

Overview

Note: I slammed this document together on 2/8/2020 without proofing it. I was trying to work in the code while also creating this document by adding issues I encountered today.

To me, it feels like Visual Studio has been unstable for several years. I have dealt with this instability for so long that its hard to remember when it all started. If I had to put a finger on it, it would have been around the first release of .NetStandard 1.0, but that response may change on a different day as I remember specific headaches that have plagued me.

If I had to put the finger on anything, it is WPF/XAML. Solutions with XAML usage seem to cause headaches that I don't experience when creating services using DotNet Core. Specifically, I believe it is the XAML designer and related tools. I have been developing with WPF for over 10 years now. Let's face it, the XAML tooling has never been that great. However, the problems I experienced 5-10 years ago simply caused the designer to crash and throw an exception, but Visual Studio was stable. Now, the entire Visual Studio process becomes un-responsive.

I have been on the PreView release path for too long to remember; in part because I have needed DotNet Core features that required preview releases, but also because I hoped that each release may resolve the XAML problems. You can find me frequently checking for updates hoping and praying fixes address my issues, but they never do. I find myself enabling the XAML designer, trying it out and then disabling it to avoid lockups.

Right now, I am using 16.5 Preview 2 of VS Pro. This document includes problems that occurred on today! Can you imagine going through this nearly every day you sit down to write software? I have tried so many things over the years that it's hard to remember all attempts at stability. When people blame me for using Previews, I am quick to rebut because the same issues have occurred on stable Visual Studio releases. I began to think it had something to do with my laptop. However, after trying Visual Studio out on two other computers it was clear that it was not specific to one machine.

I work with a lot of code for one person. The company that I own, Oceanside Software Corporation, licenses POS Source code to larger companies that use it to build their own. I have been working on the next release for a few years now. I have even taken several month breaks thinking that Visual Studio would stabilize while I worked on other business issues. Yet I run into the same problem, Visual Studio is unstable. I have given up on multiple occasions and switched over to use VS Code. However, as much as I like VS Code, its no place for a WPF developer and it feels foreign to me. Aside from that, I am paying for the yearly pro subscription and should at least get a tool that's stable.

Anyway, thanks for letting me blow off some steam on you the reader. I have been dying to tell this to a Microsoft employee for years! Below is a summary of what occurred today.

UI Completely and Permanently Unresponsive Changing 3 Lines of Code

Over the last couple of years, when working with WPF projects I run into situations constantly where the entire UI becomes unresponsive and it must be killed with task manager. Many times, task manager is unable to kill the Visual Studio process tree and I must use SysInternals process explorer to do the job for me.

I have tried many times to narrow the cause down but the closer I think I get to discrete steps to reproduce, the more I realize how hard it is to reproduce when forcing the issue. I also realize that seemingly unrelated steps cause the UI to freeze. It feels so random and widespread that I just turn off the XAML tools because it seems to stabilize. So rather than report it, I throw my hands up in the air and just hope that it is resolved in new releases. This has been going on for years.

Today, my experience was nearly identical. I was able to force the UI to become unresponsive twice using steps exactly like the following, yet couldn't narrow it down. Note in the screenshot that I had other XAML files open when this happened. I spent a significant amount of time today trying to narrow it down to maybe just one of those xaml files being open or two of them but I got to a point where I could not reproduce it with the same exact files open. Since I have reported issues before that go unresolved as "needs more information" or have seen other people's issues fall into the same category, I don't even bother reporting them. In fact, I don't think I started reporting issues until 2019 after a friend indirectly influenced me to do it. I tried for a while but just went back to disabling the XAML tools and then retry them again in new releases. I have been living on the preview tool now for a long time because I hope that I can eventually use the xaml tools. Note that I can also cause blend to lock up, have tried using it instead but it's the same outcome.

Example of Steps that caused a UI Freeze Twice Today - See Figure 1 UI Freeze Trying to SaveAll using Icon

1. CNTR+Shift+F search for "typeof(PosSettingKeys)", 3 occurrences returned all of which are Program.cs files.
2. Starting at the top of the search results, perform the following abc steps for each of the 3 results.
 - a. Double click the line in the search results window
 - b. Double click "PosSettingsKeys" to select it so we can replace it with WindowView
 - c. Type the letter "w", then autocomplete suggests "WindowView". Select "WindowView" with the enter key to replace "PosSettingsKeys" with "WindowView" and do not save anything.
3. Now that you have performed the abc steps for each of the 3 files, Click on the **SaveAll** Icon .

