



Hamlib: Computer Aided Transceiver under GNU/Linux

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This page is still under construction.

Introduction

[Hamlib](#) de facto overwhelming

Read the transceiver manual

The ROM of the Yaesu FT-990 should be at least version 1.3. This can be checked as follows:

Switch the FT-990 off. Press simultaneously the buttons 1.5 and 7.0 whilst switching the transceiver back on. The ROM version will be displayed at the end of the self test. DK5TX has a couple [more suggestions](#), should you still experience any problems.



Figure 1: Yaesu FT-990 HF transceiver

microHAM Digi Keyer

If you own a modern transceiver with a USB port which presents audio as a sound device, you may skip this part.

Many transceiver interfaces work with GNU/Linux. However, as with all hardware under GNU/Linux, always check for Linux support on the web before acquiring a new interface! Because they are quite popular and I had one lying around, this article will focus on the excellent **microHAM** interface products.



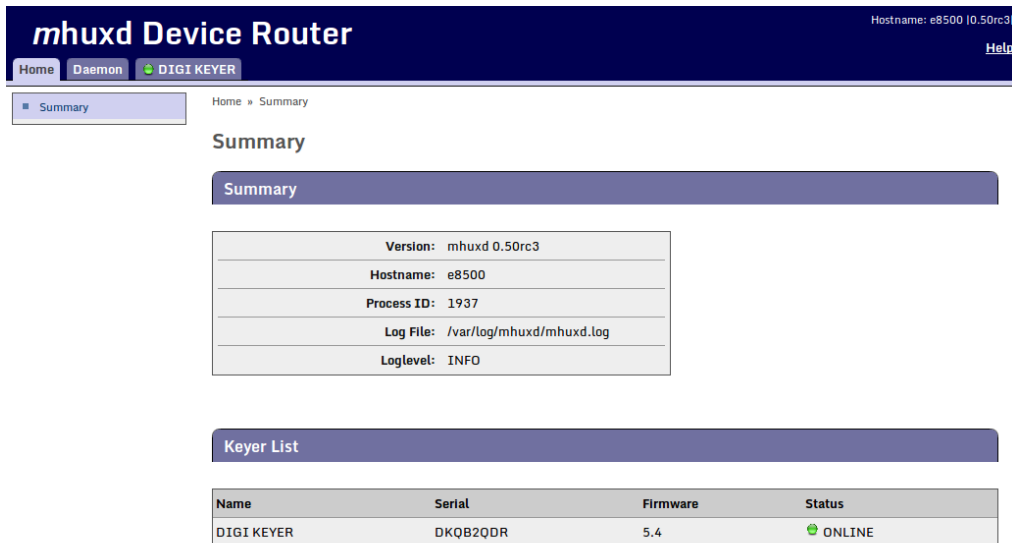
Figure 2: Front panel of the **microHAM** Digi Keyer

The good news is **Matthias (Max) Moeller, DJ5QV**, was so kind to code and share the **mhuxd microHAM Unix daemon**. In doing so, he could count with the help of **Joe Subich, W4TV** of **microHAM** for providing protocol specifications. The daemon should support all **microHAM** interface products.

On Ubuntu-derived systems, it is best to install **mhuxd** by adding its **PPA repository**. This will ensure updates are installed automatically when they become available. Type the following commands (without the \$ prompt) in a terminal window:

```
$ sudo add-apt-repository ppa:dj5qv/mhuxd-0.5
$ sudo apt-get update
$ sudo apt-get install mhuxd
```

The mhuxd daemon should immediately start running in the background. You can check that and perform the initial configuration by opening the following URL in your browser: <http://localhost:5052> Bookmark this URL as you may need it again occasionally. Note that microHAM interfaces are powered by the transceiver; not the computer.



Name	Serial	Firmware	Status
DIGI KEYER	DKQB2QDR	5.4	ONLINE

Figure 3: Summary screen of the mhuxd daemon available at <http://localhost:5052>, showing the keyer's firmware version.

Caveat: Upgrade to the latest firmware!

Once mhuxd is installed, first, **make absolutely sure your microHAM keyer is running the latest firmware!** Failing to do so, guarantees problems with MMTTY PTT keying over the FSK port —as I experienced first-hand.

