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Subscription Management Tool Guide



Subscription Management Tool Guide

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About This Guide

Subscription Management Tool (SMT) for SUSE Linux Enterprise 11 helps customers to manage their SUSE Linux Enterprise software updates while maintaining corporate firewall policy and regulatory compliance requirements. SMT is a package proxy system that is integrated with the Novell® Customer Center and provides key Novell Customer Center capabilities locally at the customer site. It provides a repository and registration target that is synchronized with the Novell Customer Center, thus maintaining all the capabilities of the Novell Customer Center while allowing a more secure centralized deployment.

1 Overview

The *Subscription Management Tool Guide* is divided into the following chapters:

SMT Installation

This chapter introduces the SMT installation process and the SMT Configuration Wizard. You can install the SMT add-on together with your base system during the installation process or on top of an already installed base system. The SMT Configuration Wizard guides you through the individual installation steps.

SMT Server Configuration

This chapter introduces the YaST configuration module SMT Server. You can set and configure organization credentials, SMT database passwords, and e-mail addresses to send SMT reports, or set the SMT job schedule, and activate or deactivate the SMT service.

Mirroring Repositories on the SMT Server

This chapter introduces the option to mirror the installation and update sources with YaST.

Managing Repositories with YaST SMT Server Management

This chapter introduces the option to register client machines on Novell Customer Center. The Client machines must be configured to use SMT.

SMT Reports

This chapter introduces generated reports based on SMT and Novell Customer Center data. Generated reports contain statistics of all registered machines and products used and of all active, expiring, or missing subscriptions.

SMT Tools and Configuration Files

This chapter introduces the most important scripts, configuration files and certificates shipped with SMT.

Configuring Clients to Use SMT

This chapter introduces the option to configure any client machine to register against SMT and download software updates from there instead of communicating directly with the Novell Customer Center and the NU servers.

2 Additional Documentation and Resources

Chapters in this manual contain links to additional documentation resources that is either available on the system or on the Internet.

For an overview of the documentation available for your product and the latest documentation updates, refer to <http://www.suse.com/documentation>.

3 Feedback

Several feedback channels are available:

Bugs and Enhancement Requests

To report bugs for a product component, or to submit enhancement requests, please use <https://bugzilla.suse.com/>. For documentation bugs, submit a bug report for the component *Documentation* of the respective product.

If you are new to Bugzilla, you might find the following articles helpful:

- http://en.opensuse.org/openSUSE:Submitting_bug_reports
- http://en.opensuse.org/openSUSE:Bug_reporting_FAQ

Bugs and Enhancement Requests

For services and support options available for your product, refer to <http://www.suse.com/support/>.

To report bugs for a product component, log into the Novell Customer Center from <http://www.suse.com/support/> and select *My Support > Service Request*.

User Comments

We want to hear your comments about and suggestions for this manual and the other documentation included with this product. Use the User Comments feature at the bottom of each page in the online documentation or go to <http://www.suse.com/documentation/feedback.html> and enter your comments there.

Mail

For feedback on the documentation of this product, you can also send a mail to doc-team@suse.de. Make sure to include the document title, the product version and the publication date of the documentation. To report errors or suggest enhancements, provide a concise description of the problem and refer to the respective section number and page (or URL).

4 Documentation Conventions

The following typographical conventions are used in this manual:

- `/etc/passwd`: directory names and filenames
- *placeholder*: replace *placeholder* with the actual value
- `PATH`: the environment variable `PATH`
- `ls, --help`: commands, options, and parameters
- `user`: users or groups
- **Alt, Alt + F1**: a key to press or a key combination; keys are shown in uppercase as on a keyboard
- *File, File > Save As*: menu items, buttons
- **#amd64 em64t ipf**: This paragraph is only relevant for the architectures `amd64`, `em64t`, and `ipf`. The arrows mark the beginning and the end of the text block. ◀
- *Dancing Penguins* (Chapter *Penguins*, ↑Another Manual): This is a reference to a chapter in another manual.

SMT Installation

SMT is an add-on product for SUSE Linux Enterprise Server 11 systems. You can either install the SMT add-on together with your SUSE Linux Enterprise Server base system during the initial installation process, or on top of an already-installed base system at any later time. SMT can be obtained free of charge from <https://download.suse.com/>.

If you install SMT on top of SLES with the latest maintenance patches applied, you may get dependency errors in some cases if you do not also use the latest SMT patches. To avoid those dependency errors, re-run Novell Customer Center (Novell Customer Center) Configuration in YaST right after you have added the SMT installation repository to your system, but before you install any packages from SMT. This way the SMT update repository will be properly available to your system.

It is recommended to check for SMT updates available immediately after installing the product. SUSE continuously releases maintenance updates for SMT, and newer packages are likely to be available compared to those installed from media, for example using the `zypper patch` command.

NOTE: Installation Scope

SMT is a LAMP (Linux, Apache, MySQL, PHP) based application. During the installation, Apache and MySQL will automatically be installed if missing.

1.1 Installation During the Initial Installation Process

To install the SMT add-on together with your base system during the initial installation process, follow these steps:

- 1 Start the SUSE Linux Enterprise Server 11 installation as usual. For more information, see the SUSE Linux Enterprise Server documentation coming with the base product.
- 2 To include the SMT add-on product, check the *I would like to install an additional Add On product* option during the installation and, if you are installing SMT from a local ISO image, select *Local ISO Image* as the media type (repository). If you are installing from a different source, such as CD, NFS, or HTTP, choose the appropriate type. Then click *Next*.
- 3 If you are installing from a CD, insert the SMT add-on product CD. If you are installing from a different source, provide the necessary repository information.
- 4 Confirm the SMT license agreement and click *Next*.
- 5 The SMT add-on product is displayed in the overview. Continue with the installation as usual. Make sure that the *SMT: Subscription Management Tool for SLE* installation pattern is selected automatically and do not remove it.
- 6 A two-step *SMT Configuration Wizard* is shown during the final steps of the installation workflow. Configure SMT as described in Section 1.3, “SMT Configuration Wizard” and continue with the SUSE Linux Enterprise Server installation as usual.

1.2 Installation on Top of an Already Installed System

To install SMT on top of an already-installed base system, follow these steps:

- 1 Start YaST and select *Software > Add-On Product*. Then click *Add*.
- 2 If you are installing SMT from a local ISO image, select *Local ISO Image* as the media type (repository). If you are installing from a different source, such as CD, NFS, or HTTP, choose the appropriate type. Then click *Next*.

- 3 If you are installing from a CD, insert the SMT add-on product CD. If you are installing from a different source, provide the necessary repository information.
- 4 Confirm the SMT license agreement and click *Next*.
- 5 Click *Accept* to install the *SMT: Subscription Management Tool for SLE* pattern.

Depending on the scope of already installed packages, the software manager will add more packages to resolve all dependencies. Confirm these *Automatic Changes* to perform the installation.

- 6 The *SMT Configuration Wizard* is launched. See Section 1.3, “SMT Configuration Wizard”.

1.3 SMT Configuration Wizard

During the installation of SMT the two-step *SMT Configuration Wizard* is launched, regardless of the used installation method. Configure SMT using this wizard. You are able to change the configuration later using the YaST SMT Server Configuration module— see Chapter 2, *SMT Server Configuration*.

- 1 The *Enable Subscription Management Tool service (SMT)* option is checked by default. Uncheck it only if you want to disable the installed SMT.

If the firewall is enabled, check *Open Port in Firewall* to allow access to the SMT service from remote computers.

Enter your Novell Customer Center organization credentials in *User* and *Password*. If you do not know your Novell Customer Center credentials, refer to Section 3.1, “Mirroring Credentials”. Test the entered credentials by pressing the *Test* button. SMT will connect to the Customer Center server using the provided credentials and download some testing data.

Enter the e-mail address you have used for the Novell Customer Center registration into *NCC E-mail Used for Registration*.

Your SMT Server URL should contain the URL of the SMT server being configured. It is populated automatically.

Press *Next* to continue to the second configuration step.

- 2 For security reasons, SMT requires a separate user to connect to the database. With the *Database Password for smt User* widget set the database password for that user. Confirm it in the following field.

Enter all e-mail addresses that SMT should send reports to using the *Add* button. You are also able to *Edit* or *Delete* any incorrect or obsolete addresses.

Then click *Next*.

- 3 If the current MySQL root password is empty—as in any freshly installed system—you will be asked to enter a *New MySQL Root Password*.

1.4 Update of SMT From Previous Versions

This section contains the information about upgrading from the previous versions of SMT.

1.4.1 Update from Subscription Management Tool 11 SP2

There are two ways of upgrading SMT 11 SP2 to SMT 11 SP3:

- Perform the on-line migration, using the *wagon* tool. For more information, refer to the general documentation for SUSE Linux Enterprise Server.
- When upgrading SLES 11 to SP3 via booting the installation media, add the SMT add-on product. This will make sure that the SMT packages get updated together with SLES 11.

1.4.1.1 MySQL Database Migration

SLES11-SP3 introduces the upgrade of the MySQL database to version 5.5. This upgrade involves a change of the database format and the database needs to be converted accordingly.

After the MySQL database is upgraded, the database engine is not running. The database needs to be converted and MySQL started to continue using SMT. To migrate the MySQL database, run following commands as root:

```
touch /var/lib/mysql/.force_upgrade
rcmysql restart
```

We strongly recommend to back up the database before migrating it.

1.4.2 Update from Subscription Management Tool 10

In general, the update from SMT 10 is not supported. This is a list of issues that might occur if the update is performed:

1.4.2.1 Configuration Changes

Authentication of Access

There is a new optional value `requiredAuthType` in `/etc/smt.conf` to specify if authentication should be required to access the update repositories. If the value is not present in `/etc/smt.conf`, behavior is unchanged from SMT 10. See the SMT 11 manual for further details.

Registration URL Specific for SMT 11

SMT 11 does not use the registration URL from `/etc/suseRegister.conf` anymore, but reads the value `[NU] NURegUrl` from `/etc/smt.conf`. If the value is not present in `/etc/smt.conf`, the value from `/etc/suseRegister.conf` is used as a fallback.

Update of apache2 Configuration

The installed version of `/etc/apache2/conf.d/nu_server.conf` and `/etc/apache2/conf.d/smt_mod_perl.conf` will be replaced with a newer version.

1.4.2.2 Changes Related to Dropping Privileges by SMT Scripts

smt User

By default, all SMT scripts run under a new, unprivileged user named `smt`. The user can be defined in `smt.conf`.

Permissions of Files and Repositories

In SMT 10, all files and repositories were owned by root. In SMT 11, the `smt` user needs write access to these repositories. To fix up the permissions, use the `changeSMTUserPermissions.sh` script shipped as part of the SMT package.

Proxy Settings

The YaST proxy module writes the proxy information to `/root/.curlrc`. In SMT 11 the scripts are running with privileges dropped, therefore the `.curlrc` file in the home directory of the used user (`smt` by default) must be edited. Otherwise use `smt.conf` to define the proxy settings.

1.5 Migration between SUSE Customer Center and Novell Customer Center

SMT can talk to only one registration service (SUSE Customer Center, Novell Customer Center, alternatively also SUSE Lifecycle Management Server). The switch between the registration servers can be done either via a YaST module or command-line tools.

Before performing the switch between customer centers, make sure that the target customer center serves all products that are registered against SMT. Both YaST and the command-line tools perform a check to find out whether all products can be served with the new registration server. If it is not possible, the only option is to install two parallel SMT instances and to synchronize products from both SUSE Customer Center and Novell Customer Center.

To perform the migration to SUSE Customer Center via command-line, use:

```
smt ncc-scc-migration
```

If you need to revert back from SCC to NCC, use:

```
smt scc-ncc-migration
```


The migration itself is time-consuming and during the migration process the SMT server may not be able to serve clients that are already registered.

The migration process itself changes the registration server and the proper type of API in the configuration files. No further (configuration) changes are needed on the SMT.

To migrate between Novell Customer Center and SUSE Customer Center via YaST, use the YaST `smt-server` module.

After migration is done, it is needed to re-synchronize SMT with the customer center. It is recommended to assure that the repositories are up-to-date. This can be done using the following commands:

```
smt sync
smt mirror
```

1.6 Enabling SLP Announcements

SMT already includes the SLP service description file (`/etc/slp.reg.d/smt.reg`). In order to enable SLP announcements of the SMT service, open respective ports in your firewall and enable the SLP service.

```
sysconf_addword /etc/sysconfig/SuSEfirewall2 FW_SERVICES_EXT_TCP "427"
sysconf_addword /etc/sysconfig/SuSEfirewall2 FW_SERVICES_EXT_UDP "427"
insserv slpd
rcslpd start
```


SMT Server Configuration

This chapter introduces the YaST configuration module for the SMT server. You can set and configure mirroring credentials, SMT database passwords, and e-mail addresses to send SMT reports to. It also lets you set the SMT job schedule, and activate or deactivate the SMT service.

To configure SMT with SMT Server Configuration, follow these steps:

- 1** Start the YaST module *SMT Server Configuration* from the YaST control center or by running `yast smt-server` on the command line.
- 2** To activate SMT, check the *Enable Subscription Management Tool Service (SMT)* option in the *Customer Center Access* tab. If you want to disable SMT, uncheck this option. For more information about activating SMT with YaST, see Section 2.1, “Activating and Deactivating SMT with YaST”.
- 3** If the firewall is enabled, check *Open Port in Firewall*.
- 4** In the *Customer Center Configuration* section of the *Customer Center Access* tab, choose which service should be used (Novell Customer Center or SUSE Customer Center) and, if necessary, set the custom server URLs. Set and test credentials for the NU (Novell Update) service. Correct credentials are necessary to enable mirroring from NU and determine the products that should be mirrored. Also set the e-mail address used for the registration and the URL of your SMT server and your SMT server URL. For more information, see Section 2.2, “Setting NU Credentials with YaST”.

- 5 In the *Database and Reporting* tab, set the password for the SMT user in the MySQL database and enter the e-mail addresses where reports should be sent. For more information, see Section 2.3, “Setting SMT Database Password with YaST” and Section 2.4, “Setting E-mail Addresses to Receive Reports with YaST”.
- 6 In the *Scheduled SMT Jobs* tab, set a schedule of periodic SMT jobs, such as synchronization of updates, Novell Customer Center registration, and SMT report generation. For more information, see Section 2.5, “Setting the SMT Job Schedule with YaST”.
- 7 If satisfied with the configuration, click *OK*. YaST adjusts the SMT configuration and starts or restarts necessary services.

If you want to abort the configuration and cancel any changes, click *Cancel*.

NOTE

When the SMT Configuration applies configuration changes, it checks for the existence of the common server certificate. If the certificate does not exist, you will be asked if the certificate should be created.

2.1 Activating and Deactivating SMT with YaST

YaST provides an easy way to activate or deactivate the SMT service. To activate SMT with YaST, follow these steps:

- 1 Open the *Customer Center Access* tab of the SMT Configuration .
- 2 Check the *Enable Subscription Management Tool service (SMT)* option.

NOTE

If not already configured, organization credentials should be configured before activating SMT. For more information about how to set organization credentials with YaST, see Section 2.2, “Setting NU Credentials with YaST”.

- 3 Click *Finish* to apply the changes and leave the SMT Configuration.

To deactivate SMT with YaST, follow these steps:

- 1 Open the *Customer Center Access* tab of the SMT Configuration.
- 2 Uncheck the *Enable Subscription Management Tool service (SMT)* option.
- 3 Click *Finish* to apply the changes and leave the SMT Configuration.

When activating SMT, the following important operations are performed by YaST:

- The Apache configuration is changed by creating symbolic links in the `/etc/apache2/conf.d/` directory. Links to the `/etc/smt.d/nu_server.conf` and `/etc/smt.d/smt_mod_perl.conf` files are created there.
- The Apache Web server is started (or reloaded if already running).
- The MySQL server is started (or reloaded if already running). The `smt` user and all necessary tables in the database are created as needed.
- The schema of the SMT database is checked. If the database schema is outdated, the SMT database is upgraded to conform to the current schema.
- Cron is adjusted by creating a symbolic link in the `/etc/cron.d/` directory. A link to the `/etc/smt.d/novell.com-smt` file is created there.

