ctys-uc-MeeGo(7) Setup MeeGo

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1 General

The current document shows the basic installation of MeeGo, which is basically a derivative of RedHat(TM) Linux variant.

The following environment is used here:

- Debian-5.0.6 with VirtualBox-3.2.10
- $\bullet~{\rm CentOS}{\mbox{-}5.4}$ with kvm-83 / Qemu-0.9.1
- MeeGo-1.0.0 The current description is based on the Netbook edition for ia32/i386 architecture. Download the image:

Netbooks/meego-netbook-ia32-1.0.0.20100524.1.img

Additionally download the packages as required. For the installation and execution of ctys at least the 'openssh-server' is required.

• UnifiedSessionsManager - ctys-01.11.011

2 Setup of Host-OS and Hypervisor

The installation for the following variants has to be performed by the appropriate standard setup of the HostOS, which quite straight forward:

- Debian with VirtualBox
- CentOS with QEMU/KVM

3 Setup of the UnifiedSessionsManager

3.1 Install tgz BASE-Package + DOC-Package on Debian

1. Apply the standard installation procedure:

ctys-distribute -F 2 -P UserHomeCopy root@tst137

2. Open a Remote Shell by call of CLI plugin:

ctys -t cli -a create=1:tst137 root@tst137

3. Check the plugins states by calling ctys-plugins:

ctys-plugins -T all -E

3.2 Install rpm BASE-Package + DOC-Package on CentOS

The following steps are required for a RPM based setup on CentOS. The installation is relocatable, but located at '/opt', and installed locally by ctys-distribute(1) .

1. Install BASE package.

```
rpm -i ctys-base-01.11.011.noarch.rpm
```

2. Now install a a local version, here by copy. The PATH prefix is important here, particularly in case of updates. The path is resolved to it's actual path by eliminating any symbolic link, and used for consistent link of libraries.

/opt/ctys-01.11.011/bin/ctys-distribute -F 2 -P UserHomeCopy

3. Next the menu is setup.

ctys-xdg --menu-create

4. Now the help is available as eihter a Gnome or KDE menu. Alternatively could be called from the commandline.

3.3 Setup of the Gnome Menue

The setup of the Gnome Menu is quite simple, the contained tool \mathbf{ctys} - $\mathbf{xdg}(1)$ sets up a standard menu by the call:

```
ctys-xdg --menu-create
```



Figure 1: Create Menue

The call

ctys-xdg --menu-cancel

removes the installed files. For current version no checks for changed files is done.

The menues could be edited and extended by the call

ctys-xdg --menu-edit

which opens the related directories for modification of '*.menu', '*.desktop', and '*.directory' files.

4 Creation of the the Raw-VM

4.1 Creation of the Raw-VM with QEMU/KVM

The demo example VM is here named tst139, this is the hostname of GuestOS too.

1. Login into the machine where VirtualBox is installed.

ssh -X lab02

2. Change to the vmpool and create a directory and change into.

mkdir tst139

3. Call the install and configuration utility for VMs. Here some values are set by environment variables, a complete list including the actually assigned values could be displayed by the option -levo.

```
ARCH=i386 \
DIST=MeeGo \
DISTREL=1.0.0 \
OS=Linux \
OSREL=2.6 \
ctys-createConfVM -t qemu --label=tst138
```

This call creates a virtual image(hda.img), the call-wrapper(tyt139.sh), and the configuration file(tst139.ctys). The files are created from templates by assigning configuration values either from pre-configured default values, or interactive variation.

4. Once the set of files is created the virtual machine is prepared for startup. For some other systems complete installation routines are available, e.g. debian and CentOS. The current state could be checked now by the following call.

./tst138.sh --console=vnc --vncaccessdisplay=47 --print --check

4.2 Creation of the Raw-VM with VirtualBox

The creation of the raw VM is first step to be executed at the host opprating system. This could be either performed locally or remote and requires the usage of the provided tools by VirtualBox(TM).

