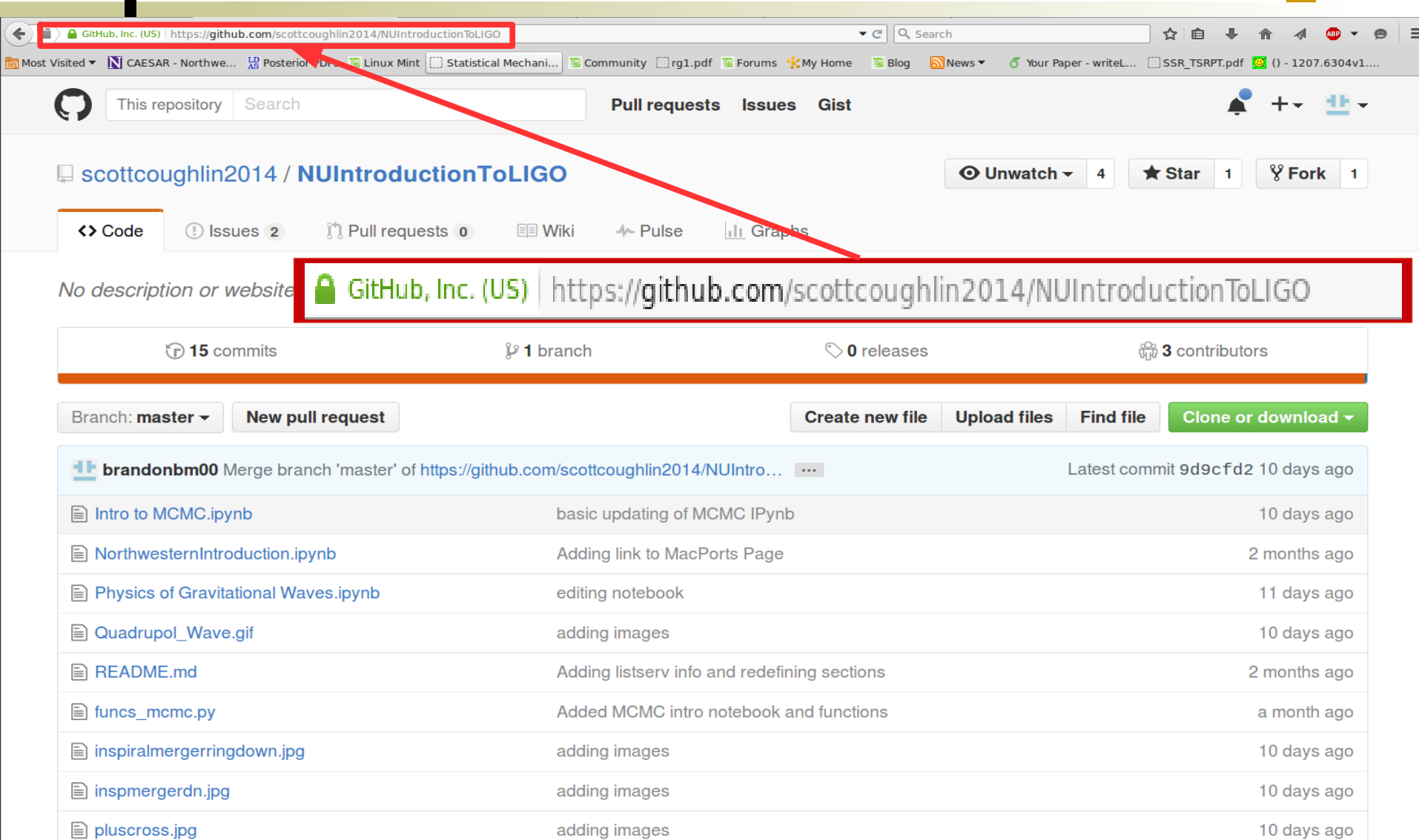




Day 1: Introduction

First Steps: Where to look for answers



GitHub, Inc. (US) <https://github.com/scottcoughlin2014/NUIntroductionToLIGO>

scottcoughlin2014 / **NUIntroductionToLIGO**

Unwatch 4 Star 1 Fork 1

Code Issues 2 Pull requests 0 Wiki Pulse Graphs

No description or website

GitHub, Inc. (US) <https://github.com/scottcoughlin2014/NUIntroductionToLIGO>

15 commits 1 branch 0 releases 3 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

