RTL V10.0 ECO Kit for VSI OpenVMS

Release Notes

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Operating System: VSI OpenVMS x86-64 V9.2-3

Kit Name: VMS923X_RTL-V1000

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Table of Contents

1. Kit Name

VMS923X_RTL-V1000

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

Important

This kit may require an additional reboot during the installation process. Please refer to the specific instructions in *Section 8.5, "An Additional Reboot May Be Required for Kit Installation"* below.

A reboot is mandated as part of installing this kit, performed automatically following the kit installation.

VSI OpenVMS for the x86-64 architecture uses a memory disk image, stored on the system disk, when booting the system. The content of the memory disk must remain consistent with the system disk content.

This kit updates the memory disk image and invokes a system reboot sequence (shutdown with reboot) directly as part of the kit installation. You must be prepared to allow the system reboot when installing the kit. After all other kit actions are complete, the system will automatically shutdown and reboot.

If you allow the reboot, you will have the choice of whether to invoke the site-specific shutdown procedure, SYS$MANAGER:SYSHUTDWN.COM during the shutdown portion of the reboot.

By default, after installation completes, the minutes until shutdown is zero. If you wish to leave additional time before the shutdown begins, define the system logical name SHUTDOWN$MINIMUM_MINUTES as the integer value of the wait time in minutes. For example:

```
$ DEFINE/SYSTEM SHUTDOWN$MINIMUM_MINUTES 10
```

No other options for the shutdown may be specified.

The shutdown will commence directly after the memory disk update as the final portion of the kit installation.

Note

VSI OpenVMS RTL ECO kits for other architectures typically do not require a reboot. The reboot is required for this kit because the DECC$SHR.EXE image is included in the memory disk.

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

VSI OpenVMS x86-64 V9.2-3

2.4. Target Disk Requirements

This kit will create a new memory disk image file during **PRODUCT INSTALL** or **PRODUCT UNDO PATCH** operations. This file is required for x86-64 systems bootstrap. If this file cannot be correctly created, the target disk will not be bootable and you will need to restore from backup.

During **PRODUCT INSTALL**, the kit will check for sufficient space on the target disk. The minimum free space is 600,000 blocks to ensure that the memory disk image file and kit files can safely fit on the disk.

Additionally, a check is made to determine if the disk is too fragmented to correctly create the memory disk file. If either check fails, the installation will be aborted before making any changes. After you take any necessary corrective actions to free up disk space or defragment the volume, the **PRODUCT INSTALL** can be re-attempted.

These same checks are not automatically handled by the kit before a **PRODUCT UNDO PATCH** operation. This is not a frequent operation for customer systems. Should you need to remove this kit, you should ensure sufficient disk space before you start. The same 600,000 block minimum applies. To check fragmentation requirements, you can use the following commands:

```
$ ANALYZE/DISK/EXTENTS/REQUIRED=200000/NOOUTPUT disk
$ SHOW SYMBOL ANALYZE$REQUIRED_EXTENTS
```

If the symbol value is 25 or more, the disk is too fragmented and you should defragment it before using **PRODUCT UNDO PATCH**. You can accomplish this using a defragmentation tool or by restoring an image backup.

3. Kits Superseded by This Kit

None.

Important

- There are no previous RTL kits for V9.2-3.
- This kit includes updates for CRTL ECO V10.0.
- This RTL kit version number is V10.0 to keep in synch with the CRTL ECO level of included bugfixes and new functionality.
- All prior CRTL ECO levels are included directly in VSI OpenVMS x86-64 V9.2-3.

4. Kit Dependencies

VMS923X_UPDATE-V0100 (or a higher version Update kit)

Note

VSI strongly recommends that this kit be installed in a separate **PRODUCT INSTALL** operation from any other ECO kits. This will ensure proper handling of the memory disk changes this kit must perform.

5. Problems Addressed in This Kit

5.1. CRTL ECO V10.0 Updates to the C Run-Time Library

5.1.1. Problem Description

This ECO kit provides updated support for the C Run-Time Library.

CRTL ECO V10.0 provides various bug fixes and new functions. It is a superset of all previous CRTL ECO updates. For a complete description of the changes, refer to the additional release notes in:

SYS$HELP:VSI_OPENVMS_CRTL_ECO10_RELEASE_NOTES.TXT
SYS$HELP:VSI_OPENVMS_CRTL_ECO10_RELEASE_NOTES.PDF

5.1.2. Images and/or Files Affected

[SYSLIB]DECC$SHR.EXE
[SYSLIB]DECC$SHRP.EXE
[SYSLIB]DECC$RTLDEF.TLB

5.1.3. VSI Case Identifier

Jira RTLS-487, 505, 515

5.1.4. 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

None.

7. Images or Files Replaced

[SYSLIB]DECC$SHR.EXE

Image Name:	"DECC$SHR"
Image File Identification:	"V8.4-00"
Image Build Identification:	"XGRV-K6N-000030"
Link Identification:	"Linker I02-97"
Link Date/Time:	21-JUN-2025 02:35:43.55
Image Checksum (MD5):	9FEB492DA526ED445715DC9EF84D022D

[SYSLIB]DECC$SHRP.EXE

Image Name:	"DECC$SHRP"

Image File Identification:	"V8.4-00"
Image Build Identification:	"XGRV-K6N-000030"
Link Identification:	"Linker I02-97"
Link Date/Time:	21-JUN-2025 02:35:42.33
Image Checksum (MD5):	500B41DC138C892D1D5D38D34CB6660D

[SYSLIB]DECC$RTLDEF.TLB

File Creation Date and Time:	21-JUN-2025 02:13:13.09
Image Checksum (MD5):	BBD064A7EC9F58CB8A53E95DDC06261B

