



**DigSILENT Technical
Documentation**

**PowerFactory V15.0
Release Notes**



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PowerFactory V15.0

Release Notes

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Version	Release	Description
15.0.3	13.09.2013	Release Notes for PowerFactory Version 15.0.3
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1 PowerFactory V15.0.3

1.1 Major Enhancements

1.1.1 Manual/Help

Description	ID
The tutorial and online manual is now available in German and French.	

1.2 Minor Enhancements/Fixes

1.2.1 Load Flow/Network Reduction/State Estimation

Description	ID
Station Controller: <ul style="list-style-type: none"> - Improved load flow convergence when generator reactive power limits are released. - Q(V) characteristic: Problem solved regarding releasing the reactive power limits of the controller. In addition the output messages (pcl) are improved. - "Voltage Setpoint Adaption" mode: Improvements to achieve better convergence when phase-rotating transformers are present (e.g. Dy5) 	#10000 #10051 #10069
If the load flow is calculated according to secondary controllers and without initialization, it will work on the first run but fail on the second run (no initialization).	#9966
After load flow, the Check Controller function report displays huge values on variable "steps" for Static Var System if its capacitance is zero. The load flow calculation is ok, just the post processing has a problem.	#9989
In load flow calculations, the load scaling is enabled from the second outer loop. The reason is to make sure that the load flow without any scaling should converge. However, there is no need to follow this logic for manual feeder load scaling.	#10015

Description	ID
If the boundary is defined such that it splits a station controller (some generators of this station controller are inside the boundary and the others are outside), the network reduction will wrongly create an Extended Ward Equivalent with zero internal impedance to represent the voltage controller. However, the station controller cannot be removed because some generators remain. Consequently, the load flow of the reduced network will fail because more than one element controls the voltage of the same bus.	#9938
If all boundary nodes are de-energized (for example, the whole network is de-energized), previous version of PowerFactory will crash during network reduction of this boundary. In the fixed version, an error message will be raised and network reduction stops.	#10113
The external measurement object does not update the controlled object if attribute name contains 'c:', e.g. attribute 'kc:1'	#10179 DIG9310
Attempts to modify report formats (IntForm) would lead to corrupted formats as copying into local project settings did not work.	#10107 DIG8857 DIG9169 DIG9012

1.2.2 Optimization

Description	ID
Backbone identification: Corrected ordering of resulting backbones when path load criterion is used.	#10002
AC/DC Optimal Power Flow: <ul style="list-style-type: none"> - De-energized elements are not correctly considered. - Additional load models are also supported in Optimal Power Flow Calculation: <ul style="list-style-type: none"> - Dynamic load (ElmLodind) - MV load (ElmLodmv) - LV load (ElmLodlv) 	#10110 #10132
Tie Open Point Optimization performs optimization of each mesh which contains only one open breaker. If there is more than one open breaker and only one breaker is valid (considered for optimization according to the settings), PowerFactory will crash.	#9867

Description	ID
<p>The DPL report for Tie Open Point Optimization would not show the Necessary Switching Actions correctly if the following steps were carried out:</p> <ul style="list-style-type: none"> - Run Tie Open Point Optimization → run report - Run another Tie Open Point Optimization (with different settings or different network) → run report <p>The second and later report would not give correct Necessary Switching Actions. This is only a report issue, the calculation is ok.</p>	#9977

1.2.3 Contingency Analysis

Description	ID
<p>Virtual power plant now dispatches using the priority of the generators as the main criterion. Previously, a dispatched solution with fewer generators was preferred over a solution based on a priority dispatch.</p>	#10084
<p>If a system contains DC elements, performing contingency analysis with Multiple Time Phase will cause the software to crash.</p>	#10010
<p>If there is not a valid open event in the contingency case, and more than one time phase is defined, PowerFactory will crash in contingency analysis with Multiple Time Phase.</p>	#10074
<p>Variables for buses will be skipped if no terminal results are required in the result file (more precisely, no IntMon defined on ElmTerm is selected). However, the bus angle still could be required for branch results (for example, Line:n:phiu.bus1). In this case, the recorded results of these buses will be wrong.</p>	#9750
<p>If a contingency splits the network from the original slack and it is defined without a fault case, the calculated voltages of de-energized terminals are not zero for that contingency.</p>	#9839
<p>If a Contingency Analysis with Time Sweep is executed in parallel, the progress bar is not updated smoothly. Sometimes it hangs for quite a while.</p>	#9791

1.2.4 Short-Circuit Calculation

Description	ID
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Description	ID
Short-circuit trace: Suppress short-circuit calculation outputs ("Show Output") when running short-circuit trace.	#9746

1.2.5 Arc-Flash Analysis

Description	ID
In some cases, the short-circuit fault clearing time is not limited to the maximum time of the Arc-Flash command.	#9744 DIG7448
High grounding resistance is not correctly processed. With the "Peterson Coil" option enabled, the system is now considered as "ungrounded"/"High resistance grounded".	#9766 DIG7973

