ctys-uc-Android(7) Setup of Android on Qemu/KVM and VirtualBox

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Contents

1	General	2
2	Setup of Host-OS and Hypervisor	2
3	Setup of the UnifiedSessionsManager 3.1 Install tgz BASE-Package + DOC-Package on Debian 3.2 Install rpm BASE-Package + DOC-Package on CentOS 3.3 Setup of the Gnome Menu	2 2 3 3
4	Creation and Installation 4.1 Creation and Installation on QEMU/KVM 4.2 Creation and Installation on VirtualBox	$\begin{array}{c} 4 \\ 4 \\ 12 \end{array}$
5	Creation of the Inventory - cacheDB	20
6	Graphical Start of the Virtual Machine6.1Graphical Start of the Virtual Machine by QEMU/KVM6.2Graphical Start of the Virtual Machine by VBOX	22 23 25
7	Manage the VM	28
8	SEE ALSO	29
9	AUTHOR	29
10	COPYRIGHT	29

List of Figures

1	Create Menu	3
2	Install Menu on QEMU/KVM	8
3	Install Menu on QEMU/KVM	9
4	Deactivate screensaver - 01	9
5	Deactivate screensaver - 02	10
6	Deactivate screensaver - 03	10
7	Deactivate screensaver - 04	11
8	Android on QEMU/KVM	11
9	Create Virtual Machine	12
10	Set virtual RAM	13
11	Create Virtual HDD	13
12	Check HDD image file	14
13	Network device	14

14	Audio device	15
15	Install media	17
16	Install menue	18
17	Format vHDD	18
18	Android	19
19	Android ASC-II Console	19
20	Android Start Menu	23
21	Android VM Selection	24
22	Android Call Confirmation	24
23	Boot Android	25
24	Enjoy Android	25
25	Android Start Menu	26
26	Android VM Selection	26
27	Android Call Confirmation	27
28	Boot Android	27
29	Enjoy Android	28

1 General

The current document shows the basic installation of Android, which is a Linux variant.

The following environment is used here:

- Debian-5.0.6 with VirtualBox-3.2.10
- $\bullet~{\rm CentOS}{\text{-}5.4}$ with kvm-83 / Qemu-0.9.1
- eeeDroid-1.6 The current description is based on the edition for i386 architecture. Download the image:

androidx86/eeeDroid_2008-12-20_1843Z.img

• 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 and , which quite straight forward:

- Debian with VirtualBox Install the download version instead of the OSE edition shipped with the distribution.
- CentOS with QEMU/KVM Here the standard distribution is installed. Additional packages are vde2-2.2.3 and Qemu-0.12.2, which are build and installed to '/opt'. The vde2-2.2.3 package for network encapsulation requires a symbolic link

ln -s /opt/vde2-2.2.3 /opt/vde

The wrapper vde may not be required, when the Qemu support option is compiled in, but this is not yet widely the case. Thus vde2 is still utilized as standard.

3 Setup of the UnifiedSessionsManager

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

1. Unpack the tar-gzip-archive and apply the standard installation procedure, where the call has to be executed by typing the fully qualified absolute path when ambiguity could occur. This is due to automatic usage of consistent libraries for the install procedure.

ctys-distribute -F 2 -P UserHomeCopy root@lab02

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

ctys -t cli -a create=1:tst137 root@tlab02

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. 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 Menu

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 Menu

The setup could be targeted either for private menus or shared menus. Both setups are based on a menu template, which is stored in the configuration subdirectory 'xdg.d'. 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 and Installation

4.1 Creation and Installation on QEMU/KVM

The demo example VM is here named tst141, this is the hostname of GuestOS too.

1. Login into the machine where QEMU/KVM is installed.

ssh -X ap2

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

mkdir tst141

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=Android \
DISTREL=1.6-r2 \
OS=Linux \
OSREL=2.6 \
ctys-createConfVM -t qemu --label=tst141
```

This call creates a virtual image(hda.img), the call-wrapper(tst140.sh), and the configuration file(tst140.ctys). The files are created from templates by assigning configuration values either from pre-configured default values, or interactive variation.

The resulting parameters are:

```
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.
  (c)
             = Read from actual configuration file, e.g. vmx-file.
  (d)
             = Read from database.
  (g)
             = Dynamically generated.
  (h)
             = Used from current host as default.
  (m)
             = Received from mapping definitions.
Applicable modifications:
             = By call option, defines dependency for others.
  blue
             = By environment, 'could be set almost independent'
  green
```

