Data Sheet

SUSE® Linux Enterprise Server

The most open, secure, and compliant enterprise Linux to future-proof business-critical workloads.

Designed to enable long-term business continuity and minimize the risk and cost of adopting new technologies, SUSE® Linux Enterprise Server provides the long-term supported, innovation-ready infrastructure foundation for containerized, virtualized and physical deployments across data center, cloud and edge, simplifying IT operations, minimizing downtime and streamlining security and compliance.

SUSE

Product overview

In today's hybrid IT environments, organizations manage a mix of traditional and software-defined infrastructures. SUSE® Linux Enterprise Server empowers enterprises to seamlessly integrate and manage these diverse environments, simplifying operations, enhancing flexibility, and accelerating digital transformation.

It offers business-critical continuity and a flexible open-source platform to run any kind of application anywhere from containers to edge, enabling enterprises to be more agile. The new service pack of the SUSE® Linux Enterprise Server 15 includes a new kernel, libraries, and applications, enabling Today's IT innovation while ensuring stability and support for legacy applications and hardware with the longest support. It provides a future-proof platform with business continuity, high availability, and stringent security standards, making it the ideal choice for modernizing IT infrastructure while maintaining reliability and security.

> "More than 20 years ago, we were the first large industrial company in Germany to build a Linux cluster based on SLES. Since then, open source technology has become a key element of our corporate strategy. The results we have achieved together with SUSE since then show that our decision was exactly right."
>
> **Dr. Thomas Kronseder,** Head of Linux Team, MTU Aero Engines AG
>
> https://www.suse.com/success/mtu_aero

Key benefits

Improve your business continuity: SUSE® Linux Enterprise Server is designed to minimize planned and unplanned downtimes and keep your business running for the longest time.

Future-proof your IT with the longest-term support for your legacy apps and infrastructure. Sometimes upgrades are not possible as applications or infrastructure are not certified on newer OS or hardware. SUSE® Linux Enterprise Server helps you support those cases, allowing you to expand the lifecycle of your operating system to the longest lifecycle in the enterprise Linux market until 2037.

Reduce the unplanned service downtime near zero: SUSE® Linux Enterprise High Availability Extension enhances SUSE®

Linux Enterprise Server with a premium high availability that reduces the unplanned service downtime near zero and operational risk.

Minimize planned downtimes and reduce maintenance windows: SUSE® Linux Enterprise Live Patching extends SUSE® Linux Enterprise Server to remove the service downtimes for vulnerability patching the kernel and selected libraries, reducing operational costs and increasing security. All of them minimize planned downtimes and reduce maintenance windows, solving the patching paradox ("the more critical a system is, the more likely it is to be unpatched"). We **reduce the infrastructure operation cost and risk** associated with upgrades while keeping long-term supported applications, obsolete hardware and software, appliances, and other IT that need the longest support patched.

Reduce the operational risk: Includes technology to reduce system downtime and the ability to roll back updates or live patching kernel, libraries and applications to avoid service downtimes. Minimize deployment mistakes that are hard to find with best practices and reference architectures and speed up your project deployment with wizards and an automation-ready operating system to reduce error-prone operations. But if something happens, SUSE® Linux Enterprise Server supports full rollback capabilities at the filesystem level integrated with configuration wizards and time-back comparison tools, to support any scenario, from a configuration change or a package update to a full-service pack upgrade, to be sure that you will be able to quickly and easily restore your system to a ready state with an isolated rollback.

Truly open to ensure the future of your investment: SUSE's truly open approach to open-source software avoids expensive proprietary software licensing models and hidden costs associated with vendor lock-in. Clear terms and conditions and support policies are always a SUSE commitment.

Streamline security and compliance: SUSE® Linux Enterprise Server is supporting the strictest enterprise security in the long term. SUSE® Linux Enterprise Server targets governmental standards compliance (e.g., Common Criteria EAL4+ and FIPS 140-3) with the attainment of the highest certification levels for a general-purpose operating system.

