VMS Software

IO_UPDATE V1.0 ECO Kit for VSI OpenVMS IA-64

Release Notes

Publication Date: May 2026

Operating Systems: VSI OpenVMS IA-64 Version 8.4-1H1
VSI OpenVMS IA-64 Version 8.4-2
VSI OpenVMS IA-64 Version 8.4-2L1
VSI OpenVMS IA-64 Version 8.4-2L3

Kit Name: VMS842L3I_IO_UPDATE-V0100

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Table of Contents

1. Kit Name

VMS842L3I_IO_UPDATE-V0100

2. Kit Description

2.1. Installation Rating

INSTALL_1: To be installed by all customers.

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 immediately after kit installation to avoid system instability.

If you are installing this kit in a VMScluster, any systems that share the same system disk with the installing system must also be rebooted in order to make use of the new images.

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

- VSI OpenVMS IA-64 Version 8.4-1H1
- VSI OpenVMS IA-64 Version 8.4-2
- VSI OpenVMS IA-64 Version 8.4-2L1
- VSI OpenVMS IA-64 Version 8.4-2L3

The images and files in this kit apply to any of these VSI OpenVMS versions. Because patch kits are removed by PCSI during upgrades to newer OpenVMS versions, the kit will need to be reinstalled if an upgrade is done from an older listed version to any newer listed version.

3. Kits Superseded by This Kit

VMS842L3I_IOPERFORM-V0100

VMS842L1I_MULTIPATH-V0100

VMS841H1I_SHADOWING-V0100

4. Kit Dependencies

VMS841H1I_NOTARY-V0200 (if installing on V8.4-1H1)
VMS842I_NOTARY-V0200 (if installing on V8.4-2)

> All VSI OpenVMS ECO kits now require the Notary V2.0 ECO kit for their respective versions of VSI OpenVMS. This is to ensure correct validation regardless of the manifest version in use.

The Notary V2.0 kit named above which matches the version of VSI OpenVMS being updated is required for this kit to install.

VMS842L1I_UPDATE-V0100 (if installing on V8.4-2L1)

All new ECO kits for VSI OpenVMS IA-64 V8.4-2L1 require the VMS842L1I_UPDATE-V0100 kit.

None (if installing on V8.4-2L3)

5. Problems Addressed in This Kit

5.1. MONITOR DISK/ITEM=QUEUE_LENGTH Issue with Bound Volume Sets

Problem Description

`MONITOR DISK/ITEM=QUEUE_LENGTH` may display a large non-zero queue length for members of bound volume sets, even though the disk may actually be idle.

This issue only occurs for bound volume sets consisting of multiple disk devices using the FastIO mechanism. The queue length fields were updated inconsistently between the various volume set members.

This problem is corrected with this ECO kit.

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

VSI Case Identifier

Jiras DRIV-553, DRIV-554

Netsuite NS8211

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.2. $GETDVI May Return Wrong Value for DVI$_SHDW_MINIMERGE_ENABLE

Problem Description

The **`$GETDVI`** item code **`DVI$_SHDW_MINIMERGE_ENABLE`** might mistakenly return a "not enabled" status if automatic or dismount bitmaps are specified in the HBMM policy.

SHOW SHADOW always returns the correct answer.

SHOW SHADOW and **$GETDVI** used slightly different algorithms to determine whether or not HBMM was enabled.

$GETDVI now uses the same mechanism as **SHOW SHADOW** to determine if HBMM is enabled.

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

VSI Case Identifier

Jira BO-1959

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.3. Trying to Force a Path Switch May Return %SYSTEM-E-INVMVIP Error

Problem Description

The error flush routines for SCSI devices were not correctly handling an error status during attempts to flush device errors. As a result, path switches (both manual and automatic) would fail.

An example of a command that could yield a failing manual path switch is:

```
$ SET DEVICE $1$DGA200/PATH=FGB0.5001-4380-1139-CC09 /SWITCH
```

This problem is corrected with this ECO kit.

Images and/or Files Affected

[SYS$LDR]MULTIPATH.EXE
[SYS$LDR]MULTIPATH.STB
[SYS$LDR]MULTIPATH_MON.EXE
[SYS$LDR]MULTIPATH_MON.STB

VSI Case Identifier

Quix QXCM1001427758

PTR 75-126-445

Internal Bugzilla 1415

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.4. $ SHOW PATH/DEVICE May Encounter Spurious Access Violation

Problem Description

The **$ SHOW PATH/DEVICE** command may exit with an access violation error.