```
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:QEMU
                       LABEL:tst141
                         MAC:00:50:56:13:11:69 (m)
                          IP:172.20.2.245 (m)
                      BRIDGE:
                        DHCP:
                     NETMASK:
                         TCP:
                     GATEWAY:
                      EDITOR: acue
                        UUID:ff81f9d8-ba06-4c90-a801-484ad4841b50 (h)
                        DIST:Android
                     DISTREL:1.6-r2
                          OS:Linux
                       OSREL:2.6
                        ARCH:i386
                 ACCELERATOR: KVM (h)
                         SMP:
                     MEMSIZE:512
                  KBD LAYOUT:de
                 STARTERCALL:/usr/libexec/qemu-kvm
                 WRAPPERCALL:tst141.sh
             DEFAULTBOOTMODE: HDD
           DEFAULTINSTTARGET:/mntn/vmpool/vmpool05/kvm/test/tst-ctys/...
                             ...tst141/hda.img
      HDDBOOTIMAGE_INST_SIZE:8G
HDDBOOTIMAGE_INST_BLOCKSIZE:256M
HDDBOOTIMAGE_INST_BLOCKCOUNT:32
   HDDBOOTIMAGE_INST_BALLOON: y
             DEFAULTINSTMODE:CD
                INSTSRCCDROM:/mntn/swpool/UNIXDist/../miscOS/Android/raw/...
                              ...android-x86/android-x86-1.6-r2.iso
           DEFAULTINSTSOURCE:/mntn/swpool/UNIXDist/../miscOS/Android/...
                              ...raw/android-x86/android-x86-1.6-r2.iso
                 INST_KERNEL:
                 INST_INITRD:
                     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. An alternate call for the installation is the remote execution:

```
ctys -t qemu \
-a create=1:tst140,id:${TST140}/tst140.ctys,instmode,console:sdl\
app2
```

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

The resulting files in both cases are:

- tst141.ctys
- tst141.sh
- hda.img
- 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.

./tst141.sh --console=vnc --vncaccessdisplay=47 --print --check

This shows the current resulting call:

```
#Display call
                        #
QEMU_VERSION
                 = "qemu-0.9.1-kvm-83-maint-snapshot-20090205"
                 = "QEMU_091"
QEMU_MAGIC
QEMU_ACCELERATOR = "KVM"
                    = "tst141.sh"
ctys-uc-AndroidNAME
              +->STARTERCALL
                             = /usr/libexec/qemu-kvm
              +->REALSTARTERCALL = /usr/libexec/qemu-kvm
#The resulting call is:
                        #
--->
eval "/opt/vde/bin/vdeq /usr/libexec/qemu-kvm
 -net nic,macaddr=00:50:56:13:11:69,model=rt18139 \
 -net vde, sock=/var/tmp/vde_switch0.acue \
 -name "tst141" -vga cirrus -localtime -k de -m 512 -cpu qemu32 \
 -serial mon:unix:/var/tmp/qemumon.tst141.21844.acue,server,nowait \
 -daemonize -vnc :47 \setminus
 -boot c /mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141/hda.img"
<---
EXECALL:/opt/vde/bin/vdeq /usr/libexec/qemu-kvm
 -net nic,macaddr=00:50:56:13:11:69,model=rt18139
 -net vde, sock=/var/tmp/vde_switch0.acue
 -name "tst141"
 -vga cirrus
 -localtime
 -k de
 -m 512
 -cpu qemu32
```

```
-serial mon:unix:/var/tmp/qemumon.tst141.21844.acue,server,nowait
-daemonize
-vnc :47
-boot c
/mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141/hda.img
```

