

HP-UX Virtual Partitions Release Notes

A.04.06

vPars A.04.06



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vPars A.04.06 Release Notes

This document provides information about the HP-UX Virtual Partitions (vPars) A.04.06 release.

vPars Overview

The HP-UX Virtual Partitions (vPars) product runs multiple instances of HP-UX simultaneously on one server, or nPartition, by dividing it into virtual partitions. Each virtual partition is assigned its own subset of hardware, runs a separate instance of HP-UX, and hosts its own set of applications. vPars provides application and operating system fault isolation.

New and Changed Features in This Release

This section lists features that are new in this release, or previously available features that have changed in this release.

New Features

The following features are new with the vPars A.04.06 release:

- Enhanced dynamic vPars support with Oracle Real Application Clusters (RAC) on HP 9000 PA-RISC servers



NOTE: This functionality is already available on vPars A.04.04 for Integrity servers.

- PCIe SAS support and tape recovery feature on Integrity servers
vPars A.04.06 on HP Integrity platforms enables you to use SAS disks as boot devices in vPars environment.



IMPORTANT: In certain situations while using vPars with SAS disks as boot disk on HP Integrity platforms, the `vparstatus -v` and `setboot` commands may show different boot disk paths in vPars mode. This behavior is normal, and is due to the disks being scanned in a different sequence at boot time. This behavior also occurs when you boot into nPars mode and then boot back in vPars mode.

For example:

1. A virtual partition is ignited from a SAS disk and booted in vPars mode, and the `vparstatus -v` command displays the boot disk path as *A*.
 2. If the system is booted back to nPars mode, the boot path may change to *B*, which is different from *A* due to a different scan order. This would also change the boot path to *B* in the vPars database (`/stand/vpdb`).
 3. After booting back to vPars mode, the `vparstatus -v` command for this virtual partition shows *B* as the boot path and the `setboot` command still shows *A*. Both boot paths (*A* and *B*) refer to the same SAS disk path.
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Compatibility and Installation Requirements

This section describes the compatibility information and installation requirements for this release. For specific installation instructions, see the *HP-UX Virtual Partitions Administrator's Guide*.

Required Patches

Version A.04.06 of vPars requires the following patches:

- From HP-UX 11i v2 (11.23) release June 2007 OE:

- FEATURE11i (required patches for vPars install)
- HWEnable11i (required patches for new hardware)
- QPKAPPS & QPBASE (recommended OS patches)
- OnlineDiag, NPar, iCAP, WBEM (changes for vPars support)
- From the HP ITRC or Patch Hub:
 - PHKL_34088 (bootloader patch for sx2000 systems)
 - PHKL_35114 (11.23 VMvPar fix)
 - PHNE_36225 (Cumulative mux and pty patch)
 - PHKL_36288 (Cumulative diag2 driver and vPars enablement)
 - PHKL_33929 (11.23 page cache synchronization and pfdats fix)
 - PHKL_33930 (11.23 pstat maxmem fix with CLM and pfdats fix)



NOTE: PHKL_34088 is required for vPars running on Integrity systems with the sx2000 chipset. Without this patch, your vPars system will not properly load the vPars Monitor.

NOTE: PHNE_36225 is required for vPars running on HP9000 systems with the sx2000 chipset. Without this patch, both the console and the vPar will hang when a vPar with the PDH console device attached is booted.

You can download patches from the following Web site:

<http://www2.itrc.hp.com/service/patch/mainPage.do>

vPars Checklist

This section is a brief checklist of common but significant items you should check while setting up vPars.

Firmware Checklist

- **Check Server Firmware:** Check the *HP-UX Virtual Partitions Ordering and Configuration Guide* for the required server firmware.
For the non-nPartition-able systems, firmware upgrades must be done outside of the vPars environment (in standalone mode).
For nPartition-able systems, call your HP Support Representative.
- **Networking and I/O Card Firmware:** Check the *HP-UX Virtual Partitions Ordering and Configuration Guide* for the required I/O card firmware.
You should also check the firmware on new I/O cards, because they may not be updated with the firmware required for vPars.

Virtual Partition Checklist

Each virtual partition requires a *minimum* of:

- At least one CPU
- Its own boot disk
- Enough memory for the operating system and its applications
- A network card (if you require networking capability for the virtual partition)

Operating System and Version Compatibility

This release is specific for HP-UX 11i v2 (B.11.23).

