



VMS Software

# VSI OpenVMS ECO Kit

## Release Notes

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**Operating System:** VSI OpenVMS Alpha V8.4-2L2

**Kit Name:** VMS842L2A\_RTL-V0900

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## Issues on Systems That Use Multinet

VSI and Process Software have recently identified some issues with the CRTL when using Multinet. These issues may manifest in layered software when using Multinet, such as Samba.

At this time we do not have solutions for these issues. This kit does not address them.

If you are successfully using Multinet for your network stack, VSI strongly recommends you continue with the RTL patch kit version you are currently using and do not update the CRTL via this patch kit or other previous RTL patch kits.

We will address these issues in a future patch kit.

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## 1. Kit Name

VMS842L2A\_RTL-V0900

## 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

No reboot is necessary after installation of this kit.

However there are additional steps that must be performed to use the images provided by this kit on all nodes of a VMSCluster using a common system disk. Refer to [Special Installation Instructions](#) for required post-installation actions.

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

VSI OpenVMS Alpha V8.4-2L2

## 3. Kits Superseded by This Kit

This kit is a superset of all previously released kits for RTL defect repair and the new functionality of the CRTL. These specific kits are superseded:

VMS842L2A\_RTL-V0800  
VMS842L2A\_RTL-V0600  
VMS842L2A\_RTL-V0500  
VMS842L2A\_RTL-V0400

VMS842L2A\_RTL-V0300  
VMS842L2A\_RTL-V0200  
VMS842L2A\_RTL-V0100

VMS842L2A\_C99-V0200  
VMS842L2A\_C99-V0100

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## Note

There was no RTL V7.0 kit.

This kit includes updates for CRTL ECO 9.0.

CRTL ECO 9.0 functionality was previously included in OpenVMS x86\_64 V9.2-3 and is now available for other architectures.

This RTL kit version number is V9.0 to keep in sync with the CRTL ECO level of included bugfixes and new functionality.

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## 4. Kit Dependencies

### VMS842L2A\_DPML-V0200

This provides math library updates needed by the CRTL functionality included in this kit.

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#### Note

The DPML kit *must* be installed with a separate **PRODUCT INSTALL** command prior to installing this kit. Do not use the same **PRODUCT INSTALL** command to install both kits simultaneously.

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### VMS842L2A\_NOTARY-V0200

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

## 5. Problems Addressed in This Kit

### 5.1. CRTL ECO 9.0 Updates to the C Run Time Library

#### 5.1.1. Problem Description

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

CRTL ECO V9.0 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:

SYSS\$HELP:VSI\_OPENVMS\_CRTL\_ECO9\_RELEASE\_NOTES.TXT  
SYSS\$HELP:VSI\_OPENVMS\_CRTL\_ECO9\_RELEASE\_NOTES.PDF

## 5.1.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$RTLDEF.TLB

## 5.1.3. VSI Case Identifiers

Jira DEV-1855  
Jira JDK-204  
Jiras RTLS-149, 312, 406, 411, 414, 419, 420, 421, 433, 438, 446, 447, 450, 454, 455, 457, 473  
Bugzilla 4476

## 5.1.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

# 5.2. Correct Regression in malloc() Behavior from RTL V8.0 Patch Kit

## 5.2.1. Problem Description

A change made to add additional POSIX support in the RTL V8.0 patch kit had unexpected side effects for certain applications.

When support for `posix_memalign` was added to the VSI OpenVMS `malloc` code, checks were added for the correctness of pointers passed to the free function. The unintended consequence of this occurred when both `malloc` and `lib$vm_malloc` functions were used in the same program. Incorrect behavior when freeing memory could range from spurious errors to access violations, many of which could cause an application failure.

The behavior is corrected with this patch kit, allowing legacy applications to operate as before while continuing to provide better POSIX support for porting to VSI OpenVMS x86-64.

## 5.2.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE

## 5.2.3. VSI Case Identifiers

Jiras RTLS-418, 450  
Jira SSH-1099  
Netsuite 6013, 7191

## 5.2.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## **6. Problems Addressed From Previous Kits**

### **6.1. FILATTNOT (ERR=160) Error When a BASIC Program Opens a File**

#### **6.1.1. Problem Description**

When a BASIC program opened a file with a quadword key, the BASIC RTL file open routine used the wrong key type to check the key. This resulted in a FILATTNOT (ERR=160) error: File attributes not matched.

