

Introducing

openTAP
contribute. collaborate. create.

- **Open Test Automation Project**
- **@ FOSDEM 2020**

Hi! I'm Rolf

R&D Software Developer

Keysight Laboratories

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openTAP

Agenda

- **What is OpenTAP? (15 min)**
- **Demo (15 min)**



+ Open Source

Keysight Technologies is an electronics test and measurement company.

The best hardware + the best software => The best measurement solution

=> *Customer Success*



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The Automation Challenge

- The ecosystem is split between home grown and proprietary systems.
 - Home grown: Costly, error prone
 - Proprietary: Vendor lock-in
- Oftentimes companies start new project implementing very similar automation solutions
 - Same GUI, Drivers, logging, result systems, etc. ...
- We want to help people share their work and leverage the work of others.

Our goal is to make test and measurement automation effortless!

The OpenTAP Ideals

Simplicity If you dont really need it, it's not in your way!

Scalability It is lightweight and integrates with other things!

Speed Test performance is important and speed of development is too!

What Is OpenTAP?

- A Test Sequencer
- Plugin Architecture
- Developer Friendly
- A Growing Community
- Based on .NET Standard
- Supported on Windows and Linux (Ubuntu, CentOS)
- Open Source: MPL-v2, 'Open Core'



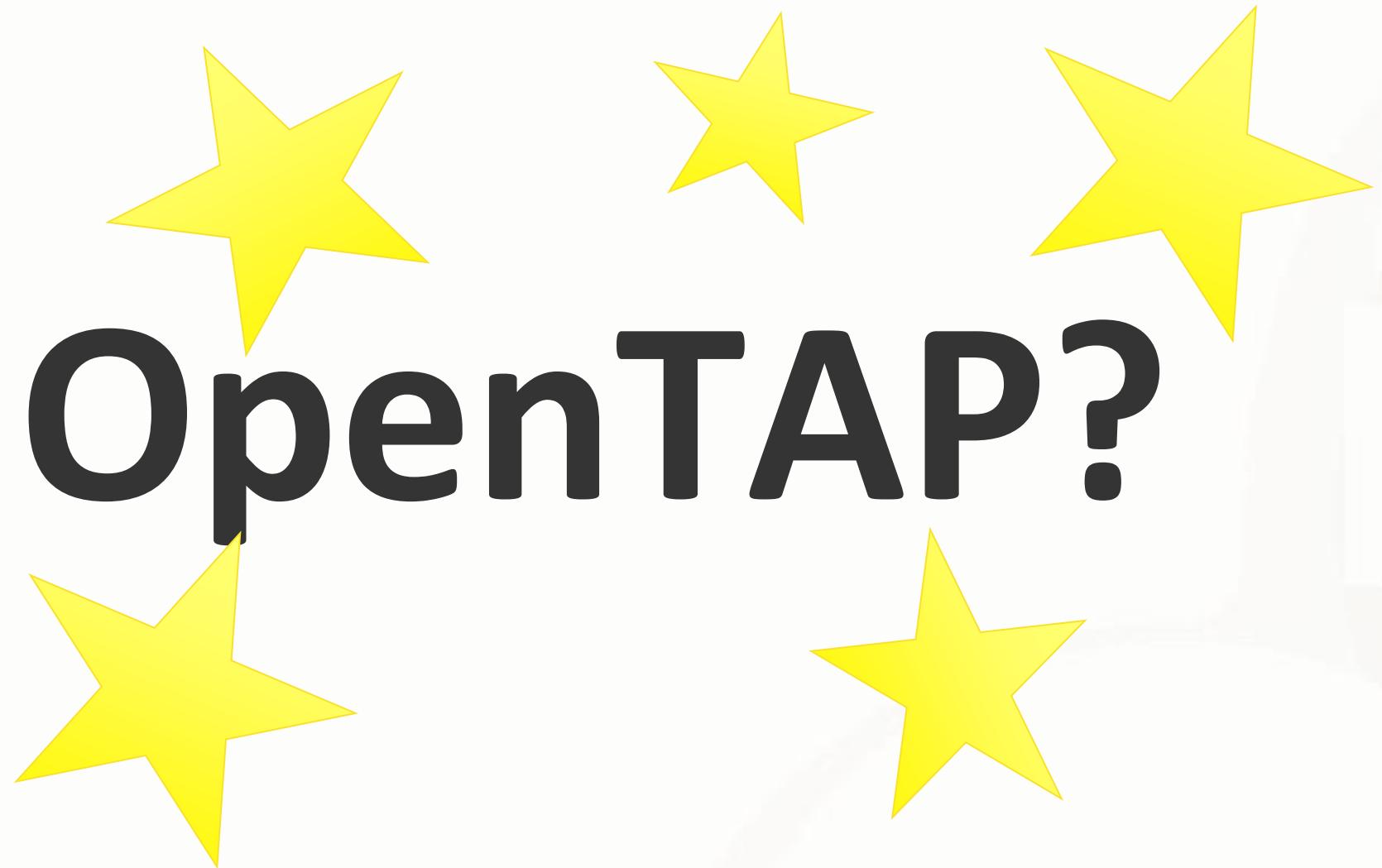
NOKIA



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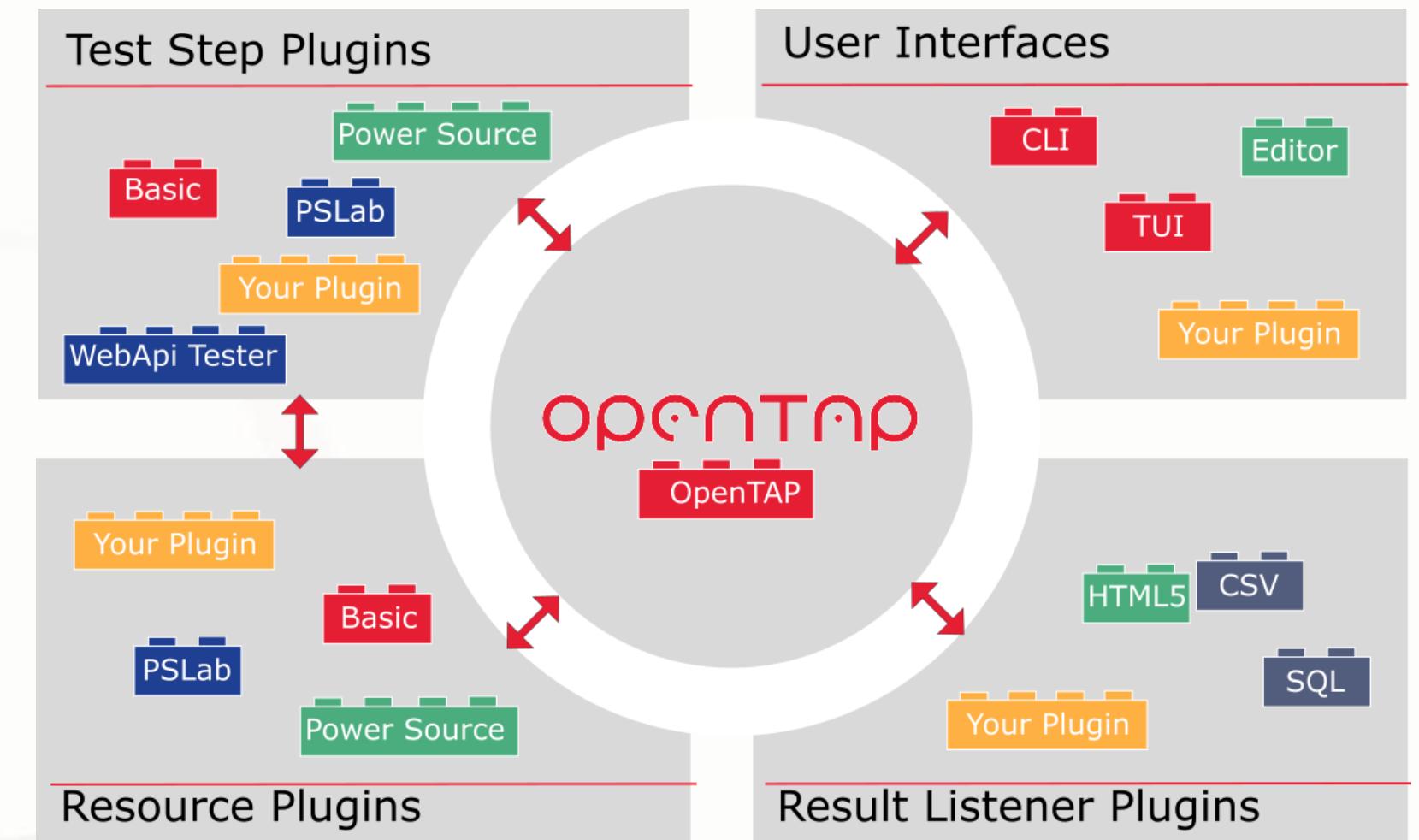


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Test Sequencer

A test sequencer is a piece of software that can be used to create, modify, and run a sequence of test steps.

- **Test Plan** A sequence of test steps.
- **Test Steps** Encapsulates a piece of functionality. Measurement, hardware control, etc.
- **Resources** Device Under Test, Measurement Instrument, ...
- **Result Listeners** For processing and storing results in various ways.



Test Steps & Test Plans

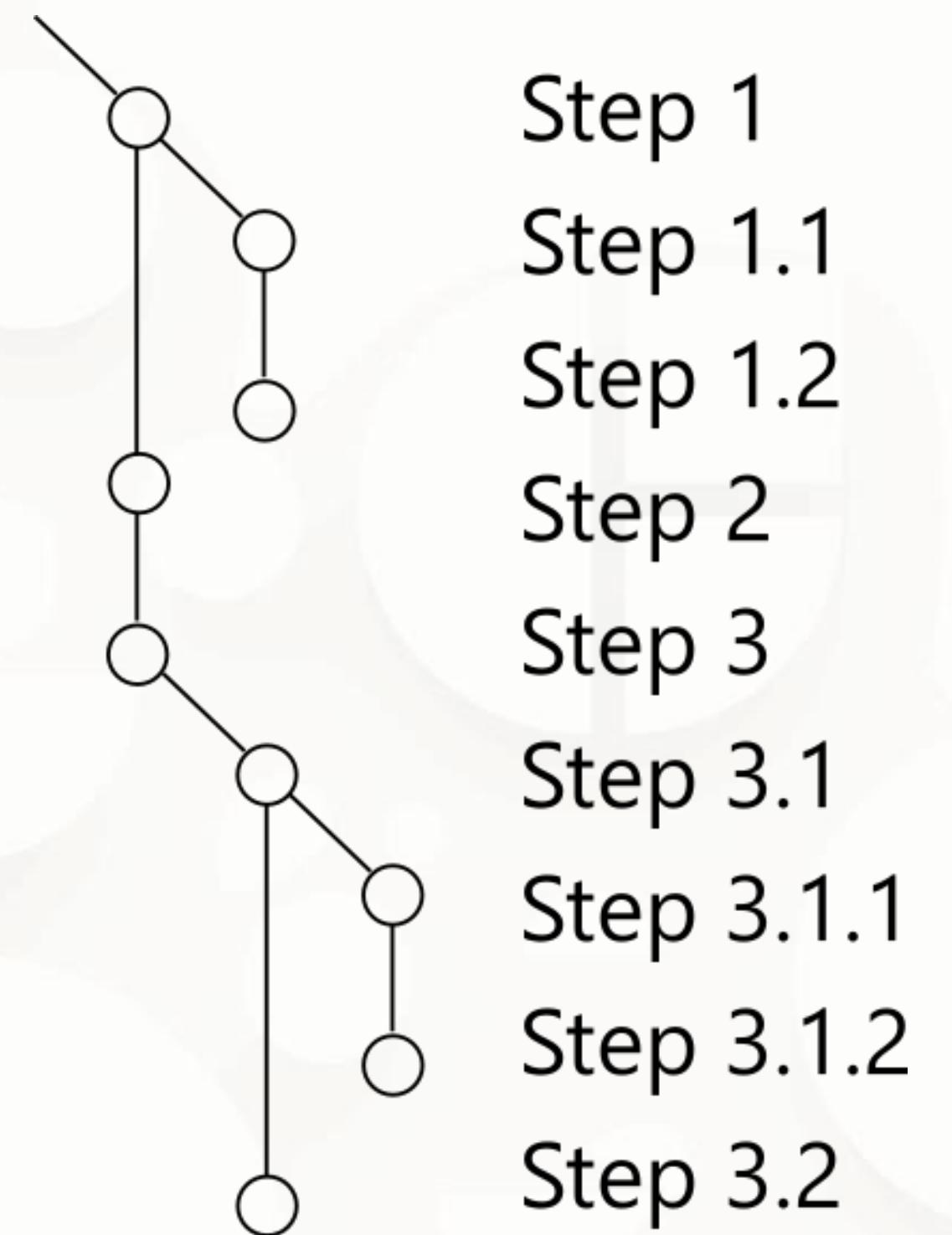
Test steps are the atoms of OpenTAP.

