

PERF_UPD V2.0 ECO Kit for VSI OpenVMS x86-64

Release Notes

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Operating System: VSI OpenVMS x86-64 Version 9.2-3

Kit Name: VMS923X_PERF_UPD-V0200

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1. Kit Name

VMS923X_PERF_UPD-V0200

2. Kit Description

2.1. Installation Rating

INSTALL_3: To be installed by customers experiencing the problems described in this document.

This ECO kit provides performance improvements for certain areas of the system. While the kit is appropriate and recommended for any system, it is not necessary to install it unless your system is affected by any of the behaviors described in *Section 5, "Problems Addressed in This Kit"* or *Section 6, "Problems Addressed From Previous Kits"*.

The changes in this kit will be included in any future V9.2-3 Update ECO kit after Update V3.0.

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

Reference the 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 when convenient after kit installation. The new behavior for the driver images included in this kit will not take effect until the next system reboot.

2.3. Version(s) of VSI OpenVMS to Which This Kit May Be Applied

VSI OpenVMS x86-64 Version 9.2-3 with Update V3

3. Kits Superseded by This Kit

VMS923X_PERF_UPD-V0100

4. Kit Dependencies

VMS923X_UPDATE-V0300

Important

The VMS923X_UPDATE-V0300 kit must be installed prior to installing this kit, using a separate **`PRODUCT INSTALL`** command. The kits may not be installed together with a single **`PRODUCT INSTALL`** operation.

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5. Problems Addressed in This Kit

5.1. Shadow Sets Are Very Slow When Members Are On the Same Fibre Channel Path

Problem Description

Disk I/O performance would be significantly reduced when shadow set members were located on the same Fibre Channel path. This degradation was particularly noticeable during shadow set copy and merge-copy operations.

This issue is corrected with this ECO kit.

Images and/or Files Affected

[SYS$LDR]SYS$PGQDRIVER.EXE

VSI Case Identifier

Jira DRIV-748

Release Version of VSI OpenVMS That Will Contain This Change

The next VSI OpenVMS x86-64 release after V9.2-3.

5.2. Device Errors During Initialization May Cause System Crash

Problem Description

Failure to read flash ROM or firmware during controller or device initialization would sometimes result in a system crash with the following bugcheck:

```
PGFIPLHI, Pagefault with IPL too high
```

SYS$PGQDRIVER has been updated so that initialization failures associated with non-system disk devices are returned as errors for higher-level processing. Initialization failures encountered while configuring the system disk will still result in a system bugcheck, as such failures are considered fatal.

Images and/or Files Affected

[SYS$LDR]SYS$PGQDRIVER.EXE

VSI Case Identifier

Jira BO-2498

Release Version of VSI OpenVMS That Will Contain This Change

The next VSI OpenVMS x86-64 release after V9.2-3.

6. Problems Addressed From Previous Kits

6.1. Performance Issues With Fibre Channel Disks Using PCI Passthrough

Problem Description

A Fibre Channel disk in PCI passthrough mode would sometimes experience slow throughput or other symptoms that stem from the slower I/O, including:

- Long **`MOUNT`** or **`INITIALIZE`** times.
- Slow I/O in some host environments.
- Slowed boot times.
- Under extreme load:
  - The system clock would sometimes de-synchronize between the VM and host.
  - A CPUSPINWAIT system crash would rarely occur.

Improvements to some synchronization and more efficient interrupt handling have corrected the primary causes of these symptoms.

Images and/or Files Affected

[SYS$LDR]SYS$PGQDRIVER.EXE

VSI Case Identifiers

Jira BO-2449, BO-2450, BO-2452, DRIV-655, DRIV-672, DRIV-673

Netsuite 9175

Release Version of VSI OpenVMS That Will Contain This Change

The next VSI OpenVMS x86-64 release after V9.2-3.

6.2. LAN VirtIO Devices Might Briefly Stall

Problem Description

The LAN VirtIO driver would sometimes miss an interrupt due to improper synchronization. This could result in a stall where transmit and receive completions were not processed until the next transmit or receive completion interrupt occurred. Although it would not result in a permanent hang, this behavior degraded performance for the LAN device in use.

This issue is corrected with this ECO kit.

Images and/or Files Affected

[SYS$LDR]SYS$EVDRIVER.EXE

VSI Case Identifier

Jira TCPIP-994

Release Version of VSI OpenVMS That Will Contain This Change

The next VSI OpenVMS x86-64 release after V9.2-3.

6.3. Initializing a Disk Defaults to a Cluster Factor of One

Problem Description

The cluster factor of a disk is the smallest number of blocks that may be allocated for data storage as a single entity. It is used in various size calculations for file system metadata overhead.

