One Tool, Many Topics
The Path from Galaxy Team to Galaxy Community

Dave Clements
Galaxy Project
Johns Hopkins University
clements@galaxyproject.org

@tnabtaf
#usegalaxy
@galaxyproject

bit.ly/igxy-20200213
Galaxy has an enormous and awesome contributor community

- 1,050 Galaxy Help forum accounts in first 13 months of forum
- From BlackDuck Open Hub:
  - Over the past 12 months, 157 developers contributed new code to Galaxy … This is one of the largest open-source teams in the world
  - 147 contributors to GTN Library
  - ad infinitum

How did we get here?
“Galaxy Team”
- Initially referred to the funded group at Penn State
- Came to refer to groups funded by the primary Galaxy grants at Penn State, Johns Hopkins, OHSU, and Cleveland Clinic

“Galaxy Community”
- Worldwide community of Galaxy users and contributors, including other funded groups in the US

This distinction is no longer meaningful, and hasn’t been for several years.
Agenda

- What is Galaxy
- Some history
- Big Picture
- Outreach, with side trips in Training and Communication
- Support
- Building community, where we circle back to Outreach and Support,
- Examples: IUC, Committers, and Galaxy Training Network
- Let your community know how vital they are
What is Galaxy? The project’s definition:

Galaxy is an open web-based platform for accessible, reproducible and transparent biomedical analysis.
What is Galaxy? Keith Bradnam’s definition

“A web-based platform that provides a simplified interface to many popular Bioinformatics tools.”

from

13 Questions You May Have About Galaxy

bit.ly/13questions
James Taylor, Galaxy PI, at the 2019 Galaxy Community Conference:

"The most important thing about Galaxy is this community."

History

- Started in **2005** at **Penn State**, based on the earlier “Gala” project
  - Provided a public Galaxy server, and open source code
- Started promoting it for local installs and tool publishing
- Primary original funding: NSF
- Primary funding since 2011: NIH NHGRI
History: Galaxy Outreach

2007: Project aware of the value of being seen
2008: I started promoting Galaxy in my previous position with GMOD
2010: Hired a dedicated user support person, Jennifer Hillman-Jackson
2011: Hired a dedicated training and outreach person, me
2018: Hired a 2nd, part-time training and outreach person, Mo Heydarian
History: Growth

Publications each year (as of 2019/12)

Galaxy Platforms

bit.ly/gxyStats
Big Picture
Big Picture

But first:

Q: How do you become *wildly* successful in outreach and training?

A:
Big Picture

But first:

Q: How do you become *wildly* successful in outreach and training?

A: Join a project that already has wildly successful training and outreach.

2007: Project aware of the value of being seen since at least this year
Big Picture: Guiding principles

- Recognize and value your community and their contributions
- Promote your community and their contributions
- Provide contribution and connection opportunities
Recognize that contributions are not just code

- Code matters a lot, but so do
  - Events, talks, posters, training
  - Tutorial and training dataset creation
  - Answering, and asking, questions
  - Documentation
  - Papers that use your software
  - Deployments
  - Bug reports, testing, …
Outreach
Outreach

Get your platform / software in front of people

- Present Galaxy at conferences in talks, posters, and workshops
- In the past year: PAG, Genome Informatics, ISEGB, SACNAS, ASHG, AISES, Gateways, INCOB, ACM BCB, ASM CUE, GCC, BoG, BioIT World
- Encourage and enable your people and your community to present your platform / software at events they go to, and communities they are in.
Outreach: *(wait a minute…)*

- *In the past year:* PAG, Genome Informatics, ISEGB, SACNAS, ASHG, AISES, Gateways, INCOB, ACM BCB, ASM CUE, GCC, BoG, BioIT World *(13 meetings)*
- *Encourage and enable your people and your community to present your platform/software at events they go to, and communities they are in.*

Top statement is true, but is absolutely wrong – because of the second statement

- In 2019, the **Galaxy Community** presented Galaxy at *47 meetings*, participated in *10 hackathons/CollaborationFests*, ran *81 training workshops/events*, and *hosted 67 Galaxy-centric events*

[galaxyproject.org/events](http://galaxyproject.org/events)
Training

- Training is entwined with outreach
- It is key to getting your platform / software used
  - First user training at ASHG 2009
  - First admin training at GMOD Summer School 2010
- (A lot) More on training in a few slides…
Communicate: Project News

Make it easy for people to get big news and/or all news about your project
Big News: Releases

- This may have been the first big feedback Galaxy got from our community (at the first Galaxy conference in 2010)
- Initially, we did not have clear or well documented releases
- Now have 3 releases per year
- Come with separate admin-centric and user-centric release notes

