# GTK+ for OpenVMS Alpha

## Release Notes

**July 31, 2000**

## Introduction

*GTK+ Version 1.2.8 for OpenVMS Alpha* is an open source, free software library for creating graphical user interfaces. It is an unofficial, interim port of GTK+. See http://www.openvms.compaq.com/openvms/products/ips/gtk.html for information on reporting problems in *GTK+ for OpenVMS*.

See http://www.gtk.org for more information about GTK+.

## Prerequisites

*GTK+ for OpenVMS* requires the following software. (Other configurations have not been tested.)

- OpenVMS Alpha Version 7.1-2

- Compaq C Version 6.2-006

- The OpenVMS Porting Library must be installed, and:

  - the Porting Library shareable image must be accessible via the VMS_JACKETS logical name

  - the Porting Library header files must be accessible (edit VMS_BUILD_SETUP.COM)

- Perl 5.002_01 or higher (optional)

- GNU AWK 2.15 (patchlevel 6) (optional)

**Note:** Perl and AWK are used in a full build, but you can modify the OpenVMS GTK+ build procedures so that neither of these utilities is required.

*GTK+ for OpenVMS* is built in DCL using OpenVMS-specific build procedures. The UNIX tools `make` and `autoconf` (configure) are **not** required.

## Expanding and Installing GTK+ for OpenVMS

Perform the following steps to expand and install *GTK+ for OpenVMS*.

**Note:** You must also download and install the OpenVMS Porting Library in order to use *GTK+ for OpenVMS*.

Download GTK+ for OpenVMS.

A self-extracting archive and a .ZIP file are available for download. The contents of the kits are identical.

Download the self-extracting archive to expand and install the kit on an Alpha system. You can expand the .ZIP file on an Alpha system or on a PC, if you want to simply view the files in the kit.

After you download the kit, create a directory where you want the source code tree to reside. Set your default directory to that location.

```
$ CREATE/DIRECTORY DKA0:[GTK128]
$ SET DEFAULT DKA0:[GTK128]
```

To expand and install the GTK+ for OpenVMS self-extracting archive, run the kit you downloaded. For example:

```
$ RUN DKA0:[KITS]GTK128-OPENVMS-A1.SFX_AXPEXE
```


## Building GTK+ for OpenVMS

This section explains how to build *GTK+ for OpenVMS*.

Edit [GTK128]VMS_BUILD_SETUP.COM to match your system's configuration.


If you do *not* have Perl or AWK, edit [GTK128.GTK.GTK]VMS_BUILD.COM and uncomment the `goto no_perl` statement.

The OpenVMS kit contains pre-built generated files. You should rebuild GTK.DEFS and the other generated files only if you are making changes to GTK+ source code.

(Optional) If you need to build a debug version of GTK+, enter the following command:

```
$ DEFINE BUILD_DEBUG 1
```

Run VMS_BUILD.COM from the top-level directory:

```
$ SET DEFAULT [GTK128]
$ @VMS_BUILD
```

Depending upon how fast your system is, the build will take between 10-30 minutes. A few warnings are normal.

During a build of GTK+ for OpenVMS, the following directories are built:

- glib

  - gmodule

  - gthread

  - tests (optional)

- gtk

  - gdk

  - gtk

Each directory contains a VMS_BUILD.COM that is used to build the contents of that directory, plus the contents of its subdirectories.

Most tests can be built by invoking VMS_BUILD.COM in the appropriate directory and passing it the parameter test.

After the build has completed, four shareable images have been created:

- [GTK128.GLIB]LIBGLIB.EXE

- [GTK128.GLIB.GMODULE]LIBGMODULE.EXE

- [GTK128.GTK.GDK]LIBGDK.EXE

- [GTK128.GTK.GTK]LIBGTK.EXE


## Your Application and GTK+ for OpenVMS

Consider the following when you build your application and link against the GTK+ shareable images.

- The code added to *GTK+ for OpenVMS* uses event flags 2 and 3 without allocating them. **Your application must not use these event flags.** This restriction will be lifted in GTK+ 1.3 by ensuring that any event flags used are

allocated via LIB$GET_EF.

- GTK+ is compiled using `/NAMES=AS_IS`. This means that all of the entry points in the shareable images are case-sensitive, and you will have to compile your application the same way. If you want to change this, edit `VMS_CC.COM` (to remove NAMES=AS_IS) and all the xxx_create.opt files (to remove the `CASE_SENSITIVE` statements) and rebuilt GTK+.

- GTK+ is compiled using `/NAMES=SHORTEN`. This means that any long symbol names in the GTK code are shortened rather than truncated. Your application should also be compiled with this qualifier.

- GTK+ is compiled using `/FLOAT=IEEE` and `/IEEE=DENORM`. Your application must also be built with these qualifiers.

- When compiling code that uses GLib, include the following directories on your header file include path:

    - [GTK128.GLIB]

    - [GTK128.GLIB.GMODULE]

- When compiling code that uses GTK, include the following directories on your header file include path:

    - [GTK128.GTK]

    - [GTK128.GLIB]

    - [GTK128.GLIB.GMODULE]

- There are four shareable images against which you need to link your application, as follows:

    - [GTK128.GLIB]LIBGLIB.EXE

    - [GTK128.GLIB.GMODULE]LIBGMODULE.EXE

    - [GTK128.GTK.GDK]LIBGDK.EXE

    - [GTK128.GTK.GTK]LIBGTK.EXE


## POSIX and GNV Considerations

If you are building your application inside of POSIX or GNV, then GLib and GTK both need to be *installed* so that `autoconf` based applications can locate the installations. If

you have built GLib and GTK on OpenVMS, then they are already installed and `glib-config` and `gtk-config` can be used as usual.