Secure your IT with future-proof encryption: SUSE® Linux Enterprise Server enables your today's IT to meet future security requirements with the latest enhancements providing post-quantum encryption enabled OpenSSL 3.1 and large (4096-bit) signing keys support

Ensure compliance and minimize liability: SUSE® Linux Enterprise Server eases compliance with new regulations, like EU (NIS-2 and CRA) and US (M-22-18), which make organizations responsible for the security of its entire IT software environment and can include certification and assessment of third-party software, like the Linux operating system and open-source components, such as development tools, libraries, and container images. Thus, SUSE® Linux Enterprise Server is the only general-purpose Linux provider with a Common Criteria EAL4+ (Evaluation Assurance Level 4, augmented by ALC_FLR.3), which includes the entire

Secure Software Supply Chain as part of the evaluation. Evaluated by Common Criteria EAL4+, SUSE's Secure Software Supply Chain eases your compliance with new regulations and minimizes the liability for open-source software usage based on SUSE® Linux Enterprise Server in the case of a security breach.

Enable cloud for highly regulated industries with Confidential Computing: SUSE® Linux Enterprise Server enables secure usage of cloud and multi-tenant environments for workload managing confidential data in highly regulated industries. Confidential Computing enabled memory encryption on OS support for hosts and guests and:

- Minimize the possibility of security breaches.
- Ensure data sovereignty on cloud computing.
- Enable your multi-tenant virtual environment for confidential data with host support (Technology Preview)

Adaptable to your IT environment needs: Your enterprise uses a variety of platform architectures and technologies to meet diverse business needs, and SUSE® Linux Enterprise Server works the same way across all of the many platforms, infrastructures, and environments you are trying to leverage - supporting all the technologies you want to use.

Deploy anywhere: SUSE® Linux Enterprise Server can be deployed in the cloud, in the data center, or at the edge in several ways to meet your needs:

Physical machine: SUSE® Linux Enterprise Server supports your heterogeneous enterprise hardware architecture: x86-64 (Intel 64, AMD 64), ppc64le (IBM POWER LE), s390x (IBM Z and LinuxONE), aarch64 (Arm v8).

Virtual and container host: SUSE® Linux Enterprise Server offers flexibility to create your own host architecture and can be deployed as a KVM/Xen virtualization host, a container host or as a standalone or Kubernetes cluster host.

Virtual machine: deploy this directly in your hypervisor with predefined SUSE® Linux Enterprise Server

Cloud images: deploy SUSE® Linux Enterprise Server on your preferred hypervisors with prebuilt images available in your cloud provider and hyperscalers marketplaces.

Base Container Images: Deploy a fully supported SUSE® Linux Enterprise Server base container image, with the addition of any needed package, in your SUSE host. Supported environments include traditional containerization environments like Docker or Podman, and modern container orchestration environments like Rancher Kubernetes Engine (RKE), Rancher Kubernetes Engine 2 (RKE2)and K3S. For more information and restrictions on each environment's support statement, check the documentation.

Language development and Application containers: SUSE Linux Enterprise Server comes with support for freely available & redistributable Base Container Images (SLE BCI) allowing you to develop applications based on applications provided and maintained on the SUSE® Linux Enterprise Server to ease the security and compliance of your IT.

Simplify your IT Environment: The SUSE® Linux Enterprise "common code base" platform helps break the silos of IT systems while bridging traditional and software-defined infrastructure. This enables easy migration of application workloads, improves systems management, and eases the adoption of containers. A common code base that runs across so many of your architectures provides the same IT experience, security, and stability across that mixed infrastructure, so you can streamline IT skill sets and systems management and simplify support and services.

Accelerate Innovation: Enable your DevOps teams by making it easy to adopt open source and with support for automation, project builds and message-oriented middleware. You can accelerate the adoption of open-source innovation by connecting with the developer community at SUSE Package Hub. Once

Upgrade from the community: SUSE provides an upgrade path from the community to allow for low-cost community adoption with a path to enterprise Linux support. If you're seeing potential workload migration issues between development and production environments, use an OS that has a 100% code match between openSUSE Leap and SUSE® Linux Enterprise Server, so moving applications between dev and production is as simple as a few clicks of the mouse. Moves both ways, back and forth, making it just that much easier to achieve agile DevOps goals.

Container Host: SUSE® Linux Enterprise Server is ready for containers. SUSE® Linux Enterprise Server can be deployed as a standalone container host or as the secure and compliant Linux container host for your Kubernetes environment.

