



# The Web Interface

When a working SensorGnome is attached to your computer via USB, browse to <http://192.168.7.2> and you'll see a page like this (click on it for a larger view):

[web\\_interface\\_2014.png](#)

The image above shows one antenna is attached: a funcubeProPlus in to USB Hub Port 1.

It also shows ("What I'm doing now") that data from that device are being processed to look for features, namely pulses from tags. The current frame processing rate will fluctuate, but should average near the hardware frame rate.

**WARNING:**

- No funcube in the list of Devices means **the SG is NOT acquiring telemetry data.**
- No entry in the "What I'm doing now" table means **the SG is NOT acquiring telemetry data.**

The cause of either symptom is probably that your USB hub got unplugged from the beaglebone computer and needs to be replugged securely. Unfortunately, **YOU MUST REBOOT** after replugging!

### **Live Window Contents**

The live windows, which are only present when funcubes are attached and functioning, receive data from the sensorgnome as it is detected. The delay between a pulse or tag being detected, or a parameter being set and the record of this event appearing on the web interface should be less than 0.1 seconds.

### **Live Pulses Columns:**

All pulses of appropriate length and signal-to-noise ratio are recorded, with these parameters:

- **timestamp** (H:M:S with fractional seconds), in UTC time, of the pulse centre
- **antenna number** (i.e. the USB Hub port number into which the antenna is plugged)
- **pulse offset frequency**, in kHz; how far from the nominal tuner frequency is the detected pulse
- **relative signal strength**, in dB; this is a log scale. 0 would indicate the maximum possible strength (i.e. enough to saturate the receiver). Each drop of 6 dB indicates a doubling of distance to the tag, **provided:**
  - antenna orientations on both tag and receiver are constant
  - distance between tag and receiver is at least 10 m (i.e. 5 wavelengths at 150-160 MHz)
  - there are no large reflective surfaces nearby which augment the power reaching the receiver
  - the line of sight between antenna and tag is clear

- **relative noise strength**, in dB; this is a log scale. This is the level of background signal immediately before and after the pulse.  
In the default deployment settings, signal must be at least 5 dB higher than noise before a pulse is detected.

### **Live Tags:**

Only tags present in the sensorgnome's SG\_tag\_database file are detected, with these parameters:

- **timestamp** (H:M:S with fractional seconds), in UTC time, of the centre of the first pulse in a burst
- **antenna number** (i.e. the USB Hub port number into which the antenna is plugged)
- **average pulse offset frequency**, in kHz; how far from the nominal tuner frequency is the detected tag
- **average relative signal strength**, in dB; this is a log scale.
- **average relative noise strength**, in dB; this is a log scale. This is the level of background signal immediately before and after the pulse.  
In the default deployment settings, signal must be at least 5 dB higher than noise before a pulse is detected.

Currently, live tag detections are only displayed on the web interface; they are not recorded to the SensorGnome's disk.

That's because we always record and post-process the raw pulse data to find tag hits. This lets us detect tags which either were not registered at the time the SensorGnome was deployed, or which were deployed by someone else. It also allows us to perform much more stringent filtering to remove false positives from noisy data.

### **Live Parameter Settings:**

This window displays changes in parameter settings, which as of July 2013, only includes the funcubedongle listening frequency:

- **timestamp** (H:M:S with fractional seconds), in UTC time, at which the parameter was set
- **antenna number** (i.e. the USB Hub port number into which the antenna is plugged)
- **listening frequency**, in MHz; what frequency was the receiver set to listen at.

## Devices

This list of devices attached to the USB hub is updated whenever a recognized device is attached to or removed from the USB hub.

Frequency settings of funcubedongles are not updated automatically when changed according to the deployment schedule, so the value in the **Live Parameter Settings** window takes precedence. You can hit the **Refresh Device List** button to see the current frequency setting for a funcubedongle. You can also set a funcubedongle frequency by entering a value in the box and hitting **Set Frequency in MHz**. This frequency setting will apply until the next scheduled funcubedongle frequency change (if any), or a restart of the SensorGnome.

If you don't see any devices listed on the web interface, it's likely your SensorGnome's USB hub is not connected to the beaglebone computer, or does not have sufficient power available for the devices attached to it; this might imply a faulty power connection to the USB hub. In this case **no telemetry data are being recorded!**