AN AUTOMATED RELAY TESTING AND MANAGEMENT SERVICE

ARTMS® SERVICE

Increase system reliability and reduce misoperations by confirming correct relay operation via automated relay testing.

Our experts provide the ARTMS service to test and manage your relays in an automated way. The ARTMS service provides you with the correct settings to implement on your protective relays, as well as a report showing the results of tests based on which those settings were determined.

AN IMPROVED APPROACH

The ARTMS service offers significant advantages over conventional relay testing methods. It tests relays using a comprehensive, automated set of test plans generated from detailed system models that closely match actual system conditions.

Conventional methods often do not account for actual system conditions (including contingencies) due to simplified calculations used to establish test points. As a result, test points may be repetitive, time-consuming, and limited in their ability to represent varying system conditions.

ARTMS simplifies and automates this process, generating complete test plans using industry-standard COMTRADE files.

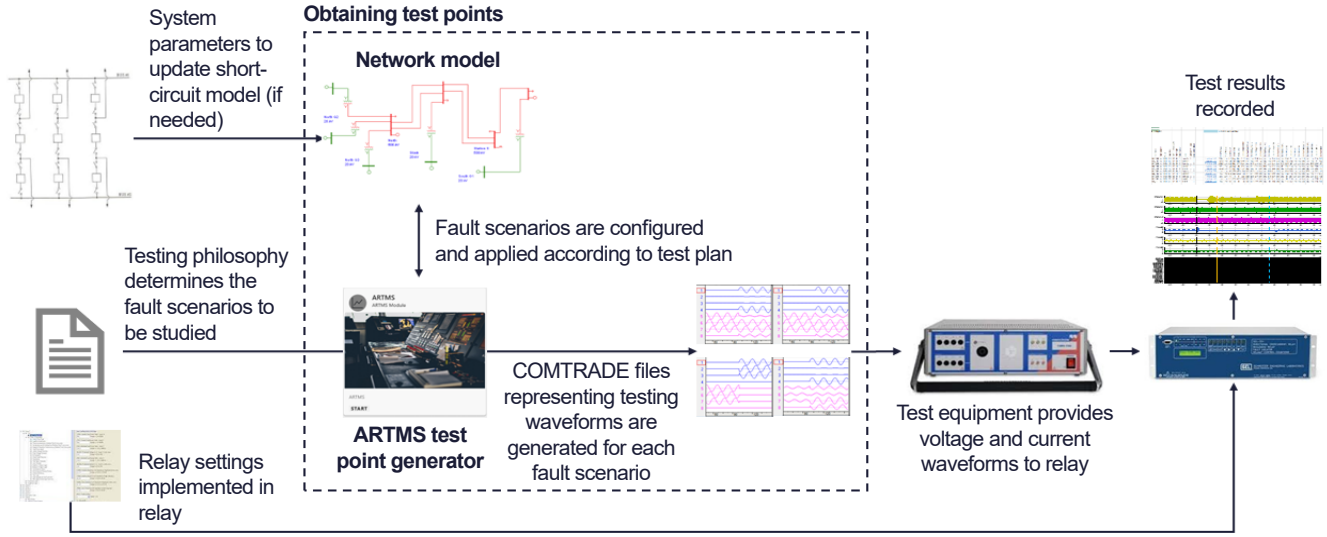

Figure 1. ARTMS Service Process

ARTMS SERVICE BENEFITS

- Improved technical accuracy – generate standard COMTRADE waveforms versus simplified setpoint calculations.
- Flexible – customizable automation makes testing many different scenarios feasible.
- Compatibility with existing tools – COMTRADE files of waveforms outputs for each scenario are generated and can play back for the relay under test.

TECHNICAL IMPROVEMENT FROM THE EXISTING METHOD

- COMTRADE files include sinusoidal and decaying DC components.
- Generated fault currents and voltages are similar to those in real-world systems, due to higher accuracy in equipment modeling in utility short-circuit software.
- The software is appropriate for day-to-day testing of settings/logic and commissioning.

PROCESS IMPROVEMENT FROM THE EXISTING METHOD

- The relay commissioning process can be further standardized.
- The process becomes faster and more cost and time efficient.
- Several COMTRADE files can be generated in one run.
- Tens or hundreds of test scenarios can be applied, and the relay can be tested more thoroughly.

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INDUSTRY EMPLOYMENT OF AUTOMATION-BASED TEST POINT GENERATION

Real-world use of this service at a large North American utility has yielded significant improvements to the relay commissioning process, including:

- Preemptive detection of setting errors: bus zones, stated capacity, supervision logic, and protection settings.
- Removal of potential human error in calculation of test points.
- Reduction in commissioning cost of 30-40%.
- Broad acceptance among field personnel.
- Easy integration with existing relay commissioning processes.

