# RNX

# E3METER DATA CONCENTRATOR FIRMWARE RELEASE NOTES

**Date**     2021-07-16

**Version**  23

Riedo Networks Ltd
Route de la Fonderie 6, 1700 Fribourg, Switzerland
Phone: +41 26 505 50 00, info@riedonetworks.com, www.riedonetworks.com

# Releases

# 6.2.1

| | |
|---|---|
| **Release date** | 2021-07-16 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 6.0.x and 6.1.x |

## ENHANCEMENTS

- Add support for new Meter models

## KNOWN BUGS

- Time display discrepancy if NTP is not synchronized
- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

- Internet Explorer 10 is not supported anymore

# 6.2.0

| | |
|---|---|
| **Release date** | 2021-01-19 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 6.0.x and 6.1.x |

## ENHANCEMENTS

- Data Concentrator hostname transmitted to DHCP server
- Add support for new Meter models

## BUG FIXES

- File-system becomes read-only because of flash corruption
- Crash of the PLC/Modbus agent on large installations
- Getting diagnostic file fails after 2 minutes on large installation
- Deleting group category fails if at least one meter is assigned to the category
- Rare crash of the SNMP service
- SNMP MIB file:
  - Doesn't list the correct types for e3MeterSensorType in the e3MeterSensorTable
  - Syntax errors in e3IpsChannelConfig values
  - Wrong unit of humidity fields, percent instead of permil

## KNOWN BUGS

- Time display discrepancy if NTP is not synchronized
- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

- Internet Explorer 10 is not supported anymore

# 6.1.3

| | |
|---|---|
| **Release date** | 2020-04-16 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 5.2.x, 5.3.x, 5.4.x, 5.5.x, 6.0.x and 6.1.x |

## ENHANCEMENTS

- Add support for new Meter models

## KNOWN BUGS

- Time display discrepancy if NTP is not synchronized
- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

- Internet Explorer 10 is not supported anymore

# 6.1.2

| | |
|---|---|
| **Release date** | 2020-03-12 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 5.2.x, 5.3.x, 5.4.x, 5.5.x, 6.0.x and 6.1.x |

## BUG FIXES

- Save & apply in *Settings → Concentrator Upgrade* not working
- Scroll bar appears in navigation bar with recent versions of Chrome
- Event service fail to start on first boot
- New IPS firmware version 4.8:
  - Bug fix for multi-phase meters where power meter can stall caused by high inrush currents

## KNOWN BUGS

- Time display discrepancy if NTP is not synchronized
- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

- Internet Explorer 10 is not supported anymore

# 6.1.1

| | |
|---|---|
| **Release date** | 2019-04-18 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 5.2.x, 5.3.x, 5.4.x, 5.5.x, 6.0.x and 6.1.x |

## BUG FIXES

- PLC status debug page does not work
- IPS upgrade status is not reset as it should when the upgrade does not succeed

## KNOWN BUGS

- Time display discrepancy if NTP is not synchronized
- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

- Internet Explorer 10 is not supported anymore

# 6.1.0

| | |
|---|---|
| **Release date** | 2019-04-05 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 5.2.x, 5.3.x, 5.4.x, 5.5.x and 6.0.x |

## NEW FEATURES

- CSV reports
- PRO Meters data available via SNMP (new MIB file)

## ENHANCEMENTS

- Creating report files is now much faster when there is a high number of meters
- Contextual success/error indicators moved to the bottom of the page

## BUG FIXES

- There can be too many IPS upgrades running in parallel causing PLC network contention
- Rare crash of the PLC/Modbus agent
- Label is missing for PRO meters alarm events
- Endless loading (the list of meters is never displayed) on Analyzer, Metering and Environment pages when there is no internal SD-Card
- Installed license table not visible in very rare cases

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

- Internet Explorer 10 is not supported anymore

# 6.0.0

| | |
|---|---|
| **Release date** | 2019-02-12 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 5.2.x, 5.3.x, 5.4.x and 5.5.x |

## NEW FEATURES

- Add support for PRO meters (PRO1-Mod, PRO380-Mod and PRO380-Mod-CT) through Modbus. Requires either a USB adapter or a Moxa MB3180 TCP/RTU gateway.