Note that I realize you don't have the source code that I have, but it gives you an idea of what I am going through. I will gladly share the code directly with Microsoft but not to the public.

After waiting 12 minutes for it to respond I used Task Manager to Kill Visual Studio. It went down quickly, usually it does not. Usually I have to use SysInternals to kill it off. Many times it seems that the PerfWatson process is wound up hogging my CPU and preventing Visual Studio from exiting?

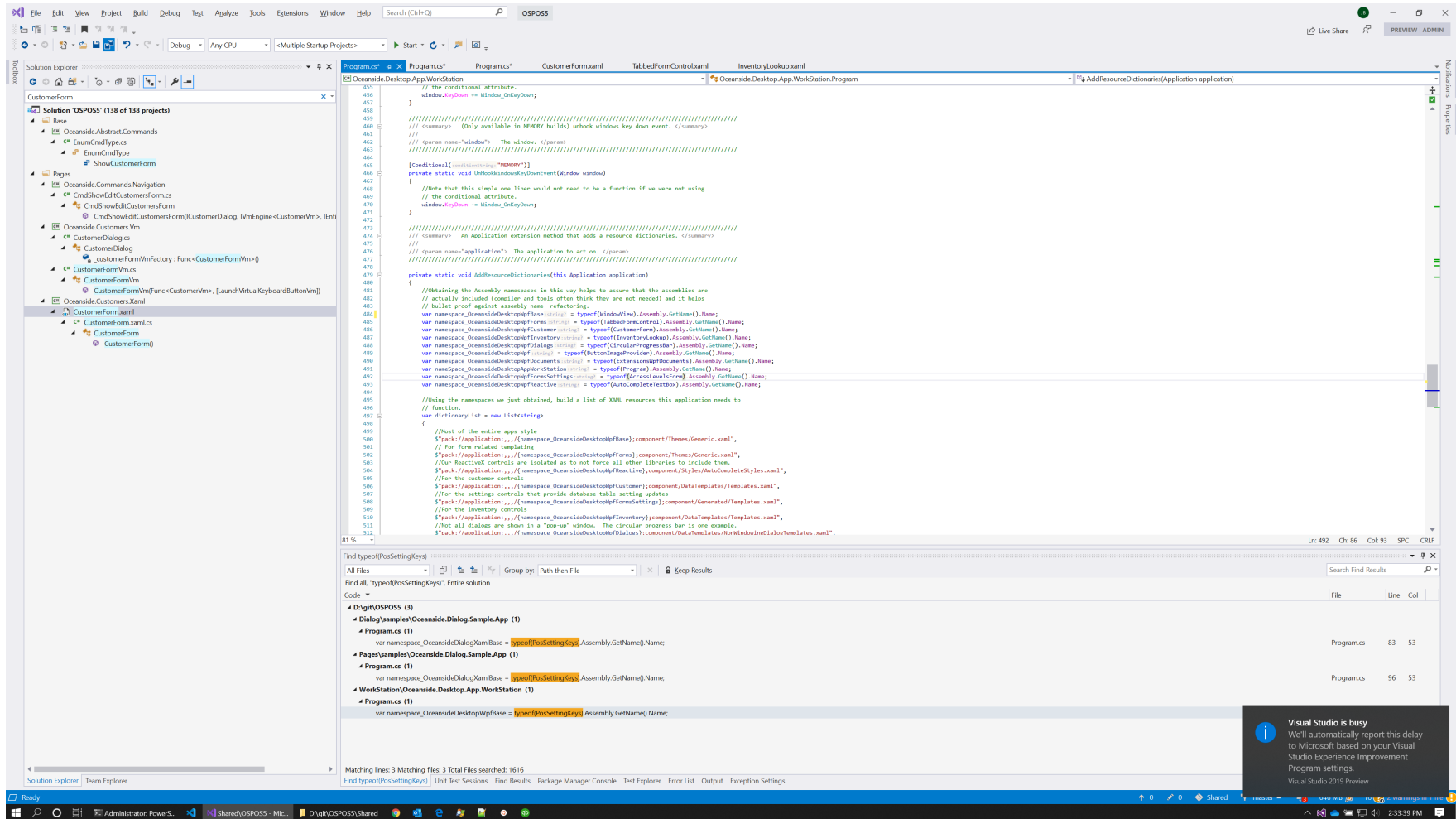
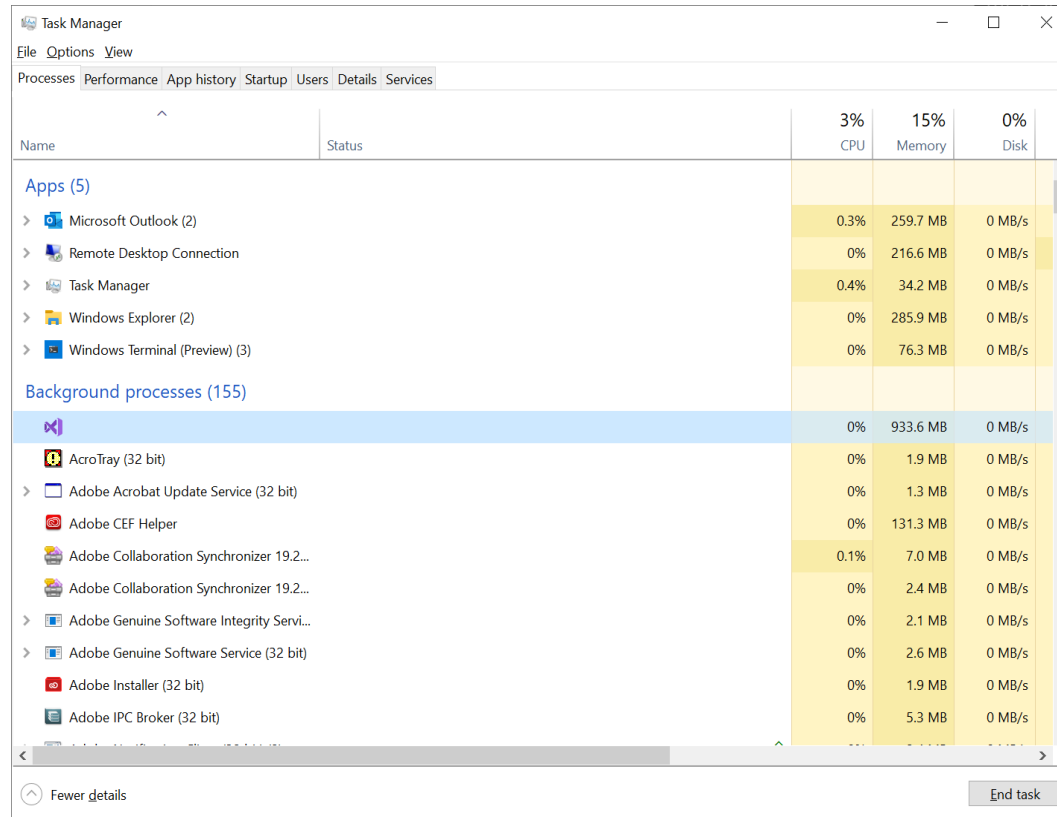


