

WPF Troubleshooting mit VS2015

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DWX **Developer
Week 2016**

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Manuel Meyer

Senior Consultant & Trainer für .NET bei Trivadis

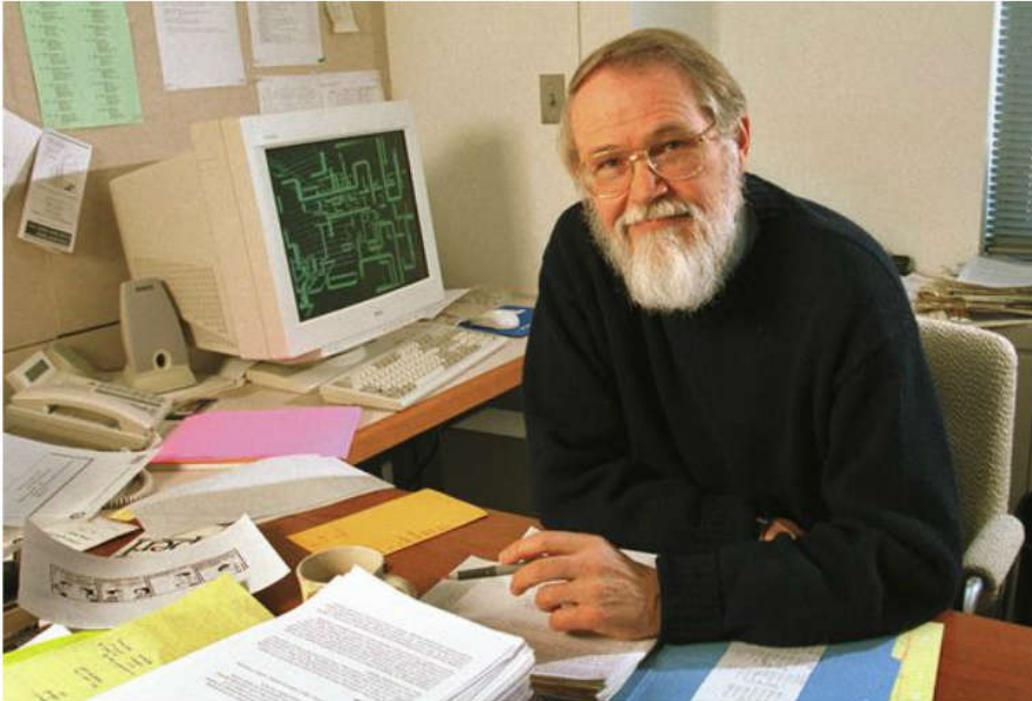
C# / XAML, Integration, Microsoft Azure

Troubleshooting & Performance Management

Blog: <http://www.manuelmeyer.net>

Twitter: <https://twitter.com/manumeyer1>

The Law of Debugging Difficulty



Brian W. Kernighan

Debugging is twice as hard as writing the code in the first place. Therefore, if you write the code as cleverly as possible, you are, by definition, not smart enough to debug it.





Call Stack

Name	Language
➔ DumpLab.DWX2016.AbNachHause()	C#
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Call Stack | Azure App Service Acti... | Breakpoints | Exception Settings | Command Window | Output | Error List



Debugging



Profiling



Debugging



Profiling



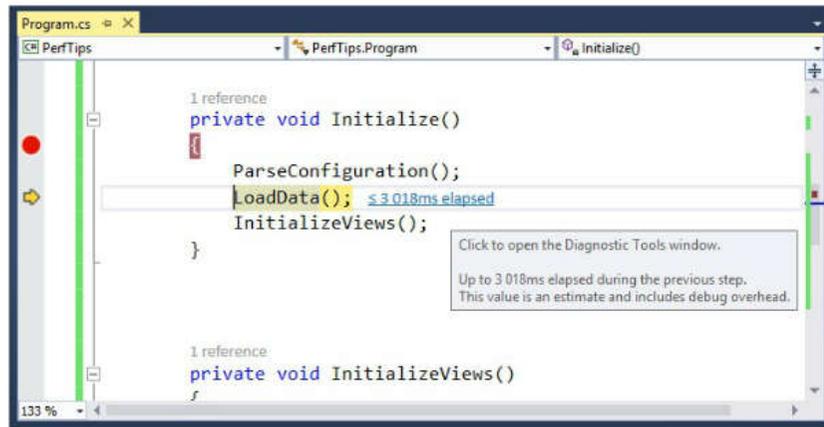
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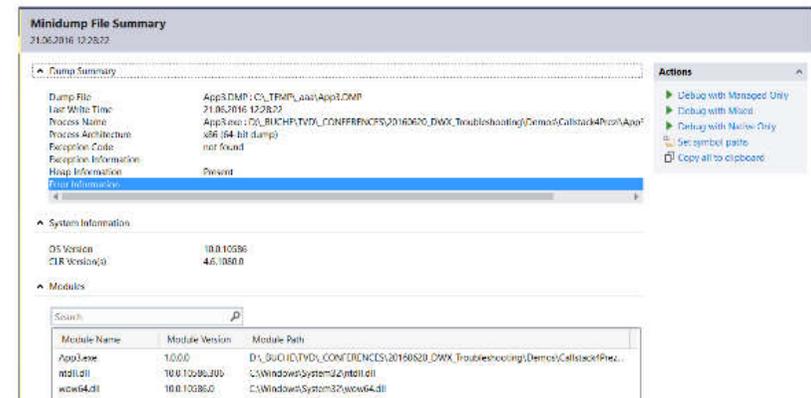
Call Stack Azure App Service Acti... Breakpoints Exception Settings Command Window Output Error List

