Setting up your
Windows
computer before
Course Work Modules

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What do I need to do?

This document is for Engineering Science students in the University of Oxford that want to use a personal Windows 10 computer[1] for Course Work Modules (CWMs). There is a separate document for if you are using a Mac/Linux. Following the steps in this document will require you to **install new software** on your computer. You will need a computer with permissions to install new software. This may be an issue if you are using a borrowed computer/internet café/public library.

Step 1: Install Teams

Most Course Work Modules will use **Teams**. TDSG (the Teaching Support Group) will also be using this to help you if you get stuck setting up your computer. Start by reading **Useful Applications** which details how to install Teams on **pages 1-4.**

Step 2: Work out if you need VPN

VPN (Virtual Private Network) allows you to connect to the University Network as if your computer was within the University. It is needed for any CWM that uses computers within the University that you **access remotely** from home. Read the table on the next page to find out if you need VPN for your CWMs. If it does, follow the instructions on **pages 5-6.**

Step 3: Work out if you need Remote Desktop

Read the table on the next page to find out if you need Remote Desktop for your CWMs. This allows you to take over the desktop of a Departmental Computer from home and use it as if you were sat in front of the PC. If your CWM needs this, follow the instructions on **pages 7-12.**

Step 4: Work out if you need Remote Login

If you are doing **Computational Fluid Dynamics** or **High Performance Computing**, you will need Remote Login. This allows you to send commands from your computer to a Departmental PC. Follow the instructions starting on **page 13.**

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[1] Please note that Windows 7 is no longer supported by Microsoft, and computers running Windows 7 are at a higher risk of being hacked. While they can be used for the CWM, please see page 24.

Table of CWM requirements

Course Work Module	VPN	Remote Desktop	Remote Login	Other
Mechanical CAD	✓	✓		
Turbomachinery CAD	✓	✓		
3D Printing CAD	✓	✓		
Civil Engineering	✓	✓		
Chemical Engineering	✓	✓		
Finite Elements for Solids and Structures	✓	✓		
High Performance Computing	✓		✓	
Computational Fluid Dynamics	✓		✓	
Lego Football				Simulink

The following CWMs use Amazon Web Services (AWS):

ECAD

Formula 1

At the time of writing, we do not know what you will need. However, we suggest that you prepare for Remote Login. You will not need to use the University VPN server to use AWS, but to test Remote Login, using the computers in the Department, you will need VPN.

For the other CWM (**Business Laboratory, Optical Engineering of Biomedical Microscope, AI & Python, Biomedical Engineering)**, your module organiser will advise you on what to do. Please see the individual sections in Canvas A5 Course Page.

Contents

Useful Applications

Nexus 365

The Oxford University Office 365 system. A cloud based working environment. Many of you will already be using Nexus 365 to access your email through a browser. If you are not already using Nexus 365, then follow the instructions here to get started: https://help.it.ox.ac.uk/nexus365/getting-started

Here you will find :-

Outlook

The Microsoft email client to view your Oxford University emails.

One Drive

A cloud based filing system. You can share files with other people.

OneDrive

Word

The Microsoft word processor.

- You can save files as a Word document(.docx) to **One Drive** or your own computer.

Word

Excel

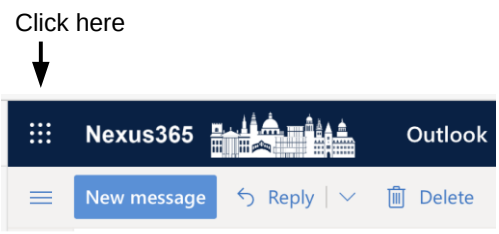
The Microsoft spreadsheet.

- You can save files as an Excel spreadsheet(.xlsx) to **One Drive** or your own computer.

Excel

If you create a file on OneDrive using Word or Excel, don't worry if you can't delete it. You will be able to delete it tomorrow.

When running one of the applications, you can select other applications by clicking on the dotted icon on the left of the banner.

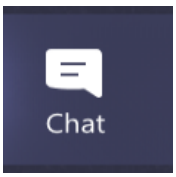


For more information on Nexus 365 see https://help.it.ox.ac.uk/nexus365/index

Microsoft Teams

Teams is an online chat and conferencing tool. Teams lets you message, talk to and see other members of the University. It will be used by many of the Course Work Modules. It is a part of Nexus 365 and you start teams like any other Nexus 365 application.

