



WARNING: The Trunking Frequency Constraints applied to this selection are determined by this Personality's setting and the frequency band of the referenced Trunking System.

Accessed Only: When the referenced Trunking System has a Software System Key File or an Advanced System Key with access selected in the [System ID on page 56](#) field or an Advanced WACN Key with access selected in the [Home WACN ID on page 477](#) field, and when the [Failsoft Type on page 485](#) field is set to **Talkgroup**, and when the [Talkgroup Failsoft on page 497](#) field is **Enabled**, and when the radio is model/option capable.

7.8.8.3

Failsoft Tx Frequency

This field allows you to enter the failsoft Transmit (Tx) frequency for the current talkgroup (record/row).

This selection applies for the current [Trunking Personality on page 482](#).



WARNING: The Trunking Frequency Constraints applied to this selection are determined by this Personality's setting and the frequency band of the referenced Trunking System.

Accessed Only: When the referenced Trunking System has a Software System Key File or an Advanced System Key with access selected in the [System ID on page 56](#) field or an Advanced WACN Key with access selected in the Home WACN ID field, and when the [Failsoft Type on page 485](#) field is set to **Talkgroup**, and when the [Talkgroup Failsoft on page 497](#) field is **Enabled**, and when the radio is model/option capable.

7.8.8.4

Talkgroup Failsoft

This field enables failsoft operation for the current talkgroup (record/row).

This selection applies for the current [Trunking Personality on page 482](#).

Accessed Only: When the referenced Trunking System has a Software System Key File or an Advanced System Key with access selected in the [System ID on page 56](#) field or an Advanced WACN Key with access selected in the [Home WACN ID on page 477](#) field, and when the [Failsoft Type on page 485](#) field is set to **Talkgroup**, and when the radio is model/option capable.

7.8.8.5

Secondary Failsoft Rx Frequency

This field allows you to enter the secondary failsoft Receive (Rx) frequency for the current talkgroup (record/row).

This selection applies for the current trunking personality.



WARNING: The Trunking Frequency Constraints applied to this selection are determined by this personality's [Protocol Type on page 483](#) setting and the frequency band of the referenced [Trunking System on page 446](#).

Accessed Only: When the [Failsoft Type on page 485](#) field is set to **Talkgroup**, and when the [Talkgroup Failsoft on page 497](#) field is **Enabled**, and when the [TG Secondary Failsoft on page 498](#) field is **Enabled**, and when the radio is model/option capable.

7.8.8.6

Secondary Failsoft Tx Frequency

This field allows you to enter the secondary failsoft transmit (Tx) frequency for the current talkgroup (record/row).

This selection applies for the current trunking personality.



IMPORTANT: The Trunking Frequency Constraints applied to this selection are determined by this personality's Protocol Type setting and the frequency band of the referenced [Trunking System on page 446](#).

Accessed Only: When the [Failsoft Type on page 485](#) field is set to **Talkgroup**, and when the [Talkgroup Failsoft on page 497](#) field is **Enabled**, and when the [TG Secondary Failsoft on page 498](#) field is **Enabled**, and when the radio is model/option capable.

7.8.8.7

TG Secondary Failsoft

This field enables secondary failsoft operation for the current talkgroup (record/row).

This selection applies for the current trunking personality.

Accessed Only: When the [Failsoft Type on page 485](#) field is set to **Talkgroup**, and when the [Talkgroup Failsoft on page 497](#) field is enabled, and when the radio is model/option capable.

7.8.8.8

ASTRO OTAR Profile Index

This field allows you to select ASTRO OTAR Profile for "foreign" Talkgroup Calls.

When TG System ID & WACN ID do not match the selected System, then it is considered foreign to that Talkgroup.

Keys in the Key Database associated with the ASTRO OTAR Profile selected will be used for "foreign" Talkgroup calls.

The following selections are supported:

- Home
- ASTRO OTAR Profile

7.8.8.9

Priority Talkgroup

This field allows you to call the dispatcher when Priority Dispatch button is pressed and followed by the PTT button.

Accessed Only: When the System Type field is set to **ASTRO 25** and when the DVRS Profile field is set to **Disabled**.

The following selection is supported:

None

Default value. Applies to all the created talkgroups from the current Personality set.

7.8.8.10

Tx Voice/Signal Type

This field selects the transmit signaling mode for the current talkgroup (record/row).

This selection applies for the current trunking personality.

Accessed Only: **Digital** is only accessed when the [Protocol Type on page 483](#) field is set to **Type II**, and when the [Type II Frequency Band on page 466](#) is not **900 MHz**.

The following selections are supported:

- Analog
- Digital

7.8.8.11

Secure/Clear Strapping

This field selects the secure encryption transmit and receive mode for the current talkgroup (record/row).

This selection applies for the current Trunking Personality.

Accessed Only: When the referenced Trunking System has ((a Software System Key File or an Advanced System Key with access selected in the [System ID on page 56](#) field) or (an Advanced WACN Key with access selected in the [Home WACN ID on page 477](#) field)), and when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the [Protocol Type on page 483](#) field is set to **ASTRO 25**, and when the radio is model/option capable.

The following selections are supported:

Clear

Straps or commits the channel to normal (non-secure) communications.

Select

Allows you to toggle on or off secure encryption mode. Either the Secure Tx Select button-press, the [Secure Tx Select](#) switch-toggle, or the Secure menu-selection must be selected in order for you to toggle on or off Secure-encrypted communications.

Secure

Straps or commits the channel to secure encrypted communications.

7.8.8.12

Key Select

This field selects the secure encryption key to be used for the current talkgroup (record/row).

This selection applies for the current Trunking Personality.



IMPORTANT:

When the [ASTRO OTAR on page 273](#) field is **Enabled** for the referenced [Trunking System on page 446](#), this Key Select value is chosen from the Secure Encryption Key References List of the ASTRO OTAR Profile selected in the [ASTRO OTAR Profile Index on page 470](#) field of the referenced Trunking System.



WARNING: Be aware that it is actually pointing to the Keys of the [Encryption Key List on page 268](#) for this selection; individual Keys from the Secure Encryption Key References List reference the Encryption Key List's Keys from the [Encryption Key Reference](#) field. Therefore any key selected when ASTRO OTAR Profile Index is enabled, must first be defined in the Secure Encryption Key References List. Keys taken from OTAR Profile with Independent Key List field enabled are available.

Accessed Only: When the referenced Trunking System has (a Software System Key File or an Advanced System Key with access selected in the System ID field) or (an Advanced WACN Key with access selected in the Home WACN ID field), and

when the [Secure/Clear Strapping on page 499](#) for the current row/Talkgroup (of this table) is not set to **Clear**.

And

when the [Secure Operation on page 255](#) field is set to **Hardware** or **Software**, and when the Protocol Type field is set to **ASTRO 25**, and when the radio is model/option capable.

7.9

Call List Collection

This section allows you to configure parameter settings for features related to the call list.

7.9.1

Call List Wide

The **Call List Wide** section allows you to selectively enable in-the-field changes to the Contact information.

7.9.1.1

UCL Editable

This field allows you to create Contacts within the radio's UCL (Unified Call List).



NOTE:

The entire UCL is saved to the radio along with all the codeplug's programmed features.

You can create Contacts with the Contacts button-press or Contacts menu-selection.



IMPORTANT: Enabling this field also enables the [Hot List Editable on page 500](#) field; however, disabling this field does not disable the Hot List Editable field.

Accessed Only: When the radio is model/option capable.

7.9.1.2

Hot List Editable

This field allows you to create, delete, or modify the list members of the radio's Individual Call Hot Lists.



NOTE: Individual Hot List are programmed into on a per channel basis, except for the [Phone Hot List](#) which applies on a radio-wide basis.

User access to the Hot List edit mode is initiated with Contacts button-press or Contacts menu-selection.

Accessed Only: When the radio is model/option capable.

7.9.1.3

Radio ID Editable

This field enables you to edit Call IDs within the Call Hot Lists that are programmed into the radio.

User Call ID access to the Call Hot list is initiated with Contacts button-press or Contacts menu-selection.

Accessed Only: When the radio is model/option capable and when the [UCL Editable on page 500](#) field is Enabled.

7.9.2

Unified Call List

The **Unified Call List** section allows you to view or modify individual Call List Contacts.

Each contact may contain information pertaining to the different Conventional signaling types, Trunking coverage types, or Phone connectivity parameters.



NOTE:

Once defined, Contacts and Call IDs can be selected from the individual Hot Lists. These Contact and Call ID selections allow you to build the individual Hot Lists.

If the radio receives duplicated IDs, it cannot display an alias until the duplication is removed.

Writing the codeplug to a radio causes the call list to return to its original state and all OTA alias updates are lost.

7.9.3

Contact

The Contact allows the user to set system names and ID for ASTRO 25 Trunking ID, Type II Trunking ID, ASTRO Conventional ID, MDC Conventional ID, and Phone Number.

7.9.3.1

Contact Name

This field allows you to define recognizable names for the current Unified Call List Contact.

Multiple Conventional and Trunking communications Call IDs or Phone Numbers can then be defined for this Contact. Once defined, Contacts and Call IDs can be selected from the individual Hot Lists.



NOTE:

Examples: EMT 001, 500, Electric1.

Characters, numbers, and spaces can be used.

A total of 14 characters are possible.

7.9.4

ASTRO 25 Trunking ID

The ASTRO 25 Trunking ID of the Contact section allows you to view or modify ASTRO 25 Trunking Call IDs for individual Contacts.

7.9.4.1

System Name

This field selects the desired Trunking System, or allows you to create a customized ID set.

Selecting a Trunking System automatically selects the [RAS/Home WACN ID](#) and [System ID on page 56](#) values. This selection applies for the Call ID set (record/row) of the current Contact within the Unified Call List. This Call ID set can then be selected from the [Call ID on page 506](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Unassigned

No selection.

Customized

Allows you to enter a Custom WACN ID, Custom System ID and Individual ID for the current record/row. These IDs apply for a Trunking System not defined in the current codeplug. This Call ID set can then be selected from the field.

Browse

Select a set from the available [ASTRO 25 Trunking System](#).

7.9.4.2

Unit ID

This field selects the ASTRO 25 Unit ID of the targeted radio operating in ASTRO 25 Trunking communications mode.

