



# Upgrade Guide

SUSE Manager 4.0

October 04, 2019



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# Introduction

SUSE Manager has three main components, all of which will need regular updates. This guide covers updating your SUSE Manager Server, Proxy, and clients.

In addition to upgrading the main components of SUSE Manager, you are also likely to need to update other underlying technologies, including the database.

It is also possible to automate some upgrades.

This guide is not intended to be read cover to cover. Instead, navigate to the component you want to upgrade, then identify the versions you are upgrading from and to. If you are upgrading within the same major version, see [ [Upgrade > Migrate-4x-4x >](#) ].

# Package Updates

Before you perform any upgrade, it is important to ensure you have the latest versions of all installed packages. This will make your upgrade go much more smoothly.

## *Procedure: Updating the SUSE Manager Server*

1. On the SUSE Manager Server, at the command prompt, as root, stop the spacewalk services:

```
spacewalk-service stop
```

2. List available patches:

```
zypper list-patches
```

3. Apply all available patches:

```
zypper patch
```

## *Procedure: Updating the Database Schema*

If a patch includes a new database schema update, you will need to use the `spacewalk-schema-update` command.

1. On the SUSE Manager Server, at the command prompt, as root, ensure the database service is running:

```
postgresql start
```

2. Perform the schema update:

```
spacewalk-schema-upgrade
```

3. Restart the spacewalk services:

```
spacewalk-service start
```



Services affected by a package update are not automatically restarted after an update. You need to restart these services manually to avoid potential failures. Use `zypper ps` to check for applications that are using old code and require restarting.

## Migrating from Version 4 to 4.x

Migrating SUSE Manager from version 4 to 4.x (when available) can be done using either the YaST Online Migration tool, or with the Zypper command line tool.



Upgrades should be run from a text console, rather than a graphical interface like GNOME. If you are logged into a GNOME session running on the machine you are going to update, you will need to switch to a text console. This does not apply if you are logged in from a remote machine (unless you are running a VNC session with GNOME).

## Migrate Using YaST

To perform the migration with YaST, use the Online Migration tool.

### *Procedure: Migrating with YaST*

1. From the command prompt, as root, launch the YaST online migration tool:

```
yast2 migration
```

YaST will show the possible migration targets with detailed summaries.

2. Select the appropriate target, and follow the prompts to complete the migration.
3. Ensure the spacewalk services are running:

```
spacewalk-service start
```

If the process fails, check these issues first:

- If YaST does not have the online migration module available, install the [yast2-migration](#) package. After installing, restart YaST to ensure the module is available.
- If there are older updates available, YaST will notify you and ask to install them first. We strongly recommend you install all updates before performing the upgrade.

During the migration, YaST will install all recommended packages. This can significantly increase the installation size of the system. To only install required packages, open the [/etc/zypp/zypp.conf](#) configuration file and set these variables:

```
solver.onlyRequires = true  
installRecommends = false
```

This changes the behavior of all future package operations.

## Migrate Using Zypper

To perform the migration with Zypper, use the migration tool.

### *Procedure: Migrating with Zypper*

1. From the command prompt, as root, launch the Zypper migration tool:

```
zypper migration
```

Zypper will show the possible migration targets with detailed summaries.

2. Select the appropriate target, and follow the prompts to complete the migration.
3. Ensure the spacewalk services are running:

```
spacewalk-service start
```

If the process fails, check these issues first:

- If Zypper does not have the migration tool available, install the [zypper-migration-plugin](#) package.
- If there are older updates available, Zypper will notify you and ask to install them first. We strongly recommend you install all updates before performing the upgrade.

## Client Migration

Upgrading traditional clients from earlier SLE 12 Service Packs to later SLE 12 Service Packs is fully automated. For example, upgrading from SLE 12 SP1 to SLE 12 SP4. This also applies for other supported products based on SLE 12.

Upgrading traditional clients from SLE 12 with the latest Service Pack to SLE 15 is also automated, but you will need to do some preparation steps before you can upgrade.

For supported SUSE Linux Enterprise 15 upgrade paths, see [https://www.suse.com/documentation/sles-15/book\\_sle\\_upgrade/data/sec\\_upgrade-paths\\_supported.html](https://www.suse.com/documentation/sles-15/book_sle_upgrade/data/sec_upgrade-paths_supported.html)



This process cannot be used to upgrade Salt clients.

## Upgrade Clients from SLE 12 to SLE 15

Your clients must have the latest available SLE 12 Service Pack, with all the latest updates applied. Before you start, ensure that the system is up to date and all updates have been installed successfully.

The upgrade is controlled by YaST and AutoYaST, it does not use Zypper.

