Personal Space Weather Station – Central Control and Database

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Overview

Overview of Network

Component Deep Dive

Current Work and Next Steps
Personal Space Weather Station

- Two Main Components:
  - Local Control Unit
  - Central Control System

PSWS Central Control System
Central Control System

- Local Units and Directories
- Watchdog and Central Database
- Django and Webpage
Local Unit Directories

[Unit Home Directories]

```
[abliddle@pswsnetwork home]$ pwd
/home

[abliddle@pswsnetwork home]$ ls
N000003  S000028  S000031  S000034
```

[Magnetometer Data]

```
[abliddle@pswsnetwork magData]$ pwd
/home/N000003/magData

[abliddle@pswsnetwork magData]$ ls
OBS2021-03-17T00:00:00.zip  OBS2022-09-
OBS2021-05-28T00:00:00.zip  OBS2022-09-
OBS2021-05-29T00:00:00.zip  OBS2022-09-
```
Local Unit Directories

```
[abliddle@pswsnetwork S0000030]$ ls
OBS2022-01-14T13:00
OBS2022-08-03T13:00
OBS2022-08-04T13:00
```

**Spectrum Station Directory**

```
[abliddle@pswsnetwork ch0]$ pwd
/home/S0000030/OBS2022-01-14T13:00/ch0
[abliddle@pswsnetwork ch0]$ ls
2022-08-04T19-00-00  2022-09-07T16-00-00
2022-08-04T20-00-00  2022-09-07T17-00-00
2022-08-04T21-00-00  drf_properties.h5
2022-08-04T22-00-00  metadata
2022-08-04T23-00-00
```

**Spectrum Data Directory**
Watchdog and Database

Watchdog Trigger Files

```python
path = sys.argv[1] if len(sys.argv) > 1 else '/home/
# directory starting with "d" - this upload is in response to a Data Request
# directory starting with "c" - this upload is from a Continuous Upload
# directory starting with "m" - this upload is from magnetometer data
# The "N" prefixes are legacy, need to delete after test period
event_handler = UploadEventHandler(patterns=['$*/m*', '$*/c*', '$*/m*', '$*/d*', '$*/c*', '$*/c*'])
observer = Observer()
observer.schedule(event_handler, path, recursive=True)
observer.start()
print("observer started")
writeLog("Starting watchdog")
try:
    while True:
```

Watchdog Trigger Code
Watchdog and Database

```python
def on_created(self, event):
    # Begin by identifying if continuous or not
    # Then locating the path of the event
    print("UPLOAD trigger at local time: " + dt.now().isoformat())
    print("UPLOAD path=" + event.src_path + ":")
    writeLog("UPLOAD, path " + event.src_path)
    try:
        instrumentNo = event.src_path.split("_")[1] # this should
        except:
            print("ERROR, parsing failure, the '_#' not found")
            writeLog("ERROR - parsing failure, the '_#' not found")
    return
```

Watchdog Parsing Code

Watchdog Log File
Django File Structure
Django and Frontend

Personal Space Weather Station
Central Control System

Welcome User: abliddle Log out
Django and Frontend
### Django and Frontend

Below is a list of observations collected by this station.

<table>
<thead>
<tr>
<th>Data rate</th>
<th>Center Frequency</th>
<th>Station</th>
<th>Instrument</th>
<th>Size</th>
<th>File/Observation</th>
<th>Start (UTC)</th>
<th>End (UTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>—</td>
<td>Mag_kv0s4</td>
<td>Mag_rev_E</td>
<td>1.0742</td>
<td>OBS2022-11-14T000000.zip</td>
<td>2022-11-14 00:00:00</td>
<td>2022-11-14 23:59:00</td>
</tr>
<tr>
<td>1</td>
<td>—</td>
<td>Mag_kv0s4</td>
<td>Mag_rev_E</td>
<td>0.1025</td>
<td>OBS2022-11-15T000000.zip</td>
<td>2022-11-15 00:00:00</td>
<td>2022-11-15 02:14:00</td>
</tr>
<tr>
<td>1</td>
<td>—</td>
<td>Mag_kv0s4</td>
<td>Mag_rev_E</td>
<td>1.0579</td>
<td>OBS2022-11-16T000000.zip</td>
<td>2022-11-16 00:00:00</td>
<td>2022-11-16 23:52:00</td>
</tr>
</tbody>
</table>
Current Work and Future Directions

- Graphing
- Sonification
- Enhanced Tables and Filters

Data Graphed in 3D Software
Acknowledgements

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Do you have any questions?

Contact Us

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