

Admin Guide Virtual Machines

Contents

1	Host Machines	3
1.1	Connection	3
1.2	Filesystem	4
1.3	Prepare Host Machine	4
1.3.1	VirtualBox	4
1.3.2	Additional software	5
1.3.3	VM configuration data and scripts	5
1.3.4	PAN training and test data	5
1.3.5	Configure network	6
2	Virtual Machines	7
2.1	Prepare Guest OS	7
2.2	Virtual Machines	8
2.3	How to list existing VMs on a host-pc?	9
2.4	How to setup a VM for a participant?	9
2.5	How to access the VM of a participant?	11
2.6	How to start an existing VM?	12
2.7	How to stop a running VM?	12
2.8	How to delete a VM?	12
2.9	How to add an extra hard disk to a VM?	12
3	Submissions	15
3.1	How to add/remove a shared folder	15
3.2	How to sandbox/unsandbox a VM?	15
3.3	Unit-Test-Scripts	15
3.4	Submission Files	16
4	Backup/Restore VMs	17
4.1	How to backup a VM?	17
4.2	How to copy a VM backup using checksums?	17
4.3	How to restore a VMs backup	18
A	Useful VirtualBox Commands	19

B	Network Configuration	21
B.1	Original Notes Martin Tippmann	21
B.2	/etc/dnsmasq.d/virtualbox	24
B.3	Mapping hostonlyif VMs	24
C	Windows KMS-Activation Notes	26
D	Backup/Restore VM	27
D.1	pan13-virtual-machines-backup-checksums.txt	27

Chapter 1

Host Machines

Virtual machines are supposed to run one of these host-pc:

- `webis17.medien.uni-weimar.de` (141.54.159.7)
 - RAM: 70 GB
 - Storage: 4.5 TB
 - Processors: 16
- `webis18.medien.uni-weimar.de` (141.54.159.8)
 - RAM: 70 GB
 - Storage: 4.5 TB
 - Processors: 16
- `webis19.medien.uni-weimar.de` (141.54.159.9)
 - RAM: 70 GB
 - Storage: 4.5 TB
 - Processors: 16
- `webis60.medien.uni-weimar.de` (141.54.159.10)
 - RAM: 70 GB
 - Storage: 600 GB
 - Processors: 16

1.1 Connection

Access the host-pc via ssh as webis user:

```
ssh webis@<host-pc>
```

1.2 Filesystem

All files necessary for VM administration are located on the host-pc in the directory `vm-conf`.

```
home
├── webis
│   ├── pan-13
│   │   ├── pan13-training-data <shared folder>
│   │   │   └── <pan13-training-data..>
│   │   ├── pan13-test-data <shared folder>
│   │   │   └── <pan13-test-data..>
│   └── tira-8
│       └── virtualbox
│           ├── backup
│           │   └── backup-vm.sh
│           ├── sandbox
│           │   ├── sandbox.sh
│           │   ├── ~01-tira-ubuntu-12-04-desktop-64bit.lock
│           │   ├── ~10-tira-ubuntu-12-04-desktop-64bit.lock
│           │   └── ...
│           └── vm-conf
│               ├── configure-vm.py
│               ├── configure-vm-ubuntu.sh
│               ├── configure-vm-windows.sh
│               ├── tira-ubuntu-12-04-desktop-64bit.ova
│               ├── tira-windows-7-64bit.ova
│               └── vms.txt
```

The txt-file `vms.txt` provides a list of VM access information for VMs running on this host-pc. Everytime you setup a VM with the configurations script `configure-vm.py` (see 2.4) a new entry will be added in the `vms.txt` file.

1.3 Prepare Host Machine

In order to prepare a host machine follow the instructions step by step.

1.3.1 VirtualBox

1. Enable virtualisation in bios of host pc
2. Install VirtualBox:

- Download deb file:

[download.virtualbox.org/virtualbox/4.2.10/virtualbox-4.2.4.2.10-84104 Ubuntu p...](http://download.virtualbox.org/virtualbox/4.2.10/virtualbox-4.2.4.2.10-84104_Ubuntu.p...)

- Install deb file:
`sudo dpkg --install <filename>.deb`
- 3. Install VirtualBox extension pack:
 - Download extpack:
`download.virtualbox.org/virtualbox/4.2.10/Oracle_VM_VirtualBox_Extension_Pack-4`
 - Install extpack:
`VBoxManage extpack install <filename>.vbox-extpack`
 - Note: version number of virtual box and extension pack have to be identical
- 4. Link authentication library for rdp authentication:
`VBoxManage setproperty vrdeauthlibrary "VBoxAuthSimple"`

1.3.2 Additional software

1. Install rdesktop and sshpass:
`sudo apt-get install rdesktop sshpass`

1.3.3 VM configuration data and scripts

1. Copy ova-appliance-files (see 2.2) for import into virtual box to host pc (see 1.2):
`/home/webis/tira-8/virtualbox/vm-conf.`
2. Copy vm configuration scripts to host pc (see 1.2):
`/home/webis/tira-8/virtualbox/vm-conf`
 - `configure-vm.py`
 - `configure-vm-windows.sh`
 - `configure-vm-ubuntu.sh`

