SUSE LINUX Enterprise Server

START-UP GUIDE

Contents

Preface

Congratulations for your purchase of SUSE LINUX Enterprise Server. This product offers an operating system available for seven different hardware platforms at the same high quality. This provides scalability of the system and availability of applications.

Quality service is also available. Experts can answer questions about installation or configuration, make reliable security updates available, and support development projects.

This short manual offers a quick introduction to the installation of your SUSE LINUX Enterprise Server. It features an overview of the various fields of application and installation types of each of the platforms supported by SUSE LINUX Enterprise Server as well as a short description of the installation procedure.

Part I

Installation on x86, AMD64, EM64T, and IPF

Installation Considerations

This chapter encompasses all the decisions that need to be made before installing SUSE LINUX Enterprise Server on x86, AMD64, Intel EM64T, and Itanium Processor Family hardware.

The current hardware and software requirements for installing SUSE LINUX Enterprise Server on x86, AMD64, Intel EM64T and Itanium Processor Family can be found in the *Architecture-specific Information* manual, which is contained on the first CD as a printable PDF in the /docu/ directory.

1.1 Installation Type

SUSE LINUX Enterprise Server is normally installed as an independent operating system. There is no provision for more than one instance of the operating system on the same hardware.

1.2 Boot Options

Depending on the hardware used, the following boot options are available for the first boot procedure prior to the installation of SUSE LINUX Enterprise Server:

Boot Option	Use
CD-ROM	The simplest booting method. The system requires a locally available CD-ROM drive for this.
Floppy	The images required for creating boot disks can be found on the first CD in the `/boot/` directory. See also the `README` in the same directory.
PXE or bootp	Must be supported by the BIOS or by the firmware of the system used. This option requires a boot server in the network. This task can be handled by another SUSE LINUX Enterprise Server.
Hard disk	SUSE LINUX Enterprise Server can also be booted from hard disk. For this you, copy the kernel (`linux`) and the installation system (`initrd`) from the `/boot/loader/` directory of the first CD onto the hard disk and add an appropriate entry to the boot loader.

1.3   Installation Source

When installing SUSE LINUX Enterprise Server, the actual installation data must be available in the internal network, on a hard disk partition, or on a local CD-ROM. To install from the network, you need an installation sever. To make the installation data available, set up any computer in a Unix or Linux environment as an NFS, HTTP, or FTP server.

The installation source is particularly easy to select if you configure an *SLP server* in the local network. For more information, see *Setting up a Central Installation Server* in the *Installation and Administration* manual.

To make the installation data available from a Windows computer, release the data via SMB.

1.4   Different Installation Methods

SUSE LINUX Enterprise Server offers several different methods for controlling installation:

- Installation on the console

- Installation via serial console

- Installation with AutoYaST

- Installation via SSH

- Installation with VNC

By default, the console is used. If you have a large number of similar computers to install, it is advisable to create an AutoYaST configuration file and make this available to the installation process. See also the documentation for `autoyast2` under `file:/usr/share/doc/packages/autoyast2/html/index.html`.

Installation Procedure

This chapter offers an overview of the steps required for the complete installation of SUSE LINUX Enterprise Server in the required mode.

Find detailed information about the preparations for installing SUSE LINUX Enterprise Server on x86, AMD64, Intel EM64T, and Itanium Processor Family in the *Architecture-specific Information* manual, which is available as a printable PDF in the /docu/ folder on the first CD. The *Installation and Administration* contains a full description of how to install and configure the system with YaST.

2.1 Booting from a Local Interchangeable Drive

Both CD-ROM and floppy drives can be used for installation purposes. Adjust your computer to your needs:

1. Make sure the drive is entered as a bootable drive in the BIOS.

2. Insert the boot medium in the drive and start the boot procedure.

3. The boot menu of the CD or floppy allows transferring different parameters to the installation system. See also *Passing Parameters to linuxrc* in *Installation and Administration*. If the installation should be performed over the network, specify the installation source here.