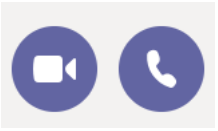
Testing Teams



You need the help of a friend in Oxford.

Right click on the **Chat** icon and select **New chat.**

Then enter the name of your friend.



Enter a message in the box at the bottom.

Try out the Video and Audio call. If you have problems, try installing the **Teams App**.

Installing the Teams App

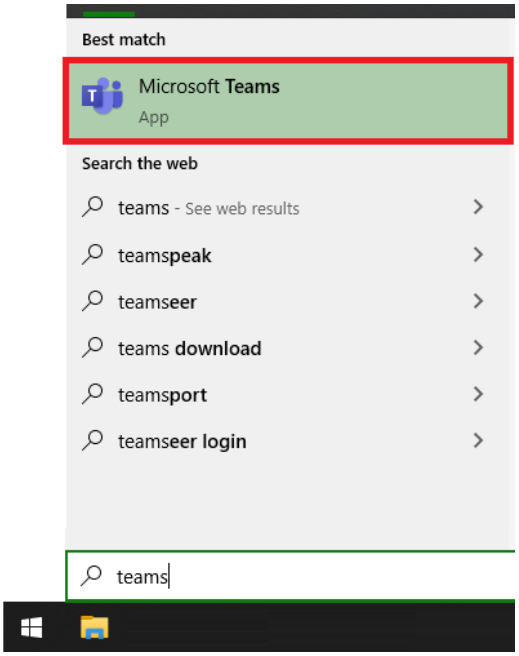
The Teams App interacts directly with Teams, without using a web browser.

Go to the web site https://products.office.com/en-gb/microsoft-teams/download-app

There are two **Download Buttons**. Select the one in the centre, under the Window Icon. This downloads a **.exe** file that you need to run.

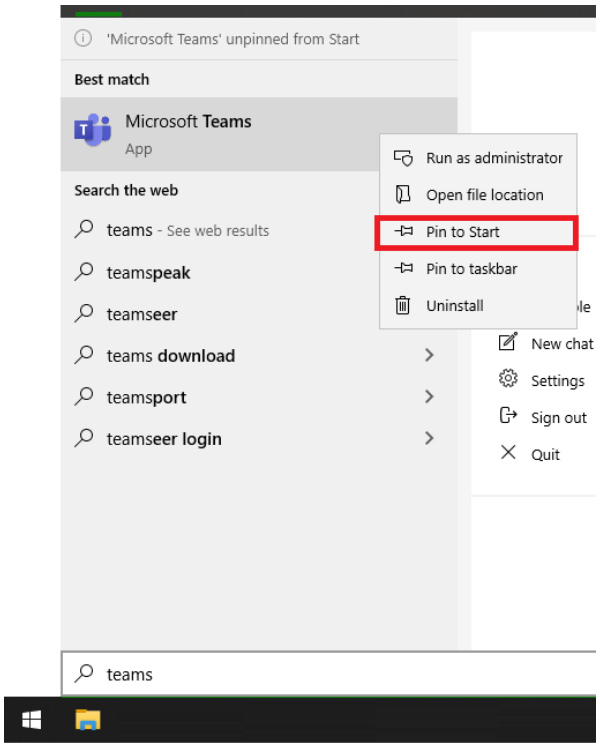
Starting the Teams App

Click on the Windows Icon in the lower left and enter **teams**.



Pinning Apps to Start

You can always right click and select **Pin to Start**, this will mean you always have the Apps you need available in the start menu.



Logging into Teams

Sign in using **abc123@OX.AC.UK**

Replacing **abc123** with your own Signal Sign On (SSO) username.

Then login using your Oxford University SSO and password.

Sometimes it capitalizes the first letter of the SSO. If it does this, change it back to lower case.

Using a Teams Classroom

Some Coursework Modules will be using Classroom features in Teams.

Please see the separate guide on Canvas, under MCAD.

