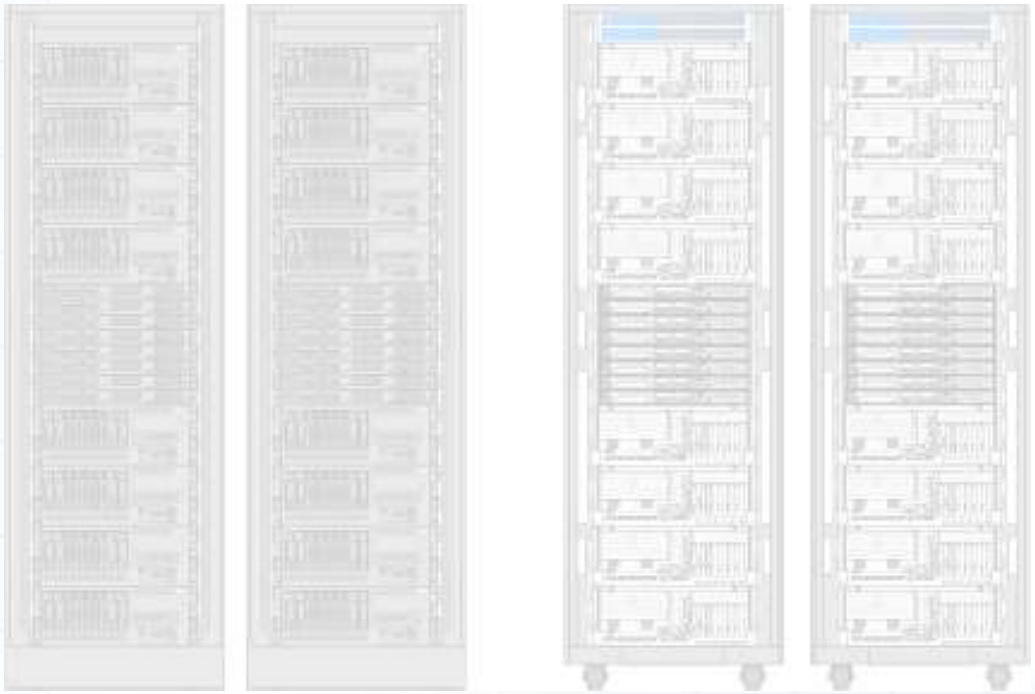


LAB: Installing Client Linux LPAR

QPS01 – IBM System p APV – 130

Overview

- Installing SLES (SuSE Linux Enterprise Server) to an LPAR
  - We will be installing from the network
  - The Install server doesn't even run Linux
  - It is our "NFS" Master
- We will use VNC for a graphical installation

Partition Definition Information for SLES

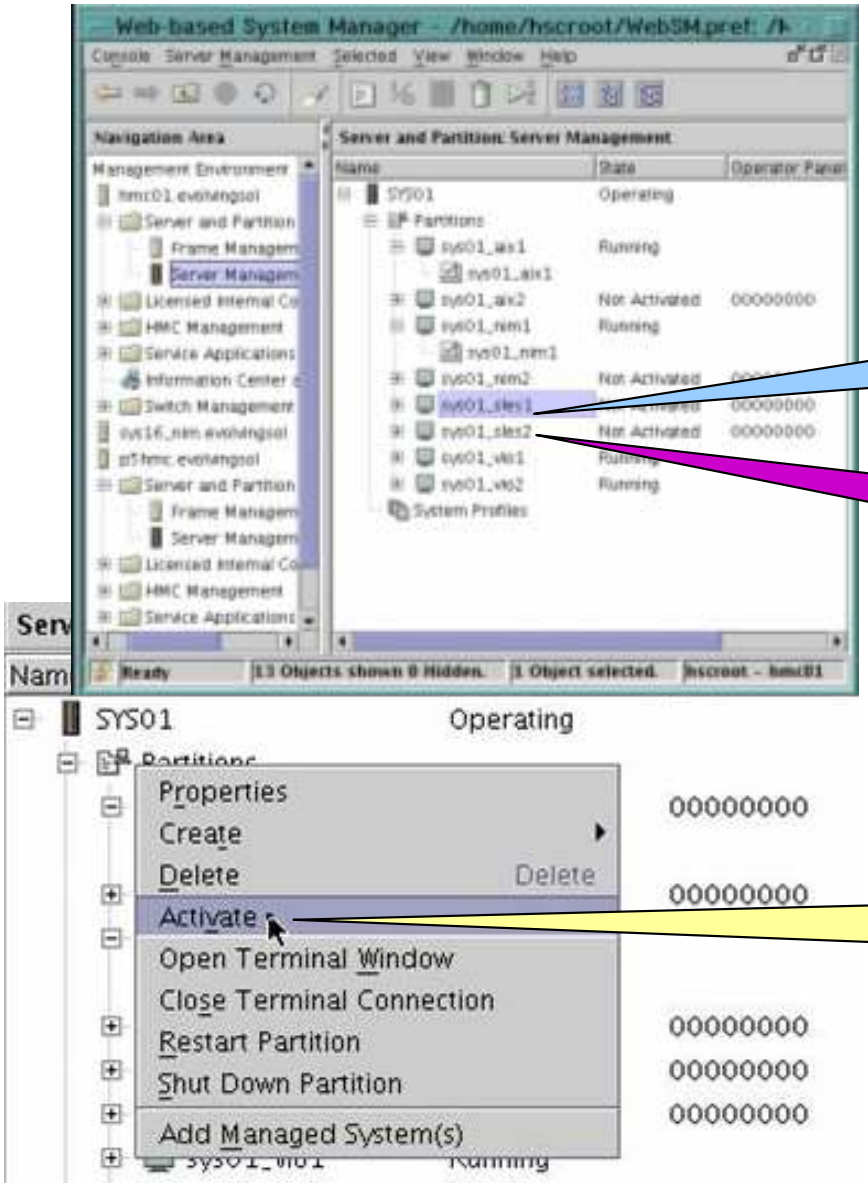
Partition Definition Information for Student 01

Citrix Login: qps01-01 Password:
VNC Login: stu_01 Password: stu_01

IBM System p

Common to All Partitions				
Memory Configuration: Minimum: 256MB, Desired: 512MB, Max: 1GB				
CPU Configuration: Minimum: 0.1 CPU's, Desired: 0.2 CPU's, Max: 2.0 CPU's				
Virtual CPU Configuration: uncapped, VIO: weight of 128, Minimum: 1 CPU, Desired: 2 CPU's, Max: 2 CPU's				
Net mask: 255.255.240.0, Gateway: 10.31.192.1, Spanning Tree off, AUTO Speed + Duplex				
LPAR/Host Name [PARTID]	**Physical Devices All required**	**Virtual SCSI**	**Virtual Network**	**IP Addressing Info**
sys01_hmc				HMC IP: 10.31.197.11
sys01_vio1 (partition ID 1)	Network: Slot T5 on Bus 2 Disk: Slot T10 on Bus 3	Server slots 10, 11, 12, 20, 21, 22 (any system can connect), required	Slot 2, Virtual LAN ID 1 Bridged, Priority 1 Slot 3, Virtual LAN ID 99 Not bridged	VIO hostname: sys01_vio1 VIO LPAR IP: 10.31.197.13 VIO install Server: 10.31.197.164
sys01_nim1 (partition ID 3)	NONE	Slot 10, Maps to VIO1 Slot 10 Slot 20, Maps to VIO2 Slot 20	Slot 2, Virtual LAN ID 1 (Trunking OFF)	NIM hostname: sys01_nim1 NIM LPAR IP: 10.31.197.14 NIM install Server: 10.31.197.164
sys01_aix1 (partition ID 5)	NONE	Slot 11, Maps to VIO1 Slot 11 Slot 21, Maps to VIO2 Slot 21	Slot 2, Virtual LAN ID 1 (Trunking OFF)	AIX hostname: sys01_aix1 AIX LPAR IP: 10.31.197.15 AIX install Server: 10.31.197.14
sys01_sles1 (partition ID 7)	NONE	Slot 12, Maps to VIO1 Slot 12 Slot 22, Maps to VIO2 Slot 22	Slot 2, Virtual LAN ID 1 (Trunking OFF)	SLES hostname: sys01_sles1 SLES LPAR IP: 10.31.197.16 SLES NFS Server: 10.31.197.165

Activate the SLES1 or SLES2 partition

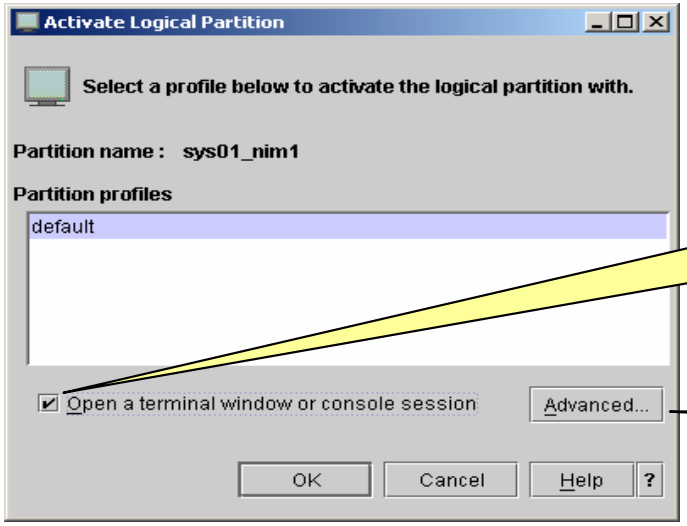


1. ODD Right click on sles1 partition

1. EVEN Right click on sles2 partition

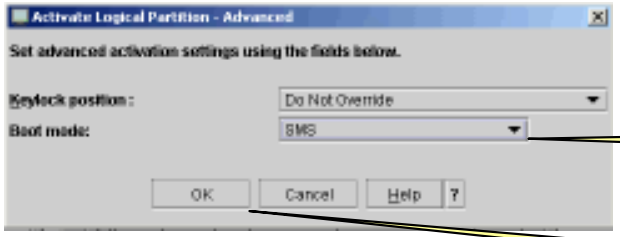
2. Select “Activate” from popup window.

Activate in SMS mode for install

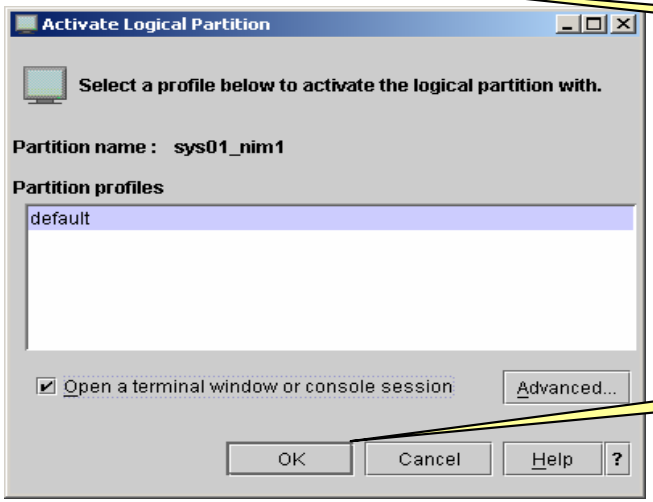


3. Select "Open a terminal window.."

4. Click "Advanced"



5. Select "SMS"



6. Click "OK"

7. Click "OK"

SMS Main Menu -> Select Remote IPL

Main Menu
1. Select Language
2. Setup Remote IPL (Initial Program Load)
3. Change SCSI Settings
4. Select Console
5. Select Boot Options

Type “2” and press Enter
To select
“Setup Remote IPL”

Type menu item number and press Enter or select Navigation key: **2**

NIC Adapters

	Device	Location Code	Hardware Address
1.	**Interpartition Logical LAN**	**U9111.520.1007F4F-C2-T1**	**2646c0005005**

Type menu item number and press Enter or select Navigation key: **1**

Type “1” and press Enter
“Virtual Ethernet slot C2”

Select set “IP Parameters”

Network Parameters
Interpartition Logical LAN: U9111.520.1007F4F-V7-C2-T1

1. **IP Parameters**
2. Adapter Configuration
3. Ping Test
4. Advanced Setup: BOOTP

Type menu item number and press Enter or select Navigation key: **1**

Type “1” and press Enter
To select
“IP Parameters”

Set and verify IP parameters

IP Parameters
Interpartition Logical LAN U9111.520.1007F4F-V7-C2-T1

1. Client IP Address [**10.31.197.XX**]
2. Server IP Address [**10.31.197.165**]
3. Gateway IP Address [**000.000.000.000**]
4. Subnet Mask [**255.255.240.0**]

Type menu item number and press Enter or select Navigation key:

Pres “**Esc**” Once

Enter 2 to set “Adapter Configuration”

Adapter Configuration
Interpartition Logical LAN: U9111.520.1007F4F-

1. Speed,Duplex
2. **Spanning Tree Enabled**
3. Protocol

Type “**2**” and press Enter
To select
“Spanning Tree Enabled”

Type menu item number and press Enter or select Navigation key: **2**

Spanning Tree Enabled
Interpartition Logical LAN: U9111.520.1007F4F-V7-C2-T1

1. Yes
2. **No**

Type “**2**” and
press Enter for **“No”**

Press “Esc” twice

Enter 3 to set “Ping Test”

Network Parameters
Interpartition Logical LAN: U9111.520.1007F4F-V7-C2-T1

1. IP Parameters
2. Adapter Configuration
3. **Ping Test**
4. Advanced Setup: BOOTP

Type menu item number and press Enter or select Navigation key: **3**

Type “3” and press Enter to select **“Ping Test”**

Verify configuration and execute ping test

Ping Test
Interpartition Logical LAN: U9111.520.1007F4F-V7-C2-T1
Speed, Duplex: auto,auto
Client IP Address: 10.31.197.XX
Server IP Address: 10.31.197.165
Gateway IP Address: 000.000.000.000
Subnet Mask: 255.255.240.0
Protocol: Standard
Spanning Tree Enabled: 0
Connector type:

Type “1” and press Enter to **“Execute Ping Test”**

1. **Execute ping test**

Type menu item number and press Enter or select Navigation key: **1**

Enter M to return to "Main Menu"

Network Parameters
Interpartition Logical LAN: U9111.520.1007F4F-V7-C2-T1
1. IP Parameters
2. Adapter Configuration
3. Ping Test
4. Advanced Setup: BOOTP

Type menu item number and press Enter or select Navigation key: **M**

Type "**M**" to return to Main Menu

Select Boot Options -> Select Install/Boot Device

Main Menu

...

5. Select Boot Options

Type "**5**" and press Enter
To select
"Select Boot Options"

Multiboot

1. **Select Install/Boot Device**

...

Type "**1**" and press Enter
"Select Install/Boot Device"

Select Device Type

...

6. Network

7. List all devices

Type "6" and press Enter
To select
"Network"

Select Virtual Ethernet you configured earlier

```
--------------------------------------------------------------------------------
Select Device
Device          Current         Device
Number          Position          Name
1.                 -            Virtual Ethernet
                                ( loc=U9111.520.1007F4F-V7-C2-T1
Type menu item number and press Enter or select Navigation key:  1
```

Type “1” and press Enter
for **“Slot C2” Virtual Ethernet**

Normal Mode Boot -> Exit SMS

Ethernet
(loc=U9111.520.1007F4F-V7-C2-T1

1. Information
2. **Normal Mode Boot**
3. Service Mode Boot

Type menu item number and press Enter or select Navigation key: **2**

Type “2” and press Enter
To select
“Normal Mode Boot”

Are you sure you want to exit System Management Services?

