Redesigned to Deliver Unmatched Speed, Intelligence & Reliability
Reduce Man-Hours from Months to Minutes

Major Enhancements & Features

- 64-bit architecture & local SQL database
- Auto-Build
- Datablock & Theme Manager
- Star Auto-Evaluation - Automated Protection & Coordination Evaluation
- Short Circuit Analyzer
- Contingency Analysis
- Updated Arc Flash Standards including NFPA 2015
- EMTP Interface with EMTP-RV & PSCAD
- Updated SmartPlant Electrical Interface
- AVEVA Electrical Interface
- Over 1000 Protective Device models
- Rule-Based Time-Saving Capabilities
ETAP 14.0 Release

ETAP 14 Model-Driven Power System Design & Operation Software offers powerful new capabilities and productivity features to accelerate system modeling, ensure design integrity, and deliver intelligent predictive analysis.

Graphics & Database

ETAP Foundation
- 64-bit architecture
- Local SQL database
- System Manager & docking

One-Line Diagram
- High-resolution graphics
- Alignment tools
- Right-click menu
- Graphical symbol selection
- Graphical contouring based on results
- Display options
- Circuit Tracing

Auto-Build
- Rule-Based creation of one-line
- Automatic spacing & alignment rules
- Automated voltage assignment
- Spacing & voltage rule book

Datablock
- Customize input data & study results
- Display results, input, and/or tags
- User-friendly options to display
- User-defined templates
- Share deliverables across organization

Theme Manager
- User-defined result format
- Display / hide based on
  - Zoom level
  - Equipment type
  - Equipment state
  - Info annotations
  - Study results
  - Datablocks

Composite Network
- Image presentation
  - Symbol
  - Pictures
  - Internal one-line
- Unlimited connections
- Customizable size

Libraries
- 1000+ protective device models
- Quickpick tabular views
- Induction Machine Circuit Model
- Multi-Function Relay
- Low Voltage Solid State Trip, LVSST

Relay
- Current & voltage input
- Device parameters
- Base current (I\text{base})
- Output interlocks
- OCR & OLR functions

License Manager
- Network license checkout
- Virtual machine support
- Keyless network licensing

Data Exchange

SmartPlant® Electrical Interface
- Bi-directional data exchange
- Map attributes of SPEL with ETAP elements & properties using Universal Mapping

AVEVA Electrical™ Interface
- Bi-directional data exchange
- Map attributes of AVEVA Electrical with ETAP elements & properties using Universal Mapping

Import from Legacy Software
- Built-in conversion tools
- Automatically generate multi-layered one-line diagram
- Import electrical data & protective devices
- SKM PowerTools®
- ESA EasyPower®
- PSS/E®
# Analysis Modules

## Load Flow
- Load Flow Analyzer
- Adjustments based on negative tolerance
- Identify & alert modeling issues

## Short Circuit Result Analyzer
- View results of multiple studies in one glance
- Compare & analyze study results
- Determine worst-case duty violations
- Easily identify over duty devices

## Arc Flash
- NFPA 70E 2015
- Result Analyzer
- Sequence-of-operation for IEC Arc Flash
- Main & load protective device enclosure isolation
- Conductor orientation correction factors

## DC Arc Flash
- Iterative method solution for Solar Systems

## Star - Protection & Coordination
- AC Device Setting reports
- DC Device Setting reports
- Panel Device Settings report
- DC short-circuit
- Generator Excitation point
- Generator Stator Damage Curve
- Transformer Damage Curve
- Motor Damage Curve

## Star Auto-Evaluation: Protection & Coordination
- Automated evaluation of zones for overcurrent protection & coordination
- Reference Rule Book for evaluation
- Automated display of TCC curves & equipment damage curves
- Automatic selection of worst case fault location
- Tabular & graphical presentation of evaluation results
- Interactive result viewer
- Summary of protection & coordination evaluation results
- Study result report in spreadsheet format
- Scenario and Study Wizards
- Graphical Screen Capture

## Contingency Analysis
- N-1 & N-2 contingency assessment & ranking
- Fast screening method to scan outage list
- Multiple graphical outage lists
- Automatic performance indices calculation
- Summary report analyzer

## Cable System
- Cable insulation voltage stress
- Sheath & Armor induced voltage
- Underground Thermal Analysis
- Maximum cable length based on voltage

## Cable Ampacity & Sizing
- NF C 15-100 (French)
- IEC 60502

## Motor Dynamic Parameter Tuning
- Non-linear dynamic circuit models
- Include rotor core loss, $R_c$
- Save estimated results to library
- Match actual MFR characteristic curves

## Motor Starting
- Individual bus and motor alerts
- User Definable initial bus voltages

## Transient Stability
- Advanced numerical methods
- Enhanced open circuit machine modeling
- More powerful automatic reference machine selection
- Load Current Compensation for more exciter models
- Improved salient pole synchronous machine modeling

## EMTP Interface
- EMTP-RV
- PSCAD
Real-Time

**Engineering Workstation**
- Localized SCADA views & configuration
- Multistate breaker color & symbols
- Communication failure display
- Taglink alarming
- Component flashing for abnormal states
- Identify non-tagged components
- Graphical WPF Views – control, pinning & flashing
- Failed control identification
- Alarm inhibition

**System Communications**
- IEC 61850
  - Sequence of Event reports
  - Buffered reports
- Modbus TCP
  - Performance & data quality
  - Event based polling
- DNP3
  - Sequence of Event reports
  - Class polling 0, 1, 2, 3
- Automatic failure recovery
- Connection status monitoring
- XML based messaging

**Data Captures & Notification**
- Sequence of events & waveform capture
  - General Electric
  - Schneider Electric
  - Schweitzer Engineering Laboratories
  - Electro Industries, Nexus
- Vaisala weather service
- Short Message Service, SMS

**Unit Commitment**
- Real-Time validation & optimization
- Forecast based commitment
- Maintenance schedules

**Web Real-Time Consoles**
- Configurable GIS View
- Enhanced Trending
- Additional Component Library
- Import GIS Views
- Editable Gauge Components
- Event Display on GIS Views

**SCADA Viewer**
- OPC UA Client
- WPF technology
- Full WebRT features in a workstation software
- Automatically import web views & ETAP models
- WPF Designer
- Control & alarm management
- Improved simulation capabilities

**Sequence of Events**
- Log operator events
- Log operator logins
- Enhanced WPF views
- Automatic MongoDB replication
- Customizable display and messaging
- Linked to ETAP and SCADA Viewer
- User-defined themes

**SCADA Integrator**
- Metering device library
- Auto configuration of communication device drivers
- Auto-generation of communications tags
- Alarm groups
- Tag state groups
- AGC enhancements

**Intelligent Load Shedding**
- ILS Event Analyzer

Visit etap.com to view the current events schedule. Events are added throughout the year, so be sure to visit frequently for the latest updates.

**Quality Assurance Commitment**
ETAP is Verified and Validated (V&V) against field results, real system measurements, established programs, and hand calculations to ensure its technical accuracy. Each release of ETAP undergoes a complete V&V process using thousands of test cases for each and every calculation module. ETAP Quality Assurance program is specifically dedicated to meeting the requirements of:

- ISO 9001:2008
- 10 CFR 50 Appendix B
- ASME NQA-1
- CAN / CSA-Q396.1.2
- 10 CFR Part 21
- 10 CFR 50.55
- ANSI / IEEE 730.1
- ANSI N45.2.2
- ANSI/ASME N45.2

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