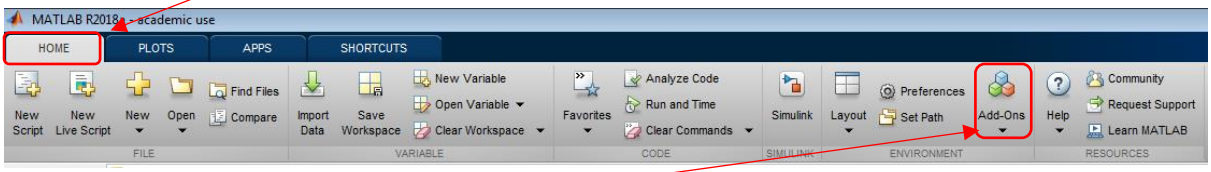
MATLAB Toolboxes including Simulink

Most of you will have already installed MATLAB on your personal computer. If not, see : http://www2.eng.ox.ac.uk/~labejp/TAH/MATLAB_Install.pdf

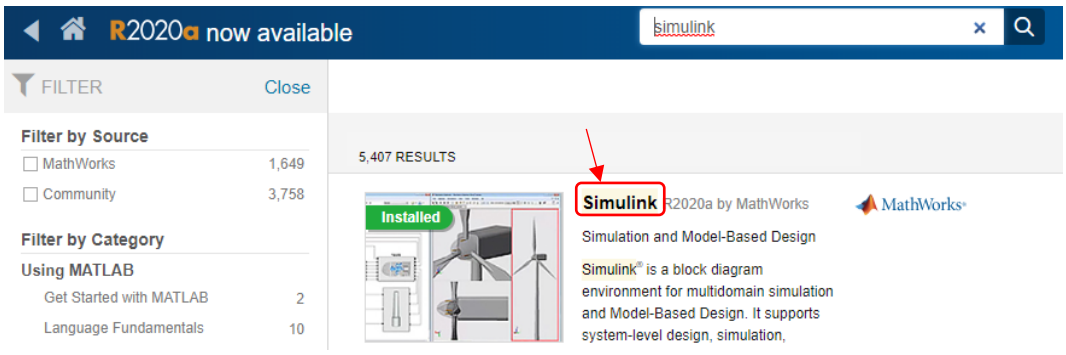
Once installed you can find out what Toolboxes you already have installed with the command **`ver`**. If there is something missing from the list produced, you can install more Toolboxes, including Simulink, using the **Add-ons** button in the ribbon.

Installing Add-ons (e.g. Simulink)

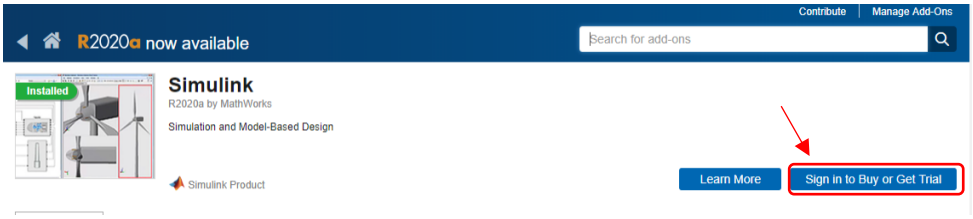
- ⇨ Navigate to the **Home** Ribbon.



- ⇨ Click on the **Add-Ons** icon.
- ⇨ **Search** for Simulink in the Add-On Explorer.
- ⇨ Click **Simulink**



- ⇨ Click on **Sign In** to Install



- ⇨ You will be prompted to sign into your **MathWorks account**.
  This is your University e-mail.

- ⇨ When you have signed in, click on **Install**.

Connecting to University VPN

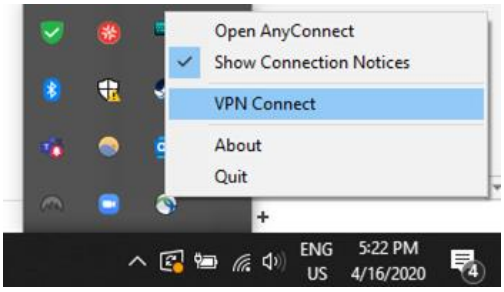
Most computer systems within the University are not accessible from networks outside the University for security reasons. Using a VPN (Virtual Private Network) allows you to connect to the University Network as if your computer was connected within the University. Some Internet Service Providers may block the use of VPN (typically not an issue inside the UK). If you cannot proceed, please contact your coursework module organiser who can recommend alternative arrangements.