Debugging Tools in VS2015

PerfTips



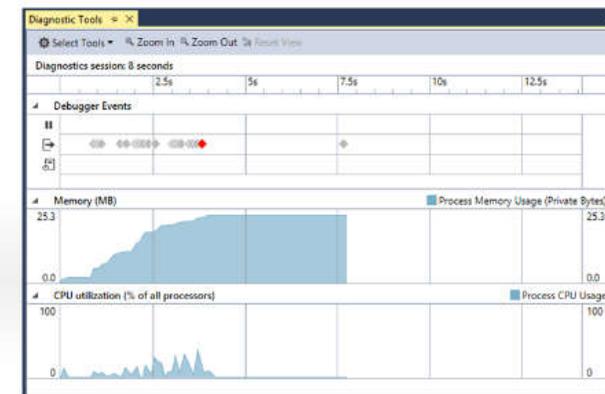
Memory Dump Debugging



Lambda Watch



Diag. Tools Window



PerfTips

Program.cs [X]

C# PerfTips PerfTips.Program Initialize()

1 reference
private void Initialize()
{
 ParseConfiguration();
 LoadData(); ≤ 3 018ms elapsed
 InitializeViews();
}

1 reference
private void InitializeViews()
{

Click to open the Diagnostic Tools window.
Up to 3 018ms elapsed during the previous step.
This value is an estimate and includes debug overhead.

133 %

Memory Dump Debugging

Minidump File Summary

21.06.2016 12:28:22

^ Dump Summary

Dump File App3.DMP : C:_TEMP_aaa\App3.DMP
Last Write Time 21.06.2016 12:28:22
Process Name App3.exe : D:_BUCHÉ\TVD_CONFERENCES\20160620_DWX_Troubleshooting\Demos\Callstack4Prezi\App3.exe
Process Architecture x86 (64-bit dump)
Exception Code not found
Exception Information
Heap Information Present
Error Information

^ System Information

OS Version 10.0.10586
CLR Version(s) 4.6.1080.0

^ Modules

Search

Module Name	Module Version	Module Path
App3.exe	1.0.0.0	D:_BUCHÉ\TVD_CONFERENCES\20160620_DWX_Troubleshooting\Demos\Callstack4Prezi\...
ntdll.dll	10.0.10586.306	C:\Windows\System32\ntdll.dll
wow64.dll	10.0.10586.0	C:\Windows\System32\wow64.dll

