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User Manual

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|----------------|--|------------|
| Redatto da: | Busatto Marco - Lynx | 04/07/2019 |
| Verificato da: | Gabriele De Benetti - Lynx | xx/03/2019 |
| Approvato da: | Marco Calvi - Enel Global Digital Solution | xx/03/2019 |

Summary

The aim of this document is to describe how to use the StarBeat product. For all the terms in brackets [], please refer to Product [Catalogue](#).

Distribution List

Document target list

| Name | Company |
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This artifact is available on Confluence:

- Project: [IN - Product StarBeat](#)

Document modifications

The following modifications refer to the old document versions.

| Changes Description | Reference |
|---------------------|-----------|
| First version | 1 |
| | |
| | |
| | |
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1. Introduction

1.1. Purpose

The purpose of this document is to describe the operation that the operator can perform through the Star Beat product, then its functionality.

1.2. Audience

This document gives information about the Product Functionalities available in the Star Beat System. It will also provide an overall overview of the systems that are involved in the business processes described.

The audience of this document is Enel Global Digital Solution ,and, interested partners, clients, and suppliers.

2. Authentication and authorization

2.1. Accessing the StarBeat Application

The system manages authentications, and, authorizations in cooperation with the Secure Beat system, so the authentication/permissions functionalities that Star Beat manages are closely to what is defined in Secure Beat system.

The macro functionalities managed are as follows:

1. Single Sign-on compliant
2. Integration with Enel LDAP
3. Authentication from external Enel domain
4. Definition of physical user/operators, and, also application/virtual user (E.g. Digitaly)
5. User Profile association to specific territorial organizations, with different levels of authorization (Create, View, Edit)

2.2. Authentication to StarBeat system via GUI

The Authentication can be executed, for example:

- 1) from the operators in the enel domain and in this case authentication will be transparent (no username and password will be requested by the system)
- 2) from external Enel domain with enelint.username and password (therefore the operator using starbeat must be registered in the enelint domain)

So in the cases above the operator using Starbeat must be registered in an Enel domain (or in the domain in which the systems are installed), because Kerberos / LDAP, in collaboration with the 'SecureBeat' System, will check if the operator is enabled to operate on the StarBeat product.

When, for example, an enelint user accesses the StarBeat application with a supported web browser a popup opens and prompts for the user credentials. Upon providing valid credentials on “ENELint” domain the user is allowed access to the application.

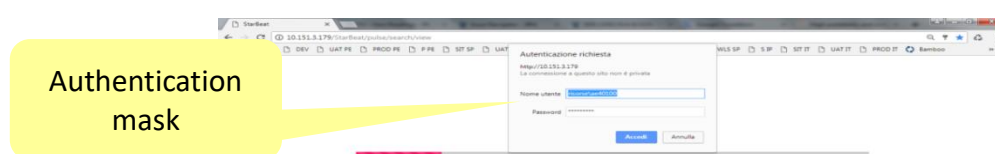


Figure 1 – Login to the StarBeat Application

2.3. Header StarBeat system information

On successful login the operator will always display the Star Beat header section, that is available in all the web pages.

The header section provides, a **customizable Logo**, and, information about:

- the operator logged in,
- the system language,
- the Environment,
- the product version,
- the installation country/company
- the Breadcrumbs

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On successful login the user name is shown in the top left corner of the page:

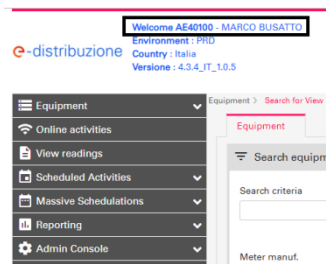


Figure 2 – Logged username information

2.3.1. StarBeat Multi language - change language

The header fields have interaction with the web pages, for example in case of changing language, all the GUIs of StarBeat System will be shown in selected language. Star Beat system is developed and configured in English, as it is the reference language. The default language is a specific installation setting, so the default language depends from the configuration of the installation.

In each product installation, the system loads all the available languages. Through the language field in the header each operator in any StarBeat UIs can changes the default language.

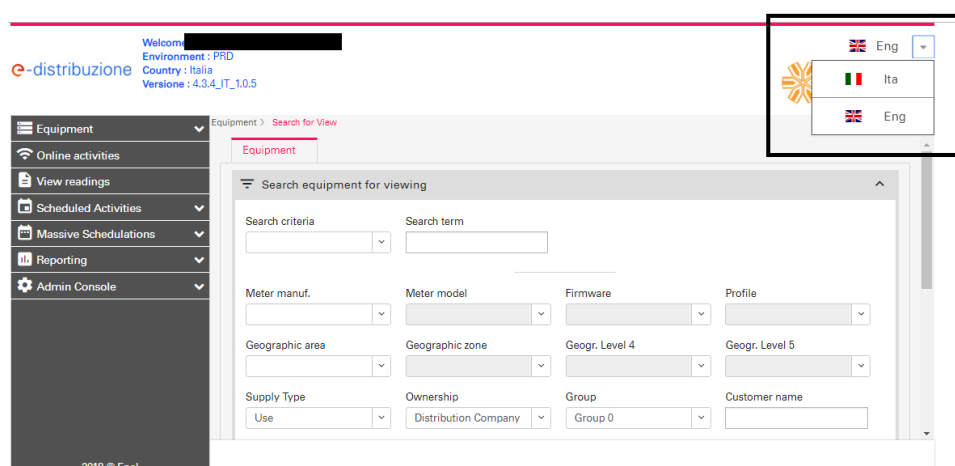


Figure 3 – application language setting

3. Star Beat System functionalities

The Star Beat system verifies the operator's authorisations, asking to Secure Beat system for which functionalities, and, on which territorial hierarchy, the operator is enabled.

The functionalities referred to the menu items are described in the following chapters:

- *Equipment* - see chapter 4
 - *Installation* - see chapter 4.1
 - *View* - see chapter 4.2
 - *Edit* - see chapter 4.3
- *Online Activities* - see chapter 5
- *View readings* - see chapter 6
- *Scheduled activities* - see chapter 7
 - *Create and Maintain* - see chapter 7.1
 - *View* - see chapter 7.2
- *Massive Scheduling* - see chapter 8
 - *Insert* - see chapter 8.1
 - *View* - see chapter 8.2
 - *Edit* - see chapter 8.3
- *Work Order* - see chapter 9
- *Reporting* - see chapter 10
 - *KPI* - see chapter 10.1
 - *Equipment* - see chapter 10.2
 - *Communication* - see chapter 10.3
 - *Telereading* - see chapter 10.4
 - *Call tracing* - see chapter 10.5
 - *Error details* - see chapter 10.6
 - *Warning details* - see chapter 10.7
- *Admin console* - see chapter 11
 - *Groove Properties* - see chapter 11.1
 - *Sync Properties* - see chapter 11.2
 - *Profiled Checks* - see chapter 11.3
 - *Profile Match* - see chapter 11.4

3.1. Navigation Menu

Therefore the operator will be able to operate only on the functionalities (menu and sub menu) on which it is enabled, so in the following image the operator that has accessed is not enabled for the Work Order function.

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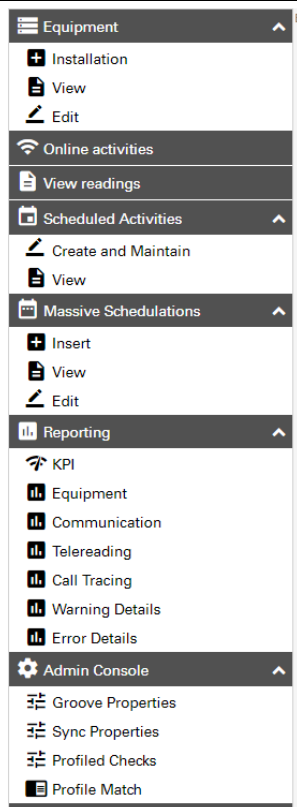


Figure 4 – Navigation menu without the Work Order Menu item

To access the desired functionality the user selects the corresponding menu item in the left navigation menu.

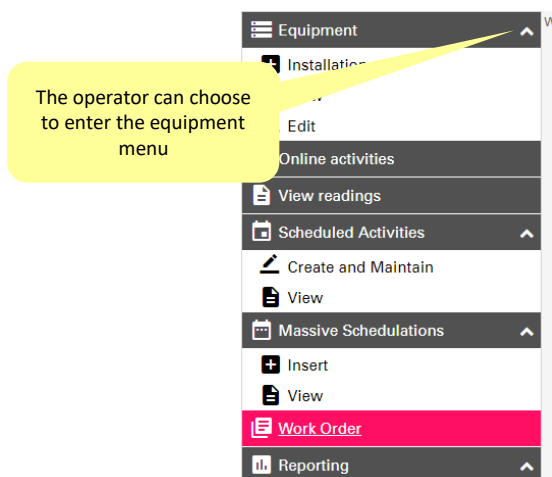


Figure 5 – Navigation menu (snapshot with the Work Order Menu item)



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4. Equipment Master Data

The operator accesses the menu in order to operate on the equipment master data.

4.1. Installation

The Equipment installation functionality allows the operator to enter meters, communication module, default scheduled activities in the StarBeat Master Data.

The *Save* button on the bottom of the page becomes enabled when:

- all mandatory fields, i.e. the ones marked with an asterisk, are entered, or **automatically pre-compiled**.
- all fields have a valid value

An invalid input is marked with a red border and an error description as a tooltip when the mouse pointer is placed over the field.

Most noticeable fields are the following, however, it should be noted that most of this information can be automatically evaluated by StarBeat:

- *Installation date: (automatically proposed/prefilled)* the date, with optional *Installation Time*, the equipment was installed. This field is part of the available search criteria for the equipment search.
- *POD*: a 15 alphanumeric code identifying the Point Of Delivery for the equipment. No logic is performed on this field by the system during the meter acquisition process. This field is part of the available search criteria for the equipment search.
- *Dist. Company / Geographic area / Geographic zone*: country specific categorization of equipment based on geographic location. Available options for the geographic zone depend on the area selected, and available options for area depend on company selected. These fields are part of the available search criteria for the equipment search.
- *Group: (automatically proposed/prefilled)* defaulted to Group 0, allows the user to categorize equipments in groups from 0 to 5. This field is part of the available search criteria for the equipment search.
- *Manufacturer S/N (Meter ID 1) and Software meter ID*: meter serial number 1/. This field (*Software meter ID*) is checked against the one returned by the meter during data acquisition and causes the reading to be marked as warning in case of mismatch. This field is part of the available search criteria for the equipment search.
- *Reading password: (automatically proposed/prefilled)* password used to open the communication with the meter, used in the data acquisition process.
- *Writing password: (automatically proposed/prefilled)* password use in the clock synchronization activity.
- *Multidrop / HDLC / Call via S/N: (automatically proposed/prefilled)* information used by the system to communicate
- *Main communication (Type / Baud rate / Data bit / Parity bit / Stop bit) automatically proposed/prefilled*: type and settings to be used in the communication with the meter during the data acquiring process.
- *Secondary communication - automatically proposed/prefilled - (Type / Baud rate / Data bit / Parity bit / Stop bit)*: information only, not used by the system
- *Phone number / IPv4*: parameters used in the communication with the meter during the data acquiring process.
- *Start reading date: (automatically proposed/prefilled)* start date to be acquired on the first data acquisition
- *Scheduling enabled: (automatically proposed/prefilled)* if set to NO the equipment will not be

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acquired by the system

- *Type of Reading (Load curves):* (*automatically proposed/prefilled*) sampling interval of the equipment, used in the communication with the meter during the data acquiring process.

When the user is done inputting the equipment data, and there are no errors, the user can save the data. On clicking on the *save* button a confirmation popup opens:

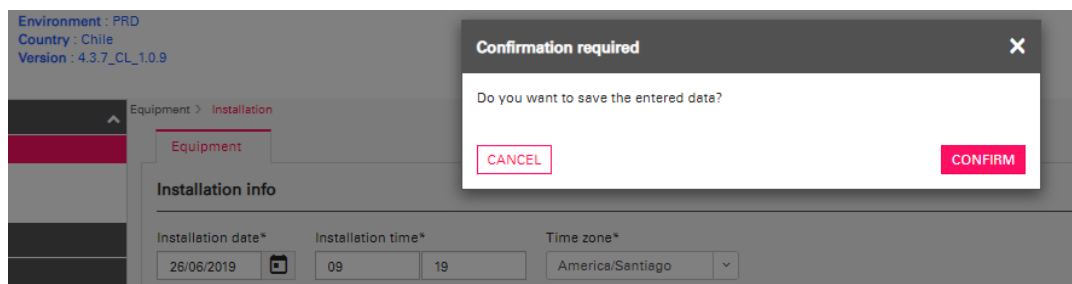


Figure 6 – Save / Edit confirmation popup

Clicking *Cancel* the popup closes and the user can amend the entered data, while clicking *Confirm* a visual effect (bar moving on top of the page) informs the user that the system is processing the save request. Although the inputted data was already checked in the page, it is again checked by the back end server for both a tampering protection and a finer level of checks.

The result of the save request is then prompted to the user with an information or error message, in case of error the message details the errors reported by the server.

On a successful installation in the master data the user is automatically redirected to the **edit** page for the just entered the equipment.

Navigating away from the installation page causes the loss of unsaved data.