The installation is slightly different due to boot from install media.

```
./tst141.sh --console=vnc --vncaccessdisplay=47 --print --instmode --check
#Display call
= "qemu-0.9.1-kvm-83-maint-snapshot-20090205"
QEMU_VERSION
                 = "QEMU 091"
QEMU_MAGIC
QEMU_ACCELERATOR = "KVM"
ctys-uc-AndroidNAME = "tst141.sh"
              +->STARTERCALL
                               = /usr/libexec/qemu-kvm
              +->REALSTARTERCALL = /usr/libexec/qemu-kvm
#The resulting call is:
                         #
--->
eval "/opt/vde/bin/vdeq /usr/libexec/qemu-kvm \
 -net nic,macaddr=00:50:56:13:11:69,model=rt18139 \
-net vde, sock=/var/tmp/vde_switch0.acue \
-name "tst141" -vga cirrus -localtime -k de -m 512 -cpu qemu32 \
 -serial mon:unix:/var/tmp/qemumon.tst141.23708.acue,server,nowait \
 -daemonize -vnc :47 -boot d \setminus
-cdrom /mntn/swpool/UNIXDist/../miscOS/Android/raw/...
       ...android-x86/android-x86-1.6-r2.iso \
 -hda /mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141/hda.img "
<---
EXECALL:/opt/vde/bin/vdeq /usr/libexec/qemu-kvm
 -net nic,macaddr=00:50:56:13:11:69,model=rt18139
 -net vde, sock=/var/tmp/vde_switch0.acue
 -name "tst141"
 -vga cirrus
 -localtime
 -k de
 -m 512
 -cpu qemu32
 -serial mon:unix:/var/tmp/qemumon.tst141.23708.acue,server,nowait
 -daemonize
 -vnc :47
 -boot d
 -cdrom /mntn/swpool/UNIXDist/../miscOS/Android/raw/...
         ...android-x86/android-x86-1.6-r2.iso
 -hda /mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141/hda.img
```

The actual call starts the VM and displays the following screen.

	VNC: QEMU (tst141) (auf app2.soho)	
	Android-x86 Live & Installation CD 1.6-r2	
	Live CD - Kun Android-x86 without installation Live CD - UESA mode Live CD - Lebug mode Installation - Install Android-x86 to harddisk	
	Press [Tab] to edit options	
		<u>ب</u>
android-s	86.org c	00 <mark>x86</mark> כוסדכ∩ו

Figure 2: Install Menu on QEMU/KVM

The install procedure just installs here a life system on disk, thus proceeds quite fast. After the installation unmount the install media and boot into Android.

5. 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 boot call for SDL console is:

```
ctys -t qemu \
    -a create=l:tst141,id:${PWD}/tst141.ctys,console:sdl \
    app2
```

The next starts with VNC console, which is default:

```
ctys -t qemu \
    -a create=1:tst141,id:${PWD}/tst141.ctys,console:vnc \
    app2
```



Figure 3: Install Menu on $\rm QEMU/\rm KVM$

When standard options are used the VM crashes when the screensaver is activated. Two workarounds are possible, first deactivating ACPI, second deactivating the screensaver. Here both are applied.

The following deactivates the screensaver - here called 'Screen timeout'. The menu order is:

Settings -> Sound&display -> Screen timeout -> Never timeout

		VNC: QEMU (t	st141) (auf app2.sof	10)	_ _ X
a second stars.					👬 🍙 1:53 PM
Go		*	2	37	.
	Alarm Clock	App Store	Browser	Calendar	Camcorder
	6		1	*	7
(Camera	ConnectBot	Contacts	Dev Tools	Dialer
•	Email	Gallery	Global Time	ying for the second sec	LIME
	<u>.</u>		\$		1
	Lunar Lander	Messaging	Music	Note pad	OI File Manager
Mess			7		!
	RockOn	RSS Reader	Settings	Snake on a Phone	Spare Parts
8					
O	Videos				

Figure 4: Deactivate screensaver - 01

VNC: QEMU (tst141) (auf app2.soho)	_ 🗆 X
		👬 🍙 1:23 PM
Settings		
Wireless controls Manage WI-Fi, Bluetooth, airplane mode, mobile networks, & VPNs		\odot
Ethernet Configuration Configure Ethernet devices		\odot
Proxy settings Configure a proxy to access Internet		\odot
Call settings Set up volcemail, call forwarding, call waiting, caller ID		\odot
Sound & display Set ringtones, notifications, screen brightness		O
Security & location Set My Location, screen unlock, SIM card lock, credential storage lock		\odot
Applications Manage applications, set up quick launch shortcuts	×	۲
SD card & phone storage Unmount SD card, view available storage		۲
Date & time		

