

```
# vparmodify -p vpar2 -o "-lq"
```

7. Restting a vPar

```
# vparreset -p vpar1 [-h | -t] [-q] [-f]
```

Install vPar

1. Install via DVD

- Assign an LBA with a DVD attached to the vPar.

```
MON> vparload -p vpar2 -D 0
```

HPVM

- Requirements on Host
 - 50MB free space in /opt
 - Swap: physical memory size + 4GB
 - 4.7 MB for each guest

- CPU number of and amount

```
hpvmcreate ... -e percent:max_percent
```

- Memory overhead +/-7%
- Boot device of VM Host as restricted
- Commands /opt/hpvm/bin
- Logfile /var/opt/hpvm/common/hpvm_mon_log
- Kernel parameter:
 - base_pagesize
 - filecache_max 1%
 - filecache_min 1%
 - maxdsit_64bit

```
vmhost      | mvguest
  nproc     |
PIDvm1      | vm1
PIDvm2      | nproc
..          | vm2
..          | nproc
PIDvmn      | vm3
            | nproc
```

HPVM cookbook

1. Check configuration

```
# print_manifest
# lvnboot -v
# lanscan
# swapinfo
# kctune
```

2. Prerequisites

■ Disable multithreading

```
# /usr/sbin/setboot -m off
# reboot
```

■ Check the device management

```
# hpvmdevmgmt -l all
# hpvmdevmgmt -d rdev:/dev/vx/rdisk/rootdg/vmlvol
# hpvmdevmgmt -l rdev
```

3. Start hpvm manually

```
# /sbin/init.d/hpvm start
```

4. Create a virtual switch

```
# hpvmnet -c -S vswlan1 -n 1
# hpvmnet -b -S vswlan1
```

5. Create the hpvm

```
# hpvmcreate -P (name)\
              -O (ostype)\
              -a (resource/device)\
              -e (CPU entitlement in %)\
              -E (CPU entitlement in clock cycles)\
              -r (memory allocation in MB or GB; default: 2GB)\
              -c (#cpus; default: 1)
```

Example:

```
# hpvmcreate -P vml -e 20 -r 3G
```

6. Check the status

```
# hpvmstatus
```

7. Add a virtual device

```
# hpvmmodify -P (vmname) -a device_type:adapter_type:args:device_type:name
                  [ virtual (guest view)          | physical (host device) ]
```

Example:

```
# hpvmmodify -P vml -a disk:scsi::lv:/dev/vg01/rvol1
                  ^
                  could be hw path
# hpvmmodify -P vml -a network:lan::vswitch:vswlan1
                  ^
                  could be bus.device.mac_address
                  ex.: ,,aa-aa-aa-10-01-92
```

8. Display network device (with guest mac address)

```
# hpvmstatus -VP vml
...
Mac Address           : aa-aa-aa-10-01-92
```

9. Add virtual storage

```
# hpvmdevmgmt -S 10G /vmdisks/vml_1  
# hpvmmodify -P vml -a disk:scsi::file:/vmdisks/vml_1
```

10. Add a virtual disk

```
# lvcreate -L 4000 -n vm2vol /dev/vgvmdisks  
# hpvmmodify -P vml -a disk:scsi::lv:/dev/vgvmdisks/rvm2vol
```

11. Start the virtual machine

```
# hpvmstart -P vml [-s] (-s: sanity check first) --> vMP> pc -on
```

12. Goto the console of the vml

```
# hpvmconsole -P vml [-c 'command']
```

13. Provide access to Vm console

```
# useradd -s /opt/hpvm/bin/hpvmconsole \  
-r no -d /var/opt/hpvm/guests/vml vmloper  
# passwd vmloper  
# hpvmmodify -P vml -u vmloper:oper  
# hpvmmodify -P vml -u vmladmins:admin
```

14. Network installation

```
Shell> lanboot select
```

15. Set Start_Attr of the VM to auto to start the VM automatically on a server reboot

```
# hpvmmodify -P RHEL -B auto
```

Install a HPVM

1. Get information about the created HPVMs

```
# hpvmstatus -V [P vml] | pg
```

2.

```
# cd /var/opt/hpvm
# cd guests
# ls -l
# ... vm1 -> /var/opt/hpvm...
# cd vm1
# pg vmm_config.current
# pg log
# cd console
# pg ocnslog
# cd ../../hpvmnet
# cd vswlan1
# pg hpvmnet_config
name = vswlan1
nic = 1
# cd ../common
# pg command.log (history of hpvm commands)
# cd ../ISO-images (iso images of the os i'd like to install)
# cd /opt/hpvm
# cd bin (hpvm commands)
```

3. View the processes of hpvm

```
# ps -ef | grep vm
...
hpvmnetd
hpvmmonlogd
vm_fssagt -n 5 (faire share scheduler agent: DO NOT KILL!)
hpvmapp -d vm1 (PID for vm1)
hpvmapp -d vm2 (PID for vm2)
...
```

