COBHAM

SAILOR 6222/6248/6249 VHF and SAILOR 6300 MF/HF Service Tool

User manual

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1 Introduction

The S6000 radio series[1] has a built-in web server with a web interface to set up the radio and channel settings. This web server constitutes the service tool and is intended for use by authorized personnel only. The web interface is accessed from a computer connected to the LAN and is displayed in an Internet browser. Currently only Mozilla Firefox is supported. No additional installation of software is needed.

2 Connecting the radio to the service tool

2.1 Connecting to a radio without a network

The radio can be accessed using a standard PC with automatic network configuration. Connect the radio to the computer using a LAN cable and the Ethernet interface. After start-up of the radio, the radio's current IP address will be visible in the **SYSTEM SETUP** menu on the radio. For installed control units, the IP can be found in the menu **CONTROLLER SETUP**. In these menus the item **IP**: appears with the radio's IP-address.

Use Mozilla Firefox 3.6 and type the radio's IP address in the address line of the browser.

EXAMPLE: http://169.254.70.103

This will open the default configuration page of the radio. Now you can configure the radio.

2.2 Connecting to a radio using a network

As soon as the radio is connected to the network and switched on, it attempts to require an available IP address from the network. If this process is successful, then the radio has received a network IP address. This address can be read out in the **SYSTEM SETUP** menu of the radio or it can be found in the configuration of the network's DHCP server. For installed control units, the IP can be found in the menu **CONTROLLER SETUP**. If you want to see the IP address in the DHCP server configuration, see the manual for the DHCP providing equipment.

Use Mozilla Firefox 3.6 and type the radio's IP address in the address line of the browser.

EXAMPLE: http:// 169.254.70.103

This will open the default configuration page of the radio. Now you can configure the radio.

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[1] Exception: SAILOR 621x VHF radios.

2.3 Precautions using the service tool

WARNING: While using the service tool the network cable must not be removed or disconnected from neither the PC nor the radio.

WARNING: Do not operate the radio while using the service tool.

WARNING: While using the service tool power to the radio may not be switched off. Violation of the precautions above can result in a defect radio, which only can be repaired by the manufacturer.

WARNING: When the changes are applied in the service tool, reboot the radio before usage.

WARNING: Changes made with the service tool are the service agents' responsibility. Changes must be in conformance with radio specifications and regulations.

WARNING: Power cycle the radio before use of radio after end use of the service tool.

3 Using the service tool

The service tool in the radio is used to perform changes to settings and enable new features such as adding channels or updating the radio.

The following sections of the service tool are described in detail:

- Getting access to the radio

- Status of the device

- Configuration of the radio

- Software Upload

- Troubleshooting

3.1 Getting access to the radio

In order to protect the radio from inadvertent configuration by the ordinary user, you need a password to enter the service tool and get access to the radio configuration. Password can be entered in the **ADMINISTRATION** menu.

Click the **ADMINISTRATION** page to display the following view:

Figure 1: **ADMINISTRATION page for a VHF**.

To login and use the service tool you must fill in these two fields with the following information:

- Username: **admin**

- Password: **sailorsailor**

After correct entry of the username and password, the service tool displays:

User is now logged in as Administrator

Now the radio is ready for configuration. You can configure channel tables, change the configuration and upload new software to the radio.
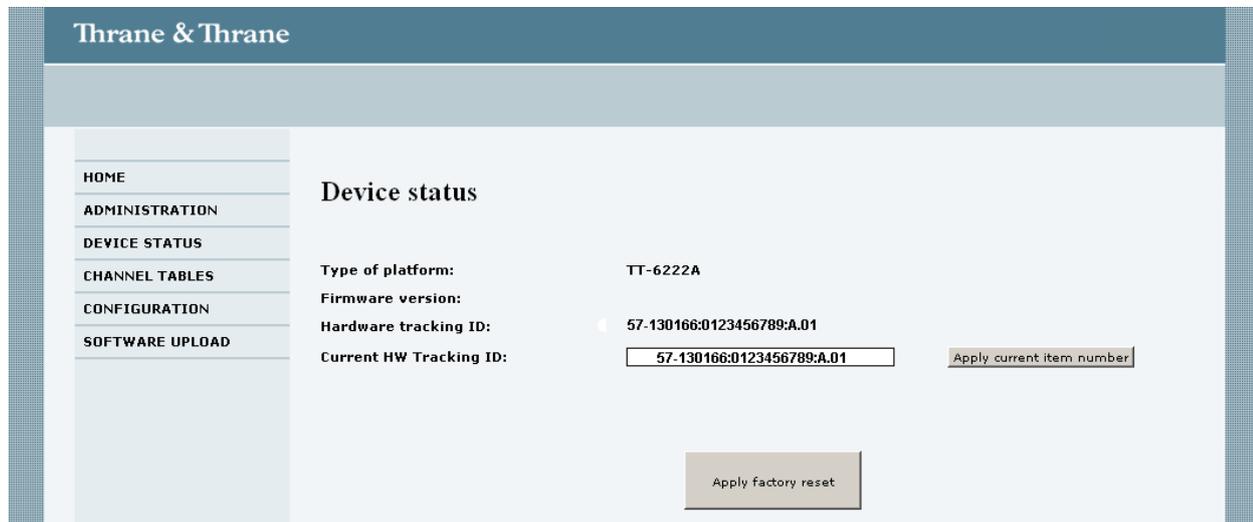
3.2 Status of the device

Figure 2: **DEVICE STATUS page for a VHF**.

The Device Status page is an information page that is used to show the current platform and hardware configuration in the radio.