This has been corrected with this ECO kit.

Images and/or Files Affected

[SYSEXE]SETSHOWPATH.EXE

VSI Case Identifier

Jira BO-2277

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.5. Prevent Unlikely SHADOW_SERVER Process Crash

Problem Description

On early versions of VSI OpenVMS x86-64, the SHADOW_SERVER process would crash if write bitmaps were enabled for any given shadow set. This has been fixed since VSI OpenVMS x86-64 version V9.2.

This crash has never been seen on Alpha or IA-64, due to memory layout differences.

This ECO kit applies the same fix for Alpha and IA-64 systems as a preventative measure.

Images and/or Files Affected

[SYSEXE]SHADOW_SERVER.EXE

VSI Case Identifier

Jira QTV-680

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.6. SET SHADOW or SHOW SHADOW Command May Cause System Crash

Problem Description

The **SETSHOSHADOW** image provides the interface for the **SET SHADOW** and **SHOW SHADOW** commands to modify behavior or display information from the shadowing device driver.

Timing issues may arise when these commands are issued before the relevant driver structures are completely initialized while a shadow set is mounted. This would typically result in an access violation and subsequent system crash.

A synchronization mechanism has been added to prevent data being misinterpreted before the mount is complete.

Images and/or Files Affected

[SYSEXE]SETSHOSHADOW.EXE

VSI Case Identifier

Jira BO-1575, DRIV-188

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.7. Remove Unnecessary Logical Name Translations From $ SHOW SHADOW

Problem Description

The **$ SHOW SHADOW** command operates in a wildcard context when invoked with any of these command forms:

```
$ SHOW SHADOW
$ SHOW SHADOW DSA
$ SHOW SHADOW _DSA
```

The wildcard context searches for valid shadow sets from devices _DSA0: through _DSA9999:.

A mistaken assumption about logical names for devices produced spurious logical name translations for shadow sets which did not exist. This would result in thousands of unnecessary logical name translations for names which cannot exist or do not matter.

$ SHOW SHADOW now correctly checks for logical names if the command parameter is a single device, but skips unneeded logical name checking for wildcard commands.

Images and/or Files Affected

[SYSEXE]SETSHOSHADOW.EXE

VSI Case Identifier

Jira BO-2439

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.8. $ LD CONNECT/SHARE May Fail in Mixed-Architecture Clusters

Problem Description

When connecting an LD device via **$ LD CONNECT/SHARE** in a mixed-architecture cluster environment which includes x86-64 nodes, the command may fail with the following error messages:

```
%LD-F-FILEINUSE, File incompatible connected to other LD disk in cluster
-LD-F-CYLINDERS, Cylinders mismatch
```

The sectors/tracks/cylinders geometry parameters for disk devices are maintained by IA-64 and Alpha systems for compatibility with older devices. All modern devices do not have this concept of disk geometry, and OpenVMS x86-64 does not maintain the pretense of disk geometry, setting those fields to zero.

The LD connection logic has been enhanced to accept the zeroed geometry from an x86-64 node which has already connected the device, allowing the command to succeed and enabling the desired shared access to the LD device.

Images and/or Files Affected

[SYS$LDR]SYS$LDDRIVER.EXE

VSI Case Identifier

Jira SD-158

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.9. Allow Served Device Unit Numbers Greater Than 9999, up to Max of 16383

Problem Description

From very old device name constraints in both hardware and OpenVMS software, devices to be served to the cluster via MSCP or TMSCP were limited to a maximum unit number of 9999. Some newer hardware allows larger unit numbers.

While the MSCP server for disks and TMSCP server for tapes did not enforce a maximum unit number of 9999, the DUDRIVER disk and TUDRIVER tape clients did.

The changes in this ECO kit allow served devices to have a unit number up to the architectural maximum of 16383.

This limit is due to the format of MSCP and TMSCP messages, which overlay the high bits of the 16-bit word length unit number field with reserved bits for internal control purposes.

Images and/or Files Affected

[SYS$LDR]SYS$DUDRIVER.EXE

[SYS$LDR]SYS$TUDRIVER.EXE

VSI Case Identifier

None

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.10. Process or System Crash From TUDRIVER Tape Access Using Large Blocks

Problem Description

When OpenVMS was first developed, a block transfer was limited to 65535 bytes, and the size of a transfer was provided after a **$QIO** with a 16-bit word field in the IOSB.

In the early 1990s, the limit for the size of a transfer was increased and the corresponding return length was provided in a newer format IOSB using a full 32-bit longword.

