



Time Travel Debugging

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What is
Time Travel Debugging?

Overview

TTD is a reverse debugging toolkit

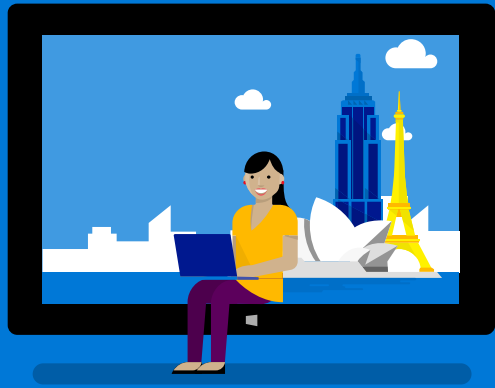
- Record code execution
- Replay it forwards and backwards
- Search trace using queries

Problems to solve

- Debugging is time consuming
- Debugging is hard
- Debugging is complex
- Debugging may require multiple repros

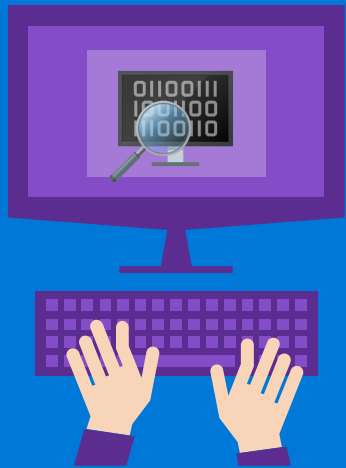


Key Features



- Based upon a Microsoft Research project
- Available in WinDbg Preview today
- You don't have to modify your program
- Multi-threaded & multi-core recorder
- Shared memory and async I/O support
- Ability to query trace data
- Three steps: record, index, replay
- <https://aka.ms/TTD>

How we use TTD



Microsoft engineers use TTD for solving tough customer problems



Types of Issues

- Difficult repro bugs like inconsistent crashes
- Corrupted memory, race conditions, resource leaks, improper API use, etc.

Enough Talk
Time for Demos

The Basics

Key Takeaways



- How to record a process
- How to step forward and backward
- Replay is read-only
- Debugger data model
- How to find events easily
- How to use memory breakpoints
- No limits on memory breakpoints

Where Did That Error
Code Come From?

When You Get an Email from Your Manager at 4PM on a Friday...



Funny Error Message

Manager McManagerface

Fri 10/12/2018 4:00 PM

To: J. Random McHacker

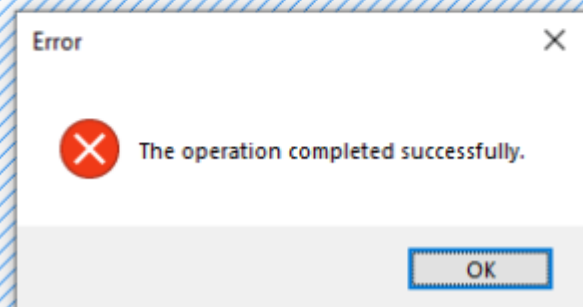


Reply all |

I was trying out your program and I got this error:

Dshow Player

File



Key Takeaways

- Send me a trace not a repro
- Power of queries
- Filtering using LINQ
- New upcoming media player app



Cinder Blocks

Wrapping Up

Time Travel Debugging is awesome

Download Windbg Preview today!
(It's available in the Microsoft Store)

Documentation at <https://aka.ms/TTD>







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