

# Lab1: Getting started

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# TA information

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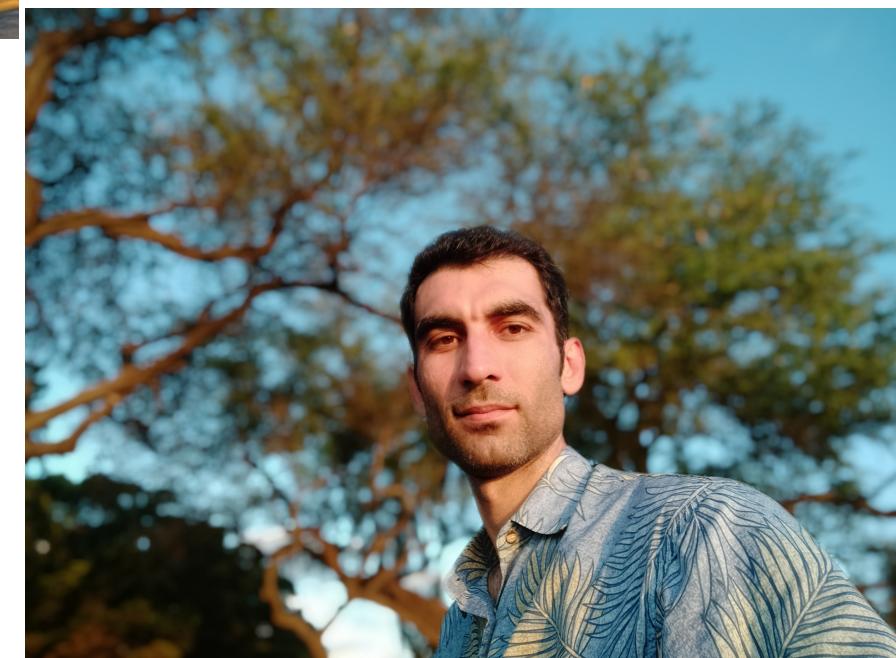
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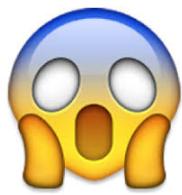


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# Lab: 40%



- Lab participation 50%  
*Sign your name* before you leave the lab
- Lab assignment 50%
- Don't hesitate to ask me if you have any question
- Virtual? TBD...

# Outline

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- Login to CADE
- Vim text editor
- Lab assignment – Hello World

# Outline

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- Login to CADE
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# Register to access CADE server

- <https://www.cade.utah.edu>

The screenshot shows the homepage of the Engineering IT Support website for the College of Engineering at the University of Utah. The header features the University of Utah logo and the text "Engineering IT Support" and "COLLEGE OF ENGINEERING | UNIVERSITY OF UTAH". The top navigation bar includes links for "A-Z Index", "Directory", "Map", "Events", and "Employment". Below the header, there are links for "FAQS", "COLLEGE OF ENGINEERING", "DOWNTIMES FOR COE SERVICES", "COE VIA VPN", and "REMOTE DESKTOP ACCESS". The main content area has a red background with a circular watermark. It features a "Welcome to CADE and the CoE IT Support group" message, a "What is CADE?" section, and a "Recent Posts" sidebar with links to news articles. A "Quick Links" sidebar contains a list of various services, with "Create a CADE Account" highlighted by a yellow box. The footer contains a "FAQ" section with links to various topics.

Welcome to CADE and the CoE IT Support group

**What is CADE?**

*Computer Aided Design and Engineering*, a name that's been with us from ages ago when technology had a very different meaning and 'IT Support' didn't exist yet.

CADE offers multiple Student Computing Labs for the College and supports all Students, Faculty and Staff in it from an Information Technology standpoint. It makes licensed software available for classes and research, enables networking and file sharing for departments and research groups, provides printing, e-mail, websites and various server-side functions, as well as an evolving array of technologies to facilitate learning and educating.

If you don't find an answer to your question or issue here on the site, please [contact us](#).

