

# CN-Debian Linux (na nepodržanom sklopovlju)

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# Tijekom prezentacije

- ako što **nije jasno** - pitajte!
- ako što **nije točno** - ispravite!
- diskusija je **poželjna** i **produktivna**
- ako je **prebrzo** - tražite da se uspori!
- ako je pak **presporo** i **uspavljuje** vas - lako se ubrza sa sadržajem
- vremena je malo, sadržaja mnogo - zato su neki sadržaji samo ukratko objašnjeni

# Sadržaj prezentacije

- problematika instalacije (bilo kojeg) Linuxa:
  - particije, tipovi, bootabilnost, bootmgr, init, read-only, fsck
- rescue
- paketni sustav:
  - dpkg, apt, dselect, dpkg-repack
- rekonfiguracija:
  - mreža, kernel, X11, gpm, itd.

# Dio I - CN-Debian-Linux

# Problem

- CN-Debian specifično prilagođen:
  - automatizirana procedura instalacije
    - nema ručnog podešavanja, različite veličine diskova, itd.
  - instalira se samo na određeni hardver
    - traži /dev/sda, očekuje /dev/hda kao CD, itd.
  - treba upgradeati pakete
    - neki prate testing, neki paketi zastarjeli, itd.
- multiboot, specifične namjene, itd.

# Priprema za instalaciju: particije

- osloboditi prostor - particije:
  - 4 + 4; primarne i logičke (unutar 1 primarne!)
  - tip 82 = Linux swap
  - tip 83 = Linux (XFS, ReiserFS, ext3, ext2, JFS, Minix, itd.)
  - aktivna/sistemska i neaktivne
  - sakrivene i nesakrivene (maskiranje sa 0x10)
  - alati: pqmagic, cfdisk, fdisk, sfdisk, disk druid, ...
  - Windows očekuje active flag!
- bootmgr, MBR; LILO, GRUB, SILO, NTldr, ...

**PowerQuest PartitionMagic 8.0**

General View Disk Partition Tools Tasks Help

Disk 1 - 76316 MB

C: Vampirella 8,487.4 MB

G: Vampirella 58,557.2 MB Hidden NTFS

8,785.5 MB

Disk 2 - 57255 MB

F: STORE 57,247.2 MB FAT32

Partition	Type	Size MB	Used MB	Unused MB	Status	Pri/Log
<b>Disk 1</b>						
Vampirella (C:)	NTFS	8,487.4	4,714.7	3,772.8	Active	Primary
Vampirella (G:)	NTFS	58,557.2	33,238.3	25,318.9	Hid...	Primary
(*)	Extended	9,271.9	9,271.9	0.0	None	Primary
Local Disk (*)	Linux Ext2	8,785.5	8,785.5	0.0	None	Logical
SWAPSPACE2 (*)	Linux Swap	486.3	0.0	486.3	None	Logical
<b>Disk 2</b>						
(*)	Unallocated	7.8	0.0	0.0	None	Primary
(*)	Extended	57,247.3	57,247.3	0.0	None	Primary
STORE (F:)	FAT32	57,247.2	48,512.7	8,734.5	None	Logical

