Introduction to The Next Generation of Distribution Analysis Tools

Summer course D4

Davis Montenegro Martinez Ph.D.
Engineer/Scientist III

Universidad de los Andes
Bogotá, Colombia
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Electric Power Research Institute - EPRI

Together...Shaping the Future of Electricity

Advancing safe, reliable, affordable, and environmentally responsible electricity for society through global collaboration, thought leadership, and science and technology innovation

Areas of focus

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The instructor

Davis Montenegro, *Member, IEEE*

Davis Montenegro-Martinez serves as Engineer/Scientist III at the Electric Power Research Institute (EPRI) in the areas of power system modeling, analysis and high performance computing. He received his B.Sc. degree in electronics engineering from Universidad Santo Tomás, Bogotá, Colombia (2004); he is M.Sc. in electrical engineering from Universidad de los Andes, Bogotá , Colombia (2012). He received his Ph.D. in electrical engineering from Universidad de los Andes (2015), and a Ph.D. in electrical engineering from the University Grenoble-Alpes, France (2015).

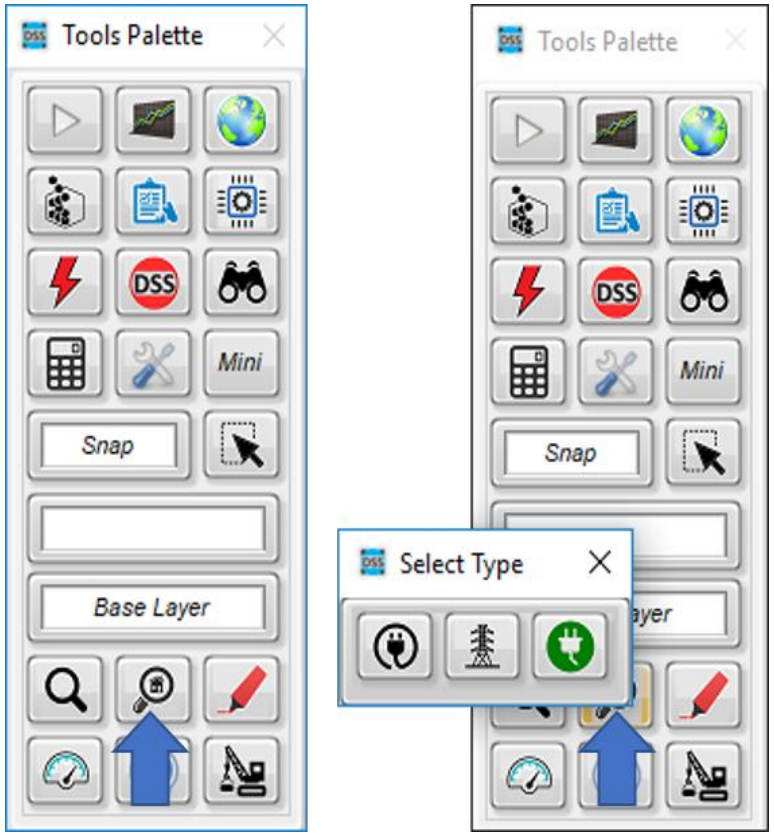
Before joining EPRI, Davis served for 10 years as a lecturer for Universidad Santo Tomas in Colombia, during this time he was also technology consultant in the areas of industrial automation, software and electronic hardware design focused in the electric power industry, specifically in monitoring and control for meter calibration laboratories. His expertise in parallel computing techniques is being used at EPRI for incorporating multi-core processing to power system analysis methods such as QSTS, reducing the computational time required to perform these analysis using standard computing architectures.

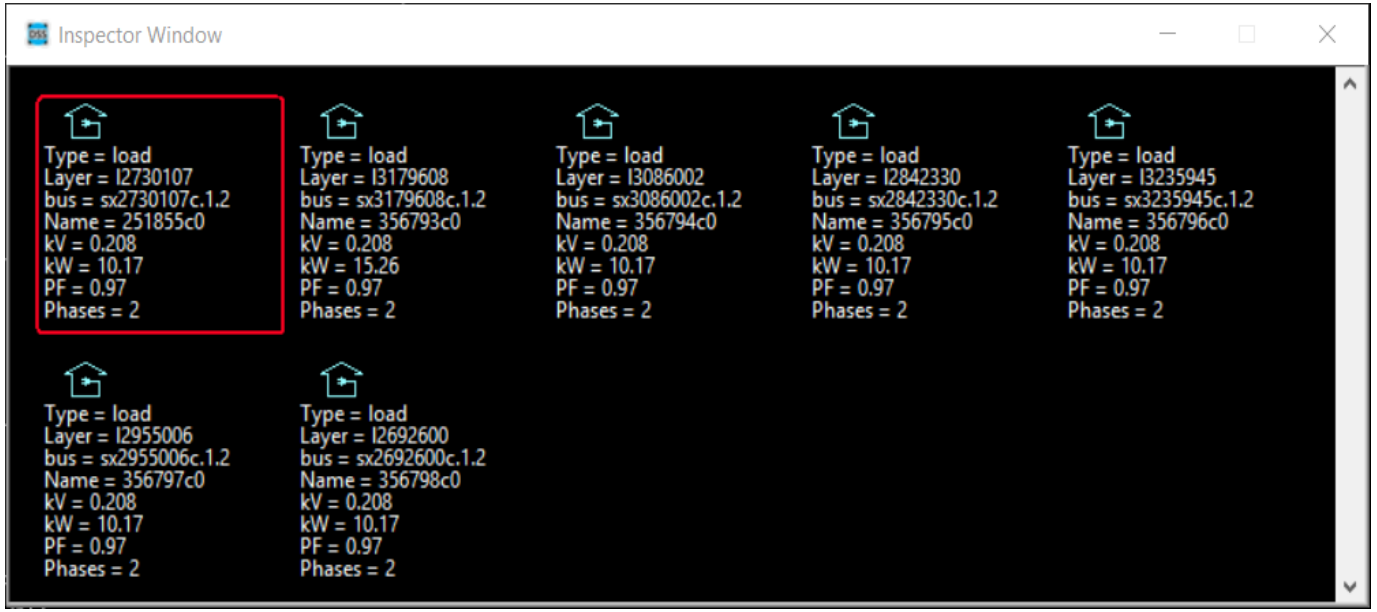
Dr. Montenegro is also a member of the International Council on Large Electric Systems CIGRE, he was awarded with the IEEE 2016 I&CPS Ralph H. Lee Department Prize Paper Award at the 2017 I&CPS Technical Conference Awards luncheon in Niagara Falls, ON, Canada, for the paper titled "Energy Storage Modeling for Distribution Planning." He was also awarded an IEEE recognition in 2017 for notable services and contributions towards the advancement of IEEE and the engineering professions chairing of IM09 (Instrumentation and Measurements) Society Chapter, Colombian Section 2015–2017.

