GUT

GUT Installation Guide

Contents

1 Introduction

This document describes the installation of the GOCE User Toolbox (GUT).

In the installation procedure that follows the use of `this font` indicates a shell command-line (*the `%` prefix indicates the shell prompt and should NOT be typed*), and uppercase tokens enclosed by angled brackets are `<VARIABLES>` that you must substitute with an appropriate value.

2 Installing GUT

GUT is comprised of a command-line tool, a suite of work-flows that describe typical processing tasks, a collection of input data sets and optionally a stand-alone display tool (BratDisplay). The command-line tool has been developed as an Open Source software project and the suite of work-flows are XML files that are incorporated as an integral part of the GUT source code package. On most platforms installation of the GUT is based on the binary package. The source package is available for all platforms and can be used if, for instance, the binary installation is not possible. For all platforms the input data sets are provided as a platform independent binary package that may be added to the basic GUT installation. The optional display tool is provided as a platform specific add-on binary package. The installation procedures for both source and binary packages is described in the following sections.

2.1 Optional Extensions

GUT has two extensions that are enabled by default, but may be disabled when building from the source package. These extensions are GeoTIFF and Fortran support.

The GeoTIFF extension allows gridded data sets to be exported to TIFF image files with special GeoTIFF tags used for recording geolocation meta data. These files are intended for quick-look usage only.

GUT can be extended by developing additional processing units in C/C++. In case a Fortran compiler is available extensions can also be developed with this programming language.

2.2 Installation using the Binary package

2.2.1 Linux or Mac OS X

The GUT binary distribution for the Linux and Mac OS X platforms include binary executables for GUT and BratDisplay. On Linux these have been compiled on a Debian Etch system and are intended for 32-bit x86 systems using LIBC version 6. You may need to install additional runtime packages, appropriate for your Linux distribution, to use these executables. Binary packages for Mac OS X exist for both PowerPC and Intel architectures, applicable for Mac OS X 10.4 and higher. The installation of all these binary

packages is the same, except for the name of the binary package itself, and the description below refers to the Linux package. For Mac OS X systems simply substitute 'mac-powerpc' or 'mac-i386' in place of 'linux' in the instructions below.

If these binary distributions of GUT are not suitable for your system you will need to build GUT from source.

The GUT installation is based on a simple directory structure with a single root directory. This directory may be located anywhere on your system, and /usr/local is the recommended location.

 The installation procedure is :

- Obtain the GUT Linux binary package (gut-linux-x.y.tar.gz) and the data set package (gut-apriori.zip) and place them in a temporary directory, `<GUT_TMP_DIR>`.

- Select a destination directory, `<GUT_DEST_DIR>`, where GUT will be installed. You will need superuser privileges for the recommend location (/usr/local). If you are upgrading from a previous version of GUT you may use the existing installation directory.

- If the destination directory does not exist, create it with the command. If this is an upgrade and you wish to install in the same directory as the previous installation, you may skip this step.

  ```
  % mkdir –p <GUT_DEST_DIR>
  ```

- Change to the destination directory

  ```
  % cd <GUT_DEST_DIR>
  ```

- Unpack the gut-linux-x.y.tar.gz package. If asked to replace existing files, it is safe to do so.

  ```
  % tar zxf <GUT_TMP_DIR>/gut-linux-x.y.tar.gz
  ```

    OR

  ```
  % gunzip <GUT_TMP_DIR>/gut-linux-x.y.tar.gz
  %  tar xf <GUT_TMP_DIR>/gut-linux-x.y.tar
  ```

- It is recommended that you add the location of the GUT command-line tool to your PATH. Consult the documentation for your login shell for details. NOTE, the GUT command-line tool executable (gut) is located in the bin subdirectory of the GUT installation (`<GUT_DEST_DIR>`/GUT/bin)

- Install the data sets in the data package into the apriori subdirectory of the GUT installation.

  ```
  % cd <GUT_DEST_DIR>/GUT/apriori
  % unzip <GUT_TMP_DIR>/gut-apriori.zip
  ```

- The installation is complete and you may now delete the binary package files.

2.2.2 Windows

The GUT distribution for the Windows platform is a pair of ZIP files. The installation instructions are listed below.

