HP-UX Virtual Partitions Release Notes A.05.02

vPars A.05.02

HP Part Number: T1335-90077
Published: September 2007
Edition: 1.0

Table of Contents

vPars A.05.02 Release Notes

This document provides information about the HP-UX Virtual Partitions (vPars) A.05.02 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.05.02 release:

- Support for HP 9000 rp7440, rp8440, and Superdome sx2000 Servers

  For vPars A.05.02 server firmware and other configuration requirements, see the *HP-UX Virtual Partitions Ordering and Configuration Guide*.

- Pre-enablement of SCSI tape boot and recovery for Integrity servers

  This feature is pre-enabled in vPars A.05.02 but is not yet supported by system firmware.

- Support for booting virtual partitions from DVD on Integrity servers

  On Integrity servers, the vPars A.05.02 vPars Monitor can boot an install kernel from DVD media. The vPars Monitor (`vpmon`) supports DVD boot through the new `vparload -D` option. For details see the *HP-UX Virtual Partitions Administrator's Guide*.

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

vPars A.05.02 requires the following patch bundles from the HP-UX 11i v3 (B.11.31) September 2007 update release:

- B.11.31.0709 FEATURE11i (required patches for vPars install)
- C.02.00.03 SFM-CORE (required bundle for optimal CPU migration performance)

You can download patches from the HP IT Resource Center (ITRC) website:

http://itrc.hp.com/

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 v3 (B.11.31).

Hardware Requirements

The vPars A.05.02 release runs on HP 9000 servers and HP Integrity Servers with the HP-UX 11i v3 (B.11.31) 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.05.02.

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

- **JAGag36078** Add a warning to log when vPar boots with bad float/base memory configuration: monitor log warning message is recorded when a virtual partition which doesn't meet the minimum base memory requirements is booting or running.
- **JAGaf93315** vpdb is changed when vPars boots with missing hardware
- **JAGag31954** vparreset -h on system with AB5454 card hangs whole nPartition
- **JAGag43006** Memory got removed from an active partition during memory OLA

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.

- ALTBOOT automatically set when booted in vPars mode

  Related Defect ID and Patch Number JAGag43601

  Applicable On vPars A.05.xx on PA-RISC

  Description After creating a new vPars database (vpdb) the ALTBOOT variable for a virtual partition may be automatically set when booting in vPars mode. Explicitly set alternate boot path settings are unaffected by this issue.

  Symptoms ALTBOOT variable for a virtual partition is automatically set.

  Workaround To avoid this issue, you can either:
  - Ignore the alternate boot path setting.
  - Explicitly set the alternate boot path for the virtual partition.

- 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.

- Software Configuration Error During HP-UX Install on Virtual Partitions

Related Defect ID and Patch Number JAGag27323

Applicable On vPars A.05.xx

Description During the installation of HP-UX on a virtual partition, an error may occur during the configuration of the iCOD software product. When the virtual partition reboots following the configuration phase, the software will be configured correctly, so there is no loss of functionality.

Symptoms An error message will appear in the install log:

```
ERROR: The "configure" script for "iCOD.ICOD-RUN" failed
```

Workaround After the installation completes, the software is configured correctly, no further action is required. To avoid this error for future installs, update the server firmware to the latest supported version. See the *HP-UX Virtual Partitions Ordering and Configuration Guide* for details..

- On PA–RISC Servers, Booting a Fibre Channel Tape Device May Cause the Target Virtual Partition to Hang

Related Defect ID and Patch Number JAGaf09885

Applicable On

— vPars A.05.xx on PA-RISC

— vPars A.04.03 on PA-RISC

Description If you attempt to boot a virtual partition using a Fibre Channel tape device that has been configured using the `:TAPE` attribute, the target virtual partition may hang.

Symptoms On PA-RISC servers, if you attempt to execute the command

```
# vparboot -p target_vpar -B TAPE
```

where `TAPE` is a Fibre Channel tape device previously configured using the `:TAPE` attribute, the target virtual partition may hang, remaining in the `load` state indefinitely. Further, the target virtual partition does not reset when using `vparreset`.

Workaround None. HP recommends that you not attempt to boot a Fibre Channel tape device.

- ## A Virtual Partition Remains in `Load` State with sx2000 Chipset

Related Defect ID and Patch Number JAGaf88969

Applicable On

— vPars A.05.xx on Integrity

— vPars A.04.02, A.04.03 on Integrity

Description On Integrity systems running the sx2000 chipset and Intel Itanium 2 single-core processor with 9 MB cache, a virtual partition remains in the `load` state for at least 30 seconds and does not complete its boot process.

Symptoms The console display includes the following:

```
Initializing IO Devices ...
LBA Cell 01 (01): Occupied PCI-X 133MHz
Scan PCI:
Rope Slot Seg Bus Dev Fun Card
..
Loading.: 1/0/1/1/0/4/0.6.0.0.0.0.0
Executing Image: "\EFI\HPUX\HPUX.EFI"
Optional Data : "\EFI\HPUX\HPUX.EFI boot /stand/vmunix"
Starting: 1/0/1/1/0/4/0.6.0.0.0.0.0
(C) Copyright 2004 Hewlett-Packard Development Company, L.P.All rights
reserved
HP-UX Boot Loader for IPF -- Revision 2.027
ESC[0mESC[37mESC[40m> System Memory = 16335 MB
loading section 0
..................................................
(complete) loading section 1 ............ (complete)
loading symbol table loading System Directory (boot.sys) to MFS .....
loading MFSFILES directory (/stand/bootfs) to MFS
.............
```

Workaround You can either:

— Update the server firmware to the latest version. See the *HP-UX Virtual Partitions Ordering and Configuration Guide* for firmware version details.

— If the virtual partition remains in the `load` state (you can use `vparstatus` to verify the state), perform the following:

1. Issue a hard reset using `vparreset` to reset the virtual partition.

   For example, if `winona2` remains in the `load` state, to issue a hard reset:

   ```
   winona1# vparreset -p winona2 -h
   ```

2. When the target partition is in the `down` state, attempt booting the partition using `vparboot`. For example:

   ```
   winona1# vparboot -p winona2
   ```

The virtual partition should recover and boot properly.

- ## 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 `vparefiutil -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 `vparefiutil -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 `vparutil`

  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 vpmon`), 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 (`vpmon` 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/en/oshpux11iv3.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 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=T1335CC

- vPars A.04.xx Software Depot

  http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=T1335BC

- vPars A.03.xx Software Depot

  http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=T1335AC

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.


invent