

Gearman for OpenVMS I64 (BETA)

April 2018

1. Introduction

Thank you for your interest in this port of Gearman to OpenVMS. The current release of Gearman for OpenVMS is based on the Gearman 1.1.17 distribution.

Gearman (<http://gearman.org/>) is a generic Open Source (BSD licensed) application framework to farm out work to other machines or processes that are better suited to perform the work in question. It facilitates doing work in parallel, load balancing of processing, and to calling of functions between languages. Gearman can be used in a variety of applications, from high-availability web sites to the transport of database replication events. Gearman is highly flexible, scalable, fast, and fault-tolerant, and can be used with a variety of programming languages, making it straightforward to introduce into existing and potentially heterogeneous application environments to facilitate distributed or parallel processing tasks.

This OpenVMS port of Gearman includes all standard functionality provided by the open source release. In addition, this OpenVMS port includes a language-agnostic API that makes it straightforward to write Gearman client and worker applications on OpenVMS using 3GL languages such as COBOL and FORTRAN.

Additional information about Gearman can be found at <http://gearman.org>.

2. Acknowledgements

VMS Software Inc. would like to acknowledge the work of the Gearman development team for their ongoing efforts in developing and supporting this software.

3. What's new in this release

For a detailed description of the features and bug fixes included in this release, please refer to <https://github.com/gearman/gearmand/releases/tag/1.1.17>.

4. Requirements

The kit you are receiving has been compiled and built using the operating system and compiler versions listed below. While it is highly likely that you will have no problems installing and using the kit on systems running higher versions of the operating system or products listed, we cannot say for sure that you will be so lucky if your system is running older versions.

- OpenVMS 8.4-1H1 I64; OpenVMS 8.4-2L1 Alpha
- HP TCP/IP Services V5.7

It has not been verified whether the kit works with the MultiNet TCP/IP stack, but there is a good chance that it will.

- C compiler - HP C V7.3-018

Required for application development only. Application development in other languages available on OpenVMS such as COBOL and FORTRAN is also supported via a generic (language-agnostic) API.

In addition to the above requirements, it is recommended that the software is installed on an ODS-5-enabled file system. It is additionally assumed that the reader has a good knowledge of OpenVMS and of software development in the OpenVMS environment.

5. Recommended reading

Before using Gearman, it is recommended that users review the documentation available at <http://gearman.org/documentation/> in order to better understand how to configure and use the Gearman job server, and how to implement client and worker applications using the Gearman API.

6. Installing the kit

The kit is provided as an OpenVMS PCSI kit (VSI-I64VMS-GEARMAN-V0101-17-1.PCSI) that can be installed by a suitably privileged user using the following command:

```
$ PRODUCT INSTALL GEARMAN
```

The installation will then proceed as follows (output may differ slightly from that shown depending on operating system platform and other factors):

```
Performing product kit validation of signed kits ...
```

```
The following product has been selected:
```

```
VSI I64VMS GEARMAN V1.1-17          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 I64VMS GEARMAN V1.1-17
```

```
VMS Software Inc.
```

```
* This product does not have any configuration options.
```

```
Execution phase starting ...
```

```
The following product will be installed to destination:
```

```
VSI I64VMS GEARMAN V1.1-17          DISK$I64SYS:[VMS$COMMON.]
```

```
Portion done: 0%...20%...30%...80%...90%...100%
```

```
The following product has been installed:
```

```
VSI I64VMS GEARMAN V1.1-17          Layered Product
```

```
VSI I64VMS GEARMAN V1.1-17
```

```
Post-installation tasks are required.
```

To start Gearman at system boot time, add the following lines to SYS\$MANAGER:SYSTARTUP_VMS.COM:

```
$ file := SYS$STARTUP:GEARMAN$STARTUP.COM
$ if f$search("''file'") .nes. "" then @'file'
```

To stop Gearman at system shutdown, add the following lines to SYS\$MANAGER:SYSHUTDWN.COM:

```
$ file := SYS$STARTUP:GEARMAN$SHUTDOWN.COM
$ if f$search("''file'") .nes. "" then @'file'
```

6.1. *Post-installation steps*

After the installation has successfully completed, include the commands displayed at the end of the installation procedure into SYSTARTUP_VMS.COM and SYSHUTDWN.COM to ensure that the Gearman job server is started and stopped when OpenVMS is booted and shutdown.

6.2. *Privileges and quotas*

The privileges TMPMBX, NETMBX, BYPASS, SYSPRV, and DETACH are required in order to run the Gearman start-up and shutdown scripts, and the Gearman job server process (run as a detached process) will inherit the default privileges for the username under which it is started.

The Gearman job server can require considerable resources in order to operate efficiently, depending on specific workload requirements. The following quotas should be adequate for most purposes; however resource usage should be carefully monitored, and quotas adjusted as necessary.

Maxjobs:	0	Fillm:	512	Byt1m:	128000
Maxacctjobs:	0	Shrfillm:	0	Pbyt1m:	0
Maxdetach:	0	BI01m:	150	JTquota:	4096
Prclm:	50	DI01m:	150	WSdef:	4096
Prio:	4	AST1m:	300	WSquo:	8192
Queprio:	4	TQElm:	100	WSextent:	16384
CPU:	(none)	Enqlm:	4000	Pgflquo:	256000

If the Gearman job server is expected to support large numbers of clients and workers then it may also be necessary to increase FILLM and the CHANNELCNT system parameter (this parameter can usually be safely set to its maximum value of 65535). It may also be necessary to increase BYTLM and related quotas.

6.3. *Installing in an alternative location*

By default the software will be installed in SYS\$SYSDEVICE:[VMS\$COMMON]. If you wish to install the software in an alternative location this can be achieved using the /DESTINATION qualifier with the PRODUCT INSTALL command to specify the desired location; however it is important to note that an additional manual step will then be required to complete the installation. Specifically, when an alternative destination is specified, the start-up and shutdown procedures (GEARMAN\$STARTUP.COM and GEARMAN\$SHUTDOWN.COM) will be

placed into a subdirectory `[.SYS$STARTUP]` residing under the specified destination directory. If you wish to run these files from your standard `SYS$STARTUP` directory they will need to be copied from the destination subdirectory into your systems `SYS$STARTUP` directory.

7. Example programs

The directory `GEARMAN$ROOT:[EXAMPLES]` contains several simple example programs in various languages (C, COBOL, and FORTRAN) that can be used to learn about the Gearman client and worker API's or as a source of inspiration for the development of new applications. These examples can be compiled and linked using the provided build procedure (`EXAMPLES.COM`). Once built, the programs are simple to run. Note that the COBOL and FORTRAN examples use hard-coded TCP/IP addresses to specify the location of the Gearman job server; the value will need to be changed as appropriate for your installation.

The kit also includes a generic client and worker program (`GEARMAN.EXE`) and a simple administrative tool (`GEARADMIN.EXE`) that can be used to examine and manage jobs.

8. What's missing?

As noted previously, this release of Gearman for OpenVMS includes all standard functionality provided by the open source release. In addition, the port includes a language-agnostic API that makes it straightforward to write Gearman client and worker applications using 3GL languages such as COBOL and FORTRAN. However, it should be noted that this API is currently incomplete, although sufficient for most purposes. It is hoped that this matter will be addressed by future releases.

9. Known problems and restrictions

- It should be noted that the generic client and worker program (`GEARMAN.EXE`) currently will not work correctly with DCL scripts or commands, and is limited to use with 3GL programs that read from `SYS$INPUT` and write to `SYS$OUTPUT`. It is hoped that this restriction will be eliminated in future releases.