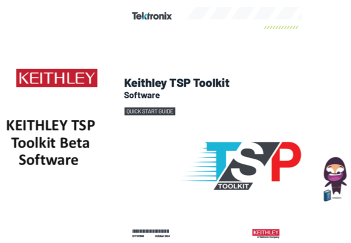


KEITHLEY TSP Toolkit Beta Software User Guide

Contents

KEITHLEY

KEITHLEY TSP Toolkit Beta Software

Tektronix

Keithley TSP Toolkit
Software

QUICK START GUIDE

077187600 October 2024

KEITHLEY
A Tektronix Company

Keithley TSP Toolkit

Specifications

- Manufacturer: Keithley Instruments
- Product Type: Software
- Extension Type: Microsoft Visual Studio Code
- Technology: Test Script Processor (TSP)

Product Information

The Keithley TSPTM Toolkit is a MicrosoftTM Visual Studio CodeTM extension that provides support for Keithley's Test Script Processor (TSP) technology to edit and execute scripts on TSP-enabled Keithley instruments. The extension includes language features such as syntax error detection, code navigation, and code-completion suggestions, as well as .tsp command set documentation and hover help.

Product Usage Instructions

Install the TSP Toolkit extension
Before installing the extension from the Marketplace, select Help > Check for Updates to make sure that you have the most recent version of Visual Studio Code. If you are using Microsoft Windows, be sure to also have the latest

Visual C++ Redistributable library installed.

To install the extension from the Visual Studio Code Marketplace:

1. Select the extensions icon.
2. Select the search icon, then enter tektronix.tsp-toolkit in the search field.
3. Select Install under the Keithley TSP Toolkit.
4. The extension will install. Reload the window if you are prompted.

Set up your workspace
To set up your workspace in Visual Studio Code:

1. Select the explorer icon.
2. Select File.
3. Select Open Folder to select a folder or create a new folder to use as your workspace.

Connect to an instrument
You can connect your TSP-enabled instrument to your computer with a LAN, GPIB, or USB connection. GPIB and USB connections require a VISA driver.

To connect to a TSP-enabled instrument:

1. Select the TSP icon on the left of the screen to open the instrument pane.
2. Right-click your instrument, then select Connect. If the connection was successful, a terminal window opens, and your instrument's *IDN? string will be displayed.

Configure a project
You can configure your project to have language features enabled for your TSP instruments and TSP-Link node network.

To configure a project:

1. Open any workspace folder.
2. If your workspace folder is empty, create a .tsp file (for example, mytspfile.tsp).
3. Connect to your instrument using the instrument pane or the TSP: Connect command.
4. Right-click the .vscode/tspConfig folder.
5. Select Fetch TSP-Link Nodes for Connected Instrument. When your project is configured, you are shown relevant code-completion suggestions, signature help, and command documentation for your connected instruments.

Frequently Asked Questions (FAQ)

Q: How can I download and use .tsp example scripts?
A: You can download and use .tsp example scripts by visiting **tek.com/keithley** or accessing them through the TSP Toolkit extension in Visual Studio Code.

Keithley TSP Toolkit

Software

QUICK START GUIDE

Keithley Instruments TSP Toolkit

Quick Start Guide

Keithley Instruments
28775 Aurora Road
Cleveland, Ohio 44139
1-800-833-9200
tek.com/keithley

Introduction

The Keithley TSPTM Toolkit is a MicrosoftTM Visual Studio CodeTM extension that provides support for Keithley's Test Script Processor (TSP) technology to edit and execute scripts on TSP-enabled Keithley instruments.
The extension includes language features such as syntax error detection, code navigation, and code-completion suggestions, as well as .tsp command set documentation and hover help.
This guide will show you how to:

- Install the TSP Toolkit extension
- Set up your workspace
- Connect to an instrument
- Configure a project
- Run a .tsp script
- Use the Terminal
- Download and use .tsp example scripts

Note
You can download Visual Studio Code from code.visualstudio.com/.

