

# Voltage Recorder Setup

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Gbt-1u (the 1U Server in the box), has five 1G ethernet ports and one 10G (SFP+) ethernet port. The five 1G ethernet can be located, on the back panel of the server, with respected to the VGA port according to the table below.

eno5	eno3	eno4	
	eno1	eno2	VGA

The ports have been configured for the following connections:

## IP addresses

**eno1** DHCP. Should be connected to the Netgear Switch (GS748T), to any of the private ports (1-32). This will let me access gbt-1u through Paper1 which is connected to the internet. [Link to diagram on HERA Wiki.](#)

**eno2** static, 10.1.0.1 – This port can be used to connect to gbt-1u with a laptop for debugging network problems.

**eno3** static, 10.10.0.100 – Port to be connected to the raspberry pi. I gave the raspberry pi a compatible static IP (10.10.0.233).

**enp1s0** 10gb port, 10.10.10.10 – to be connected to one of the SFP+ ports on the SNAP. The SNAP SFP+ ports are currently wired to the Arista 40GbE switch. The computer can be connected to the same switch to establish a connection to the SNAP. There should be spare cables in the container. If not, the cable going to hera-digi can be borrowed.

**Antennas** There are 12 antennas, all north polarizations only. They can be connected in order to the 12 SNAP inputs. The SNAP board inputs from left to right are given in the following table (read the table row-wise left to right, there is only one row on the SNAP). There's a pretty picture of this at [https://casper.berkeley.edu/wiki/images/f/fe/SNAPv1\\_labeled\\_assembly.pdf](https://casper.berkeley.edu/wiki/images/f/fe/SNAPv1_labeled_assembly.pdf)

(Beside SFP+) 1PPS Out	1PPS In	Synth Ref	Clock In
(SMA 5) ADC Input 3	(SMA 6) ADCI 2	(SMA 7) ADCI 1	(SMA 8) ADCI 0
(SMA 9) ADC Input 7	(SMA 10) ADCI 6	(SMA 11) ADCI 5	(SMA 12) ADCI 4
(SMA 13) ADC Input 11	(SMA 14) ADCI 10	(SMA 15) ADCI 9	(SMA 16) ADCI 8

I extracted the roach inputs, corresponding to the antennas I want, on Oct 1 (1.30 pm PST). If they have changed since then, I can update this table. I does not matter if the SNAP ADC Inputs are connected in order or SMA Inputs are connected in order as long as it is noted down. Nevertheless I've added a preferred order in the last column of the table below- the SMA input number is counted assuming the one right next to the SFP+ port is 1.

Antenna Number	Roach Input	Panel Fxin	SNAP SMA
24	D F7 A2	p6 r1 c1	8
25	D F7 A4	p6 r1 c2	7
26	D F7 B2	p6 r1 c3	6
27	D F7 B4	p6 r1 c4	5
52	D F8 C2	p5 r5 c5	12
53	D F8 D2	p5 r5 c6	11
54	D F7 H2	p5 r5 c7	10
55	D F5 D4	p4 r1 c3	9
84	D F8 F2	p5 r5 c1	16
85	D F8 G2	p5 r5 c2	15
86	D F8 B2	p5 r5 c3	14
87	D F8 A2	p5 r5 c4	13

**Software** All the debugging and observation software is on <https://github.com/dgorthi/SA-Data>.

The most useful one is SA-Data/obs/obs\_script.py which programs the SNAP board and lets you see the output spectra of all the analog inputs.

In an ipython session type the following commands:

```
\%run obs_script.py 46 54 76 #chans to select  
plot_chans() #for plotting all the analog inputs  
plotspec(ant=<ant no.>) # To plot one analog input
```