This ID is a match for the Unit ID of the targeted radio. The Unit ID must also be a match for the Trunking System ([System ID on page 56](#) and [Home WACN ID on page 477](#)) selected in the [System Name on page 501](#) field for the same record/row. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 506](#) field.

Accessed Only: When the radio is model/option capable.

 **WARNING:** The selection range may be modified on a per Advanced (Hardware) Key basis by the Advanced Keys Administrator program.

Table 278: Range

Minimum	Maximum
000001	16777215

7.9.5

Type II Trunking ID

The Type II Trunking ID of the Contact section allows you to view or modify Type II Trunking Call IDs for individual Contacts.

7.9.5.1

System Name

This field selects the desired Type II Trunking System, or allows you to create a customized ID set.

Selecting a Trunking System automatically selects the [System ID on page 56](#) value. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 507](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Unassigned

No selection.

Customized

Allows you to enter a [Custom System ID](#) for the current record/row. These IDs apply for a Type II Trunking System not defined in the current codeplug. This Call ID set can then be selected from the [Call ID on page 507](#) field.

Browse

Select a set from the available [Type II Trunking System](#).

7.9.5.2

Unit ID

This field selects the Type II Unit ID of the targeted radio operating in Type II Trunking communications mode.

This ID is a match for the [Unit ID](#) of the same [Trunking System on page 446](#) which has been defined in the targeted radio. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 507](#) field.

Accessed Only: When the radio is model/option capable.



WARNING: The selection range may be modified on a per Advanced (Hardware) Key basis by the Advanced Keys Administrator program.

Table 279: Range

Minimum	Maximum
000001	16777215

7.9.6

ASTRO Conventional ID

The ASTRO Conventional ID of the Contact section allows you to view or modify ASTRO 25 Trunking Call IDs for individual Contacts.

7.9.6.1

System Name

This field selects the desired ASTRO Conventional System, or allows you to create a customized ID set.

Selecting a Conventional System automatically selects the [System Group Number](#) value. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 508](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Unassigned

No selection.

Customized

Allows you to enter a [Custom Group Number](#) for the current record/row. These IDs apply for an ASTRO [Conventional System on page 347](#) not defined in the current codeplug. This Call ID set can then be selected from the [Call ID on page 508](#) field.

Possible Conventional Systems

Selects a programmed Conventional System from within the current codeplug.

7.9.6.2

Individual ID

This field selects the Individual ID of the targeted radio operating in ASTRO - Conventional mode.

This ID is a match for the Individual ID of the targeted radio. The Individual ID must also be a match for the Conventional System ([System Group Number](#)) selected in the [System Name on page 503](#) field for the same record/row. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 508](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Table 280: Range

Minimum	Maximum	Increment
1	16777215	1

7.9.6.3

Call Type

This field selects the Call Type of the targeted radio operating in ASTRO - Conventional mode.

This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 508](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Individual

When the current Call ID set is targeted for an individual call.

Group

When the current Call ID set is targeted for a group call.

7.9.7

MDC Conventional ID

The MDC Conventional ID of the Contact section allows the user to view or modify sets of MDC Conventional IDs for individual Contacts.

7.9.7.1

System Name

This field selects the desired MDC Conventional System, or allows you to create a customized ID set.

Selecting an MDC Conventional System automatically selects the [System Group Number](#) value. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 509](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Unassigned

No selection.

Customized

Allows you to enter a [Custom Group Number](#) for the current record/row. These IDs apply for an MDC [Conventional System on page 347](#) not defined in the current codeplug. This Call ID set can then be selected from the [Call ID on page 509](#) field.

Possible Conventional Systems

Selects a programmed Conventional System from within the current codeplug.

7.9.7.2

Primary ID

This field selects the Primary ID of the targeted radio operating in MDC Conventional mode.

This ID is a match for the [MDC Primary ID](#) of the same Conventional System which has been defined in the targeted radio. This selection applies for the Call ID set (record/row) of the current [Contact](#) within the [Unified Call List on page 501](#). This Call ID set can then be selected from the [Call ID on page 509](#) field.

Accessed Only: When the radio is model/option capable.

The following selections are supported:

Table 281: Range

Minimum	Maximum	Increment
0 (Hex)	FFFFFFFF (Hex)	1

7.9.8

ASTRO 25 Trunking Hot List

This allows you to view or define individual Call Hot Lists for ASTRO 25 Trunking communications.

You are able to select individual Call List members while operating in Trunking mode. Call List members allow for Call Types such as Private Calls and Pages to individual radios or to groups of radios.

The Trunking Call Hot List also allows for "Caller ID".



NOTE:

[Contacts](#) must first be defined in the [Unified Call List \(UCL\)](#) before they may be selected for an ASTRO 25 Trunking Call Hot List.

Sets of Call IDs must also be defined in the UCL's [ASTRO 25 Call Trunking IDs Page](#) before they may be selected for an ASTRO 25 Trunking Call Hot List.

Individual Hot lists are then selectable on a per [Trunking Personality on page 482](#) basis from the [Trunking Call Hot List on page 489](#) field.

You can initiate the Hot List edit mode with a [Contacts](#) button-press or [Contacts](#) menu-selection.

7.9.8.1

Hot List Alias

This field allows you to define a recognizable names for the current ASTRO 25 Trunking Hot List.

Once defined, individual ASTRO 25 Hot lists are then selectable on a per [Trunking Personality on page 482](#) basis from the [Trunking Call Hot List on page 489](#) field.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: EMT-001, #500, Electric1, # A5.

Characters, numbers, spaces, and special characters can be used. For unidentified unicode characters, such as emojis, the radio top display shows "squares" for these characters.

Up to 14 characters are possible.

7.9.8.2

Contact

This field selects the Contact for the current record/row of the current ASTRO 25 Trunking Hot List.

The [Contacts](#) must first be defined in the [Unified Call List \(UCL\)](#). Once this contact has been selected, the Call ID set (defined in the UCL's [ASTRO 25 Trunking ID Page](#)), may be selected from the [Call ID on page 506](#) field of this same record/row.

Accessed Only: When the radio is model/option capable.

7.9.8.3

Call ID

This field selects the Call ID set for the current record/row of the current ASTRO 25 Trunking Hot List.

This Call ID set is defined in the [Unified Call List's - ASTRO 25 Trunking ID Page](#). The [Contact on page 506](#) for the current record/row must be selected before this selection can be made.

Accessed Only: When the [Contact on page 506](#) field for the current record/row is not set to **Unassigned**, and when the radio is model/option capable.

7.9.9

Type II Trunking Hot List

This section allows you to view or define individual Call Hot Lists for Type II Trunking communications.

You are able to select individual Call List members while operating in Trunking mode. Call List members allow for Call Types such as Private Calls and Pages to individual radios or to groups of radios.

The Trunking Call Hot List also allows for "Caller ID".



NOTE:

[Contacts](#) must first be defined in the [Unified Call List \(UCL\)](#) before selecting them for a Type II Trunking Call Hot List.

Sets of Call IDs must also be defined in the UCL's [Type II Trunking IDs Page](#) before selecting them for a Type II Trunking Call Hot List.

Individual Hot lists are then selectable on a per [Trunking Personality on page 482](#) basis from the [Trunking Call Hot List on page 489](#) field.

You can initiate the Hot List edit mode with a [Contacts](#) button-press or [Contacts](#) menu-selection.

7.9.9.1

Hot List Alias

This field allows you to define recognizable names for the current Type II Trunking Hot List.

Once defined, individual Type II Call Hot lists are then selectable on a per [Trunking Personality on page 482](#) basis from the [Trunking Call Hot List on page 489](#) field.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: EMT-001, #500, Electric1, # A5.

Characters, numbers, spaces, and special characters can be used. For unidentified unicode characters, such as emojis, the radio top display shows "squares" for these characters.

Up to 14 characters are possible.

7.9.9.2

Contact

This field selects the Contact for the current record/row of the current Type II Trunking Hot List.

The contact must first be defined in the [Contact](#) field of the [Unified Call List on page 501](#). Once this contact has been selected, the ID set (defined in the UCL's [Type II Trunking ID Page](#)) may be selected from the [Call ID on page 507](#) field of this same record/row.

Accessed Only: When the radio is model/option capable.

7.9.9.3

Call ID

This field selects the Call ID set for the current record/row of the current Type II Trunking Hot List.

The Contact for the current record/row must be selected before this selection can be made.

Accessed Only: When the [Contact on page 507](#) field for the current record/row is not set to **Unassigned**, and when the radio is model/option capable.

7.9.10

ASTRO Conventional Hot List

This section allows you to view or define individual Call Hot Lists for Conventional communications.

You are able to select individual Call List members while operating in Conventional communications mode. Call List members allow for Call Types such as Selective Calls and Call Alerts to individual radios or to groups of radios.

The ASTRO Call Hot List also allows for "Caller ID".



NOTE:

[Contacts](#) must first be defined in the [Unified Call List \(UCL\)](#) before they may be selected for an ASTRO Call Hot List.

Sets of Call IDs must also be defined in the UCL's [ASTRO Conventional ID](#) before they may be selected for an ASTRO Call Hot List.

Individual Hot lists are then selectable on a per [Conventional Personality on page 364](#) basis from the [ASTRO Call Hot List on page 382](#) field.

You can initiate the Hot List edit mode with a [Contacts](#) button-press or [Contacts](#) menu-selection.

7.9.10.1

Hot List Alias

This field allows you to define a recognizable name for the current ASTRO Conventional Hot List.

Once defined, individual ASTRO Call Hot lists are then selectable on a per [Conventional Personality on page 364](#) basis from the [ASTRO Call Hot List on page 382](#) field.

Accessed Only: When the radio is model/option capable.



NOTE:

Examples: EMT-001, #500, Electric1, #A5.

Characters, numbers, spaces, and special characters can be used. For unidentified unicode characters, such as emojis, the radio top display shows "squares" for these characters.

Up to 14 characters are possible.

7.9.10.2

Contact

This field selects the Contact for the current record/row of the current ASTRO Conventional Hot List.

The contact must first be defined in the [Contacts](#) field of the [Unified Call List \(UCL\)](#). Once this contact has been selected, the Call ID set (defined in the UCL's [ASTRO Conventional ID Page](#)) may be selected from the [Call ID on page 508](#) field of this same record/row.

