VirtualBox OSE for OS/2

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Basics and Installation for

VirtualBox OpenSource Edition on OS/2-host

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VirtualBox OSE for OS/2

Abstract

With modern open source virtualization solutions like Innotek's/Sun's VirtualBox OSE for OS/2 you can use a lot of applications in your OS/2 environment without the need to install an other operating system. This presentation will explain the differences between different solutions of emulation/virtualization environments and will show you the characteristics of the OS/2 port of VirtualBox. Finally I will show you some examples of scenarios, in which it makes sense to use VirtualBox OSE for OS/2.

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History 1

- In the past Innotek has published several important OS/2 applications like Odin or GCC and Odin-based ports of applications like Acrobat Reader, Sun Java, OpenOffice and Connectix VirtualPC.
- After Microsoft acquired Connectix the OS/2-port of VirtualPC was dropped.
- The first version of VirtualBox from Innotek was published on January 2007 and supported Windows and Linux as host only.

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History 2

- First OS/2 version of VirtualBox came out around July 2007, based on the OpenSource-Edition (OSE) and was a spare time product of some Innotek-developers (mainly Knut St. Osmundsen) and was compiled by Paul Smedley
- Current OS/2 release is version 1.6.1 from may 2008, compiled by Paul Smedley, this version is quite usable with Windows- and Linux-Guests

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Technical background 1

There are two techniques available that support to run "foreign" programs on OS/2:

- Emulation like Odin32 for OS/2 (similar to Wine for Linux) to get Windows 32-bit-programs running:
  - Every required Windows-API has to be included in the system and has to map to the corresponding OS/2-API.
  - Advantage: very fast, needs very less additional resources, good integration into the common desktop.
  - Disadvantage: not every software can be supported, changes in the Windows-API and the use of different APIs of the Windows-programs always require significant changes in the emulation.

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Technical background 2

- Fullvirtualization e.g. with QEMU, VirtualPC or VirtualBox:
  - A complete x86-system is emulated where you can install different operating systems including there native applications.
  - Advantage: supports foreign systems and applications as good as possible, if the operating is functioning as guest, almost every software is supported too.
  - Disadvantage: needs a lot of additional resources, guest system and applications may be much slower than on native hardware, integration in the host system is quite bad or needs special software on the guest (additions).

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Installation

Two options for the installation of VirtualBox OSE on OS/2:

- get the original ZIP-package from Paul Smedley:
  `http://www.smedley.info/os2ports/index.php?page=virtualbox`
- get the WarpIN-package created by Andreas Ludwig of this OS/2-port:
  `http://andreas-ludwig.info/uploads/VirtualBox%201-6-1%20build%2010.wpi`

The WPI-package is recommended because it supports an easy way to install, upgrade and deinstall VirtualBox on OS/2.

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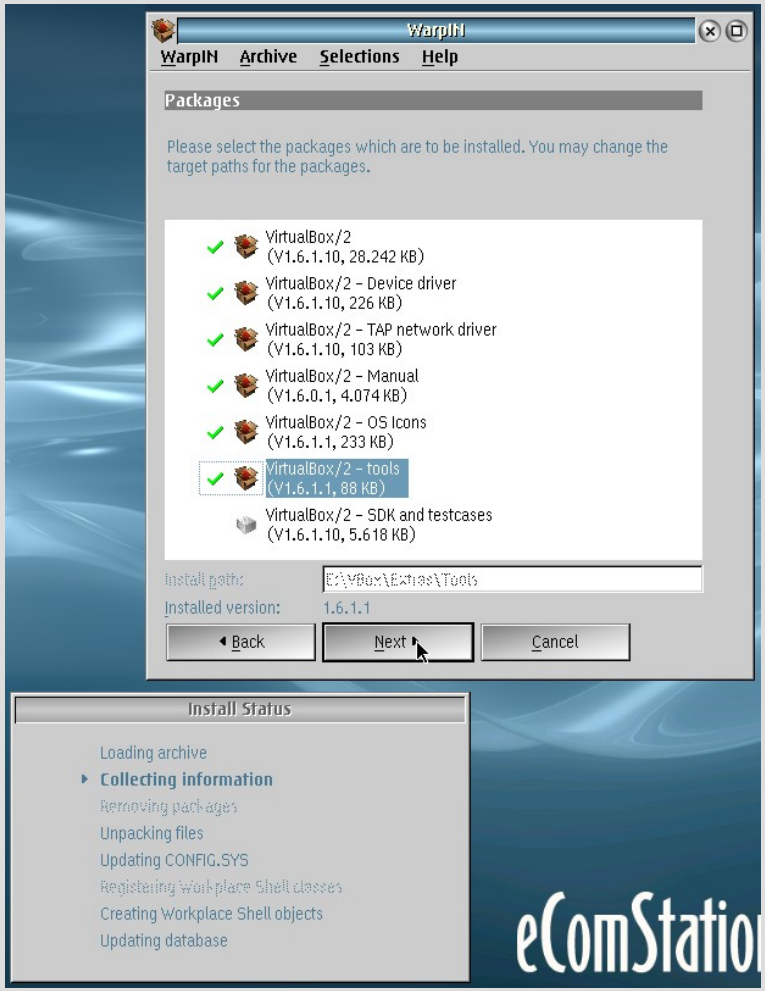
Installation 2