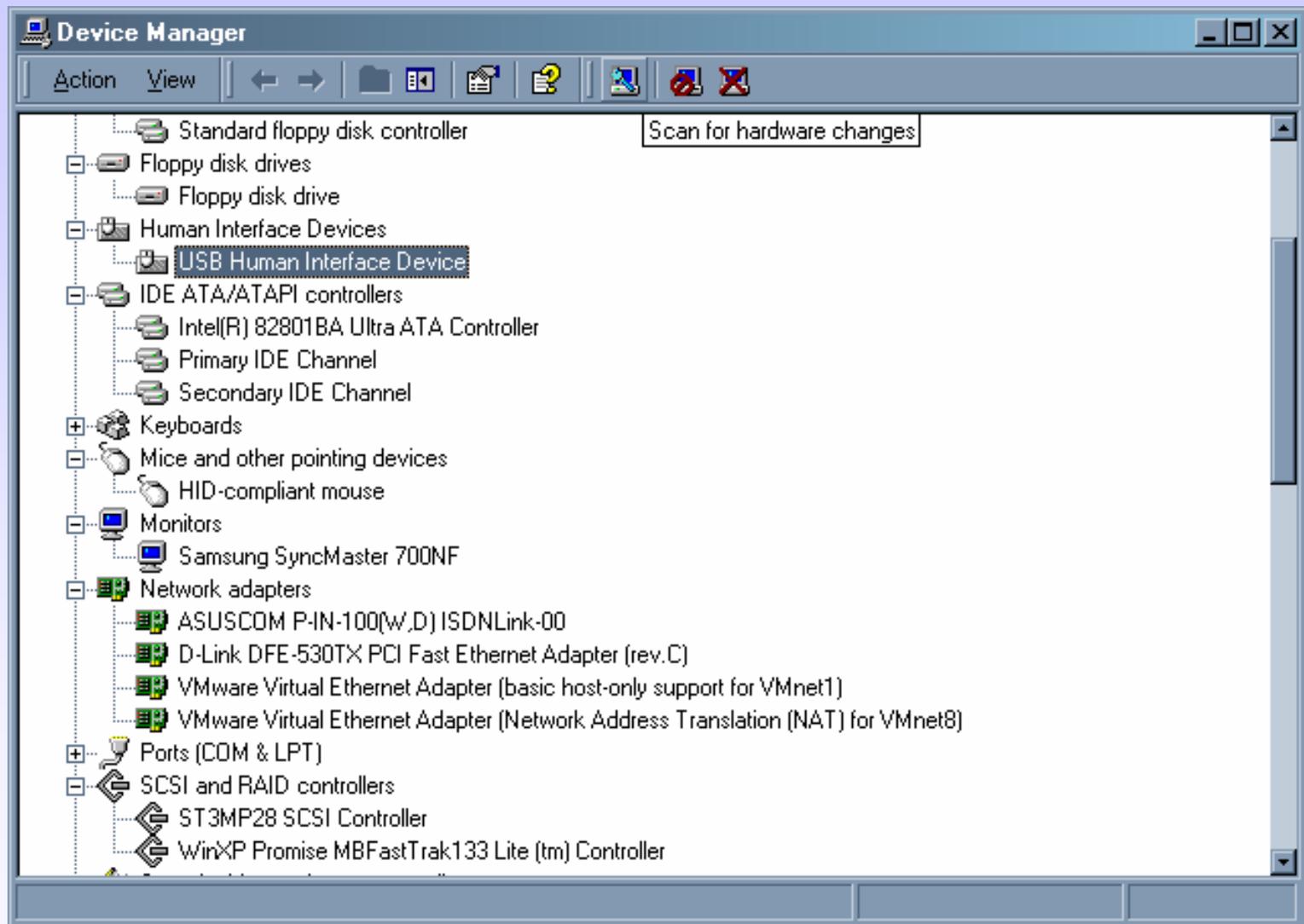
■ FAT 
 ■ FAT32 
 ■ NTFS 
 ■ Linux Ext2/3 
 ■ Linux Swap 
 ■ Extended 
 ■ Unallocated 
 ■ Unformatted 
 ■ Other 
 
■ Used 
 ■ Unused

G: Vampirella; Hidden NTFS; Size: 58,557.2 MB; Used: 33,238.3 MB

0 operations pending

# Priprema za instalaciju: particije, hardver

- ideja:
  - ispravno particionirati disk prije same "instalacije" sa veličinama koje odgovaraju namjeni
- unaprijed popisati hardver računala:
  - Device Manager, lspci, itd.
  - MBO chipset, IDE i SCSI ctrl, mrežni ctrl, ACPI ili APM, grafička, ISA/PCI/EISA/..., PnP, USB (1.x ili 2.x, HID uređaji ili ne)



# Priprema za instalaciju: hardver

## (3)

- IDE ctrl:
  - Intel ATA/ATAPI, Promise (PDC RAID, itd.)
- SCSI:
  - MegaRAID, AICxxxx, ...
- mrežne kartice:
  - Intel EtherExpress (e100, e1000), Via-Rhine, RTL8139, NE2K-PCI
- BIOS:
  - ACPI ili APM?

