ctys-cloning-vms(7)

Cloning of VMs

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1 General

This document describes the automated change and configuration mainly provided by **ctys-createConfVM**. **ctys-cloneVM** is used for the creation of cloned VMs.

2 Preparations

The first step is the creation of a source VM. Which could be automated by **ctys-createConfVM**. This tool is used for **ctys-cloneVM** too in order to set new unique values for a cloned VM. Specific attributes such as the activation/deactivation for the inventory scanning by '#*#MAGICID-IGNORE' could be set by **ctys-attribute** .

Once this step is completed, any VM could be used as a template for the creation of additinal VMs. Therefore the virtual disk and the machine configuration data are seperated, thus the majority of the number of the machine parameters could be altered by either using configuration utilities or by an ordinary ASC-II editor.

3 Receipts

3.1 Supported features

The configuration could be proceeded in two basic variants:

1. QEMU/KVM, Xen
   The complete duplication and configuration could be proceeded by the utility **ctys-createConfVM**. The GuestOS has to be setup by common procedures in a second step.

2. VBOX, VMW
   The VM has to be setup by the native OEM tools and could be registered for ctys by post creation of configuration files and collecting these into the registry. The GuestOS has to be setup by common procedures in a second step.

3.2 Template Creation

The required template for the automated cloning could be any present VM. Thus an initial VM has to be present for the apllication of **ctys-cloneVM** . The creation of the initial VM is described in detail within the hypervisor specific subsections.

1. **Create a Template-VM**
   The following call could be used either for the complete creation of a template VM with the option –**create-image** or for creation of the inventory data only by usage of the option –**create-image**.

   The following call creates a dummy VM with a small dummy-image in case of Xen.

```
MAC=00:11:22:33:44:55 \
IP=12.12.12.12 \
TCP=gecko \
HDDBOOTIMAGE_INST_SIZE=128M \
HDDBOOTIMAGE_INST_BLOCKSIZE=32M \
HDDBOOTIMAGE_INST_BLOCKCOUNT=4 \
ctys-createConfVM \
  -t XEN \
  --label=tst02 \
  --auto-all \
  --create-image
```

2. **Adapt a Template-VM**
   The provided features for the modification of existing VMs vary by actual hypervisors and contained OS. Some attributes may require simpl changes only, e.g. the number of reserved CPUs, whereas others like the change of the size of the storage may require the support of the hypervisor as well as the support of the embedded guest OS and the applied filesystems.

3. **Create defaults file from the Source-VM**
   The following call of *ctys-createConfVM(1)* creates the defaults file, which is used for pre-assignment of values from the source machine for the cloned machine. Some basic machine related IDs are required to be altered by command line assignment.

```
MAC=00:11:22:33:44:55 \
ctys-createConfVM \
  -t XEN \
  --label=tst02 \
  --defaults-file-create \
  --auto-all \
  --no-create-image \
  --no-save-para-kernel
```

3.3 Common Clone Call

Therefore the following call could be executed.

```
ctys-cloneVM \
  -t xen \
  --label=tst02clone \
  --label-old=tst02 \
  --target-directory=/mntn/vmpool/vmpool05/xen/test/tst-ctys-call \
  --ip=14.14.14.14 \
  --mac=44:44:44:44:44:44 \
  --tcp=abc \
  --uuid=123412341234 \
  --vm-state=DISABLED \
  -f
```

This creates a complete clone, which just requires additional native configuration within the GuestOS.

4 QEMU/KVM

1. **Create a Test-VM**
   The following call creates a dummy VM with a small dummy-image.

```
MAC=00:11:22:33:44:55 \
IP=12.12.12.12 \
TCP=gecko \
HDDBOOTIMAGE_INST_SIZE=128M \
HDDBOOTIMAGE_INST_BLOCKSIZE=32M \
HDDBOOTIMAGE_INST_BLOCKCOUNT=4 \
ctys-createConfVM \
  -t QEMU \
  --label=tst02 \
  --auto-all \
  --create-image
```

2. **Create defaults file from the Source-VM**
   The following call of

ctys-createConfVM(1) creates the defaults file, which is used for pre-assignment of values from the source machine for the cloned machine. Some basic machine related IDs are required to be altered by command line assignment.

```
MAC=00:11:22:33:44:55 \
ctys-createConfVM \
  -t QEMU \
  --label=tst02 \
  --defaults-file-create \
  --auto-all \
  --no-create-image \
  --no-save-para-kernel
```

3. **Clone the Source-VM**
   The following call actually cloned the source VM.

```
ctys-cloneVM \
  -t QEMU \
  --label=tst02clone \
  --label-old=tst02 \
  --target-directory=/mntn/vmpool/vmpool05/kvm/test/tst-ctys-call \
  --ip=14.14.14.14 \
  --mac=44:44:44:44:44:44 \
  --tcp=abc \
  --uuid=123412341234 \
  --vm-state=DISABLED \
  -f
```

5 VBOX

1. **Create a Test-VM**

   The initial creation is for now supported by the native OEM tools only. The following call starts a remote user interface of the graphical VirtualBox frontend.

```
ctys \
  -t cli \
  -a label=l:VBOX,cmd:VirtualBox \
  myUser@myHost
```

