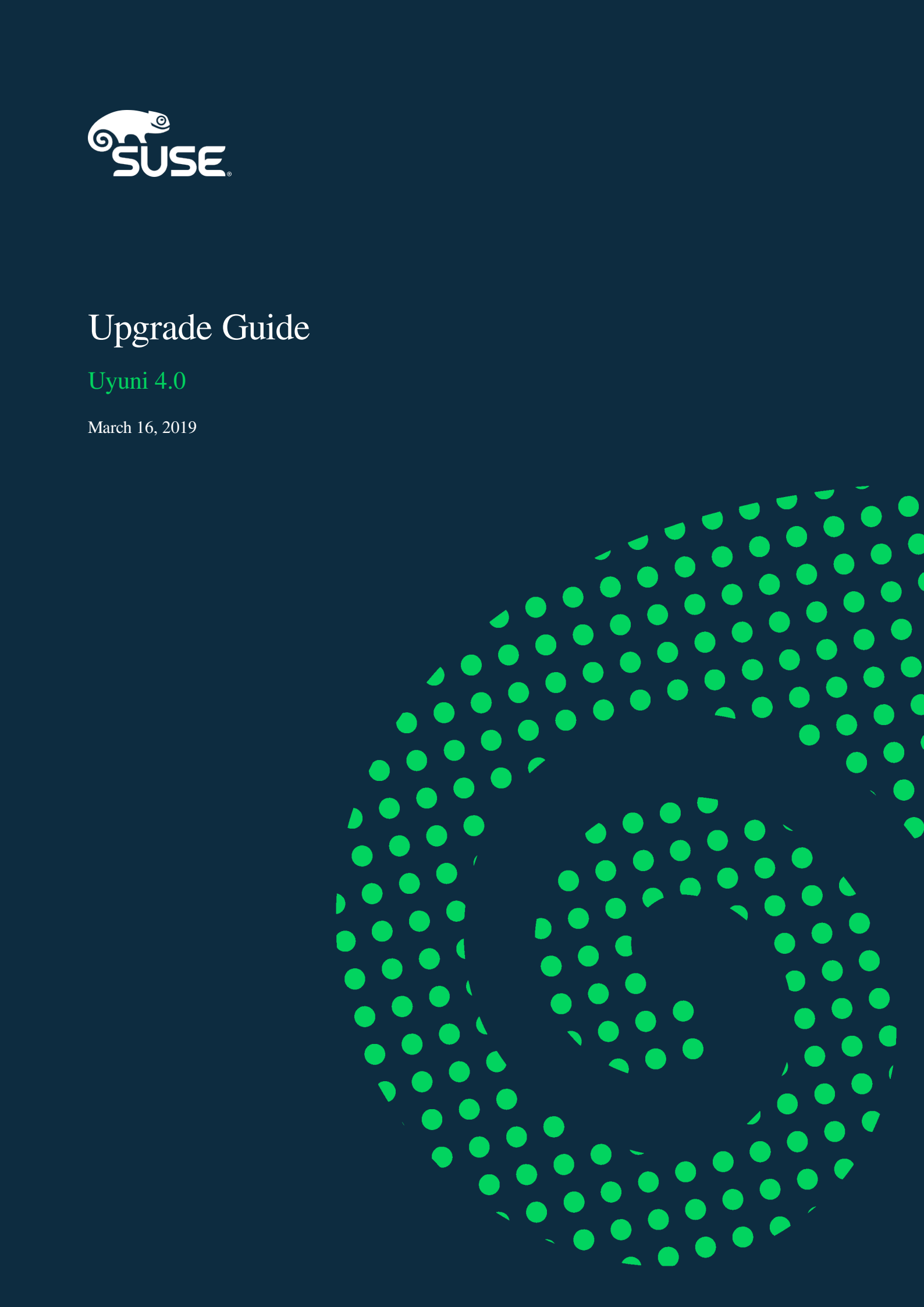

Upgrade Guide

Uyuni 4.0

March 16, 2019

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Service Pack Migration Introduction

You can upgrade the underlying operating system and also migrate Uyuni server from one patch level to the other (SP migration) or from one version to the next. This works for migrating Uyuni server 3.0 to version 3.1, or version 3.1 to version 4.0. For migrating version 3.0 to version 3.1, see the product documentation for Uyuni 3.1:

- https://www.suse.com/documentation/suse-manager-3/

Updating the Uyuni Server

This section provides information on performing regular updates and running a `spacewalk-schema-upgrade` on your PostgreSQL database.

Procedure: Updating Uyuni

1. As the root user, stop Spacewalk services:

```
spacewalk-service stop
```

2. Apply the latest patches:

```
zypper patch
```

3. You will be informed if a new database schema was included in the latest patch. Ensure the database service is running:

```
rcpostgresql start
```

4. Perform the upgrade:

```
spacewalk-schema-upgrade
```

5. Restart Spacewalk services:

```
spacewalk-service start
```

Restart of Services and Applications

Services affected by a package update are not automatically restarted after an update. You need to restart these services manually to avoid potential failures.

You may use `zypper ps` to check for any applications which may be using old code. Restart these applications.

Migrating Uyuni from Version 2.1 to Version 3

The migration from Uyuni 2.1 to Uyuni 3 works in the same way as a migration from Red Hat Satellite to Uyuni. The migration happens from the original machine to a new one. There is no in-place migration. While this has the drawback that you temporarily need two machines, it also has the advantage that the original machine will remain fully functional in case something goes wrong.

Migration Process

The whole process may be tricky, so it is strongly advised that the migration is done by an experienced consultant.

Given the complexity of the product, the migration is an “all-or-nothing” procedure- if something goes wrong you will need to start all over. Error handling is very limited. Nevertheless it should work more or less out of the box if all the steps are carefully executed as documented.

Time-Consuming Operation

The migration involves dumping the whole database on the source machine and restoring it on the target machine. Also all of the channels and packages need to be copied to the new machine, so expect the whole migration to take several hours,

Prerequisites

Latest Updates

The source machine needs to run Uyuni 2.1 with all the latest updates applied. Before starting the migration process, make sure that the machine is up to date and all updates have been installed sucessfully.

Only machines running with the embedded PostgreSQL database may be migrated in one go. For the migration of an Oracle based installation, a two-step migration is required: First the installation needs to get migrated from Oracle to PostgreSQL (by means of a separate tool) and afterwards the migration to Uyuni 3 can be performed as documented here.

