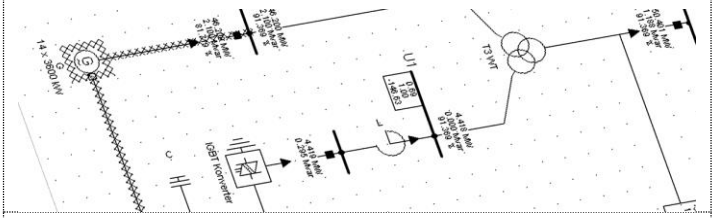

DIgSILENT Technical Documentation

PowerFactory 15.1

Release Notes

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PowerFactory 15.1
Release Notes

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Revision History

Version	Release	Description
15.1.3	20.02.2014	Release Notes for PowerFactory Version 15.1.3
15.1.2	20.12.2013	Release Notes for PowerFactory Version 15.1.2
15.1.1/15.1.0	12.12.2013	Release Notes for PowerFactory Version 15.1.1/15.1.0

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1 PowerFactory 15.1.3

1.1 Enhancements/Fixes

1.1.1 Models

Description	ID
The "Symmetrical Phase Shifter" option in the 2-Winding Transformer Type was not working properly in certain cases if "Tap dependent impedance" was enabled in the type.	#11162
For a transformer configured as follows: • no tap changer defined (min. tap = max. tap) • impedances according to measurement report the unbalanced load flow and short-circuit calculation failed.	#10810 DIG10748
For unbalanced load flow / short-circuit calculation: • The internal LV grounding impedance was considered when the transformer had external LV grounding (neutral connection).	#11272 DIG11601
Reading of file characteristics is now considerably faster.	#10891

1.1.2 Load Flow/Network Reduction/State Estimation

Description	ID
Load flow was divergent under certain conditions for very low voltage magnitudes, depending on the internal formulation of the equations.	#10794 DIG10748 DIG10739
Previously, the loading of zero rating elements was 9999, which caused problems in contingency analysis and AC maximum boundary transfer analysis. Now, the loading of zero rating elements is set to zero, which means that these elements will be ignored.	#11060 DIG10745 DIG10746 DIG10743 DIG10760

Description	ID
Previously, the thermal rating object was considered in the load flow (and contingency analysis) even if it was hidden (i.e. deleted in the active variation). This yielded different results from parallel contingency analysis (which ignores hidden thermal rating objects and uses the rating from its type). Now, hidden thermal rating objects are ignored in both the load flow and the contingency analysis.	#10941 DIG10892
Similar to #10941, the Capability Curve object is no longer used if it is deleted / hidden.	#10922
Network Reduction: In 14.0, there was a "Verification" page which would check the load flow results between the original network and the reduced network. However, it was hidden in 15.0. Now, this page is visible again and the output messages have been improved: instead of displaying the internal indices of buses, the bus names are displayed.	#10948
The voltage setpoint (usetp) is now stored correctly for synchronous machines and static generators, following execution of the "Update Database" command.	#11146
The Automatic Tap Adjustment is now working if the additional voltage per tap ("dutap") in the 2-winding transformer type is zero and a measurement table is defined.	#10854

1.1.3 Contingency Analysis

Description	ID
Generator effectiveness calculation: in certain case where the factorization failed in the effectiveness calculation, PowerFactory would crash. Now the failure of factorization is handled by re-attempting to solve it with full initialization or it is stopped by error handling.	#11048 DIG11266
Performance improved for contingency analysis with Quad Booster effectiveness.	#10915 DIG10820
Post Fault Actions (such as tap change events) were ignored if there was no user defined switch event. Now all events can be executed even if there is no switch event.	#10844 DIG10763

1.1.4 Optimisation

Description	ID
DC OPF: If the system contains zero rating elements and they are part of optimisation (i.e. loading limits are considered in OPF), DC OPF and DC maximum boundary flow analysis will not be optimally solved due to these elements. Now, these zero rating elements are ignored in OPF.	#11075 DIG10745

1.1.5 Quasi Dynamic Simulation

Description	ID
The time period in the results is considered as entered in the Quasi-Dynamic Simulation command. Initially there were wrong results reported if the year exceeded 2037.	#11051
Language independent text for the DPL report printed in the output window. The text changes according to the user-selected language.	#11026

1.1.6 Short-Circuit Calculation

Description	ID
The problem regarding the handling of accelerated trips if the new time is equal to the current time has been solved.	#11234 DIG11510
PowerFactory was crashing in certain cases when calculating an IEC/ANSI short-circuit for networks containing DC short-circuit elements e.g. Battery, DC-Voltage source …	#11031
DC Short-Circuit: • The DIN (VDE) standard is now supported, which is similar to the IEC 61660. • Variable designation changed to exactly follow that defined in the IEC 61660 (i.e. rise-time const. not "tr" but "tau1" etc.). • Report output for the DC Short-Circuit has been changed; only relevant variables are shown with corresponding symbols (without description). The unit of the variable changes according to the study case settings (i.e. A, kA, V, kV etc...) and is shown in the report.	#11101 #10995 #10997