Test Steps

- Encapsulates some functionality
- Has Settings
- Sometimes uses resources
- Can have child test steps

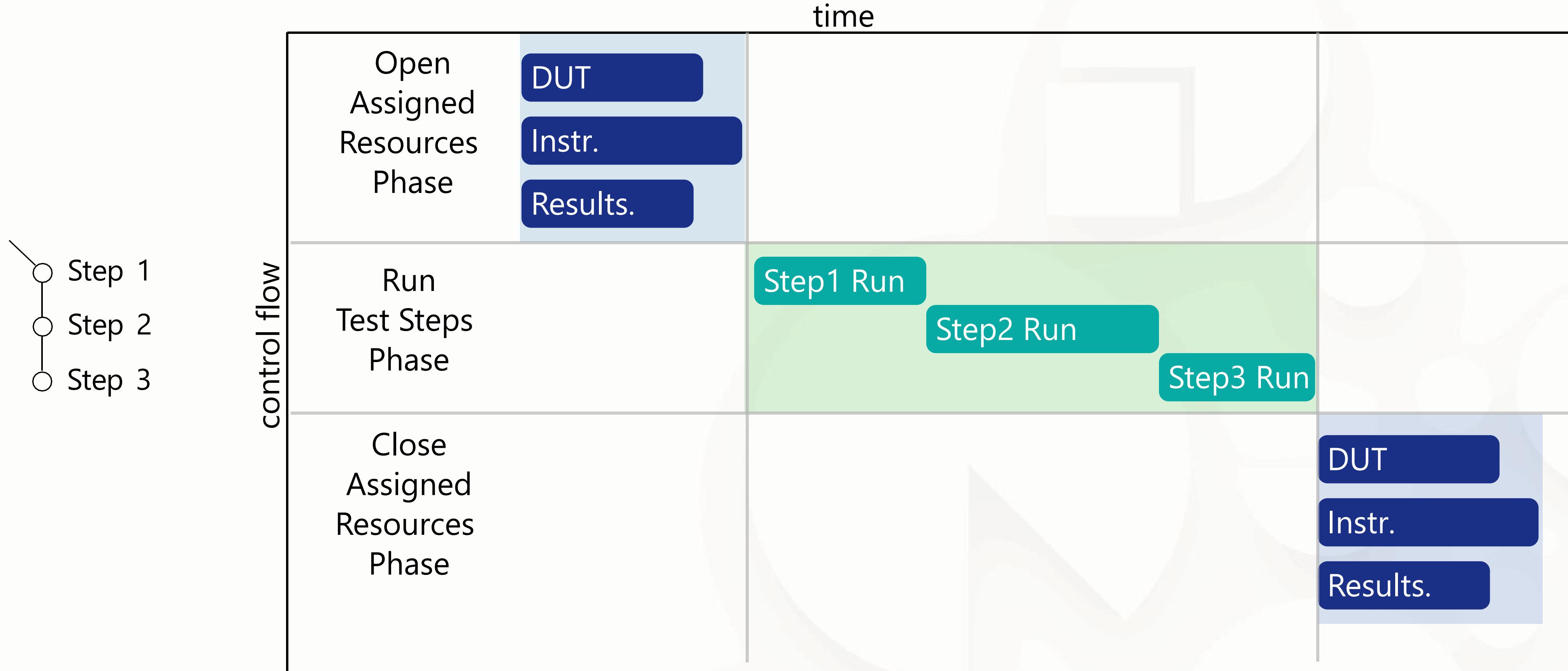
Test Plans

- Setup / tear down resources
- Sequence of test steps



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Example Test Plan Flow



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Results