Visual aids for editing in OpenDSS-G

Visual aids for editing in OpenDSS-G

- The inspector window





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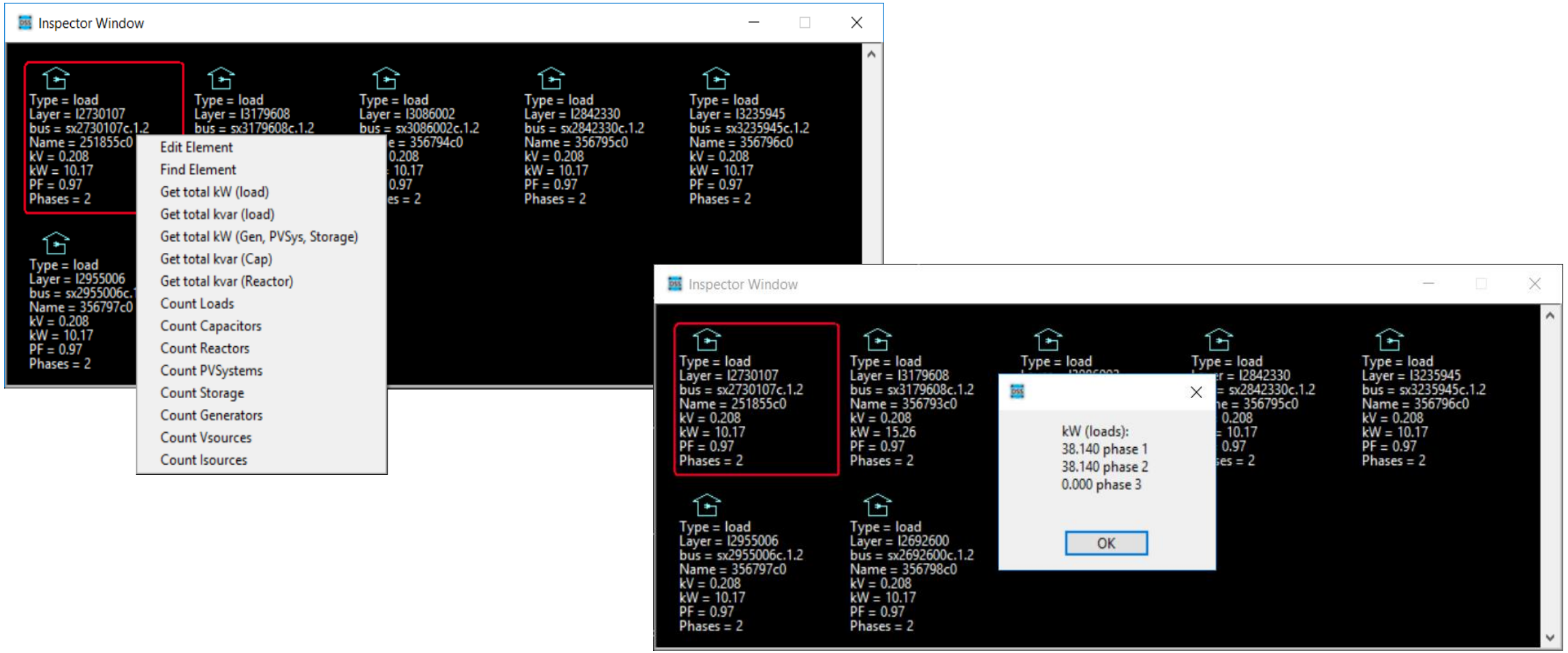

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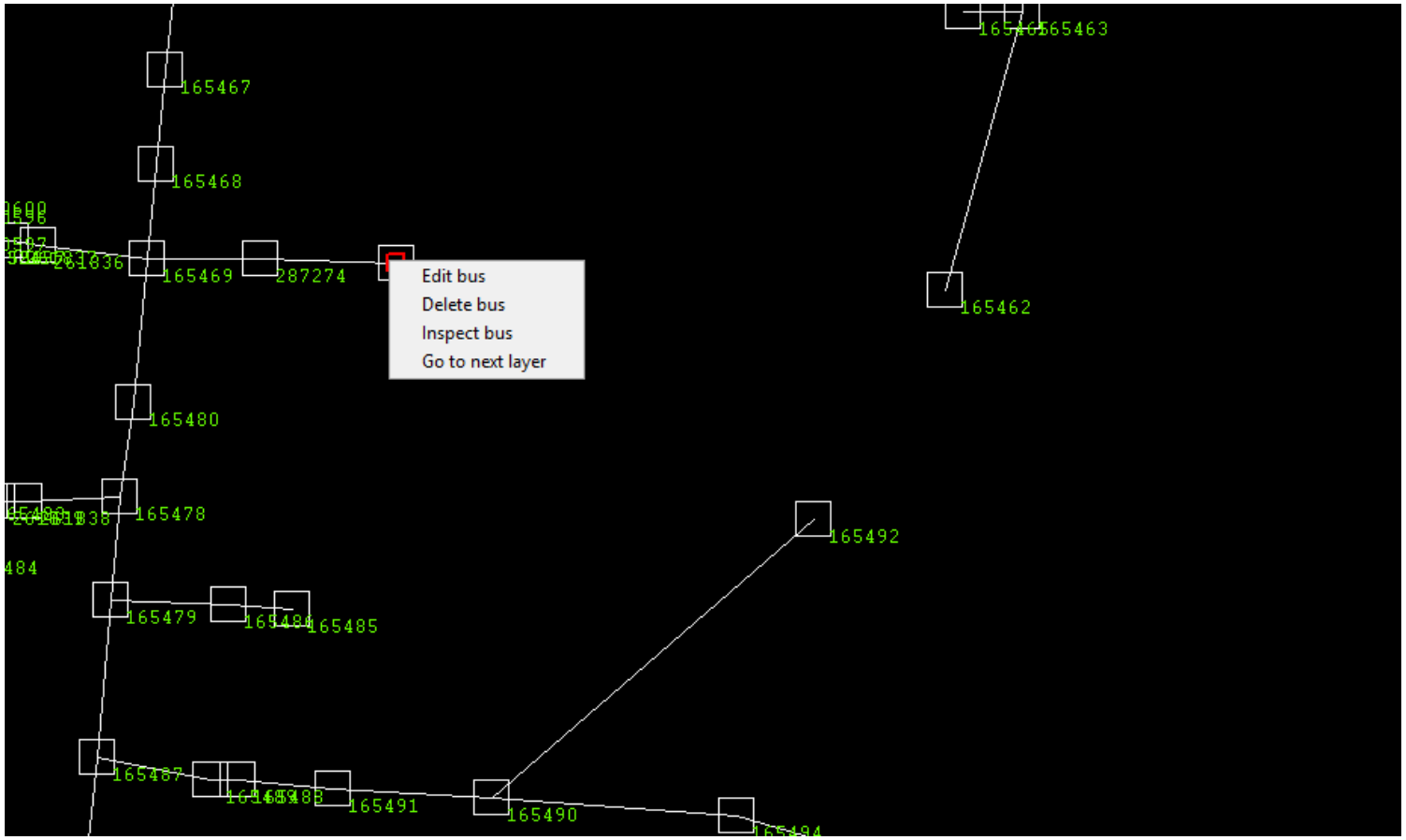
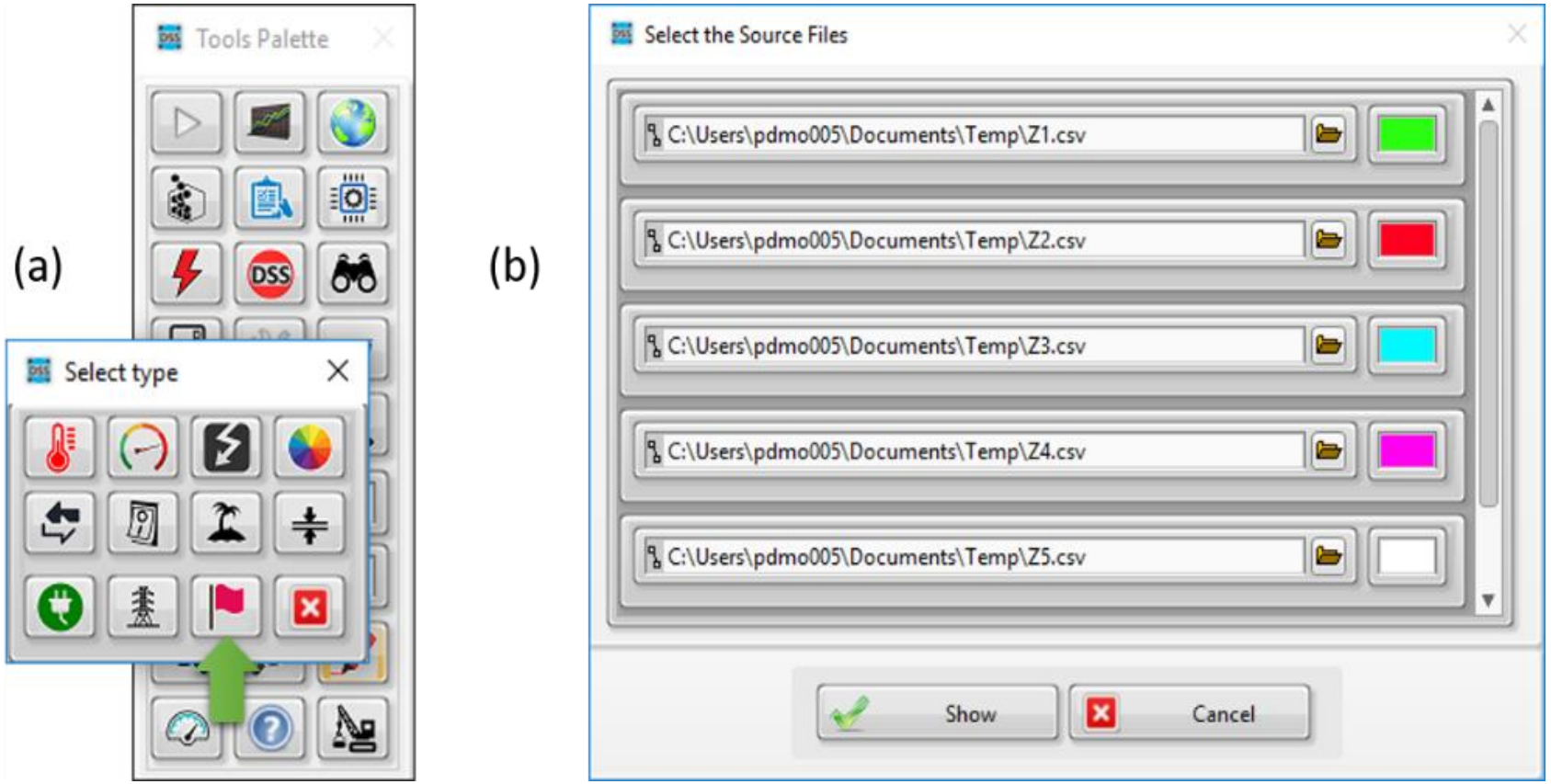


