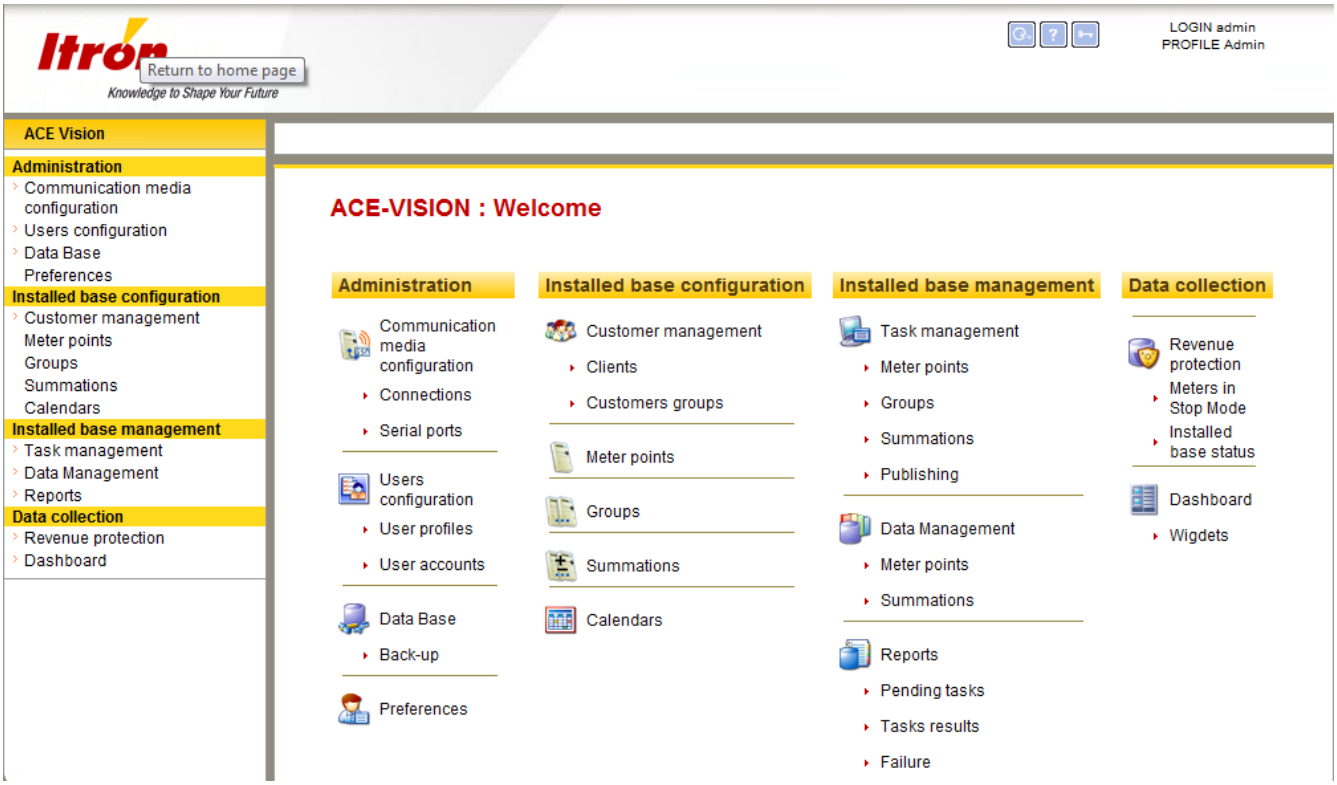
ACE VISION

From Automatic Meter Reading

To Network and Individual Management

User Guide version 7.5.1



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1. INTRODUCTION:

ACE VISION is an automatic meter reading (AMR) software solution which has been developed by Itron to provide a competitive data collection solution that is particularly suited to management of medium sized (several thousand meter points) industrial meter parks. Its user interface is based on web publishing technology providing a simple user friendly interface.

- This user guide covers use of ACE Vision in conjunction with ACE 6000, SL7000 (int'l and DTM) and ACE 8000 Meters. This guide does not include meter configuration guidance.

1.1. REQUIREMENTS

1.1.1. System Compatibility

Ace Vision is compatible with the following operating systems:

- Windows XP Pro SP3
- Windows Vista (32 and 64 bit)
- Windows 7 (32 and 64 bit)
- Windows 2008 (32 and 64 bit)

1.1.2. Meter Compatibility

Ace Vision supports the following Itron commercial and Industrial meters:

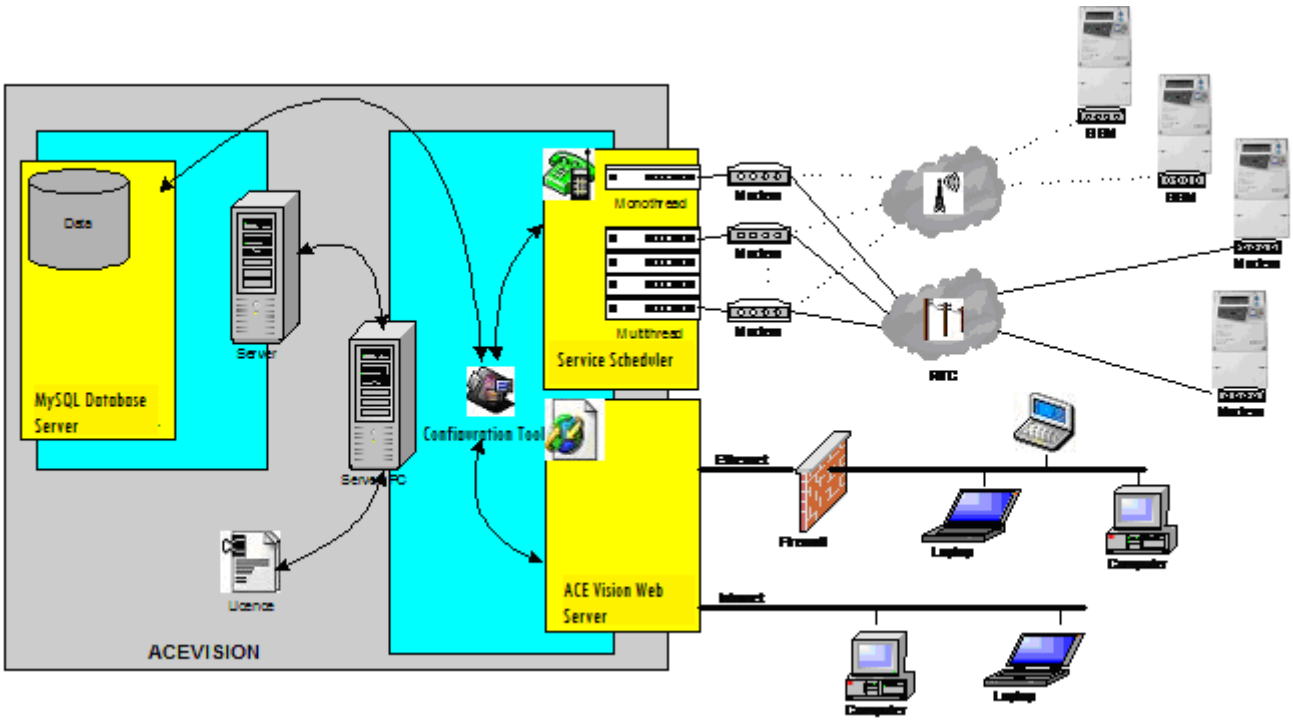
- ACE6000 (All versions to v4.10)
- SL7000 (All version from v2.x to v7.31)
- IEC7 DTM (all versions to v9.23)
- ACE8000 (All versions)

1.1.3. Communication

- ACE Vision can be connected via local port or over a distribute architecture network using the following methods
  - PSTN modem
  - GSM
  - GPRS
  - Ethernet Network
  - Laptop (using ACE-VISION Mobile LT1.1)
  - HHU (using ACE-VISION Mobile 1.1)

1.2. SYSTEM ARCHITECTURE

- Ace Vision software is composed of:
  - An IIS Web Server: ACE Vision application for editing and display of data.
  - Windows Service Scheduler: communications and data export sequencer (capable of managing up to 8 communication paths simultaneously).
  - MySQL database server (does not require a licence)
  - ACE Vision Configuration Tool: For the initialisation of the various servers.



1.3. ACE VISION ICONS

The following icons are used in ACE Vision and this user guide:

	Return to the previous menu (without saving)
	Apply
	Edit
	Copy
	Delete
	Create
	Add
	Delete
	XML format
	CSV format
	PDF format
	Calendar
	Next
	Previous
*	Mandatory field
	Summation (addition)
	Summation (subtraction)

2. SOFTWARE ADMINISTRATION

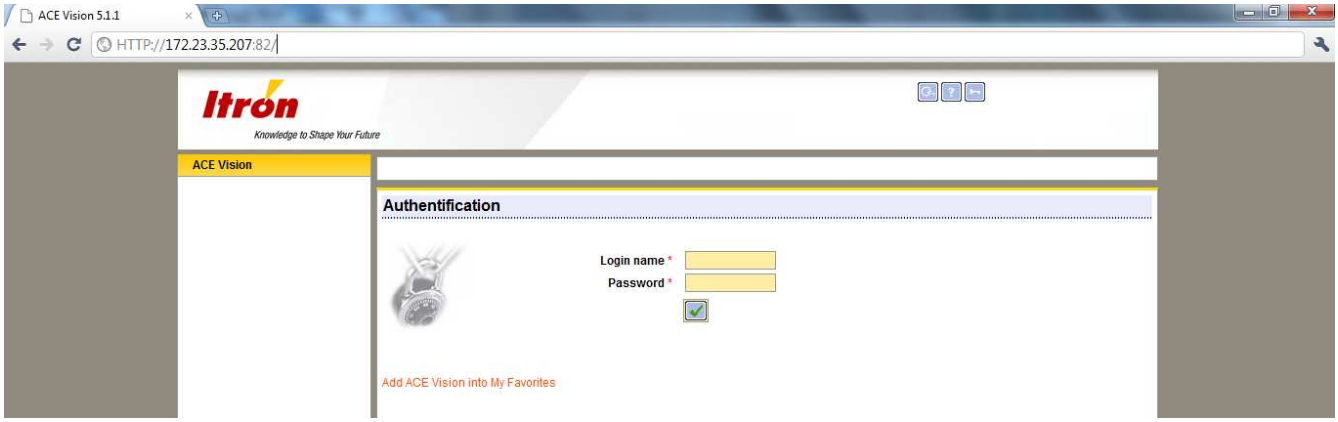
This Section provides a detailed guide to all operations that can be performed by the administrator.

A default **Administrator** user account is automatically created on installation of ACE Vision. This account can be used to create and manage all other user accounts that may be required to operate the software.

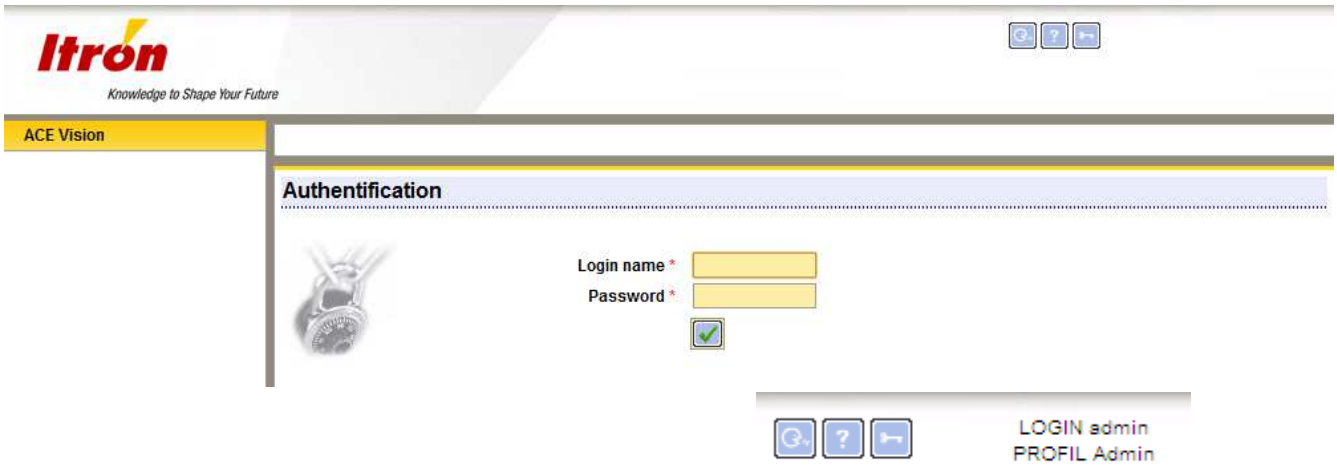
2.1. LOGIN

- Once the software is installed, an ACE Vision icon appears on the desktop. Click on the icon and the following screen appears:

- To login remotely to a host server, open Internet Explorer and enter the IP address of the host in the URL:



Log in as administrator: Enter the Login name (**admin**) and the password (**admin**).



The username and its corresponding profile are now displayed to the top right of the screen.

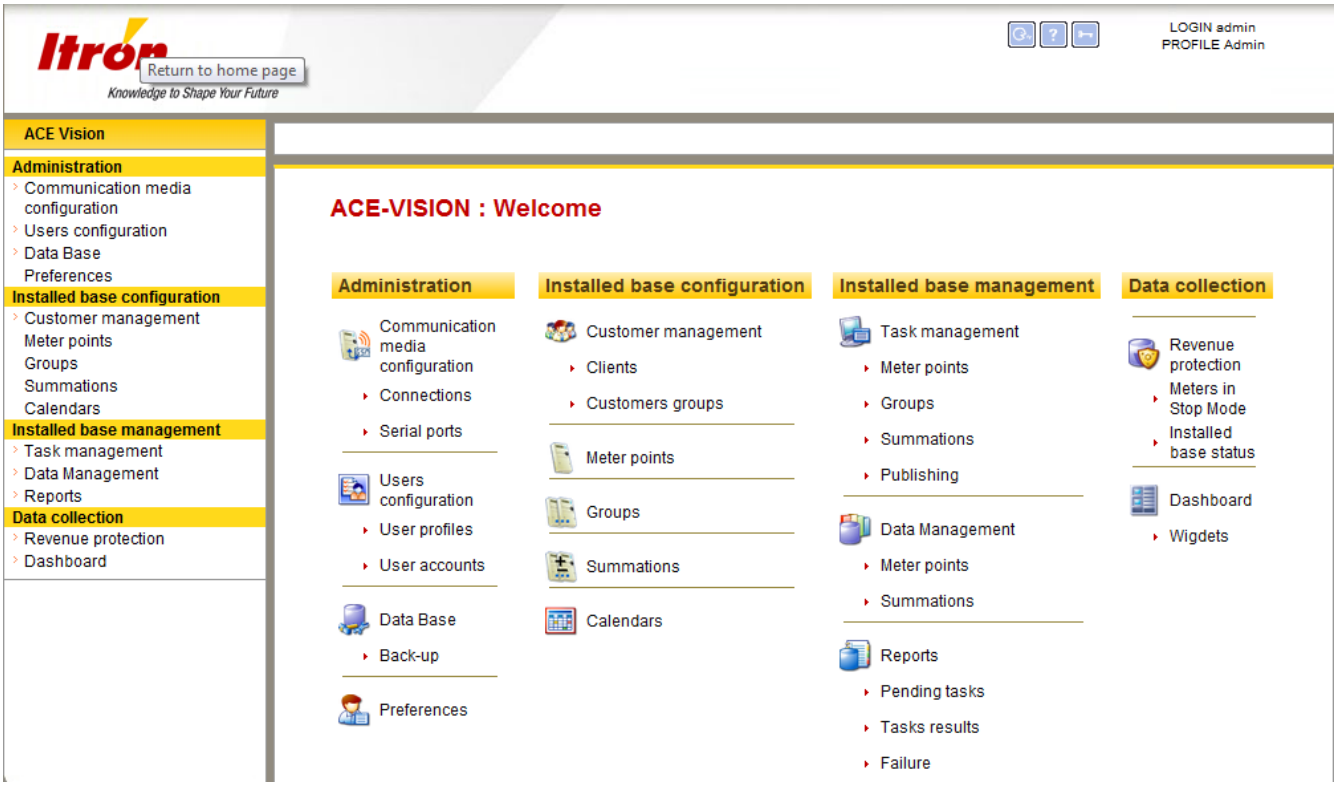
To the left three icons are displayed:

: Contact Itron Support Services

: Display software and communication configuration details

: Log in/Log out

Once logged in as administrator, all features available to the administrator are displayed on the welcome screen.



From this welcome screen, actions available to the administrator can be accessed in two ways:

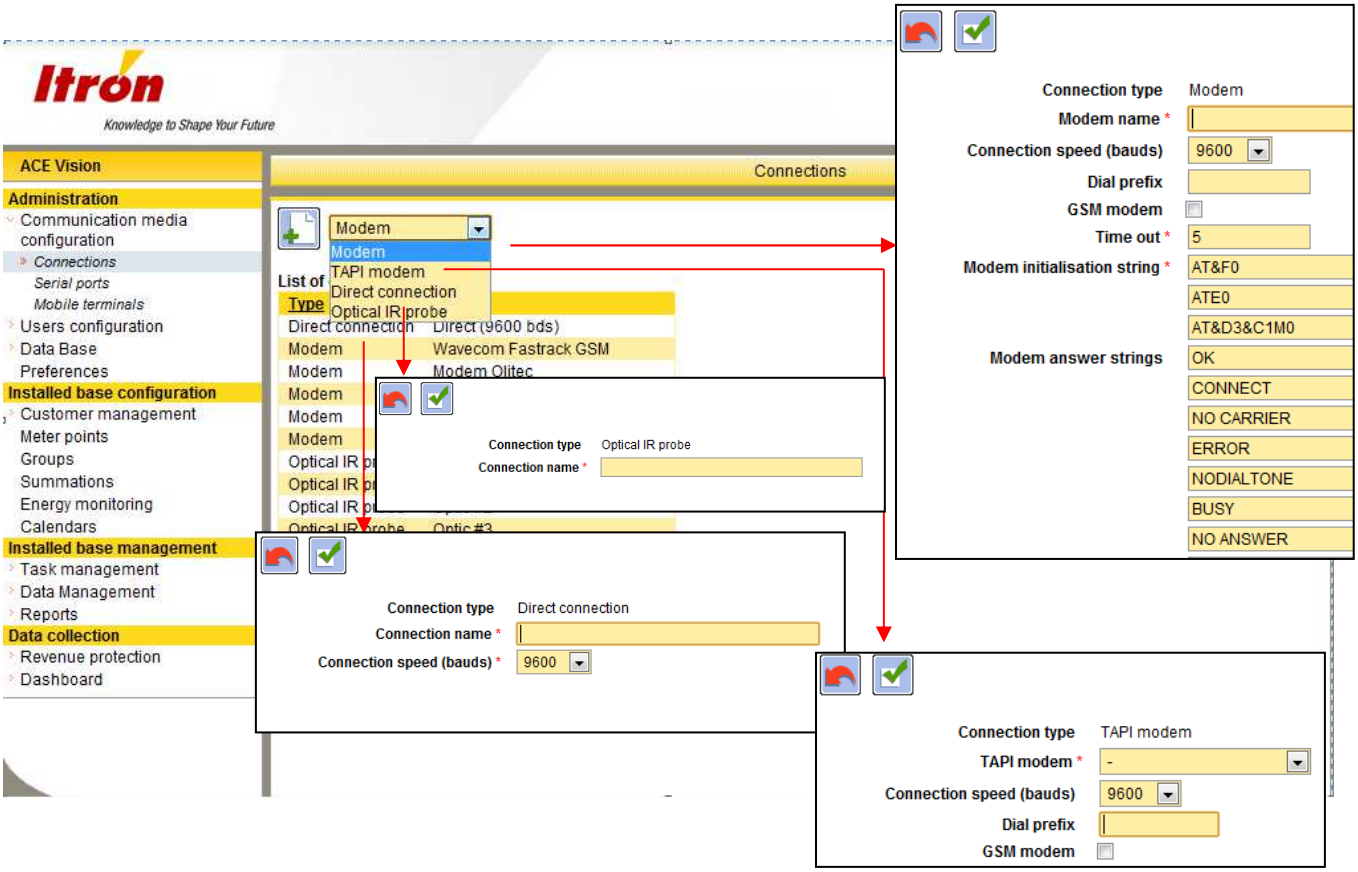
1) Using the sidebar – the sidebar is always displayed on the left of the screen.
2) Selecting the action directly from the welcome page (the main screen).

Note: *To return to this welcome page at any time, click on the* Itron *icon at the top left of the screen.*

The actions available on the welcome page will differ according to the profile of the user. These functions can be added or removed by the administrator.

2.2. CONNECTIONS

- Select **Communication media configuration - Connections** to configure the method of communication between the remote reading station and the meter (modem, optical head or direct connection).



There are 4 communication types available:

- Modem
- Modem TAPI
- Direct Connection (via RS232)
- Optical Head

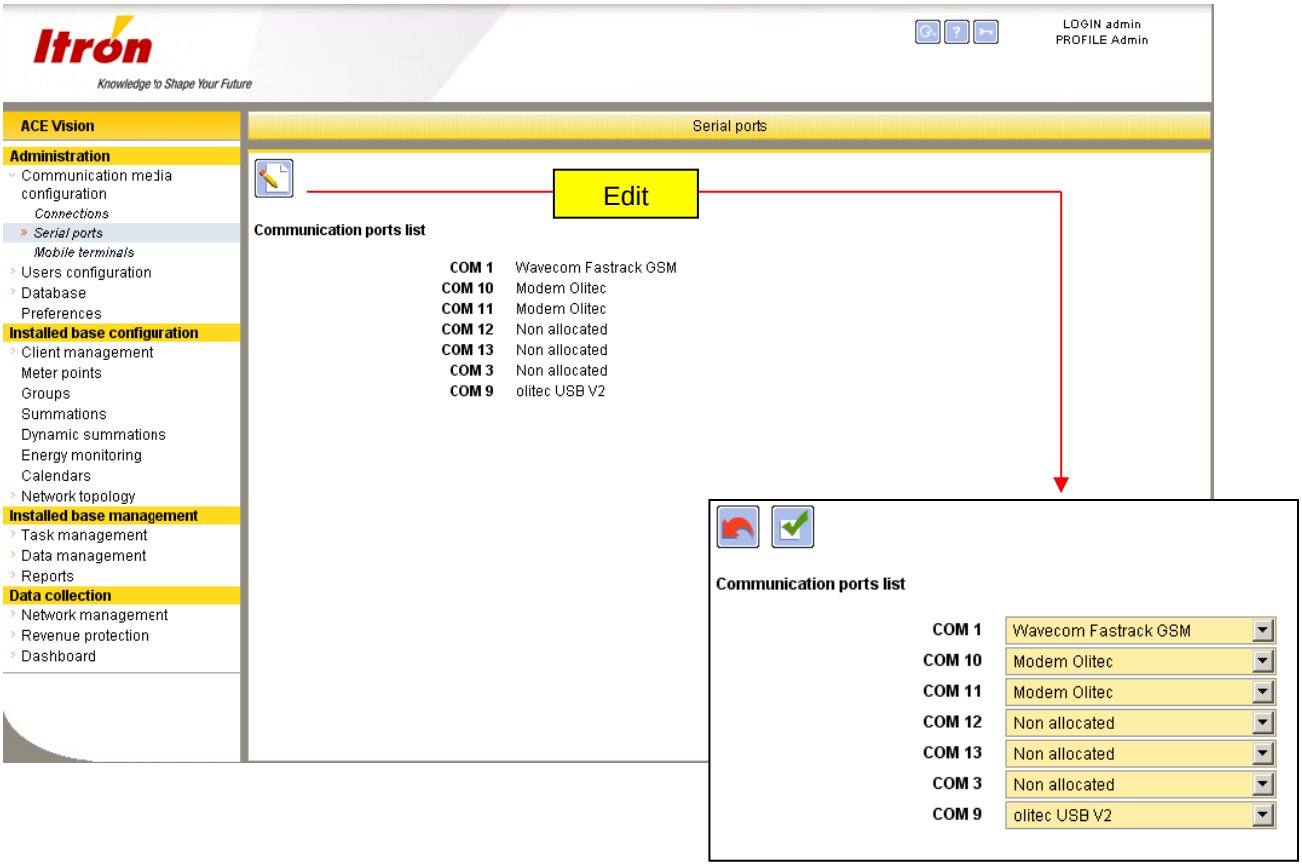
Select the desired connection type and click on the Edit button.

A window appears allowing the input of the relevant settings for the communication type selected. The edited connection type can then be associated to a serial port.

Note: *Modem and Modem TAPI connections include a* ***Modem SMS*** *setting. Select this to enable the sending of SMS messages*.

2.3. SERIAL PORTS

- This menu allows the administrator to associate serial ports to each connection type.



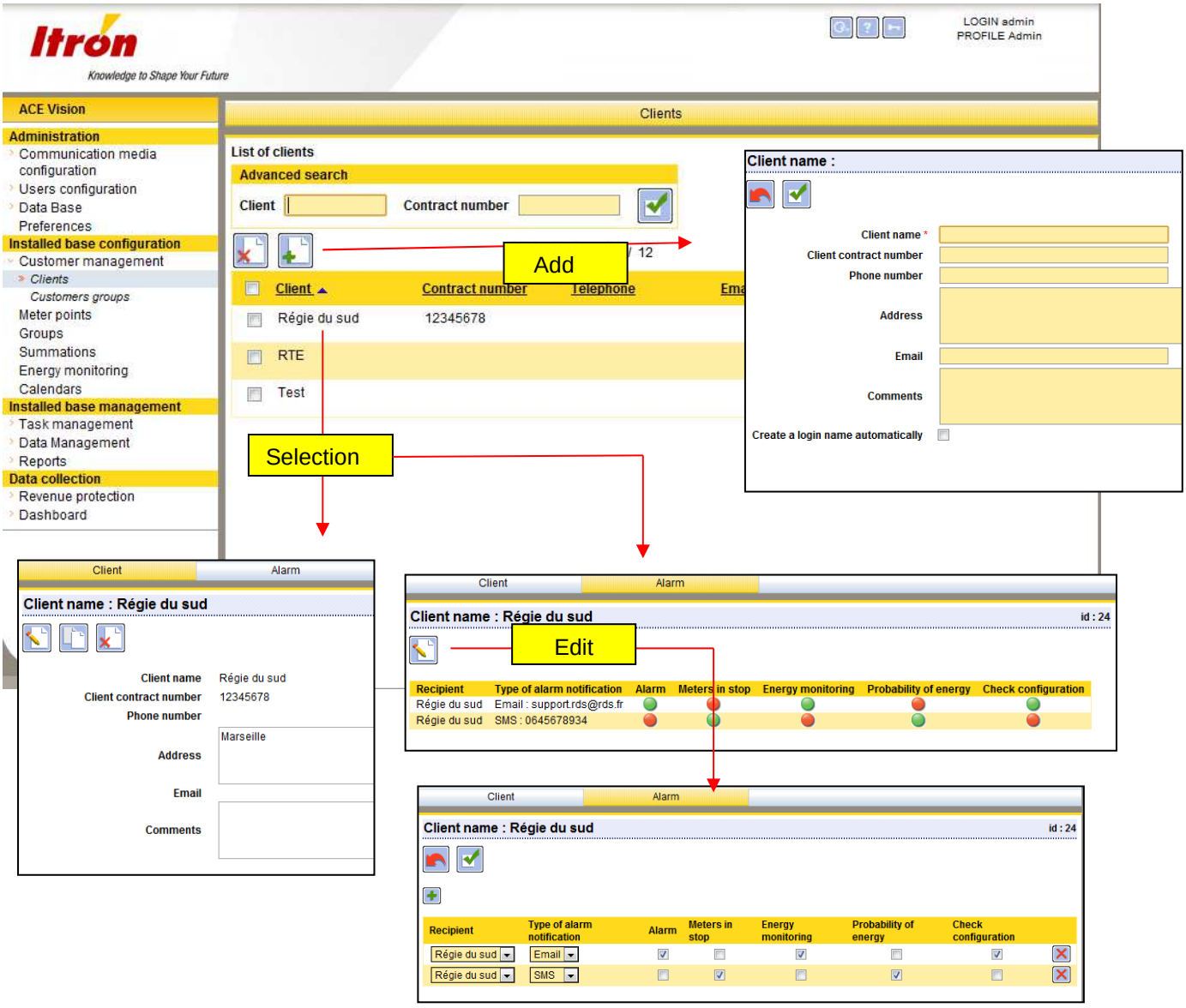
2.4. MOBILE TERMINALS

- See Ace-VISION Mobile User guide

2.5. CLIENTS

- Select **Customer management - Clients** to create, copy, edit and remove clients.

Note: *The administrator account has access to all clients by default.*



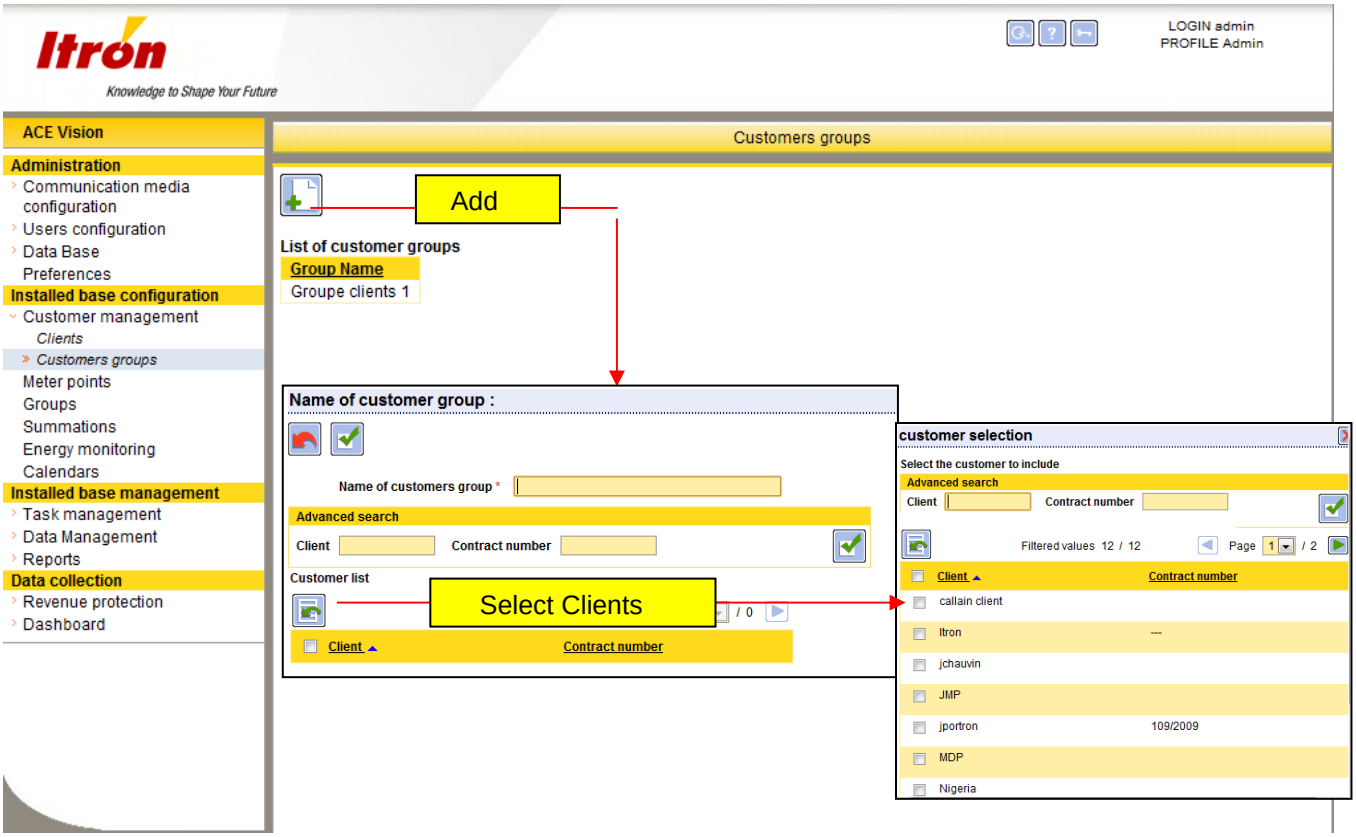
The **Client** menu lists all client details (name, contract number, telephone number, address, Email and comments). A client can manage one or more meters. The client is billed for all meters attached to the client name. Un client peut gérer un ou plusieurs compteurs, c'est à lui que l'on facture. The client must have a unique name in the database

The **Client** menu lists all client details (name, contract number, telephone number, address, Email and comments). A client can manage one or more meters. The client is billed for all meters attached to the client name. The client must have a unique name in the database.

- The **Create a login name automatically** setting can be selected to automatically create a new user that is associated to this client. When a user is created using this method, the **Client name** is used as the **user name** and also as the user **password**.
- A customer who has access to the notification management menu can receive an SMS or Email message sent from ACE Vision.
- The **Alarm** tab is used to define the manner of the notification (recipient, notification format: Email/SMS, Notification type: Alarm / Meter in stop / energy monitoring / probability of energy / check configuration.

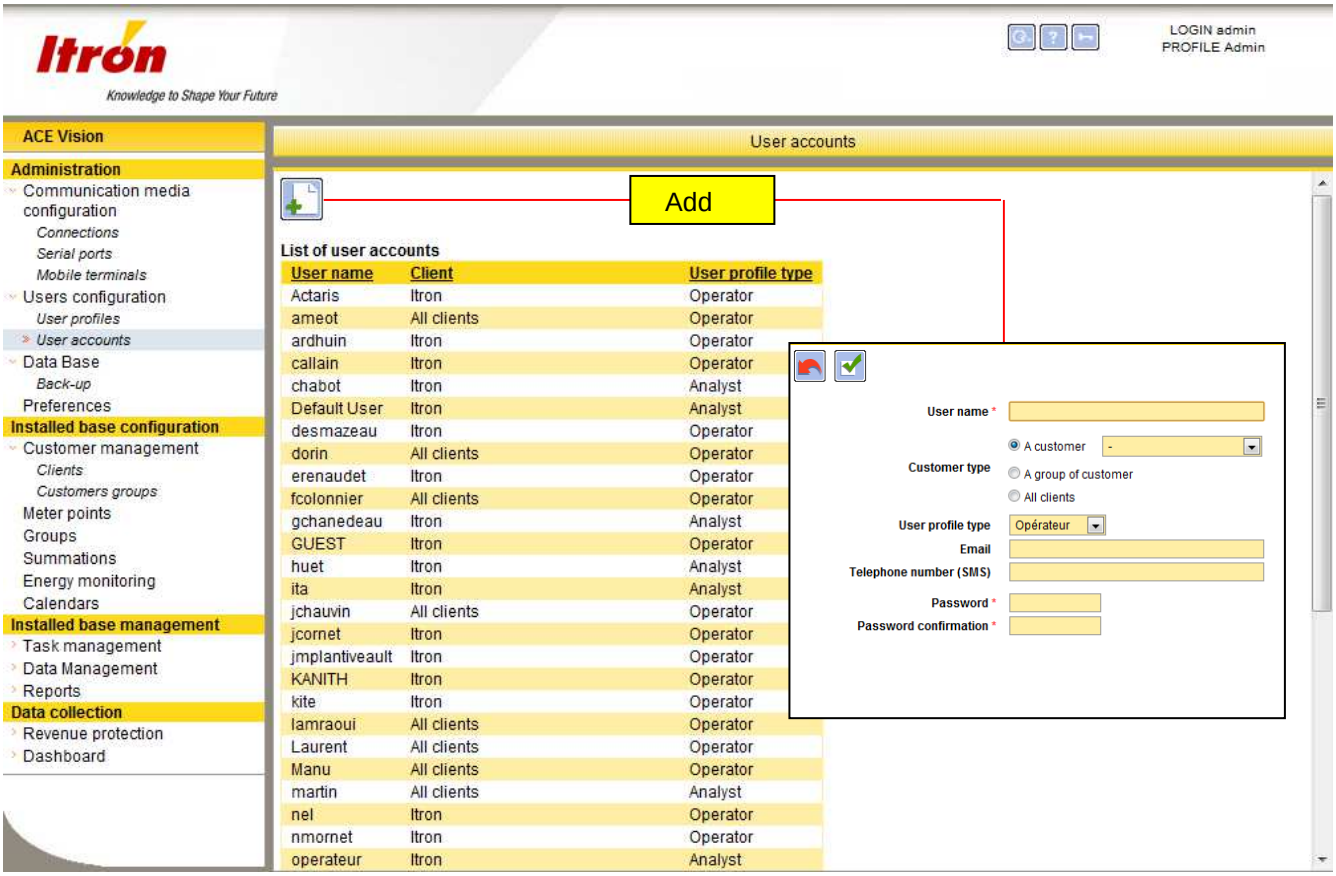
2.6. CUSTOMER GROUPS

Select **Customer management – Customer groups** to define customer (client) groups. This feature allows the administrator to create, modify, copy and delete customer groups. The administrator has access to all customer groups by default.



2.7. USER ACCOUNT CREATION

- Log in as administrator and select **Users configuration – User accounts** to configure users. Before a user can log in to ACE Vision, the user account must first be created in the database.



- By default there are 3 user levels: **Administrator**, **Operator** and **Analyst**. Actions available to each of these profiles can be edited by the administrator via the **User profiles** menu. The administrator can also create new user profiles with varying levels of access.

- User access can be associated to a client, a group of clients or to all clients.

- A user is always assigned a user type. The users access levels are defined by the user type applied.

- Insert an Email address, mobile telephone number (for SMS) and password to complete the addition of a new user.

- Once verified, the newly created user appears in the User List.

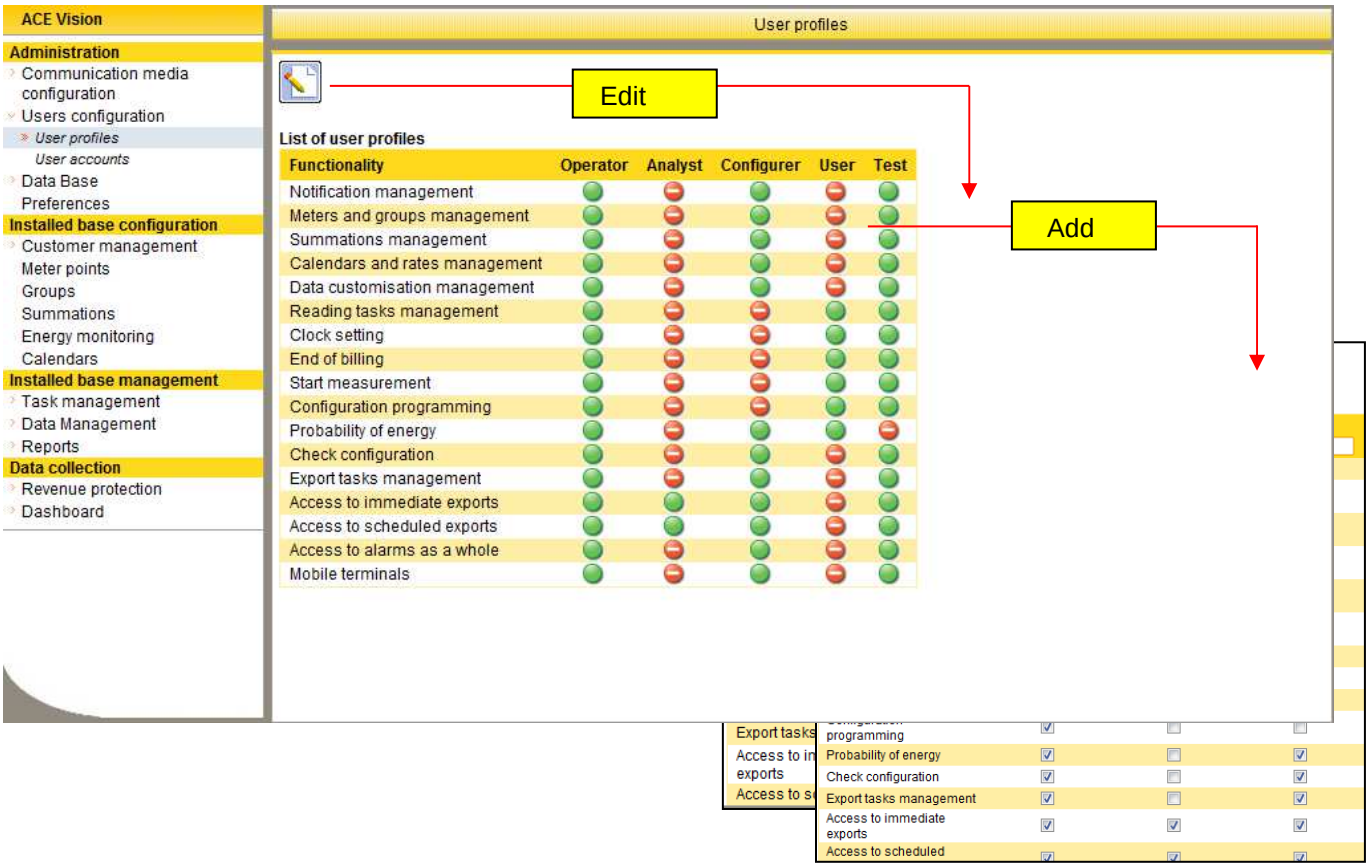
2.8. USER PROFILES

- Select **Users configuration – User profiles** to define the actions available to each user type. There are 2 predefined user profiles: «**Operator** » and « **Analyst** ».

- The names of the 2 predefined user profiles can be changed.

- Extra user profiles can be created.

- User profiles can be completely removed, as long as they are not associated with any user accounts.



Notification Management: Allows users to receive Email or SMS alarm messages sent from meters.

Meters and Groups Management: Allows users to create a meter or a meter group.

Summations Management: Allows users to create a virtual meter as an algebraic sum of several meters and view the resulting load profiles.

Calendars and rate management: Allows users to create a rate structure and add this into the load profile.

Data Customisation Management: Allows a user to customise instantaneous data (Instantaneous Power, Power factor, RMS Max, Neutral, Phase angle).

Reading Tasks Management: Allows reading tasks (e.g. read load profile, read billing data).

Clock Setting: Allows users to synchronise the meter time with PC time.

End of Billing: Allows users to generate an EOB (End of Billing).

Start management: Allows users start measurement in a meter.

Configuration management: Allows users to change meter configurations.

Probability of Energy: Allows users to verify the coherence of energies (Total Active Import) contained in an EOB.

Configuration Programming: Allows users to access the configuration comparison feature. A reference meter configuration exported from AIMS_PRO or ACE Pilot can be compared with the meter configuration read by ACE Vision.

Export tasks management: Users can create tasks to export remote reading data.

Access to immediate exports: Allows users to manually export meter data to file.

Access to scheduled exports: Allows users to view load profile data that has been previously exported.

Access to alarms as a whole: Allows users have access to all alarms.

Mobile Terminals: Allows the management of Hand Held Units.

2.9. MODIFICATION FOLLOW UP

The modifications in the system are tracked into the data base : are concerned all the writing actions (creation, modification, deletion). The reading actions are not stored.

The display of the modification follow up could be accessed through the menu Administration->DataBase->Modification follow up.

A modification is described with the following information

- User name (login name)
- Date and time of modification
- Action (creation / modification / deletion)
- Concerned object (connection, serial port, meters, user profile, user account, preferences, customer, HHU/ laptop, summation, groups of meters, groups of customers, calendar, energy monitoring, tasks management, reset of meters statistics, widgets)

The display of the events of modification could be reduced to a certain period of time (default value 24 hours), and filtered on objects, action, and users.

All those modifications could be exported in CSV file.

An option of 'settings.xml' called NbLogUpdateResults allows to limit the number of events displayed in the web site. The default value is 1000.

This list of events could be backed up (xml format), from the configuration tools, with the same process as for the meters .

2.10. DATA BASE OF CITIES

In order to associate a meter to a city, a database of cities could be imported into ACE-VISION. The creation of the list or importation of the list should be done through the menu Administration->DataBase->Cities.

The default list is empty. The list could be edited (creation, modification, deletion of all or part of the list).

A city could be deleted only if not associated to any meters.

If the database is imported, the importation file should be in CSV format, according the following structure :

Column number	Information
Column 1	City name
Column 2	Postcode

The separator should be the < ; > character (semi-column) .

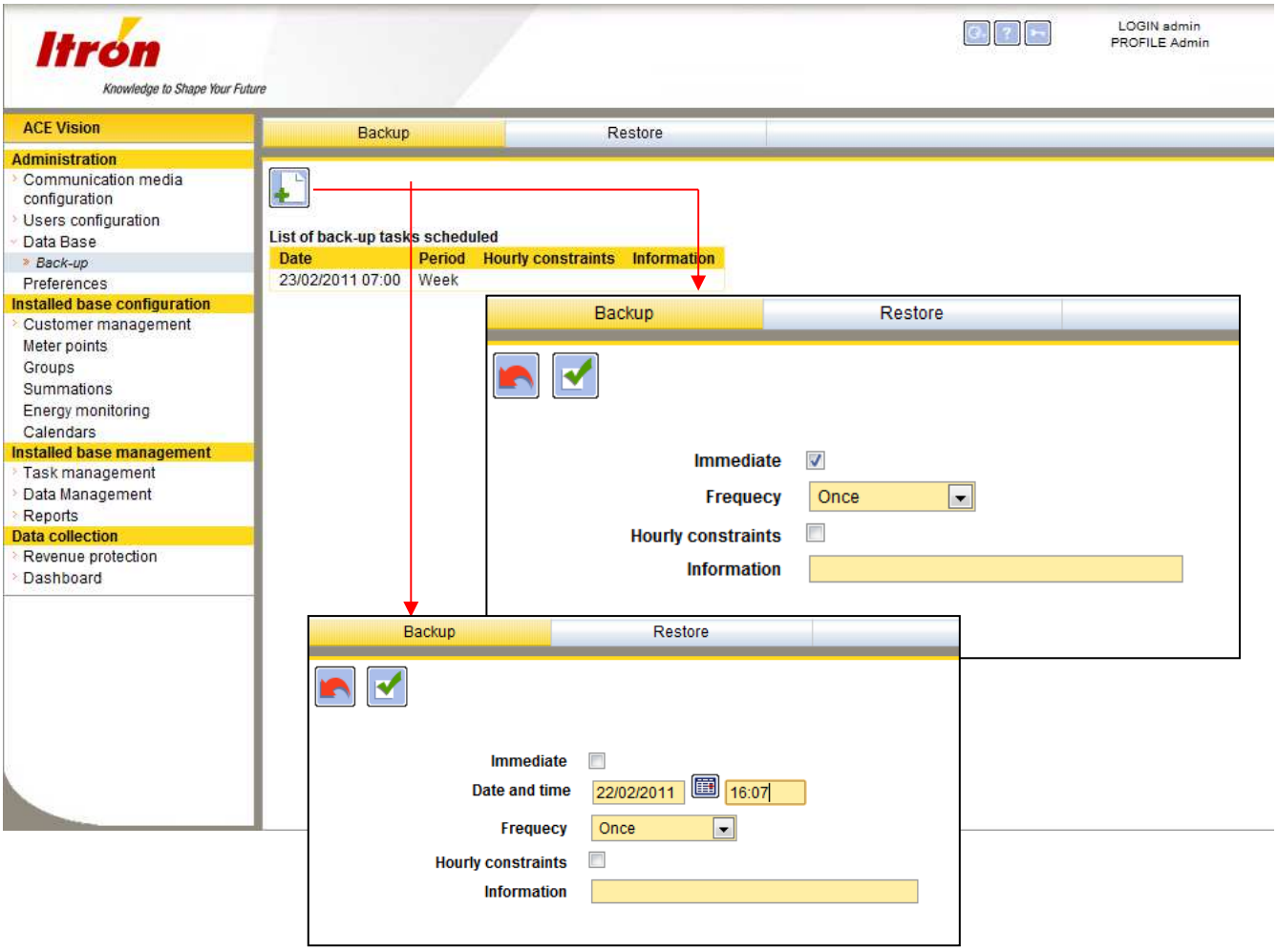
Name should be in capital letters, no dash (but space)

Example :

```
CityName;Postcode;
L ABERGEMENT CLEMENCIAT;01400;
L ABERGEMENT DE VAREY;01640;
AMAREINS;01090;
AMBERIEU EN BUGEY;01500;
AMBERIEUX EN DOMBES1330;
```

2.11. BACK UP / RESTORE

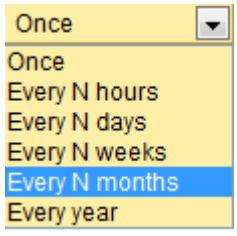
- Log in as administrator and select **Data Base - Back up** to perform data back up and restore tasks.



