EDUCATION SERVICES

WIND RIVER LINUX 7 CLI ESSENTIALS

COURSE DESCRIPTION

The Wind River® Linux 7 CLI Essentials course provides engineers with a fast, cost-effective way to acquire the skills necessary to configure and utilize components of Wind River Linux 7, using command-line techniques exclusively.

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

- Configure, build, and validate a Wind River Linux kernel and file system
- Use layers and templates effectively
- Install and build run-time and kernel packages
- Design, develop, debug, build, and test applications in a target-host development environment with Linux

PRODUCTS SUPPORTED

- Wind River Linux 7
- The following targets are available:
  - QEMU simulated target (Intel® x86-64)

COURSE FORMAT

- This three-day expert-led course consists of lectures and lab sessions.
- Attendees use Wind River Linux 7 to gain experience with the topics presented, using command-line interface techniques.
- Participants examine and exercise simulated and real hardware targets in hands-on labs.
- Participants receive individual guidance from an expert engineer who has extensive experience with Wind River technologies.

AUDIENCE

- Developers getting started with Wind River Linux
- New project members on teams already using Wind River Linux
- Managers who want to get a quick understanding of Wind River Linux components
- Senior engineers or managers who want to evaluate Wind River Linux technology

Course title:	**Wind River Linux 7 CLI Essentials**
Duration:	Three days
Format:	Instructor-led lectures and hands-on lab sessions; instructor-led Live Remote delivery available
Content:	**Day 1:** Introduction to Embedded Linux; Introduction to Wind River Linux; Target Management; Application Development **Day 2:** Application Development (cont'd); System Profiling and Analysis; Kernel Development **Day 3:** Software Management; Layers and Templates; Additional Resources from Wind River

PREREQUISITE SKILLS

- Basic understanding of operating systems and debugging techniques
- Understanding of makefiles
- Functional knowledge of Linux
- One year of C or C++ programming experience on Linux/UNIX

PREREQUISITE COURSES

- Introduction to Linux

RELATED COURSES

- Wind River Linux and Workbench Essentials
- Wind River Linux User Space Programming

SYLLABUS

Day 1

INTRODUCTION TO EMBEDDED LINUX

- Overview of Linux
- Linux boot process
- Linux user space
- Cross development
- Open source software licenses
- **LAB: Getting started with the Wind River Linux lab environment**

INTRODUCTION TO WIND RIVER LINUX

- Overview
- Wind River Linux platform
- Creating a build environment
- Build environment structure
- Building target images
- Optimizing builds
- **LAB: Managing a build environment from the command line**

TARGET MANAGEMENT

- Hardware targets
- Cross development workflow
- Deploying to hardware targets
- Simulating a target with QEMU
- **LAB: Managing simulated targets from the command line**

APPLICATION DEVELOPMENT

- Application development workflow
- Migrating to the build environment
- Application debugging

Day 2

APPLICATION DEVELOPMENT (CONT'D.)

- **LAB: Building applications from the command line**
- **LAB: Debugging applications with gdb**
- **LAB: Debugging a program crash with gdb**

SYSTEM PROFILING AND ANALYSIS

- **LAB: Profiling CPU usage**
- **LAB: Profiling memory usage**
- **LAB: Analyzing code coverage**

KERNEL DEVELOPMENT

- Configuring the kernel
- Building the kernel
- Kernel modules
- Kernel debugging
- **LAB: Developing the kernel**
- **LAB: Configuring and patching the kernel**
- **LAB: Managing kernel modules**
- **LAB: Developing kernel modules**
- **LAB: Configuring KGDB**
- **LAB: Debugging the kernel with gdb**

Day 3

SOFTWARE MANAGEMENT

- Overview
- Build lifecycle
- Managing packages
- Integrating new software
- Recipes
- **LAB: Managing packages**
- **LAB: Patching packages**
- **LAB: Writing a recipe**
- **LAB: Integrating new applications**

LAYERS AND TEMPLATES

- Overview
- Anatomy of a layer
- Templates
- Layer and template processing
- **LAB: Creating layers**
- **LAB: Managing layers and templates**

ADDITIONAL RESOURCES FROM WIND RIVER

- Wind River Support Network
- Wind River Customer Support
- Additional training classes
- Wind River On-Demand Learning
- Wind River Mentoring
- Your instructor
- Your field application engineer
- Wind River Professional Services

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.

CONTACT US

For more information about Wind River Education Services, visit www.windriver.com/education/.

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