## ENHANCEMENTS

- Meters are now sorted by their label instead of S/N in PDF report

## BUG FIXES

- Firmware of Meters connected through Ethernet cannot be upgraded
- No events (alarms, etc) when the internal storage (SD-Card) is missing
- Analyzer, Metering, Environment, Assignment and Config pages are inaccessible if NTP was never synchronized

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

# 5.5.0

| | |
|---|---|
| **Release date** | 2018-11-02 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 4.2.x, 4.3.x, 4.4.x, 5.0.x, 5.2.x, 5.3.x and 5.4.x |

## NEW FEATURES

- Add support for Meters equipped with Residual Current Monitoring module: residual current values added to the Analyzer page and to SNMP
- New IPS firmware version 4.6:
    - Support for Residual Current Monitoring module
    - MAC and IP address shown in the settings web page
    - SNMP: add model number to SysObjectID

## ENHANCEMENTS

- Config page:
    - Add connection type information (PLC or Ethernet)
    - Hide the relay column if there are no Meters with a relay
- Add support for new Meter models

## BUG FIXES

- On Metering page the Reactive Energy (C) values are wrong
- On Analyzer page NaN% is displayed in bargraph in rare cases

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

## INFORMATION

Both the Data Concentrator and Meter have a new MIB file with the residual current values.

# 5.4.0

| | |
|---|---|
| **Release date** | 2018-06-29 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 4.2.x, 4.3.x, 4.4.x, 5.0.x, 5.2.x and 5.3.x |

## NEW FEATURES

- Communication between the Data Concentrator and the Meters via Ethernet (layer 2)
- Event viewer

## ENHANCEMENTS

- Redesigned notifications panel with tabs
- System information moved from notification panel to new top bars above the navigation menu
- More discreet loading indicator at the bottom-right corner
- No false "NTP not synchronized" message when the Data Concentrator boots

## BUG FIXES

- Only the last 100 events are stored instead of the last 100'000
- Event notifications (email, SNMP trap) not send in some rare cases
- Graph fails to show the latest values in some rare cases
- Cannot save PLC settings in some rare cases

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

# 5.3.1

| | |
|---|---|
| **Release date** | 2018-03-29 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 4.2.x, 4.3.x, 4.4.x, 5.0.x, 5.2.x and 5.3.x |

## ENHANCEMENTS

- Remove medium strength cipher suites from HTTPS; fixes vulnerability to SWEET32 (CVE-2016-2183, CVE-2016-6329)
- Identify and ignore "phantom" PLC nodes

## BUG FIXES

- In some cases the "Oops: an error occurred" error message appears when trying to access Analyzer, Metering, Environment, Assignment or Config pages, effectively blocking the access to all these pages
- When copying a report template, it cannot be saved without modifying it
- In the *Reporting → FTP Accounts → Edit* page the reset button doesn't work
- Values in group assignment drop-down are listed in alphabetical order instead of user defined order

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working

# 5.3.0

| | |
|---|---|
| **Release date** | 2018-02-02 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 4.2.x, 4.3.x, 4.4.x, 5.0.x and 5.2.x |

## NEW FEATURES

- Configurable Meter's maximum current for unknown Meters

## ENHANCEMENTS

- Accept license file with any (UNIX, DOS or MAC) end of line

## BUG FIXES

- Reports with special characters in their name are not sent
- In PDF reports, category and group names are not shown when they are too long
- SNMP and email notifications continue to be sent when an outgoing events configuration is deleted
- Meter count is missing in the groups panel in some rare cases
- Sensor identifier not displayed for temperature and humidity alarms in the notifications panel
- When editing Meters' groups, values are sometimes reset before being saved

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working
- In some cases the "Oops: an error occurred" error message appears when trying to access Analyzer, Metering, Environment, Assignment or Config pages, effectively blocking the access to all these pages
- When copying a report template, it cannot be saved without modifying it
- In the *Reporting → FTP Accounts → Edit* page the reset button doesn't work
- Values in group assignment drop-down are listed in alphabetical order instead of user defined order

# 5.2.1

| | |
|---|---|
| **Release date** | 2018-01-03 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 4.2.x, 4.3.x, 4.4.x, 5.0.x and 5.2.x |