*The student computing labs with UCard readers (CADE-WEB 224-226; Engman-WEB 208 & 210; SD Mac Lab-WEB 124; CS Undergrad Lab-WEB 130) are **available for use 24 hrs/day, 365 days/yr**, barring any unscheduled outages or [planned downtimes](#). If you need building access, please contact your department front office for assistance.*

**Recent Posts**

- CoE Computing Lab Hardware
- Linux HTML5 Desktops Now Available
- Looking for Compute Servers?
- CoE Domains available for UMail accounts
- CoE Username Changes

**Quick Links**

- [CoE User Tools - Password Reset](#)
- [Create a CADE Account](#)
- [CoE User Guide](#)
- [Lab Reservations](#)
- [Remote Desktop Access](#)
- [Group Modify](#)
- [HTML5 Desktop](#)
- [CoE Network Request](#)
- [CoE WebMail](#)
- [SW License Status](#)
- [WebHandin](#)
- [Downtimes for Services](#)
- [CADE User Policy](#)
- [Lab Policy - Gaming](#)
- [CoE Computing Lab Hardware](#)
- [CADE Lab Layout](#)
- [Department Links](#)
- [Job Opportunities](#)
- [CoE IT Support Contacts](#)

**FAQ**

- [CADE FAQs](#)
- [FAQ - Backup](#)
- [FAQ - Computational Servers](#)
- [FAQ - Email](#)
- [FAQ - FTP & SFTP](#)
- [FAQ - General Tips](#)
- [FAQ - Instructors](#)
- [FAQ - Free Microsoft Software](#)
- [FAQ - Printing](#)
- [FAQ - Quotas](#)
- [FAQ - Remote Access](#)

# Login to CADE

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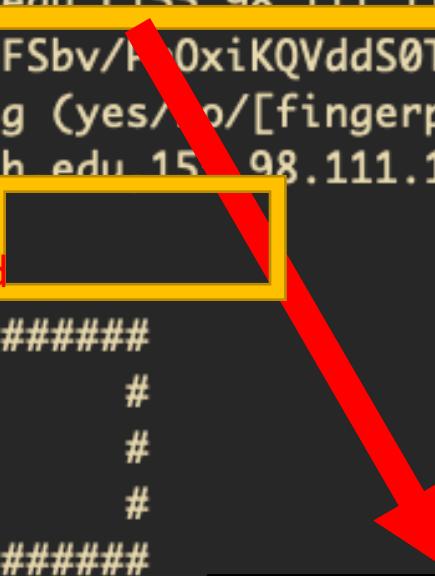
- Three ways to login:
  - ssh (macOS or Linux)
  - Putty (Windows)
  - Remote Desktop Access
    - <https://nx.eng.utah.edu>

# SSH

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- Open terminal (or iterm2) of your computer

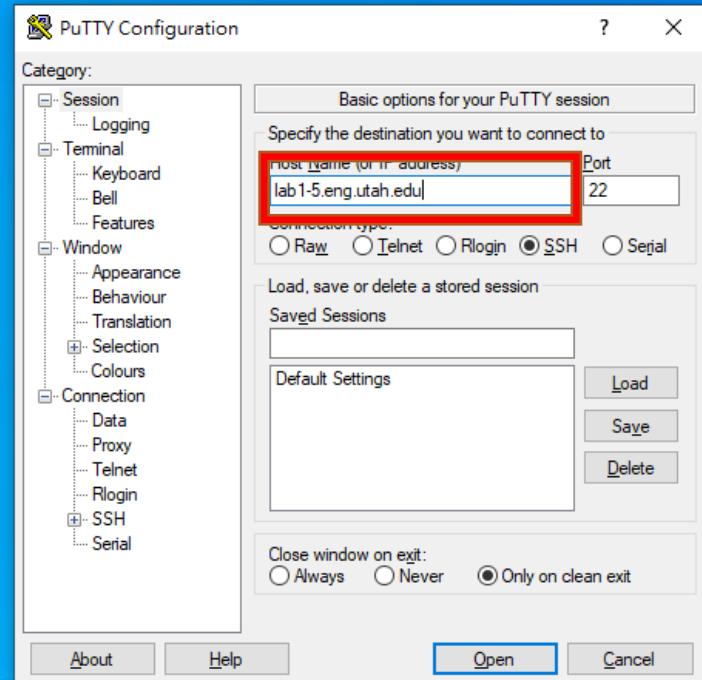
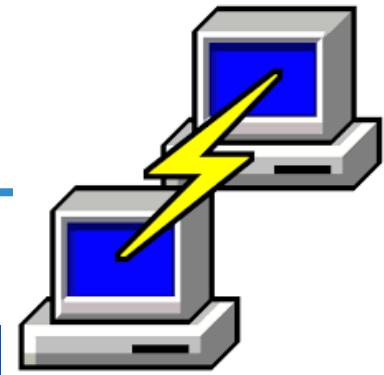
```
luan@Luande-MacBook-Pro:~$ ssh u1304130@lab2-10.eng.utah.edu
The authenticity of host 'lab2-10.eng.utah.edu (155.98.111.112)' can't be established.
RSA key fingerprint is SHA256:50J1qrhqeCr8EFSbv/H0xiKQVddS0TzpBvvzFUh+Kc
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'lab2-10.eng.utah.edu' (RSA) to the list of known hosts.
u1304130@lab2-10.eng.utah.edu's password: [REDACTED]
Your CADE password
#####
#          Welcome to CADE          #
#                                     #
#          No Scheduled Downtime   #
#####
[u1304130@lab2-10 ~]$
```



