Automating PowerWorld with Python

General Introduction

California ISO Iron Point Facility

Folsom, CA

December 9-12, 2019

(Two 2-day sessions) 8:30 AM – 4:30 PM each day

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Topics

- **First Day Morning**
  - Introduction to Python
    - Installation
    - Key data structures
    - Basic syntax
  - PowerWorld automation server (SimAuto) overview
    - Setup and referencing from Python
    - Exploring object types and variables
- **First Day Afternoon**
  - Passing data between PowerWorld Simulator and Python with SimAuto
    - Data structures in PowerWorld Simulator: the Model Explorer, Case Information Displays, objects, and variables
- **Second Day Morning**
  - Scripting and exchanging data with PowerWorld Simulator using auxiliary text files
- **Second Day Afternoon**
  - Automating power system simulations with Python and SimAuto

Benefits of Automation

- Repeatability
  - Ensure that the same options are applied and procedures are done in the same order every time

- Automate repetitive tasks
  - Perform contingency analysis and store results for multiple power flow cases

- Pass data between Simulator and other processes

Do I Need Python?

- Most important questions
  - Do I need to automate?
  - Does Simulator already do what I need to do without writing scripts?
  - Does Simulator already do what I need to do without using SimAuto and Python?
  - Will PowerWorld add the feature I need without me having to write my own code?