Automation tools for power system model creation and verification of RTDS models

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TasNetworks Developments

Inputs	Stage 1 •PSSe.dyr •Master.xlsx •Master.dft	Stage 2 •PSSe.sav	Stage 3 •Master.sib									
Actions	 Start with RTDS Master.dft skeleton Use Master.xlsx mapping file to Populate Master .dft from PSSe.dyr 	 Copy PSSe loadflow data into populated_Master.dft Run RSCAD loadflow Initialise states in populated_Master.dft from loadflow 	•Feed Init_Master.dft data into RTDS runtime file - Master.sib									
Output	• Populated_Master.dft	•Init_Master.dft	•runcase_Master.sib (to RUN)									
	PSS/e to RSCAD User model conversion tool											

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Modelling Challenge

- Model of the entire Tasmanian transmission network
- Majority of user written models
- Flexibility and repeatability
- Roughly geographical layout
- Premade faults, sequences and monitoring







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Mapping

\$G01G0VMSmax



Generator identifier Model identifier Model parameter

1.0...

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Loadflow values:

Machine P0, V0 and status, line outages, capacitor bank status, load P0 and Q0, DC link power



















- Swing bus error
- Top 10 bus voltage errors
- Selected line flow errors



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Process





H DRAFT 5.008.1 Eile Sequencer Racks C:\RTD S_U SER\fileman\TSIS\Uncontrolled_Data\Marinus_RTS_fr_Psse\H158\H158.dft Northern Tasmania Southern Tasmania · 👷 🔸 MX Cethana machine 1.0 / 0.0 71251 071251 071251 T-Line Name: DP_WV Line Constants: DP_WV DP_WV Model IEEE PSS2A PSS RECÊVING END TERMINAL NAME: DP_WV_RE 0.02222 0.02223 U6AVR2 Mode (1,00090 > CE_EFC 0.02222 X/Y CE_Ef0 CE_AVR_err_init 0 CE_AVR_Ef_init E_Vref_local AFGOV1 Governor mode 450 1.36 Initialised system → ѕ/н S/H O CF_AVR_VRFF_comr

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Results comparisons







Results comparisons



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RS_W1

PSSE_W1

Results comparisons



Generator Contingency



Observations







Observations



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