Backup: Reinstallation of a database image file.

- A backup file can either be created immediately or at a programmable date and time. The frequency of the backup can be chosen from the selection illustrated below.

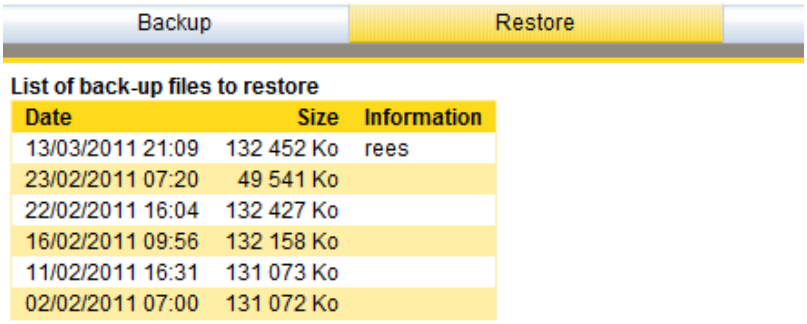
Frequency:



- Using the configuration tool, a regular rolling backup can be defined. The number of backup files (1 to 100) must be defined. The most recent backup replaces the oldest when capacity is reached (e.g. if 100 backup files are allowed, the 101st backup will replace the first.)

Restore: The contents of the backup file are loaded into the database. Any data previously present in the database is erased and no longer available.

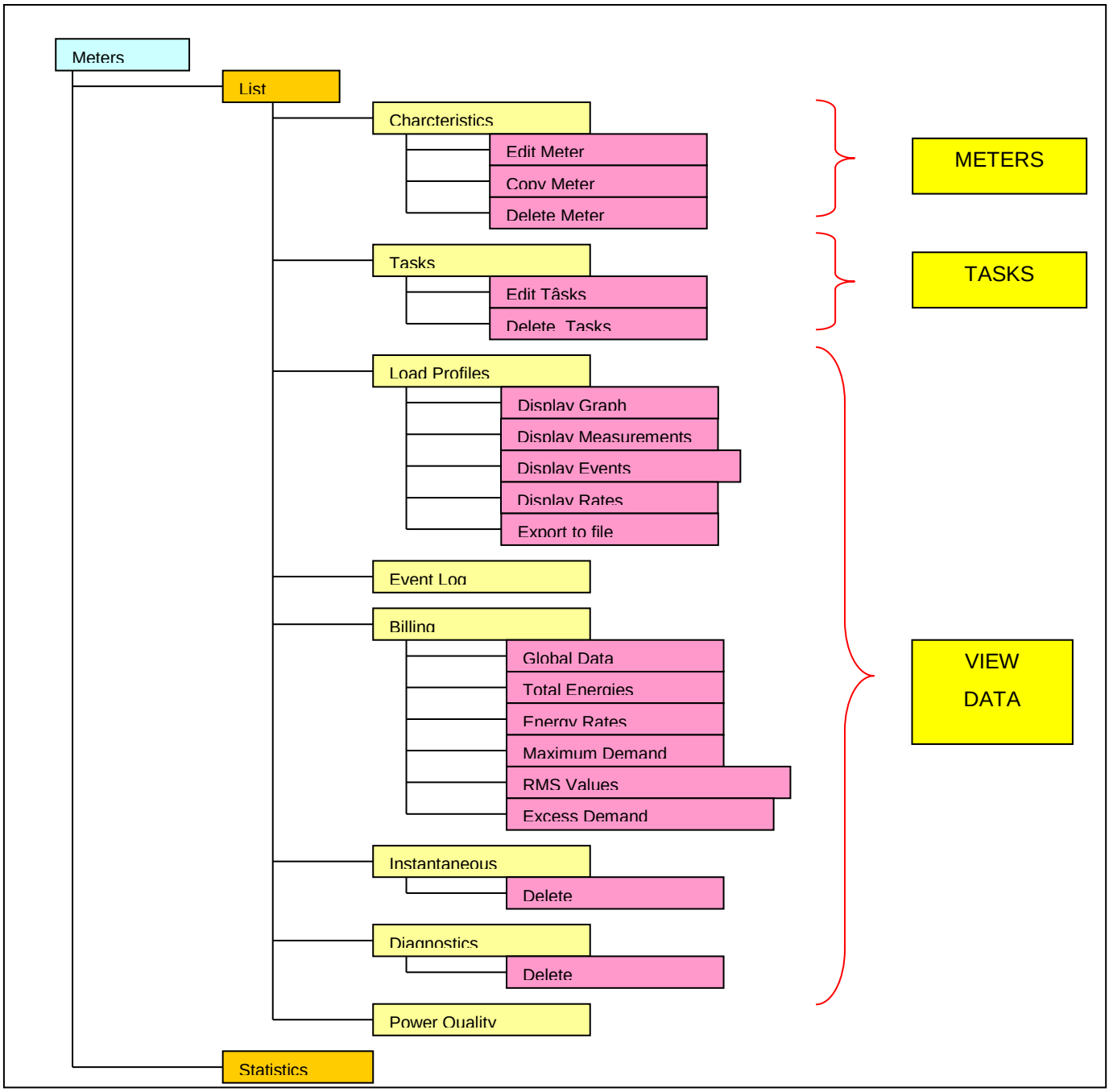
- Data restore is carried out by selecting the required restore file from the displayed list :



3. USING ACE VISION

3.1. METER POINTS

Note: meter points are often referred to simply as meters in ACE Vision and this user guide.



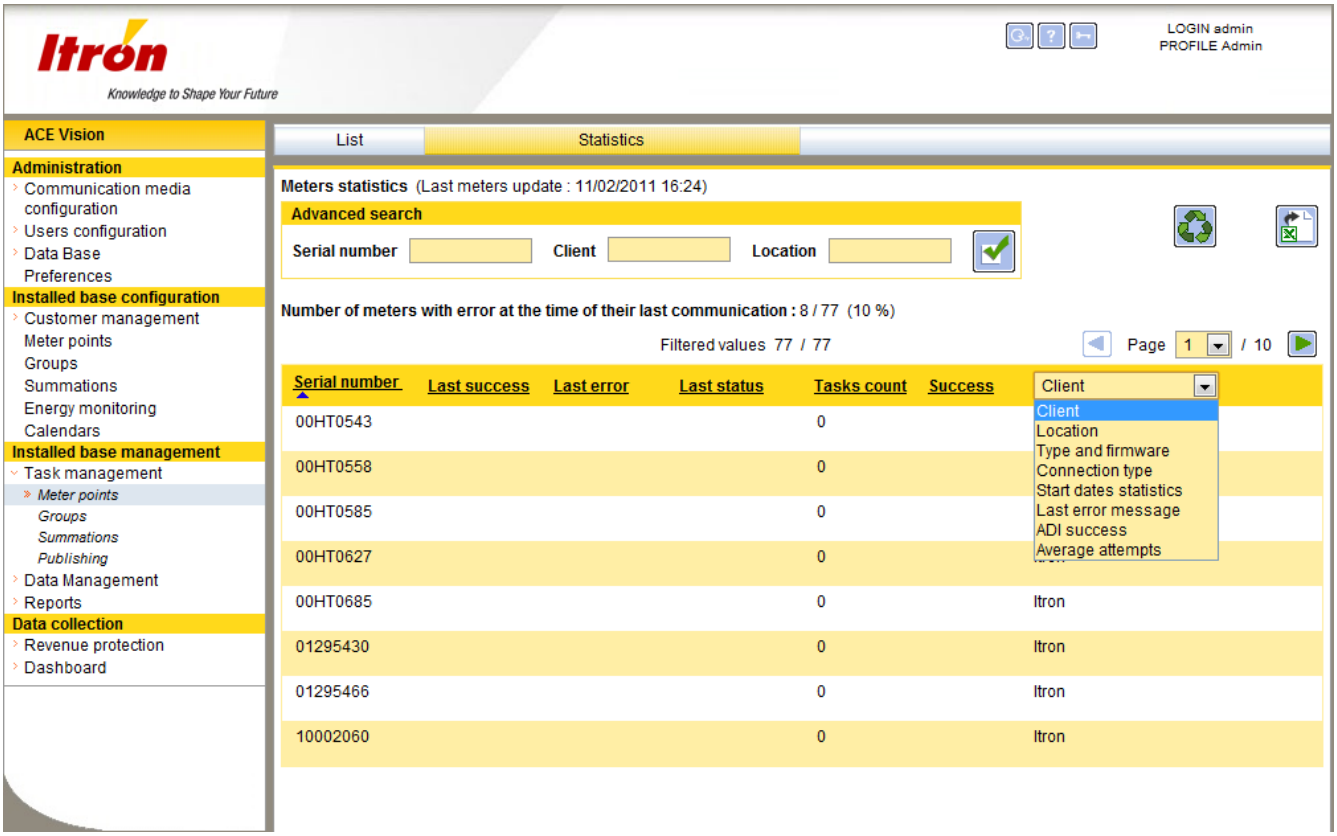
The **Meter Points** feature is one of the most important in ACE Vision. From this menu, the meter database and remote meter reading tasks associated to each meter are generated. This is also the menu to use to view the remote reading data. The diagram above illustrates the different options available from the **Meter point** menu.

Select the **List** tab to display a list of all meters that already exist in the database.

Select the **Statistics** tab to view a set of communications statistics of the meters in the database.

3.2. COMMUNICATION STATISTICS

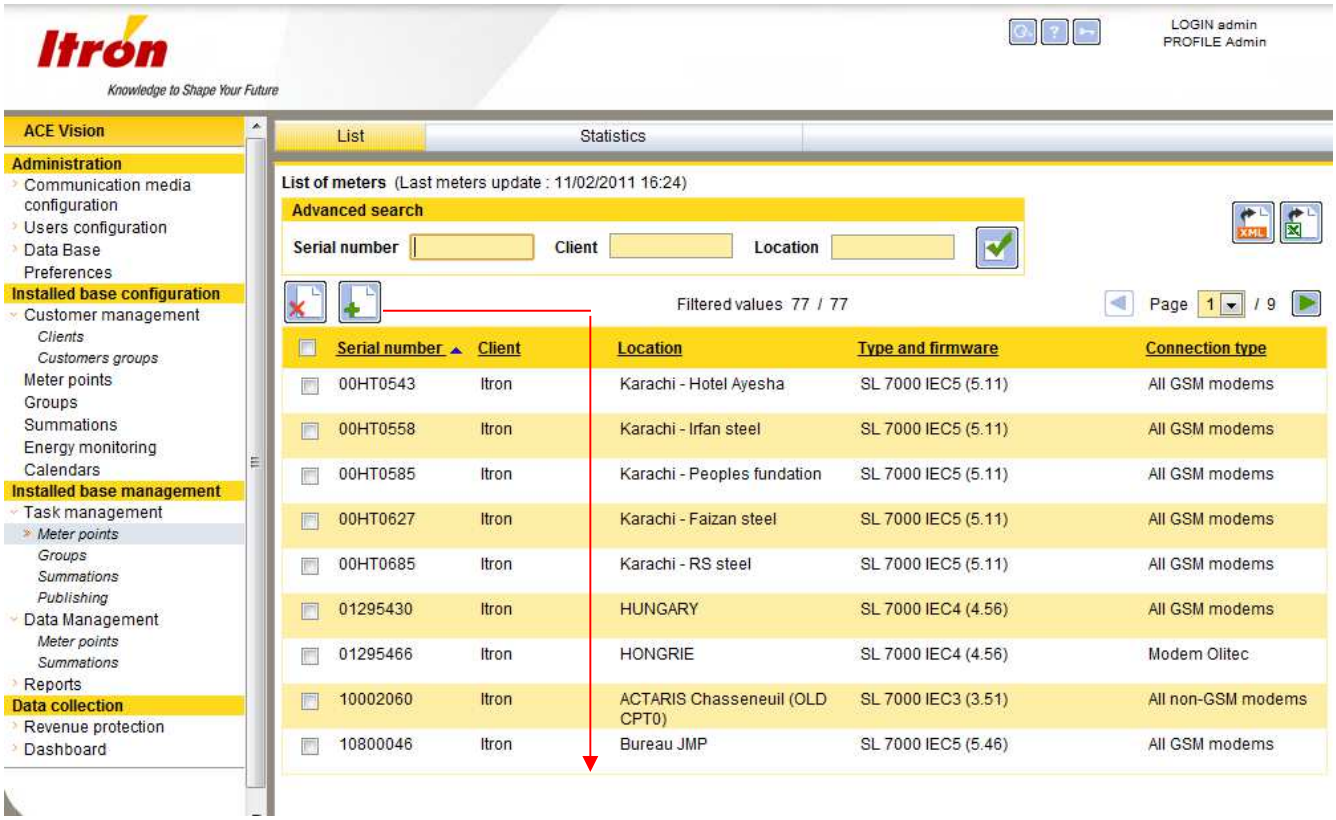
- Select **Meter Points**, the select the **Statistics** tab to view statistics of all meters. Click on a column title to sort the meters in rising order. The contents of the final column can be selected via a drop down list:

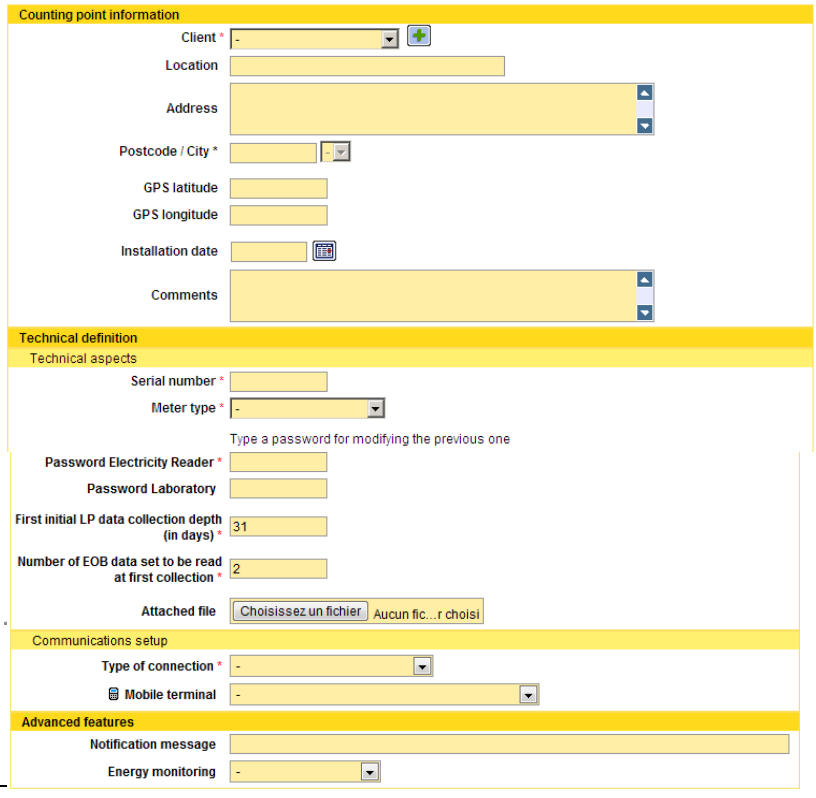


3.3. CREATING METER POINTS

- Select **Task Management- Meter Points** to create a new meter.

Note: *The creation of meter points is only available to users if enabled in the user account by the administrator. If not enabled, the creation icon will not appear on the screen.*





The settings listed below are used to enter the characteristics of each meter.

Note:** Fields mark with a ** must be completed.*

Meter Point

Client: Customer to which the meter belongs.

Localisation: Identify the placement of the meter.

Address: Physical location of meter point

Latitude (GPS):

Longitude (GPS):

PostCode : if the list of city is not empty, it is proposed to fill the postcode of the city Then the name of city is filled automacally.

Installation Date:

Comments: Any further information related to a meter can be added here

Technical Definition

- Technical Aspects

Serial Number: ACE Vision systematically checks the serial number of a meter before commencing remote reading.

Meter Type: ACE6000, SL7000, ACE8000

Firmware Version: Meter firmware type

Electricity Reader Password:

Laboratory Password: This is only required if configuration task creation is enabled***.***

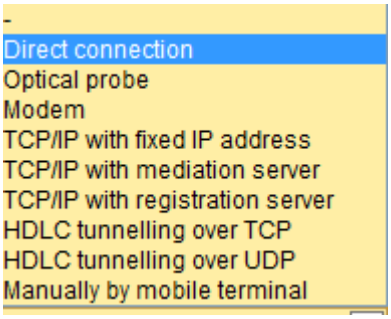
First initial LP data collection depth (in days): (31 by default)

Number of EOB data set to be read at first collection: (2 by default)

Attached File: Any data file can be associated to the meter (e.g. graphs and characteristics of meter installation)

- Communication Setup

Connection Types: chosen from the following list:



1) ***Direct Connection or Optical Probe:***

   Connection Name: Chosen from the connection list previously created.

   Physical Address: Physical address of meter (17 by default)

2) ***Modem :***

Connection Name: Chosen from the direct connection list previously created.

Telephone number: Telephone number of modem connected to meter point

Physical Address: Physical address of meter (17 by default)

Modem CLO: Tick the box if connected to a CLO modem.

3) ***TCP/IP with fixed IP address direct*** *(Ethernet sparklet modem is connected to the meter):*

IP Address: IP address of Ethernet modem connected to meter

Client IP Port: Port used by the modem (703 by default)

4) ***TCP/IP with mediation server*** *(Ethernet sparklet modem is connected to the meter):*

IP Address: IP Address of mediation server

Server IP Port: IP Port used by the server (10703 by default)

5) ***TCP/IP with registration server*** *(Ethernet sparklet modem is connected to the meter):*

IP Address: IP Address of registration server

Client IP Port: Port used by the modem (703 by default)

Server IP Port: IP Port used by the server (10703 by default)

6) ***HDLC tunnelling over TCP***

Physical Address: Physical address of meter (17 by default)

IP Address: IP address of modem / device connected to the meter

Client IP Port: IP Port used by modem / device connected to the meter (703 by default)

7) ***HDLC tunnelling over UDP***

Physical Address: Physical address of meter (17 by default)

IP Address: IP address of modem / device connected to the meter

Port IP Client: IP Port used by modem / device connected to the meter (703 by default)

8) ***Manually by mobile terminal:***

Mobile Terminal: ID and name of mobile terminal used

Network topology

In the meter definition screen, a meter could be linked to a outgoing line of a substation (if some are defined). It should be defined :

- Substation level
- Substation name
- Outgoing lines

Advanced Functions

Notification message: Message added to the start of an SMS or Email message

Energy Monitoring: Select the energy type to be monitored.

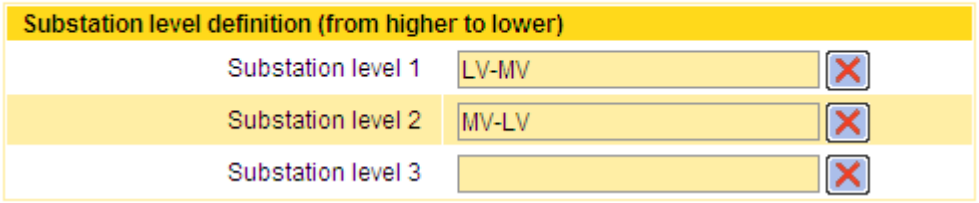
***Note**: Once created, the meter is added to the list of meter points in the database.*

3.3.1. Network topology

3.3.1.1. Definition of substation level

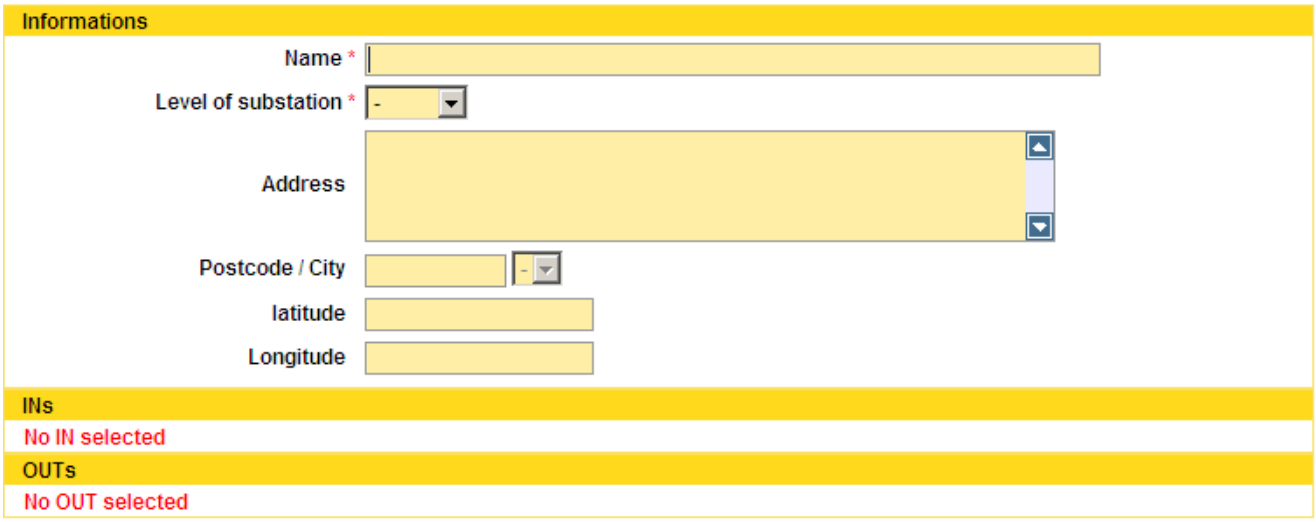
The first step of the definition of network topology is the creation of the substation levels. In ACE-VISION, up to 6 levels could be created, the level 1 being the higher one.

This is accessible through menu Installed Base configuration->Network Topology->Substations levels. One level could be suppressed only if no meters are associated to him.



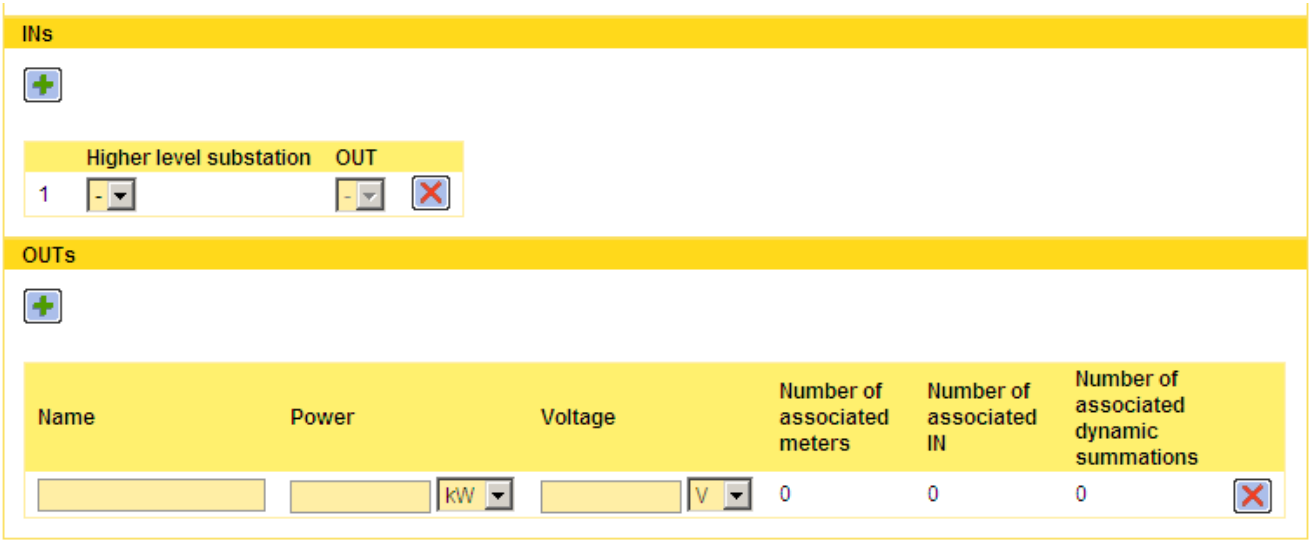
3.3.1.2. Definition of substations

Then the substations could be defined from the menu Installed Base Configuration-> Network Topology -> Substation.



A substation is defined with:

- Its name
- Its substation level (from the pre-defined list)
- Its address
- Its post code
- Its latitude and the longitude
- A list of Incoming lines could be defined (of course, this list could be empty at the higher level). Each incoming line is linked to an outgoing line of the upper level, allowing to get the complete definition of the network.
- A list of outgoing lines. Each outgoing line (OUT) is identified by
    - Its name
    - Its maximum capacity (kVA ou MVA)
    - Its nominal voltage (kV)



Only the field with (*) are mandatory – the others are optional

The substation management is the same as the one for the meters. Creation, modification, duplication, deletion features are available.

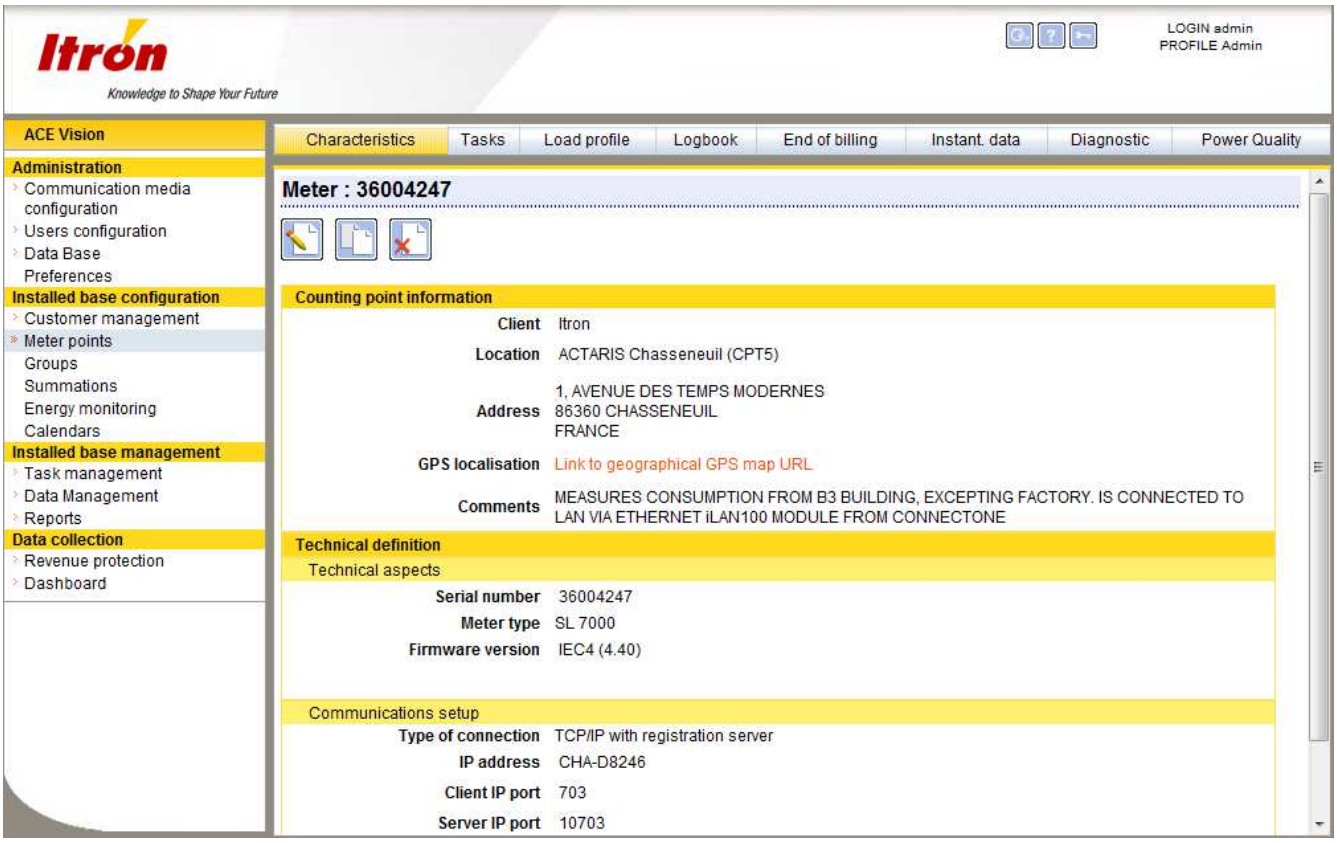
Deletion of a substation is possible only if no other substation is linked to it.

3.4. METER POINT ACTIONS

The actions in this section appear once a meter has been selected from the meter point list.

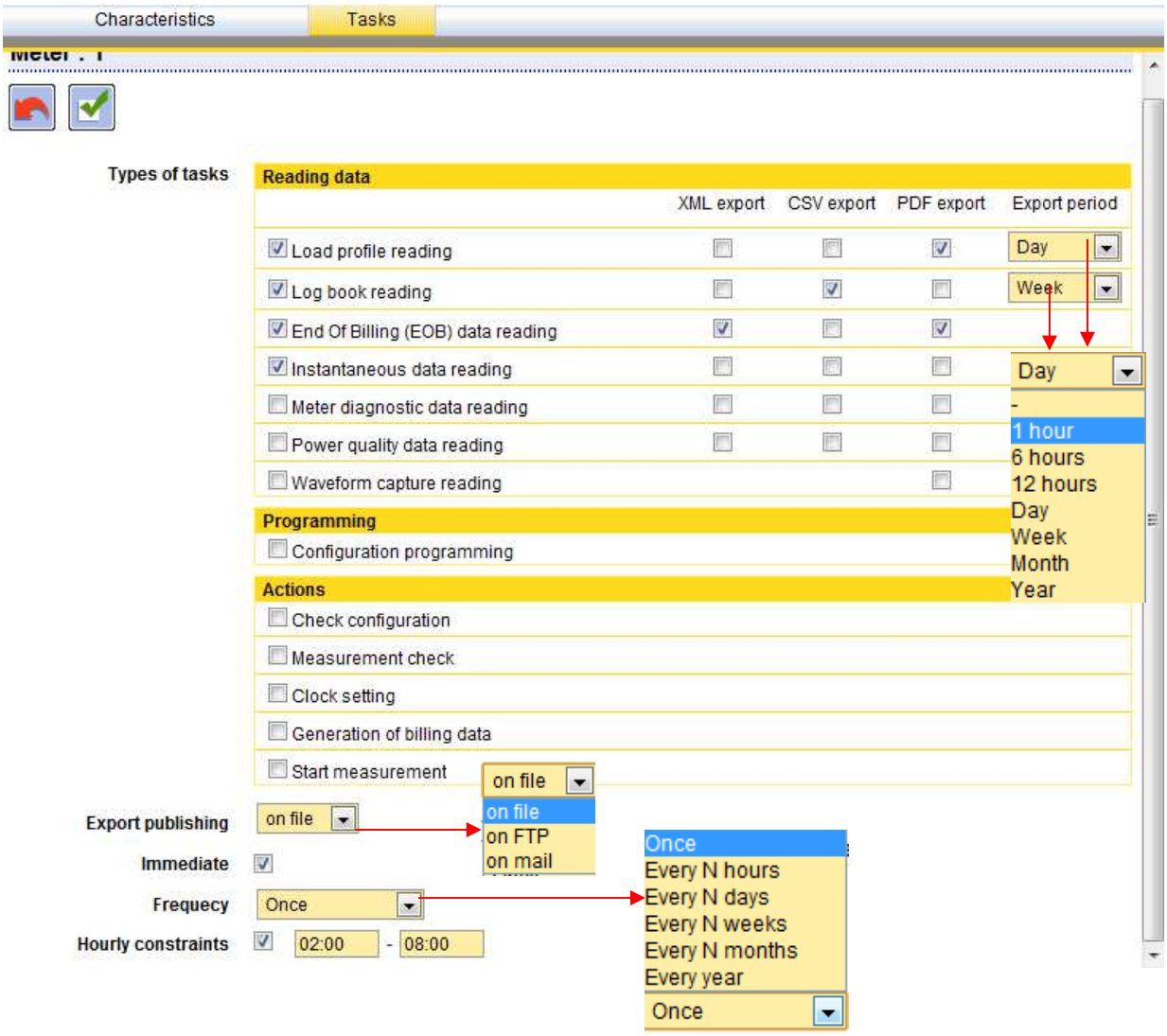
3.4.1. Meter Characteristics

- Select **Meter points**, then the **Characteristics** tab to view the characteristics of a meter.



3.4.2. Meter Tasks

Select the Tasks tab to view programming and/or remote reading operations. A task can be performed immediately or scheduled and activated once or at regular intervals, within or outside a specified time slot.



Tasks can be set to read and export data, to configure a meter point and perform meter actions.

Tasks can be executed immediately or at a fixed date. Tasks can be performed one time only or at regular intervals.

A time slot can be defined (hourly constraints), with tasks only being performed within this time slot.

3.4.2.1. Reading Tasks and Data Export

- Reading tasks can be set to read the following meter data:
  - Load Profile Data

- Log Book Data
- Billing (EOB) Data
- Instantaneous Data
- Meter Diagnostic Data
- Power Quality Data

- Reading Tasks can also be used to export data in XML, CSV or PDF format.

- For load profile and logbook data export, the export period must be defined. The data exported is the last complete data set applicable to the defined period available (e.g. if the period selected is **Day**, the preceding day's data is exported).

- Data exported for billing (EOB), instantaneous, diagnostic and power quality data is the latest data available in the meter at the moment of task execution.

- The exported data can be published to local file, Email or via FTP.

3.4.2.2. Configuration Programming

- The configuration programming task can be used to load a pre-existing configuration (created in AIMS_PRO (v5.35.3 or higher) or ACE Pilot) in XML format (The file is digitally signed).

> ***Note:*** *In order to create a configuration programming task, the client COSEM password* ***Laboratory*** *must be defined in the meter characteristics.*

3.4.2.3. Actions

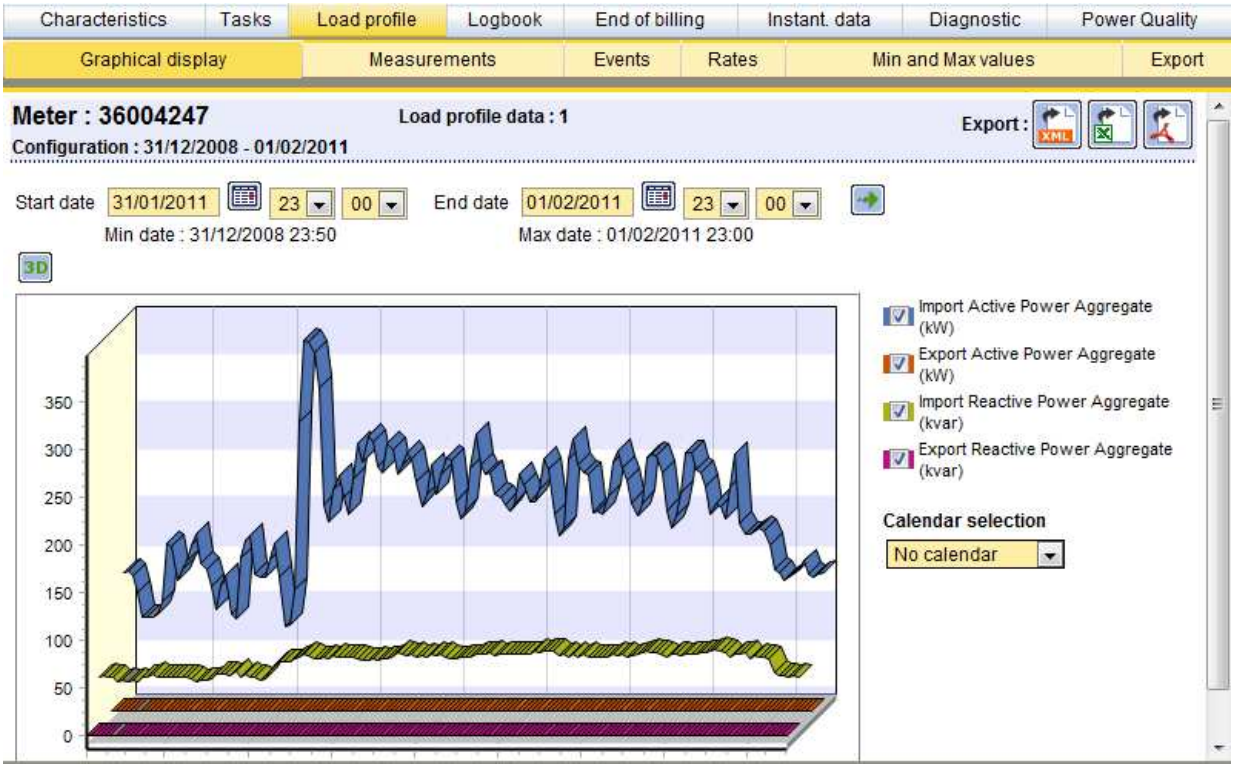
- The following actions can be created as tasks:
  - Check configuration: To compare a reference configuration with the configuration read by ACE Vision
  - Measurement check: To check if meter is in Start or Stop mode
  - Clock setting
  - Generation of billing data: To perform an EOB reset.
  - Start measurement: To leave Stop mode

- If check configuration is selected, a reference configuration must be uploaded.

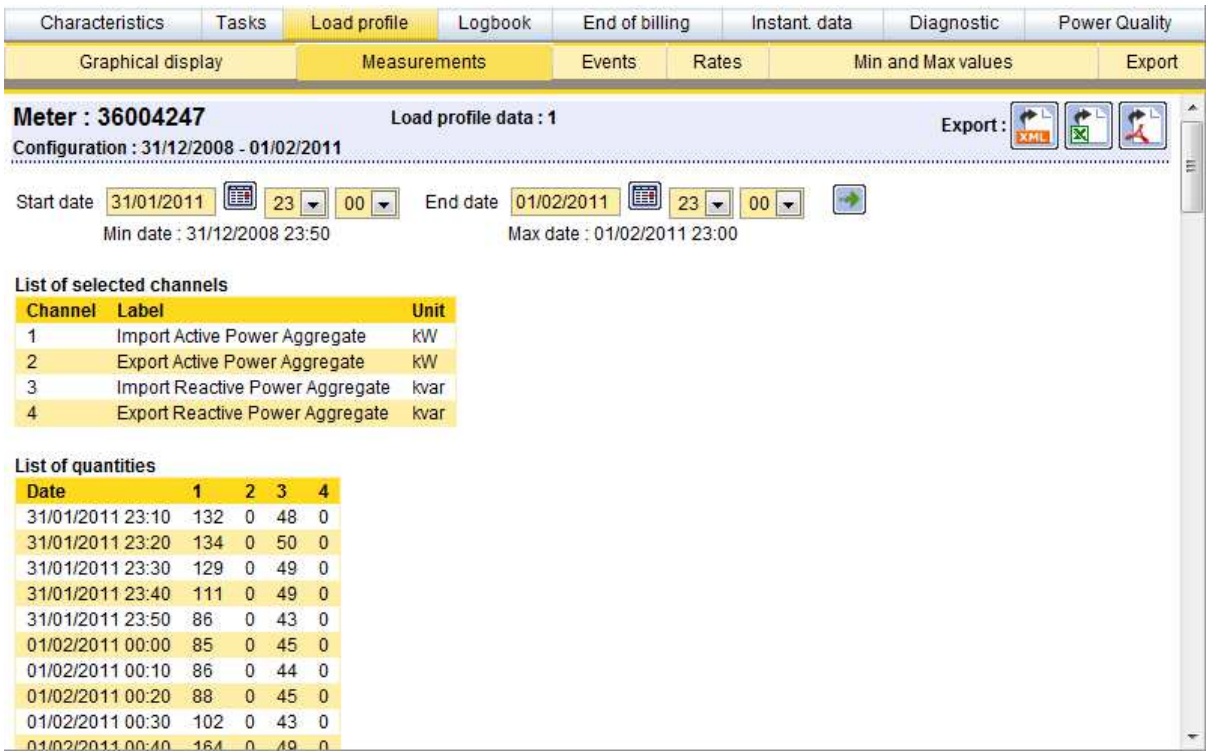
> ***Note****: If generation of billing data is selected, no other action or data reading operation can be selected in the task and the task may be performed once only.*

3.4.3. Load Profiles

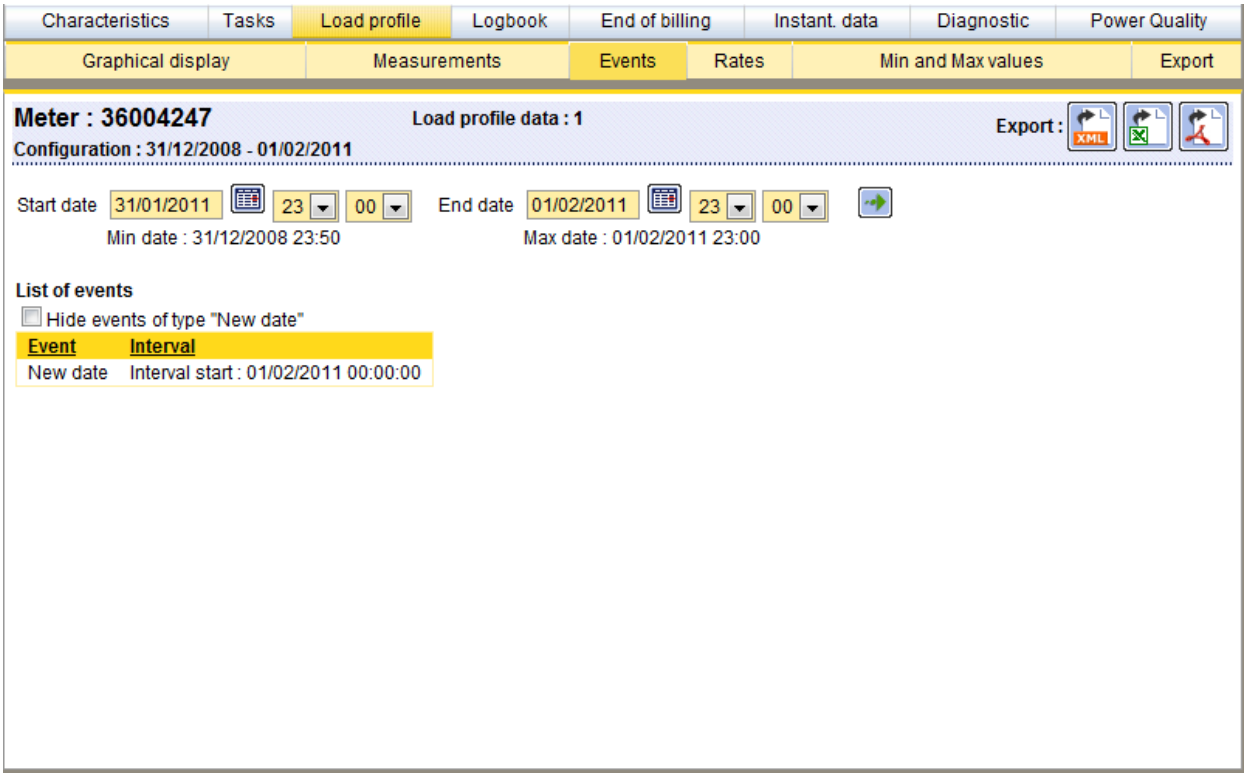
Load profile data can be displayed in graphic form (in 2D or 3D). The viewing period can be altered, but must lie within the configuration period.



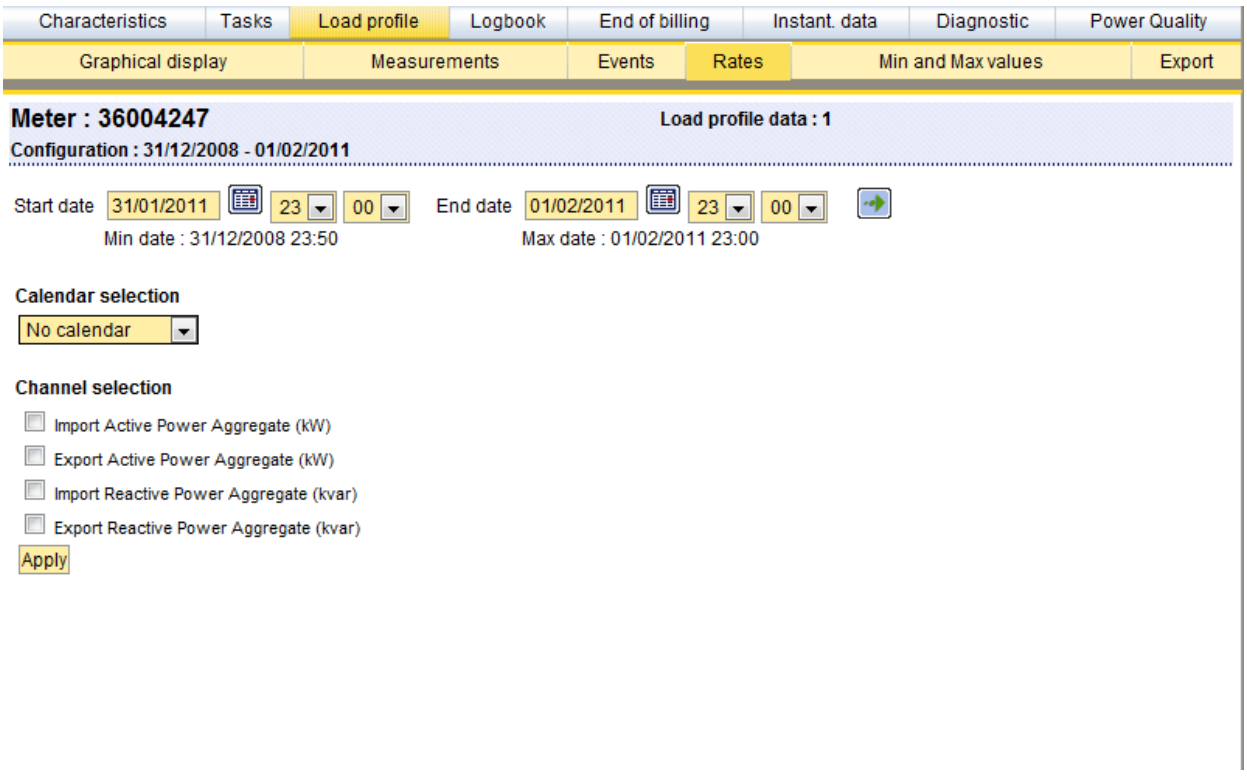
The **Measurements** tab displays load profile data in table form (date and time and aggregate power value for each selected channel).