Open, Secure, Trustable Containers to streamline Containerized Application Development: SUSE Linux Enterprise Server comes with support for freely available & redistributable Base Container Images (SLE BCI). SLE BCI includes hardened, tested and maintained language runtime, and development environments as well as ready-to-use containerized applications for your software development and operations departments. Packages from SUSE Linux Enterprise Server are directly installable and supported on SUSE Linux Enterprise Base Container Images running on SUSE Linux Enterprise Server 15 SP6 host, SUSE Linux Enterprise Micro 5.5 or higher. SUSE Linux Enterprise Server also provides a base container image that can be registered with SUSE Linux Enterprise Server extension packages. The container image can be freely accessed through our secure registry (https://registry.suse.com/) and is fully supported to run on the SUSE Linux Enterprise Server host to ease the security and compliance of your developments and streamline compliance assurance, minimizing liability on third-party open source usage associated with the new regulations. You can find more info at https://www.suse.com/products/base-container-images/

Modernize your IT Infrastructure: You can innovate and improve the efficiency of existing IT infrastructure without disrupting the stability, security, and proven standards. In Modular+ architecture, everything is a module. So, you can get product updates and patches more frequently. The Modular+ architecture

helps an IT administrator reduce risk by simplifying planning and decision-making. Starting with one installation image, you can add SUSE® Linux you are ready to move to Ops from Dev sandbox, you can easily transition from community Linux distribution openSUSE Leap to SUSE® Linux Enterprise. You can meet the quickly changing needs of the modern developer and DevOps teams with management and monitoring features such as RabbitMQ, Prometheus, and Maven. When you start with openSUSE Leap on your development setups, there is no need to set up new systems for enterprise Linux. You can take full advantage of the enterprise-class community Linux in your development environment with SUSE® Linux Enterprise Server binaries made available on openSUSE Leap.

Key features

Create and support an agile it infrastructure

Cloud Ready: Cloud images are available - optimized and ready to run. So, you can run them right away at the optimized start point. Images are available for Azure, AWS, Google Cloud Platform, IBM Cloud, and Oracle Cloud Infrastructure. Bring Your Own Subscription (BYOS) makes it easy to implement hybrid/multi-cloud. You can bring your existing subscriptions to SUSE-certified public cloud providers and spin up on-demand instances.

Packages and Open Build Service: Pick and choose functionality from a menu of packages made available by Modular+ architecture. Create reproducible builds across architectures and Linux distributions using Open Build Service technology. Take advantage of thousands of open-source packages from the user community on SUSE Package Hub.

Modules: In SUSE® Linux Enterprise Server with Modular+ architecture, everything is a module. So, you can innovate without being out of pace with the traditional enterprise software delivery model. The modules available in SUSE® Linux Enterprise Server provide faster integration with upstream updates. This design approach lets you balance the flexibility of the modular architecture and the stability of the infrastructure. Using Unified Installer, customers can search for a package they like and choose the set of packages they want in the system. Refer to https://documentation.suse.com/sles/15-SP2/html/SLES-all/art-modules.html.

Full System Rollback: Gain better resiliency with Full System Rollback which allows you to take snapshots of the system, including the kernel files, and roll back. It is integrated with partitioning and file systems to have an unlimited granularity offering rollback isolation if needed. This rollback granularity capability includes changes in configurations, patches, full system upgrades, and custom snapshots to minimize operational risks. Furthermore, system administrators can boot from a snapshot to improve data safety or check individual changes. Therefore, when you upgrade to a new service pack for your SUSE® Linux Enterprise Server, the full system rollback capability minimizes the risk and allows you to roll back easily.

Future-proof your IT in the long term: Ensure that today's IT can run in the longest term with SUSE® Linux Enterprise Server

15. With SUSE® Linux Enterprise Long Term Service Pack Support (LTSS) and SUSE® Linux Enterprise Long Term Service Pack Support Core (LTSS Core) offering, SUSE® Linux Enterprise Server provides the longest lifecycle in the enterprise market until 2037 with a total of 19 years of support.

