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GEOlab

# Scripting in GRASS GIS

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What is GRASS GIS

Geographic **R**esources **A**nalysis **S**upport **S**ystem

- 1982: first developments carried out at USA/CERL (Construction Engineering Research Laboratory)

- 1985: version 1.0 was released

- 1998: development transferred to an international GRASS Development Team led by Markus Neteler

- 1999: GRASS 5.0 release under **General Public License** (GPL)

- 2016: stable long term release GRASS 7.0.3

GRASS GIS interface

Not user-friendly…

GRASS GIS modules
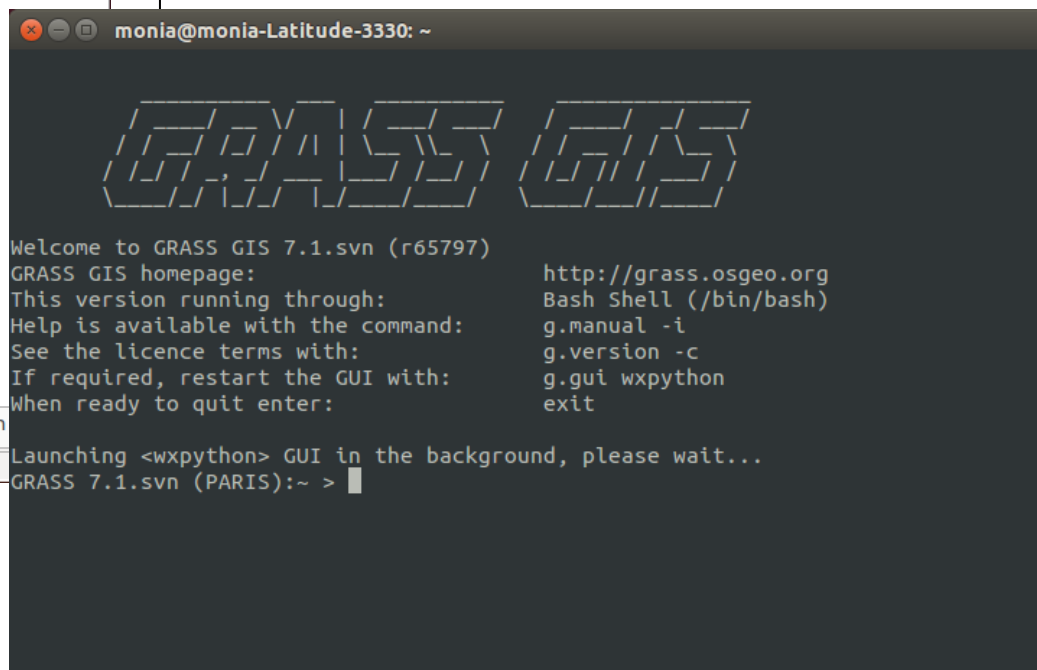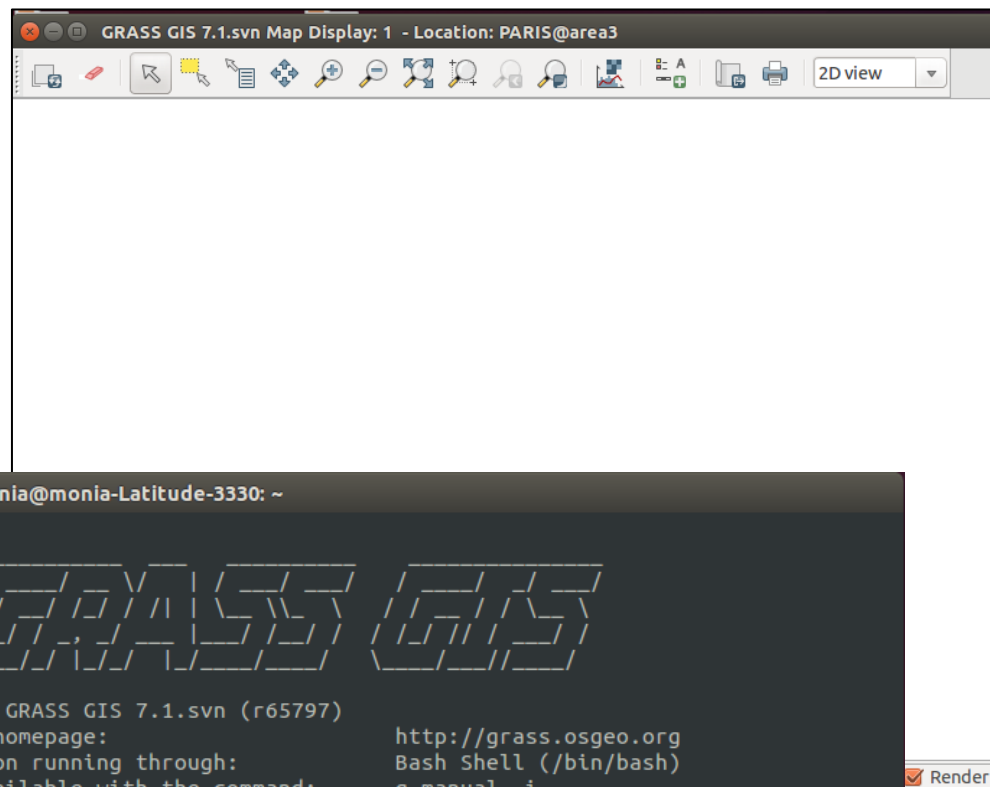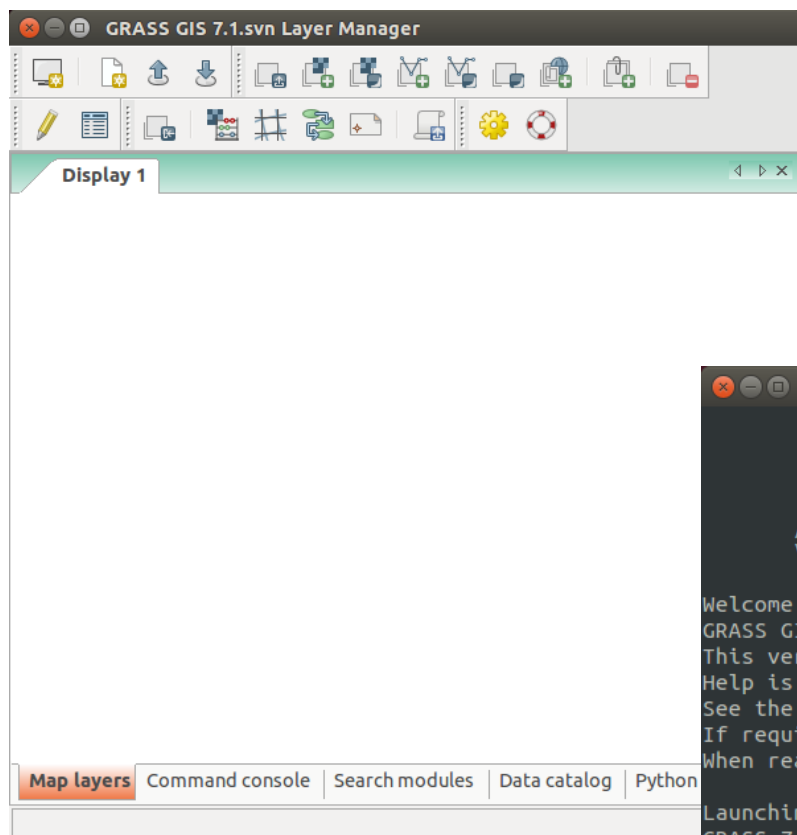
…but very powerful GIS suite with over than 400 standard modules in the core version.

PREFIX	CLASS	FUNCTION
d.*	display	Visualization
db.*	database	Database management
g.*	general	General file operations
i.*	image	Image processing
ps.*	postscript	Map creation in Postscript
r.*	raster	Raster analysis
r3.*	voxel	Voxel analysis
v.*	vector	Vector analysis
t.*	timeseries	Temporal data processing
m.*	miscellaneous	Miscellaneous functions

GRASS GIS add-ons

Moreover, anyone can develop and upload his own extensions on the **GRASS Add-on repository** to make them available for other users

https://grass.osgeo.org/grass70/manuals/addons/

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How can we create a script for GRASS?

- Python is the default language in GRASS GIS 7 for creating a script

  - **Python Scripting Library:** to perform analysis and processing of data by chaining existing modules

  - **PyGRASS Library**: to create new datasets directly through Python calls (access to low-level C functions)

  - **NumPy, SciPy:** libraries for scientific and technical computing

How can we run a script in GRASS?

Interactive Python Shell

Terminal

Script / GRASS GIS module

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GRASS & Python

1. Main functions of Python Scripting Library

2. Generation of a simple script

3. Generation of a GRASS GIS module

IPython Notebook
It is an interactive computational environment, in which you can combine code execution and rich text