

How I built few Integrity VM Virtual Server in Itanium RX8640 Server (Simple Configuration)

Author: Siddhartha Sankar Sinha

Date :01/03/2012

Scenario: Itanium RX8640 Server with following configuration

```

-----
Hardware      Actual      CPU      Memory      Core      Use
Location      Usage      OK/      (GB)         Cell      On
              Max      Deconf/  OK/         Capable  Next  Par
              Usage      Deconf  Deconf      Connected To      Boot  Num
-----
cab0,cell10  Active Core   8/0/8    32.0/0.0    cab0,bay0,chassis0  yes   yes  0
cab0,cell11  Active Base  8/0/8    32.0/0.0    cab0,bay0,chassis1  yes   yes  0
cab0,cell12  Active Base  8/0/8    32.0/0.0    cab8,bay0,chassis0  yes   yes  0
cab0,cell13  Active Base  8/0/8    32.0/0.0    cab8,bay0,chassis1  yes   yes  0
root@sidhost-</root>inq -nodots|grep -i disk
/dev/rdisk/disk10  :_NEC      :DVD_RW ND-3550A :1.31  :0500092700  :      -----
/dev/rdisk/disk11  :HP        :LOGICAL VOLUME  :2.84  :4.00000     :      143367120
/dev/rdisk/disk12  :HP        :LOGICAL VOLUME  :2.84  :4.00001     :      143367120
/dev/rdisk/disk13  :_NEC      :DVD_RW ND-3550A :1.31  :0500092700  :      -----
/dev/rdisk/disk14  :HP        :LOGICAL VOLUME  :2.84  :1100000     :      143367120
/dev/rdisk/disk15  :HP        :LOGICAL VOLUME  :2.84  :1100000     :      143367120
/dev/rdisk/disk16  :_NEC      :DVD_RW ND-3550A :1.31  :0500092700  :      -----
/dev/rdisk/disk17  :HP        :LOGICAL VOLUME  :2.84  :1800000     :      143367120
/dev/rdisk/disk18  :_NEC      :DVD_RW ND-3550A :1.31  :0500092700  :      -----
/dev/rdisk/disk19  :HP        :LOGICAL VOLUME  :2.78  :2700000     :      143367120

```

Guest name	Qty of CPU	Memory	Disk Name	Lan
sidhpg1	Normal CPU=4 Min CPU =2 Max CPU =8	16	disk12	2 Virtual LAN
sidhpg2	Normal CPU=8 Min CPU =4 Max CPU =16	32	lv-sidhpg2	2 Virtual LAN
sidrhelg1	Normal CPU=6 Min CPU =4 Max CPU =8	16	Disk15	2 Virtual LAN

Basically I need to know to total nos. of CPU, total amount of memory and available disk space to create few simple hpvm guest server. I will use physical disk for one Virtual Host, lvm for another. Also I have plan to add a RHEL 5.X guest server too.

Step1: I installed HP-UX VSE 11iv3 October 2011 version in an Itanium RX8640 Server. Here is the list of the software I need. I am not much concerned about the list of fileset as I installed HP-UX VSE 11iv3 which has in build support for Integrity VM as well as vPar. If you are not using HP-UX VSE then check with HP Website for requirement and fileset you need.

```

GuestAVIOStor      B.11.31.1109  HPVM Guest AVIO Storage Software
GuestAvioLan      B.11.31.1109  HPVM Guest AVIO LAN Software
HostAVIOStor     B.11.31.1109  HPVM Host AVIO Storage Software
HostAvioLan      B.11.31.1109  HPVM Host AVIO LAN Software
T2767CC          B.04.30       Integrity VM
T8718AC          B.04.30       Integrity VM Online Migration Software
VMGuestLib       B.04.30       Integrity VM Guest Support Libraries
VMGuestSW        B.04.30       Integrity VM Guest Support Software
VMKernelSW       B.04.20       Integrity VM Kernel Software
VMMGR            A.4.1.1.84593 HP Integrity VM Manager
PHCO_39744       1.0           vm_vasm_shlib Japanese manpage cumulative patch
PHCO_40189       1.0           vm Japanese manpage cumulative patch
PHCO_40673       1.0           VRTS 5.0.1 GARP1 VRTSvmpro Command Patch
PHCO_42115       1.0           VRTS 5.0.1 RP3 P1 VRTSvxvm Command Patch
PHKL_38778       1.0           vm vasm shlib cumulative patch
PHKL_41037       1.0           kevm cumulative patch
PHKL_41258       1.0           vm page table mgmt cumulative patch
PHKL_41369       1.0           TLB,MCA Recovery,HPVM,NUMA,P-State,IPMI Events,OsName
PHKL_41904       1.0           Audio Driver, TLB transactions, memory table, HPVM
PHKL_41905       1.0           Local Memory, PCIE Error Records, OLAD, HPVM
PHKL_41951       1.0           HPVM Fix RID length, guest para-virtualization
PHKL_41969       1.0           vm cumulative patch

