

TSAT 23.0 Release Notes

This document summarizes the new features and enhancements available in TSAT version 23.0. All changes included are from TSAT version 22.0. For more details on these changes, please refer to TSAT manuals.

1. Modeling

- Added support for referencing individual Switchable Shunts with their ID
- VSI block: support for Kip, Kii, Vdip parameters for REGC_C model (PLL functionality)
- Support for the following models in PSS/E format:
 - GENQECU
 - UEL2C, UEL2CU1
 - CDC7T
 - ST6C
 - ABBSVC2
 - SVSMO1T3
 - SVSMO2T3
 - SWSHNT2
- Support composite load single-phase air conditioner rotating phasor model
- Support for the following models in PSLF format:
 - uel2c

2. User-Defined Model (UDM) Enhancements

- Support genbus() function in template user-defined models to return bus number of host generator unit
- Add support for GFM block - grid forming network interface
- Added option to DLB block to load DLL's compliant IEEE/CIGRE standard
- DLBproc : Support calls from FORTRN blocks user-defined DC models
- Increase maximum UDM block limit to 200

3. Computational Features

- Option to use multiple threads for simulation calculations
- Estimate 0-sequence impedance using a factor with positive sequence
- Options to use generator active power or reactive power quantities for damping calculation
- Add MW/MVAr mismatch parameter. If a positive threshold is entered, then TSAT will continue solution if the MW/MVAr mismatch is less than threshold after maximum solution iterations has been exceeded.

4. Contingency

- Support "Exclude" commands for subsystem definition with contingency template and creating contingencies for a subsystem

5. Reporting

- Report parameter to disable area/zone load shedding summary in progress report
- Consolidated XML enhancements
 - <CCTIter> tag added to delineate CCT iterations
 - Report critical cluster of generators even if contingency is transient stable under <SecurityIndex> tag
 - Log MW / MVAR of units dispatched for runback analysis and DSA Manager PCM analysis under <VicinityDispatches> and <VicinityDispatch> tags
 - Include relay model name attribute in switching action tag. Only generator trips handled for now.

6. Powerflow Import and Solution

- Support switching devices with STYPE=2 or 3 in PSS/E RAWD system switching device data
- Support 'Adjust PPC' global on/off switch in solution parameters
- Support Voltage-Q Droop control mode of Power Plant Controller (PPC)

7. Transfer Analysis

- Allow dynamic transfer step sizes:
 - Option to turn on/off units at non-zero Pmin outputs (for generation schedule and merit order dispatch transfer groups only)
 - Option to dispatch to generator max output (for generation schedule groups only)
- Support definition of source/sink based on boundary definition in transfer file

8. Contingency Converter

- Added support for PSAS format
- Added multiple file input support for PSAS files