The field Current HD Tracking ID can be used in terms of service, when the hardware in the radio is updated, then a new serial number can be applied here.

The "Apply factory reset" button can be used if the operator wants to return to the default configuration of the radio. This means removing all settings in the channel tables, configurations, MMSI etc.

3.3 Working with channel tables

Use this menu to configure the radio channel setting. Press the **CHANNEL TABLES** menu to display a submenu with the different modes or areas of the radio.

- For **VHF**: INT, BI, CA, US, ALT, Private, CA WX, US WX

- For **MF/HF**: ITU Channels 2MHz, ITU Channels 4MHz, ITU Channels 6MHz, ITU Channels 8MHz, ITU Channels 12MHz, ITU Channels 16MHz, ITU Channels 18MHz, ITU Channels 22MHz, ITU Channels 25MHz, Private channels.

The method how to configure the channel tables is the same for VHF and MF/HF, though the menus on the pages will appear differently.

3.3.1 Channel tables for VHF

For the VHF radio, the INT, BI, CA and US page will look almost as the international channel table as shown below in Figure 3:

Figure 3: Service tool: CHANNEL TABLES: INT for VHF (6222).

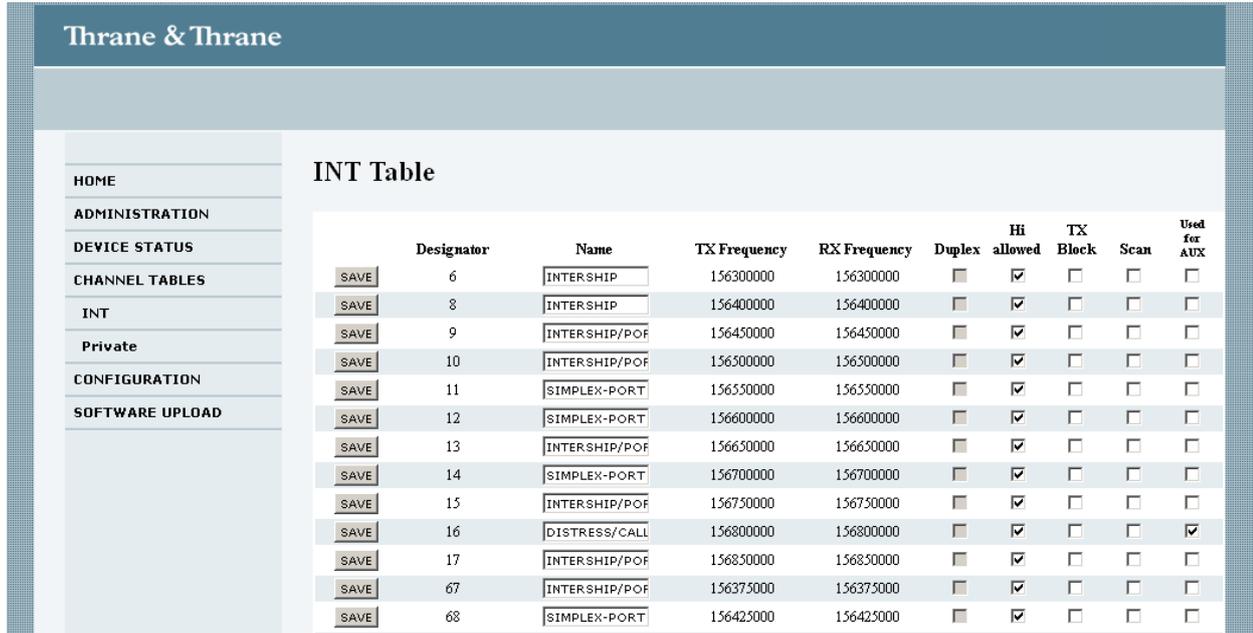Figure 4: Service tool: CHANNEL TABLES: INT for VHF (6248).

Figure 5: **Service tool**: **CHANNEL TABLES**: **INT for VHF (6249)**.

Fill in the respective fields and click the button **SAVE** for each channel.

VHF CHANNEL TABLES	Description
Name	The Name field is used as the channel descriptor, which is the text present below the channel designator. Name lengths up to 13 characters are possible.
Duplex	Indicates that the channel is a duplex channel. This tag can not be removed by operator.
Hi allowed	This channel may transmit with high power.
TX Block	Select this tag in order to block transmitting on this channel.
Wideband	This tag indicates that the channel is a channel with 25 kHz channel spacing. If the tag is not present the channel spacing is 12.5 kHz. This tag can not be removed by operator.
Scan	Select this tag to include this specific channel in the scanning table. Note that tagging all channels to be scanned will increase the time between scanning each separate channel.
ATIS	Select the ATIS tag on this channel in order to transmit ATIS at the end of every voice transmission. This means that the ATIS code inserted under **CONFIGURATION** will be transmitted before shutting down the transmitter.
DSC Prop.	Select the DSC propose tag in order to propose using this channel when using DSC cell calls. The channel that can be selected for DSC sub-communication is restricted to channels tagged with DSC Prop.

Used for AUX	This column is used to select a channel, which is used for AUX settings. Only a single channel can be selected. Configuration of the AUX port is set under CONFIGURATION.

3.3.2 Channel tables for MF/HF

For the MF/HF radio the ITU channel pages looks almost like the 2MHz band as shown in the following figure.

