

TSAT 20.0 Release Notes

This document summarizes the new features and enhancements available in TSAT version 20.0. All changes included are from TSAT version 19.0. For more details on these changes, please refer to TSAT manuals.

1. Modeling:

- Support for the following models in PSS/E format:
 - UST8HM
 - UST8HS
 - SGT8HMU1
 - SGT8HM1
 - SGT8HSU1
 - GENQEC
- Support for the following models in PSLF format:
 - _cpldw
 - zonedef, distrel, ooslnq
 - locti, tiocrs
 - genqec
- Support for the following models in the DSATools format
 - CMLPD

2. Computational Features

- Support monitoring active and reactive power flow of composite load models at high-tension bus
- In transient voltage and frequency criteria with profile curves, TSAT now reports the threshold where the simulation crossed the profile curve instead of last point on the curve
- Support tapping of three-winding transformer terminal
- Support early termination in CCT studies
- Report nominal and instantaneous load shedding in consolidated XML file
- Report switching actions in consolidated XML file

- Relay characteristics of SLNOS1, zonedef, and ooslnq models can be plotted in DSAOA
- Custom subsystem filter is now supported for PSLF dynamic models in dynamic data viewer window
- Inertia of synchronous machines is displayed in GPFM table in dynamic data viewer
- Governor step response with reference step now uses approximate inertia and droop from other generators in same AC island.
- The automatic data correction performed for following models will be reported in message file and flagged with '#DATAFIX#' tag:
 - REGC_A, REEC_A, REEC_B, REEC_C, REPC_A, REPC_B, WTGQ_A, WTPT_A, WTAR_A, WT3, HYGOV4
- New powerflow solution parameter to fail powerflow solution if swing bus generation exceeds specified threshold.
- Support the following commands in the load conversion/generator netting file:
 - BAT_CHANGE_WNMOD_ICON
- Report equipment names of generators not found in monitor file
- In user-defined DC models, TSAT now reports the equipment name of missing AC components for FROMAC blocks
- Support monitoring of bus frequency of renewable generators as an optional quantity for generator monitoring

3. User-Defined Models Enhancements

- In AC user-defined models, 'Delay Time' and 'Breaker Time' parameters in SPS action blocks can now be output of a block instead of a constant number.
- Support Math expression block in AC user-defined models
- Support TWD (tail water-depressed) block in UDM governor models
- Support for new logical operators and 'select' function in UDM math expression parser

- Support ‘Outport’ block in user-defined DC models

4. Hybrid Simulation Enhancements

- Hybrid simulation can now be used with RK2 and RK2 integration methods
- Hybrid simulation can now run with ePMU in the same study
- Support hybrid simulation files in bus number format in BPA data format

5. Output Analysis Tool DSAOA

- When exporting data to excel sheet, multiple sheets are created if number of curves is more than 255
- Support Matrix Pencil method in Prony analysis
- Support accessing files using ‘http’ protocol
- Support Dissipating Energy Flow (DEF) method to locate sources of sustained oscillations