1.1.7 Arc-Flash Analysis

Description	ID
Fault Clearing times with "Iteration" resets more events than were executed. This has been rectified.	#10887
In the German version of PowerFactory, the tabular report now displays: "Lichtbogenkurzschlussstrom" instead of "Lichtbogenstrom".	#11096

1.1.8 Simulation/Modal Analysis

Description	ID
The numerical integration factors are now initialized from the beginning of the simulation.	#10857
The damping factor (EMT) no longer influences the RMS simulation.	#10860
PWM Converter (2-DC connections): Problem with the initialisation of unbalanced RMS simulation has been solved.	#10930
Internal tap controller of 2-Winding Transformer was not working properly for RMS simulations. Problem has been fixed.	#10935 DIG11031
The load ramp event option for complex loads has been hidden. Only load steps are now possible for complex loads.	#10656
DSL: Problem for matrix definitions (e.g. > 50 columns) has been solved.	#10918 DIG10945
Eigenvalue calculation failed when a static generator was configured to be a "Constant Impedance" model.	#11154

1.1.9 Harmonics/ Power Quality

Description	ID
D-A-CH-CZ Standard: • The Connection Request element (ElmConreq) user inputs on "Basic Data" page have been moved to the D-A-CH-CZ Voltage Changes and Flicker page as appropriate. • For the input of spectral lines, the consideration of frequencies within either +-5Hz or +-100Hz of the ripple control frequency has been improved. • Improvement to various D-A-CH-CZ calculation quantities (units, descriptions). • A ripple control frequency of 0Hz can now be entered, following which the report will not output any results regarding interference to the ripple control frequency. • Limit for voltage change now only according to Figure 4.9 in D-A-CH-CZ standard (frequency dependency has been removed). • The calculated "THDiA" for HV interharmonics is now in units of percent. • The calculation of the flicker severity (short-term and long-term) now considers the shape factor. • DPL report has been reformatted and now provides information regarding each assessment level carried out (applicable to LV/MV harmonics, and HV assessments). • Accuracy of the flicker severity (short-term and long-term) calculation has been improved. • Report now available in German.	#10981 #11064 #11097 #11129 #11178 #11219 #10955 #10956 #10982 #11128

1.1.10 Reliability Assessment

Description	ID
In cases where interrupted loads cannot be completely restored in reliability analysis (due to violation of constraints), the logic to determine which loads cannot be restored heavily influences the reliability indices. This logic has been improved to restore the loads which are not sensitive to the violations at first (if they have the same priority level). In this way, the restored power can be increased and subsequently better reliability indices can be obtained.	#10893
Thermal loading of each side shall be checked for branch elements outside feeders.	#10897
No additional open breakers remain in de-energized regions after the final restoration step.	#10926

Description	ID
The total number of customers of a feeder is displayed on the reliability- and load flow pages of feeders (ElmFeeder).	#11177
In the German version, the text "Common Mode" has been replaced with "Abhängiger Mehrfachfehler".	#10966

1.1.11 Cable Sizing / Reinforcement

Description	ID
Multiple execution of the cable sizing command should not lead to duplicating some of the cable types inside the library folder "Cable Sizing". Processing of the type update of overloaded lines has been sped up.	#10841
French language translation improved for the DPL output and command parameters. Formatting issues have been resolved.	#10783

1.1.12 Protection Models

Description	ID
The "Calculate Max Fault Currents" button on the "Min./Max. Fault Current" page of a relay is now working.	#10872
For a VT with 'V' connection, the output signals are now correctly set (phase B and C now rotated): • U2(Phase B) = 0 • U2(Phase C) = Uc-Ub	#11014 DIG10690
The signals of a User-Configurable Logic (RelLogdip) can once again be selected in the variable selection after a VDE0102/IEC60909 short-circuit calculation.	#10938

Description	ID
Issue has been resolved which caused distance polygonal units (RelDispoly) using the "GE Quadrilateral (Z)" characteristic to trip even though the fault was measured outside of the specified reach.	#11192 DIG11232
The Fault Loop Settings for AEG/Alstom starting units (RelFdetaegalst) with the product number set to 932 can now be correctly set.	#11047 DIG11124
The differential block threshold calculation was incorrect for the "Independent 2nd slope" characteristic.	#10850
The index in the single phase differential calculation module is now correct.	#11046

1.1.13 Single Line Graphic / Bock Diagram

Description	ID
It is now possible to create new text boxes in GPS diagrams via "Create Additional Result Box" or "Create Text Label".	#10730
PowerFactory was crashing when a detailed substation diagram was created. Substation diagram is now created correctly.	#11039 DIG11202
PowerFactory was hanging after ungrouping a graphical composite branch. Ungrouping now works as expected.	#11091
PowerFactory was crashing when trying to create a branch with more than two connections.	#10268
Deleting all Relays and CTs at once from a diagram no longer causes PowerFactory to crash.	#11138
Problems when connecting to a substation. An additional bay is now automatically created in the substation.	#11148
PowerFactory no longer crashes following the import of large polylines imported via SVG. The number of polyline/polygon points is no longer limited.	#11181 DIG11238