Host-format: **labx-y.eng.utah.edu**  
Replace x with 1-4 and y with 1-20 to avoid traffic

# Putty

<https://www.putty.org>



Host-format: **labx-y.eng.utah.edu**  
Replace x with 1-4 and y with 1-20 to avoid traffic

# Putty

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# Putty

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The screenshot shows a Putty terminal window with the following session details:

- Session name: u1304130@lab2-10:~
- Host Name: lab2-10.eng.utah.edu
- User: u1304130
- Port: 22
- Protocol: SSH

The terminal output is as follows:

```
login as: u1304130
u1304130@lab2-10.eng.utah.edu's password:
Access denied
u1304130@lab2-10.eng.utah.edu's password:
Last failed login: Wed Aug 26 13:57:25 MDT 2020 from c-67-177-21-190.hsd1.ut.comcast.net on ssh:notty
There was 1 failed login attempt since the last successful login.
Last login: Wed Aug 26 13:38:43 2020 from c-67-177-21-190.hsd1.ut.comcast.net

#####
#           Welcome to CADE
#
#           No Scheduled Downtime
#####
[u1304130@lab2-10 ~]$ ls
Desktop   Downloads  my_configure  Public  Templates  Videos
Documents  Music      Pictures       SNIG    test
[u1304130@lab2-10 ~]$
```

# Remote Desktop Access

<https://nx.eng.utah.edu>

Connection to nx.eng.utah.edu

NOMACHINE

Please type your username and password to login.



Username

Password

Save this password

# Some useful commands in terminal

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- ls : list the files you have in current path
- pwd : show the path you're currently in
- cd (target directory): go to the target directory
  - cd .. / go back to previous path
- mkdir (directory name): create a directory with directory name

```
[u1304130@lab2-10 ~]$ ls
a.out Desktop Documents Downloads hello_world.cpp Music my_configure Pictures Public SNIG Templates Videos
[u1304130@lab2-10 ~]$ pwd
/home/u1304130
[u1304130@lab2-10 ~]$ cd Desktop/
[u1304130@lab2-10 ~/Desktop]$ cd ../
[u1304130@lab2-10 ~]$ ls
a.out Desktop Documents Downloads hello_world.cpp Music my_configure Pictures Public SNIG Templates Videos
[u1304130@lab2-10 ~]$ mkdir test
[u1304130@lab2-10 ~]$ ls
a.out Desktop Documents Downloads hello_world.cpp Music my_configure Pictures Public SNIG Templates test Videos
[u1304130@lab2-10 ~]$ >|
```

# Outline

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- Login to CADE
- Vim text editor
- Lab assignment – Hello World

# Vim text editor

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# Vim text editor

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- Roughly speaking, Vim has 3 main modes
  - Insert mode
    - Write characters
    - Delete characters ('backspace' key)
  - Command mode
    - :w write(save) the file
    - :q quit the file
  - Normal mode
    - Navigate the cursor by using 'h' 'j' 'k' 'l' (or arrow keys)
    - To enter into the Insert mode
      - Press 'i' to start insert mode at current cursor
      - Press 'a' to start insert mode at next character of current cursor
      - Press 'o' to start insert mode at next line
- <https://missing.csail.mit.edu/2020/editors/> (highly recommend to go through this website)

# Outline

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- Login to CADE
- Vim text editor
- Lab assignment – Hello World

# Hello World!

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A screenshot of a terminal window with a dark background. At the top left are three colored dots (red, yellow, green) and the text "terminal". At the top right is the user identifier "u1304130@lab2-10:~" followed by a small bell icon. The main area contains the following C++ code:

```
#include <iostream>

int main() {
    std::cout << "Hello World!\n";
}
```

Below the code, there are approximately 15 blank lines starting with a tilde (~). At the bottom of the terminal window, the status bar shows the number "6,0-1" and the word "All".

