





Release Notes

SUSE Linux Enterprise Server for SAP Applications 15 SP2

This document provides guidance and an overview to high-level general features and updates for SUSE Linux Enterprise Server for SAP Applications 15 SP2. In addition to architecture or product-specific information, it also describes the capabilities and limitations of SUSE Linux Enterprise Server for SAP Applications 15 SP2.

These release notes are updated periodically. The latest version of these release notes is always available at <https://www.suse.com/releasenotes> . General documentation can be found at <https://documentation.suse.com/sles-sap/15-SP2> .

Publication Date: 2020-07-29, Version: 15.2.20200729

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1 About the Release Notes

These Release Notes are identical across all architectures, and the most recent version is always available online at <https://www.suse.com/releasesnotes> .

Entries can be listed twice, if they are important and belong to more than one section.

Release notes usually only list changes that happened between two subsequent releases. Certain important entries from the release notes documents of previous product versions are repeated. To make these entries easier to identify, they contain a note to that effect.

However, repeated entries are provided as a courtesy only. Therefore, if you are skipping one or more service packs, check the release notes of the skipped service packs as well. If you are only reading the release notes of the current release, you could miss important changes.

2 SUSE Linux Enterprise Server for SAP Applications

SUSE Linux Enterprise Server for SAP Applications is the leading Linux platform for SAP HANA, SAP NetWeaver, and SAP S/4HANA applications that provides optimized performance, reduced downtime, and faster SAP landscape deployments. It includes features to secure SAP HANA systems and ease the transition to SAP S/4HANA for systems administrators. SUSE Linux Enterprise Server for SAP Applications combines SUSE Linux Enterprise Server and SUSE Linux Enterprise High Availability Extension with additional software specifically meant to simplify running and managing SAP applications. This document provides an overview of high-level general features, capabilities, and limitations of SUSE Linux Enterprise Server for SAP Applications 15 SP2 and important product updates.

2.1 What Is New?

2.1.1 General Changes

Media Changes

The Unified Installer and Packages DVDs known from SUSE Linux Enterprise Server for SAP Applications 15 SP1 are deprecated and have been replaced by the following media:

- **Online Installation Media:** All SUSE Linux Enterprise 15 products can be installed with this stand alone media, after entering a registration key. The necessary packages are fetched from online repositories only. For information about available modules, see https://www.suse.com/releasenotes/x86_64/SUSE-SLES/15-SP2#Intro.ModuleExtensionRelated ↗
- **Full Installation Media:** All SUSE Linux Enterprise Server for SAP Applications 15 products can be installed without network connection with this media, for offline installation scenarios. The media contains all necessary packages. It consists of directories with module repositories which need to be added manually as needed. RMT (Repository Mirroring Tool) and SUSE Manager provide additional options for disconnected or managed installation.

Extended Package Search

Use the new Zypper command `zypper search-packages` to search across all SUSE repositories available for your product even if they are not yet enabled. This functionality makes it easier for administrators and system architects to find the software packages needed. To do so, it leverages the SUSE Customer Center.

Software Development Kit

With SLE 15, the Software Development Kit is now integrated into the products. Development packages are packaged alongside regular packages. In addition, the *Development Tools* module contains the tools for development.

RMT Replaces SMT

SMT (Subscription Management Tool) has been removed. Instead, RMT (Repository Mirroring Tool) now allows mirroring SUSE repositories and custom repositories. You can then register systems directly with RMT. In environments with tightened security, RMT can also proxy other RMT servers.

Kernel

SLE 15 SP2 will come with Kernel 5.3. This new kernel release includes upstream features like 16 million new IPv4 addresses, utilization clamping support in the task scheduler, power efficient userspace waiting with the `umwait` x86 instructions and many more.

MAJOR UPDATES TO THE SOFTWARE SELECTION:

Salt

SLE 15 SP2 can be managed via salt to help integration into up-to-date management solutions, such as SUSE Manager.

Python 3

As the first enterprise distribution, SLE 15 offers full support for Python 3 development in addition to Python 2.

Directory Server

389 Directory Server replaces OpenLDAP to provide a sustainable directory service.

2.1.2 Changes in SUSE Linux Enterprise Server for SAP Applications 15 SP2

Salt automation

Salt automation for the deployment of SAP HANA, SAP NetWeaver and DRBD is now officially supported. See *Section 4.1, "Salt Automation"* for details.


2.2 Important Sections of This Document

If you are upgrading from a previous SUSE Linux Enterprise Server for SAP Applications release, you should review at least the following sections:

- *Section 2.6, "Support Statement for SUSE Linux Enterprise Server for SAP Applications"*

2.3 Security, Standards, and Certification

SUSE Linux Enterprise Server for SAP Applications 15 SP2 has been submitted to the certification bodies for:

- Common Criteria Certification, see <https://www.commoncriteriaportal.org/> 
- FIPS 140-2 validation, see <http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/140InProcess.pdf> 

For more information about certification, see <https://www.suse.com/security/certificates.html> .