Uyuni 3 no longer supports Novell Customer Center but only SCC (SUSE Customer Center). Therefore, you can migrate a machine only after it has been switched to SCC. The migration script will check if the installation has already been switched to SCC and will terminate if this is not the case. Switch to SCC on the source machine and repeat the migration. During migration the database from the source machine needs to get dumped and this dump needs to be temporarily stored on the target system. The dump gets compressed with `gzip` using the default compression options (maximum compression only yields about 10% of space savings but costs a lot of runtime); so check the disk usage of the database with:

```
{prompt.root}du -sch /var/lib/pgsql/data
```

This will ensure that you have at least 30 % of this value available in `/var/spacewalk/tmp` .

These values from a test migration should aid in illustrating space requirements:

```
suma21:/var/lib/pgsql# du -sch data
1,8G    data
1,8G    total
suma21:/var/spacewalk/tmp# ls -lh susemanager.dmp.gz
-rw-r--r-- 1 root root 506M Jan 12 14:58 susemanager.dmp.gz
```

This is a small test installation; for bigger installations the ratio might be better (space required for the database dump might be less than 30%). The dump will be written to the directory `/var/spacewalk/tmp` , the directory will be created if it does not exist yet. If you want the dump to be stored somewhere else, change the definition of the variable `$TMPDIR` on the beginning of the script to suit your needs.

Setup the Target Machine

To prepare the target machine (with the example host name `suma30`) proceed as follows:

Procedure: Setup Target Machine

1. On the target machine install SUSE Linux Enterprise Server 12 SP2 including the extension product “Uyuni” .

Background Information on Required Target Machine

It is actually required to install version 12 SP2 on the target machine. On that version you will upgrade the PostgreSQL database from version_9.4 to 9.6. For more information about the PostgreSQL upgrade, see Prepare to Upgrade PostgreSQL.

2. Initiate `yast2 susemanagersetup` as you would normally do for an installation of Uyuni.

   For more information about installing Uyuni, see [sles.installation.within.kvm.jeos].

3. On the first Uyuni setup screen, ensure that **Migrate a SUSE Manager compatible server ›] is marked instead of menu:Set up SUSE Manager from scratch[** .
4. On the second screen, enter the name of the source system as **Hostname of source SUSE Manager Server** as well as the domain name. Also enter the database credentials of the source system.
5. On the next screen, you will need to specify the IP address of the Uyuni 3 target system. Normally this value should be pre-set to the correct value and you only should need to press `Enter` . Only in the case of multiple IP addresses you might need to specify the one that should be used during migration.

Faking the Host Name

During the migration process, the target system will fake its host name to be the same as the source system, this is necessary as the host name of a Uyuni installation is vital and should not be changed once set. Therefore do not be confused when logging in to your systems during migration; they both will present you with the same host name.

6. Continue by following the normal installation steps.

Database Parameters

Specify the database parameters using the same database parameters as the source system is recommended. At least, using the the same database credentials as when creating the source or original Uyuni database is mandatory.

Enter your SCC credentials. After all the data has been gathered, YaST will terminate.

The actual migration will not start automatically but needs to be triggered manually as outlined in Performing the Migration.

Performing the Migration

A migration is performed by excecuting the following command:

```
/usr/lib/susemanager/bin/mgr-setup -m
```

This command reads the data gathered during Procedure: Setup Target Machine, sets up Uyuni onto a new target machine and transfers all of the data from the source machine. As several operations need to be performed on the source machine via SSH, you will be prompted once for the root password of the source machine. A temporary SSH key named `migration-key` is created and installed on the source machine, so you need to give the root password only once. The temporary SSH key will be deleted after successful migration. Ideally, this is all you will need to do.

Depending on the size of the installation, the actual migration will take up to several hours. Once finished, you will be prompted to shutdown the source machine, re-configure the network of the target machine to use the same IP address and host name as the original machine and restart it. It should now be a fully functional replacement for your previous Uyuni 2.1 installation. The following numbers illustrate the runtime for dumping and importing a small database:

```
14:53:37   Dumping remote database to /var/spacewalk/tmp/susemanager.dmp.gz on target system.
Please wait...
14:58:14   Database successfully dumped. Size is: 506M
14:58:29   Importing database dump. Please wait...
15:05:11   Database dump successfully imported.
```

For this example dumping the database takes around five minutes to complete. Importing the dump onto the target system will take an additional seven minutes. For big installations this can take up to several hours. You should also account for the time it takes to copy all the package data to the new machine. Depending on your network infrastructure and hardware, this can also take a significant amount of time.

Speeding up the Migration

A complete migration can consume a lot of time. This is caused by the amount of data that must be copied. Total migration time can be greatly decreased by eliminating the need to copy data prior to performing the migration (for example, channels, packages, auto-install images, and any additional data). You can gather all data via YaST by running the command `mgr-setup -r`.

Executing `mgr-setup -r` will copy the data from the old server to the new one. This command may be run at any time and your current server will remain fully functional. Once the migration has been initiated only data changed since running `mgr-setup -r` will need to be transferred which will significantly reduces downtime.

On large installations transfering the database (which involves dumping the database onto the source machine and then importing the dump onto the target system) will still take some time. During the database transfer no write operations should occur therefore the migration script will shut down any Uyuni database services running on the source machine.

Packages on External Storage

Some installations may store the package data on external storage (for example, NFS mount on `/var/spacewalk/packages`). You do not need to copy this data to the new machine. Edit the script located in `/usr/lib/susemanager/bin/mgr-setup` and remove the respective `rsync` command (located around line 345).

Mounting External Storage

Make sure your external storage is mounted on the new machine before starting the system for the first time. Analogue handling for `/srv/www/htdocs/pub` if appropriate.

In general, all needed files and directories, not copied by the migration tool, should be copied to the new server manually.

Troubleshooting a Broken Web UI after Migration

It is possible that the Web UI may break during migration. This behavior is not a bug, but a browser caching issue. The new machine has the same host name and IP address as the old machine. This duplication can confuse some Web browsers. If you experience this issue reload the page. For example, in Firefox pressing the key combination `Ctrl`+`F5` should resume normal functionality.

