# Connecting to Cat5 via SSH
From Rutgers Virtual Computer Labs

This method lets you use your web browser to connect to a virtual Windows computer, then use SSH and Xming to connect to Cat5. You do not need to install anything on your local computer.

> **IMPORTANT:** No file you save on the virtual Windows computer will be retained once you log out. Copy it to Google Drive, Box, Cat5, etc. if you want to keep it.

Connect to Virtual Computer Labs

1. In your web browser, go to https://labgateway.rutgers.edu/

Your browser may ask if you want to allow the site to access your computer's clipboard. The clipboard holds text and images that are cut or copied from one program, for pasting elsewhere. Think carefully before answering this question. Choose **Block** if you aren't sure.	
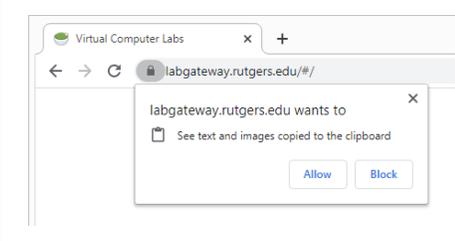
   Choosing Allow lets you copy/paste between your computer and the Virtual Computer Labs computer but **ALL** programs or websites open on the virtual computer will have access to that information. You may not want that if your clipboard contains sensitive information such as a password or credit card number. If you allow this, pay close attention to your clipboard's contents while connected to Virtual Computer Labs.

2. In the "Virtual Computer Labs" box:
    a. Enter your **Rutgers** login credentials (NetID and NetID password).
    b. Click the "Login" button.
    c. If you have your Rutgers account set to use NetID+ (2-factor authentication), you might be presented with options for that.
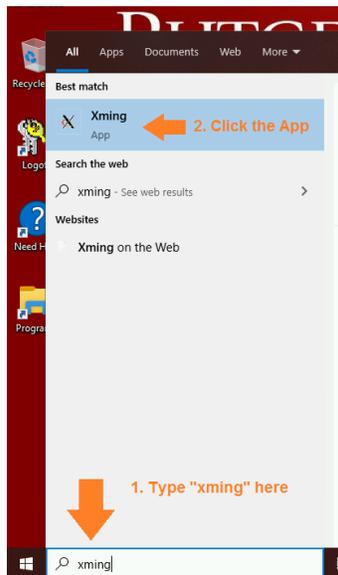   d. You must agree to the disclaimer to continue.

3. Once logged in, you will see a Windows desktop that looks like so:

Launch Xming

1. In the search box in the lower left of the virtual desktop, type "xming" (without the quotes).
2. At the top of the search results, click on the "Xming App" to start Xming.

Xming does not bring up any windows. You can tell it is running by the "X" icon in the system tray (the set of icons in the lower-right of the desktop):

IMPORTANT: Always make sure Xming is running **before** launching PuTTY.
Otherwise, graphics will not work!