1.3.4 PAN training and test data

1. Copy PAN training data into:
`/home/webis/pan-13/pan13-training-data`
2. Copy all PAN data (training and test data) into:
`/home/webis/pan-13/pan13-test-data`

1.3.5 Configure network

1. Install dnsmasq:

```
sudo apt-get install dnsmasq
```

2. Edit the last lines of `/etc/dnsmasq.conf` like this:

```
# For debugging purposes, log each DNS query as it passes through
# dnsmasq.
log-queries

# Log lots of extra information about DHCP transactions.
#log-dhcp

# Include a another lot of configuration options.
#conf-file=/etc/dnsmasq.more.conf
conf-dir=/etc/dnsmasq.d
```

3. Add configuration file for VirtualBox (see B.2):

```
/etc/dnsmasq.d/virtualbox
```

Each line defines the corresponding IP for a host-only interface. The IP address has the structure `10.18.4.100`, where

- 18 is for the host `webis18`
- 4 is for VM id 4, consequently for the host-only interface `vboxnet4`
- 100 is the IP address of the VM

The address `10.18.4.1` would be the IP address of the interface.

4. Restart dnsmasq:

```
sudo service dnsmasq restart
```

5. Configure iptables:

```
sudo bash iptables.sh
```

Chapter 2

Virtual Machines

2.1 Prepare Guest OS

This section describes which configurations have been done for preparing the os of the virtual machines (guest os).

Ubuntu

After the setup of an new VM with a plain Ubuntu the following steps have been done.

1. Install guest additions:

- Download: `download.virtualbox.org/virtualbox/4.2.10/VBoxGuestAdditions_4.2.10.`
- Install: `http://www.virtualbox.org/manual/ch04.html`

2. Install openssh-server:

```
sudo apt-get install openssh-server
```

3. Install virtualbox packages to ensure working guest additions after kernel update:

```
sudo apt-get install virtualbox-ose-guest-utils virtualbox-ose-guest-x11  
virtualbox-ose-guest-dkms
```

4. Set Shared Folder Mount Prefix:

```
VBoxManage guestproperty set <vm-name> /VirtualBox/GuestAdd/SharedFolders/MountPre  
""
```

Windows

After the setup of an new VM with a plain Windows the following steps have been done.

1. Activate admin account:

```
net user administrator /active:yes
```


2. Install guest additions:

- Download: `download.virtualbox.org/virtualbox/4.2.10/VBoxGuestAdditions_4.2.10.`
- Install: `http://www.virtualbox.org/manual/ch04.html`

3. Install SSH server Cygwin

- Download and start: `www.cygwin.com/setup.exe`
 - Download Site e.g.: `http://linux.rz.ruhr-uni-bochum.de`, or `uni-erlangen`
 - Select packages: Net → `openssh`
- Start cygwin as administrator (right click → Run as administrator)
- Run `ssh-host-config`
 - Query: Should privilege separation be used? (yes/no): yes
 - Query: New local account 'sshd'? (yes/no): yes
 - Query: Do you want to install sshd as a service?
 - Query: Say "no" if it is already installed as a service (yes/no): yes
 - Query: Enter the value of CYGWIN for the daemon: `[] xterm`
 - Query: Do you want to use a different name? (yes/no) no
 - Enter Administrator password as privileged server password.
- Set home directory of user in `C:/cygwin/etc/passwd /cygdrive/c/Users/<username>`
- Run `net start sshd`
- To reconfigure sshd, type:
 - `cygrunsrv --stop sshd`
 - `cygrunsrv --remove sshd`

4. Install software (jdk, python, etc...)

2.2 Virtual Machines

Each new virtual machine (VM) will be instantiated by using a VirtualBox image file (*.ova). Find the ova-files with operating systems Ubuntu Desktop 12.04 (64bit) and Microsoft Windows 7 (64bit) on `webis16`:

`/media/storage2/data-in-progress/workshop-PAN-13/pan13-virtual-machines-ova-files:`

- `tira-ubuntu-12-04-desktop-64bit.ova`
 - OS: Linux
 - Version: Ubuntu 12.04 (64 bit)
 - Base Memory Size: 4096 MB
 - Storage: 16 GB (Dynamically allocated)
 - Media Source: `ubuntu-12.04.1-desktop-amd64.iso`
 - Ova-Image: 2.8 GB

- `tira-windows-7-64bit.ova`
 - OS: Windows
 - Version: Windows 7 (64 bit)
 - Base Memory Size: 4096 MB
 - Storage Details: 25 GB (Dynamically allocated)
 - Media Source: windows 7 (with kms-activation see C)
 - Ova-Image: 5.4 GB

This files will be used for setting up a VM for a participant (see 2.4).

2.3 How to list existing VMs on a host-pc?

First, connect to the host-pc via ssh. In order to list all existing VMs on host execute the following command:

```
VBoxManage list vms
```

In order to list all running VMs:

```
VBoxManage list runningvms
```

The output of both commands will look like this:

```
"00-tira-ubuntu-12-04-desktop-64bit" {a49f6b50-b83c-89d8-a288-4175002f4a4b}
"01-tira-ubuntu-12-04-desktop-64bit" {c5520848-5583-40b4-96a5-ed0efef097dc}
"02-tira-ubuntu-12-04-desktop-64bit" {b056fdb5-4300-4634-879a-b2bdc3192e55}
```

Where the first string is name of the VM and the second string in {...} is the UUID (unique identifier) of the VM.