The firmware for the micro/Digi/CW keyers (MK/CK/DK) goes under the name of mmk. Hidden deep within its change file [mmk_change_log.txt](#), the November 22, 2007 entry reads:

«Some changes in keyer protocol and settings format was introduced to be compatible with router v5.1.0. Hence firmware **MUST** be upgraded and power-up settings **MUST** be again stored to EEPROM of keyer.»

Installing new keyer firmware is the one and only instance where you are probably quicker off borrowing a Windows™ computer. In less than 10 minutes, you get the job done. Just install the Windows™ **microHAM USB Device Router** and let this program upgrade your keyer to the latest version of the appropriate firmware. Keep your transceiver and cabling at hand too, because —remember— the keyer gets its power from the transceiver.

microHAM port routing

In this step, the CAT, PTT and FSK channels of the microHAM keyer will be assigned to a Linux device virtual serial port. Also make sure to tick off RTS-PTT for each of these virtual serial ports. Strictly speaking, MMTTY will T/R key your transceiver over RTS-PTT on the CAT1 port only, whereas MMTTY FSK tone keying will occur over the FSK1 port. Nonetheless, RTS-PTT on both FSK1 and PTT1 is also configured for use with other programs.

Table 1: Digi Keyer port routing

channel	RTS-PTT	virtual serial port
CAT1	<input checked="" type="checkbox"/>	/dev/mhuxd/cat1
PTT1	<input checked="" type="checkbox"/>	/dev/mhuxd/ptt1
FSK1	<input checked="" type="checkbox"/>	/dev/mhuxd/fsk1

The screenshot shows the 'mhuxd Device Router' web interface. The top navigation bar includes 'Home', 'Daemon', and 'DIGI KEYER'. The main content area is titled 'Daemon Ports Configuration and Routing'. It features a 'Port List' table with three entries: ID 1 (VSP cat1), ID 2 (VSP ptt1), and ID 3 (VSP fsk1). Each entry has a 'Remove' button and a 'Status' of 'ok'. Below the table is an 'Add Port' section with a 'Port Type' dropdown set to 'VSP Virtual Serial Port' and a 'Destination Keyer' dropdown set to 'DIGI KEYER (DKQB2QDR)'. A 'Continue' button is at the bottom of the form.

ID	Type	Port / Device	Status	Remote Access	RTS-PTT	DTR-PTT	Destination Name	Destination Serial	Channel
<input type="checkbox"/> 1	VSP	cat1	ok		<input checked="" type="checkbox"/>	<input type="checkbox"/>	DIGI KEYER	DKQB2QDR	CAT1
<input type="checkbox"/> 2	VSP	ptt1	ok		<input checked="" type="checkbox"/>	<input type="checkbox"/>	DIGI KEYER	DKQB2QDR	PTT1
<input type="checkbox"/> 3	VSP	fsk1	ok		<input checked="" type="checkbox"/>	<input type="checkbox"/>	DIGI KEYER	DKQB2QDR	FSK1

Figure 4: Configuration and routing of the **mhuxd** daemon virtual serial ports for the **microHAM Digi Keyer**

To make the `mhuxd` device ports accessible from your account, add your user-name to the `mhuxd` group. Log out for this change to take effect.

```
$ sudo adduser $USER mhuxd
```

In the rare event of a `mhuxd` daemon crash, there is no need to restart your computer. Typing the following command in a terminal window should do as long as your system is not using `systemd`.

```
$ sudo service mhuxd restart
```

Specifying the CAT protocol

The CAT1 port on the microHAM interface needs to be informed about the serial protocol parameters which are specific to your transceiver brand and model. Consult your transceiver manual for the proper settings. This CAT port will be used by Win-Test —not MMTTY— to read and control your transceiver.