1. **Yes**
2. No

Type menu item number and press Enter or select Navigation key: **1**

Type “1” and press Enter
for **“Yes”**

The Partition is booting the Linux kernel

```
VTERM: sys01_sles1          7*9111-520*1007F4F
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
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BOOTP: chosen-network-type = ethernet,auto,none,auto
BOOTP: server    IP =         10.0.100.200
BOOTP: requested filename =
BOOTP: client    IP =         10.0.101.4
BOOTP: client    HW addr =    26 46 c0 0 70 5
BOOTP: gateway   IP =         10.0.0.190
BOOTP: device     /vdevice/l-lan@30000005
BOOTP: loc-code   U9111.520.1007F4F-V7-C5-T1


BOOTP R = 1 BOOTP S = 2
FILE: /tftpboot/vmlinux
Packet Count = 2400
```

- **The same type of packet count you saw on the other Partitions will be displayed**
- **The FILE is the same for all Linux partitions**

Select the Language and start kernel module load

Activating manual setup program

Select the Language

1) Bosnia
2) Cestina
3) Deutsch
4) English
5) Espa*n*ol
6) Fran*c*ais
7) Hellenic
8) Italiano
9) Japanese
...
16) Slovencina

> 4

Type “4” and press Enter
To select
“**English**”

Start the kernel module load

>>> Linuxrc v1.6 (Kernel 2.6.5-7.97-pseries64) © 1996-2004 SUSE LINUX AG <<<

Main Menu
1) Settings
2) System Information
3) Kernel Modules (Hardware Drivers)
4) Start Installation or System
5) Eject CD
6) Exit or Reboot
7) Power off

Type “3” and press Enter
To load more Kernel Modules

> 3

Kernel Modules (Hardware Drivers)
1) Load ppc_pseries64 Modules
2) Load USB Modules
3) Show Loaded Modules
4) Unload Modules
5) Add Driver Update
6) Show Driver Updates

Type “1” and press Enter
To load **ppc_pseries64** Modules

> 1

Load **ppc_pseries64** Modules

9) ibmveth : POWER5 Virtual Ethernet
10) eym53c6xx : Symbios 53c8xx
11) ipr : IBM Power Linux RAID adapter
12) ibmvscsic : IBMM Virtual SCSI
13) ibmvscsis : IBM Virtual SCSI server
14) lpfcdd : Emulex LP fibrechannel storage
15) qla2xxx_conf : QLogic Persistent Binding Data Module
16) qla2300 : QLogic ISP 2300
17) scsi_mod : Generic Mid-Level SCSI Driver
18) sd_mod : SCSI Disk Driver
…
31) xfs : XFS

> **9**

Desired value nearly Scrolls off the screen

If the “backspace” key does not backspace, try “ctrl-backspace

Type “9” and press Enter
To select
“ibmveth : POWER5 Virtual”

If prompted for options press <space> <enter>

Show the Loaded Drivers

Kernel Modules (Hardware Drivers

1) Load ppc_pseries64 Modules
2) Load USB Modules
3) Load Unknown Modules
4) Show Loaded Modules
5) Unload Modules
6) Add Driver Update
7) Show Driver Updates

> **4**

Show Loaded Modules

Generic Mid-Level SCSI Driver
SCSI Disk Driver
POWER5 Virtual Ethernet
IBM Virtual SCSI

Type “4” and press Enter
To select
“Show Loaded Modules”

To go back in SLES menus, hit enter
or esc-enter on a blank line

Confirm
POWER5 Virtual Ethernet
Module is loaded

Hit ‘Enter’ or Esc-Enter
To return to Main menu

Go to “Settings” menu to activate VNC (1 of 2)

Main Menu
1) **Settings**
2) System Information
3) Kernel Modules (Hardware Drivers)
4) Start Installation or System
5) Eject CD
6) Exit or Reboot
7) Power off

> **1**

To go back in SLES menus, hit enter or esc-enter on a blank line

Type “1” and press Enter
To select “Settings”

Settings
1) Language
2) Display
3) Keymap
4) Debug (expert)

> **4**

Type “4” and press Enter
To select
“Debug (expert) settings”

Go to “Settings” menu to activate VNC (2 of 2)

Debug (expert) – Time: 10:16

1) Animation
2) Load Root Image into RAM Disk
3) Enter Root Image
4) Installation System
5) Specify the NFS port
6) Bootp Time-Out
7) DHCP/BOOTP
8) **VNC Enable or Disable**
9) Enable or Disable SSH Mode

> **8**

Type “**8**” and press Enter
To select
“**VNC Enable or Disable**”

Use VNC for install?

1) **Yes**
2) No

> **1**

Type “**1**” and press Enter
To “**Yes**” Use VNC for Install.

Return to main menu – start installation

Main Menu

1) Settings
2) System Information
3) Kernel Modules (Hardware Drivers)
4) **Start Installation or System**
5) Eject CD
6) Exit or Reboot
7) Power off

> **4**

Start Installation or System *Update*

1) **Start Installation or Update**
2) Boot Installed System
3) Start Rescue System

> 1

Press "**Enter**" until you return to "**Main Menu**"

Type "**4**" and press Enter To go to "**Start Installation or System**"

Type "**1**" and press Enter To "**Start Installation or Update**"

Choose a Network Install using NFS

Choose the source medium

1) CD-ROM
2) Network
3) Hard Disk

> **2**

Type “2” and press Enter for “Network” install

Choose the network protocol

1) FTP
2) HTTP
3) NFS
4) TFTP

> **3**

Type “3” and press Enter for “NFS” install

Enter your VNC Password and choose eth0

Don't hit backspace when typing password. Set it to what you to what you already typed.

Set VNC password to "**ibmapv**"

Enter your VNC Password> **ibmapv**

Automatic configuration via DHCP

1) Yes
2) No

> **2**

Type "**2**" and press Enter for "**No**" DHCP

Since the NIM server is expecting a bootp request from a fixed IP address**, do not use DHCP**

Enter your network definition

If you see the correct IP displayed, simply press enter

Type the same IP address you used in the SMS Menus and hit enter **SLES LPAR IP from worksheet**

Enter your IP address [**10.31.197.**XX}>

Enter your netmask. For a normal class C network , this is usually 255.255.255.0 [255.255.252.0]> **255.255.240.0**

Set netmask to 255.255.240.0

If you need a gateway to reach the server, enter the IP address of the Gateway. If you do not need a gateway, enter your own IP address [10.31.192.1]> **10.31.192.1**

Set gateway to 10.31.192.1

Enter the IP address of your name server. If you do not use a name server, Press ESC [] >

Press “ESC Backspace Enter” for no name server

Enter the IP Address of the NFS server> **10.31.197.165**

Set NFS server to 10.31.197.165

Enter mount point on NFS server

Caution: Case sensitive

Type: /export/linux/suse91

Enter the directory on the server:
[/export/linux/suse91]> **/export/linux/suse91**

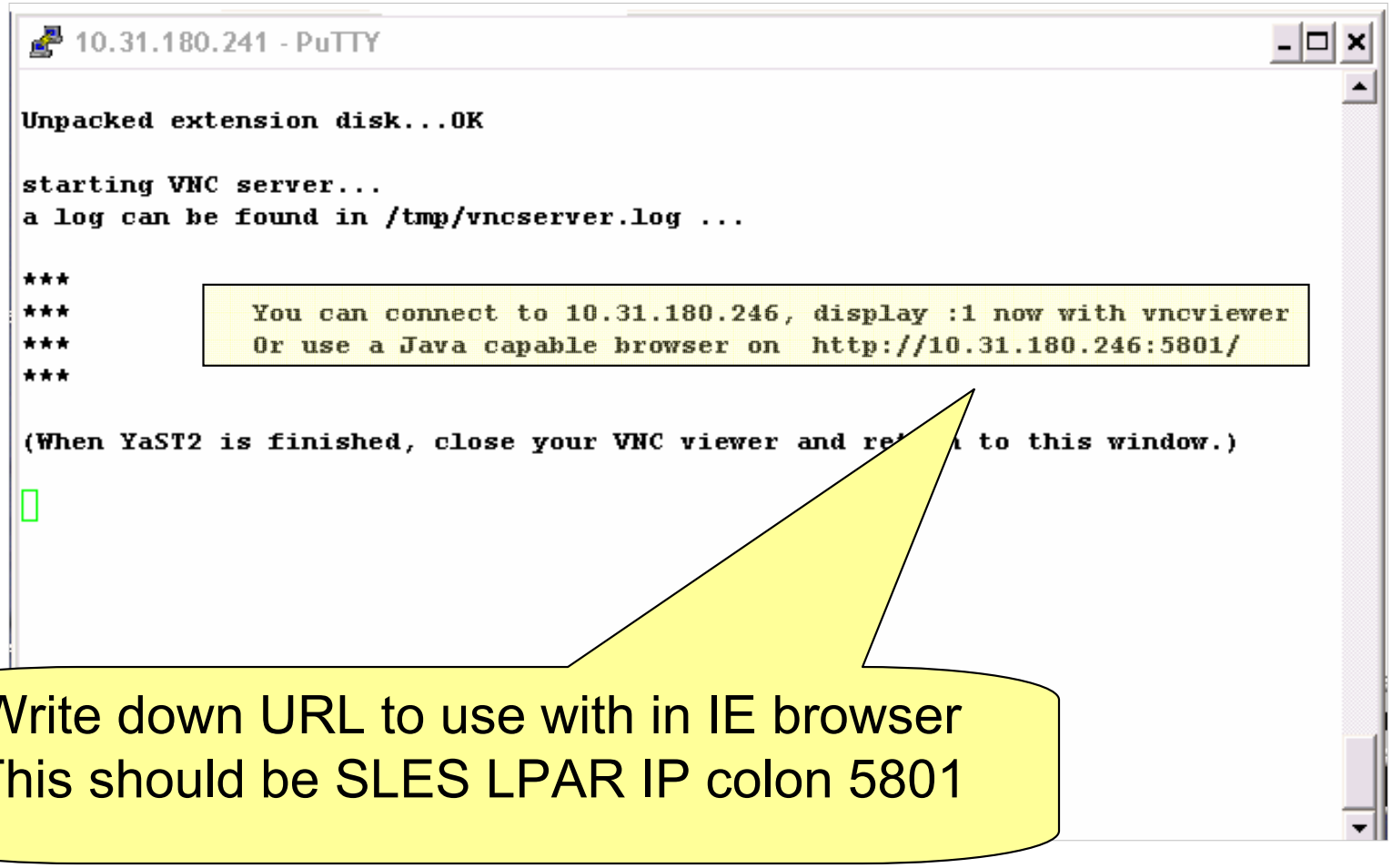
System should now get boot packets from NFS Server

If system does not receive bootp packets, contact instructor.

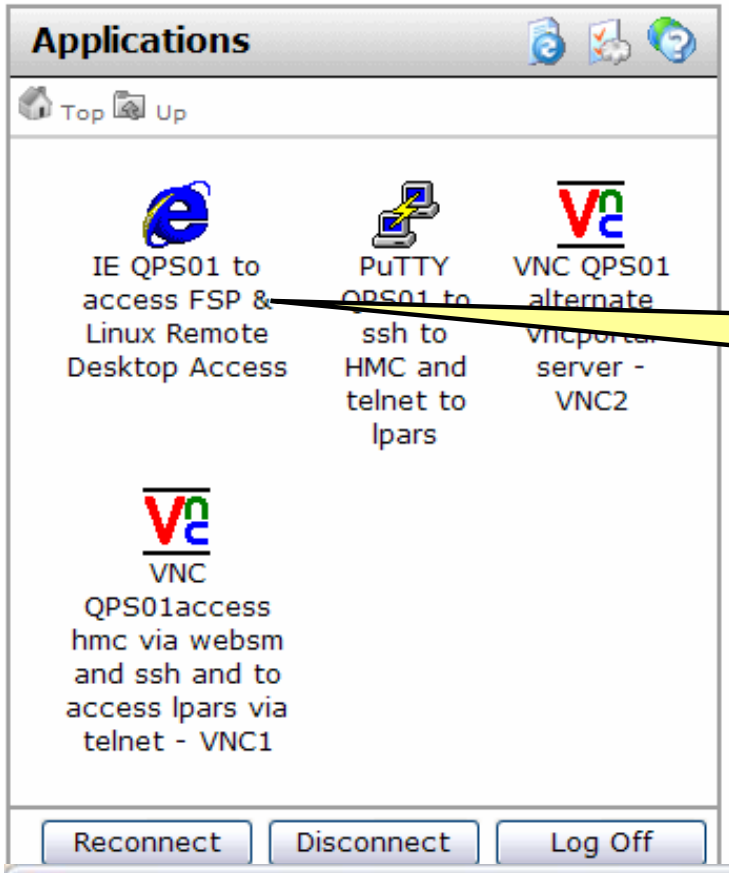
If this returns to network setup, accept current settings
But use Esc-Backspace-Enter or Esc-Enter
To cancel current setting

VNC Message displayed

- **When the operating system bootstraps, it will display a message showing you how to connect to the VNC session**