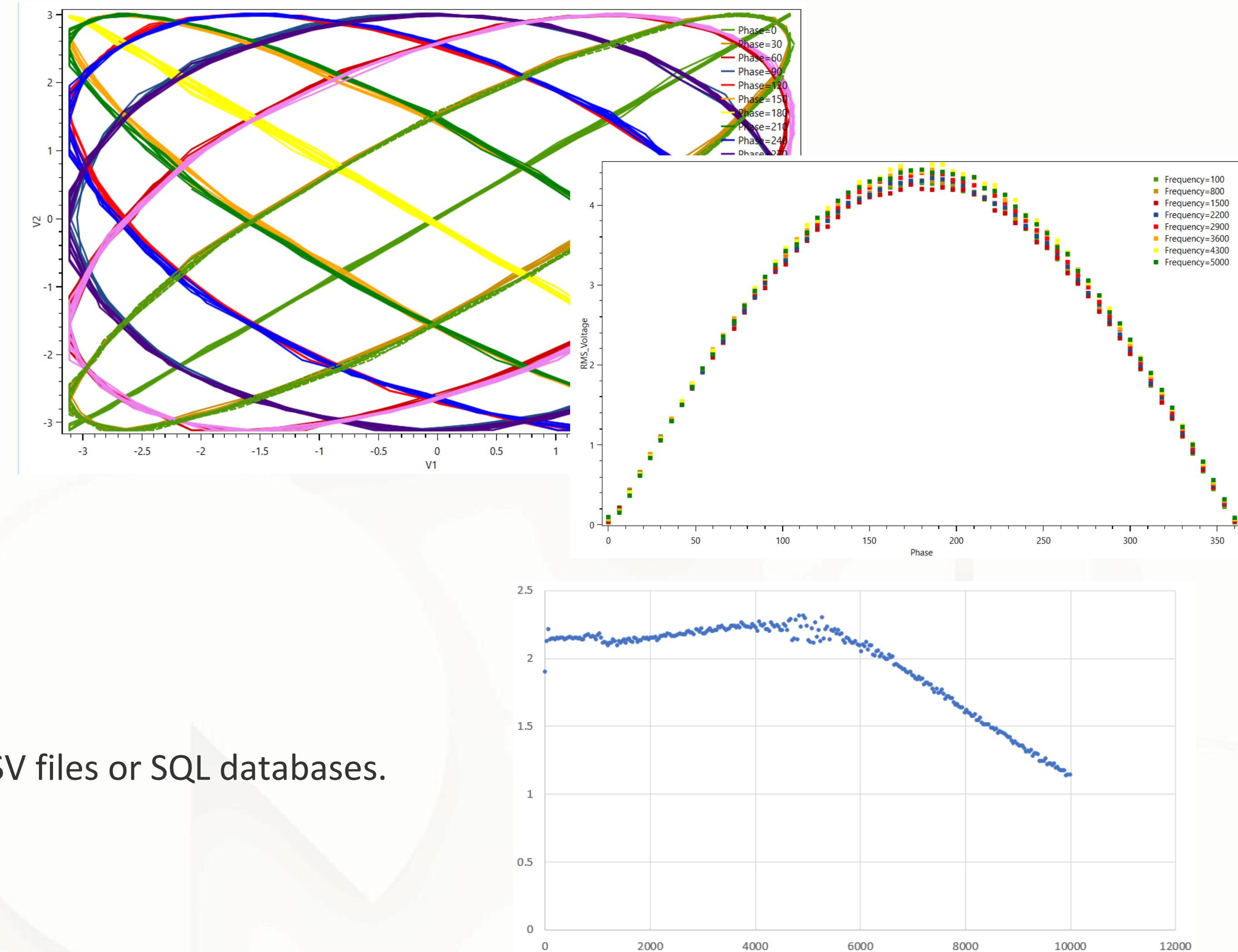
Results

Many test steps generate results, for example:

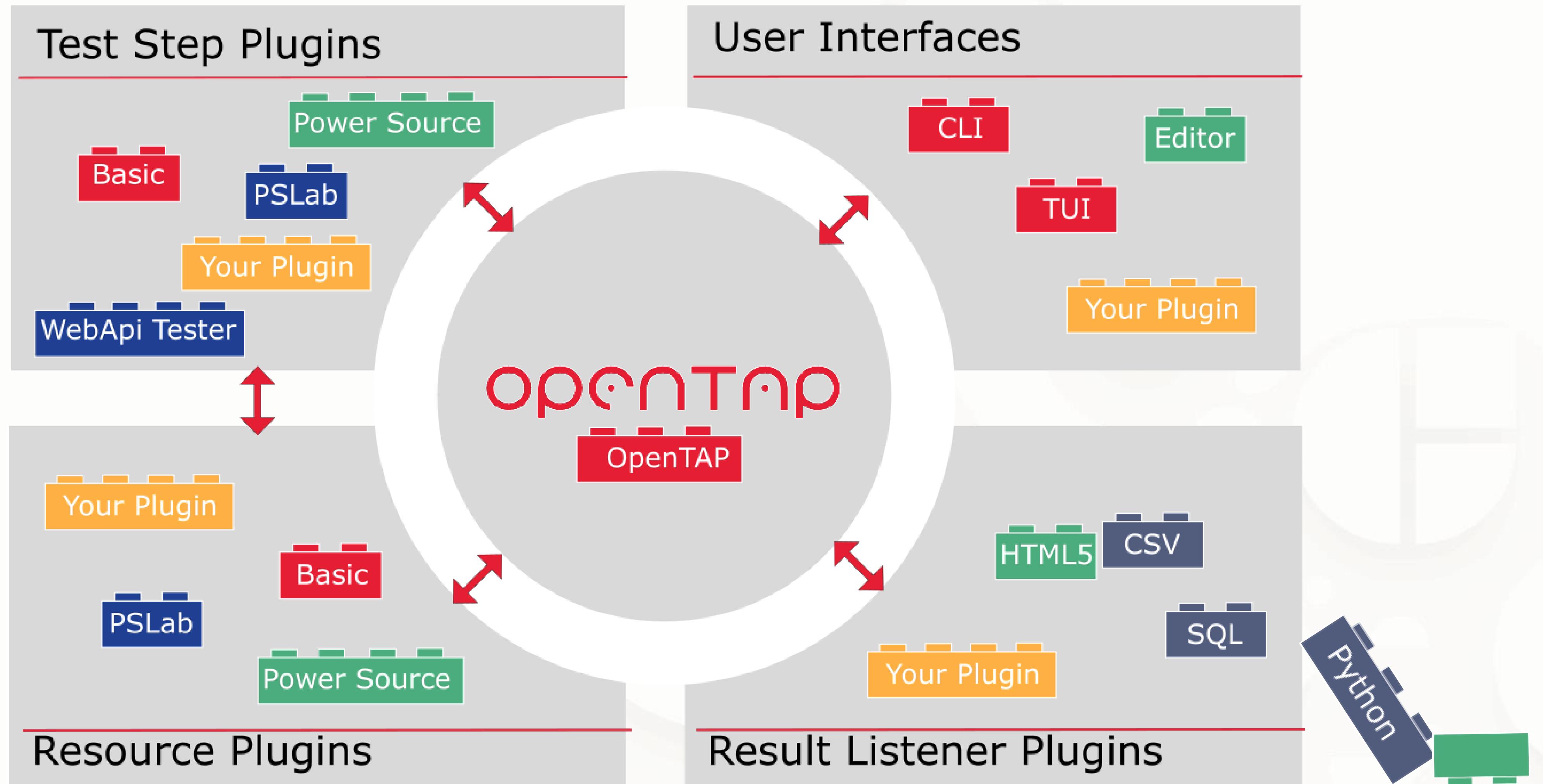
- Just a verdict: **pass / fail**
- The results of a measurement
- A simple log message

A message passing system used for results. E.g writing to CSV files or SQL databases.

