7.3 KVM

> ⓘ **Work in Progress**
>
> This page is currently a work in progress. If you would like to improve it, please request a wiki account.

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Requirements

Currently KVM on OpenIndiana only supports recent Intel chipsets with VT and EPT instructions. It is also a very fresh port so bugs are to be expected.

Installing KVM

```
pkg install \
    driver/i86pc/kvm \
    system/qemu \
    system/qemu/kvm
```

Using KVM

First create a zvol for the guest:

```
zfs create -p -V 10G rpool/kvm/myguest/disk0
```

Create a vnic (assumes e1000g0 as your primary NIC, substitute as necessary):

```
dladm create-vnic -l e1000g0 vnic0
MAC=$(dladm show-vnic -po macaddress vnic0)
```

Invoke the **qemu-kvm** command, for example:

```
pfexec /usr/bin/qemu-kvm \
       -boot cd \
       -enable-kvm \
       -vnc 0.0.0.0:1 \
       -smp 2 \
       -m 2048 \
       -no-hpet \
       -localtime \
       -drive file=/dev/zvol/rdsk/rpool/kvm/myguest/disk0,if=ide,index=0 \
       -drive file=/path/to/some/cdimage.iso,media=cdrom,if=ide,index=2  \
       -net nic,vlan=0,name=net0,model=e1000,macaddr=$MAC \
       -net vnic,vlan=0,name=net0,ifname=vnic0,macaddr=$MAC \
       -vga std
```

> ⓧ **/usr/bin/qemu**
>
> The /usr/bin/qemu command is vanilla QEMU with no KVM support. You **must** use /usr/bin/qemu-kvm to use KVM.

Fresh example

- Recent changes in illumos has caused malfunction of VirtualBox package on OI /hipster, thus making it unusable (it is crashing whole system). Since I already had few VB guests, all using zfs volumes, I have decided to try KVM instead...
    - Opening bug at VirtualBox for compiling problems did not show any progress
    - KVM (which also was failing because same illumos change) was easily fixed (see #4410) and OpenIndiana forum could not offer solution for VirtualBox failure problem.

- I was using Windows guest, so I can run some s/w which is missing for OI platform: Skype, TeamViever, Zoom, etc... (like recent browser versions, since OI Firefox 52 has lack of some ciphers support, for example). This example has purpose to give an idea how to use it, w/o spending hours on digging it from internet...
- `qemu-kvm` has several limitations (as far as I can tell):
  - it has no support of spice libraries, which provide clipboard sharing
  - graphical cards support is poor (maximum I could get is 1024x768, which is really not enough)
- Using guest GUI also has limitations:
  - both native **vga** and **vnc** support are lacking interaction with host MATE environment (shared folders and clipboard)
  - **vnc** support offers password protection, but you have to use `change vnc password` command to set it after guest boot (so no other people can access VM)
- Decided to enable remote desktop "server" on windows (so, user MUST have password set) and to access guest with **rdesktop** (present in OI; support both shared folder and clipboards) or **xfreerdp** (self compiled; supports shared clipboards, but I could not manage to get support for shared folders) utility
  - First, we need to start guest:

KVM start

```
$ qemu-kvm -m 1536M \
           -cpu host \
           -drive file=/dev/zvol/rdsk/mypool/VBoxGuests/WinHD \
           -k de \
           -smp 1 \
           -localtime \
           -clock unix \
           -soundhw all \
           -no-hpet \
           -bios /usr/share/qemu/bios.bin \
           -usbdevice tablet \
           -enable-kvm \
           -device e1000,netdev=user.0 \
           -netdev user,id=user.0,hostfwd=tcp::3389-:3389 \
           -nographic \
           -daemonize
```

NOTES:

  - port 3389 is forwarded to guest (RDP)
  - `nographics` option can be used ONLY *after* you were able to have GUI access to guest *and* enable remote desktop access
  - also, you have to wait a bit, until guest is booted before you try to connect to it
  - RDP window geometry is something you might want to experiment with (1900x1000 fits to my needs)
  - windows NLA security has to be disabled (did not investigated further if there is another way to access to guest via RDP)
- Connection options (guest has to be booted, obviously, example assume windows user `predrag zecevic`)
  - rdesktop:

---

rdesktop

```
:; rdesktop -k de -z -m -x b -u "predrag zecevic" -p <PASSWORD> -g 1900x1000 -a 16 -T Win -
r disk:PZ=/nobackup/shared_folder -r clipboard:PRIMARYCLIPBOARD 0.0.0.0 &
```

  - xfreerdp:

---

xfreerdp

```
:; xfreerdp -sec-nla -themes -wallpaper -glyph-cache +clipboard /u:"predrag zecevic" /p:
<PASSWORD> /kbd:German /audio-mode:1 /compression /bpp:16 /async-update /async-input
/geometry /dynamic-resolution /size:1900x1000 /t:Win /v:0.0.0.0 &
```

- Various references:
  - this page
  - http://www.frijid.net/blog/index.php/2015/08/10/installing-windows-7-kvmqemu-guest-onto-a-zfs-zvol-on-a-linux-host/
  - https://www.suse.com/documentation/sles11/book_kvm/data/cha_qemu_running_vnc.html
  - https://www.linuxquestions.org/questions/slackware-14/sound-not-working-in-virt-manager-guests-4175577240/
  - https://www.cyberciti.biz/faq/linux-kvm-vnc-for-guest-machine/
- Hope this will help someone. My personal favorite is **xfreerdp** (even w/o shared folder support, because it is somehow "faster" and offers better font rendering). Predrag Zeevi2018/10/02
  - Audio problems fixed (see https://unix.stackexchange.com/a/396468)

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