Example Session

This is the output of a typical migration:

```
suma30# /usr/lib/susemanager/bin/mgr-setup -m
  Filesystem type for /var/spacewalk is ext4 - ok.
  Open needed firewall ports...
  Migration needs to execute several commands on the remote machine.
  Please enter the root password of the remote machine.
Password:
  Remote machine is SUSE Manager
  Remote system is already migrated to SCC. Good.
  Shutting down remote spacewalk services...
  Shutting down spacewalk services...
  Stopping Taskomatic...
  Stopped Taskomatic.
  Stopping cobbler daemon: ..done

  Stopping rhn-search...
  Stopped rhn-search.
  Stopping MonitoringScout ...
  [ OK ]
  Stopping Monitoring ...
  [ OK ]
  Shutting down osa-dispatcher: ..done
  Shutting down httpd2 (waiting for all children to terminate) ..done
  Shutting down Tomcat (/usr/share/tomcat6)
  ..done
  Terminating jabberd processes...
        Stopping router ..done
        Stopping sm ..done
        Stopping c2s ..done
        Stopping s2s ..done
  Done.
  CREATE ROLE
  * Loading answer file: /root/spacewalk-answers.
  ** Database: Setting up database connection for PostgreSQL backend.
  ** Database: Populating database.
  ** Database: Skipping database population.
  * Configuring tomcat.
  * Setting up users and groups.
  ** GPG: Initializing GPG and importing key.
  * Performing initial configuration.
  * Configuring apache SSL virtual host.
  ** /etc/apache2/vhosts.d/vhost-ssl.conf has been backed up to vhost-ssl.conf-swsave
  * Configuring jabberd.
  * Creating SSL certificates.
  ** Skipping SSL certificate generation.
  * Deploying configuration files.
  * Setting up Cobbler..
  * Setting up Salt Master.
  11:26:47   Dumping remote database. Please wait...
  11:26:50   Database successfully dumped.
  Copy remote database dump to local machine...
  Delete remote database dump...
  11:26:50   Importing database dump. Please wait...
  11:28:55   Database dump successfully imported.
  Schema upgrade: [susemanager-schema-2.1.50.14-3.2.devel21] -> [susemanager-schema-3.0.5-
5.1.develHead]
  Searching for upgrade path to: [susemanager-schema-3.0.5-5.1]
  Searching for upgrade path to: [susemanager-schema-3.0.5]
  Searching for upgrade path to: [susemanager-schema-3.0]
  Searching for start path:  [susemanager-schema-2.1.50.14-3.2]
  Searching for start path:  [susemanager-schema-2.1.50.14]
  The path: [susemanager-schema-2.1.50.14] -> [susemanager-schema-2.1.50.15] -> [susemanager-
```

```
schema-2.1.51] -> [susemanager-schema-3.0]
  Planning to run schema upgrade with dir '/var/log/spacewalk/schema-upgrade/schema-from-
20160112-112856'
  Executing spacewalk-sql, the log is in [/var/log/spacewalk/schema-upgrade/schema-from-
20160112-112856-to-susemanager-schema-3.0.log].
(248/248) apply upgrade [schema-from-20160112-112856/99_9999-upgrade-end.sql]        e-suse-
channels-to-public-channel-family.sql.postgresql]
  The database schema was upgraded to version [susemanager-schema-3.0.5-5.1.develHead].
  Copy files from old SUSE Manager...
  receiving incremental file list
  ./
  packages/

  sent 18 bytes  received 66 bytes  168.00 bytes/sec
  total size is 0  speedup is 0.00
  receiving incremental file list
  ./
  RHN-ORG-TRUSTED-SSL-CERT
  res.key
  rhn-org-trusted-ssl-cert-1.0-1.noarch.rpm
  suse-307E3D54.key
  suse-39DB7C82.key
  suse-9C800ACA.key
  bootstrap/
  bootstrap/bootstrap.sh
  bootstrap/client-config-overrides.txt
  bootstrap/sm-client-tools.rpm

  sent 189 bytes  received 66,701 bytes  44,593.33 bytes/sec
  total size is 72,427  speedup is 1.08
  receiving incremental file list
  ./
  .mtime
  lock
  web.ss
  config/
  config/distros.d/
  config/images.d/
  config/profiles.d/
  config/repos.d/
  config/systems.d/
  kickstarts/
  kickstarts/autoyast_sample.xml
  loaders/
  snippets/
  triggers/
  triggers/add/
  triggers/add/distro/
  triggers/add/distro/post/
  triggers/add/distro/pre/
  triggers/add/profile/
  triggers/add/profile/post/
  triggers/add/profile/pre/
  triggers/add/repo/
  triggers/add/repo/post/
  triggers/add/repo/pre/
  triggers/add/system/
  triggers/add/system/post/
  triggers/add/system/pre/
  triggers/change/
  triggers/delete/
  triggers/delete/distro/
  triggers/delete/distro/post/
  triggers/delete/distro/pre/
  triggers/delete/profile/
  triggers/delete/profile/post/
  triggers/delete/profile/pre/
  triggers/delete/repo/
```

```
  triggers/delete/repo/post/
  triggers/delete/repo/pre/
  triggers/delete/system/
  triggers/delete/system/post/
  triggers/delete/system/pre/
  triggers/install/
  triggers/install/post/
  triggers/install/pre/
  triggers/sync/
  triggers/sync/post/
  triggers/sync/pre/

  sent 262 bytes  received 3,446 bytes  7,416.00 bytes/sec
  total size is 70,742  speedup is 19.08
  receiving incremental file list
  kickstarts/
  kickstarts/snippets/
  kickstarts/snippets/default_motd
  kickstarts/snippets/keep_system_id
  kickstarts/snippets/post_delete_system
  kickstarts/snippets/post_reactivation_key
  kickstarts/snippets/redhat_register
  kickstarts/snippets/sles_no_signature_checks
  kickstarts/snippets/sles_register
  kickstarts/snippets/sles_register_script
  kickstarts/snippets/wait_for_networkmanager_script
  kickstarts/upload/
  kickstarts/wizard/

  sent 324 bytes  received 1,063 bytes  2,774.00 bytes/sec
  total size is 12,133  speedup is 8.75
  receiving incremental file list
  ssl-build/
  ssl-build/RHN-ORG-PRIVATE-SSL-KEY
  ssl-build/RHN-ORG-TRUSTED-SSL-CERT
  ssl-build/index.txt
  ssl-build/index.txt.attr
  ssl-build/latest.txt
  ssl-build/rhn-ca-openssl.cnf
  ssl-build/rhn-ca-openssl.cnf.1
  ssl-build/rhn-org-trusted-ssl-cert-1.0-1.noarch.rpm
  ssl-build/rhn-org-trusted-ssl-cert-1.0-1.src.rpm
  ssl-build/serial
  ssl-build/d248/
  ssl-build/d248/latest.txt
  ssl-build/d248/rhn-org-httpd-ssl-archive-d248-1.0-1.tar
  ssl-build/d248/rhn-org-httpd-ssl-key-pair-d248-1.0-1.noarch.rpm
  ssl-build/d248/rhn-org-httpd-ssl-key-pair-d248-1.0-1.src.rpm
  ssl-build/d248/rhn-server-openssl.cnf
  ssl-build/d248/server.crt
  ssl-build/d248/server.csr
  ssl-build/d248/server.key
  ssl-build/d248/server.pem

  sent 380 bytes  received 50,377 bytes  101,514.00 bytes/sec
  total size is 90,001  speedup is 1.77
  SUSE Manager Database Control. Version 1.5.2
  Copyright (c) 2012 by SUSE Linux Products GmbH

  INFO: Database configuration has been changed.
  INFO: Wrote new general configuration. Backup as /var/lib/pgsql/data/postgresql.2016-01-12-
11-29-42.conf
  INFO: Wrote new client auth configuration. Backup as /var/lib/pgsql/data/pg_hba.2016-01-12-
11-29-42.conf
  INFO: New configuration has been applied.
  Database is online
  System check finished
```

```
================================================================================
Migration complete.
Please shut down the old SUSE Manager server now.
Reboot the new server and make sure it uses the same IP address and hostname
as the old SUSE Manager server!

IMPORTANT: Make sure, if applicable, that your external storage is mounted
in the new server as well as the ISO images needed for distributions before
rebooting the new server!
================================================================================
```

