Release Notes

openSUSE Leap is a free and Linux-based operating system for your PC, Laptop or Server. You can surf the web, manage your e-mails and photos, do office work, play videos or music and have a lot of fun!

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The release notes are under constant development. To find out about the latest updates, see the online version at https://doc.opensuse.org/release-notes. The English release notes are updated whenever need arises. Translated language version can temporarily be incomplete.

If you upgrade from an older version to this openSUSE Leap release, see previous release notes listed here: http://en.opensuse.org/openSUSE:Release_Notes.

Information about the project is available at https://www.opensuse.org.

To report bugs against this release, use the openSUSE Bugzilla. For more information, see http://en.opensuse.org/Submitting_Bug_Reports.

1 Installation

This section contains installation-related notes. For detailed upgrade instructions, see the documentation at https://doc.opensuse.org/documentation/leap/startup/html/book.opensuse.startup/part.basics.html.

1.1 Minimal System Installation

To avoid some big recommended packages from being installed, the pattern for minimal installations uses another pattern that creates conflicts with undesired packages. This pattern, `patterns-openSUSE-minimal_base-conflicts`, can be removed after installation.

Note that the minimal installation has no firewall by default. If you need one, install `SuSEfirewall2`.

1.2 UEFI—Unified Extensible Firmware Interface

Prior to installing openSUSE on a system that boots using UEFI (Unified Extensible Firmware Interface), you are urgently advised to check for any firmware updates the hardware vendor recommends and, if available, to install such an update. A pre-installed Windows 8 is a strong indication that your system boots using UEFI.

Background: Some UEFI firmware has bugs that cause it to break if too much data gets written to the UEFI storage area. However, there is no clear data of how much is “too much”.

openSUSE minimizes the risk by not writing more than the bare minimum required to boot the OS. The minimum means telling the UEFI firmware about the location of the openSUSE boot loader. Upstream Linux kernel features that use the UEFI storage area for storing boot and crash information (`pstore`) have been disabled by default. Nevertheless, it is recommended to install any firmware updates the hardware vendor recommends.

1.3 UEFI, GPT, and MS-DOS Partitions

Together with the EFI/UEFI specification, a new style of partitioning arrived: GPT (GUID Partition Table). This new schema uses globally unique identifiers (128-bit values displayed in 32 hexadecimal digits) to identify devices and partition types.

Additionally, the UEFI specification also allows legacy MBR (MS-DOS) partitions. The Linux boot loaders (ELILO or GRUB 2) try to automatically generate a GUID for those legacy partitions, and write them to the firmware. Such a GUID can change frequently, causing a rewrite in the firmware. A rewrite consists of two different operations: Removing the old entry and creating a new entry that replaces the first one.

Modern firmware has a garbage collector that collects deleted entries and frees the memory reserved for old entries. A problem arises when faulty firmware does not collect and free those entries. This can result in a non-bootable system.

To work around this problem, convert the legacy MBR partition to GPT.

1.4 Nouveau 3D/DRI Driver May Crash KDE Applications

With openSUSE Leap 42.2, the Nouveau Mesa/DRI driver for 2D/3D rendering is considered experimental. The Nouveau kernel/KMS driver and the Nouveau X.org/DDX driver for 2D rendering are still considered stable.

When the Nouveau Mesa/DRI driver is in use, some applications may crash, especially KDE and Qt applications. The driver is now in a separate package called `Mesa-dri-nouveau`, which can be removed in case of problems.

Without this driver installed, there is no hardware 3D acceleration support on any Nvidia GPU and no 2D acceleration on newer Nvidia GPUs that use Glamor for fast 2D operations. Kernel Mode Setting and basic 2D are still available, as is 2D acceleration via EXA on GPUs from the Nvidia GPU generation code-named Kepler (introduced in 2012) and earlier. 3D operations are supported via software rendering.

For more information, see the bug reports at https://bugs.freedesktop.org/show_bug.cgi?id=91632 and https://bugzilla.opensuse.org/show_bug.cgi?id=1005323.

2 System Upgrade

This section lists notes related to upgrading the system. For detailed upgrade instructions, see the documentation at https://doc.opensuse.org/documentation/leap/startup/html/book.opensuse.startup/cha.update.osuse.html.