1. Login into the machine where VirtualBox is installed.

ssh -X lab02

2. Execute the VirtualBox(TM) console.

VirtualBox

3. Create the VM, the machine is called here 'tst137'. The OS is 'Linux', the version is 'Linux 2.6'.

ÿ	Neue virtuelle Maschine erstellen (auf lab02) X				
	VM-Name und BS-Typ				
Geben Sie einen Namen für die neue virtuelle Maschine ein und wählen Sie de des Gast-Betriebssystems, das Sie installieren wollen.					
Der Name der virtuellen Maschine gibt üblicherweise einen Anhaltspunkt über of Software und die Konfiguration der virtuellen Hardware. Er wird von allen Virtu. Produkten benutzt, um die VM eindeutig zu identifizieren.					
	N <u>a</u> me				
	tst137				
Typ des Gastbetriebssystems					
	Betriebssystem: Linux				
	Version: Linux 2.6				
	< Zurück Weiter > Abbrechen				

Figure 2: Create Virtual Machine

4. Set RAM to 512MByte.

\$ Neue virtuelle Maschine erstellen (auf lab02) X
Speicher Wählen Sie die Größe des Hauptspeichers (RAM) in Megabyte, die für die virtuelle Maschine verwendet werden soll. Die empfohlene Hauptspeichergröße beträgt 256 MB. Größe Hauptspeicher 512 MB 4 MB 8192 MB
 < <u>Z</u> urück <u>W</u> eiter > Abbrechen

Figure 3: Set virtual RAM

5. Create a virtual HDD, here 8GByte is choosen. When finished the raw VM is present and could be used as required, for basic functions of ctys no additional configuration is required.

Ŷ	Neue virtuelle Festplatte erstellen (auf lab02) X
	Lage und Größe der virtuellen Festplatte Klicken Sie auf Auswählen, um den Speicherort der Daten auf der Festplatte auszuwählen oder tippen Sie den Namen in das Eingabefeld. Ort //mntn/vmpool/vmpool05/vbox/test/tst-ctys/tst137/tst137.vdi Wählen Sie die Größe der virtuellen Festplatte in Megabyte. Diese Größe wird dem Gastsystem als Größe der virtuellen Festplatte übermittelt. Größe 4.00 MB 2.00 TB
	< <u>Z</u> urück <u>W</u> eiter > Abbrechen

Figure 4: Create Virtual HDD

6. When additional information should be stored coallocated to the VM and scanned automatically into a database, than the tool **ctys-createConfVM(1)** should be applied. This generates additional detailed information related to the specific VM and the inherent guest OS.



Figure 5: Check HDD image file

The call could be executed either interactive or automatic.

Call within the same directory for first inspection:

```
ctys-createConfVM -t vbox --label=tst137 --levo
```

This lists some defaults for the specific hypervisor. These could be preconfigured by specific template files within the configuration directory **ctys-createCOnfVM.d**. The result should look like the following:

```
Not all values require to be set, some will be requested later by
dialogue.
Thus it is not neccessary to have values assigned to the complete
displayed set.
Actually used sources for default values:
  no-marker = Pre-Set value, either from defaults configuration, or
               by commandline.
  no-value
             = Either requested by dialog later, or the defaults of
               the finally called
               application are used.
  (g)
             = Dynamically generated.
  (c)
             = Read from actual configuration file, e.g. vmx-file.
  (h)
             = Used from current host as default.
Applicable modifications:
  blue
             = By call option, defines dependency for others.
 green
             = By environment, 'could be set almost independent'
               from other values.
  cyan
             = By miscellaneous facilities, but is dependent from
               others.
               E.g. LABEL defines by convention the network
               'hostname', thus the TCP/IP params.
               This could ..., but should not be altered!
Most of the missing values will be fetched during actual execution
of this tool by dynamic evaluation.
```