Migrating Uyuni from Version 3.1 to 3.2

The migration can either be done with the Online Migration tool (YaST) or with the Zypper command line tool.

Requirements

Uyuni 4.0 requires SLES 12 SP3 or later, with PostgreSQL version 9.6. Check the release notes for more information about these requirements. If you want to upgrade from an earlier version of Uyuni, check the relevant product documentation.

Reduce Installation Size

When performing the migration, YaST will install all recommended packages. Especially in the case of custom minimal installations, this may increase the installation size of the system significantly.

To change this default behavior and allow only required packages, adjust `/etc/zypp/zypp.conf` and set the following variable:

```
solver.onlyRequires = true
installRecommends=false # or commented
```

This changes the behavior of all package operations, such as the installation of patches or new packages.

Using YaST

Checking PostgreSQL Version

Before migrating to SLES 12 SP3 or later, check whether PostgreSQL is already updated to version 9.6. For more information, see [bp.postgresql.database.migration].

To perform the migration with YaST, use the **Online Migration** tool:

Procedure: Migrating using YaST

1. If you are logged into a GNOME session running on the machine you are going to update, switch to a text console. Running the update from within a GNOME session is not recommended. This does not apply when being logged in from a remote machine (unless you are running a VNC session with GNOME).
2. Start in YaST**System** › **Online Migration** (`yast2 migration`). YaST will show possible migration targets with detailed summaries.

   In case of trouble, resolve the following issues first:

   - If the **Online Migration** is not available, install the yast2-migration package and its

dependencies. Restart YaST , otherwise the newly installed module will not be shown in the control center.

- If there are “old” online updates available for installation, the migration tool will warn and ask to install them now before starting the actual migration. It is recommended to install all updates before proceeding.

Using zypper

Checking PostgreSQL Version

Before migrating to SLES 12 SP3 or later, check whether PostgreSQL is already updated to version 9.6. For more information, see [bp.postgresql.database.migration].

To perform the migration with Zypper on the command-line, use the `zypper migration` subcommand tool:

Procedure: Migrating using `zypper migration`

1. If you are logged into a GNOME session running on the machine you are going to update, switch to a text console. Running the update from within a GNOME session is not recommended. This does not apply when being logged in from a remote machine (unless you are running a VNC session with GNOME).
2. The `zypper migration` subcommand show possible migration targets and a summary.

   In case of trouble, resolve the following issues first:

   - If the `migration` subcommand is not available install the zypper-migration-plugin package and its dependencies.
   - If there are “old” online updates available for installation, the migration tool will warn and ask to install them now before starting the actual migration. It is recommended to install all updates before proceeding.
3. If more than one migration target is available for your system, select one from the list (specify the number).
4. Read the notification and update the Uyuni database schema as described (`spacewalk-schema-upgrade`).
5. Make sure Uyuni is up and running (`spacewalk-service start`).

After finishing the migration procedure Uyuni 3.2 on SLES 12 SP3 or later is available to be used.

Migrating Uyuni from Version 3x to 4x

Client Migration

Upgrading from SLE 12 with the latest service pack (SP) to SLE 15 can be automated, but requires some preparation steps.

To upgrade the SP version on SLE 12 (for example, upgrading from SLE 12 or any SLE 12 SPx to SLE 12 SP4) can be fully automated and requires no additional preparation.

Upgrading SLE 12 SPx to Version 15

SLE 12 SPx clients can be auto-upgraded to SLE 15 with YaST auto-installation. This also applies for other supported products based on SLE 12. For generally supported SUSE Linux Enterprise upgrade paths, see https://www.suse.com/documentation/sles-15/book_sle_upgrade/data/sec_upgrade-paths_supported.html (SUSE Linux Enterprise Upgrade Guide, Chapter “Supported Upgrade Paths to SLE 15”).

It is important that you migrate the client to the latest available SP first. Upgrade to SLE 12 SP4 after December 2018.

Auto-Upgrading Salt Minions Currently Not Supported

This procedure will work for traditionally managed systems (system type `management`). It is not currently available for systems using Salt (system type `salt`).

During the procedure, the machine reboots and performs the system upgrade. The process is controlled by YaST and AutoYaST, not by `zypper` commands.

Only perform this migration procedure on client systems managed by Uyuni servers. For upgrading the Uyuni server itself, see [bp.sp.migration]. This is a viable method for major version upgrades such as an upgrade from SUSE Linux Enterprise 12 to 15.

System Upgrade Preparation

Make sure your Uyuni and all the clients you want to upgrade have installed all available updates, including the Uyuni tools. This is absolutely necessary, otherwise the system upgrade will fail.

The preparation process contains several steps:

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

Procedure: Download and Save Installation Media

1. On the Uyuni 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: Create an Auto-Installation Distribution

For all distributions you want to upgrade, create a SLE 15 distribution in Uyuni.