[docs.galaxyproject.org/en/master/releases/](docs.galaxyproject.org/en/master/releases/)
Big News: Galaxy-Announce Mailing List

- Launched in 2012
- Low volume, announcement only list
- Complemented two already existing, high-volume, support lists
All News: Twitter

- (Re)Launched in 2011
- Anything of possible interest to get community can get tweeted
- Mixture of original content and retweets
- Attach an image whenever possible
- Follow anyone who is saying things that are relevant to the community
- Use TweetDeck to schedule tweets, and to search tweets
- Multiple people have access, including several community members

@galaxyproject    #UseGalaxy
Galaxy Newsletter

- Launched in 2011
- Big and medium news
- Advertised on every outreach channel
- Upcoming events, significant publications, public platform news, blog posts, open jobs, releases, and other news
- It’s a lot of work

galaxyproject.org/news/

January 2020 Newsletter excerpt
Support
Support: Building an online support community

2006: Started Galaxy-User mailing list
2018: Added Galaxy-Dev mailing list
2014: Galaxy-User moved to Galaxy Biostar online forum
2017: Galaxy Gitter chat goes live
2018: Biostar moved to Galaxy Help, a Discourse based online forum

Always communicated expectation of community support.
Over time, support channels have become more engaging and interactive.
Some gameification in Biostar and Discourse.

help.galaxyproject.org

GalaxyHelp

gitter.im/galaxyproject/
Building Community:

These online spaces and interactions are opportunities to contribute and connect.
Building Community:

Outreach, communication, training and support all help build community.
Building Community: In Person

Get your community together and provide them with opportunities to share their accomplishments and challenges, and to collaborate.
Building Community: Galaxy Community Conference

- Yearly global community gathering since 2010
- 200-230 participants since 2012
- Alternate between North America and Europe (so far)
- Share your work and your challenges with others
- Make and strengthen connections that are harder to make and maintain over distances
**BCC2020, July 18-25, Toronto**  
(State of the art!)

<table>
<thead>
<tr>
<th>Training</th>
<th>Conference</th>
<th>CoFest: Core</th>
<th>CoFest: Encore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Days 2-4</td>
<td>2 days of collaborative work, covering all possible aspects of contribution.</td>
<td>Where everyone, even the newcomers, are now established members of the community</td>
</tr>
<tr>
<td>Multi-track training sessions, each 2.5 hours long</td>
<td>Talks &amp; Lightning Talks Joint and parallel sessions Posters &amp; Demos Birds of a Feather (BoFs) More training Sponsors Conference Dinner and Copious networking time and opportunities</td>
<td>Focus on <strong>newcomers</strong> and growing your community of <strong>future</strong> collaborators and contributors.</td>
<td></td>
</tr>
<tr>
<td>Topics nominated and voted on by the community</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bioinformatics Community Conference, our 2nd joint meeting with BOSC
Hackathons / CollaborationFests

- An excellent way to grow your contributor community
- But, Hackathon implies code only, and has negative connotations for many

Galaxy CollaborationFests

- Not the goal: produce code during event
- Are about growing the community of future contributors and collaborators, for all types of contribution, and
- Building and strengthening connections
Sub-communities and Regional Events

- Galaxy Africa, Galaxy-UK, GalaxyNL, Galaxy Belgium, Galaxy Japan, Galaxy Arabic communities all started by those communities, and all are supported.
- Galaxy Europe and Galaxy Australia are thriving and big.
- Galaxy ASEAN, Galaxy India and Galaxy Korea will arrive in 2020.
- Galaxy-UK, Galaxy Australia, Galaxy Arabic, and Galaxy India all have jointly managed Twitter accounts.
- Most of these have had regional Galaxy events, which the US team supports by promoting and sending people.
Specific Examples: IUC, Committers, and GTN
Intergalactic Utilities Commission (!)

- Galaxy makes tools accessible to researchers (7500+ tools)
- Tool wrappers define tools to Galaxy
- Wrappers published via the Galaxy Toolshed
- Toolshed is open to anyone, and quality is all over the board
- IUC created in 2013 to:
  - establish best practices for wrapping and testing tools
  - create gold-standard wrappers for widely used tools
- IUC a mix of “team” and “community” from the start
- And it was a success from the start, emboldening our next step...
Committers

- We have been **open source** from the start, but weren’t particularly encouraging to potential contributors:
  - You might fork the code, add a feature, and then submit a pull request
  - And the team might or might not get back to you about your work
  - Which was bad
- In 2015 we defined code governance policies and **added our first 3 community members to the Committers group**
- **9* of our top 20 core code contributors** are not US team members

* Ok, actually 8, starting last month, but only because we just hired one of them
Galaxy Training Network

2014: Started as a public directory of trainers & training materials
  Trainer directory a success! But not the rest
2016: Community members completely revamped GTN

New GTN has infinitely more impact than the original

This group did something that I didn’t have the vision to do

Transformation was possible because we had established a culture of contribution and recognition in the preceding years

[link to training.galaxyproject.org]
Let your community know how vital they are

galaxyproject.org
Galaxy Community Hub

Galaxy is an open, web-based platform for accessible, reproducible, and transparent computational biomedical research.

