

# virt-lib Quick Reference

## virt-top

This is not always installed by default. When run, it will bring up a full console window that shows all virtuals running on a system, similar to the top command.

## virsh

The main controller for virt-lib. The basic format of the command is

```
virsh command parameters
```

. *man virsh* or simply *virsh -help* are your friends.

Some common commands are:

- **list -all** - list all domains virt-lib knows about and show their state (running, off, whatever)
- **vncdisplay name** - show vnc display number (not port) assigned
- **dommemstat name** - show allocated RAM
- **domstats name | grep vcpu.current** - displays number of virtual cpu's assigned
- **start name** - starts the domain named **name** (name from list -all)
- **reboot name**
- **shutdown name**
- **dumpxml name** dumps the config to STDOUT
- **list -autostart** - list all domains which will autostart
- **autostart domain** - set domain to be autostarted in the future
- **autostart -disable domain** - unset autostart flag for domain
- **console domain** - attaches to the serial console of domain assuming the port has been set up.
- Attach/Detach network interfaces  
(<https://computingforgeeks.com/managing-kvm-network-interfaces-in-linux/>)
  - `attach-interface -domain pxe -type bridge -source br1 -model virtio -config -live`
  - `detach-interface -domain pxe -type bridge -mac 52:54:00:47:2f:eb -config`
- Remove virtual image (config file only)

```
virsh undefine domainname
```

## Remove a network from the entire system

```
virsh net-list --all  
virsh net-destroy br1  
virsh net-undefine br1  
virsh net-list --all
```

## convert config file to native

```
virsh -c xen:/// domxml-to-native --format xen-xl \  
/path/to/libvirt/vm.domxml.cfg > vm.xenxl.cfg
```

## New Install of Windows with virtio

*virt-install* does not allow you to use two ISO's as cdrom images by default. This can be a problem when you want to do a new install, but want to use virtio on Windows (which requires a second ISO. You may be able to do a change-media, but the following, taken from <https://superuser.com/questions/147419/using-virt-install-to-mount-multiple-cdrom-drives-images> will do the trick with only one extra step.

1. Add the `-print-xml` flag to `virt-install`, and pipe the output to a file.
2. Manually edit the resulting xml file, adding a second cdrom drive (copy/paste)
  1. Change the drive letter
  2. Change the target to point to `virtio-win.iso`
3. run `virsh create name_of_xml_file` to begin the installation

## Upgrading a disk to virtio (Unix)

I messed up and did not use virtio as the bus for one of my setups, which resulted in horrible disk I/O. I could have rebuilt the virtual (it was a simple install and I had not gone very far), but I decided to learn how to do it the “right way”. The trick here is to detach the disk, then re-attach it with the proper parameters.

**Warning** Linux (and FreeBSD) have the virtio drivers built in, but Microsoft products do not. Read the section on Microsoft products if you are trying to do this with Windows.

In my case, I wanted to reconfigure the boot drive, so I needed the machine down. It was running under the scsi bus, and I wanted virtio. Note that this is using LVM2 as the back end.

```
# get a list of all the block devices  
virsh domblklist router  
# detach the first drive (sda) from the domain router  
virsh detach-disk router sda --config  
# reattach it using the virtio bus.  
virsh attach-disk router /dev/vg/lvname sda --config --targetbus=virtio
```

Normally, you attach/detach disks from a running system. The `-config` parameter allows you to do it on an inactive domain; it just erases the entry, then rebuilds it.

## Upgrading a disk to virtio (Windows)

For Windows, you need to have the correct device drivers installed before you change the disk. This

assumes the domain is running

1. Get a copy of the Windows VirtIO-win in iso onto your machine, someplace virsh can access, and mount the ISO

1. Download ISO

```
cd /media/virtstorage && wget
https://fedorapeople.org/groups/virt/virtio-win/direct-
downloads/stable-virtio/virtio-win.iso
```

2. Mount it on a running system

```
virsh attach-disk domainname /media/virtstorage/stable-
virtio/virtio-win.iso hdc --type cdrom --mode readonly
```

2. Create a temporary disk and attach it. Use virtio for the format of it.

1. `virsh attach-disk domainname /path/to/disk/image sdb --targetbus=virtio`

3. Open your console to the windows domain

1. Find the new disk (sdb). It will have a yellow triangle, indicating it can not be read because there is no device driver. Right click and say "Update Driver", then go find the drivers from the CD.

