

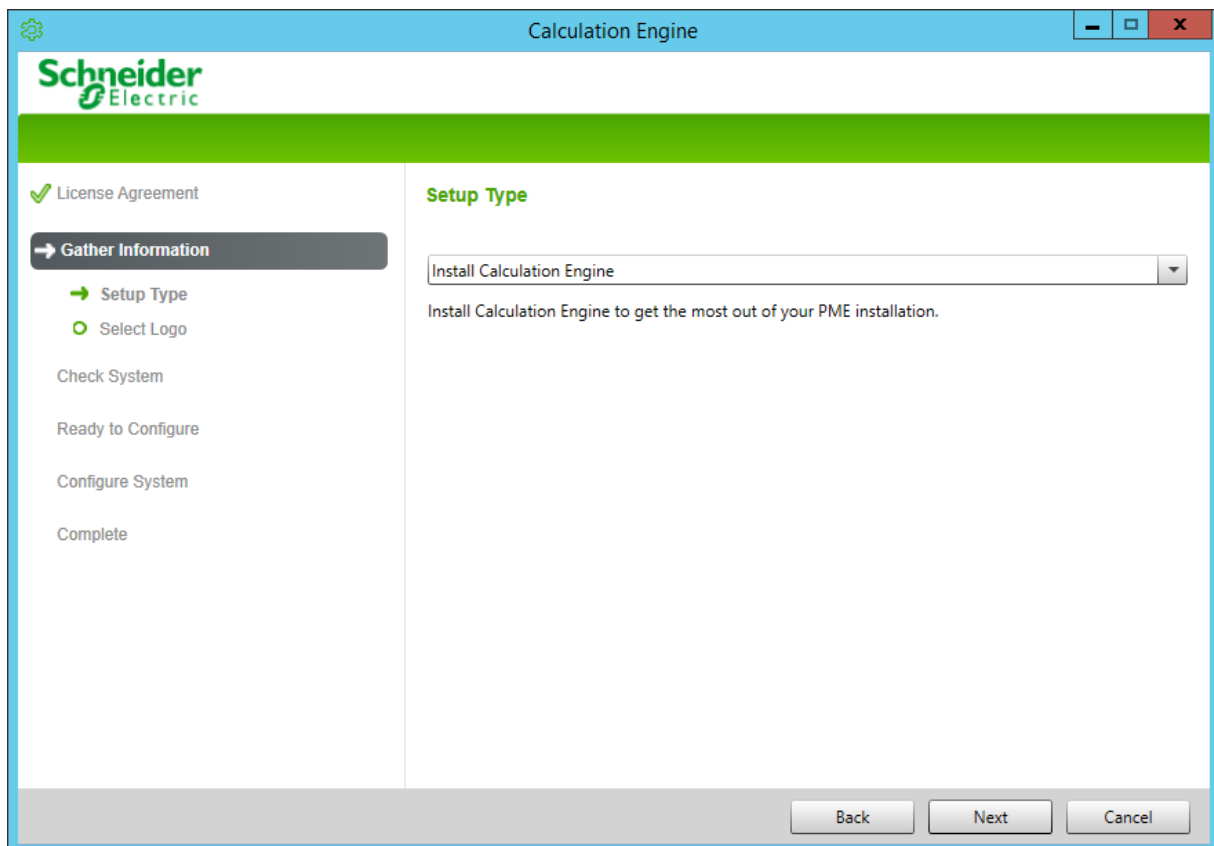
KPI Calculation Engine Report

Introduction

The KPI Calculation Engine report is designed to operate on one or more source\measurement pairs and perform a calculation based on a given expression to create a normalized data stream. The resultant values are presented in the report and can also be optionally saved in the PME database against an output source\measurement.

Installation

Installation of the KPI Calculation Engine report is seamless via the packaged installer. Simply run the executable, follow the prompts and the new report pack is installed for you.



The new report appears in the KPI Calculation Engine Folder.

Configuration

The KPI Calculation Engine report is installed like any other Report in the system that can be run ad-hoc or scheduled. The Reports parameters are illustrated below.

KPI Engine Report

Title

Rollup

Input Source Measurements

<input type="checkbox"/> A	<input type="button" value="Select Source"/>	ION.7650_84_243	<input type="button" value="Select Measurement"/>	Real Energy (kWh)
<input type="checkbox"/> B	<input type="button" value="Select Source"/>	Victoria_Keating.main_7650	<input type="button" value="Select Measurement"/>	Real Energy (kWh)
<input checked="" type="checkbox"/> C	<input type="button" value="Select Source"/>	Victoria_Keating.Main_8600	<input type="button" value="Select Measurement"/>	Real Energy (kWh)

KPI Source

KPI Measurement None Selected

KPI Measurement Override

KPI Formula

Save Calculated Values Yes No

Reporting Period [start of day 2/16/2017 to end of day 2/22/2017]

Show Data Warnings Yes No

Title: This is the title to be shown at the top of the report and is sent when scheduled to export.

Input Source Measurements: Select the required Source(s) & Measurements(s) for already logged data to use as inputs into the KPI calculation. Each selected pair is given a label that can be used to reference its values in the KPI formula.

Aggregation Interval: Select one of the aggregation methods to apply on the input source measurement data before performing the calculation. Currently following rollup periods are supported.