Connect with PuTTY

Launch PuTTY
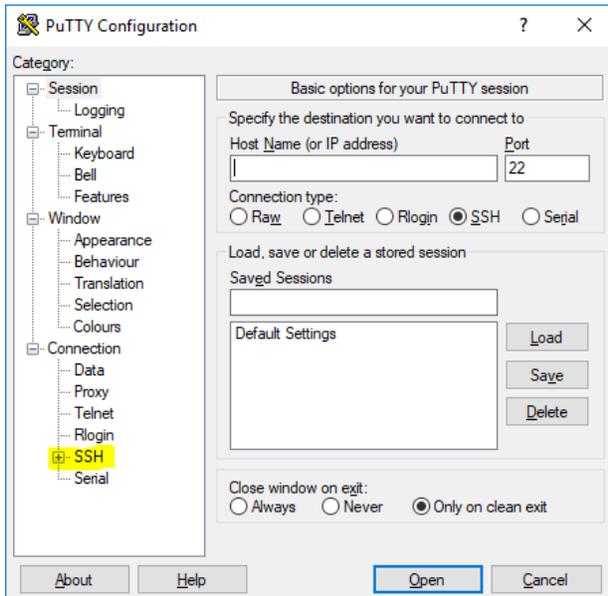
1. Similar to how you launched Xming, search for "putty" in the search bar.
2. At the top of the search results, click on the "PuTTY App" to start PuTTY.
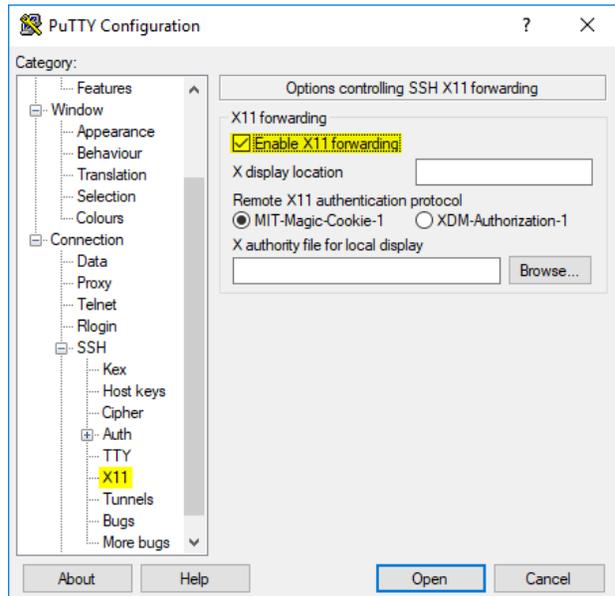
Connect with PuTTY, Continued

Create a PuTTY Session for Cat5

NOTE: The virtual computers don't save settings, so you must do this every time you use them.
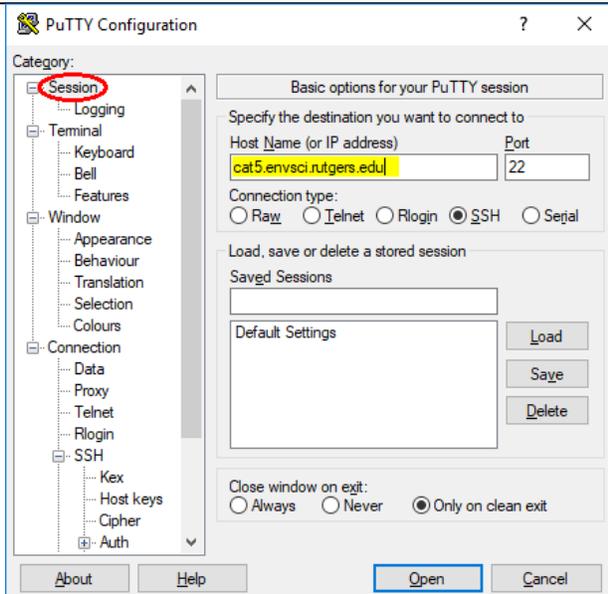
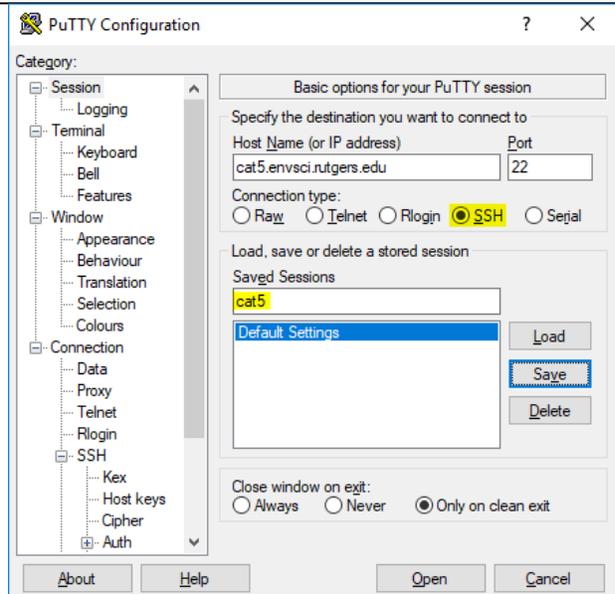Follow these steps to ensure PuTTY uses the correct settings for Cat5:

(a) In the tree on the left side, under "Connection", click on the "+" next to "SSH" to expand it.

