

VXWORKS CERT 6.X FOR DO-178B

COURSE DESCRIPTION

The Wind River® VxWorks® Cert 6.x for DO-178B course provides engineers with a fast, cost-effective way to acquire the skills necessary to develop safety critical applications. The course covers VxWorks Cert 6, as well as the Wind River Workbench development suite that has been tailored for certified application development and debugging. Typical use cases in certified application development and debugging are explored.

After this course, participants will be able to perform the following:

- Understand the DO-178B certification standard and VxWorks Cert 6.6
- Accelerate the development and configuration of DO-178B-compliant safety critical systems using Workbench
- Develop, debug, build, and test safety critical applications with the VxWorks Cert 6.6 real-time operating system (RTOS)

PRODUCTS SUPPORTED

- Wind River VxWorks Cert Platform 6.6.4
- Wind River SBC750GX target board or Wind River Simics

COURSE FORMAT

- This two-day expert-led course consists of lectures and lab sessions.
- Attendees use VxWorks Cert Platform 6.6 to gain experience with the topics presented in a development environment.
- Participants examine and exercise simulated network topologies in hands-on labs.
- Participants receive individual guidance from an expert engineer who has extensive experience with Wind River technologies.

AUDIENCE

- Application developers creating DO-178B standards-based safety critical applications

Course title:	VxWorks Cert 6.x for DO-178B
Duration:	Two days
Format:	Instructor-led lectures and hands-on lab sessions; instructor-led Live Remote delivery available
Content:	Day 1: The DO-178B Standard; VxWorks Cert 6.6; Debugging VxWorks Cert 6.6 Day 2: VxWorks Cert File Systems; Real-Time Processes (RTPs); Certifiable Network Stack; C++ in the VxWorks Cert 6 Environment; Migrating to VxWorks Cert

- Engineers who need to develop applications using the features of the VxWorks Cert 6.6 RTOS

PREREQUISITE SKILLS

- User-level familiarity with the host operating system on which Wind River VxWorks Cert Platform 6.6 will be installed
- One year of C or C++ programming
- Basic understanding of operating systems and debugging techniques
- Basic understanding of DO-178B concepts

PREREQUISITE COURSES

- Real-Time Programming for Embedded Systems
- VxWorks 6.x and Workbench Essentials

RELATED COURSES

- Workbench On-Chip Debugging Essentials for VxWorks and Linux
- Wind River 653 Platform 2.x Essentials

SYLLABUS

Day 1

THE DO-178B STANDARD

- Introduction to DO-178B
- Background and definitions
- DO-178B and software safety
- DO-178B processes and objectives
- Software verification

VXWORKS CERT 6.6

- Getting started with VxWorks Cert 6.6
- Rationale for VxWorks/Cert libraries
- VxWorks Cert OS design and programming considerations
- Certifiable API subset
- **LAB: Getting started**

DEBUGGING VXWORKS CERT 6.6

- Supported Workbench tools
- Source code browsing
- VxWorks Cert 6.6 debug configurations
- Use cases overview
- **LAB, Use Case 1: “Development” build—noncertified kernel mode**

Day 2

VXWORKS CERT FILE SYSTEMS

- VxWorks Cert file systems overview
- ROM file system configuration and build
- Highly reliable file system (HRFS) rationale
- Capabilities and configuration of HRFS
- **LAB, Use Case 2: Certified kernel with WDB mode**
- **LAB, Use Case 3: “Deployed” build—certified kernel mode**

REAL-TIME PROCESSES (RTPs)

- Overview of the RTP model
- Memory partitioning and the MMU
- RTP execution and life cycle
- Debugging RTPs
- Design considerations
- **LAB: Real-time processes**

CERTIFIABLE NETWORK STACK

- Design guidelines
- Stack configuration
- **LAB: “I/O application”—networked application**

C++ IN THE VXWORKS CERT 6 ENVIRONMENT

- Cert API subset
- Memory allocation
- Configuration and build

MIGRATING TO VXWORKS CERT

- Application API differences
- BSP migration overview

GLOBAL REACH OF WIND RIVER EDUCATION SERVICES

With more than 30 years of device software experience, Wind River provides education services in every region of the world. Our private classes can be tailored to your needs by adding or removing topics from multiple courses. If you have more specific project challenges, Wind River Mentoring provides coaching by experienced engineers to help you integrate Wind River solutions into your environment. And when you're too busy to attend a whole class, our On-Demand Learning options provide around-the-clock access to advanced and specialized topics. All of our education services are led by expert engineers who are closely connected to the Wind River technical community for access to specific expertise.

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