

# Release Notes

openSUSE Leap Micro is a modern operating system primarily targeted for edge computing. This document provides a high-level overview of features, capabilities, and limitations of openSUSE Leap Micro 5.2.

These release notes are updated periodically. The latest version of these release notes is always available at <https://doc.opensuse.org>. General documentation can be found at <https://en.opensuse.org/Portal:LeapMicro>.

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## Contents

- 1 openSUSE Leap Micro 2
- 2 About the release notes 3
- 3 Changes affecting all architectures 3
- 4 General features and fixes 3
- 5 Installing openSUSE Leap Micro 6
- 6 Known issues 7
- 7 Obtaining source code 8
- 8 Legal notices 9

# 1 openSUSE Leap Micro

openSUSE Leap Micro 5.2 is a modern operating system primarily targeted for edge computing.

## 1.1 Documentation and other information

### 1.1.1 Available on the product 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 installation medium for a chronological log of all changes made to the updated packages.
- Find more information in the docu directory of the installation medium of openSUSE Leap Micro 5.2. This directory includes PDF versions of the openSUSE Leap Micro 5.2 Installation Quick Start Guide.

### 1.1.2 Online documentation

- For the most up-to-date version of the documentation for openSUSE Leap Micro 5.2, see <https://en.opensuse.org/Portal:LeapMicro>.
- Find a collection of White Papers in the openSUSE Leap Micro Resource Library at <https://www.suse.com/products/server#resources>.

## 1.2 Support and life cycle

openSUSE Leap Micro is backed by award-winning support from SUSE, an established technology leader with a proven history of delivering enterprise-quality support services.

openSUSE Leap Micro 5.2 has a 4-year life cycle. For more information, see <https://www.suse.com/lifecycle> and the Support Policy page at <https://www.suse.com/support/policy.html>.

## 2 About the release notes

These Release Notes are identical across all architectures, and the most recent version is always available online at <https://doc.opensuse.org> .

Entries are only listed once but they can be referenced in several places 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 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.

## 3 Changes affecting all architectures

Information in this section applies to all architectures supported by openSUSE Leap Micro 5.2.

## 4 General features and fixes

Information in this section applies to all architectures supported by openSUSE Leap Micro 5.2.

### 4.1 Installation media

There are two types of installation media of openSUSE Leap Micro. The installer ISO allows to install via YaST or AutoYaST, with the possibility to fully customize the installation. The pre-built images contain a system image already pre-configured. Neither of the media is intended to be used for upgrades from the previous version of openSUSE Leap Micro.

There are slight differences between these two:

- the software selection for the default installation from the ISO contains fewer packages than the pre-built image
- `firewalld` is only installed from the ISO if the firewall is enabled during installation

The images have two things in common:

- SELinux is not enabled by default
- `firewalld` is not enabled by default

To upgrade from the previous version, use the `transactional-update` command. Neither of the media is needed for that.

## 4.2 Cockpit web-based node management system

For web-based management of a single node, Cockpit is included. For details, refer to <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/article-administration-slemi-cro.html#sec-admin-cockpit>.

Compared to the previous release, Cockpit has been updated to the latest version. Due to limited functionality, the Dashboard screen has been removed with this release.

## 4.3 Managing openSUSE Leap Micro with SUSE Manager

SUSE Manager can be used to manage openSUSE Leap Micro hosts. There are certain limitations:

- openSUSE Leap Micro host cannot be monitored with SUSE Manager
- SUSE Manager does not provide integrated container management yet. As a workaround, you can use Salt via `cmd.run podman`.
- SUSE Manager can manage the openSUSE Leap Micro hosts only with the Salt stack; the traditional stack is not supported
- Ansible control node cannot be installed on openSUSE Leap Micro

We intend to resolve these issues in the future maintenance updates of openSUSE Leap Micro on SUSE Manager.

## 4.4 Enabling SELinux

openSUSE Leap Micro includes SELinux with base system policies. Before enabling SELinux, make sure to install the necessary policies for your workload.

If you are running openSUSE Leap Micro as KVM virtualization host, the use of SELinux is strongly discouraged and not supported.

Note that the pre-built images enable SELinux by default in the permissive mode.

## 4.5 toolbox container

openSUSE Leap Micro provides the `toolbox` container. However, it is not part of the media and needs to be downloaded from <https://registry.suse.com>. To download from the registry, the system needs network access. For details refer to <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/article-administration-slemicro.html#sec-admin-toolbox>.

