

Changing a Radio's Personality

3

The MaxTrac RSS has the ability to modify the conventional personalities of the MaxTrac 25,50,100 and 300 models. Personality changes can affect the radio on a “radio wide” basis or on a “by mode” basis. “Radio Wide” means that items like Time-Out Timer and Second Priority Scan Frequency are the same for every mode. Other items like frequency and PL can be changed on a “by mode” basis.

Radio Wide Information

There are five parameters that are assigned on a radio-wide basis. They are: Time-Out Timer, Second Priority Scan Mode, Priority Sample Rate, Handset Muting, Talk Back Scan, Off Hook PL/DPL, Zone Mode Display and Emergency Alarm.

Note: Firmware versions earlier than 5.35 do not support Off Hook PL/DPL operation.

Mode Information

Each mode contains the following information: Receive and Transmit Frequencies, Receive and Transmit Squelch Type and Mode-Slaved Scan List. The maximum number of modes is limited by the model of the radio. Modes must be continuous and start with Mode 1. Mode sequences such as 1, 2, 5, 8, 9 or 3, 4, 5 are not allowed. Each mode must have a valid receive frequency. The transmit frequency may be left blank. Squelch Types must be assigned, but scan lists may be blank.

Frequency

Frequencies are assigned to the radio on a “by Mode” basis. A radio can be programmed to any frequency in the band as long as it is within the maximum frequency separation. Refer to your Radio Service Manual for the separation limits. The RSS will not allow you to exceed these limits.

For LOW BAND, VHF and UHF radios, R.F. frequencies must be in multiples of 5.0 kHz or 6.25 kHz in order to be synthesized. For 800 MHz radios, the R.F. frequencies must be in multiples of 12.5 kHz. To test for this, take the R.F. frequency and divide it by 5.0, 6.25, or 12.5 kHz. The result must be an integer which can be synthesized. The RSS will not allow you to enter frequencies that cannot be synthesized.

Squelch Type

The three squelch types – Tone Private-Line (TPL), Digital Private-Line (DPL), and Carrier Squelch (CSQ) – can be independently assigned to each Receive and Transmit frequency. For TPL, use Motorola Standard codes or any frequency between 67 Hz and 250 Hz in 0.1-Hz increments. For DPL, however, only Motorola standard codes must be used.

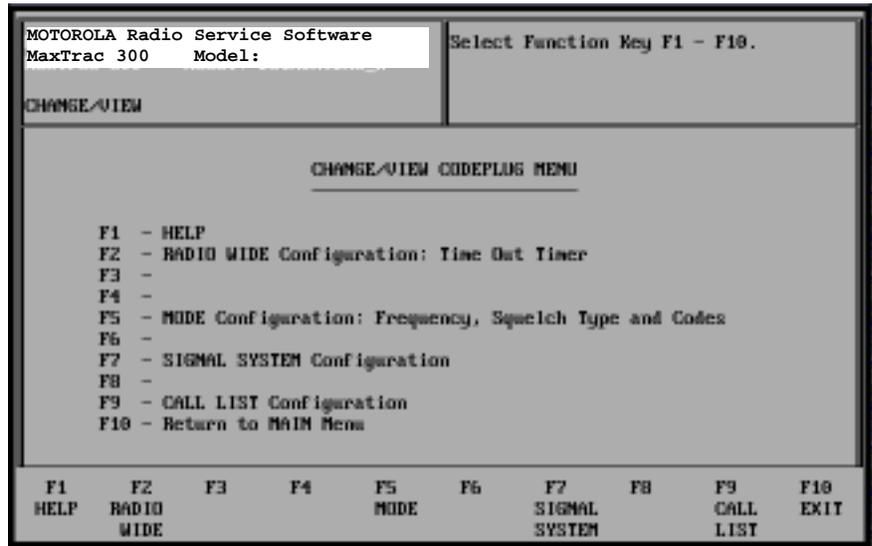
Mode-Slaved Scan Lists

The MaxTrac 300 model can have scan lists slaved to each mode. Only non-priority frequencies may be included in the list. The first priority frequency is always the frequency of the mode displayed on the front panel when the scan is turned on. The second priority is radio wide and is therefore the same for every mode. The second priority is selected on the RADIO WIDE CONFIGURATION screen. See Part 4 for information on programming scan lists.