HP-UX 11i v2 (11.23) June 2007 or later is required for vPars A.04.06. For complete software, hardware, and firmware requirements see the *HP-UX Virtual Partitions Ordering and Configuration Guide*.

Hardware Requirements

The vPars A.04.06 release runs on HP 9000 servers and HP Integrity Servers with the HP-UX 11i v2 (B.11.23) operating system.

Switching Modes between vPars and nPars on Integrity Systems

The following information on *modes* and *using new vPars commands for Integrity systems* is included in Chapter 5 of the *HP-UX Virtual Partitions Administrator's Guide*. It is duplicated here as a reminder, in case you are using vPars A.04.xx on Integrity systems. See “[Compatibility and Installation Requirements](#)” (page 5) for further information on using vPars A.04.xx on Integrity systems, including other Integrity-only specifics.

Usage Scenarios

- If you are running HP-UX in nPars mode (standalone), use the following vPars command to switch to vPars mode:

```
OS-Prompt> vparenv -m vPars /* sets the mode for the next nPartition reboot*/
```

```
OS-Prompt> reboot /* to reboot the system into vPars mode */
```

- If you are at the Monitor prompt, use the following Monitor command to switch to nPars mode:

```
MON> reboot nPars /* sets the mode and reboots the system */
```

- If you are at the EFI shell prompt, use the following EFI utility to switch to either nPars or vPars mode:

```
Shell:> fsN:
```

```
fsN:> vparconfig reboot nPars|vPars
```

Since vparconfig is not a built-in EFI shell command, you must go to the disk to execute vparconfig. For example, to switch to vPars mode:

```
Shell:> fs0: /* go to the EFI partition of the disk */
```

```
fs0:> vparconfig reboot vPars /* sets the mode and reboots the system */
```

Note: vparconfig is an EFI utility which gets installed in the EFI partition during the installation of the vPars product.

- If you are at the EFI shell prompt in vPars mode and you do not have vPars installed on any of your disks, you can use the built-in EFI command parconfig to switch to nPars mode:

```
Shell:> parconfig nPars
```

```
Shell:> parconfig reset
```



NOTE: Remember to issue a parconfig reset after setting the mode. parconfig nPars only sets the mode to nPars. You must issue the parconfig reset command to reset the system so it boots into nPars mode.

NOTE: parconfig does not support switching to vPars mode. In other words, you can use parconfig to set the mode to nPars, but you cannot use parconfig to set the mode to vPars.

Known Problems Fixed in This Version

This section lists the known problems fixed in vPars A.04.06.

For information on specific defects, see the HP ITRC at <http://itrc.hp.com>.

- **QXCR1000784543** vparstatus shows -ve cpus after vparboot -I on vpar with floater cpus.
- **QXCR1000586118** Enhance vPars/iCAP to allow easier fix on non-compliant vPar database.

Known Problems and Workarounds

This section provides a list of problems and limitations known to HP at the time of publication. If workarounds are available, they are included. For information on specific defects, see the HP ITRC at <http://itrc.hp.com>.

- **Virtual Partition Fails to Load after a Reboot or Issuing vparload -all**

Related JAG or Patch ID Number JAGae88150

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description On PA-RISC systems, vPars that use certain host bus adapters (such as Ultra320) for boot disks may not boot to the UP state after a reboot or after the vparload -all command is issued.

Symptoms The virtual partitions will not boot after a reboot. One or more of the following errors may appear in the vPars Monitor event log:

```
iodc_perror: dev_open/Boot device init (0x42)
```

```
iodc_perror: reinit_bootdev/Read ENTRY IO (0x44)
```

```
iodc_perror: dev_reopen/Read ENTRY IO (0x47)
```

```
iodc_perror: iodc_io_init/init module and device(0x4b)
```

```
Could not read IODC firmware for HPA <hpa>
```

```
Unknown filesystem for path <hardware path>
```

Workaround Manually boot the virtual partitions with the vparboot or vparload command.

- **System Activity Events Reported Through IPMI by EMS**

Related Defect ID and Patch Number JAGaf62654

Applicable On

- vPars A.05.xx
- vPars A.04.xx on Integrity
- vPars A.04.xx on PA-RISC

Description In a vPars environment, system activity events are decoded and reported on all virtual partitions. When examining any single virtual partition, this can be misleading, such that it may appear the events occurred on the virtual partition that reported the problem.