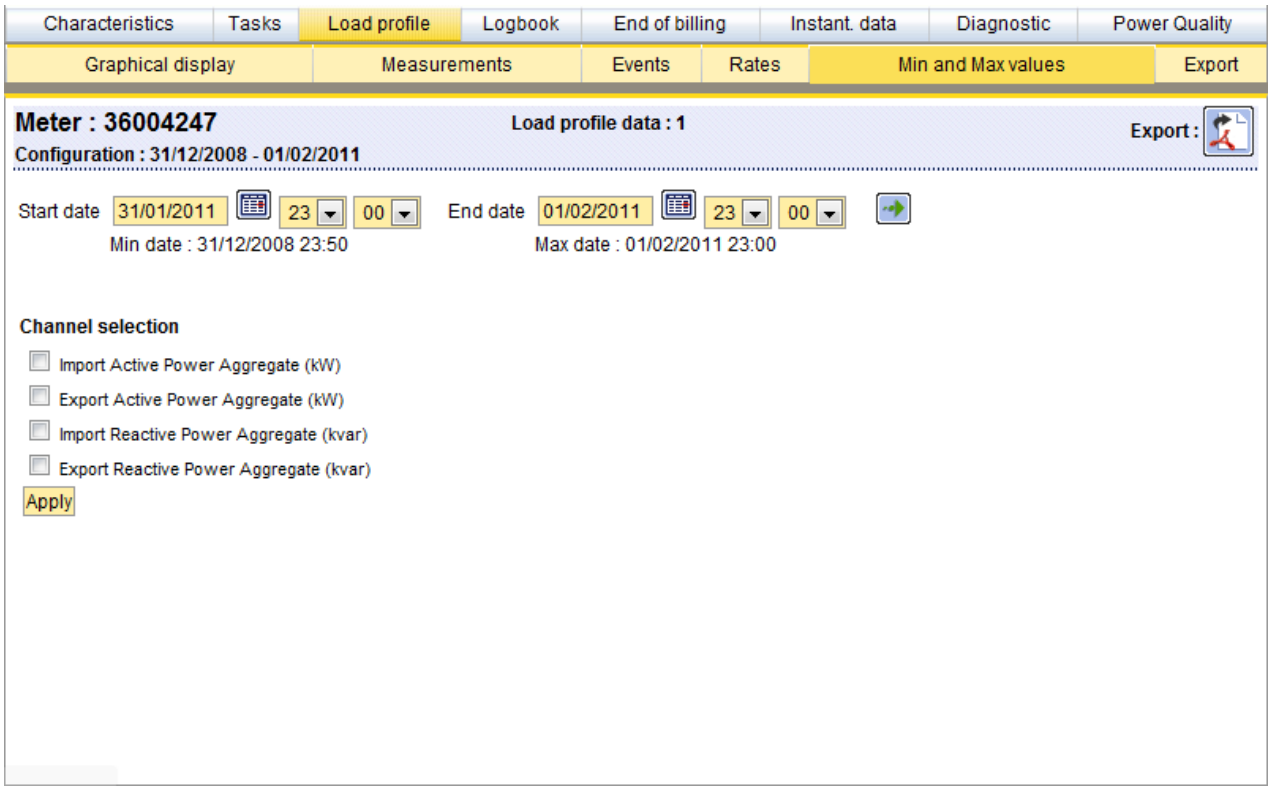
The **Events** tab displays all events that have occurred during the integration period.



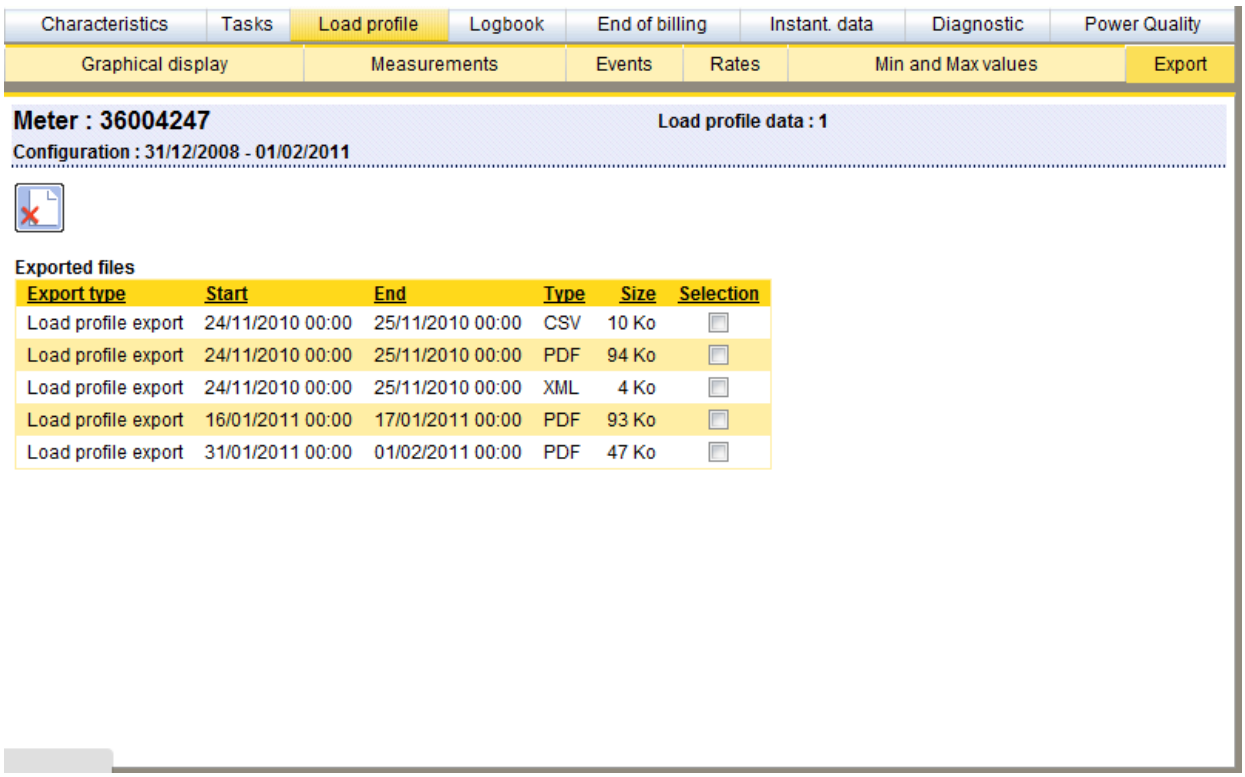
The **Rates** tab can be used to add a pre-defined rate calendar to the load profile data.



The **Min and Max Values** tab displays the 5 lowest and 5 highest values of each measurement channel over the selected period.

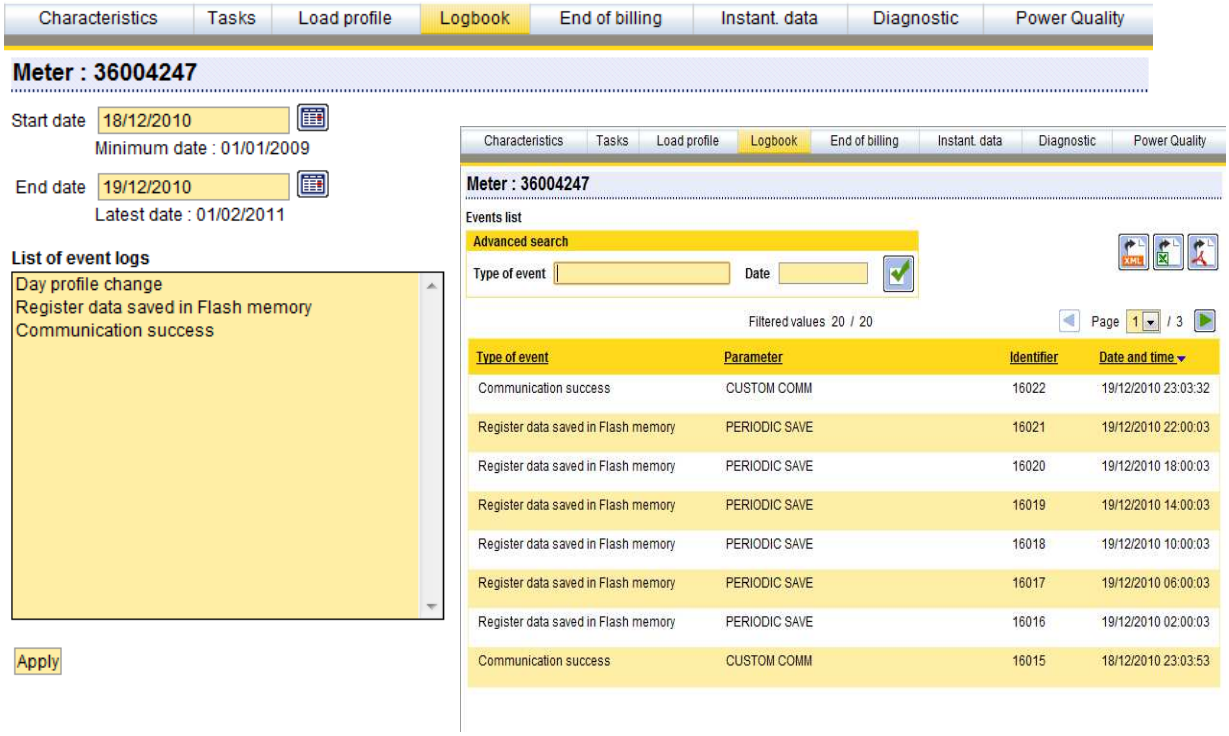


Select the **Export** menu to export the load profile data to file.



3.4.4. Logbook

Select **Logbook** to view all meter events over the selected period.

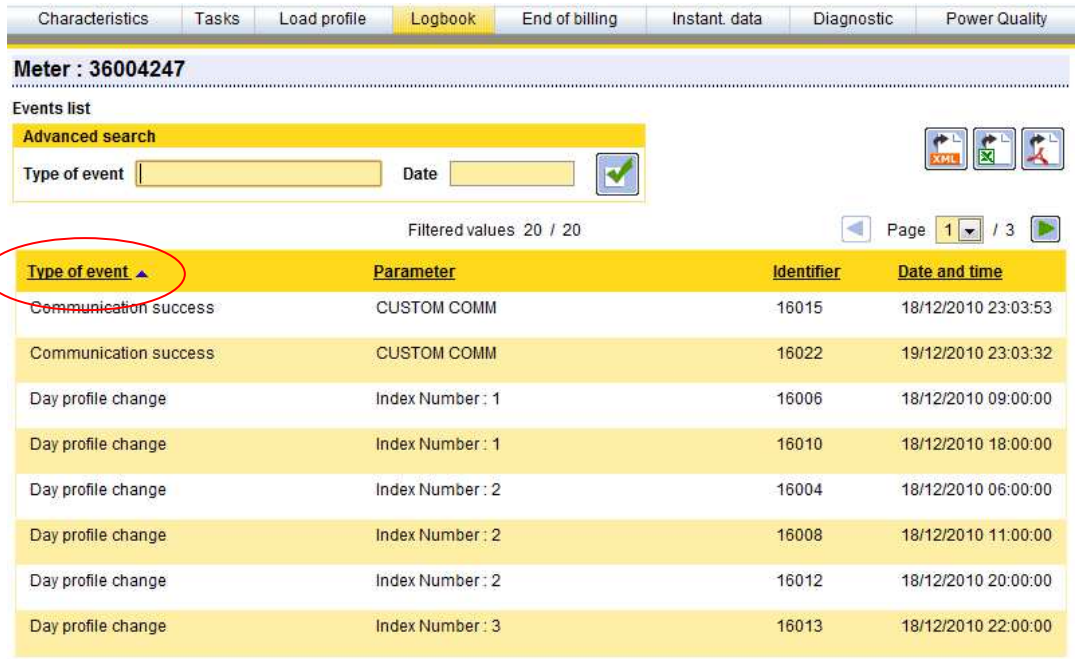


In the above example, three event types are identified between 18/12/2010 and 19/12/2010.To view further detail of the timings of these events, select one or more from the list and click on **Apply**.

All events are listed in chronological order.

Click on a column title to sort the data in rising or descending order.

E.g. by **Type of Event**:

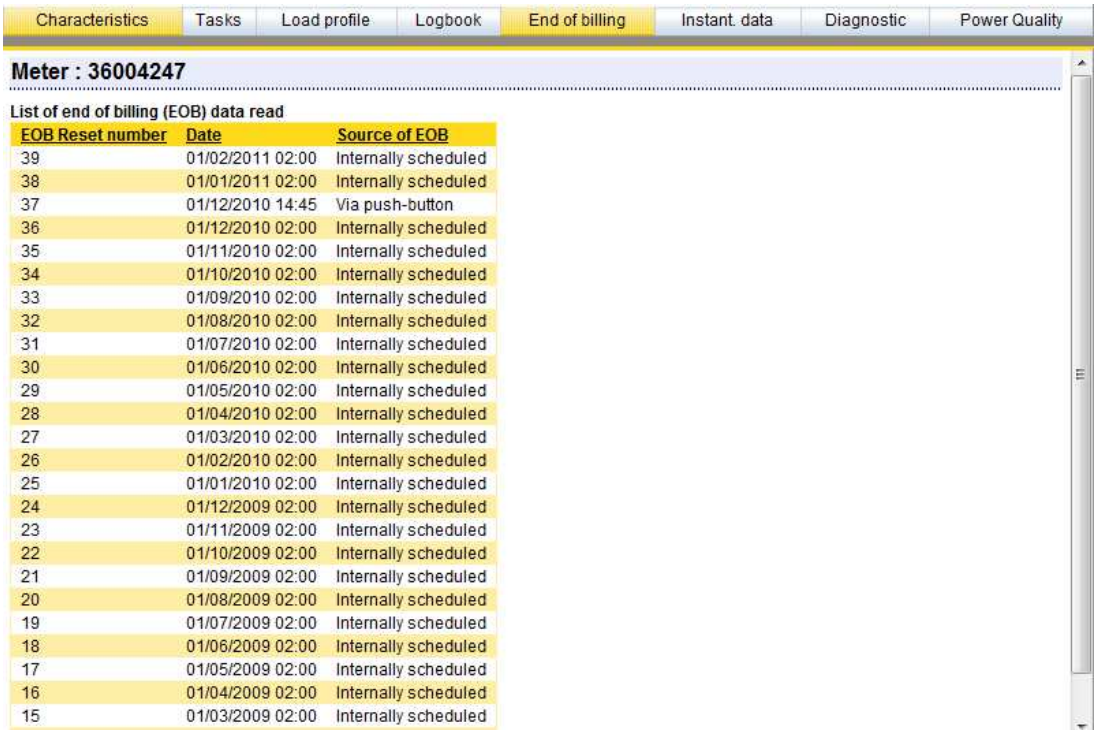


3.4.5. Billing Data

- After an EOB reset, the following data is stored in the meter:

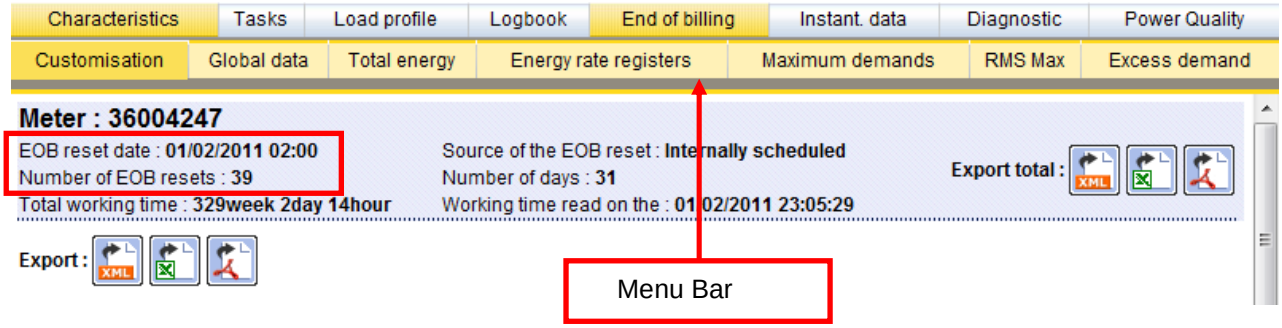
  Global data, Total energy, Energy rate registers, Maximum demands, RMS Max and Excess demand.

- The **end of billing** menu displays a list of all EOBs from the selected meter.



EOB Reset number	Date	Source of EOB
39	01/02/2011 02:00	Internally scheduled
38	01/01/2011 02:00	Internally scheduled
37	01/12/2010 14:45	Via push-button
36	01/12/2010 02:00	Internally scheduled
35	01/11/2010 02:00	Internally scheduled
34	01/10/2010 02:00	Internally scheduled
33	01/09/2010 02:00	Internally scheduled
32	01/08/2010 02:00	Internally scheduled
31	01/07/2010 02:00	Internally scheduled
30	01/06/2010 02:00	Internally scheduled
29	01/05/2010 02:00	Internally scheduled
28	01/04/2010 02:00	Internally scheduled
27	01/03/2010 02:00	Internally scheduled
26	01/02/2010 02:00	Internally scheduled
25	01/01/2010 02:00	Internally scheduled
24	01/12/2009 02:00	Internally scheduled
23	01/11/2009 02:00	Internally scheduled
22	01/10/2009 02:00	Internally scheduled
21	01/09/2009 02:00	Internally scheduled
20	01/08/2009 02:00	Internally scheduled
19	01/07/2009 02:00	Internally scheduled
18	01/06/2009 02:00	Internally scheduled
17	01/05/2009 02:00	Internally scheduled
16	01/04/2009 02:00	Internally scheduled
15	01/03/2009 02:00	Internally scheduled

- Select one of the EOBs to display detailed billing data. The menu bar indicates the different data types available. All EOB data, including the data presently displayed can be exported to file:



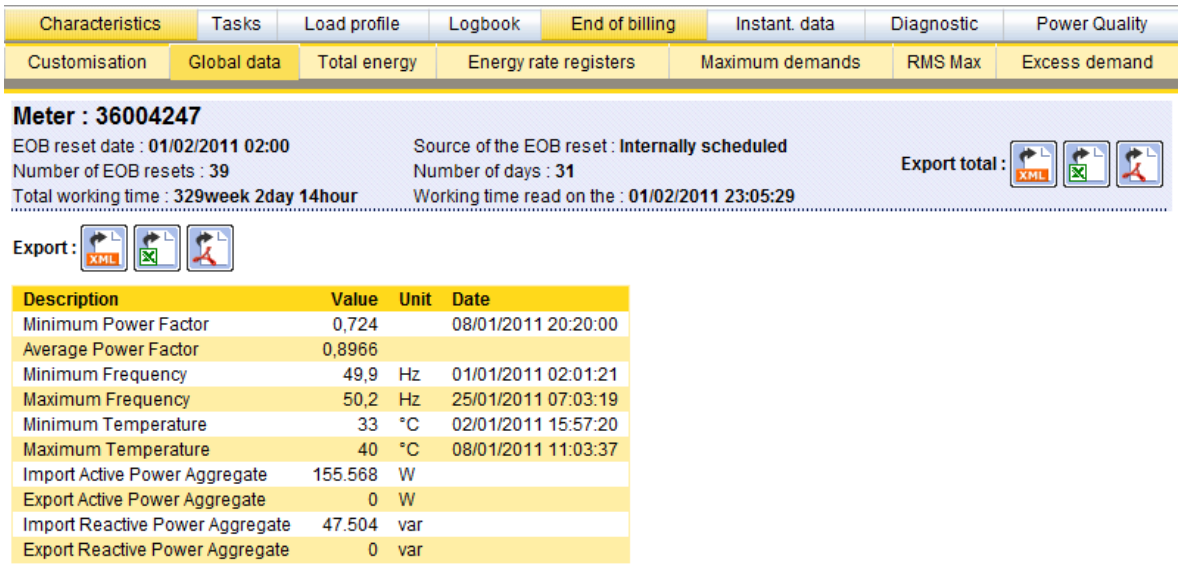
3.4.5.1. Customisation

- Ace Vision allows the user to customise the display of billing data (this customisation is performed by selecting **Preferences – Customisation of End of Billing (EOB) data.** Once created the customised data is viewed under the **End of billing** - **Customisation** tab.

- The customised data is viewed on a single screen according to billing data type.

3.4.5.2. Global Data

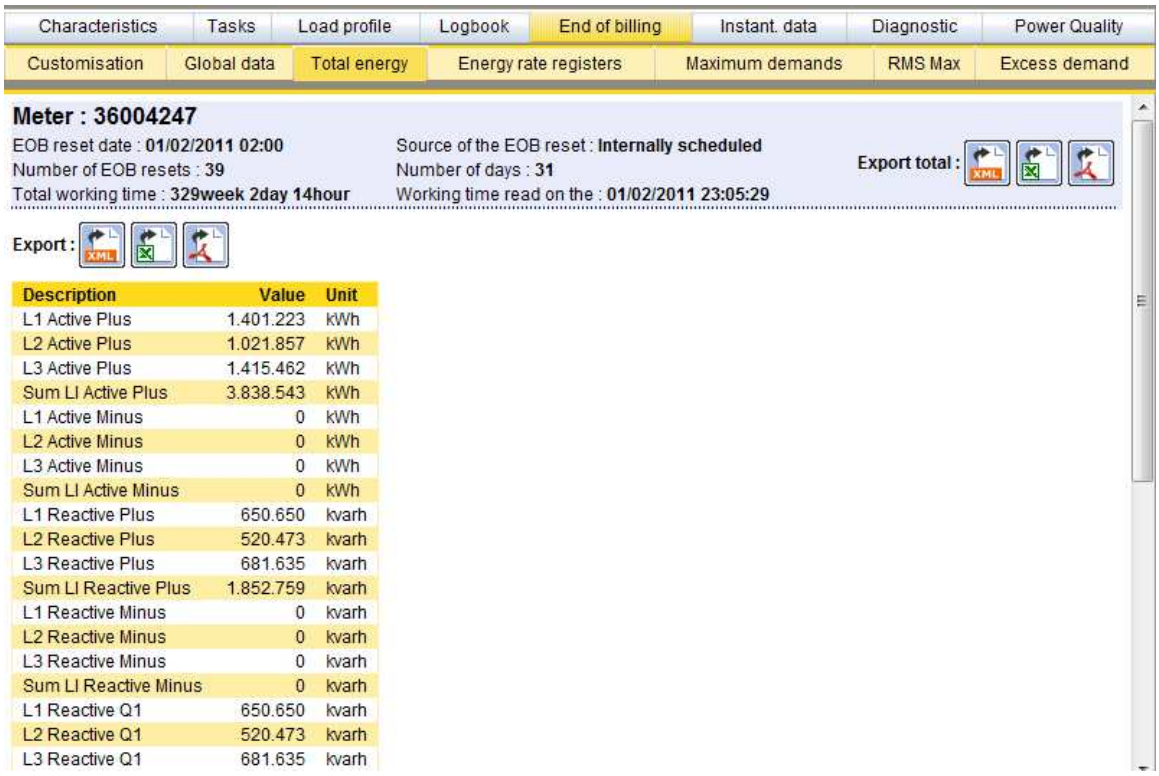
Select **End of Billing - Global Data** to view global end of billing data.



Description	Value	Unit	Date
Minimum Power Factor	0,724		08/01/2011 20:20:00
Average Power Factor	0,8966		
Minimum Frequency	49,9	Hz	01/01/2011 02:01:21
Maximum Frequency	50,2	Hz	25/01/2011 07:03:19
Minimum Temperature	33	°C	02/01/2011 15:57:20
Maximum Temperature	40	°C	08/01/2011 11:03:37
Import Active Power Aggregate	155.568	W	
Export Active Power Aggregate	0	W	
Import Reactive Power Aggregate	47.504	var	
Export Reactive Power Aggregate	0	var	

3.4.5.3. Total Energy

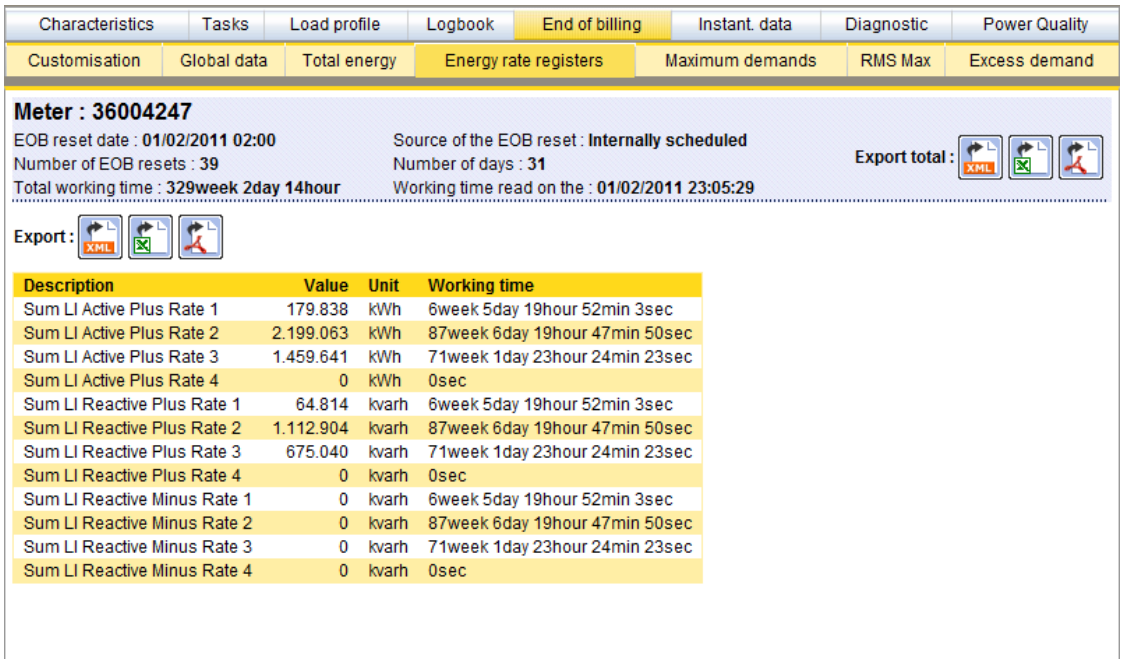
Select **End of billing - Total Energy** tab to view total energy values for an EOB.



Description	Value	Unit
L1 Active Plus	1.401.223	kWh
L2 Active Plus	1.021.857	kWh
L3 Active Plus	1.415.462	kWh
Sum LI Active Plus	3.838.543	kWh
L1 Active Minus	0	kWh
L2 Active Minus	0	kWh
L3 Active Minus	0	kWh
Sum LI Active Minus	0	kWh
L1 Reactive Plus	650.650	kvarh
L2 Reactive Plus	520.473	kvarh
L3 Reactive Plus	681.635	kvarh
Sum LI Reactive Plus	1.852.759	kvarh
L1 Reactive Minus	0	kvarh
L2 Reactive Minus	0	kvarh
L3 Reactive Minus	0	kvarh
Sum LI Reactive Minus	0	kvarh
L1 Reactive Q1	650.650	kvarh
L2 Reactive Q1	520.473	kvarh
L3 Reactive Q1	681.635	kvarh

3.4.5.4. Energy Rate Registers

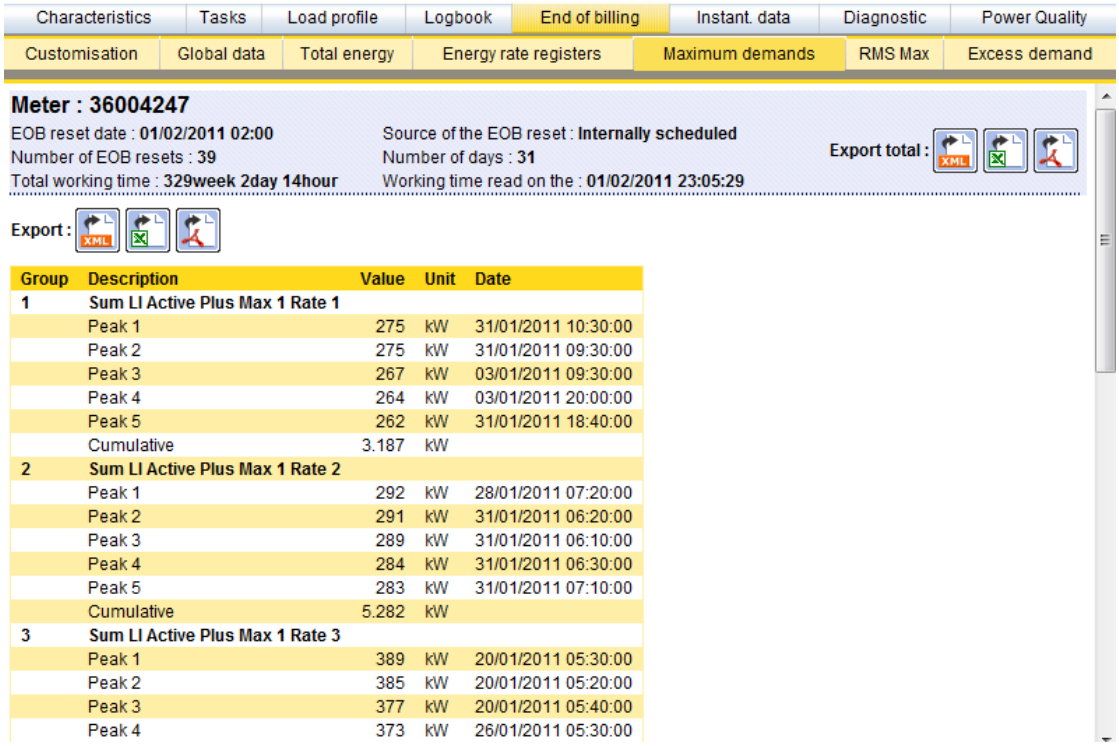
- Select **End of Billing - Energy rate registers** to view EOB energy rate registers values.



Description	Value	Unit	Working time
Sum LI Active Plus Rate 1	179.838	kWh	6week 5day 19hour 52min 3sec
Sum LI Active Plus Rate 2	2.199.063	kWh	87week 6day 19hour 47min 50sec
Sum LI Active Plus Rate 3	1.459.641	kWh	71week 1day 23hour 24min 23sec
Sum LI Active Plus Rate 4	0	kWh	0sec
Sum LI Reactive Plus Rate 1	64.814	kvarh	6week 5day 19hour 52min 3sec
Sum LI Reactive Plus Rate 2	1.112.904	kvarh	87week 6day 19hour 47min 50sec
Sum LI Reactive Plus Rate 3	675.040	kvarh	71week 1day 23hour 24min 23sec
Sum LI Reactive Plus Rate 4	0	kvarh	0sec
Sum LI Reactive Minus Rate 1	0	kvarh	6week 5day 19hour 52min 3sec
Sum LI Reactive Minus Rate 2	0	kvarh	87week 6day 19hour 47min 50sec
Sum LI Reactive Minus Rate 3	0	kvarh	71week 1day 23hour 24min 23sec
Sum LI Reactive Minus Rate 4	0	kvarh	0sec

3.4.5.5. Maximum Demands

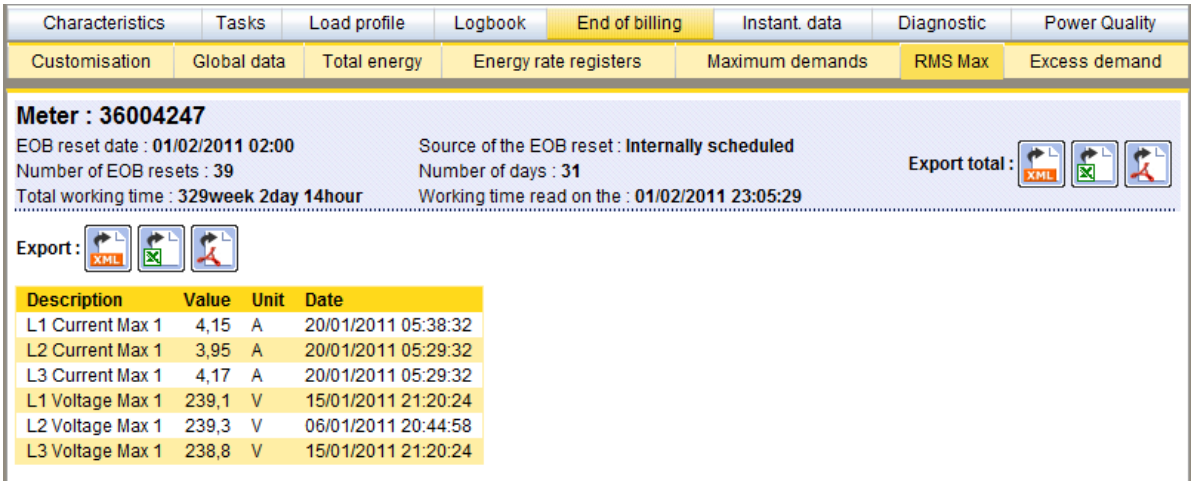
- Select **End of billing - Maximum demands** to display maximum demand details.



Group	Description	Value	Unit	Date
1	**Sum LI Active Plus Max 1 Rate 1**			
	Peak 1	275	kW	31/01/2011 10:30:00
	Peak 2	275	kW	31/01/2011 09:30:00
	Peak 3	267	kW	03/01/2011 09:30:00
	Peak 4	264	kW	03/01/2011 20:00:00
	Peak 5	262	kW	31/01/2011 18:40:00
	Cumulative	3.187	kW	
2	**Sum LI Active Plus Max 1 Rate 2**			
	Peak 1	292	kW	28/01/2011 07:20:00
	Peak 2	291	kW	31/01/2011 06:20:00
	Peak 3	289	kW	31/01/2011 06:10:00
	Peak 4	284	kW	31/01/2011 06:30:00
	Peak 5	283	kW	31/01/2011 07:10:00
	Cumulative	5.282	kW	
3	**Sum LI Active Plus Max 1 Rate 3**			
	Peak 1	389	kW	20/01/2011 05:30:00
	Peak 2	385	kW	20/01/2011 05:20:00
	Peak 3	377	kW	20/01/2011 05:40:00
	Peak 4	373	kW	26/01/2011 05:30:00

3.4.5.6. RMS Max

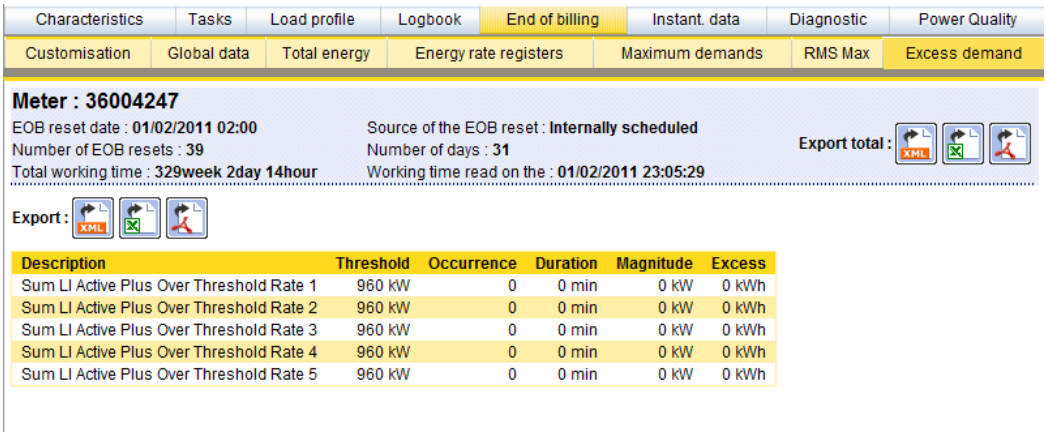
- End of billing - RMS Max displays RMS Max values.



Description	Value	Unit	Date
L1 Current Max 1	4,15	A	20/01/2011 05:38:32
L2 Current Max 1	3,95	A	20/01/2011 05:29:32
L3 Current Max 1	4,17	A	20/01/2011 05:29:32
L1 Voltage Max 1	239,1	V	15/01/2011 21:20:24
L2 Voltage Max 1	239,3	V	06/01/2011 20:44:58
L3 Voltage Max 1	238,8	V	15/01/2011 21:20:24

3.4.5.7. Excess Demand

- Select **End of billing - Excess demand** to display excess demand details.



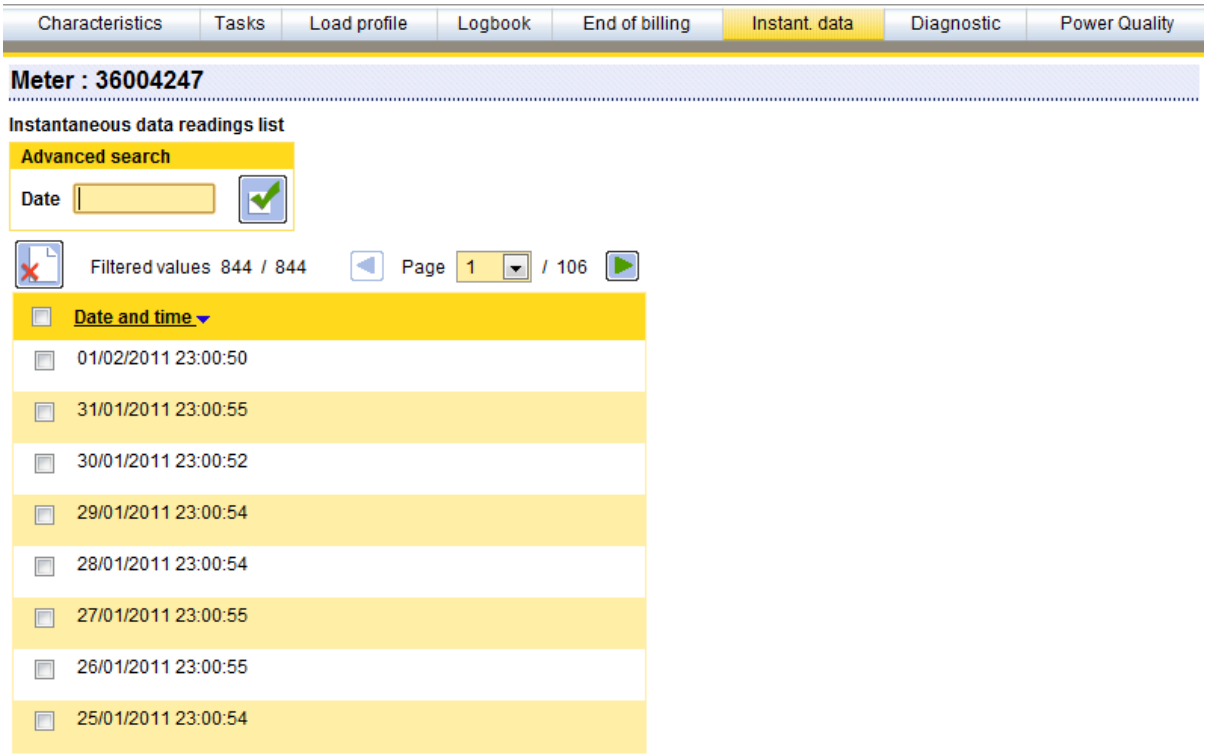
Description	Threshold	Occurrence	Duration	Magnitude	Excess
Sum LI Active Plus Over Threshold Rate 1	960 kW	0	0 min	0 kW	0 kWh
Sum LI Active Plus Over Threshold Rate 2	960 kW	0	0 min	0 kW	0 kWh
Sum LI Active Plus Over Threshold Rate 3	960 kW	0	0 min	0 kW	0 kWh
Sum LI Active Plus Over Threshold Rate 4	960 kW	0	0 min	0 kW	0 kWh
Sum LI Active Plus Over Threshold Rate 5	960 kW	0	0 min	0 kW	0 kWh

3.4.6. Instantaneous Data

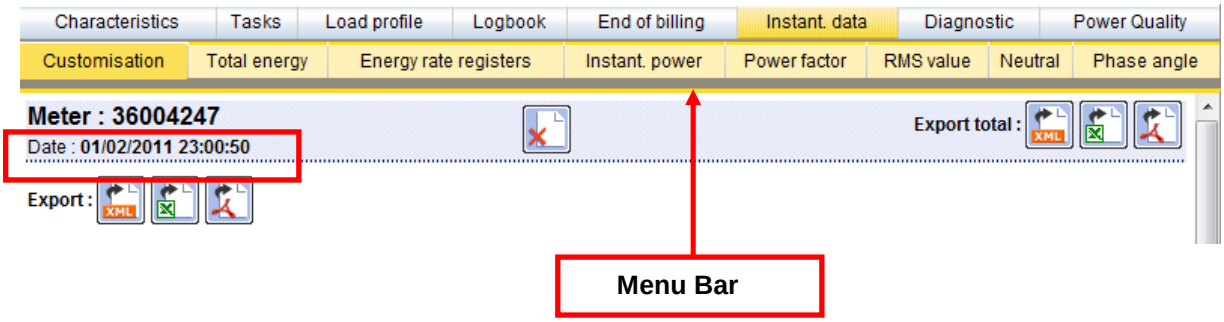
The **Instant. data** tab provides instant data to the last second. Instantaneous data consists of:

Instantaneous power, Power factor, RMS Value, Neutral and Phase angle.

Select **Instant. Data** to display a list of all instantaneous data available from the selected meter.



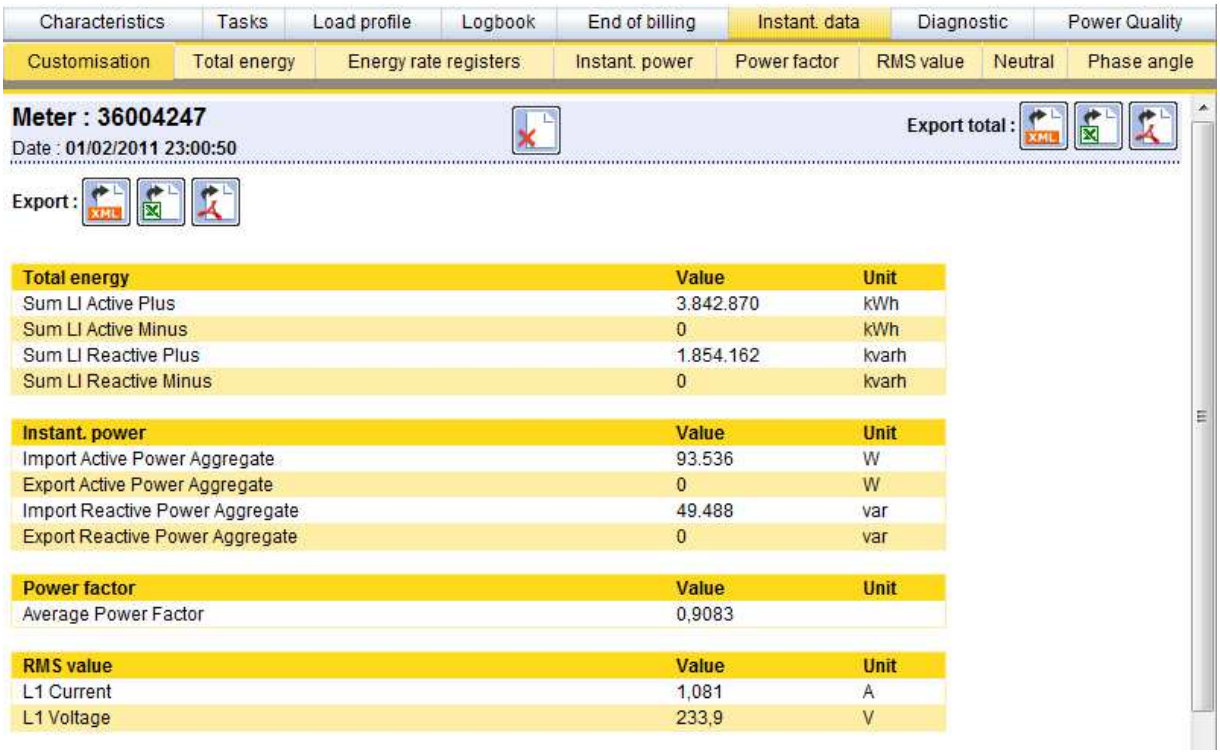
Select a time from the instantaneous data list to display detailed data for that given moment. A menu bar indicates the instantaneous data types available.



3.4.6.1. Customisation

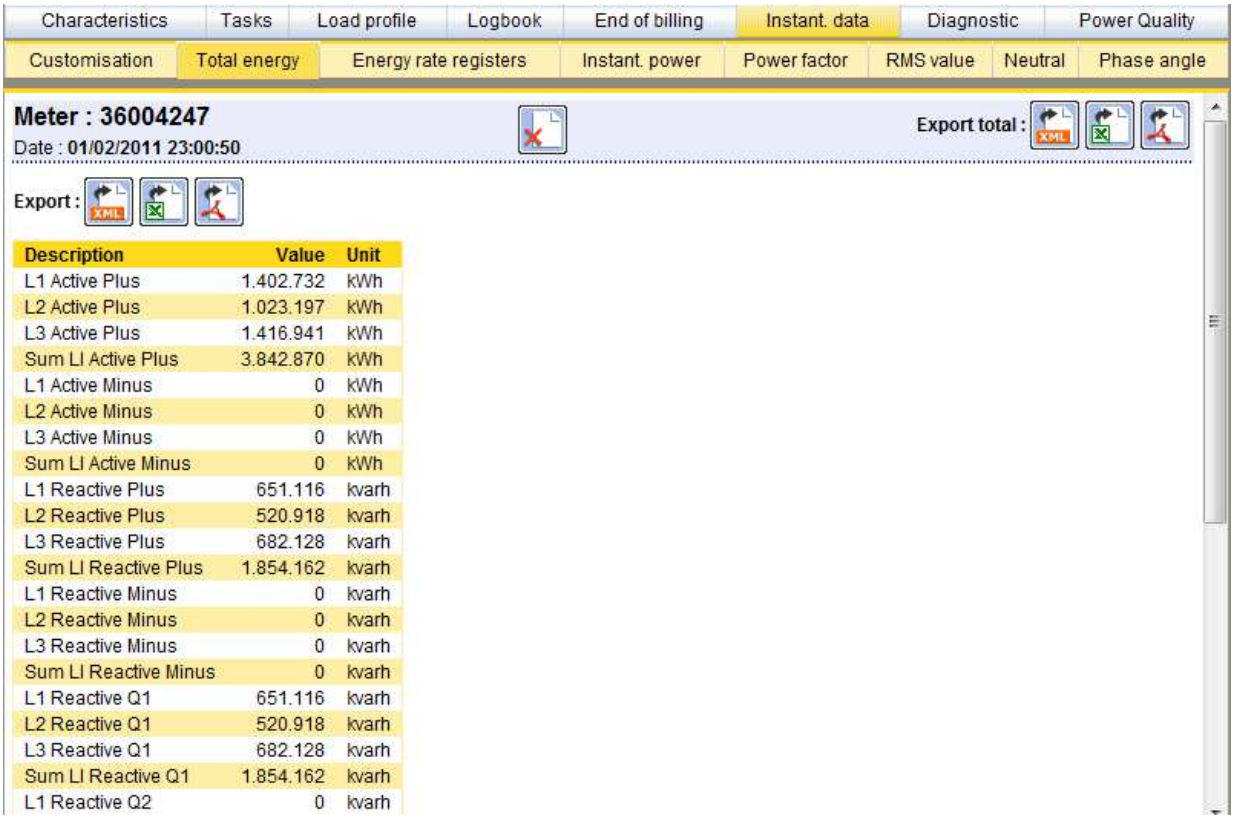
- Ace Vision allows the user (subject to administrative rights) to customise the display of instantaneous data (this customisation is performed by selecting **Preferences - Customisation of Instantaneous data.** Once created the customised data is viewed under the **Instant Data.** - **Customisation** tab.

- Customised data is displayed on a single screen by instantaneous data type.



3.4.6.2. Total Energy

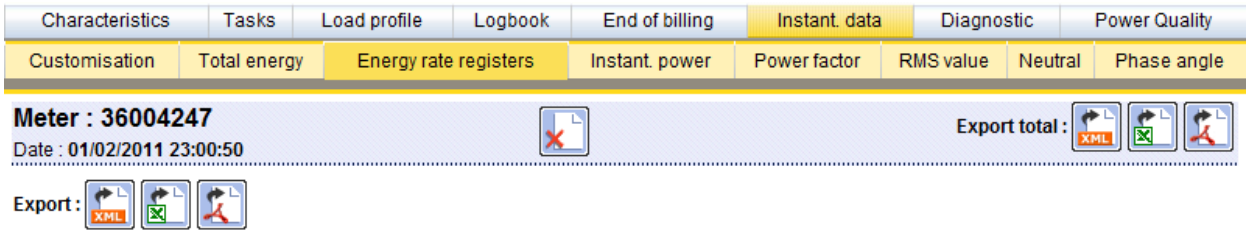
- Instantaneous total energy values can be displayed by selecting **Instant data. - Total energy**.