All installed equipments with *Scheduling enabled* set to *YES* in the “*Default System Scheduling*” Tab will be automatically scheduled for meter reading by the system.

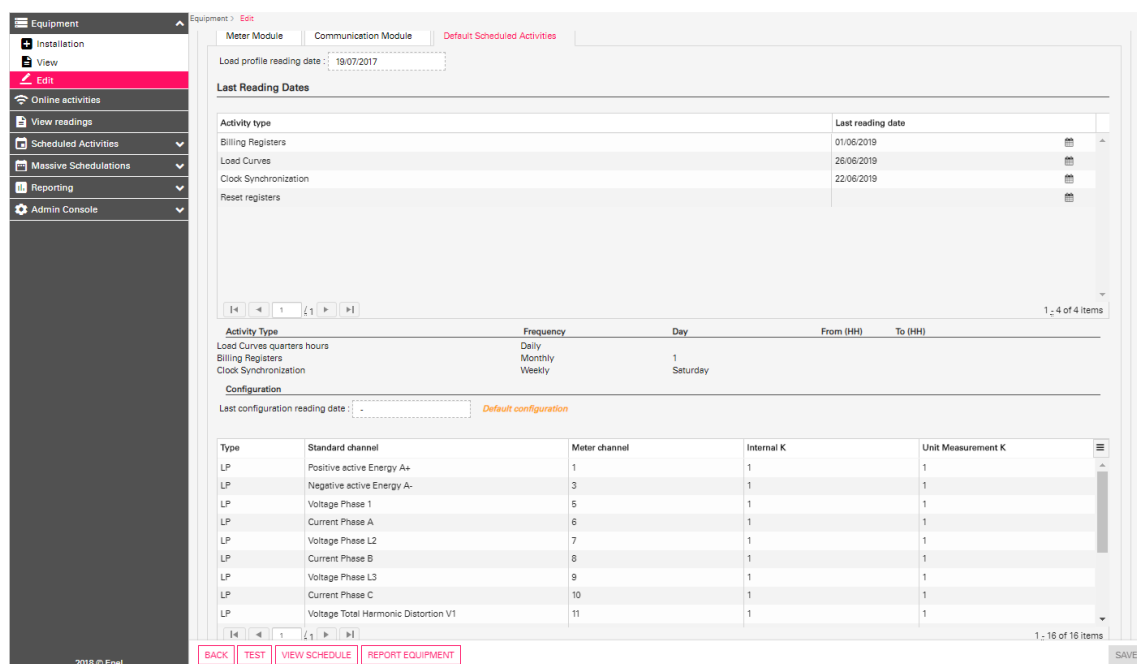


Figure 7 – System scheduling / Scheduling enabled

Default scheduling parameters are (may vary on specific installation):

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- *Load curves*: the user can specify the sampling interval (hourly or 15 minutes), load curves are read every day. Currently supported: hourly
- *Billing registers*: registers are read the first day of each month
- *Diagnostic log*: not supported
- *Clock synchronization*: meter clock synchronization with the server time is performed every day

Acquired data can be accessed with the *Reading view* functionality (See Chapter 6).

4.2. View

The Equipment installation functionality allows the user to view the Equipment data entered through the installation functionality (see chapter 4.1).

The UI the same fields explained in installation section (see chapter 4.1) but the fields are not editable.

4.3. Edit

The Equipment installation functionality allows the user to update or view the Equipment data inserted through the installation functionality (see chapter 4.1).

When the corresponding menu item is selected the equipment search page is shown allowing the user to retrieve the list of existing equipments matching the inputted criteria.

Figure 8 – Equipment search

In the results table appearing after clicking on the *Search* button the user can select the equipment to edit / view by clicking on the icon on the first column.

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Equipment > Search for Edit

More than 100 equipments have been retrieved. First 100 are displayed. Please, filter more accurately

Search equipment for editing

Search criteria: Search term

Meter manu.: Meter model: Firmware: Profile:

Dist. company: Geographic area: Geographic zone: Geogr. Level 4: Geogr. Level 5:

Supply Type: Ownership: Group: Customer name: Installation addr.:

Last activity date: Activity Type: ☐ Performed in the interval ☐ Not performed for at least n days ☐ Performed at least once

Telereading inhibit: ☐ Enable ☐ Disable ☒ All ☐ Enable ☐ Disable ☒ All Installation Date From: Installation Date To:

RESET SEARCH

| | Equipment Id | Pod Code | Meter Id1 | Meter Serial N2 | Geographic Zone | Meter Group | Installation Date T Z | Primary Communication Type |
|---|--------------|----------|-----------|-----------------|----------------------|-------------|-----------------------|----------------------------|
| ✓ | 10 | 2803247 | 1704C509 | 1704C509 | REGIÓN METROPOLIT... | SF24 | 20/07/2017 10:15:24 | GPRS |
| ✓ | 1059 | 1668766 | 1704C016 | 1704C016 | REGIÓN METROPOLIT... | SF21 | 25/09/2017 12:18:23 | GPRS |
| ✓ | 1060 | 1668748 | 1704C470 | 1704C470 | REGIÓN METROPOLIT... | SF21 | 25/09/2017 12:18:27 | GPRS |
| ✓ | 1266 | 1185467 | 17070366 | 17070366 | REGIÓN METROPOLIT... | SF32 | 25/09/2017 12:31:59 | GPRS |
| ✓ | 1476 | 2720288 | 1704C011 | 1704C011 | REGIÓN METROPOLIT... | SF22 | 01/11/2017 13:56:25 | GPRS |
| ✓ | 1488 | 659045 | 1704C021 | 1704C021 | REGIÓN METROPOLIT... | SF23 | 01/11/2017 13:56:26 | GPRS |
| ✓ | 1489 | 670571 | 1704C211 | 1704C211 | REGIÓN METROPOLIT... | SF23 | 01/11/2017 13:56:26 | GPRS |
| ✓ | 1495 | 1293430 | 1704C298 | 1704C298 | REGIÓN METROPOLIT... | SF23 | 01/11/2017 13:56:26 | GPRS |

Figure 9 – Equipment search results

The *Reset* button clears any inputted data in the search criteria and in the results table.

The view functionality shows the selected equipment data in view mode (i.e. non editable mode) and has no action buttons while the edit functionality allows to change the existing data and save it with the *Save* button. The edit page validation and rules follows the behaviour described in the installation functionality (see chapter 4.1).

The edit page also allows to mark an equipment as *Removed*. To remove an equipment just entered a valid *Removal Date* and provide a *Removal Reason* in the corresponding fields (these fields are only available in the edit page).

Equipment > Edit

Equipment

Installation info

Installation date*: Installation time*: Time zone*: 20/07/2017 10 15 America/Santiago

Installation author*: Inventorying author: Inventorying datetime: Last Editing Author: Last Editing Date Time: CL107247319 - CLAUDIO I CL107247319 - CLAUDIO I 20/07/2017 10:17:04 CL176012730 09/04/2018 10:34:07

Telereading Inhibition: ☐ Yes ☒ No Telereading Inhibition Date: Commercial Offline: ☐ Yes ☒ No Commercial Offline DateTime:

Removal date: Removal reason: 27/05/2019 Broken meter

Installation details

POD Code*: 72079317

Figure 10 – Equipment removal

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5. Online Activities

The online activities functionality allows the user to perform a communication with the meter and see the results and the acquired data. The online activities requires to the user to input the communication parameters if the meter is a new one, but fill the fields automatically if the meter is already in the Master Data.

When the corresponding menu item is selected the on line activities page is shown.

The screenshot displays the 'Online activities' web interface. At the top, there's a breadcrumb trail: 'Online Reading > Start Online Reading'. The main content area is divided into several sections:

- Equipment data:** Includes fields for 'Manuf. S/N*' (04889948), 'Software meter ID*' (04889948), 'Timezone*' (America/Santiago), 'Manufacturer*' (EMH), 'Model*' (LZQJ M1 (default item)), 'Firmware*' (Standard Firmware), and 'Profile*' (EMH LZQJ Chile).
- Customer Data:** Includes 'POD Code' (3194816), 'Customer name' (MALL PLAZA ALAMEDA), 'Inst. address' (AVDA. LIBERTADOR BERRI), 'Street nr.' (3470C), 'Postal code' (), and 'City' (SANTIAGO).
- Communication data:** Includes radio buttons for 'Main' (selected) and 'Secondary'. Fields for 'HDLC*' (Upper/Lower), 'Phone number' (), 'IP address*' (10.117.17.207), 'Port' (9911), 'Telco provider*' (Movistar), 'Password*' (ADMIN015), 'Type*' (GPRS), 'Data bit*' (7), 'Parity bit*' (1), 'Stop bit*' (1), 'Baud rate*' (9600), and 'Call by SwMeterID' (Yes/No).
- Load Profile configuration:** Includes 'Type*' (Block).
- Activity type:** Includes checkboxes for 'Clock Synchronization', 'Diagnostic Registers', 'Billing Registers', 'Reset registers', 'Instrumentation Profile quarter hours', and 'Load Curves quarters hours'. Each has sub-options for 'Frequency' (Quarter Hourly), 'Interval (min. 2 - max. 30 days)' (Days, All, Period, From last), and 'Days' (2).

At the bottom, there are buttons: 'BACK', 'EDIT EQUIPMENT', 'GME LOG', 'DATA DETAILS', and 'RUN'.

Figure 11 – on line activities reading main page

Most noticeable fields are the following:

- *Manufacturer S/N (Meter ID) and Software meter ID:* meter serial number. These fields are presented alongside the meter ID read from the meter to allow the user to easily check the expected meter ID is acquired

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- *Manufacturer / Model / Firmware / Profile*: meter parameters used by the system for the communication and data acquisition. These fields are linked one another allowing the user to select only valid configurations.
- *Phone number / IP address*: parameters used in the communication with the meter during the data acquiring process. The IPv6 actually is not used
- *Type / Baud rate / Data bit / Parity bit / Stop bit*: type and settings to be used in the communication with the meter during the data acquiring process
- *Register reading*: the register data will be acquired if YES, not acquired otherwise
- *Clock sync*: the clock synchronization will be performed if YES, not performed otherwise
- *Load curves / Days*: the load curves data will be acquired if YES, not acquired otherwise. In case the load curves are requested the user can select the time interval to acquire:
 - *Days*: data will be acquired for the last number of days with respect to the current date
 - *Period*: data will be acquired in the date interval inputted
 - *All*: all data will be acquired
- *Diag. Registers*: not used actually in all the installation or for all the meter profiles

When all required data are entered the *Run* button becomes enabled and the user can start the reading by clicking on it. After the reading starts the *GME Log* button becomes enabled and when pressed the GME Log popup opens.

The screenshot shows a web interface with a 'Results' section. It contains several input fields for 'Execution date', 'Creation date', 'Read outcome', 'Sync outcome', 'Expected S/N', 'Received S/N', 'Micro error', and 'Macro error'. Below these fields are buttons for 'BACK', 'EDIT EQUIPMENT', 'GME LOG', and 'DATA DETAILS'. A 'RUN' button is visible on the right side of the interface.

Figure 12 – GME Log button enabled

The popup auto updates itself informing the user of the current communication step being processed.

The screenshot shows a 'GME Log' popup window. It displays a list of communication steps with timestamps and status indicators (green checkmarks). The steps are: 'Meter Required in Administration', 'Acquiring Communication ...', and 'Communication reserved for Meter'. A 'CLOSE' button is visible at the bottom right of the popup. The background shows the 'Equipment data' section of the main interface.

Figure 13 – GME Log popup



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When the communication completes, regardless the GME Log popup is open or closed, the results section of the page gets updated with the reading result summary and the *Data details* button becomes enabled and when pressed opens the results popup.

| Results | |
|---------------------|---------------------|
| Execution date | Creation date |
| 24/06/2019 14:15:14 | 24/06/2019 14:15:03 |
| Read outcome | Sync outcome |
| Ok | Not requested |
| Expected S/N | Received S/N |
| 74003118 | 74003118 |
| Micro error | Macro error |
| 0 | |

Navigation buttons: BACK, EDIT EQUIPMENT, GME LOG, DATA DETAILS, RUN

Figure 14 – Results section

In the results section the summary information are shown as well as the reading detail for the requested metrics (register, load curves or both).

Clicking on [Data Details], the user can enter the view reading page that will show the list of the readings related to the executed on line activity. See next chapter for details ([Ch. 6](#)).

| Creation date | Status change date | Equipment ID | Call ID | Activity Type | Status | Macro Error | Micro Error | Source | Lot Id |
|---------------------|---------------------|--------------|----------------|-------------------|--------|-------------|-------------|--------|--------|
| 24/06/2019 14:15:13 | 24/06/2019 14:15:59 | 1000 | 20190600000... | Billing Registers | ✓ | | | O | |

Navigation: 1 of 1 items

Figure 15 – view reading section

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6. View readings

The reading view functionality allows the user to view the reading results and the acquired data, if any, the activities types are detailed and displayed by origin of the request and according to other information, that can be used as a filter in order to analyse the meter readings in a punctual point of view.

When the corresponding menu item is selected the equipment search page is shown allowing the user to retrieve the list of existing equipments matching the inputted criteria.

