

Analysis of Gateway test data(GPS data)

Cleaning of data:

After the log files are merged and converted into a csv file (code in the annexure), the data is loaded and cleaned in Google big query.

```

1 UPDATE Test.Test_Table
2 SET   Detect_Ok_Time = Replace(Detect_Ok_Time, ' sec.', '')
3 where Detect_Ok_Time != 'null';
4
5 |

```

UPDATE Test.Test_Table

SET Detect_Ok_Time = Replace(Detect_Ok_Time, ' sec.', '')

where Detect_Ok_Time != 'null';

2019-04-07 15:36:20
Edited

```

1 select * from Test.Test_Table
2
3

```

Run

Save query

Save view

Schedule query

More

Query results
[SAVE RESULTS](#)
[EXPLORE IN DATA STUDIO](#)

Query complete (0.5 sec elapsed, 297 KB processed)

Job information

Results

JSON

Execution details

| Row | Date | Input_Sn | Detect_Ok_Time | Gps_Use_Time | Ttff_Tim |
|-----|-------------------------|--------------|----------------|--------------|----------|
| 1 | 2018-04-04 06:59:04 UTC | GPM2-2M8-R6X | 5741.248 | 3.580 sec. | 62.0 (s) |
| 2 | 2018-04-04 11:27:07 UTC | GSS2-YGT-PU9 | 52.524 | 0.610 sec. | 0.0 (s) |
| 3 | 2018-04-04 12:33:38 UTC | G5XA-TD5-XYU | 185.055 | 3.570 sec. | 31.0 (s) |

```
select * from Test.Test_Table
```

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```

1 UPDATE Test.Test_Table
2 SET   Gps_Use_Time = Replace(Gps_Use_Time, ' sec.', '')
3 where Gps_Use_Time != 'null';
4
5

```

Run Save query Save view Schedule query More

Query results

Query complete (1.4 sec elapsed, 297 KB processed)

Job information Results JSON Execution details

✓ This statement modified 2,180 rows in stunning-ripsaw-236813:Test.Test_Table.

```
UPDATE Test.Test_Table
```

```
SET   Gps_Use_Time = Replace(Gps_Use_Time, ' sec.', '')
```

```
where Gps_Use_Time != 'null';
```

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```

1 UPDATE Test.Test_Table
2 SET   Ttff_Time = Replace(Ttff_Time, ' (s)', '')
3 where Ttff_Time != 'null';
4
5

```

Run Save query Save view Schedule query More

Query results

Query complete (1.4 sec elapsed, 286.4 KB processed)

Job information Results JSON Execution details

✓ This statement modified 2,180 rows in stunning-ripsaw-236813:Test.Test_Table.

```
UPDATE Test.Test_Table
```

```
SET   Ttff_Time = Replace(Ttff_Time, ' (s)', '')
```

```
where Ttff_Time != 'null';
```

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```

1 UPDATE Test.Test_Table
2 SET   Pass_Test_Time = Replace(Pass_Test_Time, ' sec.', '')
3 where Pass_Test_Time != 'null';
4
5

```

Run Save query Save view Schedule query

Query results

Query complete (1.4 sec elapsed, 277.9 KB processed)

Job information **Results** JSON Execution details

✓ This statement modified 2,180 rows in stunning-ripsaw-236813:Test.Test_Table.

UPDATE Test.Test_Table

SET Pass_Test_Time = Replace(Pass_Test_Time, ' sec.', '')

where Pass_Test_Time != 'null';

```

1 select * from Test.Test_Table
2
3

```

Run Save query Save view Schedule query More

Query results

SAVE RESULTS EXPLORE IN DATA STUDIO

Query complete (0.5 sec elapsed, 267.2 KB processed)

Job information **Results** JSON Execution details

| Row | Date | Input_Sn | Detect_Ok_Time | Gps_Use_Time | Ttff_Time | SNR1 | SNR2 | SNR3 | SNR4 |
|-----|-------------------------|--------------|----------------|--------------|-----------|------|------|------|------|
| 1 | 2018-04-04 11:27:07 UTC | GSS2-YGT-PU9 | 52.524 | 0.610 | 0.0 | 30 | 30 | 30 | 30 |
| 2 | 2018-04-04 06:59:04 UTC | GPM2-2M8-R6X | 5741.248 | 3.580 | 62.0 | 31 | 30 | 30 | 30 |
| 3 | 2018-04-04 12:33:38 UTC | G5XA-TD5-XYU | 185.055 | 3.570 | 31.0 | 31 | 32 | 32 | 32 |
| 4 | 2018-04-04 11:17:11 UTC | GRZU-TX9-4K4 | 472.772 | 0.610 | 0.0 | 33 | 33 | 33 | 32 |
| 5 | 2018-03-28 14:21:24 UTC | GGGC-W8-LM7A | 771.205 | 0.610 | 26.0 | 20 | 22 | 22 | 20 |

After cleaning the data, I have created two extra columns : **Defective**(if the gateway is defective or not depending upon the serial numbers provided in the question) and **Test Status**(if the test is completed or not).

In some observations in the data, SNR values are missing. It is not likely that the data has discrepancy as the data source is log files. Hence we can say that these tests were not completed (as according to the question, the data includes tested and not tested quality of signal gateway information). The incomplete tests may mean that the data was received, however all the SNR tests were not done, hence we cannot comment about the quality of the data in these observations.

After this I have loaded the data from big query into Google data studio (refer Analysis_of_Gateway_test_data(GPS_data).pdf).