- To use hostinterface-networking you have to install the TAP-network driver from Willibald Meyer (included in Paul's build) and add it with MPTS to your network configuration

For additional information see the Readme.OS2, FAQ.OS2 and WHATSNEW.OS2 included in the packages!



Installing the WarpIN-package

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Supported systems

VirtualBox OSE for OS/2:

- works on most AMD/Intel-hardware like Pentium 3, AMD Athlon, Intel Core Duo, AMD Athlon X2 or AMD Phenom X4, 512 MB RAM are recommended if using Windows 2000/XP
- works with mostly any graphics card that uses Gengradd, Scitech Snap or Panorama VESA
- tested on IBM OS/2 Warp 4.52 (MCP2r), eComStation 1.2(r) and eComStation 2.0(rc)
- should be installed on JFS, on HPFS the file size and thus the VM-container for the virtual hard drive is limited to 2GB
- needs libc063.dll from Netlabs.org (included in eCS)
- needs sdl12 (included in installation package)

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Features

VirtualBox OSE for OS/2:

- can be used via command line "`VBoxManage.exe`" and "`VBoxBFE.exe`" (even remote via ssh) or with a GUI "`VirtualBox.exe`"
- supports internal, NAT- or hostinterface-network
- supports shared folders
- supports snapshots
- supports save/resume the current status of virtual machines
- supports f.ex. Windows 98se (limited), Windows 2000, Windows XP, Linux openSUSE 10.3/11.0, CentOS 5.2, Ubuntu/Xubuntu 8.04, OpenSolaris 200805, Minix 3.12

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Limitations

The OS/2 version of VirtualBox has some limitations:

- supports only one VM running simultaneously
- currently no support for hardware-virtualization (VT-x/AMD-V), therefore no support for OS/2 or eComStation as guest, because VirtualBox has only ring 0+3 support in software, while OS/2 also needs ring 2. Modern CPUs do support the virtualization of all rings from 0 to 3.
- direct access to floppy disk or CD/DVD-ROM-drives is not supported yet, but can be used via a network-share or by including an disk-/ISO-image in VirtualBox
- Audio, serial port and USB are not supported yet
- shared clipboard is not supported

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Why OS/2 as VM-host?

Why using a virtualization-solution on OS/2 or eComStation?

- OS/2 and eCS are stable and with good performance, they have a intuitive and real object oriented GUI (WPS).
- No viruses, worms, trojans for OS/2, no Schäuble!
- Protection of investment for available hard- and software.
- The need of software that is not available for OS/2 and that does not require excessive graphic- or multimedia-access, examples are: Lotus Notes-/Domino-development, web- or software-development, configuration-programs for router etc., (Windows)-VPN-software.
- The performance loss inside a VM is quite minimal, in most cases it is not remarkable.

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Why VirtualBox OSE?

Why using VirtualBox OSE as virtualization-solution on OS/2 or eComStation?