1. In the Uyuni Web UI, click **Main Menu › Systems › Autoinstallation › Distributions**.
2. Enter a `Distribution Label` for your distribution (for example, `autumn2018`)
3. Specify the `Tree Path`, which is the root directory of the SLE 15 installation sources (for example, `/mnt/sle15`).
4. For `Base Channel`, use the update target distribution `SLE-Product-SLES15-Pool for x86_64`.
5. Confirm with `Create Autoinstallable Distribution`.

For more information about Autoinstallation, see [ref.webui.systems.autoinst].

Procedure: Create 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. Go to **Main Menu › 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. 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. Decide about `Add-On System Types`. If in doubt, see https://www.suse.com/documentation/sles-15/book_quickstarts/data/art_modules.html (SUSE Linux Enterprise Modules & Extensions Quick Start).
7. Click **[Create Activation Key]**.
8. Click the `Child Channels` tab and select the required channels. Finish with **[Update Key]**.

Procedure: Upload an AutoYaST Profile

Create an AutoYaST XML file according to [ap-sample-autoinst-system-upgrade]. For more information about AutoYaST, see [ref.webui.systems.autoinst.ay_intro].

1. Go to **Main Menu** › **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. Add `autoupgrade=1` in the `Kernel Options` of the `Details` tab and click **[Update]**.
4. Switch to the `Variable` tab.
5. In the text field `registration_key=` enter the key from the preparation above.
6. Click **[Update Variables]**.

After you have successfully finished this process, you are ready to perform the upgrade. For upgrade instruction, see Synchronizing Target Channels.

Synchronizing Target Channels

Before successfully initializing the product 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. Watch the mirroring progress in `/var/log/rhn/reposync/sles15-pool-x86_64.log`.

1. Go to the system via **Main Menu** › **Systems** and click the name of the system. Then click **System Details** › **Provisioning** › **Autoinstallation** › **Schedule**, and choose the AutoYaST XML profile you have uploaded above.
2. Click **[Schedule Autoinstallation and Finish]**.

   Next time the machine asks the Uyuni server for jobs, it will receive a reinstallation job which fetches kernel and initrd and writes a new `/boot/grub/menu.lst` (containing pointers to the new kernel and initrd).

   When the machine boots, it will use the Grub configuration and boots the new kernel with its initrd. No PXE boot is required for this process. A shutdown of the machine is initiated as well, effectively 3 minutes after the job was fetched.

include::bp_ex_autoinst_system-upgrade.adoc[leveloffset=3]

Migrating SLE 12 or later to version 12 SP4

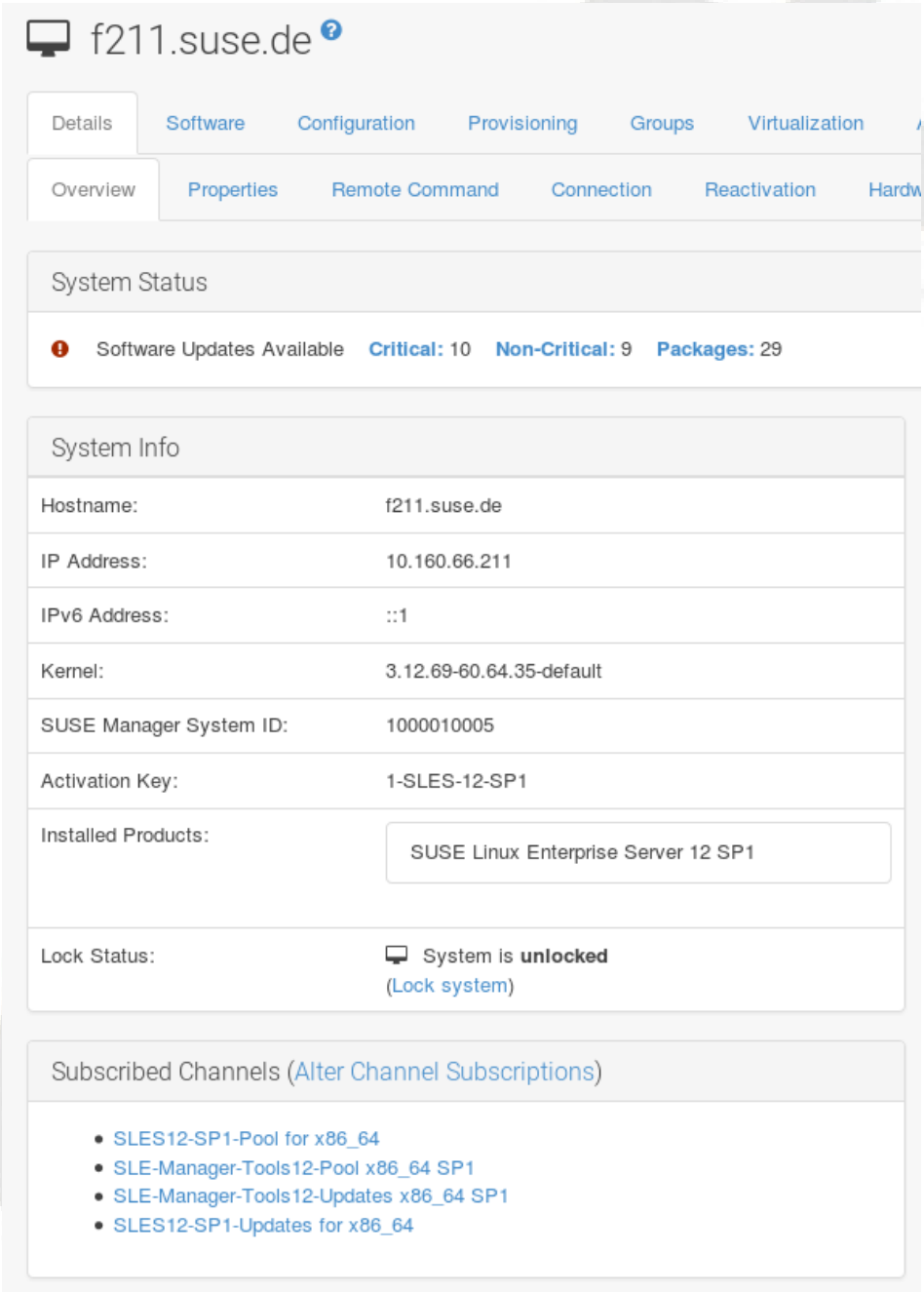
Existing SLE 12 clients (SLE) may be upgraded to SP4 with the **SP Migration** procedure provided by the Web UI. The same applies for other supported products based on SUSE Linux Enterprise 12.

