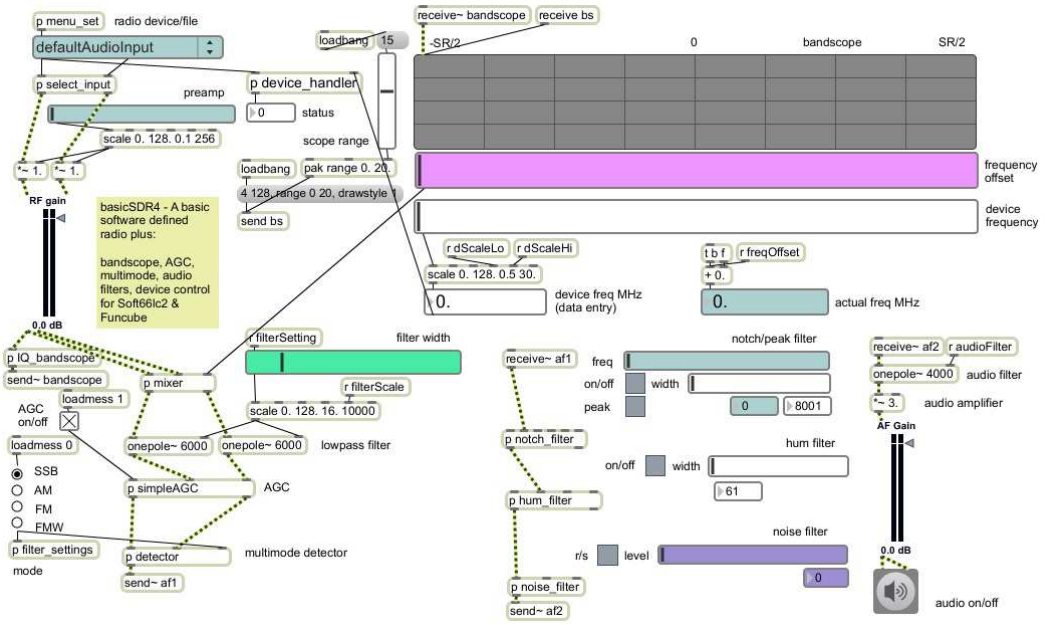
Software Defined Radio in Max/MSP

Tutorial 4 – Device Control

Open the patch: basicSDR4.maxpat



This tutorial works with the Soft66lc2 and Funcube software defined radios. If you don't have either of the devices, the patch will function just like the patch in tutorial-3. Even so, it's worth reading if you plan on securing your future in the burgeoning SDR development industry.

There are no presets with this patch because we don't know what signals your radio will hear.

Device initialization

To initialize a device, make sure it's plugged in before you start Max. Select the appropriate input device from Options : DSP Status. Then, in the patch, select a radio device from the input device/file menu in the upper left corner.

If the status number box changes to "1" your device is ready to go. Otherwise, here are a few suggestions…

- Are you using Windows? The windows drivers are not yet available.
- Try plugging in just one radio at a time
- Try removing non-essential USB devices (like external hard drives)

- With Funcube you'll need firmware 18f or greater. Check http://www.funcubedongle.com
- Bring up the Max window (cmd-M) and check for error messages.

If it seems like the devices work fine, except with this Patch, please contact radio@zerokidz.com – I'd like to solve the problem.

Setting device frequency

Enter a device frequency in MHz by typing it into the device frequency data entry number box, or by adjusting the device frequency slider.

Externals

Most SDR devices are controlled via USB. If your device responds to text based serial port commands, or a protocol like Open Sound Control (OSC) you may be able to operate the device using [serial] or [updsend]. We have successfully written Max drivers for the TenTec RX-320 and Icom IC746 using [serial].

Unfortunately The Soft66lc2 and Funcube both require USB device libraries so it's necessary to write Max external objects in C. The externals have two basic functions:

- Look for a connected device and initialize
- Set frequency

Look inside [device_handler] to see how the externals are used.

Alternatively you could use other software for device control and use Max for signal processing.

Further Study

To learn more about developing radios in Max, download the latest version of the Max radio software and accompanying documentation from http://zerokidz.com/radio

In addition to the topics covered in these tutorials, the full (and free) version of this radio features:

- Better filtering and patch control
- Memory save/recall using [pattrstorage]
- Keyboard shortcuts
- Midi control surface support
- iPad control surface support with touchOSC
- Scanner interface

- Synthesizer interface
- Alternative [led] display

Please send comments and questions to radio@zerokidz.com