Skip Service Packs and obtain more time between upgrades: Save time and resources with "skip service packs" functionality, which lets you skip upgrades of prior service packs and jump straight to the latest service pack. Along with the Rollback feature that enables going back to a good state at the click of a button you can minimize human error and save even more time. Use SUSE® Linux Enterprise Long Term Service Pack Support to extend your Service Pack Lifecycle for 3 extra years (for a total of +4.5 years) of support and be sure that you can skip up to 3 service pack upgrades.

Supported Base Image Containers and Application Containers: SUSE® Linux Enterprise Server is provided to be also deployed as supported Base Image containers and Application containers. SUSE® Linux Enterprise Base Container Images provide truly open, flexible, and secure container images and application development tools. The images consist of container environments based on SUSE® Linux Enterprise and are designed to be a secure base for any containerized workload. Those images are fully supported on a registered SUSE Linux Enterprise host. SUSE also provides secure and maintained ready-to-use container images on a secure registry at https//registry.suse.com Containers provided included:

Base Images: base, minimal, micro, init, busy box and kernel-module-development

Development stack images: Go, Node.js, Python, OpenJDK, Ruby, .NET, PHP, Rust

Container Host: In addition, SUSE® Linux Enterprise Server can be used as a container host to run containers anywhere. It supports Podman & open source Docker container engine. SUSE® Linux Enterprise Server can be run as a container host in a standalone container host and as part of a Kubernetes cluster. To support the container engine, a private registry is included with tools to collaborate securely, apply security patches, and automate application deployment. Note that besides SUSE® Linux Enterprise Server, SUSE® Linux Enterprise Micro is our purpose-defined lightweight enterprise-ready standalone container host with the simplest operation. SUSE® Linux Enterprise Micro enables the deployment of secure, reliable, and easy-to-use standalone or K8S-managed container hosts anywhere.

Arm AArch64 and Raspberry Pi: Improve power efficiency using Aarch64's low power consumption and efficient design for your servers and network infrastructure using SUSE® Linux Enterprise Server for Arm and SUSE® Linux Enterprise Server for Raspberry Pi.

Salt: Track and manage configurations using Salt integrated in the base system. Salt provides a very scalable, fast, and secure way of communicating with systems in real-time. In addition, you can seamlessly integrate with SUSE Manager to take full advantage of Salt's configuration management capabilities.

Full Support for KIWI: With one configuration, you can use KIWI to create OS images for physical deployments (DVD, USB) as well as provision it into virtual hypervisor environments (Xen, KVM, ESXi, Hyper-V), container frameworks, and public and private clouds.

Implement DevOps: Support automation, project builds, and message-oriented middleware, all combined with management and monitoring features (such as RabbitMQ, Prometheus, and Maven).

Deploy mission critical services

SUSE® Linux Enterprise Live Patching: Update security patches without downtime, reboot machines or wait for your next service window.

Data Security: Improved hardware-based data security using AMD's Secure Encrypted Virtualization (SEV) technology. It enables guest virtual machines to run in encrypted memory, helping protect them from memory scrape attacks from the hypervisor.

Complete offline installation/disconnected operations: Enhance security with a disconnected offline installation that helps you maintain physical segregation from external networks. Complete offline installation is a big benefit for many applications such as Oracle, SQL, and SAP and businesses such as government and defense.

Open vSwitch with DPDK (Data Plane Development Kit): Efficiently implement virtual network functions using Open vSwitch with DPDK (Data Plane Development Kit) that accelerates the user space data plane and provides the packet processing capabilities needed for Software Defined Networking (SDN) and Network Function Virtualization (NFV) solutions.

Combined with the broad hypervisor support of SUSE® Linux Enterprise Server the new network function virtualization capabilities provide SUSE customers with a complete virtualization solution for cloud and on premise deployments.

Mission-critical systems support: Create cost-effective infrastructure based on your mission-critical systems requirements. SUSE® Linux Enterprise Server provides proven support for a range of mission-critical systems—Mainframes IBM z System and LinuxONE, Midrange servers powered by IBM POWER and scalable Intel/AMD/Arm 64-bit servers.

Virtualization: Increase virtualization and reduce data footprint using virtualization technologies that suit your business needs. SUSE® Linux Enterprise Server provides built-in support for Xen and Kernel Virtual Machine (KVM), Containers for application automation, and paravirtualized driver packs for enhanced virtual machine performance. SUSE® Linux Enterprise Server is optimized to deliver superior performance with VMware ESXi and Microsoft Hyper-V. VMware drivers and tools (open-vm-tools) are fully supported and integrated into SUSE® Linux Enterprise Server in an all-in-one package with their performance fine-tuned.