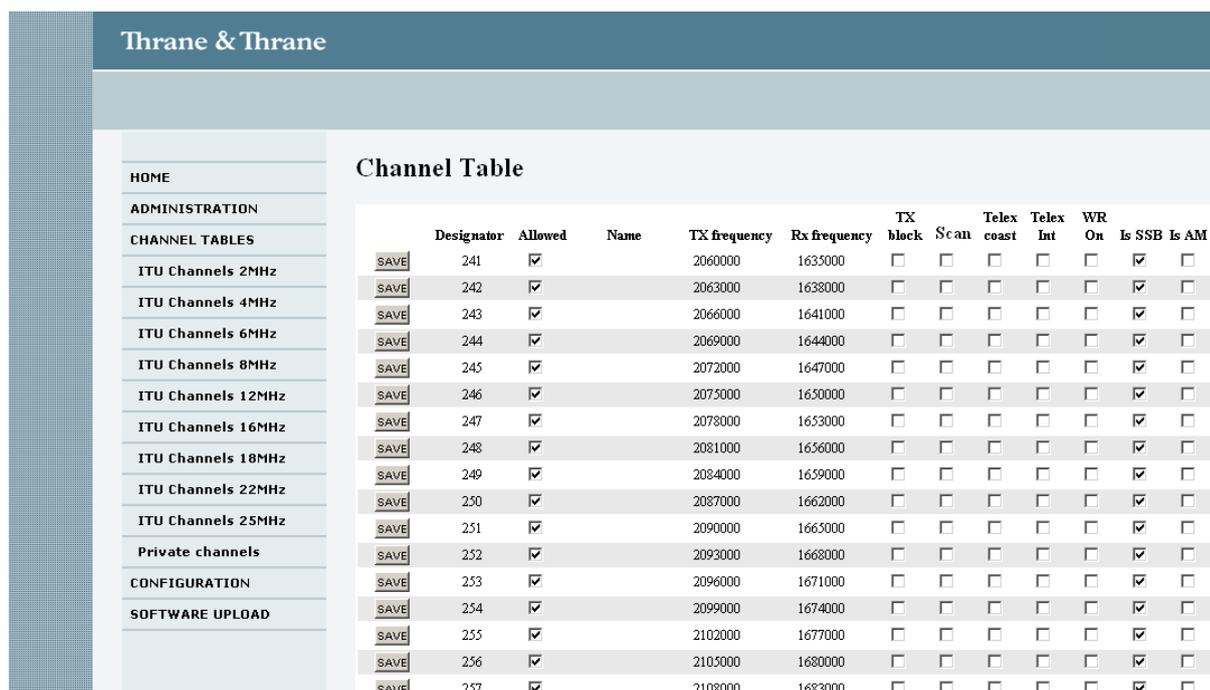**Figure 6**: Service tool: CHANNEL TABLES: ITU Channels 2MHz on a MF/HF

Fill in the respective fields and click the button **SAVE** for each channel.

MF/HF CHANNEL TABLES	Description
Allowed	Select this tag to indicate if a given channel is present in the radio or not. Removing a tag removes the channel from the channel table in the radio even though the channel is normally present in a given mode.
TX Block	Select this tag in order to block transmitting on this channel.
Scan	Select this tag to include this specific channel in the scanning table. Note that tagging all channels to be scanned will increase the time between scanning each separate channel.
Telex coast	Select this tag to mark the channel for Telex coast station. It is *not* recommended to change this setting.
Telex Int.	Select this tag to mark Telex used intership. This is preprogrammed as an ITU setting. It is *not* recommended to change this setting.

WR On	Select this tag to use watch receiver on this channel. It is *not* recommended to change this setting.
Is SSB	Select this tag to identify the channel as an SSB channel.
Is AM	Select this tag to identify the channel as an AM channel.

3.3.3 Private channels for VHF

For private channels in the VHF radio the **CHANNEL TABLES** page looks as follows:

Figure 7: **Service tool**: **CHANNEL TABLES**: **Private for VHF (6222)**.
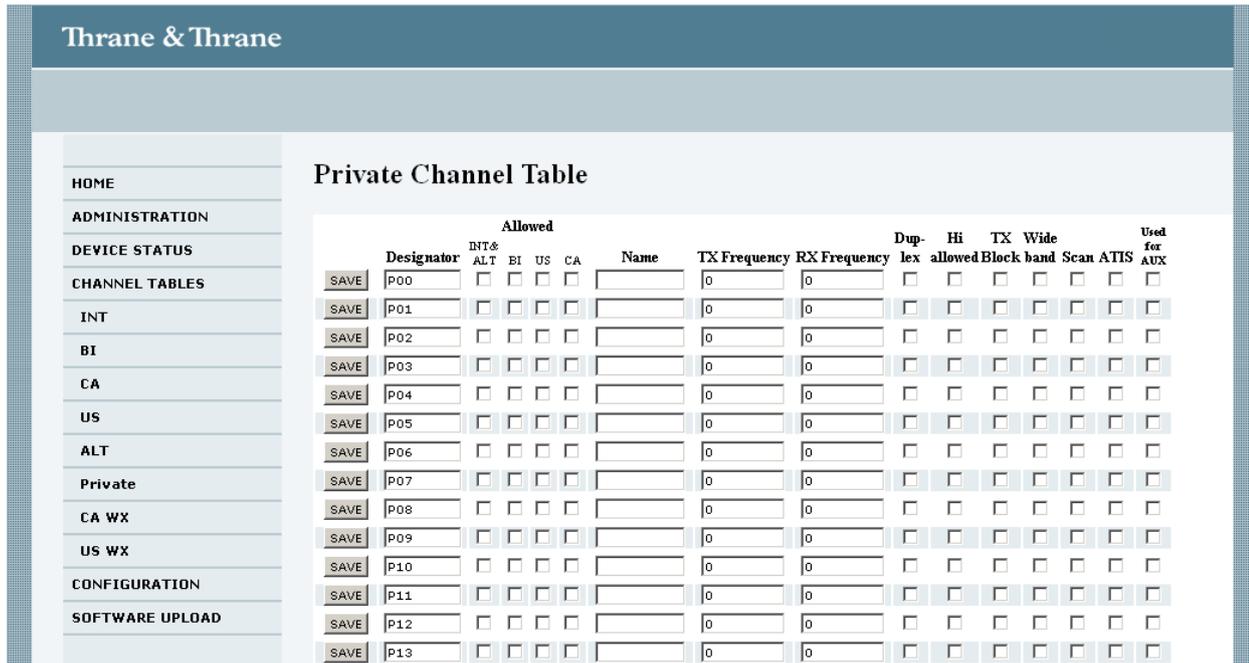
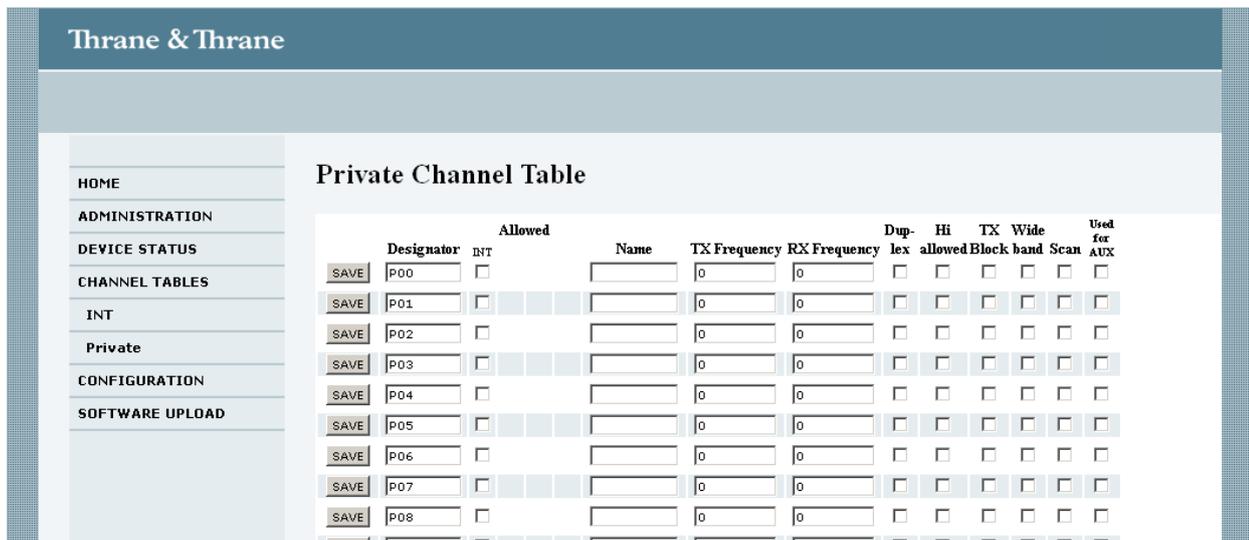Figure 8: Service tool: CHANNEL TABLES: Private for VHF (6248).

Figure 9: Service tool: CHANNEL TABLES: Private for VHF (6249).

In the page **Private** you can add private channels. These channels will be visible in the respective channel modes (INT/ALT, BI, US, CA) in the radio if they are selected under **Allowed** section.

Fill in the respective fields and click the button **SAVE** for each channel.

VHF CHANNEL TABLES	Description
Designator	The designator is the number or text shown as the large text in the radio's display when selecting this channel.
Allowed	Select this tag for the channel to be visible in the respective channel modes (INT/ALT, BI, US, CA) in the radio. Private channels allowed for INT are also available in ALT mode and visa versa.
Name	Enter a suitable name for the channel. This text will be shown below the designator in the display of the radio.
TX frequency	Enter the TX frequency for this channel.
RX frequency	Enter the RX frequency for this channel.
Duplex	Select this tag if the channel is a duplex channel. The channel spacing must be 4.6 MHz.
Hi allowed	Select this tag if this channel as allowed to transmit at high power.
TX Block	Select this tag in order to block transmitting on this channel.
Wideband	Select this tag to mark the channel as a channel with 25 kHz channel spacing. Removing this tag makes the channel spacing 12.5 kHz.
Scan	Select this tag to include this specific channel in the scanning table. Note that tagging all channels to be scanned will increase the time between scanning each separate channel.
ATIS	Select the ATIS tag on this channel in order to transmit ATIS as the end of every voice transmission. This means that the ATIS code inserted under **CONFIGURATION** will be transmitted before shutting down the transmitter.
DSC Prop.	Select the DSC propose tag in order to propose using this channel when using DSC cell calls. The channel that can be selected for DSC sub-communication is restricted to channels tagged with DSC Prop.
Used for AUX	This column is used to select a channel, which is used for AUX settings. Only a single channel can be selected. Configuration of the AUX port is set under CONFIGURATION.