# Instalacija - formatiranje

- bootati neki Linux:
  - rescue diskete, CD, DVD
  - ideje: Linux-RIP, vanilla Debian install, Knoppix
  - slično standardnom recovery procesu!
- napraviti datotečne sustave na particijama:
  - mkreiserfs, mkfs.xfs
  - mke2fs/mke2fs -j -L ovo\_ono -m 10 ...
  - mkswap
  - tune2fs ...

```
Linux - [Ctrl-Shift-F1] - VMware Workstation
File Power Settings Devices View Help
Power Off Power On Suspend Reset Full Screen

cfdisk 2.111

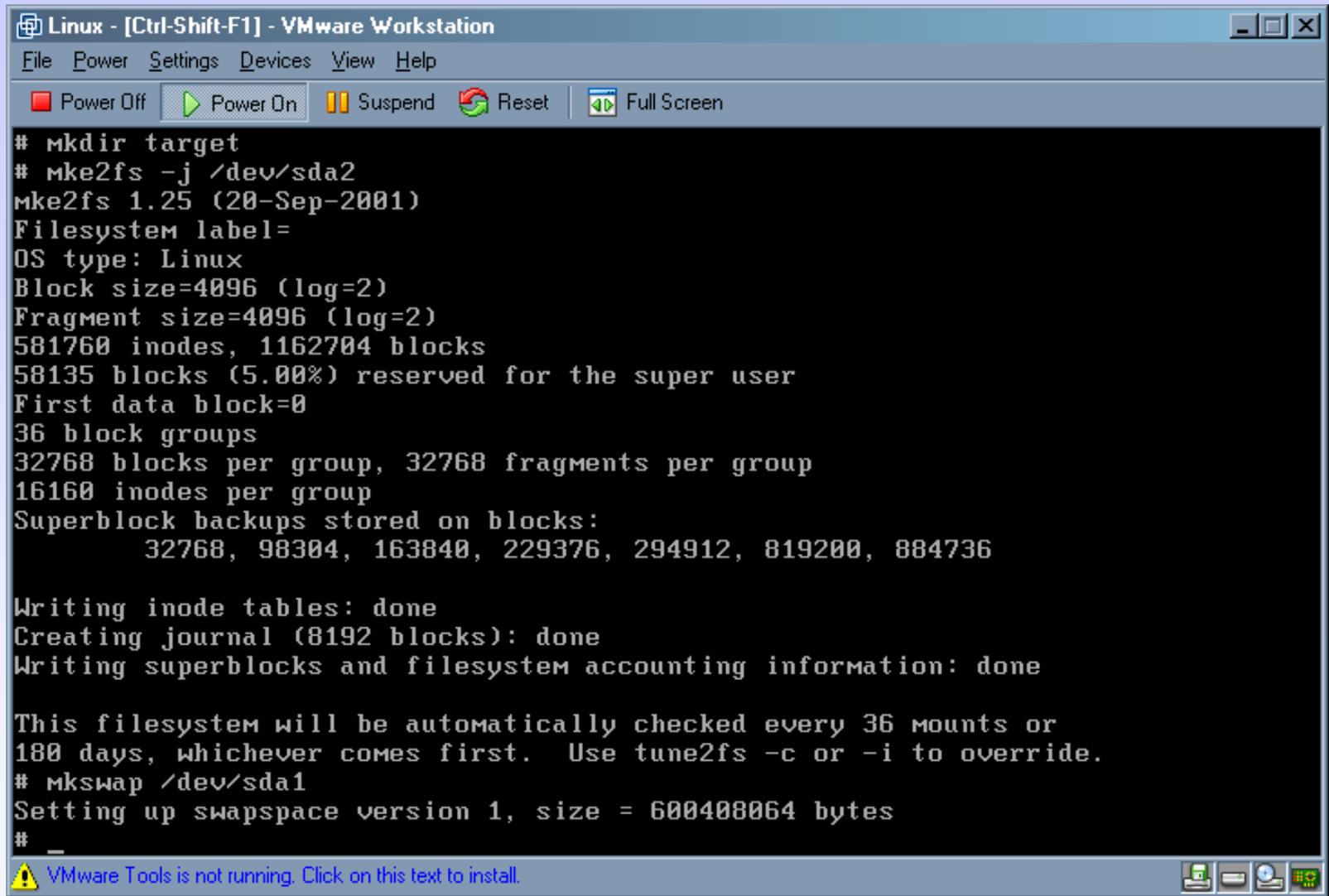
Disk Drive: /dev/sda
Size: 5362882560 bytes
Heads: 255 Sectors per Track: 63 Cylinders: 652

-----
Name      Flags      Part Type  FS Type      [Label]      Size (MB)
-----
sda1      Primary   Linux swap  600.45
sda2      Primary   Linux      4762.44

[Bootable] [ Delete ] [ Help ] [Maximize] [ Print ]
[ Quit ]   [ Type ]   [ Units ] [ Write ]

Toggle bootable flag of the current partition_

! VMware Tools is not running. Click on this text to install.
```