This patch kit corrects the problem.

#### **6.1.2. Images and/or Files Affected**

[SYSLIB]DEC\$BASRTL.EXE

#### **6.1.3. Quix and/or Bugzilla Cases Reporting This Problem**

QXCM1001370616

#### **6.1.4. Release Version of VSI OpenVMS That Will Contain This Change**

Next VSI OpenVMS Alpha release after V8.4-2L2.

### **6.2. COBOL Application Crash When Reading RMS File Sequentially Backwards**

#### **6.2.1. Problem Description**

If reading a file in reverse sequence order, the COBOL RTL could encounter an RMS status indicating a record was already locked. This status was incorrectly handled under this circumstance, which lead to a recursive attempt to handle the error and an eventual access violation that would terminate the image.

This patch kit corrects the problem.

#### **6.2.2. Images and/or Files Affected**

[SYSLIB]DEC\$COBRTL.EXE

#### **6.2.3. Quix and/or Bugzilla Cases Reporting This Problem**

QXCM1001464116

#### **6.2.4. Release Version of VSI OpenVMS That Will Contain This Change**

Next VSI OpenVMS Alpha release after V8.4-2L2.



## 6.3. Reading a File With Multiple Keys Using COBOL May Access Violate

### 6.3.1. Problem Description

The COBOL RTL was incorrectly comparing keys of different sizes when multiple keys were defined for a file. This could lead to an access violation which that terminate the image.

This patch kit corrects the problem.

### 6.3.2. Images and/or Files Affected

[SYSLIB]DEC\$COBRTL.EXE

### 6.3.3. Quix and/or Bugzilla Cases Reporting This Problem

QXCM1001526800

### 6.3.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.4. Pascal RTL Access Violation Using Condition Handler in P2 Space

### 6.4.1. Problem Description

The Pascal RTL will access violate when attempting to dispatch to a user-written condition handler when the image is running in P2 space. This could occur when using the **LINK/SEGMENT=CODE=P2** qualifier when the image was linked.

The Pascal RTL incorrectly used only the low 32 bits of the address to the handler data area encoded in the unwind descriptors. For code that is loaded into P2 space, the corresponding unwind information is also loaded into P2 space, and therefore only accessible using 64 bit pointers.

This patch kit corrects the problem.

### 6.4.2. Images and/or Files Affected

[SYSLIB]PAS\$RTL.EXE

### 6.4.3. Quix and/or Bugzilla Cases Reporting This Problem

None found during internal testing.

### 6.4.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## **6.5. The C RTL stat() Function May Return an Invalid st\_ino Value**

### **6.5.1. Problem Description**

When using `_USE_STD_STAT`, the `stat()` function returns an invalid value for `st_ino` if the `NAM$W_FID_SEQ` or `FIB$W_FID_SEQ` value is larger than 32767.

This patch kit corrects the problem.

### **6.5.2. Images and/or Files Affected**

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE

### **6.5.3. Quix and/or Bugzilla Cases Reporting This Problem**

QXCM1001543598

### **6.5.4. Release Version of VSI OpenVMS That Will Contain This Change**

Next VSI OpenVMS Alpha release after V8.4-2L2.

## **6.6. The C RTL lstat() Function May Leak I/O Channels**

### **6.6.1. Problem Description**

The `lstat()` function may not release I/O channels when the filename includes a logical name that is a search list.

This patch kit corrects the problem.

### **6.6.2. Images and/or Files Affected**

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE

### **6.6.3. Quix and/or Bugzilla Cases Reporting This Problem**

PTR 75-126-461

### **6.6.4. Release Version of VSI OpenVMS That Will Contain This Change**

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.7. The C RTL <iconv.h> Header May Generate Syntax Errors

### 6.7.1. Problem Description

The <iconv.h> header will generate a syntax error if `_XOPEN_SOURCE_EXTENDED` is defined on the C or C++ command line using the `/DEFINE` qualifier.

This patch kit corrects the problem.

### 6.7.2. Images and/or Files Affected

```
[SYSLIB]DECC$SHR.EXE
[SYSLIB]DECC$SHR_EV56.EXE
[SYSLIB]DECC$RTLDEF.TLB
```

### 6.7.3. Quix and/or Bugzilla Cases Reporting This Problem

PTR 75-126-462

### 6.7.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.8. Various LIBRTL Routines May Cause Alignment Faults

### 6.8.1. Problem Description

The initial problem report was for the `STR$ELEMENT` routine, which will generate an alignment fault if the 'delimiter' character is not on a quadword boundary. This was because the compiler was unaware of the intended size and alignment of the delimiter.