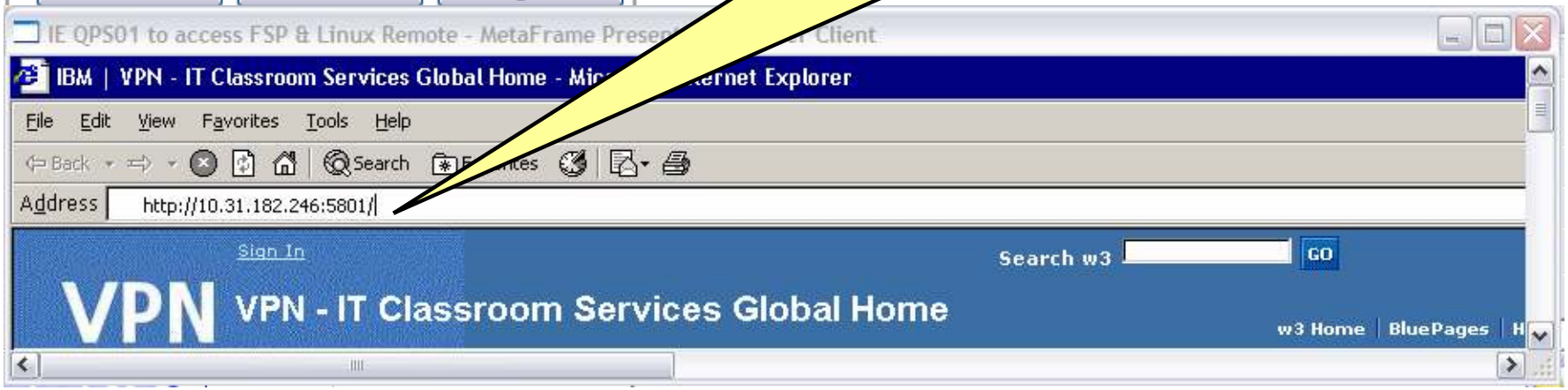
Accessing the SLES Install



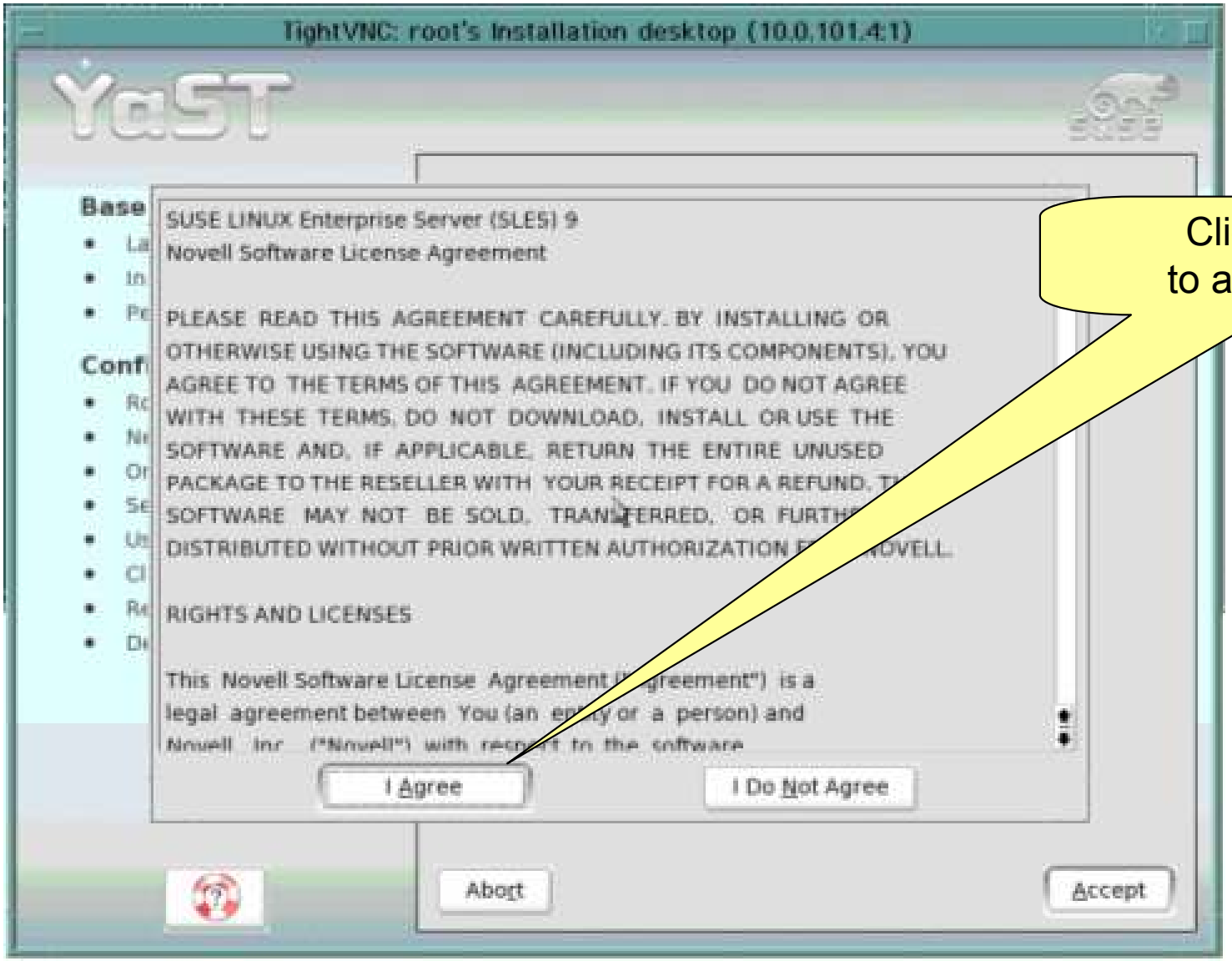
From the egateway1.atlanta.ibm.com website

Double click IE icon to start Internet Explorer

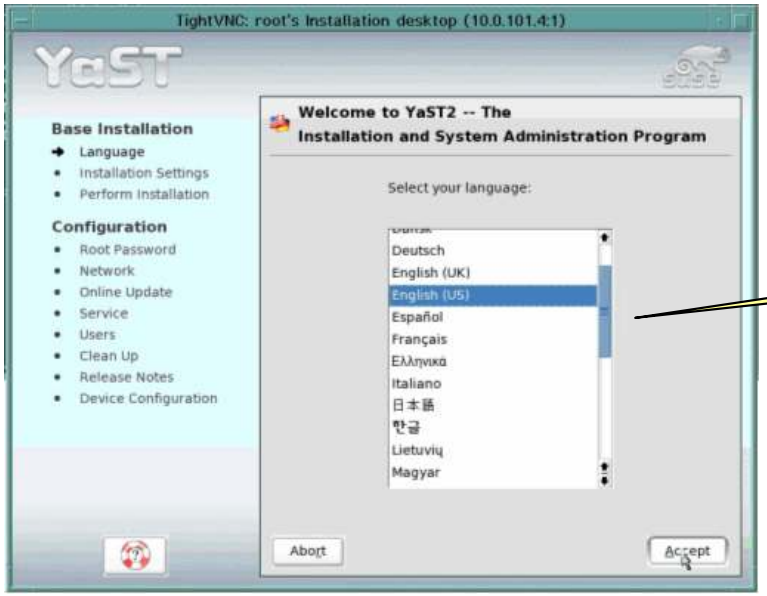
Enter URL from installation window http://10.31.197.###:5801/



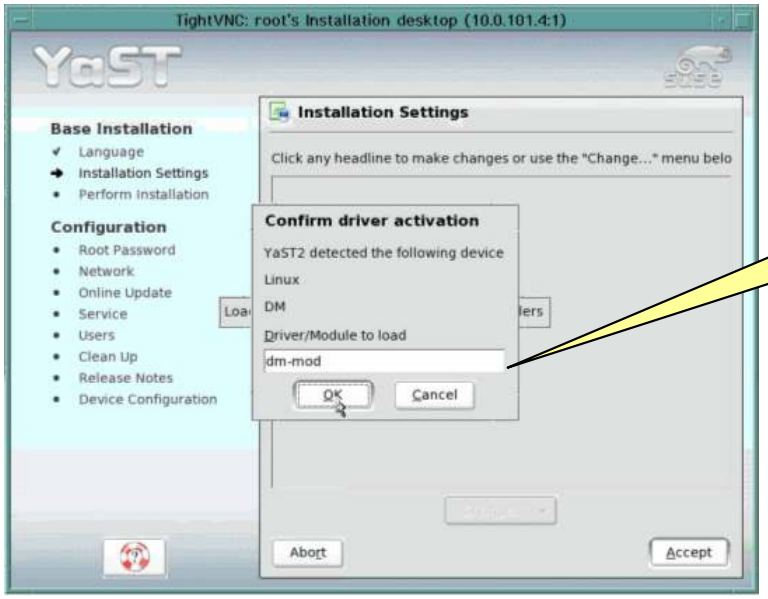
Graphical Install begins automatically



Select Language and confirm driver activation



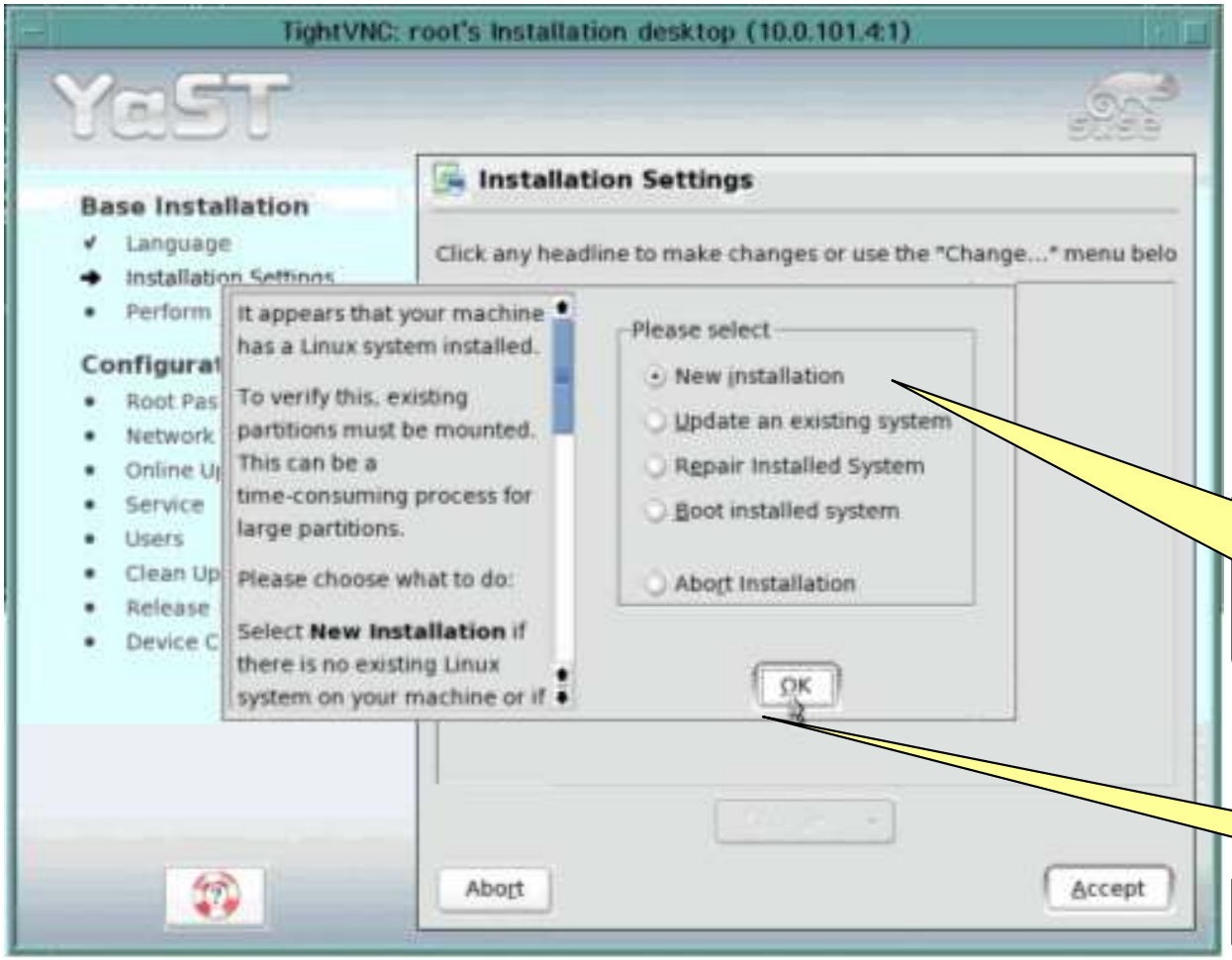
Select Language



Please accept any "**confirm driver activation**" pop-ups you may see.

Depending on your hardware configuration, you may be prompted more than once

If prompted, change to “New Installation”

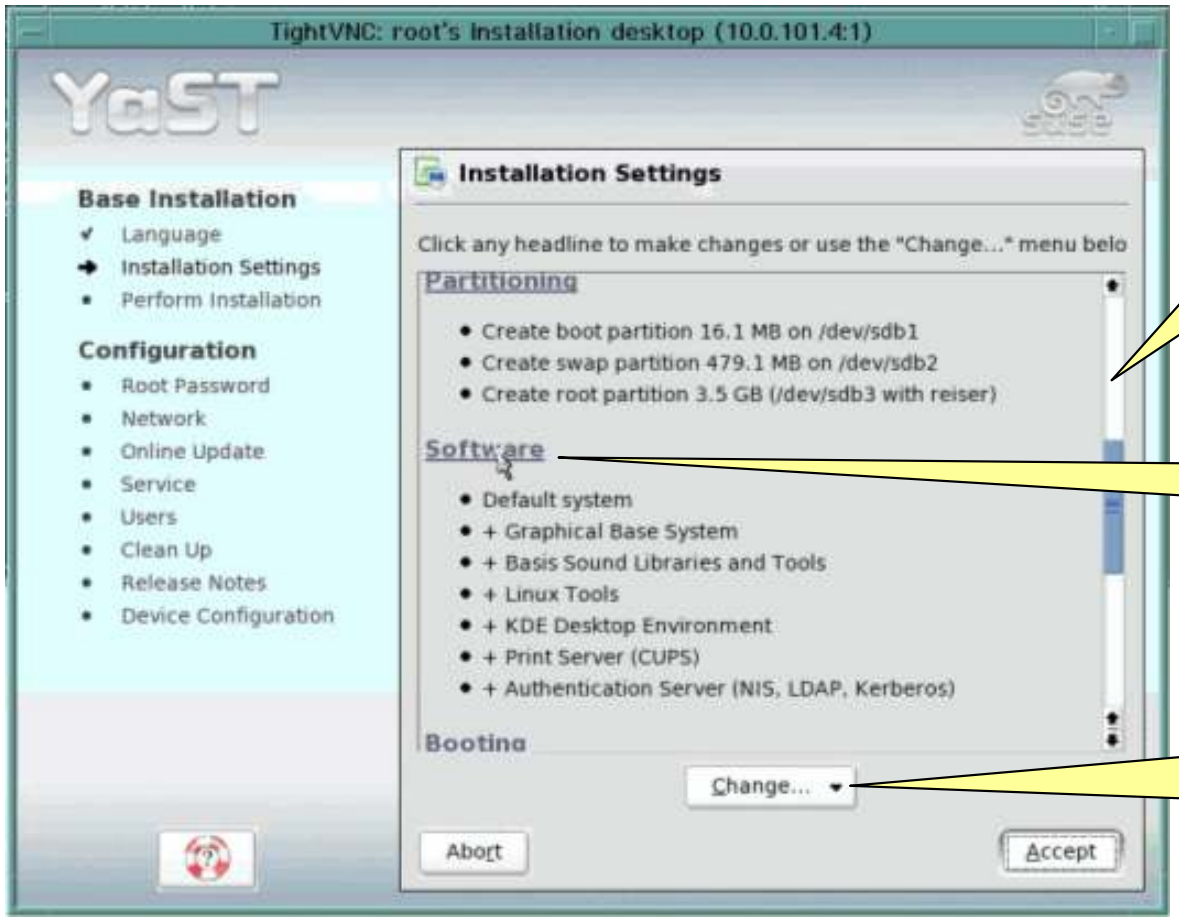


If there is data on the disks, you will be prompted to update or install, or just boot the existing partition

If prompted select “New Installation”

Click “OK”