Visual aids for editing in OpenDSS-G

- Flags



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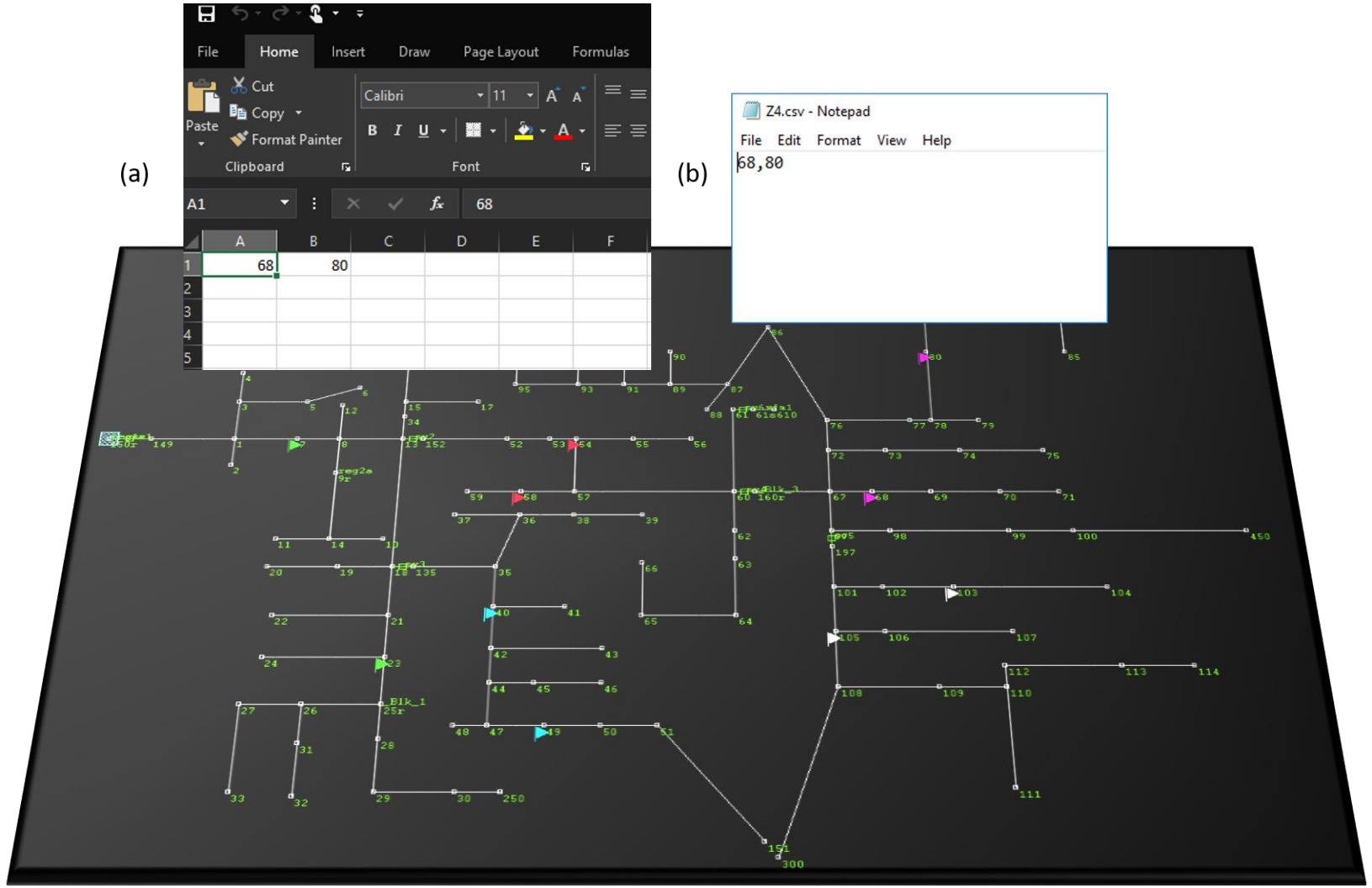
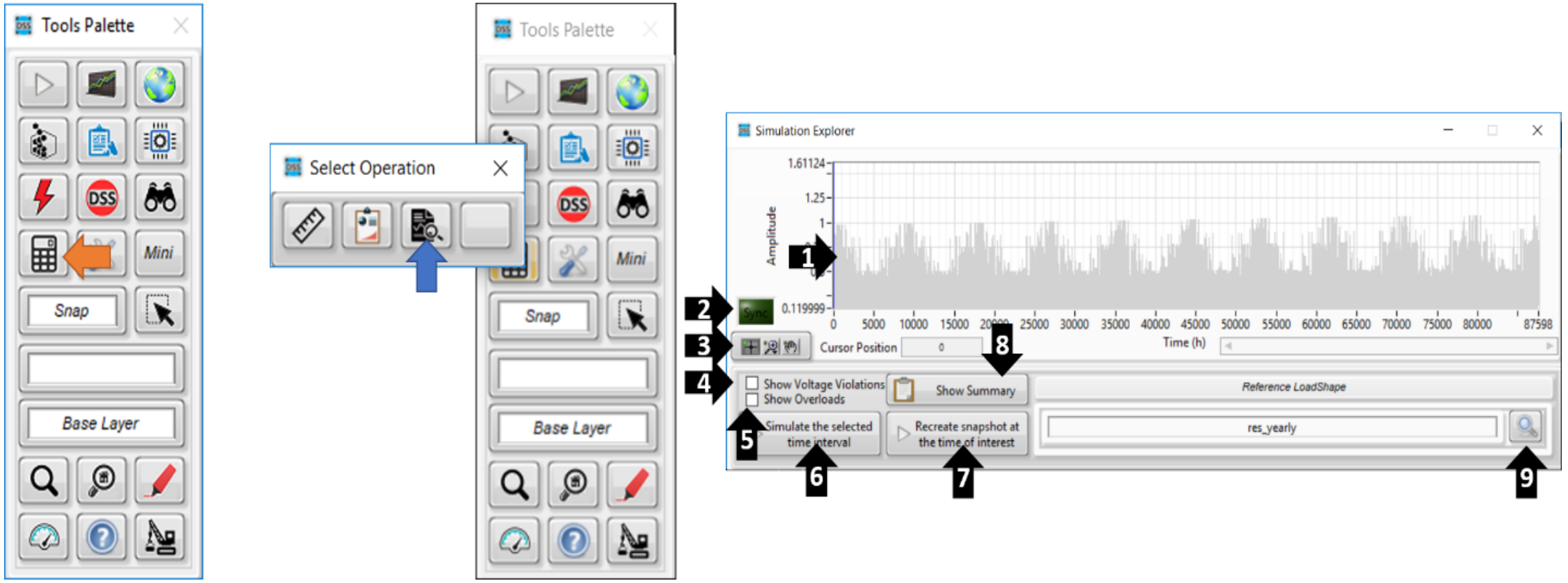