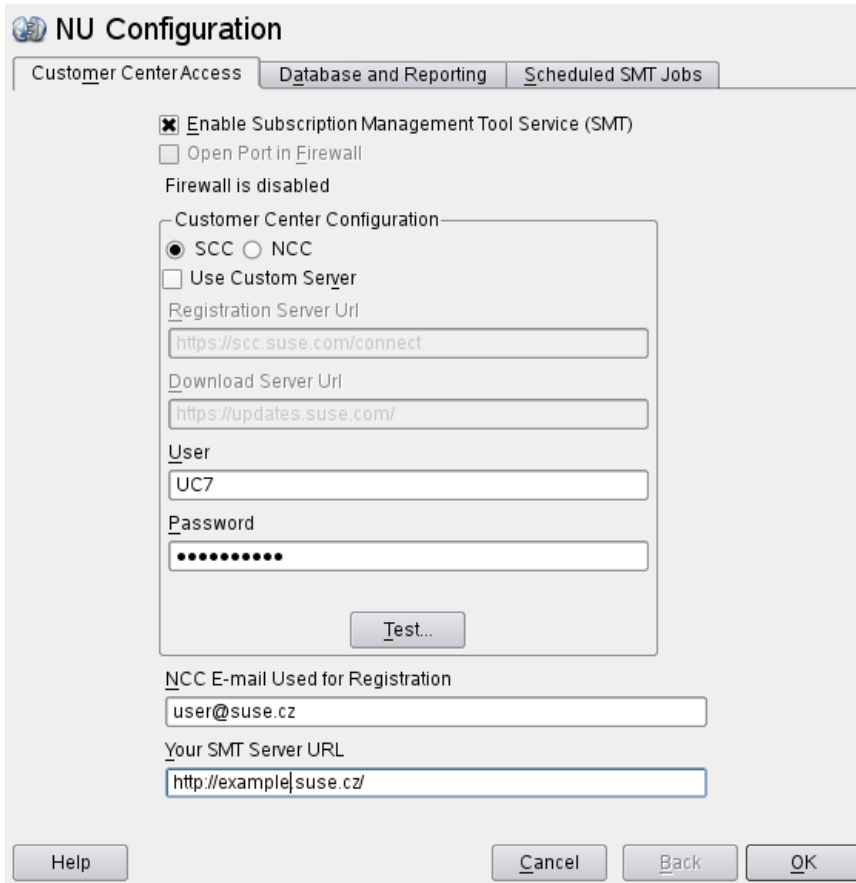
When deactivating SMT, the following important operations are performed by YaST:

- Symbolic links created upon SMT activation in the `/etc/apache2/conf.d/` and `/etc/cron.d/` directories are deleted.
- The Cron daemon, the Apache server and the MySQL database daemon are reloaded. Neither Apache nor MySQL are stopped, because they may be used for other purposes than the SMT service.

2.2 Setting NU Credentials with YaST

YaST provides an interface to set and test NU credentials and the URL of the NU service. To do so, follow these steps:

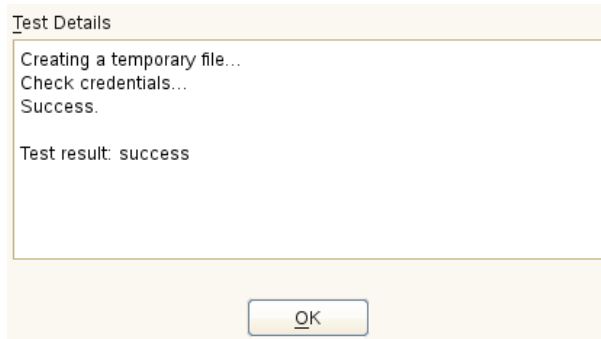
Figure 2.1: *Setting NU Credentials with YaST*



- 1 Open the *Customer Center Access* tab of the SMT Configuration (NU Configuration). If the credentials have been already set with YaST or the `/etc/smt.conf` configuration file, they appear in the dialog. Otherwise, the *User* and *Password* fields are blank.
- 2 If you do not have your credentials, visit Novell Customer Center to obtain them. For more details, see Section 3.1, “Mirroring Credentials”.
- 3 Enter your NU username in *User* and the corresponding password in *Password*.
- 4 Click *Test* to check the credentials. YaST will try to download a list of available repositories with the provided credentials. If the test succeeds, the last line of the

test results will read `Test result: success`. If the test fails, check the provided credentials and try again.

Figure 2.2: *Successful Test of NU Credentials*



- 5 Enter the *NCC E-mail Used for Registration*. This should be the address you used to register to Novell Customer Center.

Enter *Your SMT Server URL* if it has not been detected automatically.

- 6 Click *OK* or continue with other configurations.

2.3 Setting SMT Database Password with YaST

For security reasons, SMT uses its own user in the database. YaST provides an interface for setting up or changing the SMT database password. To set or change the SMT database password with YaST, follow these steps:

- 1 Open the *Database and Reporting* tab of the SMT Configuration module.
- 2 Enter the *SMT Database Password for SMT User*. Confirm the password by reentering it and click *OK*, or continue with other configurations.

2.4 Setting E-mail Addresses to Receive Reports with YaST

YaST SMT provides an interface for setting up a list of e-mail addresses to which SMT reports will be sent. To edit this list of addresses, follow these steps:

- 1 Open the *Database and Reporting* tab of the SMT Configuration.
- 2 The list of e-mail addresses is shown in the table. You can *Add*, *Edit*, or *Delete* addresses with the relevant buttons.
- 3 Click *OK* or continue with other configurations.

The comma-separated list of addresses for SMT reports is written to the `reportEmail` option of the `/etc/smt.conf` configuration file.

2.5 Setting the SMT Job Schedule with YaST

The SMT Configuration module provides an interface to schedule periodical SMT jobs. YaST uses `cron` to schedule configured jobs. If needed, `cron` can be used directly. Five types of periodical jobs can be set:

Synchronization of Updates

Synchronizes with Novell Customer Center, updates repositories, and downloads new updates.

Generation of Reports

Generates and sends SMT Subscription Reports to addresses defined in Section 2.4, “Setting E-mail Addresses to Receive Reports with YaST”.

NCC Registration

Registers all clients to Novell Customer Center that are not already registered or that changed their data since the last registration.

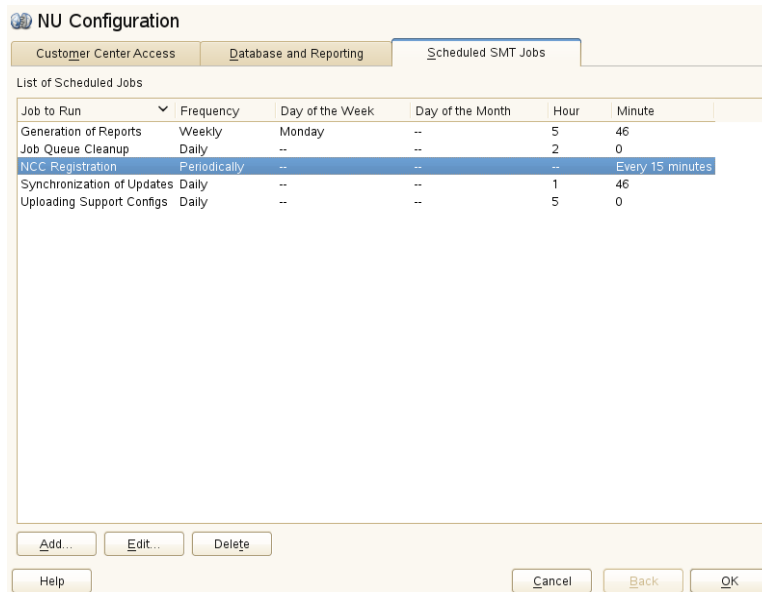
Job Queue Cleanup

Cleans up queued jobs. It will remove finished or failed jobs from the job queue that are older than 8 days and remove job artifacts that remained in the database as result of an error.

Uploading Support Configs

Uploading support configs is only available, when the SMT-support package is installed and manually added. To add it, click *Add*, then select *Uploading Support Configs* from the *Job to Run* list.

Figure 2.3: SMT Job Schedule Configuration



To configure the schedule of SMT jobs with YaST, follow these steps:

- 1 Open the *Scheduled SMT Jobs* tab of the SMT Configuration. The table contains a list of all scheduled jobs, their type, frequency, date, and time to run. You can add, delete or edit these scheduled events.
- 2 If you want to add a scheduled SMT job, click *Add*. The *Adding New SMT Scheduled Job* dialog opens.

Choose the synchronization job to schedule. You can choose between *Synchronization of Updates*, *Report Generation*, *NCC Registration*, *Job Queue Cleanup*, and *Uploading Support Configs*.

Choose the *Frequency* of the new scheduled SMT job. Jobs can be performed *Daily*, *Weekly*, *Monthly*, or *Periodically* (every n-th hour or every m-th minute).

Set the *Job Start Time* by entering *Hour* and *Minute*. In case of periodical frequency, enter the relevant periods. For weekly and monthly schedules, select *Day of the Week* or *Day of the Month*.

click *Add*.

- 3 If you want to edit a scheduled SMT job (for example, change its frequency, time, or date), select the job in the table and click *Edit*. Then change the desired parameters and click *OK*.

Editing a SMT Scheduled Job

Frequency: Periodically | Job to Run: NCC Registration

Job Start Time

Day of the Week: Sunday | Day of the Month: 1

Every H-th Hour: 0 | Every M-th Minute: 15

- 4 If you want to cancel a scheduled job and delete it from the table, select the job in the table and click *Delete*.
- 5 Click *OK* to apply the settings and quit the SMT Configuration, or continue with other configurations.

Mirroring Repositories on the SMT Server

On the SMT server you can mirror the installation and update repositories locally. This allows you to bypass per-machine downloads and the bandwidth use that goes with it.

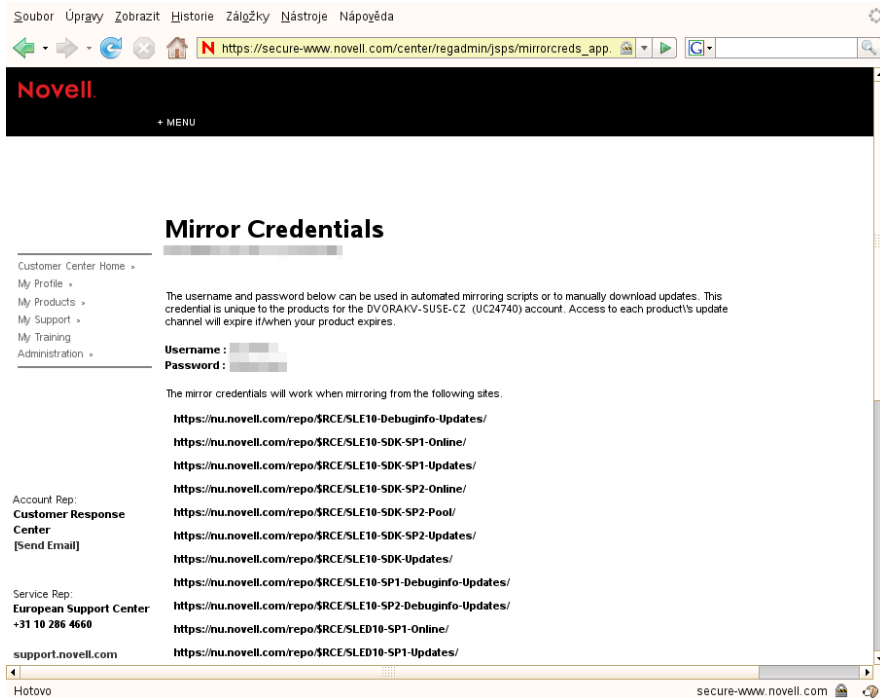
3.1 Mirroring Credentials

Before you create a local mirror of the repositories, you need appropriate organization credentials. You can get the credentials from Novell Customer Center or SUSE Customer Center, they are identical. To get the credentials from the Novell Customer Center, follow these steps:

- 1 Visit Novell Customer Center at <http://www.novell.com/center> and log in.
- 2 Click on *My Products*. The list of product families is shown.
- 3 Expand any product family by clicking on its name. You can also expand all product families by clicking on the icon showing the arrow with two converse arrowheads (with the *Expand All Product Families* tool tip). Products in the expanded families are shown.
- 4 Double click on any specific product in the list to show detailed information about the product.
- 5 In the *Downloads* section, click on the *Mirror Credentials* link.

- 6 If necessary (for example if you are accessing the page for the first time), click on the *Generate* button.
- 7 The credentials and mirror sites will be listed. These values are the same for all users and subscriptions for a specific company.

Figure 3.1: *NU Credentials in Novell Customer Center*



To get the credentials from SUSE Customer Center, follow these steps:

- 1 Visit SUSE Customer Center at <http://scc.suse.com> and log in.
- 2 Click on *Organization* in the top menu.
- 3 Click on the *Organizational credentials* tab.
- 4 To show the password, click on *Show password*.

The obtained credentials should be set with the YaST SMT Server Configuration module or manually written to the `/etc/smt.conf` file. For more information about the `/etc/smt.conf` file, see Section 7.2.1, “`/etc/smt.conf`”

To request a merge, the customer or their sales rep send an email to mailto:e-mea_pic@novell.com (for EMEA-based customers only—Europe, the Middle East and Africa) with the applicable customer and site IDs. The EMEA PIC team will verify the records. The contact for NALAAP is <mailto:cmf@novell.com> (North America, Latin America, and Asia Pacific).

3.2 Managing Software Repositories with SMT Command Line Tools

This section describes tools and procedures for viewing information about software repositories available through SMT, configuring these repositories and setting up custom repositories on the command line. For details on the YaST SMT Server Management module, see Chapter 4, *Managing Repositories with YaST SMT Server Management*.

3.2.1 Updating the local SMT database

The local SMT database needs to be updated periodically with the information downloaded from Novell Customer Center. These periodical updates can be configured with the SMT Management module, as described in Section 2.5, “Setting the SMT Job Schedule with YaST”.

To update the SMT database manually, use the `smt-sync` command. For more information about the `smt-sync` command, see Section 7.1.2.7, “`smt-sync`”.

3.2.2 Enabled Repositories and Repositories that Can Be Mirrored

The database installed with SMT contains information about all software repositories available on Novell Customer Center. However, the used mirror credentials determine

which repositories can really be mirrored. For more information about getting and setting organization credentials, see Section 3.1, “Mirroring Credentials”.

The mirrorability of repositories is determined by retrieving `https://nu.novell.com/repo/repoindex.xml` using the provided organization credentials. Repositories that can be mirrored have the `MIRRORABLE` flag set in the repositories table in the SMT database.

The fact that a repository can be mirrored does not mean that it has to be mirrored. Only repositories with the `DOMIRROR` flag set in the SMT database will be mirrored. For more information about setting up, which repositories should be mirrored, see Section 3.2.4, “Selecting Repositories to be Mirrored”.

3.2.3 Getting Information About Repositories

Use the `smt-repos` command to list available software repositories and additional information. Using this command without any options lists all available repositories, including repositories that cannot be mirrored. In the first column, the enabled repositories (repositories set to be mirrored) are marked with `Yes`. Disabled repositories are marked with `No`. The other columns show ID, type, name, target, and description of the listed repositories. The last columns show whether the repository can be mirrored and staging is enabled.

Use the `--verbose` option, to get additional information about the URL of the repository and the path it will be mirrored to.

The repository listing can be limited to only repositories that can be mirrored or to enabled repositories. To list only repositories that can be mirrored, use the `-m` or `--only-mirrorable` option: `smt-repos -m`.

To list only enabled repositories, use the `-o` or `--only-enabled` option: `smt-repos -o` (see Example 3.1, “Listing All Enabled Repositories”).

Example 3.1: *Listing All Enabled Repositories*

```
tux:~ # smt-repos -o
-----
| Mirr| ID | Type | Name                               | Target          | Description                               | Can be M| Stag|
-----+-----+-----+-----+-----+-----+-----+-----+
| Yes | 1 | zypp | ATI-Driver-SLE11-SP2               | --              | ATI-Driver-SLE11-SP2                     | Yes     | Yes |
| Yes | 2 | zypp | nVidia-Driver-SLE11-SP2           | --              | nVidia-Driver-SLE11-SP2                  | Yes     | No  |
| Yes | 3 | nu   | SLED11-SP2-Updates                 | sle-11-x86_64  | SLED11-SP2-Updates for sle-11-x86_64    | Yes     | No  |
-----
```

Yes	4	nu	SLES11-SP1-Updates	sle-11-x86_64	SLES11-SP1-Updates for sle-11-x86_64	Yes	Yes
Yes	5	nu	SLES11-SP2-Core	sle-11-x86_64	SLES11-SP2-Core for sle-11-x86_64	Yes	No
Yes	6	nu	SLES11-SP2-Updates	sle-11-i586	SLES11-SP2-Updates for sle-11-i586	Yes	No
Yes	7	nu	WebYaST-Testing-Updates	sle-11-i586	WebYaST-Testing-Updates for sle-11-i586	Yes	No

You can also list only repositories with a particular name or show information about a repository with a particular name and target. To list repositories with a particular name, use the `smt-repos repository_name` command. To show information about a repository with a particular name and target, use the `smt-repos repository_name target` command.

To get a list of installation repositories from remote, see Section 8.6, “Listing Accessible Repositories”.

3.2.4 Selecting Repositories to be Mirrored

Only enabled repositories can be mirrored. In the database, the enabled repositories have the `DOMIRROR` flag set. Repositories can be enabled or disabled using the `smt-repos` command.

To enable one or more repositories, follow these steps:

- 1 If you want to enable all repositories that can be mirrored or just choose one repository from the list of all repositories, run the `smt-repos -e` command.

You are able to limit the list of repositories by using the relevant options. To limit the list to only repositories that can be mirrored, use the `-m` option: `smt-repos -m -e`. To limit the list to only repositories with a particular name, use the `smt-repos -e repository_name` command. To list only a repository with a particular name and target, use the command `smt-repos -e repository_name target`.

If you want to enable all repositories belonging to a certain product, use the `--enable-by-prod` or `-p` option followed by the name of the product and, optionally, its version, architecture, and release:

```
smt-repos -p product[,version[,architecture[,release]]]
```

For example, to enable all repositories belonging to SUSE Linux Enterprise Server 10 SP4 for PowerPC architecture, use the following command:

```
smt-repos -p SUSE-Linux-Enterprise-Server-SP4,10,ppc
```

The list of known products can be obtained with the `smt-list-products` command.

