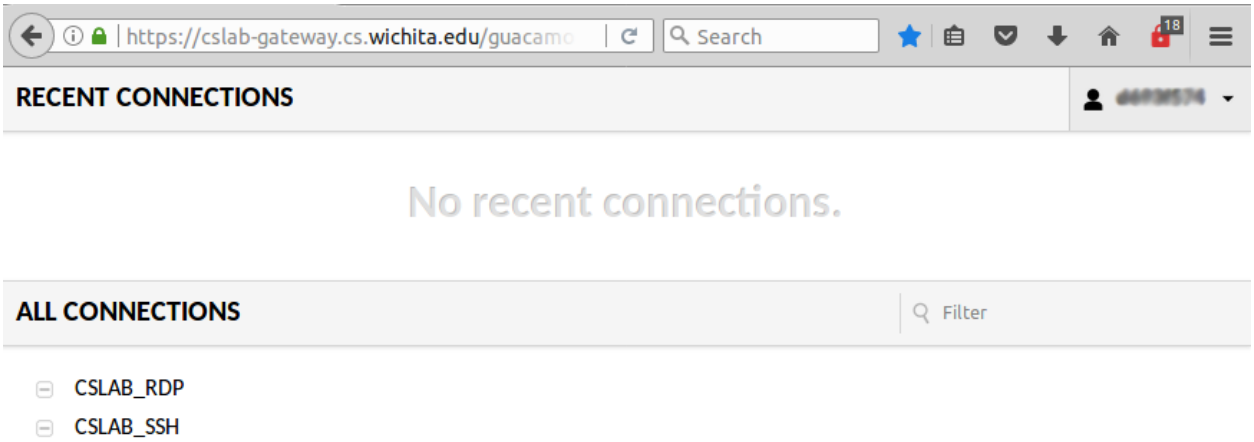
EECS Tutorial: cslab Linux Environment

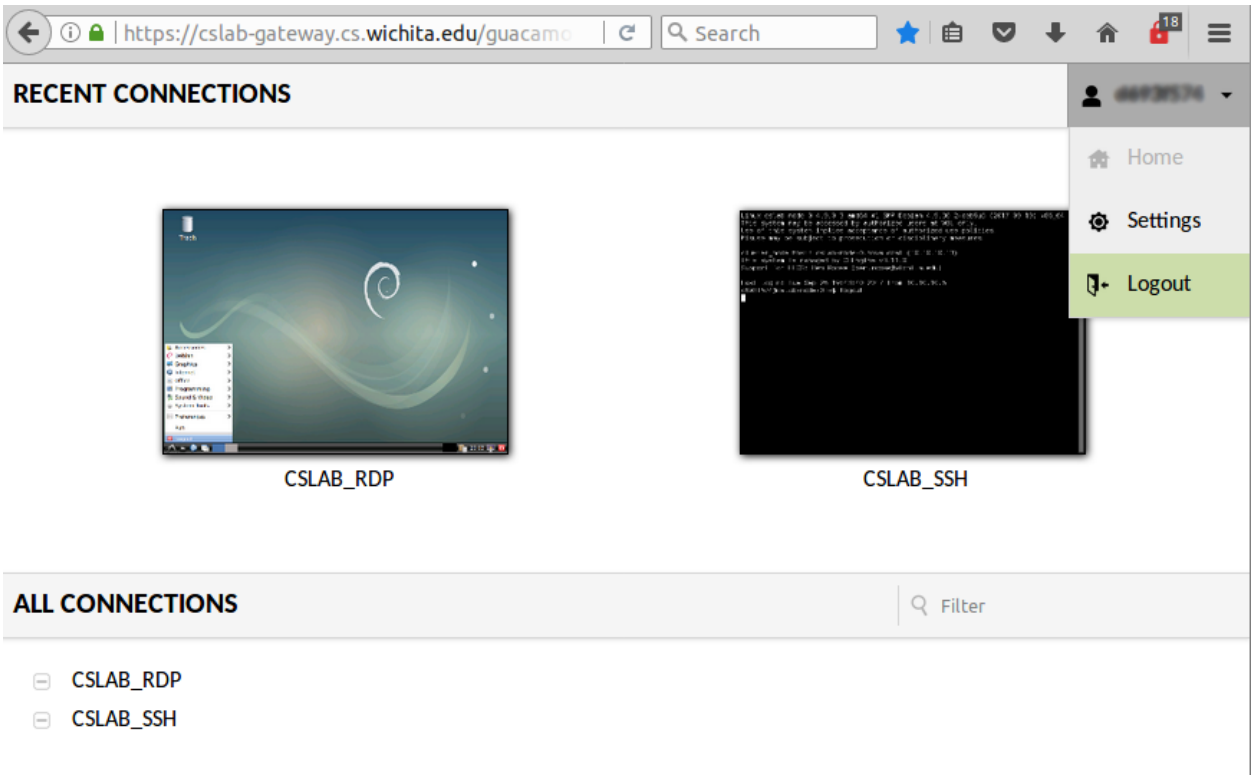
FAQ for web-access to the cslab Linux environment

How do I access the cslab Linux environment via a web-browser?

1. Open your favorite HTML5 compatible web-browser. To test the compatibility of your browser go to html5test.com
2. In your browser go to cslab-gateway.cs.wichita.edu
3. At the login screen enter your myWSU ID and password and you will be presented with the *Apache Guacamole* home screen.