Accessed Only: When the radio is model/option capable.

7.9.10.3

Call ID

This field selects the Call ID set for the current record/row of the current ASTRO Conventional Hot List.

This Call ID set is defined in the Unified Call List's - ASTRO Conventional ID page. The Contact for the current record/row must be selected before this selection can be made.

Accessed Only: When the [Contact on page 508](#) field for the current record/row is not set to **Unassigned**, and when the radio is model/option capable.

7.9.11

MDC Conventional Hot List

This section allows you to view or define individual Call Hot Lists for MDC Conventional communications.

You are able to select individual Call List members while operating in Conventional mode. Call List members allow for Call Types such as Selective Calls and Call Alerts to individual radios or to groups of radios.

The MDC Call Hot List also allows for "Caller ID".



NOTE:

[Contacts](#) must first be defined in the [Unified Call List \(UCL\)](#) before selecting them for an MDC Call Hot List.

Sets of Call IDs must also be defined in the UCL's [MDC Conventional ID Page](#) before selecting them for an MDC Call Hot List.

Individual Hot lists are then selectable on a per [Conventional Personality on page 364](#) basis from the [Non-ASTRO Call Hot List on page 378](#) field.

You can initiate the Hot List edit mode with a [Contacts](#) button-press or [Contacts](#) menu-selection.

7.9.11.1

Hot List Alias

This field allows you to define recognizable names for the current MDC Conventional Hot List.

Once defined, individual MDC Call Hot lists are then selectable on a per [Conventional Personality on page 364](#) basis from the [Non-ASTRO Call Hot List on page 378](#) field.



NOTE:

Examples: EMT-001, #500, Electric1, #A5.

Characters, numbers, spaces, and special characters can be used. For unidentified unicode characters, such as emojis, the radio top display shows "squares" for these characters.

Up to 14 characters are possible.

7.9.11.2

Contact

This field selects the desired Contact for the current record/row of the current MDC Conventional Hot List.

The contact must first be defined in the [Contact](#) field of the [Unified Call List on page 501](#). Once this contact has been selected, the Call ID set (defined in the UCL's MDC Conventional ID (Contact) section) may be selected from the [Call ID on page 509](#) field of this same record/row.

Accessed Only: When the this field for the current record/row is not set to **Unassigned**, and when the radio is model/option capable.

7.9.11.3

Call ID

This field selects the Call ID set for the current record/row of the current MDC Conventional Hot List.

This Call ID set is defined in the [Unified Call List's - MDC Conventional ID Page](#). The [Contact on page 509](#) for the current record/row be selected before this selection can be made.

Accessed Only: When the [Contact on page 508](#) this field for the current record/row is not set to **Unassigned**, and when the radio is model/option capable.

7.10

Assignment Collection

This section allows you to set zone and channel configuration.

7.10.1

Zone Assignment

This section allows you to configure parameter settings for each zone.

7.10.1.1

Zone Names

This field allows you to define recognizable names for the current zone.



IMPORTANT: For portable radios, this name appears in the radio main display, not in the radio top display.

Accessed Only: When the [Zone Text Size on page 164](#) field is greater than 0.



NOTE:

Examples: EMT-001, #500, Electric1, #A5.

Characters, numbers, spaces, and special characters can be used. For unidentified unicode characters, such as emojis, the radio top display shows "squares" for these characters.

The actual number of Zone Name characters that appear in the radio main display is determined by the **Zone Text Size** field. Entries larger than this value are considered invalid.

The Zone Name appears above the Channel Name in the radio main display.

7.10.1.2

Zone Announcement Type

This field selects the Motorola Voice Announcement (.MVA) file to be used for Voice Announcement on the current zone.

When you change the radio to this zone, a voice prompt plays. The [channel announcement](#) voice prompt may also play if applicable. If Text-to-Speech (TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio. See [Voice Announcement Priority on page 244](#) field.



NOTE: The [Voice Announcement List](#) page allows you to load Motorola Voice Announcement (.MVA) files into the current codeplug.

The following selections are supported:

Voice

Lists all possible voice files, .MVA, defined in the [Voice Announcement List](#) page.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Zone Announcement is played as audio.

7.10.1.3

Zone Voice Control Name or TTS Announcement

A common spoken word to reference this zone for Voice Control. This can also be used to set the channel announcement to this text, if channel announcement is set to Text-to-Speech (TTS).

When you click the "play button" , RadioCentral converts the text in the voice command field to speech and plays it through the speaker.



IMPORTANT: This must be set in order to change the zone using voice control.

Accessed Only: When the radio is model/option capable.



NOTE:

Configured per zone.

The default value is blank.

Unicode characters.

Alphanumeric characters only with a maximum of 35 characters.

7.10.2

Channel Assignment

This section allows you to view or modify specific channel configuration in the designated zone.

7.10.2.1

Channel Name

This field allows you to define recognizable names for the current channel (record/row).



IMPORTANT: For portable radios, this name appears in the radio main display, not in the radio [top display](#).

This selection applies for the current zone.

Accessed Only: When the [Dynamic Zone Enable](#) field is disabled.



NOTE:

Examples: EMT-001, #500, Electric1, #A5.

Characters, numbers, spaces, and special characters can be used. For unidentified unicode characters, such as emojis, the radio top display shows "squares" for these characters.

The actual number of Channel Name characters that appear in the radio main display is determined by the **Channel Text Size** field. Entries larger than this value are considered invalid.

The Zone Name appears above the Channel Name in the radio main display.

7.10.2.2

Channel Type

This field selects the radio communications type, Conventional or Trunking, for the current channel (record/row).

This selection applies for the current zone.



NOTE: Once this selection has been made, the [Personality on page 511](#) field selection may then be made.

Accessed Only: When the radio is model/option capable, and when the [Dynamic Zone Enable](#) field is disabled, and when the [Clone Enable](#) field is disabled.

The following selections are supported:

Trk

Trunking

Cnv

Conventional

7.10.2.3

Personality

This field selects the desired Conventional Personality or Trunking Personality for the current channel (record/row).

This selection applies for the current zone.



IMPORTANT:

The [Channel Type on page 511](#) field determines the Personality's communications type that is available for selection from this field.

Personalities must be created and defined before they can be selected from this field.

Accessed Only: When the [Dynamic Zone Enable](#) field and [Clone Enable](#) field are disabled.

7.10.2.4

Trunking Talkgroup

This field selects the Talkgroup or the Talkgroup type to be used for the current channel (record/row).

This selection applies for the current zone.

Accessed Only: When the [Dynamic Zone Enable](#) field is **Disabled**, when the [Channel Type on page 511](#) field is set to **Trk** (Trunking), and when the radio is model/option capable.

The following selections are supported:

Talkgroup Selections

Talkgroups appearing for selection are based on the [Trunking Personality on page 482](#) selected in this channel's [Personality on page 511](#) field.

A Talkgroup is a programmed grouping of radios created for the purpose of frequent and convenient communication with each other.



NOTE: Talkgroups are defined in the Personality's [Talkgroup](#) Page.

DYN (Dynamic Regrouping)



WARNING:

This selection is only valid when the [Transmit Mode on page 486](#) field for the Trunking Personality selected in this channel's [Personality on page 511](#) field is not set to **TG/AG Disabled** (Listen-only).

A Dynamic Regrouping configuration is only valid when a Trunking Personality referenced to a channel has this field set to **DYN**, and that Personality's selected Zone and Channel match the selections for [Dynamic Regrouping Zone](#) and [Dynamic Regrouping Channel](#) in the Personality's referenced Trunking System.



IMPORTANT: Only one Dynamic Regrouping channel may be defined per referenced Trunking System.

You may request a new Dynamic Regrouping assignment from the dispatcher with a [Reprogram Request](#) button-press or a [Reprogram Request](#) menu-selection. The available features and settings of the Dynamic Regrouping talkgroup are defined and transmitted back by the dispatcher.

For the Dynamic Regrouping talkgroup to be capable of transmitting in Secure mode, either the [Secure Tx Select](#) button-press or the [Secure Tx Select](#) switch-toggle or the [Secure](#) menu-selection is needed; otherwise Dynamic Regrouping talkgroup transmissions are strapped to transmitting in **Clear** mode.

ATG (Announcement Group)

This selection is only valid when the [Announcement Group](#) field for the Trunking Personality selected in this channel's [Personality on page 511](#) field is not set to **None**.

Announcement Groups allows you to initiate and communicate on one large communication channel comprised of all [Talkgroups](#) defined for the current Trunking Personality.

7.10.2.5

Conventional Frequency Option

This field selects the Conventional Frequency Options profile for the current channel (record/row).

This selection applies for the current zone.



NOTE:

The Conventional Personality must first be selected in the [Personality on page 511](#) field.

Frequency option profiles must be created and defined before they can be selected from this field.

Accessed Only: When the [Dynamic Zone Enable](#) field is disabled, and when the [Channel Type on page 511](#) field is set to **Cnv** (Conventional).

7.10.2.6

Radio Profile Selection

This field selects the radio profile for the current channel (record/row).

Radio profiles allow for designed groupings of audio settings to be designed for specific radio channels and or specific in-the-field usage scenarios.

You may select Radio profiles (on a per channel basis) with the [Radio Profiles](#) button-press or the [Radio Profiles](#) menu-selection.

This selection applies for the current zone.

Accessed Only: When the [Dynamic Zone Enable](#) field is disabled.

The following selections are supported:

Last Selected

The first record/row in [Radio Profiles on page 192](#) (regardless of the profile name) is used until you change to a different profile. After that, it locks your current profile selection to the channel until the profile selection is changed again.

Other Profile Names

Three pre-named profile records have been supplied for your convenience: **Default**, **Surveillance**, and **Loud Audio**. These profiles can be renamed, and should be defined according to your needs if more profiles may be created.

7.10.2.7

Channel Announcement Type

This field selects the Motorola Voice Announcement (.MVA) file to be used for Voice Announcement on the current channel/mode.

When you change the radio to this channel, a voice prompt plays. A [Channel Announcement](#) button-press allows you to hear the current channel voice recording of the radio whenever needed. See also the Voice Announcement Priority field. If Text-to-Speech(TTS) is selected, the text in the corresponding Voice Command field is converted to speech and played as audio.