4. Get information about the vm from the OS on the vm itself

```
# hpvmconsole -P vm1
MP> CO
# ioscan
# lanscan
# ifconfig lan3
```

5. Managing virtual dvd devices

```
# hpvmmodify -P vm1 ...
-a dvd:scsi::disk:/dev/rdisk/disk#
-a dvd:scsi::file:/vmiso/image1.iso
-m dvd:scsi::file:/vmiso/image2.iso
vMP> insert      vMP> eject
```

6. Install the vm from LAN

```
# hpvmconsole -P vm2
Shell> lanboot select
Select Desired LAN: 01
```

7. Install the vm from dvd.iso

```
# hpvmmodify -P vm2 -a dvd:scsi::file:/var/DVD/B.11.23.iso
# hpvmconsole -P vm2
Shell> mar -r
Shell> fs0:
fs:\> install
```

8. AVIO disk device creation

```
# hpvmmodify -P vm2 \
-a disk:avio_stor::disk:/dev/rdisk/disk#
```

9. AVIO network device creation

```
# hpvmmodify -P vm2 \  
-a disk:avio_lan::vswitch:vswB
```

10. Allow guest to extend its memory dynamically

```
# hpvmmodify -P vm1 -r 6G \  
-x dynamic_memory_control=1 \  
-x ram_dyn_min=1222M \  
-x ram_dyn_max=6G \  
-x ram_dyn_target_start=2G \  
-x ram_dyn_type={any|driver}  
# hpvmgmt -l ram -v  
# hpvmgmt -x ram_target={0|amount|start} (0: vm sets the value so that it does not need to page)
```

Set a volume as a shared volume between multiple hpvms

1. Add the disk to one of the hpvms

```
# hpvmmodify -P vm1 -a disk:scsi::lv:/dev/vg00/rlvlock
```

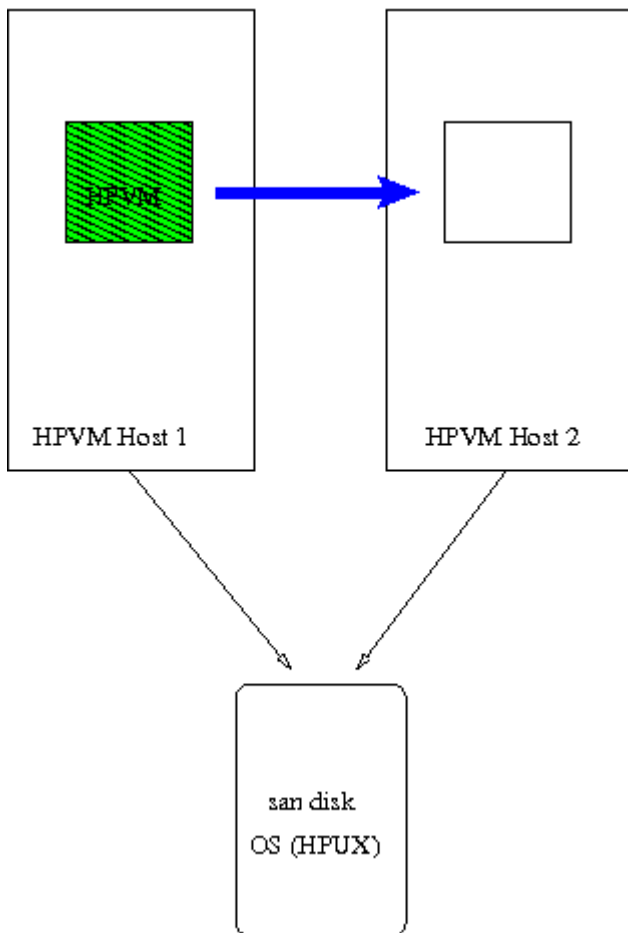
2. Review the current state of the device

```
# hpvmdevgmt -l all
```

3. Set the SHARE attribute to YES

```
# hpvmdevgmt -m gdev:/dev/vg00/rlvlock:attr:SHARE=YES
```

Migrate a HPVM



Prerequisites

- On the source host and the target host HPVM ≥ 4.1 must be installed
- Both servers must have access to the OS disk (as shown in the picture above)
- On both hosts execute the `secsetup` tool

```
# secsetup <otherhostname>
```

Migrate it

1. Prepare the hpvm on the target site along the prerequisites
2. Migrate the vm

```
# hpvmmigrate -o -P <hpvmName> -h <targetHostName>
```

```

hpvmmigrate: Connected to target host using 'targetHotname'
hpvmmigrate: Starting guest 'myvm' on target host 'targetHostname'
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Opening minor device and creating guest machine container
Creation of VM, minor device 1
Initialize guest memory mapping tables
Starting event polling thread

Online migration initiated by source 'sourceHostname' (ip-address)

hpvmmigrate: Init phase completed successfully.
hpvmmigrate: Copy phase completed successfully.
hpvmmigrate: I/O quiesce phase completed successfully.
hpvmmigrate: Frozen phase completed successfully.
hpvmmigrate: Guest migrated successfully.
  
```