Synchronizing Target Channels

Before successfully initializing the product migration, you first must make sure that the migration target channels are completely mirrored. For the upgrade to SLE 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.

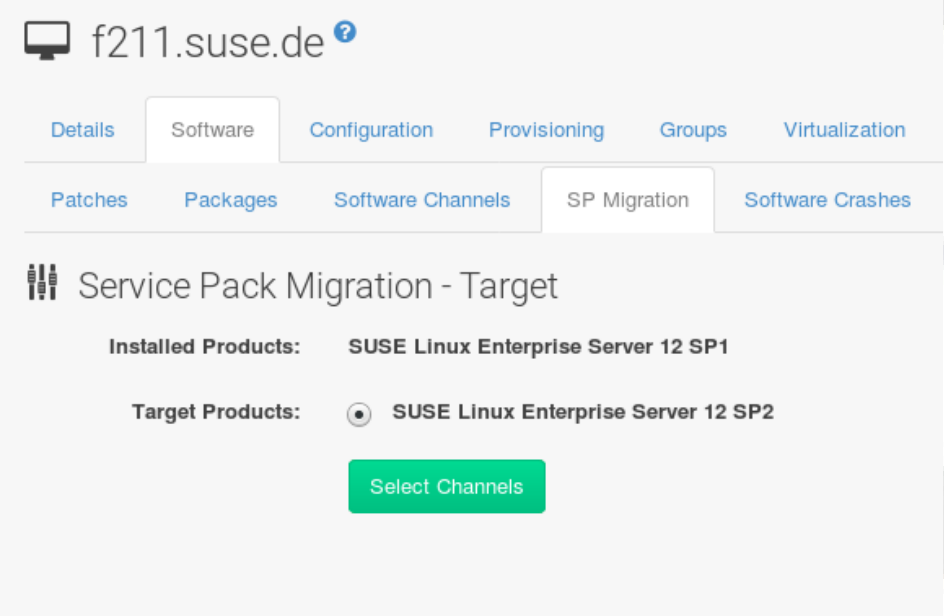
Procedure: Migrating SLE 12 Client to SP4

1. Direct your browser to the Uyuni Web UI where your client is registered, and login.
2. On the **Systems** › **All** page select your client system from the table.

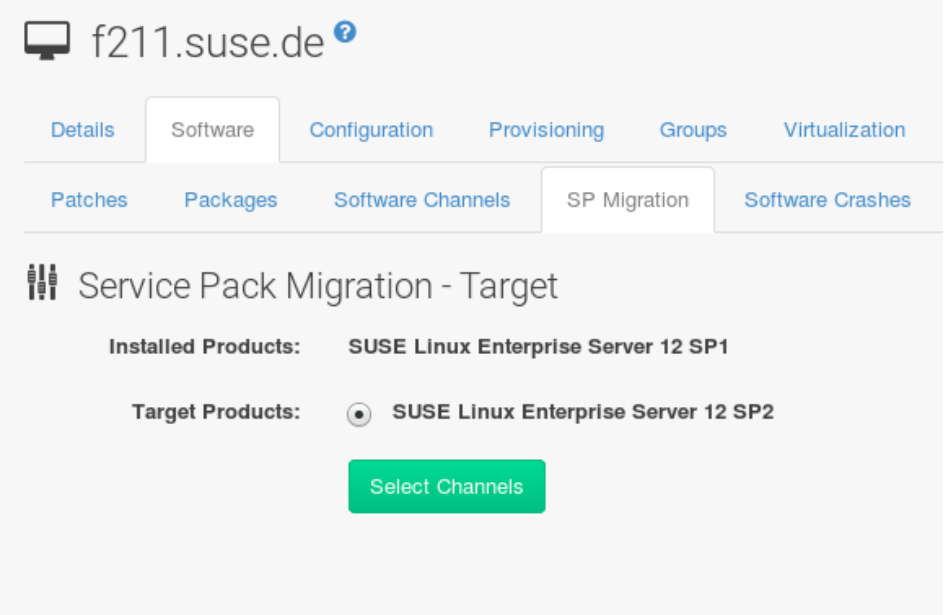


If there are **Software Updates Available ›] in the menu:System Status[** notification install these updates first to avoid trouble during the migration process.

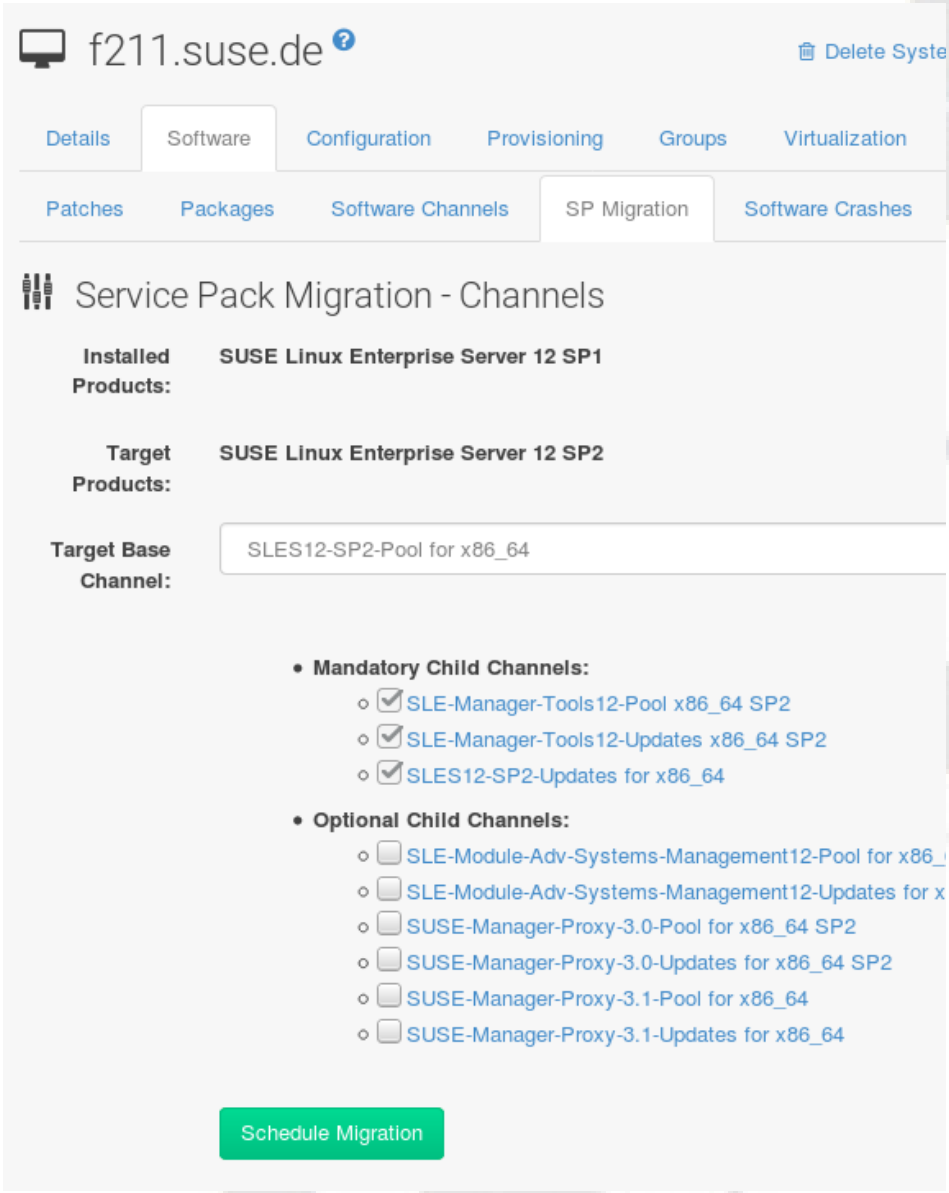
3. On the system's detail page select the **Software ›] tab › then the menu:SP Migration[** tab.