This selection applies for the current zone.



NOTE: The [Voice Announcement List](#) page allows you to load Motorola Voice Announcement (.MVA) files into the current codeplug.

Accessed Only:

- [Dynamic Zone Enable](#) field is disabled.
- [RSI Mode](#) field is disabled for the current zone.

The following selections are supported:

Voice

Lists all possible voice files, .MVA, defined in the [Voice Announcement List](#) Page.

TTS

When Voice Control feature is enabled, the text in the Voice Command field for Channel Announcement is played as audio.

7.10.2.8

Channel Voice Control Name or TTS Announcement

A common spoken word to reference this channel for Voice Control. This can also be used to set the channel announcement to this text, if channel announcement is set to Text-to-Speech (TTS).

When you click the "play button" , RadioCentral converts the text in the voice command field to speech and plays it through the speaker.



IMPORTANT: This must be set in order to change the channel using voice control.

Accessed Only: When the radio is model/option capable.



NOTE:

Configured per channel.

The default value is blank.

Unicode characters.

Alphanumeric characters only with a maximum of 35 characters.

7.10.2.9

Personnel Accountability Sector ID

This field selects the ID number that identifies the current Personnel Accountability Sector location for the current channel.

This selection applies for the current zone.



IMPORTANT:

When you or a radio moves into a new sector, you can change the channel of the radio to the appropriate channel that is designated for the new sector location.

Accessed Only: When the radio is model/option capable, and when the [Channel Type on page 511](#) field is set to **Cnv** (Conventional), and when the [Conventional Personality on page 364](#) referenced to the current Conventional channel has its [Incident Signaling Type on page 390](#) field set to **Personnel Accountability** or **Personnel Accountability with MDC**.

Table 282: Range

Minimum	Maximum	Increments
0 (hex)	FF (hex)	1



NOTE:

Each value must be unique for each channel. In other words, each value can only be used once per radio.

0 (the Factory-Default value) is used to designate non-Personnel Accountability channels, and therefore may be re-used as necessary.

7.10.2.10

Fallback Zone

This field describes the zone the radio must be switched to when Channel Fallback occurs.

If the Fallback Channel field is disabled, then Channel Fallback will be unable to arm on the selected channel.

Accessed only: When the Channel Fallback field is enabled.

7.10.2.11

Fallback Channel

This field selects the channel in the selected Fallback Zone that the radio must switch to when Channel Fallback occurs. If this field is disabled, then Channel Fallback cannot activate on the selected channel.

Accessed Only: When the **Channel Fallback Enable** field is enabled.

7.10.3

Conventional Personality Scan List Assignment

This section allows you to view or modify configuration for conventional personality scan list assignment.

7.10.3.1

Scan List Selection

This field selects which Scan List is used by the radio while operating in Scan Mode for the current Conventional Personality.

This Scan List then determines which callers the radio scans for (actively listens for), and considers unmuting to the current Conventional channel.



WARNING:

When the Analog Flat Audio field is **Enabled**, this field must be set to **None**; otherwise, it becomes invalid. Therefore both features may not be enabled on the same Personality.

When the [Mixed Vote Scan Enable on page 388](#) field is **Enabled** for the current Personality, this field must be set to a [Conventional Scan Type on page 521](#); otherwise, it becomes invalid.

When the referenced Conventional System selected in the [ASTRO System](#) field is a DVRS System Type, this field must be set to **None**; otherwise, it becomes invalid.

The RadioCentral considers this selection invalid when this personality is LTE Broadband-enabled, and this selected Scan List has any Scan List Member Channels having the following condition:

- their Conventional Personality's [LTE Interference Frequency Present](#) field set to **Enabled**, or
- their Trunking System's LTE Interference Freq Present field is **True**, or
- their Trunking System's Coverage Type field set to **Inter-WACN Roaming**.



NOTE: A conventional channel is LTE enabled when the Personality's referenced ASTRO-Conventional System has a referenced Data Profile having a Data Profile Type selection equal to **Conventional & Broadband** or **Broadband-Only**, and when that Data Profile's Broadband Source is **Internal LTE Modem**.

The RadioCentral considers this selection invalid when the current Conventional Personality's LTE Interference Frequency Present field is **Enabled**, and this Scan List Selection is referencing a Scan List with a Designated Data Member LTE Broadband-enabled channel.



NOTE: A conventional channel is LTE enabled when the Personality's referenced ASTRO-Conventional System has a referenced Data Profile having a Data Profile Type equal to **Conventional & Broadband** or **Broadband-Only**, and when that Data Profile's LTE Enable field is **Enabled**.

The RadioCentral considers this selection invalid when referenced Conventional System in Conventional Personality is of type DVRS and when

- The DVRS PSU Conventional Scan Enabled option is set to **Disabled**, or
- The selected Scan List has Scan Type field is NOT set as **Conventional**, or
- The selected Scan List has any Scan List Member Channels with their conventional Personality's ASTRO System field is a **DVRS System**, or
- The Scan List Selection is referencing a Scan List in which:
 - Dynamic Priority field is set as **Enabled**, or
 - Priority 1- Type field is not set as **Selected Chan**, or
 - Priority 2- Type field is not set as **Disabled**, or
 - Designated Voice Tx Member Type field is not set as **Selected Channel**, or

- Designated Data Rx/Tx Type field is not set as **None**, or
- The Conventional Personality's Mixed Vote Scan Enable field is set as **Enabled**.



NOTE:

Scan List and Scan List Member functionality are defined in the Scan List Window.

Only Scan Lists having the **Conventional** or **Talkgroup** selection in the Scan Type field are valid Scan List Selections for the current Conventional Personality.

Scan Lists having the **Intelligent Priority** selection in the Scan Type field are valid Scan List Selections for the current Conventional Personality without DVRS system.

You can initiate Scan List editing with a Scan List Programming switch-toggle, a Scan List menu-selection, or a long keypress duration of a Scan button-press.

Voting Scan is an invalid selection on a clonable personality.

No Sharing of Scan List between Conventional and DVRS Personality.

Accessed Only: When the Remote Site Interface System field in the referenced Conventional System is **Disabled**;

if **Enabled**, then the [Rx Voice/Signal Type on page 365](#) field must be set to **ASTRO**, and this Scan List Selection must be **None**; else, this field becomes invalid.

7.11

Scan Collection

This section allows you to configure parameter settings for scanning features.

7.11.1

Scan Wide

The **Scan Wide** section allows you to view or define scan functionality related to both Conventional and Trunking communications modes.

Scan Wide features may apply on a radio-wide basis to all [Scan List on page 520](#).

A Scan List allows for many possible receive channels while operating in Scan Mode.



NOTE: Individual Scan Lists can be assigned to [Conventional](#) and [Trunking](#) Personalities with their respective Scan List Selection field.

7.11.1.1

Priority Scan Alert

This field enables the radio to audibly alert you.

This feature is enabled when a [Priority Member 1 on page 530](#) or a [Priority Member 2 on page 530 - Scan List Member](#) channel is landed while scanning.

One beep is generated for both Priority #1 and Priority #2 channels. This feature applies to all [Scan Types](#).

Accessed Only: When the Alert Tones field is **Enabled**, and when the radio is model/option capable.

7.11.1.2

Voice Rx Tx Hold Time

This field selects the amount of time that the radio remains on a Landed Scan Mode - Scan List Member channel before resuming in Active Scan Mode.

This timer begins once all receive and transmit voice communication has ceased. This feature applies to all [Scan Types](#) while operating in Scan Mode. Time is in seconds.

Table 283: Range

Minimum	Maximum
0 (second)	255 (seconds)

7.11.1.3

Data Rx Tx Hold Time

This field selects the amount of time that the radio remains on a Landed Scan Mode - Scan List Member channel before resuming in Active Scan Mode.

This timer begins once all receive and transmit data communication has ceased. This feature applies only for a [Scan List on page 520](#) that has its [Scan Type on page 521](#) field set to **Conventional**, and while operating in Scan Mode. Time is in seconds.

Accessed Only: When radio is model/option capable.

Table 284: Range

Minimum	Maximum
0 sec	255 sec

7.11.1.4

Carrier Detect Required

This field enables the radio to land on carrier squelch but to only unmute on Priority - Scan List Members or on a proper Private Line (PL) code detect.

This applies while making an active scan of a Conventional scan list member channel, while in scan mode.

7.11.1.5

Priority Channel Marking

This field enhances Priority Channel Scan performance by causing unqualified Priority Scan List Member transmissions to be "Marked" and temporarily removed from the scan list.

This is particularly effective when in Landed Scan Mode on a non-priority scan list member, and when the radio briefly mutes at specific [time intervals](#) to check for [Priority Member 1 on page 530](#) or [Priority Member 2 on page 530](#) Member activity.

This temporary Scan List Member removal allows this muting period to be a shorter amount of time, and a shorter interruption for the current call. This feature applies only to Conventional scan list member channels.



IMPORTANT:

An analog Priority Channel is "marked" when it is unsuccessfully scanned due to no TPL/DPL (PL) code where a PL code was expected, or where the PL code was incorrect.

A digital (ASTRO System) Priority Channel is "marked" when it is unsuccessfully scanned due to no Network Access Code (NAC) where a NAC code was expected, or where the NAC code was incorrect.

Once the PTT button is pressed, or when scan finds that carrier has dropped on a "marked" Priority channel, or the proper PL/NAC is detected on the "marked" channel, then the "marked" status is removed for that Priority channel and normal priority scanning is resumed.



NOTE: Analog and digital are determined by the [Rx Voice/Signal Type on page 365](#) field setting on a per channel basis.

7.11.1.6

Monitor Hold Time

This field selects the amount of time that the radio remains on the current Scan List Member channel waiting for channel activity.

This timer begins once you release the [Monitor](#) button-press. This selection applies only to Conventional scan list member channels. Time is in seconds.



NOTE: Pressing the Monitor button is sometimes used as a method to suspend scanning. Once the timer expires, the radio continues normal Scan Mode operation.

Table 285: Range

Minimum	Maximum
0 (second)	255 (seconds)

7.11.1.7

Time Between Priority Samples

This field selects the amount of time that the radio waits between taking samples.