```

Step2: Now I will check the current status of this Server. I have already added /opt/hpvm/bin in /etc/PATH file so that I can just type the commands from anywhere.

```
root@sidhost-~/root>hpvmstatus
hpvmstatus: No guests currently configured.
root@sidhost-~/root>
```

Now I will create my first HPVM guest Server. I want to create a virtual switch using another interface for these virtual guests. I will create the switch now

```
root@sidhost-~/root>hpvmnet -c -S sidnet -n 6
```

And I will start the switch and check the status

```
root@sidhost-~/root>hpvmnet -s 2 -b
```

```
root@sidhost-~/root>hpvmnet
```

Name	Number	State	Mode	NamePPA	MAC Address	IPv4 Address
localnet	1	Up	Shared		N/A	N/A
sidnet	2	Up	Shared	lan6	0x0018fe28839d	10.10.10.10

```
root@sidhost-~/root>
```

Now I will test the syntax to create 1st virtual guest sidhpg1

```
root@sidhost-~/root>hpvmcreate -P sidhpg1 -O hpux -B auto -c 4:2:8 -e 10 \
> -r 16g -a disk:scsi::disk:/dev/rdisk/disk12 -a network:lan::vswitch:sidnet \
> -a network:lan::vswitch:localnet -s
```

Now I will create sidhpg1

```
root@sidhost-~/root>hpvmcreate -P sidhpg1 -O hpux -B auto -c 4:2:8 -e 10 \
> -r 16g -a disk:scsi::disk:/dev/rdisk/disk12 -a network:lan::vswitch:sidnet \
> -a network:lan::vswitch:localnet -F
```

Now I will check the status

```
root@sidhost-~/root>hpvmstatus
```

```
[Virtual Machines]
```

Virtual Machine Name	VM #	OS Type	State	#VCPUs	#Devs	#Nets	Memory	Rmt Host
sidhpg1	1	HPUX	Off	4	1	2	16 GB	-

I will start the virtual machine now

```
root@sidhost-~/root>hpvmstart -P sidhpg1
(C) Copyright 2000 - 2011 Hewlett-Packard Development Company, L.P.
Initializing System Event Log
Initializing Forward Progress Log
Opening minor device and creating guest machine container
Creation of VM, minor device 1
Allocating guest memory: 16384MB
  allocating low RAM (0-80000000, 2048MB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c0bb75cc-30d3-11e1-a013-0018fe28e3b9/vmm_config
.current): Allocated 2147483648 bytes at 0x60000000100000000
  locking memory: 0-80000000
  allocating high RAM (100000000-480000000, 14336MB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c0bb75cc-30d3-11e1-a013-0018fe28e3b9/vmm_config
.current): Allocated 15032385536 bytes at 0x60000000200000000
  locking memory: 100000000-480000000
  allocating datalogger memory: FF800000-FF810000 (64KB for 61KB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c0bb75cc-30d3-11e1-a013-0018fe28e3b9/vmm_config
.current): Allocated 65536 bytes at 0x60000000900000000
  locking datalogger memory
  allocating firmware RAM (fff00000-fff40000, 256KB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c0bb75cc-30d3-11e1-a013-0018fe28e3b9/vmm_config
.current): Allocated 262144 bytes at 0x60000000900040000
  locked SAL RAM: 00000000fff00000 (8KB)
  locked ESI RAM: 00000000fff02000 (8KB)
  locked PAL RAM: 00000000fff04000 (8KB)
  locked Min Save State: 00000000fff06000 (16KB)
  locked datalogger: 00000000ff800000 (64KB)
Loading boot image
Image initial IP=102000 GP=696000
Initialize guest memory mapping tables
Starting event polling thread
Starting thread initialization
No NVRAM persistent variables on disk
Daemonizing....
hpvmstart: Successful start initiation of guest 'sidhpg1'
root@sidhost-~/root>
```

