

# ASPEN OneLiner

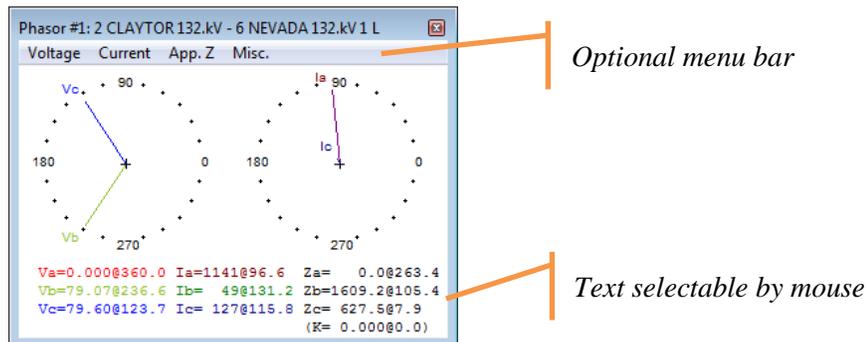
## Version 14.4 Update

This maintenance release contains fixes for all known bugs to date and some program improvements.

You have been given a link to download the setup program setup.exe. You can run setup.exe to update an existing or to create a new *OneLiner V14* installation. Please write to support@aspeninc.com in English (suporte@aspeninc.com in Spanish and Portuguese) or call us (650-347-3997) if you have questions.

### Program Improvements

- **Inclusion of on/off-line flag** in copy/paste and import/export of overcurrent relays, fuses, distance relays and reclosers.
- **Re-designed user interface of the phasor diagram panel with new features:** command menu bar, phasor values display selectable by the mouse for copy/paste, text font size selection.



- **A new option in the voltage controlled current source model** to shut down the current source based on the minimum phase voltage, instead of the positive-sequence voltage.
- **New flash screen during program startup** to inform you about the operations being performed.
- **New breaker protected equipment type.** You can now added switched shunts to the list of breaker protected equipment.
- **New stepped-event simulation fault clearing time calculation in Arc-Flash Hazard Calculator command.** With this option, the program will perform stepped-event simulation to simulate fault clearing. The variation of fault current over time is taken into account in arc-incident-energy calculation logic.
- **Enhancement in the “Copy Window Content to Clipboard” command in the modeless window that appears after a stepped-event simulation:** Fault current magnitude is included in the clipboard data. Also data format is now Excel compatible.
- **New text filter logic in the Tag Browser dialog box:** The program will show all entries that contain the text string you enter. Previously only entries that *begin* with the filter text string were displayed.
- **Enhanced mutual-pair model for transmission lines that share right-of-way in multiple locations.** For a pair of mutually coupled lines, you can now specify up to 5 sets of from/to percentages where the two lines are mutually coupled. For a pair of lines that are mutually coupled in two or more locations, this feature makes it possible to model the mutual coupling without the use of tap buses. The impedances you enter in the

new dialog box are always positive. In cases where the ends buses of the two lines have different implied directionality, you can use the “Swap ends” button in the dialog box to swap the end buses of Line 2. (*Note*: The “Swap ends” button changes only the order the end bus of Line 2 is presented in this dialog box. It does *not* alter the line data.)

	From %	To %								
Line 1	0.	100.								
Line 2	0.	100.								
Rm, pu		0								
Xm, pu		0.12								

*Explicit line orientation*

*Up to 5 mutual segments*

- **Improvement in Last Changed date stamp logic.** The program no longer updates the date stamp when merging files and pasting equipment to different file.
- **New parameters in recloser model** to let you specify which parameters are affected by the time adder and the time multiplier.

*Application of time multiplier and adder settings*

- **Enhanced the Read Change File command** to correctly process change file in OneLiner version 12 file format.
- **Adjusted zoom logic for the Time-Distance Diagram** to allow a much greater range of line impedance.
- **Improved relay test file COMTRADE export** to show low level signal correctly. Also the option of using relay trip time for fault-state duration is now available for COMTRADE output.
- **PRC-025 check improvement:** Wye-delta-delta 3-winding transformer, which is commonly used to connect two identical generators to the network, is now included in the PRC-25 checking logic. Also added is the ability to plot PRC-025 generator loadability curves for generators in this configuration.
- **Improved logic scheme calculation** to allow a logic scheme to continue working when one or more components (e.g., relays) in the scheme are off-line. The program simply treats the out-of-service logic scheme components as not-asserted.
- **Support for SEL421 setting EFID:** This setting is found in late-model SEL421 relays. It can be used to allow relay to function without the faulted phase identification logic.
- **Auto-wye-delta transformers are exported as type-17 in PSS/E sequence files of version 33.**
- **Import relay settings from stored files in ASPEN relay database and Doble PowerBase.** Previously users must save copy of setting file stored in the database to disk before the file can be imported in OneLiner.
- **Import Toshiba GRL100 relay settings from relay setting data file,** that is exported from the manufacturer relay management software in CSV format.