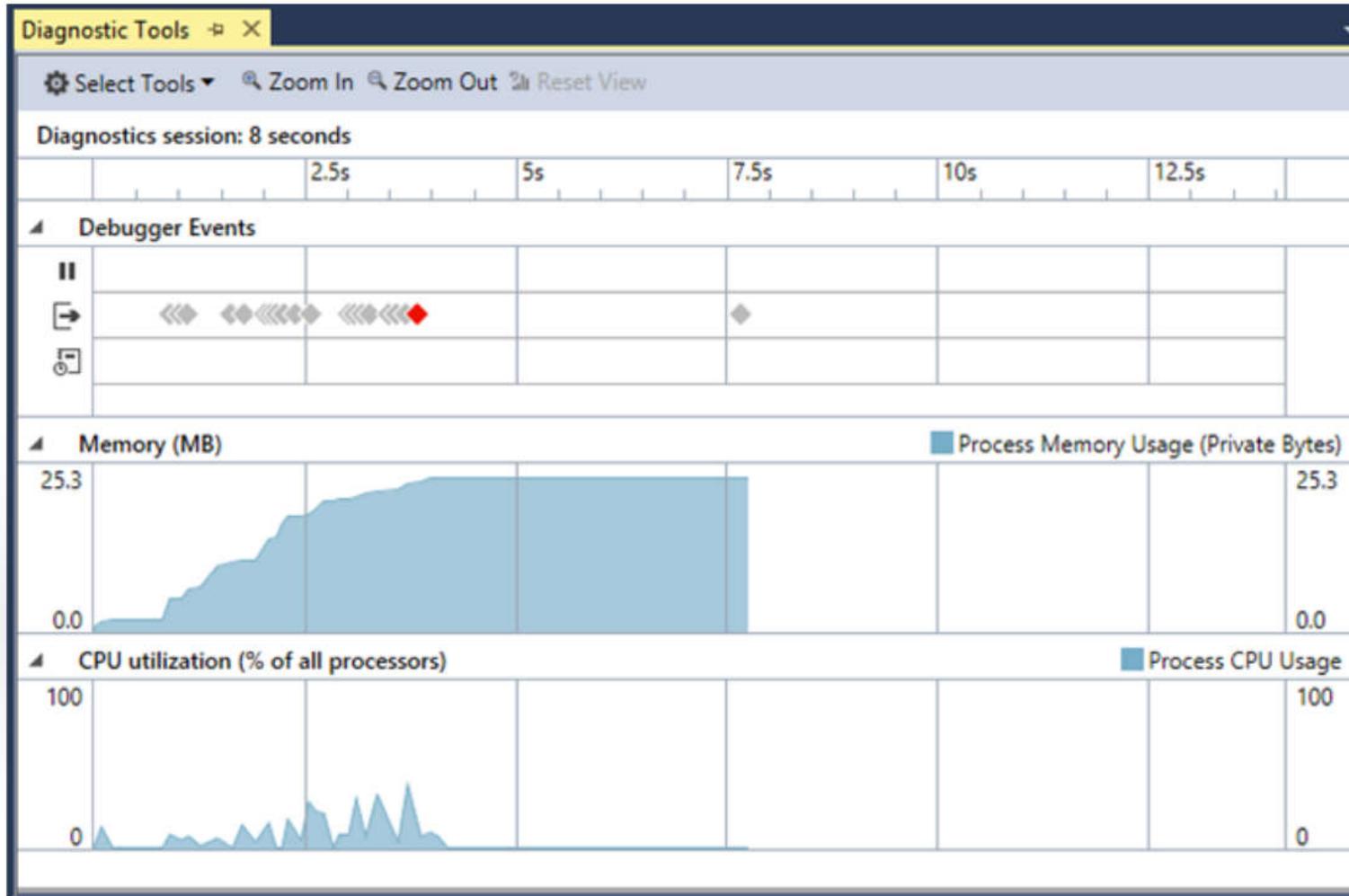
Actions

- ▶ Debug with Managed Only
- ▶ Debug with Mixed
- ▶ Debug with Native Only
- 📄 Set symbol paths
- 📄 Copy all to clipboard

Lambda Watch

Watch 1		
Name	Value	Type
▶ familyCollection.PeopleCollection.First()	{Edward VII Wettin}	Microsoft

