

PSS®E Data Visualization and Reporting Module

Powerful visualization tools for complex
contingency and dynamics results data
in PSS®E

At a glance

With increased regulation, power system planners are being required to consider more scenarios and contingencies when doing planning. These additional scenarios and analysis generate an overwhelming amount of output data which needs to be evaluated and analyzed. For quick decision making or to detect violations, power system planners need tools that allow them to quickly find the trends and outliers in the data.

The challenge

PSS®E currently produces large amounts of output during the steady-state

contingency dynamics simulation. The common text and spreadsheet reports do not emphasize complex relationships in the output data. This makes the process of analysis cumbersome and time-consuming. Users require the ability to quickly and visually identify trends and relationships among data elements and detect violations and instabilities that need further analysis.

Our solution

The Data Visualization and Result Module (DVRM) presents the output data in prominent displays that allow the user to quickly identify areas that need further analysis and drill down to

the underlying data as needed, such as individual branch overloads or dynamics simulation time-series curves.

Pre-defined workbooks and dashboards can be used to efficiently formulate a visual summary of the outputs to the common questions a user might face. Each pre-defined dashboard contains specific renderings and filters to aggregate and isolate problem areas. Sample pre-defined workbooks might answer common questions relating to which areas in the case are most affected by certain contingencies or which contingencies cause major ripples on the system. Other workbooks, for example, can make it easy to see which simulations cause the most oscillations in various dynamics output channels.

In addition to the pre-defined workbooks and dashboards, the DVRM module also enables users to easily create their own visualizations by customizing the pre-existing workbooks or by building their own views from the available data.



DVRM presents the output data in workbooks after a simulation, where they are available in interactive displays.

Multiple workbooks on branch overloads and bus violations are available based on:

- Areas, zones and ownership
- Solution of contingency analysis
- General overview of the complete analysis for drill down versus summary

For dynamics simulation, worksheets are available for:

- Quick viewing of many time-series curves simultaneously
- Data aggregates, such as rotor angle spread, plotted for many machines simultaneously

In addition, workbooks are available for reporting on NERC TPL Standards 001, 002, 003.

The DVRM module is available for deployment in a workstation or server environment. During the simulation, the

results are stored in databases on a workstation or a network in Microsoft® SQL database format.

The server version allows users to publish the results of their analysis for further presentation and manipulation of their findings. This published analysis is then available using desktop and mobile device browsers for reporting to management or other consumers of the results.

Prerequisites

The DVRM requires the use of a SQL database to store results for visualization. The following databases are supported (Note that the SQL Server Express versions are available for no cost from Microsoft):

- For a network: Microsoft SQL Server 2008, 2008R2, or 2012
- For workstations: Microsoft SQL Server Express 2008, 2008R2, or 2012

How to get started

For further information or to purchase the PSS®E Data Visualization and Reporting Module, please contact Siemens PTI software sales at pti-software-sales.ptd@siemens.com or +1 518 395 5000.

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