Upon review of other LIBRTL routines for similar potential issues, all of these routines were found to be at risk of alignment faults:

```
LIB$INIT_DATE_TIME_CONTEXT
LIB$DELETE_FILE
LIB$FIND_FILE
LIB$CVT_DX_DX for numeric strings with overpunched signs
LIB$GETQUI
STR$DUPL_CHAR
STR$ELEMENT
STR$LEFT
STR$LEN_EXTR
STR$REPLACE
STR$RIGHT
```

With this patch kit, all of these routines have been corrected to avoid alignment faults.

## 6.8.2. Images and/or Files Affected

[SYSLIB]LIBRTL.EXE  
[SYSLIB]LIBRTL.STB  
[SYSLIB]LIBRTL\_INSTRUMENTED.EXE

## 6.8.3. Quix and/or Bugzilla Cases Reporting This Problem

VSI Bugzilla 1279

## 6.8.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.9. Exception Handling Issues When Using Routine DBASIC\$IO\_NO\_SIGNAL

### 6.9.1. Problem Description

The routine DBASIC\$IO\_NO\_SIGNAL() was added in prior versions of OpenVMS to avoid the cost of an expected I/O exception. This can provide a performance benefit for applications written in BASIC that encounter exceptions during normal processing. Exception handling has a very high CPU overhead on Integrity servers.

This patch kit corrects two problems in that routine:

- When an IO operation fails and the flag(s) set by DBASIC\$IO\_NO\_SIGNAL prevent throwing an exception, the buffer pointer was sometimes updated to an incorrect value. This is now corrected.
- When an IO operation completes successfully, the flags left by DBASIC\$IO\_NO\_SIGNAL should be cleared. This is now done.

### 6.9.2. Images and/or Files Affected

[SYSLIB]DEC\$BASRTL.EXE

### 6.9.3. Quix and/or Bugzilla Cases Reporting This Problem

External Bugzillas 353, 389

### 6.9.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.10. Add C99 Standard Support to the C Runtime Library

### 6.10.1. Problem Description

This patch kit provides support for new C99 routines to the C Run Time Library, as well as support for new C99 math routines to the C and Math Run Time Libraries.

Various header files have been updated to meet the C99 standard requirements.

New format support is supplied for `fprint()`, `fscan()`, `sprintf()`, `strptime()`, and `strftime()`.

## 6.10.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE  
[SYSLIB]DECC\$RTLDEF.TLB  
[SYSMMSG]DECC\$MSG.EXE

## 6.10.3. Quix and/or Bugzilla Cases Reporting This Problem

VSI Bugzilla 2643

## 6.10.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

# 6.11. Corrected Behavior from the C99 V1.0 Kit

## 6.11.1. Problem Description

The following issues from the C99 V1.0 kit have been corrected:

- `va_copy()` is now only defined when using the latest compiler.
- C99 routines are now correctly defined when a module is compiled `/STANDARD=RELAXED`.
- `fp_classify()` has been corrected.
- `fstat()` no longer returns a bad `st_ino` when compiled with `_USE_STD_STAT` and the FID `rvn` contains a value larger than 32767.
- `isnan()` is defined for C99, `_XOPEN_SOURCE`, and C extensions.
- `isnanf()` and `isnanl()` are defined only for `_XOPEN_SOURCE` and C extensions.

## 6.11.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE  
[SYSLIB]DECC\$RTLDEF.TLB  
[SYSMMSG]DECC\$MSG.EXE

## 6.11.3. Quix and/or Bugzilla Cases Reporting This Problem

VSI Bugzilla 2950

### **6.11.4. Release Version of VSI OpenVMS That Will Contain This Change**

Next VSI OpenVMS Alpha release after V8.4-2L2.

## **6.12. C RTL Functions L64a and L64a\_r Fail if Called With Invalid Arguments**

### **6.12.1. Problem Description**

The C RTL functions `l64a` and `l64a_r` are used to convert between a long integer and a base-64 ASCII string.