Install a VPN Client

If you have never connected to the University VPN, you will need to install a VPN Client called **Cisco AnyConnect.** Follow the instructions under "**First-time Setup**" at on the University IT website: https://help.it.ox.ac.uk/network/vpn/windows/index

Connecting to the VPN

Once successfully installed,
launch the program **Cisco AnyConnect.**



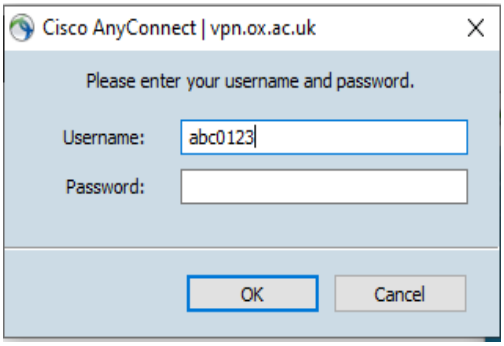
Search for it in the Windows Icon start menu, or right-click on the **Cisco AnyConnect** icon on the lower right System Tray if available.

A menu will appear.
Select **VPN Connect.**

Ensure the VPN is **vpn.ox.ac.uk**

Enter your **Single Sign On (SSO) username**
Next fill in your **Remote Access Password.**

This is **different** to your SSO password!
You can self-register or **reset** your **Remote Access Password** at
https://register.it.ox.ac.uk/self/remote_access



Testing the VPN

Check that the VPN is working by looking at the Department of Engineering Science webpage at www.eng.ox.ac.uk. Click on **Intranet** on the right of the banner. A new page should load. You can only see the intranet if VPN is working. Without VPN you will be **Forbidden** from accessing this page.

Was it successful?

All your web activity is now going through the University Network. Do not do anything that you would not do on the University Network.
A refresher of the rules of using the University Network can be found at:
https://governance.admin.ox.ac.uk/legislation/it-regulations-1-of-2002
(Point 7 in particular sets out things you can/cannot do on the network)

Disconnect from the VPN

Once you are finished working on University activities for the day:

- Right-click the VPN icon in the System Tray
- Select **Disconnect**

Check you have entered the **VPN address** and **Remote Access password** correctly.

If you have previously installed other VPN client software (e.g. NordVPN, TunnelBear), **disconnect** before attempting to connect to the University VPN server. The VPN connection to the University will not work if there are other active VPNs on your computer.

You cannot use the VPN if your Internet Service Provider, or Country of Residence, blocks the use of VPN. The local networks at some other educational and commercial establishments also block VPN access.

You can get help by visiting: https://help.it.ox.ac.uk/help/request

Remote Desktop Connection to Lab Computer (e.g. Software Lab A/DO/3DP)

Follow these instructions if you need to connect a computer in one of the laboratories in the Engineering Department. Using a remote desktop allows your mouse and keyboard to become the remote computer input, you can use it as if you were sat in front of it. You will be allocated a computer in one of the teaching Laboratories in the Department: Design Office (DO), 3D Printing Lab or Software Lab A. You will be allocated this for some period in week 3 or 4 of trinity term for testing your set up.

You will need to have already connected to the VPN, as per page 5.

IMPORTANT

Once connected by following the instructions on the next page

Do not just close the connection! *Do not shut down the computer!*

When you have finished using the remote computer,

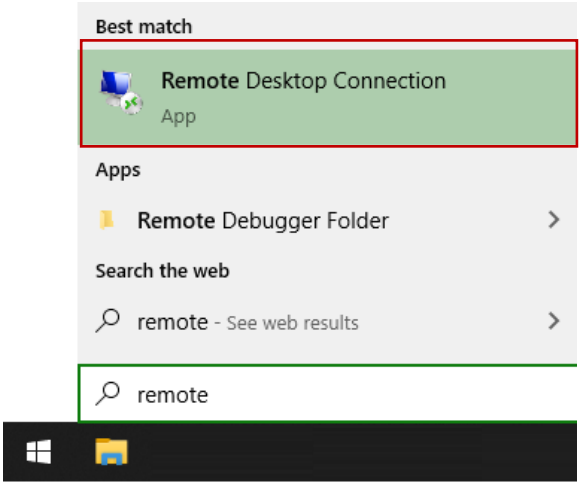
you must **Sign Out** and **NOT shutdown the computer**