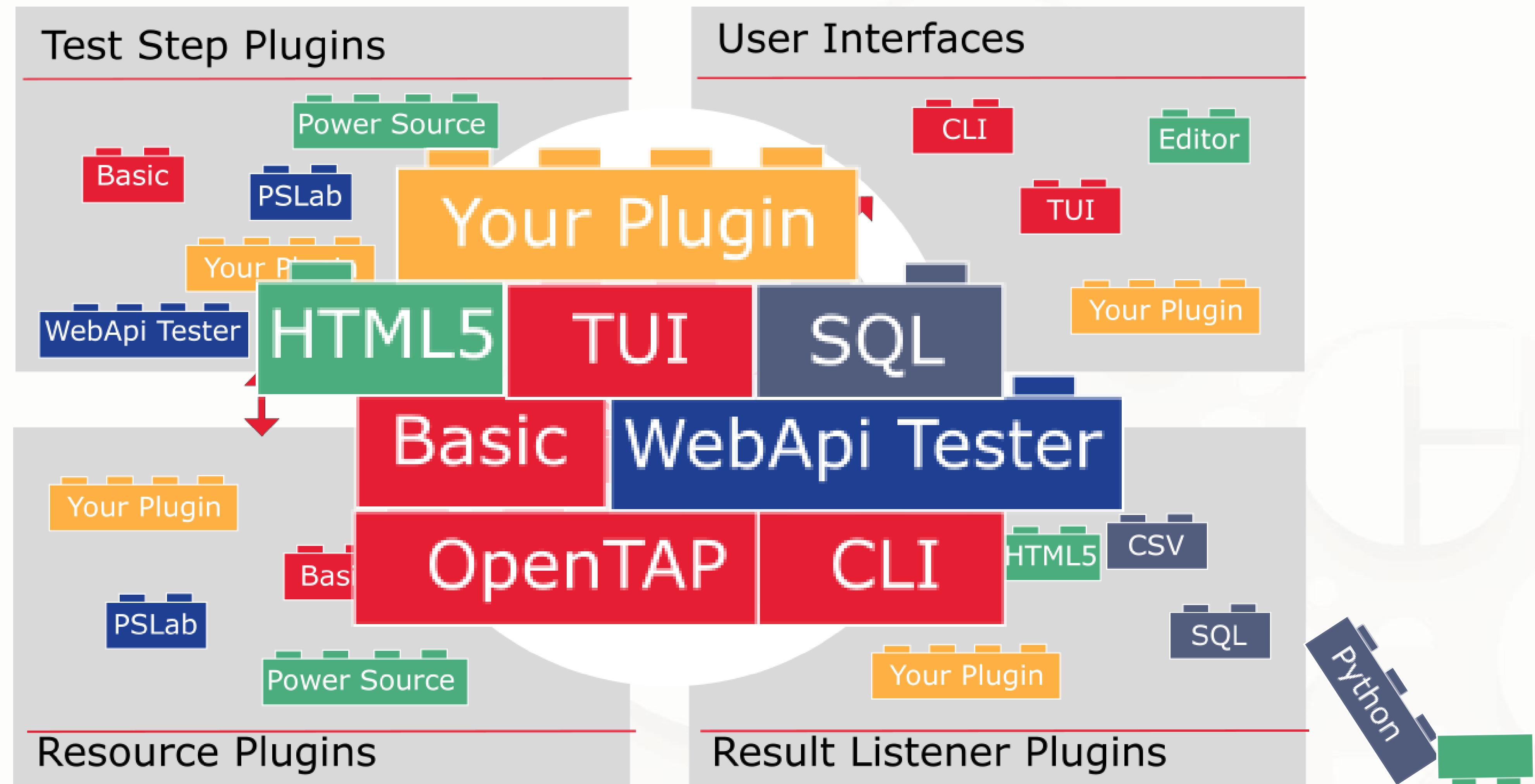
- Test Plan Runs
- Test Step Runs
- Result Tables
- Log messages



Architecture



Architecture



Packages

The screenshot shows the homepage of the OpenTAP package repository at packages.opentap.io. The top navigation bar features the OpenTAP logo on the left and the word "Repository" on the right, with the URL "packages.opentap.io" in the top right corner.

The main content area includes a search bar labeled "Search packages & bundles" with a magnifying glass icon. Below the search bar is a list of packages:

- OpenTAP ↗** 5,094 | OpenTAP
- Keysight Floating Licensing 846 | Keysight Technologies, Inc.
- SDK ↗ 752 | OpenTAP
- WPF Controls 558 | Keysight Technologies, Inc.
- Demonstration 484
- CSV 479 | Keysight Technologies, Inc.
- Developer's System ↗ 413 | Keysight Technologies, Inc.
- OSIntegration 393 | Keysight Technologies, Inc.
- SQLite and PostgreSQL

To the right of the package list is a large central card for the "OpenTAP" package. It features a large cube icon, a "Download" button, and a "How to install?" link. The package details are as follows:

OpenTAP
By: OpenTAP
↗ <https://gitlab.com/OpenTAP/opentap>
5,094

Configuration dropdowns for the package are shown on the right:

OS	Linux
Architecture	x64
Release Type	Release
Version	9.5.1+dcc0651a

packages.opentap.io

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Case



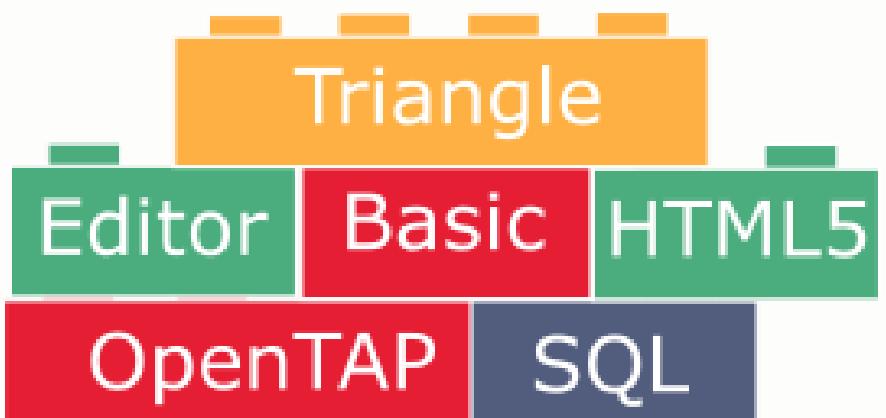
TRIANGLE Project
5G Applications and Devices Benchmarking

5G SmartPhone Benchmark

Testing phone performance from a user perspective.