These functions will fail when invalid parameters are passed:

- `l64a` has a virtual memory leak when called with a negative number as the parameter.
- `l64a_r` provokes an access violation when called with a null buffer pointer.

These issues are corrected with this patch kit.

### **6.12.2. Images and/or Files Affected**

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE

### **6.12.3. VSI Case Identifier**

Jira RTLS-45

### **6.12.4. Release Version of VSI OpenVMS That Will Contain This Change**

Next VSI OpenVMS Alpha release after V8.4-2L2.

## **6.13. The C RTL `<signal.h>` Header May Generate a Compiler Error**

### **6.13.1. Problem Description**

The C99 kit version of the `DECC$RTLDEF.TLB` standard definitions library contained some spurious definitions that are for a future VSI OpenVMS release. Most of these are harmlessly ignored under normal conditions but could cause a compiler error if the value of the `__CRTL_VER` macro is explicitly set to a value used by an earlier version of the CRTL.

### **6.13.2. Images and/or Files Affected**

[SYSLIB]DECC\$RTLDEF.TLB

### **6.13.3. Quix and/or Bugzilla Cases Reporting This Problem**

VSI Bugzilla 3393

## 6.13.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.14. Form Feeds May Be Lost On Files Printed From CIFS-served Disks

### 6.14.1. Problem Description

A change introduced by Hewlett Packard Enterprise (HPE) during OpenVMS V8.4 maintenance allowed systems that used the CIFS product (SAMBA) to display files in the appropriate format. However, that change affected files with Print File Carriage Control (also known as Fortran Carriage Control). For some environments, the print codes that are removed when transferring files between systems cause incorrect printing behavior resulting in form feeds being lost.

A new CRTL feature logical name, DECC\$PRN\_PRE\_BYTE, when enabled, converts the print codes in files with Print File Carriage Control to their ASCII control code equivalents. CIFS then sends them to the client.

Enabling this new logical, in addition to enabling the logical DECC\$TERM\_REC\_CRLF, which is used by CIFS, correctly includes the print codes on transferred files.

To enable the DECC\$PRN\_PRE\_BYTE feature, use:

```
$ DEFINE/SYSTEM DECC$PRN_PRE_BYTE 1
```

### 6.14.2. Images and/or Files Affected

```
[SYSLIB]DECC$SHR.EXE  
[SYSLIB]DECC$SHR_EV56.EXE  
[SYSLIB]DECC$SHRP.EXE  
[SYSMSG]DECC$MSG.EXE
```

### 6.14.3. Quix and/or Bugzilla Cases Reporting This Problem

VSI Bugzilla 3343

## 6.14.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.15. CRTL ECO V3.0 Updates to the C Run Time Library

### 6.15.1. Problem Description

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

CRTL ECO V3.0 provides bug fixes, new functions, new constants, and a new header file.

## 6.15.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$RTLDEF.TLB  
[SYMSMSG]DECC\$MSG.EXE

## 6.15.3. VSI Case Identifiers

Various Jira RTLS items

## 6.15.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.16. CRTL ECO V4.0 Updates to the C Run Time Library

### 6.16.1. Problem Description

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

CRTL ECO V4.0 provides various bug fixes and new functions.

### 6.16.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$RTLDEF.TLB  
[SYMSMSG]DECC\$MSG.EXE  
[SYSEXEC]GENCAT.EXE

### 6.16.3. VSI Case Identifiers

Various Jira items  
VSI Bugzilla 4584

### 6.16.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.17. Spurious Warning Message When Compiling C++ Programs

### 6.17.1. Problem Description

Depending on the options in use, compiling a C++ program could produce the error message:



%CXX-W-NESTCOMMENT, (1) nested comment is not allowed

The error is from a typo in the closing comment syntax of a `math.h` definition statement.

The problem is corrected with this patch kit.

## 6.17.2. Images and/or Files Affected

[SYSLIB]DECC\$RTLDEF.TLB

## 6.17.3. VSI Case Identifiers

Netsuite 3875

Jira RTLS-296

## 6.17.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.18. CRTL ECO V6.0 Updates to the C Run Time Library

### 6.18.1. Problem Description

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

CRTL ECO V6.0 provides various bug fixes and new functions.