- The installation of VirtualBox, including system restart, needs only some minutes.
- The migration of a VM to an other host is done in some minutes by copying the image-file and creating a new VM-configuration.
- VirtualBox does exist also for MacOS X, Linux and Windows, the VirtualBox container (VDIs) may be used on several platforms.
- VirtualBox OSE is OpenSource and can so be used and enhanced without assistance of the original developer.

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Running Windows and Linux as guest

Creating a new virtual machine on OS/2 host using the GUI:

- start VirtualBox, create a new system, assign a name to it, select the OS-type, e.g. Windows XP or openSuSE
- RAM should be a minimum of 256 MB, better 512 MB
- create a new hard drive image, size should be minimum 8 GB

Starting VirtualBox OSE - About

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Settings - General

- after creation change the settings of this virtual machine:
  - General:
    - Basic: no changes required
    - Advanced:
      - Boot Order: should be CD/DVD-ROM, then Hard Disk, Floppy is not needed
      - Extended Features: only ACPI should be enabled
      - Shared Clipboard: not supported yet
      - IDE Controller Type: for better compatibility you may choose PIIX3, ATTENTION: this CAN'T be changed after installation of Windows!

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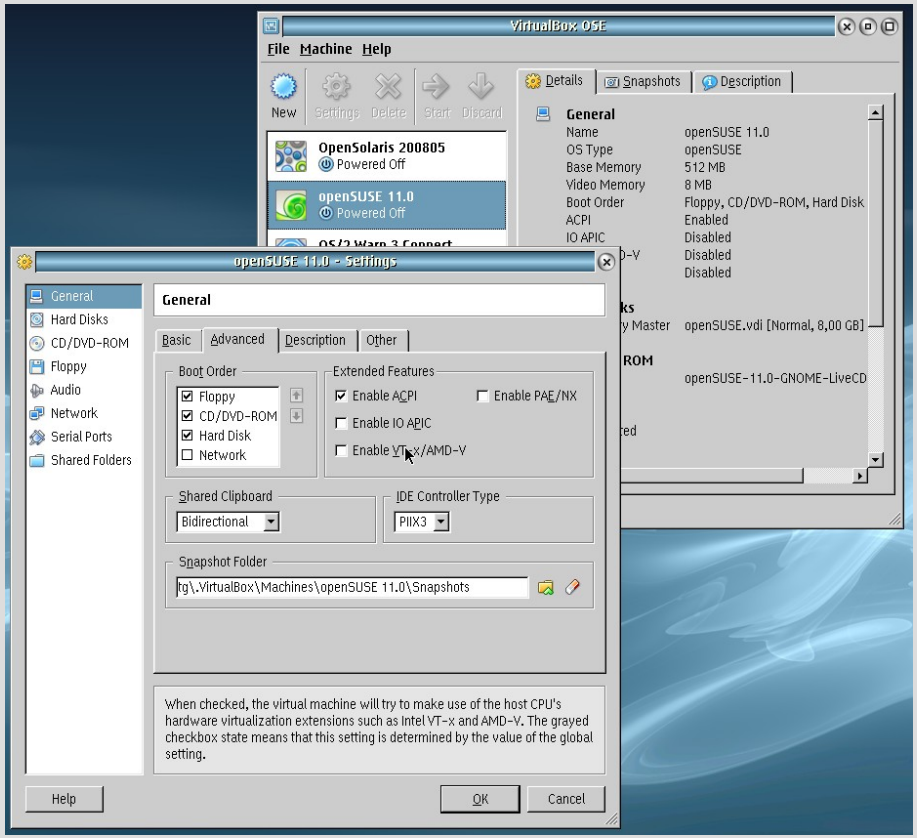
Settings - General

- General 2:
  - Snapshot Folder: by default this folder is located in HOME, a better place would be the directory where you placed your VDIs and where you should have enough disk space on your local hard drive.