3.3.4 Private channels for MF/HF

The private channels in the MF/HF radio the **CHANNEL TABLES** page looks as follows:
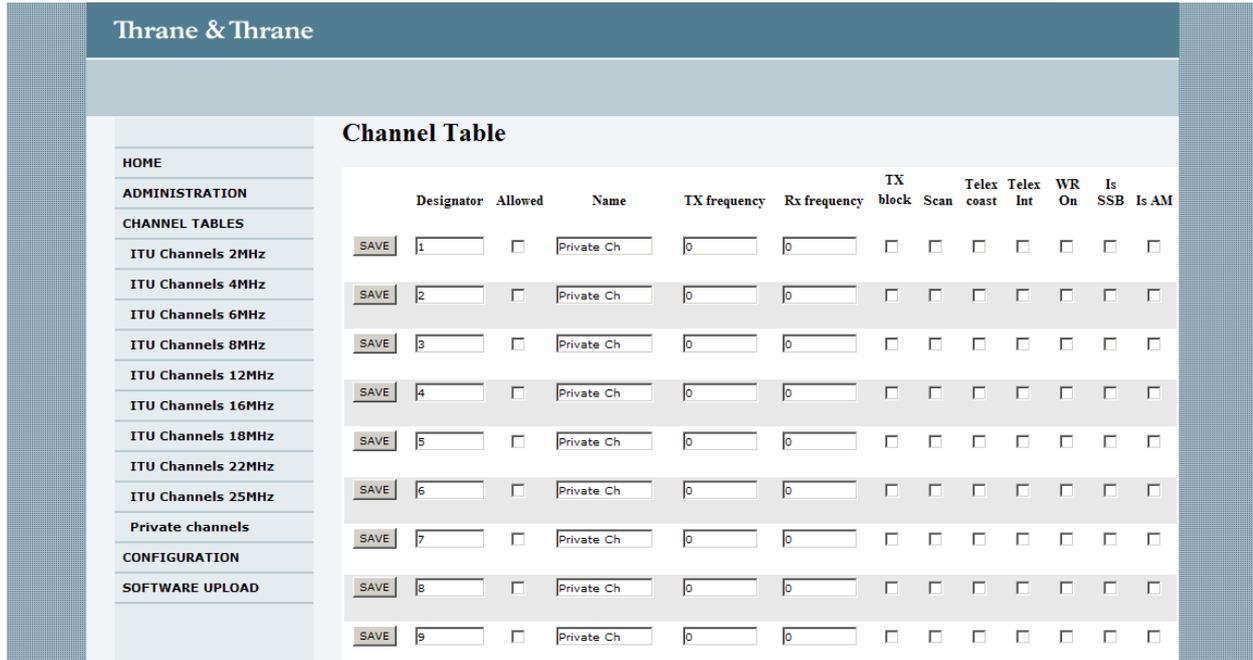
Figure 10: Service tool: CHANNEL TABLES: Private channels for MF/HF.

Fill in the respective fields and click the button **SAVE** for each channel.

MF/HF CHANNEL TABLES	Description
Designator	The designator is the number or text shown as the large text in the radio's display when selecting this channel.
Allowed	Select this tag for the channel to be visible in the respective ITU channel mode.
Name	Enter a suitable name for the channel. This text will be shown below the designator in the display of the radio.
TX block	Select this tag in order to block transmitting on this channel.
Scan	Select this tag to include this specific channel in the scanning table. Note that tagging all channels to be scanned will increase the time between scanning each separate channel.
Telex coast	Select this tag to mark the channel for Telex coast station. It is *not* recommended to change this setting.
Telex Int.	Select this tag to mark Telex used intership. This is preprogrammed as an ITU setting. It is *not* recommended to change this setting.
WR On	Select this tag to use watch receiver on this channel. It is *not* recommended to change this setting.
Is SSB	Select this tag to identify the channel as an SSB channel.
Is AM	Select this tag to identify the channel as an AM channel.

3.4 Configuration of the radio

Choosing **CONFIGURATION** in the menu makes it possible to set several radio parameters, like MMSI number, and primary vs. duplicate installation and other parameters are available.

3.4.1 Configuring the VHF radio

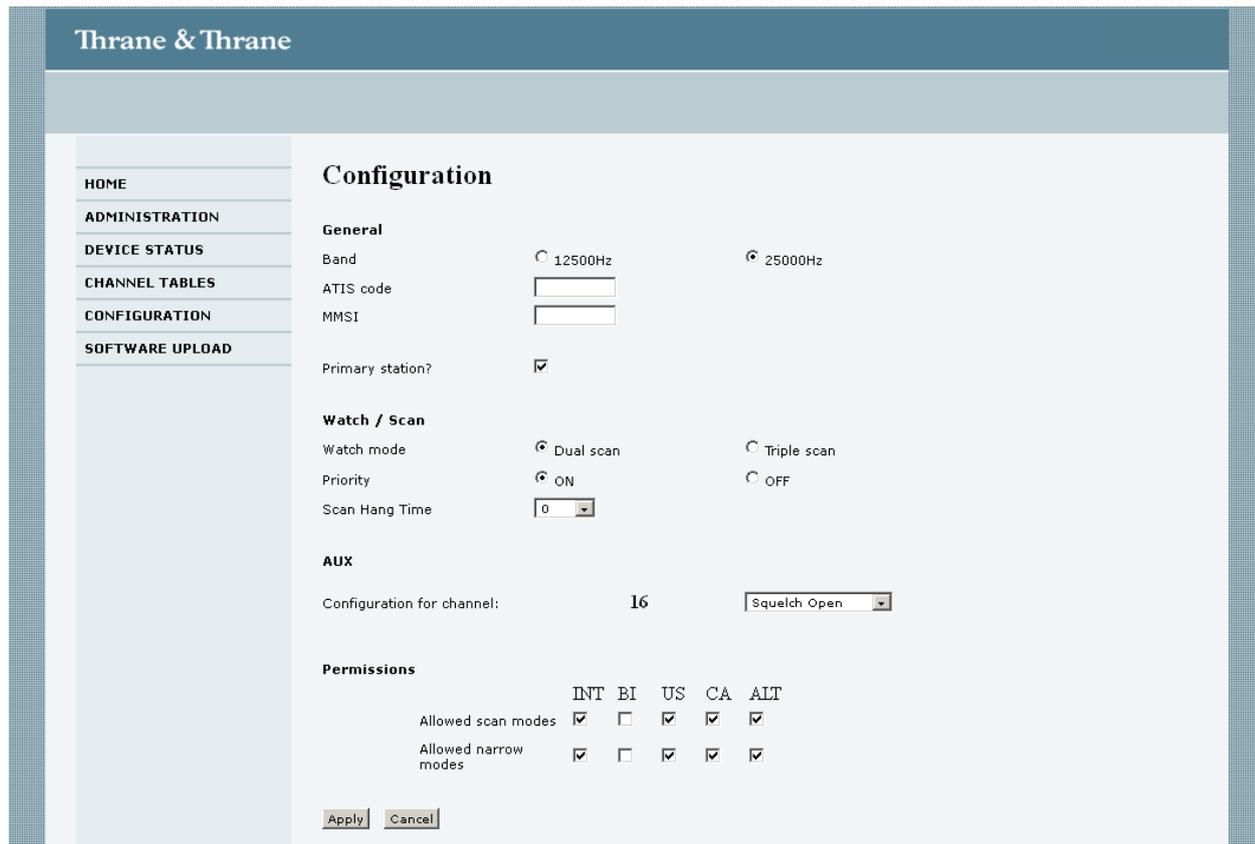The following figure shows the **CONFIGURATION** page for VHF radio.