Starting a Remote Desktop

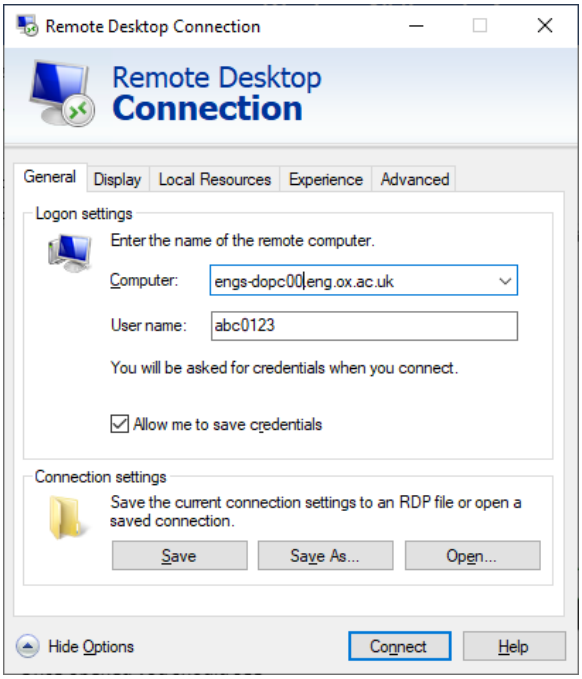
Click on the **Windows Icon** in the lower left and start typing remote desktop.

The Remote Desktop App should appear.

Click to **Open.**



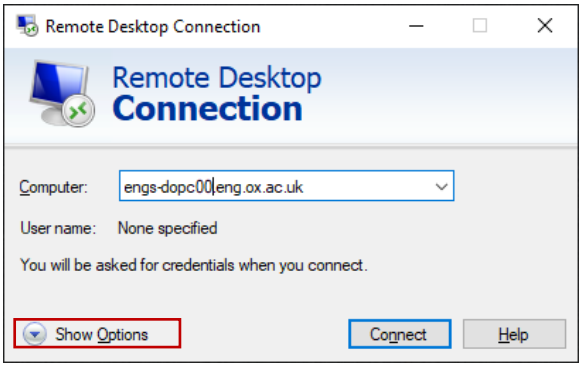
Once opened you should see this →



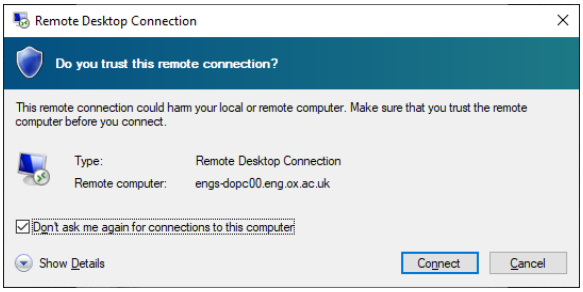
If you do not see a username box,
Click on **Show Options…**
to expand the menu

Supposing that you have been told that you are to connect to the computer **engs-dopc00**

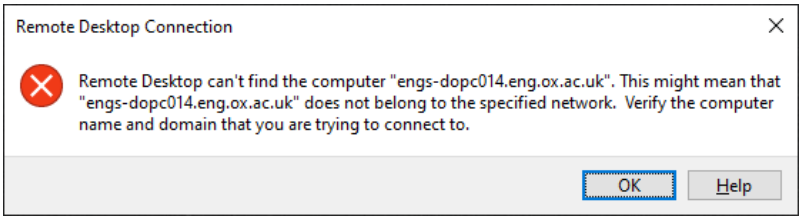
After **Computer:** enter full network name **engs-dopc00.eng.ox.ac.uk**



Then enter your **Username** (as per your Single Sign On e.g. abc0123)