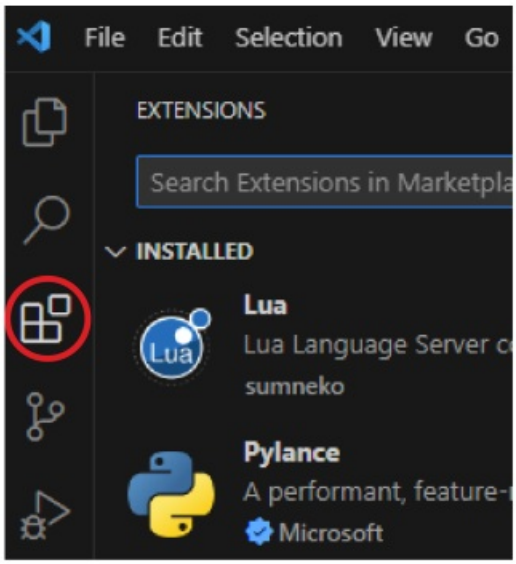
Install the TSP Toolkit extension

Note
Before installing the extension from the Marketplace, select Help > Check for Updates to make sure that you have the most recent version of Visual Studio Code.
If you are using Microsoft Windows, be sure to also have the latest Visual C++ Redistributable library installed.

To install the extension from the Visual Studio Code Marketplace:

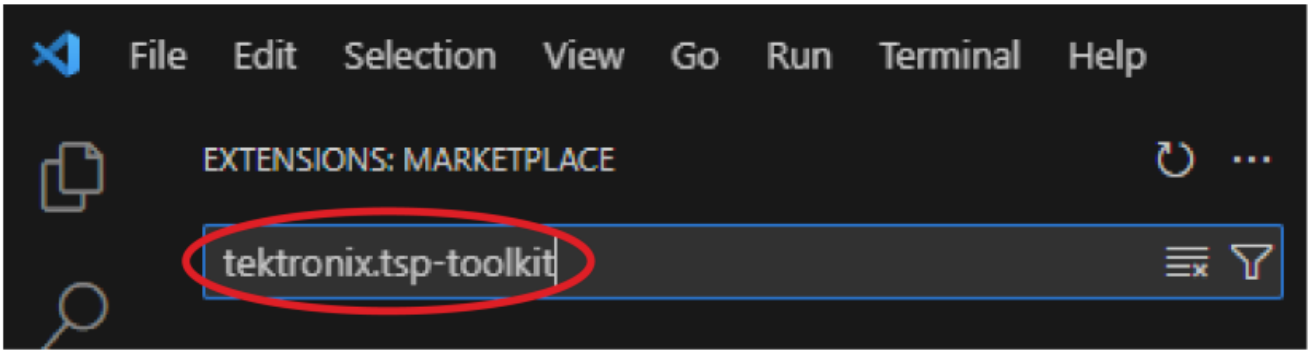
1. Select the extensions icon.

Figure 1: Search field



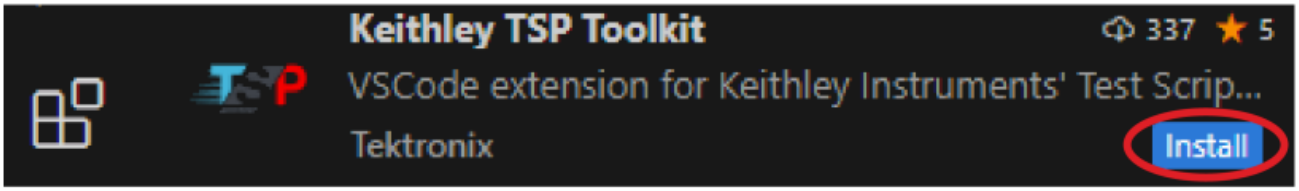
2. Select the search icon, then enter tektronix.tsp-toolkit in the search field.