### 6.18.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE

[SYSLIB]DECC\$SHR\_EV56.EXE

[SYSLIB]DECC\$RTLDEF.TLB

### 6.18.3. VSI Case Identifiers

Various Jira items

### 6.18.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.19. Various Performance Issues With the C Run Time Library

### 6.19.1. Problem Description

Recent enhancements to the C Run Time Library exposed some performance issues with products and applications:

- Samba processes that should have been idle were constantly doing 1000 buffered I/O (BUFIO) operations per second when not handling actual tasks.
- Oracle and TCP/IP\$NTP processes get into a compute intensive state when using `poll ( )` as a high precision sleep function.
- Samba reports a network error when transferring large files.

### 6.19.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE

### 6.19.3. VSI Case Identifiers

Jiras RTLS-318, RTLS-319, RTLS-320, RTLS-321  
Netsuite 4186, 4187, 4207, 4227

### 6.19.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.20. CRTL ECO V8.0 and V7.0 Updates to the C Run Time Library

### 6.20.1. Problem Description

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

CRTL ECO V8.0 provides various bug fixes and new functions. It is a superset of all previous CRTL ECO updates, including ECO V7.0, which was only supplied previously on OpenVMS x86-64 and is now available for other architectures.

For a complete description of the changes, refer to the additional release notes in:

SY\$HELP:VSI\_OPENVMS\_CRTL\_ECO8\_RELEASE\_NOTES.TXT  
SY\$HELP:VSI\_OPENVMS\_CRTL\_ECO8\_RELEASE\_NOTES.PDF

### 6.20.2. Images and/or Files Affected

[SYSLIB]DECC\$SHR.EXE  
[SYSLIB]DECC\$SHR\_EV56.EXE  
[SYSLIB]DECC\$SHRP.EXE  
[SYSLIB]DECC\$RTLDEF.TLB

### 6.20.3. VSI Case Identifiers

Jiras RTLS-47, 54, 66, 289, 311, 316, 329, 333, 336, 363, 381, 386-389, 391, 392, 395, 396, 398

### 6.20.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 6.21. Correct Potential Issues With the LIB\$CVT\_DX\_DX Routine

### 6.21.1. Problem Description

The run-time library routine LIB\$CVT\_DX\_DX could potentially return an incorrect result or provoke an access violation. This behavior occurred on OpenVMS x86-64 systems due to memory layout changes in the generated code.

The same issue is present for other architectures, although much less likely to occur due to the memory layout differences.

The issue is corrected with this patch kit.

### 6.21.2. Images and/or Files Affected

[SYSLIB]LIBRTL.EXE  
 [SYSLIB]LIBRTL.STB  
 [SYSLIB]LIBRTL\_INSTRUMENTED.EXE

### 6.21.3. VSI Case Identifier

Jira RTLS-381

### 6.21.4. Release Version of VSI OpenVMS That Will Contain This Change

Next VSI OpenVMS Alpha release after V8.4-2L2.

## 7. Images or Files Replaced

[SYSLIB]DEC\$BASRTL.EXE

Image name:	"DEC\$BASRTL"
Image file identification:	"V01-038"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:48.85
Image Checksum (MD5):	179B6D25EE45584EF01C8F3CE9CEC3B0

[SYSLIB]DEC\$COBRTL.EXE

Image name:	"LIBCOB"
Image file identification:	"V2.9-785"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:43.94
Image Checksum (MD5):	58B7CF3962FE9282B29D9E3E6F83434A

**[SYSLIB]PAS\$RTL.EXE**

Image name:	"PAS\$RTL"
Image file identification:	"PAS\$RTL V5.0-31"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:39.30
Image Checksum (MD5):	B5A6845BD6E605E786CE92F0FAD5E1FC

**[SYSLIB]DECC\$SHR.EXE**

Image name:	"DECC\$SHR"
Image file identification:	"V8.4-00"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:19.93
Image Checksum (MD5):	DDB768D95CA09F243CB796D959AAF98D

**[SYSLIB]DECC\$SHRP.EXE**

Image name:	"DECC\$SHRP"
Image file identification:	"V8.4-00"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:17.24
Image Checksum (MD5):	B7A7B14B7467F6B35A8A9BBE9CD9F8DE

**[SYSLIB]DECC\$SHR\_EV56.EXE**

Image name:	"DECC\$SHR_EV56"
Image file identification:	"V8.4-00"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:29.10
Image Checksum (MD5):	D471BB47ECCC396958C47C0D2CF8A056

