A Short Introduction to Galaxy

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Video slides | Plain-text slides

Tip: press P to view the presenter notes | Use arrow keys to move between slides

❓ Questions

- What is Galaxy?
- Why should I use Galaxy?
- How do I use Galaxy?
- How can I connect with the Galaxy Community?

What is Galaxy?

Galaxy

Data Intensive *analysis* for everyone

- **Data Analysis** platform
- Web-based
- **Easy** to use
- **Free** and Open Source
- Many tools (~9400 Galaxy Tool Shed)
- Popular (>11.900 publications)
- Extensive tutorials available

Homepage: galaxyproject.org

Why use Galaxy?

- It's **easy**!
  - No installation, all you need is a browser.
  - No complex commands, just point and click!
- Makes your research **reproducible**
  - Galaxy keeps track of all analysis details
- **Cross-domain**: bioinformatics, chemistry, ecology, climate science, ..

How do I use Galaxy?

↥✎

Find a Galaxy server

- **UseGalaxy.***: Galaxy Main (UseGalaxy.org), Galaxy France (UseGalaxy.fr), Galaxy Europe (UseGalaxy.eu), Galaxy Australia (UseGalaxy.org.au)
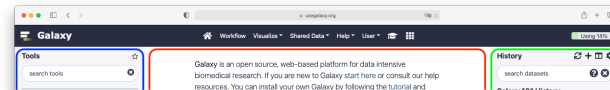

- Many other smaller, often domain-specific Galaxies available
  - List of all public Galaxies (135+): galaxyproject.org/use

The Galaxy Interface

- Three main panels
  - **Left:** Available Tools
  - **Middle:** View your data and run tools
  - **Right:** Full record of your analysis **history**

Uploading data

- Upload from **your computer**
- Import files **from URL**
- Import from **public data stores**
  - UCSC, NCBI, ENA, many more..

History

- The **history** collects all the files of your analysis
- Three buttons
    - 👁 **View** the file
    - ✏ **Edit attributes**
        - e.g. change name
    - 🗑 **Delete file**
- Click to **expand**
    - file information
        - format, size, ..
    - file preview
    - file options
        - download, visualize, ..

Finding a tool

- Explore tool panel sections
- Enter name in **Tool search** box

- ☆ **Star** you favorite tools to make them easier to find

Running a tool

- Choose **input files**
- Set tool **parameters**
- **Execute**
- Below tool form:
    - Help information
    - Tool citation

Analysis Results

- Tool outputs are added to the history
- Different dataset states
  - waiting , running , success, failed
- Expand for more options
  - 🖫 **Download** dataset
  - ❶ **Information** about tool run
  - ⟳ **Reload** tool with the same parameters
  - 📊 **Visualize** dataset
- Red dataset?
  - 🐞 Click Bug icon
    - view error message
    - submit error report

Visualisations

- Galaxy has many options to visualize data

Multiple Analyses

- Starting a new analysis? Create a new history ✚

- You can have as many histories as you want

- Overview of all your histories ⬓

- Good names for your histories help to keep track of your analyses

Workflows

- Run **end-to-end analyses** with one click

- **Extract** from a history
- **Build manually** with workflow editor
- **Import** a shared workflow

Sharing

- You can share everything you do in Galaxy
    - Histories, Workflows, Visualizations
- Sharing options
    - Share with specific users
    - Share via link
    - *Publish* to make it visible to everybody

Learning Galaxy

- Galaxy Training Materials (training.galaxyproject.org)

31 Topics	**400** Tutorials	**17** Learning Pathways
420 FAQs (Frequently Asked Questions)	**357** Contributors	**8.9** Years

✎

Getting Help

- **Help Forum** (help.galaxyproject.org)

- **Chat on Matrix**
  - Main Chat
  - Galaxy Training Chat
  - Many more channels (scientific domains, developers, admins)

✏️

Join an event

- Many Galaxy events across the globe
- Event Horizon: galaxyproject.org/events

🔑 Key points

- Galaxy lets you perform complex data analysis right from your browser
- These analyses are *reproducible*; Galaxy keeps track of all the details of your analysis
- Galaxy has a very large and active user community
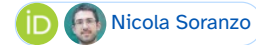- There are many training materials available to learn Galaxy

Thank You!

This material is the result of a collaborative work. Thanks to the Galaxy Training Network and all the contributors!

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Galaxy Training Network

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