



## Section : 1. Introduction to QGIS

### Module : 1.1. QGIS Overview

#### What is QGIS?

*“QGIS is the worlds leading free and open-source cross-platform geographic information system”*

QGIS is free and open-source software (FOSS), which functions as a powerful geographic information system (GIS). It provides users the means to store, edit, analyze, manage, and otherwise manipulate various types of spatial and non-spatial data which can be visualized, exported, or exposed as a service.

In short, QGIS is a powerful map creation tool.

Open Source software is software which releases software under a permissive Open Source License, which ensures that software is free (libre) to be extended and modified without restriction. This often results in the software being made available free of cost (gratis), as a welcome side-effect. QGIS is released under the terms of the GNU General Public License version 2, or [GPLv2](#), which ensures that the software will remain free forever and any modifications of the software must be published for public benefit.

It is supported by [The Open Source Geospatial Foundation](#), which supports many FOSSGIS products, including some of the libraries which QGIS leverages for data interoperability and spatial analysis. It is highly performant, written in the C++ language, and includes a powerful application programming interface (API), whilst also providing a powerful API for use with the python programming language to facilitate extensibility, interoperability, and programmability.

The QGIS codebase is used to produce two primary applications, which are distinct in their functionality and usage. These applications are:

- QGIS Desktop: A fully-featured desktop GIS application developed with the Qt (pronounced "cute") library to provide a user-friendly, cross-platform experience for Windows, Mac, and Linux users.
- QGIS Server: By leveraging the QGIS codebase, QGIS Server provides tight integration for the publication of QGIS projects, which it is able to expose in various capacities as standards-compliant web services so that project data may be used with other applications and platforms.

QGIS Desktop provides additional interfaces for interaction with the application, including the ability to leverage the PyQGIS API or to run graphical processing models from the command line.

QGIS also leverages the power of other Open Source applications by providing a unified interface to interact with other powerful analysis tools and libraries, including [GRASS](#), [SAGA](#), [GDAL](#), and [PROJ](#).

#### **You try:**

##### **Goal: To download and install QGIS Desktop**

- Navigate to the QGIS.org website by opening <https://www.qgis.org> in your browser

- Select **Download Now** to open the Downloads page
- Identify your intended distribution. QGIS provides multiple versions depending on your individual needs. Some of these include:
  - Latest release version:
  - The following installation methods are available:
  - OSGeo4W Network Installer: This is the installer for various OSGeo software applications for Windows Users
  - QGIS Standalone installers for Windows and MacOS.
  - Linux packages, such as those released on package manager hubs, as well as community-built images for installation such as Snap, Flatpak, and ApptImage which may be released on platform-specific application storefronts.
- Follow the installation instructions for your platform of choice:
  - Windows users are recommended to use the OSGeo4w installation and install the LTR (Long term release version). Note that the OSGeo4W installation supports installing both the LTR, the latest release, and the nightly development builds on the same machine without conflicts.
  - MacOS users may use the community-provided signed installers.
  - Linux users will need to install QGIS using their system package manager or store. The QGIS.org downloads page provides installation instructions for various common Linux 'flavors'
- Run QGIS!

## About the QGIS Ecosystem

QGIS is more than an application or a project - it is also a community. It runs numerous [international events and open days](#).

Besides the core applications, other applications have been developed by members of the community to support the QGIS ecosystem, including mobile apps such as [QField](#) and [MerginMaps](#).

QGIS.org, the association that drives the development of QGIS, also provides a web platform for the publication and sharing of community resources, including:

- [Plugin Repository](#)
- [Styles Gallery](#)
- [Stand alone projects](#)
- [Processing models](#)

And much, much more...

In addition, users can use QGIS to develop web-ready technologies and applications, using tools such as the [QGIS2Web plugin](#), or create web applications that interact directly with QGIS Desktop projects by using QGIS Server to expose content via web services, such as [QWC2](#).

QGIS also supports a number of the technologies which are supported by GIS Platforms, such as [GeoNode](#), [GeoNetwork](#), [G3WSuite](#), [GISQuick](#), and [Napkin](#). Users may also find a host of other applications and projects to suit their specific needs from the [OSGeo Projects List](#).

Although many developers from the community altruistically dedicate a lot of time and effort to producing a world-class GIS application suite that is available for free and serves the needs of many organizations across the globe where it is most needed, it does require community support. QGIS development is often funded by, and dependant on, the QGIS community. The community members dedicate time, energy, and funds to ensure that the QGIS project continues to grow. The [Sustaining Members](#)

program allows companies which depend on these applications to support QGIS on an ongoing basis, whilst the project also [accepts once-off donations](#) from users.

QGIS needs people like you too! You can use the programs, spread the word, fund its development, or [get involved](#). Whether it's dedicating time to development, documentation, or presenting the capabilities of QGIS to the world, the QGIS community welcomes contributions and we'll be glad to have you join us.