Symptoms A virtual partition reports an event, similar to the following:

```
>----- Event Monitoring Service Event Notification -----<
Notification Time: Wed May 4 15:29:44 2005
winona2 sent Event Monitor notification information:
/system/events/ipmi_fpl/ipmi_fpl is >= 3.
Its current value is CRITICAL(5).
Event data from monitor:
Event Time.....: Wed May 4 15:29:44 2005
Severity.....: CRITICAL
Monitor.....: fpl_em
Event #.....: 267
```


System.....: winona2
Summary:
INIT initiated

Workaround Note that in a vPars environment, when system events are reported via EMS either from system firmware or an OS instance, the system events are decoded and reported on all virtual partitions. The OS instance that is shown as sending the event is not necessarily indicative of the actual virtual partition that encountered the problem. The Reporting Entity ID is the only clue to which virtual partition reported the problem. The output will be similar to the following:

Reporting entity ID: 6 (Cab 0 Cell 0 CPU 6) (possibly from one vPar)

- **Virtual Partition Does Not Boot After Root Mirror is Created**

Related Defect ID and Patch Number JAGaf54464

Applicable On

- vPars A.05.xx on Integrity
- vPars A.04.xx on Integrity

Description A virtual partition does not boot from its mirror root disk because there is no longer a valid EFI to hardware path mapping in the vPars database.

Symptoms After creating a mirror root disk, the virtual partition fails to boot from this disk. You may see messages similar to the following:

Load of 1/0/8/1/0.22.31.0.0.0.1 failed: Not Found

Workaround After the mirror is created, use the `vparsEFIutil -u` command to add the new hardware path to EFI path mapping to the vPars database. Note that on Integrity systems running vPars, whenever the EFI path of a boot disk changes (for example, if an OS is re-installed on the disk), the new hardware to EFI path mapping has to be updated in the vPars database. This can be done by running the `vparsEFIutil -u` command. For more information on EFI and vPars, see the “EFI and Integrity Notes” section in the *HP-UX Virtual Partitions Administrator’s Guide*.

- **Virtual Partition Appears to Hang After Typing **Control-s****

Related Defect ID and Patch Number JAGae98555

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description While a virtual partition is shutting down, panicking, or booting, typing **Control-s** to suspend its console output may cause the virtual partition to stop making forward progress. The virtual partition may appear to hang.

Symptoms If a **Control-s** is typed at the system keyboard while the virtual partition currently writing to the console is shutting down, panicking, or booting, that virtual partition may appear to hang.

Workaround Type **Control-q** to resume console output.

- **Configuring an Ultra2 or Ultra160 Card with `vparsutil`**

Related Defect ID and Patch Number JAGaf00411

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description On the nPartitionable servers, using the `vparutil` command to configure an Ultra2 or Ultra160 SCSI card can cause the virtual partition that owns the SCSI card to fail to boot.

Symptoms On the nPartitionable servers, the virtual partition connected to an Ultra2 or Ultra160 SCSI boot device fails to boot after the SCSI card was configured using the `vparutil` command.

Workaround

- For vPars A.03.xx, bring down all the virtual partitions and configure the card at BCH using the SCSI command to set the desired parameters. Then, boot the vPars Monitor.
- For vPars A.04.xx and A.05.xx, use the `mptconfig` command. For information on `mptconfig`, see the *Ultra320 SCSI Support Guide* or the support guide for your card.

- **System Resets During a Crash Dump Due to Watchdog Timer**

Related Defect ID and Patch Number JAGae79790

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description During a crash dump of a virtual partition, hardware heartbeats are delayed long enough such that the watchdog timer is triggered. If the watchdog timer has been configured to reset, then the entire system is reset (TOC).

Symptoms A system (or nPartition) is reset when a virtual partition is performing a crash dump.

Workaround From the GSP, use the `AR` command to set the watchdog timer to not automatically restart the system (or nPartition). Examples are below.

