LINCC onboarding

(for new LINCC personnel who are just getting started on the team)

You may find it useful to copy into a fresh doc and use it as a checklist + keep notes for later reference as you go along. Please update this original doc frequently.

University-specific information

If you are working at UW there is a detailed onboarding document to help you get situated.

If you are working at CMU, please consult the following:

- ☐ The Physics department's guide to staff responsibilities, which explains who you can consult for travel reimbursement, room reservations, office keys, tech support, and more.
- ☐ The McWilliams Center's onboarding document for astrophysics/cosmology-related resources: communication tools, computing and other resources, and local events.
- ☐ Subscribe to department lists (MCS = Mellon College of Science):
  - ☐ https://lists.andrew.cmu.edu/mailman/listinfo/mcs-physics-all (donut annoucements)
  - ☐ https://lists.andrew.cmu.edu/mailman/listinfo/mcs-physics-research
  - ☐ https://lists.andrew.cmu.edu/mailman/listinfo/mcs-staff
  - ☐ https://lists.andrew.cmu.edu/mailman/listinfo/mcs-physics-staff

LINCC access

tl;dr - you're going to want an entry for nearly every column in this doc, and you're going to need help from someone for nearly every entry. ***don't be afraid to ask for help***.

Communication channels

- ☐ **Slack**: Slack is one of the main channels for communication.
  - ☐ Get an LSSTC Slack account (if you don't already have one). If you join an LSST SC as described above, the Science Collaboration Chair or Membership Committee will get you a Slack account. Alternatively you can ask Andy Connolly as he also has the magic power.
  - ☐ Ask Andy or Rachel to add you to the LINCC private channels: at least #lincc-frameworks and possibly others [existing LINCC team members can add newcomers].
  - ☐ Browse other #lincc-.* channels that fit your interests.
    - A list of all LINCC-Frameworks channels can be found here.

        - Suggested channels for the core team include #lincc-frameworks-dev and #lincc-frameworks-codereviews
        - If a channel is listed as "Private" and you're interested in those activities, simply ask for an invitation!
        - Add yourself to the code review round robin tool in #lincc-frameworks-codereviews with: `@eeny add <your slack handle> to reviewer`
    - [ ] Make sure you are in other key channels like #announce-everyone
- [ ] Subscribe to the LINCC mailing list: https://www.lsstcorporation.org/lincc/node/5
- [ ] Subscribe to the LINCC Frameworks team mailing list: https://lists.lsst.org/mailman/listinfo/lincc-frameworks-team (nothing gets sent here, though)
- [ ] **LINCC shared google drive**: ask Rachel, Andy, or Mario to add you
    - [ ] The Projects/ folder holds information about each project, including PRDs, design documents, notes, etc.
    - [ ] Add your photo and bio in the team document LINCC-Frameworks People and tell Jeremy so he can ask that the website be updated accordingly.
- [ ] LINCC calendars - Ask Jeremy, Melissa, or Rachel to help you.
    - [ ] Get added to https://groups.google.com/g/lincc-calendar, and share your work calendar with this group (free/busy visibility is ok)
    - [ ] Get added to the “LINCC-Frameworks” events calendar.
        - Events on this calendar might not trigger notifications on your devices out of the box. To set up notifications go to your Google Calendar app. In Settings, under your email address, click on LINCC-Frameworks and add default notifications as desired.
    - [ ] Get added to the recurring meetings: "LINCC Frameworks team meeting (weekly)" and "LINCC Frameworks Design Discussions".

Github

- [ ] Create a Github account if you do not already have one. Optionally - consider making an account specifically for LINCC work.
- [ ] Join github organizations:
    - [ ] Ask Jeremy to add you to the lincc-frameworks organization (include your github username when you ask)
    - [ ] LINCC Jupyter hub - You can do exploratory work and development on LINCC’s hosted JupyterHub. Instructions on joining can be found here with a tutorial video here (watch the video first).
    - [ ] If you're interested in being randomly assigned small PRs to review/approve, please request to join the reviewers group.
    - [ ] Request to join the astronomy-commons/lincc-frameworks group.

- [ ] We use github for source control and source code hosting. If an existing project exists (e.g. RAIL or KBMOD), the code contributions should go there. New projects can be hosted in the LINCC-Frameworks organization.

Computing resources

- [ ] LINCC PSC allocation:
  - [ ] Ping Rachel (rmandelb on Slack, rmandelb@andrew.cmu.edu) to get added to the LINCC Frameworks discretionary allocation at PSC on Bridges-2. To do this, she needs your XSEDE or ACCESS username. If you don't know what that is, go here: https://identity.access-ci.org/new-user – this site describes how you can get one. (XSEDE is an old system that has turned into ACCESS in September 2022, but if you had a username with XSEDE it already got carried over to ACCESS, so you shouldn't make a new ACCESS username.) **Important note: We have not yet set up individual user quotas within that allocation, so feel free to log on to Bridges-2 and explore the software environment, but please give the teams a heads up before starting significant workloads.**
- [ ] ~~SLAC USDF~~
  - [ ] ~~Follow steps outlined here: https://developer.lsst.io/v/PREOPS-892/usdf/onboarding.html~~
- [ ] Epyc/baldur @ UW (for non-UW)
  - [ ] Reach out to Mario (mjuric@astro.washington.edu) to request a UW z for access to epyc/baldur machines.
  - [ ] You should get an e-mail to choose the username/password
    - This need not match your other usernames (e.g. user@andrew.cmu.edu)
    - Choose a password that's easy-ish to type - you'll use it for ssh access
  - [ ] Let Mario know the username you've selected, and he'll send off to add you to the appropriate groups. Once these permissions have propagated, you should be able to ssh, and you should be able to get to the JupyterHub: https://epyc.astro.washington.edu/beta-jupyter
- [ ] Epyc/baldur (for anyone)
  - [ ] Reach out to help@phys.washington.edu to:
    - get a bash shell by default. This is not something that you can set up by yourself.
    - be added to the relevant user groups: lsst, astro-dirac, astro-lincc
- [ ] CMU Math/phys cluster access [instructions]

