Upgrade Guide

Uyuni '2020.07'

July 24, 2020

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Introduction

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Uyuni has three main components, all of which need regular updates. This guide covers updating the Uyuni Server, Proxy, and clients, as well as some underlying components, such as the database.

It is possible to automate some of the upgrades, but others need to be performed manually.

> 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.

Uyuni uses an `YYYY.MM` versioning schema suitable for rolling releases. If you are updating a Uyuni Server, see **[Upgrade › Server-intro-uyuni ›]**.

If you are updating a Uyuni Proxy, see **[Upgrade › Proxy-intro ›]**.

If you are updating clients, see **[Upgrade › Client-intro ›]**.

In addition to updating the server, you need to update other underlying technologies, including the database. For more information about updating the database, see **[Upgrade › Db-intro ›]**.

Upgrade the Server

Uyuni uses a rolling release versioning schema. Check the release notes for information about which upgrade strategy to use to upgrade to the next version:

Minor Upgrades

You can consider minor upgrades as regular upgrades. For more information, see **[Upgrade › Server-minor-upgrade-uyuni ›]**.

Major Upgrades

You can consider major upgrades as special upgrades. In this case components such as the base operating system, Salt, or the PostgreSQL database will be upgraded. For more information, see **[Upgrade › Server-major-upgrade-uyuni ›]**.

Server - Minor Upgrade

Several times a year, the Uyuni team releases minor upgrades of the Uyuni Server. These updates address bug fixes and feature improvements, and sometimes include new features.

> Some additional manual steps might be required, and this information is only available in the release notes. For important extra information about your upgrade, see the release notes at https://www.uyuni-project.org/pages/stable-version.html.

Performing a minor upgrade is similar to installing operating system package updates.

Procedure: Updating Packages on the Uyuni Server

By default, several update repositories are configured and enabled for the Uyuni Server. New and updated packages become available automatically.

1. On the Uyuni 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
   ```

4. Restart the spacewalk services:

```
spacewalk-service start
```

Reboot the server if a patch update recommends rebooting.

Starting with Uyuni 2020.04 `spacewalk-schema-upgrade` is not needed anymore. The schema upgrade is run automatically when the spacewalk service is started with `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.

Server - Major Upgrade

When Uyuni core components are upgraded to new major versions, you need to perform a major upgrade on the Uyuni Server. This is the case if a version upgrade of PostgreSQL, Salt, or openSUSE Leap is needed. openSUSE Leap is the underlying base operating system (OS).

Some additional manual steps might be required, and this information is only available in the release notes. For important extra information about your upgrade, see the release notes at https://www.uyuni-project.org/pages/stable-version.html.

Procedure: Migrating the Uyuni Server

The `server-migrator.sh` script migrates Uyuni Server to the latest version. It also upgrades the underlying operating system to version {opensuse-version}. The script is part of the `susemanager` package.

1. Before running the `server-migrator.sh` script, check whether the most recent version of the `susemanager` package is installed:

   ```
   zypper ref
   zypper up susemanager
   ```

2. Run the `/usr/lib/susemanager/bin/server-migrator.sh` script to upgrade the base OS and Uyuni Server.

3. To migrate the database to PostgreSQL 12 run the migrate script:

   ```
   /usr/lib/susemanager/bin/pg-migrate-10-to-12.sh
   ```

For more information about PostgreSQL database migration, see db-migration-12.pdf.

4. After the migration is complete, you will need to manually reboot the Uyuni Server:

