VMS Software, Inc. OpenVMS Field Test V9.1 Update Kit Release Notes

1 KIT NAME:

VSI-X86VMS-V91_UPD-V0200

2 KIT DESCRIPTION:

2.1 Installation Rating:

INSTALL_1: To be installed by all V9.1 Field Test customers.

This installation rating serves as a guide to which customers should apply this update kit.

Reference the attached Disclaimer of Warranty and Limitation of Liability Statement.

2.2 Reboot Requirement:

A reboot is required after installing this kit.

VMS Software, Inc. strongly recommends that a reboot be performed immediately after kit installation to avoid system instability.

2.3 Version(s) of OpenVMS to which this kit may be applied:

VSI OpenVMS x86-64 V9.1

2.4 Kit mechanism description

This kit is an update for the VSI OpenVMS x86-64 V9.1 Field Test release. It is packaged as a PCSI patch kit for ease of installation. See Section 8 for kit installation instructions and restrictions.

3 KITS SUPERSEDED BY THIS KIT:

VSI-X86VMS-V91_UPD-V0100

4 KIT DEPENDENCIES:

None

5 PROBLEMS ADDRESSED IN THIS KIT

5.1 Condition handler search issue with multiple active conditions

5.1.1 Problem Description

A problem was identified with the Condition Handling Facility (CHF) which impacted condition handler searches with multiple active conditions. Symptoms from this issue are unpredictable. This patch kit corrects the behavior.

In addition, some additional tracing ability was added for potential future remedial support or debugging.

5.1.2 Images and/or Files Affected:

[SYS$LDR]EXCEPTION.EXE
[SYS$LDR]EXCEPTION.STB
[SYS$LDR]EXCEPTION_MON.EXE
[SYS$LDR]EXCEPTION_MON.STB

5.1.3 VSI case identifier

Jiras BO-736, BO-735, BO-732

5.1.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.2 Fast I/O system service may crash with INCONSTATE bugcheck

5.2.1 Problem Description

The Fast I/O system service code had incomplete handling for some conditions which would result in an INCONSTATE bugcheck. This behavior has been corrected.

5.2.2 Images and/or Files Affected:

[SYS$LDR]IO_ROUTINES.EXE
[SYS$LDR]IO_ROUTINES.STB
[SYS$LDR]IO_ROUTINES_MON.EXE

[SYS$LDR]IO_ROUTINES_MON.STB

5.2.3 VSI case identifier

None, found during internal testing

5.2.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.3 Potential network misbehavior or VAXPORT bugchecks

5.3.1 Problem Description

When running in a cluster with multiple CPUs active, a VAXPORT bugcheck may be encountered, caused by contention for a location in a PEDRIVER data structure. Improper synchronization resulted from a particular code sequence which was identified as a bug in the MACRO32 compiler for x86. Other odd network behavior could also occur due to this issue.

A workaround has been implemented in PEDRIVER until a future release after the MACRO32 compiler has been updated.

5.3.2 Images and/or Files Affected:

[SYS$LDR]SYS$PEDRIVER.EXE
[SYS$LDR]SYS$PEDRIVER.STB
[SYS$LDR]SYS$PEDRIVER_MON.EXE
[SYS$LDR]SYS$PEDRIVER_MON.STB

5.3.3 VSI case identifier

Jira QTV-556

5.3.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.4 Odd byte count disk transfer may corrupt last byte

5.4.1 Problem Description

An incorrect mapping mechanism to handle odd byte counts in PKDDRIVER could result in the last odd byte being incorrectly

transferred. The PKDDRIVER port driver is called from the DKDRIVER class driver for some disk types.

The behavior for all transfer sizes is corrected with this patch kit.

5.4.2 Images and/or Files Affected:

[SYS$LDR]SYS$PKDDRIVER.EXE

5.4.3 VSI case identifier

Jira QTV-517

5.4.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.5 Pagefault may not complete

5.5.1 Problem Description

A write error during pagefault handling could result in an endless loop and never complete. This could lead to processes stuck in PFW state as well as other strange symptoms.

The error recovery mechanism for page fault handling is corrected with this patch kit.

5.5.2 Images and/or Files Affected:

[SYS$LDR]IO_ROUTINES.EXE
[SYS$LDR]IO_ROUTINES.STB
[SYS$LDR]IO_ROUTINES_MON.EXE
[SYS$LDR]IO_ROUTINES_MON.STB

5.5.3 VSI case identifier

None, found during internal testing

5.5.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.6 SYS$GETSECI system service returns incorrect information

5.6.1 Problem Description

Some internal structure relationships regarding process sections have changed to support x86. Several incorrect assumptions have been identified and are corrected with this patch kit.