The `toolbox` container does not include or inherit a software repository setup from the underlying system. If the underlying system is registered properly, `zypper` will enable a basic set of repositories (`Basesystem` and `Server Applications` modules of SUSE Linux Enterprise Server 15 SP3) when you execute `zypper` inside the toolbox container. Then you can install additional software into the container.

## 4.6 Kernel Live Patching

openSUSE Leap Micro supports Kernel Live Patching, for details refer to <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/cha-images-procedure.html#sec-slemicro-live-patching>.

Note that kernel live patching is only available for the x86-64 and s390x architectures. It is also not available for the real-time kernel.

## 4.7 Intel Secure Device Onboard (SDO)

openSUSE Leap Micro includes needed packages for Intel Secure Device Onboard. Intel Secure Device Onboard helps onboard any device to any device management system. With this release, the SDO client has been replaced with FDO client, which is a portable implementation of the FIDO Device Onboard Spec. The packages are only provided as a technology preview and do not offer full support. Using Intel Secure Device Onboard needs proper integration into your target environment and only works on supported hardware.

## 4.8 System V init scripts

openSUSE Leap Micro does not support init script of system services, which are usually located in `/etc/init.d` directory. Even if this directory still exists, it is empty on purpose. `systemd` unit files should be used instead of `initscripts`. To start system services or to configure their status on boot, use the `systemctl` command instead.

## 4.9 Rename of the `microos-sssd_ldap` pattern

The `microos-sssd_ldap` pattern has been renamed to `microos-sssd_ldap` (the first dash has been replaced with an underscore). This new name is consistent with other pattern names. Note that your AutoYaST profile may need updating.

# 5 Installing openSUSE Leap Micro

openSUSE Leap Micro 5.2 can be installed in the following ways:

- *Section 5.1, “Manually installing with YaST”*
- *Section 5.2, “Unattended installation with AutoYaST”*
- *Section 5.3, “Unattended installation with Yomi (technology preview)”*
- *Section 5.4, “Deploying pre-built images”*

## 5.1 Manually installing with YaST

The installation workflow for manual installation is described in <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/part-manual-installation.html>.

## 5.2 Unattended installation with AutoYaST

Installing openSUSE Leap Micro with AutoYaST is described in <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/book-autoyast.html>.

## 5.3 Unattended installation with Yomi (technology preview)

To learn how to install a system with Yomi, see the [SUSE Manager documentation, section Install using Yomi \(https://documentation.suse.com/external-tree/en-us/suma/4.1/suse-manager/salt/yomi.html\)](https://documentation.suse.com/external-tree/en-us/suma/4.1/suse-manager/salt/yomi.html). Installation with Yomi is a technology preview.

## 5.4 Deploying pre-built images

openSUSE Leap Micro is provided as raw images which can be deployed directly to a storage device, for example, a memory card, a USB stick, or a hard drive. openSUSE Leap Micro is also provided as images for specific hardware device with a customized software selection.

For a procedure of deploying an image refer to <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/part-raw-image.html>.

## 5.5 Upgrade from previous version

Upgrade from Leap Micro 5.1 is only possible via the `transactional-update` tool. For the upgrade procedure, refer to <https://en.opensuse.org/Portal:LeapMicro/html/SLE-Micro-all/book-upgrade.html>.

# 6 Known issues

## 6.1 Error on console while booting with SELinux enabled

When booting the system with SELinux enabled, the console reports:

```
Failed to transition into init label 'system_u:system_r:init_t:s0'
```

This message is harmless.

## 6.2 Podman and firewalld

When reloading `firewalld` via `firewall-cmd --reload`, all Podman-related rules go missing. For this reason, `firewalld` is not enabled by default during installation. For more information, see <https://github.com/containers/podman/issues/5431>.

## 6.3 Pre-built images report two IP addresses on first boot

When booting the pre-built images the first time, two IP addresses may be reported by the `ip a` command or other tools. This issue only happens on the first boot of the image, on the following boots only a single IP address is assigned to the network interface.

## 6.4 VNC package cannot be installed during installation

The YaST installer offers installation via VNC. The installer also tries to make it possible to use the final system the same way that the system was initially installed. Therefore, the installer will attempt to install appropriate software and open appropriate firewall ports for later access to the system. However, the VNC server package is only available during the installation, but not for the installed system.

As the VNC server package cannot be installed, the installer will issue a warning. You can safely ignore this warning.

## 6.5 AppArmor error messages in log after upgrade

Leap Micro supports SELinux as the security framework, however, some AppArmor packages are still included because of package dependencies. Since they have been reduced since Leap Micro 5.1, it may happen that there are error messages showing in the system journal after upgrade. If this happens, make sure that the `apparmor.service` service is not enabled in your system.

# 7 Obtaining source code

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