Now I will go to the console of sidhpg1

```
root@sidhost-~/root>hpvmconsole -P sidhpg1
```

```
vMP MAIN MENU
```

```
CO: Console
CM: Command Menu
CL: Console Log
SL: Show Event Logs
VM: Virtual Machine Menu
HE: Main Help Menu
X: Exit Connection
```

```
[sidhpg1] vMP>
```

I will type co (not case sensitive) and go to the console screen

```
EFI Boot Manager ver 1.10 [14.62] [Build: Wed Jan 5 11:33:04 2011]
```

```
Please select a boot option
```

```
EFI Shell [Built-in]  
Boot option maintenance menu
```

```
Use ^ and v to change option(s). Use Enter to select an option
```

```
Loading.: EFI Shell [Built-in]
```

```
EFI Shell version 1.10 [14.62]
```

```
Device mapping table
```

```
blk0 : Acpi(PNP0A03,0)/Pci(0|0)/Scsi(Pun0,Lun0)  
blk1 : Acpi(PNP0A03,0)/Pci(0|0)/Scsi(Pun0,Lun0)/HD(Part1,Sig6FE07F60-1537-11E1-8000-D6217  
B60E588)  
blk2 : Acpi(PNP0A03,0)/Pci(0|0)/Scsi(Pun0,Lun0)/HD(Part2,Sig6FE07FA6-1537-11E1-8000-D6217  
B60E588)  
blk3 : Acpi(PNP0A03,0)/Pci(0|0)/Scsi(Pun0,Lun0)/HD(Part3,Sig6FE07FBA-1537-11E1-8000-D6217  
B60E588)
```

```
Shell> █
```

There is different way to load Itanium Servers from network. I will use the simplest ever method I know. I will type exit from EFI Shell and the menu will appear as below. I will use arrow key to go to Boot option maintenance menu and hit enter.

```
EFI Boot Manager ver 1.10 [14.62] [Build: Wed Jan 5 11:33:04 2011]
```

```
Please select a boot option
```

```
EFI Shell [Built-in]  
Boot option maintenance menu █
```

```
Use ^ and v to change option(s). Use Enter to select an option
```

Next screen I will hit enter on Boot from a file
EFI Boot Maintenance Manager ver 1.10 [14.62]

Main Menu. Select an Operation

```
Boot from a File
Add a Boot Option
Delete Boot Option(s)
Change Boot Order

Manage BootNext setting
Set Auto Boot TimeOut

Select Active Console Output Devices
Select Active Console Input Devices
Select Active Standard Error Devices

Cold Reset
Exit

Timeout-->[10] sec SystemGuid-->[C0BB75CC-30D3-11E1-A013-0018FE28E3B9]
SerialNumber-->[VM01152007          ]
```

Now I simply hit enter here as I know this is a Lan Card (showing /Mac and MAC addrss)

EFI Boot Maintenance Manager ver 1.10 [14.62]

Boot From a File. Select a Volume

```
Load File [Acpi (PNP0A03,0)/Pci (1|0)/Mac (0250A7119073) ]
Load File [Acpi (PNP0A03,0)/Pci (2|0)/Mac (5E661ACE05BC) ]
Load File [EFI Shell [Built-in]]
Legacy Boot
Exit
```

Now it will boot from my Ignite Server. I configured the Ignite Server to server PXE boot so I don't need to create any db profile file or anything else. As soon as I hit enter next screen appears and I will select option 2 to load HP-UX 11iv2 and hit enter. See next page

```
Obtaining size of fpswa.efi (328192 bytes)
Downloading file fpswa.efi (328192 bytes)
```

(C) Copyright 1999-2006 Hewlett-Packard Development Company, L.P.
All rights reserved