Figure 16 – Search equipment for readings

In the results table appearing after clicking on the *Search* button the user can select the equipment to access the list of readings performed by the system.

| Creation date | Status change date | Equipment ID | Call ID | Activity Type | Status | Macro Error | Micro Error | Source | Lot Id |
|---------------------|---------------------|--------------|-----------------|--------------------|--------|-------------|-------------|--------|--------|
| 25/06/2019 17:01:10 | 26/06/2019 00:08:53 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |
| 24/06/2019 17:01:00 | 25/06/2019 00:08:43 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |
| 23/06/2019 17:01:00 | 24/06/2019 00:10:31 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |
| 22/06/2019 17:01:00 | 23/06/2019 00:08:25 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |
| 21/06/2019 17:00:59 | 22/06/2019 00:06:14 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |
| 20/06/2019 17:00:59 | 21/06/2019 00:08:20 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |
| 19/06/2019 17:00:59 | 20/06/2019 00:12:10 | 2029 | 201906000000... | Load Curves qua... | ✓ | | | S | |

Figure 17 – View readings

The view readings page allow the user to restrict the search results based on the reading date (from and to). If the search results are more than 100 a message informs the user that only the first 100 readings are shown. The user can sort data by clicking on the column header with the following logic:

- First click: ascending sorting
- Second click: descending sorting
- Third click: remove sorting

For more advanced sorting, the user can click on more than one column header holding the *shift* key pressed to filter firstly on the first column clicked, then on the second and so on.

A visual order of sorted columns is shown with numbers next to the sorting indication arrow.

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Figure 18 – Advanced view readings sorting

6.1. Export the grid contents

An export functionality is available on the view readings table by clicking on the action button on the table top right, or the excel button:

- *Export all data as CSV*: exports all the rows loaded in the grid
- *Export visible all data as CSV*: exports all visible rows loaded in the grid
- *Export all data and tab in excel*: export all data (raw data , normalized data, Execution info, and, the meter master data)

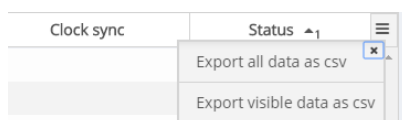


Figure 19 – Exporting view readings data in csv

Figure 20 – Exporting view readings data in excel

The user can access the acquired data by clicking on the document icon on the first column of the view readings table (raw data, and, normalized data).

Figure 21 – view readings - raw data



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Both tables data can be exported by clicking on the action button on the table top right as described in the view readings table.

| Obis standard | Description | Value | Unit | Capture time |
|---------------|--|----------------|------|--------------|
| 1-1:13.7.0*0 | Instantaneous Power Factor | 0.965400 | | |
| 1-1:73.7.0*0 | Power Factor In Phase L3 (T) | 0.942400 | | |
| 1-1:53.7.0*0 | Power Factor In Phase L2 (S) | 0.979800 | | |
| 1-1:33.7.0*0 | Power Factor In Phase L1 (R) | 0.975000 | | |
| 1-1:72.7.0*0 | Instantaneous Voltage In Phase L3 (T) | 117.800000 | V | |
| 1-1:52.7.0*0 | Instantaneous Voltage In Phase L2 (S) | 118.700000 | V | |
| 1-1:32.7.0*0 | Instantaneous Voltage In Phase L1 (R) | 119.000000 | V | |
| 1-1:71.7.0*0 | Instantaneous Current In Phase L3 (T) | 1.348000 | A | |
| 1-1:51.7.0*0 | Instantaneous Current In Phase L2 (S) | 1.428000 | A | |
| 1-1:31.7.0*0 | Instantaneous Current In Phase L1 (R) | 1.231000 | A | |
| 1-1:18.1*2 | Total Positive Active Energy In Tariff 1 previous month -1 | 1039564.000000 | kWh | |
| 1-9:32.9.0*2 | Summation of Energy 4 previous month -1 | 0.000000 | | |
| 1-8:32.9.0*2 | Summation of Energy 3 previous month -1 | 0.000000 | | |
| 1-7:32.9.0*2 | Summation of Energy 2 previous month -1 | 0.000000 | | |
| 1-6:32.9.0*2 | Summation of Energy 1 previous month -1 | 0.000000 | | |
| 1-5:32.9.0*2 | External Energy 4 previous month -1 | 0.000000 | | |
| 1-4:32.9.0*2 | External Energy 3 previous month -1 | 0.000000 | | |
| 1-3:32.9.0*2 | External Energy 2 previous month -1 | 0.000000 | | |
| 1-2:32.9.0*2 | External Energy 1 previous month -1 | 0.000000 | | |
| 1-9:32.9.0*2 | External Energy 4 previous month -1 | 0.000000 | | |
| 1-8:32.9.0*2 | External Energy 3 previous month -1 | 0.000000 | | |

Figure 22 – Reading details / Register

The load profile readings data shows the data referring to the selected date and channel, the data is immediately refreshed when the user changes any of the dropdown menu values.

The system is configured to read all available channels since the date of the last successful load curves reading date.

Reading date:

Load Curves quarters hours

Execution date

27/06/2019 00:10:54

Status

Warning

Expected SwMeterID

Received SwMeterID

Meter Clock

Meter Timezone

Server Clock

Server Timezone

1704C509

Raw data

Normalized data

Date from

24/06/2019

Date to

25/06/2019

SEARCH

| Date | Start Time | Stop Time | Status word | A L1 | A L2 | A L3 | A+ | A- | |
|------------|------------|-----------|-------------|--------------|-----------|--------------|-----------|----------|--|
| 25/06/2019 | 23:45:00 | 00:00:00 | | 12043.201000 | 10.199000 | 12009.916000 | 52.810000 | 0.000000 | |
| 26/06/2019 | 00:00:00 | 00:15:00 | | 12082.277000 | 10.227000 | 12052.242000 | 52.964000 | 0.000000 | |
| 26/06/2019 | 00:15:00 | 00:30:00 | | 12135.800000 | 10.131000 | 12105.672000 | 52.703000 | 0.000000 | |
| 26/06/2019 | 00:30:00 | 00:45:00 | | 12153.097000 | 10.169000 | 12126.463000 | 53.085000 | 0.000000 | |
| 26/06/2019 | 00:45:00 | 01:00:00 | | 12112.965000 | 10.334000 | 12087.170000 | 53.498000 | 0.000000 | |
| 26/06/2019 | 01:00:00 | 01:15:00 | | 12166.741000 | 10.144000 | 12142.095000 | 52.865000 | 0.000000 | |
| 26/06/2019 | 01:15:00 | 01:30:00 | | 12133.814000 | 10.207000 | 12110.497000 | 53.145000 | 0.000000 | |
| 26/06/2019 | 01:30:00 | 01:45:00 | | 12139.887000 | 10.311000 | 12115.828000 | 53.502000 | 0.000000 | |
| 26/06/2019 | 01:45:00 | 02:00:00 | | 12166.839000 | 10.561000 | 12143.177000 | 54.915000 | 0.000000 | |

BACK

EXCEL

Figure 23 – Reading detail / Load profile

7. Scheduled activities

The operator utilizes these functionalities in the below modalities:

1. The functions via **user interface** allows the operator to search for equipments, to select one, in the obtained result list, in order to:
 - a. **view**
 1. the **Manual Scheduled Activities** on it, so also the Massive Scheduled Activities (schedules that are open on equipments lot);
 2. the **Default Scheduled Activities** on it;
 - b. **edit**:
 1. the Manual Scheduled Activities on it, but the system does not allow to edit the **Massive Scheduled Activities** (schedules that are open on equipments **lot**) in this functionality, and does not allow to edit the **Default Scheduled Activities**;
 - c. **create** a new manual scheduled activities:
 1. using one of the configured schedule templates available, in order to create manual scheduled activities from template;
 2. creating a custom manual scheduled activities;
2. The function can be utilized also via **system interface** , and, it allows the external system:
 - a. to **update** Manual and Default Scheduled Activities.
 - b. to **create** ,or, to **update** Manual Scheduled Activities (but not the schedules that are open on equipments lot)

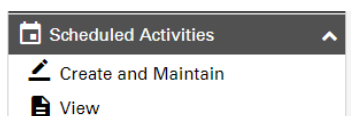


Figure 24 – Scheduled Activities menu

7.1. Create and Maintain

This functionality allows the operator:

1. to **view** the **Manual Scheduled Activities**, so also the Massive Scheduled Activities, the **Default Scheduled Activities** on it; to do this, use the button/icon: ;
2. to **edit** the Manual Scheduled Activities on it, to do this, use the button/icon: ;
3. to **create** Manual scheduled activities, , to do this, use the button/icon: ;

The operator must to search for equipments, in order to select one of it (in the obtained result list) for access to the scheduled list on it (Look at the two images below):

Figure 25 – Equipment Search for Scheduled Activities selection A

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| Area | Zone | UO | POD Code | External Customer ID | Manufacturer S/N | Software Meter ID | Phone Number | |
|------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|-------------------|--------------|----|
| D2 - NORD | D22L - VENEZIA | D22LU2 - MESTRE | IT001E00218604 | x | 05G10265156105733 | 56105733 | 3206295237 | LA |
| D3 - CENTRO NORD | D31A - BOLOGNA-FE... | D31AU5 - SAN GIOV... | IT001E00038766_TE... | 486875828 | 00G10247074003118... | 74003118 | 3339235625 | IS |
| D3 - CENTRO NORD | D31C - FORLI-RAVEN... | D31CU3 - FORLI-FAE... | IT001E00035485_TE... | 487578533 | 00G10265056008258... | 56008258 | 3202547729 | SI |
| D3 - CENTRO NORD | D31A - BOLOGNA-FE... | D31AU2 - FERRARA | IT001E00253221_TE... | 486884509 | 16G262A7076306513... | 76306513 | 3293590806 | IS |
| D3 - CENTRO NORD | D31C - FORLI-RAVEN... | D31CU3 - FORLI-FAE... | IT001E00249757_TE... | 487580716 | 05G10269296201823... | 96201823 | 3204990054 | AC |
| D3 - CENTRO NORD | D34F - REGGIO EMIL... | D34FU5 - GUASTALLA | IT001E00219848_TE... | 486900725 | 00G10269196101081... | 96101081 | 3208553908 | AC |
| D3 - CENTRO NORD | D31A - BOLOGNA-FE... | D31AU3 - SASSO M... | IT001E00038430_TE... | 487583049 | 00G10265056001436... | 56001436 | 3203773997 | SI |
| D3 - CENTRO NORD | D34F - REGGIO EMIL... | D34FU4 - SASSUOLO | IT001E00228062_TE... | 486928023 | 00G10269396122790... | 96122790 | 3203774022 | AC |
| D3 - CENTRO NORD | D31C - FORLI-RAVEN... | D31CU1 - RIMINI-RI... | IT001E00033784_TE... | 487583677 | 14G102A2156307786... | 56307786 | 3202547631 | LA |

Figure 26 – Equipments list for Scheduled Activities selection B

To select a meter in the list, click on the icon or button . A click on the icon gives access to the detail page that it can see below:

| ID Group | Description | Creation Author | Creation Date | Last Editing Author | Last Editing Date | Activity Type |
|----------|-------------|-----------------|---------------------|---------------------|---------------------|----------------------------|
| 3011 | SYS | STARBEAT | 28/08/2017 14:18:07 | | | Load Curves quarters hours |
| 3011 | SYS | STARBEAT | 28/08/2017 14:18:07 | | | Billing Registers |
| 3011 | SYS | STARBEAT | 28/08/2017 14:18:07 | | | Clock Synchronization |
| | Test | AEIV056 | 04/06/2019 08:12:27 | AEIV056 | 04/06/2019 12:18:08 | Billing Registers |
| | sche test 8 | AE40100 | 07/12/2018 09:38:12 | | | Load Curves quarters hours |
| | 544648545 | AE15177 | 15/11/2018 15:14:18 | | | Billing Registers |
| | Riprove1511 | AE15177 | 15/11/2018 14:55:30 | | | Billing Registers |
| | aaa | AE38785 | 11/10/2018 16:32:57 | | | Billing Registers |

Figure 27 –Create and Maintain – Scheduled Activities list – Pic 1

This functionality like many others shows the following two sections (The fields in these sections will be only displayed, so will be not editable, they are for information only):

1. The **Equipment details** is a standard UI section in which there will be shown the equipment information, i.e. the basic equipment data related at the selected equipment.
2. The **Customer data** is a standard UI section in which there will be shown the Customer information, i.e. the basic Customer data related at the selected equipment.