- a) Interval
- b) 5 Minute
- c) 10 Minute
- d) 15 Minute
- e) 30 Minute
- f) Hourly
- g) Daily
- h) Monthly
- i) Annually

KPI Formula: Enter the desired expression to apply to the values from the input source & measurement pairs. Primary, multiplicative & additive operators are all supported in the formula field. The source measurement pairs are labelled in alphabetical order. These labels must be used in the formula for calculation. Usage of any other labels not mapped with source measurement pairs will lead to failure in report generation. Examples of valid formula syntax:

- (A + B) / C
- A + B + C
- C / (A + B)

- Etc.

KPI Source: The output source against which calculated values are logged. The source will be created automatically, if it does not exist already.

KPI Measurement: The output measurement against which calculated values are logged.

KPI Measurement Override: The output measurement entered manually by user. A non-default value will override the KPI Measurement field.

Save calculated values: Setting this to 'No' (default) allows the report to run in preview mode to review the inputs and calculations. Once happy with the result, setting this to 'Yes' then saves the calculated values in the database against the entered Source/Measurement.

The availability of newly created source and measurements in other PME applications will be based on Application Modules refresh cycle. By default, this cycle is set to run every 5 minutes.

If values already exist from a previous report run, the values will be updated accordingly.

Reporting Period: The period for which to calculate normalized data for. This will serve two major modes:

- ***Historical backfill*** - This mode is used when a new KPI is created, and there is a duration of historical data available to calculate the KPI. The user must specify how far back in time to calculate the KPI. This could be up to 2 or more years. This would be expected to be run once, to allow the KPI to “catch up” on all the available historical data.
- ***Steady-state*** - This mode is used in normal operations and allows an automatic re-calculation of the KPI over a short time frame, for example the past 7 days. The user should specify the duration for this steady-state mode. The purpose of this setting is to allow KPIs to be updated in the presence of changes in the input parameter data. This is common in Industrial scenarios where production data may be edited after first provided.

Include Data Warnings: Optionally show a table of any general data warnings encountered during the report processing.

Below is a sample of the tabular output of the generated reported. The KPI source measurement column shows the calculated values based on aggregated data of input source measurement pairs.



Calculation Engine

2/17/2017 12:00:00 AM - 2/24/2017 12:00:00 AM (Server Local)

Data Warnings

No data warnings.

Hourly Calculation Table

Timestamp	KPI.EnergyKPI.KPI_Energy [(A+B)/C]	Victoria_Keating.main_7650.Block Demand Real Power [A]	Victoria_Keating.main_7650.Real Energy [B]	Victoria_Keating.Main_8600.Real Energy [C]
2/17/2017	5.00	932.47	233.00	232.88
2/17/2017 1:00:00 AM	5.00	889.94	222.50	222.50
2/17/2017 2:00:00 AM	4.99	903.09	225.75	226.00
2/17/2017 3:00:00 AM	5.00	922.51	230.75	230.50
2/17/2017 4:00:00 AM	5.00	898.24	224.63	224.63
2/17/2017 5:00:00 AM	4.99	923.48	230.75	231.25
2/17/2017 6:00:00 AM	5.01	953.88	238.50	238.00
2/17/2017 7:00:00 AM	4.98	1,037.71	259.50	260.25
2/17/2017 8:00:00 AM	5.00	1,090.52	272.63	272.75
2/17/2017 9:00:00 AM	5.00	1,086.93	271.75	271.75
2/17/2017 10:00:00 AM	5.00	1,116.79	279.25	279.25
2/17/2017 11:00:00 AM	5.00	1,110.04	277.50	277.25
2/17/2017 12:00:00 PM	5.00	1,109.58	277.50	277.38
2/17/2017 1:00:00 PM	5.00	1,129.12	282.25	282.50
2/17/2017 2:00:00 PM	5.00	1,124.76	281.25	281.25
2/17/2017 3:00:00 PM	5.00	1,101.35	275.25	275.13
2/17/2017 4:00:00 PM	5.00	1,075.72	268.88	269.00
2/17/2017 5:00:00 PM	5.01	1,076.60	269.25	268.63
2/17/2017 6:00:00 PM	5.00	1,063.10	265.75	265.88
2/17/2017 7:00:00 PM	5.00	1,019.47	254.88	254.75
2/17/2017 8:00:00 PM	5.01	1,000.38	250.13	249.75
2/17/2017 9:00:00 PM	5.00	920.12	230.00	229.88
2/17/2017 10:00:00 PM	5.00	883.98	221.00	220.88
2/17/2017 11:00:00 PM	4.99	921.97	230.50	230.75
2/18/2017	5.01	876.00	218.88	218.75
2/18/2017 1:00:00 AM	5.01	860.90	215.25	214.88
2/18/2017 2:00:00 AM	4.99	863.02	215.75	216.00
2/18/2017 3:00:00 AM	5.00	928.06	232.00	231.88
2/18/2017 4:00:00 AM	4.99	914.87	228.63	229.00
2/18/2017 5:00:00 AM	5.01	902.24	225.50	225.25
2/18/2017 6:00:00 AM	5.00	780.67	195.25	195.00

Generated on: 2/23/2017 2:21:05 PM

Page 1 of 4