Updates were made to various device drivers, including TUDRIVER for TMSCP tapes. Unfortunately, the changes for TUDRIVER only covered some of the possible function codes that could be affected.

Some of the lesser-used functions continued to operate normally for small block sizes, but would result in an executive mode exception in RMS when the tape was accessed as a sequential block device. This would cause the process to be deleted, or a system crash if the BUGCHECKFATAL system parameter was set to 1.

This issue is corrected with this ECO kit, and all the transfer functions in TUDRIVER now correctly use the 32-bit IOSB format.

Images and/or Files Affected

[SYS$LDR]SYS$TUDRIVER.EXE

VSI Case Identifier

Jira BO-2312

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

5.11. Prevent Potential System Crash When Using LD Devices

Problem Description

Under rare circumstances, SYS$LDDRIVER could cause a PGFIPLHI system crash when using an LD device.

This issue is resolved with this ECO kit.

Images and/or Files Affected

[SYS$LDR]SYS$LDDRIVER.EXE

VSI Case Identifier

Jira DRIV-696

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

6. Problems Addressed From Previous Kits

If Installing on Any Version (from VMS842L3I_IOPERFORM-V0100):

6.1. $IO_PERFORM Returns %SYSTEM-F-ILLBLKNUM Error

Problem Description

The **$IO_PERFORM** system service returns a %SYSTEM-F-ILLBLKNUM error when attempting to access logical blocks greater than 1 TB. A 64-bit calculation during transfer setup accidentally treated one of the 32-bit fields as signed instead of unsigned.

The problem is corrected with this ECO kit.

The **$IO_PERFORM[W]** system service initiates I/O transfers within the OpenVMS Fast I/O mechanism. Fast I/O may be used by very focused applications which are extremely I/O intensive. For more information about the Fast I/O capability, please refer to the OpenVMS I/O User's Reference Manual.

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

VSI Case Identifier

Jira BO-1351

Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS IA-64 release after V8.4-2L3

If Installing on V8.4-1H1, V8.4-2, V8.4-2L1 (from VMS842L1I_MULTIPATH-V0100):

6.2. Path Switch Failure on Shadow Sets With More Than Three Members

Problem Description

In a shadow set with more than three members, manual path switching of a shadow set member may fail with the error:

```
%SYSTEM-E-INVMVIP, path switch invalid while
device is in mount verification
```

This fix allows the successful path switch of a shadow set member even if it is the fourth, fifth, or sixth member of a shadow set.

Images and/or Files Affected

[SYS$LDR]MULTIPATH.EXE
[SYS$LDR]MULTIPATH_MON.EXE
[SYSEXE]SHADOW_SERVER.EXE

Quix and/or Bugzilla Cases Reporting This Problem

QXCM1001524834

External Bugzilla 528

Release Version of VSI OpenVMS That Will Contain This Change

VSI OpenVMS IA-64 V8.4-2L3

If Installing on V8.4-1H1 (from VMS841H1I_SHADOWING-V0100):

6.3. SHOW SHADOW Command Displays Wrong HBMM status

Problem Description

When MULTIUSE and DISMOUNT options are used to create the HBMM policy, the SHOW SHADOW command displays the HBMM status as disabled on the other nodes where the shadow set is mounted.

Images and/or Files Affected

[SYS$LDR]SYS$SHDRIVER.EXE
[SYSEXE]SETSHOSHADOW.EXE

Quix and/or Bugzilla Cases Reporting This Problem

QXCM1001359398

QXCM1001371899

Bugzilla 107

Release Version of VSI OpenVMS That Will Contain This Change

VSI OpenVMS IA-64 V8.4-2

6.4. SET SHADOW/POLICY Command Does Not Display an Error Message

Problem Description

SET SHADOW/POLICY command should not allow any change in MULTIUSE and DISMOUNT option. Now it will display an error message if a modification is attempted.

Images and/or Files Affected

[SYSEXE]SETSHOSHADOW.EXE

Quix and/or Bugzilla Cases Reporting This Problem

QXCM1001385253

Bugzilla 107

Release Version of VSI OpenVMS That Will Contain This Change

VSI OpenVMS IA-64 V8.4-2

6.5. Inconsistent Data Between Shadow Set Members

Problem Description

When using MULTIUSE bitmaps, there could be inconsistencies between the shadowset members when minicopy is used to add a previously removed member back into the shadow set.