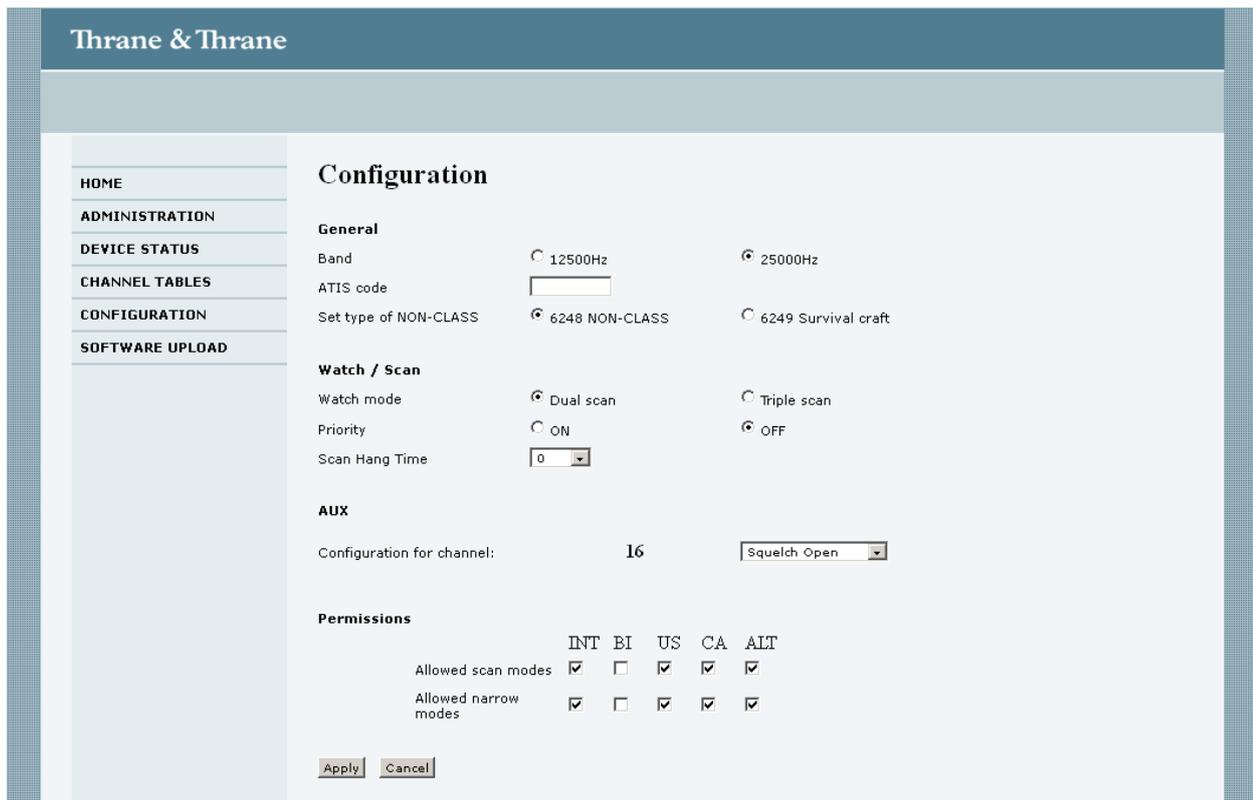**Figure 11: CONFIGURATION page for a VHF (6222).**

