# How to add or change a pax box to the control system

## Intro:

This document describes the steps that need to be done in order to add a new PAX box into the control system. This is necessary so that the RF ***autotune*** and ***atagetdetdbm*** function are able to translate between the non calibrated power detector value and a calibrated power level in dBm.

Note that if a PAX Box is moved to another antenna the mapping in the SQL data base and Json file must be adjusted!

## **Add a new pax box to the control system:**

## Location of code:

**1 - ssh -Y obs@control**

**2 - cd jkulpa/ATA-Utils/PamMeas/**

3 - ./process\_data -h

Usage: Usage process\_data.py [options] PB\_NUMBER

The software requires that files PB\_NUMBER{xy}-{ab}.txt

are present in measurement directory. '-a.txt' is for CW, whereas

'-b.txt' for noise measurements

Options:

-h, --help show this help message and exit

-u, --update update database if row exist. By default without this

flag the program will crash if data exist in DB

-d DIR, --dir=DIR directory containing data

-v, --verbose more information and enables plots

--db=DB\_STRING specify which db to populate [none|google|ata]. Selecting

none prints values to stdout

## Prepare PAX measurement data into the correct format:

Open Measurement protocol of the specific PAX Box. The measurement protocols are located at: <https://github.com/SETIatHCRO/Front-Page/tree/master/Analog-Signal-Components/PAX/Measurement%20Prodocol/PAX%20Boxes>

Then copy the measurement data into the following text files:

4 - cd ~/jkulpa/ATA-Utils/PamMeas/meas/

5 - nano PB-010x-a.txt (CW measurement x pol for pax 10)

5 - nano PB-010y-a.txt (CW measurement y pol for pax 10)

5 - nano PB-010x-b.txt (noise measurement x pol for pax 10)

5 - nano PB-010y-b.txt (noise measurement y pol for pax 10)

First copy in the column of the detector values, followed by the dBm measurement.

Table

Description automatically generated

Text

Description automatically generated with medium confidence

## Add calibration data to the SQL data base:

Now execute the following program to add the calibration data to the control system.

To add new data:

6 - ./process\_data --db=ata -v PB-010

To update data of an existing PAX Box:

6 - ./process\_data --db=ata -u -v PB-010

Check that the input values are correct:

Chart, line chart

Description automatically generated

Chart, line chart

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Chart, line chart

Description automatically generated X1

Chart, line chart

Description automatically generated X2

Chart, line chart

Description automatically generated Y1

Chart, line chart

Description automatically generated Y2

## Set PAX Box antenna mapping in SQL data base:

1 – ssh [root@data.hcro.org](mailto:root@data.hcro.org)

2 – mysql

3 – SHOW DATABASES;

4 – USE atadata;

5 – SHOW TABLES;

6 - select ant, pax\_box\_sn from feed\_parts; (show existing mapping)

7 - update feed\_parts set pax\_box\_sn ='PB-010' where ant='5e'; (map PAX 10 to antenna 5E)

8 - update feed\_parts set pax\_box\_sn ='NULL' where ant='5e'; (remove existing mapping)

9 - select ant, pax\_box\_sn from feed\_parts; (check new mapping)

10 – exit;

## Set PAX Box antenna mapping in Json file data base:

1 – ssh [atasys@control.hcro.org](mailto:atasys@control.hcro.org)

2 – cd /hcro/atasys/ata/etc/

3 - nano ants.json

Adjust all values, like PB number, Feed Number, DB and CB numbers to the correct installed components.

Timeline

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