Figure 5: Deactivate screens aver - 02

VNC: QEMU (tst141) (auf app2.soho)	
	👬 🥽 1:44 PM
Sound & display	
Notification ringtone Set your default notification ringtone	
Audible touch tones Play tones when using dial pad	~
Audible selection Play sound when making screen selection	
SD card notifications	
Display settings	
Orientation Switch orientation automatically when rotating phone	
Animation Show animation when opening & closing windows	~
Brightness Adjust the brightness of the screen	
Screen timeout Adjust the delay before the screen automatically turns off	

Figure 6: Deactivate screens aver - 03

-	VNC; QEMU (tst141) (auf app2.soho)	🔲 🗔 🛛 🗙
Sound & display		
Screen t	imeout	
15 seconds		\bigcirc
30 seconds	ĸ	0
1 minute	, ,	0
2 minutes		0
10 minutes		\bigcirc
Never timed	put	•
idjust the brightnes	Cancel	
Adjust the delay befo	ore the screen automatically turns off	

Figure 7: Deactivate screens aver - 04

For stable operations the following variation of predefined settings are applied maunally within the file 'tst141.ctys':

- Activate: NIC=\$NIC:-pcnet
- Add: ARGSADD=" -no-acpi ";
- Eventually activate: VGADRIVER="-vga std"



Figure 8: Android on QEMU/KVM

4.2 Creation and Installation on VirtualBox

The creation of the raw VM is the first step to be executed at the host operating 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 'tst140'. The OS is 'Linux', the version is 'Linux 2.6'.

Ŷ	Neue virtuelle Maschine erstellen (auf lab02) 🛛 🗙
	VM-Name und BS-Typ
	Geben Sie einen Namen für die neue virtuelle Maschine ein und wählen Sie den Typ des Gast-Betriebssystems, das Sie installieren wollen.
	Der Name der virtuellen Maschine gibt üblicherweise einen Anhaltspunkt über die Software und die Konfiguration der virtuellen Hardware. Er wird von allen VirtualBox- Produkten benutzt, um die VM eindeutig zu identifizieren.
	Name
	tst140
	⊡⁄p des Gastbetriebssystems
	Betriebssystem: Linux
	Version: Linux 2.6
	< <u>Z</u> urück <u>W</u> eiter > Abbrechen

Figure 9: Create Virtual Machine

4. Set RAM to 512MByte.

Ŷ	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 <u>H</u> auptspeicher	
	512 MB	
	4 MB 8192 MB	
	< <u>Z</u> urück <u>W</u> eiter > Abbreche	n

Figure 10: 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 Maschine erstellen (auf lab02) X
	Wählen Sie ein Abbild einer Festplatte, die als Bootplatte der virtuellen Maschine dienen soll. Sie können entweder eine neue Festplatte durch Klicken auf Neu erstellen oder ein existierendes Abbild durch Klicken auf Existierend auswählen (durch Aufruf des Managers virtueller Platten). Falls die virtuelle Platte zusätzliche Parameter benötigt, kann dieser Schritt auch übersprungen werden und ein Abbild später über den VM-Einstellungs-Dialog
2	angeschlossen werden. Die empfohlene Größe der Bootplatte beträgt 8192 MB.
	Festplatte erzeugen
	○ Festplatte benutzen tstl.vdi (Normal, 10,00 GB)
	< <u>Z</u> urück Abbrechen Abbrechen

Figure 11: Create Virtual HDD



Figure 12: Check HDD image file

6. The network device should be set to 'PCnet-Fast III' with DHCP, either NAT or bridged.

۹	tst140 - Ändern (auf lab02)	×
📃 Allgemein	Netzwerk	
Anzeige	Adapter <u>1</u> Adapter <u>2</u> Adapter <u>3</u> Adapter <u>4</u>	
Massenspeicher Heisenspeicher Heisenspeicher	Netzwerkadapter <u>aktivieren</u>	
Netzwerk		
Serielle Schnittstellen	Name: eth0	÷
Ø USB		
Gemeinsame Ordner	Adaptertyp: PCnet-FAST III (Am79C973)	•
	Mac-Adresse: 080027A4510B	3
	✓ Kabel verbunden	
	Aktiviert den virtuellen Netzwerkadapter für die virtuelle Maschine.	
Hilfe	🔀 Abbrechen	ĸ

Figure 13: Network device

7. The audio card has to be set to 'Sound Blaster 16'.

٨	tst140 - Ändern (auf lab02) 🛛 🛛 🗙
Allgemein System Anzeige Massenspeicher Audio Netzwerk Serielle Schnittstellen USB Gemeinsame Ordner	tst140 - Ändern (auf lab02) X Audio ✓ Audio aktivieren Audio-Treiber des Hosts: Audio-Treiber 💠 Audio-Controller: SoundBlaster 16
Hilfe	Wählt den Typ der virtuellen Soundkarte. Ausgehend von dieser Einstellung emuliert VirtualBox unterschiedliche Audiokarten.