- 2 If more than one repository is listed, choose the one you want to enable by specifying its ID listed in the repository table and pressing Enter. If you want to enable all the listed repositories, use `a` and press Enter.

To disable one or more repositories, follow these steps:

- 1 If you want to disable all enabled repositories or just choose one repository from the list of all repositories, run the `smt-repos -d` command.

If you want to choose the repository to be disabled from a shorter list, or if you want to disable all repositories from a limited group, you can use any of the available options to limit the list of the repositories. To limit the list to only enabled repositories, use the `-o` option: `smt-repos -o -d`. To limit the list to only repositories with a particular name, use the `smt-repos -d repository_name` command. To list only a repository with a particular name and target, use the `smt-repos -d repository_name target` command.

- 2 If more than one repository is listed, choose which one you want to disable by specifying its ID listed in the repository table shown and pressing Enter. If you want to disable all the listed repositories, use `a` and press Enter.

3.2.5 Deleting Mirrored Repositories

You can delete mirrored repositories that are no longer used. If you delete a repository, it will be physically removed from the SMT storage area.

To delete a repository with a particular name, use the `smt-repos --delete` command. To delete the repository in a namespace, specify the `--namespace dirname` option.

`--delete` lists all repositories, and by entering the ID number or by entering the name and target you can delete the specified repositories. If you want to delete all repositories, enter `a`.

NOTE: Detecting Repository IDs

Every repository has a sha1sum that you can use as an ID. You can get the repository's sha1sum by calling `smt-repos -v`.

3.2.6 Mirroring Custom Repositories

Using SMT you can also mirror repositories that are not available at the Novell Customer Center. Those repositories are called “custom repositories”. Use the `smt-setup-custom-repos` command for this purpose. Custom repositories can also be deleted.

When adding a new custom repository, `smt-setup-custom-repos` adds a new record in the database, and sets the `mirror` flag to `true` by default. If needed, you can disable mirroring later.

To set up a custom repository to be available through SMT, follow these steps:

- 1 If you do not know the ID of the product the new repositories should belong to, use `smt-list-products` to get the ID. For the description of the `smt-list-products`, see Section 7.1.2.4, “`smt-list-products`”.

2 Run

```
smt-setup-custom-repos --productid product_id \  
--name repository_name --exturl repository_url
```

In this command `product_id` is the ID of the product the repository belongs to, `repository_name` represents the name of the repository and `repository_url` is the URL the repository is available at. In case the added repository needs to be available for more than one product, specify the IDs of all products that should use the added repository.

For example, to set `My_repository` available at `http://example.com/My_repository` to the products with the IDs 423, 424, and 425, use the following command:

```
smt-setup-custom-repositories --productid 423 --productid 424 \  
--productid 425 --name 'My_repository' \  
--exturl 'http://example.com/My_repository'
```

NOTE: Mirroring Unsigned Repositories

In its default configuration, SUSE Linux Enterprise 10 does not allow the use of unsigned repositories. Therefore, if you want to mirror unsigned repositories and use them on client machines, you have to allow this explicitly by executing the following command on the client machines:

```
rug set security-level checksum
```

To remove an already-set custom repository from the SMT database, use `smt-set-up-custom-repositories --delete ID`, where *ID* represents the ID of the repository to be removed.

3.2.7 Mirroring SUSE Linux Enterprise Server 9 Repositories

For mirroring old style update repositories which were used for SUSE Linux Enterprise Server 9 and similar products, use a special command: `smt-mirror-sle9`. This command mirrors from the `https://you.novell.com` server. The download URL for SUSE Linux Enterprise Server 9 clients is following:

```
http(s)://example.com/repo/YOUI9/<architecture>/update/<product>/<version>/
```

The `smt-mirror-sle9` command does not store information about repositories to be mirrored in the SMT database. It only uses the configuration from the `/etc/smt.conf` file. The configuration of `smt-mirror-sle9` is described in Section 7.2.1.7, “`smt-mirror-sle9` Sections of `/etc/smt.conf`”.

The `smt-mirror-sle9` command uses `wget` to mirror repositories. Therefore, you can exclude anything you do not want to be mirrored by adding the `exclude_directories` option to the `/var/lib/smt/.wgetrc` configuration file. For more information about `wget` and `/var/lib/smt/.wgetrc`, see `man wget`.

3.3 The `/srv/www/htdocs` Structure for SLE 11

The path to the directory containing the mirror is set by the `MirrorTo` option in the `/etc/smt.conf` configuration file. For more information about `/etc/smt.conf`, see Section 7.2.1, “`/etc/smt.conf`”. If the `MirrorTo` option is not set to the Apache `htdocs` directory `/srv/www/htdocs/`, the following links need to be created. In case the directories already exist, they need to be removed prior to creating the link (the data from that directories will be lost!). `MIRRORTO` has to be replaced with the path defined with `MirrorTo`:

- /srv/www/htdocs/repo/\$RCE should point to *MIRRORTo*/repo/\$RCE/
- /srv/www/htdocs/repo/RPMD to *MIRRORTo*/repo/RPMD/
- /srv/www/htdocs/repo/testing to *MIRRORTo*/repo/testing/ and
- /srv/www/htdocs/repo/full to *MIRRORTo*/repo/full/

The directory specified by the option `MirrorTo` and the subdirectories listed above must exist. Files and directories in */MirrorTo* as well as the links need to belong to the user `smt` and the group `www`.

For example, if the `MirrorTo` is set to `/mirror/data`:

```
l /srv/www/htdocs/repo/
total 16
lrwxrwxrwx 1 smt www 22 Feb 9 14:23 $RCE -> /mirror/data/repo/$RCE/
drwxr-xr-x 4 smt www 4096 Feb 9 14:23 ./
drwxr-xr-x 4 root root 4096 Feb 8 15:44 ../
lrwxrwxrwx 1 smt www 23 Feb 9 14:23 RPMD -> /mirror/data/repo/RPMD/
lrwxrwxrwx 1 smt www 22 Feb 9 14:23 full -> /mirror/data/repo/full/
drwxr-xr-x 2 smt www 4096 Feb 8 11:12 keys/
lrwxrwxrwx 1 smt www 25 Feb 9 14:23 testing -> /mirror/data/repo/
testing/
drwxr-xr-x 2 smt www 4096 Feb 8 14:14 tools/
```

The links can be created using the `ln -s` commands. For example:

```
cd /srv/www/htdocs/repo/
for LINK in $RCE RPMD full testing; do
  ln -s /mirror/data/repo/${LINK}/ && chown -h smt.www ${LINK}
done
```

IMPORTANT: The /srv/www/htdocs/repo Directory

The `/srv/www/htdocs/repo` directory must not be a symbolic link.

IMPORTANT: Apache and Symbolic Links

By default Apache on SUSE Linux Enterprise is configured to not follow symbolic links. To enable symbolic links for `/srv/www/htdocs/repo/` add the following snippet to `/etc/apache2/default-server.conf` (or the respective virtual host configuration in case you are running SMT on a virtual host):

```
<Directory "/srv/www/htdocs/repo">
```

```
Options FollowSymLinks
</Directory>
```

After having made the change, test the syntax and reload the Apache configuration files to activate the change:

```
rcapache2 configtest && rcapache2 reload
```

3.4 Using the Test Environment

You can mirror repositories to a test environment instead of the production environment. The test environment can be used with a limited number of client machines before the tested repositories are moved to the production environment. The test environment can be run on the main SMT server.

The testing environment uses the same structure as the production environment, but it is located in the `/srv/www/htdocs/repo/testing/` subdirectory.

To mirror a repository to the testing environment, you can use the *Staging* tab in the YaST SMT Management module, or the command `smt-staging`.

To register a client in the testing environment, modify the `/etc/suseRegister.conf` on the client machine by setting:

```
register = command=register&namespace=testing
```

To move the testing environment to the production environment, manually copy or move it using the `cp -a` or `mv` command.

You can enable “staging” for a repository in the *Repositories* tab of the SMT Management module or with the `smt-repos` command. The mirroring happens automatically to `repo/full/`.

If you have a SLE11-based Update repository with patches, SMT tools can help you with the management. With these tools you can select patches and create a snapshot and copy it into `repo/testing/`. After tests are finished you can copy the contents of `repo/testing` into the production area `/repo`.

SLE10-based Update repositories are not supported by SMT tools. Not all of these repositories support selective staging. In this case you must mirror the complete package.

Recommended work flow:

```
repo => repo/full,  
repo/full => repo/testing,  
repo/testing => repo
```

3.5 Testing and Filtering Update Repositories with Staging

You can test repositories on any clients with `smt-staging` before moving them to the production environment. You can select new update repositories manually to be installed on clients.

For staging, you can either use the `smt-staging` command, or use the YaST SMT Management module. For more details, see Section 4.3, “Staging Repositories”.

Repositories with staging enabled are mirrored to the `/MirrorTo/repo/full` subdirectory. This subdirectory is usually not used by your clients. Incoming new updates are not automatically visible to the clients before you get a chance to test them. Later you can generate a testing environment of this repository, which goes to `/MirrorTo/repo` directory.

If you have a SLE11 based Update repository with patches, SMT tools can help you with the management. With these tools you can select patches and create a snapshot and put it into `repo/testing/`. After tests are finished you can put the content of `repo/testing` into the production area `/repo`. `repo/testing/` and `/repo` is called the “default” staging group. You can create additional staging groups as needed with the `smt-staging creategroup` command.

NOTE: SLE 10 Based Update Repositories

SLE 10 based Update repositories are not supported by SMT tools. Not all of these repositories support selective staging. In this case you need to mirror the complete package.

Enabling Staging

To enable or disable the staging use the `smt-repos` command with `--enable-staging` or `-s`:

```
smt-repos --enable-staging
```

You can enable the required repositories by entering the ID number or by entering the name and target. If you want to enable all repositories enter *a*.

Generating Testing and Production Snapshots

To create the testing repository in the “default” staging group enter:

```
smt-staging createrepo Repository_ID --testing
```

Now, you can test the installation and functionality of the patches in testing clients. If no problems are discovered during testing, create the production repository by entering:

```
smt-staging createrepo Repository_ID --production
```

To create testing and production repositories in a named staging group first create the group and then the repositories in this group:

```
smt-staging creategroup Groupname Testingdir Productiondir
smt-staging createrepo --group Groupname Repository_ID --testing
smt-staging createrepo --group Groupname Repository_ID --production
```

This can help you, if you for example, want to combine SLES11-SP1-Updates and SLES11-SP2-Updates of the `sle-11-x86_64` architecture into one repository of a group:

```
smt-staging creategroup SLES11SP1-SP2-Up test-sp1-sp2 prod-sp1-sp2
smt-staging createrepo --group SLES11SP1-SP2-Up \
  SLES11-SP1-Updates sle-11-x86_64 --testing
smt-staging createrepo --group SLES11SP1-SP2-Up \
  SLES11-SP2-Updates sle-11-x86_64 --testing
smt-staging createrepo --group SLES11SP1-SP2-Up \
  SLES11-SP1-Updates sle-11-x86_64 --production
smt-staging createrepo --group SLES11SP1-SP2-Up \
  SLES11-SP2-Updates sle-11-x86_64 --production
```

For group names, these characters are allowed: `-`, `a-zA-Z`, and `0-9`.

Filtering Patches

You can allow or forbid all or selected patches with the `allow` or `forbid` commands by their ID or Category:

```
smt-staging forbid --patch ID
smt-staging forbid --category Categoryname
```

Signing Changed Repositories

If you filter one or more patches from a repository, the original signature becomes invalid. The repository needs to be signed again. The `smt-staging createrepo` command takes care of that automatically if you configure the SMT server.

In order to enable signing of changed metadata, the admin needs to generate a new signing key. This can be done with GPG like this:

```
mkdir some_dir
gpg --gen-key --homedir some_dir
sudo mv some_dir /var/lib/smt/.gnupg
sudo chown smt:users -R /var/lib/smt/.gnupg
sudo chmod go-rwx -R /var/lib/smt/.gnupg
```

Then, the ID of the newly generated key as seen in the `gpg --gen-key` command output, must be written into `/etc/smt.conf`, option `signingKeyID`.

At this point the clients do not know about this new key. In order to import the new key to clients during their registration, the following can be done:

```
sudo -u smt gpg --homedir /var/lib/smt/.gnupg \  
  --export -a signingKeyID \  
  > /MirrorTo/repo/keys/smt-signing-key.key
```

In this example, *MirrorTo* stands for the base directory where repositories will be mirrored. Once done, clients can import this key during the registration process.

Registering Clients in the Testing Environment

To register a client in the testing environment, modify the `/etc/suseRegister.conf` on the client machine by setting:

```
register = command=register&namespace=testing
```


Managing Repositories with YaST SMT Server Management

You can use the YaST SMT Server Management module for day-to-day management. SMT Server Management enables and disables the mirroring of repositories, the staging flag for repositories, and performs the mirroring and staging.

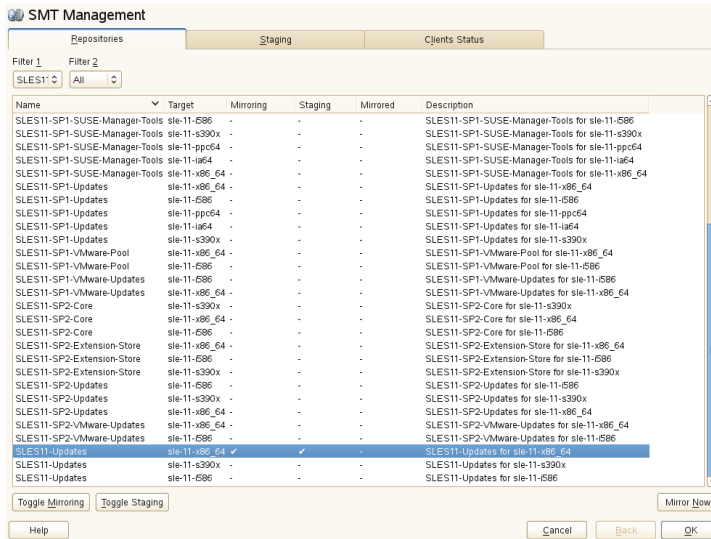
4.1 Starting SMT Management Module

SMT Management is a YaST module. To start the module, do one of the following:

- Start YaST and select *Network Services*, then *SMT Server Management*.
- Enter `yast2 smt` in the command line as `root`.

The SMT Management application window opens with the *Repositories* tab active.

Figure 4.1: *List of Repositories*



4.2 Viewing and Managing Repositories

In the *Repositories* tab, you can see the list of all available package repositories for SMT. For each repository, the list shows the repository's name, target product and architecture, mirroring and staging flag, date of last mirroring, and a short description. You can sort the list by clicking on the relevant column's header, and scroll the list items using the scrollbars on the window's right side.

4.2.1 Filtering Repositories

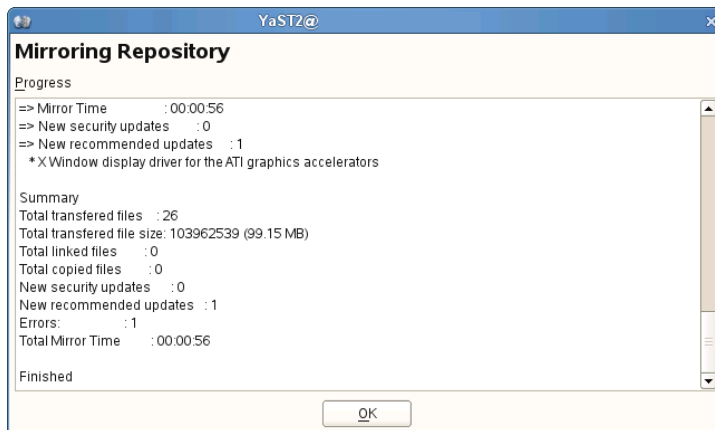
You can also filter out groups of repositories with the *Filter* drop-down list in the upper left part of the window. The filter list items are collected and assembled dynamically from the first word of the repositories' names. If you use a filter to limit the number of displayed repositories, you can always go back and view all of them by selecting *All* from the *Filter* drop-down list. You can also use more than one filter in sequence.

4.2.2 Mirroring Repositories

Before you can start to offer package repositories, you need to create a local mirror of their packages. To do this, follow the procedure:

- 1 From the list, select the line containing the name of the repository you want to mirror.
- 2 Click on the selected line highlighting it.
- 3 Click on the *Toggle Mirroring* button in the lower left part of the window. In the *Mirroring* column of the selected repository, a check mark appears. If the repository was already selected for mirroring before, the check mark will disappear, and the repository will not be mirrored anymore.
- 4 Hit the *Mirror Now* button and the repository will be mirrored immediately.
- 5 A pop-up window appears with the information about mirroring status and result.
- 6 Click OK and the original window with the list of repositories will be refreshed.