For example, if your GTK+ directory root is DKB300:[GTK128], you can configure an `autoconf` based application as follows:

```
configure \
  --with-glib --with-glib-prefix=/dkb300/gtk128/glib/ \
  --with-gtk --with-gtk-prefix=/dkb300/gtk128/gtk/
```

## Source File Changes

Following is a summary of the changes made to the GTK+ source files.

**glib**

- [GTK128.GLIB]GMAIN.C

    - Changed to use event flags as the wakeup mechanism

**gtk**

- [GTK128.GTK.GDK]GDKDND.C

    - Use VMS_SETUP_WINDOW_NOTIFICATION macro when a window is created

- [GTK128.GTK.GDK]GDKEVENTS.C

    - Add code to translate OpenVMS-specific MOTIF key bindings so they appear normal

    - Use an event flag (VMS_EF_GTK_WINDOW_EVENT) for notification instead of ConnectionNumber

- [GTK128.GTK.GDK]GDKWINDOW.C

    - Use VMS_SETUP_WINDOW_NOTIFICATION macro when a window is created

- [GTK128.GTK.GDK]GXID.C

    - Change name of socket_fd (this file is not built)

- [GTK128.GTK.GTK]GTKDND.C

    - Add stdlib.h so that abs is known

- [GTK128.GTK.GTK]GTKFILESEL.H

  - Use macros to copy/compare struct st_ino fields

  - Make a local inode definition inode[3]

  - Perform case blind comparisons

  - Change find_parent_dir_fullname so that it does not use chdir (cannot chdir up to /)

- [GTK128.GTK.GTK]GTKMAIN.C

  - Translate HOME to UNIX equivalent and re-save

  - Include unixlib.h

- [GTK128.GTK.GTK]TESTRGB.C

  - ifdef out `struct timezone` declaration and make second arg in gettimeofday call NULL instead of tz

## Build Files Included in GTK+ for OpenVMS

Compaq provides the following OpenVMS-specific build files in the GTK+ kit.

| File | Description |
| --- | --- |
| [GTK128]VMS_CC.COM | Command file to compile a single C file |
| [GTK128]VMS_SHARE.COM | Command file to create a shareable image |
| [GTK128]VMS_LINK.COM | Command file to create an executable image |
| [GTK128]VMS_BUILD_SETUP.COM | Common setup file invoked by each vms_build.com |
| [GTK128]VMS_BUILD.COM | Command file for building on OpenVMS |
| [GTK128.GLIB]CONFIG.H_VMS | Prebuilt OpenVMS version of config.h |
| [GTK128.GLIB]GLIBCONFIG.H_VMS | Prebuilt OpenVMS version of glibconfig.h |
| [GTK128.GLIB]LIBGLIB_VMS.OPT | Linker options file to pull in libglib |

[GTK128.GLIB]LIBGLIB_CREATE _VMS.OPT     Linker options file to create libglib shareable image

[GTK128.GLIB]VMS_BUILD.CO M     Command file for building on OpenVMS

[GTK128.GLIB]VMS_GLIB-config.com     Command file to create glib-config

[GTK128.GLIB.GMODULE] GMODULECONF.H_VMS     Prebuilt OpenVMS version of gmoduleconf.h

[GTK128.GLIB.GMODULE] LIBGMODULE_VMS.OPT     Linker options file to pull in libgmodule

[GTK128.GLIB.GMODULE] LIBGMODULE_CREATE_VMS.O PT     Linker options file to create libgmodule shareable image

[GTK128.GLIB.GMODULE]VMS_ BUILD.COM     Command file for building on OpenVMS

[GTK128.GLIB.GTHREAD]VMS_ BUILD.COM     Command file for building on OpenVMS

[GTK128.GLIB.TESTS]VMS_BUIL D.COM     Command file for building on OpenVMS

[GTK128.GTK]CONFIG.H_VMS     Prebuilt OpenVMS version of config.h

[GTK128.GTK]VMS_BUILD.COM     Command file for building on OpenVMS

[GTK128.GTK]VMS_GTK-config.com     Command file to create gtk-config

[GTK128.GTK.GDK]LIBGDK_VM S.OPT     Linker options file to pull in libgdk

[GTK128.GTK.GDK] LIBGDK_CREATE_VMS.OPT     Linker options file to create libgdk shareable image

[GTK128.GTK.GDK]VMS_BUILD .COM     Command file for building on OpenVMS

[GTK128.GTK.GTK]LIBGTK_VM S.OPT     Linker options file to pull in libgtk

| | |
|---|---|
| [GTK128.GTK.GTK] LIBGTK_CREATE_VMS.OPT | Linker options file to create libgtk shareable image |
| [GTK128.GTK.GTK]VMS_BUILD. COM | Command file for building on OpenVMS |
| [GTK128.GTK.PO]VMS_BUILD.C OM | Command file for building on OpenVMS |

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