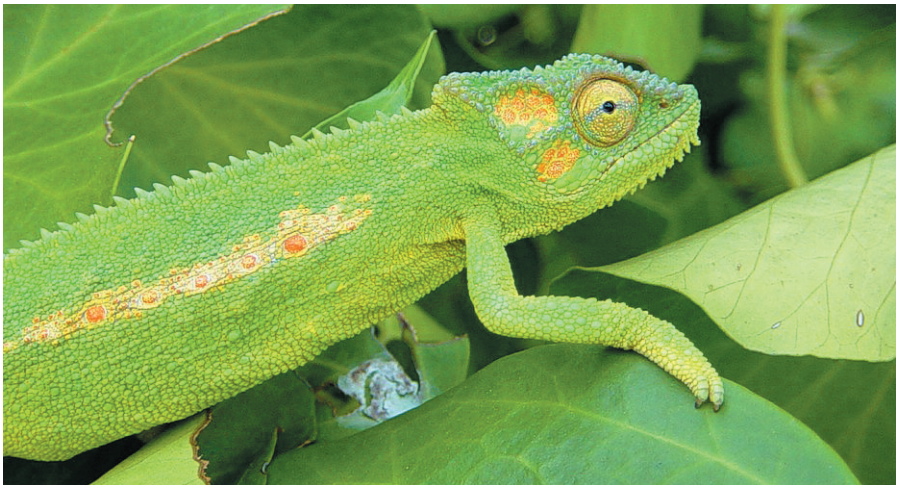
Managing system configurations with SCPM

Environment Changing

Changing the operating environment on a single machine, involves a lot of configuration work. SCPM makes life easier for Suse users by maintaining profiles with different settings.

BY FALKO ZURELL



Linux is making inroads into the world of laptops. Portable machines are especially prone to environment changes. Although you typically hitch up your laptop to the wired network to connect to the outside world, you might use a WLAN from time to time, or not have a network connection at all. Although you have a docking station with an external screen at the office, at home you might revert to the built-in display. Suse Linux has SCPM, the System Configuration Profile Management tool, to help your machine adapt to its surrounds.

Sharp Profiles

SCPM saves complete collections of system settings for various environments in so-called profiles, allowing you to restore them when needed. Profiles not only store configuration files, but also additional information – such as whether specific services have been enabled, or not. That makes it possible to perform all the changes required to adapt to a different environment with a single command. As an alternative, you can simply select a profile on booting.

SCPM has been a default Suse component since version 8. Assuming you have not manually deleted SCPM, the profile manager should already be installed on your Suse system.

The GUI-based YaST *Profile manager* module, which is located in the *System* group, helps you set up SCPM (see Figure 1), but you can also enter *yast2 profile-manager* to launch the tool directly.

Existing profiles are displayed in the profile manager's main window. You can add a new profile or modify the configuration. The *Options* button allows you to change or create resource groups (see Figure 2).

Your current configuration is used as a template when you create a new profile. SCPM creates a directory with the new profile name below */var/lib/scpm/profiles/*, and copies the configuration files for the specified resource groups to that directory.

Groups

Admins can use resource groups to specify the services to which the profile settings apply. SCPM only saves your printer settings if you enable the *printer* group, for example. If you do not check this resource, the printer is not affected by a profile change, but simply keeps its current settings.

A few pre-defined resource groups are created when you install SCPM. These groups cover most configurations and include basic network settings (*network*), the NTP service for time synchronization across the Internet (*ntpd*), the firewall (*SuSEfirewall2*), the *autofs* automounter, which automatically mounts disks. If this selection is not to your liking, you can define your own groups.

Unfortunately, the status display in the main window of the YaST module is not

Table 1: SCPM Commands

Enable SCPM	*scpm enable*
Create a new profile	*scpm add profile_name*
Switch to another profile	*scpm switch profile_name*
Save the changes to the active profile	*scpm save*
Copy a profile	*scpm copy source_profile target_profile*
Display the active profile	*scpm active*
Display available profiles	*scpm list*
Reload the settings of the current profile	*scpm reload*

Listing 1: Accessing SCPM's database mode and creating a new resource

```
01 #scpm db
02 SCDB Utility (SCPM version 0.9.4)
03 >load
04 >create resource /opt/tomcat/conf/server.xml file
05 >save
06 >quit
```

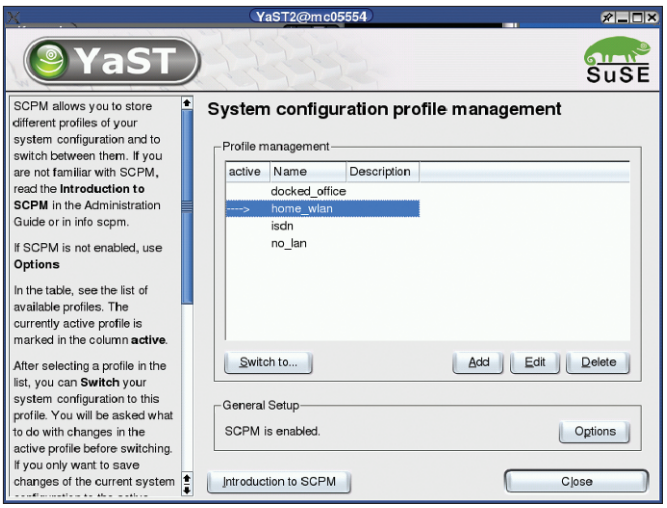


Figure 1: YaST2 helps you configure SCPM.

