ATLAS - Monitor Web App Documentation

Dear ATLAS users,

it is time for another Web App. This App is for monitoring the ATLAS system health, providing various graphs and tables to inform you about the current performance (currently set to the past 2 weeks) of the system.

The App can be accessed from shinyapss.io:
https://huji-atlas.shinyapps.io/AtlasMonitor/

Before you will get to see any graphs you will have to login. User and password are the same as for **HULA Amazon database**. The data shown is by default taken from our new database (Host IP: 52.18.81.255),but you can check out the old database (HOST IP: 52.48.90.213). The graphs and tables are subdivided into 4 categories (tabs), providing information on the current status of the **Beacons (page 2)**, the **Basestations (page 3)** and the **Tags (page 4)**. Additionally there is a tab **Tag Summaries (page 5)** providing a summary on each individual tag active in the last 14 days.

Note: *All tables include information on* ***Localization Rates*** *and* ***Detection Rates*** *(number of localizations or detections divided by the number of expected localizations or detections respectively). As ATLAS does not retain information on when certain tags were supposed to be active these values should be considered an upper bound, i.e. the actual* ***Detection Rates*** *and* ***Localization Rates*** *may be lower if an individual tag is not detected at all over at least one hour.*

Beacons:
provides graphs for localization and detection rates for each beacon, allowing users to spot issues with either, localization or detection, on a system wide level (See Fig.1).

Fig.1: *In the provided example localization stopped working in the evening of April the 30th. The beacons, however, were still being detected.*

Basestations:
provides a graph for detection rates for each individual base-station based on the data from the beacons, as well as a quick summary table for each base-station based on the data from the tags, providing information on the average detection rate and average number of detected tags per base-station. The graph should make it easy to spot momentary issues with a given base-station (i.e. if a base station is down), the table should help with long term decisions, allowing identification of base-stations that are performing badly, allowing to make plans for relocation or upgrading (See Fig 2 and 3).

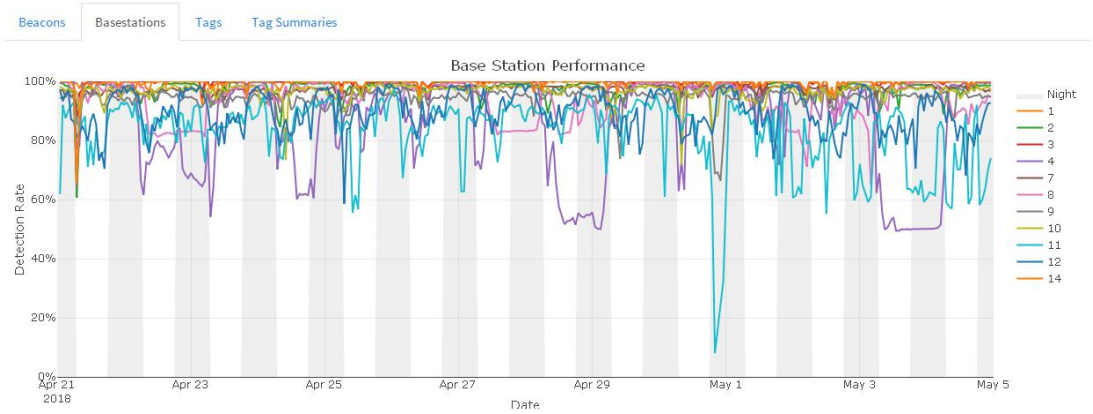


Fig.2: *In the provided example we can see that Base Stations 4 and 11 regularly experience drops in detection rate, potentially indicating technical issues with these stations. Base Stations 8 and 12 seem to be particularly affected by interference as indicated in the drops in detection rate during the day and Base station 9 seems to contiguously have a slightly lower detection rate than any other Base Station, which could indicate issues with the antenna.*

Base Station Summaries

Show 20 entries Search:

Base Station	Avg. Detection Rate	Avg. No. of Tags
11	0.19	6
2	0.35	10
3	0.38	10
4	0.46	14
12	0.49	9
14	0.5	10
9	0.52	9
7	0.53	8
8	0.53	12
10	0.55	12
1	0.65	12