4. To connect into an LXDE graphical desktop session for working on programming assignments click on `CSLAB_RDP`.
5. To connect into a command-line terminal session for working on programming assignments click on `CSLAB_SSH`.
6. When you next log into cslab-gateway.cs.wichita.edu the *Apache Guacamole* home screen will show clickable thumbnails of your recent connections.
7. To log out of *Guacamole* from the home screen, click on your `myWSU_ID` at the top right. This drop-down list also enables you to open the `Settings` menu which includes displaying an on-screen keyboard for mobile devices.



8. To open/close the *Guacamole* menu sidebar while in the cslab environment press the key combination **Ctrl+Alt+Shift**. The *Guacamole* menu sidebar enables you to log out, disconnect, change settings, upload/download files, and use a remote clipboard.

9. For further help on using the *Guacamole* interface go to Using Guacamole Guide

NOTE: When you finish your work session, please make sure to logout from your connection within the cslab environment:

- **by using the *Guacamole* menu sidebar,**
- **by using the [logout] menu item or [logout] taskbar button within the RDP desktop session, or**
- **by typing `exit` or pressing Ctl+D within the SSH terminal session.**

What software is available within the cslab Linux environment?

The cslab environment gives you both graphical and command-line Linux tools for writing, compiling, and debugging your CS programming class assignments. Software tools/packages installed on the cslab servers includes:

- Text and code editors: leafpad, nano, vim, and emacs.
- Integrated development environments (IDE): geany and eclipse.
- Compiling tools: GNU C compiler (gcc), g++, make, perl, python, python3, and java.
- Debugging tools: GNU debugger (gdb) and data display debugger (ddd).
- Latex tools: pdflatex, texlive, and texmaker.
- Version control tools: git and subversion.
- GUI pseudo-terminals: terminator, lxterminal, and xterm.
- CLI terminal multiplexers: screen and tmux.

To check if a specific software package or version is installed within the cslab servers, connect into the SSH terminal session or open a terminal in the RDP desktop session and type:

```
apt list --installed specify_package_name_here
```

If a Linux software package is not installed within the cslab environment which you require to complete your class assignment, then please ask your instructor whether this package can be installed for you by the EECS systems administrator.
Do not attempt to install any software packages yourself!

How do I copy text within the remote cslab Linux environment?

Copying text from your local computer to the remote environment:

1. Copy the required text to the local clipboard within your local computer application using your preferred method of copying, i.e. **Ctrl+C**.
2. Within the cslab environment in your browser, open the *Guacamole* menu sidebar by pressing the key combination **Ctrl+Alt+Shift**.
3. Paste the copied text to the remote *Guacamole* [Clipboard] field using your preferred method, i.e. **Ctrl+V**.
4. Close the *Guacamole* menu sidebar by pressing the key combination **Ctrl+Alt+Shift**.

5. Within the RDP desktop session, any text shown in the *Guacamole* [Clipboard] can be pasted into a remote cslab application by normal methods, i.e. **Ctrl+V**.
6. Within the SSH terminal session, text in the *Guacamole* [Clipboard] can be pasted into the terminal by right-clicking on the browser window with your mouse or by pressing the key combination **Ctrl+Shift+V**.

Copying text from the remote environment to your local computer:

1. Within the RDP desktop session, text can be cut or copied from any cslab application by normal cut/copy methods, i.e. **Ctrl+C**.
2. Within the SSH terminal session, text to be copied is "highlighted" using the mouse.
3. Open the *Guacamole* menu sidebar by pressing the key combination **Ctrl+Alt+Shift**.
4. The copied or "highlighted" text will appear in the remote *Guacamole* [Clipboard] and can then be selected and copied to your local computer clipboard, i.e. **Ctrl+C**.
5. Close the *Guacamole* menu sidebar by pressing the key combination **Ctrl+Alt+Shift**.

How do I download/upload files within the cslab Linux environment?

Using guacctl/guacget to download a file:

- Within the SSH terminal session, you can use the *Guacamole terminal session control utility (guacctl)* for downloading files. To download a file from the SSH terminal session to your local computer via the web-browser type:

  ```
  guacget file_to_be_downloaded
  ```

- `guacget` is an alias for the command `guacctl --download`. To see all the option flags available for this command type `guacctl`.
- **NOTE: `guacget` only works in SSH terminal sessions. `guacget` does not work in RDP desktop sessions.**

Drag-and-drop to upload a file:

- You can drag-and-drop a file from your local computer onto the cslab web-browser window. This can be used in both RDP desktop and SSH terminal sessions.
- By default the file is uploaded into your user home directory on the remote server.
- You can set a custom destination directory for future uploaded files when using drag-and-drop by typing:

  ```
  guacctl -s custom_upload_directory
  ```

Guacamole file browser to upload or download a file:

1. Open the *Guacamole* menu sidebar by pressing the key combination **Ctrl+Alt+Shift**.
2. Click on the disk drive icon under [Devices] to open a file browser of the remote cslab server.
3. Browse to your user home directory on the remote server. You can then browse to subdirectories within your user home. Your home directory full path on the remote server will look like the following:

   `/opt/homes/stu##/your_myWSU_id/`

4. If you are unsure where your home directory is located on the remote server, in a terminal or in the SSH terminal session type `pwd` to show you the full path of your present working directory.
5. Downloads are initiated by double-clicking on any file shown, while uploads are initiated by clicking the [Upload Files] button. Clicking [Upload Files] will open a file browsing dialog where you can choose one or more files from your local computer, ultimately uploading the selected files to the directory currently displayed within the remote server file browser.
6. Close the *Guacamole* menu sidebar by pressing the key combination **Ctrl+Alt+Shift**.