

Wind River eLxr Pro

Enterprise Linux for Mission-Critical Systems in Edge-to-Cloud

There is a growing disconnection between far edge systems, where data is generated, and core data centers, where it is aggregated, processed, and consumed. This gap is exacerbated by the rapid evolution of edge computing, with new capabilities introducing complexity in infrastructure, data management, security, and lifecycle operations. Each industry must address these challenges in ways that align with their unique requirements, from regulatory compliance to real-time performance needs. A new, adaptable approach is required – one that embraces the principles of open source and a community-driven model to ensure consistency, scalability, and seamless integration across edge and cloud deployments, which we refer to as the enterprise edge. That approach is eLxr Pro™.

WHAT'S NEW

eLxr Pro has proven itself in industries that require mission-critical, data-intensive, edge-ready workloads. The latest version of eLxr Pro extends its functionality to encompass performance optimization, improved interoperability, and seamless workload integration. Find the Release Overview at www.windriver.com/resource/elxr-pro-release-overview.

PRODUCT OVERVIEW

The eLxr project is an open source, Debian-derivative Linux distribution that broadens access to cloud-native environments and connects heterogeneous, computationally limited edge computing devices.

The enterprise distribution, eLxr Pro, is a reliable, secure, and cost-saving Linux that addresses the unique challenges of near edge and far edge computing.

Among its strengths:

- Provides edge readiness for mission-critical and data-intensive workloads such as AI
- Delivers optimized, hardened computing for real-time applications and high-security environments
- Builds on Debian's robust community to foster collaboration and innovation
- Supports hardware and graphics acceleration
- Offers 24x7 support for critical security patches and expanded hardware support



“Rakuten Symphony has long been a supporter of open source initiatives, and eLxr Pro creates a great opportunity to provide more choice and flexibility to customers as they develop for the unique challenges of near-edge networks and workloads.”

Raghunath Hariharan
Chief Technology Officer, Rakuten
Symphony

ENABLE INTELLIGENT ENTERPRISE EDGE AND CLOUD SYSTEMS

Challenges

Organizations face pressure to scale edge deployments efficiently while managing resource constraints. The integration of intricate AI workloads at the edge adds complexity, requiring solutions that balance low latency with optimized performance. Addressing these challenges in hybrid edge-to-cloud environments demands robust security, seamless operations, and cost-effective scalability.

Advantages

eLxr Pro meets the demands of evolving edge-to-cloud ecosystems. It empowers organizations to accomplish more with fewer resources. It streamlines processes, improves efficiency, and optimizes uptime. And its cloud-native flexibility simplifies deployments while improving security, which enables scalable and efficient AI operations at the edge.

Features

The latest release expands support for diverse virtualization environments. It is meticulously optimized for low-latency AI workloads. Cloud-native enhancements ensure easy, secure deployments, and scalability features streamline AI integration. These updates deliver robust, seamless operations across hybrid environments, balancing performance with cost-effectiveness.

Specifically, new capabilities include:

- Support for VMware ESXi and Microsoft® Hyper-V
- Universal and slim container base images
- Distro-less containers for Python
- Container orchestration for server (K8s, K3s, Podman) and edge environments (K3s, Podman, Docker)

WORK FAST AND EFFICIENTLY

Challenges

Organizations need to ensure workload adaptability across diverse hardware platforms. That's particularly so in industries with mission-critical and data-intensive demands. Balancing performance optimization with seamless integration and cost-effectiveness further complicates system efficiency.

Advantages

eLxr Pro delivers optimized system performance without compromising effortless integration into existing workloads and infrastructures. Its expanded hardware compatibility list enhances interoperability. That makes eLxr Pro suitable for a wide range of applications, from new deployments to scaling AI workloads.

Features

The latest release offers advanced performance optimization, improved interoperability through broad hardware support, and seamless workload integration. These enhancements ensure cost-effective solutions tailored to meet the evolving needs of demanding industries. Specifically, new capabilities include:

- Support for x86 Intel® hardware
- Support for x86 AMD EPYC
- Support for NXP i.MX 8 and i.MX 9 series
- Support for NVIDIA Jetson Orin AGX

ENHANCING TRUST, COMPLIANCE, AND PROTECTION

Challenges

Regulated industries must ensure secure and compliant systems that can handle sensitive workloads and data in edge and cloud environments. Balancing stringent compliance requirements with operational efficiency and future readiness is a top priority.

Advantages

eLxr Pro strengthens trust and compliance by delivering robust data protection and security measures. These enhancements safeguard workloads while enabling secure, cloud-native operations, which provide peace of mind for organizations that manage critical systems.

Features

The latest release introduces trusted system startups, additional data protection capabilities, and enhanced security for cloud-native environments. These features ensure secure, compliant, and future-proof solutions for critical edge and enterprise operations.

Specifically, new capabilities include:

- Secure Boot for Debian x86-64
- Cloud-native security tools such as kube-bench
- FIPS 140-2 validation for Wind River® OpenSSL 3.0.8

ELXR 12 SYSTEM REQUIREMENTS

eLxr, based on Debian, helps users get up and running fast, is easy to modify, and works with on-premises and edge (cloud-based) solutions — all while retaining compatibility with popular development and integration tools.

With eLxr, you can install and customize images that perform system-level and user space package updates on a live target, which supports maximum uptime. To run eLxr on a hardware device, such as a PC or development board, you can download the ISO file and copy it to bootable media.

To perform ISO image-based installations, you need:

- An x86 device with UEFI connected to a keyboard and monitor
- A virtual machine manager (VMM) such as VirtualBox to test on a Windows, Mac, or Linux host
- Bootable media, such as a USB or SD flash drive

Images include package management by default to help customize your distribution. Supported architectural platforms include x86-64 and Arm64. For a list of supported platforms, consult docs.elxr.dev/elxr-quick-start/source/elxr-release-information.html.

To run eLxr in a container for use in cloud-native applications, you can clone the eLxr tools repository and install it in a Docker container. To perform container-based installations, you need a Linux development host with these minimum requirements:

- Internet access to download the images and update the deployed system
- Git-to-clone repositories to communicate with the eLxr project on GitLab
- Docker Engine installed and configured to allow non-privileged users to run Docker commands
- Python3 with rucksack and libvirt-python3 modules
- The libvirt-dev package

GET STARTED WITH ELXR AND ELXR PRO

eLxr Pro is the commercial support and services of the eLxr open source project.

eLxr is available today. Try it yourself at elxr.org/downloads.

Learn how to contribute to the eLxr community at elxr.org.

For detailed product specifications and system requirements, visit docs.elxr.dev/elxr-quick-start/source/elxr-overview.html#.

For detailed eLxr documentation, visit docs.elxr.dev/index.html.

For the latest eLxr release notes, visit docs.elxr.dev/elxr-release-notes/source/index.html.

For the eLxr Application and Package Development Guide, visit docs.elxr.dev/elxr-application-and-package-development-guide/source/index.html.

Request information about eLxr Pro support and services at www.windriver.com/contact.

For additional information on the eLxr project, visit elxr.org/ and www.windriver.com/elxr-pro.



WINDRIVER

Wind River is a global leader of software for the intelligent edge. Its technology has been powering the safest, most secure devices since 1981 and is in billions of products. Wind River is accelerating the digital transformation of mission-critical intelligent systems that demand the highest levels of security, safety, and reliability.

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