2.1 Upgrading from openSUSE Leap 42.1

2.1.1 Removed and Replaced Packages

The following packages have been removed or replaced compared to openSUSE Leap 42.1:

- `arista`: Replaced by `transmageddon`.
- `cadabra`: The source code no longer builds. The successor, Cadabra 2 (http://cadabra.science/) is not stable yet.
- `dropbear`: Removed because there are no relevant advantages over `openssh`.
- `emerillon`: Replaced by `gnome-maps`.
- `gnome-system-log`: Replaced by `gnome-logs`.
- `hawk`: Replaced by `hawk2`.
- `ksnapshot`: Replaced by `spectacle`.
- `labplot`: Labplot has been replaced by its Qt5 version, called `labplot-kf5`. If you are updating from an openSUSE Leap 42.1 installation on which `labplot` is installed, you will receive the `labplot-kf5` automatically.
- `psi`: Replaced by `psi+`.
- `python-moin`: Replaced by `moinmoin-wiki`. Purely a rename, not a version upgrade - a virtually identical drop-in replacement.

- `seamonkey`: Source code no longer compiles. If you were a Seamonkey user previously, switch to Mozilla Firefox and Mozilla Thunderbird instead.
- `ungifsicle`: Replaced by `gifsicle`.
- `xchat`: Replaced by `hexchat`.

2.1.2 `/var/cache` on an Own Subvolume for Snapshots and Rollback

`/var/cache` contains a lot of very volatile data, such as the Zypper cache with RPM packages in different versions for each update. As a result of storing data that is mostly redundant but highly volatile, the amount of disk space a snapshot occupies can increase very fast.

To solve this, move `/var/cache` to a separate subvolume. On fresh installations of openSUSE Leap 42.2, this is done automatically. To convert an existing root file system, perform the following steps:

1. Find out the device name (for example, `/dev/sda2` or `/dev/sda3`) of the root file system:

   ```
   df /
   ```

2. Identify the parent subvolume of all the other subvolumes. For openSUSE 13.2 installations, this is a subvolume named `@`. To check if you have a `@` subvolume, use:

   ```
   btrfs subvolume list / | grep '@'
   ```

   If the output of this command is empty, you do not have a subvolume named `@`. In that case, you may be able to proceed with subvolume ID 5 which was used in older versions of openSUSE.

3. Now mount the requisite subvolume.

   - If you have a `@` subvolume, mount that subvolume to a temporary mount point:

     ```
     mount <root_device> -o subvol=@ /mnt
     ```

   - If you don't have a `@` subvolume, mount subvolume ID 5 instead:

     ```
     mount <root_device> -o subvolid=5 /mnt
     ```

4. `/mnt/var/cache` can already exist and could be the same directory as `/var/cache`. To avoid data loss, move it:

```
mv /mnt/var/cache /mnt/var/cache.old
```

5. Create a new subvolume:

```
btrfs subvol create /mnt/var/cache
```

6. If there is now a directory `/var/cache.old`, move it to the new location:

```
mv /var/cache.old/* /mnt/var/cache
```

   If that is not the case, instead do:

```
mv /var/cache/* /mnt/var/cache/
```

7. Optionally, remove `/mnt/var/cache.old`:

```
rm -rf /mnt/var/cache.old
```

8. Unmount the subvolume from the temporary mount point:

```
umount /mnt
```

9. Add an entry to `/etc/fstab` for the new `/var/cache` subvolume. Use an existing subvolume as a template to copy from. Make sure to leave the UUID untouched (this is the root file system's UUID) and change the subvolume name and its mount point consistently to `/var/cache`.

10. Mount the new subvolume as specified in `/etc/fstab`:

```
mount /var/cache
```

2.1.3 Synaptics X Driver Can Degrade Touchpad Experience Under GNOME

In Leap 42.1, the Synaptics X driver (package `xf86-input-synaptics`) was installed by default but had a lower priority than the libinput driver (`xf86-input-libinput`).

Starting with Leap 42.2:

- The Synaptics X driver is no longer installed by default.
- If the Synaptics X driver is installed, it will take precedence for any touchpad devices.
- The Synaptics X driver is no longer supported by GNOME. This means when the driver is installed, Synaptics touchpads can only be configured to the extent that a basic mouse can.

Unless you are using a Synaptics touchpad and have a large amount of custom configuration for the Synaptics driver, remove the package from your system:

```
sudo zypper rm xf86-input-synaptics
```

2.2 Upgrading from openSUSE 13.2

The following notes apply to upgrades from openSUSE 13.2 or older. Make sure to also review the information provided in *Section 2.1, "Upgrading from openSUSE Leap 42.1"*.