Talk to your manager

- [ ] Discussion of team roles & responsibilities.
- [ ] Introductions, as appropriate/necessary for role (intros can be made by Jeremy, Andy, or Rachel):

- [ ] To the rest of the LINCC team
- [ ] To PSC points of contact
- [ ] To NOIRLab points of contact
- [ ] To Rubin Observatory points of contact
- [ ] To LSSTC points of contact

LSST access

- [ ] Join the community (community.lsst.org)
- [ ] Ask Jeremy to ask to have you added as a DP0 delegate
- [ ] Join relevant LSST Science Collaborations (SCs) [depending on role and topic area] - you can do this by going to the website of the relevant LSST SC from https://www.lsstcorporation.org/science-collaborations and following the instructions to join (some have a web form, others require you to reach out via email).
    - [ ] Fill in your participation details in this spreadsheet.
- [ ] If you don't join one of the LSST Science Collaborations, you can directly subscribe to the Rubin Observatory digest by signing up at https://lists.lsst.org/mailman/listinfo/rubinobs-digest

Background

LINCC / LSST Intro

- [ ] LINCC Tech Talks Recordings [youtube channel]
- [ ] LINCC docs repo and wiki
- [ ] Reference documents about Rubin Observatory / LSST and Data Management:
    - [ ] Introductory youtube playlist: https://www.youtube.com/playlist?list=PLPINAcUH0dXb3wcuMmaHHylqHJP4LV1Xe
    - [ ] Introduction to Rubin and its science objectives: https://arxiv.org/abs/0805.2366
    - [ ] A description of the data products that Rubin will generate: https://lse-163.lsst.io
    - [ ] The design of the Rubin science pipelines: https://ldm-151.lsst.io
    - [ ] Rubin Observatory developer process: https://developer.lsst.io/
    - [ ] Data to Software to Science: https://arxiv.org/abs/2208.02781
- [ ] Tutorials for working with the LSST data can be found at StackClub.

Development Approach

- The LINCC-frameworks team will use a flexible development approach that combines core LINCC team best practices and specific project's approaches when collaborating with external teams.
- General LINCC Frameworks approach:
    - Code should use the LSST style: https://developer.lsst.io or style of applicable parent project.
    - New long term projects should start with a (basic) requirements document that is jointly developed by the software engineers and project scientists to ensure that the project is solving a real problem and is technically feasible.
    - The team should create design documents for any large changes or new projects. These should be reviewed as part of a design review.
    - All non-trivial changes should include a corresponding test and be reviewed by at least one other person.
    - For the most part, we follow the GitHub Flow style of development. Our team agreements are published here: https://github.com/lincc-frameworks/docs/wiki/Design-and-Code-Review-Policy

The LINCC project will largely be using the Rubin Observatory development process, including adopting their style guides for code.

LINCC uses a bunch of tools that may be familiar to some developers and might be completely new to others. The technologies are listed here (along with links to helpful introductions) in roughly the order in which they are encountered:

- Python for absolute beginners - Information on how to open a shell on different platforms, interacting with Python, and running simple programs. If you do not have Python installed, you can download it here (along with basic support programs like pip).
- Github - you will need a github account to join the LINCC Jupyter hub (https://github.com/lincc-hub) and the lincc-frameworks github organization (https://github.com/lincc-frameworks)
- Conda - Is used to create virtual environments and to do package management. Conda is already installed on the LINCC Jupyter Hub
- Visual Studio Code - Is a popular source code editor within the team.
- StackClub provides a bunch of tutorial notebooks for working with LSST data.

Remember, no one was familiar with all of these prior to working here. Don't be shy about asking questions, all your fellow LINCC buddies want to lend a hand 🙂

LINCC Meeting you might be interested in

The first LINCC workshop was held in March 2022. Reference material:

- Website: https://indico.flatironinstitute.org/event/2777/
- Google drive folder: https://drive.google.com/drive/folders/1GwzHZV3ocXvrKon3L-bdh8AKHhNapo6T?usp=sharing (contains talks and breakout session material)

- White paper with loads of science use cases for LINCC

Relevant Science Papers:

Introductions

- A selection function toolbox for subsets of astronomical catalogues
- Approximating Photo-z PDFs for Large Surveys
- Photometric Redshifts for Next-Generation Surveys

Cosmology

- Weak lensing for precision cosmology

Solar System Science

- HelioLinC: A Novel Approach to the Minor Planet Linking Problem
- THOR: An Algorithm for Cadence-independent Asteroid Discovery
- Fast Algorithms for Slow Moving Asteroids: Constraints on the Distribution of Kuiper Belt Objects
- Sifting Through the Static: Moving Object Detection in Difference Images