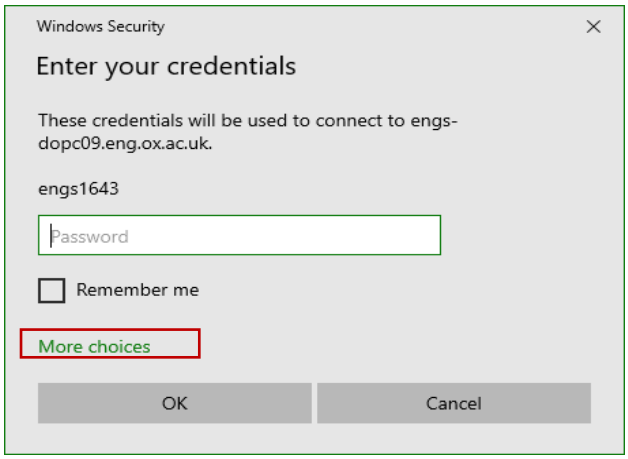


When clicking **Connect** you may get a trust pop up
Click **Connect.**

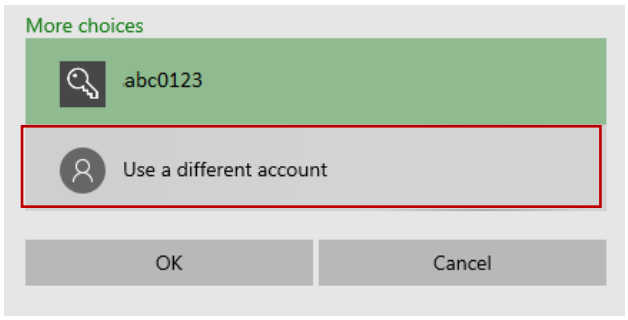


An error saying it **can't find the computer** means the **Computer Name** is wrong.
Check for any mistakes. It should be something like **engs-dopc00.eng.ox.ac.uk.**
Check with your organiser that you have the right machine address.

You may be prompted to **Enter your Credentials**



Select **More Choices**

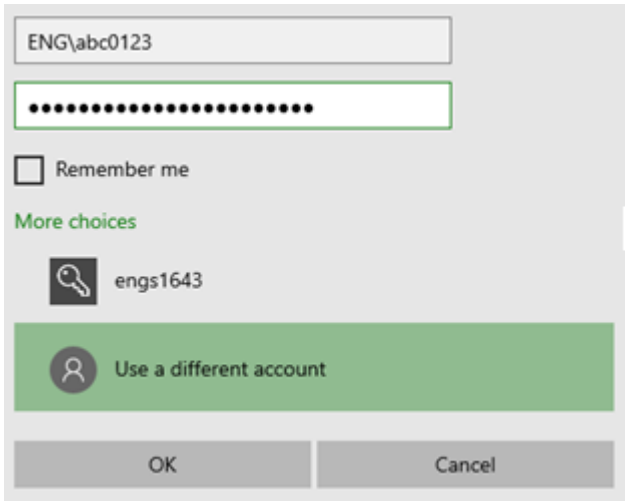


Select **Use a different account**

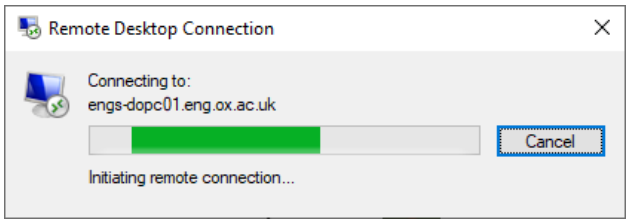
Now you will be able to edit the **Username** box, add **ENG** so it has: **ENG\abc0123**

Use your **Departmental Password**[2]

Click **OK**



You should see the connection initiating:

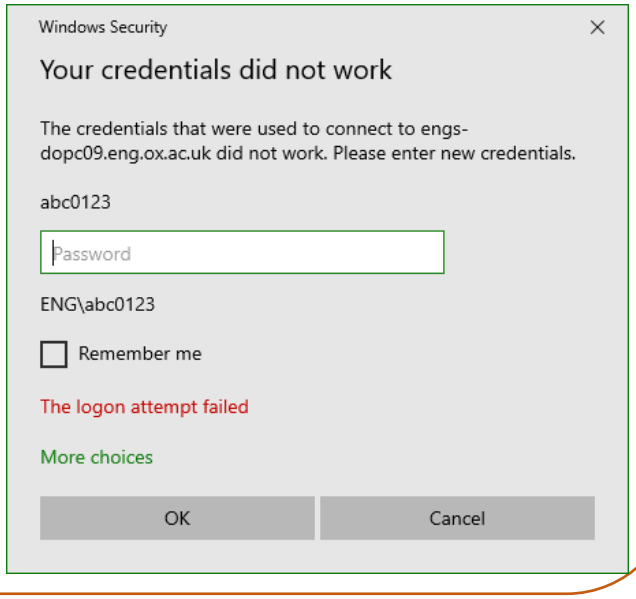


[2] Password used when logging onto computers for labs in the Design Office/Software Lab A. Different to your SSO password. It can be reset by a member of TDSG (Teaching Support) or IT.