Figure 4.2: *Status of Mirroring Process*



4.3 Staging Repositories

After the mirroring is finished, you can stage the mirrored repositories. In SMT, *staging* is a process where you create either testing or production repositories based on the

mirrored ones. The testing repository helps you examine the repository and its packages before you make them available in a production environment. To make repositories available for staging, do the following:

- 1 From the repository list, select the line containing the name of the repository you want to manage.
- 2 Click on the selected line, highlighting it.
- 3 Click on the *Toggle Staging* button in the lower left part of the window next to the *Toggle Mirroring* button. In the *Staging* column of the selected repository, a check mark appears. If the repository was already selected for staging before, the check mark will disappear, and the repository will not be available for staging.
- 4 Repeat steps 1 to 3 for all directory whose staging flag you wish to change.

IMPORTANT: Toggle Staging Button Not Active

You can only stage the repositories that were previously selected for mirroring. If it is not the case, the *Toggle Staging* button will not be active.

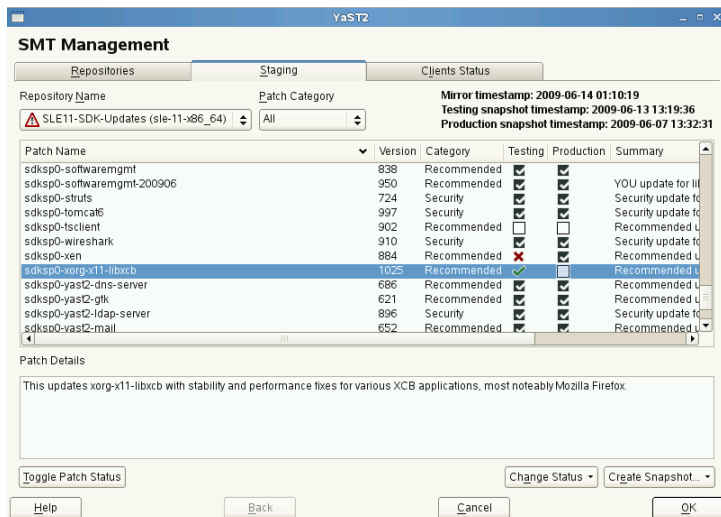
Once you mirror the repositories and make them available for staging, click on the *Staging* tab. In the upper left part of the window, there is a *Repository Name* drop-down list of all repositories which are available for staging. There the repository names have the name of the staging group attached in parentheses. Select the one you want to stage and a list of packages of this repository appears below. Information about the patch name, its version and category, testing and production flags, and a short summary is available for each patch.

Next to the *Repository Name* drop-down list, there is a *Patch Category* filter. It helps you to list only the patches that belong to one of the predefined categories.

If the selected repository allows for patch filtering, you can toggle the status flag for individual patches. Do so by clicking on the *Toggle Patch Status* button in the lower left part of the window.

Before creating a repository of packages that are available in the *production* environment, you need to create and test the *testing* repository. Click on the *Create Snapshot* drop-down menu and select *From Full Mirror to Testing* menu item. A small pop-up window appears informing you about the staging process. After the testing repository snapshot is created, the relevant check marks in the *Testing* column will be displayed.

Figure 4.3: Testing Snapshot Created



IMPORTANT: Creating a Production Snapshot

After you enable *staging* for an update repository, you have to create its *production* snapshot to make it available to the clients. Otherwise the clients will not be able to find the update repository.

After you have examined the newly created testing repository, you can safely create a production one. Click on the *Create Snapshot* drop-down menu and select *From Testing to Production* menu item. A small pop-up window appears informing you about the linking the testing repository to the production one. After the production snapshot is created, the relevant check marks in the *Production* column will be displayed. Also, a green check mark appears in the *Repository Name* drop-down list.

4.4 Checking the Client Status

The third tab called *Clients Status* contains the status information about all the clients that use the repositories on your SMT server. It is divided into two main parts: the list of the clients and the detailed information.

You can read the client's host name, the date and time of the last network contact with the SMT server, and its update status. The update status can be one of the following:

Up-to-date

The client packages are updated to their last version available in the production repository.

Updates available

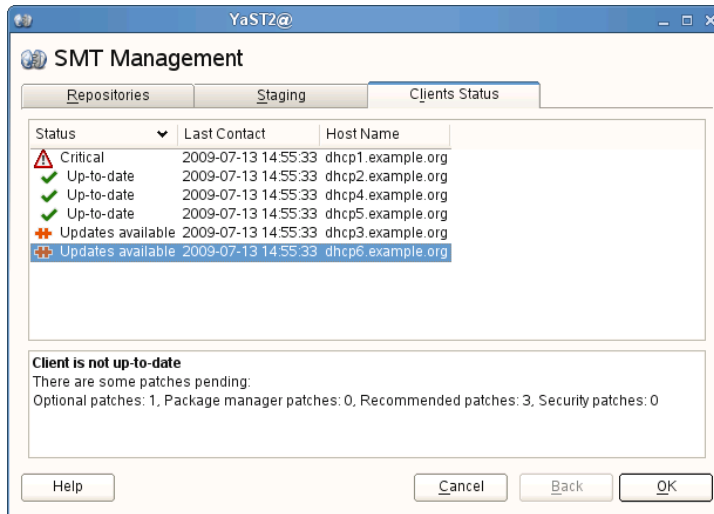
This status means that there are updates available for the client that are either optional or recommended.

Critical

Either security patches or package manager patches are available for the client.

In the lower part of the window, more detailed information about the highlighted client is available. It usually consists of extended status information and detailed information about the number and types of available updates.

Figure 4.4: *Clients Status*



5

Managing Client Machines with SMT

SMT lets you register and manage client machines on Novell Customer Center. Client machines must be configured to use SMT. For information about configuring clients to use SMT, see Chapter 8, *Configuring Clients to Use SMT*.

5.1 Listing Registered Clients

To list SMT-registered client machines, use the `smt-list-registrations` command. The following information is listed for each client: its *Unique ID*, *Host-name*, date and time of *Last Contact* with the SMT server, and the Software *Product* the client uses.

5.2 Deleting Registrations

To delete a registration from SMT and Novell Customer Center, use the following command. To delete multiple registrations, the option `-g` can be used several times.

```
smt-delete-registration -g Client_ID
```

The ID of the client machine to be deleted can be determined from the output of the `smt-list-registrations` command.

5.3 Manual Registration of Clients at Novell Customer Center

The `smt-register` command registers clients at Novell Customer Center. All clients that are currently not registered or whose data has changed since the last registration are registered.

To register clients whose registration has failed, use the `--reseterror` option. This option resets the NCC registration error flag and tries to submit failed registrations again.

5.4 Scheduling Periodic Registrations of Clients at Novell Customer Center

SMT module allows for the easy scheduling of client registrations. In the default configuration, registrations are scheduled to repeat every 15 minutes. To create or modify a new registration schedule, follow these steps:

- 1 Start YaST *SMT Configuration* module (`yast2 smt-server`).
- 2 Go to the *Scheduled SMT Job*.
- 3 Select any *NCC Registration* job and click *Edit* if you want to change its schedule.

To create a new registration schedule, click *Add* and select *NCC Registration as Job to Run*.

- 4 Choose the *Frequency* of the scheduled SMT job. You can perform jobs *Daily*, *Weekly*, *Monthly*, or *Periodically* (every n-th hour or every m-th minute).

Set the *Job Start Time* by entering *Hour* and *Minute*, or, in case of periodical frequency, the relevant periods. For weekly and monthly schedules, select the *Day of the Week* or the *Day of the Month* the mirroring should occur.

NOTE: Lowest Registration Frequency

Do not set the frequency lower than 10 minutes, because the maximum value of the `rndRegister` is 450 (7.5 minutes). If the frequency is lower, it may occur that the started process is still sleeping when the next process starts. In this case, the second request will exit.

5 Click either *OK* or *Add* and *Finish*.

Scheduling of SMT jobs in general is covered in Section 2.5, “Setting the SMT Job Schedule with YaST”.

YaST uses `cron` to schedule Novell Customer Center registrations and other SMT jobs. If you do not want to use YaST, use `cron` directly.

To disable automatic registration, change the `forwardRegistration` value in the `[LOCAL]` section of the `/etc/smt.conf` configuration file to `false`.

6

SMT Reports

This chapter introduces reports based on the SMT and Novell Customer Center data. The reports contain statistics of all the registered machines, products used and all active, expiring or missing subscriptions.

NOTE: Assignment of Reports

If you are using more than one SMT server in your environment, generated reports may not represent all of the SMT servers or machines in your environment. For the complete statistics of all your registered machines, refer to the information in the Novell Customer Center.

6.1 Report Schedule and Recipients

Generated SMT reports can be sent to a defined list of e-mail addresses periodically. To create or edit this list, and to set the frequency of the reports, use the YaST SMT Configuration module. How to configure this list is described in Section 2.4, “Setting E-mail Addresses to Receive Reports with YaST”. Configuration of the report schedule is described in Section 2.5, “Setting the SMT Job Schedule with YaST”.

The list can also be edited manually in the `reportEmail` option of the `/etc/smt.conf` configuration file. For more information about editing the list of addresses directly, see Section 7.2.1.6, “[REPORT] Section of `/etc/smt.conf`”. To set the frequency of reports manually, you can directly edit the `smt-gen-report` lines of the

`crontab` in `/etc/cron.d/novell.com-smt`. For more information about the `crontab` format, see `man 5 crontab`.

Reports, including those created as a scheduled SMT job, are created by the `smt-report` command. This command has various parameters. To edit parameters used with scheduled commands, edit the `/etc/smt.d/smt-cron.conf` configuration file. For more information, see Section 7.2.2, “`/etc/smt.d/smt-cron.conf`”.

6.2 Types of SMT Reports

Two types of reports can be created with the `smt-report` command:

`--local`

If the `--local` option is used, the created report is based solely on local SMT data.

`--ncc`

If the `--ncc` option is used, the created report is based on Novell Customer Center data.

If neither `--local` nor `--ncc` is used, the type of report is determined by `forwardRegistration` in the `/etc/smt.conf` configuration file. If the option is set to `true`, the report is based on Novell Customer Center data. If it is set to `false`, the report is based on local SMT data.

If you are creating a report based on local SMT data and you do not want local data to be synchronized with the Novell Customer Center at all, use the `--nonccsync` option together with `--local` option.

6.3 Report Output Formats and Targets

SMT reports can be printed to the standard output, exported to one or multiple files (in CSV format) as well as mailed to the defined list of e-mail addresses. Use the following options for the `smt-report` command:

`--quiet` or `-q`

Suppress output to `STDOUT` and run `smt-report` in quiet mode.

`--file` or `-F`

Export report to one or several files. By default, the report will be written to a single file, rendered as tables. Optionally, the filename or whole path may be specified after the parameter: `--file filename`. If no filename is specified, a default filename containing a timestamp is used. However, SMT will not check if the file or files already exist.

In CSV (Comma-Separated Value) mode the report will be written to multiple files, therefore the specified filename will expand to `[path/]filename-reportname.extension` for every report.

`--csv` or `-c`

The report will be exported to multiple files in CSV format. The first line of each *.csv file consists of the column names, the data starts on line two. It is recommended to use the `--csv` parameter together with the `--file` parameter. If the specified filename contains a .csv extension, the report format will be CSV (as if the `--csv` parameter was used).

`--mail` or `-m`

Activate mailing of the report to the addresses configured with the YaST SMT Configuration module and written in `/etc/smt.conf`. The report will be rendered as tables.

`--attach` or `-a`

Attach the report to the mails in CSV format. This option should only be used together with the `--mail` option.

`--pdf`

The report will be exported to multiple files in pdf format.

`--xml`

The report will be exported to multiple files in xml format.

NOTE: Disabling Sending Attachments

If you want to disable sending CSV attachments with report mails, edit the `/etc/smt.d/smt-cron.conf` configuration file as follows: remove the `--attach` option from the `REPORT_PARAMS` value. The default line reads: `REPORT_PARAMS="--mail --attach -L /var/log/smt-report.log"`. To disable CSV attachments, change it to: `REPORT_PARAMS="--mail -L /var/log/smt-report.log"`.

If you have disabled CSV attachments but need them occasionally, you can send them manually with the `smt-report --mail --attach -L /var/log/smt-report.log` command.

SMT Tools and Configuration Files

This chapter describes the most important scripts, configuration files and certificates shipped with SMT.

7.1 Important Scripts and Tools

There are two important groups of SMT commands: The `smt` command with its sub-commands is used for managing the mirroring of updates, registration of clients, and reporting. The `rcsmt` script is used for starting, stopping, restarting SMT services, and for checking their status.

7.1.1 SMT JobQueue

Since SUSE Linux Enterprise version 11, there is a new SMT service called SMT JobQueue. It is a system to delegate *jobs* to the registered clients.

To enable JobQueue, the `smt-client` package needs to be installed on the SMT client. The client then pulls jobs from the server via a cron job (every 3 hours by default). The list of jobs is maintained on the server. Jobs are not pushed directly to the clients and processed immediately, but the client asks for them. Therefore, a delay of several hours may occur.

Every job can have its parent job, which sets a dependency. The child job only runs after the parent job successfully finished. Job timing is also possible: a job can have a start time and an expiration time to define its earliest execution time or the time the job will expire. A job may also be persistent. It is run repeatedly with a delay. For

example, a patch status job is a persistent job that runs once a day. For each client, a patch status job is automatically generated after it registers successfully against an SMT 11 server. The patchstatus information can be queried with the `smt-client` command. For the already registered clients, you can add the patchstatus jobs manually with the `smt-job` command.

You can manipulate, list, create or delete the jobs. For this reason, the command line tool `smt-job` was introduced. For more details on `smt-job`, see Section 7.1.2.3, “smt-job”.

NOTE: Overriding the Automatic Creation of Patch Status Job

When creating a software push or an update job, normally a non-persistent patch status job will be added automatically with the parent id set to the id of the new job. To disable this behavior, use the `--no-autopatchstatus` option.

SMT is not intended to be a system to directly access the clients or to immediately report the results back. It is rather a longtime maintenance and monitoring system than a live interaction tool.

NOTE: Job Time Lag Limitation

The client will process one job at a time, report back the result, and then ask for the next job. If you create a persistent job with a time lag of only a few seconds, it will be repeated forever and block other jobs of this client. Therefore, adding jobs with a time lag smaller than one minute is not supported.

7.1.2 /usr/sbin/smt Commands

The main command to manage the SMT is `smt (/usr/sbin/smt)`. The `smt` command should be used together with various sub-commands described in this section. If the `smt` command is used alone, it prints out a list of all available sub-commands. To get help for individual sub-commands, use `smt subcommand --help`.

The following sub-commands are available:

- `smt-client`
- `smt-delete-registration`

- `smt-job`
- `smt-list-products`
- `smt-list-registrations`
- `smt-mirror`
- `smt-ncc-sync`
- `smt-register`
- `smt-report`
- `smt-repos`
- `smt-scc-sync`
- `smt-setup-custom-repos`
- `smt-staging`
- `smt-support`
- `smt-sync`
- `smt-mirror-sle9`

There are two syntax types you can use with the `smt` command: either use `smt` followed by a sub-command or use a single command (composed of `smt`, dash, and the sub-command of choice). For example, it is possible to use either `smt mirror` or `smt-mirror`, as both have the same meaning.

NOTE: Conflicting Commands

Depending on your `$PATH` environment variable, the SMT `smt` command (`/usr/sbin/smt`) may collide with the `smt` command from the `star` package (`/usr/bin/smt`). Either use the absolute path `/usr/sbin/smt`, create an alias, or set your `$PATH` accordingly.

Another solution is to always use the `smt- subcommand` syntax (connected with a minus sign) instead of `smt subcommand` (separated by a space).

7.1.2.1 smt-client

The `smt-client` command shows information about registered clients. The information includes:

- `guid`
- `hostname`
- `patch status`
- timestamps of the patch status
- last contact with the SMT server

The `smt-client` understands the following options:

`--verbose` or `-v`

Show detailed information about the client. The last contact date is shown as well.

`--debug` or `-d`

Enable debugging mode.

`--logfile` or `-L file`

Specify the file the log will be written to.

`--hostname` or `-h name`

Only the entries whose hostname begins with *name* will be listed.

`--guid` or `-g guid`

Only the entries whose GUID is *guid* will be listed.

`--severity` or `-s level`

Filter the result by the patch status information. The value *level* can be one of 'packagemanager', 'security', 'recommended' or 'optional'. Only those entries are listed which have patches of the respective level.

7.1.2.2 smt-delete-registration

The `smt-delete-registration` command deletes one or more registrations from SMT and Novell Customer Center. It will deregister machines from the system. The following options are available:

`--guid ID or -g ID`

Delete the machine with the *guid ID* from the system. You can use this option multiple times.

`--debug or -d`

Enable debugging mode.

7.1.2.3 `smt-job`

The `smt-job` script manages jobs for individual SMT clients. You can list, create, edit, or delete jobs with it. The following options are available:

`--list or -l`

List all client jobs. This is the default if the operation mode switch is omitted.

`--verbose or -v level`

Show detailed information about a job or jobs in a list mode. The *level* value can be a number from 0 to 3. The bigger the value, the more verbose the command is.

`--create or -c`

Create a new job.

`--edit or -e`

Edit an existing job.

`--delete or -d`

Delete an existing job.

`--guid or -g guid`

Specify the client's *guid*. This parameter can be used multiple times to create a job for more than one client.

`--jobid or -j id`

Specify the job ID. You need to specify job ID and client's *guid* when editing or deleting a job, because the same job for multiple clients has the same job ID.