brandonbm00 Merge branch 'master' of <https://github.com/scottcoughlin2014/NUIntro...> Latest commit 9d9cf2d 10 days ago

Intro to MCMC.ipynb	basic updating of MCMC IPynb	10 days ago
NorthwesternIntroduction.ipynb	Adding link to MacPorts Page	2 months ago
Physics of Gravitational Waves.ipynb	editing notebook	11 days ago
Quadrupol_Wave.gif	adding images	10 days ago
README.md	Adding listserv info and redefining sections	2 months ago
funcs_mcmc.py	Added MCMC intro notebook and functions	a month ago
inspiralmergerringdown.jpg	adding images	10 days ago
inspmergerdn.jpg	adding images	10 days ago
pluscross.jpg	adding images	10 days ago

What we will be covering

- You have joined a research group which specializes heavily in *computational methods*
 - **Analytic vs Non-analytic problems**
 - **Computers as a resource to tackle new problems**
- **GOAL**
 - Familiarize ourselves with the systems CIERA uses to function on a technical level
 - Get our feet wet developing a piece of code *as a group*
 - Learn broad-spectrum computer skills that will be applicable in any STEM and many non-STEM fields

PLAN OF ACTION

Bash and Git Project: Backup Script	Python and Ipython Project: Python	Statistical Methods Project: MCMC
--	---	--

[Getting set up – QUEST]



[Home](#)

 www.it.northwestern.edu/secure/forms/research/allocation-request.html

HPC Allocation Request Form

Computational Investigators (CIs) must complete the form below to apply for computational time on the Quest cluster. Applications are reviewed on a quarterly basis by a faculty-based allocations committee. Upon approval, CIs are contacted directly to confirm application status.

Read the [Allocation Submission and Review Guidelines](#) to learn about the types of allocation, application deadlines, and required documentation.

To request a no-cost consultation with an NUIT High Performance Computing Specialist to help determine which allocation request will best suit your research requirements, please contact the [NUIT Support Center](#).

Request an Allocation

To begin, select the allocation type (choose one) from the list below and provide the requestor information in the space provided. *Note: A separate HPC Allocation Request Form must be submitted for each allocation type requested.*

- ☐ **Original Allocation** - Request for a new, testing development, or research allocation.
- ☒ **Existing Allocation** - Join an existing allocation.
- ☐ **Extend an Allocation** - Request an extension to an existing allocation.

Requestor NetID:

Requestor Name: Brandon Miller

Requestor School: Office for Research

Requestor Department: CIERA

Requestor Job Title: Summer Student

Requestor E-mail Address: BrandonBM00@gmail.com

Getting set up – QUEST

Existing Allocation:

What is the Quest allocation ID that you wish to join?

Who is the project Computational Investigator?

First Name:

Last Name:

E-mail Address:

All user of Northwestern University's shared, research computing systems must agree:

1. to use these shared compute resources only for the requested research activities.
2. to not use the associated storage for warehousing of data unrelated to approved research activities.
3. to not schedule compute tasks on the resources in a way that will deliberately prevent other account holders from shared use of the system.
4. to read the [Allocation Submission and Review Guidelines](#) which describe storage quotas, scheduling policies, and account maintenance procedures.
5. to be responsible for removing the data saved on Quest prior to the expiration of their allocation. Unless other arrangements are made, all of data stored on Quest will be automatically removed after the allocation expires.