2.4 How to setup a VM for a participant?

Everything you need to know for setting up a VM for a participant is the name of the *host-pc*, the preferred *operating system* and the *user name*. In order to setup a VM follow these 4 steps:

1. Connect to a host pc via ssh as webis user:
`ssh webis@<host-pc>`
2. Change directory:
`cd tira-8/virtualbox/vm-conf`
3. Execute configuration script:
`python configure-vm.py <ova-file> <user-name>`

Where `<ova>` is the ova-file of the preferred os (2.2) and `<user-name>` is the user name of the participant. The configuration script will output several lines. After some lines of:

ssh: connect to host 10.<host-id>.<vm-id>.100 port 22: No route to host
the final output will look like this:

```
=====
SUMMARY
=====
### [beyer13]

host-pc: webis18.medien.uni-weimar.de
vm-id: 04
vm-name: 04-tira-ubuntu-12-04-desktop-64bit
user: beyer13
user-pw: a6f87pdq
admin: administrator
admin-pw: YMaFhBNQ
port-tira: 33304
port-ssh: 44404
port-rdp: 55504
=====

TEST RDP
rdesktop webis18.medien.uni-weimar.de:55504 -u beyer13 -p a6f87pdq

TEST SSH
sshpass -p a6f87pdq ssh beyer13@webis18.medien.uni-weimar.de -p 44404
-o StrictHostKeyChecking=no
```

The VM will be started automatically by the configuration script. Since not the whole configuration process can be automated, you need to follow some steps to finalize the process and test the VM. Please follow these steps depending on the VMs os:

Ubuntu

4. Ensure that the VM is running by checking the list of running VMs (see 2.3):
`VBoxManage list runningvms`
5. Connect via remote desktop connection (see 2.5) and login as participant which creates the participant's home directory:
`rdesktop <host-pc>:<port-rdp> -u <user-name> -p <user-password>`

This command is already prepared by the configuration script's output.
Cancel the connection by closing the remote connection window.

6. Test the ssh connection with the participant's user account (see 2.5):

```
ssh <user-name>@<host-pc> -p <port-ssh>
```

In order to not enter the cryptic password interactively, use the command prepared by the configuration script's output.

Cancel the connection with the `exit` command

Windows

4. Ensure that the VM is running by checking the list of running VMs (see 2.3):

```
VBoxManage list runningvms
```

5. Connect via remote desktop connection (see 2.5):

```
rdesktop <host-pc>:<port-rdp> -u <user-name> -p <user-password>
```

This command is already prepared by the configuration script's output.

Now, you see the Windows login screen with only the administrator account listed.

6. Login as administrator. The administrator password is provided in the configuration script's output.

7. Open the Windows terminal as administrator (right-click: "Run as Administrator") and execute the following commands in order to activate the Windows license:

```
cscript.exe c:\windows\system32\slmgr.vbs -skms brocken.rz.tu-ilmenau.de
```

```
cscript.exe c:\windows\system32\slmgr.vbs -ato
```

8. Log off from the administrator account. Now, you can see the participant's user account on the Windows login screen as well.
9. Login as participant which creates the participant's home directory. The participant's password is provided in the configuration script's output.
10. Log off from the participant's account and cancel the remote desktop connection by closing the remote desktop connection window.

11. Test the ssh connection with the participant's user account (see 2.5):

```
ssh <user-name>@<host-pc> -p <port-ssh>
```

In order to not enter the cryptic password interactively, use the command prepared by the configuration script's output.

Cancel the connection with the `exit` command

After successfully setting up the participant's VM please save the access information by copying the configuration script's summary to the file `pan13-software-notes.txt`.

2.5 How to access the VM of a participant?

First, you need the access information of the participant's VM which are listed in the file `pan13-software-notes.txt`. Now, you can access the VM of a participant via ssh or remote desktop.

Access a VM via ssh connection with the following command:

```
ssh <user-name>@<host-pc> -p <port-ssh>
```

Cancel the connection with the following command:

```
exit
```

Access a VM via remote desktop with the following command:

```
rdesktop <host-pc>:<port-rdp> -u <user-name> -p <user-password>
```

Cancel the connection by closing the remote connection window.

2.6 How to start an existing VM?

Since our host-pc are headless server the VM type headless is required. Start an existing virtual machine by executing the following command on the host pc:

```
VBoxManage startvm <vm-name> --type headless
```

2.7 How to stop a running VM?

Stop a VM by executing the following command on the host pc:

```
VBoxManage controlvm <vm-name> poweroff
```

Alternatively, you can connect via remote desktop and shutdown the VM over its common shutdown menu.