2. Shut down your Windows guest

4. Detach, then attach the primary drive.

```
# get a list of all the block devices
virsh domblklist router
# detach the first drive (sda) from the domain router
virsh detach-disk domainname sda --config
# reattach it using the virtio bus.
virsh attach-disk domainname /dev/vg/lvname sda --config --
targetbus=virtio
```

5. Start the Windows guest back up. Since the drivers are already installed, it should come back up.

I did this with a Windows 10 installation on my workstation. Prior to using virtio, it would take, literally, 5-7 minutes after boot before I could do anything, and it was very sluggish after that. Once I used virtio, it was almost bare hardware speeds.

## Shutdown and restart of Windows guests

### Problems shutting down with //virsh//

After installing the win-virtio package, you can use qemu-guest-agent to manage shutdown and reboot. This is much more reliable than using ACPI.

Edit the guest

```
virsh edit DOMAIN
```

Place the following block under the <devices> section. I usually put it after the <console> sections, but just so long as it is in the <devices> section of the config. Virsh will rearrange it for you anyway.

```
<channel type="unix">
  <source mode="bind"/>
  <target type="virtio" name="org.qemu.guest_agent.0"/>
</channel>
```

You will need to restart the virtual before the changes take effect. Once that is done, however, you can use the following commands much more reliably.

```
virsh shutdown DOMAIN
virsh reboot DOMAIN
```

## Windows servers will not restart

I'm having a problem with Windows virtuals not rebooting. When you issue the restart command, they shut off and don't come back up. As a band aid, I have a script running on the hypervisor with a cron job, every 5 minutes.

## Replacing Network Interfaces

Sometimes you need to undefine and redefine a network interface. This is actually fairly simple to do.

```
# get a list of all network interfaces in domain
virsh domiflist domain
# remove the one you want. Use values (type, mac) from above command
virsh detach-interface domain --type bridge --mac #:#:#:#:#: --config
# redefine it. Use values from above command, or change as needed
virsh attach-interface domain --type bridge --source br_private --mac
#:#:#:#:#: --model virtio --config
```

In this example, *domain* is the name of the domain to be worked on. I use domiflist to get information about the network interfaces as I need the type and mac. The -config makes it permanent, writing it to the config file.

In my case, I had built a Windows domain without using virtio, and I wanted to change it. This was actually the simplest way I found to do it.

## Links

- <https://www.caretech.io/2017/10/18/convertng-windows-vm-hard-disk-interface-to-virtio-with-pr>

[oxmox-ve-5/](#)

- <https://docs.fedoraproject.org/en-US/quick-docs/creating-windows-virtual-machines-using-virtio-drivers/>
- [https://linuxhint.com/install\\_virtio\\_drivers\\_kvm\\_qemu\\_windows\\_vm/](https://linuxhint.com/install_virtio_drivers_kvm_qemu_windows_vm/)
- <https://serverfault.com/questions/672253/how-to-configure-and-use-qemu-guest-agent-in-ubuntu-12-04-my-main-aim-is-to-get#691616>
- [https://access.redhat.com/documentation/en-us/red\\_hat\\_enterprise\\_linux/6/html/virtualization\\_administration\\_guide/sect-qemu\\_guest\\_agent-running\\_the\\_qemu\\_guest\\_agent\\_on\\_a\\_windows\\_guest](https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/6/html/virtualization_administration_guide/sect-qemu_guest_agent-running_the_qemu_guest_agent_on_a_windows_guest)

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