Figure 2: Searching for the TSP Toolkit



3. Select Install under the Keithley TSP Toolkit.

Figure 3: Installing the TSP Toolkit



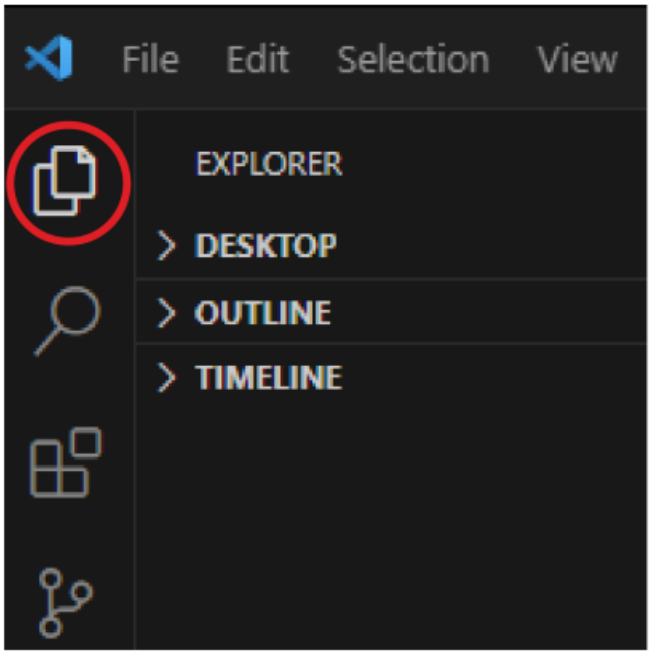
4. The extension will install. Reload the window if you are prompted.

Set up your workspace

To set up your workspace in Visual Studio Code:

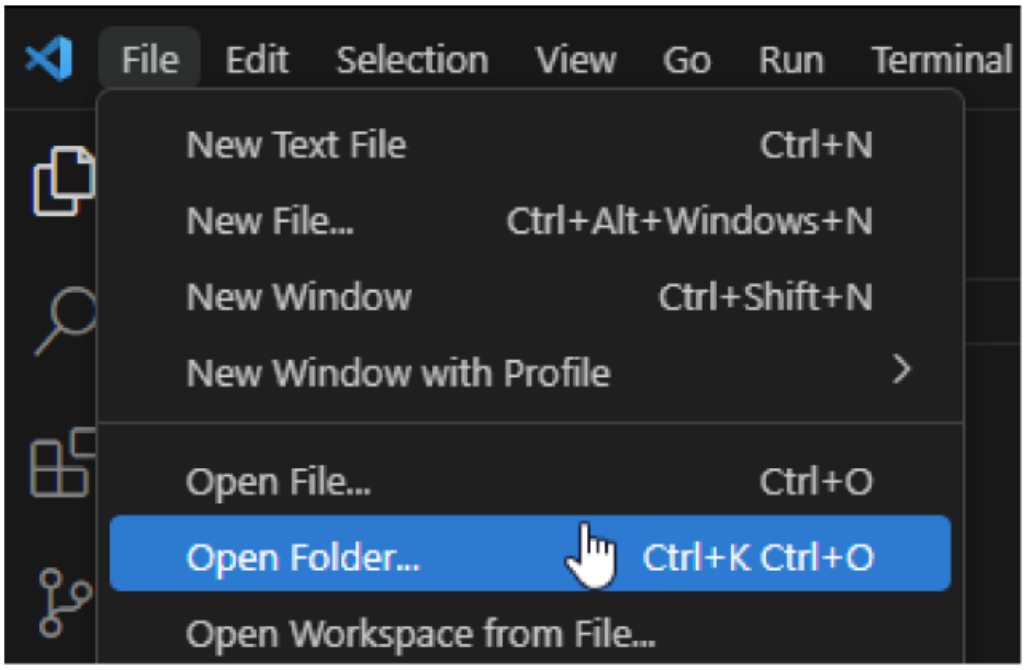
1. Select the explorer icon.

