Cloning Virtual Machine

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# Introduction:

virt-clone is a command line tool for cloning existing virtual machine images using the "libvirt" hypervisor management library. It will copy the disk images of any existing virtual machine, and define a new guest with an identical virtual hardware configuration. Elements which require uniqueness will be updated to avoid a clash between old and new guests.

By default, virt-clone will show an error if the necessary information to clone the guest is not provided. The --auto-clone option will generate all needed input, aside from the source guest to clone.

Please note, virt-clone does not change anything \_inside\_ the guest OS, it only duplicates disks and does host side changes. So things like changing passwords, changing static IP address, etc are outside the scope of this tool.

## IMPORTANT!!!

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| **---------- IMPORTANT ----------**  **When making a clone of centos-7-minimal you should not perform the bootstrap steps that we used when installing from a USB stick nor what we added to the kickstart files when first using Cobbler.**  **---------- IMPORTANT ----------** |

# Using VirtClone:

**VirtClone** is a locally written wrapper for **virt-clone**. virt-clone is part of the **libvirt** toolkit.

**VirtClone** is short (about 10 lines) script. It **suspends** the original VM during the cloning and **unsuspends** the original VM when finished. The script is listed below.

|  |
| --- |
| #!/bin/bash  #------------------------------------------------------------==ADM==  # Custom Software, Developed for CUHEP by staff.  # This software is in the public domain, furnished "as is", without  # technical support, and with no warranty, express or implied, as  # to its usefulness for any purpose.  #  # VirtClone  #  # REVISION HISTORY  # Created. 04/19/2016 doug johnson  #-------------------------------------------------------------------  original=$1  new=$2  #  # Set the path where we look for VM images  #  path\_to\_virts=${PATH\_TO\_VIRTS:-"/var/lib/libvirt/images"}  echo `date`" Looking for VMs in $path\_to\_virts"  ls -al $path\_to\_virts/$original\*  if [ x$new = x ] || [ x$original = x ] ; then  echo " Usage: $0 Original\_VM New\_VM"  exit  fi  echo `date`" Suspending ${original}"  virsh suspend ${original}  sleep 5  echo `date`" Starting clone of ${original} -> ${new}"  virt-clone --original ${original} --name ${new} --file=${path\_to\_virts}/${new}.qcow2  echo `date`" Clone complete"  echo `date`" Resuming ${original}"  virsh resume ${original}  virsh list --all 2>&1 | egrep "${original}|${new}"  exit |

Sample syntax. Starting with centos7-minimal and making www-htc.

|  |
| --- |
| VirtClone centos7-minimal www-htc |

# Configuring Clone from centos-7-minimal:

## Important:

Recall when we first starting working with Virtual Machines we had the problem that we could not run a DHCP server on the campus network without causing network problems. We also did not have the second either card at the time, so we built Virual Machines using the network bridge br0. br0 was connected to the campus or public interface. After we added the internal network card, we added the internal network bridge called br1. Since centos-7-minimal was build using br0, we first have to change the Virtual Machine network device and then we can configure the network for the private network.

## Changing Virtual Machine device parameters:

We can reconfigure many of the “hardware” parameters for any virtual machine. This include:

* Memory
* Number of Cores
* Network Device

You can even add additional hardware, and change the machine’s UUID and/or Ethernet hardware address.

For now we are going to change the bridge device and then boot the VM and configure the network.

## Editing VM Configurations:

Virtual machines defined using an XML configuration file. We can “dump” the XML using:

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| --- |
| virsh dumpxml VM\_NAME |

or save it to a file:

|  |
| --- |
| virsh dumpxml VM\_NAME > /tmp/VM\_NAME.xml |

Now modify the XML file as you please. For example, to change the bridge device, find the part of the XML file the resembles:

|  |
| --- |
| <interface type='bridge'>  <mac address='52:54:00:ab:eb:5f'/>  <source bridge=**'br0'**/>  <target dev='vnet5'/>  <model type='virtio'/>  <alias name='net0'/>  <address type='pci' domain='0x0000' bus='0x00' slot='0x03' function='0x0'/>  </interface> |

Now replace br0 with br1 to get:

|  |
| --- |
| <interface type='bridge'>  <mac address='52:54:00:ab:eb:5f'/>  <source bridge=**'br1'**/>  <target dev='vnet5'/>  <model type='virtio'/>  <alias name='net0'/>  <address type='pci' domain='0x0000' bus='0x00' slot='0x03' function='0x0'/>  </interface> |

Now redefine the VM with these parameters:

|  |
| --- |
| virsh destroy VM\_NAME  virsh undefine VM\_NAME  virsh define /tmp/VM\_NAME.xml  virsh start VM\_NAME |

## Changing Network Configuration:

Since the network was disabled in centos-7-minimal, we now want to configure it for the private network. Let us assume that we are making the VM called www-puppet with IP address 10.10.0.1.

## What we did up to now

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| --- |
| VirtClone centos-7-minimal htc-puppet  virsh dumpxml htc-puppet > /tmp/htc-puppet.xml  Edit /tmp/htc-puppet.xml # Replace br0 with br1  virsh destroy htc-puppet  virsh undefine htc-puppet  virsh define /tmp/htc-puppet.xml |

## Use Console Interface to Modify Network Configuration:

Now use the console interface for VMs to configure the network:

|  |
| --- |
| virsh console VM\_NAME  #  # or  #  virsh console htc-puppet |

Login in at the prompt as root, then edit /etc/sysconfig/network-scripts/ifcfg-eth0. Replace the IPADDR, PREFIX and GATEWAY with the correct values for this network. For example, for htc-puppet these should be:

|  |
| --- |
| IPADDR="10.10.0.1"  PREFIX="8"  GATEWAY="10.0.0.1" |

You must also change the file /etc/hostname. Enter the hostname so that:

|  |
| --- |
| cat /etc/hostname  htc-puppet.najah.edu |

Now you should be able to reboot the VM and its network is configured to be the new VM.

|  |
| --- |
| reboot -n |