P.S.: These sections will be collapsible, so, thanks to the specific button pressure, the fields, contained in it, may be shown or disappear. —

| Equipment details | | | |
|-------------------|-------------------|-------------------|-------------|
| Eq. id | Manuf. S/N | Software meter id | |
| 10 | 05G10265156105733 | 56105733 | |
| Meter manuf. | Model | Firmware | Profile |
| LANDIS | LG25 | PWL.G25 | LANDIS LG25 |
| Zone | Group | DST Enabled | |
| D22L - VENEZIA | Group 0 | Yes | |
| Inst. date | Inst. time | Time zone | |
| 28/08/2017 | 13:58:41 | Europe/Rome | |
| Comm. type | Phone number | IPv4 | IPv6 |
| GSM | 3206295237 | | |
| | | Port | |

Figure 28 – Scheduled Activities - Master data

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Figure 29 –Create and Maintain – Custom data

In this functionality the **scheduled activities status** (active \ not active) was rendered with different row colors. So the scheduled activities list section displays the default and the manual scheduled activities; the list of the scheduled activities will be displayed with different colors and in the following order an logic:

1. The first rows in the list are the 'activities type' created automatically by the system, i.e. the [Default scheduled activities], these are colored in blue and light blue, at alternate rows.
2. The second series of rows, in the list, are the [Manual Scheduled Activities] still active, that have the [ending date] most recent of the current date. This second series of rows are colored in green and in light green, at alternate rows. This second series of rows are ordered by 'starting date' (the most recent [starting date] to the oldest [starting date]).
3. The third series of rows in the list, are the [Manual Scheduled Activities] not active, that the [ending date] smaller (lower) than the current date, i.e. a past date in the [ending date] field. This third series of rows are colored in grey and in light grey, at alternate rows. This third series of rows are ordered by 'ending date' (the most recent [ending date] to the oldest [ending date]).

| ID Group | Description | Creation Author | Creation Date | Last Editing Author | Last Editing Date | Activity Type |
|----------|--------------|-----------------|---------------------|---------------------|---------------------|----------------------------|
| 3011 | SYS | STARBEAT | 28/08/2017 14:18:07 | | | Load Curves quarters hours |
| 3011 | SYS | STARBEAT | 28/08/2017 14:18:07 | | | Billing Registers |
| 3011 | SYS | STARBEAT | 28/08/2017 14:18:07 | | | Clock Synchronization |
| 3011 | War Best | AE40100 | 02/07/2019 11:54:48 | | | Billing Registers |
| | Test | AEIV056 | 04/06/2019 08:12:27 | AEIV056 | 04/06/2019 12:18:08 | Billing Registers |
| | schie test 8 | AE40100 | 07/12/2018 09:38:12 | | | Load Curves quarters hours |
| | 544546545 | AE15177 | 15/11/2018 15:14:18 | | | Billing Registers |
| | Riprova1511 | AE15177 | 15/11/2018 14:55:30 | | | Billing Registers |

Figure 30 –Create and Maintain – Scheduled Activities list - Pic 2

This functionality allows the operator to **view** the **Manual Scheduled Activities**; to do this, use the button/icon: ; and, the following page will open.

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Figure 31 –Create and Maintain – Single Scheduled Activities view details

This functionality allows the operator to **create** Manual scheduled activities, to do this, use the button/icon: **ADD** ; and, the following page will open.

Figure 32 –Create and Maintain – Single Scheduled Activities create details

If a new one is created and saved, to assist the operator, the system verifies that the schedules are created in compliance with the automatic controls; the following page/message will open.

Figure 33 –Create and Maintain – Single Scheduled Activities create details

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7.2. View

This function via user interface allows the user to search for equipments, to select one equipment in the obtained result list, in order to view Manual and Default Scheduled Activities (this to allow only some users to be enabled for viewing only) . The operator will be faced with the same GUI described above, but will not be able to edit or add.

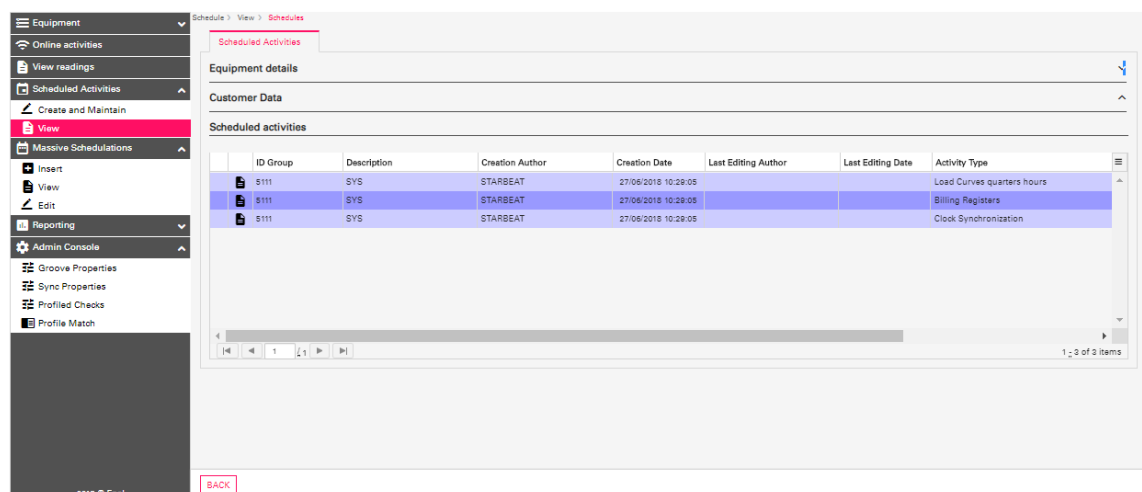


Figure 34 –Create and Maintain –Scheduled Activities view

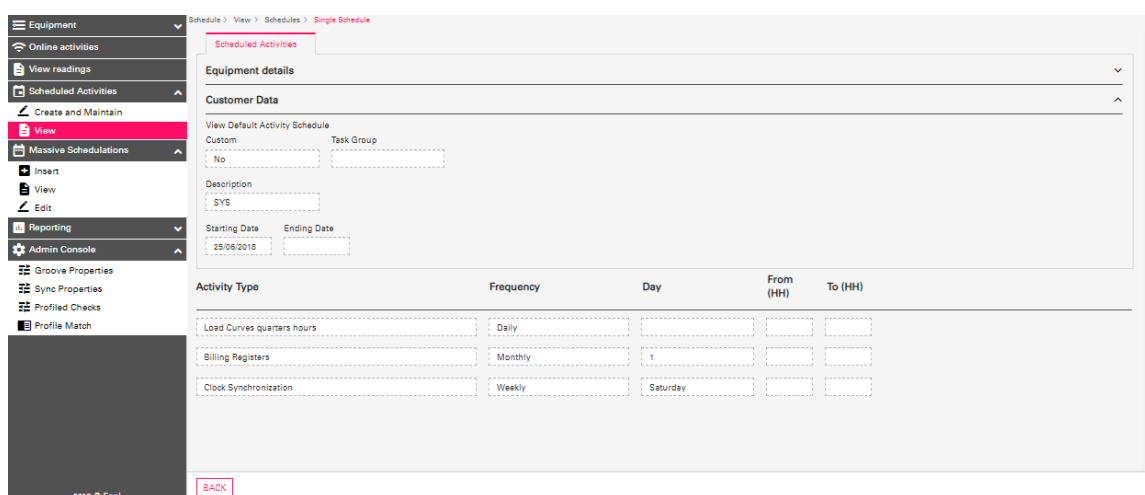


Figure 35 –Create and Maintain –Scheduled Activities view details

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8. Massive Scheduling

This functionality is used in order to manage, via user interface, the massive schedules.

1. In order to create massive schedules please see the paragraph 8.1 - Insert
2. In order to edit massive schedules please see the paragraph 8.2 - View
3. in order to view massive schedules please see the paragraph 8.3 - Edit
4. in order to view the status of the activities execution of an massive schedule please see the paragraph 8.2 - View

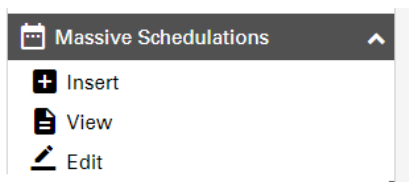


Figure 36 – Massive Scheduling – Menu

8.1. Insert

This functionality is used in order to create massive schedules, via UI, this means that the system give the possibility 'to search'/selects or/and 'to import' inventoried equipments, in installed status , in order to create the same scheduled activities for all the selected equipments.

N.B.:

1. The operator, via excel file, can import only inventoried equipment
2. The operator can create lots with activities compatible with all the selected equipments.

The figure below shows the search parameters that the system makes available in order to extract the list of meters on which the operator wants to do the same activity massively (default values can be set as default filters).

Figure 37 – Massive Scheduling – Search for equipments to enter in a lot

Meters that result from the search can be selected or deselected, they will appear in the appropriate section called selected meter (Figure 36)

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e-distribuzione Environment: SIT
Country: Italia
Versione: 4.4.0_IT_1.0.0

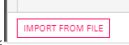
StarBeat

| Equipment | Area | Zone | UO | POD Code | External Customer ID | Manufacturer S/N | Software Meter ID | Phone Number |
|-------------------------------------|------------------|------------------------|-------------------------|----------------------|----------------------|------------------------|-------------------|--------------|
| <input checked="" type="checkbox"/> | D2 - NORD | D22L - VENEZIA | D22LU2 - MESTRE | IT001E00218604 | x | 05G10265156105733 | 56105733 | 3206295327 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D21A - BOLOGNA-FER... | D21AU5 - SAN GIOVA... | IT001E00038766_TEMP2 | 486875828 | 00G10247074003118_T... | 74003118 | 3208235625 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D21C - FORLI-RAVENN... | D21CU3 - FORLI-FAEN... | IT001E00035486_TEMP2 | 487875823 | 00G10265056000258... | 56000258 | 3203547729 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D21A - BOLOGNA-FER... | D21AU2 - FERRARA | IT001E0023221_TEMP2 | 486854509 | 16G26247076306513... | 76306513 | 3203590506 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D21C - FORLI-RAVENN... | D21CU3 - FORLI-FAEN... | IT001E00248757_TEMP2 | 487580716 | 05G10269295201622... | 96201622 | 3204990054 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D24F - REGGIO EMILI... | D24FU3 - GUASTALLA | IT001E00219848_TEMP2 | 425900725 | 00G10269196101081_T... | 96101081 | 3205552508 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D21A - BOLOGNA-FER... | D21AU3 - SASSO MA... | IT001E00028420_TEMP2 | 487583049 | 00G10265056001436... | 56001436 | 3203772997 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D24F - REGGIO EMILI... | D24FU4 - SASSUOLO | IT001E00228052_TEMP2 | 486926022 | 00G10269296122790... | 96122790 | 3203774022 |
| <input checked="" type="checkbox"/> | D3 - CENTRO NORD | D21C - FORLI-RAVENN... | D21CU1 - RIMINI-RICC... | IT001E00032754_TEMP2 | 487583677 | 14G102A2156307758... | 56307758 | 3202547621 |

| Eq. Id | POD Code | Manuf. S/N | Zone | Group | Inst. datetime | Comm. type |
|--------|----------------------|-------------------------|------------------------------|---------|---------------------|------------|
| 10 | IT001E00218604 | 05G10265156105733 | D22L - VENEZIA | Group 0 | 25/08/2017 12:58:41 | GSM |
| 1000 | IT001E00038766_TEMP2 | 00G10247074003118_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 30/11/2001 15:40:00 | GSM |
| 1004 | IT001E00219848_TEMP2 | 00G10269196101081_TEMP2 | D24F - REGGIO EMILIA-MODE... | Group 0 | 06/09/2013 15:07:00 | GSM |

Figure 38 – Massive Scheduling – Equipments result list and Selected equipment

The operator can press the below icon, in order to enter in the scheduled activities list related the meter in the row ,  (The system will open the GUI in the Figure 30)

The operator can also import a meters list from file by pressing the button 'import from file'  the system will open the dedicated GUI (figure 37)

Selected file:

File not selected

SELECT FILE

VALIDATE

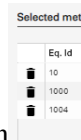
Validation status

No file to validate

CANCEL

CONFIRM

Figure 39 – Massive Scheduling – Import Equipment list

The operator can also delete the meters in the list pressing the appropriate icon 

By pressing the next button, the operator can then set the activities that will be validate, saved and performed on all the meters in the 'selected meter' list 

The next GUI allows to select, and set up the scheduled activities planned on all the selected meters.

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Figure 40 – Massive Scheduling – Meter list and Activities configuration

The system will validate the activities, i.e. it will check if the set activities can be performed on all the selected meters.

Figure 41 – Massive Scheduling – Activities validation

8.2. View

This functionality is used by operators, via user interface. The operator can search lots, in order to view the equipments selected in the lots, and, select a Lot to:

1. view the list of equipments in the lot and the activities scheduled for all them.
2. to export the execution details of the selected lot (and the activity execution for each equipment in the lot)

N.B.: The operator can view the lots he / she has created, or, all the lots if the operator is a SB System Administrator.