Diag. Tools Window



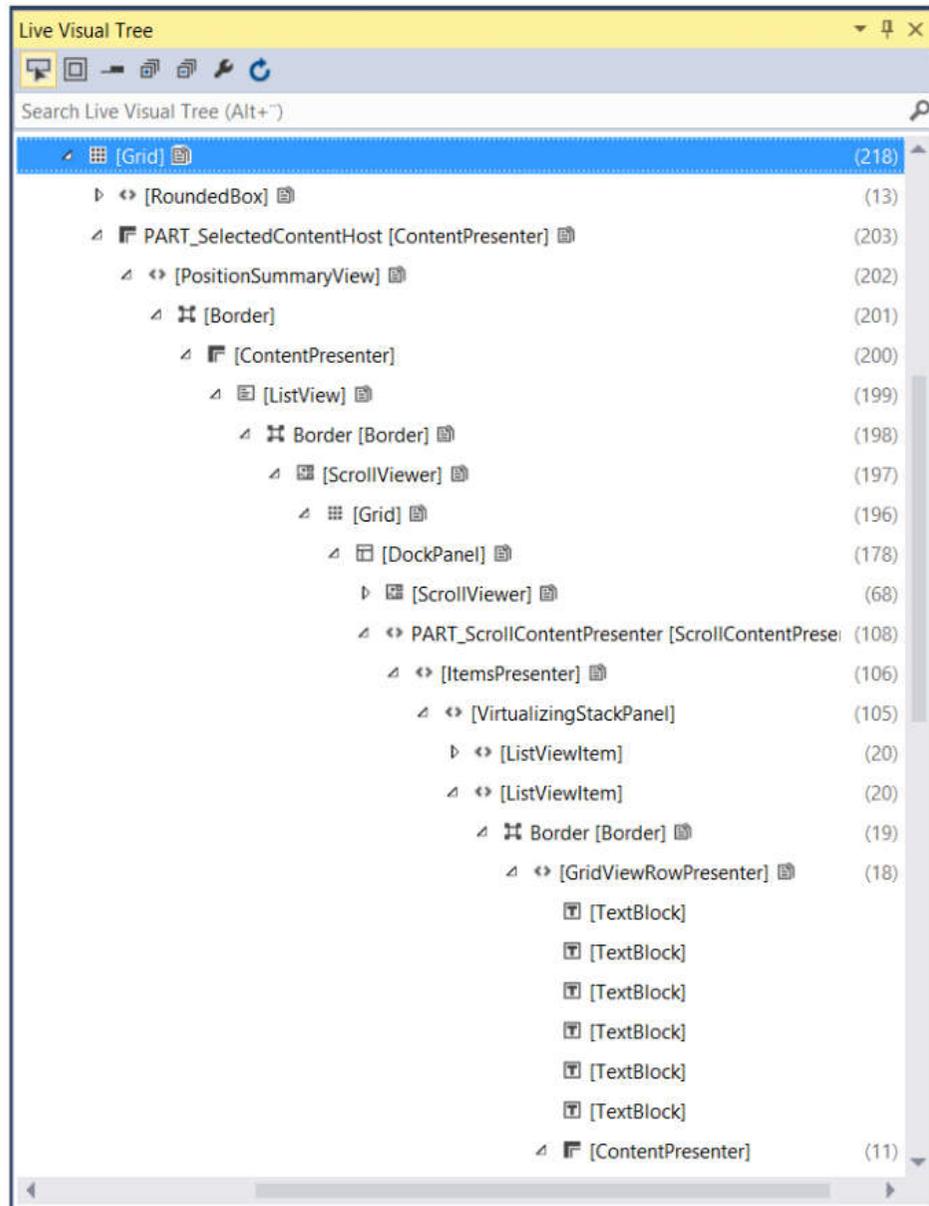
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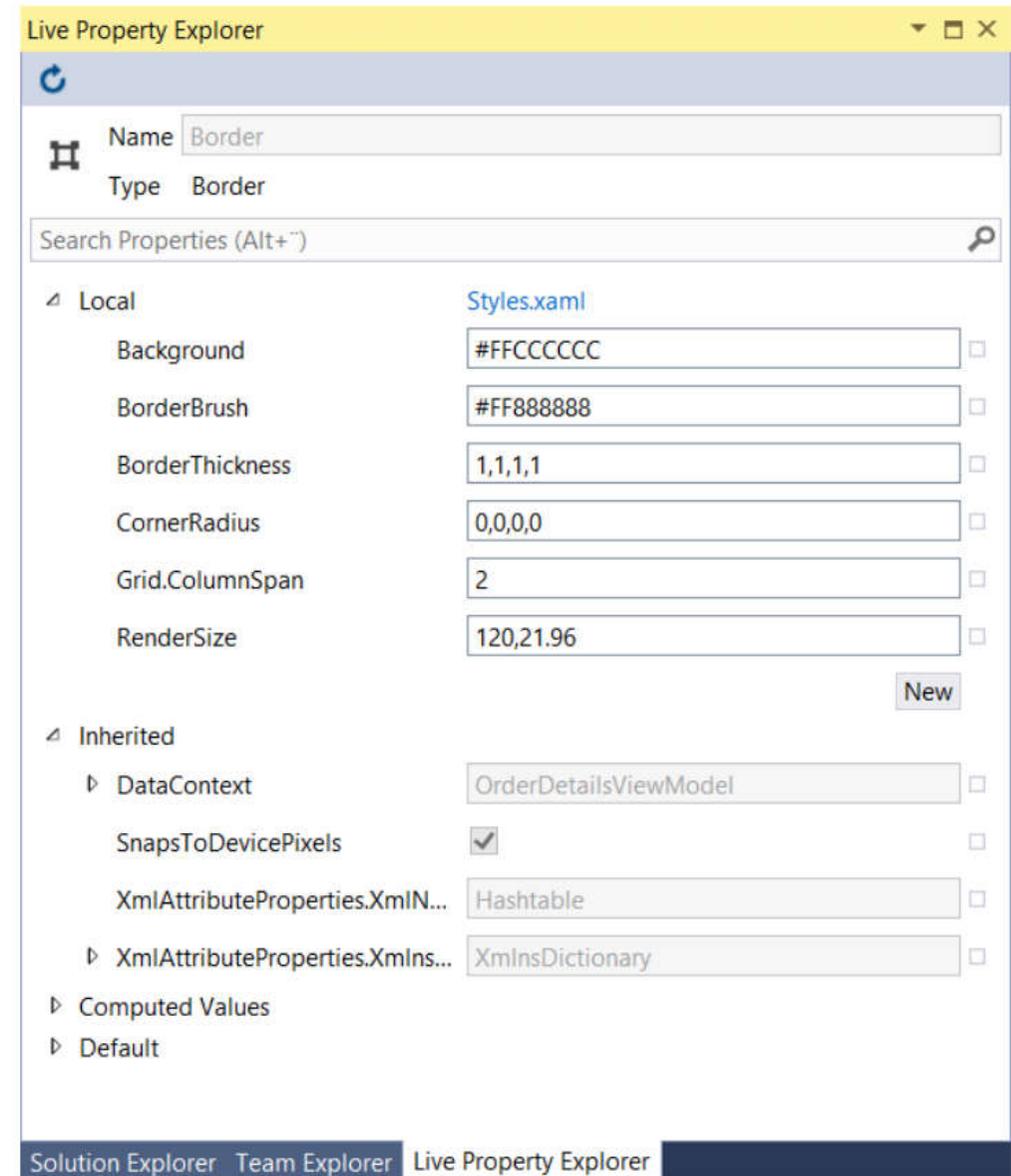
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WPF Tools in VS2015