Description	Value	Unit
L1 Active Plus	1.402.732	kWh
L2 Active Plus	1.023.197	kWh
L3 Active Plus	1.416.941	kWh
Sum LI Active Plus	3.842.870	kWh
L1 Active Minus	0	kWh
L2 Active Minus	0	kWh
L3 Active Minus	0	kWh
Sum LI Active Minus	0	kWh
L1 Reactive Plus	651.116	kvarh
L2 Reactive Plus	520.918	kvarh
L3 Reactive Plus	682.128	kvarh
Sum LI Reactive Plus	1.854.162	kvarh
L1 Reactive Minus	0	kvarh
L2 Reactive Minus	0	kvarh
L3 Reactive Minus	0	kvarh
Sum LI Reactive Minus	0	kvarh
L1 Reactive Q1	651.116	kvarh
L2 Reactive Q1	520.918	kvarh
L3 Reactive Q1	682.128	kvarh
Sum LI Reactive Q1	1.854.162	kvarh
L1 Reactive Q2	0	kvarh

3.4.6.3. Energy Rate Registers

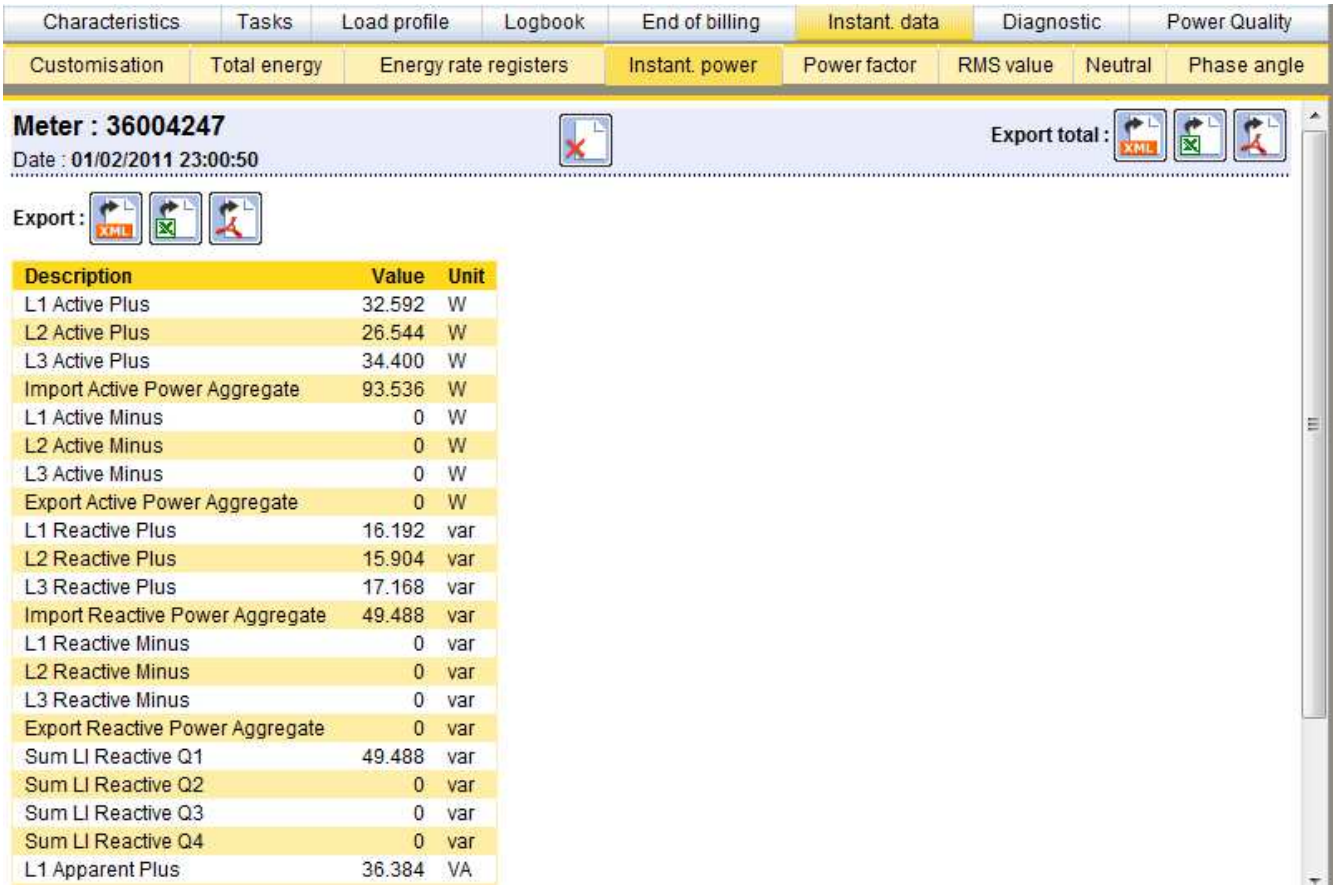
- Select **Instant data. - Energy rate registers** to view instantaneous values



Description	Value	Unit	Working time
Sum LI Active Plus Rate 1	180.737	kWh	6week 5day 19hour 52min 3sec
Sum LI Active Plus Rate 2	2.201.663	kWh	87week 6day 19hour 47min 50sec
Sum LI Active Plus Rate 3	1.460.470	kWh	71week 1day 23hour 20min 47sec
Sum LI Active Plus Rate 4	0	kWh	0sec
Sum LI Reactive Plus Rate 1	65.102	kvarh	6week 5day 19hour 52min 3sec
Sum LI Reactive Plus Rate 2	1.113.757	kvarh	87week 6day 19hour 47min 50sec
Sum LI Reactive Plus Rate 3	675.302	kvarh	71week 1day 23hour 20min 47sec
Sum LI Reactive Plus Rate 4	0	kvarh	0sec
Sum LI Reactive Minus Rate 1	0	kvarh	6week 5day 19hour 52min 3sec
Sum LI Reactive Minus Rate 2	0	kvarh	87week 6day 19hour 47min 50sec
Sum LI Reactive Minus Rate 3	0	kvarh	71week 1day 23hour 20min 47sec
Sum LI Reactive Minus Rate 4	0	kvarh	0sec

3.4.6.4. Instantaneous Power

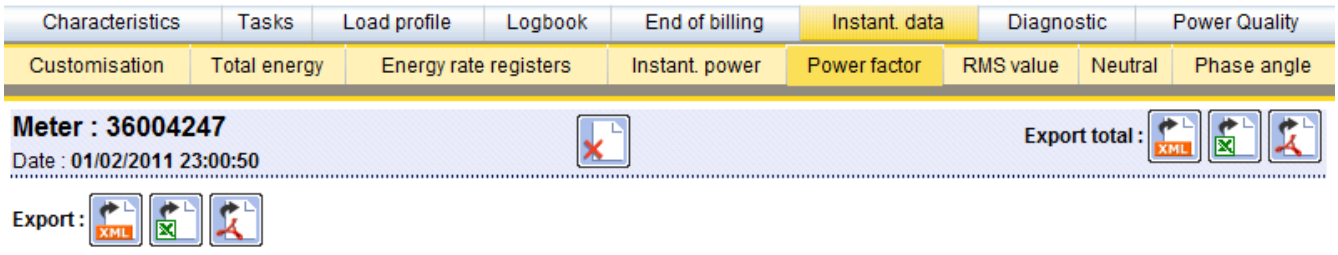
▶ Select **Instant data. - Instant. power** to display instantaneous power details.



Description	Value	Unit
L1 Active Plus	32.592	W
L2 Active Plus	26.544	W
L3 Active Plus	34.400	W
Import Active Power Aggregate	93.536	W
L1 Active Minus	0	W
L2 Active Minus	0	W
L3 Active Minus	0	W
Export Active Power Aggregate	0	W
L1 Reactive Plus	16.192	var
L2 Reactive Plus	15.904	var
L3 Reactive Plus	17.168	var
Import Reactive Power Aggregate	49.488	var
L1 Reactive Minus	0	var
L2 Reactive Minus	0	var
L3 Reactive Minus	0	var
Export Reactive Power Aggregate	0	var
Sum LI Reactive Q1	49.488	var
Sum LI Reactive Q2	0	var
Sum LI Reactive Q3	0	var
Sum LI Reactive Q4	0	var
L1 Apparent Plus	36.384	VA

3.4.6.5. Power Factor

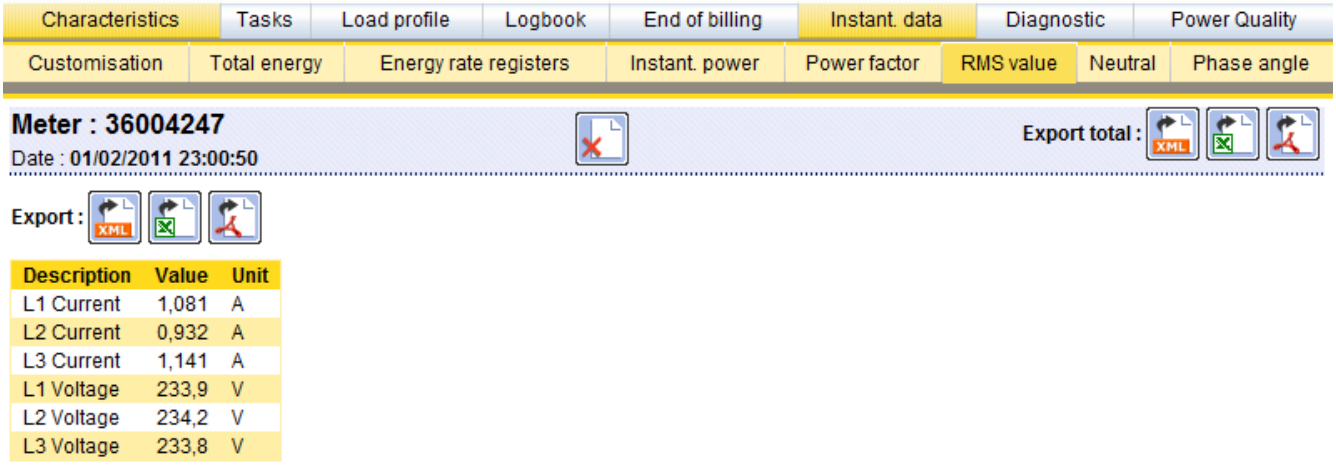
▶ **Instant data. – Power Factor** displays power factor for each phase (phase1, 2 and 3) and average power factor.



Description	Value	Unit
L1 Power Factor	0,917	
L2 Power Factor	0,8907	
L3 Power Factor	0,9144	
Average Power Factor	0,9083	

3.4.6.6. RMS Value

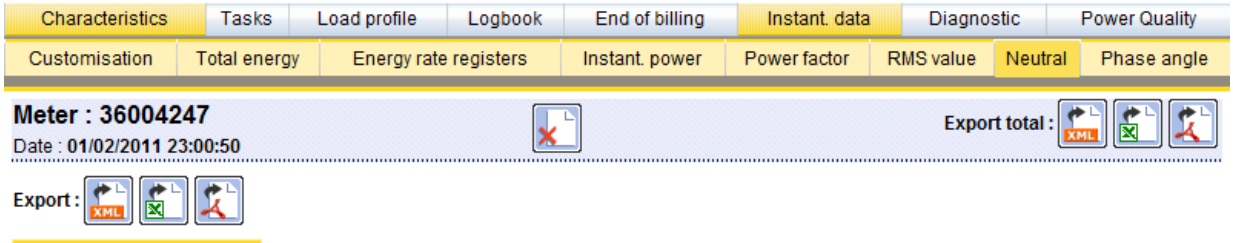
- Select **Instant data. - RMS Value** to display instantaneous voltage and current per phase.



Description	Value	Unit
L1 Current	1,081	A
L2 Current	0,932	A
L3 Current	1,141	A
L1 Voltage	233,9	V
L2 Voltage	234,2	V
L3 Voltage	233,8	V

3.4.6.7. Neutral

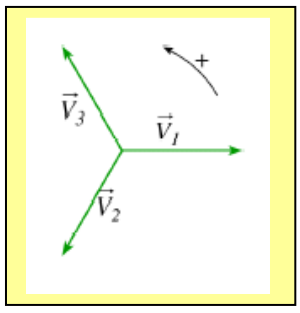
- Select **Instant data. – Neutral** to display instantaneous current and voltage of neutral

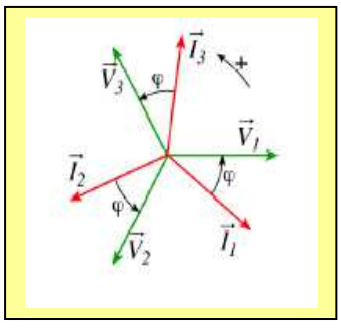


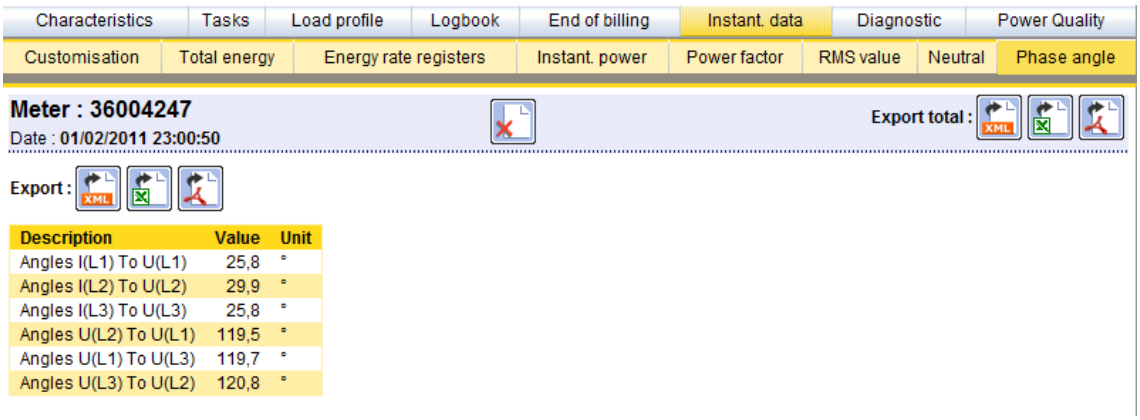
Description	Value	Unit
L0 Current	0,206	A
L0 Voltage	3,3	V

3.4.6.8. Phase Angle

- Phase Angle voltage/voltage and voltage/ current

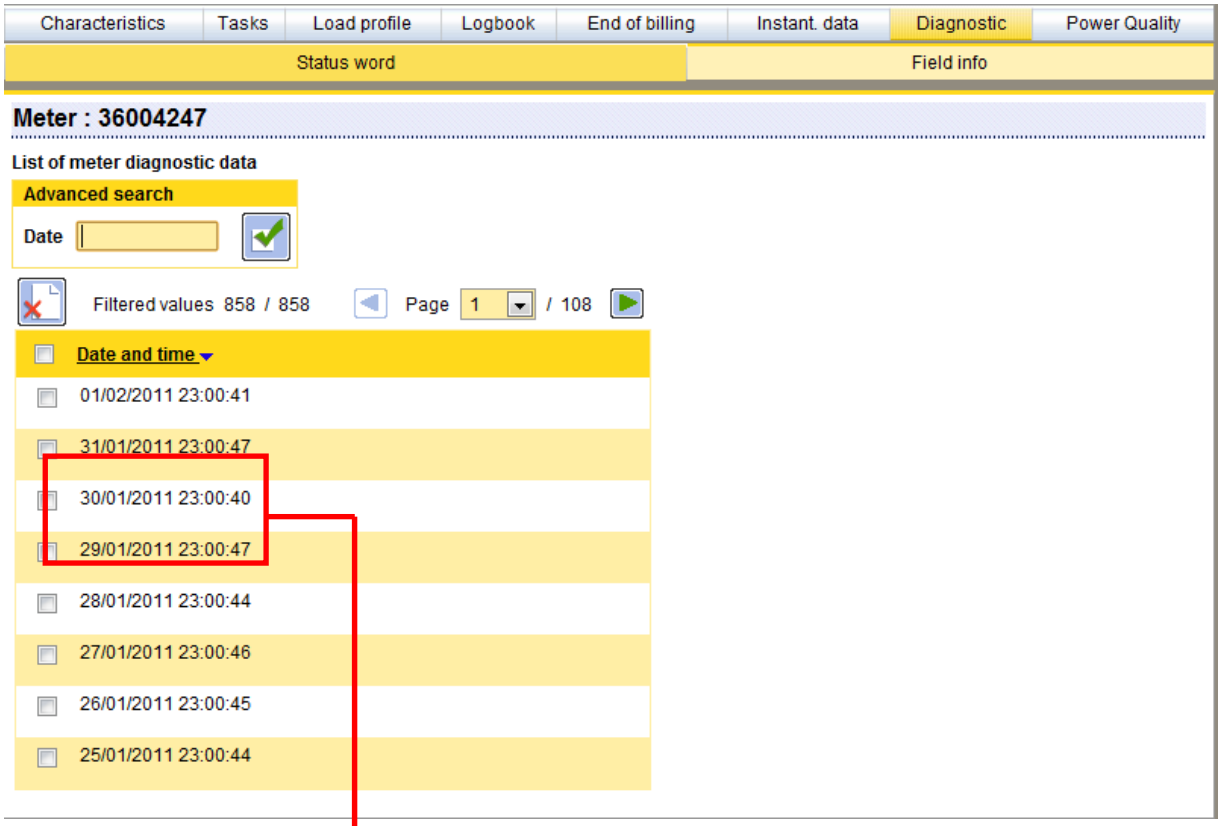




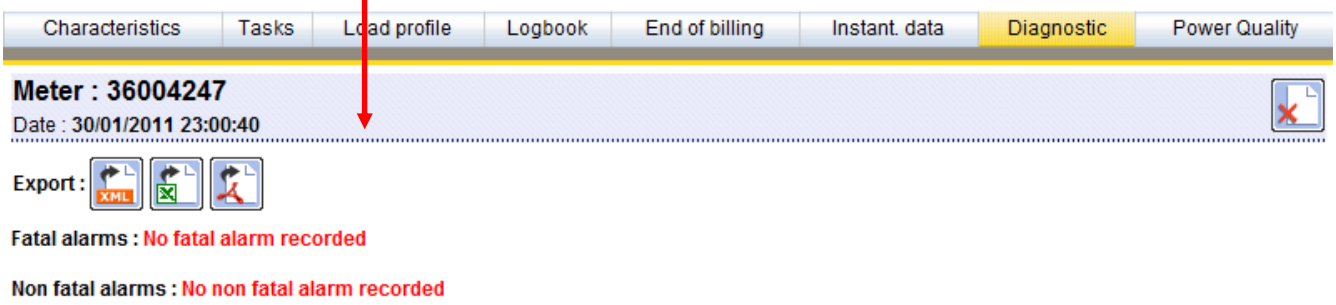

Characteristics
Tasks
Load profile
Logbook
End of billing
Instant. data
Diagnostic
Power Quality
Customisation
Total energy
Energy rate registers
Instant. power
Power factor
RMS value
Neutral
Phase angle
Meter : 36004247
Date : 01/02/2011 23:00:50
Export total :
Export :
Description Value Unit
Angles I(L1) To U(L1) 25,8 °
Angles I(L2) To U(L2) 29,9 °
Angles I(L3) To U(L3) 25,8 °
Angles U(L2) To U(L1) 119,5 °
Angles U(L1) To U(L3) 119,7 °
Angles U(L3) To U(L2) 120,8 °

3.4.7. Diagnostics

Each meter reading provides time-stamped diagnostic records.



Select a date and time from the list to view if fatal and non fatal alarms were activated during the selected period.



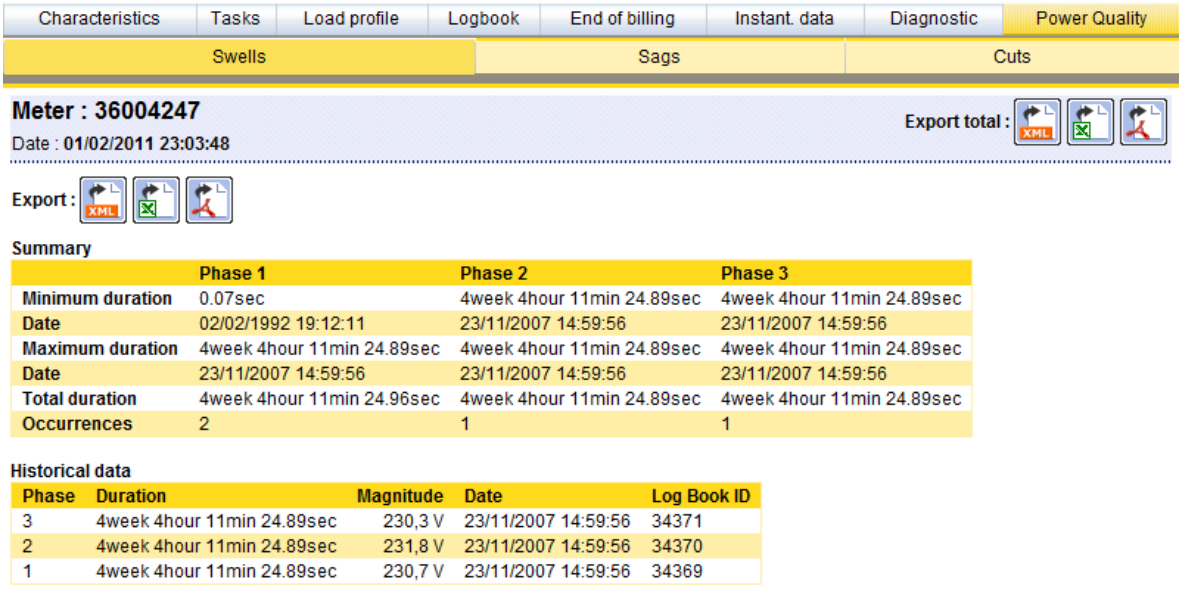
3.4.7.1. Field Information

The **Diagnostics - Field Information** tab provides information relative to HHU (mobile terminal connections).

3.4.8. Power Quality Data

There are three types of power quality data: Swells, Sags and Cuts. Only data from the last remote reading are displayed. A menu bar related to the three power quality types is provided:

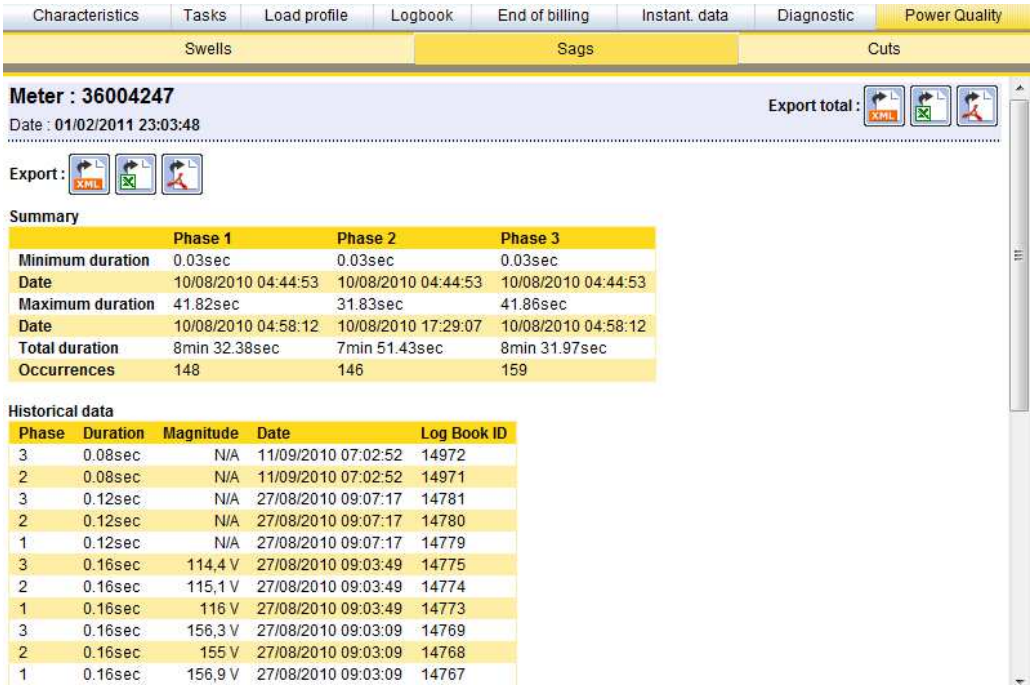
3.4.8.1. Swells



	Phase 1	Phase 2	Phase 3
Minimum duration	0.07sec	4week 4hour 11min 24.89sec	4week 4hour 11min 24.89sec
Date	02/02/1992 19:12:11	23/11/2007 14:59:56	23/11/2007 14:59:56
Maximum duration	4week 4hour 11min 24.89sec	4week 4hour 11min 24.89sec	4week 4hour 11min 24.89sec
Date	23/11/2007 14:59:56	23/11/2007 14:59:56	23/11/2007 14:59:56
Total duration	4week 4hour 11min 24.96sec	4week 4hour 11min 24.89sec	4week 4hour 11min 24.89sec
Occurrences	2	1	1

Phase	Duration	Magnitude	Date	Log Book ID
3	4week 4hour 11min 24.89sec	230,3 V	23/11/2007 14:59:56	34371
2	4week 4hour 11min 24.89sec	231,8 V	23/11/2007 14:59:56	34370
1	4week 4hour 11min 24.89sec	230,7 V	23/11/2007 14:59:56	34369

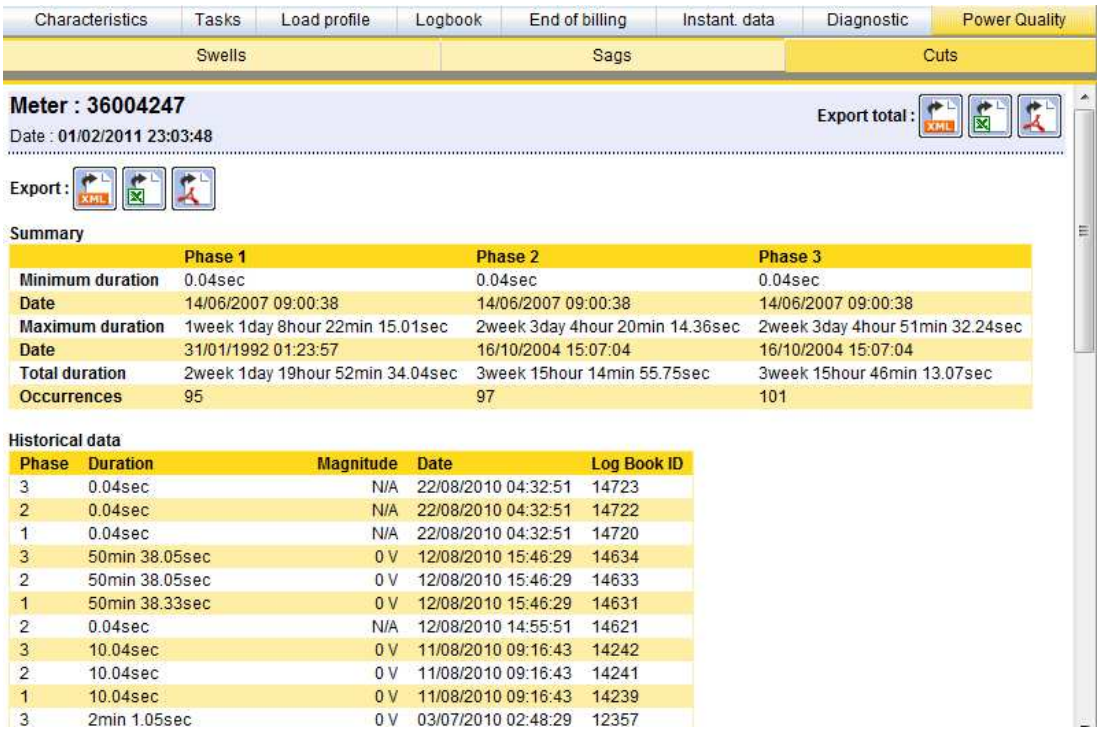
3.4.8.2. Sags



	Phase 1	Phase 2	Phase 3
Minimum duration	0.03sec	0.03sec	0.03sec
Date	10/08/2010 04:44:53	10/08/2010 04:44:53	10/08/2010 04:44:53
Maximum duration	41.82sec	31.83sec	41.86sec
Date	10/08/2010 04:58:12	10/08/2010 17:29:07	10/08/2010 04:58:12
Total duration	8min 32.38sec	7min 51.43sec	8min 31.97sec
Occurrences	148	146	159

Phase	Duration	Magnitude	Date	Log Book ID
3	0.08sec	N/A	11/09/2010 07:02:52	14972
2	0.08sec	N/A	11/09/2010 07:02:52	14971
3	0.12sec	N/A	27/08/2010 09:07:17	14781
2	0.12sec	N/A	27/08/2010 09:07:17	14780
1	0.12sec	N/A	27/08/2010 09:07:17	14779
3	0.16sec	114,4 V	27/08/2010 09:03:49	14775
2	0.16sec	115,1 V	27/08/2010 09:03:49	14774
1	0.16sec	116 V	27/08/2010 09:03:49	14773
3	0.16sec	156,3 V	27/08/2010 09:03:09	14769
2	0.16sec	155 V	27/08/2010 09:03:09	14768
1	0.16sec	156,9 V	27/08/2010 09:03:09	14767

3.4.8.3. Cuts



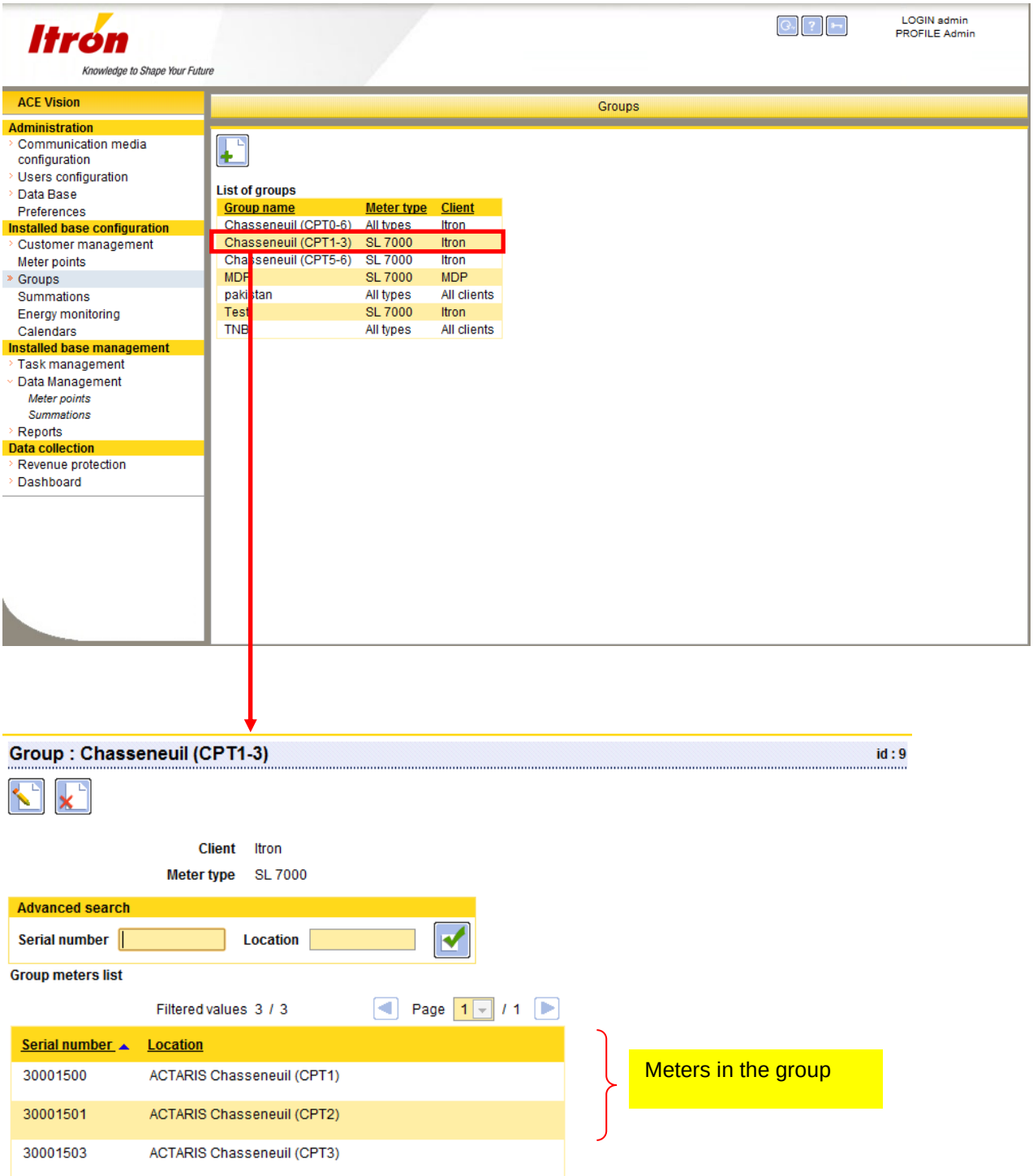
	Phase 1	Phase 2	Phase 3
Minimum duration	0.04sec	0.04sec	0.04sec
Date	14/06/2007 09:00:38	14/06/2007 09:00:38	14/06/2007 09:00:38
Maximum duration	1week 1day 8hour 22min 15.01sec	2week 3day 4hour 20min 14.36sec	2week 3day 4hour 51min 32.24sec
Date	31/01/1992 01:23:57	16/10/2004 15:07:04	16/10/2004 15:07:04
Total duration	2week 1day 19hour 52min 34.04sec	3week 15hour 14min 55.75sec	3week 15hour 46min 13.07sec
Occurrences	95	97	101

Phase	Duration	Magnitude	Date	Log Book ID
3	0.04sec	N/A	22/08/2010 04:32:51	14723
2	0.04sec	N/A	22/08/2010 04:32:51	14722
1	0.04sec	N/A	22/08/2010 04:32:51	14720
3	50min 38.05sec	0 V	12/08/2010 15:46:29	14634
2	50min 38.05sec	0 V	12/08/2010 15:46:29	14633
1	50min 38.33sec	0 V	12/08/2010 15:46:29	14631
2	0.04sec	N/A	12/08/2010 14:55:51	14621
3	10.04sec	0 V	11/08/2010 09:16:43	14242
2	10.04sec	0 V	11/08/2010 09:16:43	14241
1	10.04sec	0 V	11/08/2010 09:16:43	14239
3	2min 1.05sec	0 V	03/07/2010 02:48:29	12357

3.5. METER GROUPS

ACE Vision allows the creation and definition of groups of meters. Each group must have a name and a group may contain meters of different types (e.g. ACE6000 and SL7000 etc)

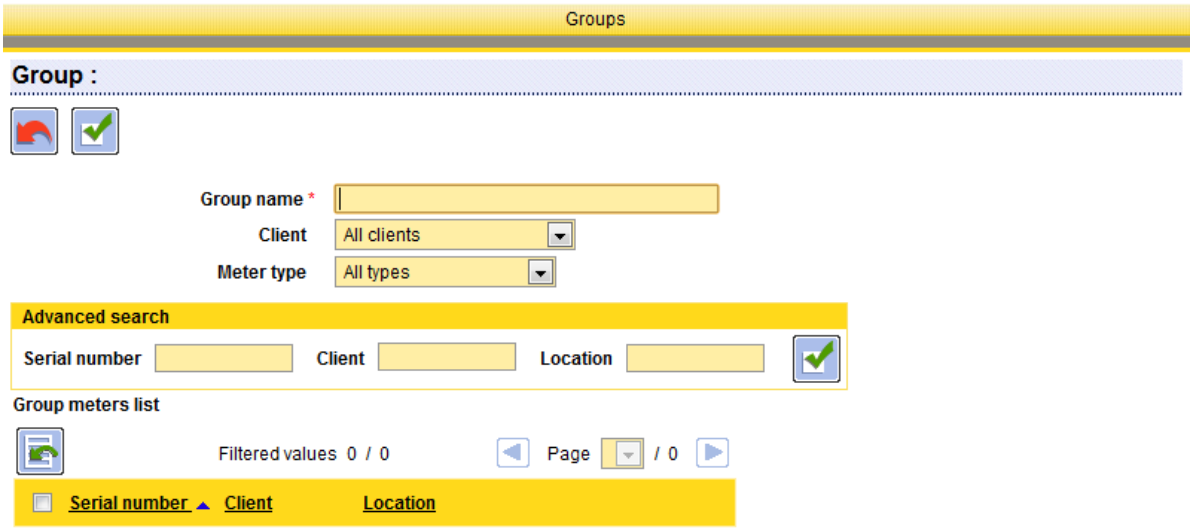
Select **Installed base management – Groups** to display a list of already existing groups.



Once a group is selected, **Characteristics** and **Tasks** tabs are displayed. The characteristics tab displays group details (client name, meter type and meter list). The task tab displays all tasks associated to the selected group.

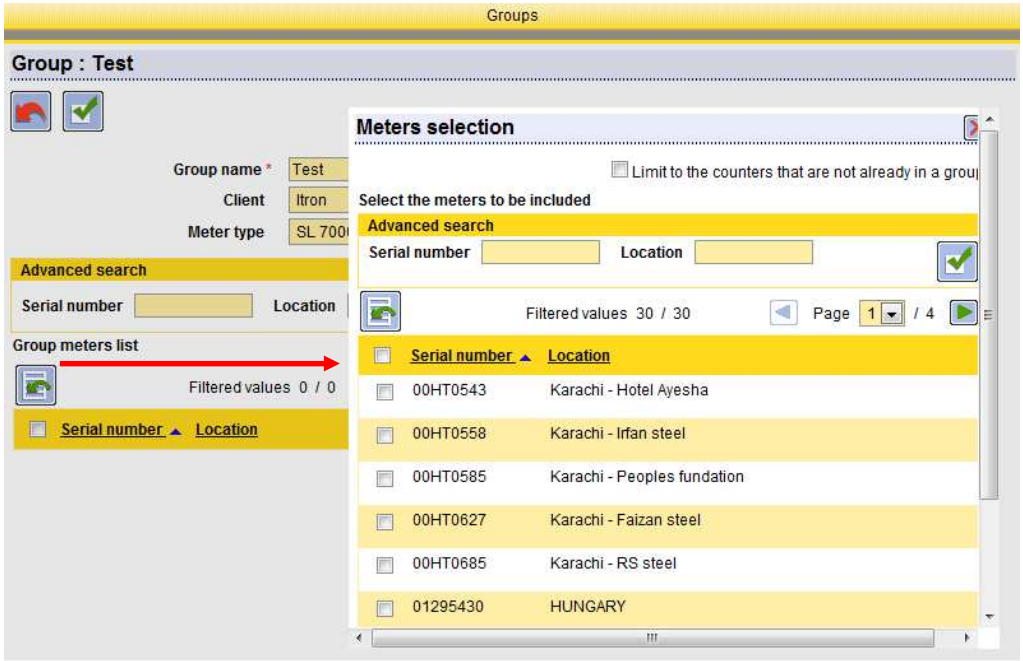
3.5.1. Create a Meter Group

Once a new group has been created, the following screen is displayed:

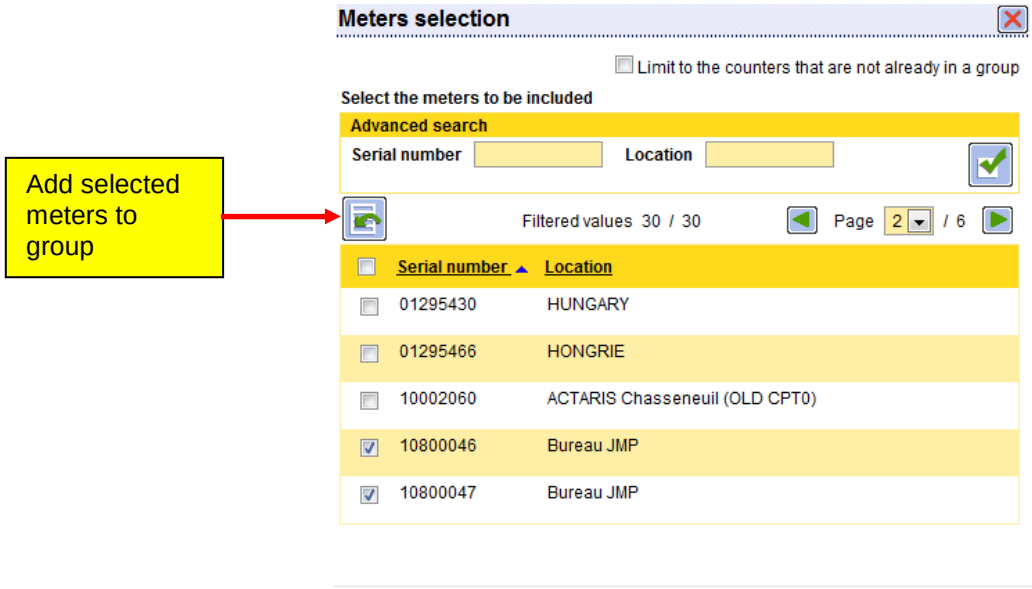


Enter a name for the group, along with the client and meter type(s).

Click on the button under **Group meters list** to display a list of meters available to the selected client:

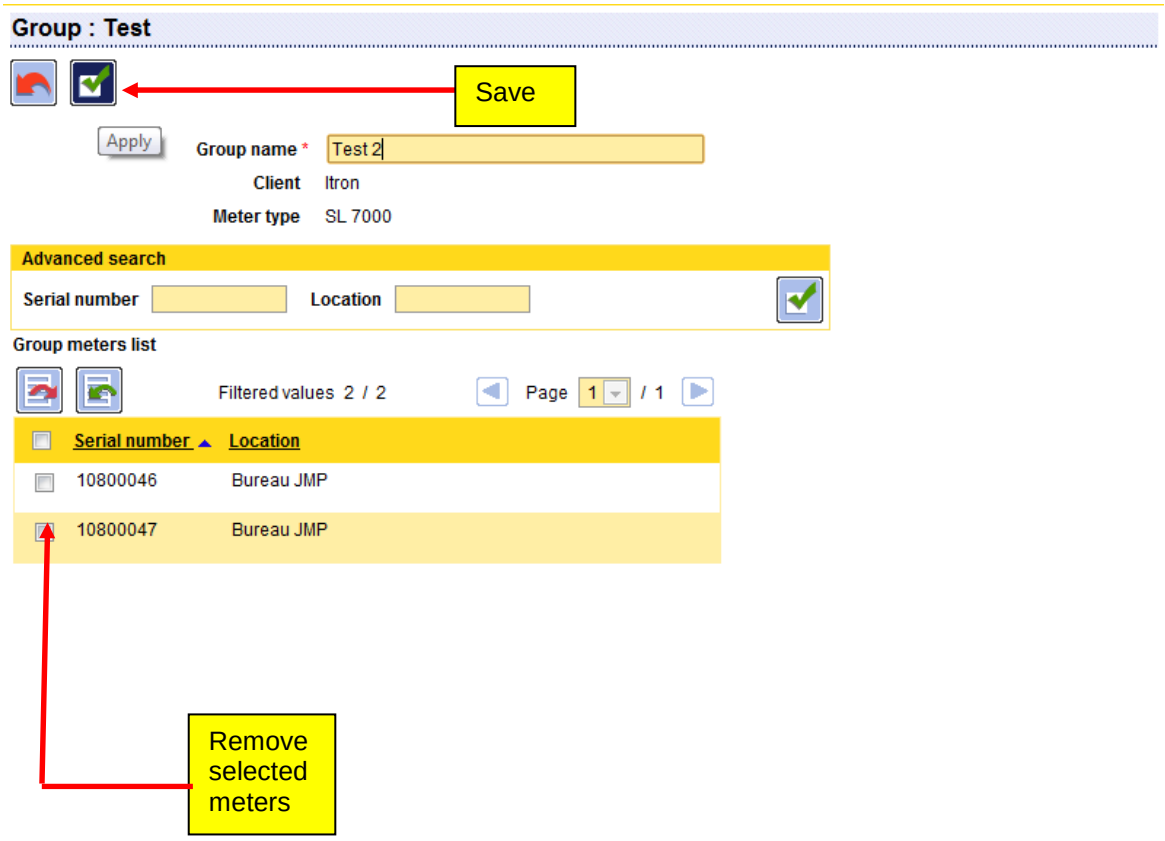


- It is possible to display only the meters that are not already associated to a group
- To select a meter tick the box. When all required meters have been selected, apply the selection by clicking .



- Meters can be removed from a group by ticking the associated box and clicking the button under **Groups meter list**.

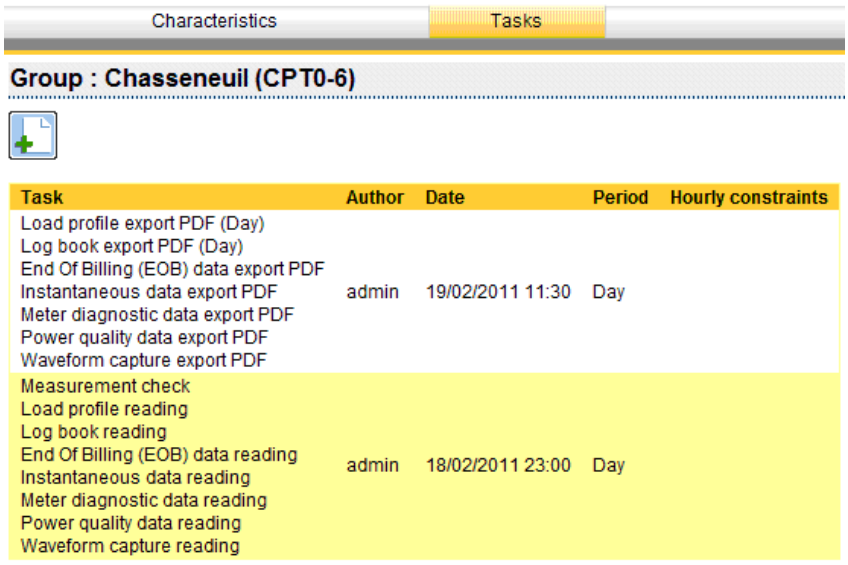
- **Important**: Remember to save the selection before closing the screen.