### Prepare to Migrate

Before you can migrate your client from SLE 12 to SLE 15, you need to make these preparations:

1. Prepare installation media
2. Create an auto-installation distribution
3. Create an activation key
4. Upload an AutoYaST profile

#### *Procedure: Preparing Installation Media*

1. On the SUSE Manager Server, create a local directory for the SLE 15 installation media.
2. Download an ISO image with the installation sources, and mount the ISO image on your server:

```
mkdir /mnt/sle15
mount -o loop DVD1.iso /mnt/sle15
```

#### *Procedure: Creating an Autoinstallation Distribution*

1. In the SUSE Manager Web UI, navigate to **Systems > Autoinstallation > Distributions** and click **[Create Distribution]**.
2. In the **Create Autoinstallable Distribution** section, use these parameters:
  - In the **Distribution Label** section, type a unique name for the distribution. Use only

letters, numbers, hyphens (-), periods (.), and underscores (\_), and ensure the name is longer than four characters.

- In the **Tree Path** field, type an absolute path to the installation source. For example, `/mnt/sle15`.
- In the **Base Channel** field, select `SLE-Product-SLES15-Pool for x86_64`.
- In the **Installer Generation** field, select `SUSE Linux Enterprise 15`.
- In the **Kernel Options** field, type any options to be passed to the kernel when booting for the installation. The `install=` parameter and the `self_update=0pt.options=self_update` parameter are added by default.
- In the **Post Kernel Options** section, type any options to be passed to the kernel when booting the installed system for the first time.

3. Click [**Create Autoinstallable Distribution**] to save.

#### *Procedure: Creating an Activation Key*

In order to switch from the old SLE 12 SP4 base channel to the new SLE 15 channel, you need an activation key.

1. In the SUSE Manager Server Web UI, navigate to **Systems > Activation Keys** and click **Create Key**.
2. Enter a description for your key.
3. Enter a key or leave it blank to generate an automatic key.
4. OPTIONAL: If you want to limit the usage, enter your value in the **Usage** text field.
5. Select the `SLE-Product-SLES15-Pool for x86_64` base channel.
6. OPTIONAL: Select any **Add-On System Types**. For more information, see [https://www.suse.com/documentation/sles-15/book\\_quickstarts/data/art\\_modules.html](https://www.suse.com/documentation/sles-15/book_quickstarts/data/art_modules.html).
7. Click [**Create Activation Key**].
8. Click the **Child Channels** tab and select the required channels.
9. Click [**Update Key**].

#### *Procedure: Uploading an AutoYaST Profile*

Create an AutoYaST profile. For more information about AutoYaST, see [ **Client-configuration > Autoyast >** ].

1. In the SUSE Manager Server Web UI, navigate to **Systems > Autoinstallation** and click **Upload Kickstart/Autoyast File**.
2. Paste the XML content in the text area or select the file to upload and click [**Create**].
3. Navigate to the **Details** tab.

4. In the **Kernel Options** field, select **autoupgrade=1** and click **[Update]**.
5. Navigate to the **Variable** tab.
6. In the **registration\_key=** field, enter the activation key, and click **[Update Variables]**.

## Migration

Before you begin the migration, make sure that the migration target channels are completely mirrored. For the upgrade to SUSE Linux Enterprise 15, at least the **SLE-Product-SLES15-Pool** base channel with the **SLE-Manager-Tools15-Pool** child channel for your architecture is required. The matching update channels such as **SLE-Manager-Tools15-Updates** and **SLE-Product-SLES15-Updates** are recommended.

You can monitor the mirroring progress in `/var/log/rhn/reposync/sles15-pool-x86_64.log`.

### *Procedure: Migrating*

1. In the SUSE Manager Server Web UI, navigate to **Systems** and select the client to be upgraded.
2. Navigate to **System Details** > **Provisioning** > **Autoinstallation** > **Schedule**, and select the AutoYaST profile you uploaded.
3. Click **[Schedule Autoinstallation and Finish]**.

Next time the client synchronizes with the SUSE Manager Server, it will receive a re-installation job. The re-installation job fetches the new kernel and initrd packages. It will also write a new `/boot/grub/menu.lst`, containing pointers to the new kernel and initrd packages.

When the client next boots, it will use grub to boot the new kernel with its initrd. PXE booting is not used during this process.

Approximately three minutes after the job was fetched, the client will go down for reboot.

## Upgrade Clients within SLE 12

Traditional clients on earlier SLE 12 Service Packs can be upgraded to later SLE 12 Service Packs in the SUSE Manager Web UI.

For example, upgrading from SLE 12 SP1 to SLE 12 SP4.

Before you begin the migration, make sure that the migration target channels are completely mirrored. For the upgrade to SUSE Linux Enterprise 12 SP4, at least the **SLES12-SP4-Pool** base channel with the **SLE-Manager-Tools12-Pool** child channel for your architecture is required. The matching update channels such as **SLE-Manager-Tools12-Updates** and **SLES12-SP4-Updates** are recommended.