General settings

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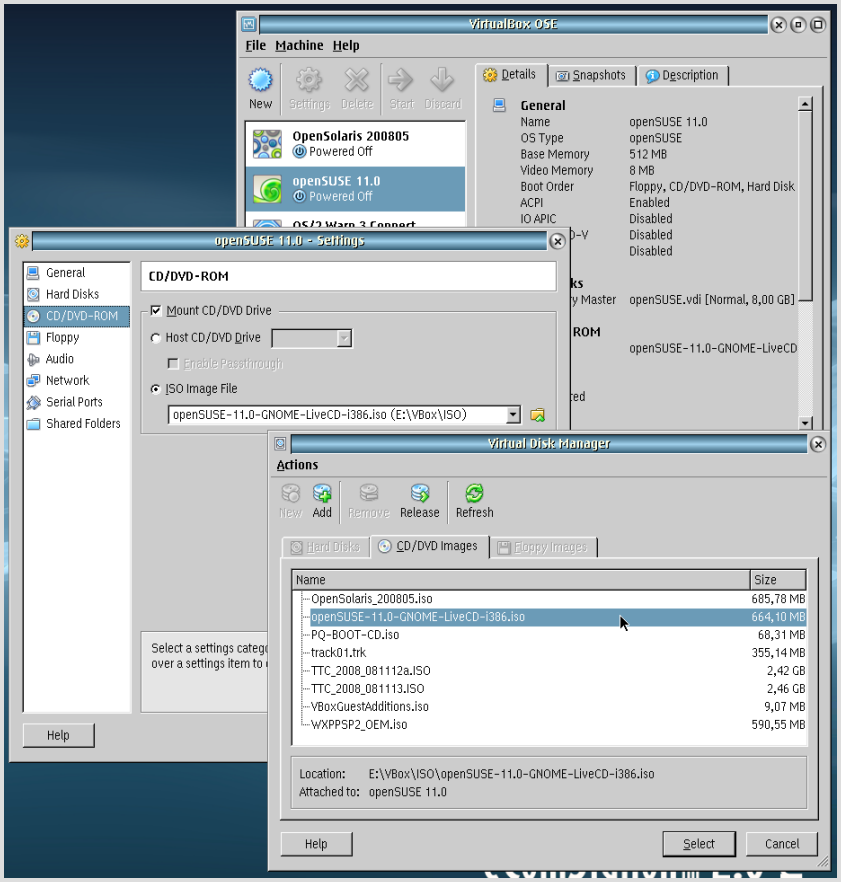
Settings - HDD, CD/DVD, FDD, Audio

- further settings:
  - Hard Disks: the virtual disk image attached to the guest
  - CD/DVD-ROM:
    - Mount CD/DVD Drive:
      - ISO Image File: select the installation ISO-image of Windows or openSuSE
  - Floppy: not needed
  - Audio: not supported yet



CD/DVD-ROM settings

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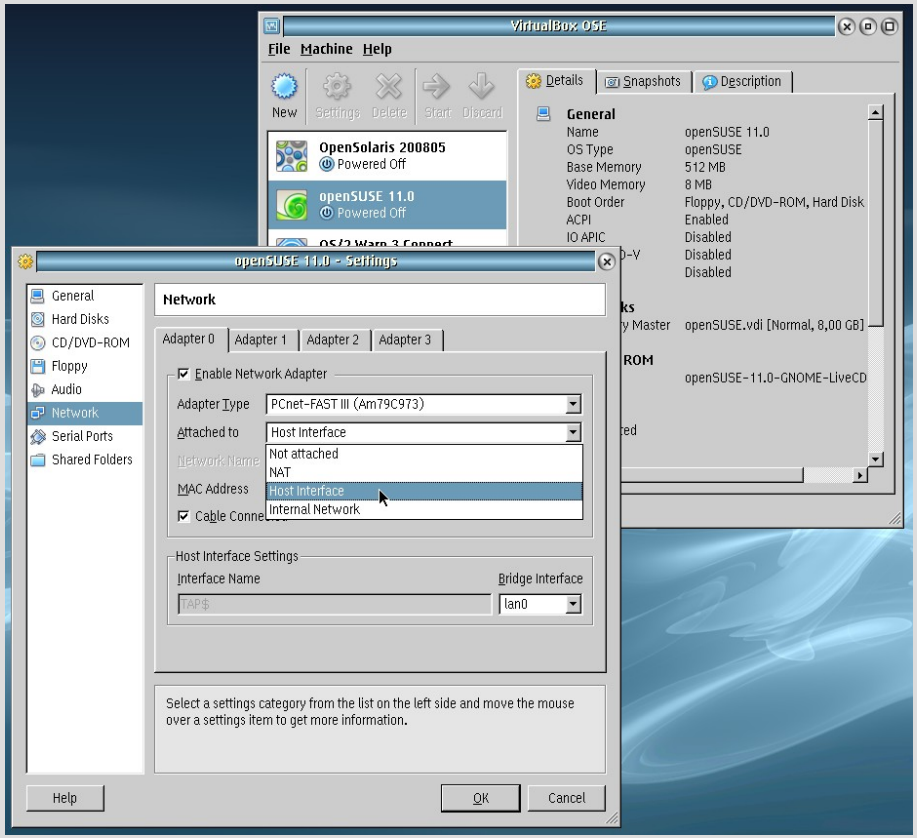
Settings - Network