Figure 14: Audio device

8. 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. The call could be executed either interactive or automatic.

Call within the same directory for first inspection:

```
ARCH=i386 \
DIST=Android \
DISTREL=1.6-r2 \
OS=Linux OSREL=2.6 \
ctys-createConfVM -t vbox --label=tst140 --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 use	ed 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.
(c)	= Read from actual configuration file, e.g. vmx-file.
(d)	= Read from database.
(g)	= Dynamically generated.
(h)	= Used from current host as default.
(m)	= Received from mapping definitions.

Applicable modifications: blue = By call option, defines dependency for others. = By environment, 'could be set almost independent' green from other values. = By miscellaneous facilities, but is dependent from cyan 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:tst140 MAC:08:00:27:A4:51:0B (c) TP: BRIDGE: DHCP: NETMASK: TCP: GATEWAY: EDITOR:root UUID:97d5a071-1914-477c-89c4-d47dd7adac74 (c) DIST:Android DISTREL:1.6-r2 OS:Linux OSREL:2.6 ARCH:i386 ACCELERATOR: HVM (c) SMP:1 (c) MEMSIZE:768 (c) KBD_LAYOUT:de STARTERCALL:/usr/bin/VirtualBox DEFAULTBOOTMODE: HDD DEFAULTINSTTARGET:/mntn/vmpool/vmpool05/vbox/test/... ...tst-ctys/tst140/tst140.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. When the call is finished without the '-levo' option the file 'tst140.ctys' with additional configuration information information is stored.

9. The start of the VM could be proceeded either by calling VirtualBox, or by the VBOX plugin. Both require in current version the pre-configuration of the appropriate install procedure e.g. by attaching the install media. Here the boot image 'android-x86-1.6-r2.iso' is required.



Figure 15: Install media

The following call starts the VirtualBox console.

VirtualBox

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

```
ctys -t vbox \
-a create=1:tst140,id:${TST140}/tst140.ctys,console:vbox\
app2
```

10. Now boot the VM and choose 'Installation Only' to start the installation.

tst140 [wird ausgeführt] - Oracle VM VirtualBox (auf lab02)	_ O X
äte <u>H</u> ilfe	
Android-x86 Live & Installation CD 1.6-r2	
Live CD - Run Android-x86 without installation Live CD - UESA mode Live CD - Bebug mode Installation - Install Android-x86 to harddisk	
Press [Tab] to edit options	
86.og	
	Status (subscription of the status of the s

Figure 16: Install menue

11. HDD partitioning.

<u>(</u>		tst14) [wird a	usgeführt] - Oracle	e VM Vir	tualBo	ox (auf la	ab02	2)			_ 🗆 X
<u>M</u> aschine	<u>G</u> eräte	<u>H</u> ilfe					0.44						
			C	fdisk (u	t11-11	nux-ng	Z.14	.1)					
		Heads:	Si: 255	Disk ze: 8589 Sectors	: Drive 1934592 : per Ti	∶⁄dev. bytes rack∶∣	∕sda , 858 63	9 MB Cylind	ers	: 1	044		
Nam	e	Flag	s	Part Ty	pe FS	Туре		[L	abe	11		Size	(MB)
sda	1	Boot		Primar	y Lin	nux						858	7.20
[Bootab	le l	Dele	te][Hel	p]	[Ma	ximize	1	Ε	Print	1	
[Quit] [Тур	e] [Units	s]	[W	rite]				
		Tog	gle bo	otable f	lag of	the c	urren	t part	iti	on_			
							(2 💽 🖉	9	i (0 🕜 🖸	Strg Re	chts

Figure 17: Format vHDD

12. After the installation unmount the install media and boot into Android. In case of a first start the call could look like:

```
ctys -t vbox \
    -a create=l:tst140,id:${PWD}/tst140.ctys,console:vbox \
```

app2

The default console is here RDP.



Figure 18: Android

Change into console with ${\bf Alt}{\bf -F1},\,{\bf Alt}{\bf -F7}$ returns to graphical display.



Figure 19: Android ASC-II Console

5 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-vdbgenVM(1) with the -stdio option for display only.