Images and/or Files Affected

[SYSEXE]SHADOW_SERVER.EXE

Quix and/or Bugzilla Cases Reporting This Problem

QXCM1001395009

Bugzilla 107

Release Version of VSI OpenVMS That Will Contain This Change

VSI OpenVMS IA-64 V8.4-2

7. Images or Files Replaced

If installing on any version

[SYS$LDR]SYS$DUDRIVER.EXE

Image name:	"SYS$DUDRIVER"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:22.95
Image Checksum (MD5):	F5D1B75D720872478414A6678E7FA937

[SYS$LDR]SYS$TUDRIVER.EXE

Image name:	"SYS$TUDRIVER"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:22.91
Image Checksum (MD5):	D920AF364C0C362641107A8D653837B7

[SYSEXE]SHADOW_SERVER.EXE

Image name:	"SHADOW_SERVER"
Image file identification:	"X-29"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:26.67
Image Checksum (MD5):	4F1320DFF63C200F4DCE6EE6CFE264AD

If installing on V8.4-2L3

[SYS$LDR]IO_ROUTINES.EXE

Image name:	"IO_ROUTINES"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:30.76
Image Checksum (MD5):	59F7C7A670A3DFF3E3702D62830ABBF8

[SYS$LDR]IO_ROUTINES.STB

File creation date and time:	27-MAR-2026 22:50:33.51
Checksum (MD5):	A8DEBBDA5DA3E8F5C920E6CCD1873340

[SYS$LDR]IO_ROUTINES_MON.EXE

Image name:	"IO_ROUTINES_MON"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:34.30
Image Checksum (MD5):	33C85468E3B90E2724C3809207423491

[SYS$LDR]IO_ROUTINES_MON.STB

File creation date and time:	27-MAR-2026 22:50:35.79
Checksum (MD5):	AA35D5872CFC19D2A224FB6FAEA8862A

[SYS$LDR]MULTIPATH.EXE

Image name:	"MULTIPATH"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:38.76
Image Checksum (MD5):	CBE285715F12CD0B9DFD4F8A97245EBD

[SYS$LDR]MULTIPATH.STB

File creation date and time:	27-MAR-2026 22:50:39.55
Checksum (MD5):	B1E4B99E708F591E9366C7A0C689EDF7

[SYS$LDR]MULTIPATH_MON.EXE

Image name:	"MULTIPATH_MON"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:39.72
Image Checksum (MD5):	FCBDFAAC5367F59FEB4FBFB100BA3D52

[SYS$LDR]MULTIPATH_MON.STB

File creation date and time:	27-MAR-2026 22:50:40.10
Checksum (MD5):	0DCB05BF79AAB61E05E01A7A95E00F48

[SYS$LDR]SYS$LDDRIVER.EXE

Image name:	"SYS$LDDRIVER"
Image file identification:	"X-5"
Image build identification:	"XFWL-C6E-000199"
Link identification:	"Linker I02-37"
Link Date/Time:	16-MAY-2026 04:27:41.03
Image Checksum (MD5):	E429BB2D814D784C4808BF6442ECDF0D

[SYSEXE]SETSHOSHADOW.EXE

Image name:	"SETSHOSHADOW"
Image file identification:	"X-02"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:50:31.10
Image Checksum (MD5):	1DBFF2D987FF4BD8C4C85E260FDC9A45

[SYSEXE]SETSHOWPATH.EXE

Image name:	"SETSHOWPATH"
Image file identification:	"X-6"
Image build identification:	"XFWL-C6E-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 22:51:12.18
Image Checksum (MD5):	D0965B9598BCA0B74B7534D1F45A1D06

If installing on V8.4-2L1

[SYS$LDR]IO_ROUTINES.EXE

Image name:	"IO_ROUTINES"
Image file identification:	"X-5"
Image build identification:	"XE4H-H4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 21:23:36.05

Image Checksum (MD5):	B32117662989A7C7DB53513048D972F7

[SYS$LDR]IO_ROUTINES.STB

File creation date and time:	27-MAR-2026 21:23:41.89
Checksum (MD5):	314A189FE277FE33B8B5D2E59C6C5FF8

[SYS$LDR]IO_ROUTINES_MON.EXE

Image name:	"IO_ROUTINES_MON"
Image file identification:	"X-5"
Image build identification:	"XE4H-H4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 21:23:42.54
Image Checksum (MD5):	BB6CC3F3073FB0DB9ADB9ADF6370ADA3

[SYS$LDR]IO_ROUTINES_MON.STB

File creation date and time:	27-MAR-2026 21:23:43.57
Checksum (MD5):	958041DF76BE40695A03A68F290886D6