Figure 4: Selecting the Explorer



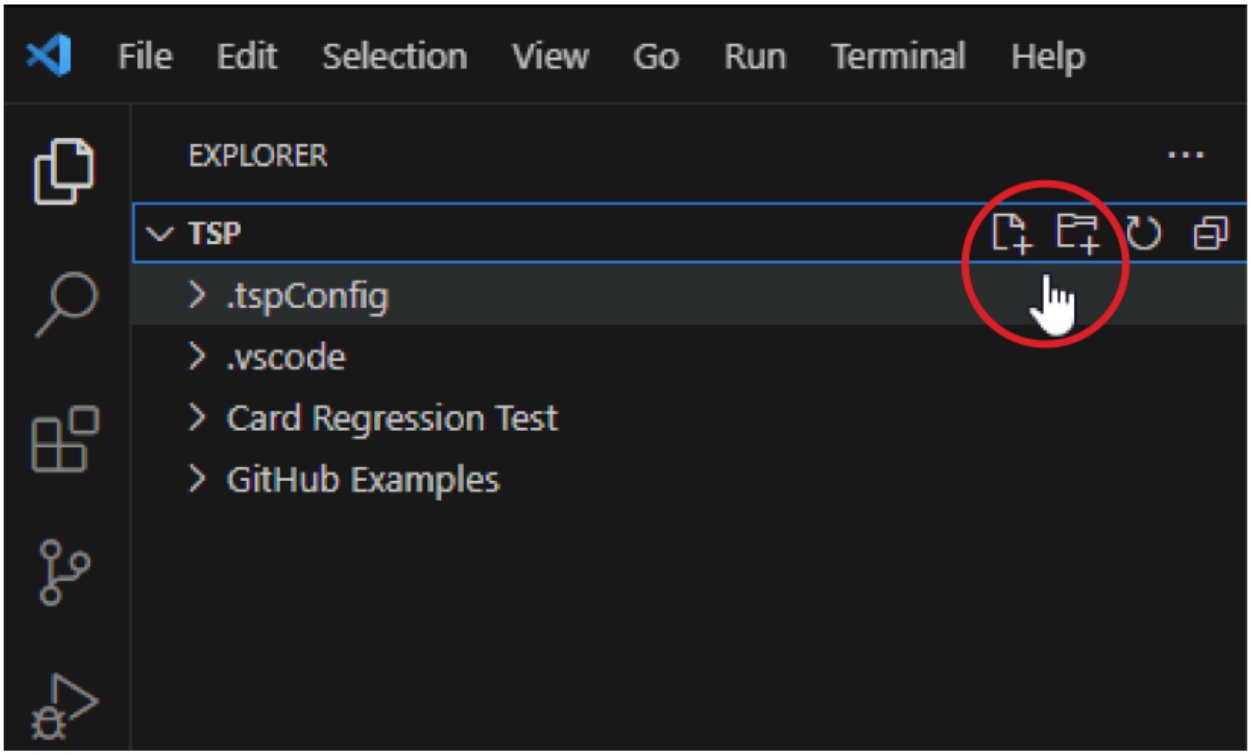
2. Select File.
3. Select Open Folder to select a folder or create a new folder to use as your workspace.