Visual aids for editing in OpenDSS-G

- The simulation explorer



Visual aids for editing in OpenDSS-G

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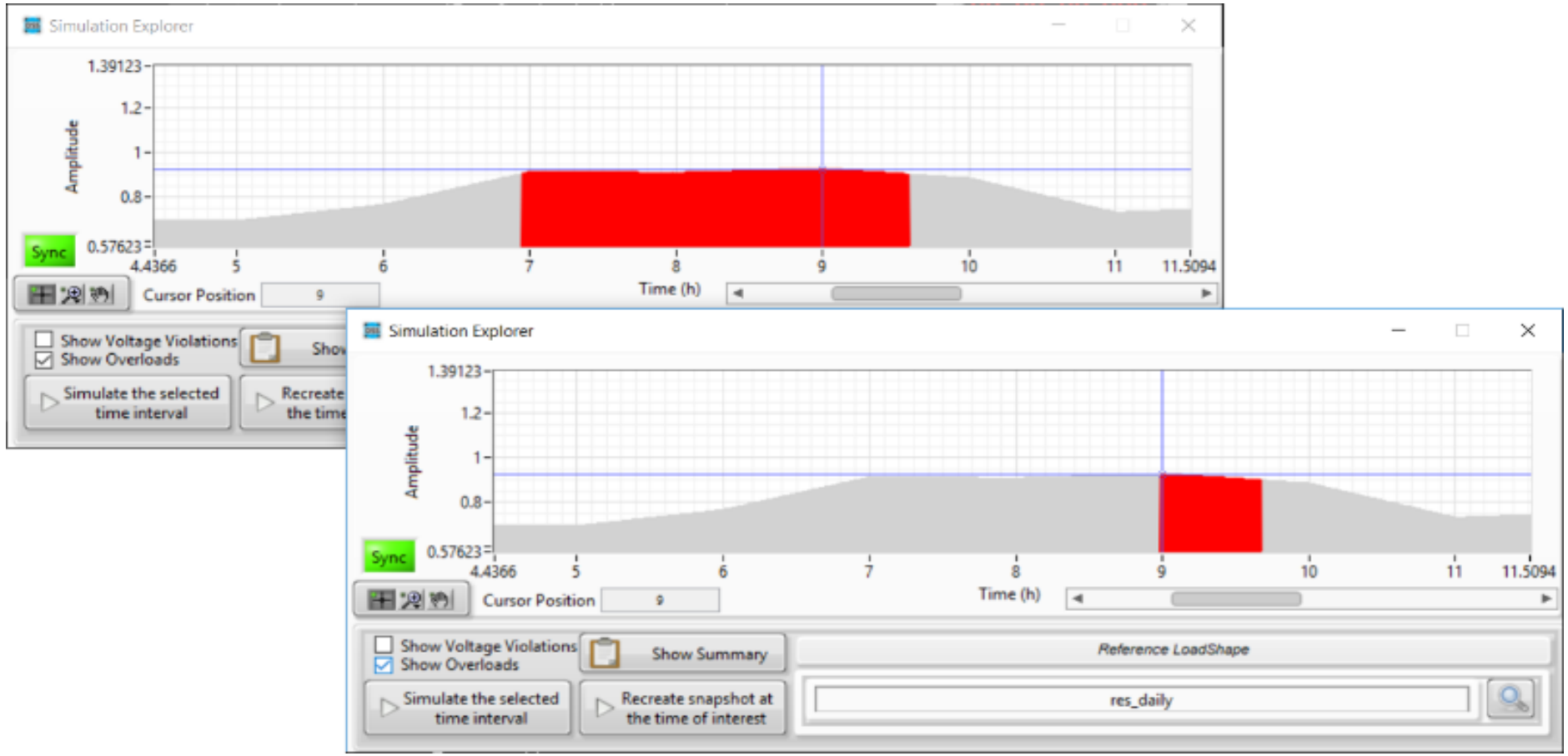

Visual aids for editing in OpenDSS-G

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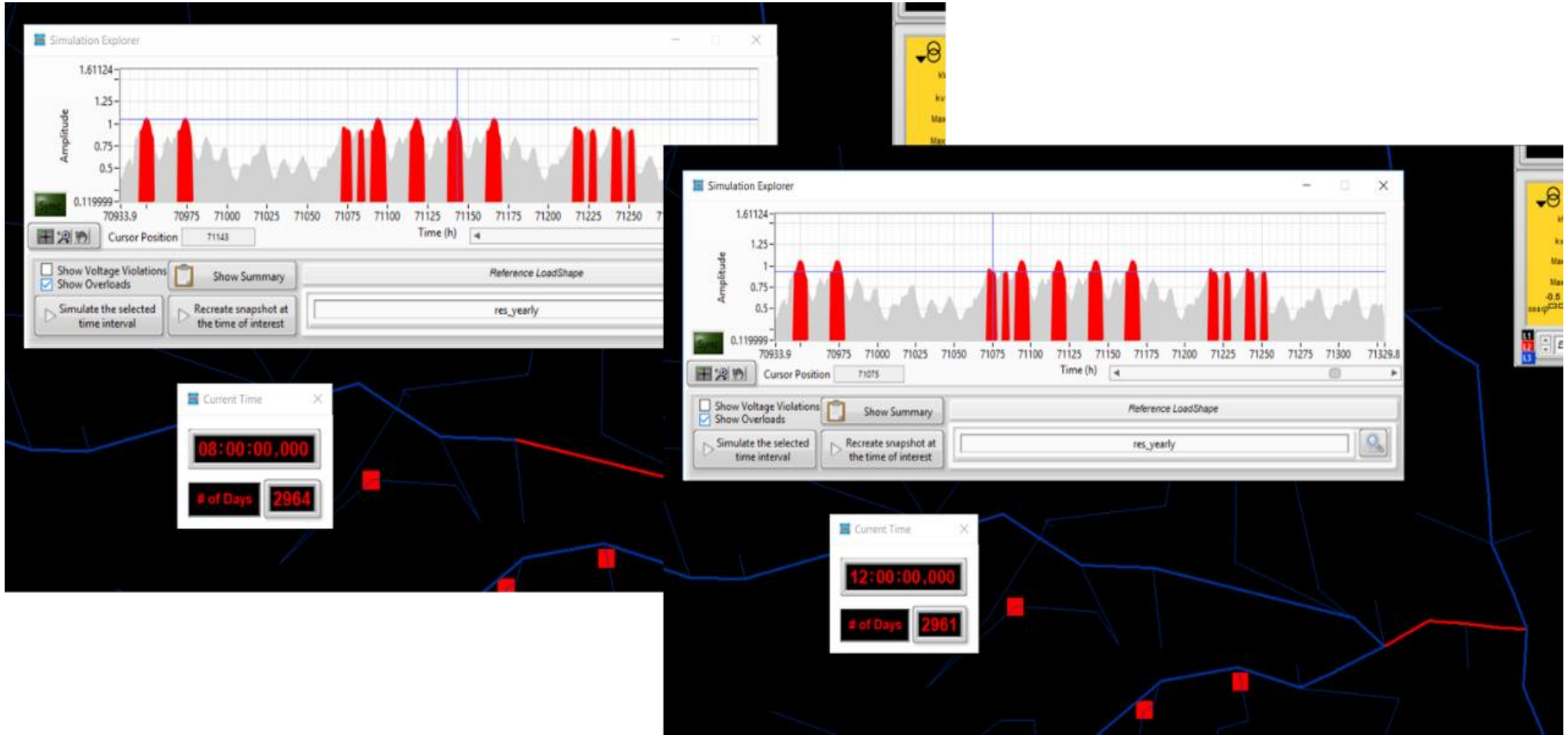