4. If unexpected problems arise during installation, use safe settings to boot.

2.2 Installation over the Network

An installation server is required to perform the installation by using a network source. The procedure for installing this server is outlined in the *Installation and Administration* in *Setting up a Central Installation Server*.

If you have an SLP server, select SLP as the installation source after booting from the CD. During the boot procedure, select which of the available installation sources to use.

If the CDs are available in the network, use these as an installation source. In this case, specify the parameter `install=<URL>` with suitable values at the CD boot prompt. Find a more detailed description of this parameter in the *Installation and Administration* in *Passing parameters to linuxrc*.

2.3 Controlling Installation Remotely

There are three options for controlling installation from a remote computer. These are:

1. Installation via SSH

2. Installation over serial console

3. Installation via VNC

These possibilities are described in detail in the *Architecture-specific Information* manual. Find this manual on the first CD as a printable PDF in the `/docu/` directory.

Part II

Installation on IBM iSeries and pSeries

Installation Considerations

This chapter summarizes all decisions to make before initiating an installation of SUSE LINUX Enterprise Server on IBM POWER hardware.

The current hardware and software requirements for installing SUSE LINUX Enterprise Server on IBM POWER devices are listed in the manual *Architecture-specific Information*, provided as a printable PDF document in the directory `/docu/` of the first CD.

3.1 Types of Installation

SUSE LINUX Enterprise Server offers two different types of installation on IBM POWER: an installation on the entire system and an installation in a logical partition (LPAR).

iSeries Linux can only be installed in an LPAR on this type of machine. The installation on iSeries requires a telnet connection that allows control over the installation process throughout its course.

An installation server in the network qualifies as a good source of installation.

pSeries Linux can be installed on the entire system here. On IBM pSeries p670 and p690, it is also possible to install Linux in an LPAR. A CD-ROM drive or an installation server in the network can be used as the installation source.

JS 20 Blade Linux can only be installed on the whole system — on a blade — on this type of machine.

3.2 IPL Options

Depending on the hardware used and on the chosen type of installation, the following options for the initial IPL are available for installing SUSE LINUX Enterprise Server:

Table 3.1: IPL Options

IPL Option	Use
CD-ROM	Simplest booting procedure. The system requires a locally available CD-ROM drive for this.
Network	SUSE LINUX Enterprise Server can also be booted from the network. This requires copying the appropriate kernel (`install` or `ISERIES64`) from the first CD to a boot server. Booting from network can be selected in the firmware or with OS/400.

3.3 Installation Source

For installing SUSE LINUX Enterprise Server, the installation files must be available in the local network or on a locally provided CD-ROM. Network availability is achieved by setting up a workstation in a Linux or Unix environment as an HTTP, NFS, or FTP server. It is also possible to share the installation files over SMB from a computer running Windows.

Configuring an *SLP server* in the local network simplifies selection of an installation source. This is described in the chapter *Installation of a Centralized Installation Server* of the manual *Installation and Administration*.

3.4 Connecting to the Installation Sytem

SUSE LINUX Enterprise Server offers a selection of four different ways of connecting to the installation system:

- SSH

- VNC

- serial console

- screen console

The employed versions of the SSH, VNC, or Terminal software vary depending on the operating system running on the workstation initiating the connection to the installation system.

It is advisable to create an AutoYaST configuration file if many identical partitions or machines need to be installed. It can then guide the installation process. Refer to the documentation for AutoYaST in `file:` `/usr/share/doc/packages/autoyast2/html/index.html`.

Installation Procedure

This chapter provides an overview of the steps required to install SUSE LINUX Enterprise Server in the chosen mode.

Detailed information about preparing an installation of SUSE LINUX Enterprise Server on IBM POWER can be found in the manual *Architecture-specific Information*, which is provided as a printable PDF document in the directory `/docu/` on the first CD. A thorough description of the installation and configuration with YaST is provided in the manual *Installation and Administration*.

