

Wind River Studio Over-the-Air Updates

Secure, Reliable Delivery of Software Updates to Edge Systems

Wind River® Studio Over-the-Air Updates accelerates time-to-market, reduces maintenance costs, and increases the lifetime value of intelligent edge systems by orchestrating the secure, reliable delivery of software updates to widely distributed assets. Eliminate the need for expensive recalls when updating a device kernel, application software, firmware, or configuration.

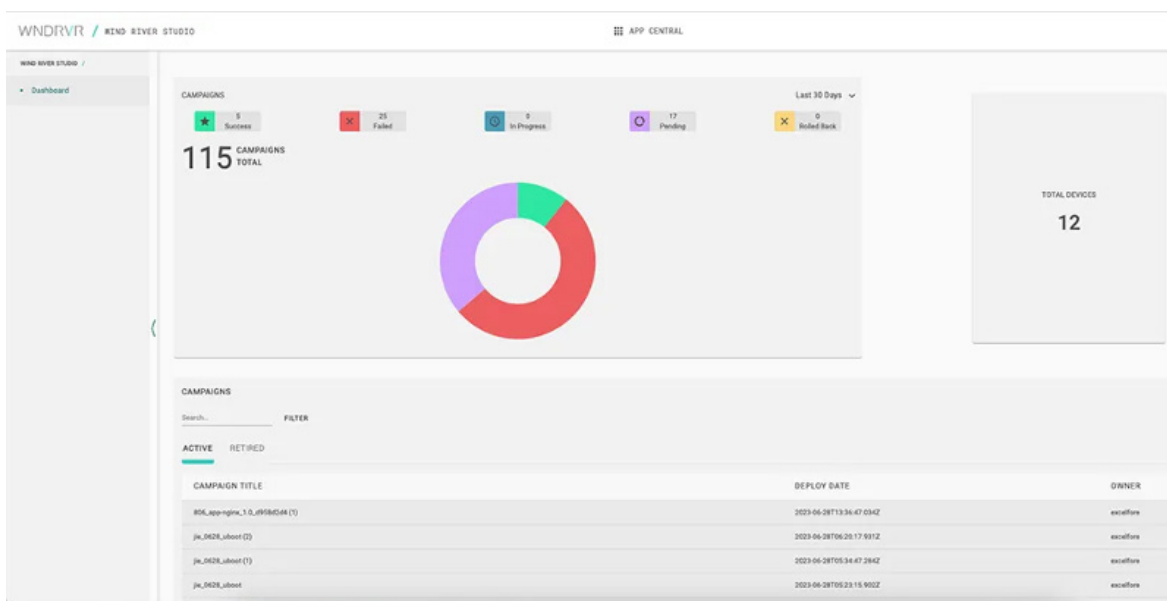


Figure 1. Wind River Studio Over-the-Air Updates continuously monitors the status of update campaigns.

BENEFITS

- **Accelerate time-to-market:** Faster, cheaper, more reliable updates in the field accelerate time-to-market by reducing exposure to negative impacts from bugs and vulnerabilities.
- **Reduce maintenance costs:** Simplify service logistics and eliminate the expense of recalling fielded products to service centers by deploying updates over the air.
- **Improve product lifespan and value:** Extend product lifespan and reduce total cost of ownership by enabling new capabilities and value in fielded systems.
- **Enable new revenue opportunities:** Increase customer lifetime value by identifying and capturing new revenue opportunities after the initial sale.

KEY FEATURES

Deliver Updates to Fielded Devices

Studio Over-the-Air Updates orchestrates delivery of update campaigns to deployed assets, purpose built for modern intelligent edge systems. It leverages a decentralized client-agent model to deploy scalable, flexible updates to edge devices and the diverse subsystems they contain. Gain visibility and control across the fleet at any scope through a uniform interface.

Efficient, Reliable Distribution

Differential update technology provides efficient, cost-effective, and reliable updates to fielded device fleets. Updates include data, metadata, and policies to ensure that operating system (OS) kernel, application software (SOTA), firmware (FOTA), and configuration (COTA) updates are applied to the right components in the right order. Update status across the fleet is continuously monitored and available.

Automated Policy Enforcement and Rollback

Enforce embedded policies for device selection, rollout and timing control, regulatory standards, and more, based on flexible criteria such as device region or version, network conditions, user preferences, and compliance goals. Failure criteria ensure that failed or interrupted updates are gracefully rolled back.

Secure, Compliant, and Traceable

Studio Over-the-Air Updates leverages PKI-based encryption to secure data in transit and at rest, from the root of trust to the edge device. Certificates can be tied to a unique hardware device identity, ensuring fine-grained authentication and authorization control. The Studio platform provides end-to-end traceability with logging, monitoring, notification, and full role-based access controls.