3.5.2. Add Tasks to a Group

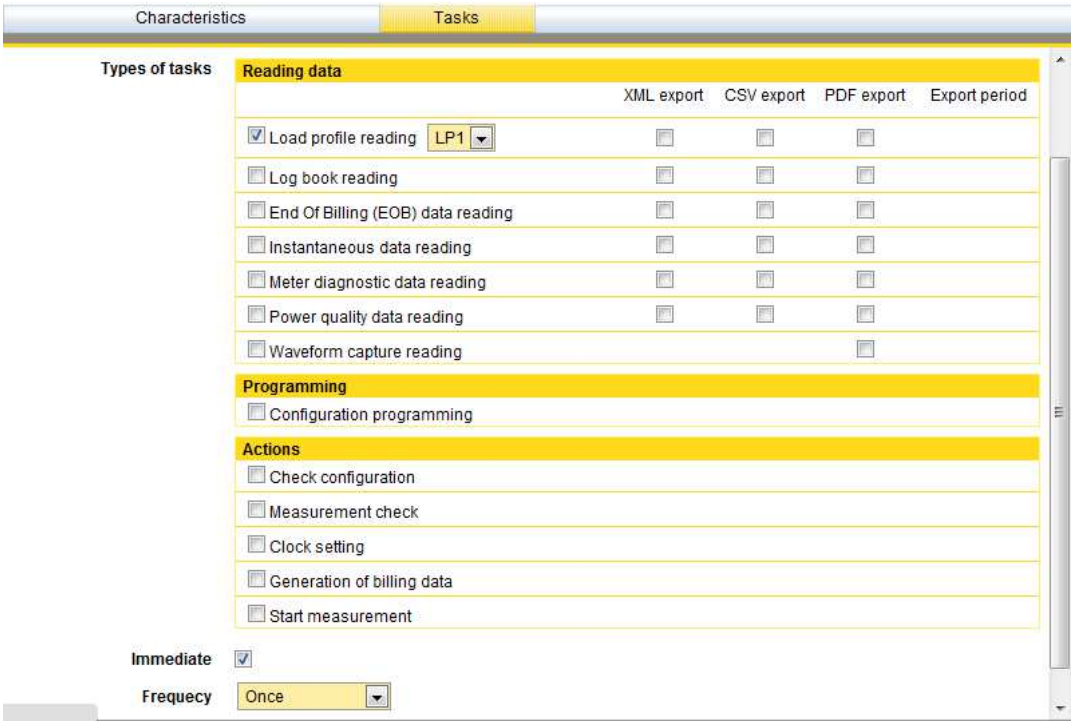
- Just as tasks can be added to individual meters, they can also be assigned to a group of meters

  - List of tasks assigned to group **Chasseneuil (CPT0-6)**:



Task	Author	Date	Period	Hourly constraints
Load profile export PDF (Day) Log book export PDF (Day) End Of Billing (EOB) data export PDF Instantaneous data export PDF Meter diagnostic data export PDF Power quality data export PDF Waveform capture export PDF	admin	19/02/2011 11:30	Day	
Measurement check Load profile reading Log book reading End Of Billing (EOB) data reading Instantaneous data reading Meter diagnostic data reading Power quality data reading Waveform capture reading	admin	18/02/2011 23:00	Day	

- As for a meter, to create group tasks, the user must:
  - Select the type of tasks to perform
  - Program the date and time of task execution

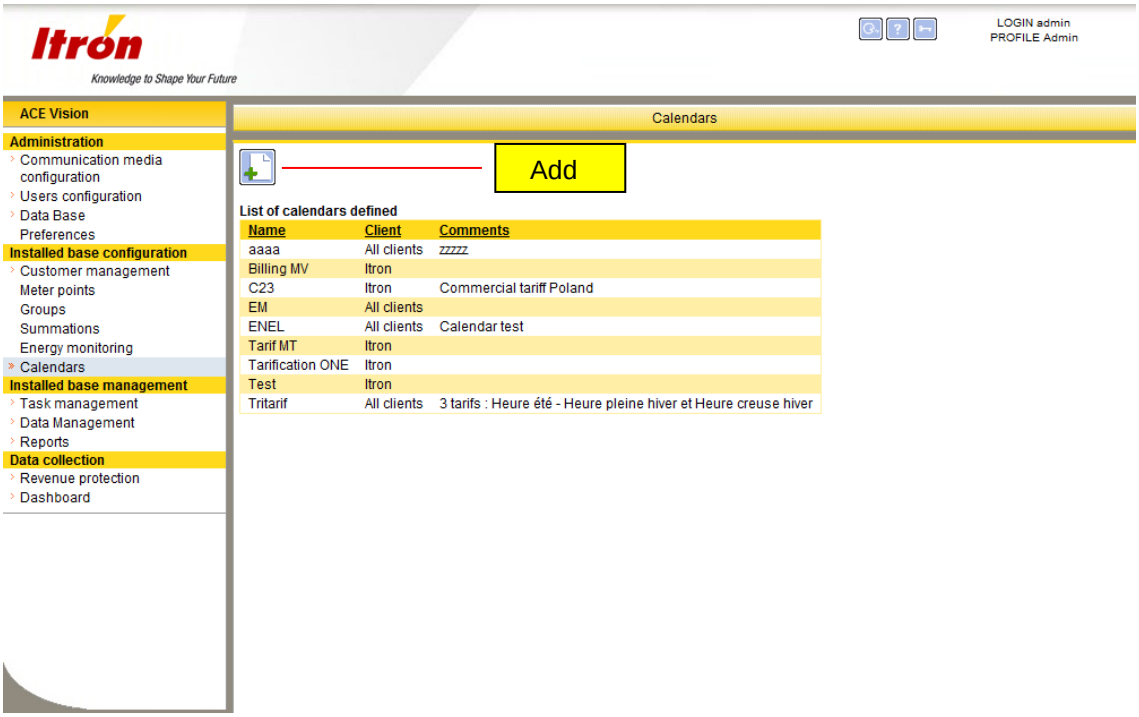


  ⇨ The settings are configured in the same way as for meter point tasks (see Meter Tasks)

3.6. CALENDAR

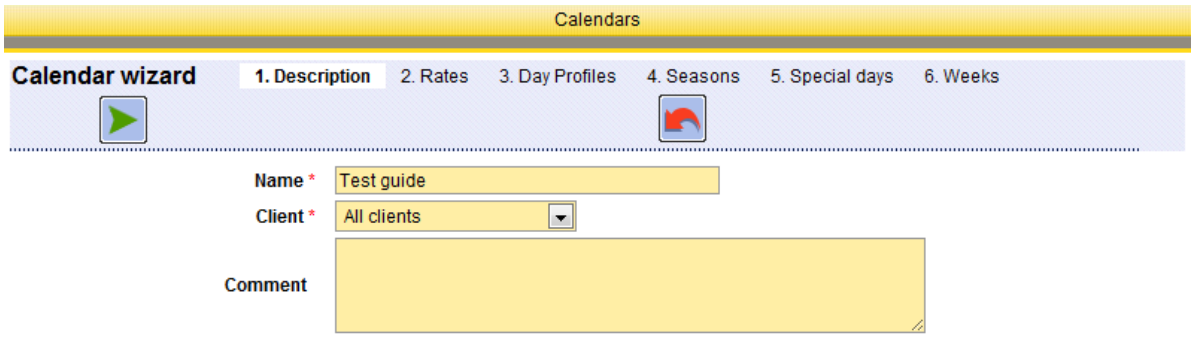
This menu allows the user to create calendars containing tariffication (time of use) periods.

The first screen displays a list of existing calendars:

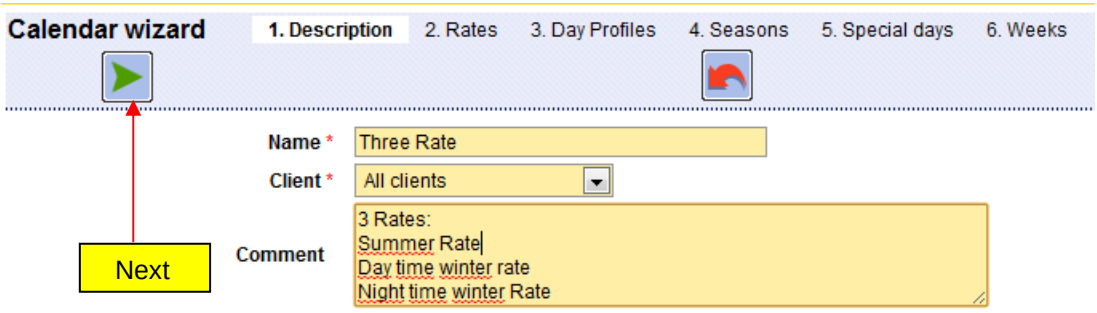


3.6.1. Calendar Creation (Step 1)

A wizard is provided to help define the different constituents of the calendar (Rates, Day Profiles, Seasons, Special days, Weeks).



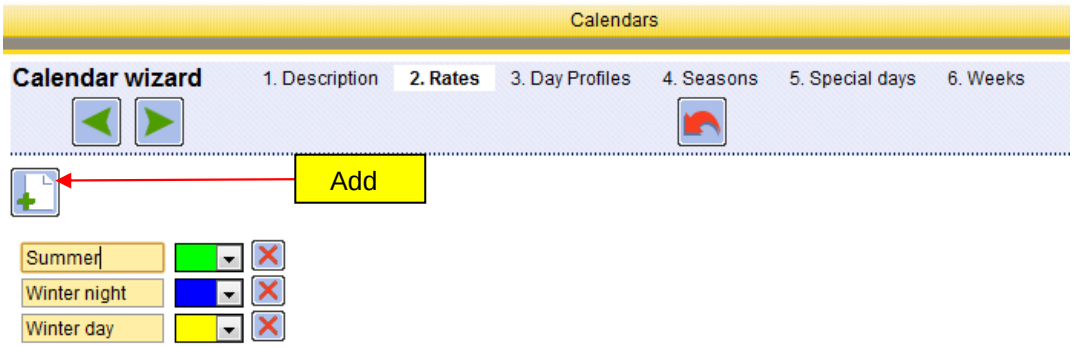
Each calendar must be given a unique name. A calendar can be associated to all clients or a specific client chosen from the existing list. A comment field is available to describe the calendar (see example below):



⇨ Once the description field has been completed click on the **Next** button to move on to the next section of the wizard (Rates).

3.6.2. Create Rates (Step 2)

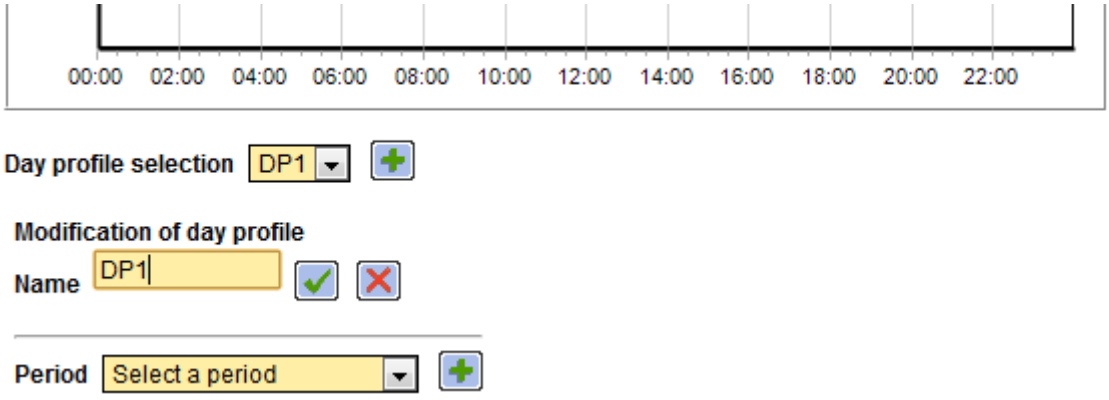
Define the rates to be added to the calendar by assigning names and colours. Click on the **Add** button, then **Next** to move to the next screen of the wizard.



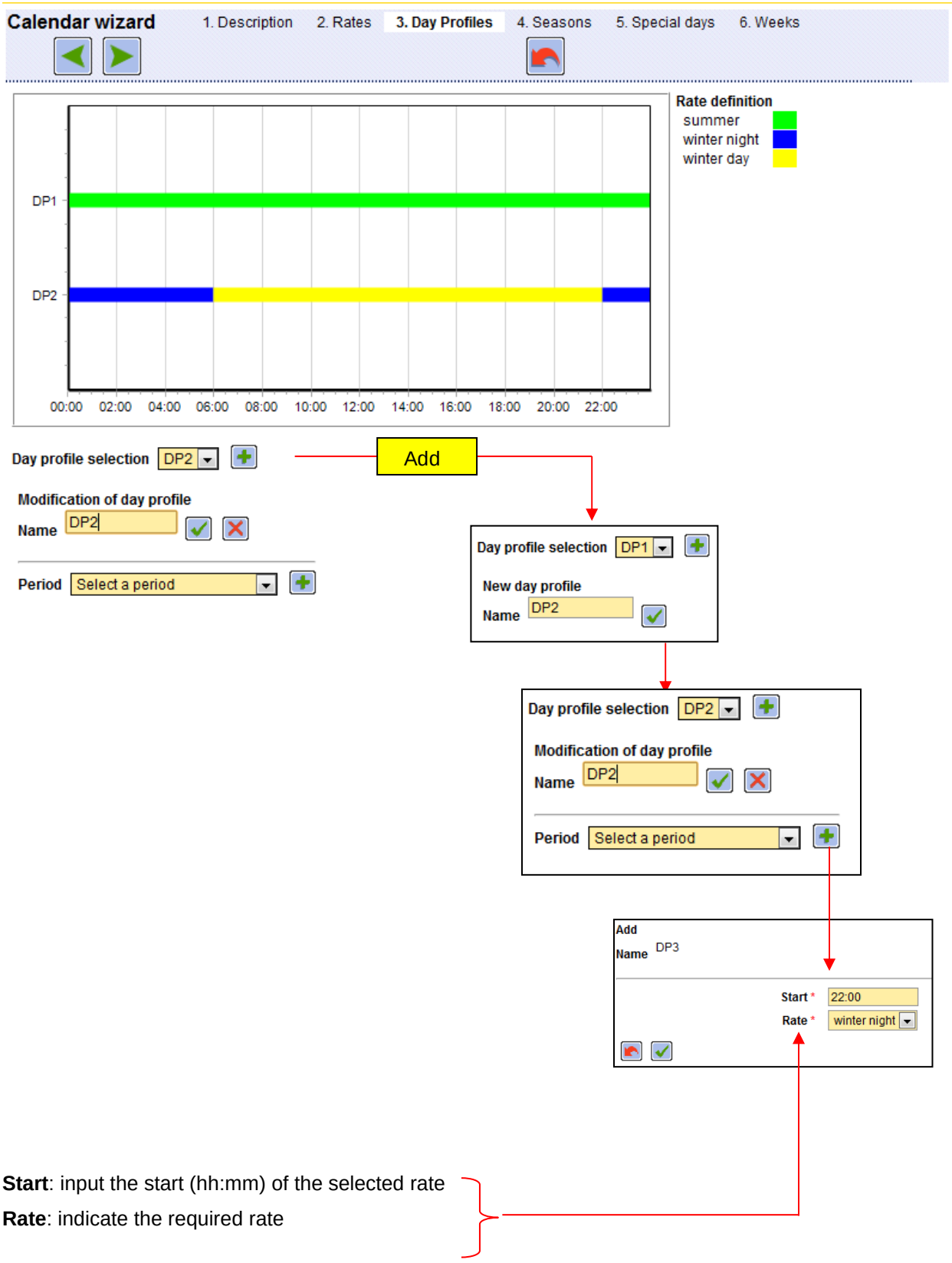
3.6.3. Create Day Profiles (Step 3)

Day profiles are defined in 2 steps:

- 1. Create and name a new daily profile.
- 2. Define the period (cut off time of daily profile).



Example: DP1 (single rate from 00:00 to 24:00). DP2 (2 rates: winter night time rate from 00:00 to 06:00 and 22:00 to 24:00 and winter day rate from 06:00 to 22:00):



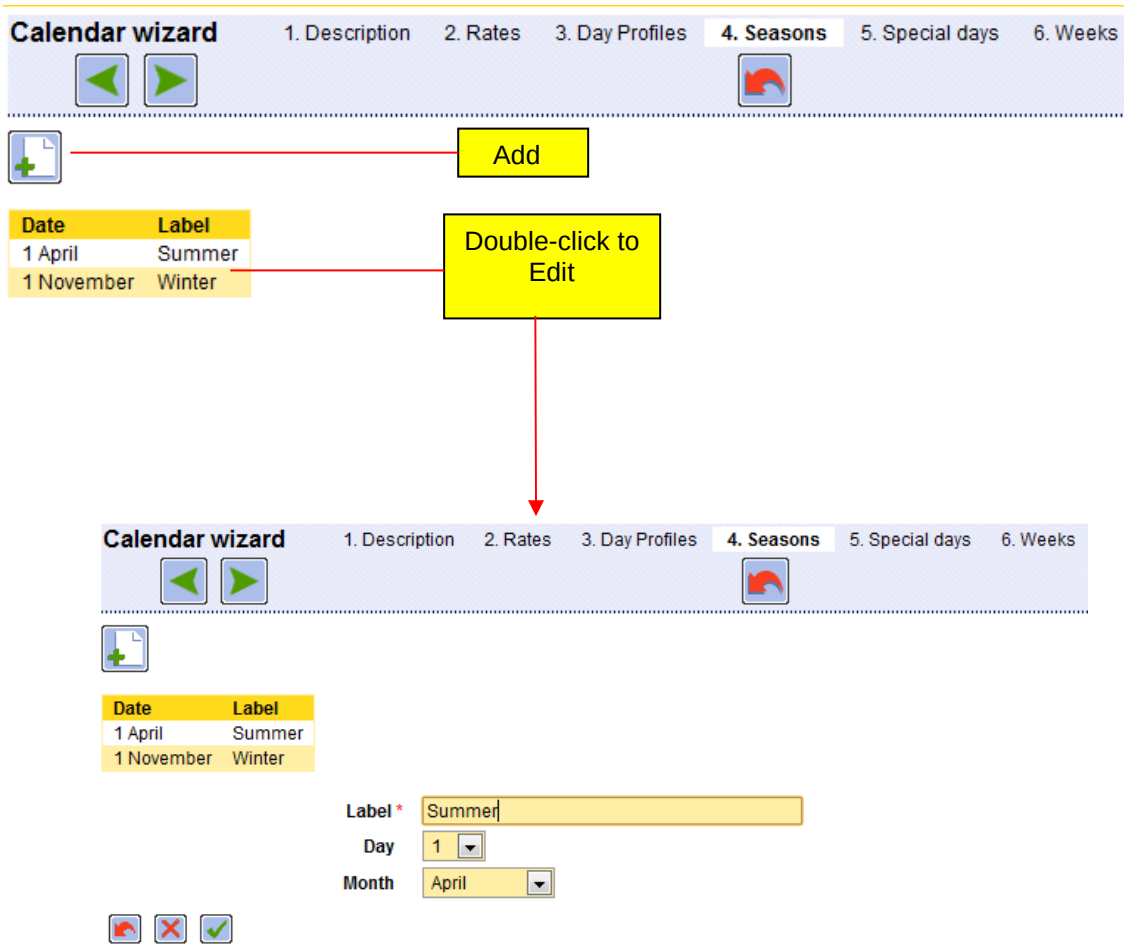
Start: input the start (hh:mm) of the selected rate

Rate: indicate the required rate

3.6.4. Create Seasons (Step 4)

To create a season, the season must have a label and a start date. A season is valid until the day and month of the start of the next season (if more than 1 season exists).

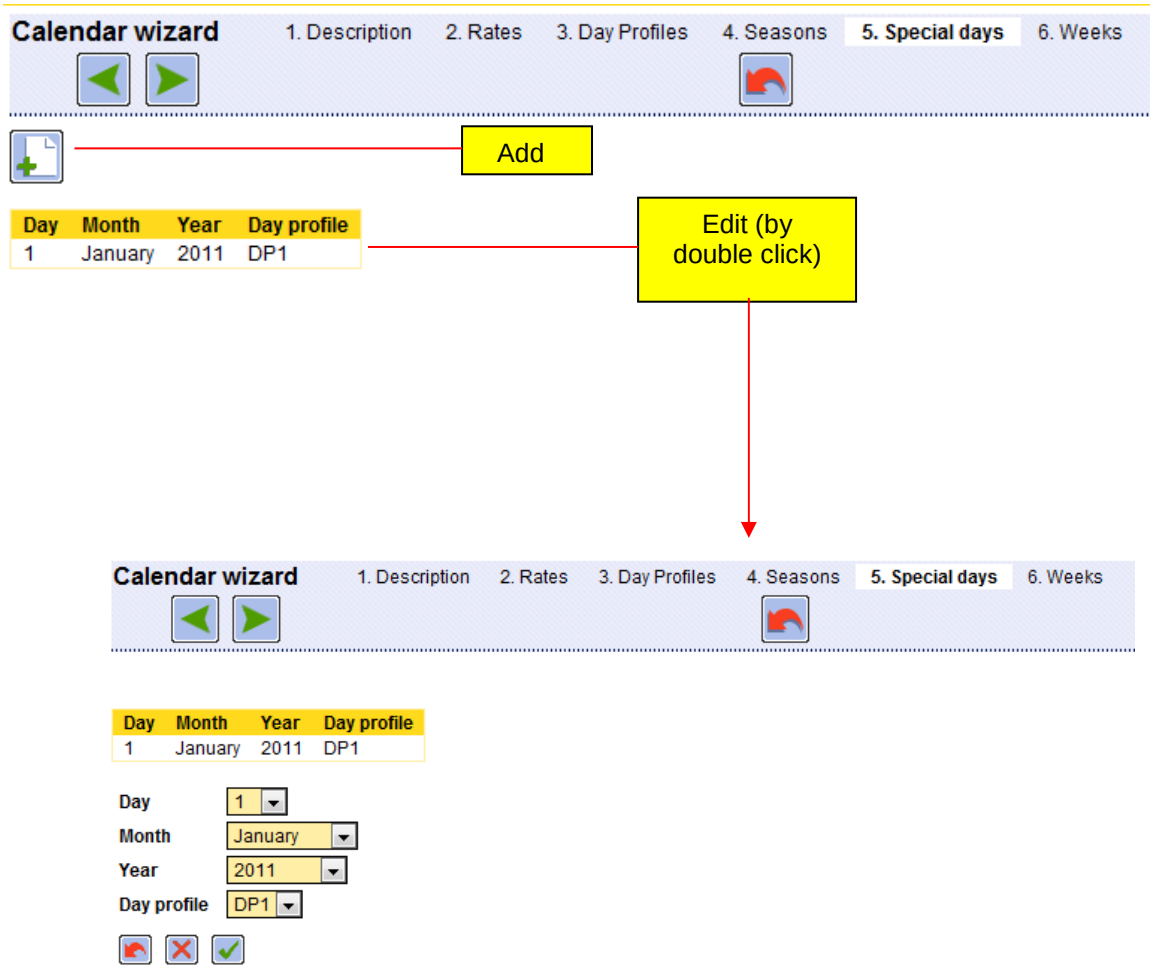
Example: 2 seasons are created (Summer from 01-04 to 31-10 and Winter from 01-11 to 31-03)



3.6.5. Create Special Days (Step 5)

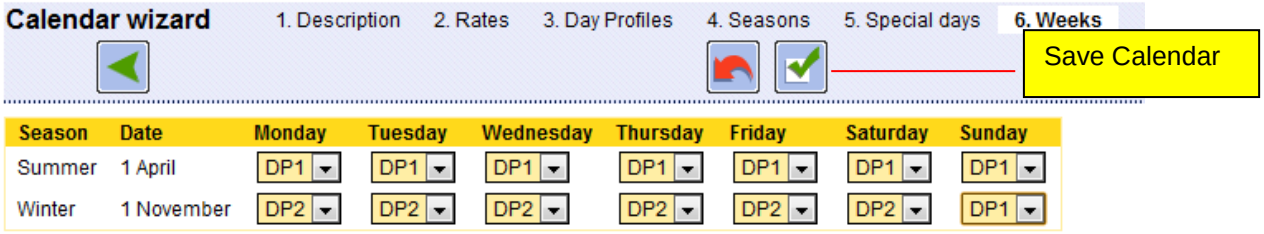
- The calendar allows the creation of special days, to which day profiles can be associated.

Example: 01/01/11 is created as a special day with a DP1 day profile

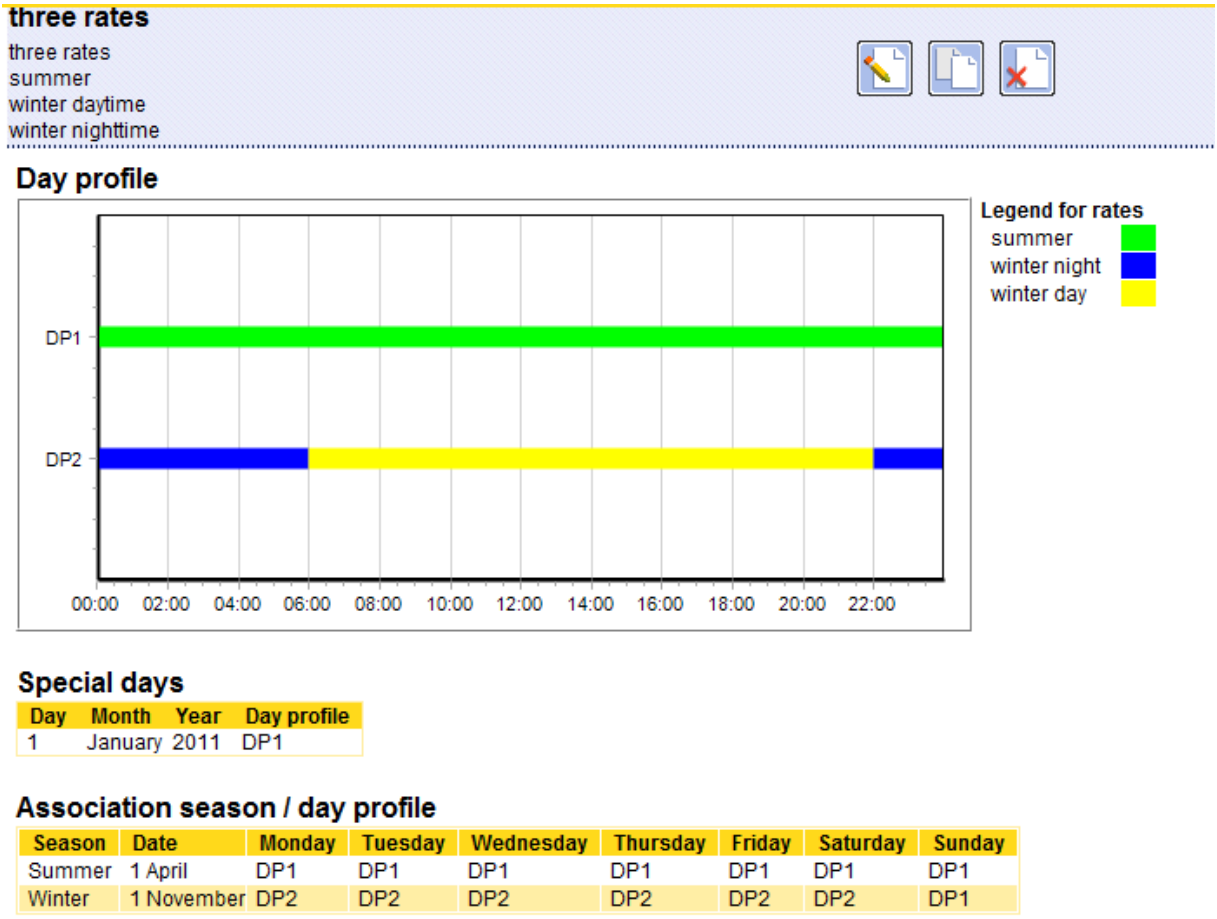


3.6.6. Create Weeks (Step 6)

- The final step of calendar creation is to add weekly profiles for the previously created seasons.



➢ Once the final step is complete and the calendar has been applied, a summary calendar screen is displayed showing details of the calendar settings.



Special days

Day	Month	Year	Day profile
1	January	2011	DP1

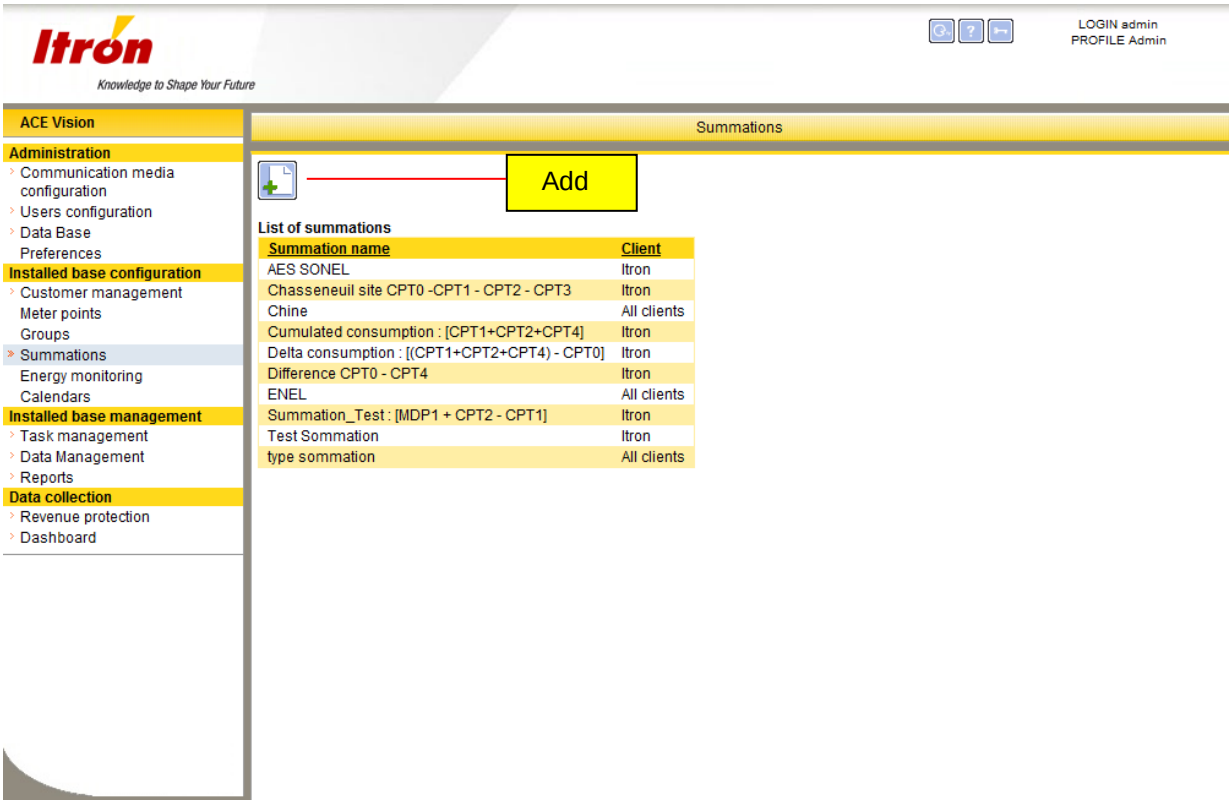
Association season / day profile

Season	Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Summer	1 April	DP1	DP1	DP1	DP1	DP1	DP1	DP1
Winter	1 November	DP2	DP2	DP2	DP2	DP2	DP2	DP1

Note: *An existing calendar can be edited, deleted or copied as required.*

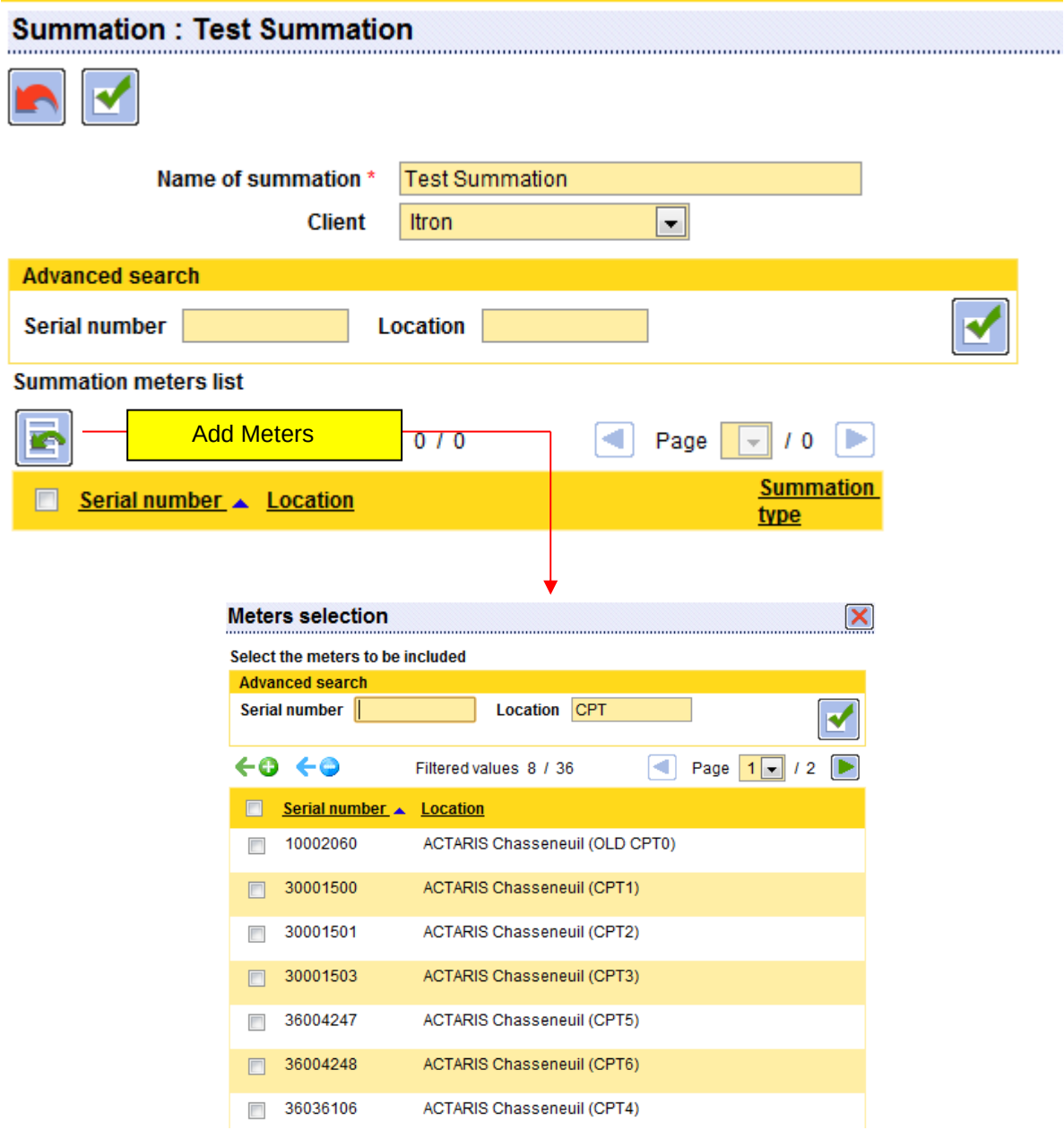
3.7. SUMMATIONS

ACE Vision allows users to carry out arithmetic operations on data. Select **Installed base management – Summations** to access a list of existing summations.



3.7.1. Creating a Summation

A summation is defined by its name, for all clients, or for a specific client chosen from the list.



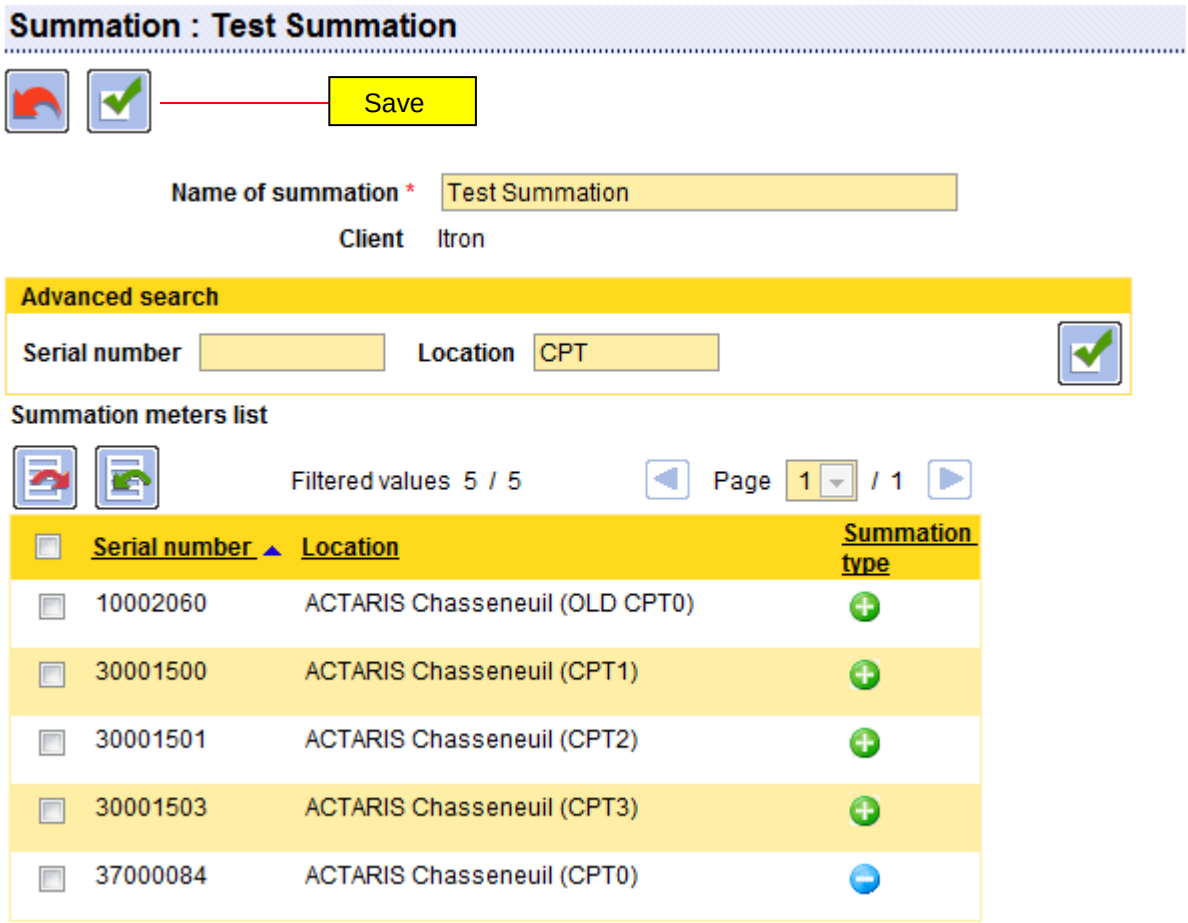
- Meters can be further sorted according serial number and location.
- Available meters are displayed by page. To add meters to a summation, tick the meter's box and apply the selection by clicking the addition button ( ) or the subtraction button ( ).

Note: All meters on a page can be selected or deselected at once by ticking the box to the left of the serial number column title.

: This button adds the values of the selected meter(s) to the other meter values included in the summation.

: This button subtracts the values of the selected meter(s) from the other meter values included in the summation.

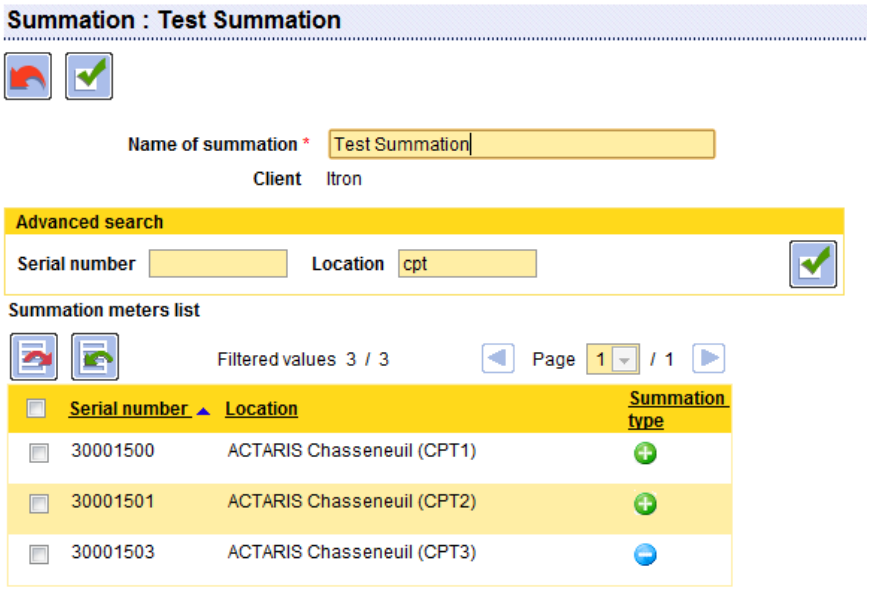
The selected meters then appear in the **Summation meters list**, along with an indication of the designated summation type.



Use the button to remove selected meters from the summation.

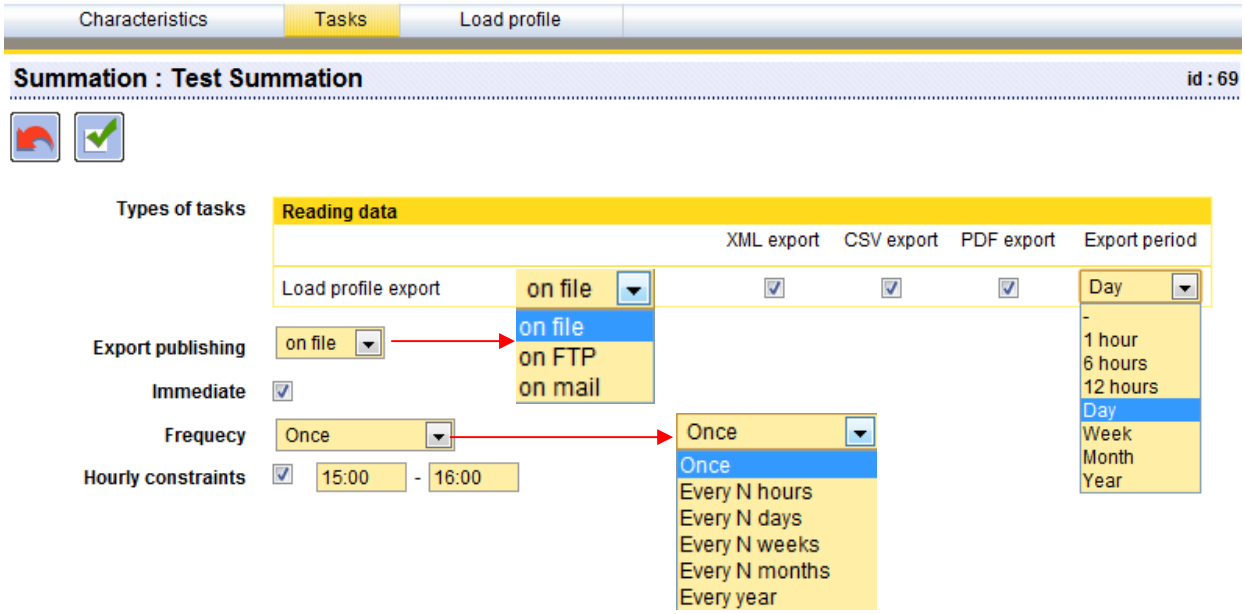
3.7.2. Summation Characteristics

Select a summation from the list of existing summations to display its characteristics (meters included in summation and associated operations). Here it is possible to edit or delete summations.



3.7.3. Summation Tasks

From the **Summations - Tasks** tab, a task can be created to produce an export file of the load profile resulting from a summation. The file can be exported in XML, CSV and PDF formats.



An export period corresponding to the data range to be exported must be selected. The data exported is the last complete data set applicable to the defined period available (e.g. if the period selected is **Day**, the preceding day's data is exported).

The export file can be published by file (local), by FTP or by Email.

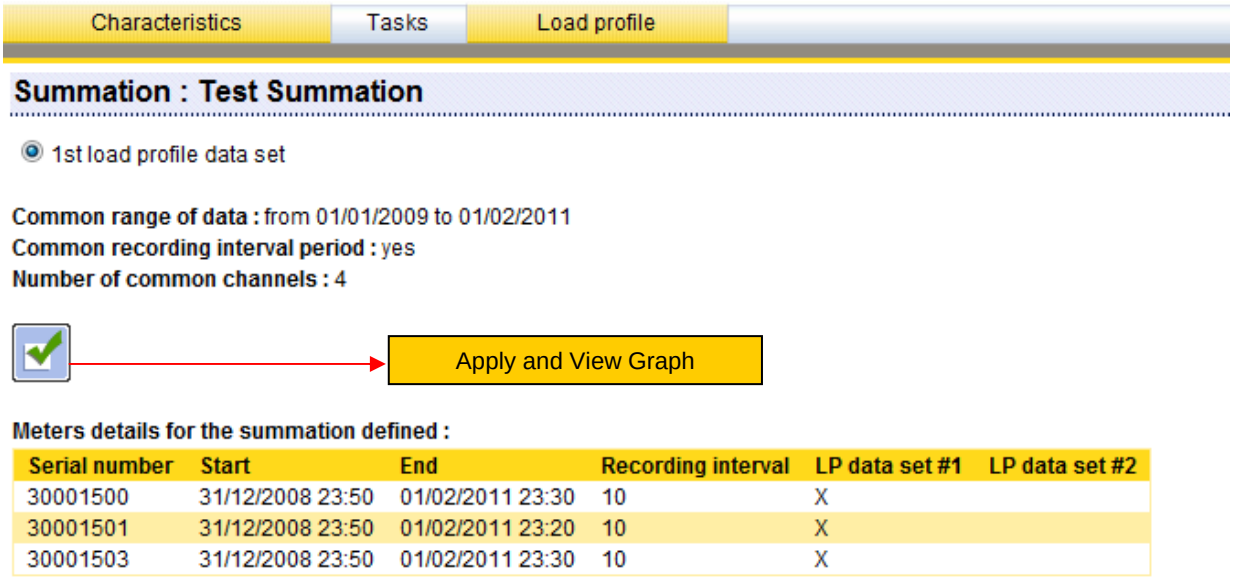
- Tasks can be executed immediately or at a fixed date. Tasks can be performed one time only or at regular intervals.
- A time slot can be defined (hourly constraints), with tasks only being performed within this time slot.

3.7.4. Summation Load Profile Calculation

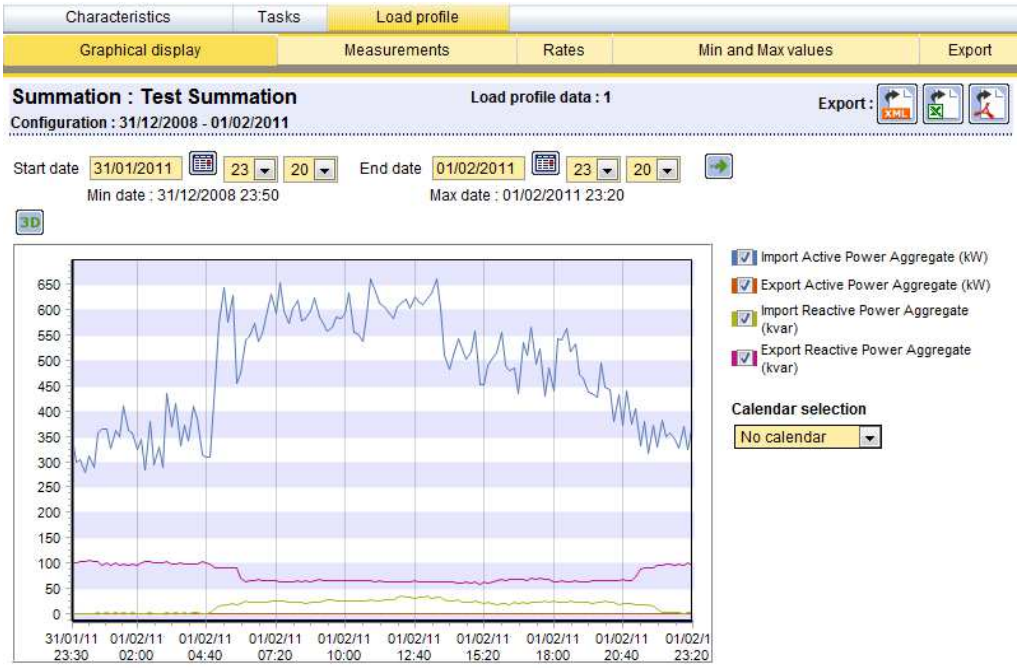
The **Load profile** tab displays the results of the summation on the load profile of the meters concerned.