`--deleteall or -A id`

Omit either the client's *guid* or the job ID in this delete operation. The missing parameter will match all clients respective jobs.

- `--type` or `-t type`
Specify the job type. The type can be one of 'patchstatus', 'softwarepush', 'update', 'execute', 'reboot', 'wait', 'eject'. On the client, only 'patchstatus', 'softwarepush' and 'update' are enabled by default.
- `--description description`
Specify a job description.
- `--parent id`
Specify the job ID of the parent job. Use it to describe a dependency. A job will not be processed until its parent has successfully finished.
- `--name` or `-n name`
Specify a job name.
- `--persistent`
Specify if a job is persistent. Non-persistent jobs are processed only once, while persistent jobs are processed again and again. Use `--timelag` to define the time that elapses until the next run.
- `--finished`
Search option for finished jobs.
- `--targeted time`
Specify the earliest execution time of a job. Note that the job most likely will not run exactly at that point in time, but probably some minutes or hours after. The reason is that the client polls in a fixed interval for jobs.
- `--expires time`
Define when the job will no longer be executed anymore.
- `--timelag time`
Define the time interval for persistent jobs.

For a complete list of possible options and their explanation, see the manual page of `smt-job` command (`man smt-job`).

Examples

To list all finished jobs, enter the following:

```
smt-job --list --finished
```

To create a 'softwarepush' job that installs `xterm` and `bash` on client 12345 and 67890, enter the following:

```
smt-job --create -t softwarepush -P xterm -P bash -g 12345 -g 67890
```

To change the timing for a persistent job with job ID 42 and guid 12345 to run every 6 hours, enter the following:

```
smt-job --edit -j 42 -g 12345 --targeted 0000-00-00 --timelag 06:00:00
```

To delete all jobs with job ID 42, enter the following:

```
smt-job --delete -jobid 42 --deleteall
```

7.1.2.4 smt-list-products

The `smt-list-products` script lists all software products in the SMT database. The following options are available:

`--used` or `-u`

Show only used products.

`--catstat` or `-c`

Show whether all repositories needed for a product are locally mirrored.

7.1.2.5 smt-list-registrations

The `smt-list-registrations` script lists all registrations. There are two options available for this command.

`--verbose` or `-v`

Show detailed information about the registered devices.

`--format` or `-f format`

Format the output. Possible types of formats are *asciitable* and *csv*

7.1.2.6 smt-mirror

The `smt-mirror` command performs the mirroring procedure and downloads repositories that are set to be mirrored.

You can run the `smt-mirror` with the following options:

`--clean` or `-c`

Remove all files no longer mentioned in the metadata from the mirror. No mirroring occurs before cleanup.

- `--debug` or `-d`
Enable the debugging mode.
- `--deepverify`
Turn on verifying of all package checksums.
- `--hardlink size`
Search for duplicate files with a size greater than the size specified in kilobytes.
Creates hard links for them.
- `--directory path`
Define the directory to work on. If you use this option, the default value configured in the `smt.conf` configuration file is ignored.
- `--dbreplfile file`
Define the path to the `*.xml` file to use as database replacement. You can create such a file with the `sync-ncc` command.
- `--logfile file` or `-L file`
Specify the path to a logfile.

7.1.2.7 `smt-sync`

The `smt-sync` or `smt sync` command gets data from the Novell Customer Center or SUSE Customer Center and updates the local SMT database. It can also save Novell Customer Center or SUSE Customer Center data to a directory instead of the SMT database, or read Novell Customer Center or SUSE Customer Center data from such a directory instead of downloading it from Novell Customer Center or SUSE Customer Center itself.

When using this command, it is automatically decided whether Novell Customer Center or SUSE Customer Center should be used. Then `smt-ncc-sync` or `smt-scc-sync` is called as appropriate.

7.1.2.8 `smt-ncc-sync`

The `smt-ncc-sync` or `smt ncc-sync` command gets data from the Novell Customer Center and updates the local SMT database. It can also save Novell Customer Center data to a directory instead of the SMT database, or read Novell Customer Center data from such a directory instead of downloading it from Novell Customer Center itself.

You can run the `smt-ncc-sync` with the following options:

`--fromdir directory`

Read Novell Customer Center data from a directory instead of downloading it from Novell Customer Center.

`--todir directory`

Write Novell Customer Center data to the specified directory without updating the SMT database.

`--createdbreplacementfile`

Create a database replacement file for using `smt-mirror` without database.

`--logfile file` or `-L file`

Specify the path to a log file.

`--debug`

Enable debugging mode.

7.1.2.9 `smt-scc-sync`

The `smt-ccc-sync` or `smt scc-sync` command gets data from the SUSE Customer Center and updates the local SMT database. It can also save SUSE Customer Center data to a directory instead of the SMT database, or read SUSE Customer Center data from such a directory instead of downloading it from SUSE Customer Center itself.

You can run the `smt-scc-sync` with the following options:

`--fromdir directory`

Read SUSE Customer Center data from a directory instead of downloading it from SUSE Customer Center.

`--todir directory`

Write SUSE Customer Center data to the specified directory without updating the SMT database.

`--createdbreplacementfile`

Create a database replacement file for using `smt-mirror` without database.

`--logfile file` or `-L file`

Specify the path to a log file.

`--debug`
Enable debugging mode.

7.1.2.10 `smt-register`

The `smt-register` or `smt-register` command registers all currently unregistered clients at the Novell Customer Center. It also registers all clients whose data has changed since the last registration.

The following options are available:

`--logfile file` or `-L file`
Specify the path to a log file.

`--debug`
Enable debugging mode.

7.1.2.11 `smt-report`

The `smt-report` or `smt report` command generates a subscription report based on local calculation or Novell Customer Center registrations.

The following options are available:

`--local`
Force the creation of a report based on a local calculation without accessing Novell Customer Center data.

`--ncc`
Force the creation of a report based on Novell Customer Center data.

`--nonccsync`
Disable synchronizing with Novell Customer Center before creating the report.

`--mail` or `-m`
Activate mailing the report to the addresses configured with the SMT Server and written in `/etc/smt.conf`. The report will be rendered as tables.

`--attach` or `-a`
Append the report to the e-mails in CSV format. This option should only be used together with the `--mail` option.

`--quiet` or `-q`

Suppress output to STDOUT and runs `smt-report` in quiet mode.

`--csv` or `-c`

The report will be exported to multiple files in CSV format. The first line of each *.csv file consists of the column names, the data starts on line two. The `--csv` parameter should only be used together with the `--file` parameter. If the specified filename contains `.csv` as extension, the report format will be CSV (as if the `--csv` parameter was used).

`--pdf` or `-p`

The report will be exported in PDF format. Use it only together with the `-file` option.

`--xml`

The report will be exported in XML format. Use it only together with the `-file` option. For a detailed description of this XML format, see the manual page of the `smt-report` command.

`--file` or `-F`

Export the report to one or several files. By default, the report will be written to a single file rendered as tables. Optionally, the filename or whole path may be specified after the parameter: `--file filename`. If no filename is specified, a default filename containing a timestamp is used. However, SMT will not check if the file or files already exist.

In CSV mode the report will be written to multiple files, therefore, the specified filename will expand to `[path/]filename-reportname.extension` for every report.

`--logfile filename` or `-L filename`

Specify path to a logfile.

`--debug`

Enable debugging mode.

7.1.2.12 `smt-repos`

You can use `smt-repos` (or `smt repositories`) to list all available repositories and for enabling, disabling, or deleting repositories. The following options are available:

`--enable-mirror` or `-e`
 Enable repository mirroring.

`--enable-by-prod` or `-p`
 Enable repository mirroring by giving product data in the following format:
 Product [, Version [, Architecture [, Release]]].

`--disable-by-prod` or `-P`
 Disable repository mirroring by giving product data in the following format:
 Product [, Version [, Architecture [, Release]]].

`--enable-staging` or `-s`
 Enable repository staging.

`--disable-staging` or `-S`
 Disable repository staging.

`--disable-mirror` or `-d`
 Disable repository mirroring.

`--only-mirrorable` or `-m`
 List only repositories that can be mirrored.

`--only-enabled` or `-o`
 List only enabled repositories.

`--delete`
 List repositories and delete them from disk.

`--namespace dirname`
 Delete the repository in the specified namespace.

`--verbose` or `-v`
 Show detailed repository information.

7.1.2.13 **smt-setup-custom-repos**

The `smt-setup-custom-repos` or `smt setup-custom-repos` script is a tool to set up custom repositories (repositories not present in NU) to be used with SMT. You can use this script to add a new repository to the SMT database or to delete a repository from the database. The script recognizes the following options:

- `--productid`
ID of a product the repository belongs to. If a repository should belong to multiple products, use this option multiple times to assign the repository to all relevant products.
- `--name`
The name of the custom repository.
- `--description`
The description of the custom repository.
- `--exturl`
The URL where this repository can be mirrored from. Only HTTP and HTTPS protocols are supported (no directory, file, or FTP).
- `--delete`
Remove a custom repository with a given ID from the SMT database.

To set up a new repository, use the following command:

```
smt-setup-custom-repos --productid Product_ID \  
--name Catalog_Name --exturl URL
```

For example:

```
smt-setup-custom-repos --productid 434 \  
--name My_Catalog --exturl http://my.example.com/My_Catalog
```

To remove a configured repository, use the following command:

```
smt-setup-custom-repos --delete Catalog_ID
```

For example:

```
smt-setup-custom-repos --delete 1cf336d819e8e5904f4d4b05ee081971a0cc8afc
```

7.1.2.14 smt-staging

A *patch* is an update of a package or group of packages. The term *update* and *patch* are often interchangeable. With the `smt-staging` script, you can set up patch filters for update repositories. It can also help you generate both testing repositories, or repositories for the production environment.

The first argument of `smt-staging` is always the *command*. It must be followed by a *repository*. The repository can be specified by *Name* and *Target* from the ta-

ble scheme returned by the `smt-repos` command. Alternatively, it can be specified by its Repository ID, which is returned when running the command `smt-repos -v`. The `smt-staging` script understands the following commands:

`listupdates`

List available patches and their allowed/forbidden status.

`allow/forbid`

Allow or forbids specified patches.

`createrepo`

Generate both testing and production repository with allowed patches.

`status`

Give information about both testing and production snapshots, and patch counts.

`listgroups`

List staging groups.

There is always one group available with the name “default”. The default group has the path `repo/full`, `repo/testing` and `repo`. With creating a new group, new paths can be specified.

`creategroup`

Create a staging group. Required parameters are: group name, testing directory name, and production directory name.

`removegroup`

Remove a staging group. Required parameter is: group name.

The following options apply to any `smt-staging` command:

`--logfile` or `-L file path`

Write log information to the specified file. If it does not exist, it is created.

`--debug` or `-d`

Turn on the debugging output and log.

`--verbose` or `-v`

Turn more detailed output on.

The following options apply to specific `smt-staging` commands:

- `--patch`
Specify a patch by its ID. You can get a list of available patches with the `listupdates` command. This option can be used multiple times. Use it with the `allow`, `forbid`, and `listupdates` commands. If used with `listupdates`, the command will print detailed information about the specified patches.
- `--category`
Specify the patch category. The following categories are available: 'security', 'recommended' and 'optional'. Use it with the `allow`, `forbid`, and `listupdates` commands.
- `--all`
Allow or forbid all patches in the `allow` or `forbid` commands.
- `--individually`
Allow or forbid multiple patches (e.g. by category) one by one, that is, as if the `--patch` option had been used on each of the patches.
- `--testing`
Use with the `createrepo` command to generate a repository for testing. The repository will be generated from the full unfiltered local mirror of the remote repository. It will be written into `<MirrorTo>/repo/testing` directory, where `MirrorTo` is the value taken from `smt.conf`.
- `--production`
Use with the `createrepo` command to generate a repository for production use. The repository will be generated from the testing repository. It will be written into `<MirrorTo>/repo` directory, where `MirrorTo` is the value taken from `smt.conf`. If the testing repository does not exist, the production repository will be generated from the full unfiltered local mirror of the remote repository.
- `--group`
Specify on which group the command should work on. The default for `--group` is the name `default`.
- `--nohardlink`
During the repository creation with the `createrepo` command, avoid creating hard links instead of copying files. If not specified, hard links are created instead.
- `--nodesc`
Do not print patch descriptions and summaries to save some screen space and make the output more readable.

- `--sort-by-version`
Sort the `listupdates` table by patch version. The higher the version, the newer the patch should be.
- `--sort-by-category`
Sort the `listupdates` table by patch category.

7.1.2.15 `smt-support`

The `smt-support` command manages uploaded support data usually coming from the `supportconfig` tool. You can forward the data to SUSE, either selectively or in full. This command understands the following options:

- `--incoming` or `-i directory`
Specify the directory where the `supportconfig` archives are uploaded. You can also set this option with the `SMT_INCOMING` environment variable. The default `SMT_INCOMING` directory is `/var/spool/smt-support`.
- `--list` or `-l`
List the uploaded `supportconfig` archives in the incoming directory.
- `--remove` or `-r archive`
Delete the specified archive.
- `--empty` or `-R`
Delete all archives in the incoming directory.
- `--upload` or `-u archive`
Upload the specified archive to SUSE. If you specify `-s`, `-n`, `-c`, `-p`, and `-e` options, the archive is repackaged with contact information.
- `--uploadall` or `-U`
Upload all archives in the incoming directory to SUSE.
- `--srnum` or `-s SR number`
Accept the Novell Service Request 11 digit number.
- `--name` or `-n name`
Enter the first and last name of the contact, in quotes.
- `--company` or `-c company`
Enter the company name.

`--storeid` or `-d id`
Enter the store ID, if applicable.

`--terminalid` or `-t id`
Enter the terminal ID, if applicable.

`--phone` or `-p phone`
Enter the phone number of the contact person.

`--email` or `-e email`
Enter the email address of the contact.

7.1.3 rcsmt Init Script

The `rcsmt` script starts, restarts, or stops SMT services. If used without any sub-commands, it returns a help text. The `rcsmt` script can be used with the following sub-commands:

`rcsmt start`
Start the SMT services.

`rcsmt stop`
Stop the SMT services.

`rcsmt status`
Check the status of the SMT services. Checks whether `httpd`, `MySQL`, and `cron` are running.

`rcsmt restart`
Restart the SMT services.

`rcsmt try-restart`
Check whether the SMT services are enabled and if so, restart them.

You can enable and disable SMT with the YaST SMT Server module.

7.2 SMT Configuration Files

The main SMT configuration file is `/etc/smt.conf`. You can set most of the options with the YaST SMT Server module. Another important configuration file is `/etc/smt.d/smt-cron.conf`, which contains parameters for commands launched as SMT scheduled jobs.

7.2.1 /etc/smt.conf

The `/etc/smt.conf` file has several sections. The `[NU]` section contains the update credentials and URL. The `[DB]` section contains the configuration of the MySQL database for SMT. The `[LOCAL]` section includes other configuration data. The `[REPORT]` section contains the configuration of SMT reports. You can find the configuration for the `smt-mirror-sle9` command in the `YOU9-*` sections.

WARNING

The `/etc/smt.conf` contains passwords in clear text and its default permissions (640, root, wwwrun) make its content easily accessible with scripts running on the Apache server. Be careful with running other software on the SMT Apache server. The best policy is to use this server only for SMT.

7.2.1.1 [NU] Section of /etc/smt.conf

The following options are available in the `[NU]` section:

`NUUrl`

URL of the update service. In most cases, it should contain the `https://nu.novell.com/URL`.

`NURegUrl`

URL of the update registration service. It is used by `smt-sync`. If this option is missing, the URL from `/etc/suseRegister.conf` is used as a fallback.

`NUUser`

`NUUser` should contain the username for update service. For information about getting organization credentials, see Section 3.1, “Mirroring Credentials”. You can set this value with the SMT Server.

`NUPass`

`NUPass` is the password for the user defined in `NUUser`. For information about getting organization credentials, see Section 3.1, “Mirroring Credentials”. You can set this value with the SMT Server.

`ApiType`

`ApiType` is the type of the service SMT uses, it can be either `NCC` for Novell Customer Center or `SCC` for SUSE Customer Center.

7.2.1.2 [DB] Section of /etc/smt.conf

The three options defined in the [DB] section are used for configuring the database for SMT. Currently, only MySQL is supported by SMT.

config

The first parameter of the DBI->connect Perl method used for connection to the MySQL database. The value should be in the form

```
dbi:mysql:database=smt;host=localhost
```

where *smt* is the name of the database and *localhost* is the hostname of the database server.

user

The user for the database. The default value is *smt*.

pass

The password for the database user. You can set the password with the YaST SMT Server module.

7.2.1.3 [LOCAL] Section of /etc/smt.conf

The following options are available in the [LOCAL] section:

url

The base URL of the SMT server which is used to construct URLs of the repositories available on the server. This value should be set by YaST automatically during installation. The format of this option should be: `https://server.domain.tld/`.

You can change the URL manually. For example, the administrator may choose to use the `http://` scheme instead of `https://` for performance reasons. Another reason may be using an alias (configured with CNAME in DNS) instead of the hostname of the server, for example `http://smt.domain.tld/` instead of `http://server1.domain.tld/`.

nccEmail

E-mail address used for registration at the Novell Customer Center. The SMT administrator can set this value with the YaST SMT Server module.