4.1 Installing over a Complete System

The following steps should be completed when installing over a complete system. Single blades in a blade center also count as a complete system in this context.

1. Verify the hardware requirements (see also the section *Hardware Requirements* in the manual *Architecture-specific Information*).

2. Verify the software requirements (see also the section *Software Requirements* in the manual *Architecture-specific Information*).

3. Set up the system properly to enable booting from CD-ROM or from the network (see also the section *Preparing an Installation on an IBM pSeries System* in the manual *Architecture-specific Information*).

4. Start the installation from CD-ROM or the network (see also the section *Providing a Network Installation Source* in the manual *Architecture-specific Information*).

5. Install the software and perform basic network configuration (see also the section *Installing with YaST* in the manual *Installation and Administration*).

4.2   Installing in an LPAR

1. Verify the hardware requirements (see also the section *Hardware Requirements* in the manual *Architecture-specific Information*).

2. Verify the software requirements (see also the section *Software Requirements* in the manual *Architecture-specific Information*).

3. Prepare a VNC client for the installation process (see also the section *Installing with VNC* in the manual *Installation and Administration*).

4. Prepare the system in its firmware or on the OS/400 side (see also the section *Preparing an Installation on IBM iSeries systems* in the manual *Architecture-specific Information*).

5. Configure a client for accessing the system during the installation (see also the section *Preparing a Client for the Operation of the Installation Software* in the manual *Architecture-specific Information*).

6. For iSeries: Set up the IPL source on the OS/400 side (see also section *IPL: Starting the NWSD* in the manual *Architecture-specific Information*).

7. Install the software and perform basic network configuration (see also the section *Installing with YaST* in the manual *Installation and Administration*).

Part III

Installation on IBM S/390 and zSeries

Installation Considerations

This chapter summarizes all decisions that must be made while planning an installation of SUSE LINUX Enterprise Server on IBM S/390 or zSeries hardware. The current hardware and software requirements for installing SUSE LINUX Enterprise Server on IBM S/390 and zSeries are listed in the manual *Architecture-specific Information*, which is provided as a printable PDF file in the directory `/docu/` on the first CD.

5.1   Types of Installation

SUSE LINUX Enterprise Server allows three different types of installation on IBM S/390 and zSeries:

Native Installation   A native installation of SUSE LINUX Enterprise Server for IBM S/390 and zSeries makes it the only operating system on your hardware. SUSE LINUX Enterprise Server, in this case, uses the complete physical memory and all processors of your IBM S/390 or zSeries. It is then not possible to run another operating system concurrently on your system. This type of installation is not supported for the zSeries 990.

LPAR Installation   Installing SUSE LINUX Enterprise Server for IBM S/390 and zSeries on a separate logical partition (LPAR) allows SUSE LINUX Enterprise Server to use a specific portion of the physical memory. It is furthermore possible to specify how many processors should be used by SUSE LINUX Enterprise Server. This mode allows concurrently running multiple operating systems on a system.

Installation in z/VM z/VM mode runs SUSE LINUX Enterprise Server for IBM S/390 and zSeries as a hosted system in z/VM (*virtual machine*). This type has the advantage that z/VM provides full control over SUSE LINUX Enterprise Server. This type of installation can prove very helpful for kernel development or kernel-based debugging. It is furthermore very easy to modify the hardware configuration of a hosted Linux system. The creation of hosted SUSE LINUX Enterprise Server systems is likewise very easy as it is possible to run several hundred Linux instances concurrently.

5.2 IPL Options

Depending on the hardware used and the selected type of installation, the following IPL options are available for the initial IPL prior to the installation of SUSE LINUX Enterprise Server:

Table 5.1: IPL Options

IPL Option	Scope
Tape	Can be used in any type of installation. The sole requirement is the availability of a tape library unit.
VM Reader	Can be used in VM mode. The necessary data must have previously been transferred into the z/VM system (e.g., with FTP).
CD-ROM or Server	Can be used with IPL in an LPAR. The installation data can be read directly from CD-ROM or loaded into the installation system with FTP.

