

Extend frequency range Motorola Tetra portable & mobile radio's – DMO mode

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Introduction

Older models Motorola Tetra radios have a frequency range which ends at 430MHz. Of course, this is not usable for radio amateur use. Fortunately, it is possible to move the upper limit from 430 to 440MHz by adjusting the programming of the radio. Newer Motorola Tetra radios go up to 470MHz, so no expansion is necessary.

This guide explains how to expand the DMO frequency range of Motorola Tetra portable/mobile radios and complements the STTA Getting Started DMO. **It should only be used after first** having thoroughly read and fully understood **the STTA Getting Started DMO (GS)**.

Warnings

First, check if the radio needs an extension in the frequency range. Newer Motorola Tetra radios, as already noted, have a range of up to 470MHz.

Expanding the frequency range requires the use of the so-called Lab/Depot CPS software. This CPS software, intended for service organizations, allows the user to adjust *every* parameter in the radio. It is also possible to change parameters that don't need to be changed, or to **permanently** disable the radio. **Be warned, changes are at your own risk!**

Because the radios are originally intended for use *up to* 430MHz, the sensitivity at the top of the 70cm amateur band appears to be lower than desired *on some radios*. For the time being, no adaptable solution has been found.

Disclaimer

As mentioned, there is no guarantee of any kind on the procedure described. Motorola has not designed these older radios for the amateur band, that reprogramming is possible at all is pure luck!

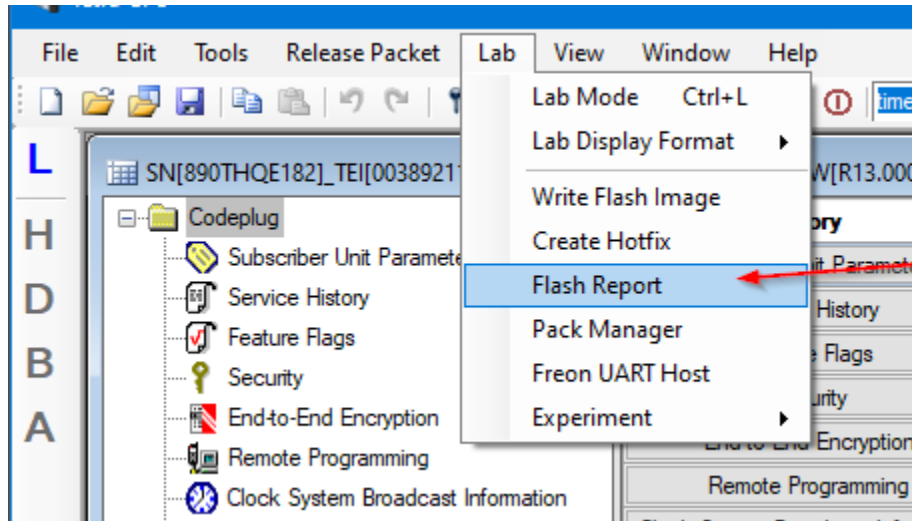
General

Install the **Lab version** of CPS, as described in the GS. The regular CPS is not suitable for the described change.

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Steps

1. The first thing to do is to make a full backup (Motorola calls that a Flash report) of the radio. In case of emergency, this backup can be restored. See screenshot below. Making such a flash report backup can take in some cases several minutes, just be patient.



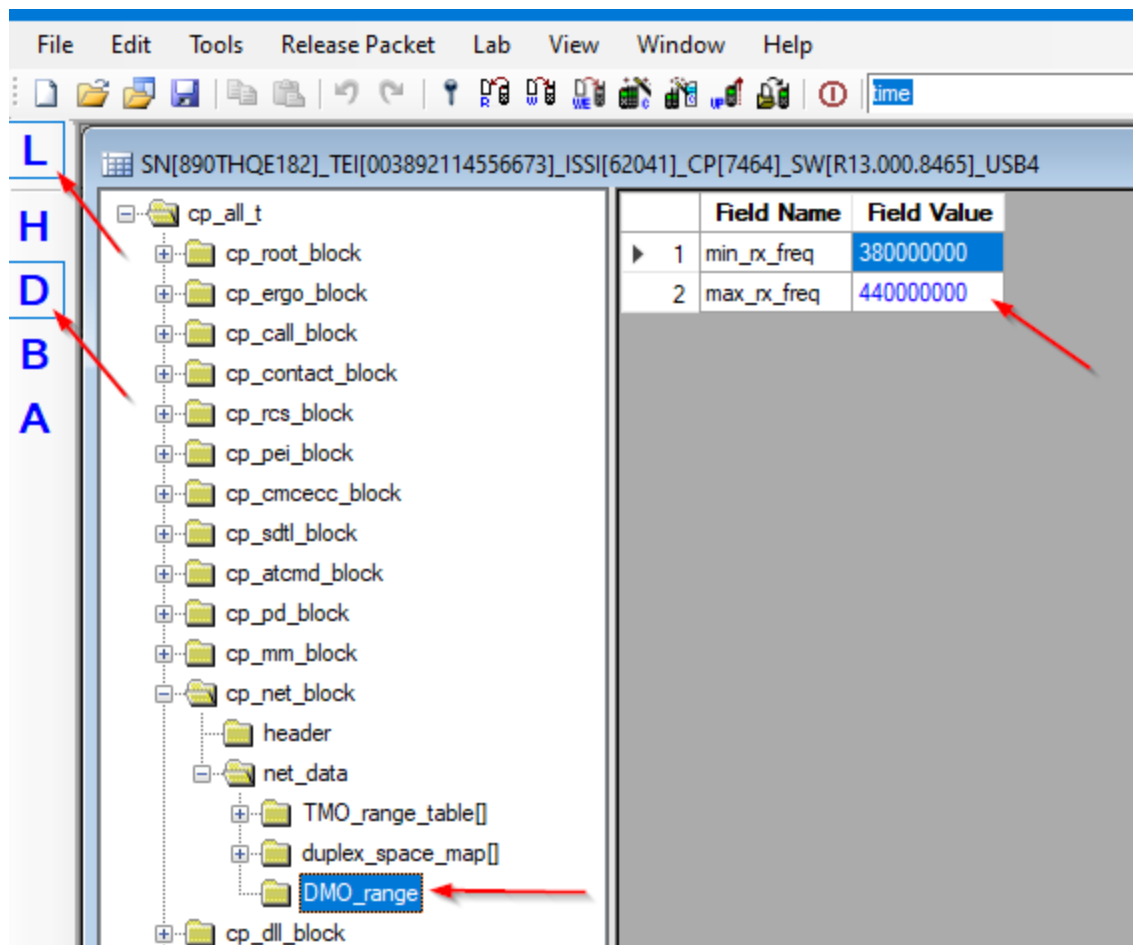
It is important to include the "Entire flash" in the backup:

Selected	Port	Model Name	Serial Name	TEI	Radio Version	Report Type	Start Address	End Address	Flash Image
<input checked="" type="checkbox"/>	USB4	MTP850 380-430MHz Full Band	890THQE182	003892114556673	MR5.14.9a Clear No-E2E (8465/7464)	Entire Flash	0x10000000	0x11FFFFFF	Z:\Archive\

2. Converting frequency range

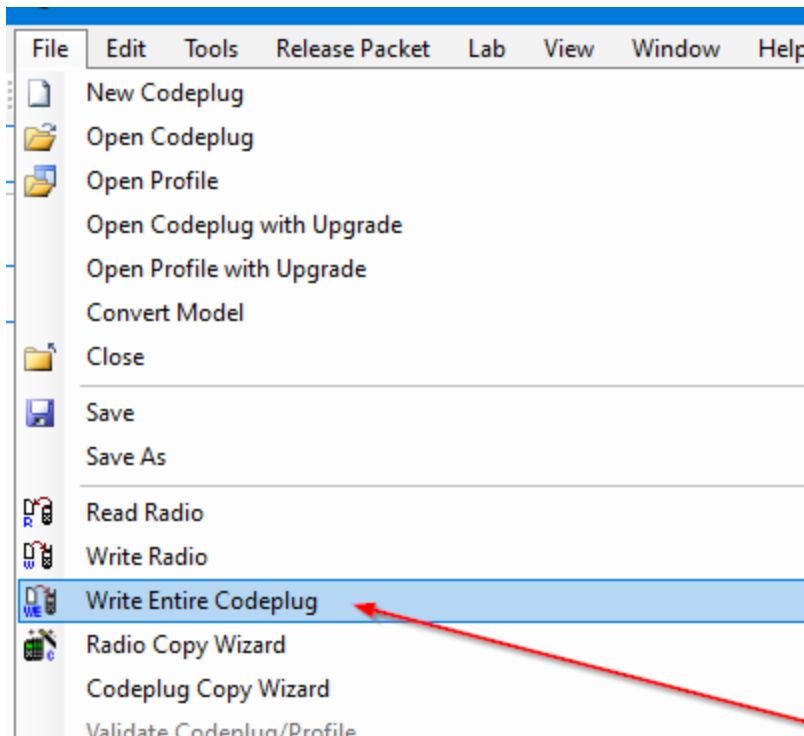
1. Switch the Lab CPS to **Lab** mode. This goes through the **L** on the left side of the screen. See the red arrow at the **L** in the screenshot below.
2. Turn the Lab CPS into **Decimal** display mode. This goes through the **D** on the left side of the screen. See the red arrow at the **D**.
3. Navigate to cp net_block -> net_data -> max_rx_freq
4. Change max_rx_freq from default 430 to 440 (MHz).

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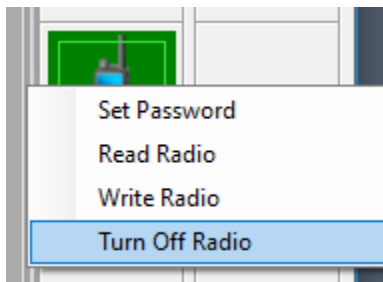


3. Write the **full settings** back to the radio. That goes with the function *Write entire code plug*. The function *Write radio*, as used for a normal code plug change, is *not* adequate! See below screenshot.

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4. Turn off the radio according to the screenshot below



After switching on, the radio can be programmed on frequencies in the 430 - 440MHz amateur radio band via the regular code plug change, and *without* the lab CPS function being required. Please refer to the GS for that.

Learn more

- If it really doesn't work out, please contact Wilko via: PA1WBU@Veron.nl