```
cd /mntn/vmpool/vmpool05/vbox/test/tst-ctys/tst140
ctys-vdbgen --append --base=$PWD --stdio -- root@lab02
cd /mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141
ctys-vdbgen --append --base=$PWD --stdio -- app2
```

When the result is displyed correctly just call without the '-stdio' option.

```
cd /mntn/vmpool/vmpool05/vbox/test/tst-ctys/tst140
ctys-vdbgen --append --base=$PWD -- root@lab02
```

The following output should be displayed:

```
Prepare execution-call:
```

Pre-Appended:

```
Require DB-PATH,USE: DEFAULT_DBPATHLST="/homen/acue/.ctys/db/default"Require DB-PATH,USE: -o => "/homen/acue/.ctws/db/default"
                     : ON(1)
APPEND mode
STDIO mode off
                        : OFF(0)
                     ADD: DEFAULT="-t ALL"
Set TYPE scope
Preload TYPE set
                     ADD: 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/tst140 -C off -c off -T ALL "
-> generate DB(may take a while)...
   START:14:55:11
_ _ _ _ _ _
____
END:14:55:38
DURATION:00:00:27
-----
BET=0
_____
Cached data:
  Mode:
                         APPEND
```

835 records

Appended:

Fetched Records Raw: records Fetched Records Unique: records Final: 836 records -----...finished. The QEMU/KVM scan by: cd /mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141 ctys-vdbgen --append --base=\$PWD -- app2 Should display: Prepare execution-call: Require DB-PATH,USE: DEFAULT_DBPATHLST="/homen/acue/.ctys/db/default"Require DB-PATH,USE: -o => "/homen/acue/.ctys/db/default"ADDEND modeON(1) : ON(1) : OFF(0) APPEND mode STDIO mode off SIDIO mode OII: UFF(U)Set TYPE scopeADD: DEFAULT="-t ALL"Preload TYPE setADD: DEFAULT="-T ALL" For splitted operations ADD: DEFAULT="-b sync,seq " Nameservice cache OFF: DEFAULT="-c off " OFF: DEFAULT="-C off " Data cache Resulting ENUMERATE ADD: DEFAULT="-a enumerate=matchvstat:active%... ...disabled%empty,machine,b:/mntn/vmpool/vmpool05/kvm/test/tst-ctys/tst141 -C off -c off -T ALL -> generate DB(may take a while)... START: 14:55:40 _____ _____ END:14:56:29 DURATION:00:00:49 ------RET=0 -----Cached data: Mode: APPEND Pre-Appended: 836 records 1 records Appended: Fetched Records Raw: records Fetched Records Unique: records Final: 837 records

1 records

 \dots finished.

This shows that only two(1+1) entries are appended to the existing database with 835 VM-Entries. Now check the database entry by calling:

ctys-vhost tst14

The following result should be displayed when the regular expression 'tst14.*' matches only twice:

label	stype	accel	distro	distrorel	os	osrel	PM	if TCP
tst141	+ QEMU	+	+ Android	+ 1.6-r2	+` Linux	+· 2.6	app2.soho	0 172.20.2.245
tst140	VBOX	HVM		l	Linux26		lab02	

6 Graphical Start of the Virtual Machine

This chapter demostrates the seamless integration of the hypevisors QEMU(emulation), QEMU/KVM, and VirtualBox(TM). The fully automatic generated database is synchronous with the graphical starter and offers the same and one user interface. This is the case for all supported plugins, due to missing native plugins for Android the LOGIN could not be demostrated for this special case.

Now call the menue item for start of the VM 'tst141'.



Figure 20: Android Start Menu

The created cache DB record for thr VM 'tst140' is now automatically visible in the list of startable virtual machines.