2.8 How to delete a VM?

Before you can delete a VM you have to stop it first(see 2.7). Delete a VM from host pc by executing the following command:

```
VBoxManage unregistervm <vm-name> --delete
```

2.9 How to add an extra hard disk to a VM?

Ubuntu

1. Turn sandbox off (see 3.2)
2. Shutdown VM (see 2.7)
3. Change Directory to VMs directory on host:

```
cd /home/webis/VirtualBox VMs/<vm-name>
```
4. Create a new disk with the following command:

```
VBoxManage createvdi -filename extra-disk.vdi -size <size-in-meba-bytes>
```

5. Add the new disk to the VM with the following command:

```
VBoxManage storageattach <vm-name> --storagectl "SATA Controller" --port
1 --device 0 --type hdd --medium extra-disk.vdi
```
6. Start VM (see 2.6)
7. Install Software *GParted* on VM and open it:

```
sudo apt-get install gparted
```

```
sudo gparted
```
8. Register extra disk with *GParted*:
 - Change to */dev/sdb1* in dropdown menu in the top left corner
 - Click *Device: Create Partition Table*
 - Select */dev/sdb1* listed in the table and click *New*:
 - Typ: ext 4
 - Create as: Primary Partition
 - Click on the *green checkmark* in the menu list (*Apply Operations*)
9. Create directory for extra disk on VM:

```
sudo mkdir /media/extra-disk
```
10. Open fstab file:

```
sudo gedit /etc/fstab
```

and add the following lines:

```
# extra disk
```

```
/dev/sdb1 /media/extra-disk ext4 defaults 0 0
```
11. Mount extra disk:

```
sudo mount media/extra-disk
```
12. Change permissions of extra-disk:

```
sudo chown <user-name> /media/extra-disk
```

```
sudo chgrp sudo /media/extra-disk
```

Windows

1. Turn sandbox off (see 3.2)
2. Change Directory to VMs directory on host:

```
cd /home/webis/VirtualBox VMs/<vm-name>
```
3. Execute the following command:

```
VBoxManage createvdi -filename extra-disk.vdi -size <size-in-meba-bytes>
```
4. Shutdown VM (see 2.7)

5. Execute the following command:

```
VBoxManage storageattach <vm-name> --storagectl "SATA Controller" --port  
1 --device 0 --type hdd --medium extra-disk.vdi
```

6. Start VM (see 2.6)

7. Open Control Panel → Disk Management:

- Initialize with Master Boot Record (MBR)
- New Simple Volume
- Assign the following drive letter: X
- Volume label: extra-disk

Chapter 3

Submissions

3.1 How to add/remove a shared folder

Add a shared folder with the following command:

```
VBoxManage sharedfolder add <vm-name> --name <shared-folder-name> --hostpath  
<host-path> --readonly --automount
```

Remove a shared folder with the following command:

```
VBoxManage sharedfolder remove <vm-name> --name <shared-folder-name>
```

3.2 How to sandbox/unsandbox a VM?

The sandbox script is placed on the host-pc in the directory `tira-8/virtualbox/sandbox/`.

One can sandbox a VM by executing the following command:

```
./sandbox.sh <vm-name> on
```

One can unsandbox a VM by executing the following command:

```
./sandbox.sh <vm-name> off
```

In order to simplify the sandboxing procedure we prepare a wrapper script named `sandbox-remote.sh`. This script can be executed remotely from another pc than the host-pc. Moreover the `sandbox-remote.sh` need a submission file (see 3.4) as parameter.

One can sandbox a VM remotely by executing the following command:

```
./sandbox-remote.sh <submission-file> on
```

One can unsandbox a VM remotely by executing the following command:

```
./sandbox-remote.sh <submission-file> off
```

3.3 Unit-Test-Scripts

A unit-test-script is supposed to be used to briefly check the submission of a participant.


```
#!/bin/bash

# Fill in your VM credentials here.
user="aditya13"
host="webis18.medien.uni-weimar.de"
sshport="44417"

# Don't edit inputdir and output!
inputdir="/media/pan13-training-data/pan13-ap-mini-2013-03-13"
output="test-run-ap"

# Fill in the path to your software on your VM.
# We change to this directory before starting your software (cd $path).
path="mallet-2.0.7"

# Fill in the command to execute your software.
# The cmd must contain $inputdir and $output.
cmd="sh executer.sh $inputdir $output"

# This is the command for testing your submission - don't edit.
ssh $user@$host -p $sshport -o StrictHostKeyChecking=no -t "cd $path;
rm -rf $output; mkdir $output; $cmd; cd $output; ls"
```

3.4 Submission Files

```
user="aditya13"
userpw="PAe0lREg"
host="webis18.medien.uni-weimar.de"
vmname="17-tira-ubuntu-12-04-desktop-64bit"
os="ubuntu"
sshport="44417"
path="/home/aditya13/mallet-2.0.7"
cmd="sh executer.sh $inputdir $output"
```

Chapter 4

Backup/Restore VMs

4.1 How to backup a VM?

The backup script is placed on the host-pc in the directory `tira-8/virtualbox/backup/`. One can backup a VM by executing the following command:

```
./backup-vm.sh <vm-name>
```

The backup is an ova-file and will be save at `webis16` in the directory

```
/media/storage2/data-in-progress/workshop-PAN-13/pan13-virtual-machines-backup/.
```

In order to simplify the backup procedure we prepare a wrapper script named `backup-vm-remote.sh`. This script can be executed remotely from another pc than the host-pc. Moreover the `backup-vm-remote.sh` need a submission file (see 3.4) as parameter. One can backup a VM remotely by executing the following command:

```
./backup-vm-remote.sh <submission-file>
```

