**Fleet Documentation**

Steps Involved in loading Data:

* Hit Mango Automation Api First to accept Cookie in the response header (we have to send username in URL and password in the request header).
* Use cookie of previous step and hit the Mango Automation Api again to get the values to load.(In URL we have to send point\_id, from\_date and to\_date).
* Get data from previous data in the form of Jason and load the values to the Temp table.
* Read data from Temp table, perform KPI calculations applying kpi formula and load data to the Fact Table.

In Detail:

* URL: <http://10.250.225.4:9080/rest/v1/login/esreports>

(esreports in url is username)

Hit Mango Automation Api using **GET method** to above url with password and Accept in the request headers.

password: ESR\_2016!

Accept: application/json

We will receive an Cookies as **Set-Cookie** in the response header.

For this I have created an jar by name **COOKIE.jar** in libext of pentaho data integration folder.

Path: /usr/local/pentaho\_bi\_suite/pentaho/design-tools/data-integration/libext/COOKIE.jar

* URL: <http://10.250.225.4:9080/rest/v1/pointValues/Z_DP_194430?from=2016-01-28T13%3A00%3A00.000-05%3A00&to=2016-01-28T13%3A01%3A00.000-05%3A00>

([http://10.250.225.4:9080/rest/v1/pointValues/**Point\_id**?from=**FromDate**T**Hour**%3A**Minute**%3A**seconds**.**Milisec**-**timezoneOffset**%3A**00**&to=**todate**T**Hour**%3A**Minute**%3A**seconds.Milisec**- **timezoneOffset** %3A**00**](http://10.250.225.4:9080/rest/v1/pointValues/Point_id?from=FromDateTHour%3AMinute%3Aseconds.Milisec-timezoneOffset%3A00&to=2016-01-28T13%3A01%3A00.000-05%3A00))

Again Hit Mango Automation Api using **Rest Client** to above url

with Accept type and cookie received in previous step in the request Header. Send from date and to date you need data.

Example🡪

Cookie: 1maafhvm84ca71ffx1733fsx3i

Accept: application/json

We will receive json response with ts and vaues. Store it to temporary table.

We are depending on timestamp in GMT so Timezone Offset will be zero in above URL.

* Calculate KPI calculations using formulas and load data to the fact table.

we are depending on the timestamp\_gmt in the bi\_dim\_date table while loading data.

The timestamp\_gmt is maintained as String in whole ETL.

Data Flows :

* We have 3 ETLs and one job calling all these ETLS.

1. To load data from SCADA to resultSet:

We will create URL on hourly basis with point\_x\_id, fromdate , todate, hour, minute and seconds with timezone Offset as zero. And we will copy it to the ResultSet in ETL.

1. To load data from Resultset to raw table (temp table):

This ETL is excecuted each time for each URL(row) in the resultset (This can be done in job level).

We hit the Mango Api with username and password to get cookies.

To call class and to get cookie(java script):

Import COOKIE.\*

TestCookie t= **new** TestCookie();

String cookies = t.test();

And then hit Mango Api with URL in the resultset with cookie and accept type To get data values.

We will get data in the form of json and loaded into raw table.

1. To load data from raw table to fact table.

We give from date and to date in timestamp in GMT. And we will fetch data from the raw table and calculate the required KPI calculations. Finally data is loaded to the fact table.

In this ETL the date should be maintained as the string Object and not as Date object to handle Day light saving (because if we make it as date object then it will get converted to the EST timezone since server is in EST and we cannot handle Day Light Saving).

1. Finally we have an ETL to send Daily Report to the Client.

* For the Fleet **LM** and **TAIT** we have one more ETL to calculate Delta difference between **Kw\_tot** value and **Group\_real\_power\_demand.**  This is used for Delta Difference section in the Dashboard.

Daily Report ETL Flow:

* We have reapective fleet ktr file tr\_m\_fleet\_fleetName\_report\_mail.ktr ETLs to call the respective PRPT to generate report and to send mail.
* The PRPT uses tr\_m\_fleet\_fleetName\_all\_chart\_graph.ktr to load data to the top 2 Composite chart in the Report.(We will point Report to the *Row Normaliser* and *Row Normaliser 2* component The ETL).
* The Daily Report of Fleet Zeeland and Kilroot have different time zone. We load data to the fact according to GMT timezone only but only display of chart will be in different timezone.

Zeeland 🡪 Amsterdam timezone

Kilroot 🡪 Europe/Belfast timezone

Problem Faced:

* Heap Space Error while fetching data from the Mango Api.

Solution: reduced the time period to Hour period while fetching data from Mango Api.

* RAM out of memory.

Solution: Increased RAM size.

* To Load data to the Fact table in GMT timezone. Since Server is in EST timezone the date was converted to EST but we need to depend on GMT to avoid Day Light Saving Problem.