

tinyMicon MatisseCORE™

matisseye™-chart User's Guide

How to display and operating real-time chart of variables in Matisse firmware using Visual Studio Code.

Revision History

Date	Version	Description
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1 Introduction

1.1 Overview

matiseye™-chart is an extension that adds a real-time charting functionality to matiseye™-studio.

It allows the transition of variables in a firmware being debugged in matiseye™-studio to be displayed on a real-time chart on up to four channels simultaneously.

This is ideal for monitoring data from sensors and other sources.

•Prerequisite

OS:	Windows 10 32-bit / Windows 10 64-bit
CPU:	Comparable performance to Intel Core line
Memory:	2GByte or more
HDD:	1GByte or more free space
VS Code:	V1.73.0 or later
matiseye™-studio:	V1.0.12 or later

NOTES

matiseye™-studio is a C development environment for tinyMicon MatisseCORE™ running on Visual Studio Code (hereafter VS Code).

For more information on matiseye™-studio, see the matiseye™-studio documentation.

2 Installation Procedure

Notes

Make sure that VS Code and matiseye™-studio are installed and running correctly before performing the following steps.

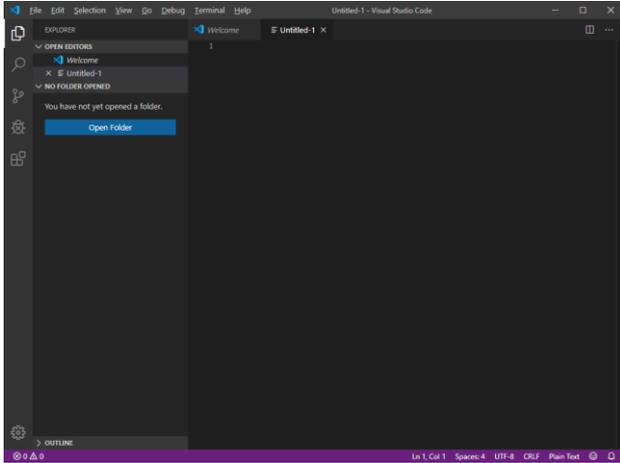


Figure 2. VS Code Startup Window

1 Start VS Code.

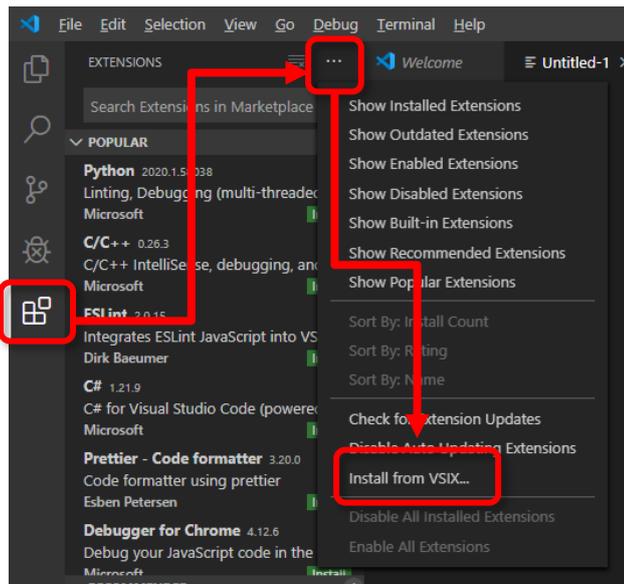


Figure 3. Installing the extension

2 Click [] (Extensions) > [...] (More Actions) Click > [Install from VSIX].



Figure 1. Choose VSIX files

3 Select “matiseye-chart-*.*.vsix” and click [Install].

4 Restart VS Code if required.

3 Operating Instructions

3.1 Launching matiseye™-chart

When the command "Matisse Debug: Show Chart" is executed from the command palette while debugging a firmware, the chart screen is displayed in the right-hand column of the editor screen.

The command palette is displayed at the top of the screen by pressing Ctrl + Shift + P or F1 on the keyboard.

Notes

"Matisse Debug: Show Chart" command can only be executed from the command palette during debugging.