5.6.2 Images and/or Files Affected:

[SYS$LDR]PROCESS_MANAGEMENT.EXE
[SYS$LDR]PROCESS_MANAGEMENT.STB
[SYS$LDR]PROCESS_MANAGEMENT_MON.EXE
[SYS$LDR]PROCESS_MANAGEMENT_MON.STB
[SYS$LDR]SYS$VM.EXE
[SYS$LDR]SYS$VM.STB
[SYS$LDR]SYS$VM_MON.EXE
[SYS$LDR]SYS$VM_MON.STB

5.6.3 VSI case identifier

None, found during internal testing

5.6.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.7 Some system service calls could cause a general protection fault

5.7.1 Problem Description

A problem was identified where execution of a non-kernel mode system service could lead to a misaligned stack, potentially causing a general protection fault. This could lead to spurious process termination or other symptoms.

The stack alignment has been corrected for all calling modes.

5.7.2 Images and/or Files Affected:

[SYS$LDR]SYSTEM_PRIMITIVES_0.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0.STB
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.EXE

```
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.STB
```

5.7.3 VSI case identifier

Jira BO-740

5.7.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.8 Incorrectly disabled interrupts could cause process or system hang

5.8.1 Problem Description

A problem was identified where non-kernel mode code could disable interrupt delivery, causing the process or even the system to hang.

This issue is corrected with this patch kit.

5.8.2 Images and/or Files Affected:

```
[SYS$LDR]SYSTEM_PRIMITIVES_0.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0.STB
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2.EXE
```

[SYS$LDR]SYSTEM_PRIMITIVES_2.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.STB

5.8.3 VSI case identifier

Jira BO-747

5.8.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.9 System crash when using more than 4 process threads

5.9.1 Problem Description

When running a multi-threaded image and using more than 4 threads on a system with the MULTITHREAD system parameter greater than 4, the system may crash when the image is terminated.

With this patch kit, the system will no longer crash when terminating a multi-threaded process using more than 4 threads.

5.9.2 Images and/or Files Affected:

[SYS$LDR]PROCESS_MANAGEMENT.EXE
[SYS$LDR]PROCESS_MANAGEMENT.STB
[SYS$LDR]PROCESS_MANAGEMENT_MON.EXE
[SYS$LDR]PROCESS_MANAGEMENT_MON.STB

5.9.3 VSI case identifier

Jira BO-787

5.9.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.10 Issues with the $GETSYI item code CONTIG_GBLPAGES

5.10.1 Problem Description

Use of the SYS$GETSYI system service or the F$GETSYI lexical with the item code CONTIG_GBLPAGES would either return a 0 or cause a system crash.

With this patch kit, the correct value for CONTIG_GBLPAGES will be returned.

5.10.2 Images and/or Files Affected:

[SYS$LDR]SYSGETSYI.EXE
[SYS$LDR]SYSGETSYI.STB

5.10.3 VSI case identifier

Jira SPS-249

5.10.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

5.11 SHOW INTRUSION command returns %SYSTEM-F-BADCONTEXT

5.11.1 Problem Description

The SHOW INTRUSION command incorrectly exits with the error:

```
%SYSTEM-F-BADCONTEXT, invalid or corrupted context encountered
```

This was caused by some code paths assuming 32-bit instead of 64-bit formats for the time. This behavior has been corrected with this patch kit.

5.11.2 Images and/or Files Affected:

[SYSEXE]SECURITY_SERVER.EXE

5.11.3 VSI case identifier

Jira QTV-541

5.11.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

6 PROBLEMS ADDRESSED FROM PREVIOUS KITS

6.1 SHOW PROCESS/CONTINUOUS may abort image

6.1.1 Problem Description

The SHOW PROCESS/CONTINUOUS command may trigger an access violation exception, causing the image to abort.

This patch kit corrects the behavior of SHOW PROCESS/CONTINUOUS.

6.1.2 Images and/or Files Affected:

[SYS$LDR]PROCESS_MANAGEMENT.EXE
[SYS$LDR]PROCESS_MANAGEMENT.STB
[SYS$LDR]PROCESS_MANAGEMENT_MON.EXE
[SYS$LDR]PROCESS_MANAGEMENT_MON.STB
[SYSEXE]SHOW.EXE

6.1.3 VSI case identifier

Jira BO-780

6.1.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

6.2 Resident images may not correctly execute condition handlers

6.2.1 Problem Description

An image installed as resident may fail to correctly call condition handlers when encountering an exception. Instead of potentially correcting or handling the error, the last chance exception handler is invoked, yielding an improperly handled condition display of the signal and register values. Images installed resident can be identified from INSTALL LIST showing "Resid" as an image attribute.

With this patch kit, the correct exception handling is restored for resident images.

