



VMS Software

GNV Version 3.0-2F for VSI OpenVMS x86-64

Release Notes

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

Software Version: GNV Version 3.0-2F for VSI OpenVMS x86-64

Kit Name: VSI-X86VMS-GNV-V0300-2F-1.PCSI\$COMPRESSED

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1. Introduction

Thank you for your interest in GNV for VSI OpenVMS x86-64. The first release of GNV for VSI OpenVMS on x86-64 systems is V3.0-2F.

GNV is an open-source, GNU-based environment for OpenVMS that provides a UNIX-style environment on OpenVMS for application developers, system managers, and users.

This release of GNV includes the following:

- Bash – a command processor alternative to DCL.
- GNU Core Utilities – basic file, shell, and text manipulation utilities, such as `sort`, `md5sum`, `ls`, `printf`, etc.
- GNU AWK – a special-purpose programming language for data reformatting.
- GNU Grep – a tool that searches a file for lines containing a match to a specified pattern.
- GNU SED – a non-interactive command-line text editor.
- GNU LD – a linker that combines a number of object and archive files, relocates their data, and ties up symbol references.
- GNU AR – a program that creates, modifies, and extracts from archives.
- Make – a building tool.
- GNU BINUTILS – a package that includes the utilities `strip`, `size`, `strings`, `nm`, and `addr2line`.
- GNU BISON – a general-purpose parser generator that converts an annotated context-free grammar into a deterministic LR or generalized LR (GLR) parser.
- GNU FLEX – a free and open-source software alternative to `lex`.
- GNU PATCH – shell command that updates text files according to instructions in a separate file, called a patch file.
- GNU WHICH – a utility that is used to find which executable, alias, or shell function is executed when entered on the shell prompt.
- GNU M4 – an implementation of the traditional Unix macro processor.
- GNU LESS – a terminal pager program for Unix, Windows, and Unix-like systems used to view (but not change) the contents of a text file one screen at a time.
- GNU DIFFUTILS – a package of several programs related to finding differences between files. Computer users often find occasion to ask how two files differ.
- GNU FINDUTILS – a package that contains the GNU programs `find`, `xargs`, and `locate`.
- MNT – VMS-specific commands to mount or unmount a `file_system` on an existing director (the `mount_point`)

- DCL – a wrapper that allows to execute DCL commands from shell.

2. What's New in This Release

Changes With MAKE Tools

This GNV package contains two instances of the MAKE utility. They are as follows:

- MAKE.EXE version 3.78.1 (default), for use with UNIX-style Makefiles
- VMS_MAKE.EXE version 4.4.90, for use with VMS-style Makefiles to run DCL scripts

To switch to VMS_MAKE.EXE instead of the default MAKE.EXE, enter the following command:

```
$ MAKE :== $ GNU:[BIN]VMS_MAKE.EXE
```

To use VMS_MAKE.EXE from bash, you must rename MAKE.EXE to GNV\$MAKE.EXE and VMS_MAKE.EXE to MAKE.EXE.

VMS_MAKE.EXE now features the option to use bash as shell for executing commands, which provides the following benefits:

- Improved tempfile generation (mkstemp is available on VMS), which should help to avoid errors due to being unable to open a tempfile.
- Now, a build should not differ based on whether it was started from a Bash shell or not.
- Tidying of whitespace, global VMS flags, and re-factoring the file vmsjobs.c to be a unit instead of being `#included` by another .c file.

When deciding whether to build rules with DCL or Bash, consider the following factors:

- If the logical GNV\$MAKE_OLD_VMS is defined, its value 0 means to process rules in DCL, while 1 means to process rules in GNV Bash.
- Otherwise, if the Makefile being invoked contains a `SHELL= directive: dcl` will mean to process rules in DCL, anything else will mean to process rules in GNV Bash.
- Otherwise (i.e. no SHELL directive): if the program name contains "VMS", e.g. VMS_MAKE, then process rules in DCL, otherwise process rules in GNV Bash.
- Also, if a Makefile is not specified by the -f switch, then VMS_MAKE will search for Makefile.vms before falling back to GNUmakefile and Makefile as before.

