EDUCATION SERVICES

VIRTUALIZATION PROFILE FOR VXWORKS 7

COURSE DESCRIPTION

The Virtualization Profile for VxWorks® 7 training course provides engineers with a fast, cost-effective way to acquire the skills necessary to plan, build, and configure systems that use Virtualization Profile for VxWorks and to understand the various special features of it.

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

- Plan systems consisting of multiple virtual machines running on a single hardware target
- Configure and build all parts of the system, including the hypervisor kernel, virtual machines, guest operating systems, and virtual networks
- Make use of and understand the use cases for special features like VIRTIO, VNIC, shared memory, and direct interrupts

PRODUCTS SUPPORTED

- Virtualization Profile for VxWorks 7 and later
- Wind River® Workbench 4

COURSE FORMAT

- This two-day expert-led course consists of lectures and lab sessions.
- Attendees use Virtualization Profile for VxWorks 7 and Wind River Workbench 4 to gain experience with the topics presented.
- Participants examine and exercise simulated target systems in hands-on labs.
- Participants receive individual guidance from an expert engineer who has extensive experience with Wind River technologies.

AUDIENCE

- Developers who will work with Virtualization Profile
- New project members on teams already using Virtualization Profile
- Senior engineers who want to evaluate Virtualization Profile

Course title:	**Virtualization Profile for VxWorks 7**
Duration:	Two days
Format:	Instructor-led lectures and hands-on lab sessions; instructor-led live remote delivery available
Content:	**Day 1:** Introduction to Virtualization; Virtualization Profile for VxWorks; Hypervisor Planning and Building; Virtualization Profile Runtime Configuration **Day 2:** Hypervisor VIRTIO Console Feature; Hypervisor VNIC Feature; Hypervisor Shared Memory Feature; Hypervisor Direct Interrupt Feature; Hypervisor Performance; Debugging a Virtualized System

PREREQUISITE SKILLS

- One year of C programming
- Basic understanding of operating systems and debugging techniques

PREREQUISITE COURSES

- VxWorks 7 and Workbench Essentials

RELATED COURSES

- Multi-core Technologies and Designing for Concurrency

SYLLABUS

Day 1

INTRODUCTION TO VIRTUALIZATION

- What is virtualization?
- Benefits of virtualization
- Multi-core software configurations
- Hypervisor requirements for embedded devices

VIRTUALIZATION PROFILE FOR VXWORKS

- Architectural design
- The VxWorks root OS
- Memory translations
- Virtual machines and devices
- Booting VirtProfile
- **LAB: Getting Started with Virtualization Profile for VxWorks on a Simics Target**
- **LAB: Creating a Guest**

HYPERVISOR PLANNING AND BUILDING

- System planning considerations
- The build flow
- Configuring the VxWorks VSB
- Configuring the root OS VIP
- Configuring Wind River supplied guests
- Deploying root OS and guests
- **LAB: Building and Deploying the Root OS**
- **LAB: Building and Deploying a Guest**

VIRTUALIZATION PROFILE RUNTIME CONFIGURATION

- VMM and guest configurations
- System configurator
- Configuring virtual machines and devices
- System and user-defined templates
- **LAB: Configuring Virtualization Profile for VxWorks**
- **LAB: Configuring a Wind River Linux Guest**

Day 2

HYPERVISOR VIRTIO CONSOLE FEATURE

- Why VIRTIO consoles?
- Technical details
- System configuration
- **LAB: Inspecting a VIRTIO Setup**

HYPERVISOR VNIC FEATURE

- Why VNIC?
- Technical details
- System configuration
- **LAB: Working with VNICs**

HYPERVISOR SHARED MEMORY FEATURE

- Shared memory features
- Technical details
- System configuration

HYPERVISOR DIRECT INTERRUPT FEATURE

- Direct interrupt features
- Technical details
- System configuration

HYPERVISOR PERFORMANCE

- Context scheduling
- Performance factors
- The virtualized real-time OS
- The root OS

DEBUGGING A VIRTUALIZED SYSTEM

- What to debug
- Built-in inspection tools
- Debugging the VMM configuration
- Debugging guests
- VxWorks guest analysis
- **LAB: Inspecting the System Using the Hypervisor Debug and HVCONFIG Shells**
- **LAB: Debugging Guests**

GLOBAL REACH OF WIND RIVER EDUCATION SERVICES

With more than 30 years of experience delivering software for the Internet of Things, 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.

CONTACT US

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