HP-UX Boot Loader for IPF -- Revision 2.035

Booting from Lan

```
Obtaining size of AUTO (225 bytes)
Downloading file AUTO (225 bytes)
Obtaining size of AUTO (225 bytes)
Downloading file AUTO (225 bytes)
```

```
Obtaining size of AUTO (225 bytes)
Downloading file AUTO (225 bytes)
  1. target OS is B.11.23 IA
  2. target OS is B.11.31 IA
  3. Exit Boot Loader
```

Choose an operating system to install that your hardware supports :2

```
Obtaining size of AUTO (225 bytes)
Downloading file AUTO (225 bytes)
Obtaining size of Rel_B.11.31/IINSTALL (46787623 bytes)
Downloading file Rel_B.11.31/IINSTALL (46787623 bytes)
> System Memory = 16378 MB
loading section 0
..... (complete)
loading section 1
..... (complete)
loading symbol table
Obtaining size of Rel_B.11.31/IINSTALLFS (61341696 bytes)
Downloading file Rel_B.11.31/IINSTALLFS \
```

And I will select proper OS version (Enterprise or VSE or whatever) and install the Server.

Welcome to Ignite-UX!

Use the <tab> key to navigate between fields, and the arrow keys within fields. Use the <return/enter> key to select an item. Use the <return/enter> or <space-bar> to pop-up a choices list. If the menus are not clear, select the "Help" item for more information.

```
Hardware Summary:          System Model: ia64 hp server Integrity Virtual Machine
+-----+-----+-----+-----+
| Disks: 1 ( 136.7GB) | Floppies: 0 | LAN cards: 2 |
| CD/DVDs: 0 | Tapes: 0 | Memory: 16378Mb |
| Graphics Ports: 0 | IO Buses: 1 | CPUs: 4 | [[ H/W Details ]
+-----+-----+-----+-----+
```

```
[ Install HP-UX ]
[ Run an Expert Recovery Shell ]
[ Advanced Options ]

[ Reboot ] [ Help ]
```

Looking exactly how I configured.

```
Summary View
General Summary | Hardware Inventory
+-----+-----+-----+-----+
| Disks: 1 ( 136.7GB) | Floppies: 0 | LAN cards: 2 |
| CD/DVDs: 0 | Tapes: 0 | Memory: 16378Mb |
| Graphics Ports: 0 | IO Buses: 1 | CPUs: 4 |
+-----+-----+-----+-----+
Disk Drives:
Model          Capacity(Mb)  WWID
HP_Virtual_Disk 140006      0x600508b100104739535136325a43002
0/0/0/0.0x0.0x0
LAN Interfaces:
[ OK ] [ Help ]
```

After I hit enter it will take close to an hour to finish. I will create the other two guests now.

I will press Ctrl+X now to go to vMP of the sidhpg1 and I will press x to exit to the host machine.

vMP MAIN MENU

```
CO: Console
CM: Command Menu
CL: Console Log
SL: Show Event Logs
VM: Virtual Machine Menu
HE: Main Help Menu
X: Exit Connection
```

```
[sidhpg1] vMP> x
root@sidhost-~/root>
```

Now I will create the 2nd HPVM guest machine with the configuration I decided earlier. This time I am using the Logical volume I created earlier. Also notice that using the raw device (character special device) as used before for a physical disk.

```
root@sidhost-~/root>hpvmcreate -P sidhpg2 -O hpux -B auto -c 8:4:16 -e 50 \
> -r 32g -a disk:scsi::lv:/dev/vg_test/rlv-sidhpg2 \
> -a network:lan::vswitch:sidnet \
> -a network:lan::vswitch:localnet -s
root@sidhost-~/root>
```

Now I will create the VM

```
root@sidhost-~/root>hpvmcreate -P sidhpg2 -O hpux -B auto -c 8:4:16 -e 50 \
> -r 32g -a disk:scsi::lv:/dev/vg_test/rlv-sidhpg2 \
> -a network:lan::vswitch:sidnet \
> -a network:lan::vswitch:localnet -F
root@sidhost-~/root>
```