VAR name:Initial Value C_SESSIONTYPE:VBOX LABEL:tst137 MAC: IP: BRIDGE:

```
DHCP:
                 NETMASK:
                     TCP:
                 GATEWAY:
                  EDITOR: acue
                    UUID:b1ff0d36-a552-41ce-be3c-4b3717c2e768 (c)
                    DIST:debian (h)
                 DISTREL:5.0.6 (h)
                      OS:Linux (h)
                   OSREL:2.6.26-2-amd64 (h)
                    ARCH:x86_64 (h)
             ACCELERATOR: HVM (c)
                     SMP:1 (c)
                 MEMSIZE:512 (c)
              KBD_LAYOUT:de
             STARTERCALL:/usr/bin/VirtualBox
         DEFAULTBOOTMODE: HDD
       DEFAULTINSTTARGET:/mntn/vmpool/vmpool05/vbox/test/tst-ctys...
                          .../tst137/tst137.vdi
  HDDBOOTIMAGE_INST_SIZE:8192M
                 VMSTATE: ACTIVE
Remember that his is a draft pre-display of current defaults.
```

No consistency-checks for provided values are performed at this stage. Some missing values are evaluated at a later stage dynamically.

The following call generates the appropriate configuration

DIST=MeeGo \ DISTREL=1.0.0 \ OS=Linux \ OSREL=2.6 \ MAC=00:50:56:13:11:65 \ IP=172.20.2.241 \ ARCH=i386 \ ctys-createConfVM --label=tst137 -t vbox \

The result displayed with $-\mathbf{levo}$ is:

Not all values require to be set, some will be requested later by dialogue. Thus it is not neccessary to have values assigned to the complete displayed set.

no-value	= Either requested by dialog later, or the defaults		
	of the finally called		
	application are used.		
(g)	= Dynamically generated.		
(c)	= Read from actual configuration file, e.g. vmx-file.		
(h)	= Used from current host as default.		

Applicable modifications:

blue	= By call option, defines dependency for others.
green	= By environment, 'could be set almost independent'
	from other values.
cyan	= By miscellaneous facilities, but is dependent
	from others.
	E.g. LABEL defines by convention the network
	'hostname', thus the TCP/IP params.
	This could, but should not be altered!

Most of the missing values will be fetched during actual execution of this tool by dynamic evaluation.

C_SESSIONTYPE:VBOX LABEL:tst137 MAC:00:50:56:13:11:65 IP:172.20.2.241 BRIDGE: DHCP: NETMASK: TCP: GATEWAY:

VAR name: Initial Value

EDITOR:acue

UUID:b1ff0d36-a552-41ce-be3c-4b3717c2e768 (c)

DIST:MeeGo DISTREL:1.0.0 OS:Linux OSREL:2.6

```
ARCH:i386
ACCELERATOR:HVM (c)
SMP:1 (c)
MEMSIZE:512 (c)
KBD_LAYOUT:de
```

STARTERCALL:/usr/bin/VirtualBox

DEFAULTBOOTMODE: HDD

DEFAULTINSTTARGET:/mntn/vmpool/vmpool05/vbox/test/tst-ctys/... ...tst137/tst137.vdi HDDB00TIMAGE_INST_SIZE:8192M

VMSTATE: ACTIVE

```
Remember that his is a draft pre-display of current defaults.
No consistency-checks for provided values are performed at this stage.
Some missing values are evaluated at a later stage dynamically.
```

When the call is finished the file 'tst137.ctys' with additional configuration information information is stored.

7. Add the install image as a bootable CD/DVD and set this as the boot device fir the VM:

Netbooks/meego-netbook-ia32-1.0.0.20100524.1.img

Manager für virtuelle Medien (auf lab02)	_ O X			
Aktionen				
Image: Neu Hinzufügen Image: Disketten abbilder Mark Entfernen Festplatten Image: Disketten abbilder				
Name	✓ Größe			
VBoyGuestAdditions iso	31 59 MB			
meego-netbook-ja32-1 0 0 20100524 1 img	800 00 MB			
	255.72 MB			
w2k-all.iso	496,46 MB			
~~ wzkp.isu	437,13			
Ort: /mntn/swpool/miscOS/MeeGo/raw/Netbooks/meego-netbook-ia32-1.0.0.20100 angeschlossen an: nicht angeschlossen				
Eilfe	<u>Фо</u> к			