- On non-nPartitionable servers, use the following procedure:

```
GSP> ar
Current System restart settings:
Automatic System restart: Enabled
ASR Alert Level Triggers: 13
Do you want to modify this configuration? (Y/[N]) y
Current Automatic System restart: Enabled
Do you want to modify it? (Y/[N]) y
New Automatic System restart (Enabled / Disabled): disabled
New Automatic System restart: Disabled
Confirm? (Y/[N]): y
-> Automatic System restart will be updated.
Current Triggering alert levels are: 13
Do you want to modify them? (Y/[N]): n
Automatic System Restart configuration has been updated
GSP Host Name: keira
GSP>
```

- On nPartitionable servers, use the following procedure:

```
GSP> cm
Enter HE to get a list of available commands
GSP:CM> ar
This command modifies the automatic system restart
configuration of
the selected partition.
# Name
--- ----
0) vpar8cell
1) vpar4cell
2) vpar3cell
Select a partition number: 2
```

```
Automatic system restart for partition 2 is currently
enabled.
Do you want to disable automatic system restart? (Y/[N]) y
-> Automatic system restart is disabled.
GSP:CM>
```

- **Topology of A5158A Changes from Fabric to Public Loop After the Virtual Partition Reboots**

Related Defect ID and Patch Number JAGaf15533

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description When the A5158A is connected to the Brocade 2800 or 12000 switch, the topology of the A5158A changes after the virtual partition reboots.

Symptoms

- Before a reboot, the topology shows PTTOPT_FABRIC:

```
vpar1# tdutil /dev/td0
Vendor ID is = 0x00103c
Device ID is = 0x001028
TL Chip Revision No is = 2.3
PCI Sub-system Vendor ID is = 0x00103c
PCI Sub-system ID is = 0x000006
Topology = PTTOPT_FABRIC
...
```

- After a reboot, the topology shows PUBLIC_LOOP:

```
vpar1# tdutil /dev/td0
Vendor ID is = 0x00103c
Device ID is = 0x001028
TL Chip Revision No is = 2.3
PCI Sub-system Vendor ID is = 0x00103c
PCI Sub-system ID is = 0x000006
Topology = PUBLIC_LOOP
...
```

- Logging into the switch, the switch information before the reboot shows:

```
brocade01:admin> switchshow
switchName: brocade01
switchType: 2.4
switchState: Online
switchMode: Native
...
port 0: -- No_Module
port 1: -- No_Module
port 2: -- No_Module
port 3: sw Online F-Port 50:06:0b:00:00:10:23:fa
port 4: sw Online F-Port 50:06:0b:00:00:00:f4:28
```

- The switch information after the reboot shows:

```
brocade01:admin> switchshow
switchName: brocade01
switchType: 2.4
switchState: Online
switchMode: Native
...
port 0: -- No_Module
port 1: -- No_Module
port 2: -- No_Module
```

```
port 3: sw Online F-Port 50:06:0b:00:00:10:23:fa
port 4: sw Online L-Port 1 public
```

Workaround

- To permanently set the device to fabric, set the setting on the switch. For example:
switch> **portcfggport port_#,1**
where *port_#* is the port number of the switch that is connected to the A5158A card and 1 represents “true”.
- To temporarily set this device (the setting will not remain after an OS reboot), reset the device from the HP-UX system:

```
vpar1# tdutil /dev/td0 reset
Reset Done
vpar1# tdutil /dev/td0
Vendor ID is = 0x00103c
Device ID is = 0x001028
TL Chip Revision No is = 2.3
PCI Sub-system Vendor ID is = 0x00103c
PCI Sub-system ID is = 0x000006
Topology = PTTOPT_FABRIC
...
```

- **TC Command of the GSP**

Related JAG or Patch ID Number JAGae41558

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description Initiating a Transfer of Control (TC) at the Guardian Service Processor GSP, while the vPars Monitor is booted, may cause the hard partition or system to hang.

Symptoms If the vPars Monitor is booted and a TC is issued via the GSP, the hard partition or system may hang.

Workaround If the hard partition or system hangs, issue an RS (hard reset) at the GSP.

- **Autoboot Fails from Fibre Channel Device via Brocade 3800 Switch**

Related JAG or Patch ID Number JAGae78109

Applicable On

- vPars A.05.xx on PA-RISC
- vPars A.04.xx on PA-RISC
- vPars A.03.xx on PA-RISC

Description Using a fibre channel mass storage device going through a Brocade 3800 switch with firmware version 3.1.1, autobooting virtual partitions fails on rp5405, L3000/rp5470, or N4000/rp7400 servers with PDC 43.22 installed.

