SMMePlus

Daily Closure acquisition process

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Summary

The aim of this document is to describe the acquisition process of Daily Closure registries in SMMePlus

Distribution List

Document target list

Name	Company

Document modifications

The following modifications refer to the old document versions.

Changes Description	Reference
First version	1.0

References

List of the documents

[1]

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1. Introduction

1.1. Purpose

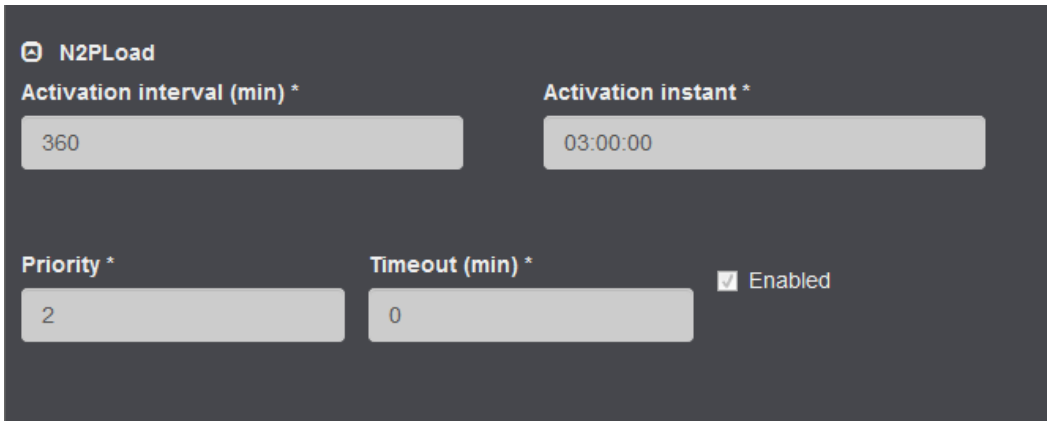
The aim of this document is to describe the acquisition process of Daily Closure registries in SMMePlus

2. Devices Configuration

2.1. Concentrator configuration

The n2pload procedure of concentrators is in charge of collecting load profiles and daily closures from commissioned meters.

The configuration of procedures inside concentrators is performed through “Concentrator initialization” and “Concentrator modification” processes of SMMePlus.
The system writes inside the concentrator the parameters that have been defined in the concentrator profile.



Activation interval is the value of the period (in minutes) over which the concentrator procedure is executed. For example, a value 10 means that every ten minutes the system executes the procedure.

Activation instant is the first instant in the day in which the concentrator procedure is activated.

Priority is a value detailing the priority level of the procedure. In the case in which a high priority procedure is activated while a low priority procedure is still running, the low priority procedure execution is stopped and the high priority one is started.

Timeout is the timeout between the activation instant and the real activation of the procedure. It is normally set to 0.

2.2. Meter configuration

Daily closure is managed in meters since firmware 11.

When a meter is commissioned, SMMePlus system executes the “Meter Tech Configuration” process. Through this process, the meter is synchronized, configured and the firmware version is read.

After the “Meter Tech Configuration” process, the “Meter Tech Configuration on Concentrator” process is executed. If the concentrator version is equals od higher than 21 and the meter firmware is equals or higher that 11, a specific flag inside concentrator is enabled for the meter.

Meters in field

concentrator	usagepoint	serialnumber	type	state	process state	row	phase	version app1	version sw fx	pload	dailyclosure
TD-4001	4745	UAAEEDN16202817600	CERM1	Commissioned		154	Phase T	3130		True	False

Meters in field

concentrator	usagepoint	serialnumber	type	state	process state	row	phase	version app1	version sw fx	pload	dailyclosure
TD-4001	4584	UAAEEDN17700583758	CERM1	Commissioned		185	Phase T	3131		True	True

3. Collection and integration

3.1. Daily Closure collection

Daily closures of meters are acquired in SMMePlus through Daily Closure scheduled activity.