- **Battery Drain**
- **UI Framerate**
- **Click Latency**
- **Network throughput**

Device Under Test: Phone



The screenshot displays two main windows. On the left is the 'Keysight Test Automation Platform' window, specifically the 'Test Plan' section for 'WebdriverAcquaintDemo.TapPlan'. It shows a hierarchical tree of test steps with their durations: New Session (51.67 s), Query UI - Continue (7.53 s), User action - Enter text (5.28 s), User action - Tap continue (6.83 s), Query UI - Gillespie, Jennifer (15.96 s), Repeat (184.85 s), Sweep Loop (61.38 s), Delay (5.01 s), User action - Tap (6.95 s), Delay (5.00 s), User action - Back (3.50 s), and Close session (3.11 s). To the right of the tree is the 'Step Settings' panel, which is configured for a 'Webdriver' step named 'QUA'. The 'Element' field is set to 'Enter a unique phrase' with 'Find element by' set to 'Marked' and 'Text' set to 'TRIANGLE'. The 'Wait' section is also visible. Below the tree is a 'Log' table showing detailed execution times for each step. On the right side of the image is a mobile device status panel titled 'Status' with sections for Battery status (Charging via USB, 100%), Battery level (100%), Network (Unknown), Signal strength (-113 dBm, 0 asu), Mobile network type (Unknown), and Service state (Voice: Radio off / Data: Radio off). The URL in the browser bar is 'localhost:17894/wd/hub'.

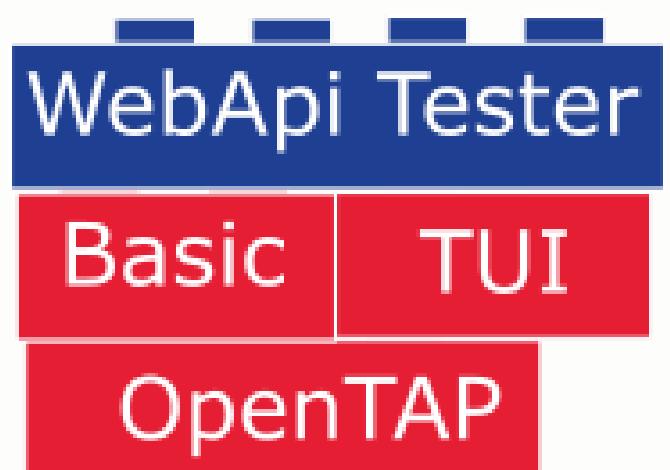
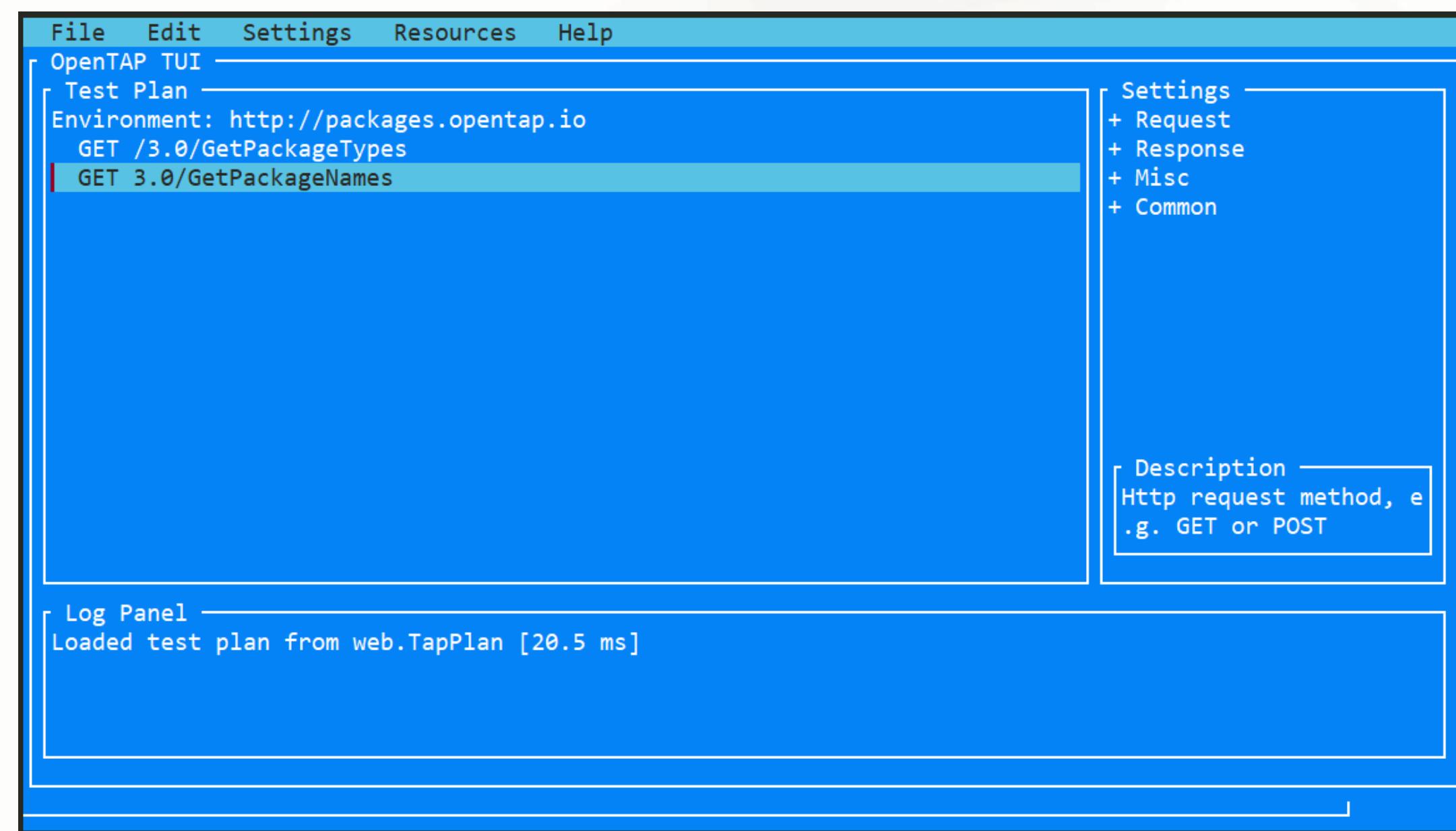
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Case