Figure 6: Register CD/DVD Install Sources

🔅 tst137 - Ändern (auf lab02) 🛛 🗙			
ligemein	Massenspeicher		
Anzeige	Massenspeicher	Attribute	
Massenspercher Audio Netzwerk	IDE-Controller meego-netbook-ia32-1.0.0 SATA-Controller	<u>C</u> D/DVD-Laufwerk: meego-netb(•)	
 Serielle Schnittstellen USB 	skin contoner Stat137.vdi	<u>P</u> assthrough	
📋 Gemeinsame Ordner		Größe: 800,00 MB Ort: /mntn/swpool/miscO Angeschlossen an:	
		Angeseniossen an.	
	· · · · · · · · · · · · · · · · · · ·		
	Wählen Sie eine Kategorie aus der Lis Maus über eine Einstellung, um mehr	te auf der linken Seite und fahren Sie mit der Informationen zu erhalten.	
Hilfe		🔀 Abbrechen 🥒 🖉 OK	

Figure 7: Connect CD/DVD Install Sources

8. Set PAE for virtual CPU.

🔅 tst137 - Ändern (auf lab02) 🛛 🗙				
📃 Allgemein 🔝 System	System			
 Anzeige Massenspeicher Audio Netzwerk Serielle Schnittstellen USB Gemeinsame Ordner 	Hauptplatine Prozessor Beschleunigung Prozessoren: 1 1 I CPU 8 CPUs 1 Erweiterte Einstellungen: ✓ PAE/NX aktivieren 8 Aktiviert die Unterstützung für Physical Address Extension (PAE) für Gäste. Nur möglich, wenn die Host-CPU diesen Modus ebenfalls unterstützt. 1			
Hilfe	Abbrechen			

Figure 8: VirtualBox VCPU - PAE

5 Installation of the GuestOS - MeeGo

1. The start of the VMs of QEMU/KVM and VirtualBox vary slightly, even tough the following native procedures within the GuestOS are identical.

(a) Start QEMU/KVM

The start facilities of the plugin QEMU offer several options. Here the manual local start of the wrapper script is choosen. The first start of MeeGo is proceeded with the SDL console, this has some advantages for the later required 'quick-pressing' of the ESC key for the display of the boot menue. The option -instmode sets the bootdevice, here a preconfigured CD/DVD-image for boot.

```
./tst138.sh --console=sdl --print --instmode
```

An alternate call for the start of the remote installation is:

```
ctys -t qemu \
-a create=1:tst138,id:${TST138}/tst138.ctys,instmode,console:sdl\
app2
```

This starts the same by transforming to the target host 'app2' and calling the previous wrapper script.

(b) Start VirtualBox

The start of the VM could be proceeded either by calling VirtualBox, or by the VBOX plugin. But both require in current version the pre-configuration of the appropriate install procedure. Either by mounted install media like a CD/DVD-image, or by usage of PXE for networl based installation. The folloing call starts the VirtualBox console.

VirtualBox

The following call call for the starts the remote VM with a VirtualBox console:

```
ctys -t vbox \
-a create=1:tst137,id:${TST137}/tst138.ctys,console:vbox\
app2
```

2. Now boot the VM and choose 'Installation Only'.



Figure 9: Install Menue





Figure 10: MeeGo Screen

3. When the HARDDISK error is displayed just press init again. In this description the default is choosed.



Figure 11: HDD-Init

- 4. Once the installation is complete, unmount the CD/DVD image and reboot.
 - (a) QEMU/KVM

In order to reboot just shutdown and boot again without the 'instmode' option. The shutdown could be proceeded by the 'quit' command within the monitor. The **monitor mode** is entered e.g. by **Ctrl-Alt-2**. One possible call is:

```
ctys -t qemu \
   -a create=1:tst138,id:${PWD}/tst138.ctys,console:sdl \
   app2
```

(b) VirtualBox

Simply reboot without mounted install media. In case of a fresh start the call could look like:

```
ctys -t vbox \
  -a create=1:tst137,id:${PWD}/tst137.ctys,console:vbox \
  app2
```

The default console is here RDP.

