# Lime SDR Compatible RF frontends

Version: 2024-12-23

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# 1 Introduction

## 1.1 Compatibility

Amarisoft components are compatible with limeSDR hardware family:

- limeSDR-mini
- limeSDR-USB
- limeSDR-PCIe

Amarisoft does not provide precompiled drivers for lime SDR.

# 2 Installation with the Amarisoft software

## 2.1 Introduction

> The driver delivered by Amarisoft is now considered as deprecated.
> Instead we recommend you to install the driver maintained by Lime Microsystems available here: `https://github.com/myriadrf/LimeSuiteNG`

You need to install the TRX driver for the Lime SDR compatible with RF frontends manually. For that, you need to install Lime Suite package, See [Manual Installation], page 2.

Notes:

- this method would install some packages, so make sure you have root privileges when you run the script.
- this install creates a symbolic link for the TRX driver so please do not remove this directory afterwards.

## 2.2 Manual Installation

### 2.2.1 Lime SDR Suite

Myriadrf, provides lime suite packages for some platforms. If your platform is supported, you can download directly the Lime Suite package from `https://wiki.myriadrf.org/Lime_Suite` and install it. If your platform is not supported, you need to download lime suite source code, compile it and install it See [TRX driver], page 2.

Note: either install Lime Suite via a package/installer or source code and do not do both!

### 2.2.2 TRX driver

Amarisoft does not provide Lime Suite source code, however you can download it and compile it locally.
This is useful if your system has an incompatible Lime SDR version.

You need to clone Lime Suite package and install it.
Then just type:

```
git clone https://github.com/myriadrf/LimeSuite.git
cd LimeSuite
git reset --hard b8b4bcabdcb0db7dde2e4a89381bdf6c673b7c09
mkdir builddir && cd builddir
cmake ../
make -j4
sudo make install
sudo ldconfig
```

Lime Suite should be installed under "/usr/local/lib/". This will create a `libLimeSuite.so.18.10-1` under "/usr/local/lib/" that you need to add to ld.so configuration, as follows.

- create new file lms.conf under "/etc/ld.so.conf.d" folder

```
cd /etc/ld.so.conf.d
vi lms.conf
```

- paste your install path to the file. copy "/usr/local/lib" in lms.conf file

- reload the ld.so configuration

```
rm /etc/ld.so.cache
ldconfig
```

## 2.2.3 Lime SDR configuration

Once both Lime Suite and Amarisoft Software Release are installed, you can configure your Lime SDR RF front end. First, you need to check that your setup is ready: under "/root/enb" folder, type "ldd trx_lms7002m.so". You should get the following:

```
ldd trx_lms7002m.so
linux-vdso.so.1 (0x00007ffeaf153000)
libLimeSuite.so.18.10-1 => /usr/local/lib/libLimeSuite.so.18.10-1 (0x00007ff2b617e000)
libstdc++.so.6 => /lib64/libstdc++.so.6 (0x00007ff2b5df6000)
libm.so.6 => /lib64/libm.so.6 (0x00007ff2b5aa1000)
libgcc_s.so.1 => /lib64/libgcc_s.so.1 (0x00007ff2b588a000)
libc.so.6 => /lib64/libc.so.6 (0x00007ff2b54a5000)
libusb-1.0.so.0 => /lib64/libusb-1.0.so.0 (0x00007ff2b528c000)
libpthread.so.0 => /lib64/libpthread.so.0 (0x00007ff2b506d000)
/lib64/ld-linux-x86-64.so.2 (0x00007ff2b662a000)
libudev.so.1 => /lib64/libudev.so.1 (0x00007ff2b4e4f000)
```

If all *.so links are pointing to right files (as shown above), then your lime Suite is well installed and your Lime SDR card is ready to be used.

Lime SRD RF card is configurable. The configuration files are located under "/root/enb/config/rf_driver" folder. By Default, your software installation is using 2chan.cfg configuration file. Depending on your Lime SDR card, MINI SDR (2 antennas SISO) or Classic SDR (4 antennas 2x2 MIMO), you should configure the correct flags on 2chan.cfg file. If your Lime card is MINI the flag LIME_MINI should be defined.

```
vi 2chan.cfg
#define LIME_MINI
```

If you are setting frequency lower than 1.8GHz, the flag FREQ_BELOW_1800MHZ should be defined.

```
vi 2chan.cfg
#define FREQ_BELOW_1800MHZ
```