- Network:
  - Adapter 0: Enable Network Adapter
    - Adapter Type: PCnet-FAST III (Am79C973)
    - Attached to: NAT, Host Interface or Internal Network

I never had the need to use several network adapters, so I don't have experiences with that on OS/2-host.



Network settings

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Settings - Network

- Differences between the network-modes:
  - NAT means that DHCP has to be enabled in the guest and VirtualBox distributes an internal IP-address to that guest and works as a router to the host-network, no services are reachable within the guest from the outside
  - Host Interface needs Willibalds TAP-driver installed on OS/2-host, but gives direct access to the host-network, the IP-address can be a fixed one from the host-network range or can be obtained with DHCP from a DHCP-server that resides in the host-network, all services that are running on the guest are accessible from the outside
  - Internal network means that there is no connection to the outside from the virtual machine

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Settings - Serial, Shared Folders

- Serial Ports: not supported yet
- Shared Folders:
  - select a folder to share, this may be a local folder, the CD/DVD-ROM and even a network- or NetDrive-share
  - choose a folder name that will be the share in the guest, to get access to that folder you can mount a local drive in your VM pointing to that share on Windows with "`NET USE x: \\vboxsvr\PUBLIC`" or for Linux etc. do a "`mount -t vboxsf PUBLIC /home/myname`", GuestAdditions have to be installed for this to work
  - select/deselect Read-only

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Using unsupported adapters

Installing the new virtual machine:

- start the freshly created virtual machine
- start the installation of the guest operating system as you would do normally by booting from the installation media
- after having finished the guest OS installation, install guest additions (available for Windows, Linux and OS/2) in the VM by selecting "Devices" - "Install Guest Additions", to get
  - support for mouse-pointer integration
  - better video support
  - time synchronization
  - shared folders and others