The image shows a terminal window titled "Linux - [Ctrl-Shift-F1] - VMware Workstation". The window has a menu bar with "File", "Power", "Settings", "Devices", "View", and "Help". Below the menu bar are several control buttons: "Power Off", "Power On", "Suspend", "Reset", and "Full Screen". The terminal output shows the following commands and their results:

```
# mkdir target
# mke2fs -j /dev/sda2
mke2fs 1.25 (20-Sep-2001)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
581760 inodes, 1162704 blocks
58135 blocks (5.00%) reserved for the super user
First data block=0
36 block groups
32768 blocks per group, 32768 fragments per group
16160 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736

Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done

This filesystem will be automatically checked every 36 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
# mkswap /dev/sda1
Setting up swapspace version 1, size = 600408064 bytes
#
```

At the bottom of the terminal window, there is a yellow warning icon and the text: "VMware Tools is not running. Click on this text to install." To the right of this text are several small icons representing system services.

# Instalacija - otpakiravanje

- mountati particije redom:
  - tako da tvore potpun budući datotečni sustav
  - paziti na hijerarhiju
- promijeniti CD i ubaciti CN-Debian-Linux
- odtarati sadržaj instalacijske arhive na sustav:
  - tar xzf blabla.tgz
- instalirati bootmgr:
  - chroot /nesto/negdje
  - vi /etc/lilo.conf

```
Linux - [Ctrl-Shift-F1] - VMware Workstation
File Power Settings Devices View Help
Power Off Power On Suspend Reset Full Screen
# swapon /dev/sda1
# mkdir cdrom target
# mount /dev/hdc cdrom
mount: /dev/hdc is write-protected, mounting read-only
# mount /dev/sda2 target
# cd target
[/mnt/target]
# tar xzf /mnt/cdrom/base.tgz
# chroot .
# exec zsh
# vim /etc/fstab
# vim /etc/lilo.conf
# reboot_
VMware Tools is not running. Click on this text to install.
```

# Instalacija - fstab

- fstab:
  - određuje koji datotečni sustavi i particije bivaju mountani tijekom podizanja sustava
  - određuju i dump mogućnost i fsck prolaze
  - auto, defaults, noauto, user
  - ext3, ext2, reiserfs, xfs, jfs, iso9660, proc, swap
  - mount-point
  - vrlo bitan redoslijed!
  - usr, var, home, proc, swap, tmp, itd.



# Instalacija - konfiguracija kernela

- znati hardver prije:
  - lspci, cat /proc/bus/pci/devices, device manager
  - identificirati problematični hardver (SCSI, mrežne)
- postupak:
  - nabaviti izvorni kod kernela (dolazi sa base.tgz)
  - obično /usr/src/linux
  - pregledati Documentation, specifično Configure.help
  - menuconfig, oldconfig, config

# Instalacija - priprema i instalacija kernela (1)

- bitni detalji:
  - nazivlje:
    - 2.4 stabilno, 2.5 nestabilno
    - ac, rc, rmap, grsecurity, LIDS, itd.
  - ulaz u grafički meni: `make menuconfig`
  - konfiguracijska datoteka: `.config`
  - čišćenje svih zaostalih postavki
    - `make clean`
    - `make mrproper`

Linux - [Ctrl-Shift-F1] - VMware Workstation

File Power Settings Devices View Help

Power Off Power On Suspend Reset Full Screen

### Linux Kernel v2.4.17 Configuration

#### Ethernet (10 or 100Mbit)

Arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help. Legend: [\*] built-in [ ] excluded <M> module < > module capable

- <\_> **AMD PCnet32 PCI support**
- < > Apricot Xen-II on board Ethernet
- < > CS89x0 support
- < > DECchip Tulip (dc21x4x) PCI support
- < > Generic DECchip & DIGITAL EtherWORKS PCI/EISA
- < > Digi Intl. RightSwitch SE-X support
- < > Davicom DM910x/DM980x support
- <\*> EtherExpressPro/100 support
- < > Myson MTD-8xx PCI Ethernet support
- < > National Semiconductor DP8381x series PCI Ethernet support
- < > PCI NE2000 and clones support (see help)

<Select> < Exit > < Help >

VMware Tools is not running. Click on this text to install.