Symptoms Autoboot fails.

Workaround Boot the virtual partitions manually from the vPars Monitor or HP-UX shell prompt. For example:

```
MON> vparload -p vpar2
```

or

```
vpar1# vparboot -p vpar2
```

For more information on using vPars with fibre channel devices, see the *HP-UX Virtual Partitions Ordering and Configuration Guide*.

- On sx2000 Integrity Servers, Booting an OS Kernel while in the Wrong Mode May Cause a Panic Instead of Displaying Error Messages

Related JAG or Patch ID Number JAGag06132

Applicable On

- vPars A.05.xx on Integrity
- vPars A.04.xx on Integrity

Description On Integrity servers, if you are in vPars mode and you boot the OS Kernel (boot vmunix) instead of the vPars Monitor (boot vpmo), an error message is typically displayed on the console. You may, however, receive a system panic message, instead of an error message.

Symptoms The system panic displays messages similar to the following

```
EFI\HPUX\AUTO ==> boot vmunix
.....
Launching /stand/vmunix
SIZE: Text:29561K + Data:7016K + BSS:7128K = Total:43705K
Console is on virtual console
Booting kernel...

Stored message buffer up to panic:
5028, 0x11, 0x40).
pinned_pdk_malloc_avail_contig(): 0x33000
Bad News: Cannot use the Kernel Stack when interrupted on the ICS.
Bad News: Fault/trap with interrupts disabled and we cared.
reg_dump(): Displaying register values (in hex) from the save state
...
System Panic:
double panic: Bad News!
```

Workaround After the system comes back up, make sure the system is in the mode you want (vPars or nPars), then boot the appropriate item (vpmo for vPars mode and vmunix for nPars mode).

Related Information

This section lists the official vPars documents. All documents, including additional topic-specific papers related to using vPars, are available at the HP Documentation web site at:

<http://docs.hp.com/hpux/os/11iv2/index.html#Virtual%20Partitions>

- *HP-UX Virtual Partitions Release Notes* (this document)
This describes what's new as well as known problems for a specific vPars release.
- *HP-UX Virtual Partitions Administrator's Guide*
This is the vPars system administrator's guide that describes the basic concepts and common tasks for the vPars product.
- *HP-UX Virtual Partitions Ordering and Configuration Guide*
This document contains information on licensing and version requirements for the vPars product and related HP-UX products, such as HP-UX 11i Operating Environments (OEs), for servers using vPars. The document also contains the information on supported hardware, firmware, I/O cards and devices, and other HP-UX products used with vPars.
- Topic Specific Papers:
 - *Securing Virtual Partitions with HP-UX Role-Based Access Control*
 - *Using Golden Images with Virtual Partitions*

- *Kernel Memory Allocation*
- *LPMC and resulting CPU States*
- *LVM & vPars I/O Backplane Upgrade*
- *LVM/VxVM and vPars sx2000 Upgrade*
- *Resizing vPars automatically with HP-UX Workload Manager*
- *Booting, Installing, Recovery, and Sharing in a vPars Environment from DVD/CDROM/TAPE/Network*

Ordering vPars

Product Numbers The vPars A.03.xx, vPars A.04.xx, and vPars A.05.xx releases have different product numbers:

T1335CC vPars A.05.xx for HP-UX 11i v3

T1335BC vPars A.04.xx for HP-UX 11i v2

T1335AC vPars A.03.xx for HP-UX 11i v1

Software Depot You can order HP-UX Virtual Partition software products as an electronic download from HP Software Depot using the following website addresses.

- vPars A.05.xx Software Depot
<http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=T1335CCE>
- vPars A.04.xx Software Depot
<http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=T1335BCE>
- vPars A.03.xx Software Depot
<http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=T1335ACE>

For licensing and configuration information as well as required firmware, see the *HP-UX Virtual Partitions Ordering and Configuration Guide*.



NOTE: The HP Software Depot home is available at the following website:

<http://www.hp.com/go/softwaredepot>

Software Availability in Native Languages

The vPars software product is available only in the English language.



NOTE: HP-UX Virtual Partitions *documentation* is available in the English language and in the Japanese language.