Change software to be installed

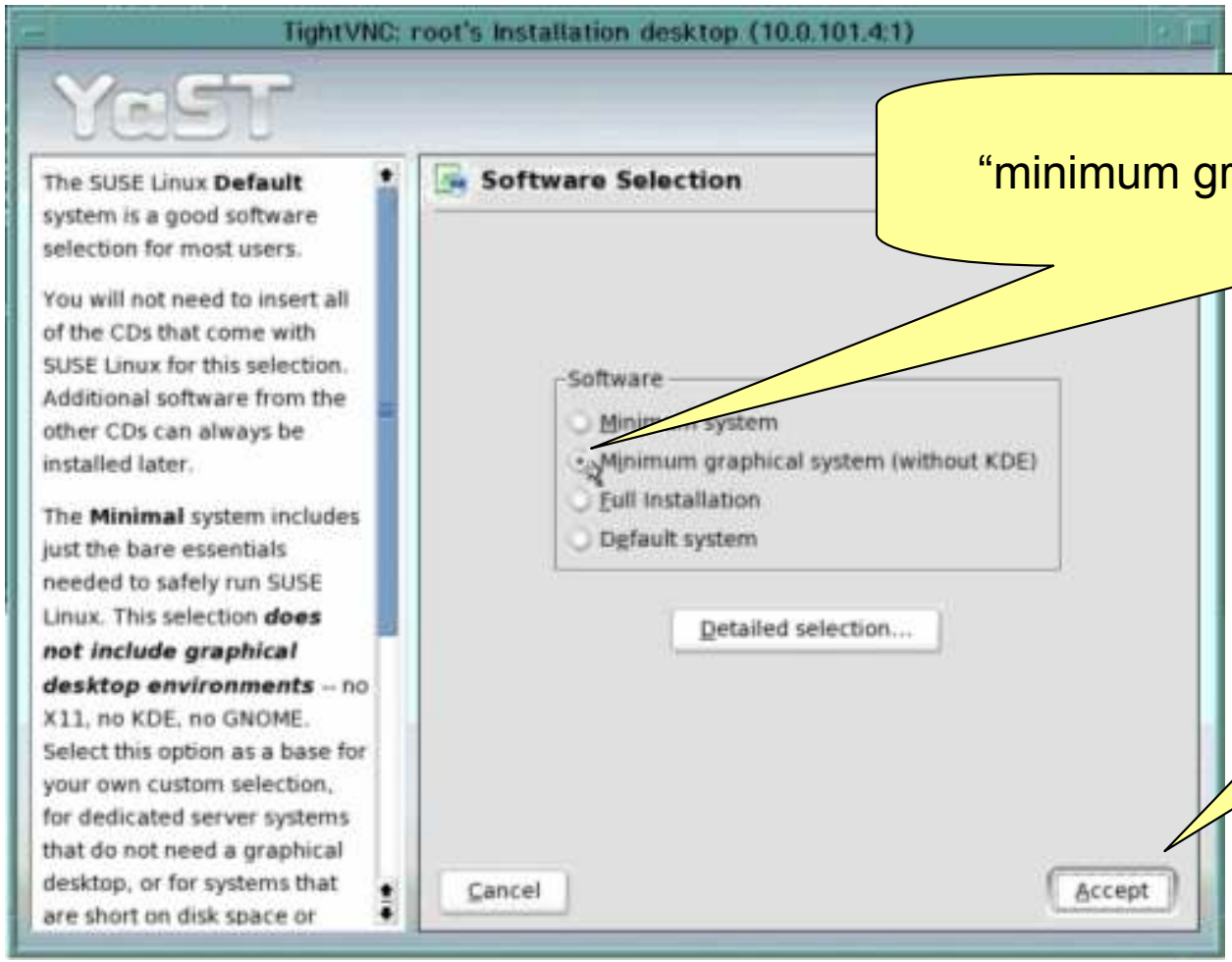


Scroll down

Select "**Software**"

Or click the "Change" button and select "software"

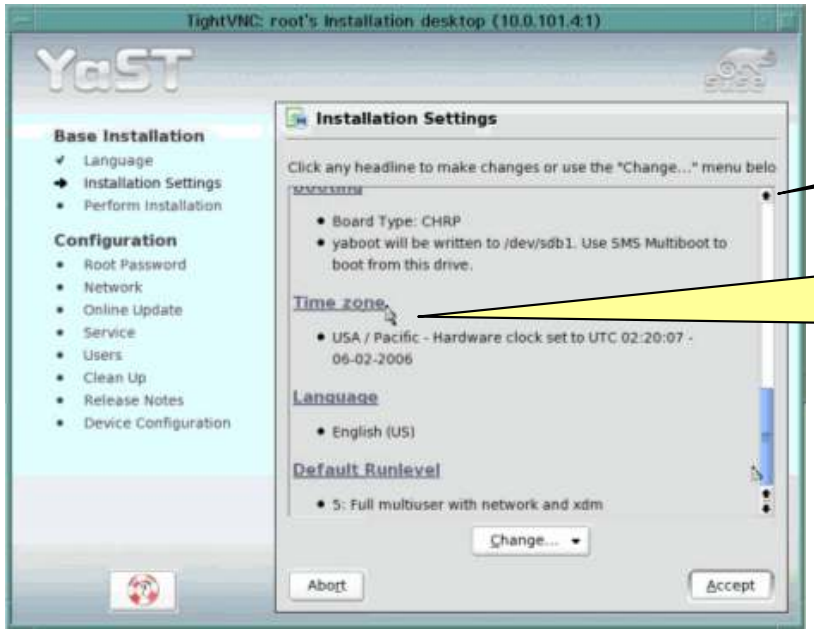
Set the installation type



Select
"minimum graphical system (without KDE)

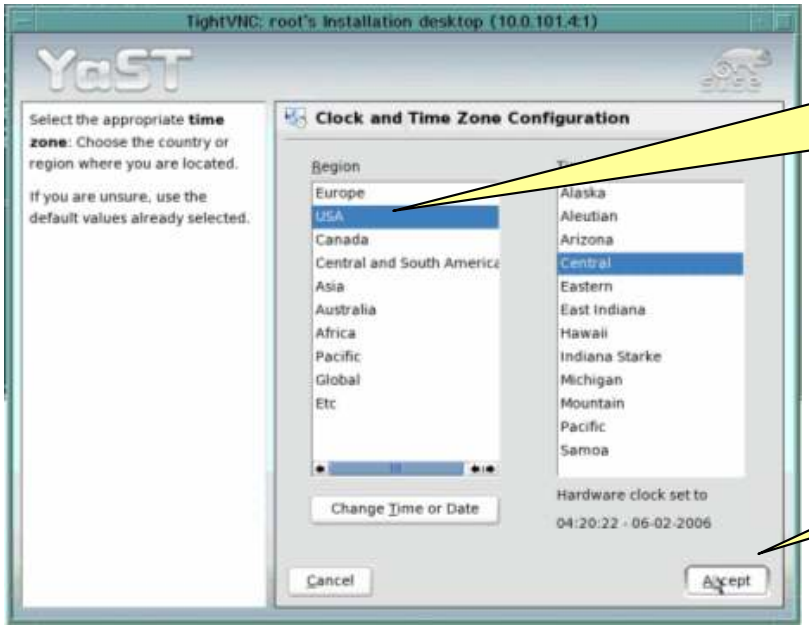
Select "**Accept**"

Set the date and time



Scroll down

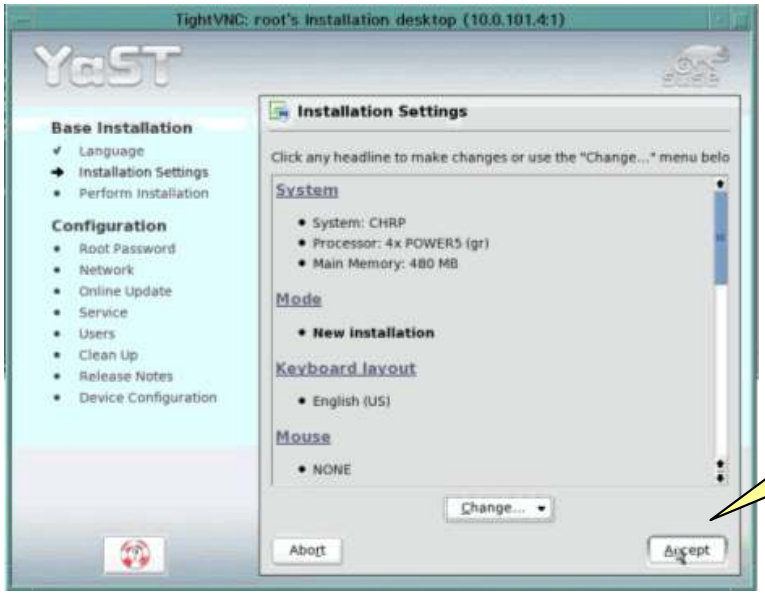
Select "Time Zone"
Not needed for this lab



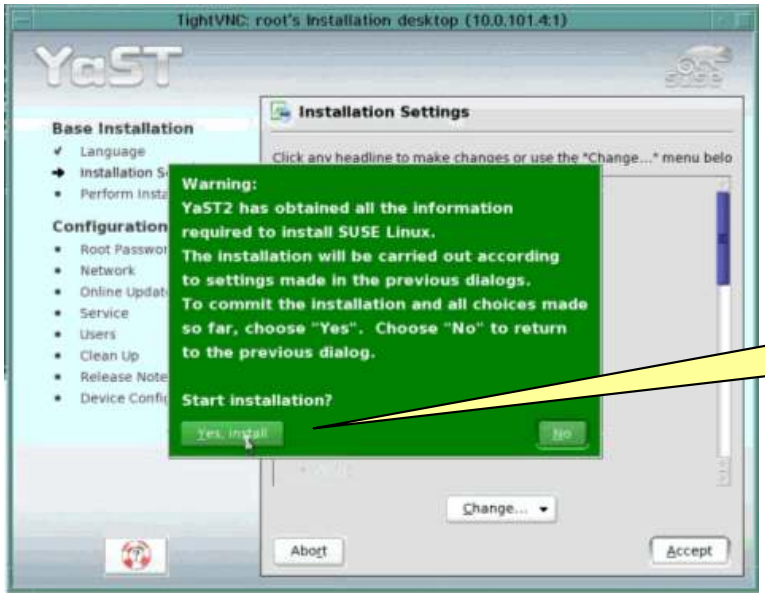
Select "Time Zone"
Where servers are located
USA – Eastern Time

Click "Accept"

Click Accept to begin install



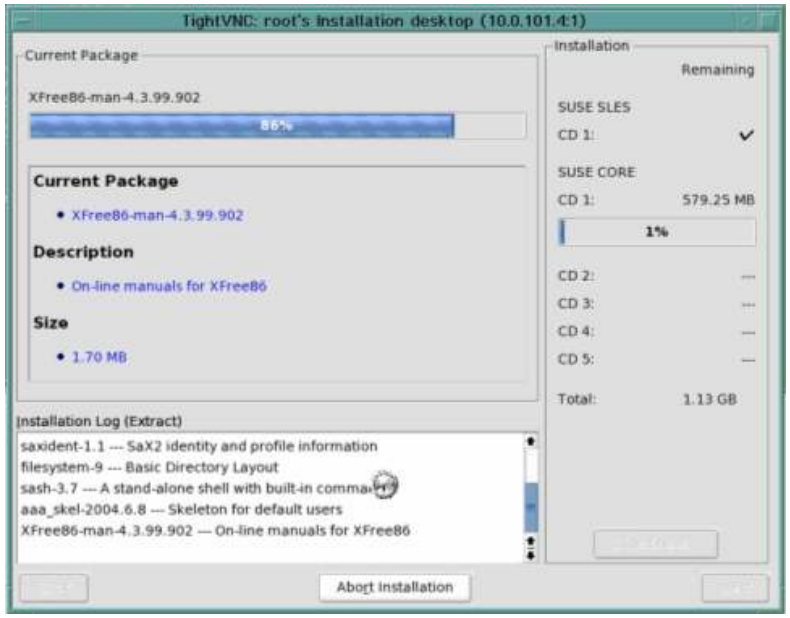
Click “Accept”
to begin installation

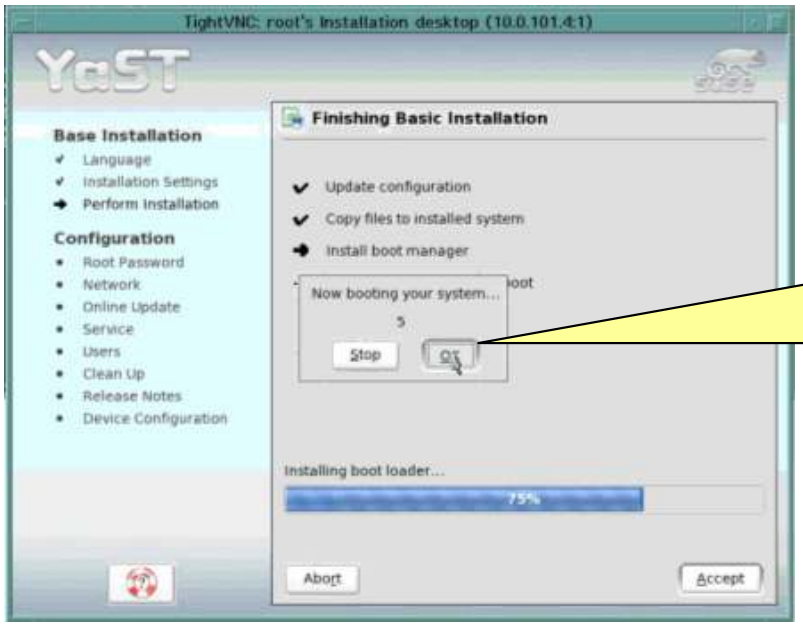


- This is the last chance to abort the install.
- You might do that in production
- In this lab continue

Click “Yes Install”
to begin installation

Package Installation process and reboot



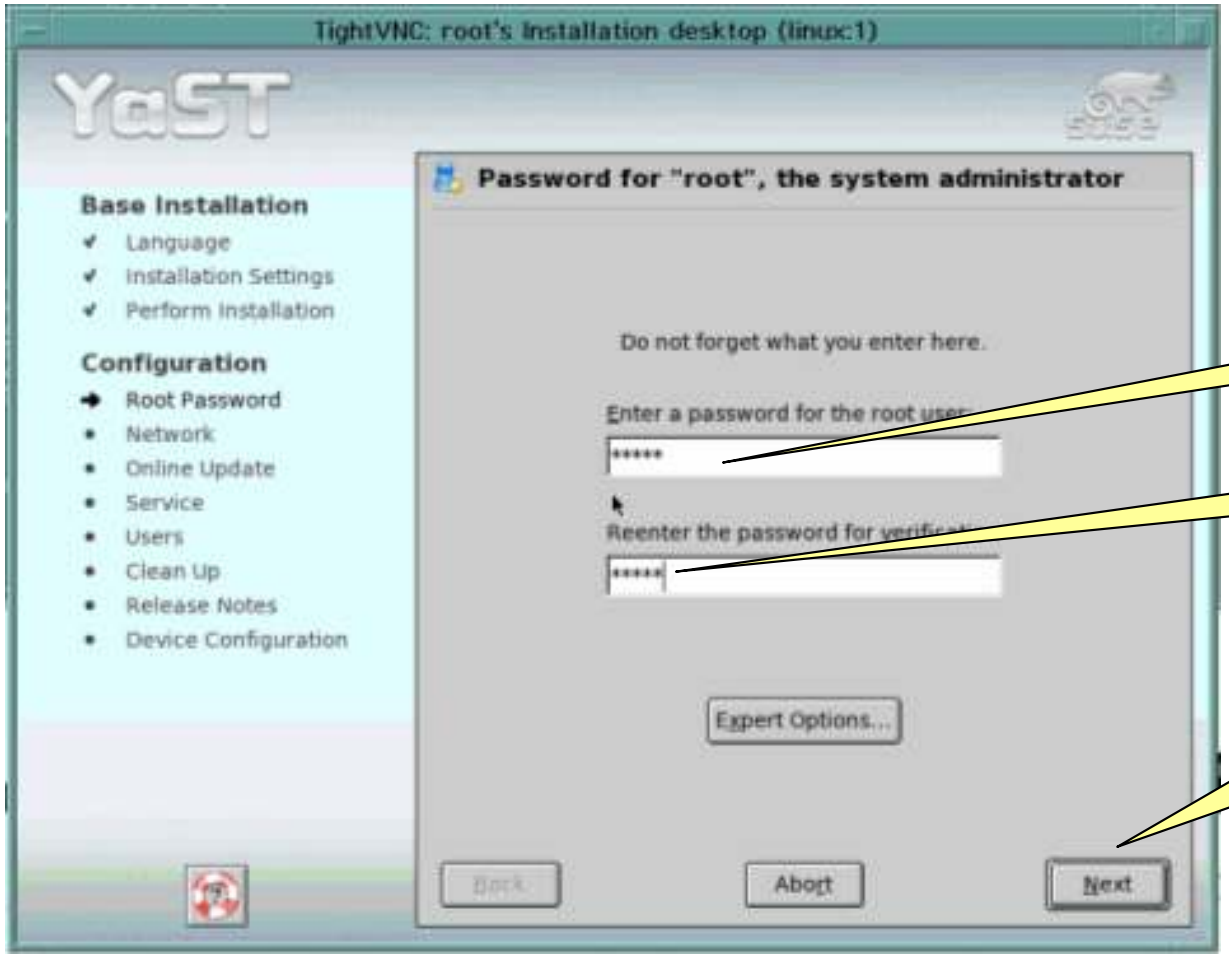


- **The Package installation process initially show the amount of data remaining on the installation**
- **It will switch to time remaining after a few minutes**
- **Once done, it will reboot automatically**