If specified using the **INITIALIZE/CLUSTER_SIZE=*n*** command, the provided value is used if valid. For the default behavior when the **/CLUSTER_SIZE** qualifier is not present, the file system selects a suitable value based on the total size of the disk being initialized.

Due to a porting error for x86-64, the default value was always set to one, regardless of the disk size.

This issue is corrected with this ECO kit.

Images and/or Files Affected

[SYSLIB]INIT$SHR.EXE

VSI Case Identifiers

None.

Release Version of VSI OpenVMS That Will Contain This Change

The next VSI OpenVMS x86-64 release after V9.2-3.

7. Images or Files Replaced

[SYS$LDR]SYS$EVDRIVER.EXE

Image Name:	"SYS$VIRTIODRIVER"
Image File Identification:	"X-16"
Image Build Identification:	"XGRV-K6N-000085"
Link Identification:	"Linker I02-97"
Link Date/Time:	25-OCT-2026 21:46:39.76
Image Checksum (MD5):	1BAA0BECA9AFC48FECD5382E73B74693

[SYS$LDR]SYS$PGQDRIVER.EXE

Image Name:	"SYS$PGQDRIVER"

Image File Identification:	"X-16"
Image Build Identification:	"XGRV-K6N-000085"
Link Identification:	"Linker I02-97"
Link Date/Time:	25-OCT-2026 21:47:22.46
Image Checksum (MD5):	576658624B3FDACCA9CDAF9E2A159E40

[SYSLIB]INIT$SHR.EXE

Image Name:	"INIT$SHR"
Image File Identification:	"X-9"
Image Build Identification:	"XGRV-K6N-000085"
Link Identification:	"Linker I02-97"
Link Date/Time:	25-OCT-2026 21:45:34.24
Image Checksum (MD5):	160C9426EA87E2F88DD3235502D9DB6D

Note

VMS Software, Inc. will only distribute kits in signed form. There is no need for most customers to compare file checksums for security or kit integrity reasons.

However, some sites may require such checking even when using signed kits. The image or file checksums (in MD5 format) are supplied to provide comparisons to the extracted final kit files. To find a file checksum, use:

```
$ CHECKSUM/ALGORITHM=MD5 filename
$ SHOW SYMBOL CHECKSUM$CHECKSUM
```

Note

Because a file or image may be replaced by multiple ECO kits over time, a PCSI generation number is used to ensure that the latest version of the file or image is preserved on your system during **`PRODUCT INSTALL`** of an ECO kit. Should a particular kit installation discover a newer version of a file or image in place on the system disk, the following message will be displayed:

```
%PCSI-I-RETAIN, file filename will not be replaced because file from kit
 has lower generation number
```

This is a normal occurrence depending on the order of kit installation. The correct version of the file or image will remain on the system after the current kit installation. The `%PCSI-I-RETAIN` message is informational only and does not indicate a problem.

8. Installation Instructions

8.1. Compressed File

This kit is provided for download within a ZIP archive container file.

Info-ZIP's freeware ZIP and UNZIP tools are provided for use on this VSI OpenVMS version. Your site may have already set up symbols for these tools or other equivalent ZIP tools. If not, use the following command to define a symbol to run the UNZIP image:

```
$ UNZIP :== "$SYS$SYSDEVICE:[VMS$COMMON.SYSHLP.UNSUPPORTED.UNZIP]UNZIP"
```

Then invoke UNZIP to unpack the kit using the command:

```
$ UNZIP VMS923X_PERF_UPD-V0200
```

This will extract the installable PCSI product kit file and its associated signed manifest (_VNC file), used for kit validation during **PRODUCT** commands.

VSI strongly recommends always using the manifest to validate the kit content during any **PRODUCT** commands. This will occur automatically if the files are both contained in the same directory.

8.2. Installation Command

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

```
$ PRODUCT INSTALL VMS923X_PERF_UPD [/SOURCE=location_of_kit]
```

The kit location may be a CD/DVD or a 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.

This kit requires the use of **/RECOVERY_MODE** and **/SAVE_RECOVERY_DATA** and will automatically set them; they do not need to be present on the command line.

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

User-selectable options for installation behavior and scripting are available in this kit; refer to *Appendix A, "User-Selectable Control Options and Scripting Considerations"* for further details.

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

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11. Patch ID

X86VMS-VMS923X_PERF_UPD-V0200--4

Note

The terms "ECO kit" and "patch kit" may be used interchangeably in this document. This also applies for other VSI OpenVMS documentation when describing PCSI kits that provide remedial updates to a particular product.

A. User-Selectable Control Options and Scripting Considerations

A.1. Controlling Kit Behavior for Introductory Questions

This kit provides user-selectable control options for kit dialogue interaction and automated scripting capability as described here in this appendix.