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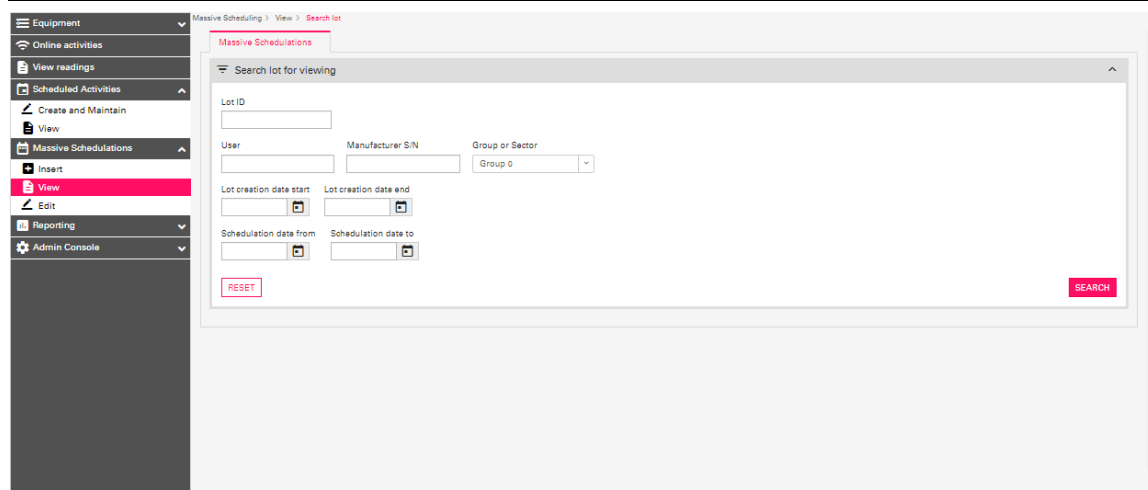




Figure 42 – Massive Scheduling – Search for Lot

The search will provide a list of lots (Fig. 40). From the list of lots the operator can:

- see the meters contained in it (fig. 43), by press the icon: 
- download the *massive scheduling result execution status* (fig. 42), by press the icon: 

| Id Lot | Description | State | Creator User | Creation Date | Last editing author | Last editing Date | Starting scheduling date | Ending scheduling date | Equipment Lot | Progress |
|--------|-------------|-------|--------------|---------------------|---------------------|-------------------|--------------------------|------------------------|---------------|----------|
| 2 | sch 15 | ✓ | AE40100 | 17/08/2017 15:59:22 | | | 17/08/2017 | 17/08/2017 | 1 | 100 % |
| 1 | LOT_1 | ✓ | AE40100 | 17/08/2017 12:10:51 | | | 17/08/2017 | 18/08/2017 | 2 | 100 % |
| 3 | 222 | ✓ | AE40100 | 17/08/2017 16:22:14 | | | 17/08/2017 | 18/08/2017 | 1 | 100 % |
| 4 | lot2 | ✓ | AE40100 | 18/08/2017 14:54:34 | | | 18/08/2017 | 22/08/2017 | 5 | 100 % |
| 5 | sch 4 | ✓ | AE40100 | 22/08/2017 15:02:48 | | | 22/08/2017 | 23/08/2017 | 1 | 100 % |
| 6 | sch mass | ✓ | AE40100 | 09/10/2017 17:05:49 | | | 09/10/2017 | 12/10/2017 | 2 | 100 % |
| 51 | desc | ✓ | AE40100 | 08/03/2018 10:52:54 | | | 07/03/2018 | 10/03/2018 | 2 | 100 % |

Figure 43 – Massive Scheduling – Search for Lot with lot results list

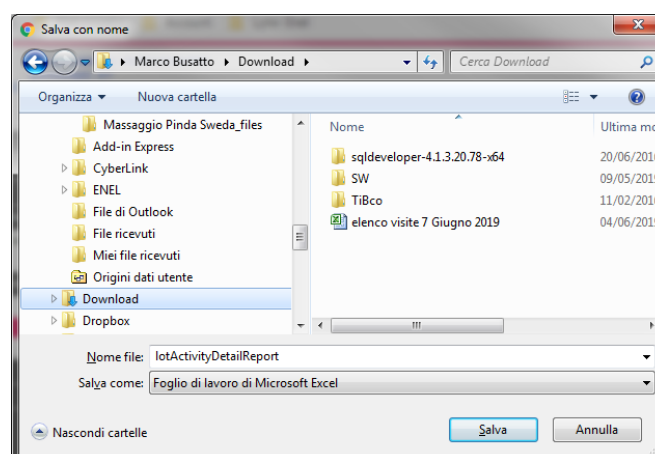


Figure 44 – Massive Scheduling – result execution status download

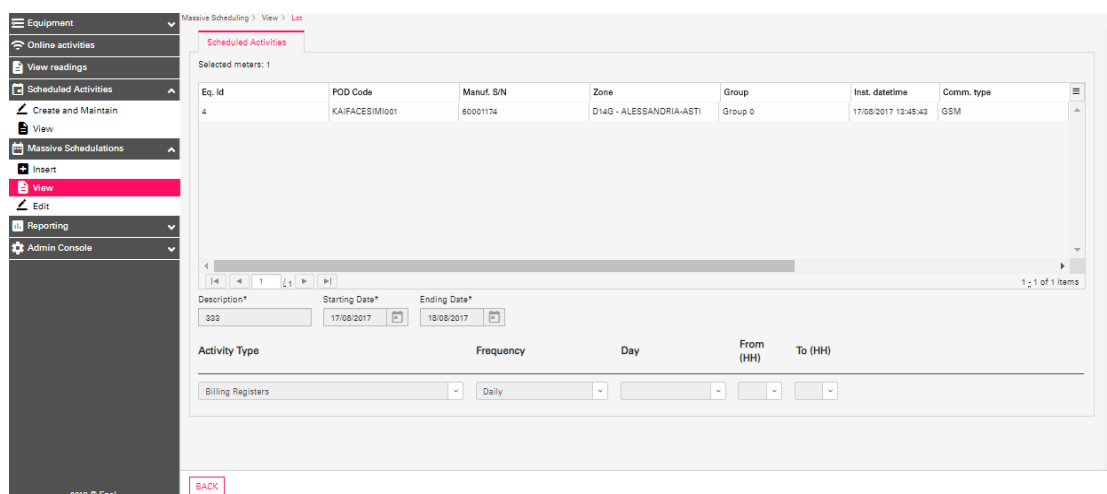


Figure 45 – Massive Scheduling – Meters contained in the Lots

8.3. Edit

The operator, via GUI, utilizes this function to **Edit Massive Schedules** still active, and, can perform the following actions:

1. the operator can search, via User Interface, Lots (massive schedules), in order to edit the selected one
2. the operator, after doing a lot search with result, can select the desired lot in which the operator, can add/remove equipments, or, confirm the equipment already present in the lot:
 - a. If the operator wants **add equipments** in the selected lot , the operator must:
- Step1) **search**, via User Interface, inventoried equipments in installed, **so select** the desired equipments, in order to add the same scheduled activities for all the selected (but compatible) Equipments.
- Step2) **import** , via file , the desired equipments, in order to add the same scheduled activities for all the selected (but compatible) Equipments '**Function - Massive Schedules - Import From File**' ;
 - b. If the operator wants **remove equipments** in the selected lot, the operator must: select/remove the equipments, that the operator wants remove, in the selected equipment list;
3. the operator, after the selection of desired lot , and after confirming/Editing the list of equipment present in the lot, can **add or remove Scheduled Activities** (Task)
 - a. If the operator wants **add** Scheduled Activities must enter a new activities.
 - b. If the operator wants **remove** Scheduled Activities must remove an existing activities.

N.B:

1. The system gives the possibility to modify only the lots still active (ie with the planning end date in the future compared to today). (row in green in the Fig. 44)
2. The operator can edit the lots he / she has created, or, all the lots if the operator is a SB System Administrator.
3. The lot editing possibility, so the edit icon (present in the section that lists the searched lots result) will be enabled and visible only:
 - a. to the operators who created the lot ,or, to the system administrators.
 - b. if the schedule execution timeline is not already passed, compared to the current date. So the Massive schedules cannot be edited if the 'Schedule ending date' is smaller to current date.



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| Id Lot | Description | State | Creator User | Creation Date | Last editing author | Last editing Date | Starting scheduling date | Ending scheduling date | Equipm... Lot | Progress |
|--------|---------------------|-------|--------------|---------------------|---------------------|---------------------|--------------------------|------------------------|---------------|----------|
| 52 | SCH mass 15-03-2018 | ✓ | AE40100 | 15/03/2018 12:52:11 | | | 15/03/2018 | 15/05/2018 | 791 | 100 % |
| 62 | try | ✓ | AE40100 | 19/06/2018 16:39:37 | | | 19/06/2018 | 19/09/2018 | 2 | 100 % |
| 85 | sch new test 1 | ✓ | AE40100 | 06/12/2018 12:32:37 | | | 06/12/2018 | 06/12/2018 | 250 | 100 % |
| 81 | a | ✓ | AE40100 | 14/11/2018 11:18:41 | AE40100 | 14/11/2018 17:25:22 | 14/11/2018 | 07/02/2019 | 5 | 200 % |
| 81 | a | ✓ | AE40100 | 14/11/2018 11:18:41 | AE40100 | 14/11/2018 17:26:29 | 14/11/2018 | 07/02/2019 | 5 | 100 % |
| 86 | sch test 5 | ✓ | AE40100 | 07/12/2018 09:35:12 | AE40100 | 07/12/2018 12:57:23 | 07/12/2018 | 25/02/2019 | 375 | 100 % |
| 81 | War Beat | ✓ | AE40100 | 03/07/2019 11:22:01 | | | 03/07/2019 | 09/07/2019 | 4 | 100 % |

Figure 46 – Massive Scheduling – Lots list

| Eq. Id | POD Code | Manuf. S/N | Zone | Group | Inst. datetime | Comm. type |
|--------|-----------------------|--------------------------|-----------------------------|---------|---------------------|------------|
| 1039 | IT001E00028590_TEMP2 | 00G10285058005218_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 27/01/2003 14:55:00 | GSM |
| 1003 | IT001E000249787_TEMP2 | 00G10286028601823_TEMP2 | D21C - FORLI-RAVENNA-RIMINI | Group 0 | 12/02/2006 14:52:00 | GSM |
| 1001 | IT001E00025489_TEMP2 | 00G10285058005258_TEMP2 | D21C - FORLI-RAVENNA-RIMINI | Group 0 | 09/09/2003 14:35:00 | GSM |
| 1000 | IT001E00028766_TEMP2 | 00G102470740023118_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 20/11/2001 15:40:00 | GSM |

Figure 47 – Massive Scheduling – Meters in Lots list

| Eq. Id | POD Code | Manuf. S/N | Zone | Group | Inst. datetime | Comm. type |
|--------|-----------------------|--------------------------|-----------------------------|---------|---------------------|------------|
| 1039 | IT001E00028590_TEMP2 | 00G10285058005218_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 27/01/2003 14:55:00 | GSM |
| 1003 | IT001E000249787_TEMP2 | 00G10286028601823_TEMP2 | D21C - FORLI-RAVENNA-RIMINI | Group 0 | 12/02/2006 14:52:00 | GSM |
| 1001 | IT001E00025489_TEMP2 | 00G10285058005258_TEMP2 | D21C - FORLI-RAVENNA-RIMINI | Group 0 | 09/09/2003 14:35:00 | GSM |
| 1000 | IT001E00028766_TEMP2 | 00G102470740023118_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 20/11/2001 15:40:00 | GSM |

Figure 48 – Massive Scheduling – Meters in Lots list

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Massive Scheduling > Edit Lot > Search lot > Edit lot equipments > Edit lot activities

Scheduled Activities

Selected meters: 4

| Eq. Id | POD Code | Manuf. S/N | Zone | Group | Inst. datetime | Comm. type |
|--------|----------------------|-------------------------|-----------------------------|---------|---------------------|------------|
| 1039 | IT001E00038550_TEMP2 | 00G10265056005218_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 27/01/2002 14:58:00 | GSM |
| 1002 | IT001E00249757_TEMP2 | 05G10269296201823_TEMP2 | D21C - FORLI-RAVENNA-RIM... | Group 0 | 13/02/2006 14:52:00 | GSM |
| 1001 | IT001E00035485_TEMP2 | 00G10265056000259_TEMP2 | D21C - FORLI-RAVENNA-RIM... | Group 0 | 08/08/2003 14:35:00 | GSM |
| 1000 | IT001E00038766_TEMP2 | 00G10247074003118_TEMP2 | D21A - BOLOGNA-FERRARA | Group 0 | 30/11/2001 15:40:00 | GSM |

Description* Starting Date* Ending Date*

War Beat 02/07/2019 08/07/2019

Activity Type Frequency Day From (HH) To (HH)

Billing Registers Monthly 5 03 22 +

2019 © Enel

BACK NEXT

Figure 49 – Massive Scheduling – Activities on Meters in Lots list

Massive Scheduling > Edit Lot > Search lot > Edit lot equipments > Edit lot activities > Lot confirmation

Activities Confirmation

Description* Starting Date* Ending Date*

War Beat 02/07/2019 08/07/2019

| Status | Manufacturer S/N | Billing Registers |
|--------|-------------------------|-------------------|
| ● | 00G10265056005218_TEMP2 | ✓ |
| ● | 05G10269296201823_TEMP2 | ✓ |
| ● | 00G10265056000259_TEMP2 | ✓ |
| ● | 00G10247074003118_TEMP2 | ✓ |

1 - 4 of 4 items

● All meters support all selected activities

2019 © Enel

BACK CONFIRM

Figure 50 – Massive Scheduling – Activities Validation

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9. Work Order

The system also manages work orders from an external system.

The system via GUI provides the opportunity to search and view the result of work orders.