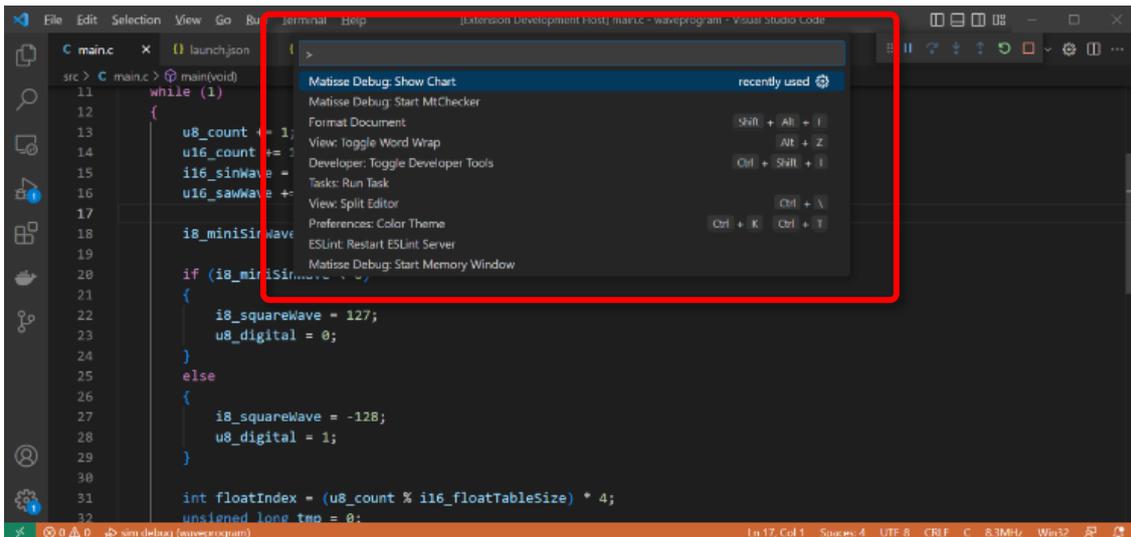


Figure 4. "Matisse Debug: Show Chart" Command

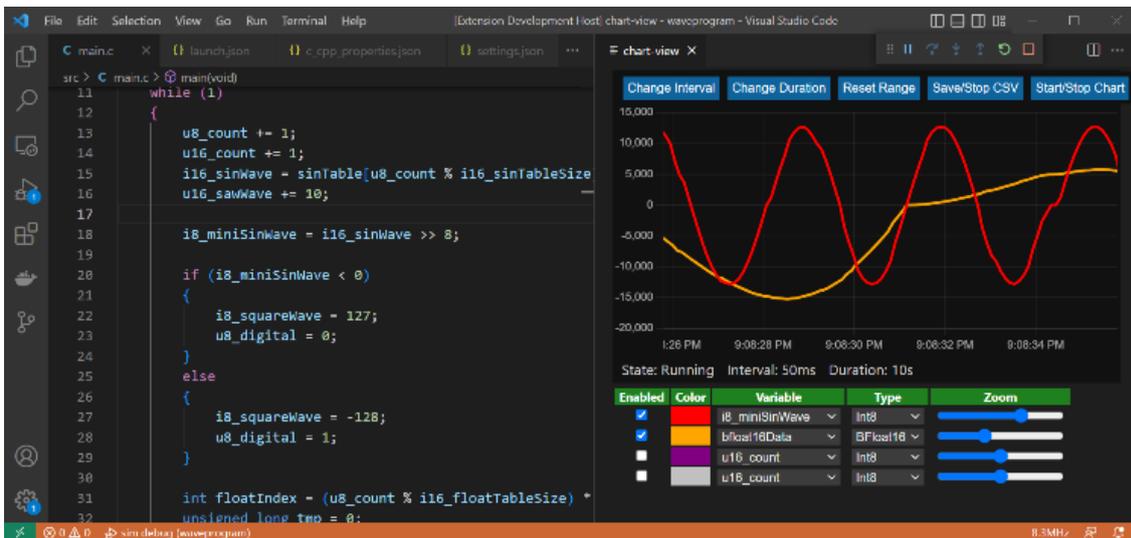


Figure 5. matiseye™-chart Screen

3.2 Description Of Screen Display

The functions of the chart screen are divided into the following areas. Details of each area are given on the following pages.