I understand that deliberate misuse of these resources will result in my associated accounts being locked, my running jobs will be halted, and that my privileges to continue using these research resources will be terminated.

- ☒ I AGREE to these conditions of use of the central computing resources
- ☐ I DO NOT AGREE to these conditions of use of the central computing resources

Submit

Getting set up – QUEST

Existing Allocation:

What is the Quest allocation ID that you wish to join?

Who is the project Computational Investigator?

First Name:

Last Name:

E-mail Address:

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- ☐ I DO NOT AGREE to these conditions of use of the central computing resources

Getting set up – GitHub

Join GitHub

The best way to design, build, and ship software.



Step 1:

Set up a personal account



Step 2:

Choose your plan

Create your personal account

Username

This will be your username — you can enter your organization's username next.

Email Address

You will occasionally receive account related emails. We promise not to share your email with anyone.

Password

Use at least one lowercase letter, one numeral, and seven characters.

- **Github** is a web hosting service Which hosts *repositories*
- These are remotely located areas to store files of all kinds
- **Git** is, in general, a UNIX based that serves as access to these areas and allows multiple users to view and modify the contents
- **Version Control** through Git is the main way that modern computer programs are written by teams of people
- You will likely need this for your work here at NU

Getting set up – myLigo

LOGIN

Access all documents with a password

PUBLIC

View public documents without a password

OBSERVATION OF GRAVITATIONAL WAVES FROM A BINARY BLACK HOLE MERGER





Related Publications papers.ligo.org


Getting set up – myLigo



Login as a member of: [x] close


 **LIGO**
LIGO

 **LIGO**
LIGO - Backup::CIT

 **KAGRA**
KAGRA

Or enter your organization's name
 OK

Or select from a list
Help

 A username and password are being requested by <https://login.ligo.org>. The site says: "This content is viewable by only LIGO/Virgo personnel and authorized guests. Please enter your LIGO Directory name, e.g. albert.einstein, and password..."

User Name:

Password:

Cancel OK

GRAVITATIONAL WAVES FROM A BINARY BLACK HOLE MERGER



**brandon.miller -
“albert.einstein” style
credentials**



Welcome!

Please **Sign In**LIGO Email Address: @ LIGO.ORGPassword: [\(Forgot Your Password?\)](#)or **Register** for a LIGO account

Please choose one of these three ways to register:

Start here if you are affiliated with a LIGO Scientific Collaboration (LSC) site or you are a Virgo Collaboration member, but are not affiliated with a LIGO Lab site.

Start here if you are affiliated with a LIGO Lab site (Caltech, Hanford, Livingston, MIT).

Start here if you are serving on an external committee.

Start here if you are a KAGRA member.



Account Application

* indicates a required input field

Describe LIGO Affiliation

*Please select one option:

☒ I am an [LSC member](#) doing technical, scientific, or outreach work for LIGO
at:

☐ I am a [Virgo](#) member

[Click here to apply as an administrator](#)

Expiration

When will this account expire? Please give a date in the format yyyy-mm-dd:

*

Name

*First Name: Middle Name: *Last Name: Suffix:

Email Address

*Your Email Address: *Verify Your Email Address:

Contact Information

*Address : CIERA - Northwestern University, 2145 Sheridan Road

Address 2 : Evanston, IL 60208-3112

Address 3 :

*City :

State :

*Postal Code :

*Country: (Please begin by selecting one of the following Continents)



North America



Europe



Asia



South America



Africa



Oceania



Antarctica

UNITED STATES ▼

Office Number :

*Country
Code

+ 1

*City
Code

847

*Local Number

491-8646

Fax Number :