Click “OK”
to reboot without waiting

VNC connection will then be lost on reboot

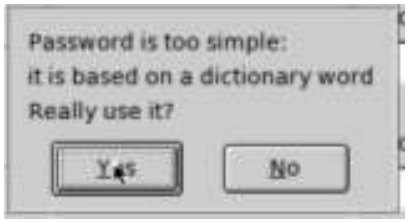
Change roots password to “ibmapv”

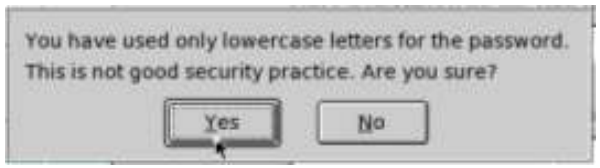


Enter “ibmapv”

Reenter “ibmapv”

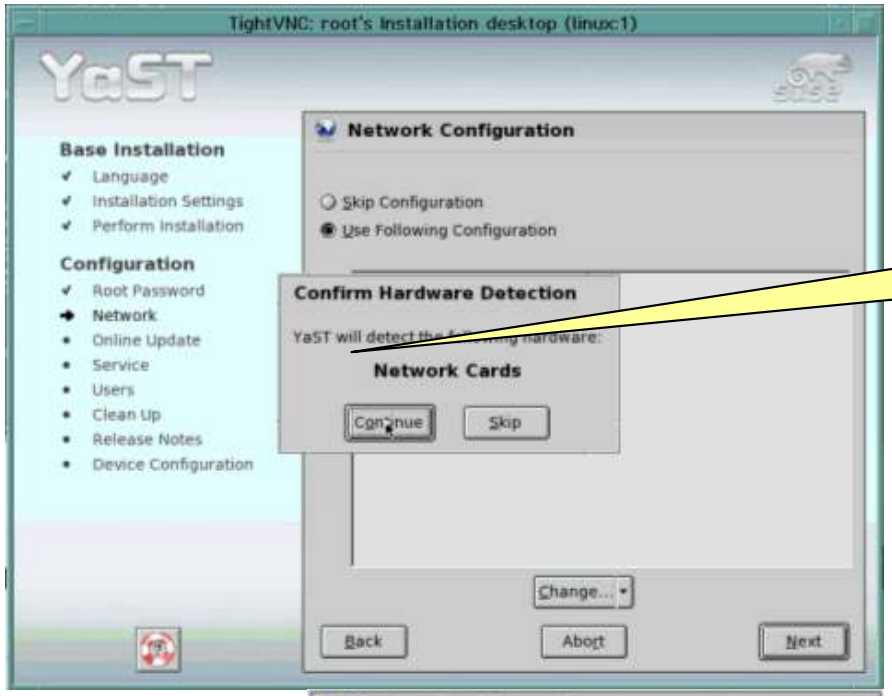
Click “Next”



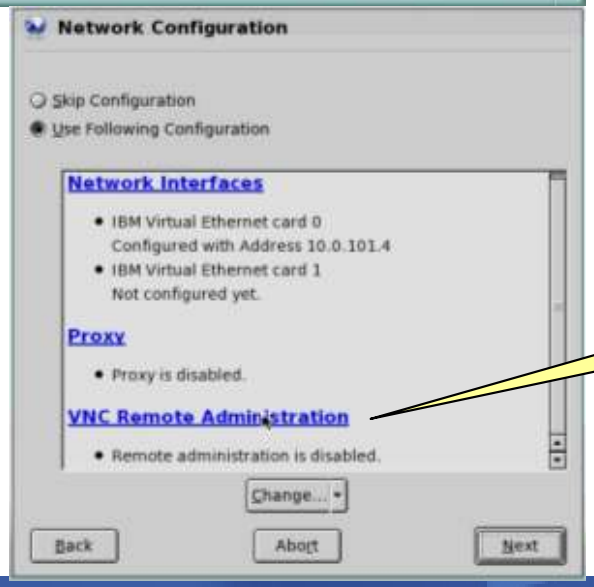


Click “Yes” twice
to accept weak password

Detect Hardware Configuration (network)

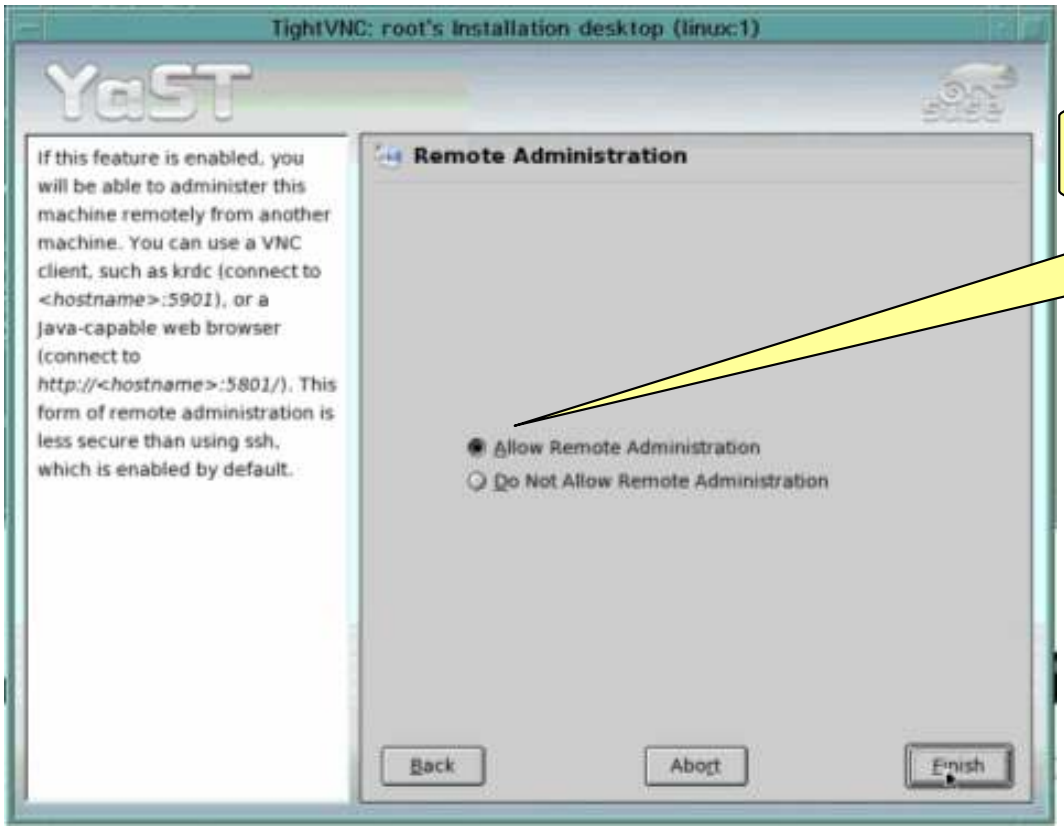


Click “Continue”
to detect network configuration



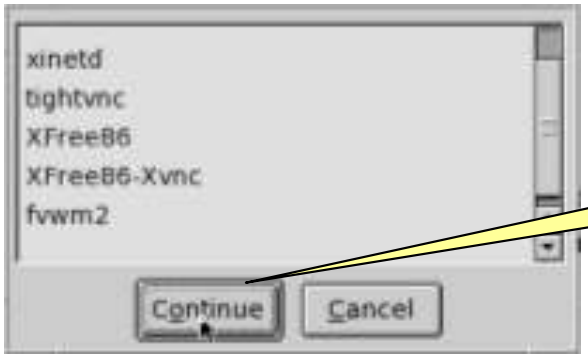
Click
“VNC Remote Administration”

Allow remote administration



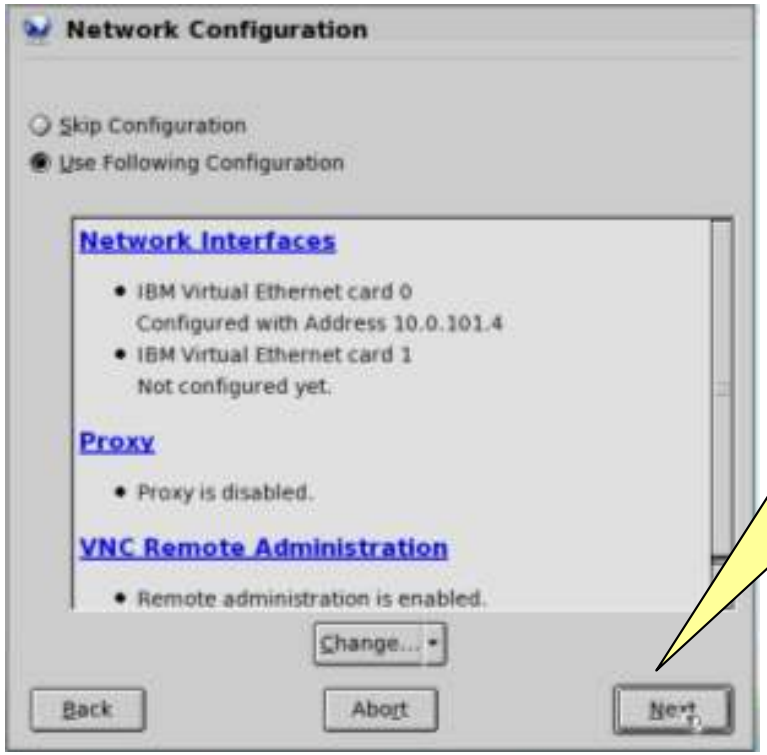
Click “Allow Remote Administration”

For remote administration you will need additional software since a minimal install was done.

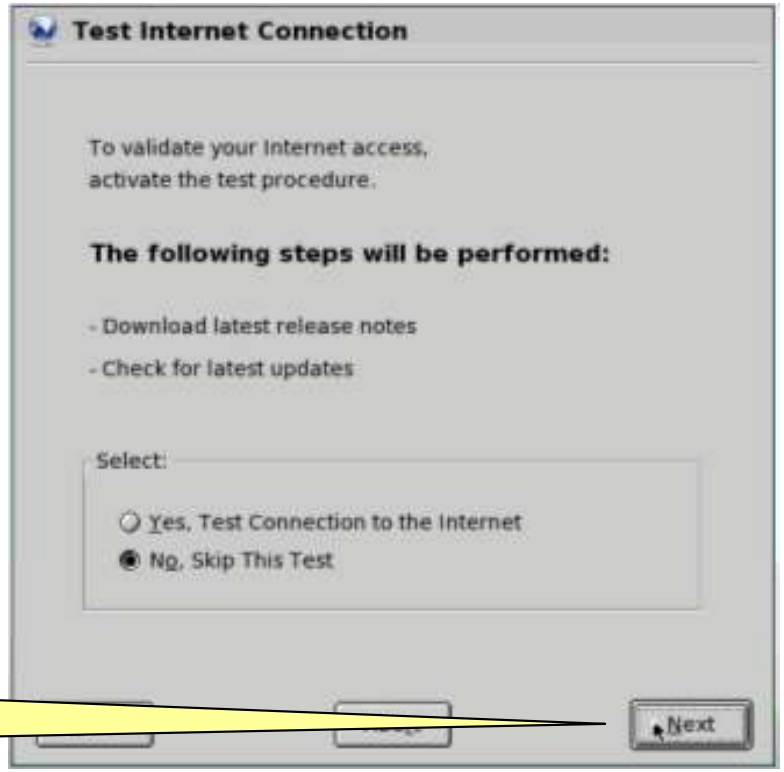


Click “Continue
to accept the software install.”