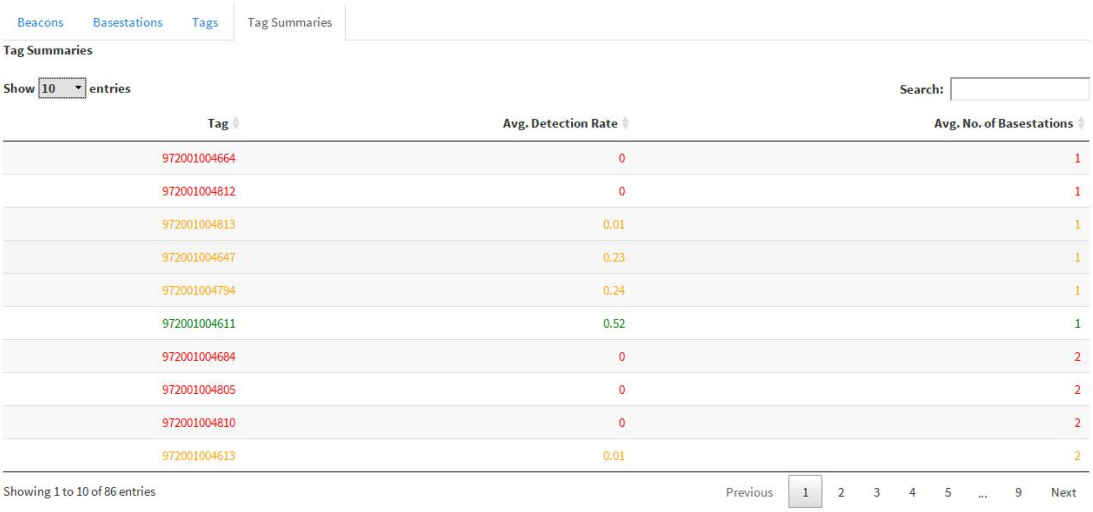
Showing 1 to 11 of 11 entries Previous 1 Next

Fig.3: *In the provided example we can see that Base Stations 11 has the lowest overall detection rate and detects the least amount of tags. Given this information it might be better to replace or relocate this station if the problems turn out to be because of local interference.*

Tags:
provides graphs for localization and detection rate for tags. Due to the amount of tags its not sensible to display all of the individually which is why we averaged them by rate, allowing the us to at least roughly gauge the performance of the tags, and spot problems if the system is overloaded (see Fig. 4).

Fig.4: *As can be seen from the plots there is a phase of 6 days (21st to 26th) where there were no localizations for tags set to rates at 900 and 1800 (tph: transmissions per hour) respectively there were no detections of tags set to 1800 tph during that time, but a few detections of tags set to 900 tph, which is slightly suspicious. From the 26th to the 29th we clearly have detections of tags at these rates but still no localizations, which needs to be investigated. Same as with the beacons no localizations were calculated after the 30^{th,} which also needs to be resolved. The good news is that the system appears to be stable; there was a surge of new tags on may the second and these seem to be operating well and did not cause the overall detection rates to plummet.*

Tag Summaries:
Provides a detailed listing of each individual tag's performance including the average detection rate and the average number of base-stations that have detected each tag. For convenience the data is sorted by performance in ascending order, always highlighting the tags that have the are detected by the least amount of base-stations / have the worst detection rate (see Fig.5).


Beacons Basestations Tags Tag Summaries

Tag Summaries

Show 10 entries Search:

Tag	Avg. Detection Rate	Avg. No. of Basestations
972001004664	0	1
972001004812	0	1
972001004813	0.01	1
972001004647	0.23	1
972001004794	0.24	1
972001004611	0.52	1
972001004684	0	2
972001004805	0	2
972001004810	0	2
972001004613	0.01	2

Showing 1 to 10 of 86 entries Previous 1 2 3 4 5 ... 9 Next

Fig.5: This table allows identification and consequent removal of faulty or under-performing tags freeing up precious resources for other tags. As can be seen there are at least 5 tags which have an average detection rate of 0 and are on average detected by 2 or less base stations, which should be clearly removed from the tracking list. The other tags on the list are equally bad even though one of them achieves a detection rate of 52% it is on average detected by only one base station (which could indicate it is in a remote place at the edges of the coverage area).