GNU Radio small satellites GROUND STATION components

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1) Required components:

- Installed Linux distribution (tested with **Debian 10** – distribution based on **Debian** / **Ubuntu** is highly recommended)
- **GNU Radio 3.8.x**
- **gr-satellites** - *https://github.com/daniestevez/gr-satellites*
- **gr-gsSDR** - *https://github.com/pavelfpl/gr-gsSDR*

2) **GNU Radio 3.8.x** install using PyBOMBS

These steps will install latest GNU Radio 3.8.x on your Linux computer. Dependencies will be installed automatically…

$ sudo apt install build-essential cmake git python3-pip libboost-system-dev libssl-dev libboost-asio libboost-beast

$ sudo pip3 install pybombs

$ pybombs auto-config

$ pybombs recipes add-defaults

$ pybombs prefix init ~/prefix-3.8 -R gnuradio-default [prefix – e.g **gr**]

$ source ~/prefix-3.8/setup_env.sh

Run now: *$ gnuradio-companion*

This user installation will not break other (system) Gnu Radio instances. For uninstall, simple delete installation directory – e.g: **gr-3.8**

Complete installation guide can be found here: https://github.com/gnuradio/pybombs#pybombs

Add GnuRadio runtime variables to search path:

$ vim.tiny .bashrc

Add this line to end of the file: *source /path/to/prefix-3.8/setup_env.sh*

3) Install GNU Radio out-of-tree module ***gr-satellites***

Install documentation: https://gr-satellites.readthedocs.io/en/latest/installation.html

$ git clone https://github.com/daniestevez/gr-satellites

$ git checkout main-3.8

$ pip3 install --user --upgrade construct requests

$ sudo apt install liborc-0.4-dev

Main install:

$ cd gr-satellites

$ mkdir build

$ cd build

$ cmake ../ -Wno-dev -DCMAKE_INSTALL_PREFIX=~/prefix-3.8

$ make

$ make install [run without sudo]

$ sudo ldconfig

4)   Install GNU Radio out-of-tree module **gr-gsSDR**

Install documentation and example flowcharts can be found here:
https://github.com/pavelfpl/gr-gsSDR

$ git clone https://github.com/pavelfpl/gr-gsSDR

$ cd gr-gsSDR

$ mkdir build

$ cd build

$ cmake ../ -Wno-dev -DCMAKE_INSTALL_PREFIX=~/prefix-3.8

$ make

$ make install [run without sudo]

$ sudo ldconfig