Figure 5: Opening a folder



4. In your workspace, use the New File and New Folder icons to create new .tsp files and subfolders.

Figure 6: New File and New Folder icons

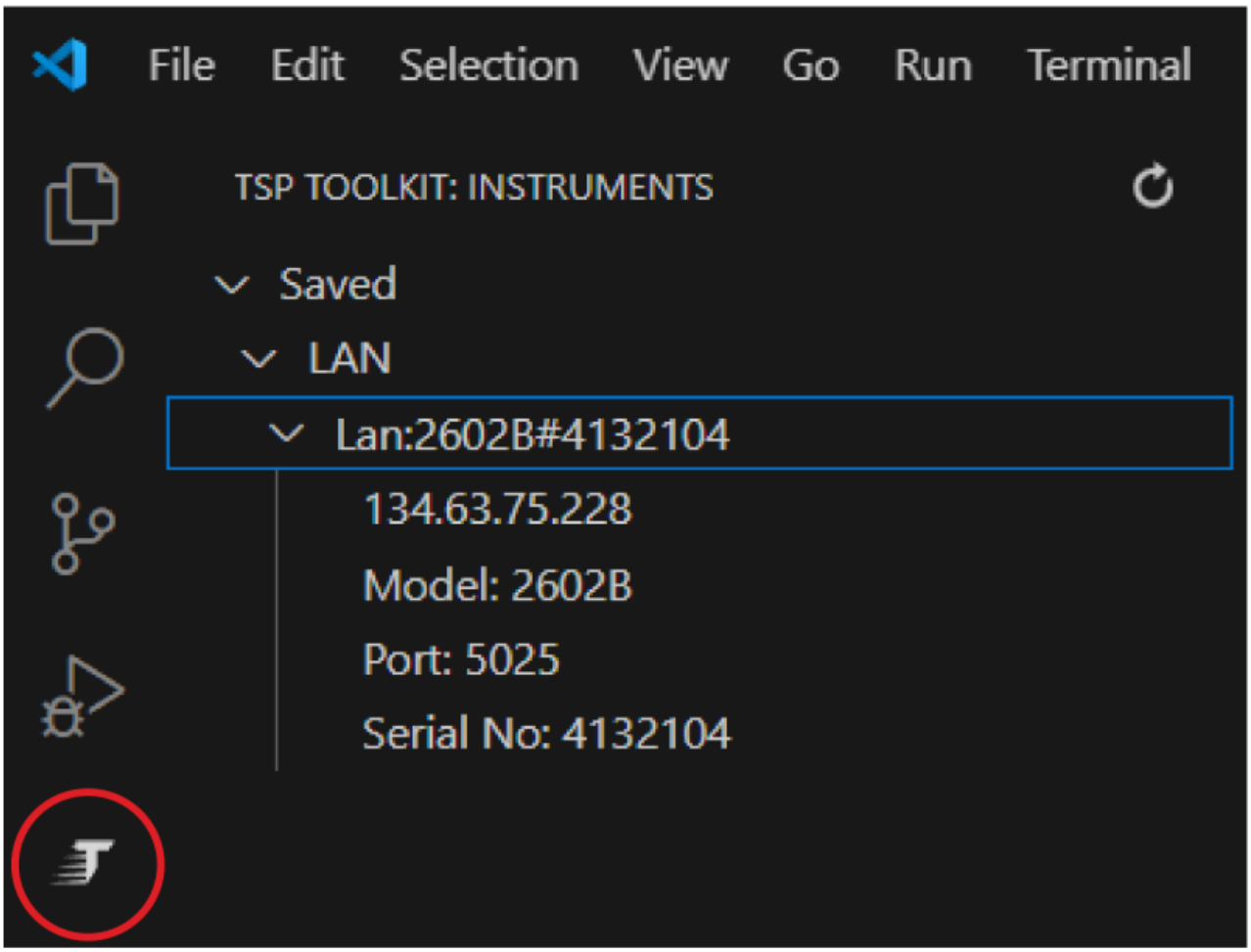


Connect to an instrument
You can connect your TSP-enabled instrument to your computer with a LAN, GPIB, or USB connection. GPIB and USB connections require a VISA driver.

To connect to a TSP-enabled instrument:

1. Select the TSP icon on the left of the screen to open the instrument pane.
2.

Figure 7: Selecting the TSP icon



Right-click your instrument, then select Connect.

If the connection was successful, a terminal window opens, and your instrument's *IDN? string will be displayed.

Configure a project

You can configure your project to have language features enabled for your TSP instruments and TSP-Link node network.

To configure a project:

1. Open any workspace folder.
2. If your workspace folder is empty, create a .tsp file (for example, mytspfile.tsp).
3. Connect to your instrument using the instrument pane or the TSP: Connect command.
4. Right-click the .vscode/tspConfig folder.
5. Select Fetch TSP-Link Nodes for Connected Instrument.

