

VSAT 24.0 Release Notes

This document summarizes the new features and enhancements available in VSAT version 24.0. All changes included are from VSAT version 23.0. For more details on these changes, please refer to VSAT documentation.

1. Modelling and Solution Enhancements

- Increased the maximum bus limit from 100000 to 150000.
- Extended support for 64-character bus equipment name and node name.
- Integrated phase shifter open circuit detection logic - automatically locking phase shifter control during powerflow solutions when an open circuit is detected.

2. Transfer

- In group interface participation factor, you can specify the keyword 'auto'. The participation factor will be estimated from the base point (group interface limit participation factors estimation)
- Multiple dynamic transfer step size options can be simultaneously enabled in a group now.
- Merit order blocks do not need to be consecutive in MW if non-zero Pmin enabled for the group.
- Dynamic participation factor adjustment for phase shifters and DC converters to preserve total change per transfer step

3. Special Protection Scheme (SPS)

- New SPS condition types: 'Node kv', 'Node pu V', and 'Node Angle Degree'.
- New SPS action types: 'Change Switchable Shunt Control', 'Change Transformer Control', and 'Change 3w-Transformer Control'
- Increased the SPS priority count limit from 19 to 99.
- Increased the maximum number of conditions from 30000 to 35000.

4. Monitor

- New monitor type: 'Electrical distance between nodes'.

5. Control Mode

- Added an option to specify the limits on MVar changes for PPC devices (generators/shunts) during each powerflow iteration.

6. Subsystem

- Enhanced the thermal and Var reserve criteria groups with 'Include/Exclude subsystem' commands.
- Added 'Include/exclude individual shunts' commands in fixed and switched shunt subsystem definitions.
- Added generator subsystem type in VAr reserve criteria.
- Implemented wildcard support for the POI bus in 'include unit' commands in SCR/WSCR criteria, selecting the first in-service bus that matches the wildcard as the POI bus.

7. Reporting and Powerflow Saving Function

- Added detailed descriptors for post-contingency powerflow divergence during cascading outages, distinguishing it from a non-cascading divergence.
- Included criteria group names in VSAT violation reports.
- Enhanced powerflow saving capabilities with the option to save PSN files with conditions.
- Introduced a new option 'At First Insecure' in the save powerflow function.
- Added support for executing a PSAT Python script after saving powerflow.

8. DSAOA (DSA Output Analysis Tool)

- Enhanced data export capabilities, allowing users to choose between exporting "All Data" or "Selected Data" directly to Excel.

9. Contingency Converter

- Supported the CHANGE/ALTER/MODIFY/INCREASE/RAISE/DECREASE/REDUCE BUS GENERATION/LOAD/SHUNT BY PERCENT/MVAR command type in PSSE MUST format contingency file.
- Added functionality to retain comments in PSSE MUST files.