4.2 How to copy a VM backup using checksums?

Since the ova files are very large, please double-check the checksums after copying them to foreclose data loss. To do so, copy the ova file and place the checksum file next to it. The MD5 checksums for all VM backups are listed in the file (see ??):

```
/media/storage2/data-in-progress/workshop-PAN-13/pan13-virtual-machines-backup/  
pan13-virtual-machines-backup-checksums.txt.
```

Then run the following command to test whether the file you copied is not corrupted:

```
md5sum -c pan13-virtual-machines-backup-checksums.txt
```

The output of this command will be a list of all ova files you copied and their state; for instance, it will look like this:

```
pan13-aditya13-2013-07-09-12-21-00.ova: OK  
pan13-agrawal13-2013-07-10-15-32-50.ova: OK  
pan13-alshboul13-2013-07-10-15-12-22.ova: OK
```

4.3 How to restore a VMs backup

The requirement for restoring a Vms backup is a prepared host machine (see 1.3). Furthermore, there are two points to know about restoring a VM's backup.

First, because of the network settings, each VM is supposed to have its own host-only interface. Therefore, you need to create the host-only interface before restoring VM backups. Moreover, the assigned host-only interface corresponds to a VM's id, which is unfortunately not readable in the ova filename. The simplest workaround is to create 20 (20 is the highest VM id) host-only interfaces by executing the following VirtualBox command 20 times:

```
VBoxManage hostonlyif create
```

Second, in PAN 2013 we used 4 host machines for the VMs of the participants. As mentioned above, each VM used an individual host-only interface corresponding to its id. This means there were up to 4 VMs with the same host-only interface name but on different hosts. In order to avoid network conflicts it is important to only restore VMs with different ids on one host machine. In appendix B.3 the mapping of host-only interfaces to VMs is listed.

Considering these two points you can easily restore a VMs backup on a prepared host (see 1.3):

1. Copy backup file to host machine (see 4.2)
2. Import ova file:

```
VBoxManage import <backup.ova>
```

Appendix A

Useful VirtualBox Commands

List vms on host pc:
VBoxManage list vms

List running vms on host pc:
VBoxManage list runningvms

Start vm:
VBoxManage startvm <uuid>|<name> --type headless

Stop vm :
VBoxManage controlvm <uuid>|<vm-name> savestate

Delete vm:
VBoxManage unregistervm <uuid>|<vm-name> --delete

Import ova-file:
VBoxManage import <ova>

Appendix B

Network Configuration

B.1 Original Notes Martin Tippmann

```
# VM Netzwerk-Konfiguration

### 'dnsmasq' installieren

sudo apt-get install dnsmasq

### Konfiguration fuer VirtualBox hinzufuegen

'log-queries' und 'log-dhcp' auskommentieren, die Logs landen in '/var/log/
syslog' letzte Zeile auskommentieren, damit die 'virtualbox'
Konfigurationsdatei eingelesen wird

# For debugging purposes, log each DNS query as it passes through
# dnsmasq.
log-queries

# Log lots of extra information about DHCP transactions.
log-dhcp

# Include a another lot of configuration options.
#conf-file=/etc/dnsmasq.more.conf
conf-dir=/etc/dnsmasq.d

Virtualbox Konfigurationsdatei anlegen:

sudo vim /etc/dnsmasq.d/virtualbox
```

Inhalt der Datei:

```
dhcp-range=interface:vboxnet0,10.60.0.100,10.60.0.100,255.255.255.0,5m
...
dhcp-range=interface:vboxnet20,10.60.20.100,10.60.16.100,255.255.255.0,5m
```

Jede Zeile definiert die auszugebenen IP-Adressen fuer das jeweilige Interface .

Die IP-Adresse hat folgende Struktur (am Beispiel von webis18:) '10.18.4.100' die 18 steht fuer webis18, die 4 fuer die VM ID 4 mit dem interface vboxnet4 - und 100 ist die IP-Adresse der VM. '10.18.4.1' waere die IP-Adresse des Interfaces.

```
sudo service dnsmasq restart
```

hostonly Interfaces anlegen

```
VBoxManage hostonlyif create # legt vboxnet0 an .. dann vboxnet1..
VBoxManage hostonlyif ipconfig vboxnet0 --ip 10.18.4.1
```

VirtualBox DHCP Server deaktivieren (das uebernimmt jetzt 'dnsmasq')

Anzeigen vorhandener Server

```
VBoxManage list dhcpservers
NetworkName: HostInterfaceNetworking-vboxnet0
IP: 192.168.56.100
NetworkMask: 255.255.255.0
lowerIPAddress: 192.168.56.101
upperIPAddress: 192.168.56.254
Enabled: Yes
```

Loeschen der Server

```
VBoxManage dhcpserver remove --netname HostInterfaceNetworking-vboxnet0
```

ueberpruefen

```
VBoxManage list dhcpservers
<sollte leer sein>
```

Netzwerk der VM auf 'hostonly' aendern. (z.B. vm4 auf webis18)

```
VBoxManage managevm <name> --nic1 hostonly --hostonlyadapter1 vboxnet4
VBoxManage hostonlyif ipconfig vboxnet4 --ip 10.18.4.1
```