Click Next after enabling remote admin

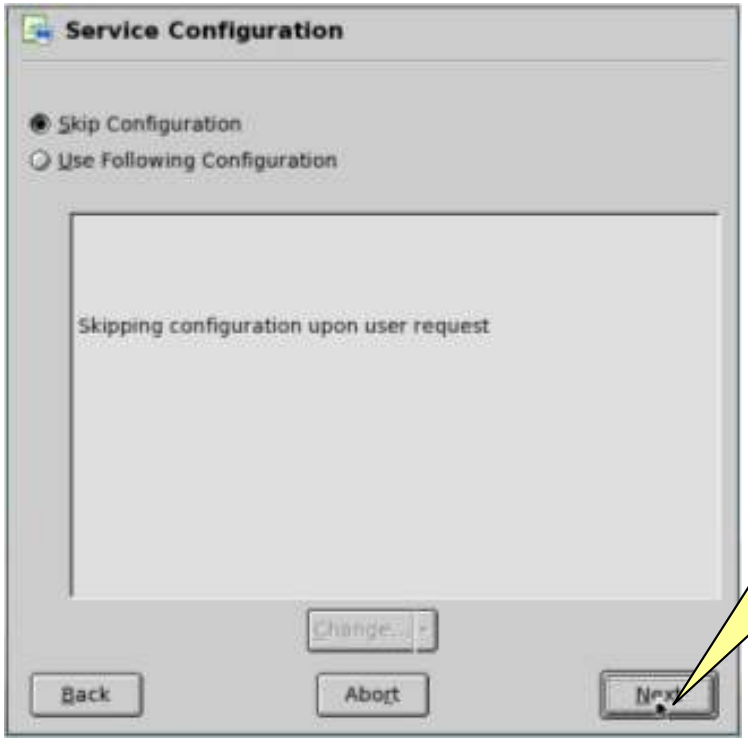


Click “Next”
after enabling remote administration

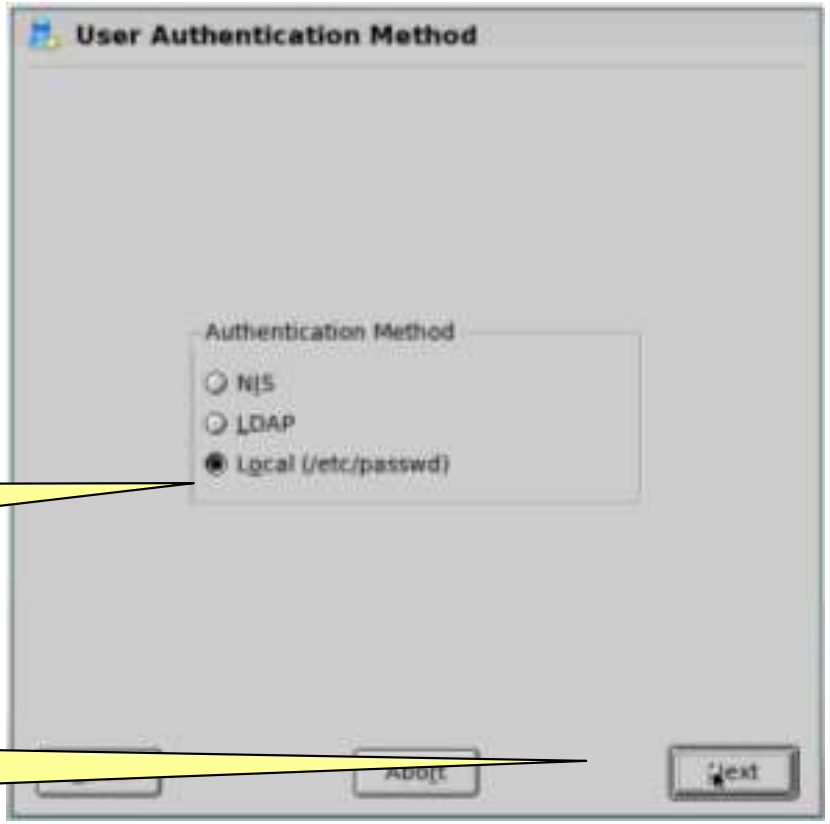


Click “Next”
to skip the Internet Connection test

Skip Service Configuration & use local passwords



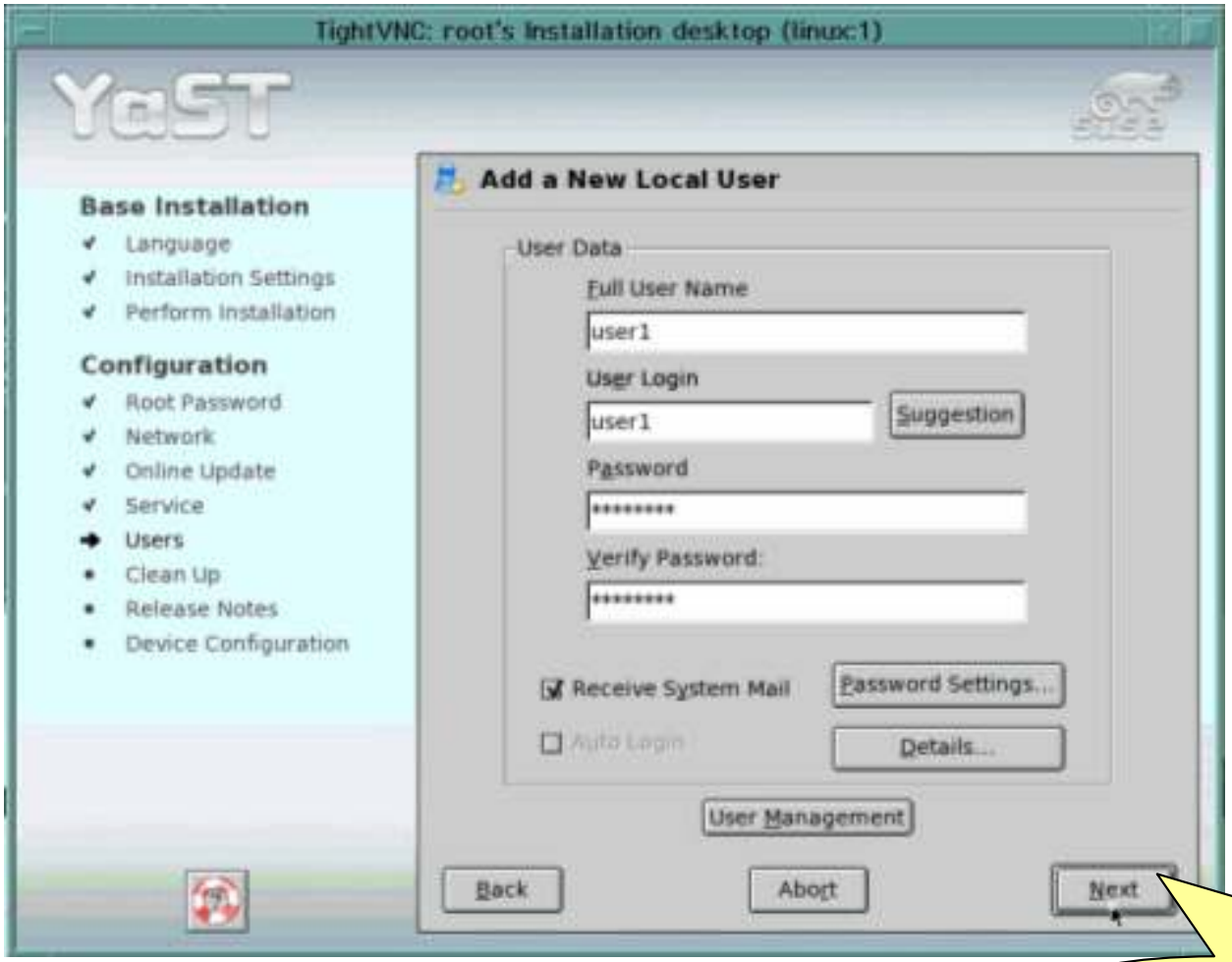
Click “Next”
to skip Service Configuration



Click “Local”
as we won’t use NIS or LDAP here

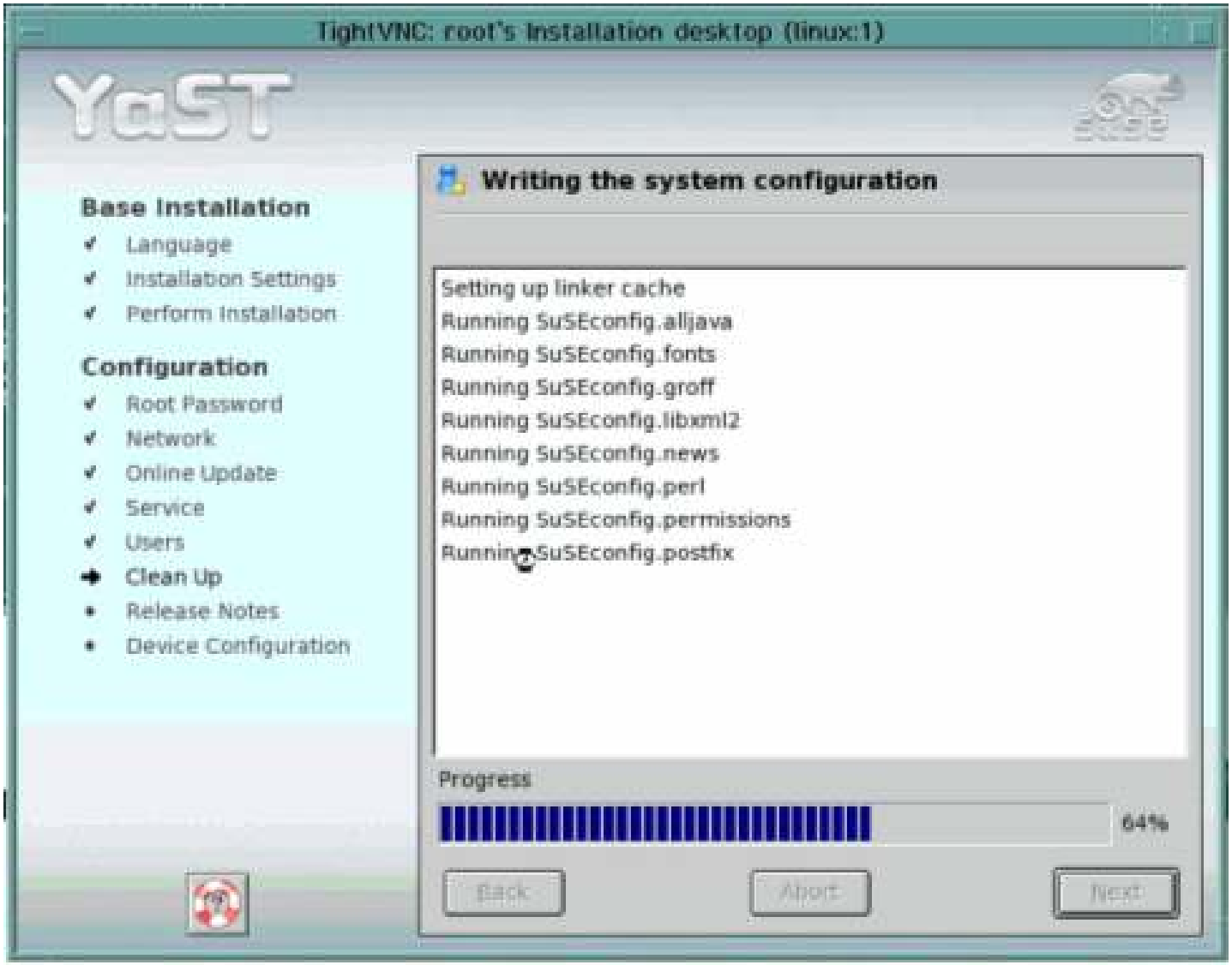
Click “Next”
to continue

Skip add an additional user

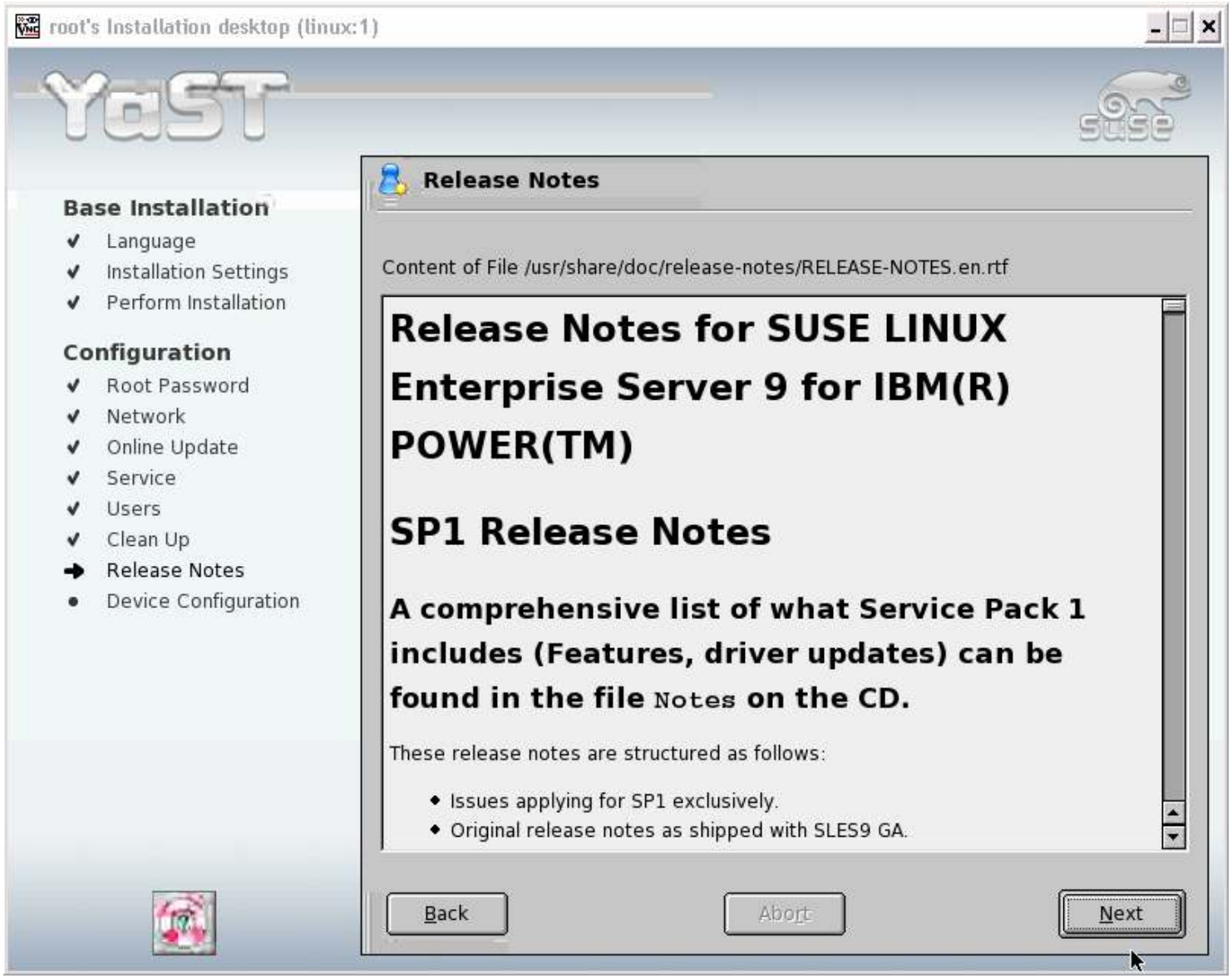


Click “Next”
to skip adding more users in this lab

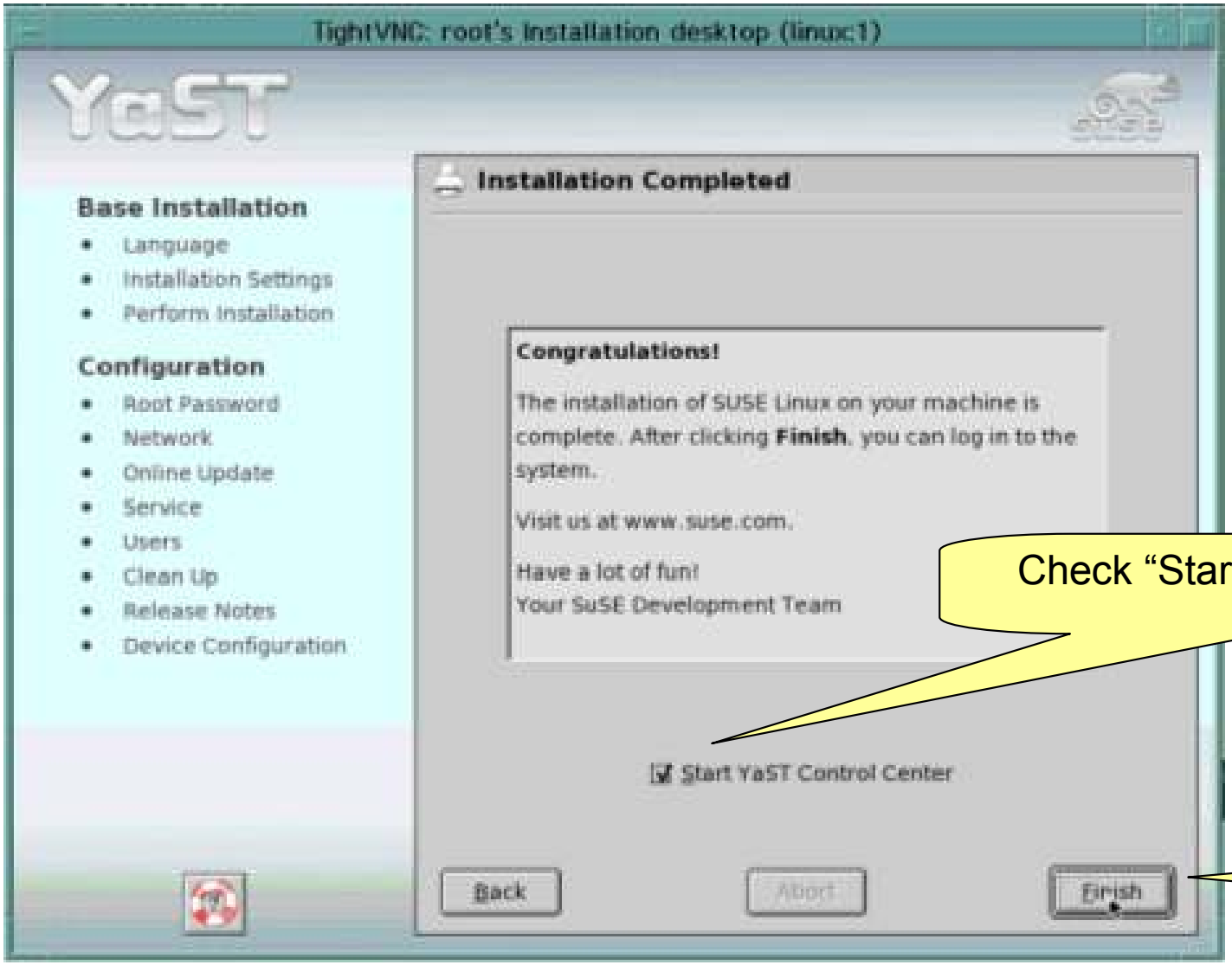
Once you hit next, the system will restart services after saving configuration