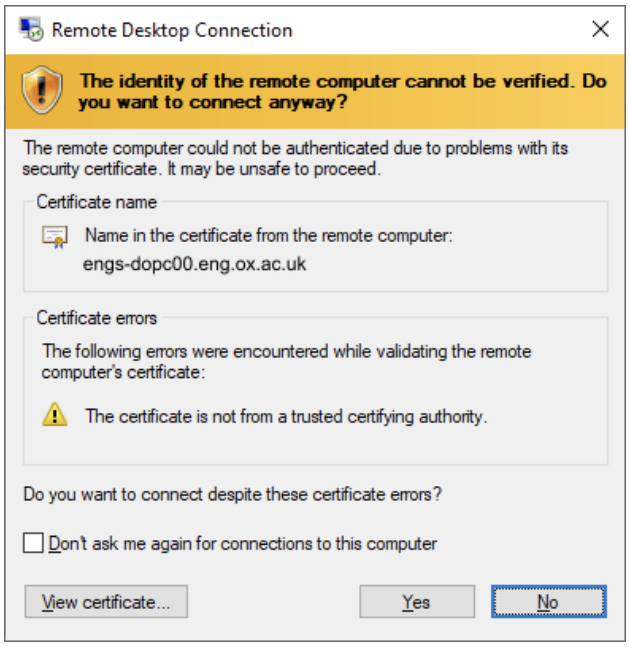
A **logon attempt failed** means that the **Username** or **Password** was wrong.

Ensure you followed the **More Options** instructions above to add **ENG** to the beginning of your **Username.**

Ensure you used your **Departmental Password**. See footnote on previous page for reset instructions.



If there are any certificate errors, select **Yes.**



The screen of the remote computer should open.

Ending your Session

IMPORTANT

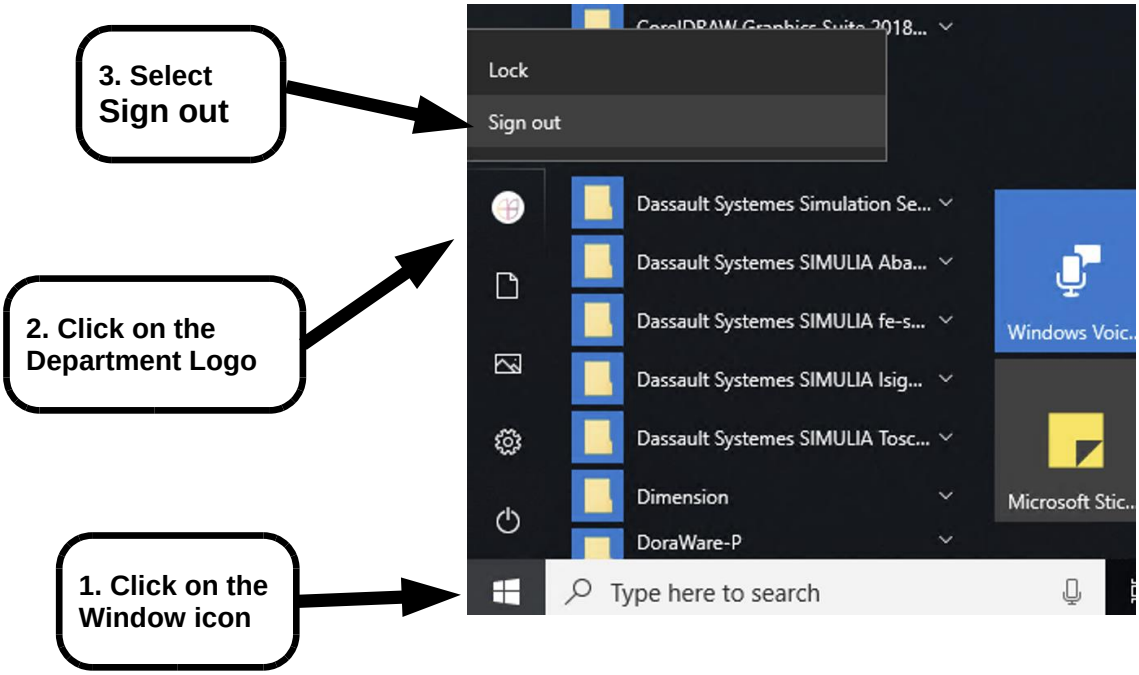
Do not just close the connection! *Do not shut down the computer!*

When you have finished using the remote computer,

you must **Sign out** and NOT shutdown the computer (see next page)

Just closing the connection does not sign you out properly.