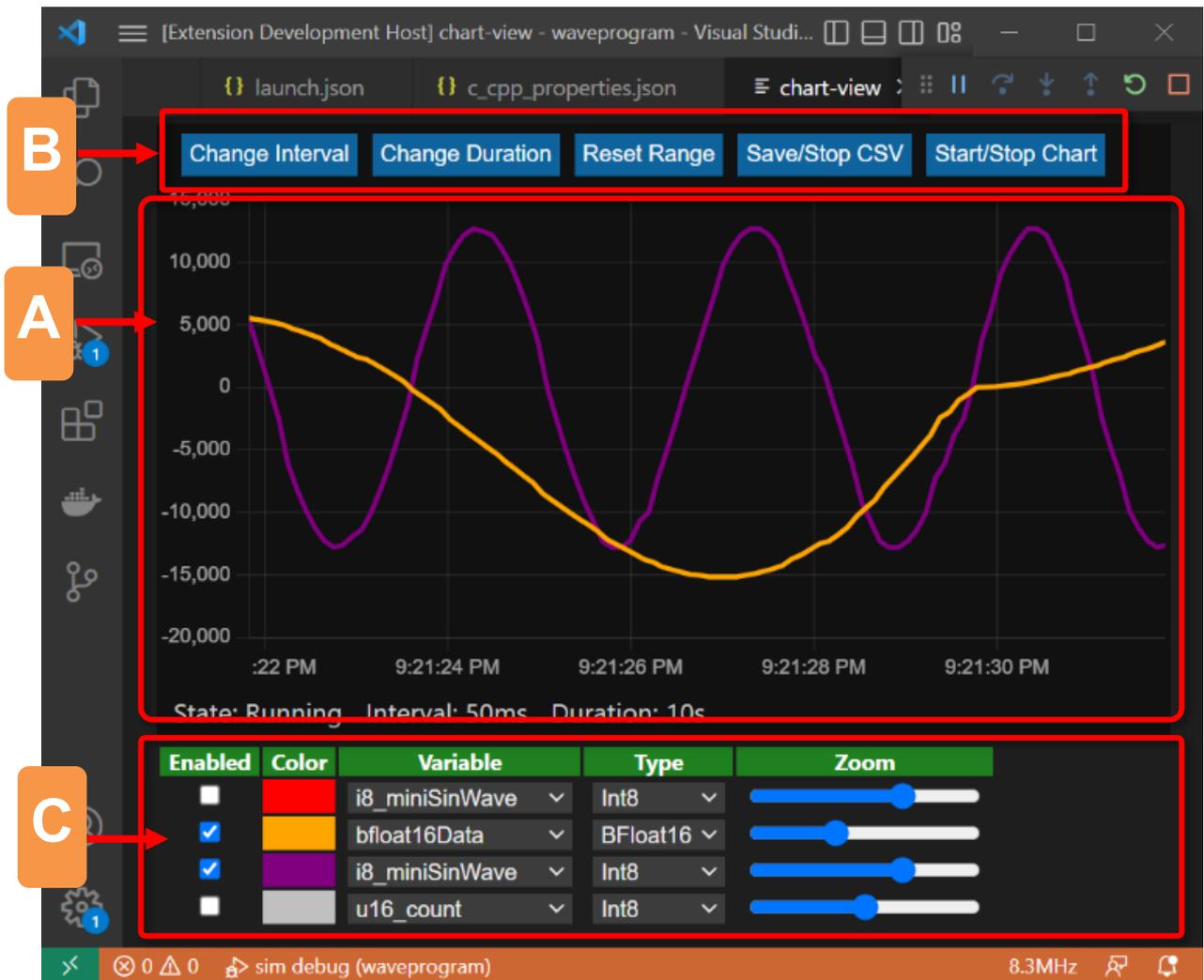


Figure 6. Areas of the chart screen

Table 1. Names and descriptions of the chart screen area

Name	Description
A Chart area	Display and manipulate charts. ➡ See “ Chart Area Description Of Display Content ”.(page 8,)
B Chart control button area	Buttons for controlling the chart. ➡ See “ Chart Control Button Area Description ”.(page 10,)
C Channel control panel area	Control panel for each data set channel. ➡ See “ Channel Control Panel Area Description ”.(page 12,)