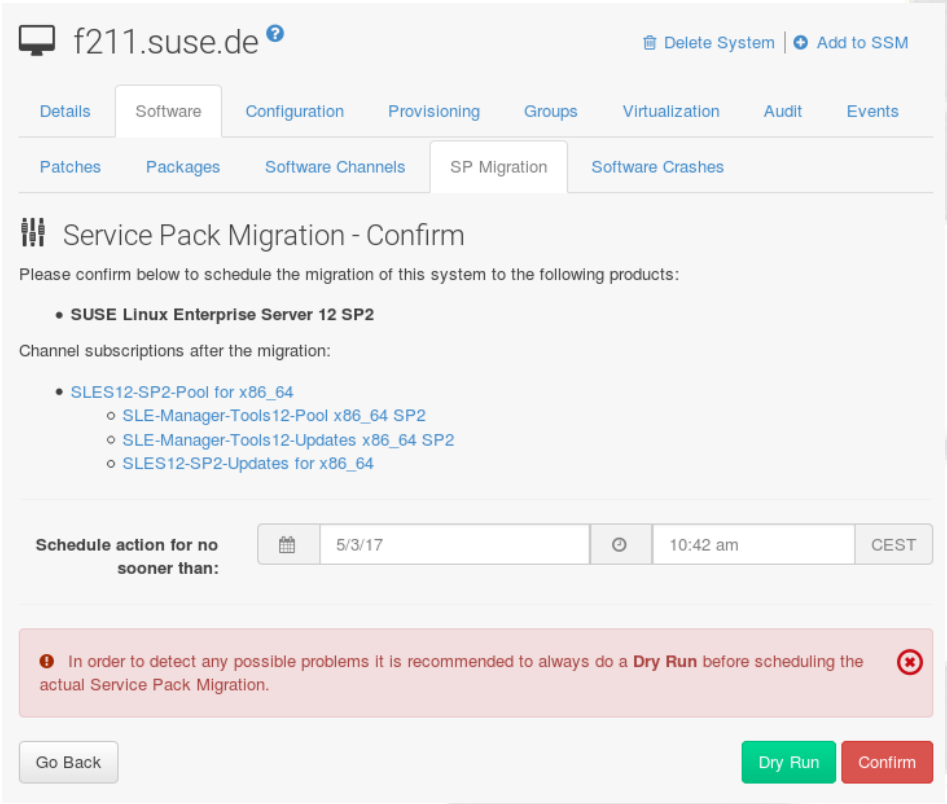
4. From this tab you will see the installed products listed on your client. Select the wanted **Target Products** (if there is more than one), which is `SUSE Linux Enterprise Server 12 SP4`.



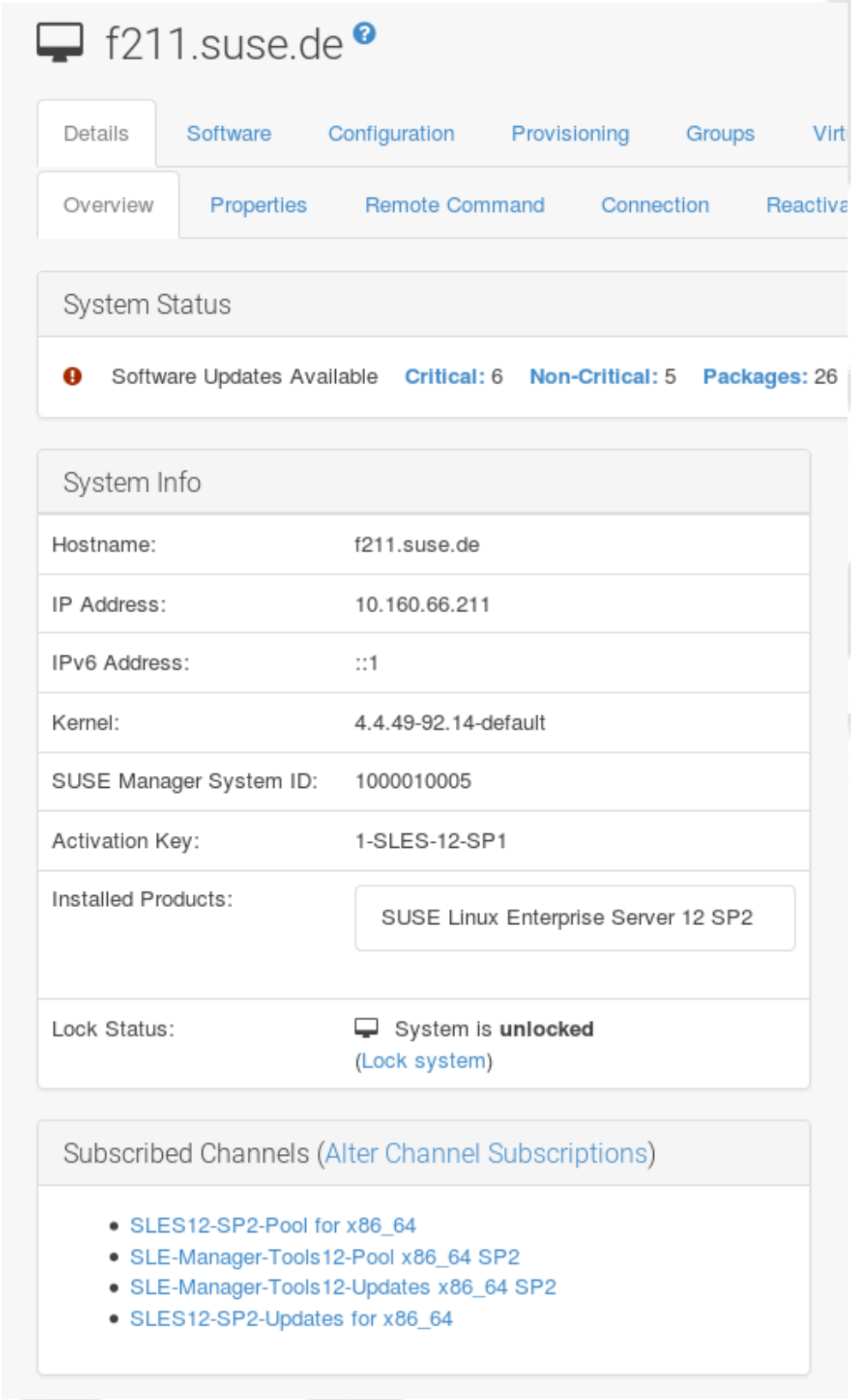
Then confirm with **Select Channels**.