## BUG FIXES

- "Show flagged only" filter is not correctly restored when navigating away from Analyzer page and then back
- Meters are not shown anymore if meters were sorted by firmware version and new meters are added

## KNOWN BUGS

- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working
- When editing Meters' groups, values are sometimes reset before being saved

# 5.2.0

| | |
|---|---|
| **Release date** | 2017-12-22 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 4.2.x, 4.3.x, 4.4.x and 5.0.x |

## NEW FEATURES

- New Events notification configuration page (moved from *Settings → SNMP Trap to Notifications*)
- Events notification via email
- Custom PDF template (*Reporting → Templates*)
  - Logo
  - Selection of columns
- "Send test trap" button in SNMP Traps edition page

## ENHANCEMENTS

- Add support for new Meter models

## BUG FIXES

- Quick report fails with large number of Meters
- Translation missing on some error notifications
- SNMP traps cannot be sent when some special characters are configured in community

## KNOWN BUGS

- "Show flagged only" filter is not correctly restored when navigating away from Analyzer page and then back
- If alarm license was installed using firmware version 4.x it will need to be reinstalled in order to have notifications working
- When editing Meters' groups, values are sometimes reset before being saved

# 5.0.1

| | |
|---|---|
| **Release date** | 2017-09-07 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.1.x, 3.0.x, 4.0.x, 4.1.x, 4.2.x, 4.3.x and 4.4.x |

## ENHANCEMENTS

- Protect NTP against "monlist" network-traffic amplification attacks

## BUG FIXES

- Reset button doesn't work in *Settings → SNMP Trap*
- Can't click on Save button in *Settings → Meters Upgrade*
- Alarms date is shown as invalid when no license is installed
- In notification panel, the date is always on a new line for the first event (on top)
- If there is at least one "unknown" device in the selection, the user should be able to switch the bulk button to 'ON' or 'OFF'
- In Alarm configuration dialog Enabled/Disabled switch state should not change after a user clicks "Configure all phases"
- In the date range picker, when hitting ENTER on the CANCEL button, the selected date range is applied
- Under some circumstances Meters firmware upgrade to version 4.2 can loop forever

# 5.0.0

| | |
|---|---|
| **Release date** | 2017-07-28 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.1.x, 3.0.x, 4.0.x, 4.1.x, 4.2.x, 4.3.x and 4.4.x |

## NEW FEATURES

- Meters firmware version 2.7 (for S/N up to 001012) and 4.2 (for all other Meters)
- Meters firmware version 4.2 introduces alarms controlled by the E3METER Data Concentrator. Up to four alarms on the current can be defined per phase. Each alarm threshold incorporates a hysteresis to avoid an alarm to be re-triggered if the value remains close the alarm threshold. They are defined as follows: 5mA up top 0.1A / 5% from 0.1A to 1A / 50mA from 1A to 10A / 0.5% above 10A.
- Alarms on min/max temperature and humidity (no hysteresis)
- Events: device and sensor connectivity, NTP synchronization status
- Notifications panel
- SNMP trap (new MIB file)
- Relay control
- Sensor management

## ENHANCEMENTS

- UI revamp (material design, top menu, etc)
- Show a message if the browser is not supported

## BUG FIXES

- Devices selection count not working properly
- Invalid static IP address can be configured leaving the Data Concentrator unreachable
- *Settings → Maintenance → Concentrator* Upgrade not accessible under certain circumstances
- Device list pages are not scrollable in Firefox on MAC OS
- Group name containing '<' or '>' character are not displayed correctly
- Last characters of the license ID are not visible

## INFORMATION

- Internet Explorer 9 is not supported anymore
- When the Data Concentrator is downgraded to a previous version without support for alarms, the following symptoms can be observed and can be safely ignored:
  - Log messages complaining about unknown configuration options
  - Log messages about invalid packets: "*Packet from <sn>: decryption using*

*key <key> results in invalid structure*" (until the node is next polled)
- The data of the most recently fetched polling period may be lost

# 4.4.0

| | |
|---|---|
| **Release date** | 2017-07-26 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.1.x, 3.0.x, 4.0.x, 4.1.x, 4.2.x and 4.3.x |