Auf der VM-Netzwerk neu starten

```

    <in VM einloggen>
    sudo /etc/init.d/networking restart

oder VM rebooten!?

#### ueberpruefen ob es geklappt hat.

In der VM:

    ifconfig

    - hier sollte jetzt eine IP-Adresse aus dem Bereich '10.x.x.100' stehen und
      nicht mehr 10.2.0.15

## iptables einrichten damit Internet funktioniert.

siehe https://gist.github.com/glycoknob/5167055

    sudo bash iptables.sh

Damit sollte Portforwarding laufen.

### jetzt sollte man pingen koennen und DNS sollte auch laufen

    ping 141.54.1.3
    ping 8.8.8.8
    ping google.de

## Bonus: Alle Eigenenschafter der VM auslesen

VBoxManage list vms | awk '{ print $1 }' # namen
VBoxManage guestproperty enumerate <name> # eigenschaften
VBoxManage guestproperty get <name> "/VirtualBox/GuestInfo/Net/0/V4/IP" |
    awk '{ print $2}'

## Notes1:

    Der Teil in iptables.sh

    # tl;dr without this we can't ping the host interfaces from the
      vms on
machines with multiple interfaces
for i in $(seq 0 20); do
    ip route add 10.$hostnumber.$i.0/24 dev vboxnet$i
        table rt3 2> /dev/null;
    ip route add 10.$hostnumber.$i.0/24 dev vboxnet$i
        table rt2 2> /dev/null;
done

```


wird nur benoetigt, wenn es mehr als eine Netzwerkkarte gibt
und
mehrere Routing Tabellen.

Notes2:

Man koennte noch dazu schreiben, dass man mit dnsmasq etwas
vorsichtig
sein muss und DNS nicht ausserhalb des Uni-Netzes erreichbar
sein
sollte. Hatte dnsmasq bei mir laufen und hab dann ne boese E-
Mail vom
SCC bekommen: [http://de.wikipedia.org/wiki/
DNS_Amplification_Attack](http://de.wikipedia.org/wiki/DNS_Amplification_Attack).
Das iptables.sh Script blockt aber den Port.

B.2 /etc/dnsmasq.d/virtualbox

```
dhcp-range=interface:vboxnet0,10.18.0.100,10.18.0.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet1,10.18.1.100,10.18.1.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet2,10.18.2.100,10.18.2.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet3,10.18.3.100,10.18.3.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet4,10.18.4.100,10.18.4.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet5,10.18.5.100,10.18.5.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet6,10.18.6.100,10.18.6.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet7,10.18.7.100,10.18.7.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet8,10.18.8.100,10.18.8.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet9,10.18.9.100,10.18.9.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet10,10.18.10.100,10.18.10.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet11,10.18.11.100,10.18.11.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet12,10.18.12.100,10.18.12.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet13,10.18.13.100,10.18.13.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet14,10.18.14.100,10.18.14.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet15,10.18.15.100,10.18.15.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet16,10.18.16.100,10.18.16.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet17,10.18.17.100,10.18.17.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet18,10.18.18.100,10.18.18.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet19,10.18.19.100,10.18.19.100,255.255.255.0,5m  
dhcp-range=interface:vboxnet20,10.18.20.100,10.18.20.100,255.255.255.0,5m
```

B.3 Mapping hostonlyif VMs

```
vboxnet1 ['williams13', 'haggag13', 'hidalgo13', 'meina13']  
vboxnet2 ['jayapal13', 'gillam13', 'grozea13', 'haro13']
```

```
vboxnet3 ['boegel13', 'elizalde13', 'pastor13', 'seidman13']
vboxnet4 ['anaya13', 'vladimir13', 'yong13', 'santipong13']
vboxnet5 ['cagnina13', 'dinesh13', 'feng13', 'li13']
vboxnet6 ['jankowska13', 'foltynek13', 'harvey13', 'ghaeini13']
vboxnet7 ['stopar13', 'kumar13', 'shrestha13', 'jimenez13']
vboxnet8 ['alshboul13', 'torrejon13', 'kern13', 'palkovskii13']
vboxnet9 ['lee13', 'loya13', 'flekova13']
vboxnet10 ['suchomel13', 'layton13', 'vandam13', 'ikeda13']
vboxnet11 ['jaoua13', 'halvani13', 'saremi13']
vboxnet12 ['moreau13', 'ramirez13', 'weren13', 'zhenshi13']
vboxnet13 ['nourian13', 'ayala13', 'agrawal13', 'prakash13']
vboxnet14 ['niculae13', 'lahiri13', 'kong13', 'mechti13']
vboxnet15 ['petmanson13', 'ladra13', 'cormack13', 'bobicev13']
vboxnet16 ['santosh13', 'sorin13', 'patra13', 'palkovskii12']
vboxnet17 ['aditya13', 'farias13']
vboxnet18 ['gillam12', 'jeyapal12']
vboxnet19 ['kasprzak12', 'kongleilei12', 'kueppers12']
vboxnet20 ['oberreuter12', 'torrejon12', 'sanchesvega12']
```

Appendix C

Windows KMS-Activation Notes

MS-Campus: MS Windows7 mit SP1 (64bit, en, KMS-Aktivierung)

