

.NET Training: Advanced .NET Debugging & Troubleshooting (NETDBG, 4 jours)

Description

The course Advanced .NET Debugging & Troubleshooting (.NET Training) explores .NET development from architecture to implementation. The training covers everything from the internal architecture of the .NET CLR to .NET performance tuning. Inheritance, polymorphism, data structures, algorithms & multi-threading are also discussed. The course concludes with an overview of refactoring techniques and of the use and design of design patterns in .NET.

Tarifs

- Tarification: \$3,750/person
- Rabais de 10% lorsque vous inscrivez 3 personnes.

Plan de cours

Introducing the Tools

Tools Overview

About .NET Framework Versions

SOS and SOSEX

CLR Profiler

Working with Performance Counters

Reflector for .NET

PowerDbg

Managed Debugging Assistants

Mastering the CLR

CLR and the Windows Loader

Loading Native Images

Loading .NET Assemblies

Working with Application Domains

Application Domains: System, Shared and Default

The Assembly Manifest

About Type Metadata

The Sync Block Table

The Type Handle, Method Descriptors and Modules

Metadata Tokens

Debugging Tasks

About the Debugger and the Debugger Target

About Breaking and Resuming Code Execution

A Few Useful Debugging Tools

Loading Managed Code Extensions

Working with SOS and SOSEX

Controlling CLR Debugging

Setting Breakpoints

Breakpoints, JIT Functions and Not Yet Compiled Functions

Setting Breakpoints on Precompiled Assemblies

Setting Breakpoints on Generic Methods

Inspecting Code

About Code Inspection

- Unassembling Code
- Getting Method Descriptors
- Showing IL Instructions
- About CLR Internals Commands
- Sync Blocks and Method Tables
- The Managed Heap and the Garbage Collector
- Working with Crash Dump Files

The Assembly Loader

- CLR Loader Overview
- About Assembly Identity
- The Global Assembly Cache
- Assembly Loading and the Context
- About Load Context Failures
- About Interoperability and DllNotFoundException

The Managed Heap and the Garbage Collector

- About Windows Memory: Architecture and Concepts
- Memory Allocation
- Garbage Collection Internals
- About Generations and Roots
- About Finalization
- Exploring Memory Reclaiming
- About the Large Object Heap
- Exploring Pinning
- Understanding Garbage Collection Modes
- Dealing with Corruption
- Dealing with Fragmentation
- Dealing with Out of Memory

Exploring Synchronization

- Essentials of Synchronization
- The Internals of Synchronization
- About Thread Synchronization Primitives
- Working with Events
- Working with Mutex and Semaphore
- Working with Monitor
- Working with Thread Pools
- The Object Header, Sync Blocks and Thin Locks
- Dealing with Problems: Deadlocks, Orphaned Locks, Thread Abort and Finalizer Hang

Exploring Interoperability

- About Platform Invocation
- About COM Interoperability
- Working with RCWs
- Working with P/Invoke
- Dealing with Delegates
- Dealing with Interop Leaks and other COM Issues

Post-Mortem Analysis

- About Working with Dump Files
- Generating Dump Files
- Debugging Dump Files
- Dump File Analysis
- About Object Inspection

Dumping Raw Memory
Dumping Value Types
Dumping Reference Types
Dumping Arrays
Dumping Stack Objects
Finding Object Sizes
Dumping Exceptions