Samples are taken to check for incoming [Priority Member 1 on page 530](#) or [Priority Member 2 on page 530](#) channel activity.

This sampling is needed when the radio is in Landed Scan Mode on a non-priority scan list member, or when landed on a Priority #2 Scan List member channel and checking for a Priority #1 transmission. When the sampling occurs, the radio briefly mutes potentially causing brief interruptions in the radio's receive audio. This selection applies only to Conventional scan list member channels. Time is in milliseconds.



NOTE: See also [Priority Channel Marking on page 517](#).

Table 286: Range

Minimum	Maximum	Increments
250 ms	6375 ms	25 ms

7.11.1.8

RSSI Voting Threshold

This field selects a Received Signal Strength Indication (RSSI) strong signal level that is then required from a Scan List Member channel in order for the radio to unmute.

This feature applies only when the radio is capable of Conventional Voting Scan. When in a Voting Scan Conventional communications system, several repeaters re-broadcast the same transmission simultaneously on different frequencies; the radio then selects the strongest/clearest signal. Therefore, this threshold setting defines when the best signal is strong enough for the radio to unmute. If no Voting Scan - Scan List Member exceeds the threshold, then the channel with the highest RSSI value is selected for unmuting. This selection applies only to Conventional scan list member channels.

 **WARNING:** This feature only functions: When a [Scan List on page 520](#) has its [Scan Type on page 521](#) field set to **Voting Scan**, and when none of the [Scan List Member](#) channels within that list has [Automatic Scan on page 388](#) **Enabled**, and when all Scan List Member channels use repeaters within a Conventional Voting Scan wide-area network.

Accessed Only: When the radio is model/option capable.

Table 287: Range

Minimum	Maximum
00 (Hex)	FF (Hex)

7.11.1.9

Failsoft Hold Time

This field selects how long the radio remains unmuted on a (Trunking only) Landed Scan - Scan List Member channel once Failsoft has occurred.

During this time period, the radio is unmuted to the Failsoft channel listening to a silent Failsoft carrier or voice transmission. Once this timer has expired Active Scan Mode operation resumes. This selection applies only to Scan Lists where **Multi-System Talkgroup** is the selected [Scan Type on page 521](#).

 **NOTE:** Only a **Multi-System Talkgroup** type Scan List allows for Trunking channels with multiple [Trunking Systems](#). Therefore when Failsoft has occurred on a channel, and once this Hold Timer has expired, other working channels can then be scanned.

Accessed Only: When radio is model/option capable.

Table 288: Range

Minimum	Maximum
0 (second)	255 (seconds)

7.11.1.10

System Search Time

This field selects the amount of time that the radio remains muted on a Landed Scan control channel when scanning for Scan List Members.

During this time period the radio is decoding Trunking System channel grants looking for grants to its Trunking scan list members. Once this timer has expired without the radio receiving a channel grant, the radio

begins actively scanning the next Conventional scan list member or returns to the radio's currently selected channel.

 **WARNING:** This feature functions only for [Scan Lists](#) where **Multi-System Talkgroup** is the selected [Scan Type on page 521](#).

 **IMPORTANT:**
While scanning a Trunked system from a conventional channel, the radio is not listening to the radio's currently selected Conventional channel. Consequently the longer this timer runs, the more time is spent off of the currently selected channel. Therefore this selection should only be to set to a longer time value when scanning a control channel on a busy system and may be set to shorter time value when scanning a less busy system.

Only a [Scan List on page 520](#) with a **Multi-System Talkgroup**, and [Scan Type on page 521](#) allows for Trunking channels with multiple [Trunking Systems](#). Therefore this search timer allows for other Systems to be alternatively scanned.

Accessed Only: When radio is model/option capable.

Table 289: Range

Minimum	Maximum
1 (second)	255 (seconds)

7.11.2

Scan List

This section allows you to create and delete Scan Lists, as well as define individual Scan List functionality. A Scan List contains desired groupings of Conventional and/or Trunking channels, which are selected for each list in the Scan List Member section.

The selected channels can then be checked for transmission activity one at a time when the radio is in Scan Mode. Therefore, allowing for many possible receive channels. The radio only scans its currently operating channel assigned Scan List.

 **NOTE:**
Individual Scan Lists can be assigned to Conventional and Trunking Personalities with their respective Scan List Selection field.

You can initiate scan mode automatically through Automatic Scan or with a Scan button-press, Scan switch-toggle or Scan menu selection.

7.11.2.1

Scan List Alias

This field allows you to define recognizable names for the current Scan List.

 **NOTE:**
Examples: Scan List 05, Electric1, #510.

Characters, numbers, spaces, and special characters can be used.

Up to 14 characters are possible.

7.11.2.2

Scan Type

This field selects the type of Scan List Member channels that can be selected for the current Scan List.

These Conventional or Trunking (or both) [Scan List Member](#) channels are then scanned for qualified transmission activity when the radio is operating in Scan Mode.



IMPORTANT: Scan Types that allow Trunking Scan List Member Personalities/channels may require certain selected [Trunking Systems](#). Therefore, Trunking System must be defined for these selected Trunking Personalities prior to configuring certain Trunking-related Scan List features. Trunking Systems are referenced to a Trunking Personality with the Trunking Personality [System on page 483](#) field.

Accessed Only: When radio is model/option capable.

The following selections are supported:

Conventional

Only Conventional channels may be selected for this Scan List type; including Conventional Personalities configured for Conventional Mixed Vote Scan designated by having their [Mixed Vote Scan Enable on page 388](#) field **Enabled**.

Up to 30 [Channel on page 529](#) per scan list is possible with the below conditions:

- When a Conventional Personalities has its Mixed Vote Scan Enable field **Enabled**, each Frequency Options (record/row) of that personality counts towards the 30 Scan List member maximum.
- Per Scan List, a maximum of three Mixed Vote Scan enabled Conventional Personalities are possible as Scan List Member channels.

Validity for Mixed Vote Scan Personalities:



WARNING: When the [Mixed Vote Scan Tx Steering on page 388](#) field is **Disabled** for this Scan List, any Scan List Member channel (selected for the current Scan List) must have its Frequency Options Transmit (Tx) parameters set according to following rules:

The [Tx Frequency on page 406](#) Tx Frequency must be a match for all channels in the Scan List.

The [Tx Deviation/Channel Spacing on page 409](#) must be a match for all channels in the Scan List.

The [Tx Network ID on page 410](#) must be a match for all channels in the Scan List.

or

The Tx Frequency must be a match for all channels in the Scan List.

The Tx Deviation/Channel Spacing must be a match for all channels in the Scan List.

The User Selectable PL (MPL) field must be **Disabled** for all channels in the Scan List.

The [Tx Squelch Type on page 420](#) must be a match for all channels in the Scan List. If the Tx Squelch Type is set to **PL**, then the [Tx PL Code on page 422](#) must be a match for all channels in the Scan List, or if the Tx Squelch Type is set to **DPL**, then the [Tx DPL Code on page 423](#) and the [Tx DPL Invert on page 424](#) must be a match for all channels in the Scan List.

Priority Monitor

Available on a model/option capable basis.

Only Trunking channels may be selected for this Scan List type.

Per Scan List, Priority Monitor Scan allows up to 50 Scan List Member channels.

The Trunking Talkgroup field for any of the Trunking Scan List Member channels selected for the current Scan List may not be set to **DYN** or **ATG**.

The Trunking System Record field's "System" selection (for the current Scan List) must match the referenced Trunking System field of all of the Trunking Scan List Member channels selected for the current Scan List.

If the [Coverage Type on page 446](#) field of the Trunking System Record field's Trunking System selection (for the current Scan List) is set to **Inter-WACN Roaming**, then that Trunking System's Home WACN ID and System ID must match the TG WACN ID and TG System ID of the Trunking Talkgroup for any of the Trunking Scan List Member channels selected for the current Scan List.

Multi-System Talkgroup

Available on a model/option capable basis.

Both Conventional and Trunking channels may be selected for this Scan List type.

Per Scan List, Multi-System Talkgroup Scan is limited to five Trunking Systems, with up to 50 Scan List Member channels per Trunking System, and may include up to 10 Conventional Scan List Member channels. However, the maximum per Scan List is 250 Scan List Member channels.

Not more than 50 of the selected Scan List Member channels may reference the same Trunking System.

The Trunking Talkgroup field for any of the Trunking Scan List Member channels selected for the current Scan List may not be set to **DYN** or **ATG**.

The Conventional Personality Mixed Vote Scan Enable field must be **Disabled** for all Scan List Member channels selected for this Scan List type.



WARNING: Common Air Interface (CAI) data operations are not supported in this Scan Type. This is true because of the conflicting nature of CAI data operation (which requires the radio to receive short bursty transmissions) and Multi-System Scan (which requires the radio to spend long periods of time monitoring secondary scan members).

Voting Scan

Available on a model/option capable basis.

Only Conventional channels may be selected for this Scan List type.

Voting Scan allows only up to 10 Scan List Member channels per Scan List.



WARNING: A Voting Scan system functions only when all Scan List Member channels (selected for the current Scan List) use repeaters within a Conventional Voting Scan wide-area network.



NOTE: When operating in a Voting Scan system, several repeaters re-broadcast the same transmission simultaneously on different frequencies; the radio is then able to select the strongest/clearest signal. The RSSI Voting Threshold setting defines when the best signal is strong enough for the radio to unmute. If no channel exceeds the threshold, then the channel with the highest RSSI value is selected for unmuting.

Validity for Scan List Channel:

The Conventional Personality Mixed Vote Scan Enable field must be **Disabled** for all Scan List Member channels selected for the current Scan List.

The [Automatic Scan on page 388](#) field must be **Disabled** for all Scan List Member channels selected for the current Scan List.

When the Tx Steering field is **Enabled** or **Disabled** for this Scan List, it is not a concern for any Scan List Member channel (selected for the current Scan List) that has its [Receive Only Personality on page 365](#) field **Enabled**.



WARNING:

However, when the Tx Steering field is **Disabled** for this Scan List, any Scan List Member channel (selected for the current Scan List) that has its Receive Only Personality field **Disabled** must also have its Transmit (Tx) parameters set according to following rules.