5.3 Installation Source

The actual installation data must be available on the internal network to make an installation of SUSE LINUX Enterprise Server possible. In a Unix or Linux environment, the installation data can be made available by setting up a workstation as an NFS or FTP server. To make the installation data available from a Windows workstation, release it on an SMB share.

Several FTP software packages for Windows are available as an alternative, however, their use is not always free of problems.

5.4 Initiating a Connection to the Installation System

SUSE LINUX Enterprise Server offers three different methods initiating a connection to the installation system. Select SSH, VNS, or X server. Depending on the operating system running on the workstation that initiates the connection to the installation system, the versions of these applications differ.

Installation Procedure

This chapter presents an overview of the various steps necessary for a complete installation of SUSE LINUX Enterprise Server in the desired mode. Detailed information about preparing an installation of SUSE LINUX Enterprise Server on IBM S/390 and zSeries is provided in the manual *Architecture-specific Information*, which is provided as a printable PDF file in the directory /docu/ on the first CD. A detailed description of the installation and configuration of the system with YaST can be found in *Installation and Administration*.

6.1   Native Installation

⎽ **Note** ─────────────────────────────────────

Native Installation

Native installation is not supported on an IBM zSeries 990 (z990).

─── **Note** ⎽

1. Choose a suitable IPL option for the initial IPL befpre installing. Select 'Tape' for the native installation.

2. Make the installation media or their data available in the network using FTP or SMB and ensure that the paths can be accessed by YaST.

3. Transfer the tape IPL kernel, the parmfile, and the initial RAM disk using FTP to the tape and make the tape drive available via IOCDS.

4. Perform the IPL of the installation system.

5. Configure the network.

6. Choose a connection type to the installation system (SSH, VNC, or X) and establish the connection.

7. Start the basic installation with YaST.

8. Perform the first IPL of the installed system.

9. Reconnect to the installation system and start YaST to continue the installation process and to configure the SUSE LINUX Enterprise Server.

6.2   LPAR Installation

1. Choose a suitable IPL option for the initial IPL before installing. In the case of an LPAR installation, choose between 'CD-ROM or Server' or 'Tape'.

2. Make the installation media or their data available in the network using FTP or SMB and ensure that the paths can be accessed by YaST.

3. Using the HMC, prepare the IPL from CD-ROM or from the server.

   or

   Transfer the tape IPL kernel, the parmfile, and the initial RAM disk using FTP to the tape and make the tape drive available via IOCDS.

4. Perform the IPL for the installation system.

5. Configure the network.

6. Choose a type of connection to the installation system (SSH, VNC, or X) and establish the connection.

7. Start the basic installation with YaST.

8. Perform the first IPL of the installed system.

9. Reconnect to the installation system and start YaST to continue the installation process and to configure the SUSE LINUX Enterprise Server.

6.3   z/VM Installation

1. Choose a suitable IPL option for the initial IPL before installing. For the installation in z/VM, choose 'VM Reader' or 'Tape'.

2. Make the installation media or their data available in the network using FTP or SMB and ensure that the paths can be accessed by YaST.

3. Create a Linux guest in z/VM, assigning its memory allowance and defining the desired network connection.

4. Transfer the VM reader kernel, the parmfile, and the initial RAM disk using FTP to a minidisk accessible to the guest in z/VM and create a REXX start-up script for the IPL of the VM reader.

   or

   Transfer the tape IPL kernel, the parmfile, and the initial RAM disk using FTP to a minidisk accessible to the guest in z/VM and transfer these files to the tape using, for example, a REXX script.

5. Perform the IPL of the installation system.

6. Configure the network.

7. Choose the type of connection to the installation system (SSH, VNC, or X) and establish the connection (in the case of SSH and VNC) or wait until a connection has been established (X).

8. Start the basic installation with YaST.

9. Perform the first IPL of the installed system.

10. Reconnect to the installation system and start YaST to continue the installation process and to configure the SUSE LINUX Enterprise Server.