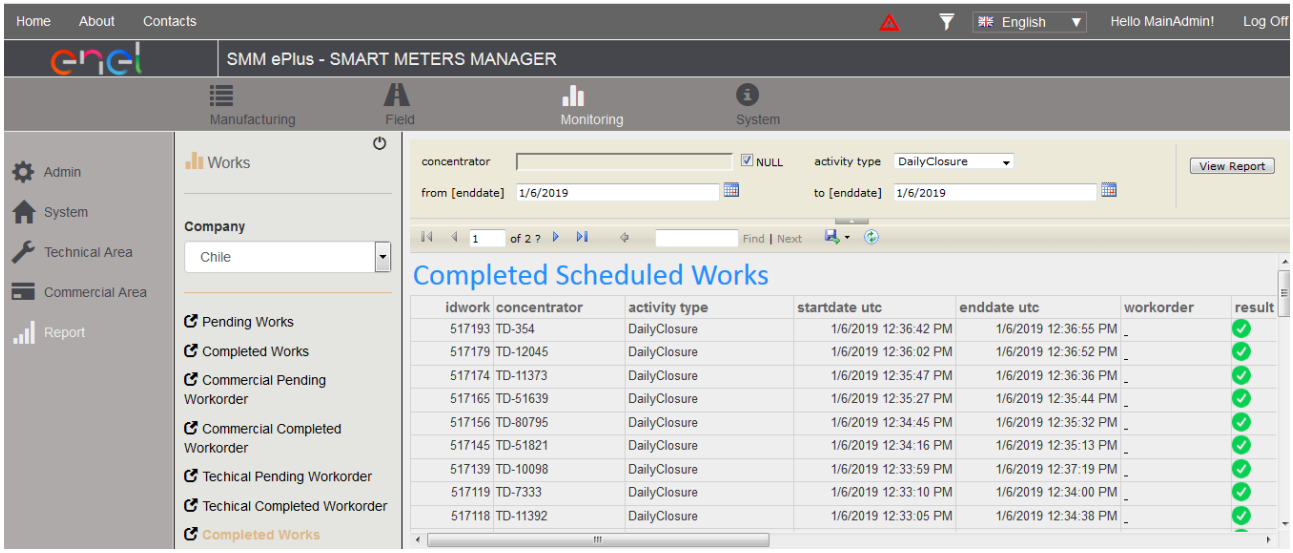
Activities execution is based on “Concentrator Activities Settings”:

- **interval seconds** are seconds between the execution of activities.
- **priority** is used by the system for choosing which activity has to be executed first (in case of start at the same time)

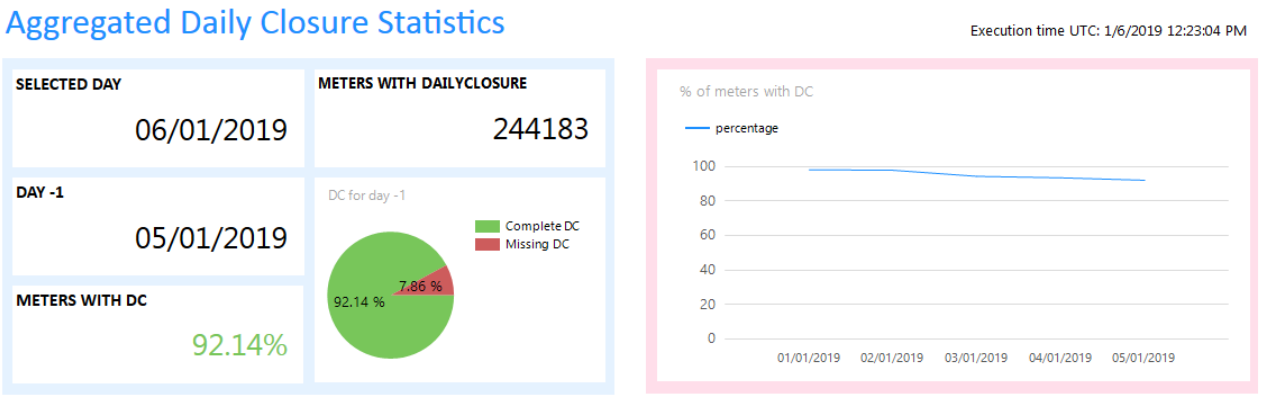
Concentrator Activities Settings

concentrator activity	interval seconds	priority	max retry count	max execution hours
N2Pload	21600	2	-	-
DailyClosure	21600	2	-	-
Autodiscovery	86400	4	-	-