When all Scan List Member channels of the current Scan List have their [Tx Voice/Signal Type on page 368](#) set to **ASTRO** the following must be true:

The Tx Frequency must be a match for all channels in the Scan List.

The Tx Deviation/Channel Spacing must be a match for all channels in the Scan List.

The Tx Network ID must be a match for all channels in the Scan List.

or

The Tx Frequency must be a match for all channels in the Scan List.

The Tx Deviation/Channel Spacing must be a match for all channels in the Scan List.

The User Selectable PL (MPL) field must be **Disabled** for all channels in the Scan List.

Tx Squelch Type must be a match for all channels in the Scan List. If the Tx Squelch Type is set to **PL**, then the Tx PL Code must be a match for all channels in the Scan List, or if the Tx Squelch Type is set to **DPL**, then the Tx DPL Code and the Tx DPL Invert must be a match for all channels in the Scan List.



WARNING: Also be Aware: A Voting Scan type Scan List cannot combine Scan List Member Channels where some are of the **Non-ASTRO** Tx Voice/Signal Type and where some are of the **ASTRO** Tx Voice/Signal Type. Therefore, all **Voting Scan** Scan List Member channels must be of the same Tx Voice/Signal Type.

Intelligent Priority

Both Conventional and Trunking channels may be selected for this Scan List type.

This scan type is based upon Multi-system Talkgroup Scan, supporting the limits of that scan type. This scan type provides the ability to configure a Priority 1 and Priority 2 scan member.



NOTE: Priority scan activity will be received when the radio is scanning the same system as the Priority scan member. Priority scan activity will not be received while the radio is unmuted to a non-priority scan member, including the selected channel from a different system, conventional or trunking.

7.11.2.3

Trunking System

This field selects a Trunking System by its programmed name.

This Trunking System is then used for communications during Scan Mode for the current [Scan List on page 520](#).



IMPORTANT:

When the [Scan Type on page 521](#) field is set to **Priority Monitor**, this selected Trunking System must be the same (a match) for all selected Scan List Member channels for the current Scan List.

When [Trunking Personalities](#)/channels are selected for a Scan List, these "matching" Trunking Systems are referenced to a Trunking Personality with the Trunking Personality [System on page 483](#) field.

Accessed Only: When the [Scan Type on page 521](#) field is set to **Priority Monitor**, and when the radio is model/option capable.

7.11.2.4

Dynamic Priority

This field enables you to define the last channel that the radio's Scan Mode has landed and transmitted on to become the new Priority Member 2 channel.

This channel remains the Priority 2 channel until a new channel is transmitted on, or until Scan Mode is disabled. This feature applies for the current Scan List.



IMPORTANT:

Activate Dynamic Priority with a [Dynamic Priority](#) button-press or [Dynamic Priority](#) menu selection.

The [Priority Member 1 on page 530](#) channel is not affected.

Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional**.

7.11.2.5

Priority 1 - Type

This field selects the type of Priority Member 1 scan used for the current Scan List.

See also [Priority Channel PTT](#).

Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional**, **Priority Monitor**, or **Intelligent Priority**.

The following selections are supported:

Disabled

The [Priority Member 1 on page 530](#) channel is disabled.

Fixed

The Priority 1 channel is selected from the [Priority Member 1 on page 530](#) field and cannot be changed.

Selected Channel

The radio uses the current Channel Selector selected channel as the Priority Member 1.

Operator Select

Uses the selected [Priority Member 1 on page 530](#). However, you are able to modify this choice, through the [Scan List](#) menu-selection.



NOTE: Both Priority 1 - Type and [Priority 2 - Type on page 524](#) cannot be set to **Selected Channel**; either one must be different.

7.11.2.6

Priority 2 - Type

This field selects the type of Priority Member 2 scan used for the current Scan List.

Accessed Only: When the [Scan Type on page 521](#) field is set to **Priority Monitor** or **Intelligent Priority**, or (when the [Scan Type on page 521](#) field is set to **Conventional**, and when the [Dynamic Priority on page 524](#) field is **Disabled**).

The following selections are supported:

Disabled

The [Priority Member 1 on page 530](#) channel is disabled.

Fixed

The Priority 2 channel is selected from the [Priority Member 2 on page 530](#) field and cannot be changed.

Selected Channel

The radio uses the current Channel Selector selected channel as the Priority Member 2.

Operator Select

Uses the selected [Priority Member 2 on page 530](#). However, you are able to modify this choice, through the [Scan List](#) menu-selection.



NOTE: Both [Priority 1 - Type on page 524](#) and Priority 2 - Type cannot be set to **Selected Channel**; either one must be different.

7.11.2.7

Non-Priority Members

This field selects whether the status of a Priority Scan List Member channel can be changed to a Non-Priority status.

This feature applies for the current Scan List.

Accessed Only: When the [Scan Type on page 521](#) field is not set to **Voting Scan**.

The following selections are supported:

Fixed

Scan List members that are programmed as having a [Priority Member 1 on page 530](#) or [Priority Member 2 on page 530](#) Scan List Member status cannot be changed.

Operator Selectable

Scan List members that are programmed as having a Priority Member 1 or Priority Member 2 Scan List Member status can be changed to a Non-Priority status, through the [Scan List](#) menu-selection.

7.11.2.8

Designated Voice Tx Member Type

This field selects the desired landed scan voice transmit channel type (fixed or variable) for the current Scan List.

This selection applies while operating in Scan Mode and once a Scan List Member channel has been landed.



IMPORTANT: This field is not available when the [Scan Type on page 521](#) field is set to **Voting Scan** and the [Tx Steering on page 527](#) field is **Enabled**, since the radio must use Talkback for Tx Steering.

Accessed Only: When the [Scan Type on page 521](#) field is not set to **Voting Scan**, or when the [Tx Steering on page 527](#) field is **Disabled**.

The following selections are supported:

Fixed

Allows you to select the designated/fixed transmit voice channel from the current Scan List.

The channel selection must then be made from the [Designated Voice Tx Member on page 530](#) field.



WARNING:

Fixed Voice Tx Members only work when the [Scan Type on page 521](#) field is set to **Conventional** or **Voting Scan**; and do not work when set to **Priority Monitor** or **Multi-System Talkgroup** scan.

Fixed Voice Tx Members do not work if the selected Conventional channel has its [Receive Only Personality on page 365](#) field **Enabled**.

Selected Channel

Causes the radio to transmit voice on the radio's currently-selected channel/mode (Conventional or Trunking communications).



WARNING:

Does not work if the radio's current Conventional channel has its [Receive Only Personality on page 365](#) field **Enabled**.

Does not work if the radio's current Trunking channel has its [Transmit Mode on page 486](#) field set to **TG/AG Disabled (Listen-only)**.

Talkback

Causes the radio to transmit voice on the radio's currently landed - [Scan List Member](#) channel/mode (Conventional or Trunking communications).

7.11.2.9

Designated Data Rx/Tx Type

This field selects the landed scan Common Air Interface (CAI) transmit data channel type (fixed or variable).



NOTE: [Scan List Members](#) are selected from the current Scan List. This selection applies while operating in Scan Mode and once a Scan List Member channel has been landed.

Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional**.

The following selections are supported:

None

Data scan is disabled.

Fixed

Allows you to select the designated/fixed transmit data channel from the current Scan List.

The data channel selection must then be made from the [Designated Data Member on page 529](#) field.



WARNING:

Fixed Data Tx Members only work when the [Scan Type on page 521](#) field is set to **Conventional**.

Fixed Data Tx Members do not work if a Conventional Personality that references a **Fixed** Scan List has its [Receive Only Personality on page 365](#) field **Enabled**.

Selected Channel

Causes the radio to transmit data on the radio's currently selected channel/mode (Conventional or Trunking communications).



WARNING: If [data](#) features are not available on the channel, data scan is inoperable.

7.11.2.10

Data Tx Limited Patience Timer

This field defines the waiting duration of the radio to transmit data while in Scan Mode.

When the timer expires, the data is discarded. This selection applies to the current Scan List. The value of this field is in seconds.



NOTE:

Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional**, and when the [Designated Data Rx/Tx Type on page 526](#) field is not set to **None**, and when the radio is model or option dependent.

When set to **Infinite**, data transfer wait time of the radio is unlimited.

Table 290: Range

Minimum	Maximum	Increments
1 s	255 s	1 s

7.11.2.11

Voting Scan Delay Timer

This field defines the waiting duration of the radio before voting or selecting while actively scanning in either **Voting Scan** or **Conventional Mixed Vote Scan**.

See the [Mixed Vote Scan Enable on page 388](#) field.

See also the **Conventional** and **Voting Scan** selections from the [Scan Type on page 521](#) field.

For Voting Scan or Conventional Mixed Vote Scan, several repeaters rebroadcast the same transmission simultaneously on different frequencies. The radio is then able to select the strongest or clearest signal. This selection applies for the current Scan List.



NOTE: Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional** or **Voting Scan**, and when the radio is model or option dependent.

Table 291: Range

Minimum	Maximum	Increments
0 ms	255 ms	5 ms

7.11.2.12

Display Strongest Voted Channel

This field enables the landed scan Voting Scan channel to appear in the display of the radio.

When in a Voting Scan system, several repeaters rebroadcast the same transmission simultaneously on different frequencies. The radio is then able to select the strongest or clearest signal when in scan mode. The Voting Scan landed channel is based on the Received Signal Strength Indication (RSSI). See also the **Conventional** and **Voting Scan** selections from the [RSSI Voting Threshold on page 519](#) and the [Scan Type on page 521](#) fields. This feature applies for the current Scan List.



NOTE: Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional** or **Voting Scan**, and when the radio is model or option dependent.

7.11.2.13

Tx Steering

This field enables the transmit (Tx) frequencies of each Scan List Member to vary in a Voting Scan System.

See the [Scan Type on page 521](#) field, **Voting Scan** selection.

When disabled, all repeaters on the Voting Scan System are assumed to receive on the same frequency, thus all Tx frequencies must be equal.



NOTE: Accessed Only: When the [Scan Type on page 521](#) field is set to **Voting Scan**, and when the radio is model/option capable.