**[SYSLIB]DECC\$RTLDEF.TLB**

File creation date and time:	22-DEC-2024 14:27:52.19
Checksum (MD5):	8C19B41B993D435D53412DEEBDBF4B47

**[SYSLIB]LIBRTL.EXE**

Image name:	"LIBRTL"
Image file identification:	"X01-001"
Image build identification:	"XE80-F4N-000159"

Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:09.03
Image Checksum (MD5):	34B796C1D3960ACF2DA358440DC00A38

**[SYSLIB]LIBRTL.STB**

File creation date and time:	22-DEC-2024 14:58:09.34
Checksum (MD5):	988E266CAB47F4C9EC284DC557DD3B98

**[SYSLIB]LIBRTL\_INSTRUMENTED.EXE**

Image name:	"LIBRTL_INSTRUMENTED"
Image file identification:	"X01-001"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:59:29.17
Image Checksum (MD5):	F8A5959EB301EE594D2EADD32F68DBEF

**[SYSMMSG]DECC\$MSG.EXE**

Image name:	"DECC\$MSG"
Image file identification:	"V8.4-00"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:59:20.80
Image Checksum (MD5):	C5C1AE6F2226E0CEC959C73024F4B9E3

**[SYSEXE]GENCAT.EXE**

Image name:	"GENCAT"
Image file identification:	"V8.4"
Image build identification:	"XE80-F4N-000159"
Link identification:	"A13-04"
Link Date/Time:	22-DEC-2024 14:58:39.47
Image Checksum (MD5):	6615DCC63BD6AB592E2F592052C95823

**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 patch 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 a patch 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 VMS842L2A_RTL-V0900
```

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/products/zip-tools/>.

---

## 8.2. 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 VMS842L2A_RTL [/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.

## 8.3. Special Installation Instructions

If this kit is being installed in a non-clustered environment, the following steps may be ignored. In a VMScluster with a shared system disk, additional steps must be taken so that the other nodes that share the system disk will use the new images.

Execute the following commands on each node that is sharing the system disk that has been updated:

```
$ INSTALL REPLACE SYS$LIBRARY:DEC$BASRTL.EXE
$ INSTALL REPLACE SYS$LIBRARY:DEC$COBRTL.EXE
$ INSTALL REPLACE SYS$LIBRARY:PAS$RTL.EXE
$ INSTALL REPLACE SYS$LIBRARY:DECC$SHRP.EXE
$ INSTALL REPLACE SYS$MESSAGE:DECC$MESSG.EXE
$ INSTALL REPLACE SYS$LIBRARY:LIBRTL.EXE
$ if f$trnlm("DECC$SHR", "LNM$SYSTEM_TABLE") -
    .nes. "" then INSTALL REPLACE DECC$SHR
$ if f$trnlm("DECC$SHR", "LNM$SYSTEM_TABLE") -
    .eqs. "" then INSTALL REPLACE SYS$LIBRARY:DECC$SHR.EXE
```

These same commands should be repeated for other systems sharing the system disk if this patch kit is removed via a **PRODUCT UNDO PATCH** operation.

---

### Note

The IF statements above choose the correct instance of the C run time library image to replace as a known image, DECC\$SHR or DECC\$SHR\_EV56. They are coded in this fashion so that they may be cut and pasted directly by an interactive process.

---

## 8.4. Documentation for CRTL ECO 9.0 functionality

Additional documentation for CRTL ECO V9.0 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 or viewing from a browser:

```
SYS$HELP:VSI_OPENVMS_CRTL_ECO9_RELEASE_NOTES.TXT
SYS$HELP:VSI_OPENVMS_CRTL_ECO9_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\_ECO9\_RELEASE\_NOTES.TXT file and the standard kit release notes, use the command:

```
$ PRODUCT EXTRACT RELEASE_NOTES VMS842L*_RTL /VERSION=V9.0
```

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

```
$ PRODUCT EXTRACT FILE VMS842L*_RTL /VERSION=V9.0 /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 patch update kit.

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## 11. Patch ID

AXPVMS-VMS842L2A\_RTL-V0900--4

## 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 ECO patch 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 patches, 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 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 the VSI ECO patch 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, if aborting the current operation may have side effects. 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 VMS842L2A_RTL/VERSION=V9.0/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 Patch Kits

The three names listed below were used by older VSI OpenVMS patch kits for compatibility with HPE patch 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