High Availability: Achieve higher service availability by clustering servers together and removing single points of failure. SUSE® Linux Enterprise High Availability Extension offers an industry-leading,

mature high availability solution. Starting with SUSE® Linux Enterprise Server 15, GeoClustering is included within the High Availability extension itself, so you can easily connect data centers across the world using the integrated Geo Clustering functionality.

NVDIMM: Reduce downtime by reducing rebuild time upon power restoration with integrated NVDIMMs that save data in seconds and make data immediately available on reboot. Downtime-sensitive applications such as online transaction processing and financial applications can benefit from persistent system memory functionality. Improve performance by running applications such as storage and database acceleration at far higher speeds using the system memory persistence capabilities of NVDIMM.

Exploiting Hardware RAS: Enhance your system reliability and reduce service costs. SUSE® Linux Enterprise Server includes exclusive processes to exploit the RAS features of your hardware platform.

Certified Applications: SUSE® Linux Enterprise Server supports a wide variety of third-party ISV applications. For the complete list of certified software applications for SUSE® Linux Enterprise Server (all versions), please visit: www.suse.com/susePSC/home.

Certified Hardware: Most leading hardware vendors support our Linux server OS, so you can save money by using your existing physical servers or low-cost commodity hardware.

High Performance Computing Ready: With SUSE Linux Enterprise Server, we make it easy to adopt HPC by adding packages to the HPC module. This simplifies the deployment and management of HPC environments by providing a number of fully supported HPC packages to SUSE® Linux Enterprise High Performance Computing customers. HPC module and its tools module are supporting multiple architectures for customers using x86-64 and Arm AArch64 hardware platforms and is available for public clouds such as Microsoft Azure and AWS - enabling resource efficiencies and extreme scaling by offloading HPC processing to the cloud. For more info check: https://www.suse.com/products/server/hpc/

Continuously improve your it infrastructure

NVMe over Fabrics: Improve application performance with fast local NVMe (Non-Volatile Memory Express) and remote storage devices with NVMe over Fabrics (NoF). Using NVMe, you can fully exploit the benefits of modern solid-state memory technology.

Enhanced YaST® Installer: Improve resiliency and automate processes right from the installer stage using auto update of code with the powerful administration tool YaST (Yet another Setup Tool). YaST gives you the capability to customize your system quickly during and after the installation. YaST is now written in Ruby so it's open and more easily customized.

SUSE Customer Center (SCC): Using SCC, you can centrally manage your SUSE subscriptions, access software updates and contact SUSE Customer Support. The user-friendly interface gives you a central view of all your SUSE subscriptions, allowing you to easily find the information you need.

Security standards compliance: SUSE® Linux Enterprise Server has been successfully certified after Common Criteria Certification at EAL4+. In addition, multiple cryptography security modules are validated to fulfill the requirements of FIPS 140-2. Those modules are OpenSSL, OpenSSH client and server, Strongswan (IPSec-based VPNs), the Kernel Crypto API, Mozilla NSS (Level 2) and libgcrypt.

Build on an evaluated Secure Software Supply Chain: SUSE® Linux Enterprise Server is the only general-purpose Linux provider with a Common Criteria EAL4+ (Evaluation Assurance Level 4, augmented by ALC_FLR.3), which includes the entire Secure Software Supply Chain as part of the evaluation, easing security compliance assurance of your IT and minimizing your liability for opensource software usage based on SUSE® Linux Enterprise Server.

TPM 2.0: Implement hardware based security with secure cryptoprocessor standard TPM (Trusted PlatformModule) 2.0.

Disk Encryption: Protect data at rest without additional software cost. Local and remote disk encryption is supported using cryptctl for all on-premises, cloud and hybrid installations. Integration via Enterprise Key Management KMIP standard.

Single Sign-on: Shibboleth support in SUSE® Linux Enterprise Server enables single sign-on using one identity across different domains for computer networks and web infrastructure.

New in suse linux enterprise server 15 sp6

General Enhancements.