7.11.2.14

Mixed Conventional Vote Scan Inactivity Timer

This field defines the waiting duration of the radio, when actively scanning in Conventional Mixed Vote Scan, before starting to scan additional frequencies or channels when no qualified activity has been found on the two currently strongest frequencies in the current Scan List.

The value of this field is in minutes.

 **NOTE: Accessed Only:** When the [Scan Type on page 521](#) field is set to **Conventional**.

Table 292: Range

Minimum	Maximum	Increments
1 m	255 m	1 m

7.11.2.15

Position

This read-only field is assigned by RadioCentral and identifies the order of the item in a list.

 **NOTE: Accessed Only:** When the radio is model or option dependent.

7.11.2.16

Zone

This field selects a zone for the current Scan List Member (record or row) within the current Scan List.

When you select this zone, a channel from the zone must then be selected for the same record or row. See also the [Zones Channel Assignment](#) window.

 **WARNING:** If the extended feature **Dynamic Zone Scan Capability** is not available, Dynamic Zones are invalid, and cannot be selected (zones that have [Dynamic Zone Enable](#) enabled). Otherwise, Dynamic Zones can be selected.

Remote Site Interface (RSI) zones are invalid and cannot be selected (zones that have [RSI Mode](#) enabled).

7.11.2.17

Channel

This field selects a channel for the current Scan List Member (record/row) within the current Scan List.

The Scan List Member Zone field must be selected for the same record/row before this channel selection is possible.



WARNING:

For conditions that determine a valid channel selection for the different Scan List Types, refer to the [Scan Type on page 521](#) selections.

When the [Coverage Type on page 446](#) field for the referenced Trunking System is set to **Inter-WACN Roaming** and the Scan Type is **Multi-System Talkgroup**, then the [TG WACN ID](#) and [TG System ID](#) of the [Trunking Talkgroup on page 511](#) assigned to this channel selection must match the Home WACN ID and System ID of the Trunking System. Otherwise the application considers this channel selection invalid.

The application considers this channel selection invalid when the [Designated Data Member on page 529](#) field is referencing an LTE Broadband enabled Conventional channel, and another Scan List Member channel (of the same Scan List) references a Conventional channel having its [LTE Interference Frequency Present](#) field set to **Enabled**, or a Trunking channel whose [LTE Interference Frequency Present](#) field is set to **True**. A conventional channel is LTE enabled when the Personality's referenced ASTRO Conventional System has a referenced Data Profile with a [Data Profile Type on page 319](#) equal to **Conventional & Broadband** or **Broadband-Only**, and when that Data Profile's [Broadband Source](#) is **Internal LTE Modem**.

When the extended feature "Dynamic Zone Scan Capability" is available, and the channel is a Dynamic Channel:

- If the [Scan Type on page 521](#) is set to **Voting Scan**, Dynamic Channel is not valid.
- If the [Scan Type on page 521](#) is set to **Conventional**, **Priority Mon**, or **Multi-System Talkgroup**, Dynamic Channel without any assignment is valid.
- If the [Scan Type on page 521](#) is **Conventional**, **Priority Mon**, **Multi-System Talkgroup**, or **Intelligent Priority**, Dynamic Channel with assignment are regarded as other normal channels.



NOTE: Accessed Only:

- The [Zone on page 528](#) field is not set to **Unassigned** and the zone is not a Dynamic Zone.
- The [Zone on page 528](#) field is not set to **Unassigned**.
- The zone is a Dynamic Zone with the availability of **Dynamic Zone Scan Capability**.

7.11.2.18

Designated Data Member

This field determines the landed scan Common Air Interface (CAI) transmit data channel.



NOTE: This Scan List Member is selected from the current Scan List. This selection applies while operating in Scan Mode and when the Scan List Member channel is landed.



WARNING: Applies only when this Scan List is referenced to a Conventional Personality that has the following conditions: [Rx Voice/Signal Type on page 365](#) field set to **Mixed Mode** or **ASTRO**, and has a referenced Conventional System with a referenced Data Profile which has its Terminal Data field **Enabled**, and when the ASTRO OTAR Profile Index field is **Enabled** and not grayed-out.

Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional**, and when the [Designated Data Rx/Tx Type on page 526](#) field is set to **Fixed**, and when it is not a Dynamic Zone and Channel, and when the radio is model or option capable.

7.11.2.19

Designated Voice Tx Member

This field selects the landed scan voice transmit channel.



NOTE: Scan List Members are selected from the current Scan List. This selection applies while operating in Scan Mode for the current Scan List, and once a [Scan List Member](#) channel has been landed.

Accessed Only: When the [Designated Voice Tx Member Type on page 525](#) field is set to **Fixed**, and (when the [Scan Type on page 521](#) field is not set to **Voting Scan**, or when the [Tx Steering on page 527](#) field is **Disabled**).



WARNING: This field is not available when the [Scan Type on page 521](#) field is set to **Voting Scan** and the [Tx Steering on page 527](#) field is **Enabled**, since the radio must use Talkback for Tx Steering.



WARNING:

Fixed Voice Tx Members only work when the [Scan Type on page 521](#) field is set to **Conventional** or **Voting Scan**; and do not work when set to **Priority Monitor** or **Multi-System Talkgroup** scan.

Fixed Voice Tx Members do not work if the selected Conventional channel has its [Receive Only Personality on page 365](#) field **Enabled**.

Fixed Voice Tx Members do not work if the selected Zone and Channel is Dynamic Channel.

7.11.2.20

Priority Member 1

This field selects a Priority 1 Scan List Member channel/mode for the current Scan List.

This Scan List Member channel is selected by its programmed record number from the current Scan List. When the radio is actively scanning a Scan List, 50% of the scans are targeted at the Priority Member 1 channel. See also [Priority Channel PTT](#).

Example: If the Priority Member 1 is P1, and the non-priority Scan List Members are Nn, then the scanning sequence is: P1 N1, P1 N2, P1 N3, P1 N4, P1 N5, etc.



IMPORTANT:

When the radio's speaker is unmuted to a non-priority call (Landed Scan Mode), or is unmuted on the [Priority Member 2 on page 530](#) (if one exists), the radio continues to scan for transmission activity on the Priority Member 1 channel. If the radio discovers a valid Priority 1 transmission, it drops the current transmission, and unmutes to the Priority 1 call. See also [Priority Channel Marking on page 517](#) and [Time Between Priority Samples on page 518](#).

When the radio is in Landed Scan Mode for a Priority Member 1 call, priority member checking is not necessary.

Accessed Only: When the [Scan Type on page 521](#) field is set to **Conventional**, **Priority Monitor**, or **Intelligent Priority**, and when [Priority 1 - Type on page 524](#) is not set to **Selected Channel** or **Disabled**.

7.11.2.21

Priority Member 2

This field selects a Priority 2 Scan List Member channel/mode for the current Scan List.

This Scan List Member channel is selected by its programmed record number. When the radio is actively scanning a Scan List, 33.33% of the scans are targeted at the Priority Member 2 channel. When a Priority Member 2 exists, scan checks for the [Priority Member 1 on page 530](#) are reduced from 50% to 33.33%.

Example: If the Priority Member 1 is P1, the Priority Member 2 is P2, and the non-priority Scan List Members are Nn, then the scanning sequence is: N1 P1 P2, N2 P1 P2, N3 P1 P2, etc.



IMPORTANT:

When the radio's speaker is unmuted to a non-priority call (Landed Scan Mode), the radio continues to scan for transmission activity on the Priority Member 2 channel. If the radio discovers a valid Priority 2 transmission, it drops the current transmission, and unmutes to the Priority 2 call. See also [Priority Channel Marking on page 517](#) and [Time Between Priority Samples on page 518](#).

If the radio is in Landed Scan Mode on a Priority 2 call, and it discovers a valid Priority 1 transmission, it drops the Priority 2 call and unmutes to the Priority 1 call.

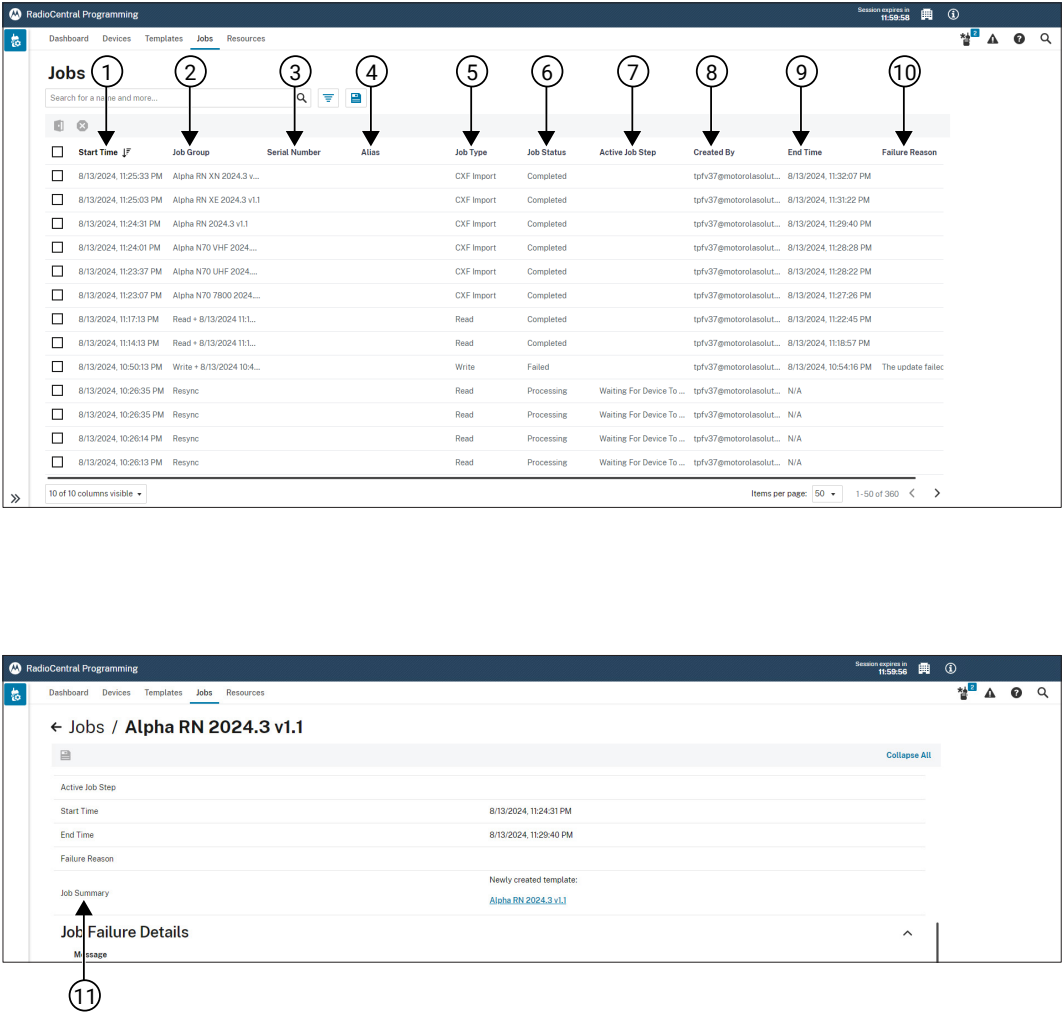
When [Priority 2 - Type on page 524](#) field is set to **Operator Select** or **Fixed**, and (when the [Scan Type on page 521](#) field is set to **Priority Monitor** or **Intelligent Priority**, or when the [Scan Type on page 521](#) field is set to **Conventional**, and when the [Dynamic Priority on page 524](#) field is **Disabled**).