Checking the configuration now

```
root@sidhost-~/root>hpvmstatus
[Virtual Machines]
Virtual Machine Name VM # OS Type State #VCPUs #Devs #Nets Memory Rmt Host
=====
sidhpg1 8 HPUX On (OS) 4 1 2 16 GB -
sidhpg2 11 HPUX Off 8 1 2 32 GB -
```

Now I will start the new VM guest. This time I will use the VM no. from the above output to start the guest VM.

```

root@sidhost-</root>hpvmstart -p 11
(C) Copyright 2000 - 2011 Hewlett-Packard Development Company, L.P.
Initializing System Event Log
Initializing Forward Progress Log
Opening minor device and creating guest machine container
Creation of VM, minor device 2
Allocating guest memory: 32768MB
  allocating low RAM (0-80000000, 2048MB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/9eac1e46-30dd-11e1-b227-0018fe28e3b9/vmm_config
.current): Allocated 2147483648 bytes at 0x6000000100000000
  locking memory: 0-80000000
  allocating high RAM (100000000-880000000, 30720MB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/9eac1e46-30dd-11e1-b227-0018fe28e3b9/vmm_config
.current): Allocated 32212254720 bytes at 0x6000000200000000
  locking memory: 100000000-880000000
  allocating datalogger memory: FF800000-FF820000 (128KB for 122KB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/9eac1e46-30dd-11e1-b227-0018fe28e3b9/vmm_config
.current): Allocated 131072 bytes at 0x6000001100000000
  locking datalogger memory
  allocating firmware RAM (fff00000-fff40000, 256KB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/9eac1e46-30dd-11e1-b227-0018fe28e3b9/vmm_config
.current): Allocated 262144 bytes at 0x6000001100040000
  locked SAL RAM: 00000000fff00000 (8KB)
  locked ESI RAM: 00000000fff02000 (8KB)
  locked PAL RAM: 00000000fff04000 (8KB)
  locked Min Save State: 00000000fff06000 (32KB)
  locked datalogger: 00000000ff800000 (128KB)
Loading boot image
Image initial IP=102000 GP=696000
Initialize guest memory mapping tables
Starting event polling thread
Starting thread initialization
No NVRAM persistent variables on disk
Daemonizing....
hpvmstart: Successful start initiation of guest 'sidhpg2'

```

Now I will go to the console of the newly created HPVM guest.

```

root@sidhost-</root>hpvmconsole -p 11

```

```

VMP MAIN MENU

```

```

CO: Console
CM: Command Menu
CL: Console Log
SL: Show Event Logs
VM: Virtual Machine Menu
HE: Main Help Menu
X: Exit Connection

```

```

[sidhpg2] vMP> █

```

And now I will type co to open the console session. If inside EFI then I will exit from EFI and go to Boot option maintenance menu → Boot from a file → Load file

and I will select the 1st interface and hit enter

```
Device Path Acpi (PNP0A03,0)/Pci (1|0)/Mac (8E3FF1664257)
```

```
Client MAC Address: 8E 3F F1 66 42 57
Client IP Address: 192.168.192.250
Subnet Mask: 255.255.255.0
BOOTP Server IP Address: 192.168.192.6
DHCP Server IP Address: 192.168.192.6
Boot file name: /opt/ignite/boot/nbp.efi
```

```
Retrieving File Size.
```

```
Retrieving File (TFTP).
```

```
@(#) HP-UX IA64 Network Bootstrap Program Revision 1.0
```

```
Downloading HPUX bootloader
```

```
Starting HPUX bootloader
```

```
Obtaining size of fpswa.efi (328192 bytes)
```

```
Downloading file fpswa.efi (328192 bytes)
```

```
(C) Copyright 1999-2006 Hewlett-Packard Development Company, L.P.
All rights reserved
```

```
HP-UX Boot Loader for IPF -- Revision 2.035
```

```
Booting from Lan
```

```
Obtaining size of AUTO (225 bytes)
```

```
Downloading file AUTO (225 bytes)
```

```
Obtaining size of AUTO (225 bytes)
```

```
Downloading file AUTO (225 bytes)
```

```
Obtaining size of AUTO (225 bytes)
```

```
Downloading file AUTO (225 bytes)
```