Web API Tester

A plugin for testing HTTP APIs

Device Under Test: HTTP Server



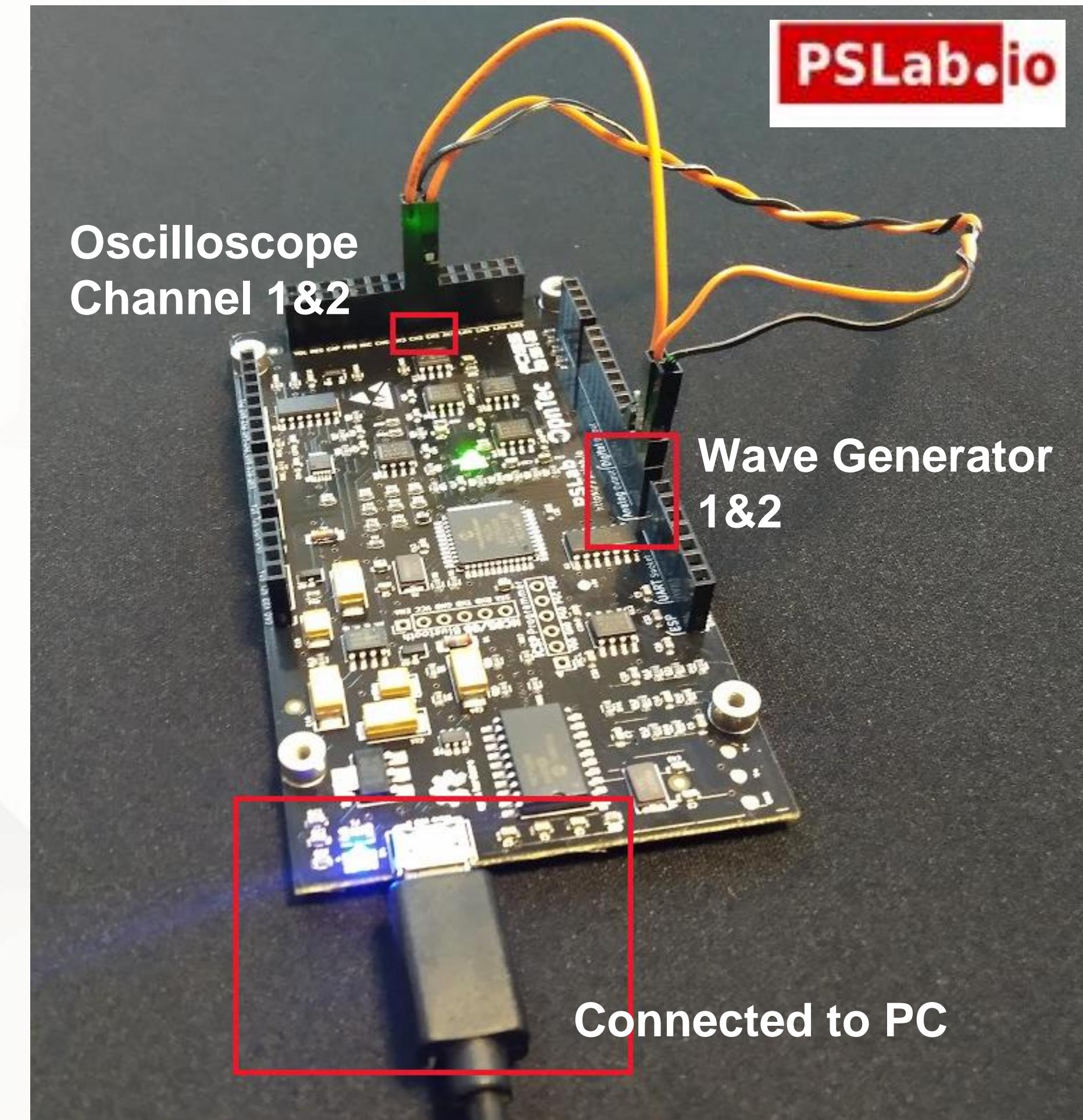
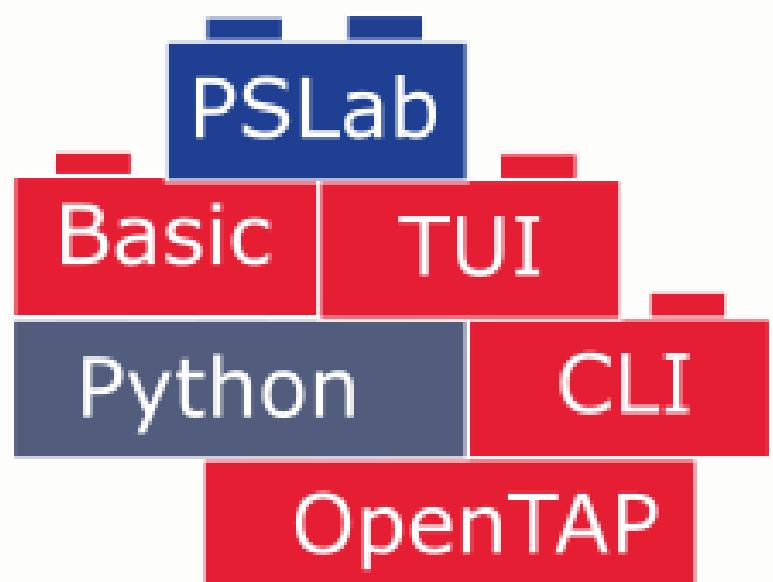
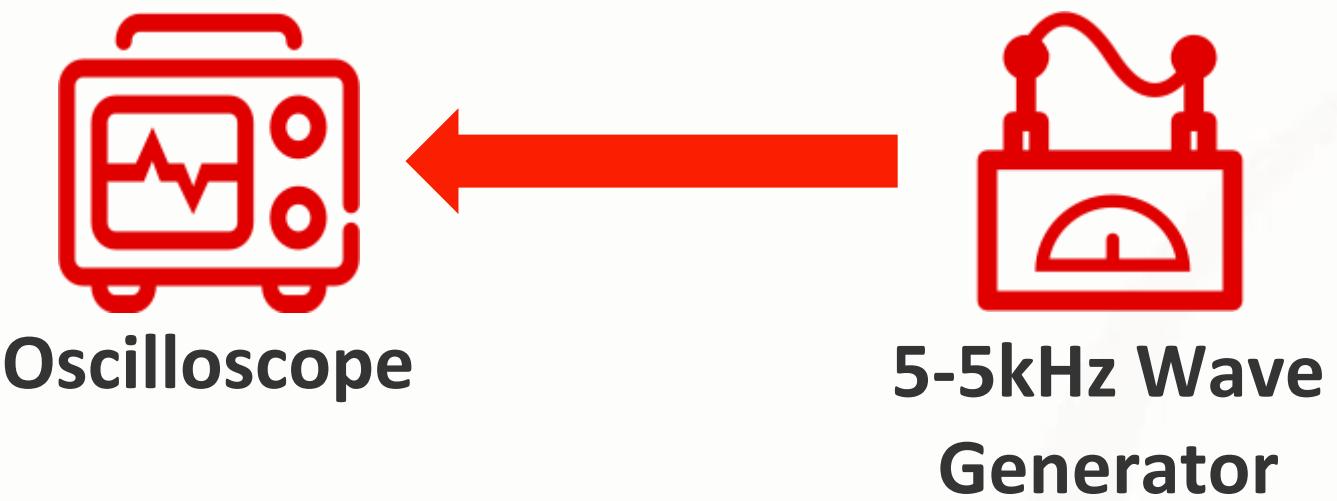
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Case