### New and Updated Overcurrent Relay Curves

- **Dominion.rly**
  - Dominion Power Fuses. 34.5KV-69KV. Types E, M, X
- **Siba.rly**
  - HHD-B High Voltage Current-Limiting fuse
- **Cooper.rly**
  - Cooper 38kV ELSP Fuse
  - Cooper 38kV Bay-O-Net 380C Fuse Link
  - Cooper 27kV Type "D" Fuse
  - Cooper 23kV 6A ELF Dropout Fuse
  - Cooper 5.5kV, 8.3kV, 15.5kV ELG Power Fuse
- **Hi\_Tech.rly**
  - Trans-Guard OS Shorty Oil-Submersible, Backup Current-Limiting Fuses. 38kV
- **Cutler\_Hammer.rly**
  - AB DE-ION Series C F-frame circuit breakers
- **Shawmut.rly**
  - Shawmut 15.5 kV Medium Voltage Amp-Trap Fuse
- **ABB.rly**
  - Corrected data entry error in curve C0-6
- **Eaton.rly**
  - Electronic Trip Unit Type KDC
- **S&C.rly**

- InterlliRupture PulseCloser 15, 27 and 38kV
- **ZIV.rly**
  - ZIV Recloser Curves

### **Bug Fixes in OneLiner since version 14.3**

- Check OC instantaneous Setting command: For lines with multiple segments joined by tap buses, the option “Outage and ground ends of mutual lines” now outages and grounds the *true* ends of the line. Previously, the program outages only the first line segment. This fix may change the checking results slightly.
- Bug fix in breaker rating logic: The program incorrectly processed closed switches in the breaker protected device list in some cases.
- Bug fix: The DS Relays Window commands “Show | Relay Operation in One Fault” and “Show | Relay Operation in All Faults” did not always report the same value of apparent impedance to fault seen at relay location.
- Bug fix: The DS Relays Window Misc | Option setting for the unit of time did not have any effect on the TTY report of the command Show | Relay Operation in All Faults
- Fixed bug in logic for linking OneLiner objects to PowerCalc worksheet. Several object types were not being handled correctly.
- Fixed a bug in the prefault voltage calculation logic for voltage-controlled current sources that cause the prefault voltage to not converge correctly. This happens only in cases where the converter is absorbing real power before the fault.
- Fixed bugs in PowerScript functions: BoundaryEquivalent(), and SaveDataFile()
- Fixed bug in logic for simulating SEL directional element in OC relay that caused wrong result to show on the 1-line diagram.
- Fixed bug in logic for reading SEL event recording files.
- Fixed bug in phasor panel’s real time Excel output.
- Fixed bug in TTY report of the Fault | Show Solution on 1-Line command in the TTY windows, which corrupted results for distance relays.
- Re-formulated labels in Relay tab of the File | Preferences dialog box for the default pickup time parameter.
- Fixed bug in Reset Stored Library Names button logic in the Relay tab of the File | References dialog box.
- Fixed bug in the OC window Show | Test Values command. The Min. T parameter or reclosers was not being taken into account.
- Fixed bug in logic for displaying distance relay parameters in the Data Browser
- Improved performance of PowerScript’s fault simulation logic for large network.
- Bug fix in phasor panel display logic, which caused program to crash.
- Fix a bug that hanged the program when you execute the File | Print 1-Line command and then press the "Change/Setup Printer" button.
- Fixed an error in the phase shifter impedance correction table logic.
- Fixed a display issue: One of the columns in the mutual group dialog box was too narrow.
- Fixed bug in PowerScript function ComputeRelayTime(). Neutral currents in the input array were not processed correctly.

