OpenPowerNet

Release Notes Version 1.4.2

**Institut für Bahntechnik GmbH
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1 Introduction

1.1 Overview

The purpose of this document is to describe the changes and the status of OpenPowerNet version 1.4.2. The document contains:

- List of delivered files on DVD,
- Description of the main functionality,
- Any restrictions known,
- List of corresponding documentation and
- Known issues.

1.2 Configuration

See document Installation Instruction version 1.4.2 for required third-party software versions.

1.3 Acronyms and abbreviations

The following abbreviations are used within this document.

Abbreviation	Description
2AC	2 Phase AC
AC	Alternating Current
ATM	Advance Train Module
DC	Direct Current
DVD	Digital Versatile Disk
GUI	Graphical User Interface
ODBC	Open Database Connectivity
PSC	Power Supply Calculation

2 List of files on DVD delivery

```
OPN_InstallationInstruction_1.4.2.pdf
OPN_ReleaseNotes_1.4.2.pdf
OPN_UserManual_1.4.2.pdf
OpenPowerNet\my.ini
OpenPowerNet\createUser.bat
OpenPowerNet\OpenPowerNet-1.4.2.zip
OpenTrack\OpenTrack.V_1.7.0.2013-01-14.zip
ThirdPartyPrograms\ required by OpenPowerNet, see Installation Instructions
update\
```

3 Main functionality

OpenPowerNet version 1.4.2 has the following main functionality:

- Calculation of AC, 2AC and DC power supply system,
- Calculation of magnetic coupling of conductors is done internally,
- Calculation of tractive effort used by OpenTrack and analysis,
- Calculation of braking effort for analysis,
- Evaluation of tractive and braking current limitation,
- Calculation of electrical engines with single or multiple propulsion systems,
- Division of power consumption for multiple Train Operating Companies,
- Evaluation of station energy storage for stabilisation of line voltage and energy saving,
- Evaluation of engine energy storage,
- Consideration of coasting behaviour of the courses,
- Calculation of short circuit currents,
- Quick evaluation of network structure using constant current engine model,
- Visualisation of results using analysis of data with prepared Excel-Files and
- Visualisation of results using the automated analysis of the Analysis Tool.

4 Changes since version 1.4.1

- **General:**

  - Add option to shut down modules after the simulation. This option can be set at the OpenPowerNet preference page.
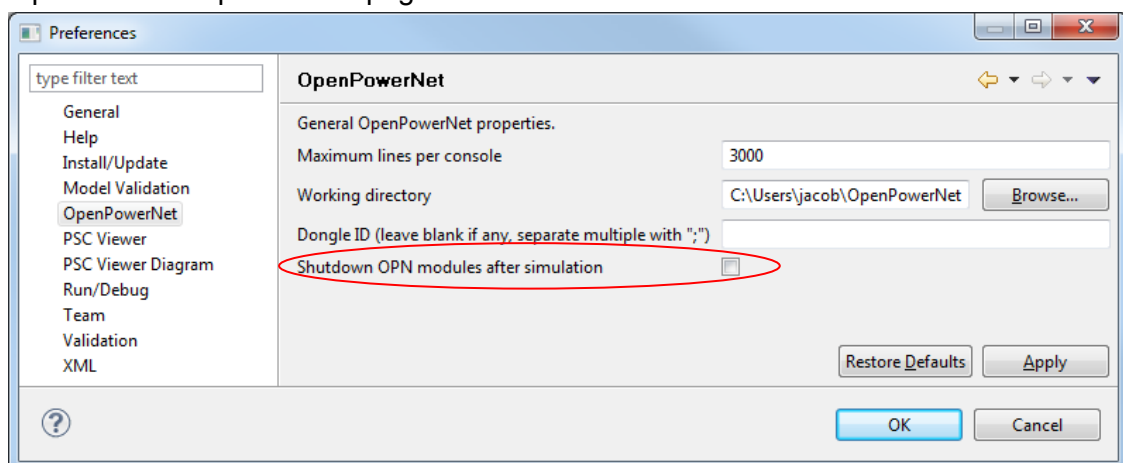
  - Bugfix: Fixed an issue regarding stable iteration for networks with energy storage and braking engines

- **ATM:**

  - Total of energy storage load and unload share is now limited to 1. If 1 is exceeded these values are normalised, e.g. storage A load share is 1 and storage B load share is 2 the normalised value for storage A is 1/3 and for storage B it 2/3. A warning message is generated!

  - Bugfix: Error message of exceeding range for table was not precise. Now the XPath to the table definition in the XML document is added to the error messages.

- **PSC:**
  - In the Project-File the "Lines" XML element as child of "Network" is now optional.
  - The Earth node is now set after merging networks.
  - Bugfix: Evaluation of actual wire use was incorrect for booster transformer, fixed now.
  - Bugfix: Fixed an error while inserting an engine near a slice where the network model changed from two rails to one rail.

- **PSC Viewer:**
  - Improved layout, before sometimes slices have been displayed in wrong order.
  - Bugfix: Correct a typo of the conductor temperature unit in the tool tip.

- **Excel Analysis:**
  - Updating all files and adding the INFO sheet containing a description of each file.
  - Bugfix: Prepared Excel files for "Current, I=f(s)" and "Current, I=f(t)" have been mixed up at the GUI menu.

- **Analysis Tool:**
  - Added Excel 2010 compatibility. To create output files with the correct paper size, the paper size now has to be set through control panel for "Microsoft XPS printer driver". Default is A4. The defaults can be modified in preset file/Settings/Excel.
  - Using fixed character set "Windows-1252" (west european) as the tool is not yet unicode compatible.
  - Setup: Use default DSN 'pscresults' if there is no valid DSN.
  - Energy overview: Complete makeover, now includes losses overview.
  - Charts for line: Improved performance for leakage current chart.
  - Inline measurement: Unit µT should now work on systems with foreign character set, disabled selection in GUI.
  - Inline measurement: Fixed magnetic field video creation. MJPEG compression is now used, minimum frame rate is 5.
  - Bugfix: Pantograph voltage: Title for pantograph item was created using preset for conductor item.

5 Known restrictions

OpenPowerNet is tested with OpenTrack version 1.7.0 (2013-01-14) and should only be used with this version.

OpenPowerNet is a single user application. It is not tested to use the same database for multiple users at the same time.

The Engine-File uses the RailML rollingstock schema version 1.03 with OpenPowerNet specific extensions and is therefore not 100% compatible with the mentioned version 1.03.

6 Version of corresponding documentation

The following table lists the version of the documents related to OpenPowerNet 1.4.2.

Document	Version
Installation Instruction	1.4.2
User Manual	1.4.2

7 Known issues

The following table contains all known but unsolved bugs.

ID	Summary	Status
371	When using larger time steps other than 1s, OpenTrack sends the requests not for all courses in the same time raster but OpenPowerNet is designed to calculate always in the same time raster. Workaround 1: Use always 1s simulation time steps. Workaround 2: Set all times within OpenTrack in the raster according to the selected simulation time step, e.g. for 3s time step only time hh:mm:00, hh:mm:03, hh:mm:06 ….. The simulation will be terminated by OpenPowerNet in case of OpenTrack requests outside of the time raster.	Can't be solved.
458	The information of split, merged and connected courses is not available in OpenPowerNet. Therefore the engine energy storage of an engine will be reset to the initial values even if the new course is connected with the previous course and the two courses represent the same physical train.	Open