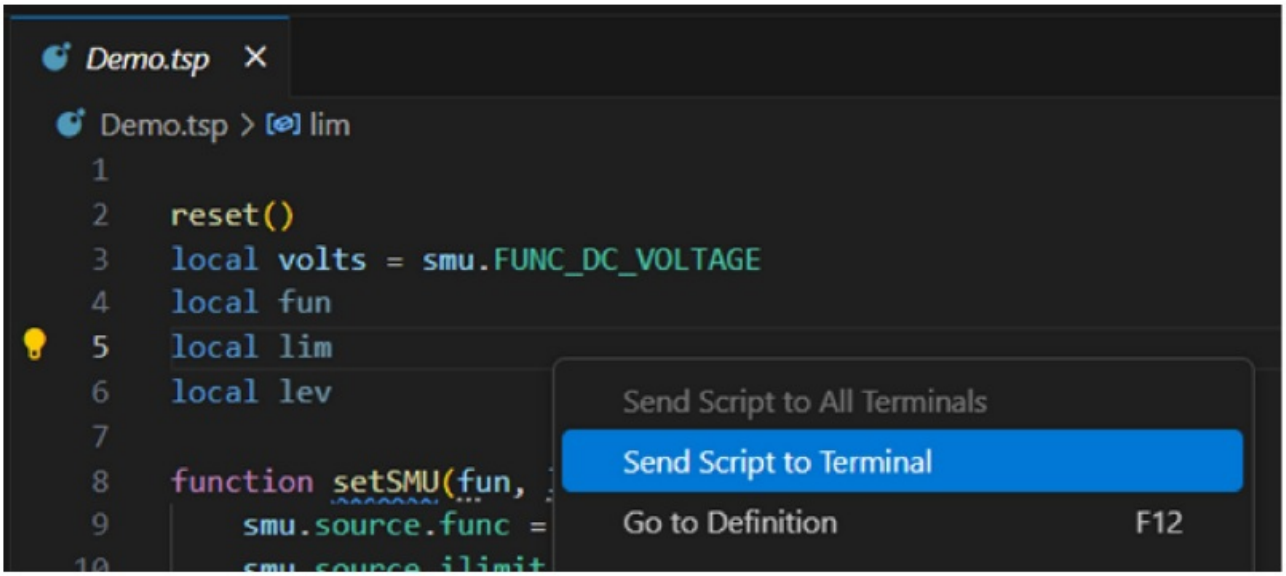
When your project is configured, you are shown relevant code-completion suggestions, signature help, and command documentation for your connected instruments.

Run a .tsp script

To run a .tsp script:

1. Open a .tsp script in the editor by clicking on it in the workspace or by selecting File > Open File.
2. Right-click anywhere within the script editor to display the context menu.
3. Select Send Script to Terminal to run the script.

Figure 8: Running a .tsp script



Note
When scripts or commands are run from the Terminal, errors are only fetched after the requested action completes. No new errors are printed while the operation is in progress.

Using the Terminal

Once you have established a connection with your instrument, the Terminal can be used to send .tsp commands and run .tsp scripts.
To close the Terminal and disconnect from the instrument, send the .exit command.