Live Visual Tree



Live Property Explorer



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Debugging



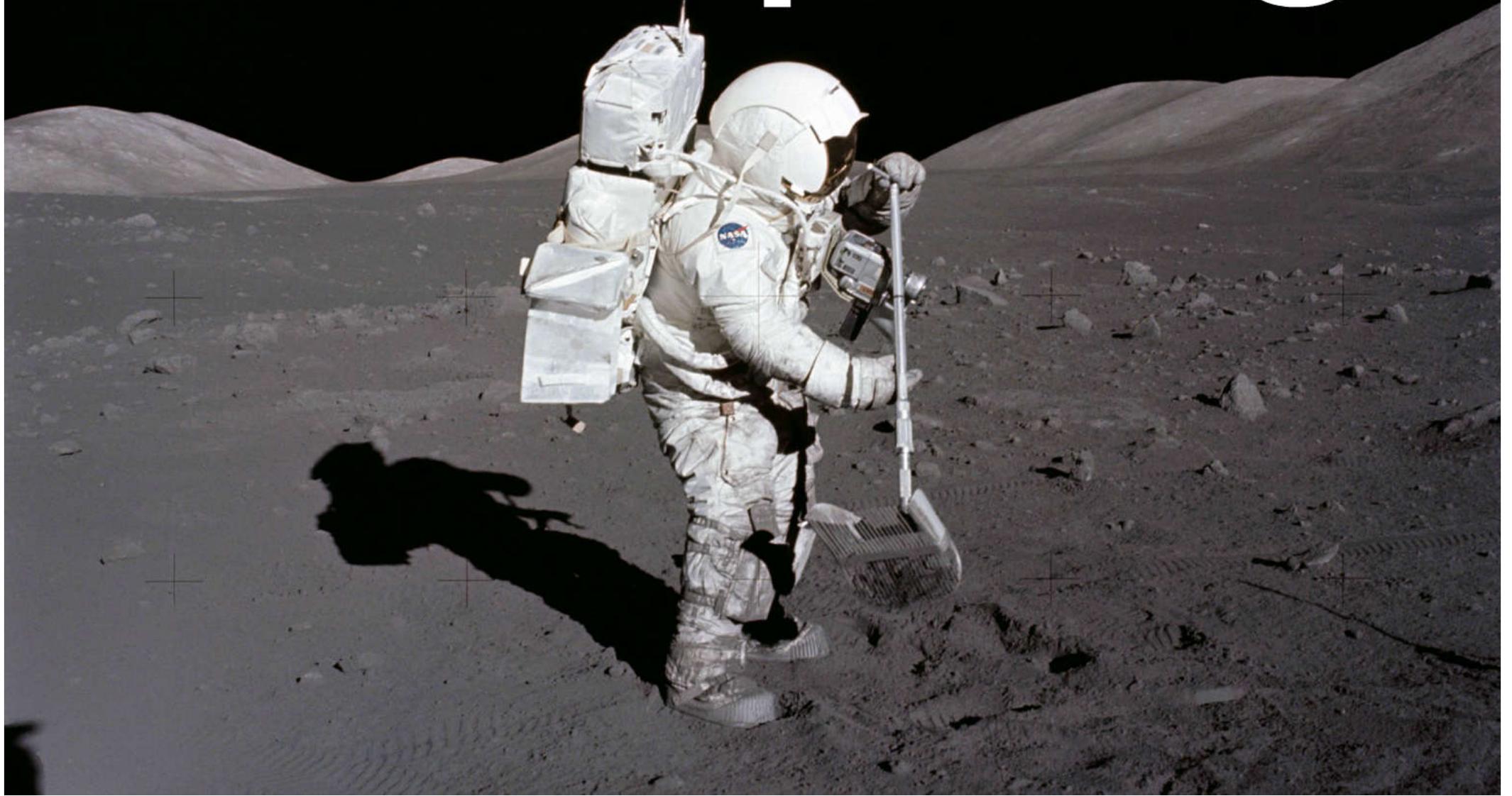
Profiling



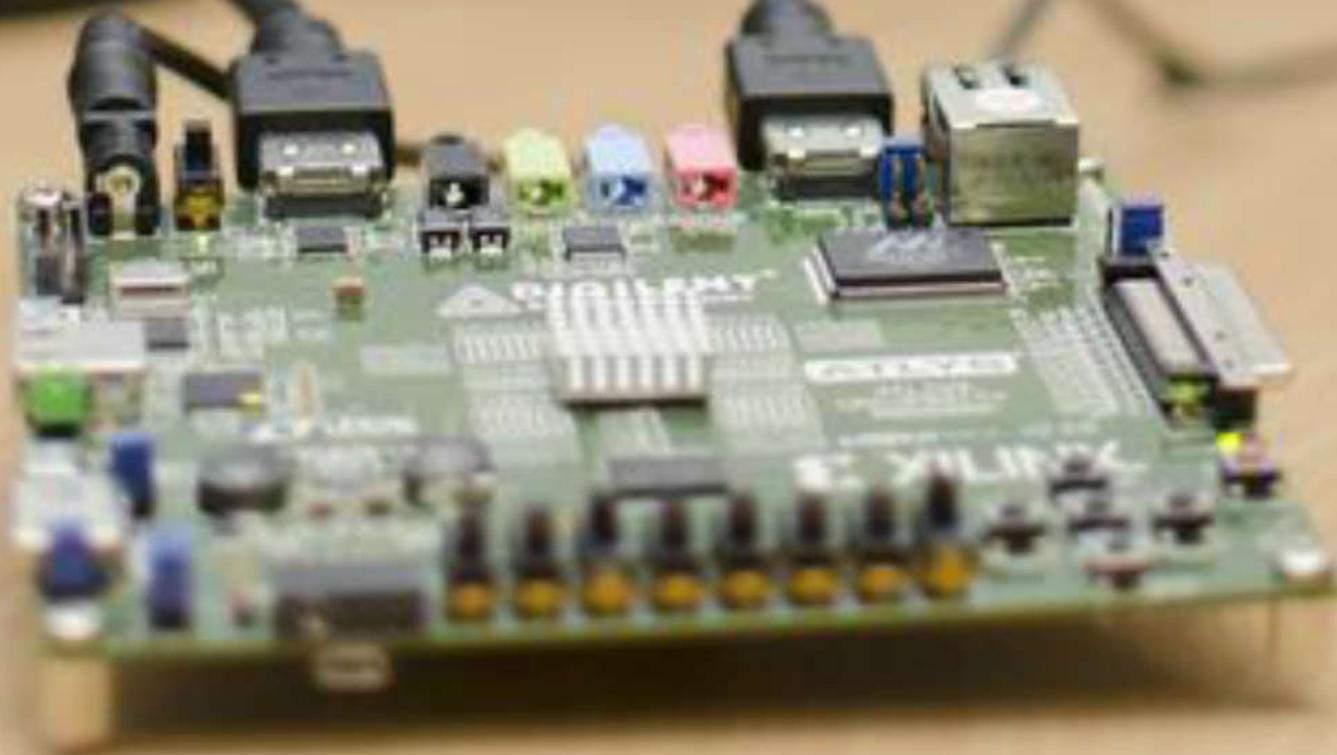
Profiling Techniken



Sampling



Instrumentation



ETW



ETW Controller

Event Provider

Event Provider

Event Provider

ETW Session

Buffers

Real time
Consumer

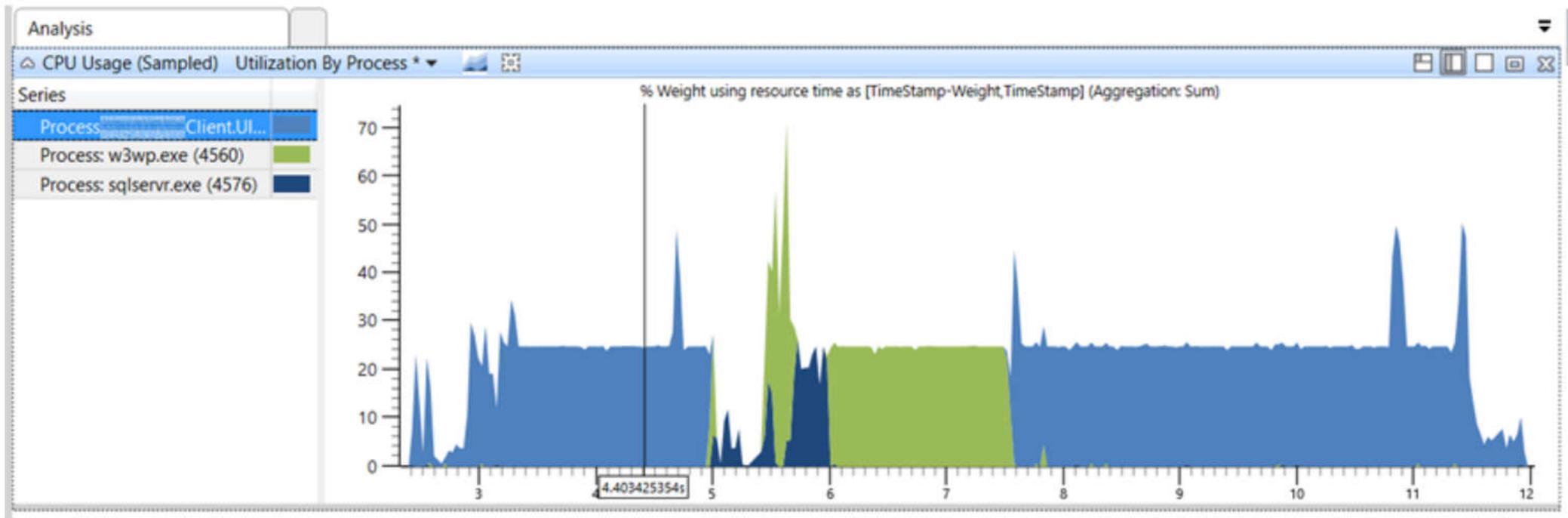
ETL File

EventName	EventTypeName	UserData
IISGeneral	GENERAL_REQUEST_START	...AppPoolId=DefaultAppPool...
IISGeneral	GENERAL_GET_URL_METADATA	PhysicalPath=... AccessPerms=Read...
IISISAPI	ISAPI_START	
IISGeneral	GENERAL_ISAPI_HANDLER	
AspNetReq	Start	Method=GET Path=... QueryString=
AspNetReq	RequestQueued	
AspNetReq	RequestDequeued	
AspNetReq	GetAppDomainEnter	
IISGeneral	GENERAL_GET_URL_METADATA	PhysicalPath=C:\... AccessPerms=...
AspNetReq	GetAppDomainLeave	
AspNetReq	AppDomainEnter	DomainId=/LM/W3SVC/1/Root/...
IISGeneral	GENERAL_GET_URL_METADATA	PhysicalPath=C:\... AccessPerms=...
AspNetReq	WebEventRaiseStart	EventClassName=... EventCode=...
AspNetReq	WebEventDeliverStart	ProviderName=... RuleName=myrule...