For the summation to be valid, the concerned meters must respect the following rules:

- The meters must have a common range of data
- The meters must have a common recording interval period
- The meters must have common channels



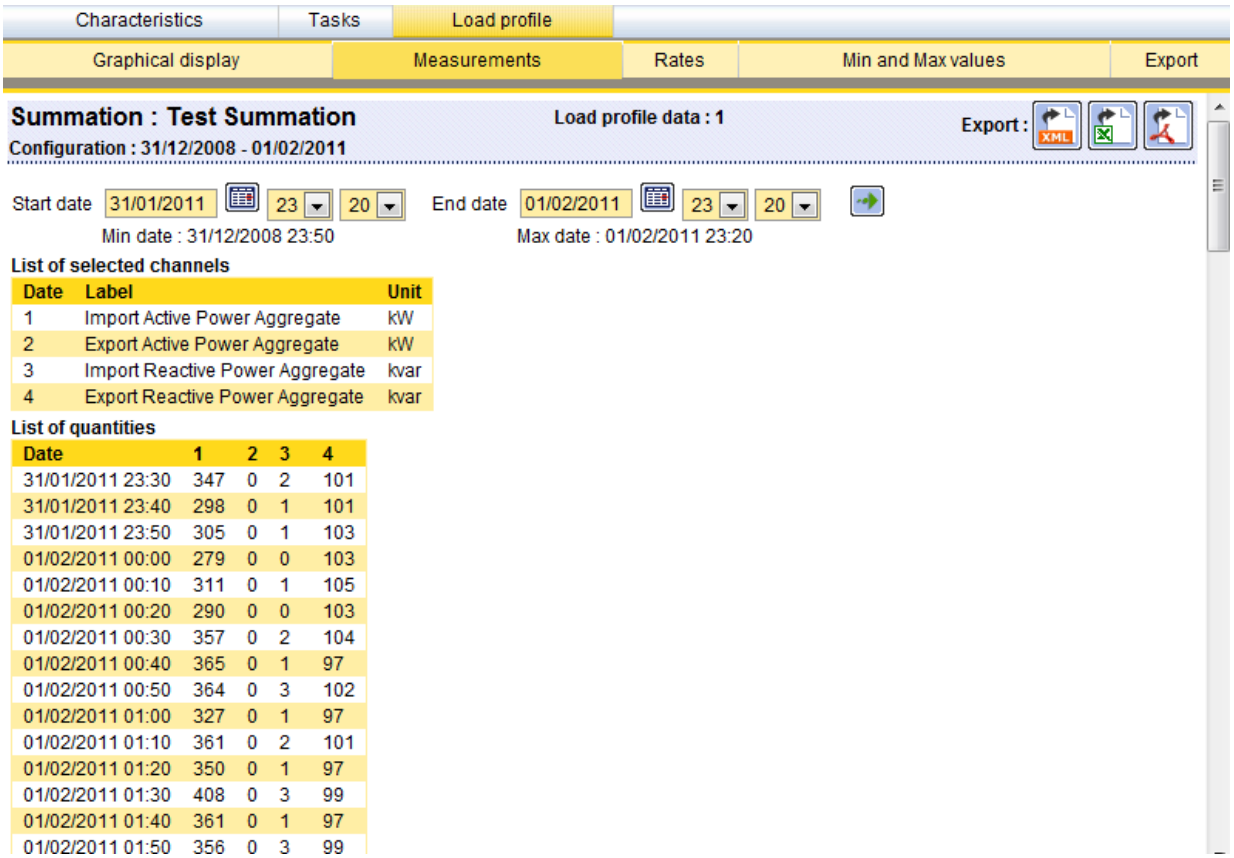
3.7.4.1. View Summation Load Profile Graph



This graph can be exported to file in PDF format and the associated data in XML or CSV format.

3.7.4.2. Measurements

This menu provides all summation load profile data .Each line of the table includes a timestamp and the values for each of the energy channels selected.

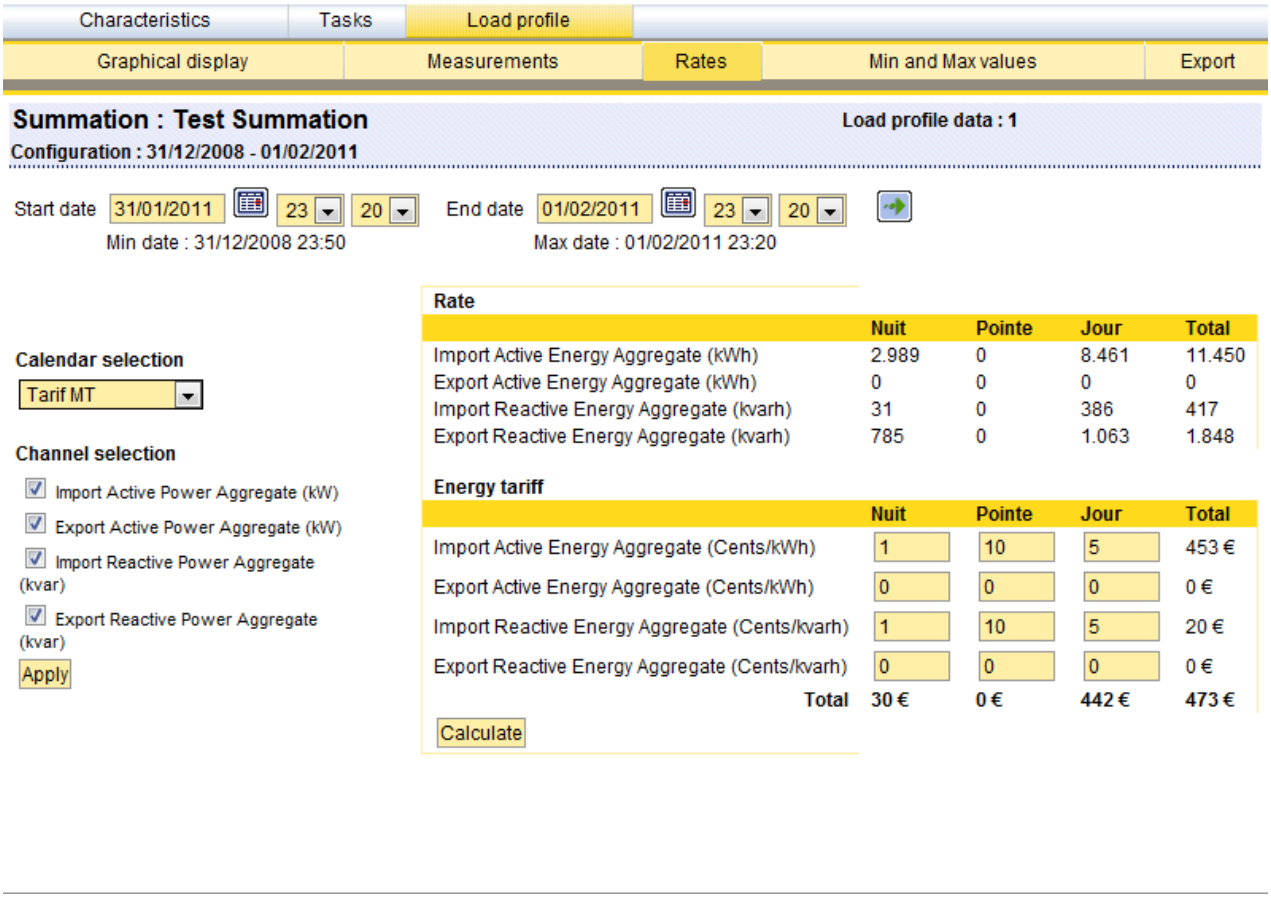


This data can be exported in XML or CSV format. The associated graph can be exported in PDF format.

3.7.4.3. Rates (Estimation of Energy Costs)

- Select the **Rates** tab to access an estimation of energy costs during the summation period (start date to end date). This simulation is done in relation to calendar choice and selected channels

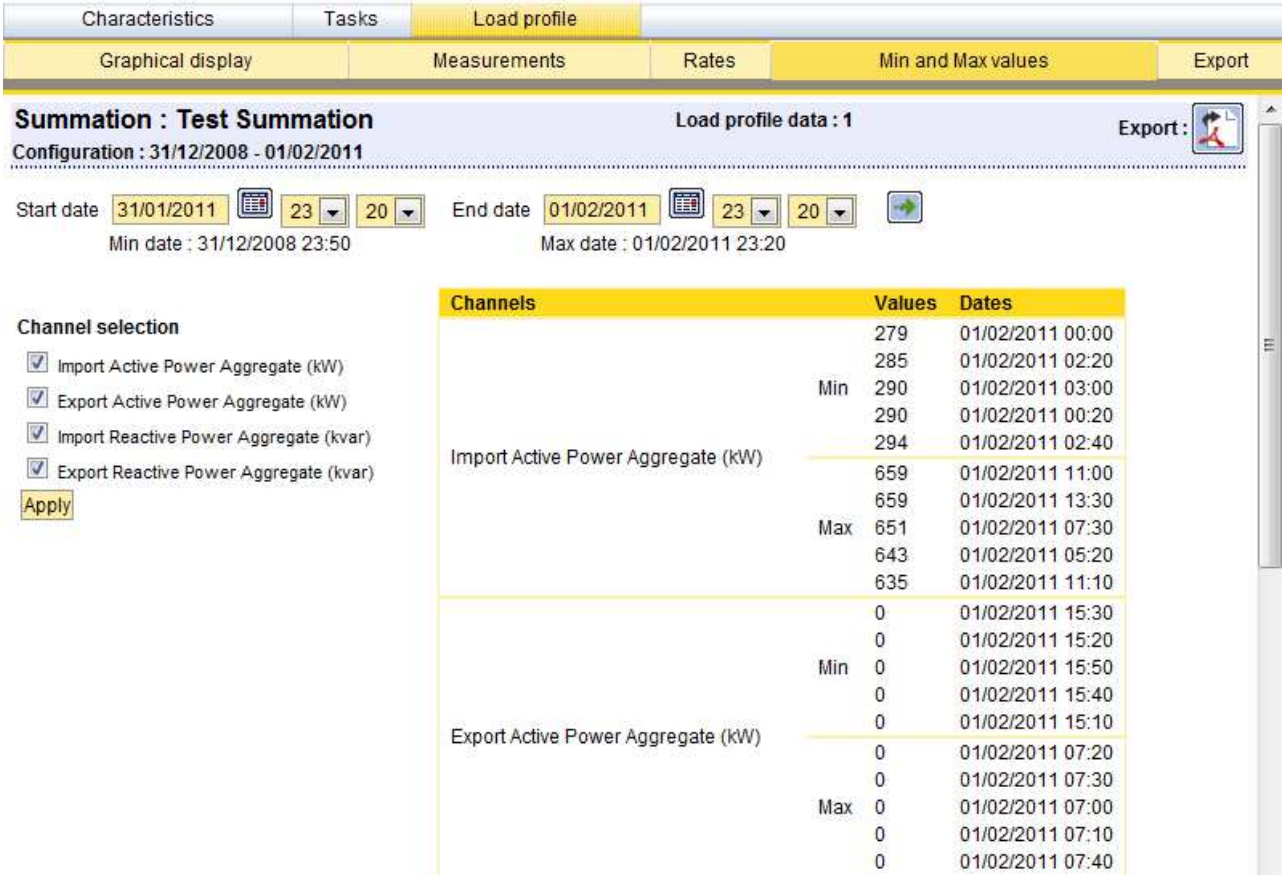
  When the desired settings are applied (click **Apply**), the energy values for each rate (e.g. night rate, day rate) over the summation period are displayed. The user must therefore define energy cost per channel for each rate. Click on **Calculate** to display the total cost by rate.



3.7.4.4. Minimum and Maximum Values

▶ This menu displays the 5 lowest and 5 highest measurement values for the previously selected energy channels over the summation period (start date to end date).

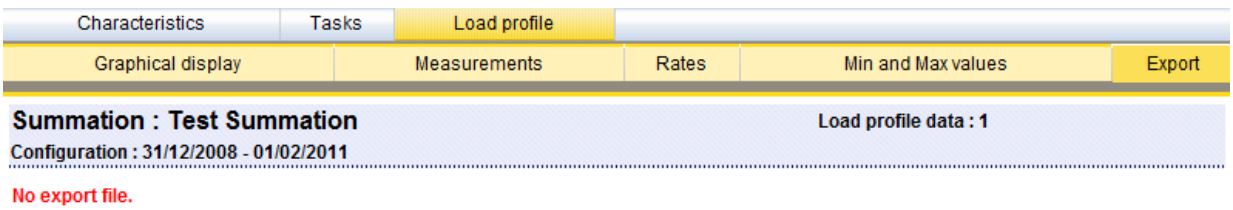
➚ Click **Apply** to display the highest and lowest values.



➚ This data can be exported to file in PDF format.

3.7.4.5. Export Summation Data

▶ Select the **Export** tab to download export files for the current summation. This feature requires the prior presence of summation measurement export files on the server.

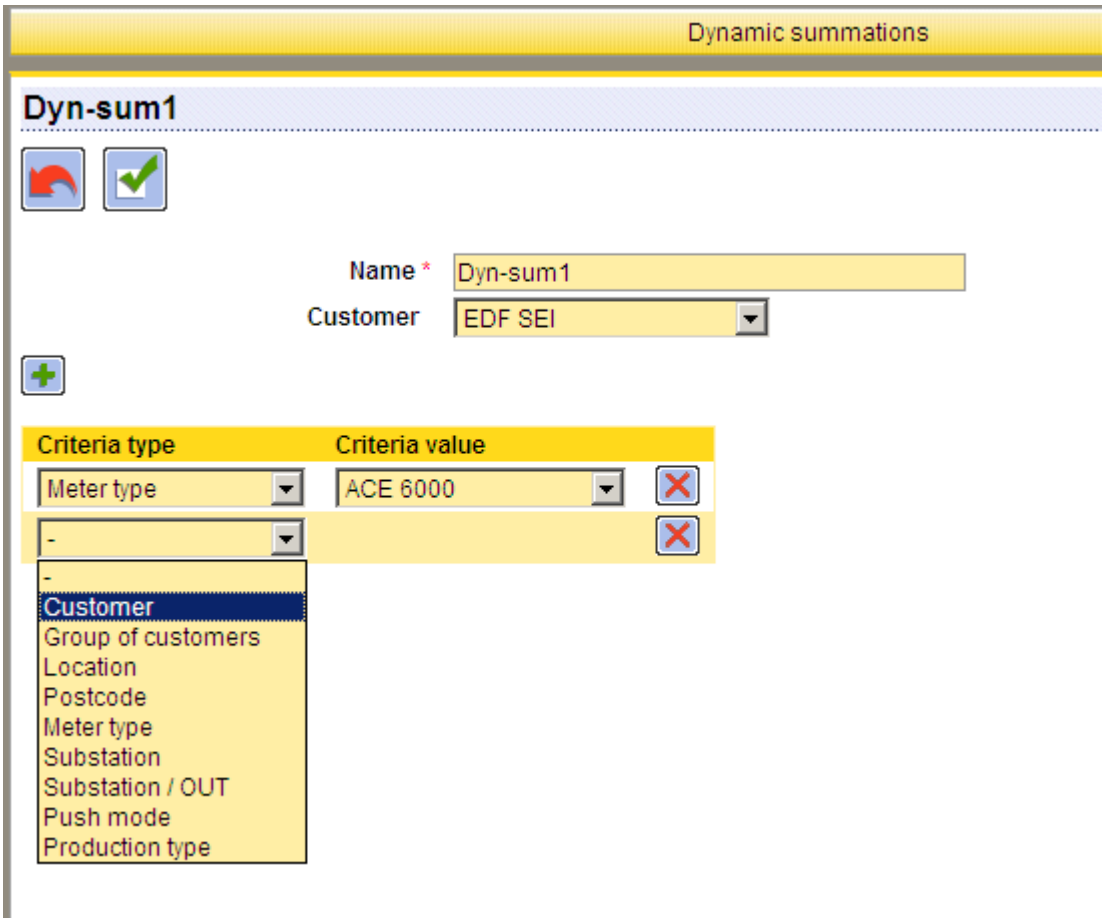


3.8. DYNAMIC SUMMATION

This dynamic summation is defined according several criteria. The scope of this summation is evolving along the time, and so there is no need to modify the summation as soon as meters are added or modified in the data base of ACE-VISION.

A dynamic summation is created through the menu Installed Base configuration -> Dynamic Summation. The tasks relevant to the dynamic summation are created through the menu Installed Base Management - > Tasks Management -> Dynamic summation.

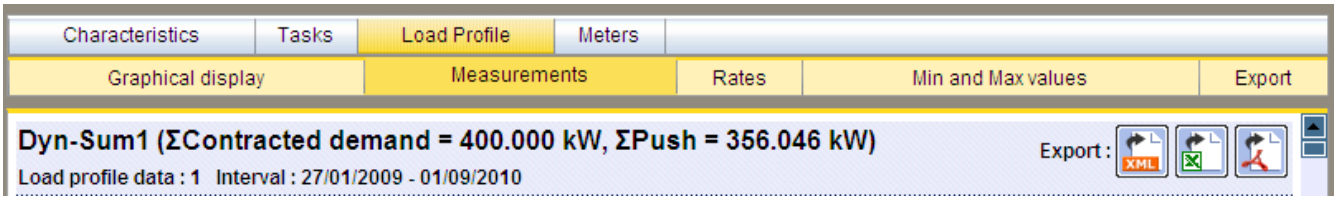
Once defined, the dynamic summation is identical to a static summation.



A dynamic summation is defined with

- A name
- N criteria (AND condition)
    - Customer (all, one specific, or a group)
    - Location
    - Postcode (city)
    - Meter type Type
    - Substation
    - Substation outgoing lines
    - Production type

In a dynamic summation, all meters are added (no substraction possible)

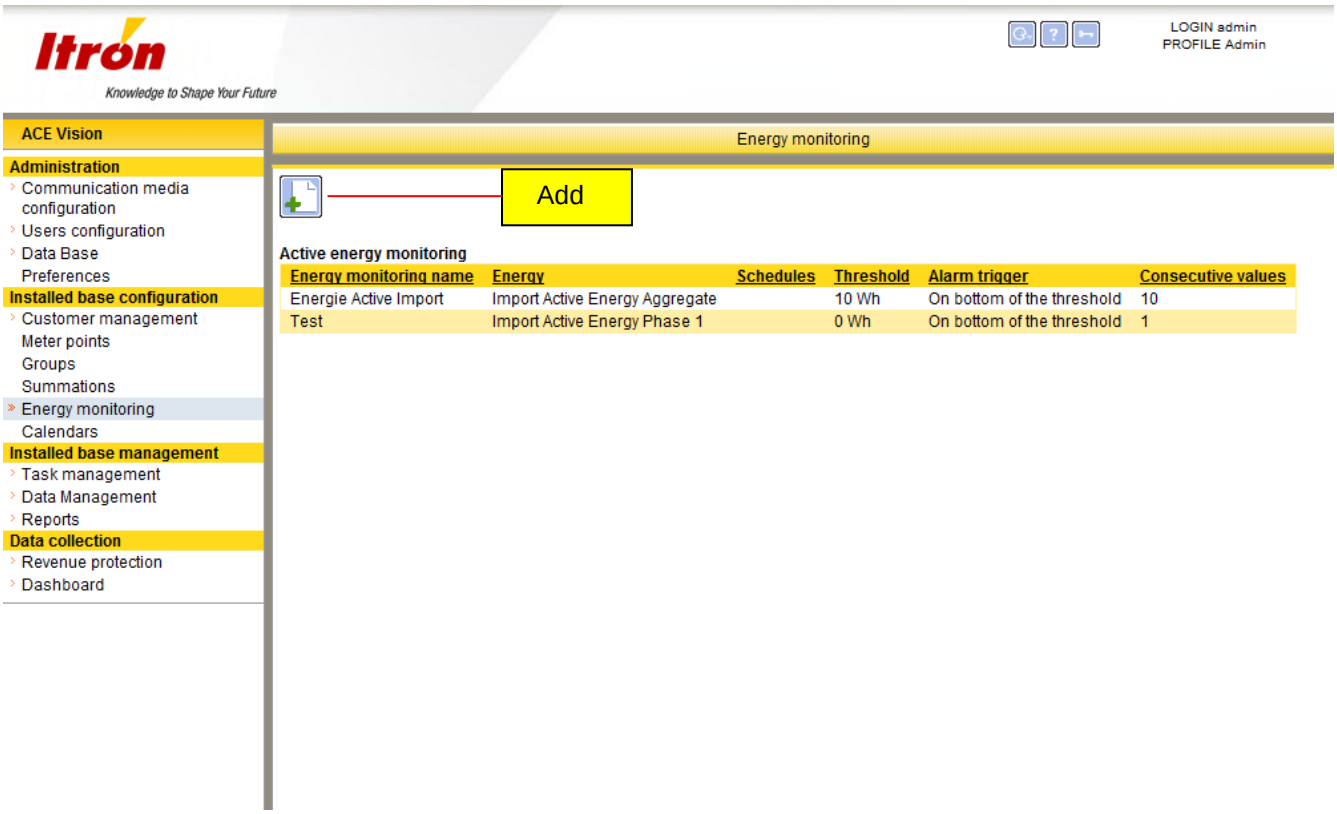


Once the dynamic summation is defined, relevant load profile could be visualized, (tab Load Profile), meters that entered currently into the dynamic summation.

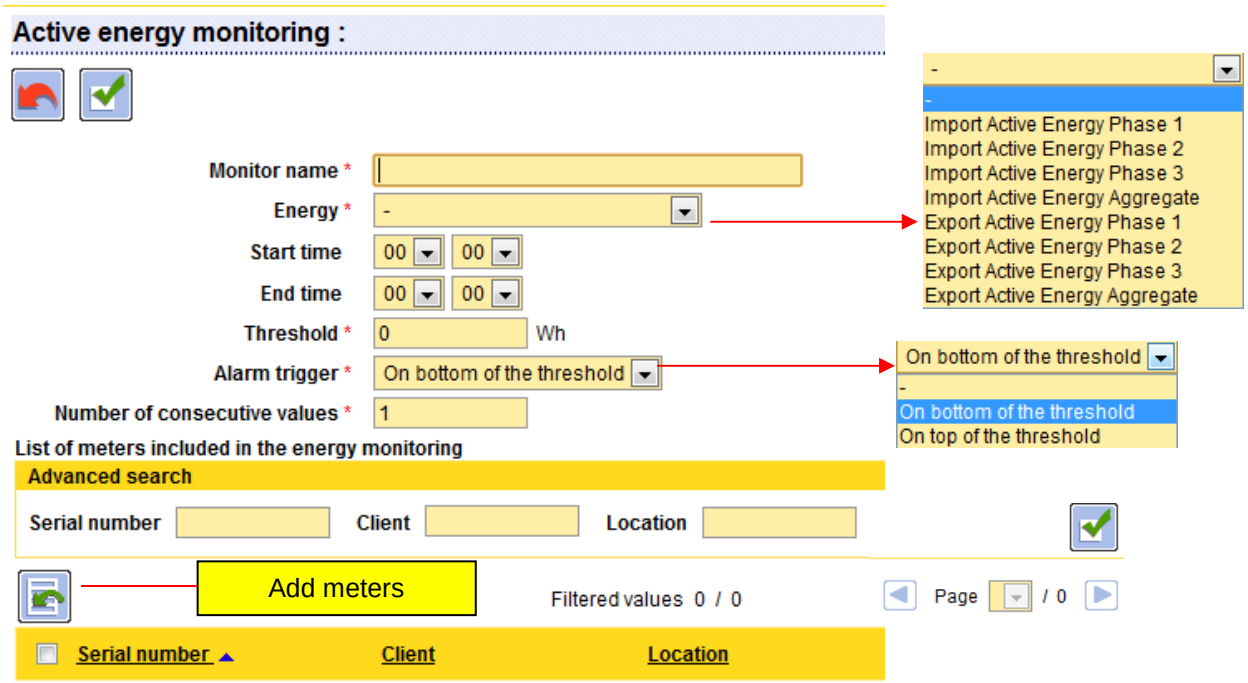
Dynamic summation data could be exported.

3.9. ENERGY MONITORING

Select **Energy Monitoring** to view a list of existing monitoring tasks. Monitoring is used to perform checks after load profiles have been read to detect any active energy anomalies.



To create a new monitoring task, the following details must be entered: name, energy to monitor, start and end time (if required as a time slot is only required for random production), a threshold along with an alarm trigger, the number of consecutive values and the meters to monitor.



- An SMS or Email alert is automatically sent to specified users when an anomaly is detected.
- A regular report listing meters with anomalies is sent by Email to specified users.

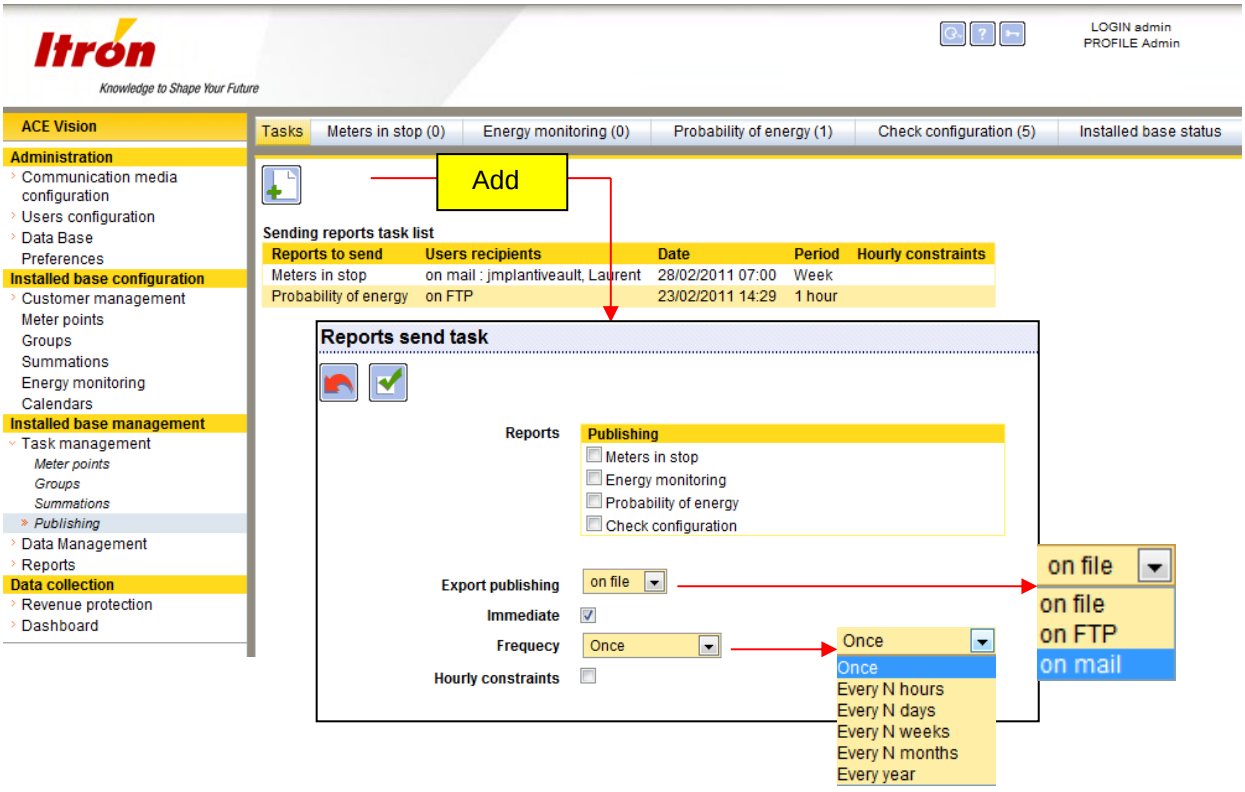
3.10. PROBABILITY OF ENERGY

This feature allows users to check the coherence of Total Active Import energy values contained in an EOB. Each time a new EOB is read in the meter, the difference between the sum of the three active energy imports for the three phases and the aggregate active import energy is calculated. If the difference is beyond the configured threshold (*threshold for energy probability check in ACE Vision configuration tool*) an alarm is activated.

3.11. PUBLISHING

Use this feature to configure the sending of reports for Meters in stop mode, energy monitoring, probability of energy, configuration control and on some alarms checks (cover opening, magnet attack, voltage loss).

Select **Publishing - Tasks**.



The export file can be published by file (local), by FTP or by Email.

Tasks can be executed immediately or at a fixed date. Tasks can be performed one time only or at regular intervals.

A time slot can be defined (hourly constraints), with tasks only being performed within this time slot.

3.12. DATA MANAGEMENT

This module allows to visualize the data associated to meters, static and dynamic summations.

3.12.1. Meters

Allows you to view:

• The list of meters,

• General information on these meters (identity card)

• Tasks performed on the meters,

• All data can be viewed,

• It is possible to restart one or more tasks.

3.12.2. Summations

Allows you to view:

• The list of summations,

• The meters that are associated to these summations,

• The results of load profiles,

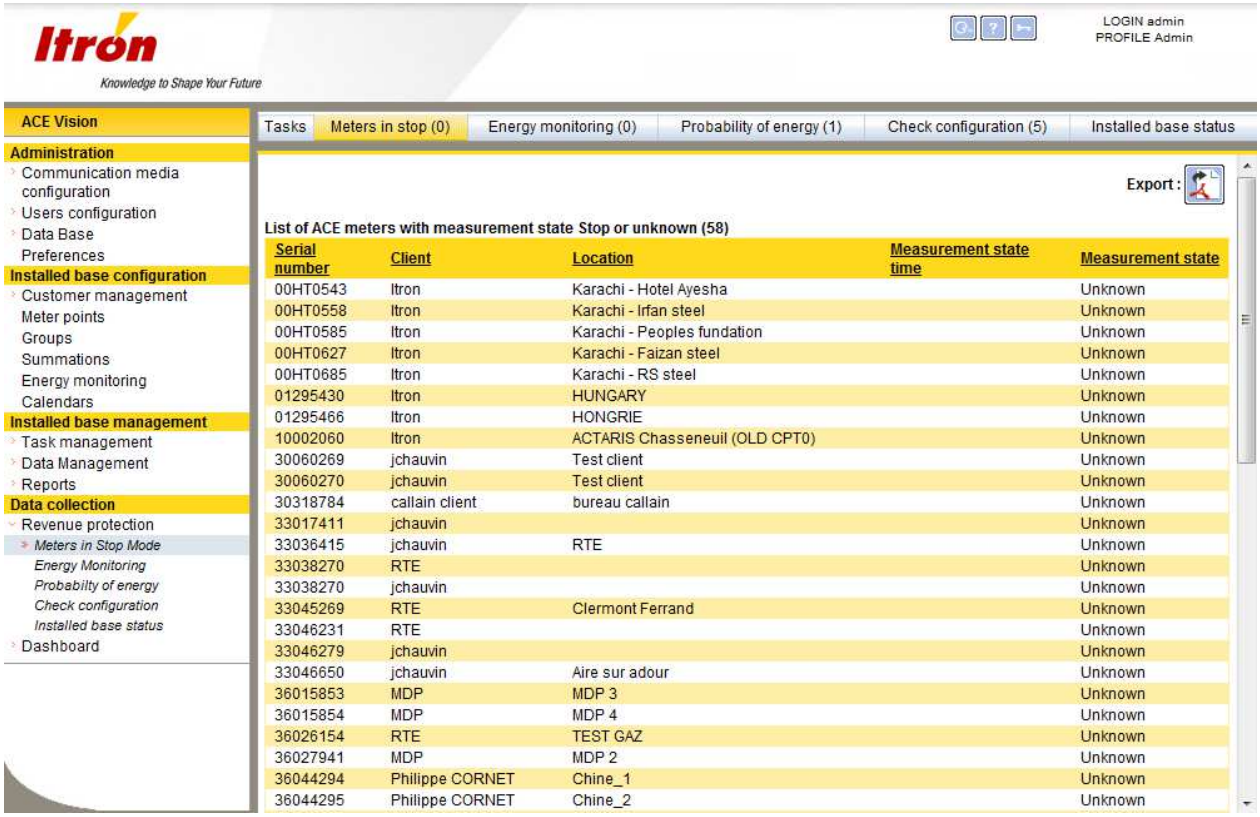
• It is possible to restart one or more tasks

3.13. REVENUE PROTECTION

- This menu produces reports according to different controls and monitoring tasks put in place, it can also provide a report on the state of a meter park.
- Each report can be exported to PDF or XLS format (according to data type).

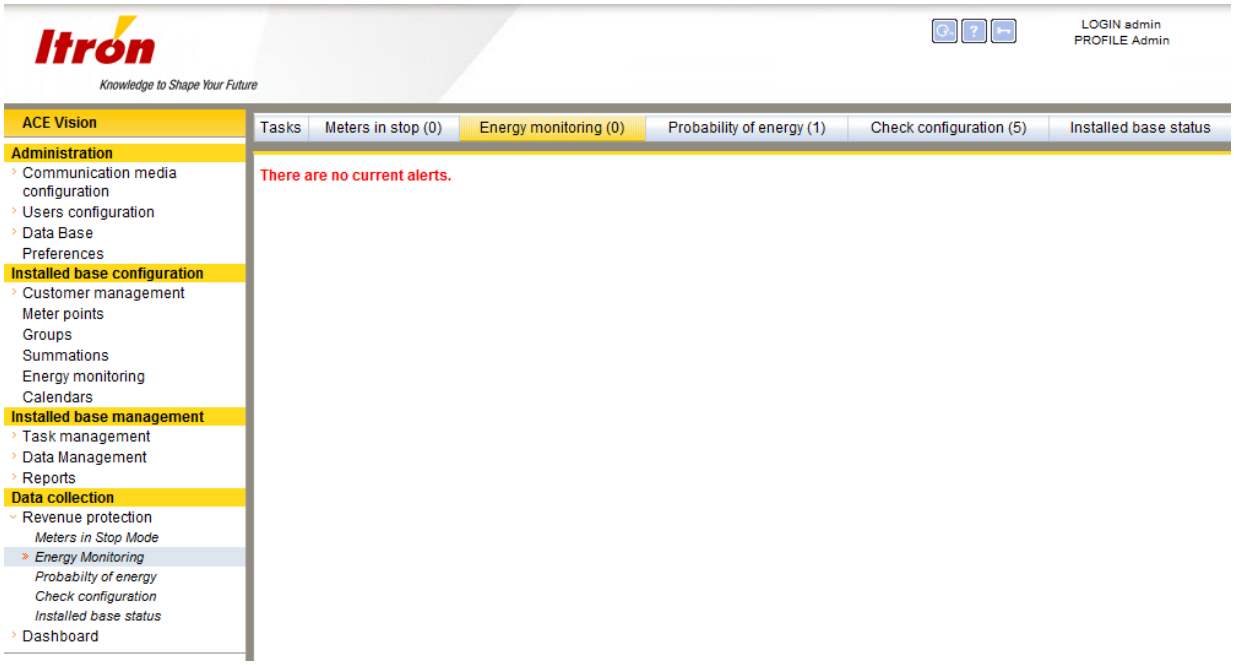
3.13.1. Meters in Stop Mode

Select **Revenue Protection – Meters in stop**:


Itron
Knowledge to Shape Your Future
LOGIN admin
PROFILE Admin
ACE Vision
Administration
Communication media configuration
Users configuration
Data Base
Preferences
Installed base configuration
Customer management
Meter points
Groups
Summations
Energy monitoring
Calendars
Installed base management
Task management
Data Management
Reports
Data collection
Revenue protection
Meters in Stop Mode
Energy Monitoring
Probabilty of energy
Check configuration
Installed base status
Dashboard
Tasks
Meters in stop (0)
Energy monitoring (0)
Probability of energy (1)
Check configuration (5)
Installed base status
Export :
List of ACE meters with measurement state Stop or unknown (58)
Serial number
Client
Location
Measurement state time
Measurement state
00HT0543 Itron Karachi - Hotel Ayesha Unknown
00HT0558 Itron Karachi - Irfan steel Unknown
00HT0585 Itron Karachi - Peoples fundation Unknown
00HT0627 Itron Karachi - Faizan steel Unknown
00HT0685 Itron Karachi - RS steel Unknown
01295430 Itron HUNGARY Unknown
01295466 Itron HONGRIE Unknown
10002060 Itron ACTARIS Chasseneuil (OLD CPT0) Unknown
30060269 jchauvin Test client Unknown
30060270 jchauvin Test client Unknown
30318784 callain client bureau callain Unknown
33017411 jchauvin Unknown
33036415 jchauvin RTE Unknown
33038270 RTE Unknown
33038270 jchauvin Unknown
33045269 RTE Clermont Ferrand Unknown
33046231 RTE Unknown
33046279 jchauvin Unknown
33046650 jchauvin Aire sur adour Unknown
36015853 MDP MDP 3 Unknown
36015854 MDP MDP 4 Unknown
36026154 RTE TEST GAZ Unknown
36027941 MDP MDP 2 Unknown
36044294 Philippe CORNET Chine_1 Unknown
36044295 Philippe CORNET Chine_2 Unknown

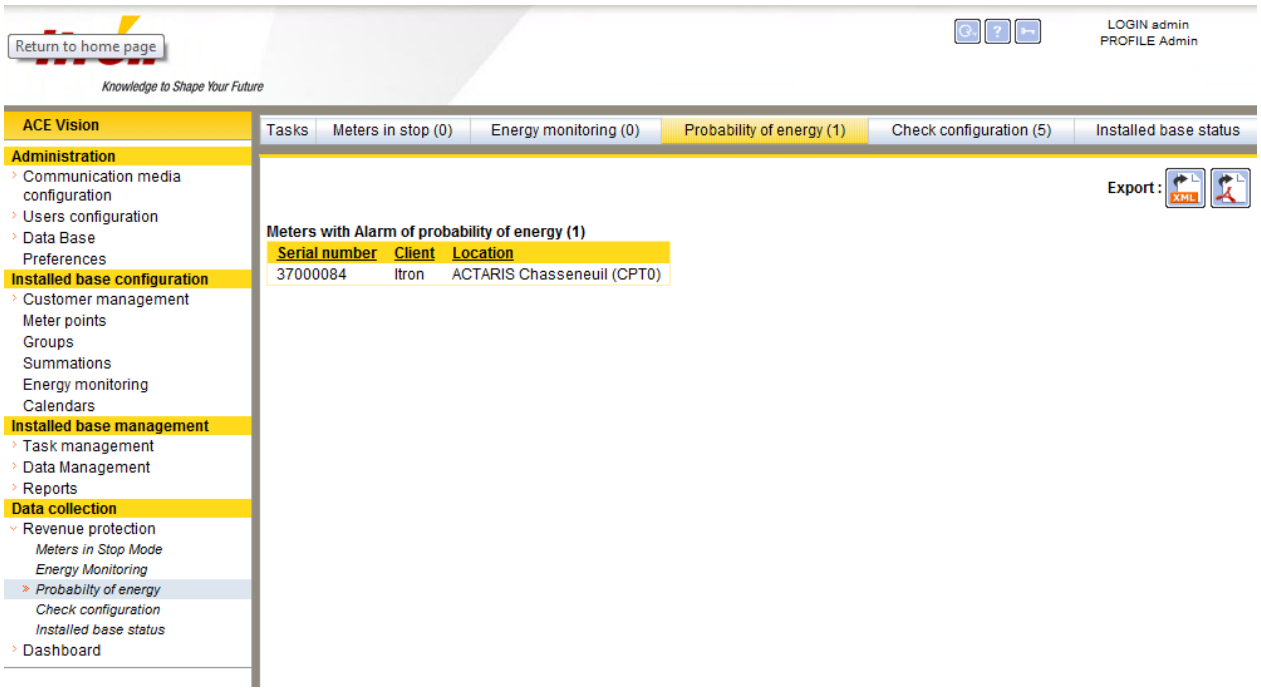
3.13.2. Energy Monitoring

Select **Revenue Protection - Energy monitoring**:



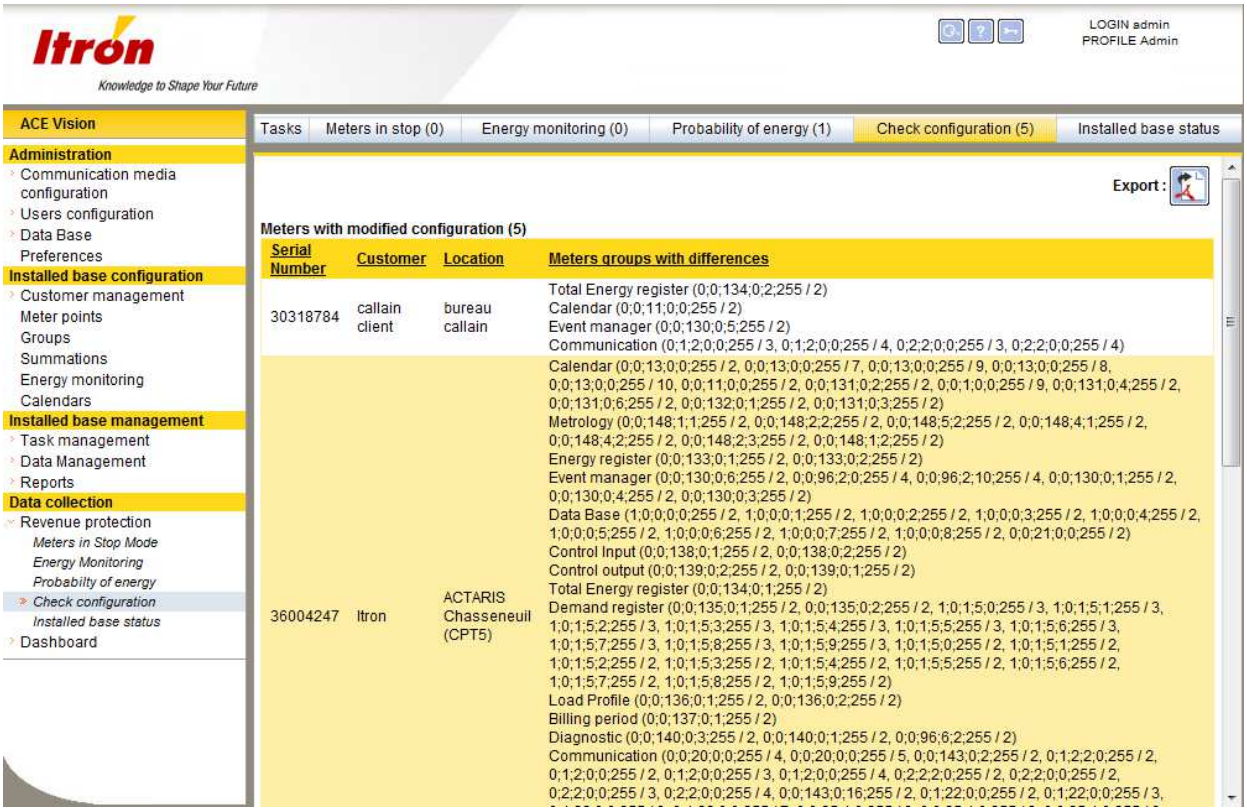
3.13.3. Probability of Energy

Select **Revenue Protection - Energy Monitoring**:



3.13.4. Check Configuration

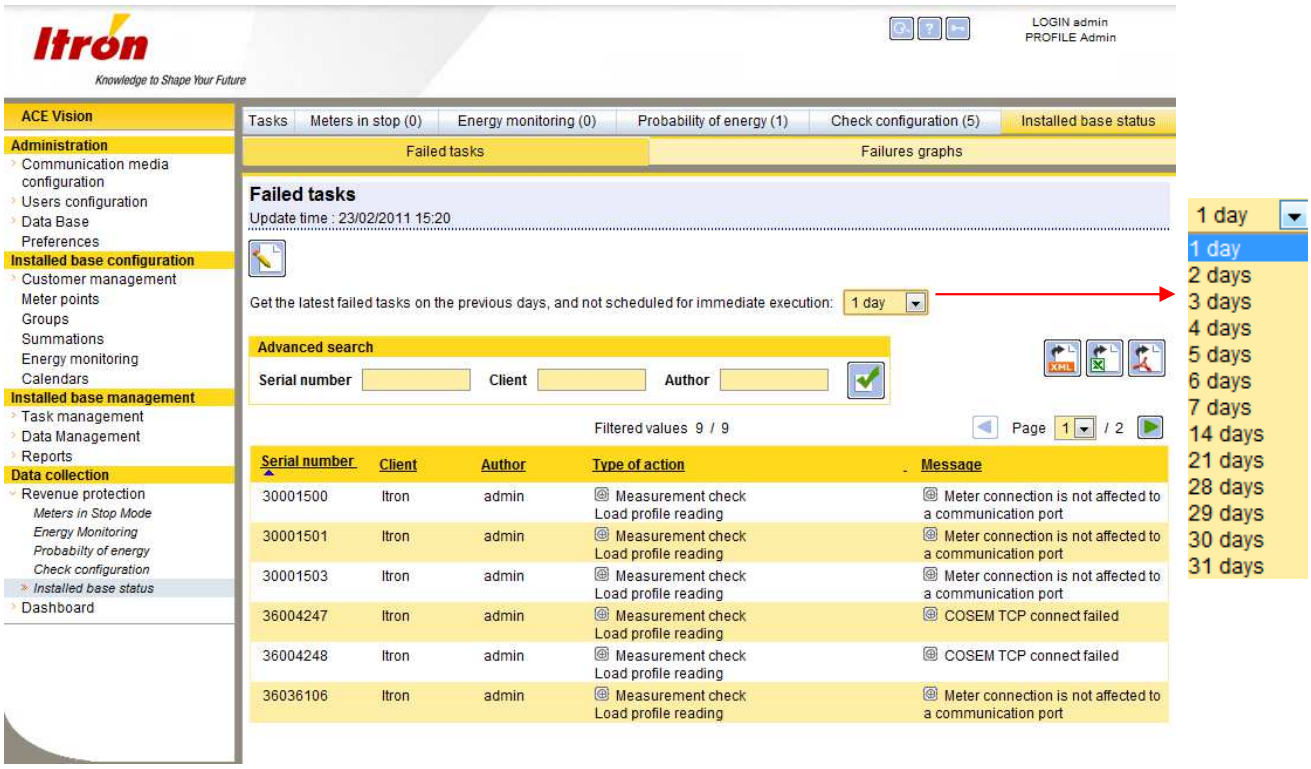
Select **Revenue Protection - Check configuration**:
This screen will show the gaps between the reference configuration and the current configuration. This is an anti-fraud feature.