3.3 Chart Area Description of Display Content

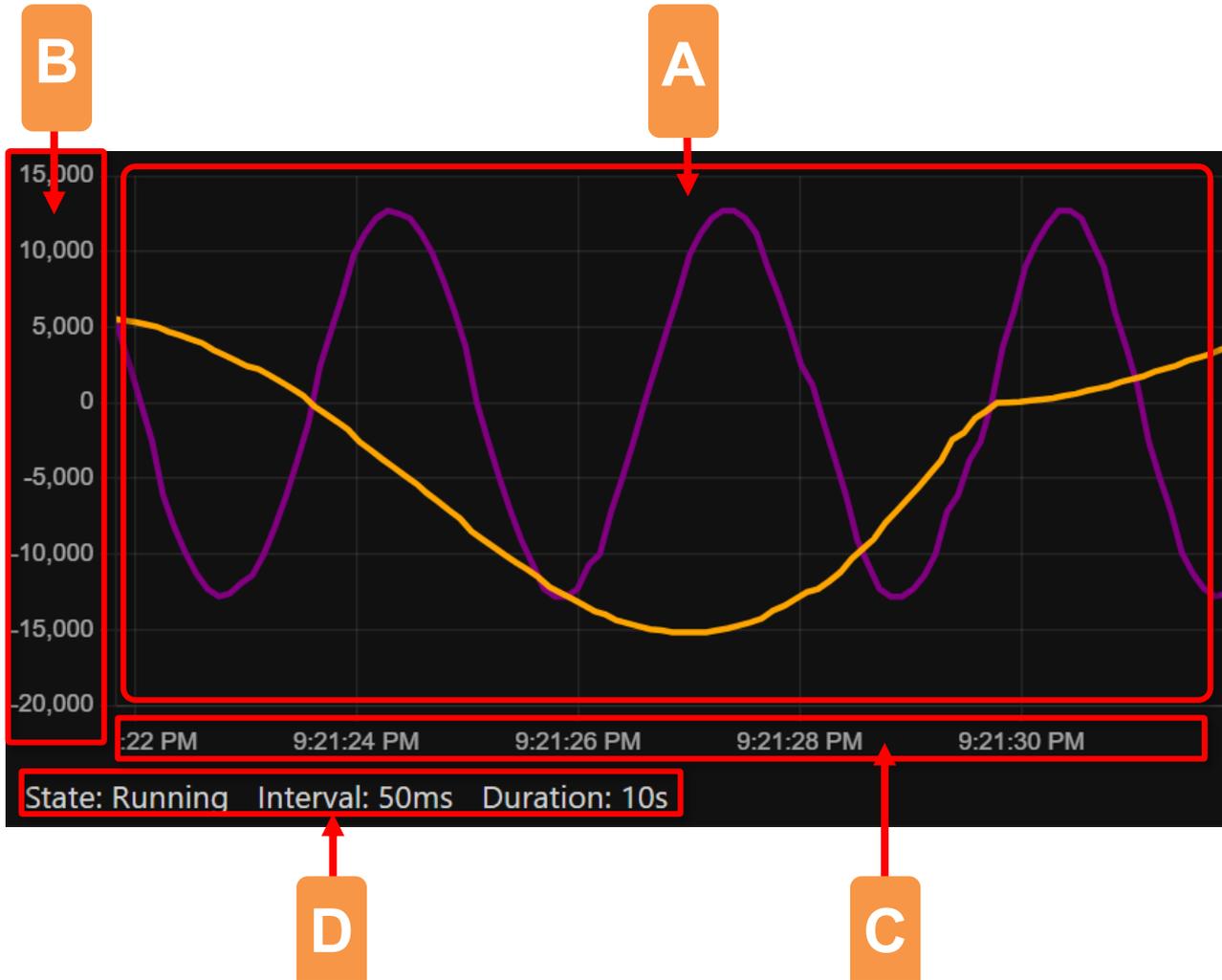


Figure 7. Chart Area

Table 2. Chart area Description

	Name	Description
A	Chart display area	The chart for each data set channel is displayed.
B	Y-axis labels	Labels for the Y-axis values are displayed.
C	X-axis labels	Labels for the X-axis values are displayed. The units for these x values are time and they are displayed in date format.
D	Chart information	Information about the chart is displayed. State: the operating state of the chart; Running: the chart is running / Stopped: the chart is stopped. While saving a CSV file, "(CSV)" is added at the end of the state. Interval: the data update interval of the chart is displayed. (*1) Duration: the X-axis display duration of the chart is displayed.