5. Select **Schedule Migration ›] › and then menu:Confirm[**.



Check the **System Status** on the system's details when the migration is done.



If the **System Status ›] notification does not report a successful migration but lists menu:Software Updates Available[**, install the update now and then check again.

Finally, consider to schedule a reboot.

Service Pack Migration

SUSE Manager uses SUSE Linux Enterprise Server 12 as its underlying operating system. Therefore Service Pack migration (for example, from version 12 SP1 to 12 SP3) may be performed in the same way as a typical SLES migration.

Upgrading PostgreSQL to Version 9.6 Before Migrating to SLES12 SP3 or Later

Before migrating the underlying system to SUSE Linux Enterprise 12 SP3 or later, you must upgrade PostgreSQL to version 9.6.

The migration needs PostgreSQL 9.4 and 9.6 installed in parallel and PostgreSQL 9.4 is only available in SUSE Linux Enterprise 12 SP2. For more information, see <<bp.sect.postgresql.prepare.upgrade>>.

SUSE offers a graphical and command line tool for upgrading to a new service pack. Comprehensive documentation for executing service pack migration scenarios is located in the SUSE Linux Enterprise Server documentation chapter https://www.suse.com/documentation/sles-12/book_sle_deployment/data/cha_update_sle.html.

Performing a Service Pack Migration

Coming soon…

PostgreSQL Database Migration

Introduction to PostgreSQL Databases

Uyuni 3 uses PostgreSQL 9.4 by default. SUSE Linux Enterprise Server 12 SP3 uses PostgreSQL 9.6 by default.

When you installed Uyuni Server 3.1 or earlier on SUSE Linux Enterprise Server 12 SP2 or earlier, it was based on a PostgreSQL 9.4 database, which you can upgrade to PostgreSQL 9.6. This chapter provides information on managing your PostgreSQL database, and provides instructions for upgrading your database to PostgreSQL 9.6. Uyuni 3.1 on SUSE Linux Enterprise Server 12 SP3 and Uyuni 3.2 use PostgreSQL 9.6 by default. If you use one of those you can skip the following sections.

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

Prepare to Upgrade PostgreSQL

Before you begin upgrading you will need to check your existing system is ready for the upgrade, and prepare a database backup.

Procedure: Preparing to Upgrade PostgreSQL

1. Check the active PostgreSQL version:

```
suse-manager-example-srv:~ # psql --version
psql (PostgreSQL) 9.x.y
```

   If you are using PostgreSQL 9.4, you can update to PostgreSQL 9.6.

2. Check your system is fully updated:

```
suma-test-srv:~ # rpm -q smdba
smdba-1.5.8-0.2.3.1.x86_64
```

   PostgreSQL 9.6 requires smdba version 1.5.8 or higher.

3. Perform a database backup before you begin. For more information on backing up, see bp_chap_suma_backup.pdf.

Always create a database backup before performing a migration

Upgrade PostgreSQL

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. Regular upgrades also require database downtime, your database will not be accessible while the upgrade is running.

A fast upgrade only takes a few minutes, and uses no additional disk space. However, fast upgrades are more likely to fail, and if this occurs you will need to restore the database from backup.

Procedure: Performing a Regular PostgreSQL Upgrade

1. Perform a database backup before you begin. For more information on backing up, see bp_chap_suma_backup.pdf.
2. Begin the upgrade:

```
/usr/lib/susemanager/bin/pg-migrate.sh
```

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

   - Stop spacewalk services
   - Shut down the running database
   - Check if PostgreSQL 9.6 is installed and install it if not already present
   - Switch from PostgreSQL 9.4 to PostgreSQL 9.6 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.

3. After the upgrade has successfully completed, you can safely delete the old database directory which will have been renamed to `/var/lib/pgsql/data-pg94` to reclaim lost disk space.

Procedure: Performing a Fast PostgreSQL Upgrade

1. Perform a database backup before you begin. For more information on backing up, see bp_chap_suma_backup.pdf.
2. Begin the upgrade:

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

Working Within a Maintenance Window

Coming Soon…

Troubleshooting Upgrades and Migrations

Coming soon…

Sample Autoinstallation Script for System Upgrade (SLES 12 SP4 to SLES 15)

Listing 1. Sample Autoinstallation Script for a System Upgrade (SLES 12 SP4 to SLES 15)

```
<?xml version="1.0"?>
<!DOCTYPE profile>
<profile xmlns="http://www.suse.com/1.0/yast2ns"
         xmlns:config="http://www.suse.com/1.0/configns">
  <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>
```