Count	Index	Label 🔻	stype	Host	Console	User	Group	
0628	00631	tst136	РМ	lab02.soho	VNC	root	root	
629	00632	tst136	PM	lab02.soho	VNC	tst	tst	
630	00758	tst136	РМ	lab04	VNC	root	root	
631	00827	tst136	PM	olymp.soho	VNC	root	root	
632	00828	tst136	PM	olymp.soho	VNC	root	root	
633	00089	tst136	PM	appl.soho	VNC	acue	Idapusers	
634	00090	tst136	РМ	appl.soho	VNC	root	root	
635	00091	tst136	PM	appl.soho	VNC	acue	Idapusers	
636	00092	tst136	PM	appl.soho	VNC	root	root	
637	00725	tst137	VBOX	lab02	RDP	acue	Idapusers	
638	00726	tst140	VBOX	lab02	RDP	root	root	
639	00284	tst141	QEMU	app2.soho	VNC	acue	Idapusers	
640	00461	tst155	VMW	delphi.soho	VMWRC	acue	Idapusers	
641	00462	tst199	VMW	delphi.soho	VMWRC	acue	Idapusers	
642	00463	tst200	VMW	delphi.soho	VMWRC	acue	Idapusers	
643	00464	tst201	VMW	delphi.soho	VMWRC	acue	Idapusers	
~ ~ ~	00115	+-+	OFMU		1.410		lala mina a na	

Figure 21: Android VM Selection

Confirm the selected entry.

ctys - Selection	×
Execute or modify:	
ctys -t QEMU -a create=dbrec:284,reuse,CONSOLE:VNC -Y -c local acue@app2.soho	
<u>⊗</u> <u>A</u> bbrechen <u></u>	

Figure 22: Android Call Confirmation

 $\operatorname{Boot}\nolimits \ldots$



Figure 23: Boot Android

...and enjoy Android.



Figure 24: Enjoy Android

6.2 Graphical Start of the Virtual Machine by VBOX

Now call the menue item for start of the VM 'tst140'.



Figure 25: Android Start Menu

The created cache DB record for thr VM 'tst140' is now automatically visible in the list of startable virtual machines.

			ctys	- CREATE - AL	.L			>
Wählen S	Sie Objekte	aus der Liste.						
Count	Index	Label	stype	Host	Console	User	Group	
0631	00827	tst136	PM	olymp.soho	VNC	root	root	
0632	00828	tst136	PM	olymp.soho	VNC	root	root	
0633	00089	tst136	PM	appl.soho	VNC	acue	Idapusers	
0634	00090	tst136	PM	appl.soho	VNC	root	root	
0635	00091	tst136	PM	appl.soho	VNC	acue	Idapusers	
0636	00092	tst136	PM	appl.soho	VNC	root	root	
0637	00725	tst137	VBOX	lab02	RDP	acue	Idapusers	
0638	00726	tst140	VBOX	lab02	RDP	root	root	
0639	00284	tst141	QEMU	app2.soho	VNC	acue	Idapusers	
0640	00461	tst155	VMW	delphi.soho	VMWRC	acue	Idapusers	
0641	00462	tst199	VMW	delphi.soho	VMWRC	acue	Idapusers	
0642	00463	tst200	VMW	delphi.soho	VMWRC	acue	Idapusers	
0643	00464	tst201	VMW	delphi.soho	VMWRC	acue	Idapusers	8
0644	00115	tst202	QEMU	appl.soho	VNC	acue	Idapusers	
0645	00116	tst202	QEMU	appl.soho	VNC	root	root	
0646	00285	tst202	QEMU	app2.soho	VNC	acue	Idapusers	
0647	00465	tst203	VMW	delphi.soho	VMWRC	acue	Idapusers	•
						<u>(</u> Abb	rechen 🥏 🖉 🖉	(

Figure 26: Android VM Selection

Confirm the selected entry.



Figure 27: Android Call Confirmation

Boot \dots



Figure 28: Boot Android

...and enjoy Android.



Figure 29: Enjoy Android

7 Manage the VM

For now no native plugin for Android is supported.

8 SEE ALSO

ctys(1), ctys-configuration-QEMU(7), ctys-configuration-VBOX(7), ctys-createConfVM(1), ctys-QEMU(1), ctys-uc-QEMU(7), ctys-uc-VBOX(7), ctys-VBOX(1), ctys-vhost(1) For System Tools: Android: [http://www.android.com] Android-x86: [http://www.android-x86.org]

9 AUTHOR

Maintenance:	$<$ acue_sf1@sourceforge.net $>$
Homepage:	<http://www.UnifiedSessionsManager.org>
Sourceforge.net:	<http://sourceforge.net/projects/ctys>
Berlios.de:	<http://ctys.berlios.de>
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