## NEW FEATURES

- Meters firmware version 2.7 (for S/N up to 001012) and 4.2 (for all other Meters)

## ENHANCEMENTS

- Add support for new Meters models

## BUG FIXES

- Checking availability of new firmware doesn't work since June 2017

## INFORMATION

- When the Data Concentrator is downgraded to a previous version the following symptoms can be observed and can be safely ignored:
  - Log messages complaining about unknown configuration options
  - Log messages about invalid packets: "*Packet from <sn>: decryption using key <key> results in invalid structure*" (until the node is next polled)
  - The data of the most recently fetched polling period may be lost

# 4.3.0

| | |
|---|---|
| **Release date** | 2017-02-20 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.1.x, 3.0.x, 4.0.x, 4.1.x and 4.2.x |

## NEW FEATURES

- CAL license
- Feature license (report)

## BUG FIXES

- Editing categories and groups can fail when having a large number of device (i.e. more than 250)
- In metering view when devices are "Grouped by" the total in the group headers is wrong (computed in Wh instead of kWh)

# 4.2.0

| | |
|---|---|
| **Release date** | 2016-12-15 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.1.x, 3.0.x, 4.0.x and 4.1.x |

## NEW FEATURES

- New Storage management page in *Settings → Maintenance*
- Licensing disabled (report always enabled)
- Add total active power per group when meters are grouped

## ENHANCEMENTS

- Avoid measurement data misses when Data Concentrator is rebooted
- Force firmware version check after upgrade
- Add Data Concentrator settings to backed up data
- Speed up initial NTP synchronization with some setup

## BUG FIXES

- Out of memory when trying to do a firmware upgrade
- Custom fields assignments not displayed correctly when modified
- Firmware version check doesn't work with BETA, RC, etc
- Scrollbars problem with Firefox
- Data Concentrator might be stuck during boot
- Web server crash

# 4.1.0

| | |
|---|---|
| **Release date** | 2016-09-21 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.0.x, 2.1.x, 3.0.x and 4.0.x |

## NEW FEATURES

- Increase polling fault tolerance during Meters upgrade
- Meters firmware version 3.4
- Configurable PLC frequency band

## ENHANCEMENTS

- Show firmware version instead of file name in *Meters → Config*
- Improve chart performances on Microsoft Edge
- Support Microsoft Surface Hub
- PDF preview available for all devices and all browsers
- Avoid loss of measurement data when rebooting Data Concentrator
- Optimized settings for *CENELEC-B* PLC frequency band
- Add information identifying the report when logging message to system log
- Put a message into system log when the backup fails
- Add support for new Meters models

## BUG FIXES

- Backup process crashes with large backup
- Corrupted PDF report when transferred via email
- FTP server test doesn't work with some server
- FTP backup fails with some server
- Arrow indicating sort order are in the wrong orientation in device list views
- Various problems with Meters firmware upgrade

# 4.0.0

| | |
|---|---|
| **Release date** | 2016-06-27 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.0.x, 2.1.x and 3.0.x |

## NEW FEATURES

- PDF reports, scheduled and manual:
    - Configuration of Mailing list for transferring reports
    - Configuration of FTP accounts for transferring reports
- Configuration of SMTP server for sending email from the Data Concentrator
- Polling fault tolerance
- Configurable PLC polling period (5, 15, 30 or 60 minutes)
- License key management
- Download diagnostic file in System Log
- Automatic or manual check for new firmware version

## ENHANCEMENTS

- Show graph units
- Handle meters with max current different from 16A (10A, 32A)
- Reworked date picker
- Responsive design greatly improved
- Metering graph in kWh
- Temperature graph
- Backup file names now include S/N
- Reload the web page when the FW version changes
- Humanize Dashboard uptime

## BUG FIXES

- Several issues on touch devices (e.g. mobile phone or tablet)
- UNKNOWN values recorded in database for IPS with valid data
- IPS upgrade problem

## INFORMATION

- Backup now starts at 02:00 instead of 01:00

# 3.0.0

| | |
|---|---|
| **Release date** | 2015-12-21 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.0.x and 2.1.x |