Country
Code

+

City
Code

Local Number

Example: 1 814 555 5689

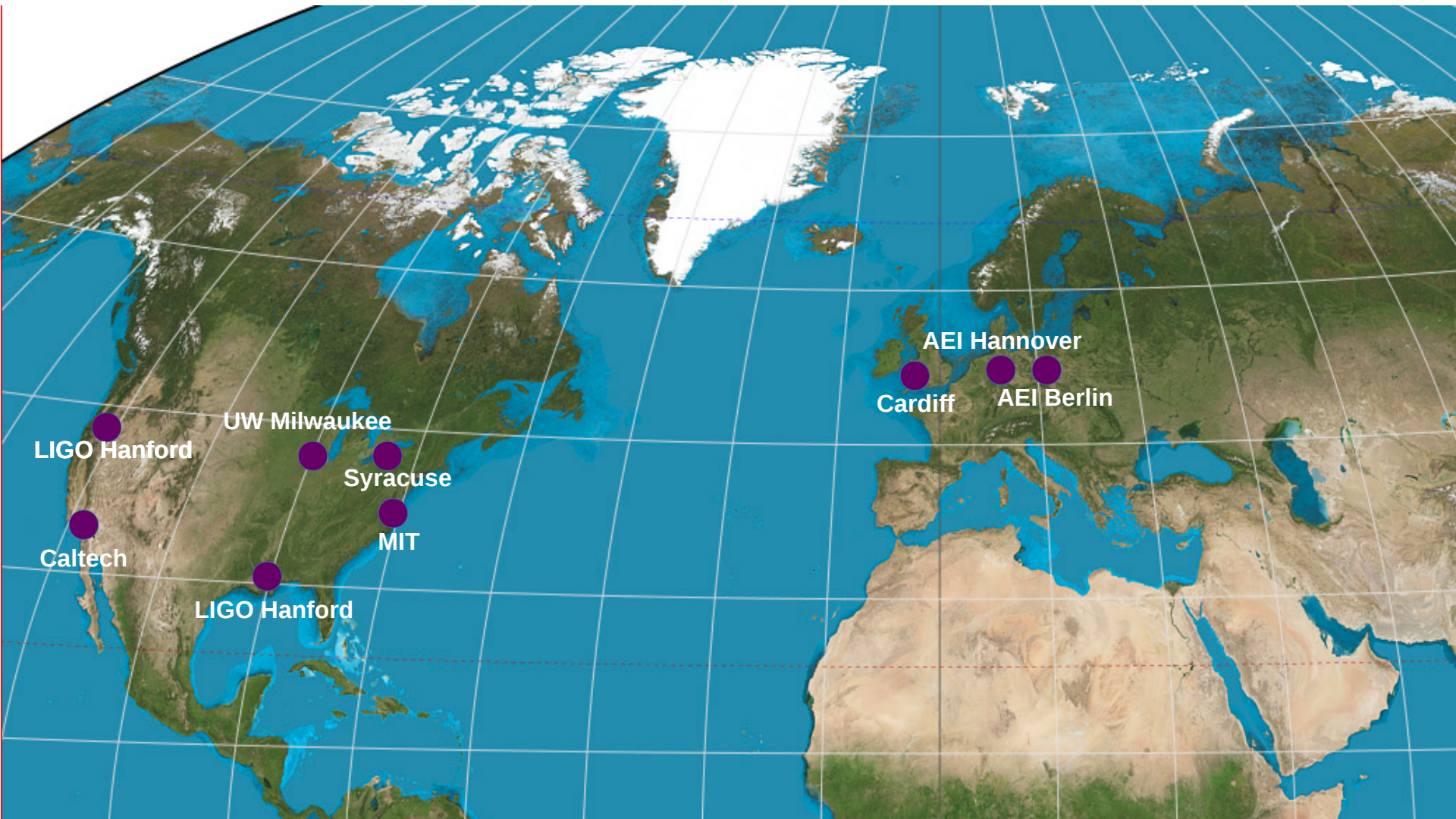
Submit Application



LIGO Directory Services and Authentication & Authorization Services Infrastructure are supported by the [National Science Foundation](#). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.