Change/View Menu



Press **F4** at the MAIN MENU to display the CHANGE/VIEW MENU. The CHANGE/VIEW MENU screen has four active function keys.



Function **F2** allows changes to the Time-Out Timer and the Scan Second Priority Channel. Function **F5** allows changes to the modes. These include Frequency, Squelch Type, PL/DPL codes and Mode Scan Lists (MaxTrac 300 only). Data fields may be edited as described in Part 1. Functions **F7** and **F9** are used for signaling radios and will be discussed in Part 4.

Radio Wide Configuration Screen



Press **F2** at the CHANGE/VIEW MENU to bring up the RADIO WIDE CONFIGURATION screen. The screen lists information about the radio.

Note: Only some fields on this screen will be detailed here. A discussion of other radio wide parameters can be found in Part 4.

MOTOROLA Radio Service Software MaxTrac 300 Model:					Use UP / DOWN Arrows To Enable.				
CHANGE/VIEW:RADIO WIDE									
RADIO WIDE CONFIGURATION									
MODEL INFORMATION					OPTIONS (Cont.)				
BSIMJASDWS_K	.....	.60	WATT		ZONE/MODE DISPLAY	.....	DISABLED		
LOW BAND	.....	42.0	- 50.0	MHz	PRIORITY 2 SCAN MODE	.....	OFF		
SQUELCH	.....			Coded	PRIORITY SAMPLING RATE	.....	SLOW		
CONVENTIONAL MODES	.....	.32			SCAN TALK BACK	.....	N		
SERIAL NUMBER	.....	80GSALUAN			EMERGENCY ALARM	.....	NONE		
OPTIONS					ACC. INTERNAL.....NONE				
TIME OUT TIMER	.....	060			ACC. EXTERNAL	.....	PUBLIC ADDRESS		
HANDSET	.....	N			ACC. CUSTOM	.....	N		
OFF HOOK PL/DPL	.....	N							
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
HELP	MORE			PRINT				OTHER	EXIT
	RAD WIDE			SCREEN				ACCESSRY	

Handset

The radio needs to be aware of when a handset microphone is connected to it so that it can mute the loudspeaker when the handset is removed from the hang-up clip. Use the up/down arrows to select “N” to disable muting or “Y” to enable muting.

Note: Earlier Maxtrac RSS versions do not support this feature.

Time-Out Timer

Move the cursor to the Time-Out Timer data field using the **Enter** or **Tab** keys. Now, use the up/down arrows to select the desired time. The display will change in one-second increments. The data field entry may also be modified by typing either the desired time or “OFF”. The valid range is OFF to 255 seconds.

Off-Hook PL/DPL

If this option is enabled, going “off-hook” with a microphone on a channel receiving the wrong PL/DPL code will not unscquelch the radio. The monitor button still functions normally, unscquelching the radio regardless of PL/DPL code. The off/hook PL/DPL can be programmed as a radio-wide function by selecting “Y” to enable it or “N” to disable it.

Zone/Mode Display

Enables/disables the Control Head option for displaying the mode as a Zone/Mode combination. The RSS always references the actual radio mode number, not the zone/mode displayed by the control head. (Press **F1** while in this field to refer to the radio mode number table.) Zone/mode display and mode name aliasing are compatible. If Mode 2 is aliased as Mode name 49, the Control Head will display this as Zone/Mode G1.