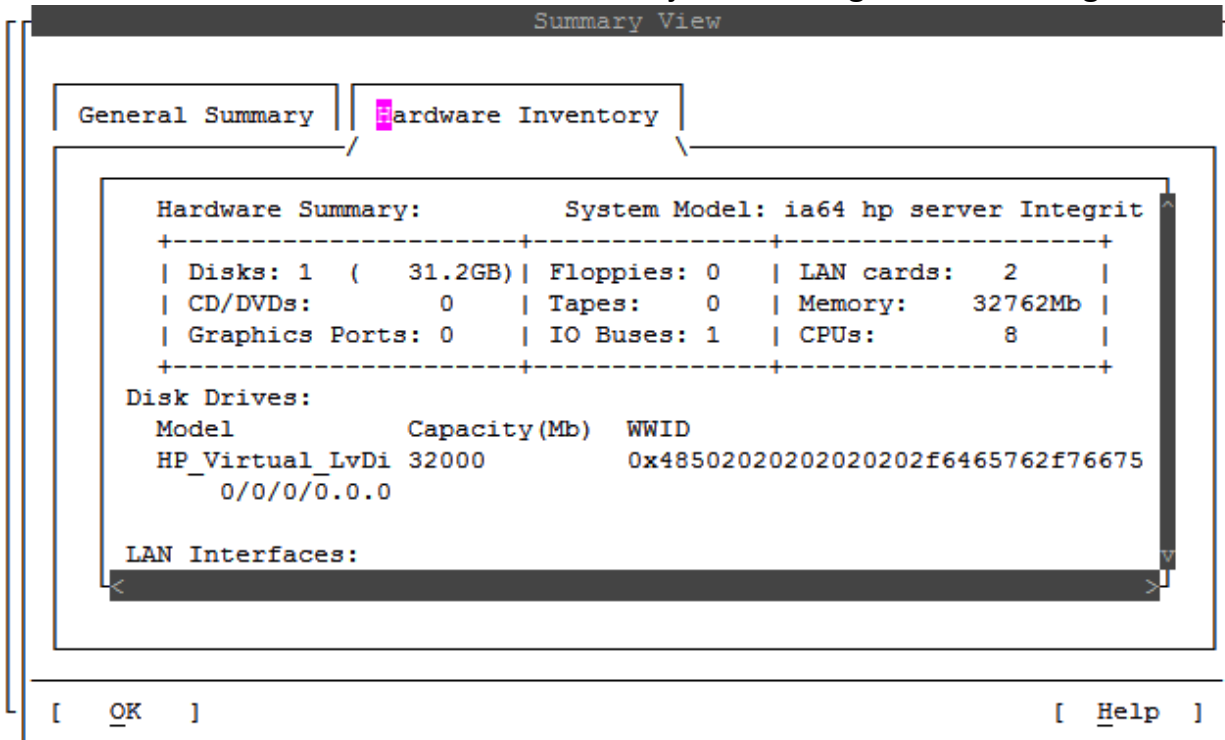
```
1. target OS is B.11.23 IA
```

```
2. target OS is B.11.31 IA
```

```
3. Exit Boot Loader
```

```
Choose an operating system to install that your hardware supports :1
```

I will load 11iv2 in this server. Before I start just checking the final configuration.



And start loading. Once installation starts I will come back and load the 3rd vPar. I will test the syntax now

```

root@sidhost-~/root>hpvmcreate -P sidrhelg1 -O LINUX -c 6:4:8 -e 20 \
> -B auto -r 16g -a disk:scsi::disk:/dev/rdisk/disk15 \
> -a dvd:scsi::file:/root/rhel-server-5.7-ia64-dvd.iso \
> -a network:lan::vswitch:sidnet -a network:lan::vswitch:localnet -s
root@sidhost-~/root>
  
```

Now creating

```

root@sidhost-~/root>hpvmcreate -P sidrhelg1 -O LINUX -c 6:4:8 -e 20 \
> -B auto -r 16g -a disk:scsi::disk:/dev/rdisk/disk15 \
> -a dvd:scsi::file:/root/rhel-server-5.7-ia64-dvd.iso \
> -a network:lan::vswitch:sidnet -a network:lan::vswitch:localnet -F
root@sidhost-~/root>
  