MirrorTo

Determines the path to mirror to.

MirrorAll

If the `MirrorAll` option is set to `true`, the `smt-sync` script will set all repositories that can be mirrored to be mirrored (DOMIRROR flag).

MirrorSRC

If the `MirrorSRC` option is set to `true`, source RPM packages are mirrored.

NOTE: Default Value Changed with SMT 11 SP2

With SMT 11 SP2, the preset default value was changed to `false`. If you also want SMT to mirror source RPM packages on new installations, set `MirrorSRC` to `true`.

Upgraded systems are not affected.

forwardRegistration

Determine if the clients registered at SMT should be registered at Novell Customer Center, too. If the `forwardRegistration` option is set to `true`, client registrations will be forwarded to Novell Customer Center. If the `forwardRegistration` option is set to `false`, no client registrations will be sent to Novell Customer Center. `forwardRegistration` does not work with SUSE Customer Center yet.

rndRegister

Specify a delay in seconds before registration of clients at Novell Customer Center. The value is a random number between 0 and 450, generated by the YaST SMT Server module. The purpose of this random delay is to prevent a high load on the Novell Customer Center server that would occur if all `smt-register` cron jobs connected at the same time.

HTTPProxy

If you do not want to use global proxy settings, specify the proxy to be used for HTTP connection here. Use the following form: `http://proxy.example.com:3128`.

If the proxy settings are not configured in `/etc/smt.conf`, the global proxy settings configured in `/etc/sysconfig/proxy` are used. You can configure the global proxy settings with the YaST Proxy module.

The `HTTPProxy` also applies to the `smt-mirror-sle9` script.

HTTPSProxy

If you do not want to use global proxy settings, specify the proxy to be used for HTTPS connection here. Use the form `:http://proxy.example.com:3128`.

If the proxy settings are not configured in `/etc/smt.conf`, the global proxy settings configured in `/etc/syconfig/proxy` are used. You can configure the global proxy settings with the YaST Proxy module.

The `HTTPSProxy` also applies to the `smt-mirror-sle9` script.

ProxyUser

If your proxy requires authentication, specify a user name and password here, using the `username:password` format.

If the proxy settings are not configured in `/etc/smt.conf`, the global proxy settings configured in `/etc/syconfig/proxy` are used. You can configure the global proxy settings with the YaST Proxy module.

TIP: Global User Authentication Setting

If you configure the global proxy settings with YaST, manually copy `/root/.curlrc` to the home directory of the `smt` and adjust the permissions with the following commands as `root`:

```
cp /root/.curlrc /var/lib/smt/  
chown smt:www /var/lib/smt/.curlrc
```

Neither the `ProxyUser` value nor the global proxy authentication settings apply to the `smt-mirror-sle9` script. For user authentication in `smt-mirror-sle9` write the following in the `$HOME/.wgetrc` file: `proxy_user=username proxy_password=password`.

requiredAuthType

Specify an authentication type to access the repository. There are three possible types:

- `none` - no authentication is required. This is the default value
- `lazy` - only username and password are checked. A valid user can access all repositories.

- `strict` - checks also if the user has access to the repository.

`smtUser`

Specify a user name of a Unix user under which all `smt` commands will run.

`signingKeyID`

Specify the ID of the GPG key to sign modified repositories. The user specified under `smtUser` needs to have access to the key. If this option is not set, the modified repositories will be unsigned.

7.2.1.4 [REST] Section of `/etc/smt.conf`

The following options are available in the `[REST]` section:

`enableRESTAdminAccess`

If set to `1`, turns administrative access to the SMT `RESTService` on. Default value is `0`.

`RESTAdminUser`

Specify the user name which the REST-Admin uses to login. Default value is `RESTroot`.

`RESTAdminPassword`

Specify the password for the REST-Admin user. The option has no default value. An empty password is invalid.

7.2.1.5 [JOBQUEUE] Section of `/etc/smt.conf`

The following options are available in the `[JOBQUEUE]` section:

`maxFinishedJobAge`

Specify the maximum age of finished non-persistent jobs in days. Default value is `8`.

7.2.1.6 [REPORT] Section of `/etc/smt.conf`

The following options are available in the `[REPORT]` section:

`reportEmail`

A comma separated list of e-mail addresses to send SMT status reports to. You can set this list with the YaST SMT Server module.

`reportEmailFrom`

From field of report e-mails. If not set, the default `root@hostname.domainname` will be used.

`mailServer`

Relay mail server. If empty, e-mails are sent directly.

`mailServerPort`

Port of the relay mail server set in `mailServer`.

`mailServerUser`

User name for authentication to the mail server set in `mailServer`.

`mailServerPassword`

Password for authentication to the mail server set in `mailServer`.

7.2.1.7 `smt-mirror-sle9` Sections of `/etc/smt.conf`

Each product to be mirrored by the `smt-mirror-sle9` command has a separate predefined `YOU9-*` section in the `/etc/smt.conf` configuration file. `/etc/smt.conf` is not configured via the SMT database like the `smt-mirror` command, all configuration is contained in `/etc/smt.conf`.

`mirror_prod`

A product to be mirrored. For example `Novell-Linux-Desktop`.

`mirror_archs`

Comma-separated list of architectures to be mirrored. For example `i386,x86_64`. Remove any architectures that do not need to be mirrored.

`mirror_version`

The version of the product to be mirrored, for example `9`.

`mirror`

If you want to mirror this product, set `mirror` to `true`.

`credentials`

If you want to mirror this product, provide credentials in the `user:password` format. Note that these credentials differ from the mirroring credentials used for SLES 10 and 11. You need to use the NCC login credentials here.

7.2.1.8 Example /etc/smt.conf

Example 7.1: *smt.conf*

```
[NU]
NUUrl = https://nu.novell.com/
NURegUrl = https://secure-www.novell.com/center/regsvc/
NUUser = exampleuser
NUPass = examplepassword
ApiType = NCC

[DB]
config = dbi:mysql:database=smt;host=localhost
user = smt
pass = smt

[LOCAL]
# Default should be http://server.domain.top/
url = http://smt.example.com/
# This email address is used for registration at NCC
nccEmail = exampleuser@example.com
MirrorTo = /srv/www/htdocs
MirrorAll = false
MirrorSRC = false
forwardRegistration = true
rndRegister = 127
# The hook script that should be called before the smt-mirror script removes
  its lock
mirror_preunlock_hook =
# The hook script that should be called after the smt-mirror script removed
  its lock
mirror_postunlock_hook =
# specify proxy settings here, if you do not want to use the global proxy
  settings
# If you leave these options empty the global options are used.
#
# specify which proxy you want to use for HTTP connection
# in the form http://proxy.example.com:3128
HTTPProxy =
# specify which proxy you want to use for HTTPS connection
# in the form http://proxy.example.com:3128
HTTPSProxy =
# specify username and password if your proxy requires authentication
# in the form username:password
ProxyUser =
#
# require authentication to access the repository?
# Three possible authtypes can be configured here
# 1) none    : no authentication required (default)
# 2) lazy    : check only username and password. A valid user has access to
  all repositories
# 3) strict  : check also if this user has access to the repository.
```

```

#
requiredAuthType = none
#
# the smt commands should run with this unix user
#
smtUser = smt
#
# ID of the GPG key to be used to sign modified (filtered) repositories.
# The key must be accessible by the user who runs SMT, i.e. the user
  specified
# in the 'smtUser' configuration option.
#
# If empty, the modified repositories will be unsigned.
#
signingKeyID =
#
# This string is send in HTTP requests as UserAgent.
# If the key UserAgent does not exist, a default is used.
# If UserAgent is empty, no UserAgent string is set.
#
#UserAgent=
# Organization credentials for this SMT server.
# These are currently only used to get list of all available repositories
# from https://your.smt.url/repo/repoindex.xml
# Note: if authenticated as a client machine instead of these mirrorUser,
# the above URL returns only repositories relevant for that client.
mirrorUser =
mirrorPassword =

[REST]
# Enable administrative access to the SMT RESTService by setting
  enableRESTAdminAccess=1
# default: 0
enableRESTAdminAccess = 0
# Define the username the REST-Admin uses for login
# default: RESTroot
RESTAdminUser = RESTroot
# Define the password for the REST-Admin (note: empty password is invalid)
# default: <empty>
RESTAdminPassword =

[JOBQUEUE]
# maximum age of finished (non-persistent) jobs in days
# default: 8
maxFinishedJobAge = 8
# comma separated list of JobQueue status IDs that should be interpreted as
  successful
# See smt-job --help for more information about possible Status IDs
# Please note: An empty string will be interpreted as default (1,4).
# default: 1,4
# useful: 1,4,6
jobStatusIsSuccess = 1,4

```

```

[REPORT]
# comma separated list of eMail addresses where the status reports will be
# sent to
reportEmail = exampleuser@example.com
# from field of report mails - if empty it defaults to
# "root@<hostname>.<domainname>"
reportEmailFrom =
# relay mail server - leave empty if mail should be sent directly
mailServer =
mailServerPort =
# mail server authentication - leave empty if not required
mailServerUser =
mailServerPassword =

[YOU9-SLES-SDK]
mirror_prod = SLES-SDK
mirror_archs = i386,ia64,ppc,s390,s390x,x86_64
mirror_version = 9
mirror = false
credentials =

[YOU9-SUSE-CORE]
mirror_prod = SUSE-CORE
mirror_archs = i386,ia64,ppc,s390,s390x,x86_64
mirror_version = 9
mirror = false
credentials =

[YOU9-SUSE-SLES]
mirror_prod = SUSE-SLES
mirror_archs = i386,ia64,ppc,s390,s390x,x86_64
mirror_version = 9
mirror = false
credentials =

```

7.2.2 /etc/smt.d/smt-cron.conf

The `/etc/smt.d/smt-cron.conf` configuration file contains options of the SMT commands launched as SMT scheduled jobs set with YaST (see Section 2.5, “Setting the SMT Job Schedule with YaST”). Cron is used to launch these scheduled jobs. The cron table is located in the `/etc/cron.d/novell.com-smt` file.

NCC_SYNC_PARAMS

Contains parameters of the `smt ncc-sync` command, if called as a part of an SMT scheduled job via cron. The default value is `"-L /var/log/smt/smt-ncc-sync.log --mail"`.

MIRROR_PARAMS

Contains parameters of the `smt mirror` command, if called as a part of an SMT scheduled job via cron. The default value is `"-L /var/log/smt/smt-mirror.log --mail"` .

REGISTER_PARAMS

Contains parameters of the `smt register` command, if called as a part of an SMT scheduled job via cron. The default value is `"-r -L /var/log/smt/smt-register.log --mail"` .

REPORT_PARAMS

Contains parameters of the `smt report` command, if called as a part of an SMT scheduled job via cron. The default value is `"--mail --attach -L /var/log/smt/smt-report.log"` .

JOBQUEUECLEANUP_PARAMS

Contains parameters for `smt jobqueue cleanup`, if called as a part of an SMT scheduled job via cron. The default value is `"--mail -L /var/log/smt/smt-jobqueuecleanup.log"`.

7.3 Server Certificates

For communication between the SMT server and client machines, the encrypted HTTPS protocol is used, requiring a server certificate. If the certificate is not available, or if clients are not configured to use the certificate, the communication between server and clients will fail.

Every client must be able to verify the server certificate by trusting the CA (certificate authority) certificate which signed the server certificate. Therefore, the SMT server provides a copy of the CA at `/srv/www/htdocs/smt.crt`. This CA can be downloaded from every client via the URL `http://FQDN/smt.crt`. The copy is created when YaST writes the SMT configuration. Whenever SMT is started with the `rcsmt` init script, it checks the certificate. If a new CA certificate exists, it is copied again. Therefore, whenever the CA certificate is changed, restart SMT using the `rcsmt restart` command.

When the SMT Server module applies configuration changes, it checks for the existence of the common server certificate. If the certificate does not exist, YaST asks

whether the certificate should be created. If the user confirms, the YaST CA Management module is started.

7.3.1 Certificate Expiration

The common server certificate SMT uses is valid for one year. After that time, a new certificate is needed. Either generate a new certificate using YaST CA Management module or import a new certificate using the YaST Common Server Certificate module. Both options are described in the following sections.

As long as the same CA certificate is used, there is no need to update certificates at the client machines. The generated CA certificate is valid for 10 years.

7.3.2 Creating a New Common Server Certificate

To create a new common server certificate with YaST, proceed as follows:

- 1 Start YaST and select *Security and Users > CA Management*. Alternatively, start the YaST CA Management module from a command line by entering `yast2 ca_mgm` as root.
- 2 Select the required CA and click *Enter CA*.
- 3 Enter the password if entering a CA for the first time. YaST displays the CA key information in the *Description* tab.
- 4 Click the *Certificates* tab (see Figure 7.1, “Certificates of a CA”) and select *Add > Add Server Certificate*.

Figure 7.1: *Certificates of a CA*



- 5 Enter the fully qualified domain name of the server as *Common Name*. Add a valid e-mail address of the server administrator. Other fields, as *Organization*, *Organizational Unit*, *Locality*, and *State* are optional. Click *Next* to proceed.

IMPORTANT: Hostname in Server Certificate

The server certificate must contain the correct hostname. If the client requests server `https://some.hostname/`, then `some.hostname` must be part of the certificate. The hostname must either be used as the *Common Name*, see Step 5, or as the *Subject Alternative Name*, see Step 7: `DNS:some.hostname` and `IP:<ipaddress>`.

- 6 Enter a *Password* for the private key of the certificate and reenter it in the next field to verify it.
- 7 If you want to define a *Subject Alternative Name*, click *Advanced Options*, select *Subject Alternative Name* from the list and click *Add*.

IMPORTANT: Subject Alternative Name

If *Subject Alternative Name* is present in the server certificate, than it needs contain the DNS entry. If *Subject Alternative Name* is present, the *Common Name* (CN) is not checked anymore.

- 8 If you want to keep the default values for the other options, like *Key Length* and *Valid Period*, click *Next*. An overview of the certificate to be created is shown.
- 9 Click *Create* to generate the certificate.
- 10 To export the new certificate as the common server certificate, select it in the *Certificates* tab and select *Export > Export as Common Server Certificate*.
- 11 After having created a new certificate, restart SMT using the `rcsmt restart` command. Restarting SMT ensures that the new certificate is copied from `/etc/ssl/certs/YaST-CA.pem` to `/srv/www/htdocs/smt.crt`, the copy SMT uses. Restarting SMT also restarts the Web server.

For detailed information about managing certification and further usage of the YaST CA Management module and the Common Sever Certificate module, refer to the *Security Guide* coming with the base system.

7.3.3 Importing a Common Server Certificate

You can import an own common server certificate from a file. The certificate to be imported has to be in the PKCS12 format with CA chain. Common server certificates can be imported with the YaST Common Server Certificate module.

To import an own certificate with YaST, proceed as follows:

- 1 Start YaST and select *Security and Users > Common Server Certificate*. Alternatively, start the YaST Common Server Certificate module from the command line by entering `yast2 common_cert` as root.

The description of the currently used common server certificate is shown in the dialog that opens.

- 2 Click *Import* and select the file containing the certificate to be imported. Specify the certificate password in the *Password* field.
- 3 Press *Next*. If the certificate is successfully imported, close YaST with *Finish*.
- 4 After having created a new certificate, restart SMT using the `rcsmt restart` command. Restarting SMT ensures that the new certificate is copied from `/etc/ssl/certs/YaST-CA.pem` to `/srv/www/htdocs/smt.crt`, the copy SMT uses. Restarting SMT also restarts the Web server.

7.3.4 Synchronizing Time Between SMT Server and Clients

The synchronization of time between the SMT server and clients is highly recommended. Each server certificate has a validity period. If the client happens to be set to a time outside of this period, the certificate validation on the client side fails.

Therefore, it is advisable to keep the time on the server and clients synchronized. You can easily synchronize the time using NTP (network time protocol). Use `yast2 ntp-client` to configure an NTP client. Find detailed information about NTP in the *Administration Guide*.

Configuring Clients to Use SMT

Any machine running SUSE Linux Enterprise 10 SP4 or 11 SP1 (or later) can be configured to register against SMT and download software updates from there, instead of communicating directly with the Customer Center and the NU servers.

If your network includes an SMT server to provide a local update source, you need to equip the client with the server's URL. As client and server communicate via the HTTPS protocol during registration, you also need to make sure the client trusts the server's certificate. In case you set up your SMT server to use the default server certificate, the CA certificate will be available on the SMT server at `http://FQDN/smt.crt`. In this case you do not have to manually set the certificate: The registration process will automatically download the CA certificate from there, unless configured otherwise. You must enter a path to the server's CA certificate if the certificate was issued by an external certificate authority.

NOTE: Registering Against *.novell.com Subdomain

If you try to register against any *.novell.com subdomain, the certificate will not be downloaded during registration for security reasons, and certificate handling will not be done. In such a case, use a different domain name or a plain IP address.

There are several ways to provide the registration information and to configure the client machine to use SMT:

1. Provide the needed information via kernel parameters at boot time (Section 8.1, “Using Kernel Parameters to Access an SMT Server”).