- **Accessible**: Users without programming experience can easily specify parameters and run tools and workflows.
- **Reproducible**: Galaxy captures information so that any user can repeat and understand a complete computational analysis.
- **Transparent**: Users share and publish analyses via the web and create Pages, interactive, web-based documents that describe a complete analysis.

Welcome to the Galaxy Community Hub, where you’ll find community-curated documentation of all things Galaxy.

**Viva contributors!**

Thank you for contributing to Galaxy [IUC tools](https://iuc.galaxyproject.org).
Contribute!

Galaxy Community Hub

Galaxy is an open, web-based platform for accessible, reproducible, and transparent computational biomedical research.

- **Accessible**: Users without programming experience can easily specify parameters and run tools and workflows.
- **Reproducible**: Galaxy captures information so that any user can repeat and understand a complete computational analysis.
- **Transparent**: Users share and publish analyses via the web and create Pages, interactive, web-based documents that describe a complete analysis.

Welcome to the Galaxy Community Hub, where you’ll find community curated documentation of all things Galaxy.

Viva contributors!

Thank you for contributing to Galaxy IUC tools.

---

News

UseGalaxy.eu: 12,000 users - 6,900,000 jobs - 13,300,000 datasets - 8300 jobs per day, 350GB per day

Events

Galaxy Training Network day - (online) CoFest and community call

@galaxyproject

OPEN CHAT
Welcome to the Galaxy Community Hub, where you'll find community-curated documentation of all things Galaxy.

Viva contributors!

Thank you for contributing to Galaxy IUC tools.

News

UseGalaxy.eu: 12,000 users - 6,900,000 jobs - 13,300,000 datasets – 8300 jobs per day, 350 jobs per hour, 6 per minute: every 11 seconds finishes one job in Galaxy

Get Access to Laniakea@ReCaS – ELIXIR-ITALY. Laniakea@ReCaS offers access to Cloud resources to be used for on-demand analysis.

Events

Galaxy Training Network day - (online) CoFest and community call

Applied Bioinformatics in Life Sciences – See who wins the Galaxy Poster Prize...

NGS Platforms: how data generation impacts bioinformatics analysis – A hands-on

@galaxyproject

ELIXIR-IT Galaxy on-demand service
Laniakea@ReCaS officially launched. Learn more at laniakea-elixir-it.github.io @elixir_it @ELIXIREurope @galaxyproject @Recast
Thank you

Galaxy Community

The literally thousands of people who have contributed Tools, Doc, Support, Training, Resources, Code, Issue Reporting, Testing … over the past 15 years

David Hanauer, Juli Klemm

NCI ITCR

You
<table>
<thead>
<tr>
<th>Year</th>
<th>Duration</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDC2010</td>
<td>2 days</td>
<td>69</td>
</tr>
<tr>
<td>GCC2011</td>
<td>2+ days</td>
<td>148</td>
</tr>
<tr>
<td>GCC2012</td>
<td>3 days</td>
<td>202</td>
</tr>
<tr>
<td>GCC2013</td>
<td>3 days</td>
<td>219</td>
</tr>
<tr>
<td>GCC2014</td>
<td>5 days</td>
<td>217</td>
</tr>
<tr>
<td>GCC2015</td>
<td>5 days</td>
<td>230</td>
</tr>
<tr>
<td>GCC2016</td>
<td>5 days</td>
<td>206</td>
</tr>
<tr>
<td>GCC2017</td>
<td>5 days</td>
<td>205</td>
</tr>
<tr>
<td>GCCBOSC2018</td>
<td>8 days</td>
<td>306</td>
</tr>
<tr>
<td>GCC2019</td>
<td>8 days</td>
<td>231</td>
</tr>
<tr>
<td>BCC2020</td>
<td>8 days</td>
<td>???</td>
</tr>
</tbody>
</table>

Presentations + Birds of a Feather:

- Hacks, + BOSC, CollaborationFest
- BOSC