Priority 2 Scan Mode	<p>Scanning radios have two priority frequencies that are scanned periodically regardless of channel activity. In mode-slaved scan, the first priority is the current mode displayed when the scan is activated. The second priority is set as a radio-wide option and is selected/ disabled in this field. Enter the mode, or select “OFF” to disable second priority scan. If mode is invalid, you will be prompted for a new value.</p> <p>Note: Only certain MaxTrac models are capable of scanning receive mode frequencies.</p>
Priority Sampling Rate	<p>When the channel scan is stopped on a non-priority channel, it will periodically “look-back” at the priority channel. The rate at which this “look-back” occurs is the priority sampling rate. There are two rates available: “slow” which is 1.5 seconds (default) and “fast” which is 0.5 seconds between “look-backs”.</p> <p>Note: Earlier Maxtrac RSS versions do not support this feature.</p>
Scan Talk Back	<p>When the microphone is removed from the hang-up clip, conventional channel scan can stay on the current busy channel (“talk back”) or it can revert to the Home Mode (“home revert”). Select “Y” for “talk back” and “N” for “home revert”.</p>
Emergency Enable	<p>Emergency is a radio-wide feature used instead of a mode feature to allow emergency to be available even when the radio is on a non-signaling mode. You may select “Standard”, “Silent” or “None”. It is recommended that you set this field to “None” whenever there is no emergency.</p>
Revert Mode	<p>This field can be seen only if Emergency Enable is “standard” or “silent”. If Emergency Enable is not set to “none”, you must select the mode that will be used to transmit the emergency sequence. When a mode is chosen, the radio will revert to the mode whenever the operator activates Emergency. If you want the Emergency sequence to transmit on the current operator-selected mode, choose “none” in this field.</p> <p>Note: If “None” is selected, every mode must be capable of transmitting an emergency sequence (that is, the TX signaling system must be MDC-1200 or STAR).</p>
Acc. Internal	<p>Internal accessories are accessories that are physically placed inside the radio and do not actually use the accessory connector. Connections are made internal to the radio but the pin functions are still used. At this time, there is only one internal accessory: the DTMF Decoder Board. The decoder should be installed in the radio BEFORE programming this function. Select “enable” or “disable” with the up/down arrow keys.</p>

Acc. External

This field is an indicator **ONLY**. Its value cannot be modified on this screen. Three external accessories connect to the radio via the expanded accessory connector. These are: Public Address, Remote, and General I/O.

Use the **F9** (Other Accessory) function to view the CONNECTOR/PIN FUNCTION CONFIGURATION MENU.

Note: Switching external accessories using the up/down arrow keys (that is, altering the default setting) will cause any external accessory information modified from the default to be lost. Recover information by re-reading the codeplug is necessary.

Acc. Custom

The accessory connector flag will change to “Y” (Customized) if you use the **F9** function to bring up the ACCESSORY CONNECTOR CONFIGURE MENU and change (customize) any of the pin functions on the connector.

Mode Configuration Screen



Press **F5** at the CHANGE/VIEW MENU to display the MODE CONFIGURATION screen. This screen allows you to change the receive and transmit frequencies, select squelch type and change PL/DPL codes. There are also six function keys available to handle Modes and Scan lists.