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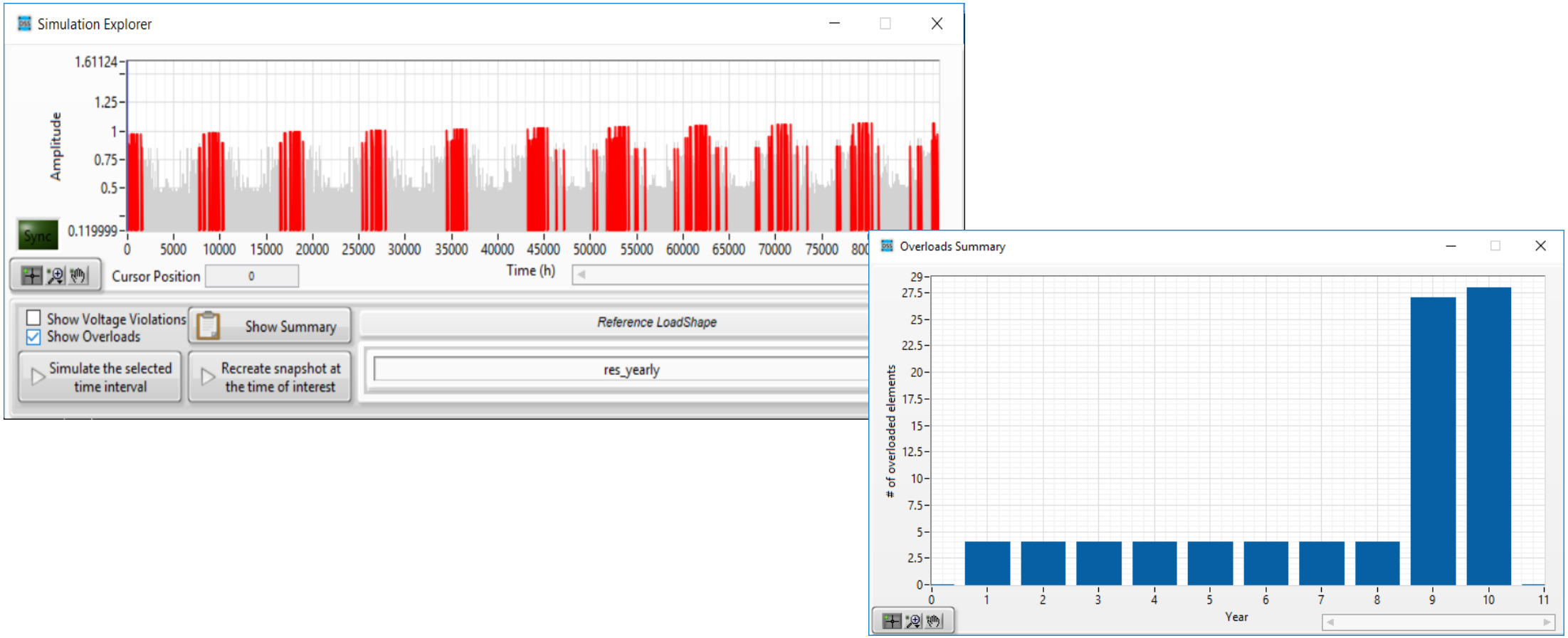

Visual aids for editing in OpenDSS-G

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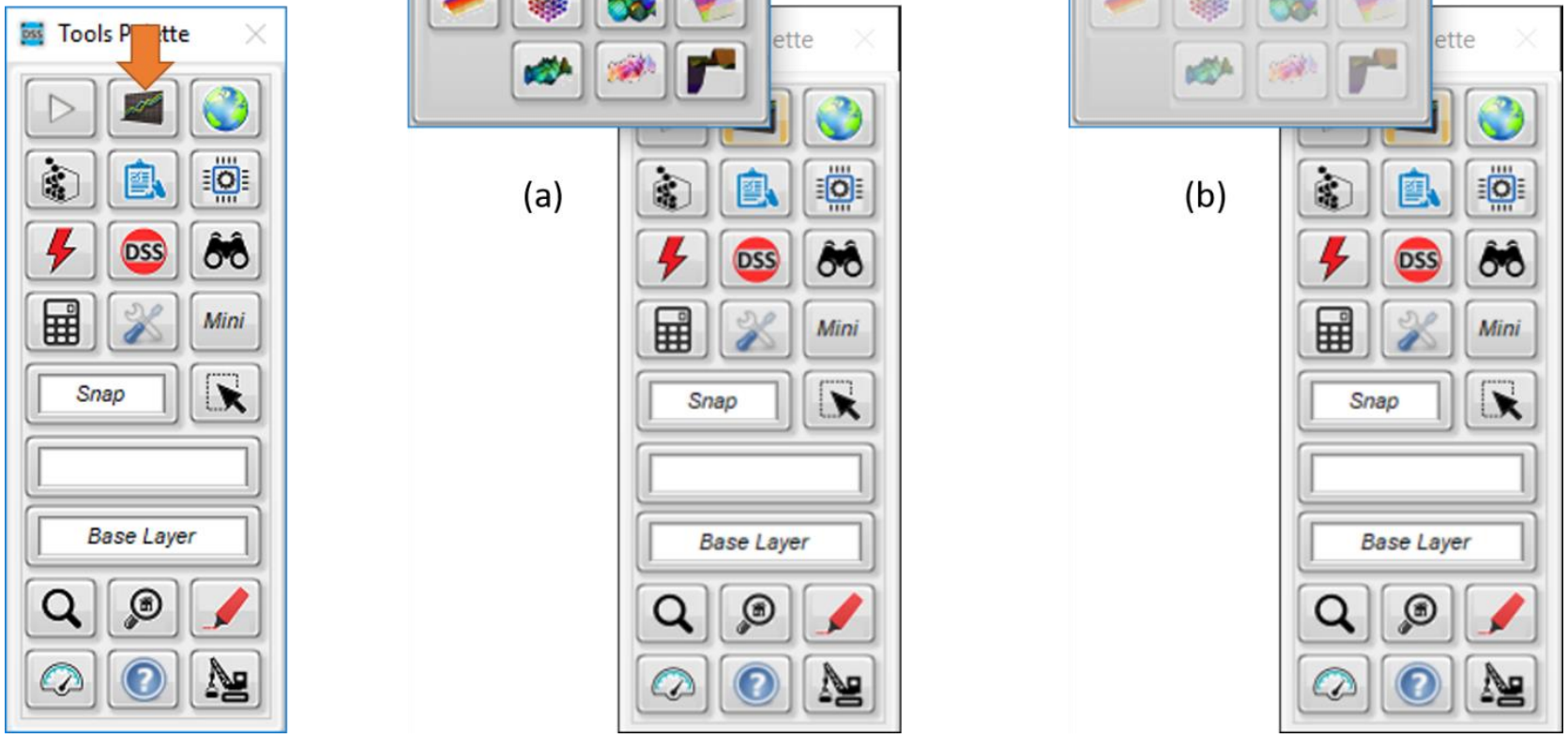
Visual aids for editing in OpenDSS-G