The general form of a VSI OpenVMS ECO kit, when using **`PRODUCT INSTALL`**, consists of three initial questions regarding these topics:

1. System disk backup: A reminder that VSI recommends backing up the system disk before installing updates, followed by a `Do you want to continue?` YES/NO question, default is `YES`.

2. Reboot requirement: A summary of whether the kit being installed requires a system reboot, followed by a `Do you want to continue?` YES/NO question, default is `YES`.

3. Archival of updated files: A description of saving an "_OLD" copy of each image or file updated by the kit, followed by a `Do you want to save "_OLD" copies of replaced files?` YES/NO question, default is `NO`.

Other questions may be asked later, depending on the target disk or system environment or other kit-specific requirements.

Note

An initial `Do you want to continue?` question may be asked directly by the PCSI utility during any **`PRODUCT`** command—this has nothing to do with the kit being used. To avoid that question, you must supply sufficient detail to uniquely identify the product you wish to use and specify **`/OPTIONS=NOCONFIRM`** on the **`PRODUCT`** command.

Control options are available to customize the dialogue for the initial three kit questions. The controls are logical names, which may be defined in the process logical name table with a value of YES or NO.

To modify the behavior of a VSI OpenVMS ECO kit regarding the initial questions, define one or more of the following logical names before issuing the **PRODUCT INSTALL** command.

- To skip one or more of the questions, define the corresponding logical name shown here to YES:

SKIP$BACKUP	Skips system backup awareness question.
SKIP$REBOOT	Skips system reboot awareness question.
SKIP$ARCHIVE_OLD	Skips question about saving "_OLD" files. This will take the default, which is NO.
SKIP$INTRO	Skips all three of the above questions.

- To specifically override the default for saving "_OLD" files, define this logical name to YES or NO:

VSIKIT$ARCHIVE_OLD	Sets an answer for saving "_OLD" files behavior. This will skip the archive "_OLD" files question regardless of the above SKIP$* logical names.

- Two additional logical names may be defined as YES to modify the amount of explanatory text displayed for each question:

VSIKIT$VERBOSE	Shows all explanatory text for questions.
VSIKIT$BRIEF	Skips some general details in the explanations.

  The default if neither name is defined is VERBOSE. If both names are defined to YES, VERBOSE overrides BRIEF. The BRIEF form is displayed for any questions that are skipped.

For example, to skip all three questions but save an archive "_OLD" copy of each replaced file, execute the following commands:

```
$ DEFINE VSIKIT$ARCHIVE_OLD YES
$ DEFINE SKIP$INTRO YES
$ PRODUCT INSTALL kitname
```

A.2. Standard Behavior for YES/NO Questions Asked During Kit Installation

Any YES/NO questions asked during kit installation now follow these rules:

1. **Ctrl/Y** issued while a question is being asked will force the current **PRODUCT** operation to terminate. This is completely safe to do while the initial three questions are being asked during **PRODUCT INSTALL** as no changes have yet been made to the target disk.
2. Some questions may ignore **Ctrl/Y** and ask for a specific answer (for example, if aborting the current operation may have side effects for the system). Additionally, note the following:
   - PCSI may trap **Ctrl/Y** directly for some **PRODUCT** operations.
   - **Ctrl/Y** may be disabled during some sensitive kit processing.
3. The default YES/NO answer is automatically chosen if a kit is installed from a batch job, unless explicitly overridden by a logical name that provides the particular value, such as VSIKIT$ARCHIVE_OLD.

A.3. Installing a Kit From a Batch Job

To install a kit from a batch job, you will need to fully qualify the kit name so PCSI will have enough information to select the kit without asking for confirmation. For example, to install this kit:

```
$ PRODUCT INSTALL VMS923X_PERF_UPD/VERSION=V2.0/OPTIONS=NOCONFIRM
```

If the kit is located in a directory other than the current default directory, you will also need to add the qualifier:

```
/SOURCE=location_of_the_kit
```

For a batch job, any YES/NO question will automatically select the default answer. Use the control logical names explained above to modify the behavior if necessary. For the system disk backup and reboot questions, the batch behavior is identical to the default. For the save "_OLD" files question, define the VSIKIT$ARCHIVE_OLD logical name to YES if you want to save copies of the files, since the batch default is NO.

A.4. Deprecated Logical Names From HPE ECO Kits

The three names listed below were used by older VSI OpenVMS ECO kits for compatibility with HPE ECO kit behavior. These old names continue to function, but VSI encourages you to modify any scripts you may have to use the new names shown instead:

Old Name	**New Name**
NO_ASK$BACKUP	SKIP$BACKUP
NO_ASK$REBOOT	SKIP$REBOOT
ARCHIVE_OLD	VSIKIT$ARCHIVE_OLD