Adaptable and Open

Studio Over-the-Air Updates supports both manual and automated workflows via GUI and CLI. It is built on open standards such as eSync; provides APIs for custom applications and enterprise integration; and streamlines the development experience for upgradable, extensible edge devices.

Studio Over-the-Air Updates enjoys a common user experience and integration with the broader Wind River Studio development, testing, and deployment environments. It includes out-of-the-box support for VxWorks®, Wind River Linux, Wind River Helix™ Virtualization Platform, and OCI containers. Update campaigns work natively in Wind River Studio Pipelines.

USE CASES

- **Security updates:** Distribute high-priority updates over the air, ensuring that your device fleet remains available and secure while avoiding the time and expense of bringing devices into a service center for updating.
- **Bug and performance fixes:** Automate deployment of defect and performance fixes into the field, improving security and reducing costs.
- **Targeted maintenance:** Leverage flexible selection criteria to deliver updates only to users or devices that have purchased an appropriate license and have an active maintenance contract.
- **On-demand fulfillment:** Enhance user satisfaction by enabling on-demand add-ons and personalized experiences that are fulfilled over the air.
- **Increase customer lifetime value:** Capture additional value from existing users and devices by making new features and content available for purchase.
- **Automated testing in pipelines:** Execute update campaigns as part of CI/CD/CT pipelines, deploying over the air to virtual or physical devices in the testing environment. Once testing and release criteria are satisfied, deploy updates to devices in the production environment.

ADDITIONAL WIND RIVER STUDIO PRODUCTS

Wind River Studio Developer is a cloud-native development, deployment, and operations environment for mission-critical intelligent, embedded edge systems. It enables companies to develop, deploy, and operate complex software-defined edge systems using a modern, scalable, and automated environment. It is purpose built to lower embedded software lifecycle costs, shorten time-to-market, and help create new revenue opportunities.



Wind River Studio Pipelines

Studio Pipelines helps you create automated workflows for scanning, building, testing, deploying, and updating embedded software projects. Studio Pipelines is cloud-native and enables collaboration and sharing of pipelines as valuable software assets for your software organization. Increase productivity and get the most out of your software lifecycle workflows with tools to create automated and customized software development pipelines. Enable CI/CD processes with software lifecycle pipelines using interchangeable building blocks that can easily be integrated into your existing software development infrastructure and extended to meet dynamic project needs.



Wind River Studio Test Automation

Wind River Studio Test Automation helps orchestrate automated test executions for embedded edge devices. Specifically designed for testing embedded software, it enables software teams to build and exercise software testing workflows that integrate seamlessly with their existing CI/CD/CT environment. Software teams can manage and execute large numbers of automated tests against virtual and physical targets.



Wind River Studio Digital Feedback Loop

Wind River Studio Digital Feedback Loop optimizes value delivery and operational and maintenance costs through real-time analytics and insights informed by OS-level and application-specific data from the edge. Improve fleet visibility and governance with an open, extensible command-and-control center that securely connects the intelligent edge to your cloud. Identify anomalies and opportunities to improve performance, maintenance, and value delivery through the entire lifecycle, from the cloud to the intelligent edge.



Wind River Studio Virtual Lab

Wind River Studio Virtual Lab accelerates development schedules and reduces costs through earlier, more collaborative and automated testing of intelligent edge systems. Hardware resources remain a rate-limiting step in CI/CD and software testing processes. Virtual Lab's secure, scalable cloud portal enables global teams to create and manage self-service, distributed test environments including hardware labs and modern simulation tools, with programmatic interfaces for connection and control that improve resource utilization and facilitate automated CI/CD/CT pipelines.

WIND RIVER PARTNER ECOSYSTEM

The Wind River partner portfolio includes a large ecosystem of complementary third-party hardware and software solutions to help our mutual customers ease integration, speed development, and enhance functionality in their intelligent systems. The portfolio helps accelerate time-to-market and differentiate platforms with best-of-breed capabilities while reducing development costs. Visit our partner ecosystem at www.windriver.com/partners.

WIND RIVER PROFESSIONAL SERVICES

The CMMI Level 3-rated Wind River Professional Services organization leverages years of system design and development expertise to work collaboratively with customer design and program teams. Professional Services ensures customer success with premium onboarding and enablement services, helping improve customer software workflows and interpret system requirements and architect platform options. It provides recommendations for meeting business, technical, and program goals. For more information, visit www.windriver.com/services.

WIND RIVER CUSTOMER SUPPORT

Wind River Studio is backed by our award-winning global support organization. We offer live help in multiple time zones, the online Wind River Support Network with multifaceted self-help options, and optional premium services that provide developers the fastest possible time-to-resolution. For more information, visit www.windriver.com/support.

EDUCATION SERVICES

Wind River offers instructor-led, on-demand, and mentored learning, including anytime, anywhere access to online subscription-based e-learning. For more information, visit www.windriver.com/services/education-services.

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