5. Press ESC once immediately when the display mode first changes, the boot menue should now occur. If this fails just repeat it. Once the boot menue is visible press TAB and edit the boot parameters. Remove the keyword 'quiet' and append 'init 3'.

Now MeeGo should boot and the console login should occur. The default password for the root account is 'meego'.



Figure 12: MeeGo ASC-II Console

- Set in the inittab the default boot level to 3. Edit '/etc/resolv.conf' and set your nameserver.
- Edit '/boot/extlinux/extlinux.conf' and change:
 - Remove 'quiet'
 - Comment 'menu hidden'

– Comment 'menu auto...'

In level 3 install the patched library 'libglx.so' by replacing '/usr/lib/xorg/modules/extensions/libglx.so'. And change the mode to 'u+x,g+x,o+x'. Change mode for '/usr/bin/Xorg' to '+s'.

The required patch and/or library is available from 'http://202.112.3.1/libglx.so'.

REMARK: This is not the author's link, download is on your own responsibility. Anyhow, the personal test worked in a test-environment and seems to be OK.

6. Reboot and start twm by calling startx from the ASC-II console.

6	ts137 [wird ausgeführt] - Oracle VM VirtualBox (auf lab02)	_ O X
<u>M</u> aschine <u>G</u> eräte <u>H</u> ilfe		
Aschine Geräte Hilfe	ts137 [wird ausgeführt] - Oracle VM VirtualBox (auf lab02)	
		일 🕞 🖉 💣 🗐 🕼 🔇 🔊 Strg Rechts

Figure 13: MeeGo X11 twm

- 7. Call 'firstboot' from within an xterm, and set basic configurations, particularly your keyboard.
- 8. For VirtualBox only: Install the VBoxGuestAdditions and patch the /etc/init.d/vboxadd-service by extending

if [-f /etc/redhat-release]; then

 to

- if [-f /etc/redhat-release -o -f /etc/meego-release]; then
- 9. Reboot. Either set init level to 5, or call from command line 'init 5'.



Figure 14: Welcome MeeGo on VirtualBox



Figure 15: Welcome MeeGo on QEMU/KVM

Anyhow, for me the instalation currently does not work stable with the original 'moblin-dm'. VirtualBox installation works 'sometimes'(???), Qemu doesn't work at all. But the twm based X11 desktop works perfectly, so basically some drivers must be in place. So I am going to solve this later, and additionally installing than the SDK packages too.

The target for now is to show the integration, therefore the current state is fine.

6 Creation of the Inventory - cacheDB

In case of a common mounted NFS filesystem for the pool VMs for simplicity just change into the directory of the VM on any machine. Call for the first check ctys-vdbgen(1) with the -stdio option for display only.

ctys-vdbgen --append --base=\$PWD --stdio -- lab02

When the result is displyed correctly just call

ctys-vdbgen --append --base=\$PWD -- lab02

The following output should be displayed:

Prepare execution-call:

```
Require DB-PATH,
                     USE: DEFAULT_DBPATHLST="/homen/acue/.ctys/db/default"
Require DB-PATH,
                     USE: -o => "/homen/acue/.ctys/db/default"
APPEND mode
                      : ON(1)
                     : OFF(0)
STDIO mode off
Set TYPE scope
                    ADD: DEFAULT="-t ALL"
Set IIPE scopeADD: DEFAULI="-t ALL"Preload TYPE setADD: DEFAULT="-T ALL"
For splitted operations ADD: DEFAULT="-b sync,seq "
Nameservice cache OFF: DEFAULT="-c off "
Data cache
                     OFF: DEFAULT="-C off "
Resulting ENUMERATE
                     ADD: DEFAULT="-a enumerate=...
    ...matchvstat:active%disabled%empty,machine, \
   b:/mntn/vmpool/vmpool05/vbox/test/tst-ctys/tst137 \
   -C off -c off -T ALL
                         - 11
-> generate DB(may take a while)...
------
START:08:38:35
_ _ _ _ _ _
_ _ _ _ _ _ _
END:08:39:03
DURATION:00:00:28
RET=0
------
Cached data:
 Mode:
                        APPEND
 Pre-Appended:
                        834 records
  Appended:
                        1 records
 Fetched Records Raw:
                        records
 Fetched Records Unique: records
 Final:
                        835 records
   ------
   ...finished.
```