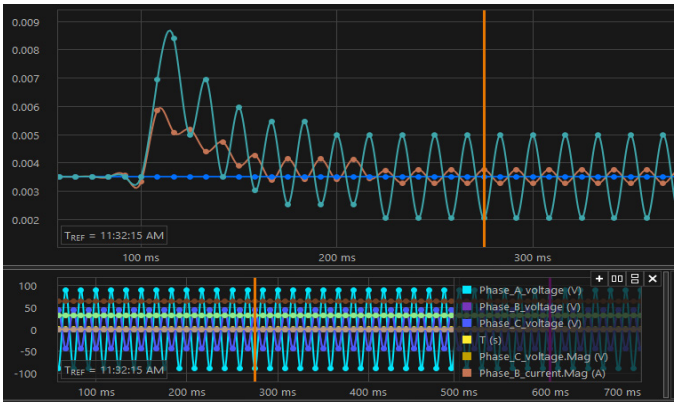

Figure 2. Waveform

FULL-CYCLE AUTOMATED TESTING AND COMMISSIONING

The relay testing process can be integrated further via industry-standard testing platforms as the management, automated execution, and record-keeping of test routines.

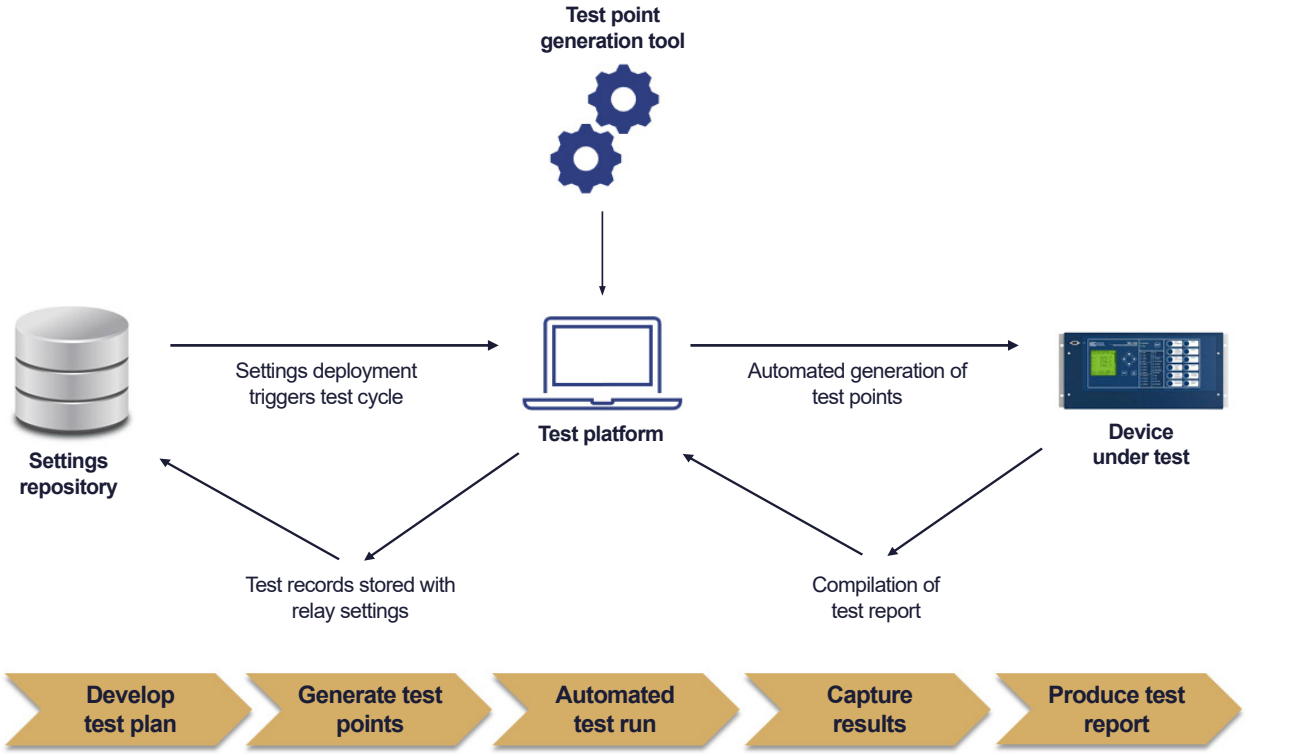

Figure 3. Full-cycle automated testing and commissioning

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