Let’s run an example

Visual aids for editing in OpenDSS-G

- Other graphics



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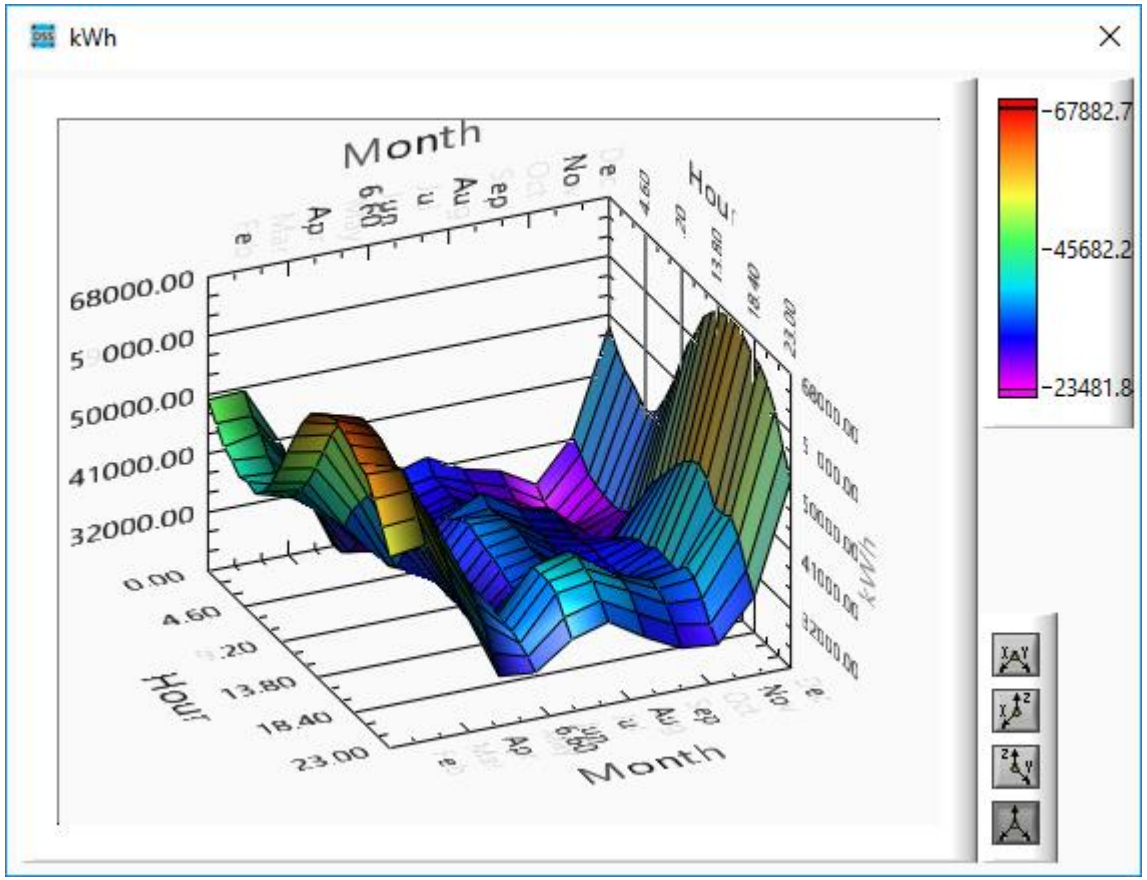