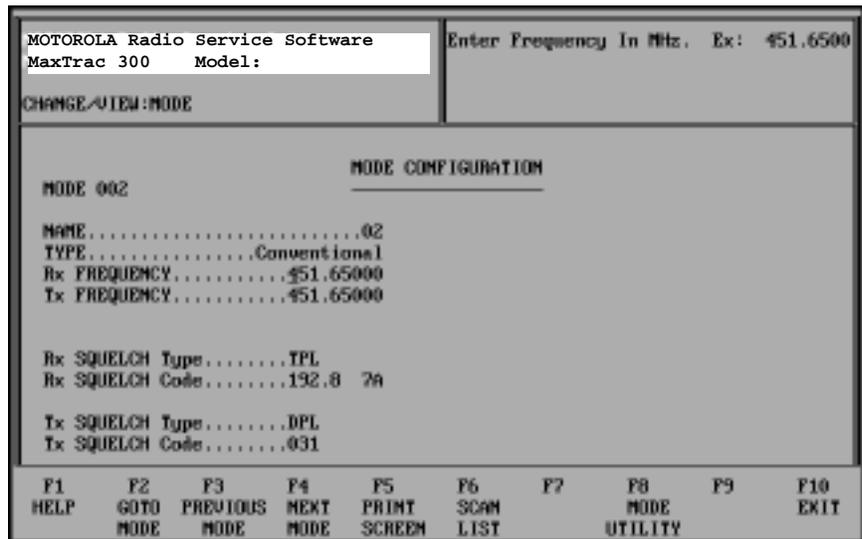
Changing Radio Frequency

Move the cursor to either TX or RX frequency data field using the **Enter** or **Tab** keys. Enter the new frequency in MHz. If the new frequency is out of band or cannot be synthesized, you will be prompted for a correct frequency. Blank TX frequencies may be entered by typing a 'B' in the data field. RX frequencies may not be entered as blank.

Changing Squelch Type

Move the cursor to the Squelch Type data field. There is one data field for the receive frequency and one for the transmit frequency. Use the up/down arrow keys to select the squelch type.

There are three squelch types available: Carrier, TPL and DPL. If TPL or DPL is selected, a data field will appear so that you can enter TPL or DPL codes as the case may be. Move the cursor to this data field and enter the TPL/ DPL codes. TPL codes can be entered as exact frequencies or code numbers (e.g. 3A). For DPL, valid codes must be entered. Invalid entries will be rejected and the previous code will be displayed again.



F2 - Go To Mode

This function allows you to go to the mode you want to modify without stepping through the modes in-between. Press **F2** to move the cursor to the Mode Number data field. Type the desired mode and press **Enter**. The screen will now change to the desired mode.

F3 & F4 - Previous and Next Mode

The **F4** function will advance the screen to the next mode. If you are at the last mode in the radio, press **F4** to return to Mode 1. The **F3** function will return you to the previous mode. If you are at Mode 1, **F3** will take you to the last mode in the radio.

F5 - Print Screen

F5 will send the currently displayed Mode to the printer.

F6 - Scan List

This function allows you to modify the Mode Slaved Scan List for the Mode displayed on the screen. See “Changing the Mode Slaved Scan List” in Part 4 for details on how to use this screen.

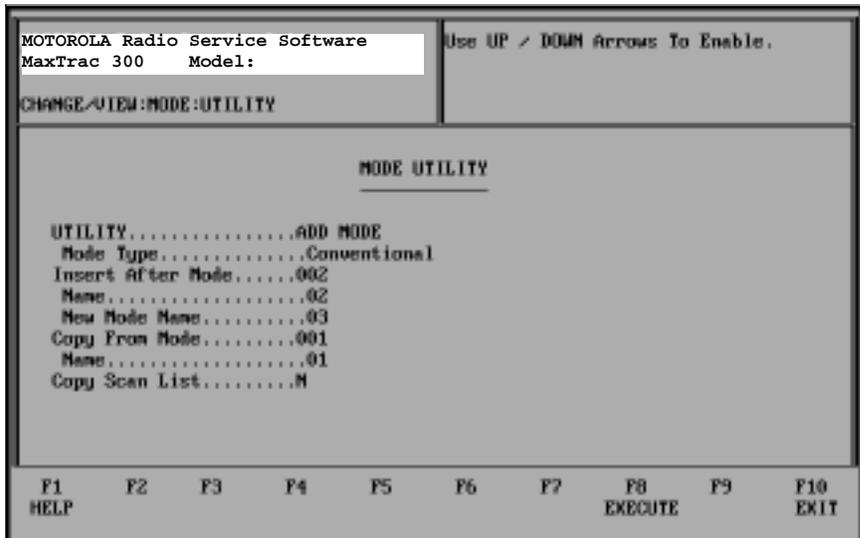
F8 - Mode Utility

This function allows you to modify the modes in the radio. Modes can be added, deleted, copied or moved. Refer to the “Using Mode Utilities” section below for details on how to use this screen.