## NEW FEATURES

- Measurement data history (up to five years)
- Backup of data history to an external FTP(S) server
- Configurable user's role: *User*, *Super user* or *Administrator*
- Meters auto-admission configurable in: *Settings → Network → PLC*
- Automatic upgrade of meters' firmware configurable in: *Settings → Maintenance → Meters Upgrade*
- Flagged meters can be filtered thanks to the "Flagged Meters" virtual group at the bottom of the Group panel

## ENHANCEMENTS

- Redesigned web page:
  - "Custom Fields" renamed to "Groups"
  - "Devices" renamed to "Meters"
  - Several Meters views renamed:
    - "Average" renamed to "Analyzer"
    - "Meter" renamed to "Metering"
    - "Maintenance" renamed to "Config"
  - Graph of historical data
  - Meters can be grouped in list
  - Edition of groups moved from Settings to left panel in Meters view
  - New view for groups assignment
- Auto-refresh in "System log" view

## BUG FIXES

- Web page session security

## KNOWN BUGS

- When doing a firmware upgrade from this version, if it fails it is needed to logout then login again and restart the upgrade

## INFORMATION

- After an upgrade you will have to wait two cycles for the system to stabilize

# 2.1.0

| | |
|---|---|
| **Release date** | 2015-08-27 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 2.0.x |

## NEW FEATURES

- Export the currently displayed devices to a CSV file thanks to the "Export" button
- Firmware of devices with serial number less than 1013 can now be upgraded

## ENHANCEMENTS

- Improve performance of device list view
- Change default polling cycle time from 5 to 15 minutes

## BUG FIXES

- Data Concentrator does not hang-up for 24 minutes anymore
- When the Data Concentrator boots with no Ethernet cable connected, no IP address is assigned if the Data Concentrator is set-up to use DHCP

# 2.0.0

| | |
|---|---|
| **Release date** | 2015-07-15 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |
| **Can be applied to firmware** | 1.0.x |

## NEW FEATURES

- New MIB with the following changes (new MIB file downloadable from the Settings/Network/SNMP page):
  - Add minimum/maximum/average
  - Add *e3ConcentratorTime*
  - Put the correct Data Concentrator model number in *sysObjectID*
  - *e3ConcentratorVersion* renamed to *e3ConcentratorFWVersion* and type changed from integer to string
- CSV report version 2. Changes compared to version 1:
  - Devices are sorted by serial number
  - *period_start* and *period_duration* values are in seconds (milliseconds in version 1)
  - New row with the unit of the values (e.g. Wh)
  - Add *period_start* and *period_duration* on first row

## ENHANCEMENTS

- Improve formatting of the CTR firmware version on the web page
- On front panel display split the firmware version in two pages (*Firmware version* and *Firmware date*)
- Front panel display screen-saver: the display is turned off after 5 minutes of inactivity and is turned on as soon as a button is pressed
- Block all versions of Internet Explorer since it is not supported in this version

## BUG FIXES

- Data Concentrator not stuck during reboot anymore
- Data Concentrator boots correctly if a sensor is connected
- Fixed calculation of apparent power (i.e. no negative values)
- Properly detect IPS reboot

## KNOWN BUGS

- Data Concentrator might sometimes freeze for 24 minutes

# 1.0.0

| | |
|---|---|
| **Release date** | 2015-04-20 |
| **Supported models** | RN1400, RN1401, RN1402 and RN1403 |
| **Supported hardware** | Rev D and Rev E |

This is the first version released, therefore all features are listed.

## FEATURES

- SNMP v1 and v2c
- Firmware upgrade of IPS via PLC
- Define and assign custom fields to IPS
- PLC communication:
  - min/max/average
- IPS firmware version 2.1
- Reports:
  - CSV period dump report via FTP
- HTTPS
- Remote assistance via SSH (activable by the user)
- Web page for configuring the device and visualizing data from IPS:
  - Configuration:
    - IP
    - NTP
    - SNMP
    - FTP accounts (for connecting to remote servers)
    - User management
  - Visualization:
    - Overview (list) of IPS data (average, energy counters and sensors)
    - Details
    - IPS management (add, remove, edit label, assign custom fields, etc)

## KNOWN BUGS

- Concentrator might sometimes freeze for 24 minutes
- Concentrator reboot might not work
- Workaround: press and hold "MODE" button to reboot the Concentrator