AspNetReq	WebEventDeliverEnd	
AspNetReq	WebEventRaiseEnd	
AspNetReq	StartHandler	HandlerName=HttpApplication...
AspNetReq	PipelineModuleEnter	ModuleName=WindowsAuthenticationModule
AspNetReq	PipelineModuleLeave	ModuleName=WindowsAuthenticationModule
AspNetReq	PipelineModuleEnter	ModuleName=FormsAuthenticationModule
AspNetReq	PipelineModuleLeave	ModuleName=FormsAuthenticationModule
AspNetReq	PipelineModuleEnter	ModuleName=PassportAuthenticationModule
AspNetReq	PipelineModuleLeave	ModuleName=PassportAuthenticationModule
AspNetReq	PipelineModuleEnter	ModuleName=DefaultAuthenticationModule
AspNetReq	PipelineModuleLeave	ModuleName=DefaultAuthenticationModule
AspNetReq	PipelineModuleEnter	ModuleName=RoleManagerModule
AspNetReq	PipelineModuleLeave	ModuleName=RoleManagerModule
AspNetReq	PipelineModuleEnter	ModuleName=AnonymousIdentificationModule
AspNetReq	PipelineModuleLeave	ModuleName=AnonymousIdentificationModule
AspNetReq	PipelineModuleEnter	ModuleName=UrlAuthorizationModule
AspNetReq	WebEventRaiseStart	EventClassName=... EventCode=4003...
AspNetReq	WebEventDeliverStart	ProviderName=... RuleName=myrule...