```
shutdown -r now
```

> ❗ You will not be able to fix issues that arise during the migration. Ensure you have created a backup before you start the migration. If you are running Uyuni Server on a virtual machine, we recommend that you create a snapshot before you start.

Upgrade the Proxy

Uyuni Proxies are managed in the same way as clients.

Before you perform any proxy update, schedule a maintenance window. The clients registered to Uyuni through the proxy will not be able to connect to Uyuni while the update is in progress. For more information about maintenance windows, see **[Administration › Maintenance-window ›]**.

Proxy - Upgrade Procedure

Before you perform any proxy update, schedule a maintenance window. The clients registered to Uyuni through the proxy will not be able to connect to Uyuni while the update is in progress. For more information about maintenance windows, see **[Administration › Maintenance-window ›]**.

Preparation

As a preparation step, add the openSUSE Leap {opensuse-version} channels to the server.

Procedure: Adding Software Channels at the Command Prompt

1. At the command prompt on the Uyuni Server, as root, use the `spacewalk-common-channels` command to add the appropriate channels:

   ```
   spacewalk-common-channels opensuse_leap15_2 \
   opensuse_leap15_2-non-oss \
   opensuse_leap15_2-non-oss-updates \
   opensuse_leap15_2-updates \
   opensuse_leap15_2-uyuni-client \
   uyuni-proxy-stable-leap-152
   ```

2. Fully synchronize all channels with `spacewalk-repo-sync`. In case of already defined repository URLs, continue with Uyuni 2020.07: Troubleshooting with Duplicated Repository URLs.

Uyuni 2020.07: Troubleshooting with Duplicated Repository URLs

If you want to add two or more repositories with the same URL (client tools for openSUSE Leap 15.0, 15.1, and 15.2) in Uyuni 2020.07 with `spacewalk-common-channels`, you will see an error such as:

```
ERROR: opensuse_leap15_2-uyuni-client-x86_64:
redstone.xmlrpc.XmlRpcFault: There's already a defined repository with given url, please
reuse it
```

Work around with assigning the 15.1 repository to the 15.2 channel:

Procedure: Assigning 15.1 Repositories to the 15.2 Channel:

1. In the Uyuni Server Web UI, navigate to **Software › Manage › Channels** and click the `Uyuni Client Tools for openSUSE Leap 15.2 (x86_64)` channel name.

2. In the upper right corner, click **[Manage Channel]**.

3. Click the `Repositories` tab, and select `External - Uyuni Client Tools for openSUSE Leap 15.1 (x86_64)`

4. Click **[Update Repositories]**.

5. Navigate to **Repositories › Sync** subtab, and click **[Sync Now]**.

6. Do the same with `Uyuni Proxy Stable for openSUSE Leap 15.2 (x86_64)` and `External - Uyuni Proxy Stable for openSUSE Leap 15.1 (x86_64)`.

If you unfold the `openSUSE Leap 15.2 (x86_64)`, you will see all child channels propulated with packages.

Upgrade the Proxy

To upgrade a proxy you first stop the proxy service, then you replace the software repositories and update the software, and finally you restart the proxy service.

Procedure: Updating the Uyuni Proxy

1. In the Uyuni Server Web UI, navigate to proxy system's details page, click the `Reactivation` subtab.

2. Click **[Generate New Key]** to generate a reactivation key.

3. On the Uyuni Proxy, stop the proxy service:

```
spacewalk-proxy stop
```

4. In the Uyuni Server Web UI, navigate to **Systems › Proxy** and click the name of the proxy.

5. Click **Software › Software Channels**, and as the base channel select the openSUSE Leap {opensuse-version} channel that is listed in the `Customs Channels` list.

6. In the `Child Channels` pane, select the {opensuse-version} child channels.

7. Click **[Next]**, and `Confirm Software Channel Change` with **[Confirm]**.

8. Click **Software › Packages › Upgrade**, and select all the packages to be updated on the proxy, and then apply the selection.

9. Re-register with the reactivation key using the `rhnreg_ks` command-line utility. The system will be re-registered with the same id, history, and groups.

10. On the Uyuni Proxy, start the proxy service:

```
spacewalk-proxy start
```

If you need to update many proxies, you can create an action chain of this command sequence on the Uyuni Server. You can use the action chain to perform updates on multiple proxies at the same time.

Upgrade the Clients

Clients use the versioning system of their underlying operating system. For clients using SUSE operating systems, you can perform upgrades within the Uyuni Web UI.

To upgrade clients running SLE 12 to SLE 15, the upgrade is automated, but you will need to do some preparation steps before you begin.

For supported SUSE Linux Enterprise 15 upgrade paths, see https://documentation.suse.com/sles/15-SP1/html/SLES-all/cha-upgrade-paths.html

Client - X Upgrade

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 SP2, 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 Uyuni Server, create a local directory for the SLE 15 SP2 installation media:

   ```
   mkdir -p /srv/images/sle15sp2
   ```

2. Download an ISO image with the installation sources, and mount the ISO image on your server:

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

3. Copy everything from the mounted ISO to your local file system:

   ```
   cp -r /mnt/* /srv/images/sle15sp2
   ```

4. When the copy is complete, unmount the ISO image:

```
umount /mnt
```

This image is the unified installer and can be used for multiple autoinstallation distributions.

Procedure: Creating an Autoinstallation Distribution

1. In the Uyuni 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. For example, `sles15sp2-x86_64`.

   - In the `Tree Path` field, type an absolute path to the installation source. For example, `/srv/images/sle15sp2`.

   - In the `Base Channel` field, select `SLE-Product-SLES15-SP2-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=0 pt.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 base channel to the new SLE 15 SP2 channel, you need an activation key.

1. In the Uyuni 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-SP2-Pool for x86_64` base channel.

6. OPTIONAL: Select any `Add-On System Types`. For more information, see https://documentation.suse.com/sles/15-SP1/html/SLES-all/art-modules.html.

7. Click `[Create Activation Key]`.

8. Click the `Child Channels` tab and select the required channels.

9. Click **[Update Key]**.

Create an Autoinstallation Profile

Autoinstallation profiles contain all the installation and configuration data needed to install a system. They can also contain scripts to be executed after the installation is complete. For example scripts that you can use as a starting point, see https://github.com/SUSE/manager-build-profiles/tree/master/AutoYaST.

Procedure: Creating an Autoinstallation Profile

1. In the Uyuni Web UI, navigate to **Systems › Autoinstallation › Profiles** and upload your autoinstallation profile script. For example scripts that you can use as a starting point, see https://github.com/SUSE/manager-build-profiles/tree/master/AutoYaST.

2. In the `Kernel Options` field, type `autoupgrade=1`. Optionally, you can also include the `Y2DEBUG=1` option. The debug setting is not required but can help with investigating any future problems you might encounter.

3. Paste the autoinstallation profile or use the file upload field.

4. Click **[Create]** to save.

5. When the uploaded profile requires variables to be set, navigate to **Systems › Autoinstallation › Profiles**, select the profile to edit, and navigate to the `Variables` tab. Specify the required variables, using this format:

   ```
   <key>=<value>
   ```

   For clients that were registered using Salt, use the `spacewalk/minion_script` snippet to register the client again after migration has completed.

Migration

Before you begin, check that all the channels referenced in the autoinstallation profile are available and fully synchronized.

You can monitor the mirroring progress in `/var/log/rhn/reposync/<channel-label>.log`.

Procedure: Migrating

1. In the Uyuni Server Web UI, navigate to `Systems` and select the client to be upgraded.

2. Navigate to the `Provisioning` tab, and select the autoinstallation profile you uploaded.

3. Click **[Schedule Autoinstallation and Finish]**. The system will download the required files, change the bootloader entries, reboot, and start the upgrade.

Next time the client synchronizes with the Uyuni 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.

SP Mass Migration

If you want to migrate a large number of clients to the next SP version, you can use Uyuni API calls.

Procedure: SP Mass Migration

1. You need to know to which migration target you want to migrate. List available migration targets:

   ```
   spacecmd api -- system.listMigrationTargets -A 1000010001
   ```

   Create a list of system IDs you want to migrate.

2. For each system ID, call `listMigrationTarget` and check that it is an available target.

   - If the system ID is an available target, call `system.scheduleSPMigration`.

   - If it is not an available target, skip the system.

Adapt this template for your environment:

```
target = '[....]'
basechannel = 'channel-label'
system_ids = [1, 2, 3]

session = auth.login(user, pass)
for system in system_ids
  if system.listMigrationTargets(session, system).ident == target
    system.scheduleSPMigration(session, system, target, basechannel, [], False, <now>)
  else
    print "Cannot migrate to requested target -- skipping system"
  endif
endfor
```

Upgrade the Database

To successfully perform a major Uyuni update, you might need to upgrade the underlying database.

If you are using PostgreSQL 9, and you are upgrading to version 10, see **[Upgrade › Db-migration-10 ›]**. If you are using PostgreSQL 10, and you are upgrading to version 12, see **[Upgrade › Db-migration-12 ›]**.

If you want to upgrade to the latest Uyuni version, you must be using PostgreSQL version 10 or 12. If you are using an older version, such as version 9.6, you must migrate PostgreSQL to version 10 before you begin the Uyuni migration.

> **!** If you run PostgreSQL 9.4 on Uyuni 3.2, see the product documentation at https://documentation.suse.com/external-tree/en-us/suma/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.

Database Migration from Version 9 to 10

This section covers upgrading the PostgreSQL database from version 9 to version 10. If you are already using PostgreSQL 10, you do not need to perform this migration.

If you want to upgrade to the latest Uyuni version, you must be using PostgreSQL version 10 or 12. If you are using an older version, such as version 9.6, you must migrate PostgreSQL to version 10 before you begin the Uyuni migration.

> **!** If you run PostgreSQL 9.4 on Uyuni 3.2, see the product documentation at https://documentation.suse.com/external-tree/en-us/suma/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 Uyuni Server and create a database backup.

PostgreSQL stores data at `/var/lib/pgsql/data/`.

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.

If you are already using PostgreSQL 10, you do not need to perform this migration.

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.

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. A fast upgrade reduces the risk of running out of disk space. A regular upgrade will copy the database files instead of creating hard links between the files.

PostgreSQL stores data at `/var/lib/pgsql/data/`.

Procedure: Performing a Regular Upgrade

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

2. Start 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 Uyuni

- 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. Start 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`.

Database Migration from Version 10 to 12

This section covers upgrading the PostgreSQL database from version 10 to version 12. If you are already using PostgreSQL 12, you do not need to perform this migration. If you are using an older version, such as version 9.6, see **[Upgrade › Db-migration-10 ›]**.

If you want to upgrade to the latest Uyuni version, you must be using PostgreSQL version 10 or 12. You migrate to PostgreSQL version 12 after you upgraded your Uyuni Server to version 4.1.

Prepare to Upgrade

Before you begin the upgrade, prepare your existing Uyuni Server and create a database backup.

PostgreSQL stores data at `/var/lib/pgsql/data/`.

Procedure: Preparing to Upgrade

1. Check the active PostgreSQL version:

```
psql --version
```

If you are using PostgreSQL 10, you can upgrade to PostgreSQL 12.

If you are already using PostgreSQL version 12, you do not need to perform this migration.

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.

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. A fast upgrade reduces the risk of running out of disk space. A regular upgrade will copy the database files instead of creating hard links between the files.

PostgreSQL stores data at `/var/lib/pgsql/data/`.

Procedure: Performing a Regular Upgrade

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

2. Start the upgrade:

```
/usr/lib/susemanager/bin/pg-migrate-10-to-12.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-pg10`.

The `pg-migrate-10-to-12.sh` script performs these operations:

- Stop spacewalk services

- Shut down the running database

- Check if PostgreSQL 12 is installed and install it if necessary

- Switch from PostgreSQL 10 to PostgreSQL 12 as the new default

- Initiate the database migration

- Create a PostgreSQL configuration file tuned for use by Uyuni

- 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. Start the upgrade:

```
/usr/lib/susemanager/bin/pg-migrate-10-to-12.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-pg10`.

Troubleshooting

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

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/pqsql` subvolume. Reboot the server to pick up the changes.

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.

Schema Upgrade Fails

If the schema upgrade fails, the database version check and all the other spacewalk services do not start. Run `spacewalk-service start` for more information and hints how to proceed. You can run the version check directly:

```
systemctl status uyuni-check-database.service
```

or

```
journalctl -u uyuni-check-database.service
```

These print debug information if you do not use the `spacewalk-service` command.

Effective with SUMA 4.1 Beta 3 @mcalmer mcalmer added documentation docs-squad labels 10 days ago

The 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`.

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0. PREAMBLE

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