NOTES

(*1) If multiple dataset channels are set to be displayed, only one channel will be updated per one update timing. This means that if Interval is 50 ms and two channels are displayed, the update interval per channel will be 100 ms.

3.4 Chart Area Description of Mouse Operation

The chart area can also be manipulated with the mouse.



Figure 8. Mouse operation in the chart area

Table 3. Mouse operation in the chart area Description

	Name	Description
A	Y-axis range moving area	Drag vertically with the left mouse button to move the display range.
B	Y-axis range selection area	Drag vertically with the left mouse button to select the display range.
C	Context menu	Right-click on the chart area to display. (*1)
	Change Polling Interval	Change the data update interval of the chart. The following values can be selected. [50ms/75ms/100ms/200ms/500ms/1000ms]
	Change X-Axis Duration	Changes the X-axis display duration of the chart. The following values can be selected. [10s/20s/30s/60s/120s/180s]
	Reset Y-Axis Range	Resets the modified Y-axis display range to its initial state.
	Toggle Save/Stop CSV File	Starts saving chart data in CSV format to the specified file. Clicking again stops saving to the file.
	Toggle Start/Stop Chart	Toggles the state of the chart. Clicking while the chart is in the Running state stops the chart and clicking while the chart is stopped puts the chart in the Running state.

NOTES

(*1) The context menu and chart control buttons have the same functionality.



See ["Chart Control Button Area Description"](#). (page 10,)

3.5 Chart Control Button Area Description

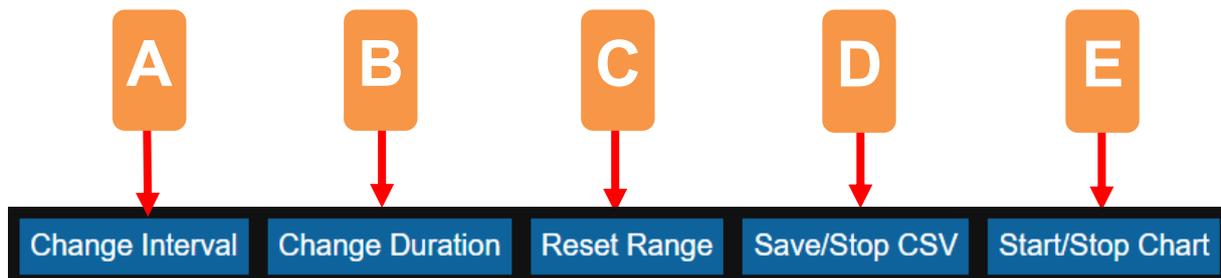


Figure 9. Chart operation button area

Table 4. Chart Operation Button Description

	Name	Description
A	Change Interval	Change the data update interval of the chart. The following values can be selected. [50ms/75ms/100ms/200ms/500ms/1000ms]
B	Change Duration	Changes the X-axis display duration of the chart. The following values can be selected. [10s/20s/30s/60s/120s/180s]
C	Reset Range	Resets the modified Y-axis display range to its initial state.
D	Save/Stop CSV	Starts saving chart data in CSV format to the specified file. Clicking again stops saving to the file.
E	Start/Stop Chart	Toggles the state of the chart. Clicking while the chart is in the Running state stops the chart and clicking while the chart is stopped puts the chart in the Running state.

NOTES

The chart control buttons and the context menu have the same functionality.



See "[Chart Area Description Of Mouse Operation](#)". (page 8,)