Description	ID
Sequence of pages was mixed up when re-opening the desktop via a DPL-script. The page sequence now remains intact.	#9689 DIG7664
Text boxes created via "Create Textbox or Device" now reference the selected network element and display the dialogue of the device by double-clicking on them.	#10902
Relays are no longer drawn separately in automatically generated substation diagrams.	#10980
Some cases of faulty lines in a shape declaration in a group of a SVG files no longer lead to an endless loop.	#11066
Result boxes for 3-winding auto transformers are now correctly displayed.	#11118
LEO nodes now show the correct colour according to Power Restoration.	#11163
Toggling Title, Legend or Colour Legend will adjust their positions if they are outside the visible area.	#10657
Annotation objects which are part of an annotation layer could not be marked via free form or rectangle selection tool if the layer "Base Level" was invisible.	#11152
Redrawing CT now allows graphical connection to second relay.	#11131
Edit local format in single line graphic was not working when the form was missing for a specific calculation type. This has now been rectified.	#10971

1.1.14 Graphical User Interface / Dialog / VI

Description	ID
German characters (ä,ö,ü) can now be entered in the DPL-script editor.	#11053
When right-clicking on a synchronous machine element in the SGL, a governor and turbine can now be defined by selecting “Define” -> “Governor and Turbine (gov)”.	#11081
Result variable definition for rotor/stator fluxes for an asynchronous machine (configured as a DFIG) has been fixed.	#11113

Description	ID
The Harmonic Waveform Plot now considers all calculated frequencies.	#10838 DIG6951
The bars in the Harmonic Distortion Plot were placed at the same position, regardless of the number of variables chosen for the output. The width of the complete bar per frequency now depends only on the number of frequencies shown in the plot.	#10908 DIG7363
The opening of Virtual Instrument Panels / Graphic Boards with many virtual instruments (plots, numeric values, etc. ...) is now faster than in previous versions.	#10847
Line Type Dialog: • Problem with overlapping "Ins. Factor" / "Conductance G'" input field on load flow page has been solved.	#11189
Tie Open Point Optimisation dialog has been improved. • "Interruption cost per customer" renamed to: "Costs per customer and per interruption"	#11156
CIM export dialog layout has been improved.	#10914 DIG10944
Error message was incorrectly emitted when editing a format in the text editor of the "Form" (IntForm). This has been corrected.	#10975
Incorrect full object names (rel. to project) are reported in the output window if name contains '. Problem has been solved.	#10759
Flexible data definition: • Migration from projects < 15.0 led to multiple variable selection objects (IntMon) per calculation function.	#11292

1.1.15 DPL/Python

Description	ID
Branches are ignored in the "QB Effectiveness" and "Generator Effectiveness" DPL report, but the lines within it are considered.	#11104

Description	ID
DPL: Circular references previously led to a PowerFactory crash.	#10812
The DPL command EchoOff was partially ignored (i.e. for the single line graphic) if a project was deactivated after calling EchoOff().	#11006 DIG11019
PowerFactory functions with python lists as an input argument could not be called from Python. This has been rectified.	#11009
Printing objects or getting their string representation using str() or repr() is now also working for objects containing non-ASCII characters (e.g., German Umlauts) in their name or in the name of a parent object.	#10985 DIG11059

1.1.16 Converter / Import / Export / DGS / Engine / API / OPC

Description	ID
PSS/E Export was crashing when a static generator was set via a characteristic to "Out of Service". Problem has been solved.	#11086 DIG11267
PSS/E Import: • Characteristics were not correctly imported (used for de-rating/rating factor of lines/transformers ...).	#11304
Greatly improved performance for running multiple concurrent PowerFactory instances via API.	#10343

1.1.17 Miscellaneous

Description	ID
Examples: • Updated D-A-CH-CZ Standard Example • New example for an Offshore Wind Farm • Updated Wind Farm example • Updated Transmission System example • New example for an Industrial Network	#11161 #10906 #11000 #11124 #11159
Selective apply for scenario now supported.	#8484 DIG5605
Incomplete scenarios are no longer treated as modified after activation.	#11180
Import and export of old PowerFactory "*.dat" files is no longer supported.	#10614
German GUI for PowerFactory now supported.	#11174 #10682
Extension of the standard cable library for 1kV: • NYCWY: 10 mm² - 240 mm² • NYCY: 4 mm² - 240 mm² • NYM: 1,5 mm²; 50 mm²; 120 mm² • NYY: 1,5 mm² - 240 mm² • NYY-J: 16 mm² - 300 mm² • NKLY: 10 mm² - 120 mm² • NAYY: 35 mm² • NAYY-J: 35 mm²; 50 mm² • NAYCWY: 35 mm² - 185 mm² • NAKLY: 95 mm²; 150 mm² • NA2XY-J: 35 mm²; 70 mm² • NA2XY-O 240 mm²	#11201

2 PowerFactory 15.1.2

2.1 Enhancements/Fixes

2.1.1 Miscellaneous

Description	ID
Database migration to 15.1.1 failed.	#10840