3.13.5. Installed Base Status

- Failed tasks or meters can be selected over a period of between 1 and 31 days in predefined steps.

a) List of tasks:

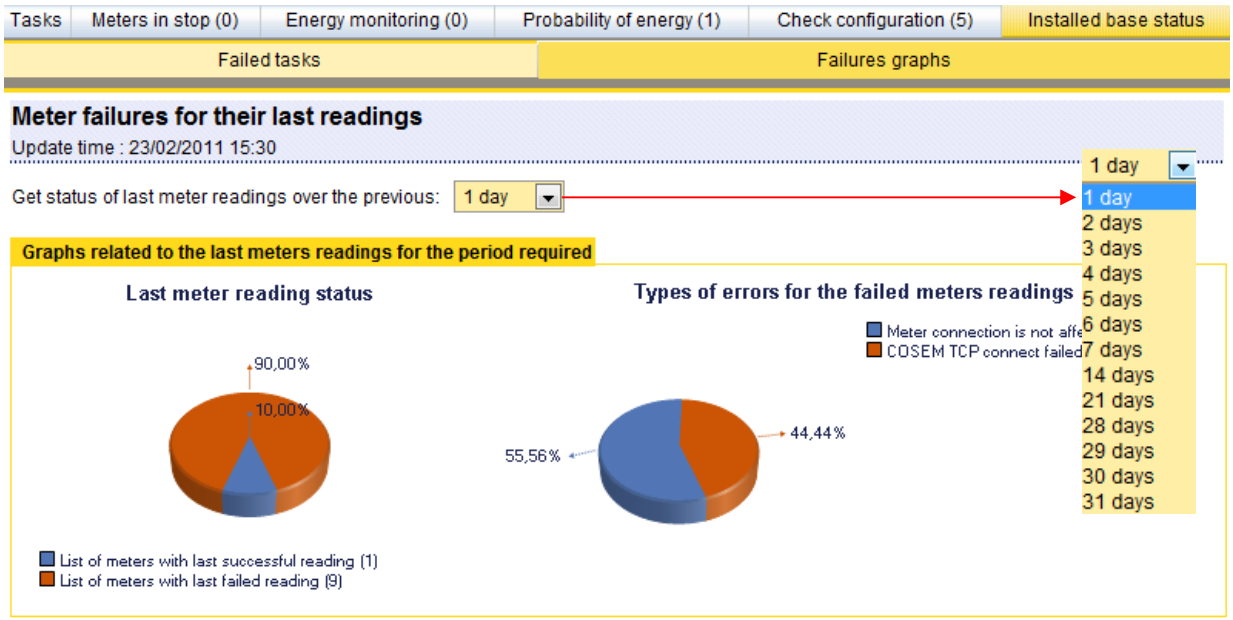


- In certain cases further information about the type of action or messages are displayed when the mouse is held over the icon:

Serial number	Client	Author	Type of action	Message
30001500	Itron	admin	Measurement check Load profile reading	Meter connection is not affected to a communication port
30001501	Itron	admin	Measurement check Load profile reading	Meter connection is not affected to a communication port
30001503	Itron	admin	Measurement check Load profile reading	Meter connection is not affected to a communication port
36004247	Itron	admin		
36004248	Itron	admin		

Measurement check; Load profile reading; Log book reading; End Of Billing (EOB) data reading; Instantaneous data reading; Meter diagnostic data reading; Power quality data reading

b) Failed Task Graphs:



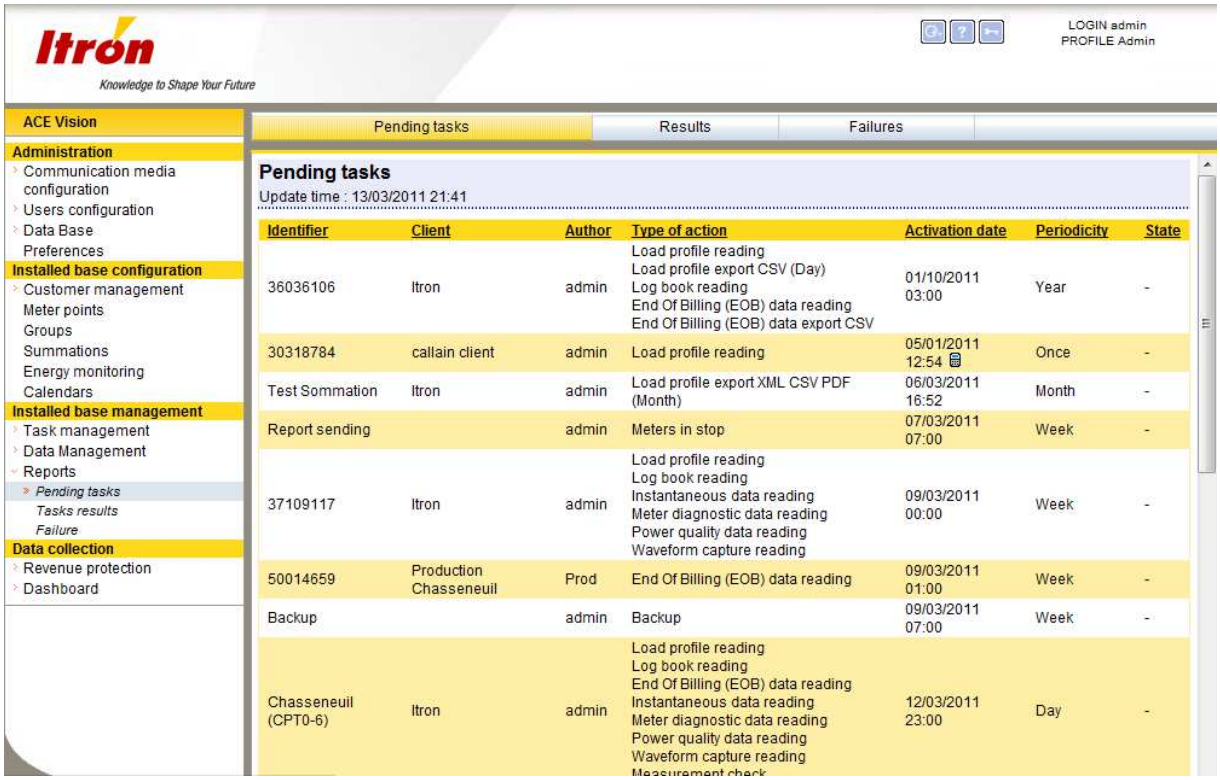
3.14. SYNCHRONISING ACE VISION TO AN HHU

See relevant user guide of ACE-VISION Mobile

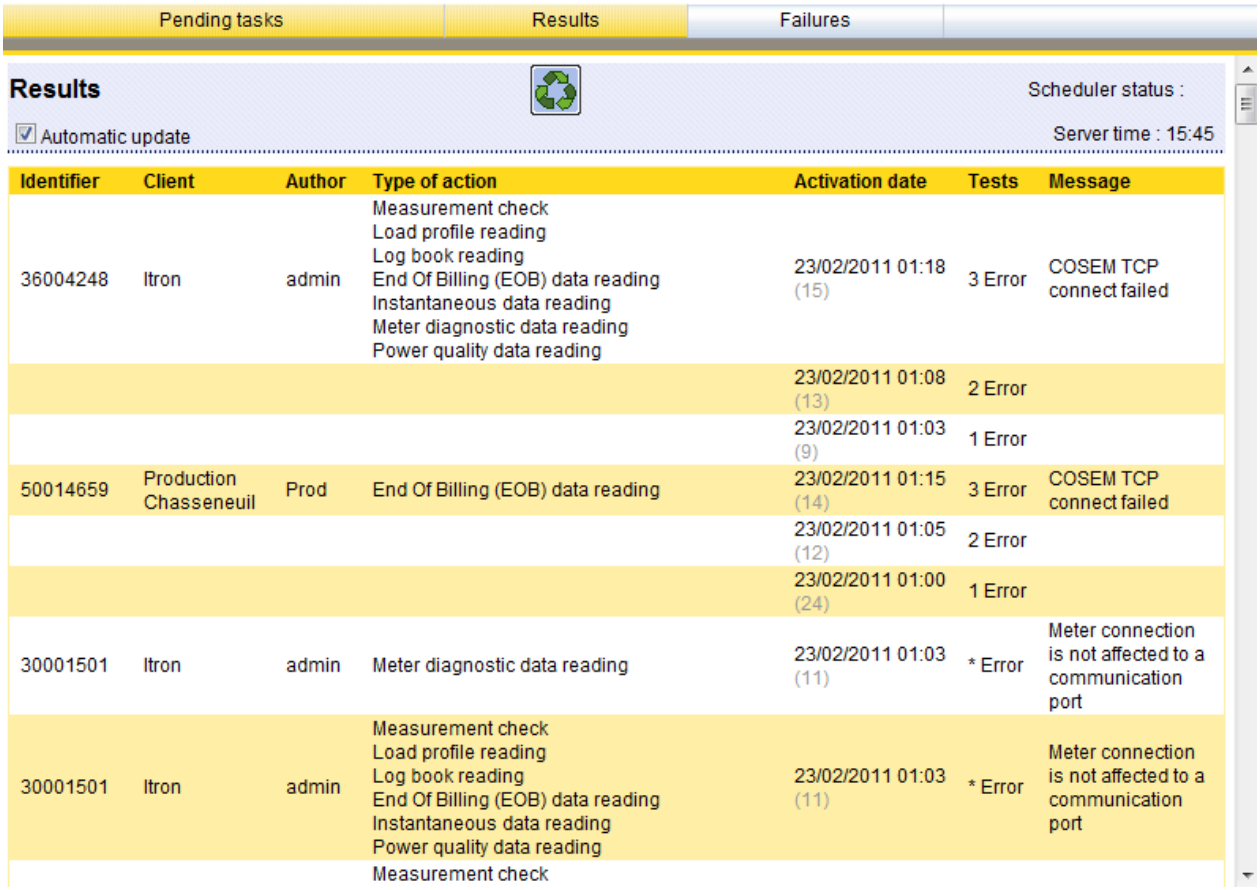
3.15. REPORTS

- Select **Installed base management - Reports** to access a list of pending tasks, to follow tasks in progress and to view failed tasks.

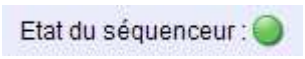
3.15.1. Pending Tasks

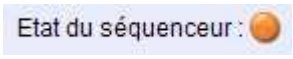


3.15.2. Task Results



Identifier	Client	Author	Type of action	Activation date	Tests	Message
36004248	Itron	admin	Measurement check Load profile reading Log book reading End Of Billing (EOB) data reading Instantaneous data reading Meter diagnostic data reading Power quality data reading	23/02/2011 01:18 (15)	3 Error	COSEM TCP connect failed
				23/02/2011 01:08 (13)	2 Error	
				23/02/2011 01:03 (9)	1 Error	
50014659	Production Chasseneuil	Prod	End Of Billing (EOB) data reading	23/02/2011 01:15 (14)	3 Error	COSEM TCP connect failed
				23/02/2011 01:05 (12)	2 Error	
				23/02/2011 01:00 (24)	1 Error	
30001501	Itron	admin	Meter diagnostic data reading	23/02/2011 01:03 (11)	* Error	Meter connection is not affected to a communication port
30001501	Itron	admin	Measurement check Load profile reading Log book reading End Of Billing (EOB) data reading Instantaneous data reading Power quality data reading	23/02/2011 01:03 (11)	* Error	Meter connection is not affected to a communication port
			Measurement check			

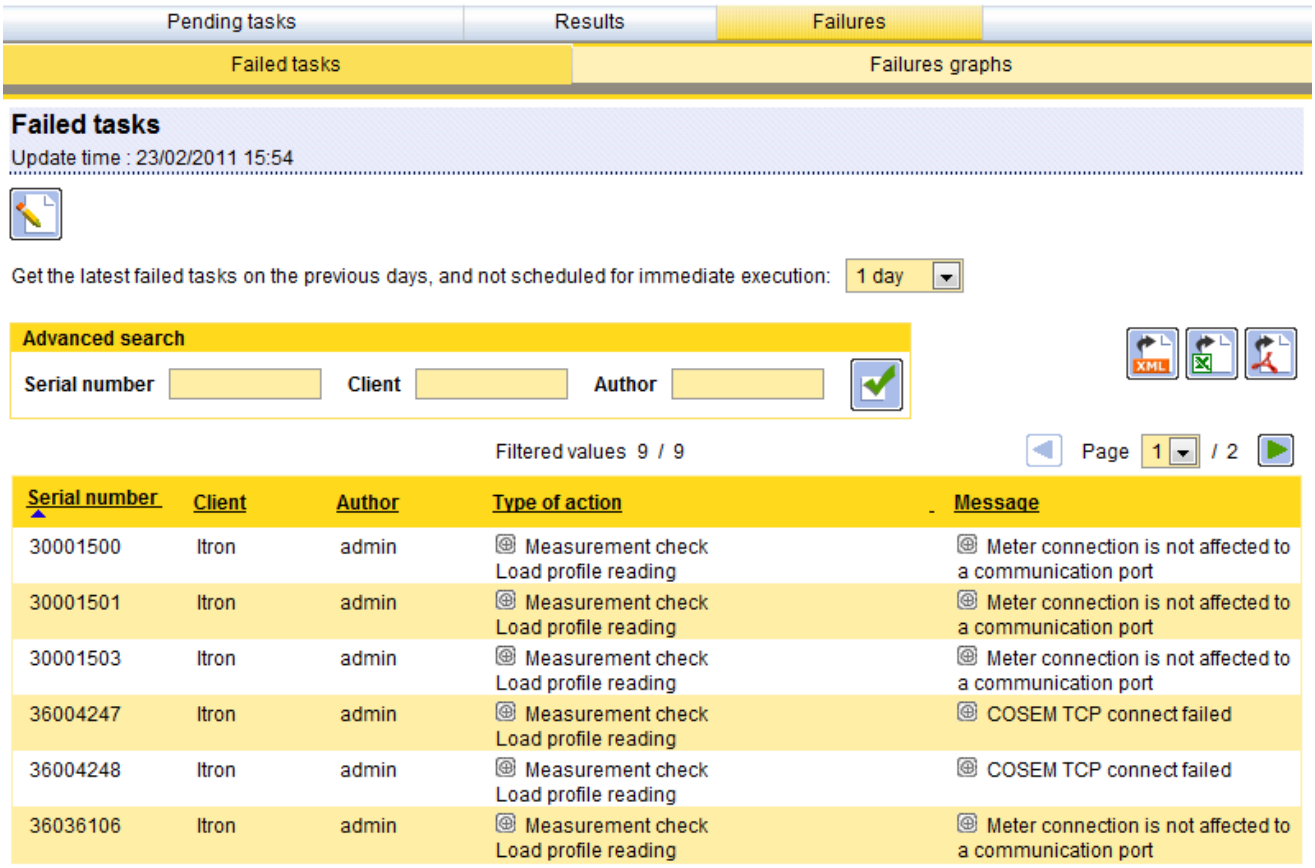
- Check that the scheduler is activated:
  - ✓ Scheduler activated : 

  - ✓ Scheduler not activated : 

- To deactivate the scheduler click on the button, to restart, click on the button.
- Check that automatic update is enabled to be follow task execution in real time.
- Click the button to remove the results of completed tasks.

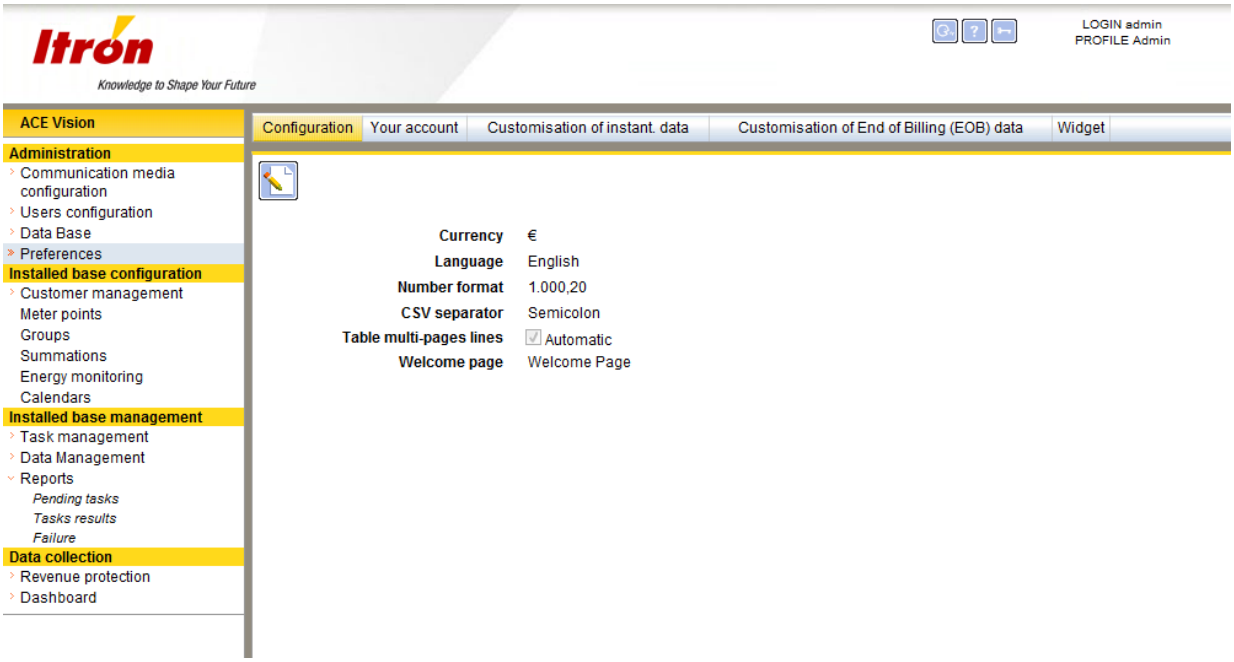
3.15.3. Failures

⇨ See Installed Base Status



3.16. PREFERENCES

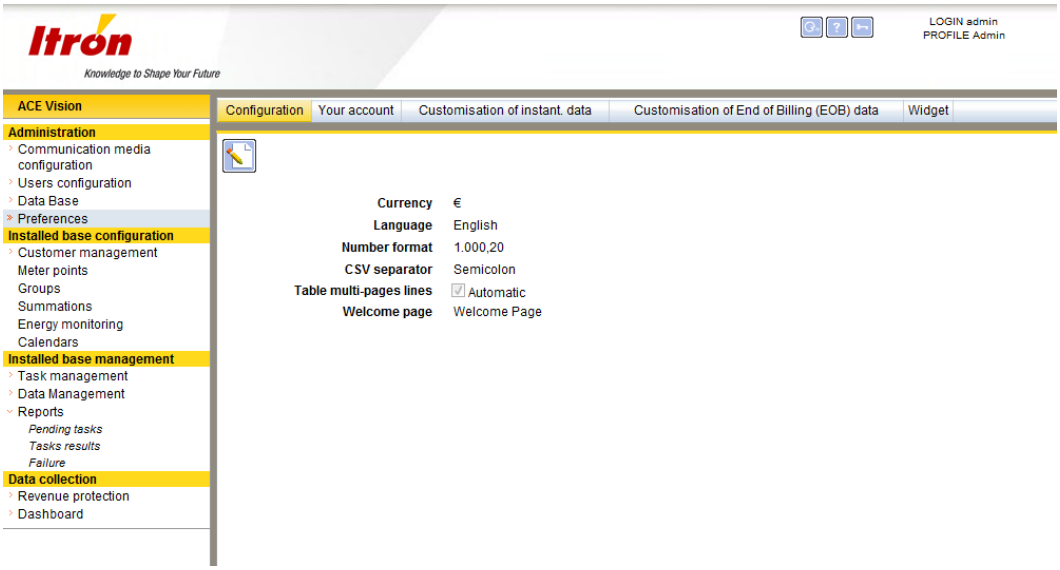
- This menu is used to configure general preference and user settings, to customise instantaneous and billing data and to configure widgets:



3.16.1. Configuration

- Select the **Configuration** tab to define general settings:

  Currency, Language, Number format, CSV separator, Table multi-page lines and Welcome page.



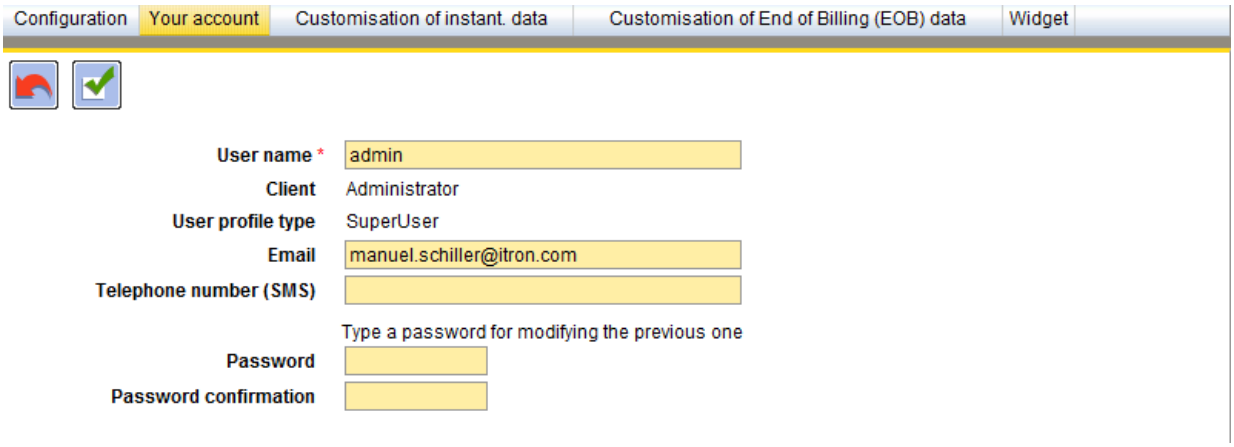
The welcome page can be a widget, which allows when when launching ACE Vision to have an immediate visualisation of the main indicators defined by the customer.

The function ‘save time interval’ has also been added, for some analysis on a specific time period. Value has to be put on ‘Yes’ to memorize the time interval. User can invalidate this function by reprogramming the value to ‘No’.

Without this feature, the user had to enter the time interval of the load profile a wanted to visualize, for each meter.

3.16.2. Your Account

This tab allows the user to modify certain user specific data. The user account password can also be changed here.



Remark: After the first installation of the tool, the default login and password are admin / admin.

3.16.3. Customisation of Instantaneous Data

- The **Customisation of Instant data menu** is used to define in detail the data to be displayed in the customisation tab in the Meter points menu.

  Instantaneous data is divided into several groups: **Total energy, Energy rate registers, Instant. Power, Power factor, RMS Value, Neutral, Phase angle and THD (Total Harmonic Distortion.**

  Tick the box to add data to the customised data view.

3.16.4. Customisation of EOB Data

- The **Customisation of End of Billing (EOB) Data** is to be displayed in the Customisation section of Meter points.

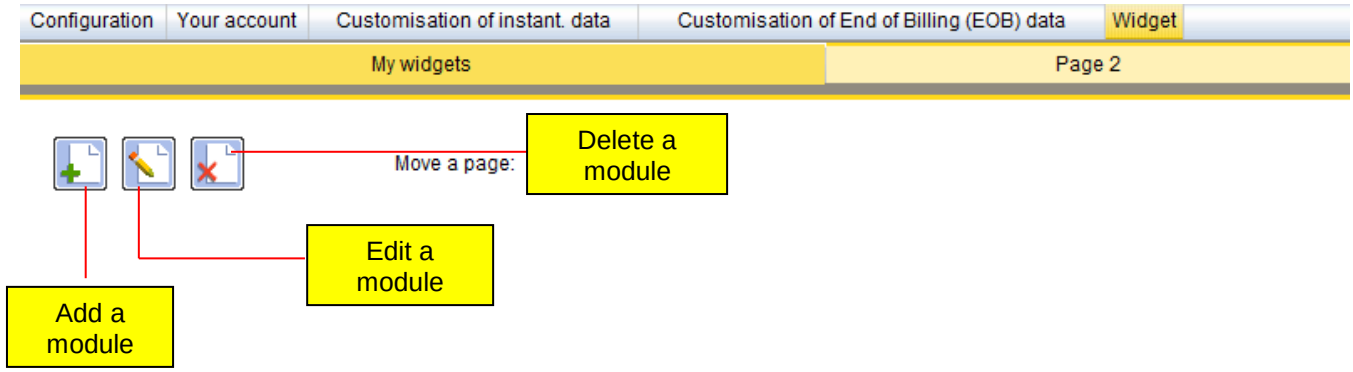
  Billing data is divided into several groups: **Global data, Total energy, Energy rate registers, RMS Max, Maximum demands and Excess demand.**

  Tick the box to add data to the customised data view.

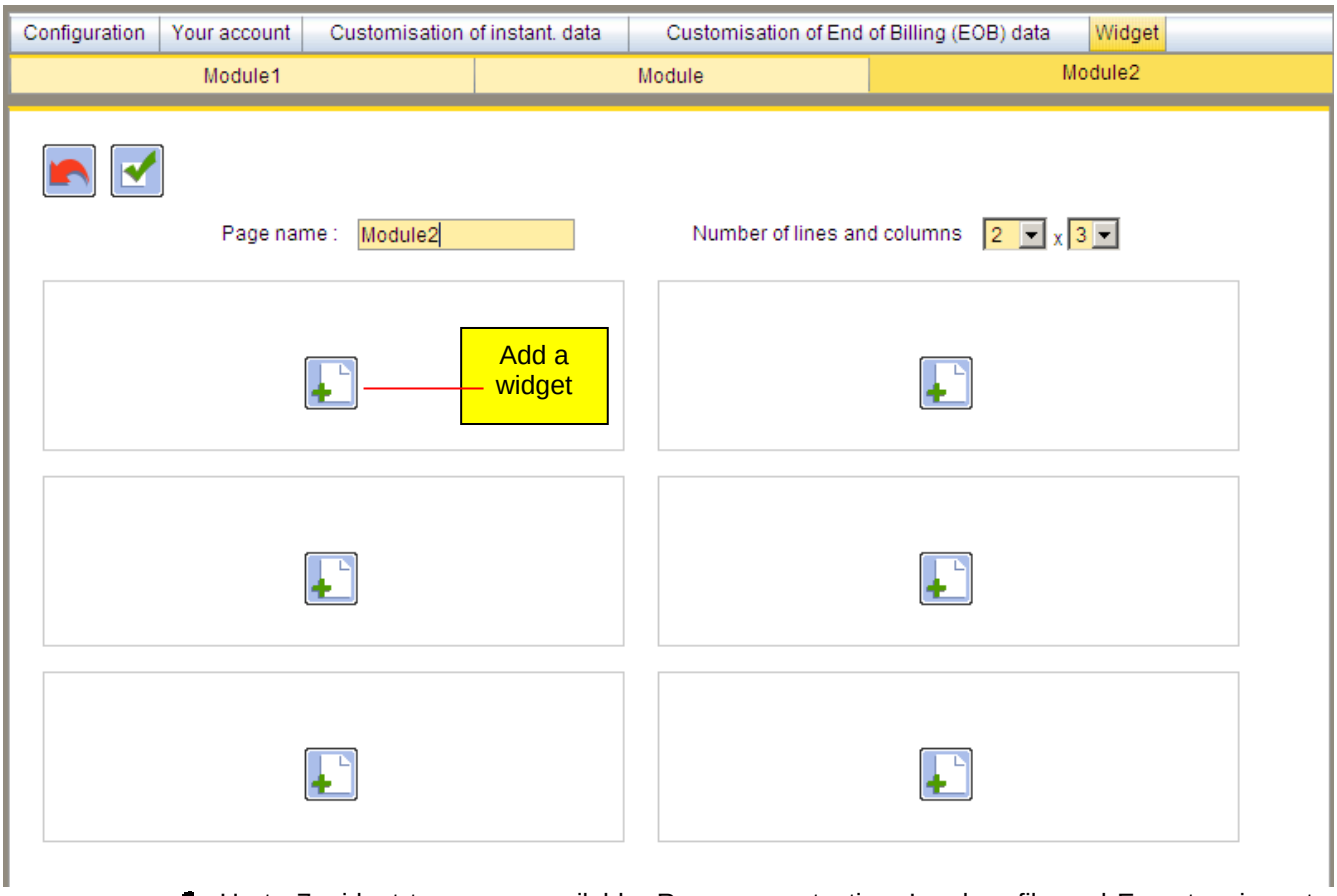
3.16.5. Widgets

Widgets can be selected and configured to allow the display of key information on a single screen. This menu is used to configure modules containing the widgets required.

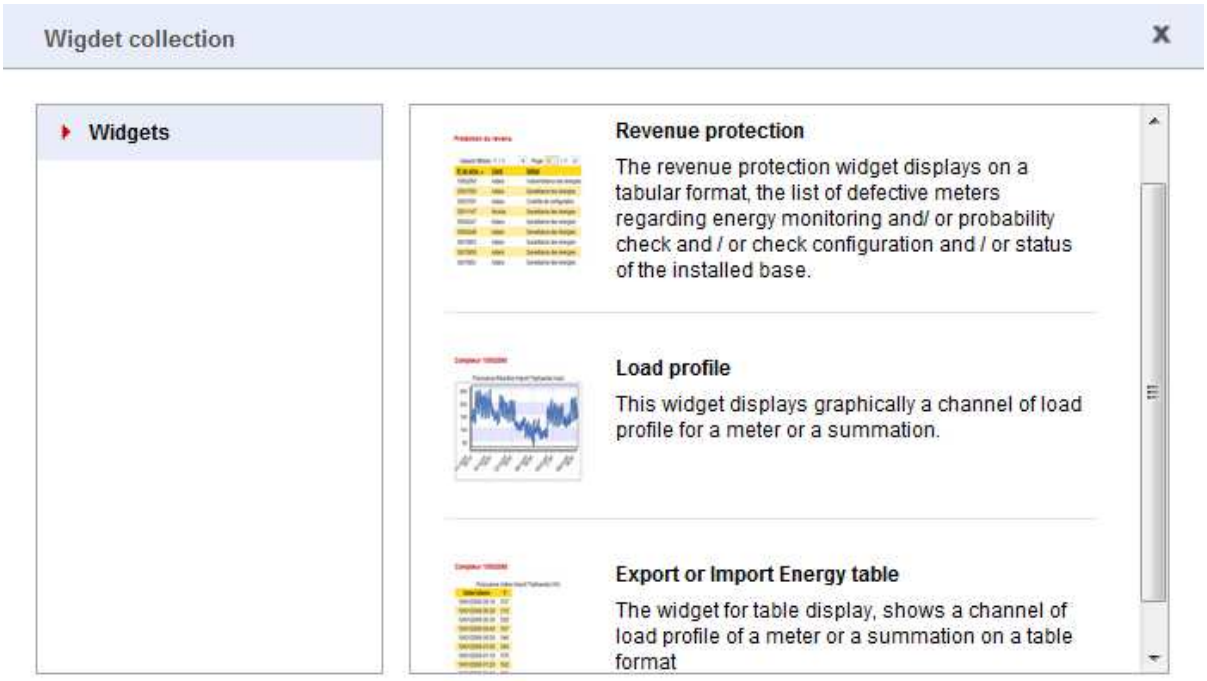
To access widgets, **Select Dashboard – Widgets**:



- A module can contain up to 10 lines and 5 columns (default value 2x3)
- The name of a module can be changed

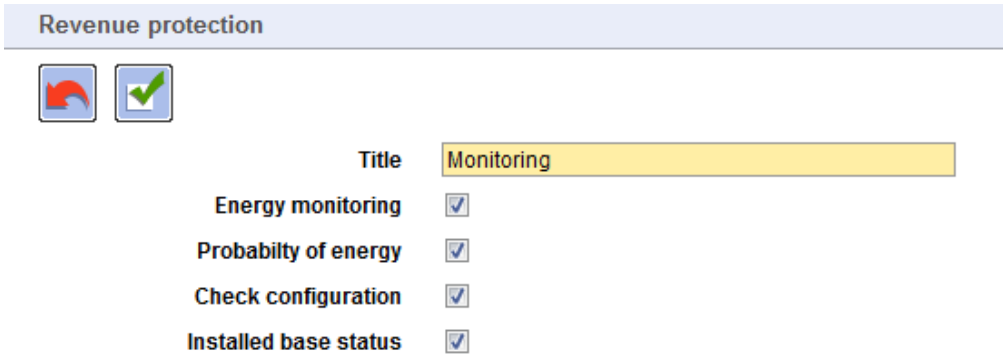


Up to 7 widget types are available: Revenue protection, Load profile and Export or import energy table, Nox indicator charts, Nox indicator table, push panel control, or a standard image. To select a widget, click on the required option.

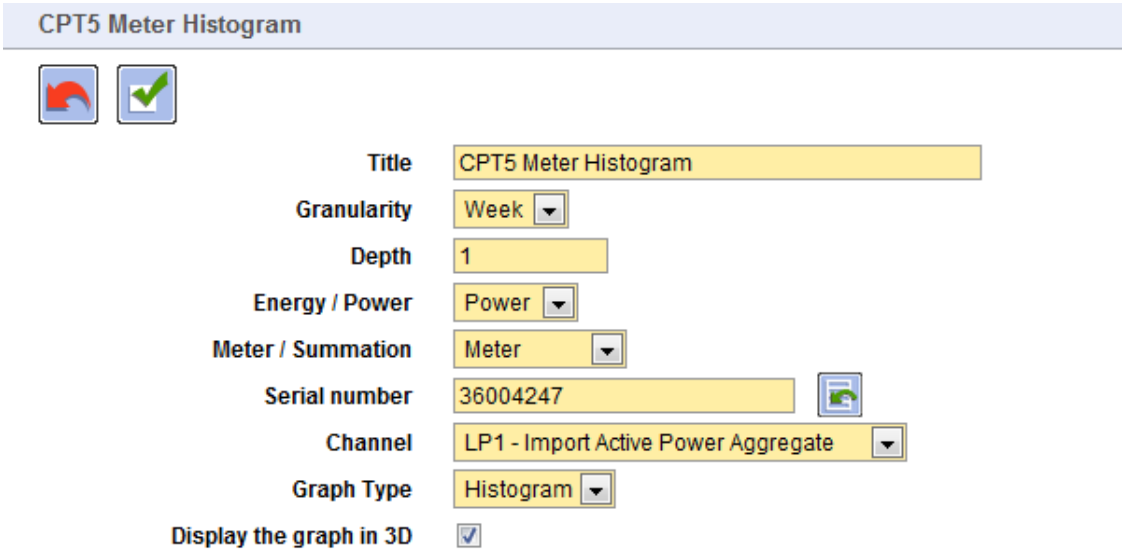


- Every widget must be given a name.

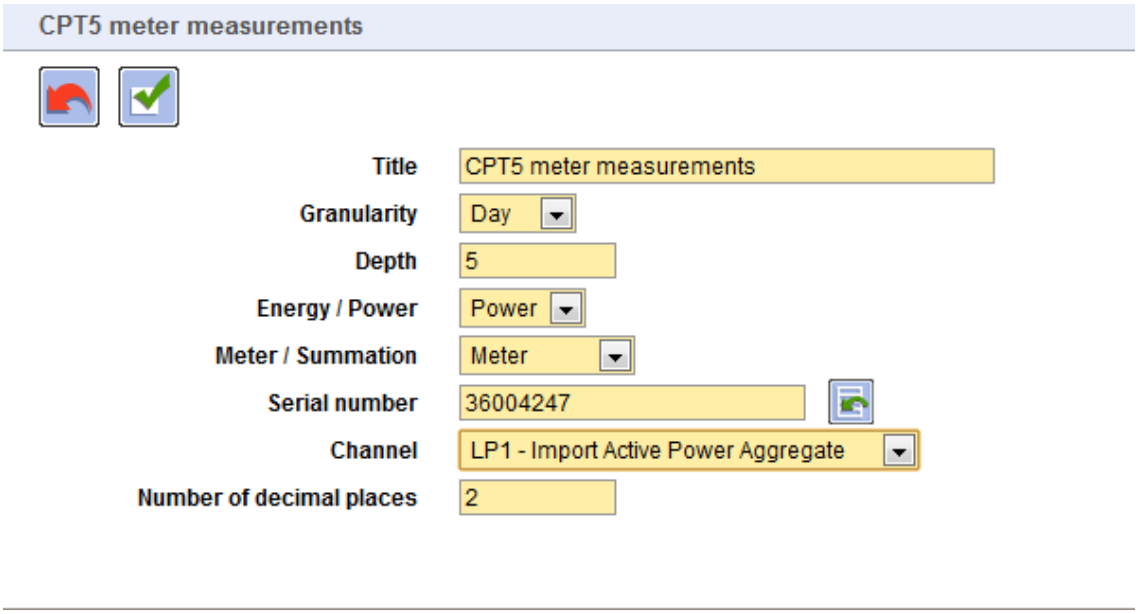
- **Revenue protection** widgets can contain energy monitoring, probability of energy, check configuration and diagnostic information.



- A **load profile** widget can contain information relating to a meter or a summation in the form of a graph or a histogram. A load profile widget requires prior configuration of various parameters:



An **export or import energy table** widget contains information relevant to a meter or summation in table form. This widget requires prior configuration of various parameters:



A Nox indicator widget contains the Nox information of a meter (not available for a summation). This indicator allows to evaluate periods of time during which the production site has been really hazardous (energy produced in 'basis' period), compared to the period of time non hazardous (energy produced in mode 'preset').

This widget is determined by the values of load profiles, with interval of 10min, and this is by these values that we will know the periods of hazardous and non-hazardous productions.

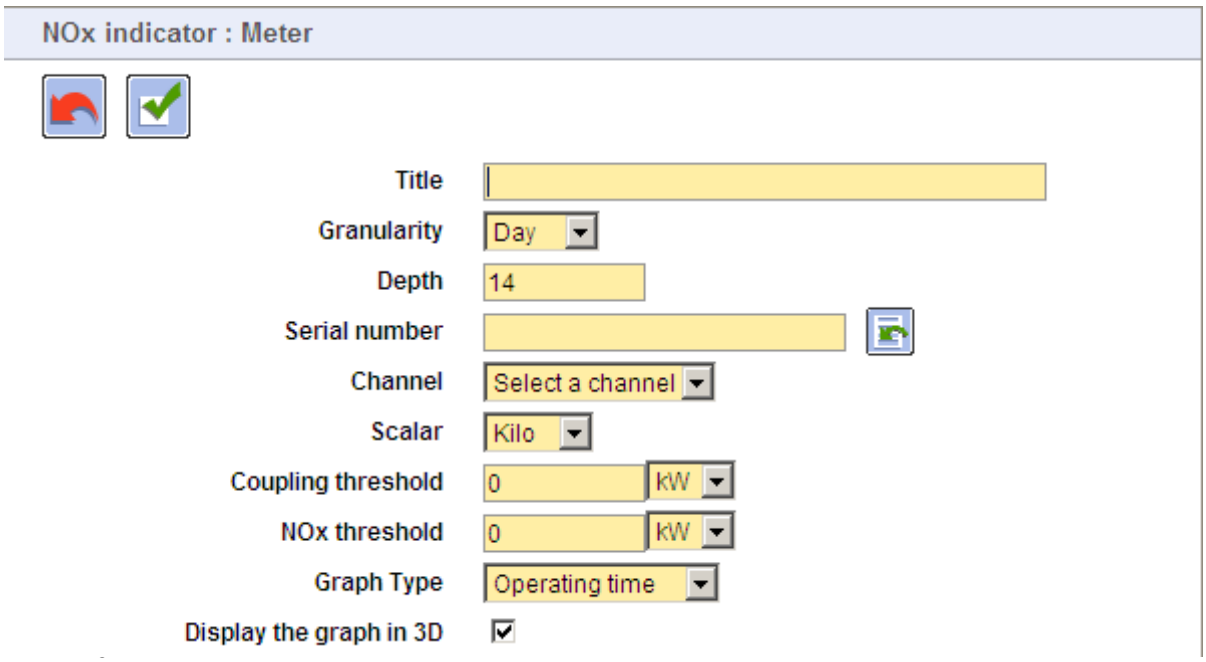
This requires the definition of two thresholds:

- coupling threshold: power in kW or MW
- Threshold NOx: power in kW or MW

The mode "basis" corresponds to a higher power produced, compared to NOx threshold. This is the normal operating mode.

The mode "Preset" corresponds to a generated power between the coupling threshold and the NOx threshold. This is the mode of reduced operation, global energy demand is lower than the normal operating mode.

This widget requires prior configuration of various parameters:

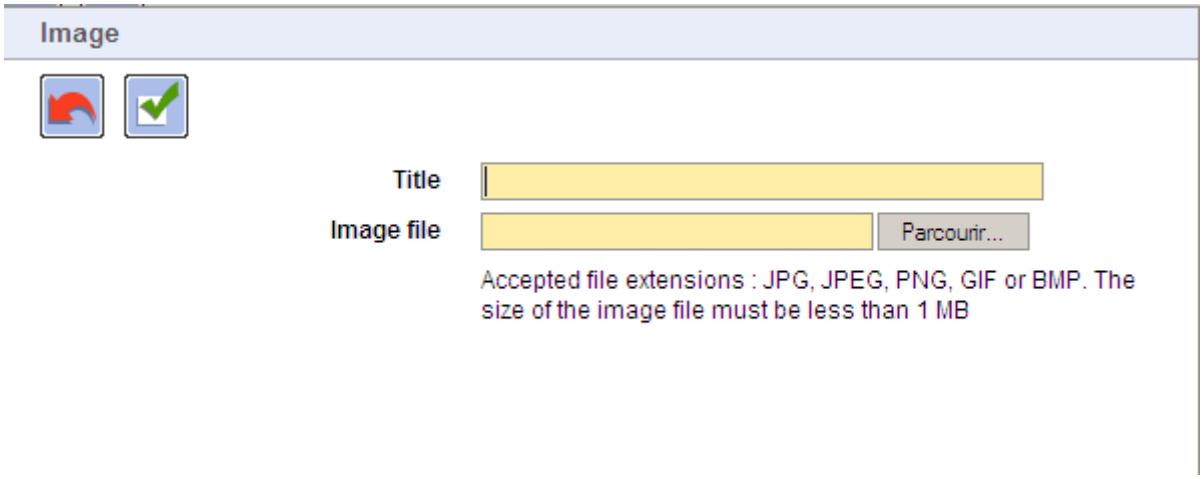


Those indicators will show :

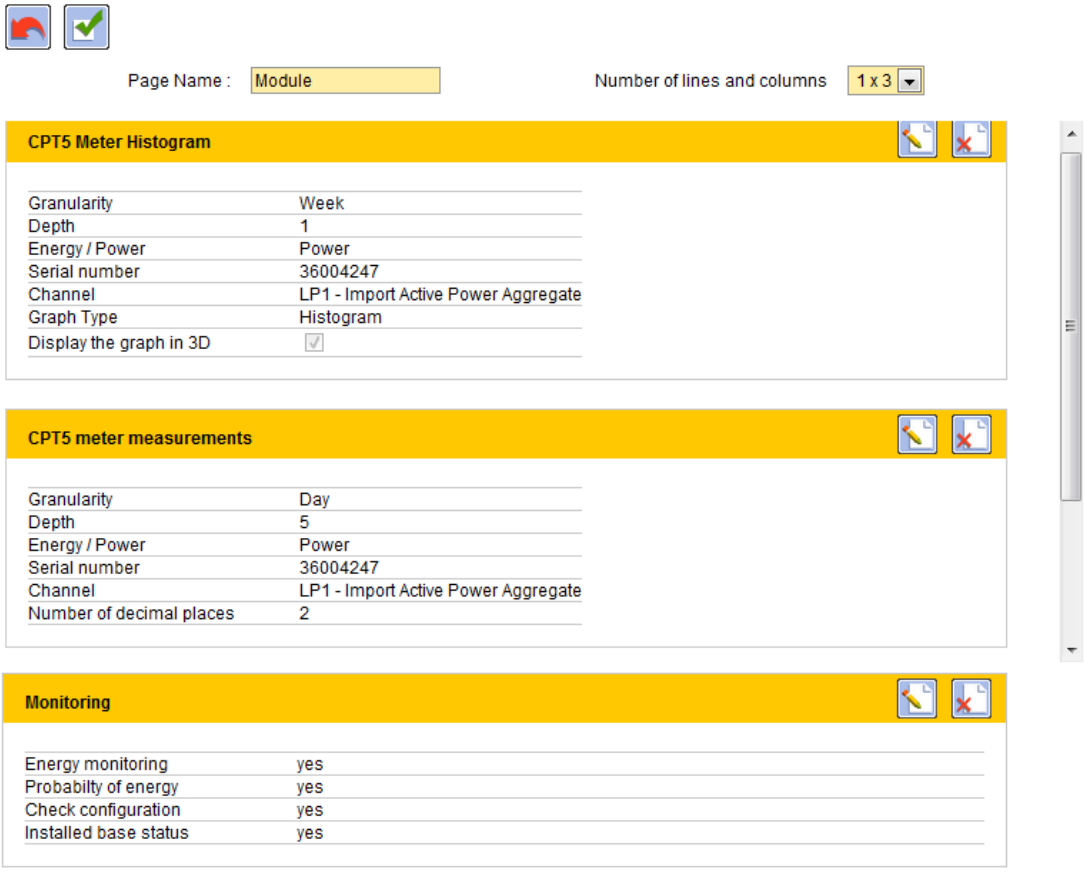
- The energy produced below and above the Nox threshold .
- The production duration below and above the Nox threshold
- The load-shedding duration (duration when the power is below the load shedding threshold)

This widget could be displayed in graphical format or in tabular format.

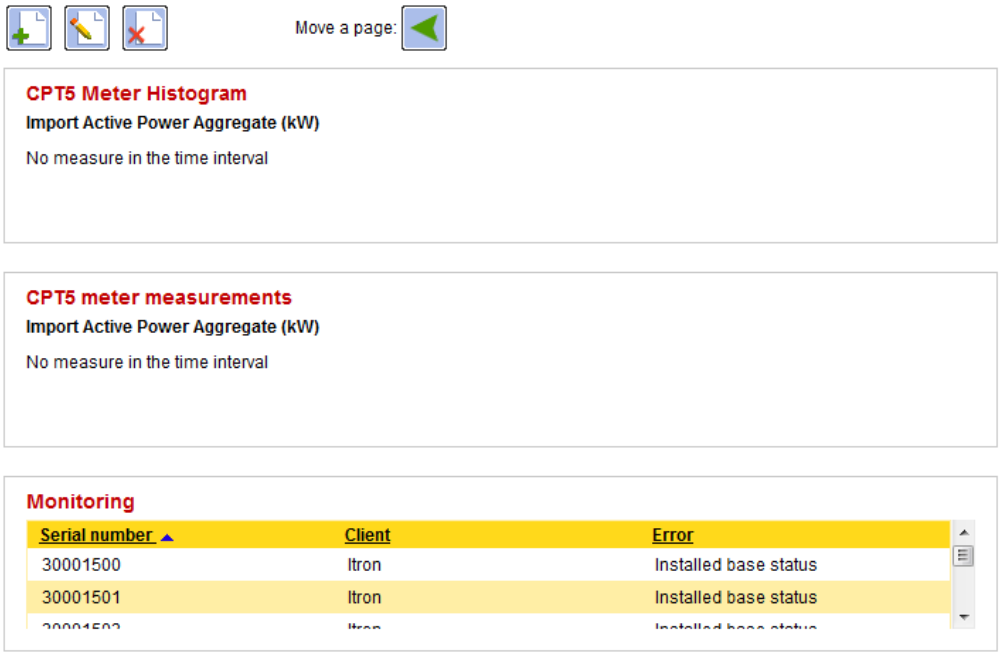
- **An Image** widget could also be added : (such as logo of company, photo of installation ..)



- Example configuration of a module containing 3 widgets :

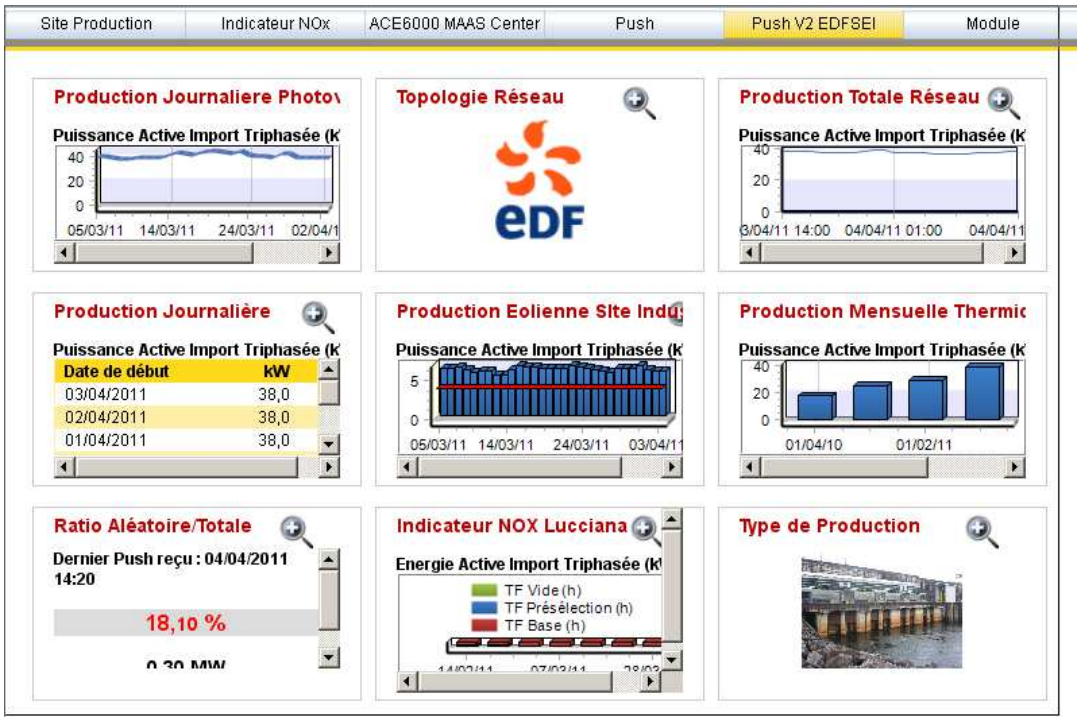

Page Name :
Module
Number of lines and columns
1 x 3
CPT5 Meter Histogram
Granularity
Week
Depth
1
Energy / Power
Power
Serial number
36004247
Channel
LP1 - Import Active Power Aggregate
Graph Type
Histogram
Display the graph in 3D
CPT5 meter measurements
Granularity
Day
Depth
5
Energy / Power
Power
Serial number
36004247
Channel
LP1 - Import Active Power Aggregate
Number of decimal places
2
Monitoring
Energy monitoring
yes
Probabilty of energy
yes
Check configuration
yes
Installed base status
yes

- Display of example module containing 3 widgets:



Note: It is possible to set the start page to display widgets.