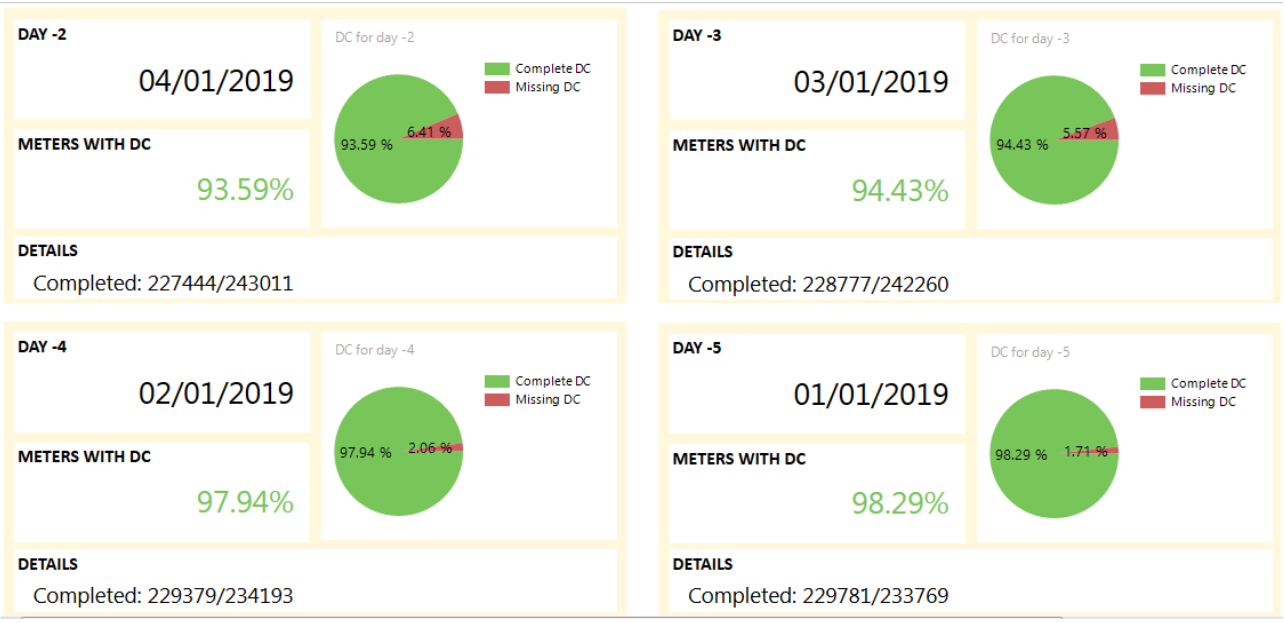
In “Completed Scheduled Works” report you can see all executions of scheduled activities.



In “Aggregated Daily Closure Statistics” report you can see aggregated information of daily closure collection.



These data are not in real time. The calculation time is visible in the right-top corner of the report.