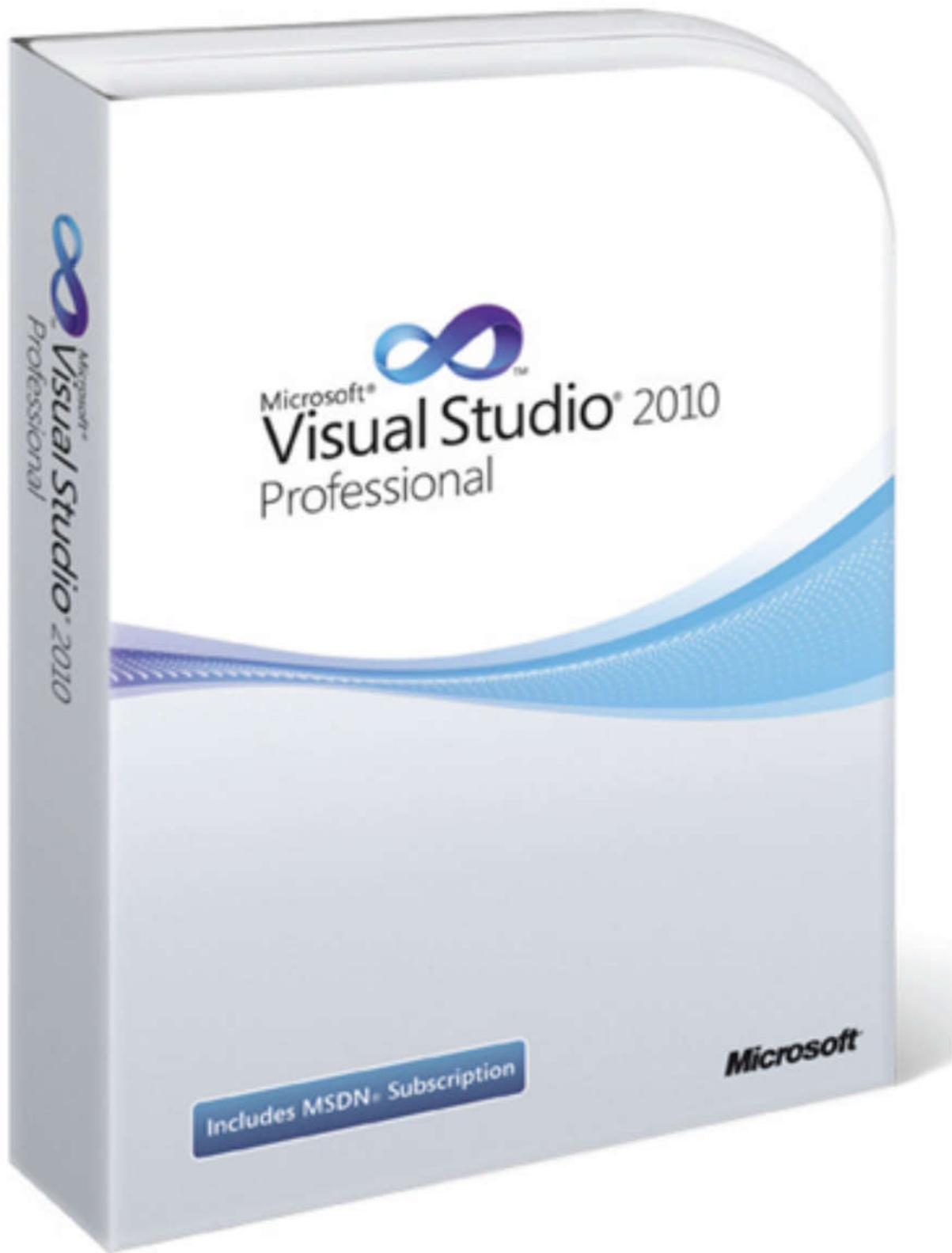
Win Performance Toolkit

Record: PerfView.exe / Xperf.exe

Analyze: WPA.exe



- Often*
- Sometimes*
- Seldom*
- Never*

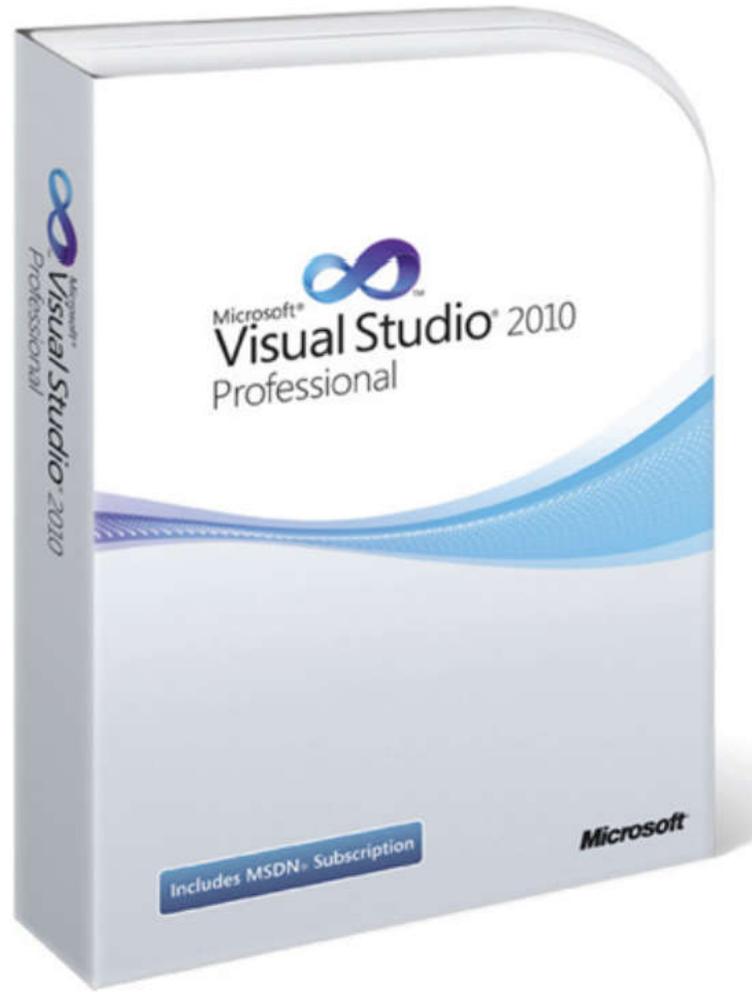


Microsoft
Visual Studio 2010
Professional

Microsoft
Visual Studio 2010
Professional

Includes MSDN Subscription

Microsoft



~~Profiler~~ ☹️

Professional 2012



Visual
Studio

Microsoft

Profiler



Professional 2012



Visual
Studio

Microsoft

Profiler



Visual Studio Community 2013



Performance & Diagnostics Hub

Visual Studio Community