2.4 Documentation and Other Information

2.4.1 Available on the Installation Media

- Read the READMEs on the media.
- Get the detailed change log information about a particular package from the RPM (where FILENAME.rpm is the name of the RPM):

```
rpm --changelog -qp _FILENAME_.rpm
```

- Check the ChangeLog file in the top level of the media for a chronological log of all changes made to the updated packages.
- Find more information in the docu directory of the media of SUSE Linux Enterprise Server for SAP Applications 15 SP2. This directory includes PDF versions of the SUSE Linux Enterprise Server for SAP Applications 15 SP2 Installation Quick Start Guide.

2.4.2 Online Documentation

- For the most up-to-date version of the documentation for SUSE Linux Enterprise Server for SAP Applications 15 SP2, see <https://documentation.suse.com/sles-sap/15-SP2>.
- Find a collection of White Papers in the SUSE Linux Enterprise Server for SAP Applications Resource Library at <https://www.suse.com/products/sles-for-sap/#resources>.

2.4.3 Identifying the Base Product

To identify and distinguish SUSE products, use one of the following files:

/etc/os-release

A text file with key-value pairs, similar to shell-compatible variable assignments. Each key is on a separate line.

You can search for the ``CPE_NAME`` key; however, between different releases and service packs, the value has been changed. If you need further details, refer to the article at <https://www.suse.com/support/kb/doc/?id=7023490>.

/etc/product.d/baseproduct

A link to an XML file. The /etc/product.d/ directory contains different .prod files.

Depending on which products you have purchased and how you installed your system, the link `/etc/product.d/baseproduct` can point to a different `.prod` file, for example, `sle-module-sap-applications.prod`. The same information as in `CPE_NAME` is also stored in the tag ``.

2.5 Support and Life Cycle

SUSE Linux Enterprise Server for SAP Applications is backed by award-winning support from SUSE, an established technology leader with a proven history of delivering enterprise-quality support services.

SUSE Linux Enterprise Server for SAP Applications 15 has a 13-year life cycle, with 10 years of General Support and 3 years of Extended Support. SUSE Linux Enterprise Server for SAP Applications comes with Extended Service Pack Overlap Support by default, this means SP2 will be fully maintained and supported until 36 months after the release of SUSE Linux Enterprise Server for SAP Applications 15 SP3.

For more information, check our Support Policy page <https://www.suse.com/support/policy.html> or the Long Term Service Pack Support Page <https://www.suse.com/support/programs/long-term-service-pack-support.html>.

2.6 Support Statement for SUSE Linux Enterprise Server for SAP Applications

To receive support, you need an appropriate subscription with SUSE. For more information, see https://www.suse.com/support/programs/subscriptions/?id=SUSE_Linux_Enterprise_Server_for_SAP_Applications.

The following definitions apply:

L1

Problem determination, which means technical support designed to provide compatibility information, usage support, ongoing maintenance, information gathering and basic troubleshooting using available documentation.

L2

Problem isolation, which means technical support designed to analyze data, reproduce customer problems, isolate problem area and provide a resolution for problems not resolved by Level 1 or prepare for Level 3.

L3

Problem resolution, which means technical support designed to resolve problems by engaging engineering to resolve product defects which have been identified by Level 2 Support.

For contracted customers and partners, SUSE Linux Enterprise Server for SAP Applications is delivered with L3 support for all packages, except for the following:

- Technology Previews, see [Section 2.7, "Technology Previews"](#)
- Sound, graphics, fonts and artwork
- Some packages shipped as part of the module *Workstation Extension* are L2-supported only
- Packages with names ending in `-devel` (containing header files and similar developer resources) will only be supported together with their main packages.

SUSE will only support the usage of original packages. That is, packages that are unchanged and not recompiled.

2.6.1 General Support

To learn about supported features and limitations, refer to the following sections in this document:

- [Section 4, "New Features, Changes & Fixes"](#)
- [Section 5, "Known Issues & Workarounds"](#)

2.6.2 SAP Support Statement

Make sure to also review the [SAP Product Availability Matrix \(https://apps.support.sap.com/sap/support/pam\)](https://apps.support.sap.com/sap/support/pam) and/or [SAP Note 2235581 - SAP HANA: Supported Operating Systems \(https://launchpad.support.sap.com/#/notes/2235581\)](#) for official SAP support and certification statements.

2.7 Technology Previews

Technology previews are packages, stacks, or features delivered by SUSE which are not supported. They may be functionally incomplete, unstable or in other ways not suitable for production use. They are included for your convenience and give you a chance to test new technologies within an enterprise environment.

Whether a technology preview becomes a fully supported technology later depends on customer and market feedback. Technology previews can be dropped at any time and SUSE does not commit to providing a supported version of such technologies in the future.


Give your SUSE representative feedback about technology previews, including your experience and use case.

3 Modules, Extensions, and Related Products


This section comprises information about modules and extensions for SUSE Linux Enterprise Server for SAP Applications 15 SP2. Modules and extensions add functionality to the system.

3.1 Modules in the SLE 15 SP2 Product Line

The SLE 15 SP2 product line is made up of modules that contain software packages. Each module has a clearly defined scope. Modules differ in their life cycles and update timelines.