   The following call of ctys-createConfVM creates extended configuration information for the ctys inventory.

```
MAC=00:11:22:33:44:55 \
IP=12.12.12.12 \
TCP=gecko \
HDDBOOTIMAGE_INST_SIZE=128M \
HDDBOOTIMAGE_INST_BLOCKSIZE=32M \
HDDBOOTIMAGE_INST_BLOCKCOUNT=4 \
ctys-createConfVM \
  -t VBOX \
  --label=tst02 \
  --auto-all \
  --no-create-image
```

2. **Create defaults file from the Source-VM**
   The following call of
   ctys-createConfVM(1) creates the defaults file, which is used for pre-assignment of values from the source machine for the cloned machine. Some basic machine related IDs are required to be altered by command line assignment.

```
MAC=00:11:22:33:44:55 \
ctys-createConfVM \
  -t VBOX \
  --label=tst02 \
  --defaults-file-create \
  --auto-all \
  --no-create-image \
  --no-save-para-kernel
```

3. **Clone the Source-VM**
   The following call actually cloned the source VM.

```
ctys-cloneVM \
  -t VBOX \
  --label=tst02clone \
  --label-old=tst02 \
  --target-directory=/mntn/vmpool/vmpool05/vbox/test/tst-ctys-call \
  --ip=14.14.14.14 \
  --mac=44:44:44:44:44:44 \
  --tcp=abc \
  --uuid=123412341234 \
  --vm-state=DISABLED \
  -f
```

6 VMW

ffs.

7 XEN

ffs.

8 Display and modify attributes

The following examples demonstrate how to modify specific attributes within the various supported hypervisor configuration files.

1. List XEN configuration file:

```
ctys-attribute --list tst02clone.conf
```

2. List CTYS configuration file:

```
ctys-attribute --list tst02clone.ctys
```

3. Replace all values of an attribute in XEN configuration file:

```
ctys-attribute \
  --attribute-name='kernelbase' \
  --attribute-replace=ALL  \
  --attribute-value-new="'/nboot1'"  \
  tst02clone.conf
```

4. Replace a string in all values of an attribute in XEN configuration file:

```
ctys-attribute \
  --attribute-name='kernelbase' \
  --attribute-replace=ALL \
  --attribute-value-new="'/nboot1'" \
  --attribute-value-old="'/boot'" \
  tst02clone.conf
```

5. Replace string in **FIRST** value of an attribute in XEN configuration file:

```
ctys-attribute \
  --attribute-name='kernelbase' \
  --attribute-replace=FIRST \
  --attribute-value-new="'/nboot1'" \
  --attribute-value-old="'/boot'" \
  tst02clone.conf
```

6. Replace string in **LAST** value of an attribute in XEN configuration file:

```
ctys-attribute \
  --attribute-name='kernelbase' \
  --attribute-replace=FIRST \
  --attribute-value-new="'/nboot1'" \
  --attribute-value-old="'/boot'" \
  tst02clone.conf
```

7. Replace string in **2.** value of an attribute in CTYS configuration file:

```
ctys-attribute \
  --attribute-name='kernelbase' \
  --attribute-replace=FIRST \
  --attribute-value-new="'/nboot1'" \
  --attribute-value-old="'/boot'" \
  tst02clone.conf
```

8. Replace all values of an attribute in CTYS configuration file:

```
ctys-attribute \
  --attribute-name='WRAPPERCALL' \
  --attribute-replace=ALL  \
  --attribute-value-new="'123'"  \
  tst02clone.ctys
```

9. Create a new attribute key without a value assignment in CTYS configuration file:

```
ctys-attribute \
  --attribute-create=TOP \
  --attribute-name='#*#MAGICID-IGNORE' \
  --attribute-keyonly \
  tst02clone.ctys
```

10. Delete an attribute key without a value assignment in CTYS configuration file:

```
ctys-attribute \
  --attribute-delete=FIRST \
  --attribute-name='#*#MAGICID-IGNORE' \
  --attribute-keyonly \
  tst02clone.ctys
```

11. Create new attribute value assignment in CTYS configuration file:

```
ctys-attribute \
  --attribute-create=TOP \
  --attribute-name='NEWATTR' \
  --attribute-value-new="'123'"  \
  tst02clone.ctys
```

12. Create new attribute value assignment in CTYS configuration file:

```
ctys-attribute \
  --attribute-create=BOTTOM \
  --attribute-name='NEWATTR' \
  --attribute-value-new="'123'"  \
  tst02clone.ctys
```

13. Create new attribute value assignment in CTYS configuration file:

```
ctys-attribute \
  --attribute-create=15 \
  --attribute-name='NEWATTR' \
  --attribute-value-new="'123'"  \
  tst02clone.ctys
```

14. Delete first occurance of an attribute in CTYS configuration file:

```
ctys-attribute \
  --attribute-delete \
  --attribute-name='NEWATTR' \
  tst02clone.ctys
```

or

```
ctys-attribute \
  --attribute-delete=1 \
  --attribute-name='NEWATTR' \
  tst02clone.ctys
```

15. Delete ALL occurances of an attribute in CTYS configuration file:

```
ctys-attribute \
  --attribute-delete=ALL \
  --attribute-name='NEWATTR' \
  tst02clone.ctys
```

9 SEE ALSO

UserManual , *CommandReference* , *HowTo*

ctys-attribute(1) ,
ctys-cloneVM(1) ,
ctys-createConfVM(1) ,
ctys-convertVM(1)

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