Read the release notes on any install (first)



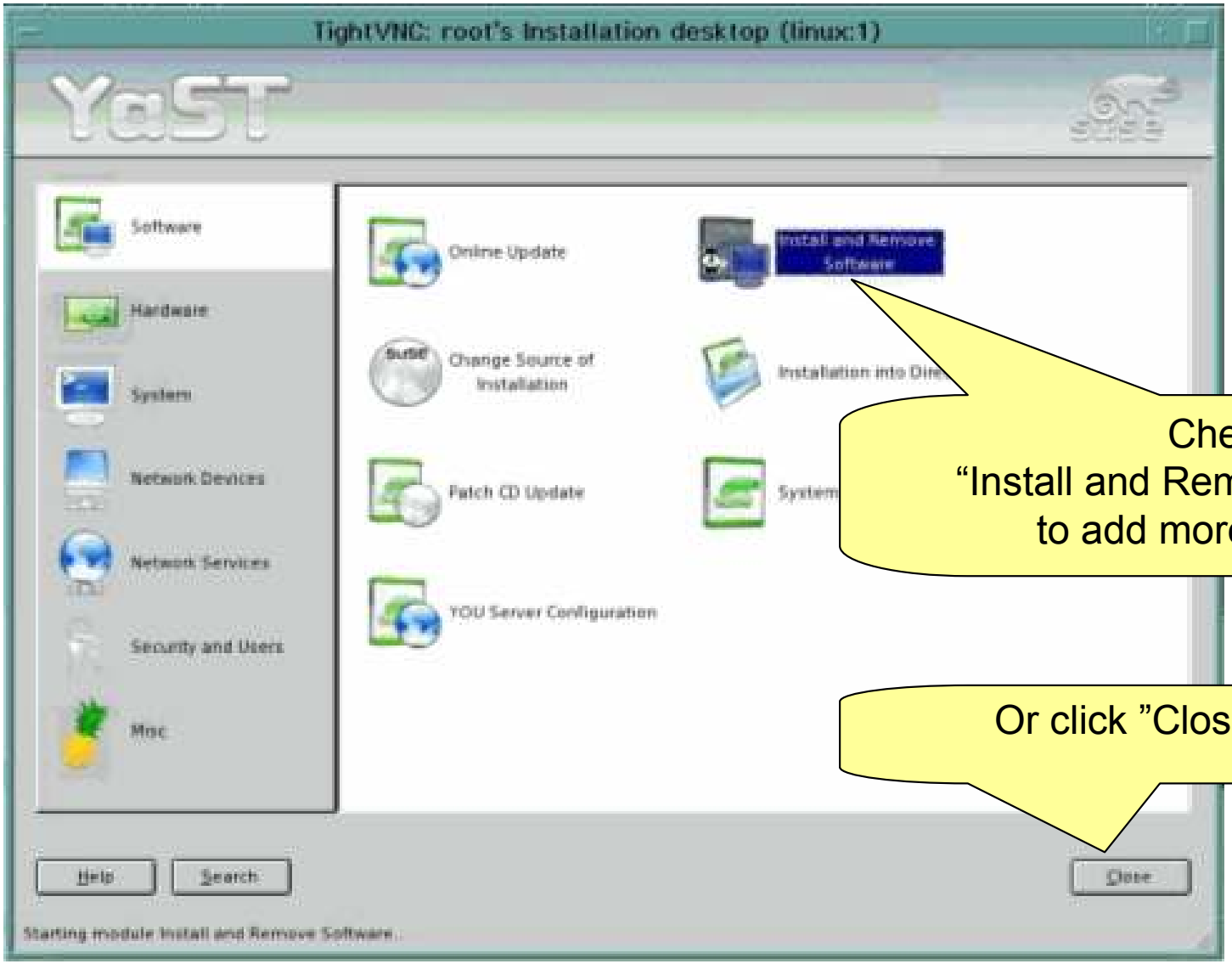
Start YaST Control Center



Check “Start YaST Control Center”

Click “Finish”

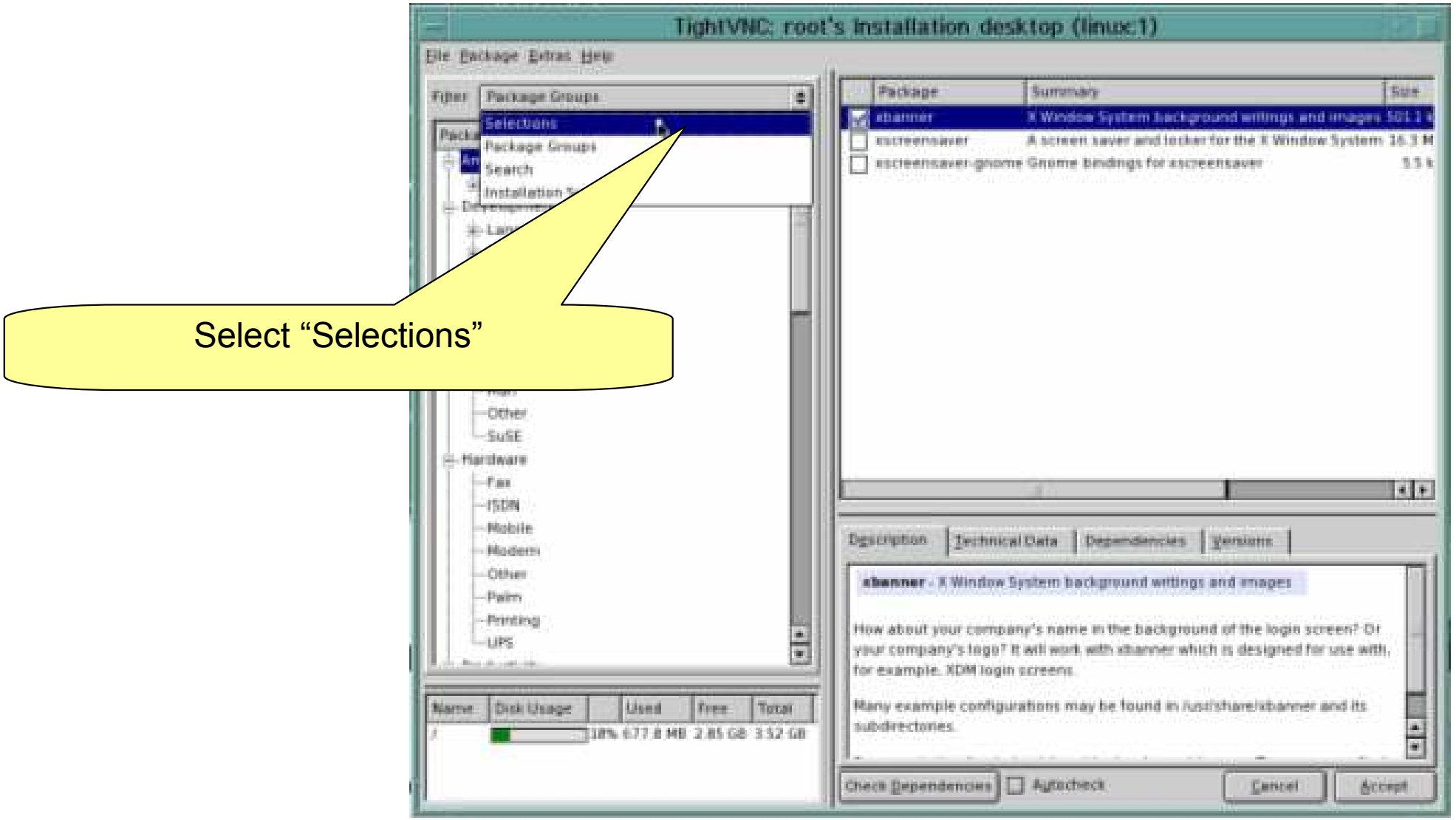
Optional: Install additional software



Check
"Install and Remove Software"
to add more software

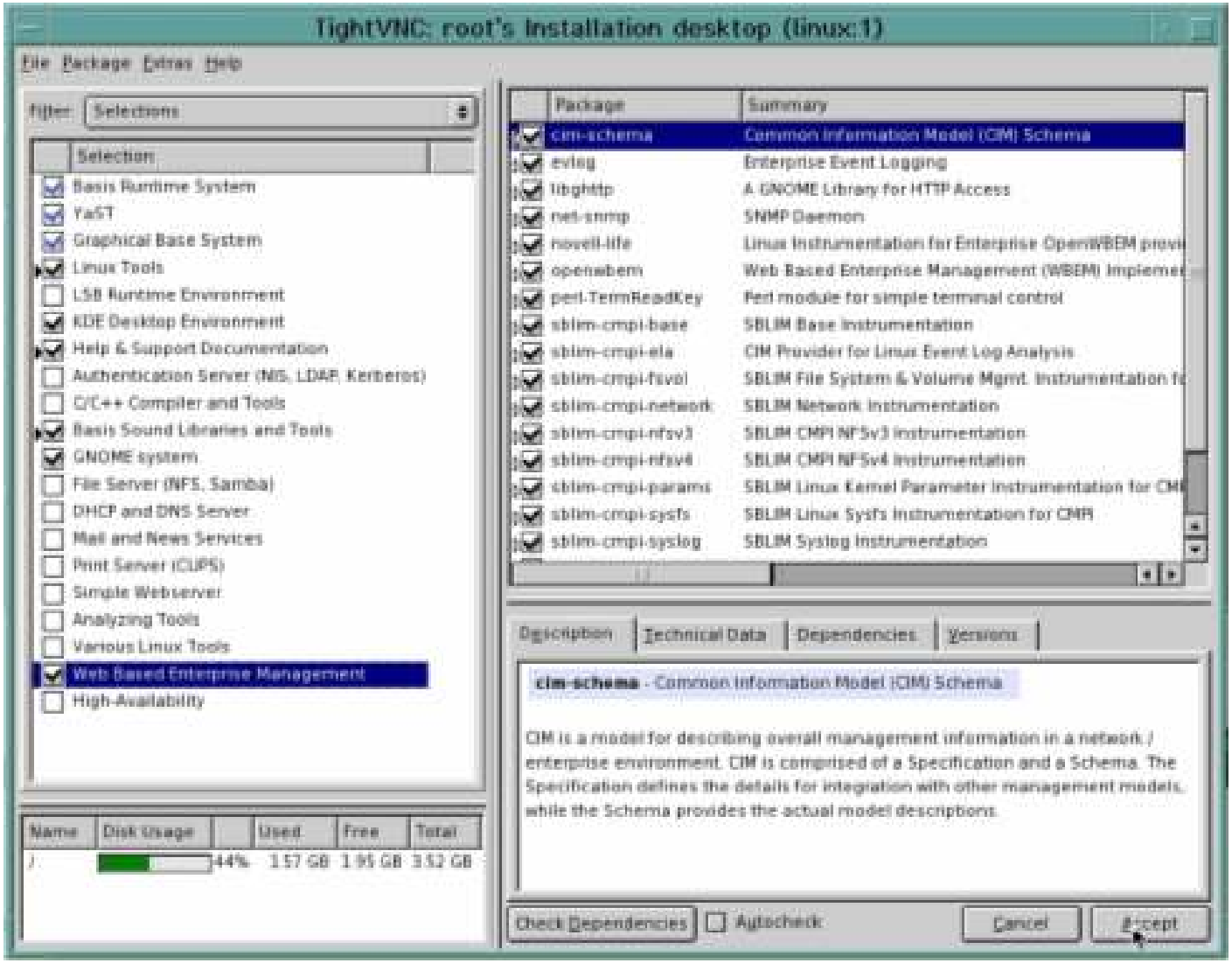
Or click "Close" to end lab

Change to “Selections”