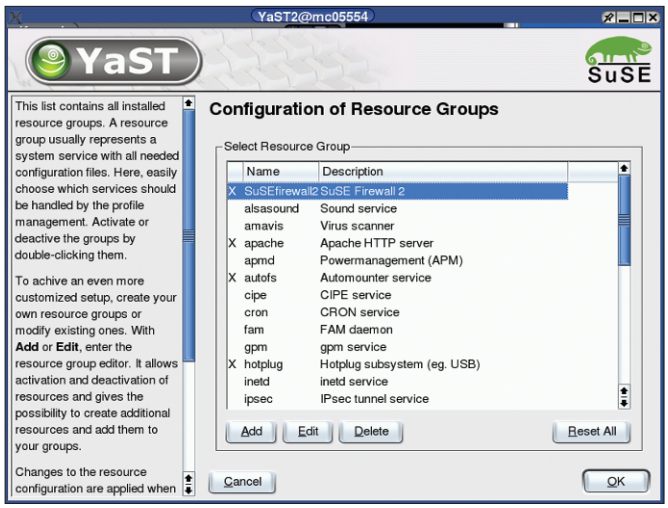


Figure 2: SCPM Yast2 module – resource configuration.

reliable. It insists that the profile manager is disabled, irrespective of its actual status. Doubly enabling a profile should not cause any harm, as SCPM does not overwrite existing databases or profiles. Or at least it requires you to explicitly stipulate an overwrite in the command line.

There are more or less no limits to expanding the profile manager's capabilities, as you can tell SCPM to launch *pre-start* and *post-start* or *pre-stop* and *post-stop* scripts when loading or unloading a profile (see Figure 3).

When you select a different profile, SCPM first runs the two stop scripts, and alerts you in case of unsaved changes. It then goes on to launch the pre-start script, retrieves the configuration files for the new profile from the database, and applies them to the system. SCPM checks if services are running or not, and ensures that the required status is applied. The last step of the change process is to call the post-stop script.

If you want to specify a profile when booting a machine, you can stipulate the *PROFILE = profile_name* parameter in the boot menu to tell Suse to fire up with the required settings. The */etc/init.d/boot.scpm* script ensures that this works.

If you regularly change your profile on booting, you might like to add a few entries with pre-configured kernel parameters to your bootloader configuration (YaST2: *System / Bootloader Configuration*). To do so, add a new section with the settings for the default kernel and simply change the *PROFILE* parameter to load the required profile the next time you boot.

Command Line Set Up

Although YaST2 makes light work of configuring SCPM, continually launching YaST to change a profile may start to get on your nerves. The command line provides an alternative. Make sure you have *root* privileges – after all, you will be modifying the system configuration – and use a few simple commands to speed up this task. Table 1 provides an overview of the most important commands. For example, *scpm switch ISDN* enables a profile called *ISDN*.

Changes can only be applied to the current profile, no matter whether you use YaST2 or the command line to effect them. To do so, first change your settings in the usual way. When you have everything working to your liking, simply call *scpm save* to save the changes. SCPM will then display the changes one by one, and prompt you to confirm that they were deliberate before saving them to the profile.

If you need to change configuration files that SCPM is ignoring due to your resource settings, you can perform manual changes in interactive database mode. (see Listing 1). The *load* command is extremely important here, as it loads the current database for editing. If you fail to load the current database, and then save your settings, the current database will be overwritten with a file that contains only these changes.

Even if you overwrite the database by mistake, there is no need to panic: SCPM saves the last three versions of the database in the */var/lib/scpm/scdb/* directory. The current database is called *scdb.db*, the backup copies have a few random characters added to their names.

It is easy to create your own backup of a profile you have created. You will need more than just the database file, *scdb.db*. To store the configuration files at the same time, you will also need to copy the */var/lib/scpm/profiles/* directory to a safe location. ■

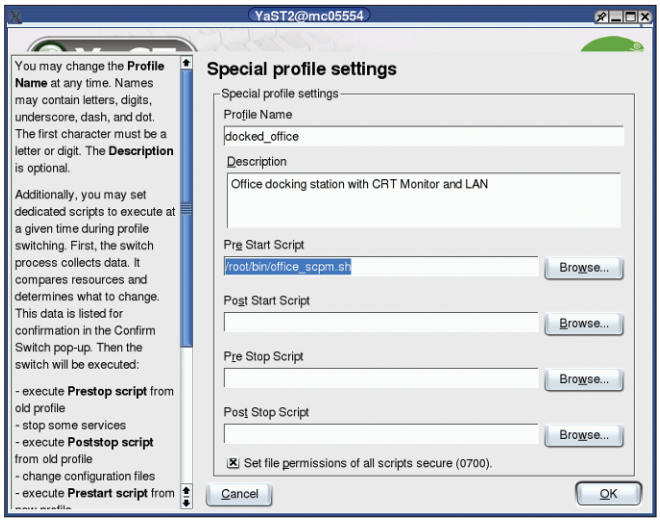


Figure 3: Unlimited configuration options for profiles.