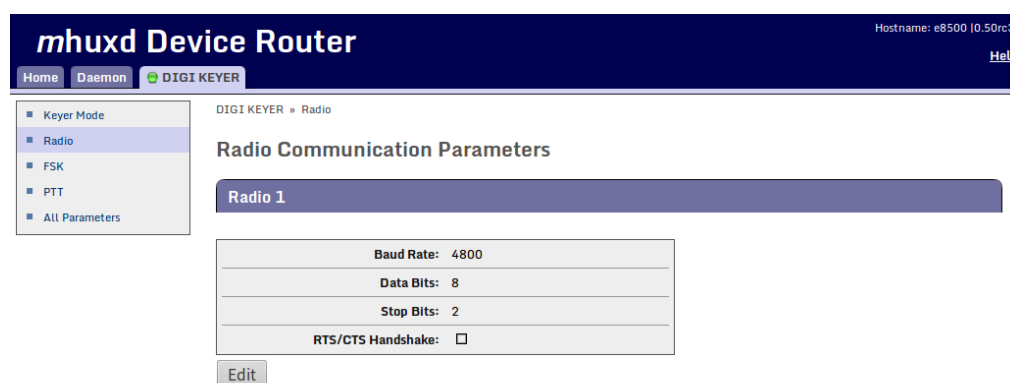


Figure 5: Computer-aided transceiver protocol parameters for interfacing with the Yaesu FT-990. Consult your transceiver manual for the proper settings.

microHAM RTTY setup

Additional microHAM settings for RTTY are not discussed here. Please, refer to my *RTTY Contesting* article for those details.

Hamlib utilities

First, install the `libhamlib-utils` package with your package manager:

```
$ sudo apt install libhamlib-utils
```

Testing

**Table 2: FT-990 ROM v1.30
rigctl parameters**

parameter	value
radio model	-m 116
rig serial device	-r /dev/mhuxd/cat1
serial speed	--speed=4800
extra arguments	--set-conf=stop_bits=2
poll rate	1500 ms
port	4532

```
$ rigctld -m 116 -r /dev/mhuxd/cat1 --speed=4800 --set-conf=stop_bits=2 -L  
-vvvvv  
$ rigctl -m 116 -r /dev/mhuxd/cat1 --speed=4800 --set-conf=stop_bits=2  
$ grig -m 116 -r /dev/mhuxd/cat1 --speed=4800 --set-conf=stop_bits=2
```

CQRLOG

CQRLOG

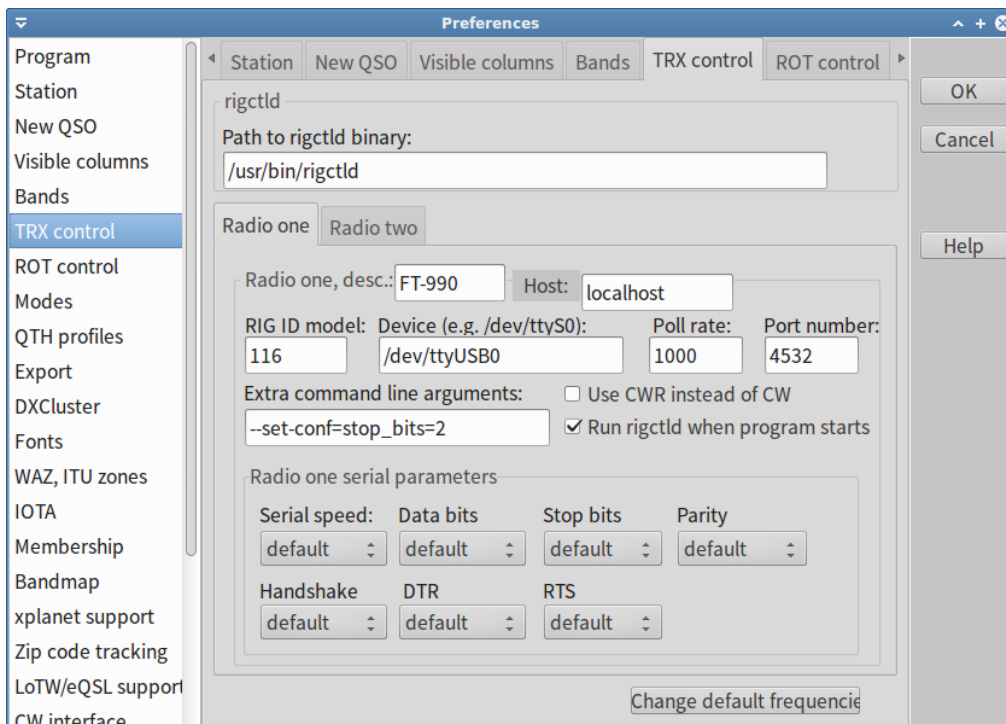


Figure 6: CQRLOG TRX control settings for Yaesu FT-990 CAT control over a USB to serial port converter on Xubuntu LTS 14.04



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