(b) Then click on "X11" under "SSH."
Check the box next to "Enable X11 forwarding."

(c) Now scroll the tree to the top and click on "Session." Under "Host Name", type "cat5.envsci.rutgers.edu" (without the quotes).
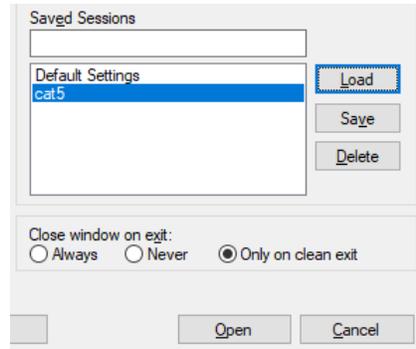

(d) Make sure "Connection type" is set to "SSH". Under "Saved Sessions", type "cat5" (without the quotes) and click "Save". Click "Cancel" to exit.
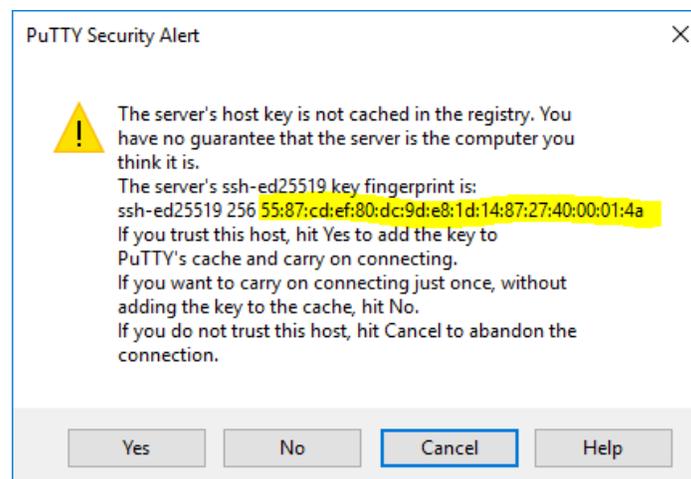
Your session is now created!

Connect with PuTTY, Continued

Open Cat5 Session

1. In the PuTTY window, double-click on the "cat5" session to start it:

2. Since PuTTY does not remember connecting to Cat5 before, it will present a security alert saying it does not recognize the server, asking if you trust the "host key."

3. Check that the provided fingerprint (highlighted in yellow in the screenshot; it may differ on your screen) *exactly* matches one of the following three valid fingerprints:

   o `55:87:cd:ef:80:dc:9d:e8:1d:14:87:27:40:00:01:4a`
   o `ee:05:33:ed:1e:5c:31:84:86:b9:8c:11:15:1a:9d:6f`
   o `25:ea:b6:1d:75:17:9e:ea:48:61:50:09:4d:80:57:17`
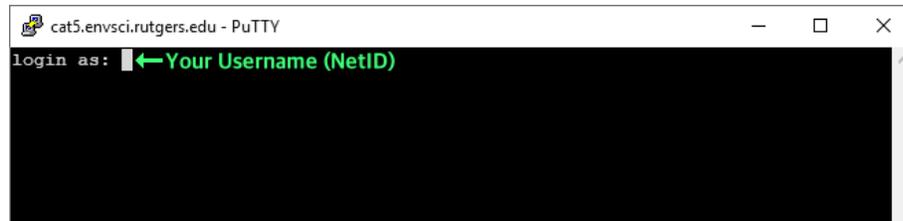
If it matches one of those, then click "Yes" to connect. If it does **NOT** match any of them, then please check Cat5 Host Key Fingerprints on the DES website for more possible values.
Do not accept an unverified host key!

Connect with PuTTY, Continued

Open Cat5 Session, Continued

4. Once connected, a window will appear that lets you communicate with Cat5 by typing.

a. Type your Cat5 username (usually your NetID), then press the **Enter** key.
b. At this point, you will be asked to enter your Cat5 password.
    - If you have never logged into Cat5 before, **follow the steps on the next page** to use your temporary password and update it.
    - If you've already changed your password, use the one you have selected.
    - If you cannot remember your password, please email help@envsci.rutgers.edu

Important: Passwords **will not be visible** on the screen while you type them.