2. Configure the clients using an AutoYaST profile (Section 8.2, “Configuring Clients with AutoYaST Profile”).
3. Use the `clientSetup4SMT.sh` script (Section 8.3, “Configuring Clients with the `clientSetup4SMT.sh` Script in SLE 11”). This script can be run on a client to make it register against a specified SMT server.
4. In SUSE Linux Enterprise 11 you can now set the SMT server URL with the YaST registration module during installation (Section 8.4, “Configuring Clients with YaST”).

These methods are described in the following sections.

8.1 Using Kernel Parameters to Access an SMT Server

Any client can be configured to use SMT by providing the following kernel parameters during machine boot: `regurl` and `regcert`. The first parameter is mandatory, the latter is optional.

WARNING: Beware of Typing Errors

Make sure the values you enter are correct. If `regurl` has not been specified correctly, the registration of the update source will fail.

If an invalid value for `regcert` has been entered, you will be prompted for a local path to the certificate. In case `regcert` is not specified at all, it will default to `http://FQDN/smt.crt` with `FQDN` being the name of the SMT server.

`regurl`

URL of the SMT server.

The URL needs to be in the following format: `https://FQDN/center/regsvc/` with `FQDN` being the fully qualified hostname of the SMT server. It must be identical to the FQDN of the server certificate used on the SMT server. Example:

```
regurl=https://smt.example.com/center/regsvc/
```


regcert

Location of the SMT server's CA certificate. Specify one of the following locations:

URL

Remote location (http, https or ftp) from which the certificate can be downloaded. Example:

```
regcert=http://smt.example.com/smt.crt
```

Floppy

Specifies a location on a floppy. The floppy has to be inserted at boot time—you will not be prompted to insert it if it is missing. The value has to start with the string `floppy`, followed by the path to the certificate. Example:

```
regcert=floppy/smt/smt-ca.crt
```

Local Path

Absolute path to the certificate on the local machine. Example:

```
regcert=/data/inst/smt/smt-ca.crt
```

Interactive

Use `ask` to open a pop-up menu during installation where you can specify the path to the certificate. Do not use this option with AutoYaST. Example:

```
regcert=ask
```

Deactivate Certificate Installation

Use `done` if either the certificate will be installed by an add-on product, or if you are using a certificate issued by an official certificate authority. Example:

```
regcert=done
```

WARNING: Change of SMT Server Certificate

If the SMT server gets a new certificate from a new and untrusted CA, the clients need to retrieve the new CA certificate file. This is done automatically with the registration process but only if a URL was used at installation time to retrieve the certificate, or if the `regcert` parameter was omitted and thus, the default URL is used. If the certificate was loaded using any other method, such as floppy or local path, the CA certificate will not be updated.

8.2 Configuring Clients with AutoYaST Profile

Clients can be configured to register with SMT server via AutoYaST profile. For general information about creating AutoYaST profiles and preparing automatic installation, refer to the *AutoYaST Guide*. In this section, only SMT specific configuration is described.

To configure SMT specific data using AutoYaST, follow these steps:

- 1 As `root`, start YaST and select *Miscellaneous > Autoinstallation* to start the graphical AutoYaST front-end.

From a command line, you can start the graphical AutoYaST front-end with the `yast2 autoyast` command.

- 2 Open an existing profile using *File > Open*, create a profile based on the current system's configuration using *Tools > Create Reference Profile*, or just work with an empty profile.
- 3 In SLE 11, select *Software > Novell Customer Center Configuration*. An overview of the current configuration is shown.
- 4 Click *Configure*.
- 5 Set the URL of the *SMT Server* and, optionally, the location of the *SMT Certificate*. The possible values are the same as for the kernel parameters `regurl` and `regcert` (see Section 8.1, “Using Kernel Parameters to Access an SMT Server”). The only exception is that the `ask` value for `regcert` does not work in AutoYaST, because it requires user interaction. If using it, the registration process will be skipped.
- 6 Perform all other configuration needed for the systems to be deployed.
- 7 Select *File > Save As* and enter a filename for the profile, such as `autoinst.xml`.

8.3 Configuring Clients with the clientSetup4SMT.sh Script in SLE 11

In SLE 11, the `/usr/share/doc/packages/smt/clientSetup4SMT.sh` script is provided with SMT. This script allows you to configure a client machine to use an SMT server. It can also be used to reconfigure an existing client to use a different SMT server.

NOTE: Installation of wget

The script `clientSetup4SMT.sh` itself uses `wget`, so `wget` must be installed on the client.

To configure a client machine to use SMT with the `clientSetup4SMT.sh` script, follow these steps:

- 1 Copy the `clientSetup4SMT.sh` script from your SMT server to the client machine. The script is available at `<SMT_HOSTNAME>/repo/tools/clientSetup4SMT.sh` and `/srv/www/htdocs/repo/tools/clientSetup4SMT.sh`. You can download it with a browser, using `wget`, or by another means, such as with `scp`.
- 2 As `root`, execute the script on the client machine. The script can be executed in two ways. In the first case, the script name is followed by the registration URL; for example:

```
./clientSetup4SMT.sh https://smt.example.com/center/regsvc/
```

In the second case, the script uses the `--host` option followed by the hostname of the SMT server, and `--regcert` followed by the URL of the SSL certificate; for example:

```
./clientSetup4SMT.sh --host smt.example.com \  
--regcert http://smt.example.com/smt.crt
```

In this case, without any “namespace” specified, the client will be configured to use the default production repositories. If `--namespace groupname` is specified, the client will use that staging group.

- 3 The script downloads the server's CA certificate. Accept it by pressing `y`.
- 4 The script performs all necessary modifications on the client. However, the registration itself is not performed by the script.
- 5 The script downloads and asks to accept additional GPG keys to sign repositories with.
- 6 Perform a registration by executing `suse_register` or running `yast2 inst_suse_register` module on the client.

The `clientSetup4SMT.sh` script works with SUSE Linux Enterprise 10 SP2 and later SPs, and SLE 11 systems.

This script is also provided for download. You can get it by calling:

```
wget http://smt.example.com/repo/tools/clientSetup4SMT.sh
```

8.3.1 Problems Downloading GPG Keys from the Server

The `apache2-example-pages` package includes a `robots.txt` file. The file is installed into the Apache2 document root directory, and controls how clients can access files from the web server. If this package is installed on the server, `clientSetup4SMT.sh` fails to download the keys stored under `/repo/keys`.

You can solve this problem by either editing `robots.txt`, or uninstalling the `apache2-example-pages` package.

If you choose to edit the `robots.txt` file, add before the `Disallow: /statement:`

```
Allow: /repo/keys
```

8.4 Configuring Clients with YaST

8.4.1 Configuring Clients with YaST in SLE 11

To configure a client to perform the registration against an SMT server use the YaST registration module (`yast2 inst_suse_register`).

Click *Advanced* > *Local Registration Server* and enter the name of the SMT server plus the path to the registration internals (`/center/regsvc/`), e.g.:

```
https://smt.example.com/center/regsvc/
```

After confirmation the certificate is loaded and the user is asked to accept it. Then continue.

WARNING: Staging Groups Registration

If a staging group is used, make sure that settings in `/etc/suseRegister.conf` are done accordingly. If not already done, modify the `register=` parameter and append `&namespace=namespace`. For more information about staging groups, see Section 4.3, “Staging Repositories”.

Alternatively, use the `clientSetup4SMT.sh` script (see Section 8.3, “Configuring Clients with the `clientSetup4SMT.sh` Script in SLE 11”).

8.5 Registering SLE11 Clients Against SMT Test Environment

To configure a client to register against the test environment instead of the production environment, modify `/etc/suseRegister.conf` on the client machine by setting:

```
register = command=register&namespace=testing
```

For more information about using SMT with a test environment, see Section 3.4, “Using the Test Environment”.

8.6 Listing Accessible Repositories

To retrieve the accessible repositories for a client, download `repo/repoindex.xml` from the SMT server with the client's credentials. The credentials are stored in `/etc/zypp/credentials.d/NCCCredentials` on the client machine. Using `wget`, the command for testing could be as follows:

```
wget https://USER:PASS@smt.example.com/repo/repoindex.xml
```

`repoindex.xml` returns the complete repository list as they come from the vendor. If a repository is marked for staging, `repoindex.xml` lists the repository in the full namespace (`repos/full/$RCE`).

To get a list of all repositories available on the SMT server, use the credentials specified in the `[LOCAL]` section of `/etc/smt.conf` on the server as `mirrorUser` and `mirrorPassword`.

8.7 How to Update Red Hat Enterprise Linux with SMT 11

SMT 11 enables customers that possess the required entitlements to mirror updates for Red Hat Enterprise Linux (RHEL). Refer to <http://www.suse.com/products/expanded-support/> for details on SUSE Linux Enterprise Server Subscription with Expanded Support. This section discusses the actions required to configure the SMT server and clients (RHEL servers) for this solution.

NOTE: SUSE Linux Enterprise Server 10

Configuring RHEL client with Subscription Management Tool for SUSE Linux Enterprise (SMT 1.0) running SUSE Linux Enterprise Server 10 is slightly different. For more information, see [How to update Red Hat Enterprise Linux with SMT](http://www.novell.com/support/search.do?usemicrosite=true&searchString=7001751). [<http://www.novell.com/support/search.do?usemicrosite=true&searchString=7001751>]

8.7.1 How to Prepare SMT server for mirroring and publishing updates for RHEL

- 1 Install SUSE Linux Enterprise Server (SLES) 11 with the SMT 11 add-on product as per the documentation on the respective products.
- 2 During SMT setup, use organization credentials that have access to Novell-provided RHEL update catalogs.

- 3 Verify that the organization credentials have access to download updates for the Red Hat products with

```
smt-repos -m | grep RES
```

- 4 Enable mirroring of the RHEL update catalog(s) for the desired architecture(s):

```
smt-repos -e repo-name architecture
```

- 5 Mirror the updates and log verbose output:

```
smt-mirror -d -L /var/log/smt/smt-mirror.log
```

The updates for RHEL will also be mirrored automatically as part of the default nightly SMT mirroring cron job. When the mirror process of the catalogs for your RHEL products has completed, the updates are available via

```
http://smt-server.your-domain.top/repo/\$RCE/catalog-name/architecture/
```

- 6 To enable GPG checking of the repositories, the key used to sign the repositories needs to be made available to the RHEL clients. This key is now available in the `res-signingkeys` package, which is included in the SMT 11 installation source.

- Install the `res-signingkeys` package with the command

```
zypper in -y res-signingkeys
```

- The installation of the package stores the key file as `/srv/www/htdocs/repo/keys/res-signingkeys.key`.
- Now the key is available to the clients and can be imported into their RPM database as described later.

8.7.2 How to Configure the YUM client on RHEL 5.2 to receive updates from SMT

- 1 Import the repository signing key downloaded above into the local RPM database with

```
rpm --import http://smt-server.domain.top/repo/keys/res-signingkeys.key
```

- 2 Create a file in `/etc/yum.repos.d/` and name it `RES5.repo`.
- 3 Edit the file and enter the repository data, and point to the catalog on the SMT server as follows:

```
[smt]
name=SMT repository
baseurl=http://smt-server.domain.top/repo/$RCE/catalog-name/architecture/
enabled=1
gpgcheck=1
```

Example of base URL:

```
http://smt.mycompany.com/repo/$RCE/RES5/i386/
```

- 4 Save the file.
- 5 Disable standard Red Hat repositories by setting

```
enabled=0
```

in the repository entries in other files in `/etc/yum.repos.d/` (if any are enabled).

Both YUM and the update notification applet should work correctly now and notify of available updates when applicable. You may need to restart the applet.

8.7.3 How to Configure the UP2DATE client on RHEL 3.9 and 4.7 to receive updates from SMT

- 1 Import the repository signing key downloaded above into the local RPM database with


```
rpm --import http://smt-server.domain.top/repo/keys/res-signingkeys.key
```

2 Edit the file `/etc/sysconfig/rhn/sources` and make the following changes:

3 Comment out any lines starting with `up2date`.

Normally, there will be a line that says "up2date default".

4 Add an entry pointing to the SMT repository (all in one line):

```
yum repo-name http://smt-server.domain.top/repo/$RCE/catalog-  
name/architecture/
```

where `repo-name` should be set to `RES3` for 3.9 and `RES4` for 4.7.

5 Save the file.

Both `up2date` and the update notification applet should work correctly now, pointing to the SMT repository and indicating updates when available. In case of trouble, try to restart the applet.

In order to ensure correct reporting of the Red Hat Enterprise systems in Novell Customer Center or SUSE Customer Center, they need to be registered against your SMT server. For this a special `suseRegisterRES` package is provided through the `RES*` catalogs and it should be installed, configured and executed as described below.

8.7.4 How to Register RHEL 5.2 against SMT

1 Install the `suseRegisterRES` package.

```
yum install suseRegisterRES
```

NOTE: Additional Packages

You may need to install `perl-Crypt-SSLeay` and `perl-XML-Parser` packages from the original RHEL media.

2 Copy the SMT certificate to the system:

```
wget http://smt-server.domain.top/smt.crt
```

```
cat smt.crt >> /etc/pki/tls/cert.pem
```

- 3 Edit `/etc/suseRegister.conf` to point to SMT by changing the URL value to

```
url = https://smt-server.domain.top/center/regsvc/
```

or (for SUSE Customer Center)

```
url = https://smt-server.domain.top/connect/
```

- 4 Register the system:

```
suse_register
```

8.7.5 How to Register RHEL 4.7 and RHEL 3.9 against SMT

- 1 Install the `suseRegisterRES` package:

```
up2date --get suseRegisterRES
up2date --get perl-XML-Writer
rpm -ivh /var/spool/up2date/suseRegisterRES*.rpm /var/spool/up2date/perl-XML-Writer-0*.rpm
```

NOTE: Additional Packages

You may need to install `perl-Crypt-SSLeay` and `perl-XML-Parser` packages from the original RHEL media.

- 2 Copy the SMT certificate to the system:

```
wget http://smt-server.domain.top/smt.crt
```

```
cat smt.crt >> /usr/share/ssl/cert.pem
```

- 3 Edit `/etc/suseRegister.conf` to point to SMT by changing the URL value to

```
url = https://smt-server.domain.top/center/regsvc/
```

or (for SUSE Customer Center)

```
url = https://smt-server.domain.top/connect/
```

- 4 Register the system:

suse_register

Backup of the SMT Server

Creating backups of the SMT server regularly can help restore it quickly and reliably in the case of the server failure.

There are three main areas to back up on the SMT server:

- Configuration files
- Package repositories
- The database

9.1 Configuration Files and Repositories

The SMT server configuration is stored in the `/etc/smt.conf` and `/etc/smt.d/smt-cron.conf` files.

Package repositories are stored under the `/srv/www/htdocs/repo/` directory. As you can mirror the repositories on the restored server as well, backing them up is necessary only if you are using repository staging (see Section 3.5, “Testing and Filtering Update Repositories with Staging”).

Use your preferred tool to back up the configuration and repository files.

9.2 The Database

SMT uses the MariaDB database to store information about clients, registrations, machine data, which catalogs are enabled for mirroring, or custom catalogs. Unlike the configuration files and repositories, the database information cannot be recovered without a valid backup.

Standard way to back up the SMT database is to create a cron job that performs an SQL dump into a plain text file:

```
mysqldump -u root -p smt_db_password smt > /backup_dir/smt-db-backup.sql
```

Then include the resulting file to your normal backup jobs.



SMT REST API

The SMT REST interface is meant for communication with SMT clients and integration into other WebServices. The base URI for all the following REST calls is `https://YOURSMTSERVER/=/1`. The SMT server responds with XML data described for each call by an RNC snippet with comments.

Quick Reference

NOTE: API for authenticating smt clients.

Used internally in the `smt-client` package. Not intended for general administrative use!

GET /jobs	get list of all jobs for client
GET /job/@next	get the next job for client
GET /job/<jobid>	get job with jobid for client. Note: this marks the job as retrieved
PUT /job/<jobid> data.	update job having <jobid> using XML data. Note: updates only retrieved jobs

For backward compatibility reasons also available:

GET /jobs/@next	same as GET /job/@next
GET /jobs/<jobid>	same as GET /job/<jobid>
PUT /jobs/<jobid>	same as PUT /job/<jobid>

API for general access (this needs authentication using credentials from the [REST] section of `smt.conf`).

GET /client	get data of all clients
GET /client/<GUID> GUID	get data of client with specified GUID

GET /client/<GUID>/jobs	get client's job data
GET /client/<GUID>/patchstatus	get client's patch status
GET /client/<GUID>/job/@next	get client's next job
GET /client/<GUID>/job/<jobid>	get specified client job data
GET /client/@all/jobs	get job data of all clients
GET /client/@all/patchstatus	get patch status of all clients
GET /repo	get all repositories known to SMT
GET /repo/<repoid> <repoid>	get details of repository with <repoid>
GET /repo/<repoid>/patches	get repository's patches
GET /patch/<patchid>	get patch <patchid> details
GET /product SMT	get list of all products known to SMT
GET /product/<productid> <productid>	get details of product with <productid>
GET /product/<productid>/repos	get list of product's repositories

For backward compatibility reasons, plural forms are also available; e.g.:

GET /clients	same as GET /client
GET /repos	same as GET /repo
GET /product	same as GET /product

Detailed Description

API for authenticating clients:

GET /jobs

Get list of all jobs for an authenticating client. When getting the jobs via this path they will not be set to the status retrieved.