[SYS$LDR]MULTIPATH.EXE

Image name:	"MULTIPATH"
Image file identification:	"X-5"
Image build identification:	"XE4H-H4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 21:23:45.51
Image Checksum (MD5):	0DA52744568752784B8969516E7E641B

[SYS$LDR]MULTIPATH.STB

File creation date and time:	27-MAR-2026 21:23:45.87
Checksum (MD5):	AF76AB9A0489F332614523A6E14A4AF9

[SYS$LDR]MULTIPATH_MON.EXE

Image name:	"MULTIPATH_MON"
Image file identification:	"X-5"
Image build identification:	"XE4H-H4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 21:23:46.04

Image Checksum (MD5):	F0125651DD9A169F9952EB3B06B42C73

[SYS$LDR]MULTIPATH_MON.STB

File creation date and time:	27-MAR-2026 21:23:46.34
Checksum (MD5):	542E57C2A0853B31D6BFDC914A4477EC

[SYS$LDR]SYS$LDDRIVER.EXE

Image name:	"SYS$LDDRIVER"
Image file identification:	"X-5"
Image build identification:	"XE4H-H4N-000199"
Link identification:	"Linker I02-37"
Link Date/Time:	16-MAY-2026 04:25:35.27
Image Checksum (MD5):	60454BA55671295E945DC36A5DAA630C

[SYSEXE]SETSHOSHADOW.EXE

Image name:	"SETSHOSHADOW"
Image file identification:	"X-02"
Image build identification:	"XE4H-H4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 21:23:37.90
Image Checksum (MD5):	CD68702160029A66D4DD14A6CFA94598

[SYSEXE]SETSHOWPATH.EXE

Image name:	"SETSHOWPATH"
Image file identification:	"X-6"
Image build identification:	"XE4H-H4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 21:24:17.96
Image Checksum (MD5):	38E2D7513A057A9F2F024CB295BE3BC8

If installing on V8.4-2

[SYS$LDR]IO_ROUTINES.EXE

Image name:	"IO_ROUTINES"
Image file identification:	"X-5"
Image build identification:	"XE3F-M5D-000196"

Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:42:23.69
Image Checksum (MD5):	C61EBA6E5D176D7AD931697A00B6AE33

[SYS$LDR]IO_ROUTINES.STB

File creation date and time:	27-MAR-2026 23:42:27.96
Checksum (MD5):	FB7036EF002E3BA1860546D8877ABCCF

[SYS$LDR]IO_ROUTINES_MON.EXE

Image name:	"IO_ROUTINES_MON"
Image file identification:	"X-5"
Image build identification:	"XE3F-M5D-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:42:28.61
Image Checksum (MD5):	6EDDE8ABCB620681153FFB3951C2A6D9

[SYS$LDR]IO_ROUTINES_MON.STB

File creation date and time:	27-MAR-2026 23:42:30.62
Checksum (MD5):	FAD78F0262BB8A33403BCB626C883C9E

[SYS$LDR]MULTIPATH.EXE

Image name:	"MULTIPATH"
Image file identification:	"X-5"
Image build identification:	"XE3F-M5D-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:42:32.50
Image Checksum (MD5):	38672750C8C9D26D05313A0DB55D82EB

[SYS$LDR]MULTIPATH.STB

File creation date and time:	27-MAR-2026 23:42:32.72
Checksum (MD5):	77F41C18B34907C149E4DE4B212B043E

[SYS$LDR]MULTIPATH_MON.EXE

Image name:	"MULTIPATH_MON"
Image file identification:	"X-5"
Image build identification:	"XE3F-M5D-000196"

Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:42:32.90
Image Checksum (MD5):	EF921008EC09D0F76B669FBFF27B8B7A

[SYS$LDR]MULTIPATH_MON.STB

File creation date and time:	27-MAR-2026 23:42:32.96
Checksum (MD5):	3EBD139B67CA8D689FC6E1916D02426D

[SYS$LDR]SYS$LDDRIVER.EXE

Image name:	"SYS$LDDRIVER"
Image file identification:	"X-5"
Image build identification:	"XE3F-M5D-000199"
Link identification:	"Linker I02-37"
Link Date/Time:	16-MAY-2026 04:23:34.49
Image Checksum (MD5):	4105ABE6326BB2B2BC5D51B14697DEF9

[SYSEXE]SETSHOSHADOW.EXE

Image name:	"SETSHOSHADOW"
Image file identification:	"X-02"
Image build identification:	"XE3F-M5D-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:42:26.89
Image Checksum (MD5):	365B553AC37255855E17BBE10AA73C40