The LIGO Datagrid



Main

Log In

Main Web

- Create New Topic
- Index
- Search
- Changes
- Notifications
- RSS Feed
- Statistics
- Preferences

Webs

- LIGOWorkshop2015
- LIGOWorkshop2016
- Main
- System

You are here: LIGOWiki > Main Web > DiscoveryService (24 Aug 2014, eric.chassandemottin@ligo.org)

Login Required

Please choose how to login

Use a suggested selection:



Or enter your organization's name

Continue

[Allow me to pick from a list](#)

[Help](#)

[Edit](#) | [Attach](#) | [Print version](#) | [History: r6 < r5 < r4 < r3](#) | [Backlinks](#) | [View wiki text](#) | [Edit wiki text](#) | [More topic actions](#)

Topic revision: r6 - 24 Aug 2014, eric.chassandemottin@ligo.org

CIERALIGO Slack

The screenshot shows the Slack interface for the CIERALIGO workspace. The browser's address bar at the top displays the URL `https://cieraligo.slack.com/messages/general/`, which is highlighted with a red box. A red line connects this box to another red box highlighting a message link within the channel. The channel is `#general`, which has 11 members and is described as 'Company-wide announcements and work-based matters'. The left sidebar shows a list of channels, with `#general` selected. Below the channels are direct messages. The main content area shows a chronological list of messages from the CIERA-LSC bot. The messages include event announcements for June 8th and June 9th, specifically mentioning a 'Gravity Spy Meeting' on June 8th from 10:00 AM to 11:00 AM. A red box highlights a message link `https://cieraligo.slack.com/messages/general/` within one of the bot's messages.

`https://cieraligo.slack.com/messages/general/`

#general
11 members | Company-wide announcements and work-based matters

CIERA-LSC BOT 7:00 AM
There is 1 event this week:
[Gravity Spy Meeting](#)
Jun 8 from 10:00 AM to 11:00 AM

CIERA-LSC BOT 8:00 AM
There are no events today.

CIERA-LSC BOT 8:00 AM
There are no events today.

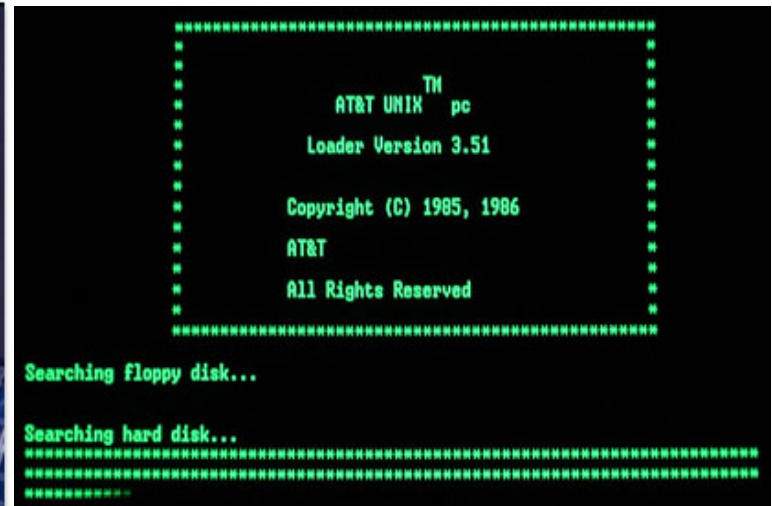
CIERA-LSC BOT 8:00 AM
There is 1 event today:
[Gravity Spy Meeting](#)
Jun 8 from 10:00 AM to 11:00 AM

CIERA-LSC BOT 9:30 AM
Event starting in 30 minutes:
[Gravity Spy Meeting](#)
Jun 8 from 10:00 AM to 11:00 AM

`https://cieraligo.slack.com/messages/general/`

Bash – an introduction to UNIX

- Unix – Operating system developed in 1960s
 - Bell Labs: Dennis Ritchie, Ken Thompson