2.2.1 Network Interface Names

When upgrading a remote machine from openSUSE 13.2, make sure your network interfaces are named correctly.

openSUSE 13.2 used so-called predictable network interface names (for example, `enp5s0`), whereas openSUSE Leap 42.1 uses persistent interface names (`eth0`). After upgrading and rebooting, the network interface names may therefore change. This could lock you out of the system. To avoid interfaces from being renamed, run the following command for each of your network interfaces before you reboot the system:

```
/usr/lib/udev/udev-generate-persistent-rule -v -c enp5s0 -n enp5s0 -o /etc/udev/
rules.d/70-persistent-net.rules
```

Replace *`enp5s0`* with the name of your network interface.

2.2.2 Btrfs: Disk Space Leak after System Rollbacks

openSUSE 13.2 used a Btrfs partition layout that allowed for disk space to become permanently occupied with stale, inaccessible contents after the first system rollback was executed. This layout issue has been fixed in openSUSE Leap 42.1. However, the fix can only be applied to newly installed systems.

If you are upgrading from openSUSE 13.2, you cannot convert the file system to the new layout, but you can reclaim the lost disk space.

1. Mount the initial root filesystem:

   ```
   mount /dev/<ROOT_FILE_SYSTEM> -o subvolid=5 /mnt
   ```

2. Remove all files below /mnt that are not in a subvolume:

   ```
   find /mnt -xdev -delete
   ```

3. Umount the filesystem again:

   ```
   umount /mnt
   ```

2.2.3 Printing System: Improvements and Incompatible Changes

CUPS Version Upgrade to 1.7

Compared to CUPS 1.5 in openSUSE 13.2 CUPS 1.7 introduced some major changes that may require manual configuration adjustments.

- PDF is now the standard print job format rather than PS. Therefore traditional PostScript printers now also need a filter driver for printing.
  See https://en.opensuse.org/Concepts_printing for details.

- The network printer discovery protocol has changed. The native method to discover network printers is now based on DNS Service discovery (DNS-SD, that is, via Avahi). The `cups-browsed` service from the `cups-filters` package can be used to bridge old and new protocols. Both `cupsd` and `cups-browsed` need to run to make "legacy" clients discover printers (that includes LibreOffice and KDE).

- The IPP protocol default version changed from 1.1 to 2.0. Older IPP servers like CUPS 1.3.x (for example in SUSE Linux Enterprise 11) reject IPP 2.0 requests with `Bad Request` (see http://www.cups.org/str.php?L4231 ↗).
  To be able to print to old servers, the IPP protocol version must be specified explictly by appending `/version=1.1` to either:

  - The `ServerName` settings in `client.conf` (for example, `ServerName older.server.example.com/version=1.1`).
  - The `CUPS_SERVER` environment variable value.
  - The server name value of the `-h` option of the command line tools, for example:

    ```
    lpstat -h older.server.example.com/version=1.1 -p
    ```

- Some printing filters and back-ends were moved from the `cups` package to the `cups-filters` package.
- Some configuration directives were split from `cupsd.conf` into `cups-files.conf` (see http://www.cups.org/str.php?L4223 ↗, CVE-2012-5519, and https://bugzilla.opensuse.org/show_bug.cgi?id=789566 ↗).
- CUPS banners and the CUPS test page were moved from the `cups` package to the `cups-filters` package (see http://www.cups.org/str.php?L4120 ↗ and https://bugzilla.opensuse.org/show_bug.cgi?id=735404 ↗).

3 General

This section lists general issues with openSUSE Leap 42.2 that do not match any other category.

3.1 KDE Software for Personal Information Management (KDE PIM)

openSUSE Leap 42.2 ships two versions of the KDE PIM (Kontact, KMail, etc.) suite:

- The legacy 4.x version
- The version based on KDE Frameworks 5

KDE PIM 4.x is no longer supported by upstream KDE, but was kept to avoid disrupting user workflows.

The two versions of KDE PIM are not co-installable. Some software, such as KNode (package `knode`) require the legacy 4.x version and will be uninstalled when installing any package from KDE PIM 5.x (for example, the package `kmail5`).

KDE PIM 4.x will be removed in the next version of openSUSE Leap. Therefore, you are encouraged to switch to the newer 5.x version.

However, not all settings are migrated from the older version at this time. For more information, see the bug report at https://bugzilla.opensuse.org/show_bug.cgi?id=1001872).

4 More Information and Feedback

- Read the `README` documents on the medium.
- View a detailed changelog information about a particular package from its RPM:

  ```
  rpm --changelog -qp FILENAME.rpm
  ```

  Replace *`FILENAME`* with the name of the RPM.
- Check the `ChangeLog` file in the top level of the medium for a chronological log of all changes made to the updated packages.
- Find more information in the `docu` directory on the medium.
- https://doc.opensuse.org/ contains additional or updated documentation.
- Visit https://www.opensuse.org for the latest product news from openSUSE.

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