=====

Die Aktivierung des Betriebssystems erfolgt manuell ueber die Windows-Oberflaeche. Der Vorteil fuer den Nutzer liegt in der vereinfachten Installation des Betriebssystems fuer das kein Lizenzschlüssel mehr erforderlich ist. Eine Windows Installation, welche ueber den Key Management aktiviert wurde, meldet sich alle 30 Tage bei ihrem KMS und reaktiviert das Betriebssystem ca. alle 6 Monate (180 Tage). Kann die Reaktivierung innerhalb von 180 Tagen nicht vorgenommen werden, erhaelt der Nutzer eine Frist von 30 Tagen, in denen eine Reaktivierung am Key Management Server vorgenommen werden muss. Nach 30 Tagen schaltet sich das Betriebssystem in den Reduced Function Mode, welcher dann nur noch die Aktivierung ermoeoglicht, jedoch keine weiteren Anwendungen.

TCPIP-Adressdaten des Key Management Servers der TU-Ilmenau

=====

Der Key Management Server ist unter folgenden Daten verfuegbar:

- DNS-Name: brocken.rz.tu-ilmenau.de
- IP-Adresse: 141.24.190.22
- Port: 1688
- Protokoll: TCP

Konfiguration des Betriebssystems

=====

Mit folgenden Schritten koennen Sie Ihre Windows 7 Installation am Key Management Server aktivieren:

[1] Starten Sie die cmd.exe als Administrator

[2] Befehle ausfuehren:

- cscript.exe c:\windows\system32\slmgr.vbs -skms brocken.rz.tu-ilmenau.de
- cscript.exe c:\windows\system32\slmgr.vbs -ato

Appendix D

Backup/Restore VM

D.1 pan13-virtual-machines-backup-checksums.txt

dca272af9b3c987ad2192c55d26908b3	pan13-aditya13-2013-07-09-12-21-00.ova
b69b45b1124aa5094b40ff5a62c1e510	pan13-agrawal13-2013-07-10-15-32-50.ova
c9299eff5af1a04bf4b6a374d3c493e3	pan13-alshboul13-2013-07-10-15-12-22.ova
ed594c5af06f0822cd3e3d8a34fb4957	pan13-anaya13-2013-07-10-15-12-01.ova
92929cb7681360d3e0bc861c7c6b9066	pan13-anna-2013-06-20-11-29-48.ova
f732dc5f0d72cd36e322a29dbe7022c9	pan13-ayala13-2013-07-09-12-22-23.ova
484cc4b7521e96e5407496a5901eeebb	pan13-bobicev13-2013-07-09-12-53-07.ova
a3d1cd56bc4175ad6e8aaf1b8f6a4414	pan13-boegel13-2013-07-10-15-11-42.ova
ac4340f54689d044bea616a4f650e598	pan13-cagnina13-2013-07-09-12-53-29.ova
21bccaf7925f5e4fc9befb926a1487cf	pan13-cormack13-2013-07-10-15-45-42.ova
153fd76ca931ed4295540c83f2dee74d	pan13-dinesh13-2013-07-10-15-33-41.ova
bd7d10482cd5881e81836abd3a307aee	pan13-elizalde13-2013-07-09-12-56-55.ova
625e7f9fd150d976abb334c18bccf7ee	pan13-farias13-2013-07-09-14-08-14.ova
f03f73971e43a9112c9b902b54570b9c	pan13-feng13-2013-07-09-13-53-22.ova
702c522b445b4a8987c035833b7a01e7	pan13-flekova13-2013-07-09-13-54-24.ova
664e30316c89d1aefbce6f5b66fa6776	pan13-foltynek13-2013-07-09-13-53-53.ova
3cdff9a9c5483fbd3e7d1dc77a16c3ea	pan13-ghaeini13-2013-07-09-14-23-50.ova
3f3ad5d381c25d6928aab6b75104ad90	pan13-gillam12-2013-07-10-16-04-55.ova
37ec8c7173fdda651bbd8822153cde45	pan13-gillam12-2013-07-10-16-14-13.ova
40e04b7ad8ca4cd12f8ecb4bfe7128b2	pan13-gillam13-2013-07-09-14-09-18.ova
a3dd3429dc720df54e84720d28bc2dd5	pan13-grozea13-2013-07-09-14-40-10.ova
d2972e31f4e7b491f340e94ac8c5905c	pan13-haggag13-2013-07-10-12-00-57.ova
3707fbde973d2f667430fd5b9f07223d	pan13-halvani13-2013-07-10-12-00-31.ova
75cfa9c26e6d7b0b73973fa50a8b8a5e	pan13-haro13-2013-07-11-17-10-42.ova
29e3e29a87bfbce9c9837bd488ab9c5e	pan13-harvey13-2013-07-10-15-51-59.ova
eb9a2cee6b6d81e15f9fcb6ed053b706	pan13-hidalgo13-2013-07-09-14-40-28.ova
c812482165cd86ba0ea5f4d8805223e6	pan13-ikeda13-2013-07-10-15-46-15.ova
172bac14c2c7bcaac0003d0b1bb7bddd	pan13-jankowska13-2013-07-09-14-01-04.ova
f32e33579f9296bf42b959acd2c5e83f	pan13-jaoua13-2013-07-10-15-33-23.ova
c2e343f0cd3ef8fdb2601706276d3341	pan13-jayapal13-2013-07-09-14-10-02.ova
d7f601f1638f1f76228ad34d70414a5a	pan13-jeyapal12-2013-07-10-16-11-35.ova