```

Here is status

```

root@sidhost-~/root>hpvmstatus
[Virtual Machines]
Virtual Machine Name VM # OS Type State #VCPU# #Devs #Nets Memory Rmt Host
-----
sidhpg1 8 HPUX On (OS) 4 1 2 16 GB -
sidhpg2 11 HPUX On (OS) 8 1 2 32 GB -
sidrhelg1 13 LINUX Off 6 2 2 16 GB -
  
```

Starting sidrhelg1 now

```

root@sidhost-</root>hpvmstart -P sidrhelg1
(C) Copyright 2000 - 2011 Hewlett-Packard Development Company, L.P.
Initializing System Event Log
Initializing Forward Progress Log
Opening minor device and creating guest machine container
Creation of VM, minor device 3
Allocating guest memory: 16384MB
  allocating low RAM (0-80000000, 2048MB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c81abf52-30e3-11e1-a014-0018fe28e3b9/vmm_config.cur
rent): Allocated 2147483648 bytes at 0x60000000100000000
  locking memory: 0-80000000
  allocating high RAM (100000000-480000000, 14336MB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c81abf52-30e3-11e1-a014-0018fe28e3b9/vmm_config.cur
rent): Allocated 15032385536 bytes at 0x60000000200000000
  locking memory: 100000000-480000000
  allocating datalogger memory: FF800000-FF820000 (128KB for 91KB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c81abf52-30e3-11e1-a014-0018fe28e3b9/vmm_config.cur
rent): Allocated 131072 bytes at 0x60000000900000000
  locking datalogger memory
  allocating firmware RAM (fff00000-fff40000, 256KB)
/opt/hpvm/lbin/hpvmapp (/var/opt/hpvm/uuids/c81abf52-30e3-11e1-a014-0018fe28e3b9/vmm_config.cur
rent): Allocated 262144 bytes at 0x600000009000040000
  locked SAL RAM: 00000000fff00000 (8KB)
  locked ESI RAM: 00000000fff02000 (8KB)
  locked PAL RAM: 00000000fff04000 (8KB)
  locked Min Save State: 00000000fff06000 (24KB)
  locked datalogger: 00000000ff800000 (128KB)
Loading boot image
Image initial IP=102000 GP=696000
Initialize guest memory mapping tables
Starting event polling thread
Starting thread initialization
No NVRAM persistent variables on disk
Daemonizing....
hpvmstart: Successful start initiation of guest 'sidrhelg1'

```

Now I will go the console and I will run and continue loading RHEL.

```

fs0:\> elilo linux text
ELILOtory of: fs0:\
Uncompressing Linux... done
Loading file efi\boot\initrd.img...done  EFI

```

And I will continue loading that server. Now I will go back to sidhpg1 server and test few stuffs. It is looking OK.

```

root@sidhpg1-</root>ioscan -fnkCprocessor
Class      I  H/W Path  Driver      S/W State   H/W Type    Description
=====
processor  0  120      processor   CLAIMED     PROCESSOR    Processor
processor  1  121      processor   CLAIMED     PROCESSOR    Processor
processor  2  122      processor   CLAIMED     PROCESSOR    Processor
processor  3  123      processor   CLAIMED     PROCESSOR    Processor
root@sidhpg1-</root>dmesg|grep -i phys
Class      Phymem          Lockmem          Swapmem
physical page size = 4096 bytes, logical page size = 4096 bytes
Physical: 16771296 Kbytes, lockable: 12166892 Kbytes, available: 13873844 Kbytes
root@sidhpg1-</root>ioscan -funCdisk
Class      I  H/W Path      Driver S/W State   H/W Type    Description
=====
disk       0  0/0/0/0.0.0  sdisk  CLAIMED     DEVICE      HP          Virtual Disk
           /dev/dsk/c0t0d0  /dev/dsk/c0t0d0s3  /dev/rdisk/c0t0d0s2
           /dev/dsk/c0t0d0s1  /dev/rdisk/c0t0d0  /dev/rdisk/c0t0d0s3
           /dev/dsk/c0t0d0s2  /dev/rdisk/c0t0d0s1

```

I am expecting same thing once rest of the two servers completed loading Operating Systems.