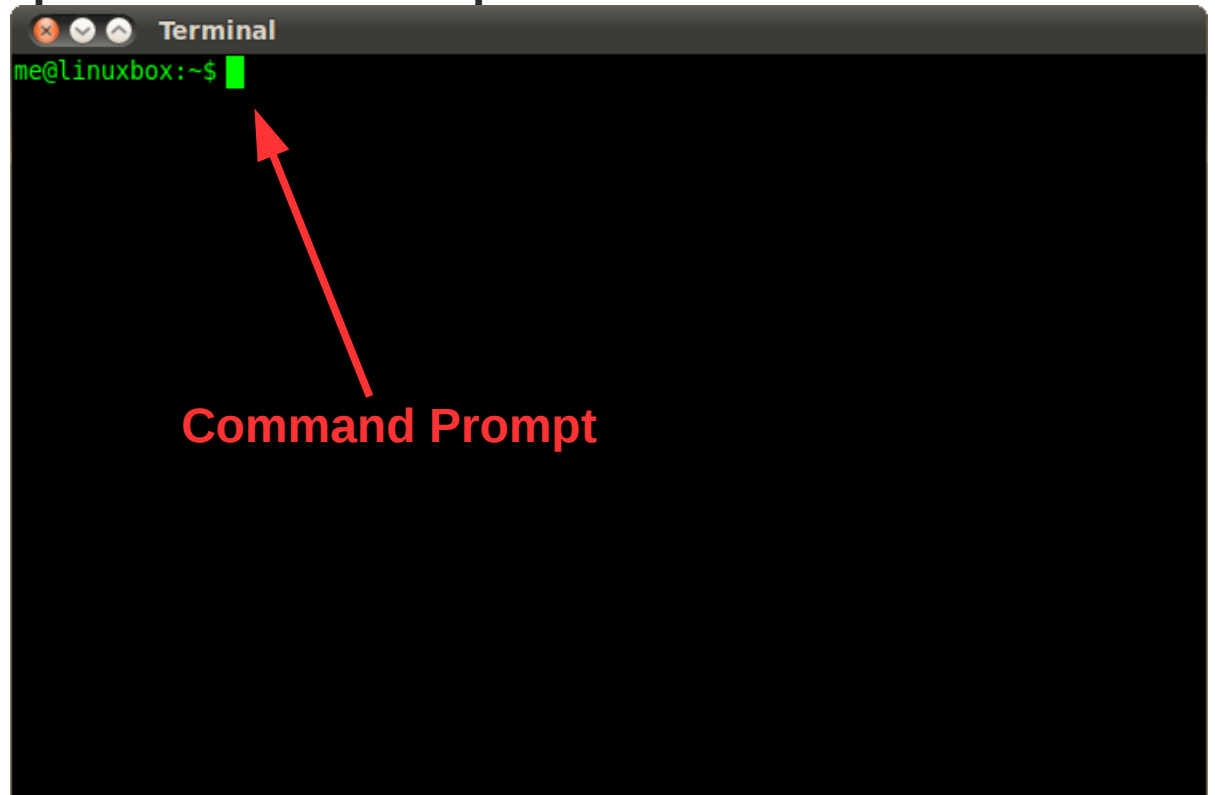


- You have likely used variants of UNIX before – Without ever knowing it!



Bash – an introduction to UNIX

- As you will see, UNIX serves as a massive suite of tools that make our work easier
 - You will operate the OS using the *Terminal* which is your main method of communication with the computer
 - All point-and-click operations can be represented as a string of terminal commands
-
- You will want to create a shortcut or hotkey to open terminals



The BASH Language

- BASH - a standard language included on Linux systems
- Terminal commands are written in the Bash language
- ➔ You may string commands together to perform very complex functions. This is called *Shell Scripting*.
- ➔ You will often find the need to execute the same string of repetitive commands in the terminal.
- ➔ Shell scripting will automate much of your work
- ➔ Moving around UNIX, creating files, copying them, and otherwise manipulating them is all performed with bash