4b570ad270d4cdf2a4eabf6bc6dacfdb	pan13-jimenez13-2013-07-10-12-05-47.ova
2e99d37998d135d69161cb2e96ddf477	pan13-kasprzak12-2013-07-10-16-12-27.ova
5b69e5bdf2b68ad894fb31c3549370e1	pan13-kern13-2013-07-10-12-01-19.ova
ead52d38c4ac35e89af6be431c5454b4	pan13-kong13-2013-07-10-12-11-57.ova
6c6240b5f84899f1e2bf351564fd6bc5	pan13-kongleilei12-2013-07-10-16-18-09.ova
d1ba03283affcb15ee2e378ac9bcee65	pan13-kueppers12-2013-07-10-16-18-39.ova
a29c2e22a8cbfe2a6c21e525fbf0cca3	pan13-kumar13-2013-07-10-15-46-39.ova
66cb1b9fb812e8a2e1a1c2ef84e2522e	pan13-ladra13-2013-07-10-12-14-17.ova
fed16b95696d5592beeddd51adb60553	pan13-lahiri13-2013-07-10-16-01-16.ova
b6c22ad240a56368c32b737c3bf9ca3e	pan13-layton13-2013-07-10-12-28-37.ova
62cb1be383ef706718c6cd232108ff70	pan13-lee13-2013-07-09-14-24-19.ova
6bc316228691e0b7bd4883257f3ce014	pan13-li13-2013-07-10-15-54-52.ova
72473fd2a8c9e0c91ac06a00f703fde0	pan13-loya13-2013-07-10-15-54-08.ova
7724a3063db682f91580bd006ec5a08a	pan13-mechti13-2013-07-10-12-13-16.ova
996296550816f0a15c397ae7760e536d	pan13-meina13-2013-07-09-14-41-44.ova
93dbd2602ecfcdcd5a71391abbc0584f6	pan13-moreau13-2013-07-10-12-12-39.ova
c6919e49c0dfa0614349b0baadb5e1e7	pan13-niculae13-2013-07-10-15-49-01.ova
c0b1a9dbfdb633a79b1a032df2a719e9	pan13-nourian13-2013-07-10-12-14-51.ova
d3d577696ccddb8bc3878aeebbac6cf3	pan13-oberreuter12-2013-07-10-16-19-31.ova
09134be4fa9584dcfdfd537028cd74c9	pan13-palkovskii12-2013-07-10-16-12-47.ova
cf5357cd4be0cd03f5fae3e5c7cd82d1	pan13-palkovskii13-2013-07-10-12-29-14.ova
63b854f4a387241c0cf426a102b16e7f	pan13-pastor13-2013-07-10-12-32-31.ova
bcc31aa46746bf757668b118ae70c2ac	pan13-patra13-2013-07-10-12-29-37.ova
9dca8f0f598a80ff515b66a44707f1e9	pan13-petmanson13-2013-07-10-12-30-04.ova
3cc397cfe300b356e36ad704a7dea9d0	pan13-prakash13-2013-07-10-16-00-59.ova
57f901b1c8146719f0ebf75f379d7740	pan13-ramirez13-2013-07-10-12-32-51.ova
4b8f72cbb41aa7fde4cee0461c8eb0f5	pan13-sanchesvega12-2013-07-10-16-19-54.ova
b2becf45e6ccf36118023839762631e4	pan13-santipong13-2013-07-10-15-34-01.ova
2b237d3d558bd6ca1f208939b8ee41c5	pan13-santosh13-2013-07-10-12-34-02.ova
5b1a012cc713f25c3527a8e720b9d6b1	pan13-seidman13-2013-07-10-12-34-29.ova
45b5049b78b163468cf9785421708e8f	pan13-sorin13-2013-07-10-12-47-10.ova
fb2d962d6c004b8d890bd447232499d1	pan13-stopar13-2013-07-10-15-12-11.ova
578e1fe021a737f0fa8a116ac051e482	pan13-suchomel13-2013-07-10-12-52-19.ova
ead22ee2444ff9dfb4a5755de0af9ff0	pan13-torrejon12-2013-07-10-16-20-12.ova
facfbf6a08abedd17be1e2ef58f07b7b	pan13-torrejon13-2013-07-10-14-07-59.ova
b9a1c20737d09d486cf32807b5c2c02a	pan13-vandam13-2013-07-10-12-47-52.ova
61bdbd99d6090bbe638838a79ee667a5	pan13-vladimir13-2013-07-10-14-08-20.ova
0816e8909284a6305f76c297d896000c	pan13-weren13-2013-07-10-14-08-49.ova
e2090f4e82cffd233c1bde382627c5d7	pan13-williams13-2013-07-10-14-10-03.ova
b0c10c33062ab7e3ad8d0c32543fe70d	pan13-yong13-2013-07-10-12-48-24.ova
3b24c82f6dab61bbacbf2ca61e0aff95	pan13-zhenshi13-2013-07-10-12-49-04.ova