Fixes in LD Tools

- An issue with quotation marks has been fixed for clang (as part of ld-tools).
- A bogus warning for `cxx -Wall` has been fixed.
- The following GCC parsing issues have been fixed:
 - The `Wc,` argument now works and is processed like the `-Wc/` argument.

- Unrecognized multi-character switch is reported and skipped in full, instead of reporting and skipping just the first character.
- Both `--version` and `-version` flags now work correctly and display the version number instead of attempting to build new the target.

M4 Fixes

The `esyscmd` command now works in M4. When the output of M4 exceeds 512 KB, it tries to use temporary files instead of memory buffers.

A bug with VMS paths that was causing M4 to crash has been fixed.

DCL Utility

- Default DLC to not pass an output mailbox to `lib$spawn`. This hopefully will fix a range of display artifact problems. The drawback will be that `stdout` and `stderr` are not distinguished, and all output will go to `stdout`.
- Add a switch `-s` to give the current behaviour of `stdout/stderr` separation in case anybody needs that functionality.
- Added the switch `-h` to show help for command line switches.
- When using `-s`, send `define/proc decc$stdio_ctx_eol enable` to the child. This will fix some of the display issues of excess newlines such as the bash DCL `git config --global`.
- Suppress display of error message by setting the high bit on the DCL exit status.

Other Fixes

- Using the `TOUCH` command on a directory now does not create a file with same name.
- An issue that was causing the `FIND` command that uses `-exec sh -c` to rename `.obj` files to `.o` files to result in a fatal error has been fixed.
- The command `rm /usr/local/file.txt` no longer fails for existing files.

Included GNU/BIN Utilities

Since the previous release, the support for the following GNU/BIN utilities have been added to GNV for OpenVMS x86-64:

- `strip`
- `strings`
- `nm`
- `size`
- `addr2line`

Here is the full list of GNU/BIN utilities included in this kit:

addr2line.exe	ar.exe	arch.exe	awk.exe
base64.exe	basename.exe	bash.exe	bashdebug.exe
bigram.exe	bison.exe	bunzip2.exe	bzip2.exe
cat.exe	cc.exe	chcon.exe	chgrp.exe
chmod.exe	chown.exe	chroot.exe	cksum.exe
clang.exe	cmp.exe	code.exe	comm.exe
cp.exe	csplit.exe	cut.exe	cxx.exe
date.exe	dcl.exe	dd.exe	df.exe
diff.exe	diff3.exe	dir.exe	dircolors.exe
dirname.exe	du.exe	echo.exe	egrep.exe
env.exe	execv_symbol.exe	expand.exe	expr.exe
factor.exe	false.exe	fgrep.exe	find.exe
flex.exe	fmt.exe	fold.exe	frcode.exe
gawk.exe	gcc.exe	gnv\$ar.exe	gnv\$bash.exe
gnv\$bzip2.exe	gnv\$bzip2recover.exe	gnv\$debug-ar.exe	gnv\$debug-ld.exe
gnv\$grep.exe	gnv\$ld.exe	gnv\$libbz2_32.exe	gnv\$libbz2_64.exe
gnv\$make.exe	gnv\$sed.exe	grep.exe	groups.exe
head.exe	hostid.exe	hostname.exe	id.exe
install.exe	join.exe	kill.exe	lbracket.exe
ld.exe	less.exe	link.exe	ln.exe
locate.exe	logname.exe	ls.exe	m4.exe
make.exe	md5sum.exe	mkbuiltins.exe	mkdir.exe
mkfifo.exe	mknod.exe	mksignames.exe	mksyntax.exe
mktemp.exe	mv.exe	nice.exe	nl.exe
nm.exe	nohup.exe	nproc.exe	numfmt.exe
od.exe	paste.exe	patch.exe	pathchk.exe
pinky.exe	pr.exe	printenv.exe	printf.exe
ptx.exe	pwd.exe	readlink.exe	realpath.exe
recho.exe	regexprops.exe	rm.exe	rmdir.exe
runcon.exe	sdiff.exe	sed.exe	sed_debug.exe
sed_hack.exe	sed_hack_debug.exe	seq.exe	sh.exe
sha1sum.exe	sha224sum.exe	sha256sum.exe	sha384sum.exe
sha512sum.exe	shred.exe	shuf.exe	size.exe
sleep.exe	sort.exe	split.exe	stat.exe