1.2.6 Simulation/Modal Analysis

Description	ID
Static Generator, RMS simulation (unbalanced): Support for negative sequence input signals for the voltage source model ("u2r_in" and "u2i_in").	#10035
2-W Transformer: - For a Yn-Yn transformer (with no internal delta winding) the zero-sequence magnetizing impedance is not correctly considered in EMT simulations if a R/X ratio is entered for the zero-sequence mag. impedance. - Fixed an issue that caused 2-winding transformers with a tap on the LV side to have a DC offset in the magnetising current during an EMT simulation initialised from an unbalanced load flow.	#9901 #10119
Step Size Event: Now works correctly when "Interpolation at user defined events" option is enabled.	#9975
DSL: The 'invlapprox' and 'invlapproxext' function now also works with descending y-values.	#10165
The digexfun.dll has been extended to allow print info/error/warning messages in the output window and simulations to be stopped.	#10185

Description	ID
Calculation of the controllability and the participation factors for the Arnoldi method was incorrect, if either: <ul style="list-style-type: none"> - both, left- and right Eigenvectors, were calculated - the participation factors were calculated. 	#9679
In Mode Phase Plot command, a user could select different modes (corresponding to different eigenvalues) for display. The selection is done via a table, which shows all existing eigenvalues in the result file. Actually, these eigenvalue objects (IntEigen) are temporarily created in memory and then they are destroyed immediately when this table is closed. If any such temporary object is copied to clipboard (by Ctrl+C), PowerFactory will crash when the table is closed.	#9841

1.2.7 Harmonics/Voltage sag/Power Quality

Description	ID
Frequency Sweep: Incorrect consideration of IEC sources in mutual impedances.	#10142
Static Generator: Harmonic load flow (unbalanced) no longer crashes, if the frequency dependant characteristics are defined only for the positive sequence impedance.	#9959 DIG8614
External Grid: The harmonic positive sequence voltage angle is now correctly considered for harmonic load flow.	#10183
Rectifier/Inverter: The rated current (e:Inom) is now correctly calculated and displayed on the "Harmonics/Power Quality" page.	#9806
The "Consider Capacitance" option and parameter are now also available on the "Harmonics/Power Quality" dialog page.	#9900 DIG7793
Harmonic Current Sources: The description of the harmonic angle is improved ($\phi_h - h \cdot \phi_1$).	#10190
Output of Results: The "Use Selection" option is now available for the harmonic load flow reports.	#9844 DIG8183

Description	ID
Flickermeter: Curtailment and errors in DPL reports e.g. if the input file has more than 10 input signals, the y10 or y11 results are not correctly printed.	#10129 DIG9057
PowerFactory crashes occasionally during Voltage Sag Calculation.	#9780
If characteristics are defined in the system and the harmonic load flow calculation is performed after Voltage Sag Calculation, the harmonic load flow results are incorrect.	#9781

1.2.8 Reliability Assessment / Generation Adequacy

Description	ID
The problem with empty result boxes in the single line graphic after a reliability calculation has been solved.	#10151
The reliability calculation crashes if a line is connected only on one side (the other side is not connected to a cubicle).	#10019
Using a balanced reliability calculation power is partially restored. In an unbalanced case, nothing is restored, even if the network only contains balanced models. This occurs for faults outside the feeder only.	#10124
The sequence of the switch events is sometimes wrong in the trace (Older events appear before younger ones).	#10197
Energized elements are coloured as being de-energized after a reliability calculation.	#10100
Reliability calculations stop if all of the following are fulfilled: <ul style="list-style-type: none"> - Load flow option is enabled - Voltage constraints are considered - A terminal is violating voltage limits in the base case - The terminal shall be ignored due to the setting "Ignore all constraints for..." on page "Constraints" of the reliability command. 	#10066
In the reliability analysis for distribution systems with voltage constraints, the voltage limits are not correctly assigned to the terminals where an open switch (internal switch inside a cubicle) is defined.	#9818

Description	ID
If there is a 3 winding transformer inside a MV feeder in a distribution system, the unbalanced reliability analysis with constraint checks crashes. Now, an error message will be issued and the calculation will stop.	#10154
In reliability analysis of distribution systems and Tie Open Point Optimization, a simplified load flow calculation for radial network is used. This method was not accurate if relatively large losses were involved. Now the accuracy has been improved.	#10060
In cases where a distribution system is modelled in detail (i.e. distribution transformer + load), the transformer could be defined as single phase transformer. If the system contains a large number of single phase transformers, execution of the reliability analysis with constraints is extremely slow.	#10181

1.2.9 Protection Models

Description	ID
SEL Directional unit: PowerFactory crashes if an unknown relay model is given in the type.	#9945
Differential Protection unit: Fixed an issue that caused the phase comparison to not calculate the differential current correctly for external faults.	#9827
Under-/Overvoltage unit: Fixed an issue with the calculation of the vector jump when the measurement has DFT filters enabled.	#9960
ABB Distance (PHS) unit: The ABB starting block now prevents zones from tripping if the measured current is below the "Minimum operating current (Iminop)" setting	#10063
Polarizing unit: The polarizing block now correctly calculates R,X signals if the measurement is set to "Load Compensated DFT"	#9756 DIG7586