# Compiler

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- GCC

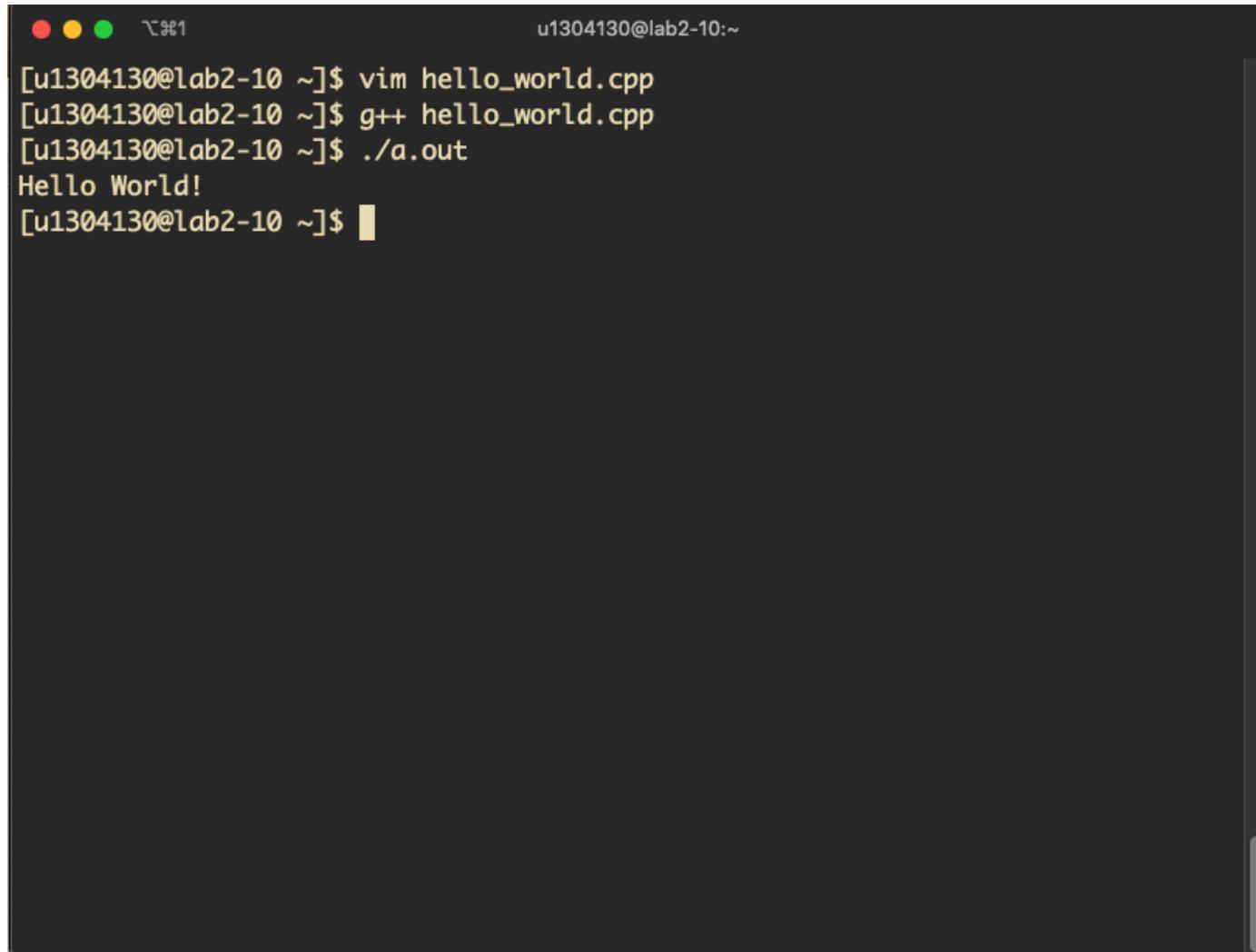


- Clang

- MSVC

# How to compile & run your first program

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The screenshot shows a terminal window with a dark background and light-colored text. At the top left are three colored dots (red, yellow, green) and the number '1'. At the top right is the text 'u1304130@lab2-10:~'. The terminal contains the following command-line session:

```
[u1304130@lab2-10 ~]$ vim hello_world.cpp
[u1304130@lab2-10 ~]$ g++ hello_world.cpp
[u1304130@lab2-10 ~]$ ./a.out
Hello World!
[u1304130@lab2-10 ~]$ █
```