# Instalacija - priprema i instalacija kernela (2)

- priprema:
  - make dep bzImage modules
- instalacija:
  - cp System.map /boot/System.map-2.4.21
  - cp arch/i386/bzImage /boot/vmlinuz-2.4.21
  - cd /
  - mv -f vmlinuz vmlinuz.old
  - ln -s boot/vmlinuz-2.4.21 vmlinuz
  - lilo

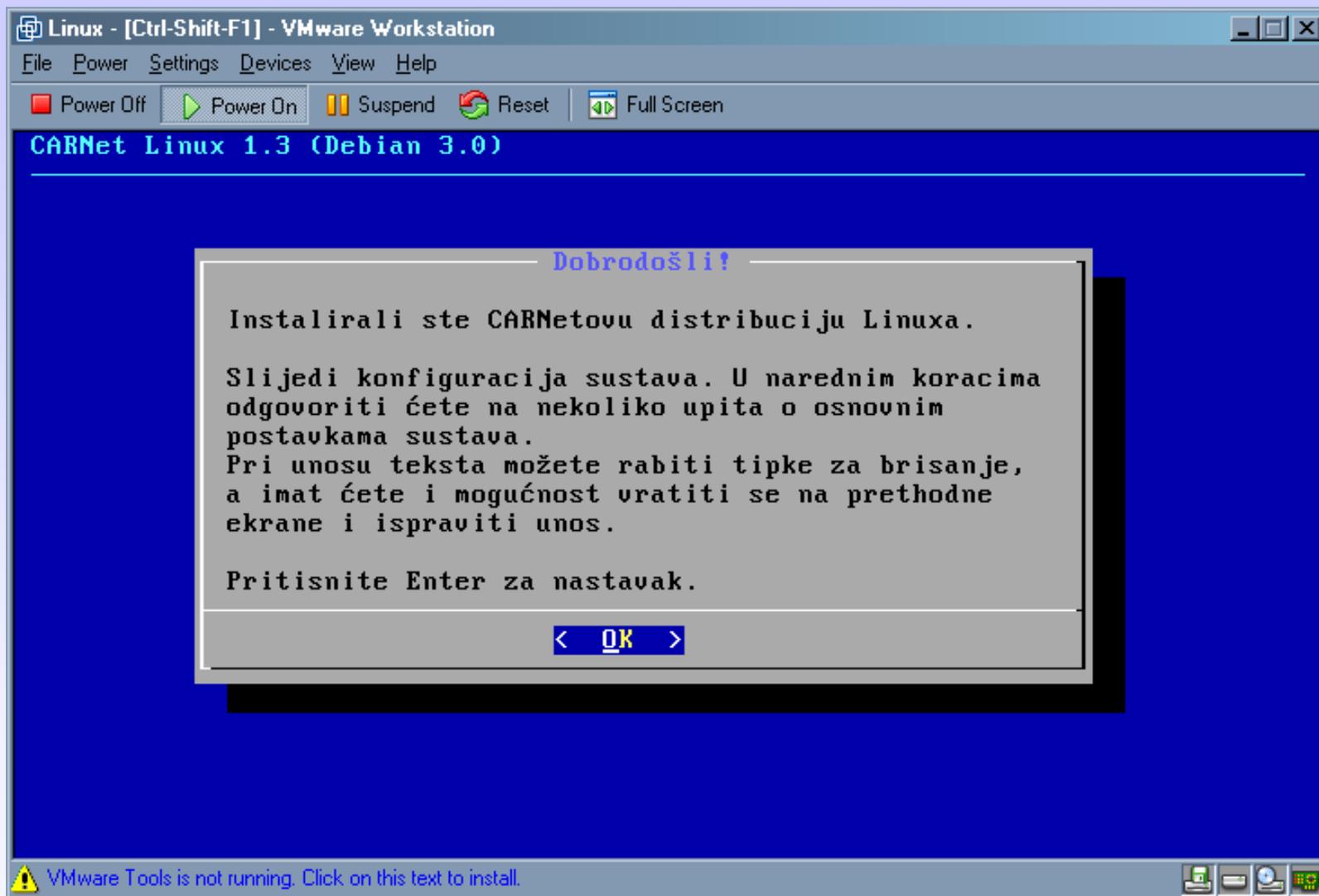
```
Linux - [Ctrl-Shift-F1] - VMware Workstation
File Power Settings Devices View Help
Power Off Power On Suspend Reset Full Screen
# kre, 2000
lba32
boot=/dev/sda
root=current
compact
install=/boot/boot.b
map=/boot/map
delay=10
append='nmi_watchdog=1'
vga=normal
default=Linux

image=/vmlinuz
    label=Linux
    read-only

image=/vmlinuz.old
    label=LinuxOLD
    read-only
    optional

#other=/dev/sda1
#    label=diagnostics

"/etc/lilo.conf" 30L, 361C 1,1 Top
! VMware Tools is not running. Click on this text to install.
```