Major Kernel Update: Increased productivity and enablement for the latest hardware through a significant kernel upgrade to version 6.4, enhancing system responsiveness and compatibility with newer technology.

Memory Management Upgrades: Introduction of memory folio, multi-generational LRU (Least Recently Used) algorithms, and improved kernel samepage merging techniques, alongside enhancements in write congestion handling to optimize system memory efficiency (Kernel 6.4).

File Systems Improvements: Includes performance enhancements to Btrfs, along with new filesystem health reporting capabilities via “fanotify”, facilitating improved reliability and monitoring (Kernel 6.4).

Networking Updates: Upgrades include support for IPv4 big TCP sessions and IPv6 Jumbogram packets to improve the handling of large data transfers across networks (Kernel 6.4).

Optimizations for Specific Platforms: Includes performance optimizations specifically designed for Intel’s Eagle Stream and Birch Stream platforms, aiming to maximize efficiency and speed on these architectures.

Security Features.

Advanced Encryption: Integration of OpenSSL 3.1 as the default setting, enabled with post-quantum cryptography, ensuring robust security against emerging threats.

Enhanced Security Configurations: Removal of the SELinux runtime disable capability to bolster security measures, alongside improvements to the Random Number Generator (RNG) for better security practices (Kernel 6.4).

Cryptography Performance: Enhancements to Power cryptography performance across various security libraries such as Kernel, nettle, libgcrypt, NSS FreeBL, and OpenSSL, providing stronger security capabilities.

Hardware Enablement.

Broad Hardware Support: Includes updates and new feature enablement across a diverse array of hardware platforms such as Intel, AMD, Arm, and IBM, with specific driver refreshes and support for new chipsets and machines. Detailed updates for Intel include support for Sapphire Rapids and Emerald Rapids platforms, among others.

Secure Execution Enhancements: New enhancements for secure execution on IBM and AMD platforms, including crypto device passthrough and additional CPU topology information, which contribute to secure and efficient hardware operations. These include support for AMD's SEV SNP and Intel's TDX technologies.

Evaluated by Common Criteria EAL4+, SUSE's Secure Software Supply Chain eases your compliance with new regulations and minimizes the liability for open-source software usage based on SUSE® Linux Enterprise Server in the case of a security breach.

Developer Tools.

Updated Toolchain and Libraries: The release brings the toolchain and libraries up to par with upstream developments, ensuring developers have the latest tools at their disposal for building modern applications. This includes updated versions of GCC and other development tools.

Expanded Support for Programming Languages and Development Environments: Updates include support for the latest versions of PHP 8.2, Node.js 20, OpenJDK 21, Go, and Rust, along with enhanced container tooling and updated base container images for streamlined development and deployment.

Following are links for products/extensions referenced in this document.

- SUSE® Linux Enterprise Live Patching
- SUSE® Linux Enterprise Long Term Service Pack Support
- SUSE® Linux Enterprise Long Term Service Pack Support Core
- SUSE® Linux Enterprise Micro
- SUSE® Linux Enterprise High Availability Extension (includes Geo Clustering)
- SUSE® Linux Enterprise High Performance Computing

- SUSE® Linux Enterprise Server Workstation Extension
- SUSE® Linux Enterprise Desktop

For further details visit: www.suse.com/server/

Documentation: https://documentation.suse.com/#sles

Release Notes: https://www.suse.com/releasenotes/x86_64/SUSE-SLES/15-SP6/

Minimum Linux server system requirements for installation

- + 1024 MiB RAM, 512 MiB Swap recommended
- + 2 GiB available disk space (8.5 GiB for all patterns), 32 GiB for snapshot/rollback of the OS
- + 800 x 600 display resolution (1024 x 768 or higher recommended)

Supported processor platforms

- + x86-64 (Intel 64, AMD 64)
- + ppc64le (IBM POWER LE)
- + s390x (IBM Z and LinuxONE)
- + aarch64 (Arm v8)

For detailed product specifications and system requirements, visit: www.suse.com/products/server/

SUSE

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SUSE Software Solutions
Germany GmbH

Frankenstraße 146
90461 Nürnberg
Germany

www.suse.com

For more information, contact SUSE at:

+1 800 796 3700 (U.S./Canada)

+49 (0)911-740 53-0 (Worldwide)

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