

# SUSE

## AUTOMATIC INSTALLATION AND CONFIGURATION USING YAST



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The ability to perform an automated installation of servers and workstations is highly desirable in the corporate environment. The SuSE Linux AutoYaST tool is designed to allow the creation of a configuration for a single system or a set of systems. The configuration is stored in a control file which is read during the automated installation and can be made available to the installer in different ways.

## INTRODUCTION

### WHY DO I NEED AN AUTOMATED SETUP?

Several situations can make non-interactive installations necessary:

- Installation of a large number of similar systems:  
A large number of client systems or servers for a special service, for example compute servers in a high performance cluster which need to be installed in a similar manner. In such cases it would be too tedious to install every computer interactively, and automation is a necessary tool.
- Installation by less trained operators:  
Setting up servers, selecting software and the configuration of network services is a challenging task normally done by skilled administrators and system architects. On the other hand, such well paid personnel have limited time at their disposal and installations often have to take place at distant locations. With the use of automation it is possible to design and configure certain systems in advance and delegate the actual installation to operators at the remote site, for instance.
- Installation over a large distance:  
Sometimes installations have to be made in locations without technical IT personnel or over such large distances that travel expenses would be too high. In such situations, automated installation means that one can send a pre-prepared installation CD to the location, with which the computer can be installed and configured correctly and can then be booted and further configured across the network.
- Quality assurance for important server systems:  
In a production environment, one wishes to have a consistent set of servers which are identical in their layout and basic configuration. It is difficult in practice to ensure this by means of written installation guides and so on. Using automation this is done by

design. In addition the control files in themselves constitute a source of good documentation of the installed systems.

### ADVANTAGES OF TRUE AUTOMATIC INSTALLATION

The thought of simply copying the hard disks naturally crosses one's mind. This can be done quickly, and all the necessary functions and software will be copied without option selection. However, this leads to a situation in which for instance network settings need to be manually reconfigured on each machine before they can be accessed remotely. Furthermore, installation with AutoYaST copes well with hardware differences between different machines thanks to YaST's hardware detection capabilities.

Using AutoYaST, multiple systems sharing the same environment and hardware performing similar tasks can easily be installed in parallel. A configuration file (referred to as control file) is created using existing configuration resources. The control file can be easily tailored for any specific environment.

## ARCHITECTURE

The complete auto-installation process can be divided in three phases: preparation, installation and configuration.

- Preparation: All relevant information about the target system is collected and converted to appropriate directives in the control file. This control file is transferred onto the target system where its directives

will be parsed and transformed to YaST2 conforming data.

- Installation: The installation then follows the instructions given in the control file and installs a base system.
- Configuration: YaST2 and some user-defined post-install scripts accomplish the system configuration.