Chapter 8

Jobs View

The Jobs View displays more information on jobs such as job time, job type, job status, and failure reason.

Figure 24: Overview of the Jobs Interface



Annotation	Name	Description
1	Start Time	The time when the job starts.
2	Job Group	The name associated with all the device jobs scheduled in a group.

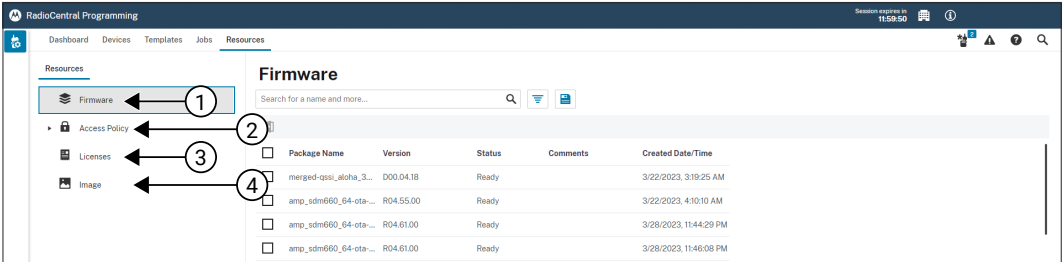
Annotation	Name	Description
3	Serial Number	The device serial number that performs the job.
4	Alias	The alias of the device that performs the job.
5	Job Type	The type of job scheduled. Types include Read, Write, Edit in CPS, Publish from CPS, CXF Export, CXF Import, Device/System Key Import , File Export, and File Import.
6	Job Status	The following statuses are supported: Completed The job is successful. Processing A job is being scheduled. Queued A job is in the queue waiting to be processed. Failed The job has failed. The reason for the failure is described in the Reason column. The user also can open the job detail page to access more details about the failure reason. Canceled The job is canceled by the user. Completed with Error The imported job is completed with some error records.
7	Active Job Step	The current step of the job.
8	Created By	The party who created the job.
9	End Time	The time when the job is completed.
10	Failure Reason	Reason for a failed job.
11	Job Summary	The summary of the job with details of exported or imported records.

Chapter 9

Resources View

The Resources menu allows you to quickly access the most common functions used to configure a RadioCentral system.

Figure 25: Overview of the Resources Interface



Annotation	Name	Description
1	Firmware	Allows you to view the radio firmware versions stored in the RadioCentral.
2	Access Policy	Allows you to upload the hardware keys or software keys to RadioCentral as access policy to control the edit permissions for protected fields.
3	Licenses	Allows you to manage radio licenses to enable FLASHcode upgrades for devices.
4	Image	Allows you to upload images to customize the power up and radio inhibit screen.

9.1 Uploading Access Policy Key

Procedure:

1. Go to **Resources** → **Access Policy** → **Upload Key**.
2. In the **Upload System Keys** window, upload the key by using the following options:

 **NOTE:** Access policy keys are not shareable. Each user needs to upload their own key.

- To upload the key from a physical dongle, click the **Add from Dongle** button.
- To upload the software keys from the local drive, click the **Add Files** button.

 **NOTE:** Multiple software keys can be uploaded at one time.

3. Set the expiration of the access key policy based on the following options:

Table 293: Expiration of the Access Policy

Expiration	Description
From the key	The access policy expiration same as the key.
1 hour	The access policy expires one hour after the key is uploaded.
4 hours	The access policy expires four hours after the key is uploaded.
12 hours	The access policy expires 12 hours after the key is uploaded.

4. Click the **Upload** button.

Postrequisites: Go to **Access Policy**, to check the details of the uploaded keys.

Chapter 10

Troubleshooting

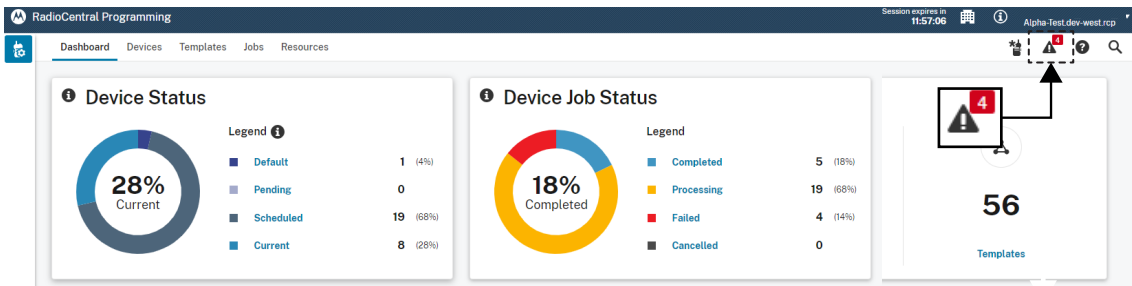
The RadioCentral provides validation errors for you to access and take action to resolve the errors.

10.1 Accessing Validation Errors

This feature allows you to access and validate global errors triggered from any operations in RadioCentral.

Procedure:

1. Click the **Validation Errors** icon.



The **Template Library Validation Errors** window containing all the errors pops up.

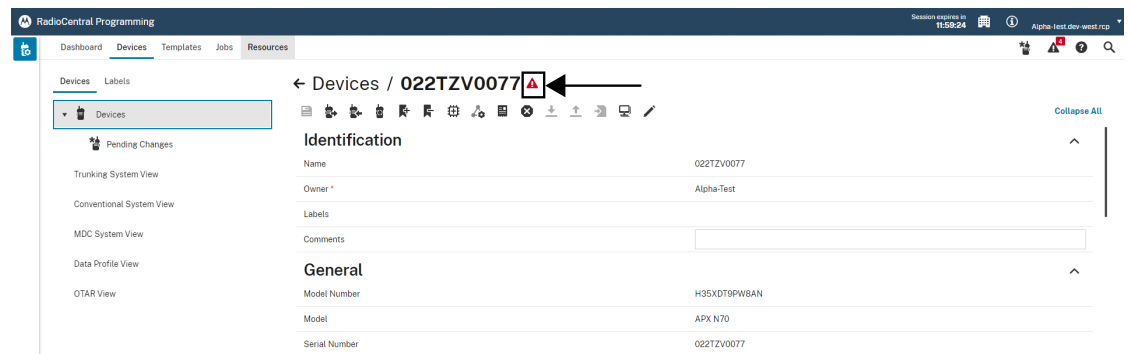
 **NOTE:** If the list is too long, use the search or filter function to find the error.

Template Library Validation Errors (54)							
Search for a name and more...							
Collection/Ele...	Location	Affects	Field	Table	Row	What	Why
Devices	4377281704	4377281704	Radio ID	Trunking IDs	1	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)
Devices	4377281704	4377281704	Radio ID	Trunking IDs	2	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)
Devices	4377281704	4377281704	Radio ID	MDC Conventional IDs	1	Out of Range	The Radio ID field is invalid because it must be between 1 and 65,534 (0xFFFFE)
Devices	4377281704	4377281704	Radio ID	ASTRO Conventional IDs	1	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)
Devices	4377281704	4377281704	Radio ID	ASTRO Conventional IDs	2	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)
Devices	4377281704	4377281704	Custom Power Up Image		1	Missing/Invalid v...	The Custom Power Up Image field is invalid because it is not set when the Custom Power Up Image Enable in Radio Wide is Enabled
Devices	4377281704	4377281704	Radio ID	ASTRO Conventional IDs	1	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)
Devices	4377281704	4377281704	Radio ID	MDC Conventional IDs	1	Out of Range	The Radio ID field is invalid because it must be between 1 and 65,534 (0xFFFFE)
Devices	4377281704	4377281704	Custom Power Up Image		1	Missing/Invalid v...	The Custom Power Up Image field is invalid because it is not set when the Custom Power Up Image Enable in Radio Wide is Enabled
Devices	4377281704	4377281704	Radio ID	Trunking IDs	1	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)
Devices	4377281704	4377281704	Radio ID	Trunking IDs	2	Out of Range	The Radio ID field is invalid because it must be between 1 and 16,777,211 (0xFFFFF8)

2. Perform one of the following actions:
 - To view the error location, click the required template under **Location** column.

- To view the error device, click the required template under **Affects** column.

 **NOTE:** To view more details on an error, hover over the red **Error** icon next to the title or scroll the page to the specific fields with an error icon.



- To view a detailed failure reason, scroll to the right to the **Why** column.

 **NOTE:** Maximize the window to view more complete information.

Table	Row	What	Why
Type	1	Out of Range	The Channel Type field is invalid because it cannot be Trk
Type	1	Out of Range	The Channel Type field is invalid because it cannot be Trk
Type	1	Out of Range	The Channel Type field is invalid because it cannot be Trk
Type	1	Out of Range	The Channel Type field is invalid because it cannot be Trk
Type	1	Out of Range	The Channel Type field is invalid because it cannot be Trk
Type	1	Out of Range	The Channel Type field is invalid because it cannot be Trk

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