This shows that only one entry is appended to the existing database with 834 VM-Entries. Now check the database entry by calling:

ctys-vhost tst137

The following result should be displayed:

 label
 stype
 strol
 <td

7 Graphical Start of the Virtual Machine

Now call the menue item for start of the VM 'tst137'.



Figure 16: MeeGo Start Menue

The created cacheDB record for thr VM 'tst137' is now automatically visible in the list of startable virtual machines.

Count	Index	Label	▼ stype	Host	Console	User	Group	
0628	00630	tst136	PM	lab02.soho	VNC	root	root	
0629	00631	tstl36	PM	lab02.soho	VNC	tst	tst	
0630	00756	tst136	PM	lab04	VNC	root	root	
0631	00825	tst136	PM	olymp.soho	VNC	root	root	
632	00826	tst136	PM	olymp.soho	VNC	root	root	
633	00089	tst136	PM	appl.soho	VNC	acue	Idapusers	
634	00090	tst136	PM	appl.soho	VNC	root	root	
635	00091	tst136	PM	appl.soho	VNC	acue	Idapusers	
636	00092	tst136	PM	appl.soho	VNC	root	root	
638	00460	tst155	VMW	delphi.soho	VMWRC	acue	Idapusers	
639	00461	tst199	VMW	delphi.soho	VMWRC	acue	Idapusers	
640	00462	tst200	VMW	delphi.soho	VMWRC	acue	Idapusers	
641	00463	tst201	VMW	delphi.soho	VMWRC	acue	Idapusers	
0642	00115	tst202	QEMU	appl.soho	VNC	acue	Idapusers	
0643	00116	tst202	QEMU	appl.soho	VNC	root	root	
1644	00204	+++>0>	OEMU	onn2 coho	VAIC	2010	Idopusore	

Figure 17: MeeGo VM Selection

Confirm the selected entry.

ctys - Selection	×
Execute or modify:	
ctys -t VBOX -a create=dbrec:724,reuse,CONSOLE:RDP -Y -c local	l acue@lab02
	Abbrechen 40K

Figure 18: MeeGo Call Confirmation

8 Manage the VM

8.1 Prepare MeeGo

- 1. Set yum repository in '/etc/yum.repo.d/'
- 2. Install the following additional Packages:
 - (a) openssh-server
 - (b) make
 - $(c) \ gcc$
 - $(d) \ kernel-devel$
 - $(e) \ kernel-netbook-devel$

8.2 Install UnifiedSessionsManager in GuestOS - MeeGo

Apply standard procedure:

ctys-distribute -F 2 -P UserHomeCopy root@tst137

8.3 Open a Remote Shell

Call CLI plugin:

ctys -t cli -a create=1:tst137 root@tst137

8.4 Check Plugins States

Call ctys-plugins:

ctys-plugins -T all -E

8.5 Open a Remote X11-Terminal

 $\mathrm{ffs.}$

8.6 Open a Remote VNC-Desktop

ffs.

9 SEE ALSO

ctys(1), ctys-CLI(1), ctys-configuration-VBOX(7), ctys-createConfVM(1), ctys-distribute(1), ctys-groups(1), ctys-macros(1), ctys-plugins(1), ctys-vBOX(7), ctys-vdbgen(1), ctys-vhost(1), ctys-VNC(1), ctys-X11(1) **For System Tools:** MeeGo(TM): [http://meego.com]

10 AUTHOR

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Homepage:	<http://www.UnifiedSessionsManager.org>
Sourceforge.net:	<http://sourceforge.net/projects/ctys>
Berlios.de:	<http://ctys.berlios.de>
Commercial:	<http://www.i4p.com>



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