

etap[®]

eTraX[™]

Solution for Analysis & Operation of Rail Traction Systems

ETAP Train Power Simulation - eTraX[™] software includes validated, user-friendly and flexible software tools for designing, analyzing and managing AC and DC railway infrastructure.





eTraX™ is utilized by designers, planners and owner / operators for analyzing and managing low and medium voltage AC & DC rail power.

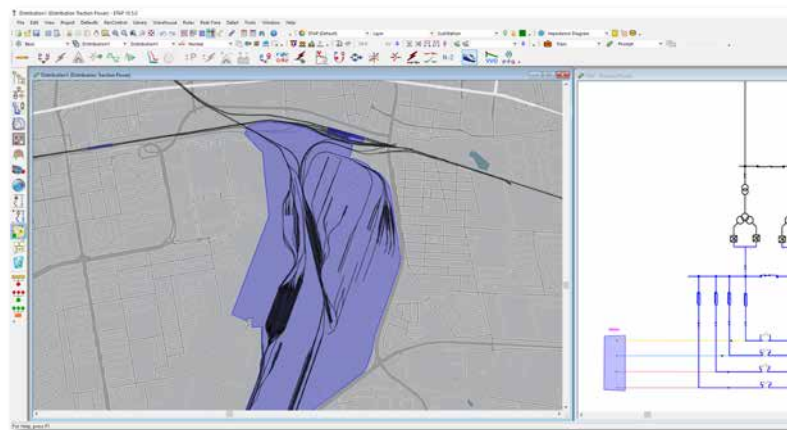
- ✓ Design & study system behavior & operation
- ✓ Determine energy consumption of train services
- ✓ Analyze capacity of traction power supply
- ✓ Simulate contingencies & evaluate mitigations
- ✓ Rolling stock evaluation & comparison
- ✓ Effect of energy storage & regenerative braking
- ✓ Improve reliability of traction power systems
- ✓ Model unplanned events and future growth
- ✓ Verified & Validated against industry benchmarks
- ✓ eSCADA for real-time predictive simulation

AC & DC Railway Simulation

Simulate and analyze operation of combined DC and AC power supply networks.

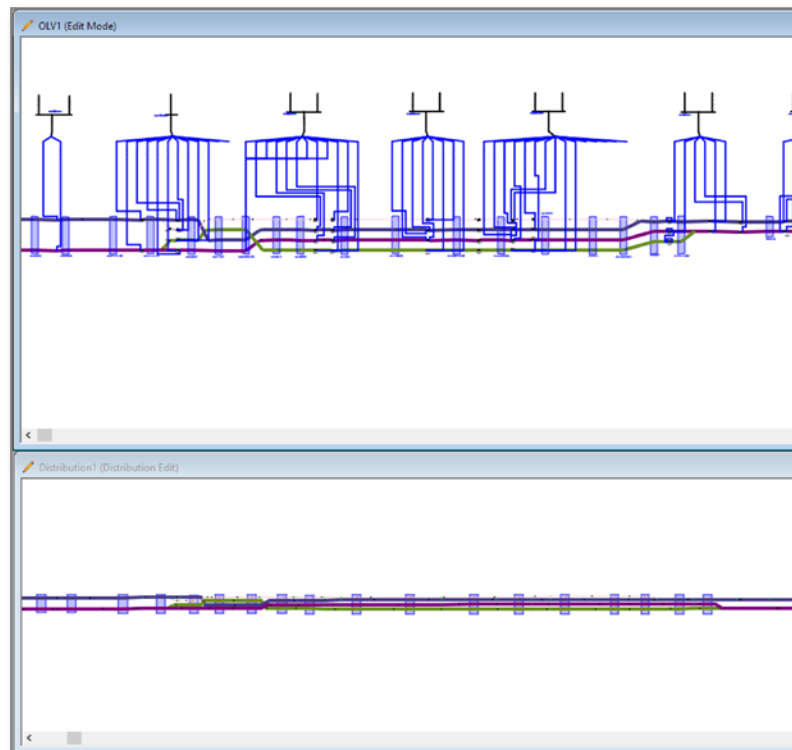
Traction Equipment Modeling

Model traction power systems using synchronized geospatial and schematic views.



