Protection System Analyzer (QT-PSA^{TM})

Advanced Analysis and Tracking of Automated Protection Studies

The growing complexity of modern protective devices and the evolving nature of power grids have posed several challenges to transmission system operators. To maintain the reliability and resiliency of the grid, power system protection engineers routinely simulate and analyze protection system behavior using protection simulation software applications. Comprehensive protection studies on a wide range of system conditions produce extensive amounts of raw data that quickly becomes overwhelming to comprehend. Processing and interpreting data is one of the main challenges faced by protection engineers when using the automation capabilities of software tools for conducting advanced studies.

Protection System Analyzer (QT-PSA^{TM})

Quanta Technology's Protection System Analyzer (QT-PSA^{TM}) tool enables protection engineers to utilize the protection software applications to their maximum capabilities by automatic processing and interpretation of study data and summarizing results in a condensed, readable report. This tool allows protection engineers to focus on actual issues rather than performing hundreds of studies manually and managing massive simulation output data.

QT-PSA™ features encompass protection settings review and compliance evaluation studies for both transmission and distribution utilities.
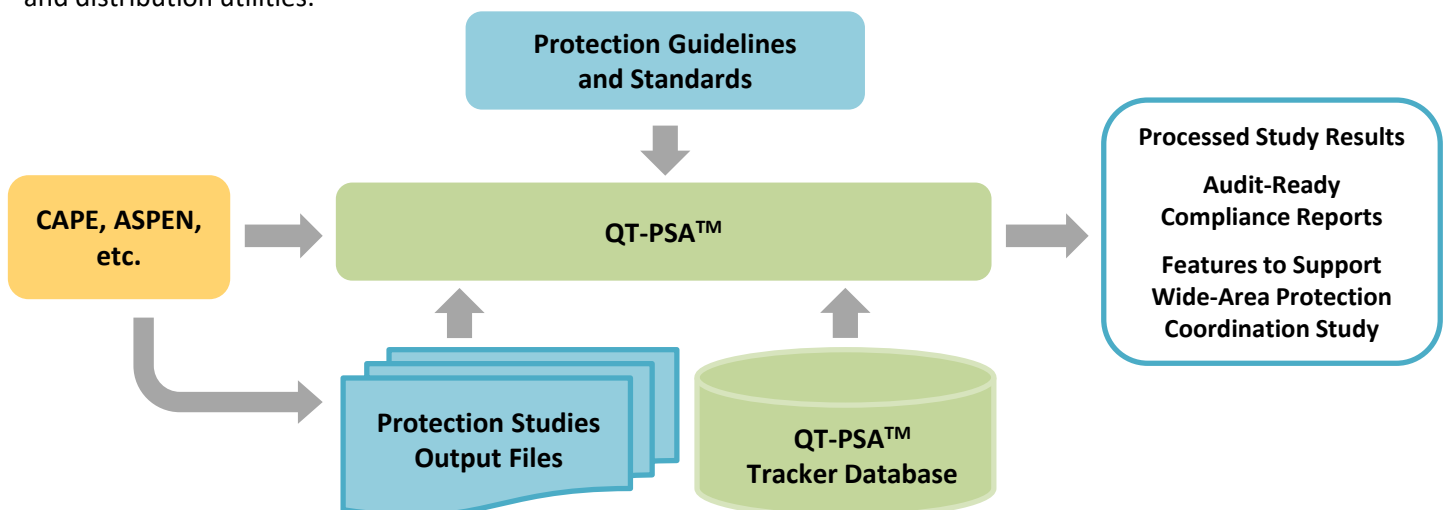
QT-PSA^{TM} interfaces with the major power systems simulation software applications used for protection studies including CAPE, ASPEN OneLiner, CYME, and Synergi Electric.

Why Quanta Technology

The QT-PSA^{TM} tool is built on several years of experience by Quanta Technology's protection and automation experts gathered from multiple projects executed for North American and international utilities.

QT-PSA^{TM} Post-Processing For Automated Protection Studies Data

Simulation software applications can leverage automation to conduct comprehensive protection studies such as sensitivity, coordination, wide-area coordination, and regulatory compliance. QT-PSA™ complements this automation by processing the large amounts of raw data into a condensed summary, enabling new ways of running power systems studies and evaluating settings and operation of systems.

QT-PSA^{TM}

Quanta Technology Protection System Analyzer

Automated Protection Studies

➤ **Sensitivity Study**
Evaluating if protection relay settings are set as per protection philosophy

➤ **Coordination Study**
Evaluating if protection relays are coordinated (i.e. operate in the intended sequence) under different fault situations and system conditions

➤ **Wide Area Protection Coordination (WAPC) Study**
Systematic evaluation of protection relay coordination across the entire (or a large area of the) transmission network

➤ **Compliance Study**
Evaluating if protection relay settings are in compliance with regulatory requirements such as NERC standards: relay loadability (PRC-023), operation under stable power swings (PRC-026), and coordination of protection systems (PRC-027-1)

The QT-PSA™ tool processes the raw data to prepare a user-friendly report that summarizes the issues, while also preserving and indexing the raw data such that it is readily accessible for more in-depth review. For compliance studies, the QT-PSA™ tool also prepares audit-ready compliance summary reports. The QT-PSA™ tool also assesses the risk of issues found in the study based on probability of occurrence and consequence of an issue to help the engineers identify and address the most pressing issues first.

QT-PSA™ Tracking Database

The QT-PSA™ tool also has the option of integrating a tracking database to provide an intelligent solution for organizing protection studies and to support regulatory compliance requirements such as the NERC PRC-027-1 standard. The added features include:

- System equipment tracking using protection simulation software
- Record-keeping of protection studies associated with each type of equipment
- Enabling team members to access the study results concurrently and collaborate in analyzing the study results
- Allowing utilities to perform wide-area protection coordination (WAPC) studies in-house
- Enhancing features to support NERC PRC-027-1 Compliance: QT-PSA™ can track base-case fault currents, bus-fault comparison studies, and coordination studies, as well as generate audit-ready reports at any time.

Customized to Meet Your Requirements

Quanta Technology believes in providing solutions that directly align with customer needs and, therefore, allows for customization of the QT-PSA™ tool. Customers have the option to customize its features specifically to their internal needs.

Sensitivity Study | Coordination Study | Wide Area Coordination Study | PRC-023 Studies | PRC-027 Studies | PRC-026 Studies

SERVICE
Quanta Technology has the staff and expertise to conduct studies for utilities

LICENSE TOOLS
If a partner utility wants to perform studies independently, Quanta Technology will license tools

About Quanta Technology
Quanta Technology is an independent technology, consulting, and testing company providing business and technical expertise, along with advanced methodologies and processes, to utilities and others in the power and energy industries. Our mission is to provide unparalleled value to our clients in every engagement across the value chain by using advanced software and hardware, laboratories, and custom tools for a holistic approach to practical service and the most insightful thought leadership in the industry.

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Smart Solutions Practical Results

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