[SYSEXE]SETSHOWPATH.EXE

Image name:	"SETSHOWPATH"
Image file identification:	"X-5"
Image build identification:	"XE3F-M5D-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:43:05.60
Image Checksum (MD5):	DA82E6666BF92ED0D6C497AC55CBC4CB

If installing on V8.4-1H1

[SYS$LDR]IO_ROUTINES.EXE

Image name:	"IO_ROUTINES"
Image file identification:	"X-5"

Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:05.88
Image Checksum (MD5):	6B8ED4E124C5639CEC084EED9B7731FD

[SYS$LDR]IO_ROUTINES.STB

File creation date and time:	27-MAR-2026 23:16:10.36
Checksum (MD5):	8CBB5E734330089ADE5D362E210E4A41

[SYS$LDR]IO_ROUTINES_MON.EXE

Image name:	"IO_ROUTINES_MON"
Image file identification:	"X-5"
Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:11.45
Image Checksum (MD5):	106F82F5960302167931FE29CAA0F793

[SYS$LDR]IO_ROUTINES_MON.STB

File creation date and time:	27-MAR-2026 23:16:12.59
Checksum (MD5):	E283EF699878A971F97A53C0B98E4BDA

[SYS$LDR]MULTIPATH.EXE

Image name:	"MULTIPATH"
Image file identification:	"X-5"
Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:14.32
Image Checksum (MD5):	DDA314576D241A699B8F0CD6DBA8C92E

[SYS$LDR]MULTIPATH.STB

File creation date and time:	27-MAR-2026 23:16:14.80
Checksum (MD5):	A4FC451E0E26F047878265E5B1ED5DAC

[SYS$LDR]MULTIPATH_MON.EXE

Image name:	"MULTIPATH_MON"
Image file identification:	"X-5"

Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:14.98
Image Checksum (MD5):	EAD17D9DC5A2859A6BB88231CC4877FF

[SYS$LDR]MULTIPATH_MON.STB

File creation date and time:	27-MAR-2026 23:16:15.16
Checksum (MD5):	CC5DA2CA9FD4153928290EDBB8FE3387

[SYS$LDR]SYS$LDDRIVER.EXE

Image name:	"SYS$LDDRIVER"
Image file identification:	"X-5"
Image build identification:	"XE30-B4N-000199"
Link identification:	"Linker I02-37"
Link Date/Time:	16-MAY-2026 04:21:10.63
Image Checksum (MD5):	3329E5BE8B90BACA278FDE545FCC5461

[SYSEXE]SETSHOSHADOW.EXE

Image name:	"SETSHOSHADOW"
Image file identification:	"X-02"
Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:08.89
Image Checksum (MD5):	6935620FF513A93E3BA5FA28F40EDC24

[SYSEXE]SETSHOWPATH.EXE

Image name:	"SETSHOWPATH"
Image file identification:	"X-4"
Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:46.61
Image Checksum (MD5):	F2D01F88463D20948D92B018DA362257

[SYS$LDR]SYS$SHDRIVER.EXE

Image name:	"SYS$SHDRIVER"
Image file identification:	"X-5"

Image build identification:	"XE30-B4N-000196"
Link identification:	"Linker I02-37"
Link Date/Time:	27-MAR-2026 23:16:03.10
Image Checksum (MD5):	CF60587AB70129118E86217CE4DF4549

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.

The kit files may be extracted on any system with UNZIP and copied to your OpenVMS system, or extracted on your OpenVMS system directly.

Assuming you have created an UNZIP symbol to invoke the UNZIP image, you can invoke UNZIP to unpack the kit on OpenVMS using the command:

```
$ UNZIP VMS842L3I_IO_UPDATE-V0100
```

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.

UNZIP Tool Availability

Most customers likely have already installed a set of ZIP and UNZIP tools on their VSI OpenVMS systems. Should you need these tools, a set of the Info-ZIP freeware ZIP and UNZIP tools for VSI OpenVMS is available for download on the web at this address: https://vmssoftware.com/community/freeware/.

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 VMS842L3I_IO_UPDATE [/SOURCE=location_of_kit]
```

The kit location may be a tape drive, 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.

9. Copyright

10. Disclaimer of Warranty and Limitation of Liability

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11. Patch ID

I64VMS-VMS842L3I_IO_UPDATE-V0100--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:

```
$ 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 VMS842L3I_IO_UPDATE/VERSION=V1.0/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