- Fixed bug in distance relay dialog box logic for handling PT bus location. The problem happened only when the PT bus and the relay group are not at the same place. The dialog box did not show bus name correctly.
- Fixed bug in Read Binary File command. The program incorrectly displayed "Invalid data file" error in some case.
- Fixed a bug that let you open a time-distance diagram by selecting a a relay group on a transformer.
- Fixed bug in OC Relays Window: The Show Test Point command. Should not work for instantaneous relays.
- Fixed bug in the Save File command: The bug corrupts tag data fields of generator and shunt units
- Fixed bug in Export Network Data command for the ASPEN text data file format. The bug caused issues in switched shunt data section of DXT file.
- Fixed bug in logic for ANSI X/R ratio calculation, which could cause incorrect results in networks with MOV and current limited generators.
- Fixed typo in relay loadability report output: The branch-type letter for transformer branches was incorrectly printed as 'L'. It should have been 'T'.
- Improved logic in Bus Fault Summary's current deviation report to avoid reporting very small differences in current that are caused by decimal-number formatting.
- Fixed problem in View | Tags command: Tags on bus and bus equipment were skipped.
- Fixed bug in Test File Export command: the VT bus selection dropdown did not work when OC relay is selected; The VT on bus side and VT on line side dropdown was not being initialized correctly in all cases.
- Fixed a bug in the Time-Distance Window logic that hangs the program when a user clears the monitored relay at a relay location and press the OK button.
- Fixed bug in Bus Fault Summary's CSV report that caused problem in current deviation summary when the decimal character in Windows location setting is something other than a dot.
- Fixed bug for the floating menu item "Find Bus by Number": It brings up the Find Annotation dialog box.
- Fixed bug in Fault Locator command logic to improve performance.
- Fixed bug in phasor panel display logic for voltage-controlled current sources.
- Fixed problem of the PRC-025 and PRC-26 limits on the OC Curves Window. The vertical line marking these limits were not showing up in the printed copy.
- Fixed copy/paste and import/export of voltage-controlled current sources.
- Improved documentation of voltage-controlled current source in the user's manual, in particular, the definition of the power-factor angle, which is now defined as the angular difference between the current injection and the terminal-voltage phasor. Previous, the term of "capacitive" and "reactive" was used.
- Added examples of how to model VSC converters and rectifiers with the voltage-controlled current source in the user's manual.
- Fixed bug in New Switch command. It was enabled incorrectly for buses having different kVs.
- Fixed bug in Export Test Relay command dialog box logic for phase rotation selection.
- Fixed bug in the logic for printing monitored branch result to TTY.
- Fixed bug in the logic for displaying neutral current in the phasor diagram.

- Fixed bug in DS Relays Window's logic for displaying distance relay dialog box, which caused incorrect refresh of fault solution display on the one-line diagram.
- Fixed bug in the Copy/Paste Region command. It caused the program to crash and data damage when file being copied from has more impedance-correction table entries than the one being copied to.
- Fixed bug in PowerScript branchFlow() function that affected calculation for transformers and switches
- Fixed bug in command Move region logic. Annotations were not included in the command undo data.
- Fixed bug in move bus logic. Annotations attached to bus equipment were not moved correctly.
- Fixed bug in stepped-event analysis command logic for processing TOC pickup signal
- Fixed bug in idle time re-login logic that caused the program to crash.
- Fixed bug in relay test file reference angle logic.
- Fixed bug in journal logic that caused data file damage.
- Fixed bug in logic for computing voltage relay operating time.
- Fixed bug in voltage relay calculation in stepped-event analysis simulation.
- Fixed bug in cancel button logic for voltage and differential relay info dialog boxes.
- Fixed bug in OK button logic for differential relay info dialog box.
- Fixed bug in DXT export command logic, which hanged the program when the length of File Comment field content exceeded certain limit.
- Label of the Go To End Bus command did not show the 'E' keyboard shortcut. Fixed
- Fixed problem with journal entries that caused program crashes when insert tap bus command is executed on line with mutual pairs.
- Improved Go To Line End dialog box to work correctly with switches.
- Fixed a bug that caused the program to hang when opening some large OLR files.
- Fixed bug in relay test file configuration TCF file save logic. The load MVA or Amp data was not saved in the file.
- Fixed bug in Fault solution report dialog box logic for fault selection
- Fixed bug in SEL distance relay logic to show no operation when ground directional element does not show any fault direction. Also improved drawing performance of SEL load region.
- Fixed bug in 7SA522 relay impedance calculation
- Fixed bug in calculation of transformer and phase shifter load current in checked relay loadability command.
- Fixed bug network data export to ANAFAS format.
- Fixed a bug in the PTI PSS/E export logic for version 26 to 32. There is a mix up of the format of the sequence data for 3-winding transformers between v26-32 and that of version 33.

### **Bug Fixes in PTI PSS/E-to-ASPEN Data Conversion Program since version 14.3**

- Fixed an error in processing the zero-sequence impedance of 3-winding auto-wye-delta transformer of type 17. Type-17 transformer (which first appeared in PSS/E version 33) is the same as wye-wye-transformer of type 2, except the two wye windings of type-17 are from an auto transformer. Previously type-2 and -17 transformers were processed the same way in the PTI-to-ASPEN data conversion program. A user pointed out to us that

we were not doing it right. The reason is that the PTI sequence parameters for type-2 are the impedances of the T-model. But for type-17, the PTI sequence parameters are the "sum of leakage impedance between winding terminals". This data conversion logic has been updated with this understanding.