- Obtain the GUT Windows binary package (gut-win32-x.y.zip) and the data set package (gut-apriori.zip) and place them in a temporary folder.

- Unzip the gut-win32-x.y.zip in a folder of your choice with a ZIP utility program (ie. C:\Software). Note that the folder 'GUT' will be created when the package is unzipped. If upgrading from another version of GUT, you may do so in the previous GUT installation directory. If asked to replace existing files, it is safe to do so.

- Unzip the gut-apriori.zip package into the apriori folder in the GUT folder (ie. C:\Software\GUT\apriori).

- Edit the PATH variable to include the bin folder of the GUT package.
  - Start the Control Panel and select System.
  - Click the Advanced tab and then click the Environment Variables button.
  - Edit the PATH variable in the System Variables list.
  - Add ;"C:\Software\GUT\bin" to the value of the PATH.

- Start the Command Prompt application, type the command gut and press the Enter key. If the PATH was set correctly the gut command-line tool will run and display a usage message. The installation is now complete.

2.3 Installing from source

The GUT source package is applicable to any POSIX platform (i.e. UNIX, Linux, Mac OS X). To build and install the command-line tool you must have basic software development tools and libraries installed on your system. These are listed below, with optional components in parentheses.

- tar
- gunzip
- C++ Compiler (g++/GCC version 4 or higher recommended)
- make
- unzip decompression utility
- (Fortran90 compiler)
  - To use the Fortran extension (enabled by default) a Fortran compiler must be installed on your system. The Fortran extension can be disabled by adding the flag '--disable-fortran' to the configure script.
- (libtiff library and header files)
  - The GeoTIFF package is included in the GUT source package but LibTIFF development files must be installed on your system to enable

this feature. The latest stable LibTIFF package can be obtained from
http://www.remotesensing.org/libtiff. The GeoTIFF extension can be
disabled by adding the flag '--disable-geotiff' to the configure script, it
is enabled by default.

The build and installation procedure is :

- Create a temporary directory on your system.

  ```
  % mkdir <GUT_TMP_DIR>
  ```

- Obtain the GUT source package (gut-x.y.tar.gz) and the data set package
  (gut-apriori.zip) and place them in the `<GUT_TMP_DIR>` directory.

- cd to the `<GUT_TMP_DIR>` directory.

- Unpack the source package

  ```
  % tar zxf gut-x.y.tar.gz
  ```
  OR
  ```
  % gunzip gut-x.y.tar.gz
  % tar xf gut-x.y.tar
  ```

- cd into the source package root directory

  ```
  % cd gut-x.y
  ```

- Create a build subdirectory and cd into that directory

  ```
  % mkdir build
  % cd build
  ```

- Configure the source package. By default all features are enabled, so you
  will need to disable Fortran and/or geotiff support if you do not have the
  required components installed on your system. The '--help' option to the
  configure script will provide further details on disabling features or
  specifying the location of the TIFF library components. **You will need
  root privileges to install in the default location**. An alternative
  location can be specified with the '--prefix' option.

  ```
  % ../configure --help
  % ../configure --prefix=$HOME/local/GUT
  ```

- NOTE: If the configure script reports errors you may need to disable
  features or provide additional information on the command-line.

- Run make to build the command-line tool.

  ```
  % make
  ```

- If required, change to the superuser account (or use sudo), and run make
  to install GUT. This installs the executable, work-flow suite and
  documentation. If a previous version of GUT is installed, this procedure
  will upgrade the current installation to the new version of the software.

  ```
  % su
  ```

```
% make install

       OR

% sudo make install
```

- It is recommended that you add the location of the GUT command-line tool to your PATH. Consult the documentation for your login shell for details. NOTE, the GUT command-line tool executable (gut) is located in the bin subdirectory of the GUT installation (unless an alternative prefix was supplied to the configure script this will be /usr/local/GUT/bin)

- Install the data sets in the data package into the apriori subdirectory of the GUT installation.

```
% cd /usr/local/GUT/apriori

% unzip <GUT_TMP_DIR>/gut-apriori.zip
```

- The base installation is complete and you may now delete the `<GUT_TMP_DIR>` and all its subdirectories.

3   Support

For more information and support please check the GUT website:
http://earth.esa.int/gut/
or contact the GUT team at the following email address:
gut.info@esa.int