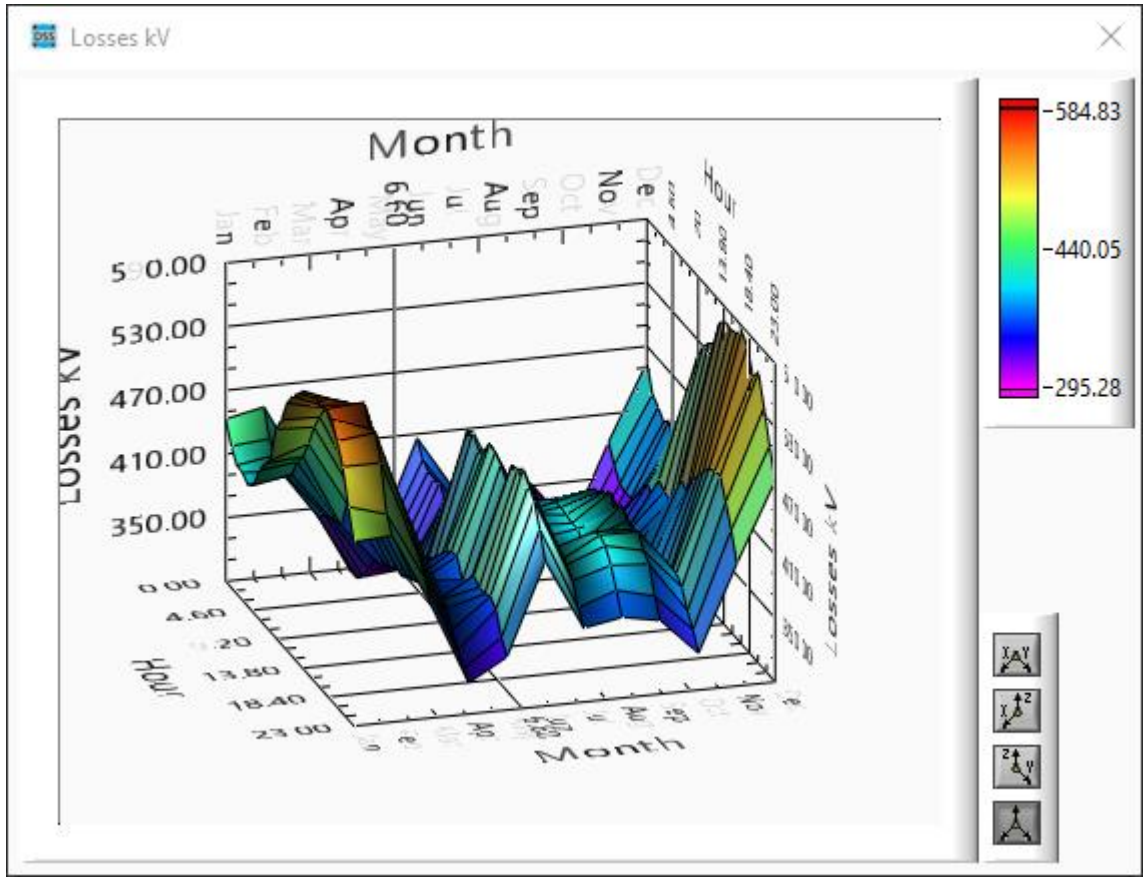

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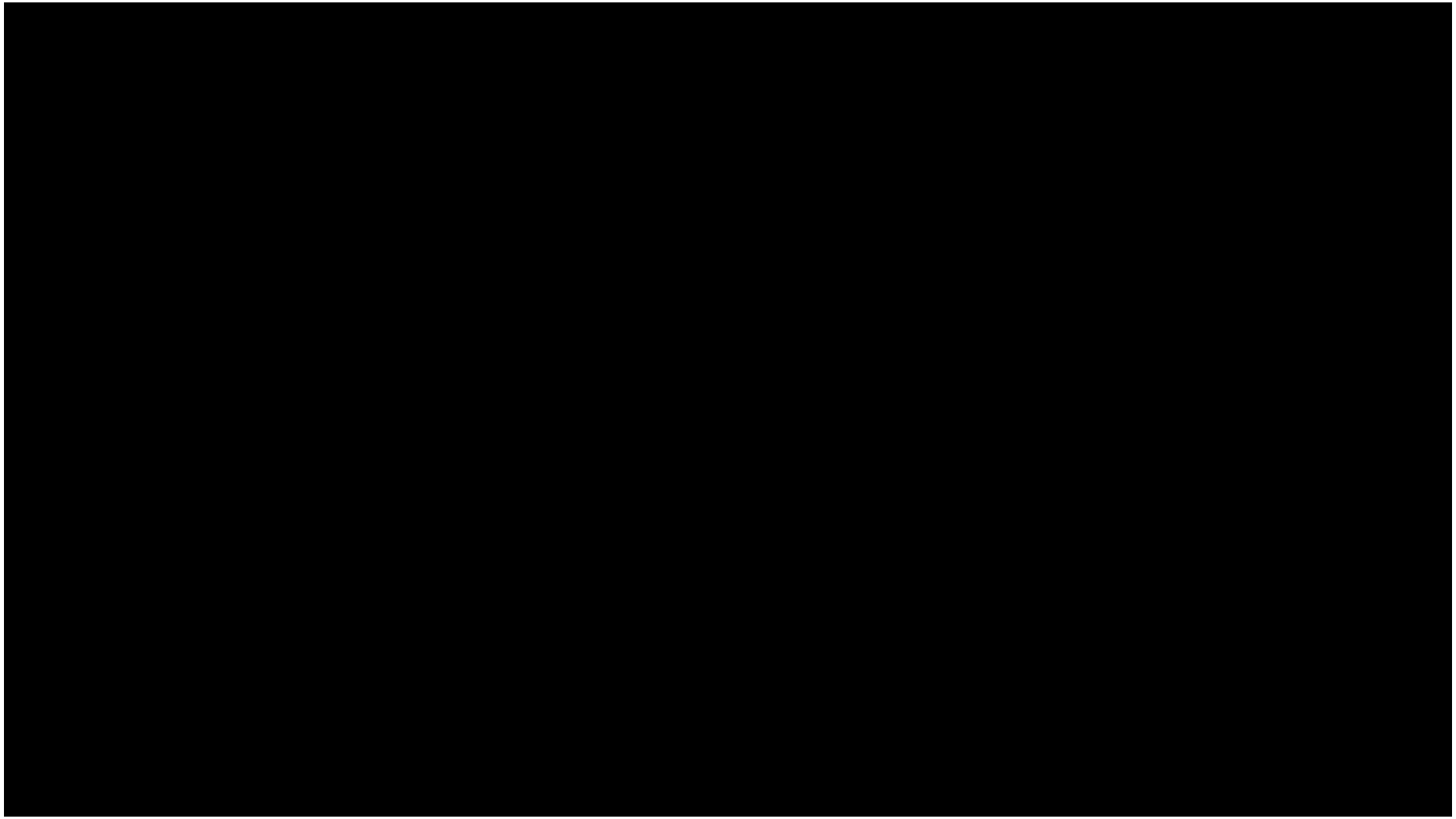
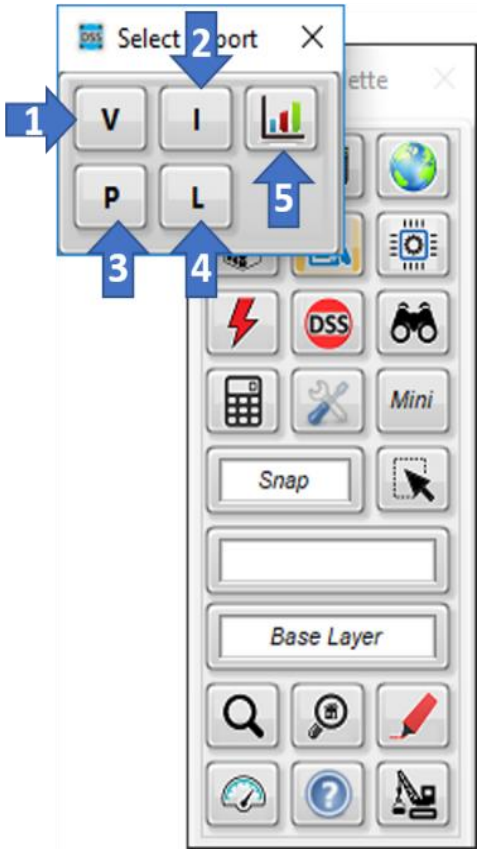
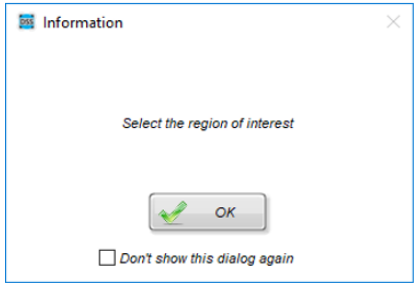


Visual aids for editing in OpenDSS-G

- Quick measurements





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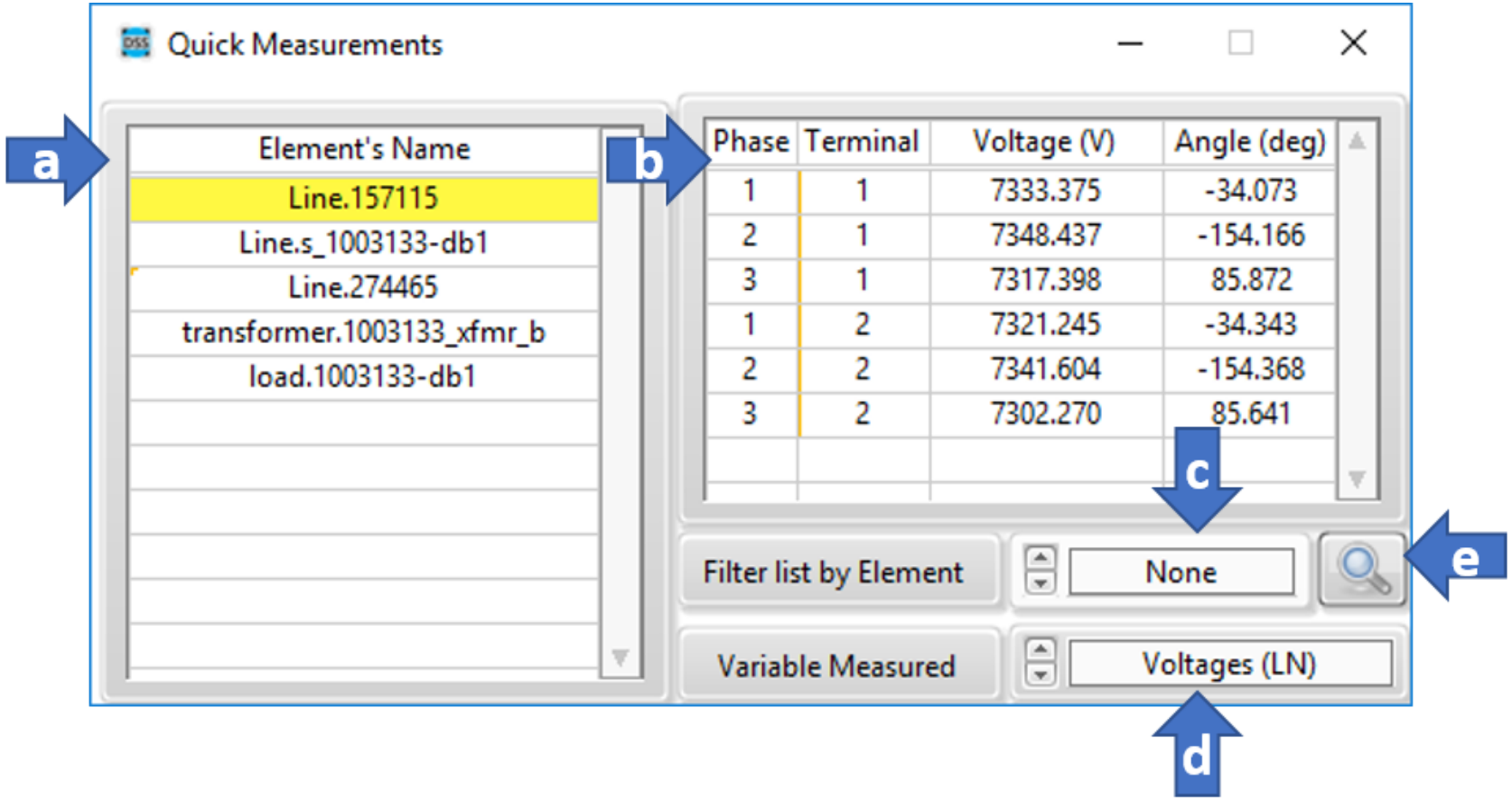