# Konfiguriranje nakon... (1)

- ubaciti noviji kernel ili kernel-cn :-)
- zamijeniti sendmail sa postfix
- zamijeniti bind9 sa tinydns
- postaviti iptables pravila, NIDS, monitoring
- chrooting - dhcp, bind, snort..
- problematični laptopi..
- dodati apt:
  - deb <http://ftp.carnet.hr/pub/debian> carnet core opt

# Konfiguriranje nakon... (2)

- osvježiti pakete:
  - apt-get update
  - apt-get dist-upgrade
  
- paketi koji javljaju greške:
  - dpkg --purge ...
  - dpkg --pending --configure
  - dpkg -i --force-all blabla.deb

# Važne naredbe

- konfiguracija servisa putem rc\*:
  - update-rc.d
- konfiguracija modula:
  - /etc/modules, /etc/modules.conf, /etc/modutils/\*
  - update-modules
- razno:
  - lsmod, modprobe, depmod, dmesg, lspci
  - grsecurity: chpax!

# Kernel - patchiranje

- centralni web:
  - <http://www.kernel.org/>
  - <http://www.grsecurity.net/>
- patchevi:
  - rc1, ac, rmap, mm, itd.
  - `cd /usr/src/linux`
  - `bzip2 -dc ../patch-2.4.21-rc1.bz2 | patch -p1`
  - `bzip2 -dc ../patch-.2.4.21-rc1-ac4.bz2 | patch -p1`
  - `make dep oldconfig bzImage modules ...`

# Dio II - rescue!

# Tehnike spašavanja

- bootanje rescue medija:
  - <http://plug.twuug.org/articles/rescuedisk.html>
- popravljavanje datotečnog sustava:
  - findsuper, gpart, fsck, xfs\_repair, ...
- statički i dinamički binaryji - čemu to?
- potrgrani paketi:
  - /var/lib/dpkg/status, dpkg-repack, ar x, tar
- ostalo:
  - boot linux -b; mount / -o remount,rw -n, init=/bin/sh

# Dio III - čisti Debian Linux

# Instalacija (1)

- odabir jezika i varijante
- podešavanje tastature
- (opcionarno) particioniranje hard diska
- formatiranje i aktiviranje swap particije
- formatiranje i aktiviranje root particije:
  - bad block scan, razlike, journaling
- instalacija kernela i modula
- konfiguracija kernela i modula

# Instalacija (2)

- konfiguracija mreže
- instalacija osnovnog dijela sistema (usporedi sa base.tgz) - paketni mehanizmi, osnovni paketi, itd.
- instalacija bootmgr ili boot disketa
- reboot
- postavka sata GMT (UTC) ili na lokalno vrijeme
- postavka vremenske zone

# Instalacija (3)

- MD5 lozinke (obavezno!)
- shadow (obavezno!)
- root lozinka
- stvaranje običnog accounta (ne!)
- (opcionalno) brisanje pcmcia paketa
- nastavak instalacije - instalacija sa CD, itd..
- dodati apt - ali ručno kasnije!
  - deb <http://ftp.carnet.hr/pub/debian> carnet core opt

# Instalacija (4)

- ako nije na mreži - ne dodajte `security.debian.org` i sl.
- dva načina instalacije dodatnih paketa:
  - `tasksel` - grupe po namjenama
  - `dselect` - hrpa paketa na jednom mjestu
- odgovarati na interaktivna pitanja paketa
- rekonfigurirati kernel
- i to je to! :-)