- Other examples of widgets display :



3.17. EXPLOITATION OF WIDGETS

3.17.1. Exports CSV et PDF

In full screen mode, there is a possibility to export the widgets in CSV or PDF format. In CSV, the export will be tabular, but in PDF the export will be tabular and graphical

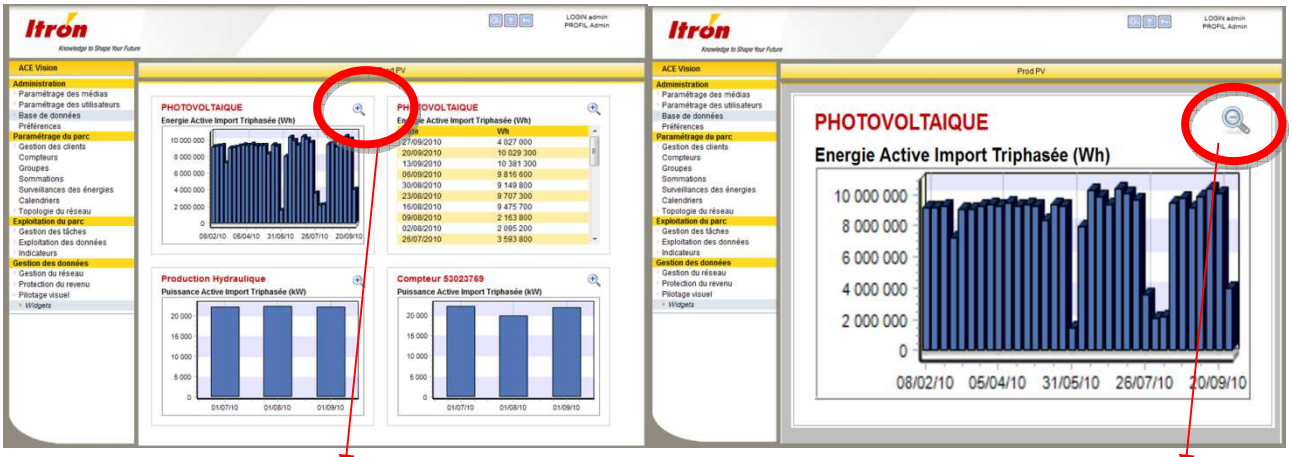
For that, 2 buttons have been added

This feature is available only in case of relevant widget (no need to export a image widget !)

3.17.2. Full screen display

.

To better visualize one widget of a given page, a zoom – unzoom feature is added.

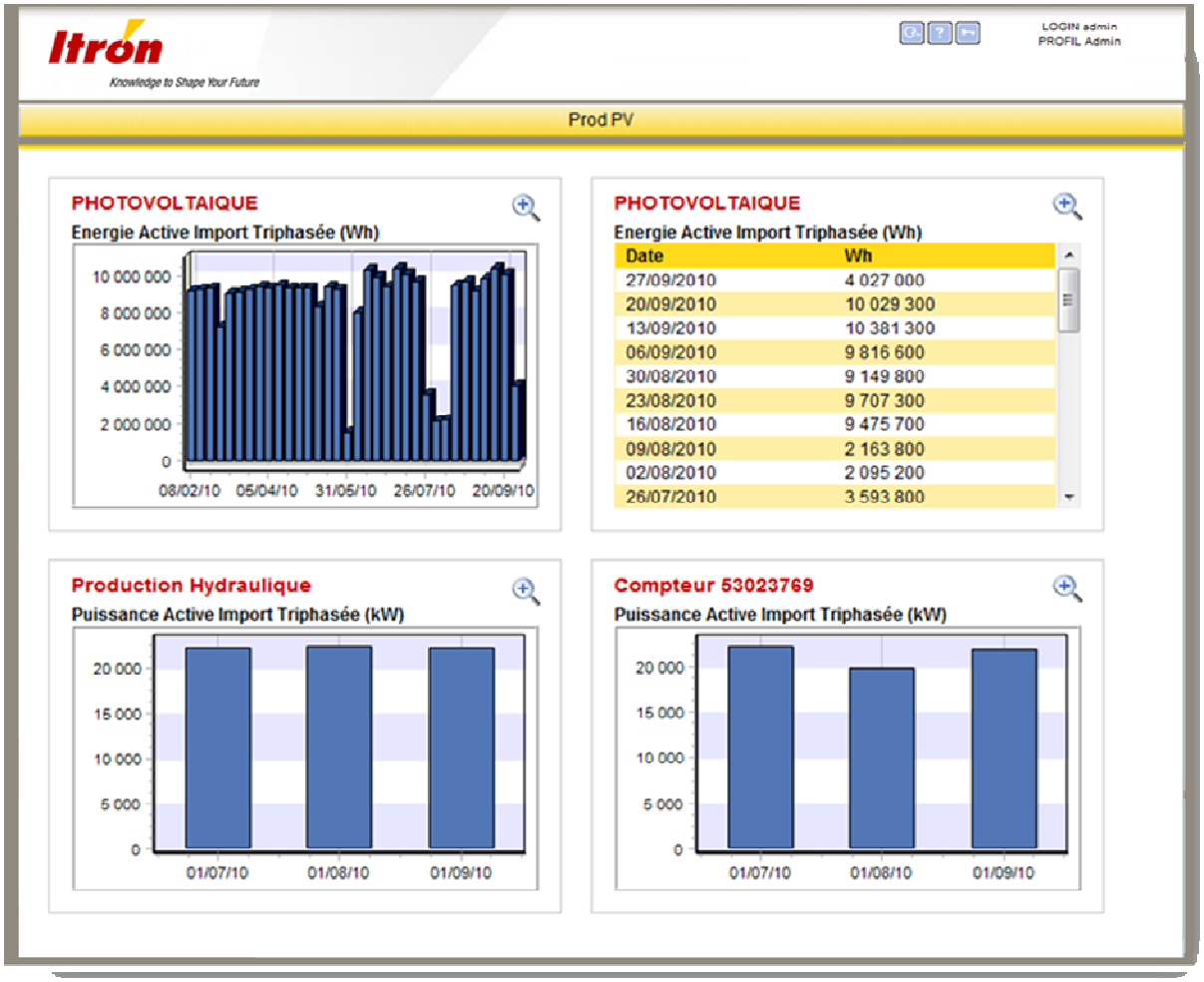


Mode widget standard with zoom button

Mode widget « full screen » with unzoom button

Then in the main menu, or the welcome page, a full screen feature is added. It allow to display one page in full screen (removing the left hand menu) . To come back to the standard page, the un-zoom menu should be used (the one in the upper banner)

Un-zoom from full screen



Full screen mode

3.18. WEB SERVICES

3.18.1. Objectif

ACE VISION Database (MySQL) is not accessible to the customers.

The webservices function allows customer to access the ACE VISION database in order to personalize the data. Customer will be able to:

- Read
- Modify
- Create
- Delete

datas inside the database

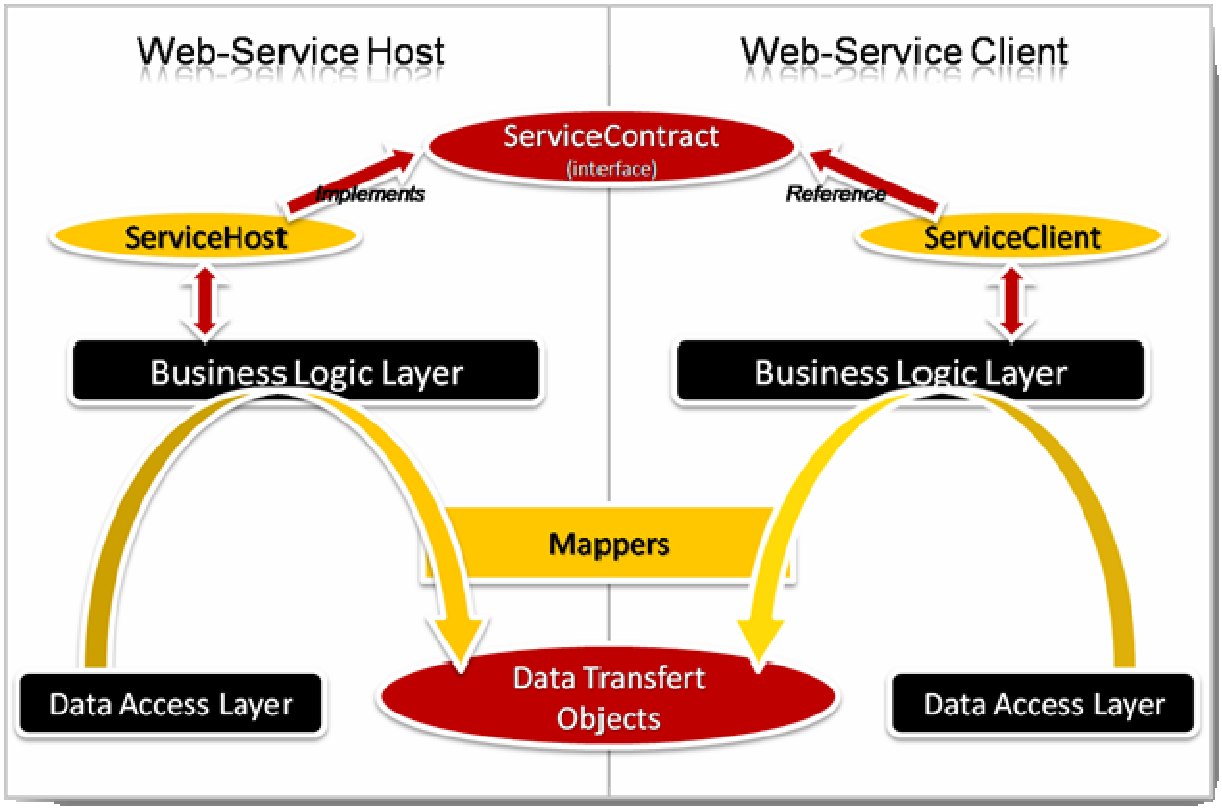
Big interest is that the customer can base the development of external tools based on these webservices, without any new adaptation of his tools when a new version of ACE VISION is available.

3.18.2. Associated rules

Implementation of the WEB SERVICE shall respect the following rules:

- The type of service WCF (Windows Communication Foundation) will be hosted as a Windows service on the same server than ACE Vision
- The WCF Web Service has to be "standard / basic" in order to comply with the W3C standard and be compatible with any development language.
- Authentication to the Web Service will be done with ACE Vision user account. It must have the necessary rights to access the Web Service. Multiple connections with the same user account must be carried out simultaneously.
- The only possible access right in this version in a user profile is:
    - Read only
- Access to the Web Service functionality will be subject to a new license option.
- In order to avoid at the maximum to return labels, we use codes (enumerations for example) which will be described in the SDK (software development kit) and the Web Services User Guide. In the case of exceptions, messages will be by default in English or the language of the user connected to the Web service (if known).
- The data returned by the Web service must be pre-treated and not be raw data as in database. It must be possible to link data retrieved from a Web Service method to components (charts, graphs or other) without having to re-form data

3.18.3. Architecture



3.18.4. Methods

A library with all the functions has been developed. It allows to access in ACE Vision database all data listed below:

	Methods
Meter	Access to the list of meters
	Access to the list of meters linked to a customer (name or ID)
	Access to a meter, from its ID or serial number
Customer	Access to list of customer
	Access to a customer, from its ID or name
Meter data	Access to load profile information (configuration of LP, configuration of channels)
	Access to the description of a load profile channel, from its ID (ID retrieved from LP information above)
	Access to a LP channel, for a specific ID : measurements and events (ID of the channel retrieved from the channel description above)

	Access to a load profile channel and values estimated for a Push meter for a specific channel ID : measurements and events (ID of the channel retrieved from the channel description above)
	Access to a list of EOB (ID and date) from a date interval
	Access to all the data of an EOB, from its ID or a specified date.
	Access to datas of personalized EOB, from its ID or a fixed date
ADI	Access to Push ratio
	Access to power margin
	Access to the list of producer (ID and meter name) to disconnect

3.18.5. Structure of data used by web services

3.18.5.1. Meter

Field	Type	Comments
MeterID	Int	Identification of meter
ParentCustomerId	Int	ID number of customer
SerialNumber	String	Serial number of meter. Used for modem connection, mediation & registration server.
MeterType	MeterType	List of meter types
ConnectionId	Int	Identification number of the connection dedicated to the meter
MeterConnectionType	ConnectionType	List of connection type
PasswordReading	String	Password used for readings
PasswordWriting	String	Password used for configuration writing
Comments	String	Comments
PhoneNumber	String	Phone number for modem connection
Location	String	Localization (country, town, area, company, …)
Address	String	Address
PhysicalAddress	Int	Example : 17
IpAddress	String	IP@
IpClientPort	Int	Example : 703
IpServerPort	Int	Example : 10703
FirmwareVersion	String	Example : "4.55"
MeterDaysFirstLoadLP	Int	Number of days to read for the first reading of load profiles
MeterCountFirstLoadEOB	Int	Number of EOB to read for the first reading of EOB
CurrentType	CurrentType	List of connection type (CT, DC)

GPSLatitude	String	Latitude GPS. Example : "46.66030"
GPSLongitude	String	Longitude GPS. Example : "0.37260"
StatBegin	DateTime	Starting date for statistical calculations
StatLastSuccess	DateTime	Date of last successful reading
StatLastError	DateTime	Date of last reading in error
StatLastErrorMessage	String	Error message of last reading in error.
StatCountTry1	Int	Number of successful communications after 1st attempt
StatCountTry2	Int	Number of successful communications after 2nd attempt
StatCountTry3	Int	Number of successful communications after 3rd attempt
StatCountTry4	Int	Number of successful communications after 4th attempt
VoltageQualityDate	DateTime	Date of last voltage quality reading
THDDefectNumberCurrent	Int	Number of THD Defect History Current
THDDefectNumberVoltage	int	Number of THD Defect History Voltage
IsMeterModemCLO	Bool	Indicate if this is a CLO modem
WaveformSamplingPeriod	Float	Sampling period of waveforms in secondes
NominalFrequency	Int	Nominal frequency of meter (50 or 60 Hz)
CurrentRatingIb	Int	Nominal current of meter (used for waveforms calculation)
DeviceAddress	String	Address de peripherical (used by Indigo+)
IsPushMeter	Bool	Indicate if meter used the PUSH function
ProviderType	MeterProviderType	List of types of producers (Wind, Sun, Main, etc)
PowerTheory	Int	Installed power available in kW (used for the PUSH)
PowerNextEstimated	Int	Power (in kW) to use for next estimated power (used for the PUSH)
PushInsert	DateTime	Date of setting queue (used for the PUSH)
CreationDate	DateTime	Date of meter commissioning
MeterMeasurementDate	DateTime	Date/hour of the last identification of the meter state (measurements started)
MeasurementStatus	WorkingMode	Indicate the last state known regarding meter measuremernts
Notification	String	Notification message
PortableTerminalID	Int	Identification of portable terminal associated to the meter

3.18.5.2.Customer

Field	Type	Comments
CustomerID	Int	ID of customer
Name	String	Name of customer
AccountNumber	String	Customer reference
PhoneNumber	String	Customer phone number
Address	String	Customer address
Email	String	Customer email
Comments	String	Comments

3.18.5.3.Load profile information

Field	Type	Comments
LoadProfileId	Int	Identification of load profile
LoadProfileConfigId	Int	Identification of the configuration of the load profile
ConfigRecordingInterval	Int	In minutes (between 1 and 60, and divider of 60)
EnergyRecordingFormat	EnergyRecordingFormat	List of basis for power calculation of a COSEM value
ConfigBegin	DateTime	Date of first value
ConfigEnd	DateTime	Date of last measurement (PUSH or PULL)
ConfigEndPull	DateTime	Date of last measurement read in PULL only
Channels	Int[]	Table of LP Channel ID

3.18.5.4.Load profile Channel

Field	Type	Comments
ChannelId	Int	Load Profile Channel ID
Energy	ChannelEnergy	List of energy types
Scaler	Sbyte	Exponent of 2 or of 10, to apply for the measurement calculation
WorkingMode	WorkingMode	Calculation mode
Unit	Unit	List of units
IsExcessEnergy	Bool	

3.18.5.5.Data from a load profile channel

Field	Type	Comments
ChannelId	Int	Load Profile Channel ID
DateArray	DateTime[]	Date (sorted by order of reading)
ValueArray	Decimal[]	Values (sorted by order of reading)
EventArray	EventType[]	events (sorted by order of reading)

3.18.5.6.Data from a PUSH load profile channel (estimated values for PUSH)

Field	Type	Comments
ChannelId	Int	Load Profile Channel ID
MesureEndArray	DateTime[]	End of measurements date (sorted by order of reading)
EstimatedReasonArray	EstimatedReason[]	Estimate reason (sorted by order of reading)
EstimatedTypeArray	EstimatedType[]	Type of estimate (sorted by order of reading)
EstimatedValueArray	Uint[]	Value of PUSH in kW (sorted by order of reading)

3.18.5.7. EOB

Field	Type	Comments
EndOfBillingId	Int	EOB identification

MeterId	Int	ID of meter linked to this EOB
Date	DateTime	Date of EOB
Reason	EndOfBillingReason	Reason of EOB
DaysCount	EndOfBillingDays	Number of days for this EOB
ResetsCount	EndOfBillingResets	Number of EOB generated
IntegrationPeriod	int	Integration period in minutes
MaxMode	EnfOfBillingMaxMode	MaxDemandMode : 0: max request mode, 1: max excess mode
ExcessMode	EndOfBillingExcessMode	0: no management, 1: end of integration period, 2: rising value, 3: projection
ReadDate	DateTime	Date/Hour of EOB reading
TotalOperatingTime	Int	Total operating time
GlobalValueArray	CValue[]	Global data
BillingTotalArray	CValue[]	Total energy
BillingRateArray	CValue[]	Energies per rate
BillingMaxArray	CValue[]	Max Power
BillingRMSMaxArray	CValue[]	RMS Max values
BillingExcessArray	CEndOfBillingExcess[]	Excess power

3.18.6. ACE VISION REFLECT

To use the web service offered by ACE VISION, an Ace Vision Reflect tool will be installed if you choose the complete installation.

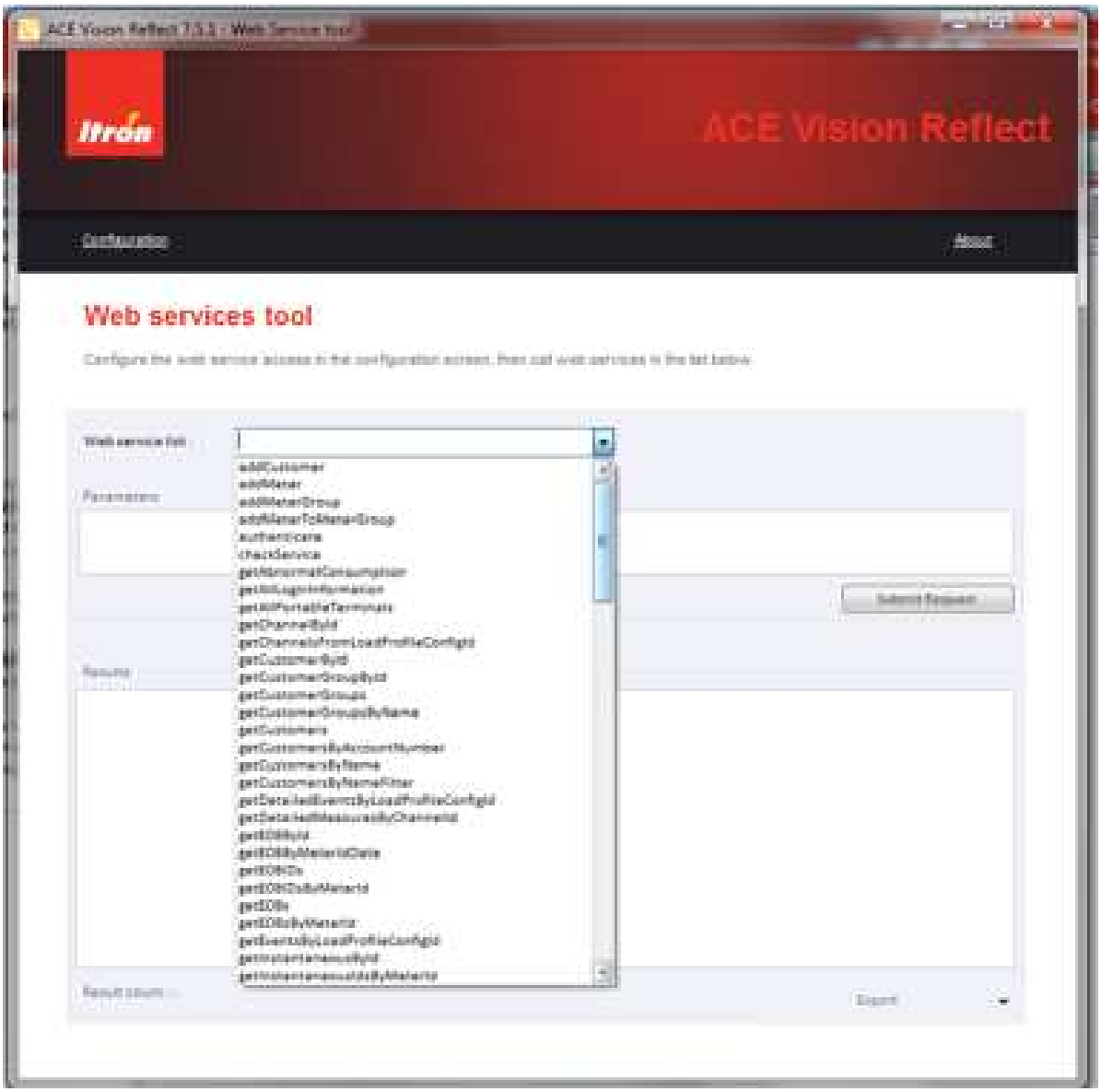
- Documentation in English describing all methods exposed by the Web service with the format of the recovered data (CHM, and PDF)
- A web service usage example in .Net:
    - The tool is as generic as possible and rely on the contract to recover automatically the name of the web methods and associated parameters.
    - The addition of a new method of web service should not require recompilation of this tool.
    - The test tool will authorize the data entry of all the fields (method parameters) of web services methods. An help may be considered depending on the parameter type

Example:

- Date & Time in a proposed calendar
- Boolean proposed a checkbox
- Character set ASCII standard proposed entry
- List proposed inside a combo
- Numerical value => a "ultranumericeditor"
- .....

The result will be visible in a table (that will allow to export automatically)

After entering the login information to the ACE VISION database, VISION REFLECT home page will offer the user the library of available functions.


ACE Vision Reflect
Web services tool

3.19. ACE VISION CONFIGURATION

The purpose of this chapter is the use of ACE VISION configuration tool. The parameters to adjust or possible actions are:

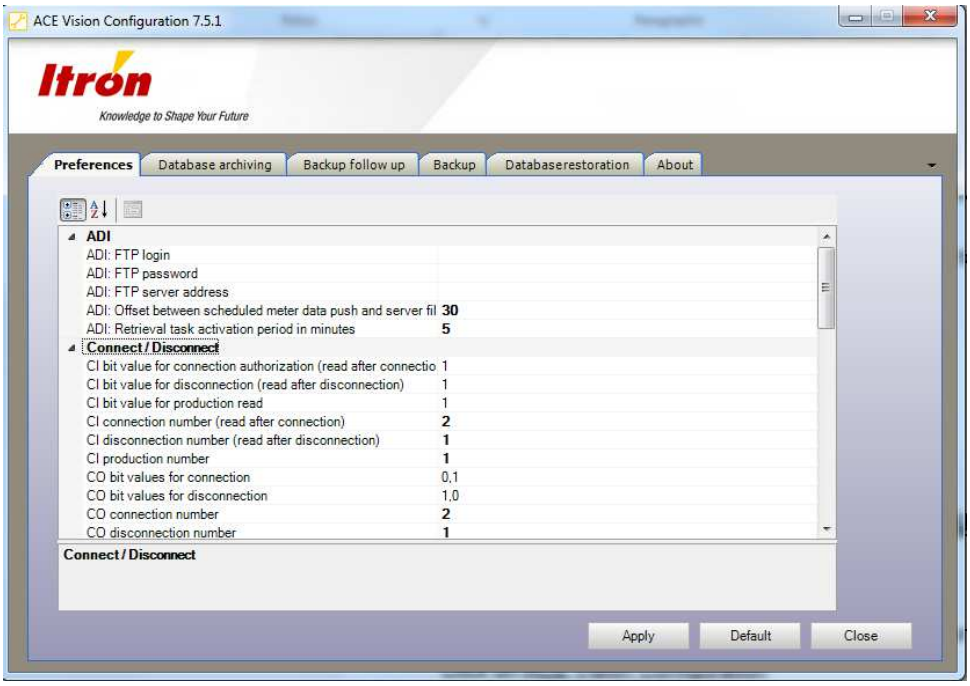
- Preferences (all adjustable parameters belong to this option)
- Backup (database)
- Archiving Backups
- Archiving track changes
- Restoring the database
- About

3.19.1. LAUNCHING ACE VISION CONFIGURATION

This tool is available in the directory below:

C:\Program Files (x86)\Itron\ACE Vision\Tools\Configuration\

Click on ACE Vision Configuration

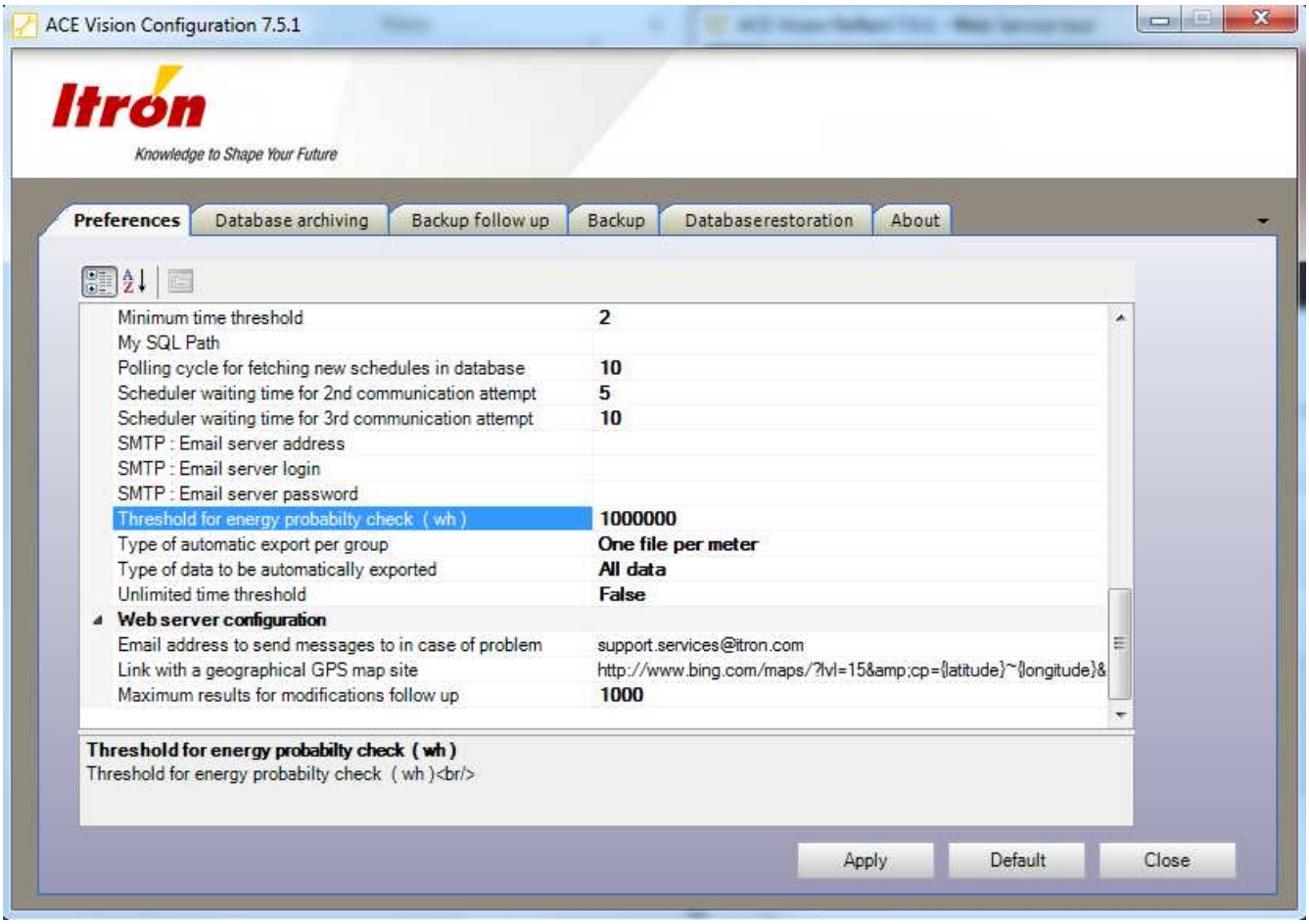


3.19.1.1. Preferences

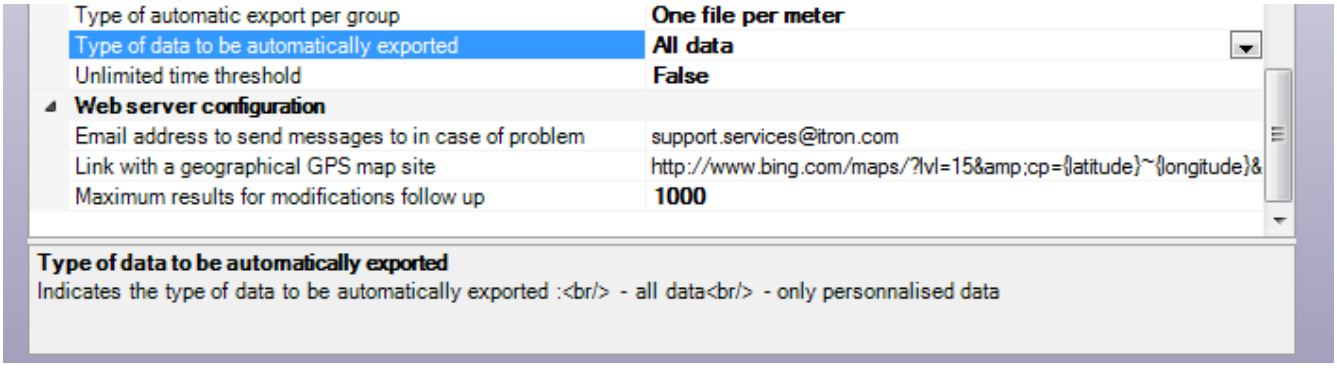
This section allows to adjust some parameters. It is highly recommended to not modify parameters. Only the following parameters have to be updated:

- Push offset: it is advisable to put this offset at 180 s (instead of 30s which is the value per default inside the configuration) to be sure that data pushed by the meter is well arrived on the FTP site
- Push FTP:
    - URL to indicate: localhost or IP of the server
    - Login: Acevision
    - Password: Acevision
    - This is the FTP account dedicated to populate ACE Vision Database with the data pushed by meters

- Threshold for energy probability check. This is important to know the consumption profile, in order to configure correctly this threshold. A comparison inside the last EOB between the value of total import energy register and the sum of the 3 phases has to be done, before the generation of the next EOB. If the difference is higher than the threshold, then the sum of the phases is not compliant, and meters that are concerned will be displayed by ACE Vision interface.



- Type of data to be automatically exported: It is possible to select only the 'personalized data', instead of 'all data'. We can also select one export file per meter, or a global file with all meters.



- Data publishing:
  - Indicate the URL (localhost or IP@ or FTP server
  - Login

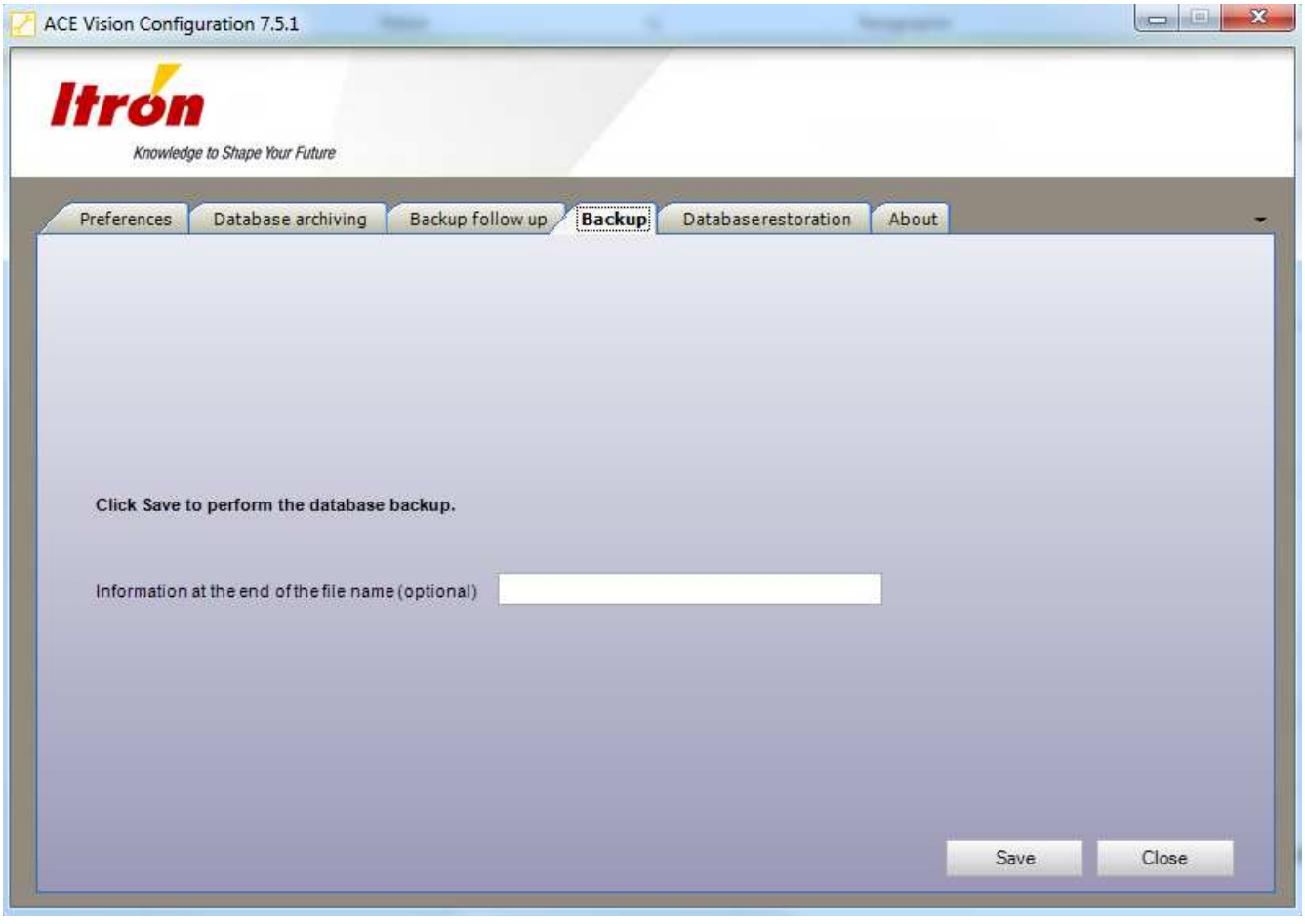
- Password
- Data publishing concerns only the revenue protection function

Remark: In the preference module for each item, there is some indication at the bottom of the screen, often enough to understand what has to be completed for each field.

3.19.1.2.Back up

It is possible to perform a database back up, as with ACE Vision web application:

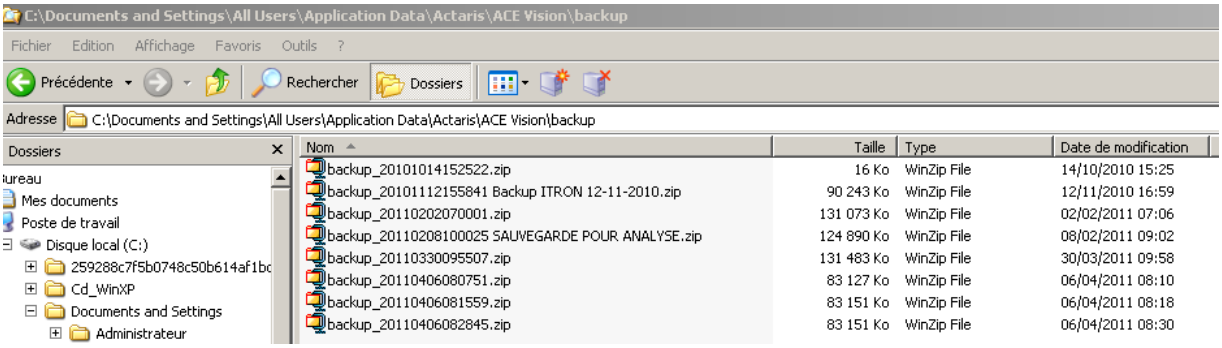
- Give a name at the end of the back up file name (optional).
- Click on Save



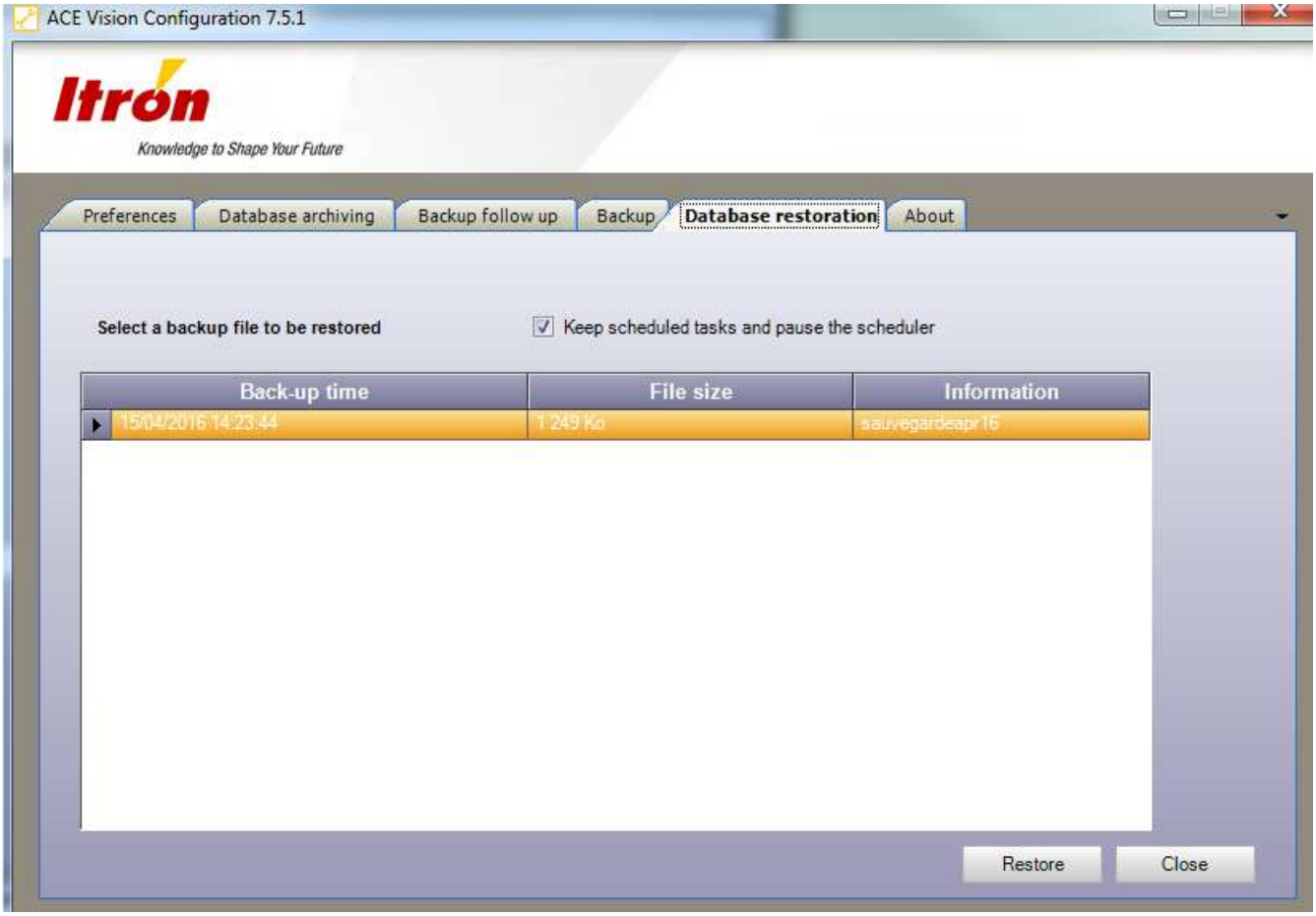
3.19.1.3.Database Restoration

It is possible to perform a restoration of the database:

- First of all the backup file has to be put in the directory below :



- Chose the file to restore
- Click on ‘Restore’

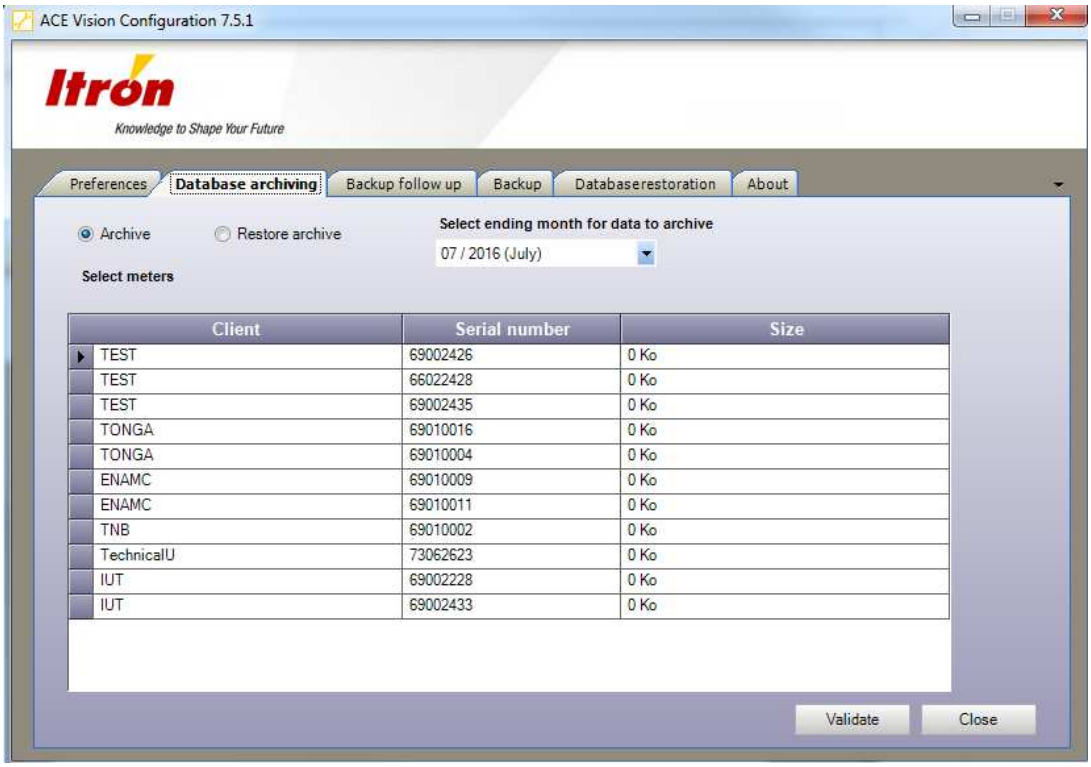


This restore operation can take some time, depending on the size of the database.

3.19.1.4.Database Archiving

It is possible to archive some elements of the database:

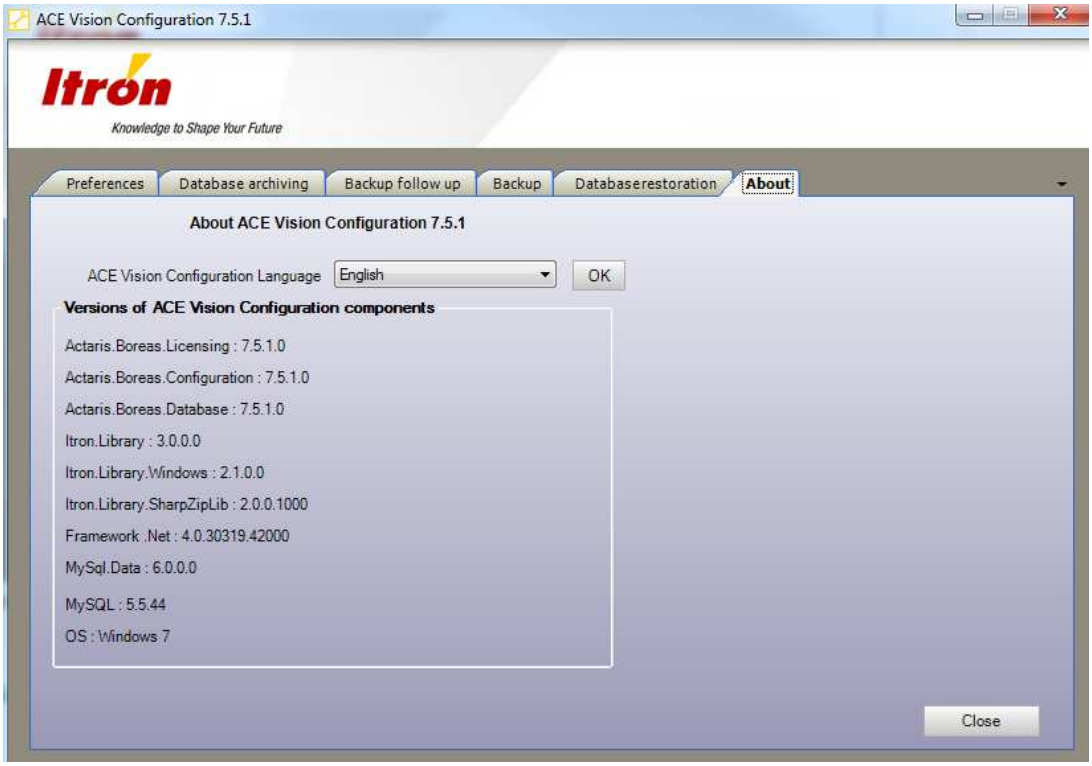
- Click on ‘archive’



It is possible to extract the archive , and chose the month to archive

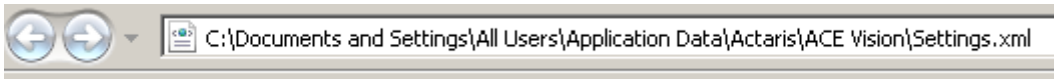
3.19.1.5.About

This screen provides information about ACE Vision configuration version, and allows to choose the language.



3.20. ADAPTATION OF COMMUNICATION TIME OUT

These time out can be modified only when some communication troubles are seen between ACE Vision and the meters.




```
- <CosemConfigVariable>
    <Setting Name="ModemPhysicalConnectTimeout" Value="120" />
    <Setting Name="PhysicalDisconnectTimeout" Value="1" />
    <Setting Name="CommResponseTimeout" Value="30" />
    <Setting Name="OpticalSignalsChangeTimeout" Value="0" />
    <Setting Name="CommKeepAliveTimeout" Value="10" />
    <Setting Name="OpticalIntercharTimeout" Value="60" />
    <Setting Name="DirectIntercharTimeout" Value="60" />
    <Setting Name="ModemIntercharTimeout" Value="60" />
    <Setting Name="PhysicalReleaseTimeout" Value="0" />
    <Setting Name="HDLCTCPIntercharTimeout" Value="1000" />
    <Setting Name="HDLCUDPIntercharTimeout" Value="1000" />
    <Setting Name="TCPIPIntercharTimeout" Value="1000" />
    <Setting Name="MeterInterframeSleep" Value="60" />
    <Setting Name="ZigBeeIntercharTimeout" Value="1000" />
    <Setting Name="IEC1107WaitResponse" Value="2000" />
    <Setting Name="IEC1107IntercharTimeout" Value="200" />
    <Setting Name="IEC1107SleepBeforeRetry" Value="2000" />
    <Setting Name="ProtocolRequestTimeout" Value="30" />
```