

# TRXAMADRM - A LINUX PROGRAM FOR SENDING AND RECEIVING DIGITAL SSTV

Ties Bos - PA0MBO

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## Abstract

The two separate programs TXAMDRM and RXAMDRM together with their support programs have been bundled into a single Automake system by modification of the original Dream files [1].

Keywords: Digital SSTV - Hamradio - DRM - Linux Reed-Solomon coding

## 1 INTRODUCTION

Recompilation of **rxamadr**m and **txamadr**m together with their support programs consisted of quite a number of steps. To simplify this operation all source code files and the target programs have been brought into the original Automake system of the Dream software. This document describes the new recompilation procedure.

It should be noted that the directory structure of the archive is designed to run the executables from the subdirectory **linux** where they are placed in the recompilation process.

For a description of the programs, the graphical user interface and the actual use of the software after it has been installed, see the companion documents **txamadr**m and **rxamadr**m.

## 2 INSTALLATION

To install **trxamadr**m untar and unzip the **trxamadr**mv3.6.32b.tgz or **trxamadr**mv3.6.64b.tgz archive (depending on whether you have

a 32-bit or 64-bit Linux distribution) in your home directory. This process will create a subdirectory called **trxamadrnv3\_6** with a number subdirectories with the source code files, the executables and the directories for the picture files. To be able to run the program the alsasound system should be installed. In most linux distributions this will be provided. Furthermore the following dynamic link libraries and programs will be needed:

- libasound
- libfftw3
- libtk-img
- expect
- imagemagick
- tk8.5

The graphical user interface is run by Tk/Tcl. The **txamadrn.tcl** and **rxamadrn.tcl** scripts call the wish-interpretor of Tk/Tcl. The name and place of this interpreter depend on the version of Tk/Tcl. Try to find it (by the command **which wish**) and change the first line of the scripts **txamadrn.tcl**, **rxamadrn.tcl**, **hybridget.tcl** and **ftpput.tcl** if **/usr/bin/wish** is not OK.

To be able to use CAT control the hamlib system by Frank Singleton (VK3FCS/KM5WS) and Stéphane Fillod (F8CFE) [2] must be installed. If you are using RTS or DTR for swichting PTT hamlib is not needed.

To be able to use the devices **/dev/ttyS0**, **/dev/ttyUSB0**, etc. the user needs to be a member of the **dialout** group. If you are not yet in that group use the command

```
sudo usermod -a -G dialout <username>
```

There are several executables in **txamadrn**:

- - the GUI **txamadrn.tcl**
- - the main program for tx **drm**
- - the main programs for rx **drmtst**
- - the waterfall text generation program **txwfal**
- - the rs-encoders **rs1encode** etc.
- - the rs-decoders **rs1decode**, **rs2decoderas**, etc.
- - the myftplib program for getting hybrid pictures

- - the getserverid program for getting hybrid pictures

All can be found in `~/trxamadrnv3.6/linux`

The executable scripts for the GUI's do not need compilation. If you want to compile the other programs yourself, take care that the Reed-Solomon encoders and decoders are compiled **without** any optimization flag. The automake files in the archive comply with this, but can be overridden by the environment variable **CFLAGS**. So check that this variable is not set.

For the recompilation use the following steps:

1. cd to the main directory of **trxamadrnv3.6**  
`cd ~/trxamadrnv3.6`
2. run make and check if this was successful. When so you are done. If not continue with the following steps.
3. remove all object files from the linux subdirectory:  
`rm ./linux/*.o`
4. set the compile flags:  
`export CFLAGS=""`  
`export CXXFLAGS=""`
5. configure the software:  
`./configure`  
This will produce the makefile.
6. run the makefile:  
`make`

When you are going to use CAT-control of your transceiver you need to enter a number of parameters in the GUI of **txamadrnv3.6**. Check for correct installation of hamlib with:

```
rigctl -l
```

in a command terminal. This produces a list in which you should find the number of your rig to be set in the GUI. Moreover you need to know the linux designation of your CAT device (something like `/dev/ttyS0` or `/dev/ttyUSB0`) and the baudrate to which the CAT interface of your transceiver is set.

Test the correct working of the CAT PTT in a command terminal with:

```
rigctl -m <modelnr> -r <devptt> -s <catbaud> T 1
```

this should switch your trx to TX, whereas

```
rigctl -m <modelnr> -r <devptt> -s <catbaud> T 0
```

should switch the TX off. The `< modelnr >` etc. are the parameters you have to substitute in the given commands.

For using RTS or DTR PTT you only need to know the linux designation of your serial interface. The software is shipped with a **txamadm.ini** file that has the PTT method set to "none". So before use you will have to change the PTT parameters. If you make a mistake in setting these parameters chances are that the software will crash. In that case remove the **txamadm.ini** file that was generated in your \$HOME directory and try again. To run the software cd to the directory with the executables:

```
cd ~/trxamadm3.6/linux
```

and give the command

```
./startdrmtx.sh
```

For further information on operational details see the documents **txamadm** and **rxamadm**.

## References

- [1] Volker Fischer et.al., <http://www.sourceforge.net/projects/drm>.
- [2] Frank Simpleton (VK3FCS) and Stéphane Fillod (F8CFS), <http://sourceforge.net/projects/hamlib>.