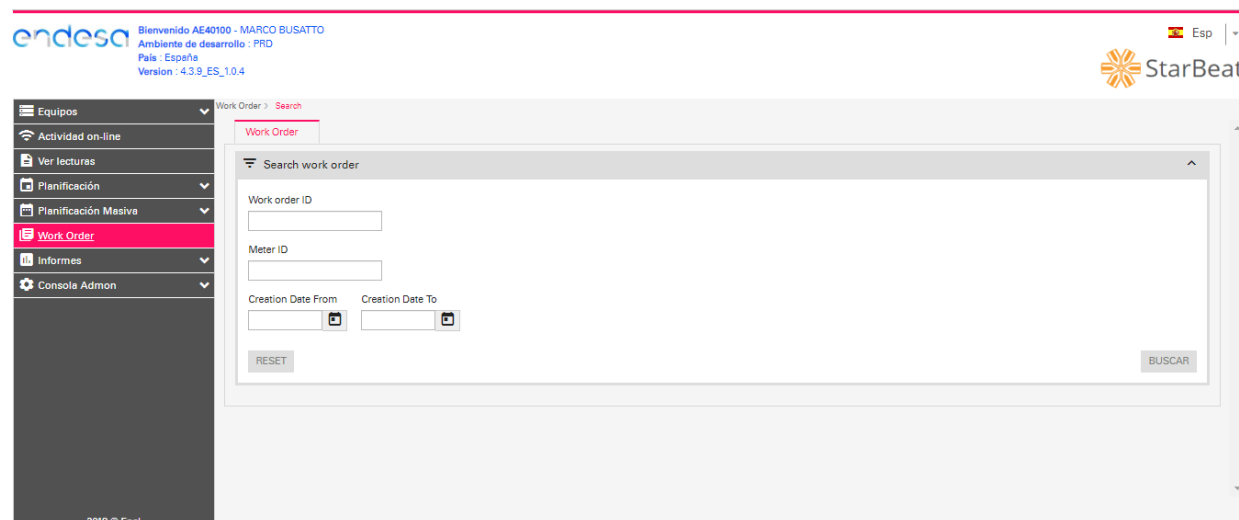


Figure 51 – Massive Scheduling – Activities Validation

10. Reporting

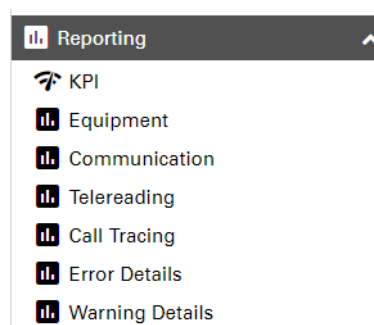


Figure 52 – Massive Scheduling – Activities Validation

10.1. KPI

The KPI Dashboard shows the below three main sections, and, gives access to the below sub-pages of details:

Above all sections there are the 'Date from' and the 'Updated date' fields.

The Territorial Organization Filters : The filters settings influence only the **Telereading Panel** section.

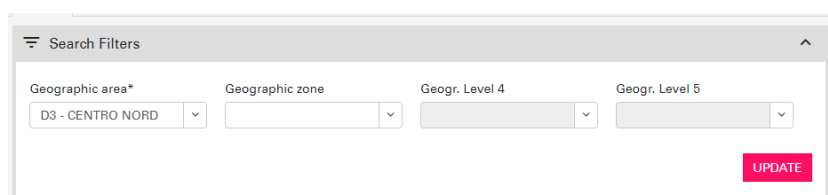


Figure 53 – KPI filters

The **Telereading Panel** section. In this dashboard enters the [telereadings executed for the manual](#) and, the [default scheduled activities](#). This panel shows:

- the number of **Telereadings** made **hourly** divided in success/unsuccess percentages (graph and table) . This UI section give access to the '[KPI Dashboard - Effectiveness Telereadings](#)' UI. For others details see the [FU - KPI Dashboard - Effectiveness Telereadings](#) .
- the number of **Telereadings** made **daily** divided in success/unsuccess percentages (graph and table) .

The daily gauge is like the hourly gauge but related to the day; that means the percentage, instead of to be calculated over the cumulative expected value at the hour, as in the first graph on the left, is calculated on cumulative expected value for the whole day (that is on the scheduled tasks). However, looking the normally activities , the first part of the day all the activities are be made ,and, then the two graph will be equally for the most part of the day. So, the graph on the right is a bar stacked histogram: in red the number of readings in error respect the daily total of scheduled tasks, in blue the number of readings executed with success respect the daily total of scheduled tasks and in green/gray (n.b. the system uses the same colors in Telereadings Daily Evolution) the number of readings to be executed. The scheduled task are the scheduled activities planned in automatic by system or manually by operator or the external system. The sum of readings in error and readings with success is equal to the number of readings made until that moment. In addition, there are absolute values and percentage values and a new table containing the data of scheduled tasks, of executed tasks and tasks in error. Respectively of two gauges, the table contains the current hour and two previous hours or the current day and two days previous.

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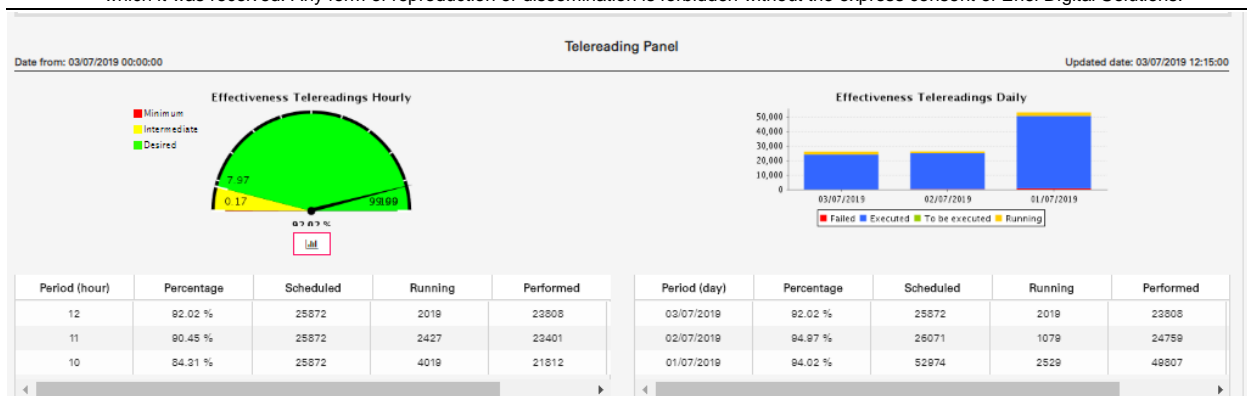


Figure 54 – TELEREADING PANEL

The **Communication Panel** section. This panel shows the number of Communication made in Starbeat in a day by type of communication channel, counting the calls successfully and with failure. In the Call dashboard enters the manual ,and, the default scheduled activities. The Panel contains:

- the **Call** graph : a pie chart for the percentage of successful and unsuccessful communications with two decimal digits respect the number of executed communications; this UI section give access to the **'KPI Dashboard - Effectiveness Calls'** UI (and this also provides access to the **Monthly Trend** (*Effectiveness Calls: evolution in last 30 days* that shows the graph with the trend of the last 30 days). For others details see the **KPI Dashboard - Effectiveness Calls** .
- the **Hourly lines occupation** graph : a char of Hourly occupation of [GSM lines](#) during the current day respect the total number of [GSM lines](#).
- the **effectiveness calls** Table : a table that shows
- the rows divided by current day ,and, previous day;
- in the columns the effective calls for type of communication ,and, for successful/unsuccessful of the communications execution.

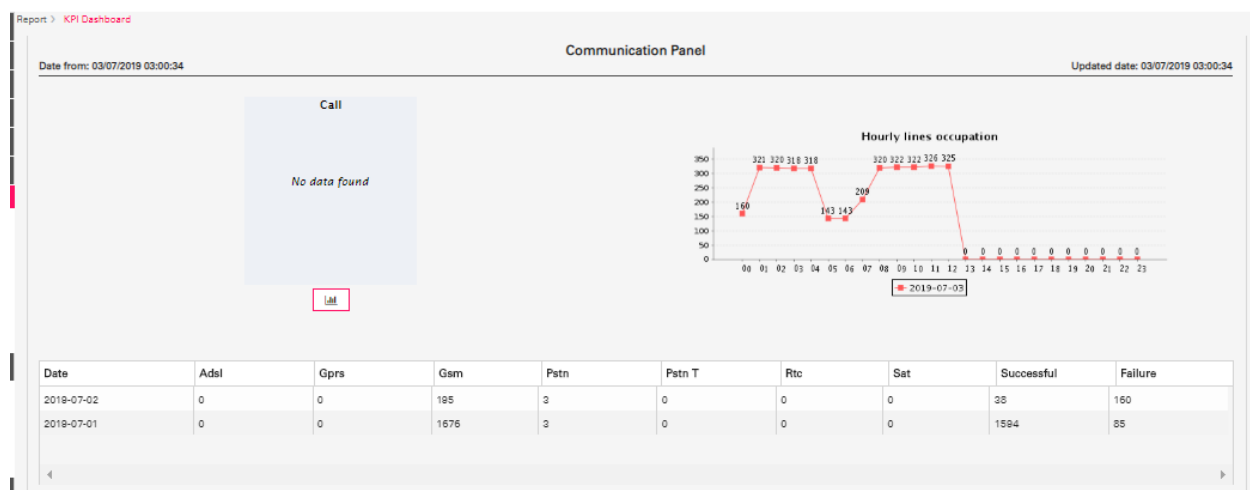


Figure 55 – Communication Panel

The **Master Data Updating Panel** section. In master data updating section there are the 'Last Updating Date' and 'The Last sending date'; this to monitor the misalignment of master data. The Panel contains:

- the **pie char** reports the percentage of message received (Create/Update/Remove) by Starbeat from external system divided by result (Success/Unsuccess). This pie char

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section give access to the **KPI Dashboard - Master Data Update** UI, for details see the FU - KPI Dashboard - Master Data Update

- a **table** shows the message 'Source' coming from external system to Starbeat for the master data Insert/Update/Remove, in detail: the table shows when the message has been received, validated and loaded by SB System.

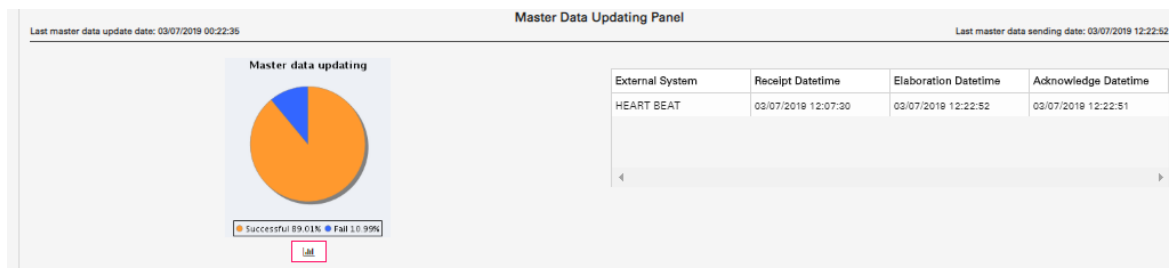


Figure 56 – Master Data Updating Panel

10.1.1. KPI Dashboard - Effectiveness Telereadings

The 'KPI Dashboard - Effectiveness Telereadings' UI shows the below sections, and, gives access to the below sub-pages of detail. In this UI are present filters, two charts ,and, an errors table:

1. These sections will be shown based on the territorial filters set on the KPI Dashboard page, and in any case, in the GUI will be shown only the information to which the operator is enabled.
2. The filters section. At the top of the UI are present the filters: 1) Filter per Activity (Load Profile, Registers, Instrumentation Profile, ...) - 2) Filter per Scheduling (Manual, System) - 3) Filter per Group (Group 0, Group 1, ...) . All the detail page will change on selecting a filter. The filters could be used at the same time.
3. The first chart is the same shown in previous UI (**Effectiveness Telereadings Hourly**) .
4. The second chart contains a line for the cumulative value for the scheduled readings divided by hour for all the day (the line is drawn from the 00.00 of the day) and an histogram that contains the sum of readings in error, of readings executed with success, of readings to be executed and approximates the line. Each bar will contain the cumulative value of executed or not (the axis will contain only the hours)
5. The table of synthesis of errors divided by type of error occurred during the telereadings. The data will be ordered in descending way respect the number of occurrences for the current day and for the previous day. Each number contains a link to the Error Details report, so this Ui give access to the Error Details Report.
6. This UI give access to the **Monthly Trend** , that shows the graph with the trend of the last 30 days