stdbuf.exe	strings.exe	strip.exe	stty.exe
sum.exe	sync.exe	tac.exe	tail.exe
tar.exe	tee.exe	test.exe	timeout.exe
touch.exe	tr.exe	true.exe	truncate.exe
tsort.exe	tty.exe	uname.exe	unexpand.exe
uniq.exe	unlink.exe	unzip.exe	uptime.exe
users.exe	vdir.exe	vms_make.exe	wc.exe
which.exe	who.exe	whoami.exe	xargs.exe
xcase.exe	yes.exe	zecho.exe	zip.exe
^[.exe			

The GNU/LIB files contained in this kit are as follows:

- GNV_SETUP.COM
- libstdbuf.so
- libzshr.exe

The GNU/ETC files included in this kit are as follows:

- bison.hairy
- bison.simple

3. Requirements

This kit requires VSI OpenVMS x86-64 Version 9.2-3 or higher. Note that while you probably will not have any problems installing and using this kit on systems running higher versions of the operating system, older versions are unsupported and will likely cause problems.

4. Recommended Reading

Users may find it helpful to refer to the following documentation in order to better understand how to configure and use the GNV software:

- Installing GNV Packages (<https://sourceforge.net/p/gnv/wiki/InstallingGNVPackages/>)
- Niel Rieck's OpenVMS Notes (https://neilrieck.net/docs/openvms_notes_gnv.html)

For more information about using GNU, users should refer to documentation available via the GNU website (<https://www.gnu.org/>), as well as other resources available online.

5. Installing the Kit

The kit is provided as an OpenVMS PCSI kit (VSI-X86VMS-GNV-V0300-2F-1.PCSI\$COMPRESSED) that can be installed by a suitably privileged user using the following command:

```
$ PRODUCT INSTALL GNV
```

The installation will then proceed as follows (output may differ slightly from that shown depending on various factors):

```
The following product has been selected:
VSI X86VMS GNV V3.0-2F                      Layered Product

Do you want to continue? [YES]

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

Configuring VSI X86VMS GNV V3.0-2F: GNV for VSI OpenVMS x86-64

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* This product does not have any configuration options.

Execution phase starting ...

The following product will be installed to destination:
VSI X86VMS GNV V3.0-2F                      DISK$X86SYS:[VMS$COMMON.]

Portion done: 0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%

The following product has been installed:
VSI X86VMS GNV V3.0-2F                      Layered Product

VSI X86VMS GNV V3.0-2F: GNV for VSI OpenVMS x86-64

  Post-installation tasks are required.

  To use GNV, users must execute the following command:

    $ @SYS$STARTUP:GNV$SETUP.COM
```

6. Known Issues and Limitations

The following issues and limitations are known at the time of this release:

- GCC does not link executable files from object files. As a workaround, use the following command:

```
touch dummy.c; gcc -o foo.exe a.obj b.obj dummy.c
```

You will get a warning message that the file `dummy.c` is empty. This message may be safely ignored.

- Executing the command `rm -f *.xxx` causes an error with the following message:

```
cannot remove '.*xx': invalid wildcard operation
```

As a workaround, use the following command:

```
touch dummy.xxx; rm -f *.xxx
```

- Hardlinks cannot be created via the `ln` command. As a workaround, use the following commands:

```
dcl set file source /enter=target
```


- The current implementation of the Strip utility is not fully functional. VSI recommends that you avoid using it until further notice.
- The SED utility does not currently work with the `-i` flag unless the user has the SYSPRV privilege.
- The AR tool does not currently support the `delete` and `move` options. Using either of these options will return a warning and do nothing.
- The AR tool incorrectly ignores the `extract` and `print` options. Using either of these options will do nothing.
- The Make 4.4.90 utility does not work well with shell.
- There are currently some issues with redirections in files.
- There are currently some issues with tar options (`tar x` and `tar c`)
- Bash hangs on combination of redirects and pipes.
- The `cp -p` command does not preserve timestamps.
- Executing bash script under a pipe results in failed reads.
- SED hangs if the input does not end in a newline character (from bash).
- There are currently some issues with `bashrc` (work with pipes).