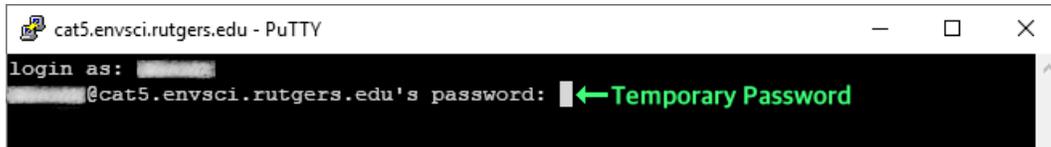After that, you will be connected to Cat5 and can run commands needed for class work.
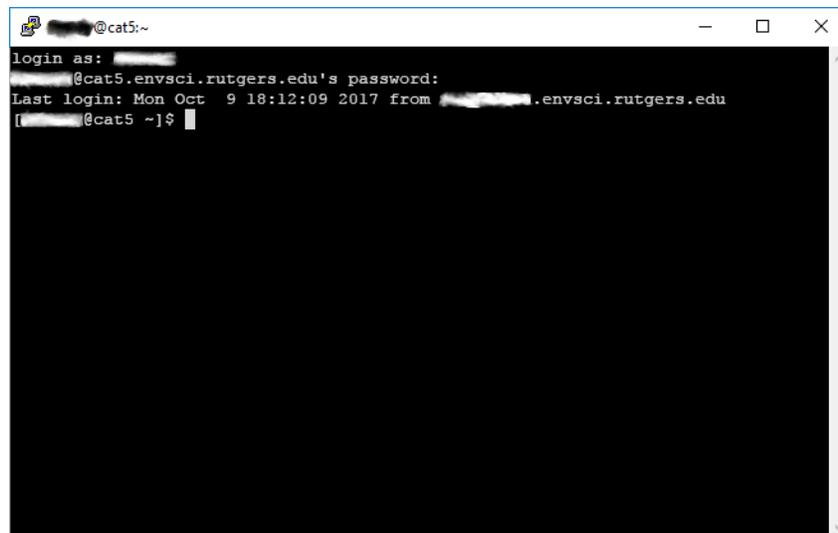
When done, type "exit" and press **Enter** to logout. The PuTTY window will close automatically.

Logging in the First Time & Setting a New Password

1. After entering your username you will see the password prompt:

2. Type the Temporary Password previously given to you, and then press the **Enter** key. You will be asked to change your password. Cat will ask for the "current password":
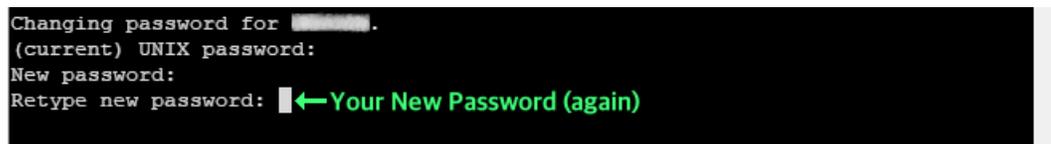

3. Type the Temporary Password **again**, and then press the **Enter** key. Next you will see prompts to enter your **new password**.

4. Now type your new, made-up password. No one else will know this, so you should be able to remember it, but people should not be able to easily guess what it is. Don't use a dumb password such as "password" or someone's name or birthday. Press the **Enter** key when done. The next prompt asks you to confirm the new password.

5. Finally, type your new, made-up password **again** to confirm it, and then press the **Enter** key. Once you have successfully changed your password, Cat5 will disconnect, and the PuTTY window will close automatically. You will need to connect to Cat5 again to use it.

If you type the Temporary Password incorrectly, or if your new passwords do not match, then this process will abort and you will have to start over by connecting to Cat5 again.

The next time you connect to Cat5, you will log in normally, and enter your new password only. You do not need your Temporary Password any longer.