Figure 1UI Freeze Trying to SaveAll using Icon

Rogue Processes Hanging Around

The following two screenshots show that background processes can remain in the background and easily overlooked. I found these two today and don't know how long they had been here. Notice that both are taking nearly a gig of memory. I located these before I began intentionally trying to cause issues. When I am dealing with such frequent crashes its distracting and overlooking processes like these might cause file locking issues that I sometimes see?




Name	Status	3% CPU	15% Memory	0% Disk	Ne
Apps (5)					
> Microsoft Outlook (2)		0.3%	259.7 MB	0 MB/s	
> Remote Desktop Connection		0%	216.6 MB	0 MB/s	
> Task Manager		0.4%	34.2 MB	0 MB/s	
> Windows Explorer (2)		0%	285.9 MB	0 MB/s	
> Windows Terminal (Preview) (3)		0%	76.3 MB	0 MB/s	
Background processes (155)					
		0%	933.6 MB	0 MB/s	
AcroTray (32 bit)		0%	1.9 MB	0 MB/s	
> Adobe Acrobat Update Service (32 bit)		0%	1.3 MB	0 MB/s	
Adobe CEF Helper		0%	131.3 MB	0 MB/s	
Adobe Collaboration Synchronizer 19.2...		0.1%	7.0 MB	0 MB/s	
Adobe Collaboration Synchronizer 19.2...		0%	2.4 MB	0 MB/s	
> Adobe Genuine Software Integrity Servi...		0%	2.1 MB	0 MB/s	
> Adobe Genuine Software Service (32 bit)		0%	2.6 MB	0 MB/s	
Adobe Installer (32 bit)		0%	1.9 MB	0 MB/s	
Adobe IPC Broker (32 bit)		0%	5.3 MB	0 MB/s	

Figure 2 Rogue Process 1 of 2 Hanging

Name	Status	2% CPU	15% Memory	0% Disk	Net
> MobileDeviceService		0%	12.5 MB	0 MB/s	
Node.js: Server-side JavaScript		0%	41.2 MB	0 MB/s	
Node.js: Server-side JavaScript (32 bit)		0%	26.5 MB	0 MB/s	
> Norton Secure VPN Service (32 bit)		0%	3.2 MB	0 MB/s	
Norton Security		0%	6.6 MB	0 MB/s	
> Norton Security		0.1%	34.8 MB	0.1 MB/s	
> Norton Security WSC Service		0%	2.0 MB	0 MB/s	
> Notification Manager for Adobe Acroba...		0%	2.0 MB	0 MB/s	
NVIDIA Container		0%	29.3 MB	0 MB/s	
> NVIDIA Container		0%	3.6 MB	0 MB/s	
NVIDIA WMI Provider		0%	5.4 MB	0 MB/s	
> NVIDIA WMI Provider		0%	1.4 MB	0 MB/s	
> Office (2)		0%	2.9 MB	0 MB/s	
OSPOS5 - Microsoft Visual Studio Previ...		0%	947.0 MB	0 MB/s	
> PC-Doctor Dell SupportAssist API		0%	99.9 MB	0 MB/s	
PerfWatson2.exe (32 bit)		0%	71.4 MB	0 MB/s	
PerfWatson2.exe (32 bit)		0%	89.5 MB	0 MB/s	
> Photos		0%	0 MB	0 MB/s	

Figure 3 Rogue Process 2 of 2

Permanent CPU Spike after Updating all NuGet Packages

Quite often I see an msbuild process “go off in the weeds” to never return. The cause can vary but today it was triggered by updating all the NuGet packages in the solution. Note that I expect a CPU spike, however I don’t expect it to be permanent.

5 minutes after the nuget update had completed, the msbuild process continued to dominate the CPU. Like other problems, I can never narrow it down enough, continue to lose productivity and just accept the fact that I must live with it. I believe I did report this issue in 2019 and I think it was closed with “needs more information”.

Name	Status	45% CPU	18% Memory	0% Disk	0% Network	3% GPU	GPU engine	Power usage	Power usage t..
Microsoft Visual Studio 2019 Preview (32 bit...)		33.2%	2,991.3 MB	0.1 MB/s	0 Mbps	0%	GPU 0 - 3D	Very high	Very high
MSBuild.exe (32 bit)		31.2%	268.7 MB	0.1 MB/s	0 Mbps	0%		Very high	Very high
Shared\OSPOS5 - Microsoft Visual Studio ...		2.0%	1,759.3 MB	0 MB/s	0 Mbps	0%		Moderate	High
Microsoft.ServiceHub.Controller		0%	21.9 MB	0 MB/s	0 Mbps	0%		Very low	Very low
ServiceHub.Host.CLR.x86 (32 bit)		0%	248.3 MB	0 MB/s	0 Mbps	0%		Very low	Very low
ServiceHub.Host.CLR.x86 (32 bit)		0%	26.9 MB	0 MB/s	0 Mbps	0%		Very low	Very low
ServiceHub.Host.CLR.x86 (32 bit)		0%	39.4 MB	0 MB/s	0 Mbps	0%		Very low	Very low
ServiceHub.Host.CLR.x86 (32 bit)		0%	32.4 MB	0 MB/s	0 Mbps	0%		Very low	Very low
ServiceHub.Host.CLR.x86 (32 bit)		0%	40.4 MB	0 MB/s	0 Mbps	0%		Very low	Very low
ServiceHub.Host.CLR.x86 (32 bit)		0%	132.4 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	34.3 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	24.2 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	27.3 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	28.8 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	30.2 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	28.2 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	21.4 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	27.1 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	28.1 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	26.1 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	28.5 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	27.2 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	33.6 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	29.7 MB	0 MB/s	0 Mbps	0%		Very low	Very low
MSBuild.exe (32 bit)		0%	27.0 MB	0 MB/s	0 Mbps	0%		Very low	Very low