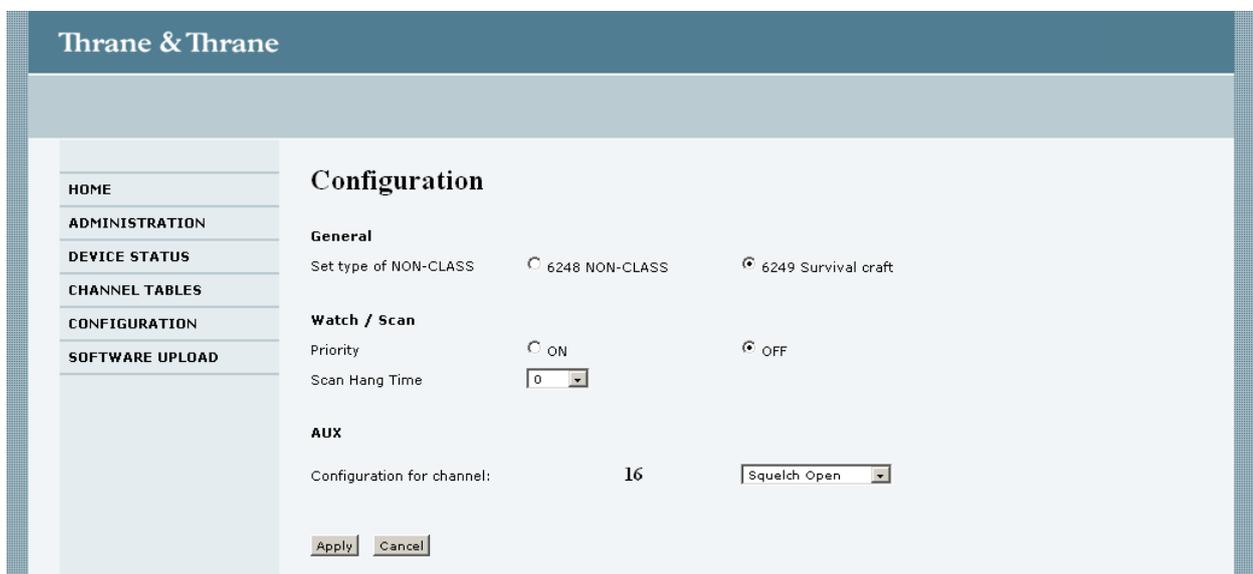**Figure 12: CONFIGURATION page for a VHF (6248).**

Figure 13: CONFIGURATION page for a VHF (6249).

Fill in the respective fields and click the button **APPLY**.

CONFIGURATION - VHF	Description
Band	Select between 12.5 kHz and 25 kHz channel spacing.
ATIS code	Enter or change the ATIS code. The ATIS code will be transmitted in the end of each voice transmission. The ATIS code format is 9 digits like the MMSI.
MMSI	Enter or change the MMSI number of the radio. The format of MMSI is 9 digits.
Primary station?	Select this tag if you want this radio to have priority over a duplicate VHF installation.
Watch mode	Select whether you want the dual (current channel and DSC) or triple watch mode (current channel, DSC and one more channel).
Priority	Priority mark is to enable priority scanning which means scanning the priority channel between every working channel scan. **ON**: W1 -> prio -> W2 -> prio -> W3 -> prio -> **OFF**: W1 -> W2 -> W3 ->
Scan hang time	Scan hang time, in seconds on an active receiving working channel. The time is measured from the signal is detected. The radio remains on the channel for the set time interval, if a signal was detected.
AUX	The channel selected for AUX (Used for AUX) will be present in bold, and the configuration – options on what the AUX port is to do, can be configured in the dropdown list. Default AUX channel is channel 16. Options are: OFF, Squelch open, On channel. If Squelch open is selected, the AUX port is activated when the squelch opens on the selected channel. If On channel the port is activated when the radio is on the selected AUX channel.
Permissions	Select the channel tables allowed for scanning and narrow modes.
Set Type of NON-CLASS	This is only present on S6248 and S6249, and is used to configure the radio as a 6248 or a 6249 radio.

3.4.2 Configuring the MF/HF radio

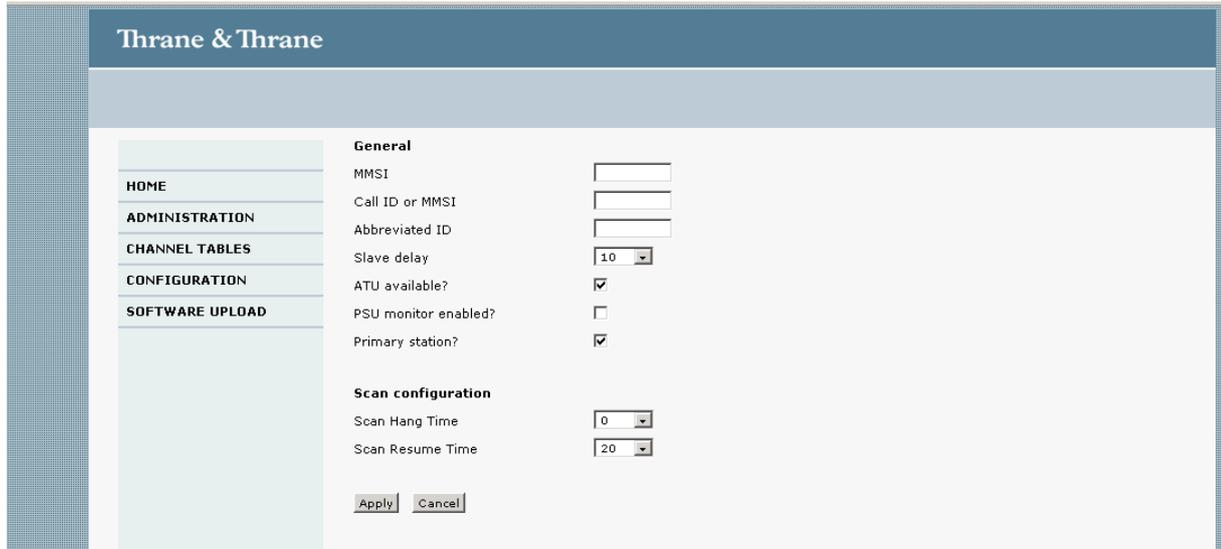The following figure shows the **CONFIGURATION** page for the MF/HF radio.