Pocket Science Lab

Subject of our demo.

- Frequency sweep
- Phase sweep



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Demo Time!

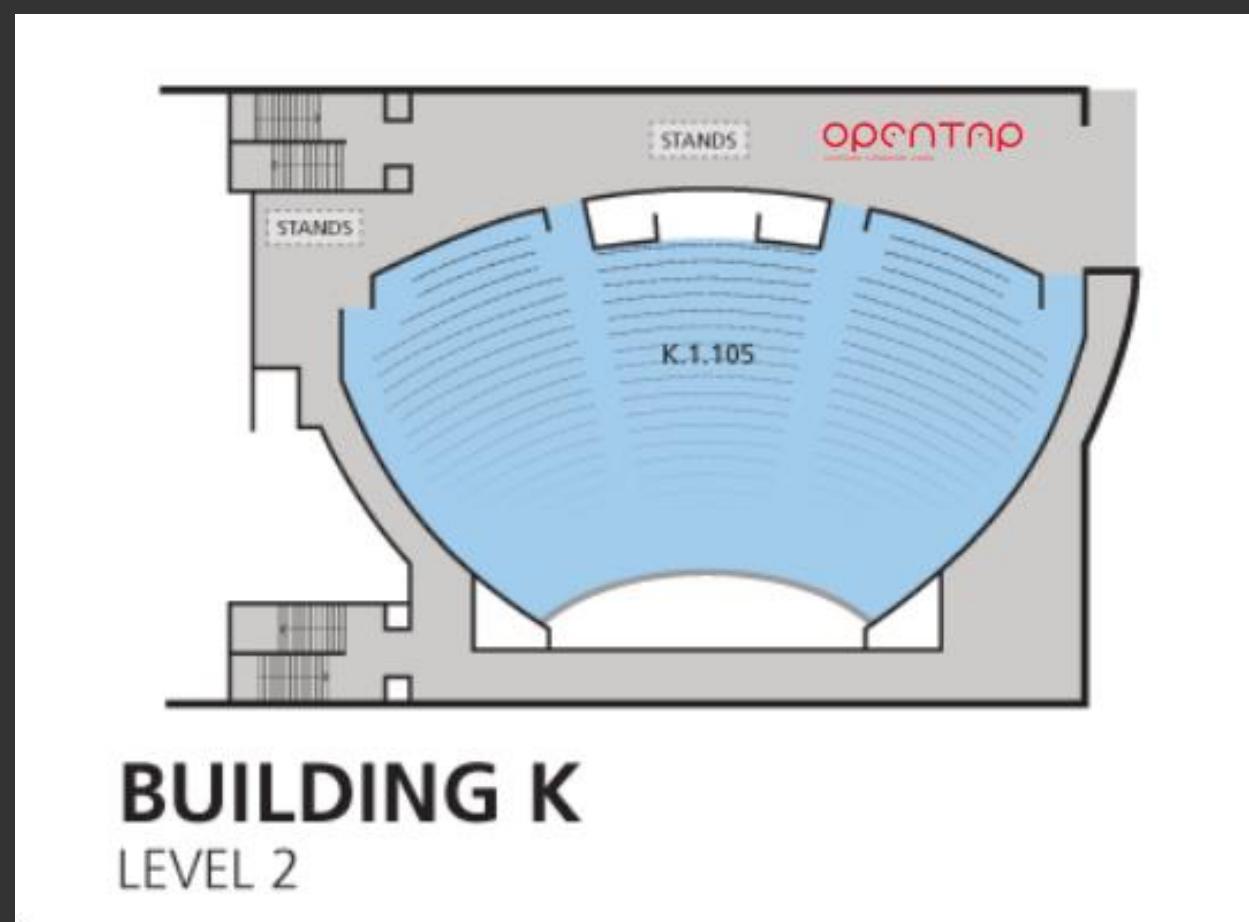


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Thank You!

For more info

- **Webpage:** opentap.io
- **Documentation:** doc.opentap.io
- **Plugins:** packages.opentap.io
- **Source:** gitlab.com/OpenTAP/opentap
- **And please come to our stand!**



OpenTAP Plugin Developer Camp

- **7-11 September 2020**
- opentap.io/events