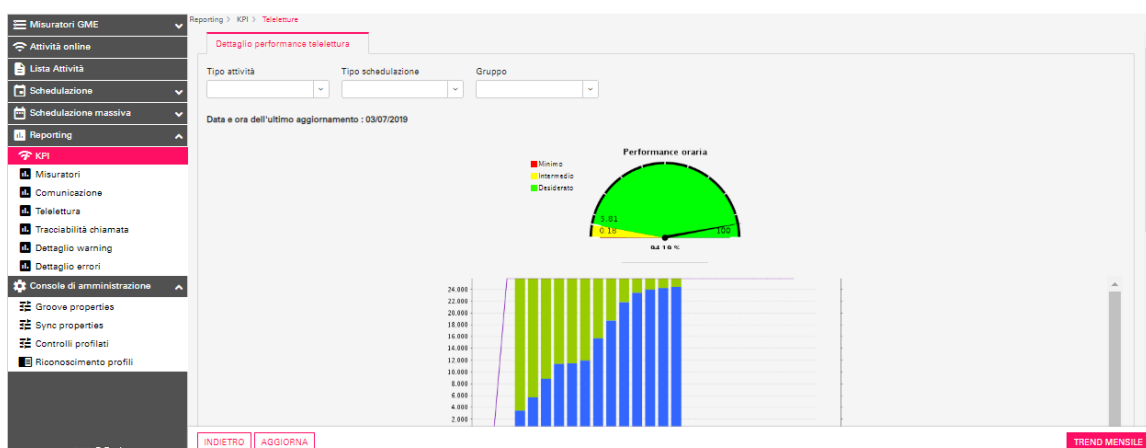


Figure 57 - Effectiveness Telereadings

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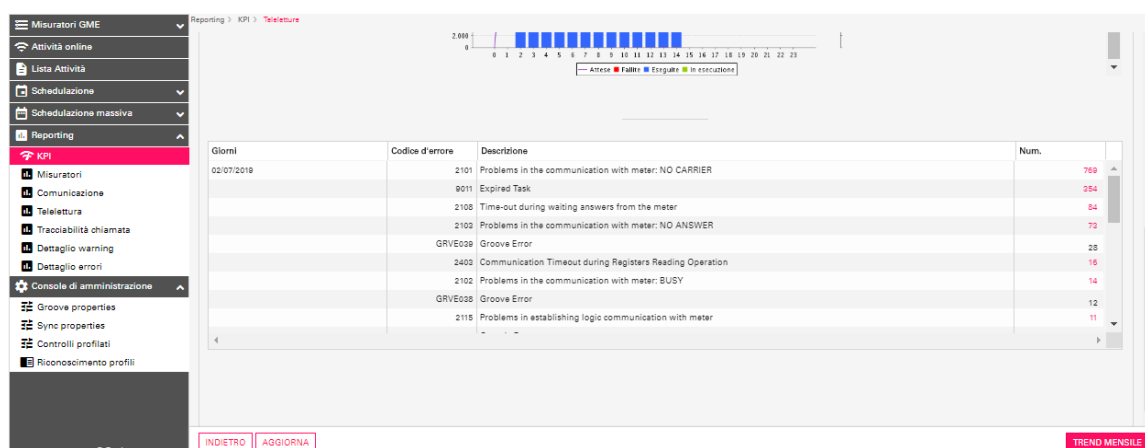


Figure 58 – Error grouping

The system extracts the data at the UI opening, in relation to the shown section, and, to the user authorization.

- In the 'KPI Dashboard - Effectiveness Telereadings' UI, at the 'Monthly Trend' button pressure, the system calls the algorithm 'Monthly Trend - Effectiveness Telereadings Hourly' the system shows to the operator the 'Monthly Trend' Graph, and for to do this the system calls the TS - KPI Monthly Evolution.
- The **Territorial Organization** algorithm: The territorial filters set on the KPI Dashboard page influences the sections, all the detail pages linked, and, in any case, in the GUI will be shown only the information to which the operator is enabled will be presented.

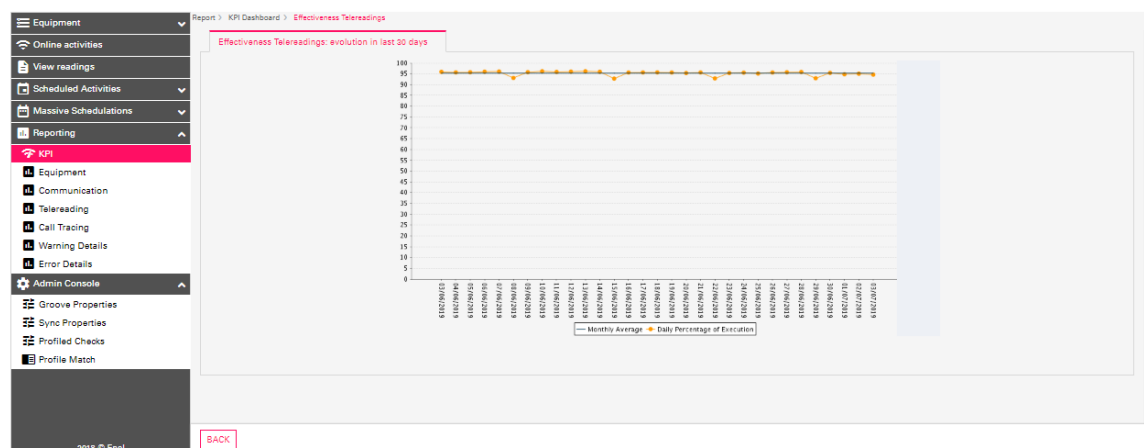


Figure 59 - Monthly Trend

10.2. Equipment

The Equipment report shows the equipments historical data.

So the operator can :

- view the historical data related to the searched equipment/s (installed ,or, removed) .
- export the reported historical data in PDF, or, CSV, or else Excel file.
- view the data changes made to the selected equipment.
- export the extracted data related to the changes made to the selected equipment.

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Below, the filter parameter GUI section:

Figure 60

| Manufacturer S/N | POD Code | Ownership | Area | Zone | Off. Comm. Flag | Off. Comm. Flag Date | Off. Tech. Flag | Off. Tech. Flag Date | End Date | Last LP Date |
|-------------------|----------------|----------------------|------------------|-------------------------|-----------------|----------------------|-----------------|----------------------|------------|--------------|
| 17G262A6060000820 | IT001E00242424 | Distribution Company | D2 - CENTRO NORD | D22B - FIRENZE-PRATO | False | | False | | 02/07/2011 | |
| 17G262A6060010782 | IT001E4888821 | Distribution Company | D2 - CENTRO NORD | D24F - REGGIO EMILIA... | False | | False | 05/06/2019 | | 03/07/2011 |
| 16G262A7076310532 | IT001E54916419 | Distribution Company | D2 - CENTRO NORD | D21A - BOLOGNA-FER... | False | | False | 05/06/2019 | | 03/07/2011 |
| 17G262A6060010412 | IT001E48555939 | Distribution Company | D2 - CENTRO NORD | D21A - BOLOGNA-FER... | False | | False | 06/06/2019 | | 03/07/2011 |
| 17G262A6060010786 | IT001E00204886 | Distribution Company | D2 - CENTRO NORD | D21A - BOLOGNA-FER... | False | | False | 10/06/2019 | | 03/07/2011 |
| 17G262A6060010057 | IT001E42240008 | Distribution Company | D2 - CENTRO NORD | D22B - FIRENZE-PRATO | False | | False | 10/06/2019 | | |
| 17G262A6060000425 | IT001E54986085 | Distribution Company | D2 - CENTRO NORD | D24F - REGGIO EMILIA... | False | | True | 10/06/2019 | | |
| 17G262A6060010770 | IT001E54899051 | Distribution Company | D2 - CENTRO NORD | D24F - REGGIO EMILIA... | False | | False | 10/06/2019 | | 03/07/2011 |

Figure 61

| Manufacturer S/N | POD Code | Inst. Date | Inst. Author | Rem. Date | Rem. Reason | Model | Manufacturer | Firmware | Profile | Energy Constant | Voltage Lev. | Group | Meter Id 2 | Meter Id 3 |
|------------------|--------------|------------|--------------|-----------|-------------|-------------|--------------|---------------|-------------|-----------------|--------------|---------|------------|------------|
| 17G262A6... | IT001E002... | 03/06/2019 | SGM_CARL... | | | KAIFA AM... | KAIFA | Standard F... | KAIFA AM... | 1500 | Medium | Group 0 | 60000820 | 60000820 |
| 17G262A6... | IT001E002... | 03/06/2019 | SGM_CARL... | | | KAIFA AM... | KAIFA | Standard F... | KAIFA AM... | 1500 | Medium | Group 0 | 60000820 | 60000820 |
| 17G262A6... | IT001E002... | 03/06/2019 | SGM_CARL... | | | KAIFA AM... | KAIFA | Standard F... | KAIFA AM... | 1500 | Medium | Group 0 | 60000820 | 60000820 |

Figure 62

- The Equipment Report, at the UI opening, it can be show in a different modality, and, depends form the configuration in the country installation. The UI will appear differently if default values have been set, in the filter parameters (The defaults are set in the transcoding table).
- There is a hidden feature when this report is reached by the 'installed' link of the 'telereading' report. In this case, the telereading report will pass a date range (start and end of month if coming from the monthly view, start and end day if coming from the daily view), and, the report equipment will include in the extraction, the meters removed in the interval of past date. The functionality will not be used standalone so the extractions made by report equipment could not match the equivalents made through the aforementioned link.

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10.3. Communication

The Communication Report shows the synthesis of call executed for day, and, to get access to the Error details Report by day and communication channel

Below, the filter parameter GUI section:

Figure 63

| Date | GSM | | GPRS | | PSTN | |
|------------|------------|--------|------------|-------|------------|-------|
| | Successful | Error | Successful | Error | Successful | Error |
| 01/03/2019 | 64 | 3 | 0 | 0 | 0 | 0 |
| 02/03/2019 | 109224 | 43815 | 0 | 0 | 4359 | 1142 |
| 03/03/2019 | 230004 | 124458 | 0 | 0 | 10336 | 2851 |
| 04/03/2019 | 259857 | 86734 | 0 | 0 | 8053 | 1900 |
| 05/03/2019 | 218922 | 86755 | 0 | 0 | 8248 | 1776 |
| 06/03/2019 | 203949 | 135849 | 0 | 0 | 10484 | 1892 |
| 07/03/2019 | 210275 | 153614 | 0 | 0 | 11415 | 2049 |

Figure 64

10.4. Telereading

The Telereadings report contains summary information of the Telereadings volumes , reported by month, and, then by day (in the detail UI) .

Below, the filter parameter GUI section:

Figure 65

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| Month | Installed | No scheduled | Scheduled | Acquired | Acquired Remotely | Acquired with workorder | Acquired with Enel Local | In error | % acquired | Off line technical | % offline |
|---------|-----------|--------------|-----------|----------|-------------------|-------------------------|--------------------------|----------|------------|--------------------|-----------|
| 02-2019 | 12515 | 217 | 12298 | 11907 | 11871 | 0 | 0 | 1324 | 96.53 % | 185 | 1.48 % |
| 03-2019 | 12513 | 537 | 11976 | 14594 | 14473 | 0 | 0 | 7374 | 100.0 % | 207 | 1.65 % |
| 04-2019 | 12506 | 573 | 11933 | 11874 | 11743 | 0 | 0 | 11920 | 96.41 % | 342 | 2.73 % |
| 05-2019 | 12521 | 597 | 11924 | 12035 | 11892 | 0 | 9 | 2082 | 99.73 % | 417 | 3.33 % |
| 06-2019 | 12518 | 602 | 11916 | 11915 | 11774 | 0 | 13 | 1652 | 98.81 % | 449 | 3.59 % |
| 07-2019 | 12497 | 616 | 11871 | 11665 | 11648 | 0 | 0 | 787 | 98.12 % | 458 | 3.67 % |

Figure 66

Below the GUI that the system opens if an operator click on the "Installed" column/row, in the figure 66

| Equipment | Report > Equipment |
|-----------------------|--|
| Online activities | Activity Type |
| View readings | <input checked="" type="radio"/> Performed in the interval <input type="radio"/> Not performed for at least n days <input type="radio"/> Performed at least once |
| Scheduled Activities | State |
| Massive Schedulations | Installed |
| Reporting | BACK RESET |
| KPI | SEARCH |
| Equipment | |
| Communication | |
| Telereading | |
| Call Tracing | |
| Warning Details | |
| Error Details | |
| Admin Console | |
| Grove Properties | |
| Sync Properties | |
| Profiled Checks | |
| Profile Match | |

Figure 67 – master data details

Below the GUI that the system opens if an operator click on the "acquired" columns/rows

| Equipment | Report > Telereading > Acquired detail |
|-----------------------|--|
| Online activities | Day |
| View readings | Billing Registers |
| Scheduled Activities | Load Curves quarters hours |
| Massive Schedulations | Clock Synchronization |
| Reporting | Read Configuration |
| KPI | Logbook Registers |
| Equipment | |
| Communication | |
| Telereading | |
| Call Tracing | |
| Warning Details | |
| Error Details | |
| Admin Console | |
| Grove Properties | |
| Sync Properties | |
| Profiled Checks | |
| Profile Match | |

Figure 68 - Telereading Daily Report

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| Day | Installed | No scheduled | Scheduled | Acquired | Acquired Remotely | Acquired with workorder | Acquired with Enel Local | In error | % acquired | Off line technical | % |
|------------|-----------|--------------|-----------|----------|-------------------|-------------------------|--------------------------|----------|------------|--------------------|-----|
| 01-07-2019 | 12486 | 12486 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 % | 454 | 2.1 |
| 02-07-2019 | 12486 | 12486 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 % | 455 | 2.1 |
| 03-07-2019 | 12486 | 517 | 11569 | 11426 | 11419 | 0 | 0 | 526 | 95.2 % | 458 | 2.1 |

Figure 69 - Telereading Acquired Report

10.5. Call tracing

The Call Tracing shows the synthesis of call make to executed an activity.