You can monitor the mirroring progress in `/var/log/rhn/reposync/sles15-pool-x86_64.log`.



*Procedure: Migration*

1. In the SUSE Manager Server Web UI, navigate to **Systems** and select the client to be upgraded.
2. If the **System Details** page has outstanding software updates, install the updates.
3. Navigate to the **Software > SP Migration** tab, select **SUSE Linux Enterprise Server 12 SP4**, and click **[Select Channels]**.
4. Select the mandatory child channels, and any optional child channels. Click **[Schedule Migration]**.
5. Choose a time for the migration, and click **[Confirm]**. You can also perform a dry run of the migration to check that it will be successful.

f211.suse.de Delete System Add to SSM

Details **Software** Configuration Provisioning Groups Virtualization Audit Events

Patches Packages Software Channels **SP Migration** Software Crashes

### Service Pack Migration - Confirm

Please confirm below to schedule the migration of this system to the following products:

- **SUSE Linux Enterprise Server 12 SP2**

Channel subscriptions after the migration:

- SLES12-SP2-Pool for x86\_64
  - SLE-Manager-Tools12-Pool x86\_64 SP2
  - SLE-Manager-Tools12-Updates x86\_64 SP2
  - SLES12-SP2-Updates for x86\_64

Schedule action for no sooner than: 5/3/17 10:42 am CEST

**!** In order to detect any possible problems it is recommended to always do a **Dry Run** before scheduling the actual Service Pack Migration. **✖**

Go Back Dry Run Confirm

You can check the progress of the migration by navigating to **System Details > System Status**.

If the system status reports that the migration has failed, but also shows that software updates are available, install the update and check the status again.

After the migration is complete, schedule a reboot of the client from the SUSE Manager Server.

## Database Migration

This is about PostgreSQL database migration.

If you want to upgrade SUSE Manager 3.2 to SUSE Manager 4 you must check whether SUSE Manager 3.2 is already based on PostgreSQL version 10. If you are already using PostgreSQL version 10, skip this section. If you are using an older version, such as version 9.6, you must migrate PostgreSQL to version 10 before you begin the database migration. For more information about migrating PostgreSQL 9.6 to version 10, see [db-migration.pdf](#). If you run PostgreSQL 9.4 on SUSE Manager 3.2, see the 3.2 product documentation: <https://www.suse.com/documentation/suse-manager-3/3.2/susemanager-best-practices/html/book.suma.best.practices/bp.sp.migration.html#sp.migration.postgresql>. You cannot migrate directly from PostgreSQL 9.4 to version 10.

## Prepare to Upgrade

Before you begin the upgrade, prepare your existing 3.2 system and create a database backup.

PostgreSQL stores data at `/var/lib/pgsql/data/`, and logs to `/var/lib/pgsql/data/pg_xlog/`.

*Procedure: Preparing to Upgrade*

1. Check the active PostgreSQL version:

```
psql --version
```

If you are using PostgreSQL 9.6, you can upgrade to PostgreSQL 10.

2. Check the active smdba version:

```
rpm -q smdba
```

PostgreSQL 10 requires `smdba` version 1.6.2 or later.

3. Perform a database backup. For more information on backing up, see [ **Administration > Backup-restore >** ].

## Upgrade PostgreSQL



Always create a database backup before performing a migration. For more information about a database backup, see [db-migration.pdf](#).

PostgreSQL upgrades can be performed in two ways: a regular upgrade, or a fast upgrade:

A regular upgrade will create a complete copy of the database, so you will need double the existing

database size of space available. Regular upgrades can take a considerable amount of time, depending on the size of the database and the speed of the storage system.

A fast upgrade only takes a few minutes, and uses almost no additional disk space. However, if a fast upgrade fails, you must restore the database from the backup. With the fast upgrade the risk to run out of disk space is smaller.

In case of failure you do not have the implicit backup that you get when doing a regular upgrade. The regular upgrade will copy the database files instead of hardlinking them.

*Procedure: Performing a Regular Upgrade*

1. Perform a database backup. For more information on backing up, see [ **Administration > Backup-restore >** ].
2. Begin the upgrade:

```
/usr/lib/susemanager/bin/pg-migrate-96-to-10.sh
```

3. When the upgrade has successfully completed, you can safely delete the old database directory and reclaim lost disk space. The old directory is renamed to `/var/lib/pgsql/data-pg96`.

The `pg-migrate-96-to-10.sh` script performs these operations:

- Stop spacewalk services
- Shut down the running database
- Check if PostgreSQL 10 is installed and install it if necessary
- Switch from PostgreSQL 9.6 to PostgreSQL 10 as the new default
- Initiate the database migration
- Create a PostgreSQL configuration file tuned for use by SUSE Manager
- Start the database and spacewalk services



If the upgrade fails, the migration script will attempt to restore the database to its original state.