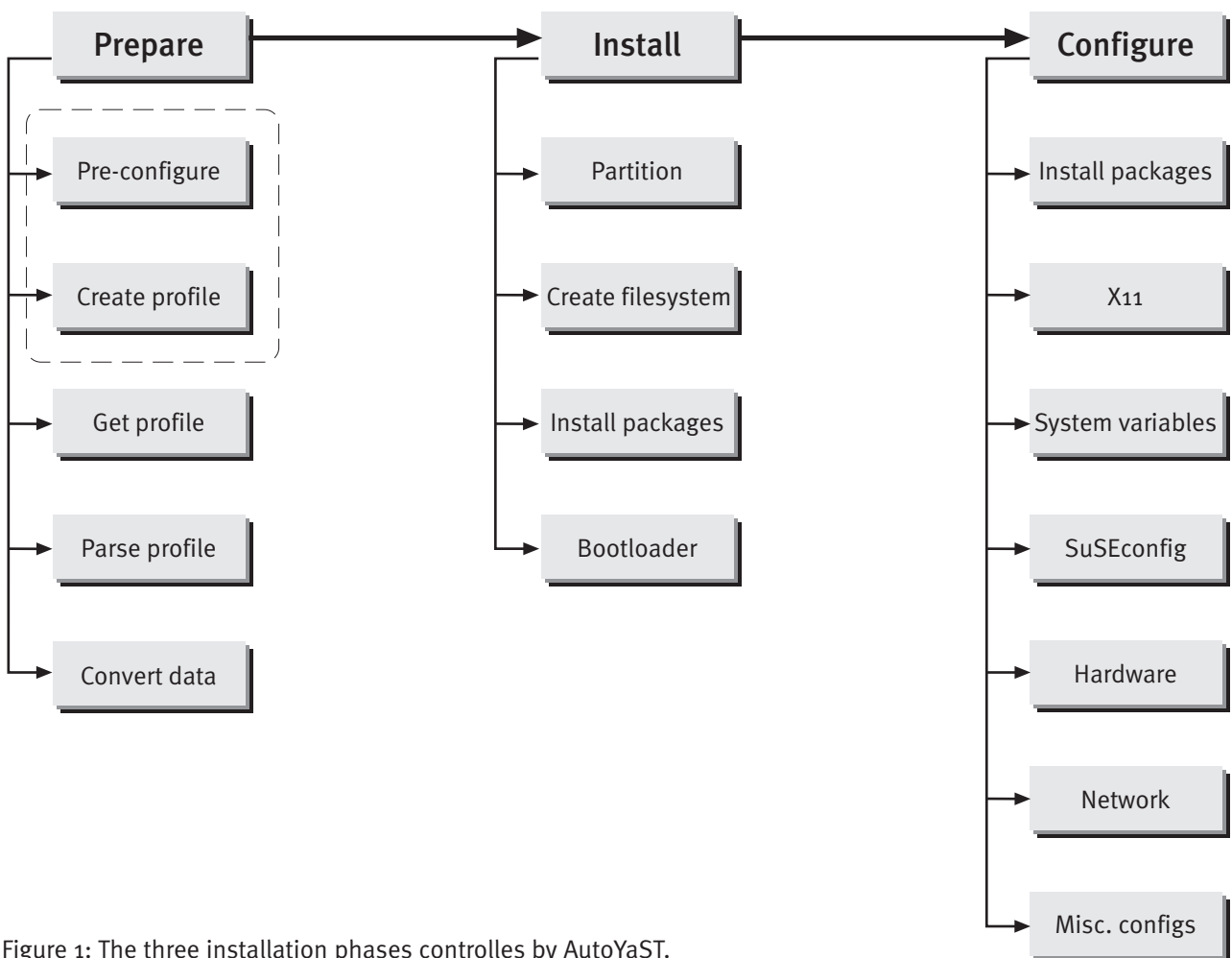


Figure 1: The three installation phases controlled by AutoYaST.

## FEATURES

AutoYaST operates through a powerful graphical configuration management system and permits user defined postinstall options.

## CONFIGURATION MANAGEMENT SYSTEM

In order to create a control file or a certain class of control files, one uses the YaST autoinstallation module.

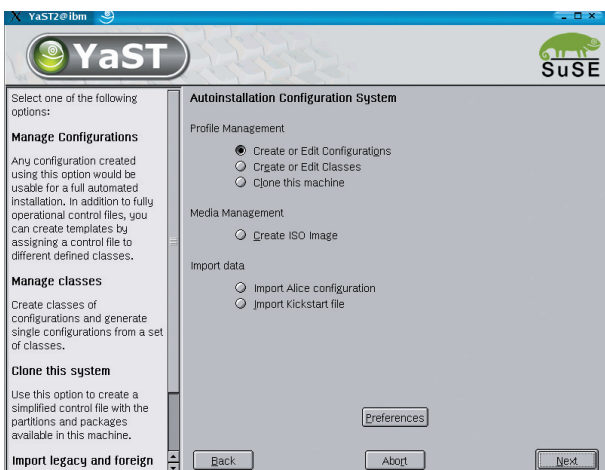


Figure 2: The YaST autoinstallation module provides a convenient configuration management interface

## INSTALLATION SOURCES

There are quite a number of different installation sources and control file sources.

In the simplest scenario, one can use the standard SuSE Linux Enterprise Server CDs as installation sources and provide the control file on a DOS formatted floppy disk.

In a more advanced situation, but without network connectivity, YaST can create a ISO image file which contains all packages and the control file.

Using the network, installation can be done using NFS (Network File System). Then the control file can be provided in different places:

- on a floppy disk
- in an NFS repository
- via HTTP or FTP
- via tftp

Bootimg can be done via network (etherboot/PXE) or via CD-ROM.

## HARDWARE DETECTION

During autoinstall, the same convenient hardware detection is used as for interactive install using YaST. This is achieved through the complete integration of AutoYaST into the installation and configuration system.

## SYSTEM CUSTOMIZATION

Most of the system customization is done in the second stage of the installation. YaST provides most of the important resources needed to bring up a system to a usable, general state. However, there may be further requirements for the installed system. If the required customizations can not be done using YaST resources, then post-install scripts can be defined to accomplish this task. An unlimited number of custom scripts can be defined in the control file either by editing the control file or by using the configuration system.

## MIGRATION FROM LEGACY AND FOREIGN CONFIGURATION FORMATS

### ALICE AND YAST1

ALICE, SuSEs former auto-installation system was a system built around the autoinstallation features that were available with YaST1. In order to be able to use existing ALICE configuration files and resources, a special option is provided in the configuration system will let you convert ALICE configuration files into a control file readable by AutoYaST.

### REDHAT KICKSTART

AutoYaST has an option to allow the import of files created by Red Hat's Kickstart system. Once such a file has been imported, further options may be added using SuSE's Configuration Management System.

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