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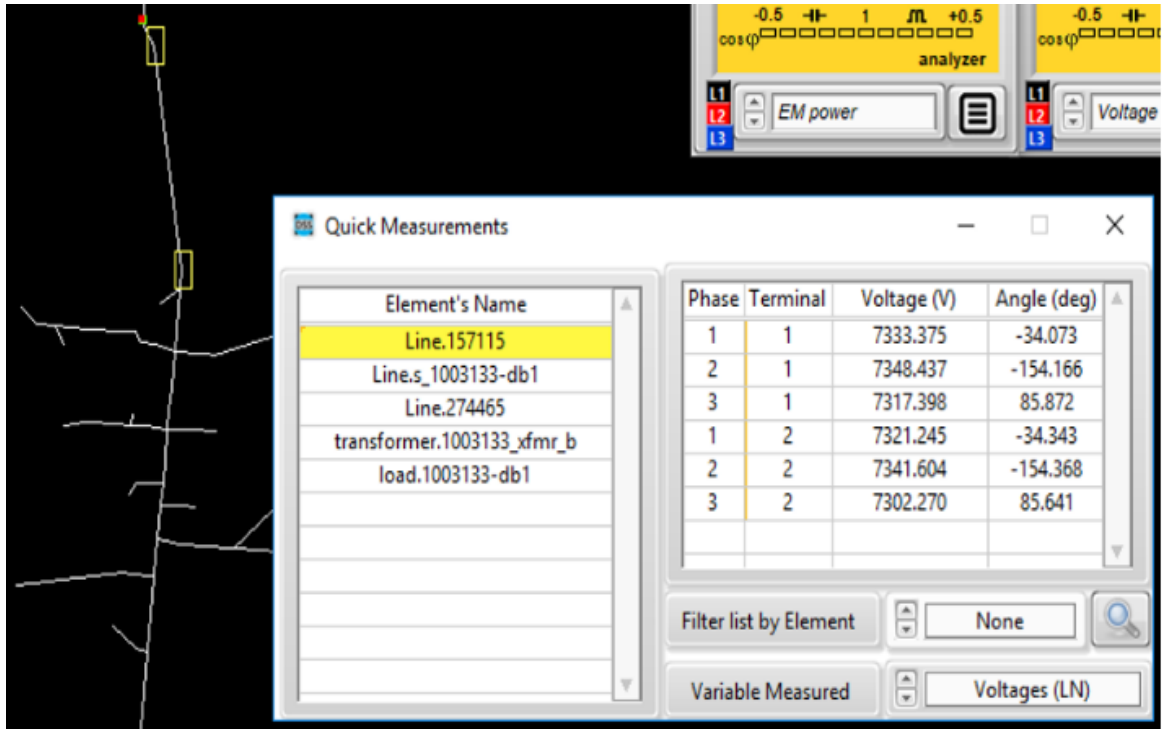

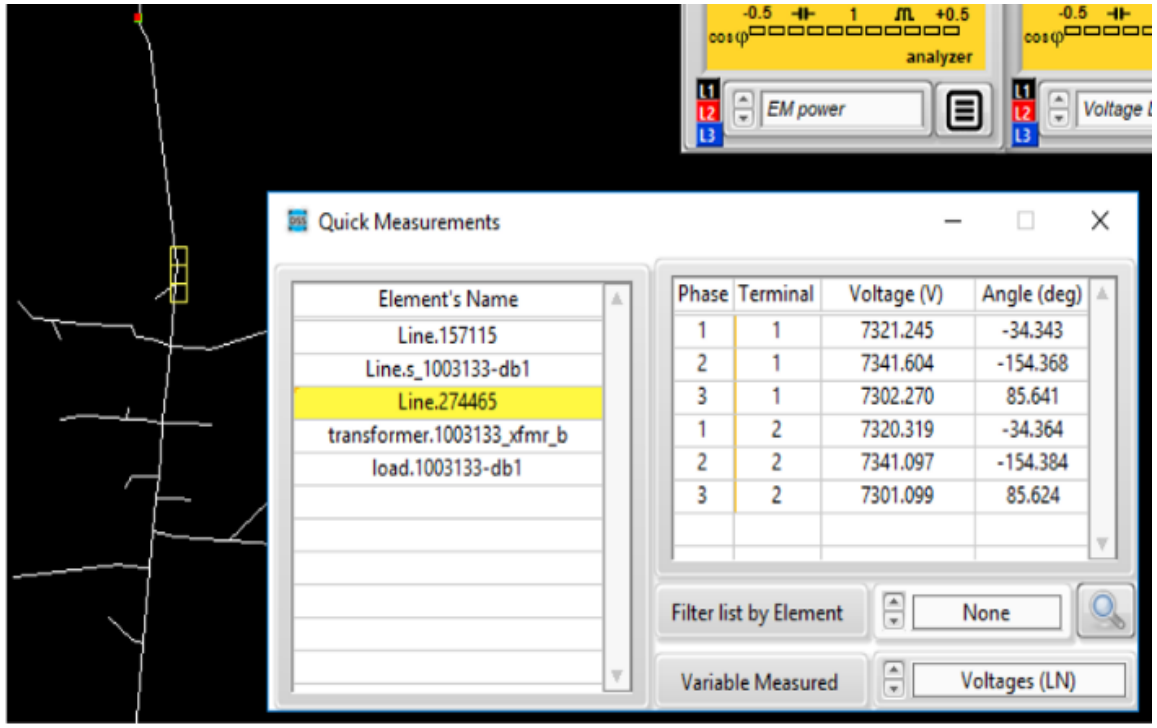

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Let’s run an example

Today's challenge

Today's challenge

Given the system at
https://sourceforge.net/p/dssimpc/code/HEAD/tree/trunk/Distribution/Examples/Ckt_7_Storage/

Automate a process to evaluate the valid alternatives (technically) to solve the issues in the feeder during ten years. The whole analysis cannot take more than 10 min. The alternatives can combine to provide a complete solution during the ten years.

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