*Procedure: Performing a Fast PostgreSQL Upgrade*

1. Perform a database backup. Without a verified database backup, you must not initiate a fast upgrade. For more information on backing up, see [ **Administration > Backup-restore >** ].
2. Begin the upgrade:

```
/usr/lib/susemanager/bin/pg-migrate-96-to-10.sh fast
```

3. When the upgrade has successfully completed, you can safely delete the old database directory and

---

reclaim lost disk space. The old directory is renamed to [/var/lib/pgsql/data-pg96](#).

## Troubleshooting

This section contains some common problems you might encounter with SUSE Manager upgrades, and solutions to resolving them.

### Web UI Fails to Load

Sometimes, the Web UI will not load after migration. This is usually caused by browser caching, if the new system has the same hostname and IP address as the old system. This duplication can confuse some browsers.

This issue is resolved by clearing the cache and reloading the page. In most browsers, you can do this quickly by pressing `Ctrl+F5`.

### Not Enough Disk Space

Check the available disk space before you begin migration. We recommend locating `/var/spacewalk` and `/var/lib/pgsql` on separate XFS file systems.

When you are setting up a separate file system, edit `/etc/fstab` and remove the `/var/lib/pgsql` subvolume. Reboot the server to pick up the changes.

### Corrupted Database Dump

If you think your database dump has been corrupted, you can check by using this command with the hostname of the source system:

```
ssh root@source_hostname "su -s /bin/bash - postgres -c exit"
```

The command will only produce output if the database has become corrupted.

If the database is corrupted, check the `.bashrc` environment file on the source system. Ensure there is no extra text in the file at the point that the script starts the shell.

### Retrying to Set up the Target System

If you need to retry setting up the target system, follow these steps:

1. Delete `/root/.MANAGER_SETUP_COMPLETE`.
2. Stop PostgreSQL and remove `/var/lib/pgsql/data`.
3. Set the target system hostname to match the source system hostname.
4. Check the `/etc/hosts` file, and correct it if necessary.

5. Check `/etc/setup_env.sh` on the target system, and ensure the database name is set:

```
MANAGER_DB_NAME='susemanager'
```

6. Reboot the target system.
7. Run `mgr-setup` again.

# Sample Autoinstallation Script

This section contains an example autoinstallation script. Use this script as the basis for an upgrade from SLE 12 SP4 to SLE 15.

*Listing 1. Example: Autoinstallation Script*

```
<?xml version="1.0"?>
<!DOCTYPE profile>
<profile xmlns="http://www.suse.com/1.0/yast2ns"
  xmlns:config="http://www.suse.com/1.0/configs">
  <general>
    $SNIPPET('spacewalk/sles_no_signature_checks')
    <mode>
      <confirm config:type="boolean">>false</confirm>
    </mode>
  </general>
  <add-on>
    <add_on_products config:type="list">
      <listentry>
        <ask_on_error config:type="boolean">>true</ask_on_error>
        <media_url>http://$redhat_management_server/ks/dist/child/sle15-updates-
x86_64/autumn2018</media_url>
        <name>SLE15 Updates</name>
        <product>SLE15</product>
        <product_dir></product_dir>
      </listentry>
      <listentry>
        <ask_on_error config:type="boolean">>true</ask_on_error>
        <media_url>http://$redhat_management_server/ks/dist/child/sle-manager-tools15-pool-
x86_64/summer2017</media_url>
        <name>SLE15 Manager Tools Pool</name>
        <product>SLE15</product>
        <product_dir></product_dir>
      </listentry>
      <listentry>
        <ask_on_error config:type="boolean">>true</ask_on_error>
        <media_url>http://$redhat_management_server/ks/dist/child/sle-manager-tools15-
updates-x86_64/autumn2018</media_url>
        <name>SLE15 Manager Tools Updates</name>
        <product>SLE15</product>
        <product_dir></product_dir>
      </listentry>
    </add_on_products>
  </add-on>
  <upgrade>
    <only_installed_packages config:type="boolean">>false</only_installed_packages>
    <stop_on_solver_conflict config:type="boolean">>true</stop_on_solver_conflict>
  </upgrade>
  <backup>
    <sysconfig config:type="boolean">>true</sysconfig>
    <modified config:type="boolean">>true</modified>
    <remove_old config:type="boolean">>false</remove_old>
  </backup>
  <networking>
    <keep_install_network config:type="boolean">>true</keep_install_network>
    <start_immediately config:type="boolean">>true</start_immediately>
  </networking>
  <scripts>
    <init-scripts config:type="list">
      $SNIPPET('spacewalk/sles_register_script')
    </init-scripts>
  </scripts>
</profile>
```