Description	ID
Siemens Starting unit: The dialog now displays the voltage dependant overcurrent settings when the starting method is "U/I/phi"	#9910

1.2.10 Single Line Graphic / Bock Diagram

Description	ID
The following additional pre-defined result boxes for unbalanced calculation types are now available for terminals: - Tech. Dependent Voltages - Tech. Dep. Voltage (rated to Unom)	#9935
Neutral conductor colouring is now correctly handled for the colouring mode "System Type AC/DC and Phases".	#9820
Fixed an issue which led to result formats for single line diagrams being incorrectly saved.	#9825
A network is now properly shown as energised if the static generator is marked as "Reference Machine".	#10032
Fuses are not drawn as section couplers in automatically created detailed substation diagrams.	#9797 DIG8035
Graphically inserting objects from the clipboard, that have been copied while another project was active, can crash the application.	#10085
Selection of graphics objects (e.g., loads or transformers) using mouse clicks failed in some cases.	#9842
Diagrams for schematic feeder visualization are now created in the diagrams folder.	#10052 DIG9038
Memory leak in some results colouring modes.	#10120 DIG7391
Dialog for font selection is now modal.	#10023 DIG8934

Description	ID
Calculation results are no longer reset when a temporary substation diagram is displayed and converted into a permanent diagram.	#10040 DIG8979
Some substations are not coloured when colouring by zones or areas is used.	#10054 DIG8961
"Zoom-All" does now correctly displaying the whole diagram.	#10123 DIG6687
The title in a diagram is not movable or is drawn at wrong position in GPS-diagrams.	#9927

1.2.11 Graphical User Interface / Dialog / VI

Description	ID
Variable Selection: <ul style="list-style-type: none"> - Fixed an issue where variables with similar characters (e.g. Ik <-> Ikss) at the beginning could not be removed correctly. - Element parameters ("Basic Data") for MV load can now be selected again. - Horizontal scrollbar is now available if very long variable descriptions are present. 	#9896 DIG8351 #9948 DIG8518 #9919
Open object dialogs will now be closed when switching study cases.	#10093
Cubicle (StaCubic): The parameter "cterm" is now accessible via DPL and the flexible data page.	#10095 DIG9213
Activating a study case with many variations is very slow when the Project Overview Window is visible.	#10112 DIG8819
Project Overview View Window loses information about unfolded groups when deactivating a study case.	#9718
Icons in the data manager can become black when displaying a very large number of child objects (e.g. 50.000)	#10111
Greek, Turkish and Russian characters are not always displayed properly.	#9925

1.2.12 DPL

Description	ID
DPL Library: Improvements for the following scripts: a) "TimeSweep": Handling for feeders improved. b) "FaultReport": DDE commands replaced by a MS extension command for Excel. c) "RunRelForStudyCases": Problem in sub-script "CreateReports" solved.	#10046
GetSplitCal function returns wrong border cubicles in some cases (affects standard beachball algorithm only).	#10134

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

Description	ID
CIM ENTSO-E 2009: a) Modified handling of PhaseTapChangers b) IdentifiedObject.Description missing in GeneratingUnit when corresponding SynchronouosMachine has equivalent flag=true	#9978 #9964
PSS/E export: Generator parameter "xdss" is now calculated as $xdss = (xd'' + xq'')/2$ when exported to PSS/E format.	#9881 DIG8259
PSS/U Import: Imported diagrams are now stored in the "Diagrams" folder.	#10059 DIG8935
DGS import: Importing variations (DELTA, ADD Objects) loses element connections (e.g. load, line) in some special cases.	#10033 DIG8854
API: a) Disabled occasionally appearing pop-up windows b) Null pointer exception when PowerFactory could not start c) Various problems with shutting down PowerFactory solved d) Solved problem with API crashing after execution of 64k commands when starting from an external application. e) Corrected a problem where consecutively accessing the same parameter for different objects could lead to wrong results	#10091 #10145 #9868

Description	ID
OPC: Improved COM instantiation to properly distinguish between local and remote server.	#9994 DIG7509 DIG7648 DIG7684

1.2.14 Database / Offline Mode

Description	ID
Update Database: Improved performance for the update of transformer/shunt taps.	#9807
In case of failing Offline Mode initialization a local offline database file is no longer created.	#9903 DIG8419
Added an appropriate error message if a "disk full" event is raised by SQL server. Previously this event has been ignored and could lead to data losses.	#9997 DIG8822
PFD export to former versions no longer warns about loss of data if there is no loss.	#9729

1.2.15 Miscellaneous

Description	ID
Demo example improved a) LV and MV Distribution Network example improved b) Wind Farm example: new video available for the base case c) HVDC example: new PDF documentation	#10044
Template for DFIG Model improved: Pre-fault reactive current is now considered correctly for reactive fault current calculations, according to SDLWindV.	#10128
Improved handling of conflicting objects in variations/expansion stages.	#9954
Fixed an issue that could lead to PowerFactory crashing when the "Retention of results" option is enabled.	#9968

Description	ID
Fixed the issue that PDF-HELP (F1) does not start when Adobe XI Pro is installed.	#10139
Attributes dpl1,... dpIN can now be configured as scenario relevant.	#10008