Equipment & Libraries

Built-in components and engineering libraries including traction rectifier, train rolling stock, and traction power equipment.



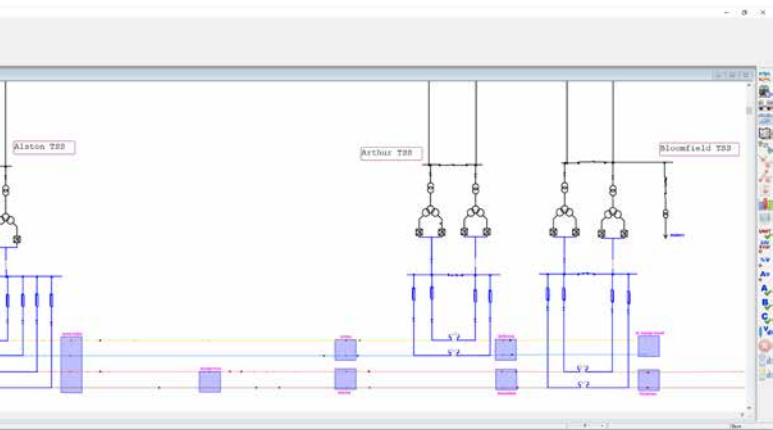
DC metros, AC suburban, high-speed rail, freight/mining, inter-city, light rail, automated people movers

Rail Traction Power System

Train Performance Calculations

Accurate calculation of train running times under normal or temporary speed restriction conditions considering track bend radius, rolling stock utilization, track section elevation, and more.

- Determine tractive effort based on train performance
- Track profile: grade, curvature, speed limits
- Identify power supply inadequacies & pinch points
- Train power consumption & demand
- Simulate rolling stock retrofits & upgrades
- Analyze train trip times
- Rolling, acceleration & drag resistance
- Trip stops & stopping patterns
- Impact of regenerative braking
- Voltage dependent locomotive modeling

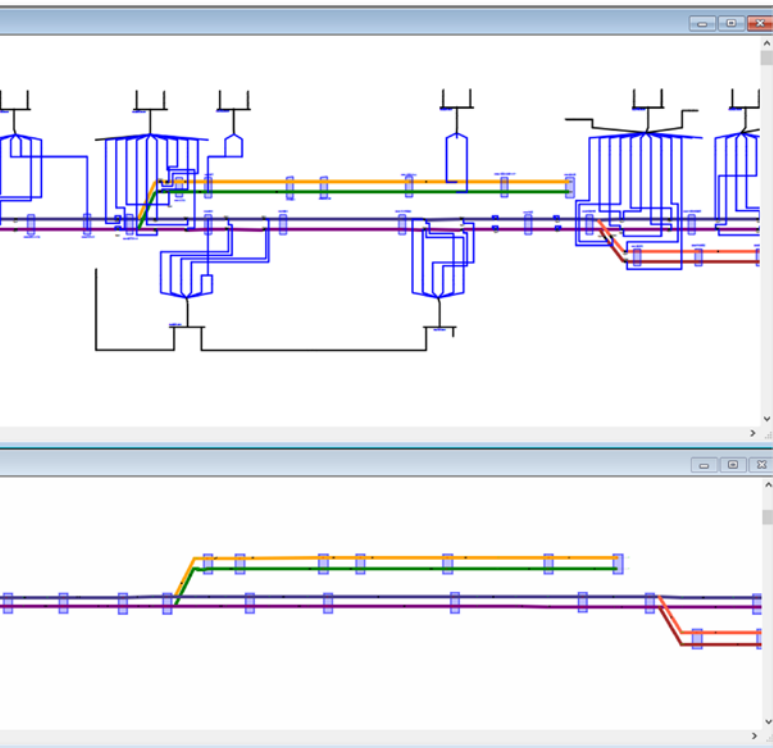


Geospatial Track Modeling

Visualize geospatial assets including tracks, overhead catenary system and traction substations.

Train Configuration & Time Schedule

Define, organize, and assign Train Consists to a train timetable.



Traction SCADA & Power Management

Connect electrical design model with real-time analytics.



Multi-physics simulation of train mechanical energy & electrical demand in a single-Unified solution

