

Summary

Note: this document applies to VS Code version 1.18 or older. For newer version please refer to the [\[\[Performance Issues\]\]](#) page.

This page documents how you can help us to track down performance issues. It contains: - Questions about your setup - Experiments you can make to reproduce and narrow down - How to create performance profiles you can provide to us for further analysis.

Questions

To help us narrow down the issue please include answers for the following questions: - What is the size of your workspace/project (how many files)? - What languages are used in this project? - Which Code process consumes the most resources? VS Code is a multi process architecture and we need to know which process is causing the issue. You can identify the process based on the command line arguments that were used to start the process. - On Mac/Linux, we recommend to use the `htop` process viewer. You can also use the **Activity Monitor** to find the PID of the process and from a terminal you can run `ps aux | grep <pid>` to find its arguments.

Code - Insiders	0.0	1:14.90	36	0	1097	bpasero
Code - Insiders Helper	0.0	1:31.23	22	0	5155	bpasero
Code - Insiders Helper	0.0	1.08	8	0	5172	bpasero
Code - Insiders Helper	0.0	1.83	10	0	5160	bpasero
Code - Insiders Helper	0.0	3.17	9	0	5157	bpasero
Code - Insiders Helper	0.0	1.86	7	1	5156	bpasero
Code - Insiders Helper	0.0	0.29	4	1	8263	bpasero
Code - Insiders Helper	0.0	0.94	8	2	5204	bpasero
Code - Insiders Helper	0.0	16.66	11	1	5171	bpasero
Code - Insiders Helper	0.0	2.61	4	2	5170	bpasero

- On Windows, we recommend to use the process explorer. You can also use open the Task Manager, switch to the Details tab and make the “Command Line” col-

Name	PID	Status	User name	CPU	Memory (p...	Command line
Code - Insiders.exe	17788	Running	egamma	00	37 732 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe"
Code - Insiders.exe	7672	Running	egamma	00	52 240 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" --type=gui-process --no-sandbox --supports-duck-gpu=false --gpu-driver-bug-workaround=7.10.19.23.41.61
Code - Insiders.exe	15696	Running	egamma	00	32 136 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" --type=renderer --js-flags=--no-zygote --no-sandbox --primal-pipe-token=02E8FF474F5353431C7D5E39A...
Code - Insiders.exe	13160	Running	egamma	00	680 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" --reporter-url=https://runkit.com/vscode/insiders --reporter-token=02E8FF474F5353431C7D5E39A...
Code - Insiders.exe	7048	Running	egamma	00	154 408 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" --type=renderer --js-flags=--no-zygote --no-sandbox --primal-pipe-token=80355EC48EAB88E28E5259FD8356A...
Code - Insiders.exe	17808	Running	egamma	00	10 956 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Program Files\Microsoft VS Code Insiders\resources\app\out\bootstrap" --type=terminal
Code - Insiders.exe	13864	Running	egamma	00	57 548 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Program Files\Microsoft VS Code Insiders\resources\app\out\bootstrap" --type=extensionHost
Code - Insiders.exe	3784	Running	egamma	00	14 000 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Program Files\Microsoft VS Code Insiders\resources\app\out\bootstrap" --type=searchService
Code - Insiders.exe	5604	Running	egamma	00	45 608 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Program Files\Microsoft VS Code Insiders\resources\app\extensions\typescript\out\lib\electronForkStart.js" ...
Code - Insiders.exe	16064	Running	egamma	00	47 420 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Users\egamma\vscode-insiders\extensions\eg2.tslint-1.0.11\node_modules\vscode-languageclient\lib\utils.js" ...
Code - Insiders.exe	13482	Running	egamma	00	14 482 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Program Files\Microsoft VS Code Insiders\resources\app\extensions\node_modules\typescript\lib\typingsInst...
Code - Insiders.exe	2280	Running	egamma	00	17 276 K	"C:\Program Files\Microsoft VS Code Insiders\Code - Insiders.exe" "C:\Program Files\Microsoft VS Code Insiders\resources\app\extensions\json\node_modules\vscode-languagecl...

umn visible as shown below.

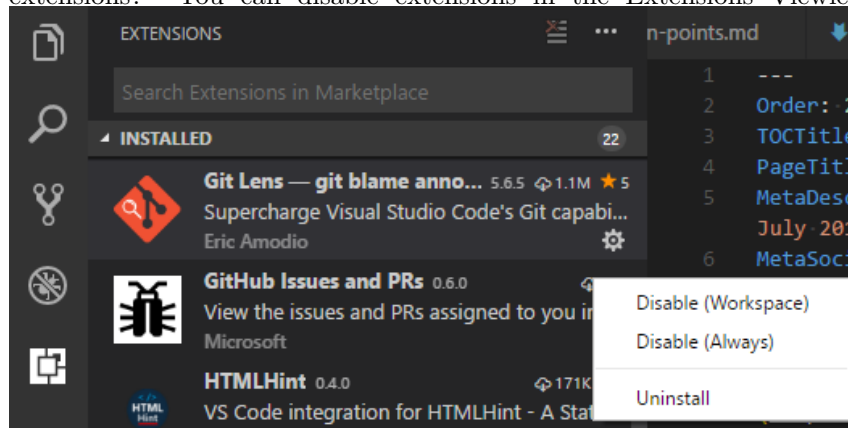
Experiments

Please try to reproduce the performance problems in different setups:

- Can you reproduce the issue when you start VS Code with extensions disabled? You can start VS Code with extension disabled

using the `--disable-extensions` command line argument, e.g., `code --disable-extensions`.

