

It's not the syllabus or the slides, it's the trainer experience!

Writing WDF (KMDF, UMDF) Device Drivers

5 days 40 hours

Abstract

Introducing WDF, KMDF and UMDF 2.0 and integrating the development process into Visual Studio IDE, made writing a device driver for the Windows OS (Vista and Above) a much easier and simpler task than before. The course introduces using presentations, demos, code walks and practical labs, the Design considerations, development environment, architecture and practical consideration of writing WDF device drivers for Windows 7, 8, 10 and Windows server 2008[R2], 2012[R2] and 2015. The course covers Kernel, user, and universal device drivers.

Workshop Targets

- Learn how to Setup a development and test environment for developing KMDF Device drivers.
- Understand WDK, WDM and WDF terminology.
- Learn how to create, test, deploy and debug KMDF based device drivers.
- Write, test, deploy and debug a general-purpose KMDF device driver.
- Learn KMDF concepts, recommendations and architectural considerations.
- Exercise all usable KMDF objects in labs.
- Map the WDK documentation.

Target Audience

- Experienced programmers interested in writing kernel mode, user mode and universal device drivers for windows OS using WDF and Visual Studio.

Prerequisites

- Knowledge of the window OS concepts and architecture
- Knowledge and practical experience with the "C" programming language
- Basic knowledge of Object Oriented concepts
- At least 2 years of programming experience
- User level experience with windows OS & GUI
- Practical experience developing windows application and using the Win32 APIs (SDK) is recommended
- Knowledge of the Visual Studio IDE is strongly recommended.
- Knowledge of basic hardware concepts & architecture
- No prior knowledge of device driver's development is required or assumed

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Topics

- Device driver's basic terminology
- A full driver cycle using KMDF UMDF and Visual Studio from start to end, the practical approach
- Deep dive into the Development, deployment, debugging, provisioning and Testing Environment.
- Debugging and analyzing Driver faults for Kernel and User mode drivers
- Windows Short Architecture Review
- WDK, WDF, KMDF, UMDF and WDM Overview
- WDM terms and architecture
- WDF model and architecture and its KMDF and UMDF variants
- WDF driver loading process for kernel and user mode drivers
- WDF Queue management, requests and Data Transfer
- Accessing the Hardware
- Interrupts Timers and DPCs
- Plug & Play
- Power management
- WMI and configuration
- Installing Device Drivers
- Accessing user mode system resources