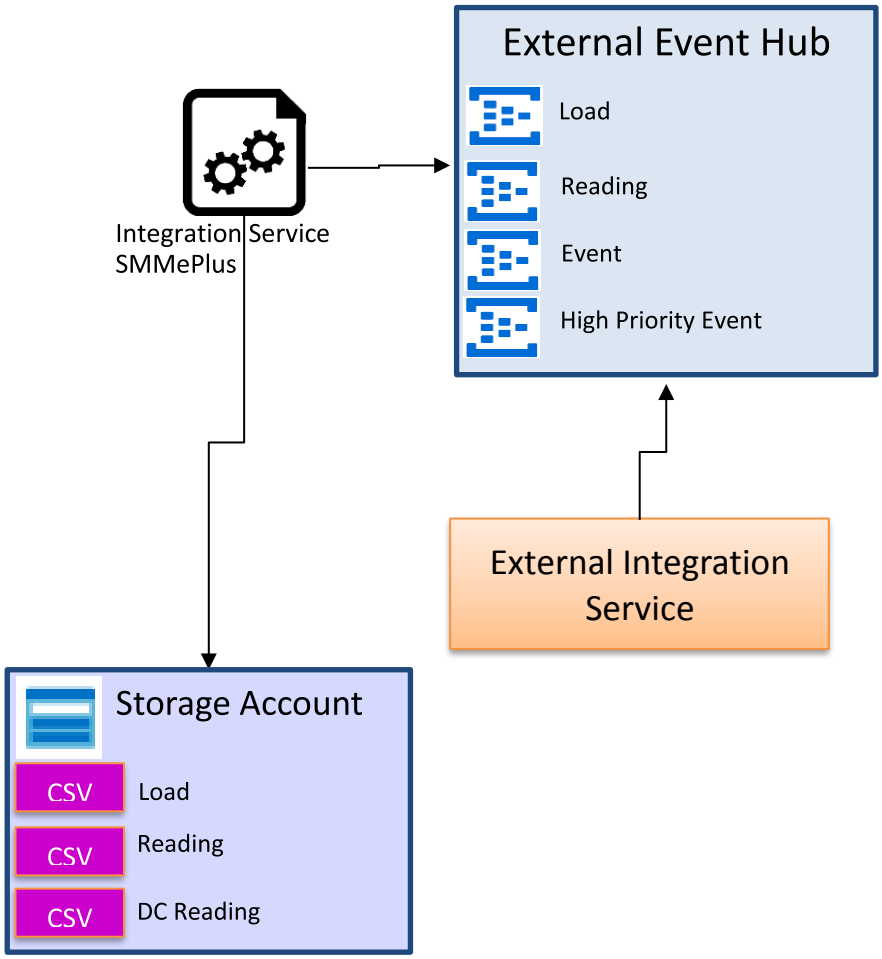


You can see the amount of daily closures collected for the previous days.

Since the n2pload procedure inside the concentrators recovers missing information (when the meter or the concentrator returns reachable), the percentages are higher in previous days.

3.2. SMMePlus Integration Service

SMMePlus Integration Service is the component in charge of making collected registries available for business processes.



Latest version of SMMePlus Integration Service pushes collected data (DC, samples, events) on an Azure Event Hub stream that can be accessed used a private key.

The Integration service of the client “listens” to this stream in order to download new information as soon as they’re available.

The payload of DC pushed on Event Hub follows CIM standard and has this format

{\"ci\":\"00000000-0000-0000-0000-000000000000\", ← Correlation ID of request (if exists)
\"c\":\" 00000000-0000-0000-0000-000000000000\", ← Identifier of company
\"m\":\" UAAEEDN15200000XXX\", ← Meter serialnumber
\"p\":\"POD8\", ← POD name
\"data\":\":[
{\"cc\":\"0.0.16.1.1.1.12.0.0.0.0.0.0.0.0.0.72.0\" ← CIM Code
,\"d\":\"2018-09-20T00:00:00\", ← Timestamp of first DC
\"values\":
[{\"v\":82, \"cq\":\"1.0.0\"}]}, ← DC of timestamp
[{\"v\":84, \"cq\":\"1.0.0\"}]}, ← DC of timestamp + 1 day
{\"cc\":\"0.0.16.9.1.1.12.0.0.0.0.6.0.0.0.0.73.0\", ← CIM Code
\"d\":\"2018-09-20T00:00:00\", ← Timestamp of first DC
\"values\":
[{\"v\":0, \"cq\":\"1.0.0\"}]}, ← DC of timestamp
[{\"v\":0, \"cq\":\"1.0.0\"}]} ← DC of timestamp + 1 day
]}",

In addition to this real time process, every day a csv file containing DC registries is produced and saved on an Azure File Storage.

NAME	TYPE	SIZE
DC_2019-01-01_0.csv	File	9.28 MiB
DC_2019-01-01_1.csv	File	2.43 MiB
DC_2019-01-01_3.csv	File	10.76 MiB
DC_2019-01-01_4.csv	File	65.54 MiB
DC_2019-01-02_0.csv	File	13.92 KiB
DC_2019-01-02_1.csv	File	40.36 MiB
DC_2019-01-02_2.csv	File	35.96 MiB
DC_2019-01-02_3.csv	File	8.55 MiB
DC_2019-01-02_4.csv	File	3.62 MiB
DC_2019-01-03_0.csv	File	2.69 KiB
DC_2019-01-03_2.csv	File	26.97 MiB

The file contains all registries collected the day before. If the DC process recovers data of previous days you will find them in the csv file of the day the process runs.

The format of the file is the following
serialnumber;t1;t2;t3;t4;t5;t6;tot;energytype;energytype_description;time
UAAEEDN15200000XXX;7743059;0;0;0;0;0;7743059;8;Active Energy Import Previous;2019-01-01 00:00:00.000