- If you cannot reproduce the issue when the extensions are disabled, then can you narrow down the extension by selectively disabling extensions? You can disable extensions in the Extensions Viewlet



and restart/reload. Once you found the extension please file an issue against the extension. To file an issue against an extension: find the extension in the market place, and use the **Issues** link in the Resources section.

- Try to reproduce the problem on different folders; a folder with less files, a folder that is not under source control, or open a single file.
- Try to reproduce the issue in the VS Code **Insider** version. This will run our latest code and use a different setup (settings, extensions). You can install the insider version here <https://code.visualstudio.com/insiders>.
- Run VS Code when your settings are reset/empty. Open your settings, copy your customizations and then empty the JSON contents so that only `{}` is left.
- Run VS Code in verbose mode and check whether there is any suspicious output in the console or the developer tools. You start VS Code in verbose mode with `code --verbose`. Also open the DevTools (“Help>Toggle Developer Tools”) and open the console there.

Read Startup Timers

When VS Code feels slow to start you can check the startup timers. Hit “F1” and select “Startup Performance”. This will open developer tools and print some startup stats onto the the “Console”.

Please share these numbers with us as they often allows us to understand what is slow.

▼ Startup Performance Measurement			workbench.main.js:10
OS: win32 (10.0.14393)			workbench.main.js:10
CPUs: Intel(R) Core(TM) i7-3520M CPU @ 2.90GHz (4 x 2893)			workbench.main.js:10
Memory (System): 15.82GB (8.33GB free)			workbench.main.js:10
Memory (Process): 240.95MB working set (240.95MB peak, 219.84MB private, 45.58MB shared)			workbench.main.js:10
VM (likelihood): 0%			workbench.main.js:10
Initial Startup: false			workbench.main.js:10
Screen Reader Active: false			workbench.main.js:10
Empty Workspace: false			workbench.main.js:10
(index)	Topic	Took (ms)	
0	"[renderer] window.loadUrl() => begin to require(workbench.main.js)"	325	
1	"[renderer] require(workbench.main.js)"	640	
2	"[renderer] create extension host => extensions onReady()"	1014	
3	"[renderer] restore viewlet"	911	
4	"[renderer] restore editor view state"	1184	
5	"[renderer] overall workbench load"	1402	
6	"-----"		
7	"[main, renderer] start => extensions ready"	2062	
8	"[main, renderer] start => workbench ready"	2424	

Figure 1: image

Profile a VS Code window

When you cannot share the workspace exposing the problem with us, then you can help us by providing performance profiles that we can analyze:

- If VS Code feels not responsive then please create a CPU profile of the VS Code core (*renderer* process) and attach it to the issue. To create a profile:
 - Execute “F1 > Toggle Developer Tools.” In the overflow menu of the developer tools
 - Select ‘More Tools > JavaScript Profiler’. In there select start.
 - Let it profile for 30 to 60 seconds, stop it.
 - When the performance issue happens on startup, start the profiler and then reload the window using “F1>Reload Window.”
 - Save the profile to a file and attach the file to your issue.

Profile Startup

- If VS Code is slow to start then please create a startup CPU profile. Do the following
 - Make sure to only have one window open
 - Quit VS Code (Cmd+Q for Mac, closing the last window on Linux/Windows)
 - Start VS Code from the command line like so `code --prof-startup`
 - VS Code will start and create two profile-files in your home-directory. Please attach these files to your issue or create a new issue with these two files

Profile the Extension Process

- If VS Code feels not responsive and the CPU profile doesn't provide insights then please create a CPU profile of the extension host process. The extension host process is the process that executes your installed extensions.

To create a profile:

- Start VS Code from the command line with `--inspect-extensions=<port>` flag, for example `code --inspect-extensions=9333`.
- In VS Code, from the 'Command Palette (F1)', select 'Developer: Toggle Developer Tools', hit Enter.
- Select the Console tab and find a message that starts with "Debugger listening on port 9333" and that ends with a chrome-devtools-link.
- Open that link in Chrome for dedicated DevTools for the extension host.
- Use the Memory and CPU profiler to understand how memory and compute resource are being used.
- Save the profile to a file and attach the file to your issue.