The modules available within the product line based on SUSE Linux Enterprise 15 SP2 at the release of SUSE Linux Enterprise Server for SAP Applications 15 SP2 are listed in the *Modules and Extensions Quick Start* at <https://documentation.suse.com/sles/15-SP2/html/SLES-all/art-modules.html> .

Not all SLE modules are available with a subscription for SUSE Linux Enterprise Server for SAP Applications 15 SP2 itself (see the column *Available for*).

For information about the availability of individual packages within modules, see <https://scc.suse.com/packages> .

3.2 Available Extensions

Extensions add extra functionality to the system and require their own registration key, usually at additional cost. Most extensions have their own release notes documents that are available from <https://www.suse.com/releasesnotes>.

The following extensions are available for SUSE Linux Enterprise Server for SAP Applications 15 SP2:

- SUSE Linux Enterprise Live Patching: <https://www.suse.com/products/live-patching>

The following extension is not covered by SUSE support agreements, available at no additional cost, and without an extra registration key:

- SUSE Package Hub: <https://packagehub.suse.com/>

3.3 Derived and Related Products

This section lists derived and related products. Usually, these products have their own release notes documents that are available from <https://www.suse.com/releasesnotes>.

- SUSE Linux Enterprise Server: <https://www.suse.com/products/server>
- SUSE Linux Enterprise JeOS: <https://www.suse.com/products/server/jeos>
- SUSE Enterprise Storage: <https://www.suse.com/products/suse-enterprise-storage>
- SUSE Linux Enterprise Desktop: <https://www.suse.com/products/desktop>
- SUSE Linux Enterprise for High-Performance Computing: <https://www.suse.com/products/server/hpc>
- SUSE Linux Enterprise Real Time: <https://www.suse.com/products/realtime>
- SUSE Manager: <https://www.suse.com/products/suse-manager>


4 New Features, Changes & Fixes

Information in this section applies to all architectures supported by SUSE Linux Enterprise Server for SAP Applications 15 SP2 unless noted otherwise.

4.1 Salt Automation

Salt automation for the deployment of SAP HANA, SAP NetWeaver and DRBD was previously available as a technology preview from PackageHub. In SUSE Linux Enterprise Server for SAP Applications 15 SP2, this feature is now officially supported and has been added to the official repository. This includes the following packages:

- [salt-shaptools](#)
- [python-shaptools](#)
- [saphanabootstrap-formula](#)
- [sapnwbootstrap-formula](#)
- [habootstrap-formula](#)
- [drbd-formula](#)

For more information about deployment automation, see the official documentation at <https://documentation.suse.com/sles-sap-15/> .

4.2 Added Packages

The following packages have been added to SUSE Linux Enterprise Server for SAP Applications with 15 SP2:

- [salt-shaptools](#)
- [python-shaptools](#)
- [saphanabootstrap-formula](#)
- [sapnwbootstrap-formula](#)
- [habootstrap-formula](#)
- [drbd-formula](#)

5 Known Issues & Workarounds

This is a list of known issues for this release.

5.1 Workarounds to Enable SAP HANA Workloads on Intel Optane DC Memory

SUSE Linux Enterprise Server for SAP Applications 15 supports Intel Optane DC persistent memory. This enables SAP workloads, such as SAP HANA to benefit from persistent memory. This shortens start times of the system and provides better system stability.

From a file system perspective, the XFS file system is supported for persistent memory, with SAP HANA running in DAX mode. Make sure to also check the SAP instructions for using persistent memory with SAP HANA. SUSE is working closely with SAP on future developments.

If there are pmem namespaces, these need to be destroyed before the installation. To mount persistent memory directly on boot, the respective entries need to be added to /etc/fstab, for example:

```
/dev/pmem0    /mnt/pmem0    xfs    dax    0    0
/dev/pmem1    /mnt/pmem1    xfs    dax    0    0
```

Namespaces need to be created individually. Execute the following command for each namespace you want to create:

```
ndctl create-namespace --mode=fsdax --map=dev
```

Because the systemd and udev default timeout may be too short for large memory setups to become usable, your system may run into a timeout and the boot process may stop with an emergency shell. To prevent this from happening, increase the timeout to 1200 seconds. Create the file /etc/systemd/system/systemd-udev-settle.service.d/00-override.conf with the following content:

```
[Service]
TimeoutSec=1200s
ExecStart=/usr/bin/udevadm settle -t 300
```

Important

In an earlier version of this document, we recommended mounting persistent memory with the nofail option in /etc/fstab. Unfortunately this frequently required a manual mount of pmem devices on reboot. To automatically mount pmem file systems after reboot, we strongly recommend removing the nofail option and modifying the timeout value as described above.

6 Obtaining Source Code

This SUSE product includes materials licensed to SUSE under the GNU General Public License (GPL). The GPL requires SUSE to provide the source code that corresponds to the GPL-licensed material. The source code is available for download at <https://www.suse.com/download/sle-sap/> on Medium 2. For up to three years after distribution of the SUSE product, upon request, SUSE will mail a copy of the source code. Send requests by e-mail to sle_source_request@suse.com (mailto:sle_source_request@suse.com).

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