A free, fully-featured, and extensible IDE for creating modern applications for Windows, Android, and iOS, as well as web applications and cloud services.

Download Community 2015



Demos



Demo 1
WPF Startup Time

Demo 2
WPF UI Virtualization

Call Stack

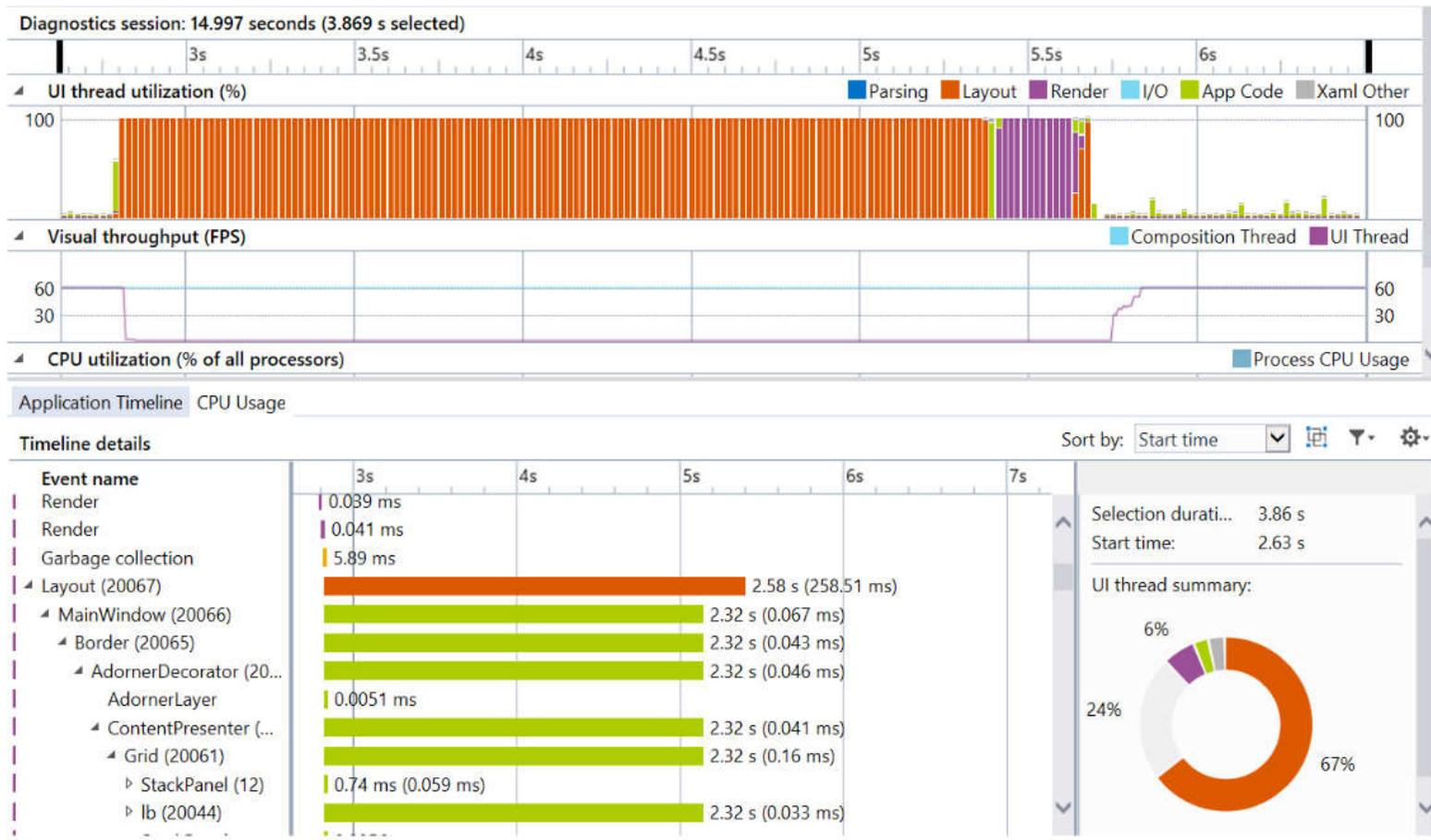
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Debugging in VS2015

- PerfTips
- Diag. Tools Window
- Live Visual Tree
- Live Property Explorer

WPF Timeline Tool



Was macht mein UI-Thread?

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Developer Week 2016

Vielen Dank!

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