3.6 Channel Control Panel Area Description

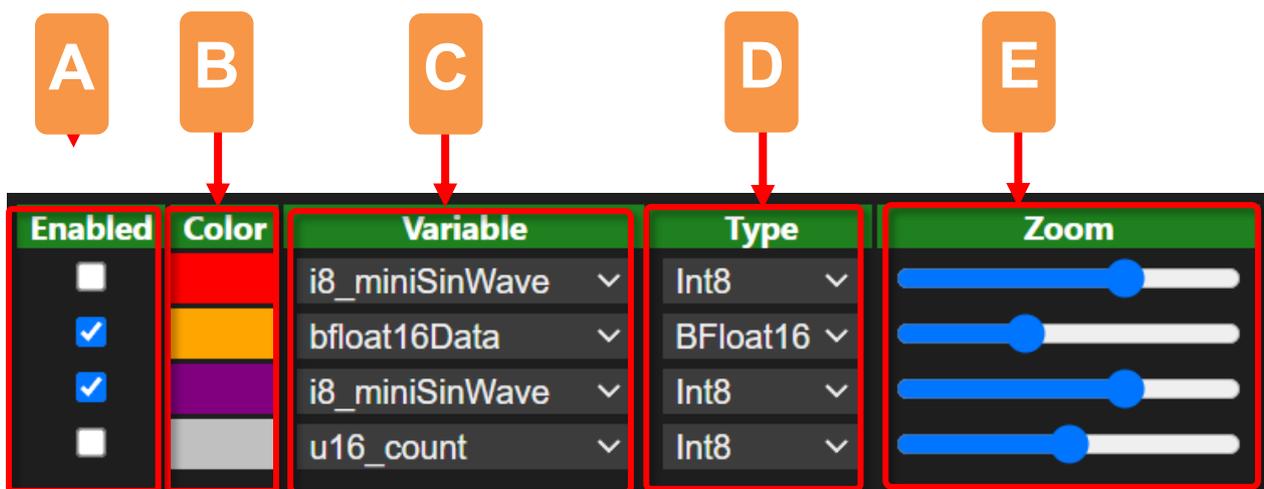


Figure 10. Channel control panel area

Table 5. Channel control panel Description

	Name	Description
A	Enable/disable checkbox	Enables/disables each data set channel. If checked, the target channel is displayed; if unchecked, it is not displayed.
B	Channel color label	Shows the color in which each data set channel is displayed. The color cannot be changed.
C	Variable names list	Select the variables to be displayed on each data set channel. Global variables for the firmware being debugged can be selected from the list.
D	Variable types list	Selects the type of the variable selected in the variable name list. Int8: 8bit signed integer / UInt8: 8bit unsigned integer / Int16: 16bit signed integer / UInt16: 16bit unsigned integer / Int32: 32bit signed integer / UInt32: 32bit unsigned integer / BFloat16: 16bit floating point / Float32: 32bit Floating point
E	Zoom slider	Zoom in/out the value of each data set channel. Slide right to zoom in, slide left to zoom out.

4 Configuration File

A configuration file (.vscode/chart.json) is automatically saved when matiseye™-chart is closed.

If the configuration file exists when matiseye™-chart is started, its configurations are restored.



Notes

Do not manually edit this configuration file. Operation is not guaranteed if incorrect values are entered.

If matiseye™-chart does not work properly after editing this configuration file, please delete the configuration file.

These setting items are for matiseye™-chart only and are not displayed on the VS Code preferences screen.

Table 6. Settings Files Description

Name	Description
global.pollingInterval	Data update interval (in milliseconds).
global.xDuration	Duration of X-axis of chart (in seconds).
global.yRange	Range of Y-axis of chart. min: Minimum value of the range max: Maximum value of the range
channels.channel	Channel number of the data set (0-3).
channels.enabled	Whether or not to display the target channel's data on the graph. true: Display false: Do not display
channels.variable	Name of variable to be displayed in the target channel.
channels.type	Type of variable selected in channels.variable. Int8: 8bit signed integer / UInt8: 8bit unsigned integer / Int16: 16bit signed integer / UInt16: 16bit unsigned integer / Int32: 32bit signed integer / UInt32: 32bit unsigned integer / BFloat16: 16bit floating point / Float32: 32bit Floating point
channels.zoom	Y-axis zoom factor of the data in the target channel.

5 Frequently Asked Questions



When I run the "Matisse Debug: Show Chart" command from the command palette, only a black screen appears and no chart is displayed. What can I do?

**Answer**

Depending on the performance of the PC, the chart startup process may not complete within the time limit and may fail. If the startup process fails, a black screen will appear. In this case, close the chart screen and re-run the command. If the chart still does not appear, exit debugging, close the chart screen, delete the configuration file ".vscode/chart.json", and re-execute the command.



I have edited the configuration file ".vscode/chart.json" and now the charts are not displayed correctly. Is there any way to restore it?

**Answer**

Delete the configuration file after exiting debugging and close the chart screen.

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