6.2.2 Images and/or Files Affected:

```
[SYS$LDR]SYSTEM_PRIMITIVES_0.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0.STB
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.STB
```

6.2.3 VSI case identifier

Jira V91-36

6.2.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

6.2.5 Workaround

If possible, do not install the affected image as resident.

6.3 Images installed as open or shared are not correctly shared

6.3.1 Problem Description

After a writable section has been installed /SHARE/WRITE, an attempt to remove it fails with an RMS-E-FLK error. More generally, attempts to use installed writable shared sections result in an RMS-E-FLK error. In addition, all image activation performance is degraded and system shared libraries consume excessive memory.

This patch kit corrects all the related symptoms of the problem.

6.3.2 Images and/or Files Affected:

[SYS$LDR]RMS.EXE
[SYS$LDR]RMS.STB

6.3.3 VSI case identifier

Jira FS-185

6.3.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

6.4 Threaded applications may erroneously fail

6.4.1 Problem Description

If multithreading is enabled on the system, running any DECthreads or pthreads application from an unprivileged user account may result in the following DECthreads bugcheck, aborting the application:

%DECthreads bugcheck (version V3.22-095), terminating execution.
% Reason: Unexpected error initializing kernel threads: 0x24

This patch kit corrects the thread behavior.

6.4.2 Images and/or Files Affected:

[SYS$LDR]SYS$VM.EXE
[SYS$LDR]SYS$VM.STB
[SYS$LDR]SYS$VM_MON.EXE
[SYS$LDR]SYS$VM_MON.STB

6.4.3 VSI case identifier

Jira BO-771

6.4.4 Release Version of VSI OpenVMS that will contain this change:

Next VSI OpenVMS x86-64 release after V9.1

7 IMAGES OR FILES REPLACED:

[SYS$LDR]EXCEPTION.EXE
[SYS$LDR]EXCEPTION.STB
[SYS$LDR]EXCEPTION_MON.EXE
[SYS$LDR]EXCEPTION_MON.STB
[SYS$LDR]IO_ROUTINES.EXE
[SYS$LDR]IO_ROUTINES.STB
[SYS$LDR]IO_ROUTINES_MON.EXE
[SYS$LDR]IO_ROUTINES_MON.STB
[SYS$LDR]PROCESS_MANAGEMENT.EXE
[SYS$LDR]PROCESS_MANAGEMENT.STB
[SYS$LDR]PROCESS_MANAGEMENT_MON.EXE
[SYS$LDR]PROCESS_MANAGEMENT_MON.STB
[SYS$LDR]RMS.EXE
[SYS$LDR]RMS.STB
[SYS$LDR]SYS$PEDRIVER.EXE
[SYS$LDR]SYS$PEDRIVER.STB
[SYS$LDR]SYS$PEDRIVER_MON.EXE
[SYS$LDR]SYS$PEDRIVER_MON.STB
[SYS$LDR]SYS$PKDDRIVER.EXE
[SYS$LDR]SYS$VM.EXE
[SYS$LDR]SYS$VM.STB
[SYS$LDR]SYS$VM_MON.EXE
[SYS$LDR]SYS$VM_MON.STB
[SYS$LDR]SYSGETSYI.EXE
[SYS$LDR]SYSGETSYI.STB

```
[SYS$LDR]SYSTEM_PRIMITIVES_0.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0.STB
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_0_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2.STB
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_2_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3.STB
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_3_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4.STB
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_4_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6.STB
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_6_MIN.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7.STB
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.EXE
[SYS$LDR]SYSTEM_PRIMITIVES_7_MIN.STB
[SYSEXE]SECURITY_SERVER.EXE
[SYSEXE]SHOW.EXE
```

8 INSTALLATION INSTRUCTIONS

8.1 Installation Command

Install this kit with the POLYCENTER Software Installation Utility by logging into the SYSTEM account, and typing the following at the DCL prompt:

```
$ PRODUCT INSTALL V91_UPD [/SOURCE=location of kit]
```

The kit location may be any disk directory that contains the kit. The /SOURCE qualifier is not needed if the PRODUCT INSTALL command is executed from the same directory as the kit location.

The release notes for any kit may be extracted prior to kit installation using the PRODUCT EXTRACT RELEASE_NOTES command.

Additional help on installing PCSI kits can be found by typing HELP PRODUCT INSTALL at the system prompt.

8.2 Installation Restrictions

Most VSI remedial patch kits may be removed for some period after installation via PRODUCT UNDO PATCH. Due to an issue with the PCSI utility, it is not possible to remove this kit

using that mechanism. Once installed it must stay installed. The PCSI issue will be addressed in a future release of VSI OpenVMS x86-64.

9 COPYRIGHT

10 DISCLAIMER OF WARRANTY AND LIMITATION OF LIABILITY