Figure 9: TSP Terminal window

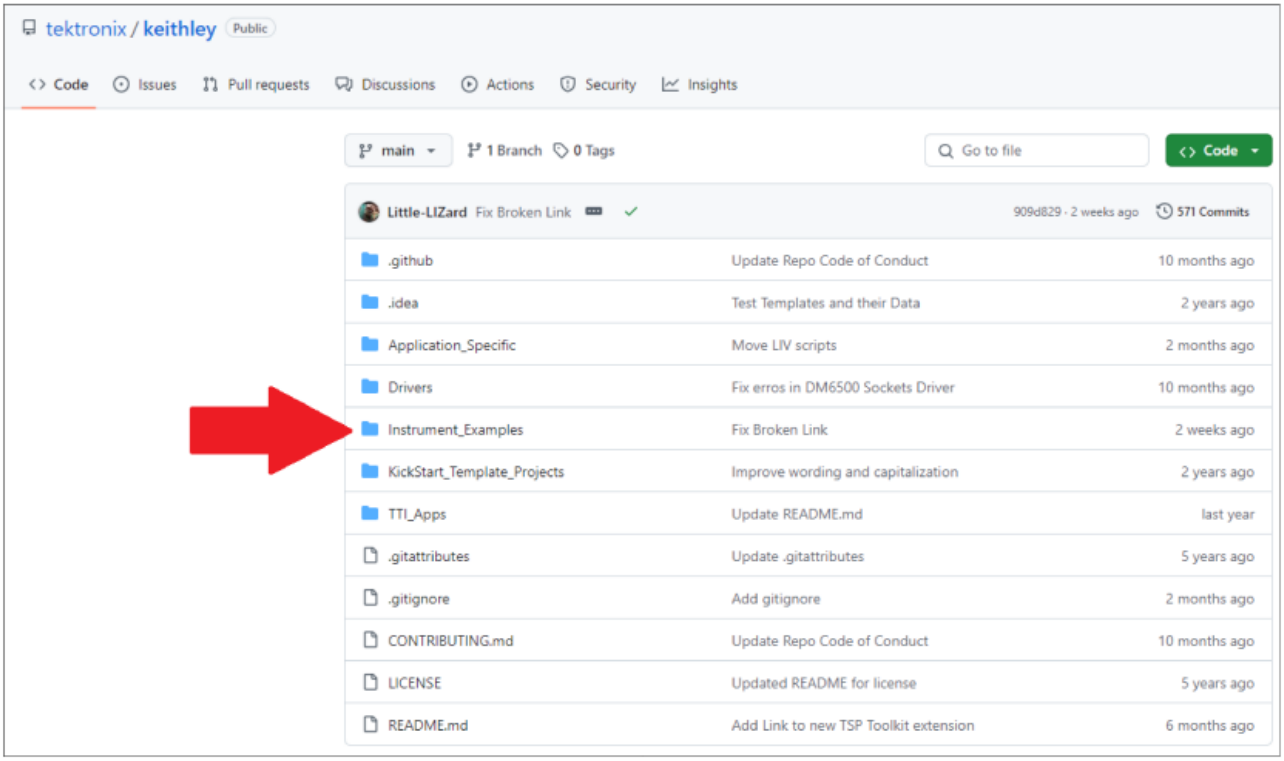
```
PROBLEMS 2K+   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

Keithley TSP Shell
Type .help for more commands.

Keithley Instruments,MODEL 2450,04484447,1.7.14h

TSP> .script "c:\Users\stenagli\OneDrive - Fortive\Documents\Scripts\TSP\Demo.tsp"
2460 Source Function is smu.FUNC_DC_VOLTAGE
2460 Current Limit is   0.001
2460 Source Level is    5
2460 Output is  smu.ON
2460 Source Function is smu.FUNC_DC_VOLTAGE
2460 Current Limit is   0.001
2460 Source Level is    0
2460 Output is  smu.OFF
done

TSP> .exit
```

Downloading and using TSP example scripts
Example TSP Scripts are available for download on the Keithley TSP GitHub Repository.

To download and use a script:

1. Select either the Application_Specific or Instrument_Examples folder to find .tsp scripts.
2.

Figure 10: GitHub .tsp script site



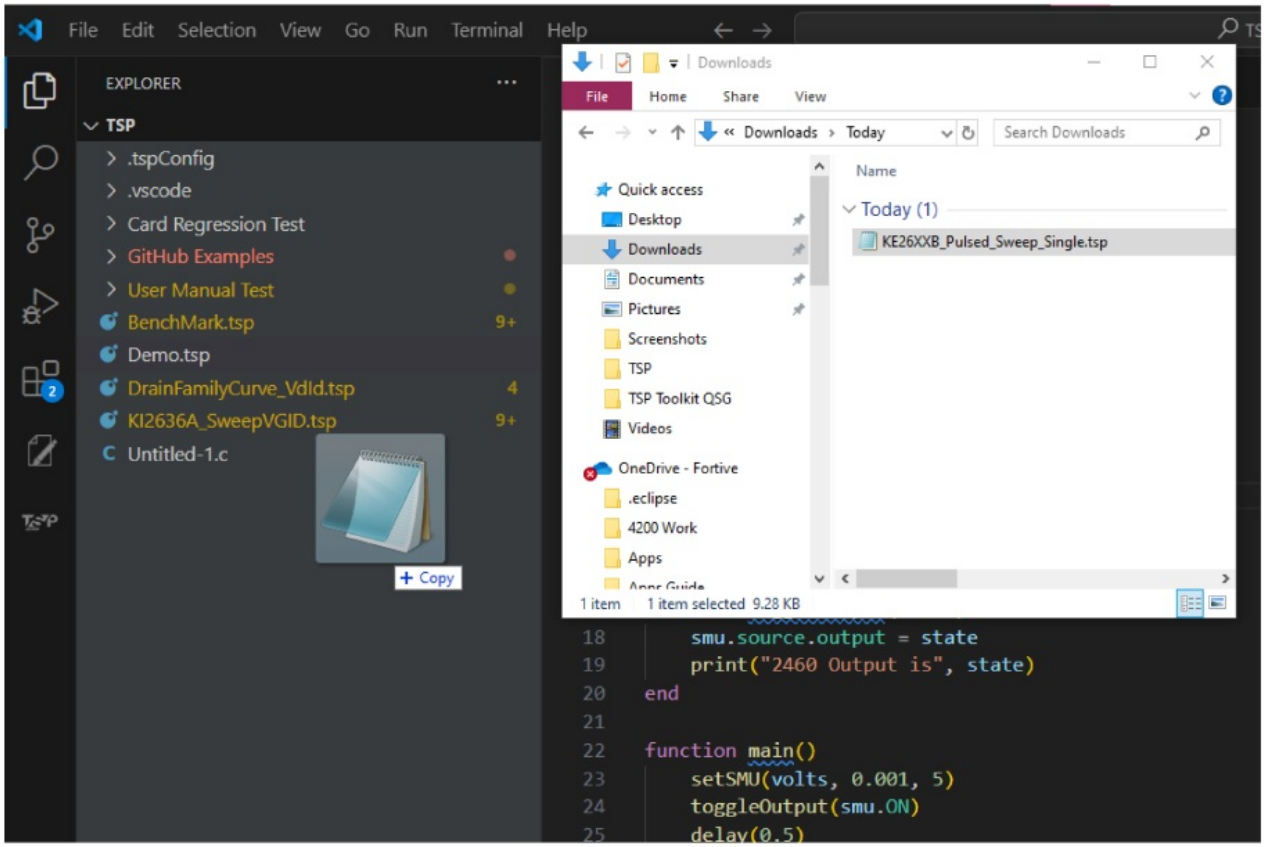
Navigate the folders to find example scripts organized by instrument and application.

3. You can click on a script to view the code within GitHub. Select the download icon to copy the script to your computer.

Figure 11: Downloading a script

4. When the download is finished, copy the script to your TSP Toolkit Workspace file location.

Figure 12: Script in Workspace



Additional resources and tutorials

- Application note: How to write scripts for TSP
- Tektronix/Keithley TSP GitHub script example repository
- TSP page on [Tek.com]
- TSP Toolkit feature walkthrough video
- TSP Toolkit product page
- TSP video series

Specifications are subject to change without notice.

Keithley Instruments • 28775 Aurora Road • Cleveland, Ohio 44139 • 1- 800-833-9200 • tek.com/keithley

Documents / Resources

	KEITHLEY TSP Toolkit Beta Software [pdf] User Guide TSP Toolkit Beta Software, Toolkit Beta Software, Beta Software, Software

References

- Visual Studio Code - Code Editing. Redefined
- Test and Measurement Equipment | Tektronix
- Keithley Instruments & Products | Tektronix
- User Manual