Below, the filter parameter GUI section:

Figure 70

| Date | Time | Manufactu... S/N | Group | Status | Origin | Duration (ms) | N. of retries | N. of delays | Com. channel |
|------------|----------|------------------|---------|--------|--------|---------------|---------------|--------------|--------------|
| 07/02/2019 | 14:33:22 | 06G102671... | Group 0 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:34:03 | 06G102640... | Group 0 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:35:21 | 06G145771... | Group 0 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:35:22 | 06G145770... | Group 0 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:35:23 | 06G145770... | Group 1 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:35:23 | 06G102640... | Group 0 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:35:23 | 16G262A7... | Group 0 | ✓ | System | 0 | 0 | 0 | GSM |
| 07/02/2019 | 14:36:01 | 06G102641... | Group 1 | ✓ | System | 0 | 0 | 0 | GSM |

Figure 71

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10.6. Error details

The Warning Details shows the errors occurred in the activities execution. So in detail the operator can extract:

1. all the errors (occurred in the activities execution) related to the searched equipments (installed ,or, removed), or, related the searched 'executed activities'.
2. all the equipments that have executed a determinate activity with errors
3. all the activities/equipments that have generated a determinate errors.
4. etc.

Below, the filter parameter GUI section:

Figure 72

| Date | Time | Error Code | Error description | Activity Type | Com. channel | Manufacturer S/N | POD | Ownership | Geographic area |
|------------|----------|------------|------------------------------|-----------------|--------------|-------------------|----------------|----------------------|-----------------|
| 03/07/2019 | 08:24:27 | 9011 | 9011 | Clock Synchr... | GSM | 11G10247276200775 | IT001E43472607 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 08:31:32 | 2101 | Problems in the communi... | Clock Synchr... | GSM | 00G10289196100785 | IT001E04008608 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 08:31:12 | 2101 | Problems in the communi... | Clock Synchr... | GSM | 00G10284046000662 | IT001E00026425 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 08:31:03 | 9011 | 9011 | Clock Synchr... | GSM | 00G14577077005063 | IT001E00259457 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 07:46:41 | 9011 | 9011 | Clock Synchr... | GSM | 00G00006016000086 | IT001E48543335 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 07:46:52 | 9011 | 9011 | Clock Synchr... | GSM | 00G14575057002489 | IT001E00236029 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 07:38:28 | 2404 | Error happens during Regi... | Load Curves... | GSM | 00G14577077004909 | IT001E00252733 | Distribution Company | Ds - CENTRO NOF |
| 03/07/2019 | 06:32:51 | 9011 | 9011 | Load Curves... | GSM | 00G14577077004905 | IT001E00249732 | Distribution Company | Ds - CENTRO NOF |

Figure 73

10.7. Warning details

The Warning Details shows the warnings occurred in the activities execution. So in detail the operator can extract:

1. all the warnings (occurred in the activities execution) related to the searched equipments (installed ,or, removed), or, related the searched 'executed activities'.
2. all the equipments that have executed a determinate activity with warnings
3. all the activities/equipments that have generated a determinate warnings .
4. etc.

Below, the filter parameter GUI section:

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Figure 74

Warning description table

- H001 - Requested and received serial number NOT match
- H002 - Data found in the searched load curve
- H003 - Inventoried internal constants do not match with register ones
- H005 - Clock Offset exceeds threshold
- H006 - Meter response data NOT contain data
- H008 - Task is expired
- H007 - Task is not terminable

Results

| Date | Time | Warning Codes | Activity Type | Com. channel | Manufacturer S/N | POD | Ownership | Geographic area | Geograph |
|------------|----------|---------------|----------------|--------------|-------------------|----------------|-----------|------------------|----------|
| 03/07/2019 | 12:22:45 | H001 | Load Curves... | GBM | 0009000614000044 | IT001641410308 | 2 | DS - CENTRO NORD | D33C... |
| 03/07/2019 | 10:56:43 | H001 | Load Curves... | GBM | 0009000614000043 | IT001648910304 | 2 | DS - CENTRO NORD | D33C... |
| 03/07/2019 | 10:36:33 | H003 | Load Curves... | GBM | 00014571077005454 | IT001650202118 | 1 | DS - CENTRO NORD | D33C... |
| 03/07/2019 | 09:54:01 | H001 | Load Curves... | GBM | 0009000614000043 | IT001650210209 | 1 | DS - CENTRO NORD | D33C... |
| 03/07/2019 | 09:48:28 | H001 | Load Curves... | GBM | 0009000614000043 | IT001641410316 | 1 | DS - CENTRO NORD | D33C... |
| 03/07/2019 | 09:42:55 | H001 | Load Curves... | GBM | 0009000614000043 | IT001650162137 | 1 | DS - CENTRO NORD | D33C... |
| 03/07/2019 | 06:02:04 | H008 | Read Config... | GBM | 0009000614000043 | ITP04800112403 | 2 | DS - CENTRO NORD | D33C... |

Figure 75

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11. Admin console

The Admin Console is used by the product administrators to view and to edit the system working parameters in the specific installation. The dedicated user interfaces are listed below, and, the details of these GUI/entities at the below link:

- [EO - Admin Console - Groove properties console](#)
- [EO - Admin Console - Sync properties console](#)
- [EO - Admin Console - Profiled Checks](#)

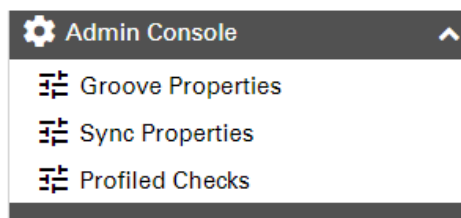


Figure 76

11.1. Groove Properties

In the Groove console will present the properties used in order to configure the Groove component parameters via GUI.

The properties are divided into the following subdomains:

- Scheduler
- Executor
- ResponseHandler

Some examples of the properties present in this Groove Proprieties GUI:

- **Schedules Retrais:**
 - the number of maximum retries that the system can perform with the main channel is called MAX_PRIMARY_RETRY
 - the number of maximum retries that the system can perform with the secondary channel is called MAX_PRIMARY_RETRY_BACKUP
- **DAYS_FROM_LAST_CONFIG_READ_DATE**
 - Number of days to retry config reading

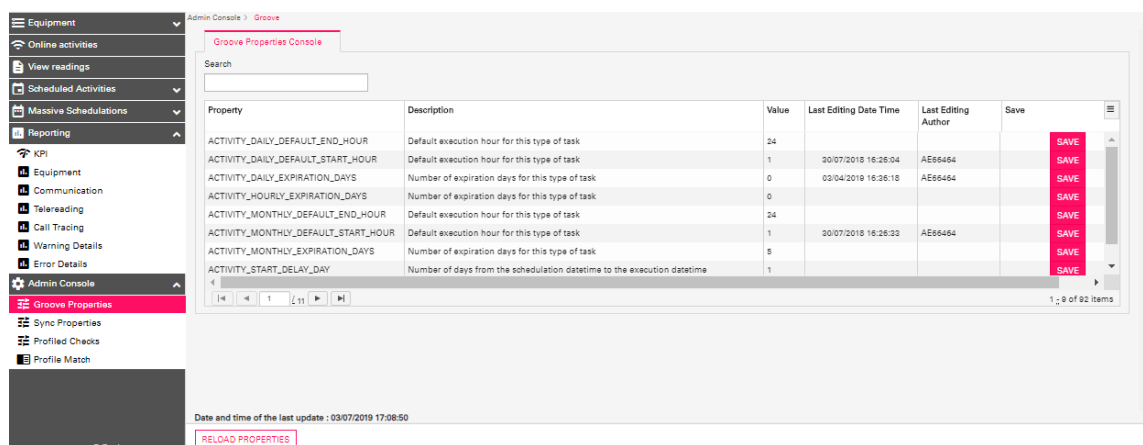


Figure 77

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11.2. Sync Properties

In the 'Sync Console' entity will present properties, in order to configure the sync component parameters via UI.

The properties are divided into the following Tab:

- Common Properties
- Provider Properties

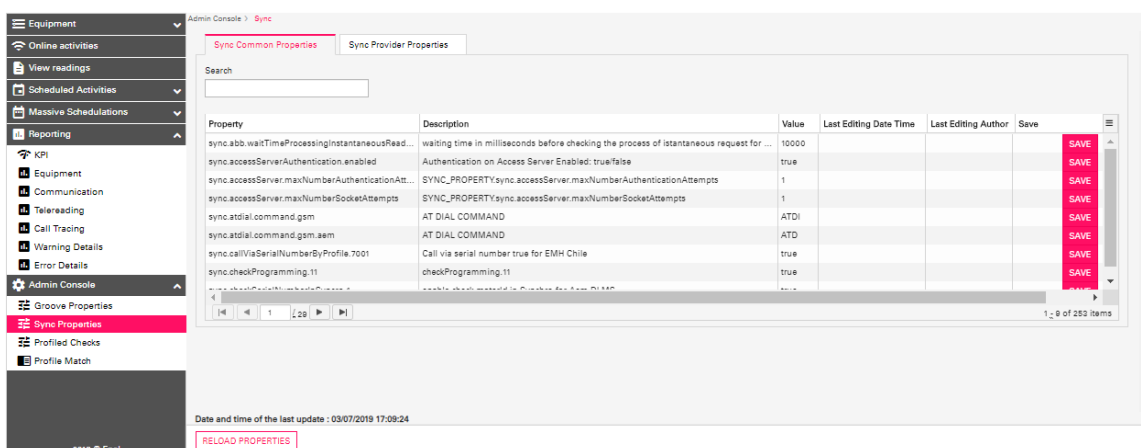


Figure 78

The 'Sync Console' properties can be changed. In case one 'Sync Console' properties was edited, by an operator via UI, the system will track the editing date, the editing user, and, the modified record will be historized.

11.3. Profiled Checks

In the 'Profiled Checks' entity will present the system checks, in order to verify some parameters:

- before some 'activities type' execution.
- after some 'activities type' execution.

The properties present in this Profiled Checks are in the other deep administrative documentation.

NB:

- The profiled controls that display the error codes: H909, and, H908, in some cases may not be performed (Online Activities on non-inventoried Eq.)

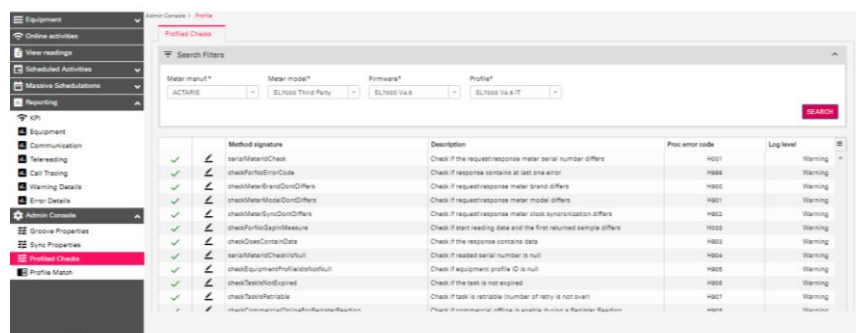


Figure 79

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|------------------------|---------------------|-----------------|---------------|------------------------------------|-------------------------------------|-----------|-----------|
| Modello | Tipologia | Titolo | Codice | Versione e Data | Identificativo file | Pag. | di |
| SGQ-MGN-03_01 | Functional Document | StarBeat System | 1250-ENTA0002 | Edizione 1.0 / Draft dd/mm/yyyy | 15.Starbeat_UserManual _ver. 4.4 | 44 | 47 |



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12. Definitions, Acronyms, and Abbreviations

All terms, acronyms and abbreviation are contained in the Project Glossary and here below.

| Abbreviations - Acronyms | Definition |
|-----------------------------|--|
| AMM | Automated Meter Management |
| AMM Suite | Global AMM Solution including multiple systems |
| AMMS | Automated Meter Management System |
| ASDU | Data Unit Application Services |
| ATR | Third Party Network Access |
| BO | Back Office |
| CPD | Data center |
| CUPS | Universal Supply Point Code |
| DB | Data Base - Base Dati |
| DH | Hourly discrimination |
| EI | External Interface - Interfacce Esterne al Sistema |
| EMD | Equipment Master Data - Dati Anagrafici Attrezzature |
| EXABEAT | Measure system |
| FE | Front End |
| GME | Electronical Measurement Device - Gruppo di Misura Elettronico |
| GUI | Graphical User Interface - Interfaccia Grafica Utente |
| Heart Beat | Master Data System |
| Job | Group of tasks related to the same communication session (multidrop chain). A job can also contain tasks related to a single meter. |
| Meter | Measure Point |
| Multidrop | The multidrop feature, in when more than one meter that aim to the same node and are bounds in a chain to be read and in the same communication session. |
| N.A. | Does not apply |
| OLA | Online Activity/Activities |
| POD | Point of delivery |
| PS | System Parameter - Parametri di Sistema |
| RPT | Report |
| SB | Star Beat |
| SBS | Star Beat System |
| SBS | Star Beat System - Smart Metering System for the acquisition of measurement data from devices connected to the high & medium voltage grid |
| SCH | Scheduler - Modulo Star Beat che si occupa di pianificare le attività da eseguire sugli Equipment |
| SI | System Interface - Interfaccia di Sistema |
| Task | Single operation (e.g. Load Profile Reading) to execute. |
| TOUs | Territorial Organizational Units |
| UI | User Interface - Interfaccia Utente |
| UOT | Territorial Organizational Unit |
| WO | Work Order - Ordine di lavoro (Richiesta di esecuzione attività su GME) |
| WORK BEAT | Work Order System |
| XSD | Scheme XML definition |



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