Figure 4 msbuild.exe Spiking CPU Indefinitely

PerfWatson Spikes CPU Indefinitely

Another issue within an issue that I experience on a regular basis also occurred today. That is, when Visual Studio has issues and freezes, I have seen cases where PerfWatson is sucking the CPU. Typically, after waiting a couple minutes I start using SysInternals to kill off processes forcefully because I don't have time to wait for them to complete. However, a couple times I just waited it out for 10-15 minutes and eventually the locked-up UI went away and the PerfWatson process stopped consuming my CPU. Since it takes so long, I just kill-em-all.

The Figure 5 PerfWatson Sucks the CPU Indefinitely only shows the CPU at 12.9% in this example, but keep in mind that it fluctuates much higher, around 90%. In addition, I am running a XEON E-2286M 16 Logical Core Burstable up to 5Ghz processor that performs amazing. So, when PerfWatson starts dominating my CPU its really taking some resources to do whatever it is doing.

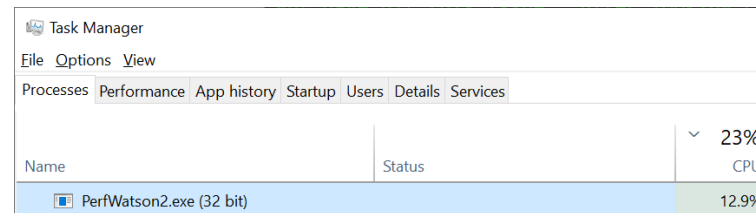


Figure 5 PerfWatson Sucks the CPU Indefinitely

Enabling Edit and Continue Renders Debugger Useless

I was not able to cause this problem today; however, I don't expect that the issue has suddenly been resolved. Sometimes Visual Studio goes into a fit where you cannot debug your code. As soon as it hits a breakpoint, it thinks that you have modified your source and refuses to continue. This happens when people have not touched a line of code. Someone told me that disabling Edit and Continue helped as a workaround but the last time I debugged and ran into this I just used print statements! See <https://developercommunity.visualstudio.com/content/problem/705494/without-any-changes-to-source-files-edits-were-mad.html> as one long 131 comment thread where we are all trying to convince the team that the problem was not fixed. I begin asking myself, "why am I paying all of this money for a tool that is this unstable?"

Summary

Yes, I am using Preview Versions, however these same or similar issues have existed as far back as Visual Studio 2017 and I certainly wasn't using preview versions then. I have tried stable versions along the way and the result is always the same. Just leave the XAML designer disabled.

I will also admit that I am a Resharper junkie and it too has had a lot of issues in recent years. However, when I stopped using it for about 6 months in 2019, it didn't resolve any of the issues I am reporting today. Admittedly, it did resolve others. For that reason, I only enable Resharper when I need it.

I know it must be tough for the Visual Studio team to keep up with such a complex tool. I mean no frustration towards any of the Team members, but I certainly have a love hate relationship with this tool. If I sound like a ranting lunatic, it's because I have wanted to tell this directly to a Microsoft employee for so long that when you said you were willing to help, I was ecstatic.

If VS Code could simply display XAML, I would be happy. That's all I really need, just display my compiled code in a reliable manner and don't take down the entire process if something causes an issue. I have been conditioned to no longer dream of new features simply because stability seems so far out of reach.

We are all in this together, if there is anything I can do to help, I will try my best. My situation may be unique because I am probably working with a lot more code in a WPF application than most individual developers do.

Jason