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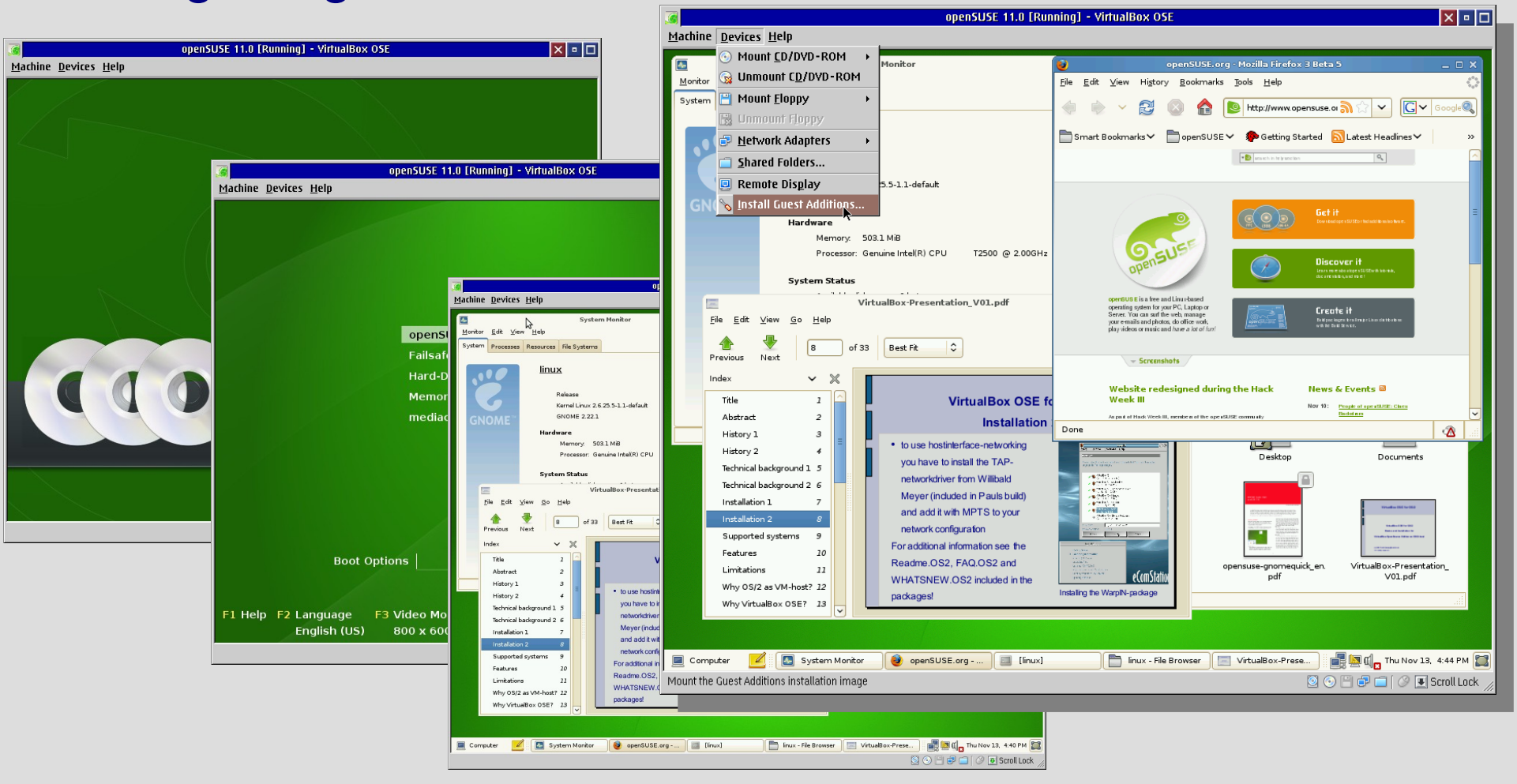
Running Guest Systems

Installing openSuSE 11.0 as guest operating system ... and installing the guest additions:



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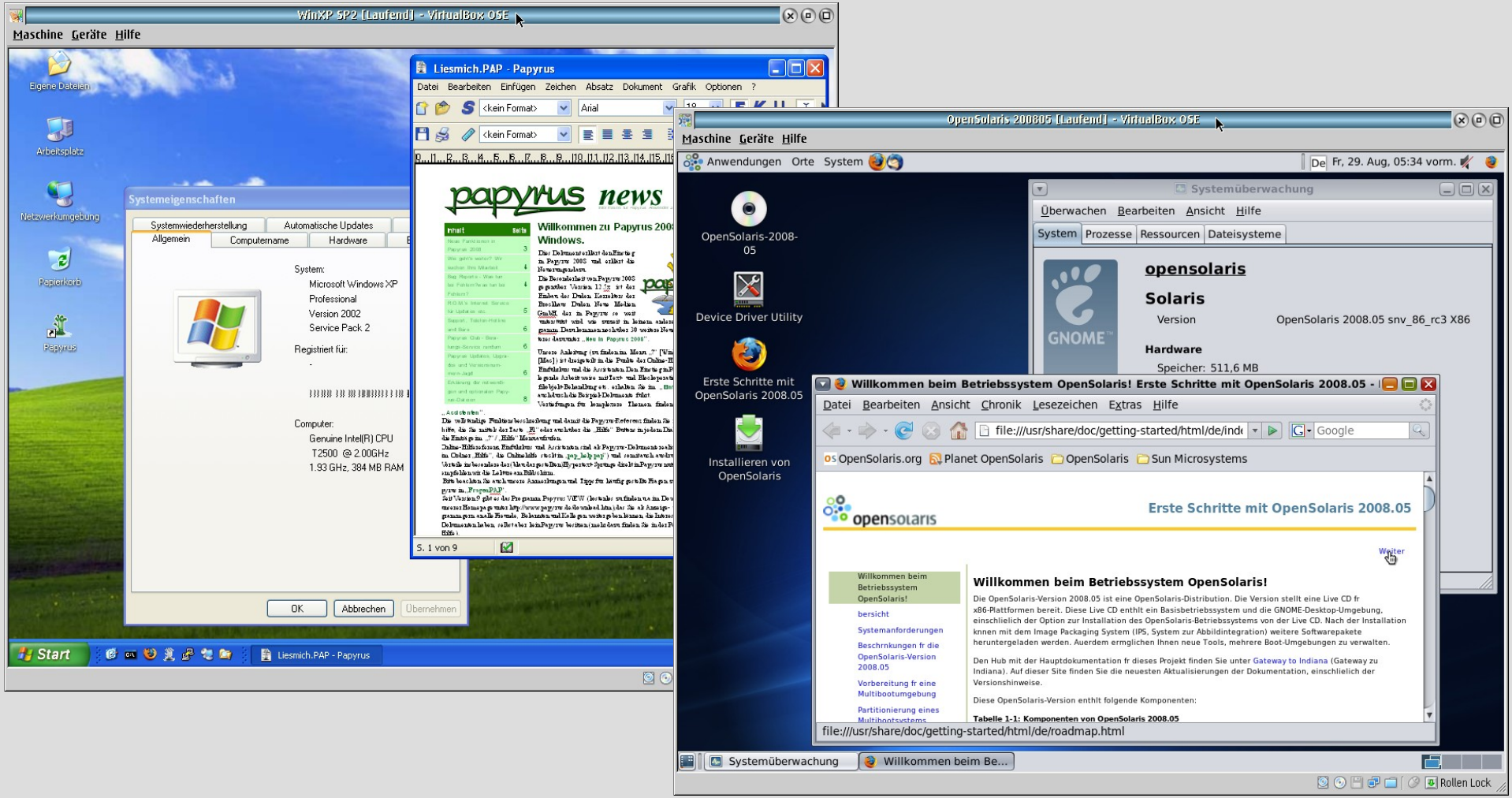
Running Guest Systems

Some other running guest operating systems:



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Outlook

- The OS/2-version of VirtualBox is based on the OSS-version where the source code is freely available.
- As long as there are OS/2 developers who are doing an OS/2 port we can use VirtualBox, right now some of the Innotek/Sun-developers are working on the OS/2-version in their spare time to get VirtualBox compiling on OS/2.
- The latest version of VirtualBox OSE that can be compiled on OS/2 is 1.6.1, Paul Smedley told me that later SVN code crashes on disk IO while compiling.

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Links

- VirtualBox.org project site:

  http://www.virtualbox.org/
- VirtualBox.org forum for end-users:

  http://forums.virtualbox.org/viewforum.php?f=10
- Paul Smedleys port of VirtualBox OSE:

  http://www.smedley.info/os2ports/index.php?page=virtualbox
- WarpIN-package of Paul's port created by Andreas Ludwig:

  http://andreas-ludwig.info/uploads/VirtualBox%201-6-1%20build%2010.wpi
- C&L freeX 06/2008 article "VirtualBox für OS/2" as PDF:

  http://www.cul.de/freex.html

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Links

- Netlabs.org download for libc063 and sdl12:

  ftp://ftp.netlabs.org/pub/libc/

  ftp://ftp.netlabs.org/pub/sdl/
- Home of eComStation:

  http://www.ecomstation.com/
- Home of Scitech Snap, not supported any more:

  http://www.scitechsoft.com/
- Home of Panorama VESA, only available with eCS:

  http://en.ecomstation.ru/projects/panorama/

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Credits

I would like to thank Knut St. Osmundsen very much
for the great work to make an
OS/2-port of VirtualBox OSE possible at all,
and Paul Smedley for all of his ports to OS/2,
including VirtualBox OSE.
Without Paul's ports of Linux-software to OS/2 and
eComStation they would not have been usable
anymore!

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Thanks

for your attention!