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 are supplied (in MD5 format) 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_RTL-V1000
```

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_RTL [/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.

8.3. Special Installation Instructions

Should you need to remove this kit via **PRODUCT UNDO PATCH**, the same mandated reboot requirement is in effect as the memory disk image is changed back to the prior system content.

The kit will update the memory disk image automatically as the final part of installation.
There is currently no mechanism within the PCSI utility to cleanly invoke a system reboot for **PRODUCT UNDO PATCH**.

You will be instructed as the kit exits that you must perform this function manually in this case.

Note

When the SYS$MD.COM procedure is executing to update the memory disk image, some errors may be reported similar to the following:

```
%INSTALL-I-NONRESSHRADR, image installed ignoring '/RESIDENT' image_name
                -INSTALL-E-NOGHREG, insufficient memory in the code or data
 granularity hint region
```

or

```
%INIT-F-GHREGIONFULL, An allocation was attempted from GH region GH_RES_CODE_S2 but
                there is not enough space in the region for the allocation.
```

These are due to having both old and new copies of some images which are still being used until the system is rebooted. Typically they may be ignored as they will clear up during the reboot. Should there still be similar messages during system startup after reboot, you may need to use AUTOGEN to adjust the related system parameters.

Note

During **PRODUCT INSTALL** or **PRODUCT UNDO PATCH**, the PCSI utility may issue the following message:

```
There is not enough space on the memory disk.
                You must take these steps now to complete this installation:

                -  Run @SYS$UPDATE:SYS$MD
                -  Reboot the system
```

In both cases, the kit procedure will run SYS$MD automatically. There is no need for you to execute SYS$MD before the reboot.

For **PRODUCT INSTALL**, the reboot is also automatically handled by the kit procedure and you need not do a reboot yourself.

For **PRODUCT UNDO PATCH**, you must manually reboot the system after the operation completes. The kit dialogue will remind you of this requirement at the end of the operation. There is currently no mechanism in PCSI to automatically invoke the system shutdown and reboot for **UNDO PATCH** operations.

8.4. Documentation for CRTL ECO V10.0 Functionality

Additional documentation for CRTL ECO V10.0 functionality included in this kit is copied to the system disk during kit installation. This documentation is provided both in text format (.TXT) for immediate reference and convenience of using the OpenVMS **SEARCH** command, and in PDF format for more legible output and convenience for formatted printing from a browser:

SYS$HELP:VSI_OPENVMS_CRTL_ECO10_RELEASE_NOTES.TXT
SYS$HELP:VSI_OPENVMS_CRTL_ECO10_RELEASE_NOTES.PDF

The release notes for this kit and the above files containing additional documentation may be extracted from the PCSI kit before kit installation for reference and planning purposes. The PCSI kit files are present after extraction from the ZIP archive as described above in *Section 8.1, "Compressed File"*.

To extract the VSI_OPENVMS_CRTL_ECO10_RELEASE_NOTES.TXT file and the standard kit release notes, use the command:

```
$ PRODUCT EXTRACT RELEASE_NOTES VMS923X_RTL /VERSION=V10.0
```

To extract the PDF format additional documentation, use the command:

```
$ PRODUCT EXTRACT FILE VMS923X_RTL /VERSION=V10.0 /SELECT=*.PDF
```

Either of these commands will create a local copy of the desired file(s) in the current default directory.

An update for the HELP CRTL online help that corresponds to these changes will be contained in a future ECO update kit.

8.5. An Additional Reboot May Be Required for Kit Installation

This ECO kit replaces the C RTL shareable image, DECC$SHR.EXE. On VSI OpenVMS x86-64 systems, DECC$SHR.EXE resides within the memory disk used during system boot.

This kit requires extra space on the existing memory disk for correct installation of DECC$SHR.EXE. As such, this may require that an extra invocation of SYS$MD and a subsequent system reboot be performed during the kit installation process. **Note that this is in addition to the usual mandatory reboot that the kit will perform automatically after successfully finishing all other kit activity.**

The kit will correctly determine whether there is sufficient space on the existing memory disk to allow the complete installation without an additional reboot. The kit will guide the user with what actions to perform if an additional interim reboot is required.

To predict the need for an additional reboot, refer to the summary below based on initial free blocks of space on the existing memory disk. You can determine the current free blocks on the memory disk using the following command:

```
$ SHOW DEVICE/UNITS=BLOCKS SYS$SYSDEVICE_MD:
```

Kit Behavior Depending on Initial Memory Disk Free Blocks:

- If there are at least 25,666 free blocks available, the kit can perform all actions without an extra reboot. Note that if there have been no updates to the memory disk since it was last created and the system booted, there will be slightly more free blocks than that value.
- If there are less than 12,838 free blocks available, the kit cannot begin and will inform the user to invoke **@SYS$UPDATE:SYS$MD** and reboot. After rebooting, the kit may then be installed normally.
- If the number of free blocks available is between these two values, the kit will do the initial step required for kit installation, then inform the user to invoke **@SYS$UPDATE:SYS$MD** and reboot. After rebooting, the kit may then be installed normally.

The potential extra reboot and extra memory disk free space are required only for this particular ECO kit. Once this kit is installed, any future updates to the DECC$SHR.EXE image will not have such extreme memory disk free space requirements.

9. Copyright

10. Disclaimer of Warranty and Limitation of Liability

will VMS Software, Inc. be liable for any lost revenue or profit, or for special, indirect, consequential, incidental or punitive damages, however caused and regardless of the theory of liability, with respect to any patch made available here or to the use of such patch.

11. Patch ID

X86VMS-VMS923X_RTL-V1000--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 VMS923X_RTL/VERSION=V10.0/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-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