Using the Mode Utilities



Pressing **F8** at the MODE CONFIGURATION screen will cause the MODE UTILITY screen to be displayed. With the cursor on the Utility data field, use the up/down arrow keys to select one of the four utilities.



The Add Mode function allows you to add modes to the radio. Move Mode allows you to move mode information to a new mode number. Delete Mode allows you to delete modes from the radio. Copy Mode allows you to copy mode information from one mode to another. Each of these utilities is described below.

Adding a New Mode (Channel)

The Add Mode utility allows you to add modes to the radio if this feature is available for the model being serviced. The new mode can be added to the end of the list or inserted between existing modes. When inserting a new mode, the RSS will renumber the existing modes above the new one. New modes must be created from existing modes. However, they can be modified later in the MODE CONFIGURATION screen. You can add a mode as follows:

1. Move the cursor to the Insert after Mode field and enter the mode number that you want to precede the new mode. For example, if you want to insert a new mode at position 4, enter a 3 first. The existing Mode 4 and all other modes below it will be incremented automatically by one.
2. Move the cursor to the Copy from Mode field. Now enter the number of the mode you desire to copy mode information from. This field must be filled to create a new mode. If all present modes do not match the desired new mode, pick the closest one and modify the new mode on the MODE CONFIGURATION screen.
3. Move the cursor to the Copy Scan List field. If you wish to use the Mode-Slaved Scan List of the mode you are copying, use the up/down arrow keys to put a 'Y' in this data field. If you want to create a new scan list or do not want a scan list for this mode, put a 'N' in this data field.

4. Press **F8** to insert the new mode. Now press **F10** to return to the MODE CONFIGURATION screen, or use the utility again to add another mode. To select a new utility, use the up/down arrow keys.

Moving a Mode (Channel)

This utility allows you to change the mode number of a currently defined mode. Follow the steps listed below to move a mode:

1. Move the cursor to the Mode to Move field. Enter the current number of the mode to be moved.
2. Move the cursor to the Insert after Mode field and enter the mode number that you want to precede the mode to be moved. If the mode is being moved down, modes between the old and new position will be shifted up one mode. If the mode is being moved up, modes between the old and new position will be moved down one mode.
3. Press **F8** to move the mode. Now press **F10** to return to the MODE CONFIGURATION screen, or use the utility again to move another mode. To select a new utility, use the up/down arrow keys.

Deleting a Mode (Channel)

This utility allows you to delete modes from the radio. Follow the steps below to remove a mode:

1. Move the cursor to the Mode to Delete field. Enter the number of the mode to be deleted. Modes above the deleted mode will be shifted down one mode.
2. Press **F8** to delete the mode. Now press **F10** to return to the MODE CONFIGURATION screen, or use the utility again to delete another mode. To select a new utility, use the up/down arrow keys.

Copying a Mode (Channel)

This utility allows you to copy one mode over another mode. This utility will replace rather than insert (as in the Add Mode utility). To copy a mode, follow these steps:

1. Move the cursor to the Mode to Copy from data field and enter the number of the mode you want to copy.
2. Move the cursor to the Mode to Copy to field and enter the number of the mode you want to copy over.
3. Move the cursor to the Copy Scan List field. If you would like to use the Mode-Slaved Scan List of the mode you are copying from, use the up/down arrow keys to put a 'Y' in this data field. If you want to create a new scan list or do not want a scan list for this mode, put an 'N' in this data field.
4. Press **F8** to copy the mode. Now press **F10** to return to the MODE CONFIGURATION screen, or use the utility again to copy another mode. To select a new utility, use the up/down arrow keys.