Install a few packages

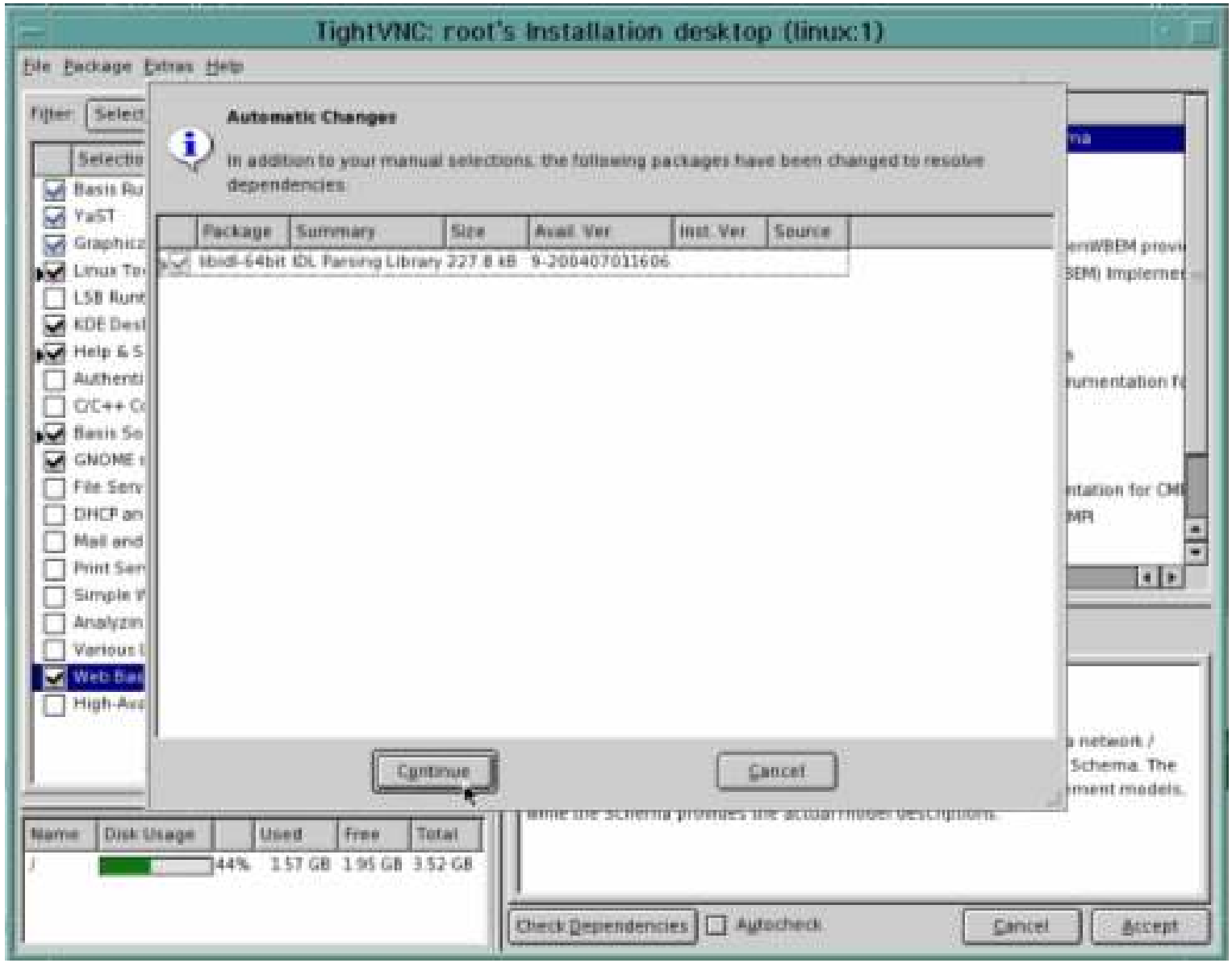
- Install these packages by clicking the checkbox
- Gnome, KDE, Web Based System Enterprise Manager
- Then click Accept



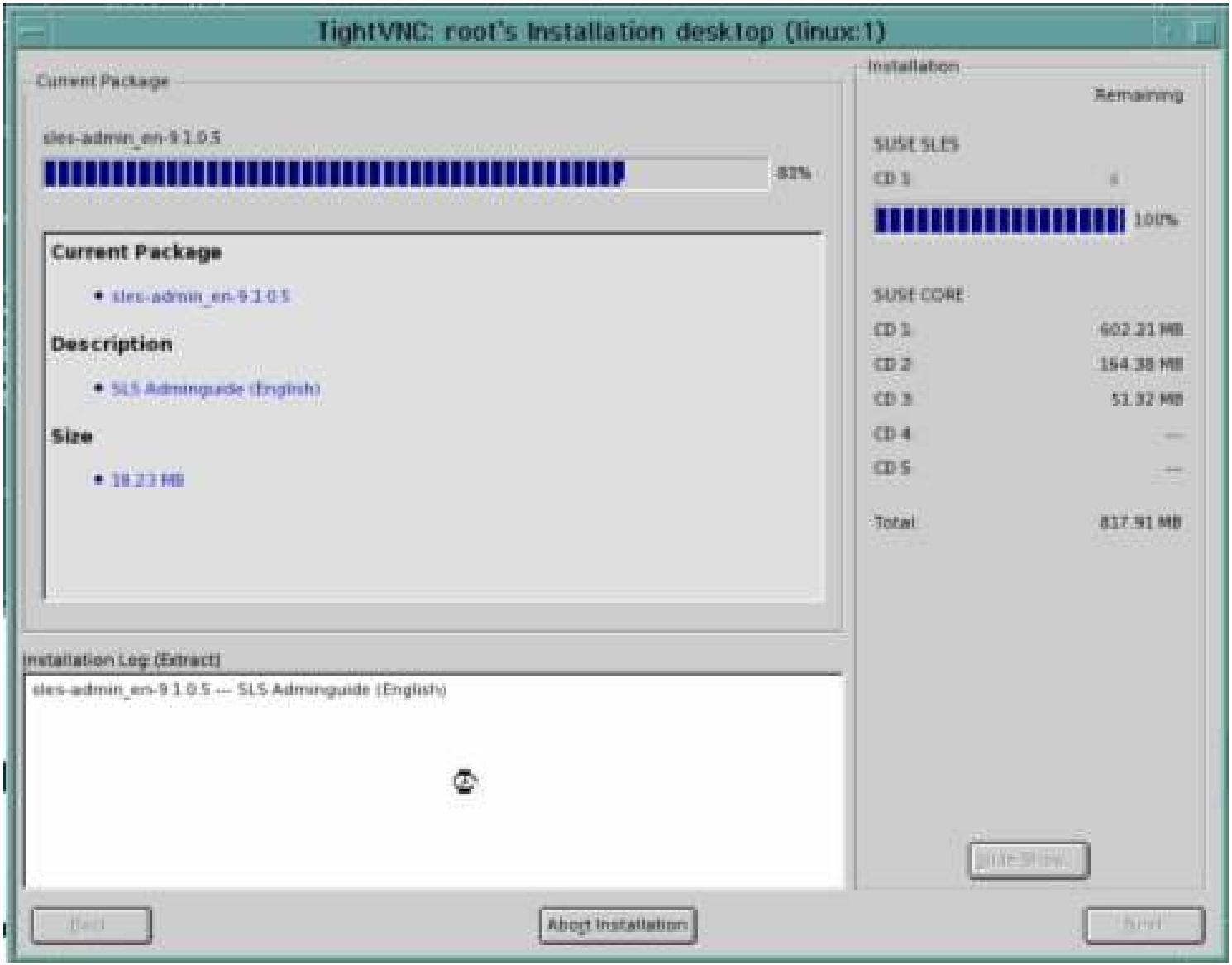
Accept prerequisites if prompted

- The installer will warn you if additional packages need to be installed

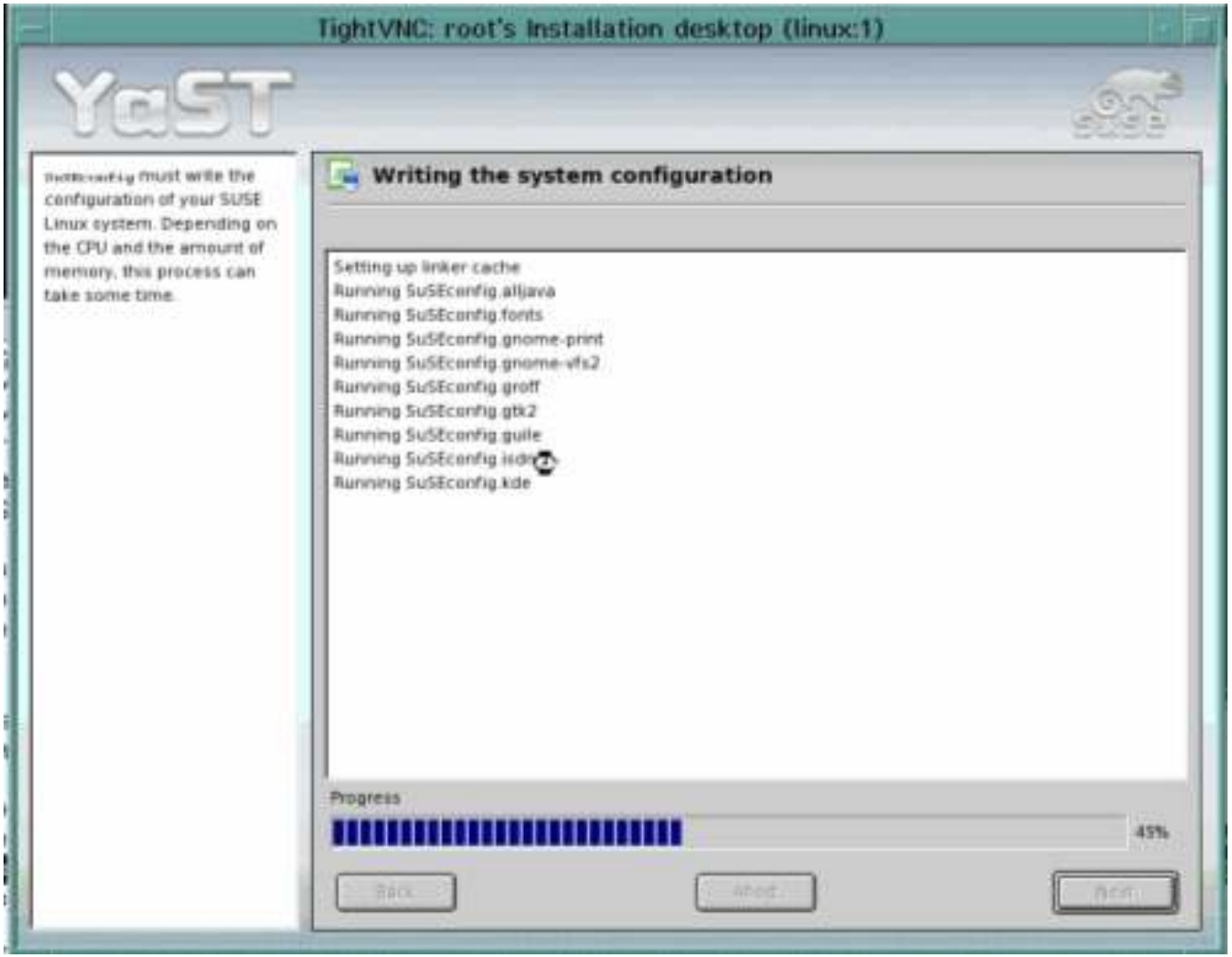
1. Please accept these in the lab



Software being installed

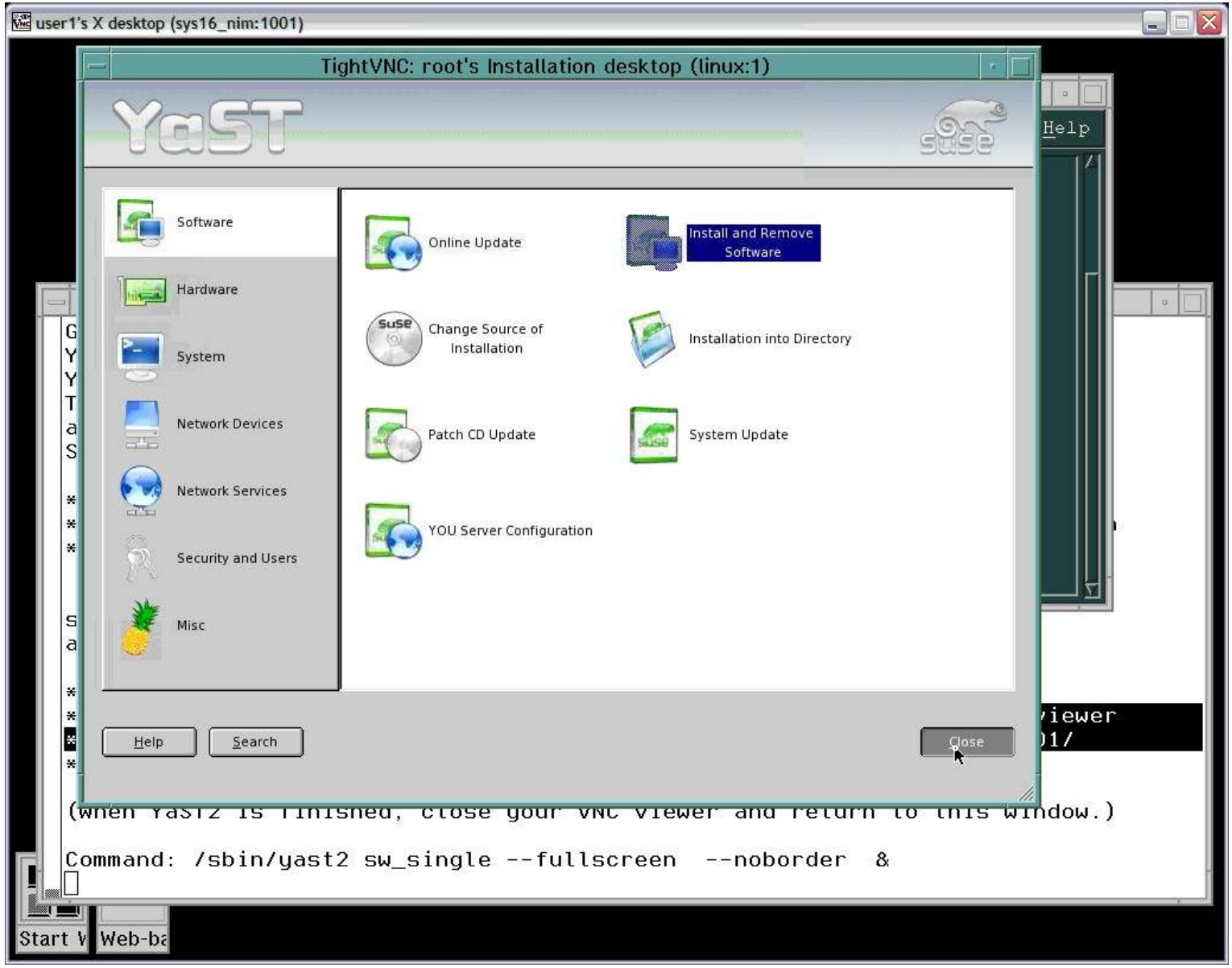


Services restarting



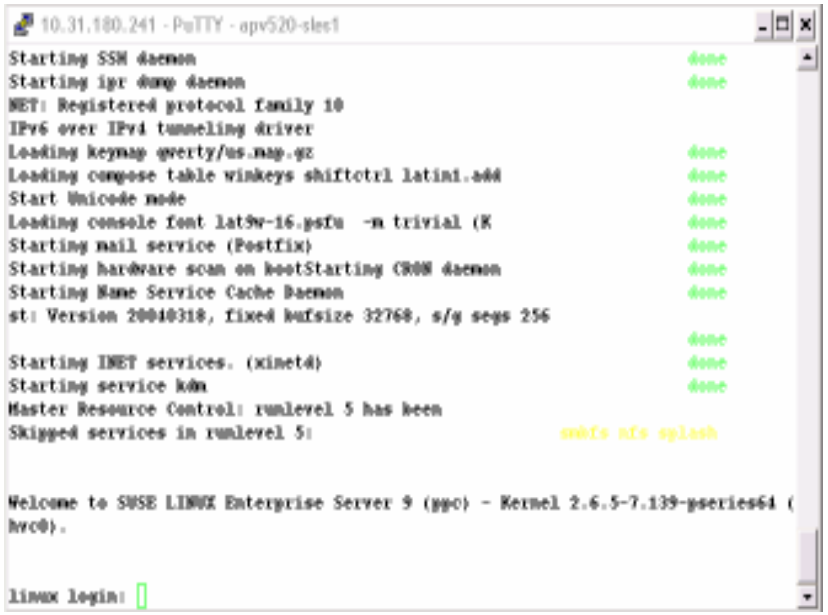
Close YAST

1. **Once the software is installed, close YAST by clicking on close**



Linux is now installed

- **Text mode login is thru the virtual console from the HMC**



- **Graphical login is thru the vncviewer client**