Figure 14: **CONFIGURATION page from a MF/HF**.

Fill in the respective fields and click the button **APPLY**.

CONFIGURATION - MF/HF	Description
MMSI	Enter or change the MMSI number of the radio.
Call ID or MMSI	This is the 5-digit Telex call id. If there is no 5-digit call id allocated you can use the 9-digit MMSI or leave the field empty.
Abbreviated ID	This is used for Telex identification and is part of the answer back string. The abbreviated ID is usually 4 ASCII letters, e.g. 'abcd'.
Slave delay	This is the slave frame delay used during Telex ARQ calls. 10 msec should be adequate for most installations.
ATU available?	Select this tag if the system has an ATU (Antenna Tuning Unit) connected. This enables the setup of the ATU. Note: Wrong selection may damage the Antenna Tuning Unit.
PSU Monitor enabled	If the radio's power supply is a SAILOR 6081 you can enable the Power Supply Monitor in the radio.
Primary station	Select this tag if you want this radio to have priority over a duplicate MF/HF installation.
Watch mode	Here you can select whether you want the dual (current channel and DSC) or triple watch mode (current channel, DSC and one more channel).
Scan hang time	Scan hang time, in seconds on an active receiving working channel. The time is measured from the signal is detected. The radio remains on the channel for the set time interval, if a signal was detected.

Scan resume time	Scan resume time, in seconds. When the programmed time of inactivity has elapsed, and when watch/scan has been aborted using a press on PTT, or after power-up, scan or watch is resumed.

The MMSI, Call-id and abbreviated ID are used to construct the telex answer back string. The rules for creating a valid answerback string are:

- Figure shift

- Carriage return

- Line feed

- 9-digit MMSI (or 5-digit call ID)

- Letter shift

- Space

- Abbreviated ID

- Space

- Letter shifts to bring the total length up to 20 characters

- X

The service tool will automatically add the figure shifts, letter shifts, spaces and the letter 'x' where appropriate. It is strongly recommended to check the telex settings on the SAILOR 6006 Message Terminal (Telex) when the settings above have been modified and the radio has been power cycled.

3.5 Software Upload

The software upload is a stepwise process. First the operator has to force the radio into safe mode and then upload the file.

To upload software to the radio, do as follows:

1. Go to the menu **SOFTWARE UPLOAD**.

2. Press the **Enter safemode** button (see Figure 15). This displays a new page asking the operator to wait.

3. Wait approximately 10 seconds until the page reloads, see Figure 16.

4. Upload the new firmware file using the browse functionality or type in the location of the file. The file to upload is a file with the extension .tgz, which can be downloaded from the Thrane & Thrane extranet. Upload file images are specific for the unit you want to update (VHF, MF/HF CU, MF/HF TU). See Figure 17.

5. Press **Upload** and wait until the radio reboots.

IMPORTANT:Do not press any key on the radio while updating or attempt to operate the service tool. Wait until the radio reboots, allow wait time up to 6 minutes. Do not power cycle, press any key or button in the browser, operate the radio, remove network cables or perform any actions on the PC while uploading.

IMPORTANT: When updating a MF/HF system you must always start by updating the CU, then update the TU. Remember to update all CU(s) and the TU.

IMPORTANT: Do not use a network with a DHCP server that assigns a new IP address each time network equipment is switched on. If the router assigns a new IP address each time, you can see it in the router. It is recommended to connect the radio as described in section 2.1, Connecting to a radio without a network.

The menu system in the browser does not work when safemode has been entered, because the radio is in a mode for software upload only.

Figure 15: Step 1 of software upload.

Pressing the **Enter safemode** button displays the following:

Figure 16: Step 2 of software upload.

Figure 17: Step 3 of software upload.

Pressing the **Upload** button displays the following:

Please wait, and allow the radio to reboot.

Figure 18: **Step 4 of software upload.**

When the process is done, and the radio reboots, safemode is exited and the upgrade is complete. The browser stays on the page shown in Figure 18. Shutdown the browser session and reconnect to the radio.

3.5.1 Troubleshooting

If the product is not restarting up until 6 minutes after the upload process was initiated – or if e.g. a power outage occurs during upload, then the product enters a **rescue mode** next time it is repowered.

In rescue mode there are no visible indications on the product.

In order to firmware update a product in rescue mode, perform the following steps:

1. Connect the product directly to a PC with an Ethernet cable.

2. Configure the PC with a static IP address: **192.168.0.10** and netmask: **255.255.255.0**

3. Install a **tftp server** on the PC – e.g. **OpenTftpServer**

    a. OpenTftpServer can be downloaded from: http://sourceforge.net/projects/tftp-server/

    b. During installation, uncheck request to start the server as a windows service

    c. Open a windows command shell, then enter the installation directory

    d. Execute the RunStandAloneMT.bat file

4. From the software release package rename the supplied xxx.**tiif** file to **s6000.tiif**

5. Place the **s6000.tiif** file in the root directory of the tftp server

6. Power-cycle the product. The product will automatically assign itself the IP address 192.168.0.20 and then immediately request the s6000.tiif file from the PC.

7. Allow the product to complete the file transfer and flash programming process, which is expected to be less than 3 minutes

8. The product automatically reboots and enters normal behavior after successfully completing flash programming.

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