Example:

```
<jobs>
  <job name="Patchstatus Job" created="2010-06-18 16:34:38"
description="Patchstatus Job for Client 456" exitcode="" expires=""
finished="" guid="456" guid_id="30" id="31" message="" parent_id=""
persistent="1" retrieved="" status="0" stderr="" stdout=""
targeted="" timelag="23:00:00" type="1" verbose="0">
    <arguments></arguments>
  </job>
  <job name="Software Push" created="2010-06-18 16:37:59"
description="Software Push: mmv, whois" exitcode="" expires=""
finished="" guid="456" guid_id="30" id="32" message="" parent_id=""
persistent="0" retrieved="" status="0" stderr="" stdout=""
targeted="" timelag="" type="2" verbose="0">
    <arguments>
      <packages>
        <package>mmv</package>
        <package>whois</package>
      </packages>
    </arguments>
  </job>
```



```

    <job name="Update Job" created="2010-06-18 16:38:39"
    description="Update Job" exitcode="" expires="" finished=""
    guid="456" guid_id="30" id="34" message="" parent_id=""
    persistent="0" retrieved="" status="0" stderr="" stdout=""
    targeted="" timelag="" type="3" verbose="0">
      <arguments></arguments>
    </job>
    <job name="Execute" created="2010-06-18 17:40:10"
    description="Execute custom command" exitcode="0" expires=""
    finished="2010-06-18 17:40:14" guid="456" guid_id="30"
    id="41" message="execute successfully finished" parent_id=""
    persistent="0" retrieved="2010-06-18 17:40:14" status="1"
    stderr="man:x:13:62:Manual pages viewer:/var/cache/man:/bin/bash"
    stdout="" targeted="" timelag="" type="4" verbose="1">
      <arguments command="grep man /etc/passwd" />
    </job>
    <job name="Reboot" created="2010-06-18 16:40:28"
    description="Reboot now" exitcode="" expires="2011-06-12 15:15:15"
    finished="" guid="456" guid_id="30" id="37" message="" parent_id=""
    persistent="0" retrieved="" status="0" stderr="" stdout=""
    targeted="2010-06-12 15:15:15" timelag="" type="5" verbose="0">
      <arguments></arguments>
    </job>
    <job name="Wait 5 sec. for exit 0." created="2010-06-18 16:40:59"
    description="Wait for 5 seconds and return with value 0."
    exitcode="" expires="" finished="" guid="456" guid_id="30" id="38"
    message="" parent_id="" persistent="0" retrieved="" status="0"
    stderr="" stdout="" targeted="" timelag="" type="7" verbose="0">
      <arguments exitcode="0" waittime="5" />
    </job>
    <job name="Eject job" created="2010-06-18 16:42:00"
    description="Job to eject the CD/DVD drawer" exitcode="" expires=""
    finished="" guid="456" guid_id="30" id="39" message="" parent_id=""
    persistent="0" retrieved="" status="0" stderr="" stdout=""
    targeted="" timelag="" type="8" verbose="0">
      <arguments action="toggle" />
    </job>
  </jobs>

```

GET /jobs/@next

Get the next job for an authenticating client. The job will not be set to the retrieved status.

Example:

```

<job id="31" guid="456" type="patchstatus" verbose="false">
  <arguments></arguments>
</job>

```

GET /jobs/<jobid>

Get a job with the specified jobid for an authenticating client. The job will be set to the retrieved status.

When the client retrieves a job, not all the metadata is part of the XML response. However, it can be the full set of metadata, as `smt-client` only picks the data that is relevant. But a job retrieval should only contain the minimal set of data that is required to fulfill it.

RNC:

```

start = element job {
  attribute id {xsd:integer},           # the job ID. A job id alone
  is not unique.                       # A job is only uniquely
                                        # identified with
                                        # guid and id. The same jobs
                                        # for multiple
                                        # clients have the same job
                                        # id.
  attribute parent_id {xsd:integer}?,  # ID of the job on which this
  job depends                           # job depends
  attribute guid {xsd:string},          # internal database ID of the
  attribute guid_id {xsd:integer}?,    # client
                                        # (for compatibility reasons,
                                        # if third
                                        # party application talks to
                                        # SMT REST
                                        # service).
  attribute type {xsd:string},         # job type ID string. Must be
  unique and                            # equal to the name of the
                                        # Perl module on
                                        # the client.
  ("softwarepush",                    # add your own job types
   "patchstatus",
   "<custom>"),
  attribute name {xsd:string},         # short custom name of the
  job, user-defined
  attribute description {xsd:string},  # custom description of what
  the job does
  attribute created {xsd:string},      # time stamp of creation
  attribute expires {xsd:string},     # expiration time stamp; the
  job expires
                                        # if not retrieved by then
  attribute finished {xsd:string},    # time stamp of job completion
  attribute retrieved {xsd:string},   # time stamp of retrieval of
  the job
  attribute persistent {xsd:boolean}?, # defines whether the job is
  a persistent
                                        # (repetitive) job
  attribute verbose {xsd:boolean},    # if true, output of job
  commands is                          # attached to the result
}

```

```

    attribute exitcode {xsd:integer}, # the last exit code of the
system command

    attribute message {xsd:string}, # executed to complete the job
message the client # custom human-readable

    attribute status { # sends back as a result
0, # logical status of the job
no # not yet worked on: The job may be already retrieved but
no # result was sent back yet.
1, # success: The job was retrieved, processed and the
client sent # back a success response.
2, # failed: The job was retrieved, processed and the client
sent # back a failure response.
3}, # denied by client: The job was retrieved but could not
be # processed as the client denied to process this job type
processed, # (a client needs to allow all job types that should be
# any other will be denied).
    attribute stderr {text}, # standard error output of
jobs's system
    attribute stdout {text}, # commands (filled if verbose)
system # standard output of jobs's
# commands (filled if verbose)
    attribute targeted {xsd:string}, # time stamp when this job
will be
    attribute timelag {xsd:string}?, # delivered at the earliest
persistent job in # interval time of a
can be # the format "HH:MM:SS" (HH
# bigger than 23)
    element-arguments # job-type-specific XML data
}

```

Example (minimal job definition for a 'softwarepush' job):

```

<job id="32" guid="456" type="softwarepush" verbose="false">
  <arguments>
    <packages>
      <package>mvn</package>
      <package>whois</package>
    </packages>
  </arguments>
</job>

```

PUT /job/<jobid>

Update a job for an authenticating client using XML data.

A client can only send job results for jobs properly retrieved previously. The jobs will be set to status done (with an exception of persistent jobs, in which case a new target time will be computed).

Examples:

- Example for a successful patchstatus job:

```
<job id="31" guid="abc123" exitcode="0" message="0:0:0:0  
# PackageManager=0 Security=0 Recommended=0 Optional=0"  
status="1" stderr="" stdout="" />
```

- Example for a failed softwarepush:

```
<job id="32" guid="abc123" exitcode="104"  
message="softwarepush failed" status="2" stderr=""  
stdout="" />
```

- Example for a successful update:

```
<job id="34" guid="abc123" exitcode="0" message="update  
successfully finished" status="1" stderr="" stdout="" />
```

- Example for a successful reboot job:

```
<job id="37" guid="abc123" exitcode="0" message="reboot  
triggered" status="1" stderr="" stdout="" />
```

- Execute for a successful wait job:

```
<job id="38" guid="abc123" exitcode="0" message="wait  
successfully finished" status="1" stderr="" stdout="" />
```

- Example for a successful eject job:

```
<job id="39" guid="abc123" exitcode="0" message="eject  
successfully finished" status="1" stderr="" stdout="" />
```

- Example for a successful execute job:

```
<job id="41" guid="abc123" exitcode="0" message="execute  
successfully finished" status="1" stderr="man:x:13:62:Manual  
pages viewer:/var/cache/man:/bin/bash" stdout="" />
```

API for general access:

```
GET /repo/<repoid>
```

Returns detailed information about the specified repository. The <repoid> can be obtained using the /repos or /products/<productid>/repos/ call.

RNC:

```
start = element repo {
    attribute id {xsd:integer},           # SMT ID of the
    repository                           # repository's Unix name
    attribute name {xsd:string},         # repository's target
    attribute target {xsd:string},
    product
    attribute type {"nu" | "yum" | "zypp" | "pum"}, # type of
    repository                           # description of the
    element description {xsd:string},
    repository
    element localpath {xsd:string},      # path to local SMT
    mirror of the                         # repository
                                           # original URL of the
    element url {xsd:anyURI},
    repository
    element mirrored {
        attribute date {xsd:integer}     # timestamp of the last
    successful                           # mirror (empty if not
                                           mirrored yet)
    }
}
```

Example:

```
<repo name="SLES10-SP2-Updates" id="226" target="sles-10-i586"
type="nu">
  <description>SLES10-SP2-Updates for sles-10-i586</description>
  <localpath>/local/htdocs/repo/$RCE/SLES10-SP2-Updates/sles-10-
i586</localpath>
  <mirrored date="1283523440"/>
  <url>https://nu.novell.com/repo/$RCE/SLES10-SP2-Updates/sles-10-
i586</url>
</repo>
```

GET /repo/<repoid>/patches

Returns a list of all patches in the specified software repository. The repoid can be obtained using the /repos or /products/<productid>/repos/ call.

RNC:

```
start = element patches {
    element patch {
        attribute id {xsd:integer},           # SMT ID of the patch
        attribute name {xsd:string},         # patch's Unix name
        attribute version {xsd:integer}     # patch's version
    number
        attribute category {                 # patch importance
    category
        "security",
        "recommended",
```

```

        "optional",
        "mandatory"}
    }*
}

```

Example:

```

<patches>
  <patch name="slesp2-krb5" category="security" id="1471"
    version="6775"/>
  <patch name="slesp2-heartbeat" category="recommended" id="1524"
    version="5857"/>
  <patch name="slesp2-curl" category="security" id="1409"
    version="6402"/>
  ...
</patches>

```

GET /repos

Returns a list of all software repositories known to SMT. Those which are currently mirrored on SMT have non-empty mirror time stamp in the mirrored attribute.

RNC:

```

start = element repos {
  element repo {
    attribute id {xsd:integer},           # SMT ID of the repository
    attribute name {xsd:string},         # repository's Unix name
    attribute target {xsd:string},       # repository's target product
    attribute mirrored {xsd:integer}     # time stamp of the last
    successful mirror                    # (empty if not mirrored yet)
  }*
}

```

Example:

```

<repos>
  <repo name="SLE10-SDK-Updates" id="1" mirrored="" target="sles-10-
x86_64"/>
  <repo name="SLE10-SDK-SP3-Pool" id="2" mirrored=""
target="sles-10-ppc"/>
  <repo name="SLES10-SP2-Updates" id="226" mirrored="1283523440"
target="sles-10-i586"/>
  ...
</repo>

```

GET /patch/<patchid>

Returns detailed information about the specified patch. The patchid can be obtained via the /repo/<repoId>/patches call.

RNC:

```

start = element patch {
  attribute id {xsd:integer},           # SMT ID of the patch
  attribute name {xsd:string},         # patch's Unix name
  attribute version {xsd:integer},     # patch's version number
  attribute category {                 # patch importance category
    "security",
    "recommended",
    "optional",
    "mandatory"},
  element title {xsd:string},         # title of the patch
  element description {text},        # description of issues
fixed by the patch
  element issued {
    attribute date {xsd:integer}     # patch release time stamp
  },
  element packages {                 # packages which need
update as part
                                     # of this patch
    element package {               # individual RPM package
data
  attribute name {xsd:string},       # package name
  attribute epoch {xsd:integer},     # epoch number
  attribute version {xsd:string},    # version string
  attribute release {xsd:string},    # release string
  attribute arch {xsd:string},       # architecture string
  element origlocation {xsd:anyURI}, # URL of the RPM package in
the
                                     # original repository
    element smtlocation {xsd:anyURI} # URL of the RPM package at
the SMT server
    }*
  },
  element references {              # references to issues
fixed by this
                                     # patch
    element reference {            # individual reference
details
  attribute id,                    # ID number of the issue
(bugzilla
                                     # or CVE number)
    attribute title {xsd:string},   # issue title
    attribute type {"bugzilla","cve"}, # type of the issue
    attribute href {xsd:anyURI}     # URL of the issue in its
issue
                                     # tracking system
    }*
  }
}

```

Example:

```

<patch name="slesp2-krb5" category="security" id="1471"
version="6775">
  <description>

```

```

    Specially crafted AES and RC4 packets could allow
    unauthenticated
    remote attackers to trigger an integer overflow leads to heap
    memory
    corruption (CVE-2009-4212). This has been fixed.
    Specially crafted AES and RC4 packets could allow
    unauthenticated remote attackers to trigger an integer
    overflow leads to heap memory corruption (CVE-2009-4212).
</description>
<issued date="1263343020"/>
<packages>
  <package name="krb5" arch="i586" epoch="" release="19.43.2"
  version="1.4.3">
    <origlocation>https://nu.novell.com/repo/$RCE/SLES10-
    SP2-Updates/sles-10-i586/rpm/i586/krb5-1.4.3-19.43.2.i586.rpm</
    origlocation>
    <smtlocation>http://kompost.suse.cz/repo/$RCE/SLES10-
    SP2-Updates/sles-10-i586/rpm/i586/krb5-1.4.3-19.43.2.i586.rpm</
    smtlocation>
  </package>
  <package name="krb5-apps-servers" arch="i586" epoch=""
  release="19.43.2" version="1.4.3">
    <origlocation>https://nu.novell.com/repo/$RCE/
    SLES10-SP2-Updates/sles-10-i586/rpm/i586/krb5-apps-
    servers-1.4.3-19.43.2.i586.rpm</origlocation>
    <smtlocation>http://kompost.suse.cz/repo/$RCE/
    SLES10-SP2-Updates/sles-10-i586/rpm/i586/krb5-apps-
    servers-1.4.3-19.43.2.i586.rpm</smtlocation>
  </package>
  ...
</packages>
<references>
  <reference id="535943" href="https://bugzilla.novell.com/
  show_bug.cgi?id=535943" title="bug number 535943" type="bugzilla"/>
  <reference id="CVE-2009-4212" href="http://cve.mitre.org/
  cgi-bin/cvename.cgi?name=CVE-2009-4212" title="CVE-2009-4212"
  type="cve"/>
</references>
<title>Security update for Kerberos 5</title>
</patch>

```

GET /products

Returns list of all products known to SMT.

RNC:

```

start element products {
  element product {
    attribute id {xsd:integer},      # SMT ID of the product
    attribute name {xsd:string},    # Unix name of the product
    attribute version {xsd:string}, # version string
    attribute rel {xsd:string},     # release string
  }
}

```



```

        attribute arch {xsd:string},      # target machine architecture
string
        attribute uiname {xsd:string}    # name of the product to be
                                          # displayed to users
    }*
}

```

Example:

```

<products>
  <product name="SUSE_SLED" arch="x86_64" id="1824" rel=""
  uiname="SUSE Linux Enterprise Desktop 11 SP1" version="11.1"/>
  <product name="SUSE_SLES" arch="i686" id="1825" rel=""
  uiname="SUSE Linux Enterprise Server 11 SP1" version="11.1"/>
  <product name="sle-hae" arch="i686" id="1880" rel=""
  uiname="SUSE Linux Enterprise High Availability Extension 11 SP1"
  version="11.1"/>
  <product name="SUSE-Linux-Enterprise-Thin-Client" arch="" id="940"
  rel="SP1" uiname="SUSE Linux Enterprise 10 Thin Client SP1"
  version="10"/>
  ...
</products>

```

GET /product/<productid>

Returns information about the specified product. The productid can be obtained from data returned by /products call.

RNC:

```

start = element product {
  attribute id {xsd:integer},      # SMT ID of the product
  attribute name {xsd:string},    # Unix name of the product
  attribute version {xsd:string}, # version string
  attribute rel {xsd:string},     # release string
  attribute arch {xsd:string},    # target machine architecture
string
  attribute uiname {xsd:string}   # name of the product to be
displayed                        # to users
}

```

Example:

```

<product name="SUSE_SLED" arch="x86_64" id="1824" rel=""
  uiname="SUSE Linux Enterprise Server 11 SP1" version="11.1"/>

```

GET /product/<productid>/repos

Returns the list of all software repositories for the specified product. The productid can be obtained from the data returned by /products call.

RNC:

See the `/repos` call.

Example:

```
<repos>
  <repo name="SLED11-SP1-Updates" id="143" mirrored=""
    target="sle-11-x86_64"/>
  <repo name="SLE11-SP1-Debuginfo-Pool" id="400" mirrored=""
    target="sle-11-x86_64"/>
  <repo name="SLED11-Extras" id="417" mirrored="" target="sle-11-
x86_64"/>
  <repo name="SLED11-SP1-Pool" id="215" mirrored="" target="sle-11-
x86_64"/>
  <repo name="nVidia-Driver-SLE11-SP1" id="469" mirrored=""
    target=""/>
  <repo name="ATI-Driver-SLE11-SP1" id="411" mirrored="" target=""/>
  <repo name="SLE11-SP1-Debuginfo-Updates" id="6" mirrored=""
    target="sle-11-x86_64"/>
</repos>
```