Follow these steps:



DO NOT SHUT DOWN THE PC. If you shutdown the PC, somebody has to go into the Department to turn the computer on again.

Only one person can remote desktop to a windows PC at any one time. When you use remote desktop in a Course Work Module you will be allocated a windows PC.

Only use the PC you have been allocated in the week of your module.

In other weeks the PC will be allocated to another student.

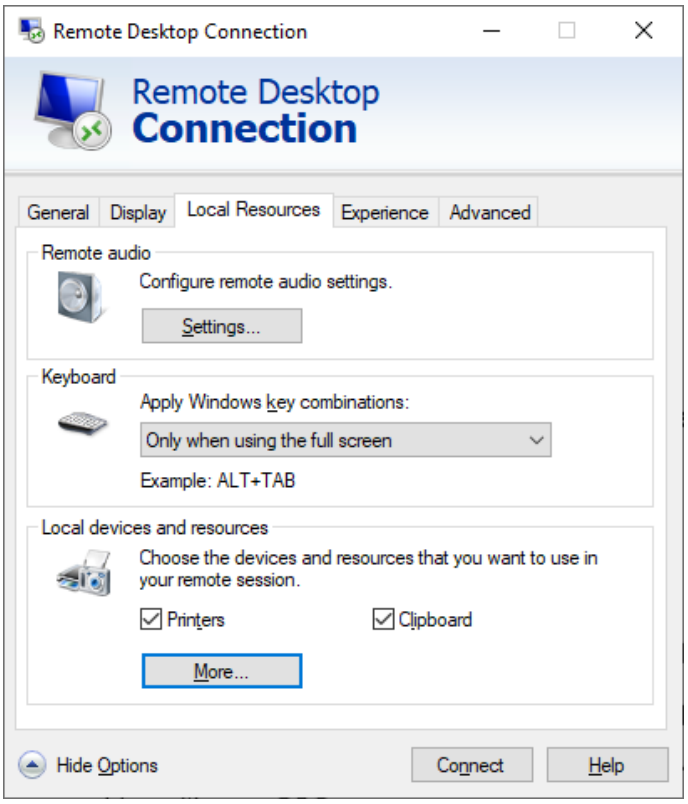
Accessing a Local Drive (on your personal PC) from a Remote PC

You may want to move files back and forth between the remote PC and your PC. An easy way to do this is to ensure you can see your personal PC **C:** drive on the remote PC. This must be configured before making a remote connection.

In the **Remote Desktop Connection App**

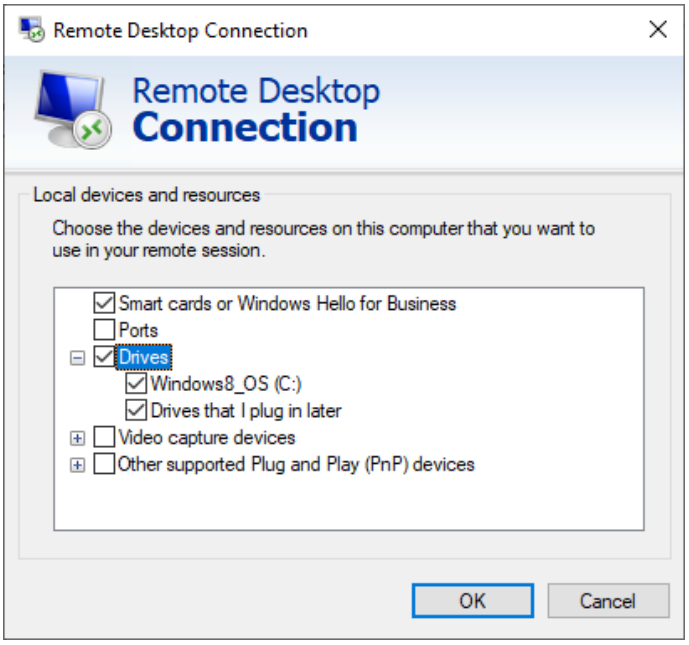
Select the **Local Resources** Tab.

Then under
Local Devices and Resources
select **More..**



Ensure that **Drives** is ticked.

After connecting, you will now see it listed under **This PC.**



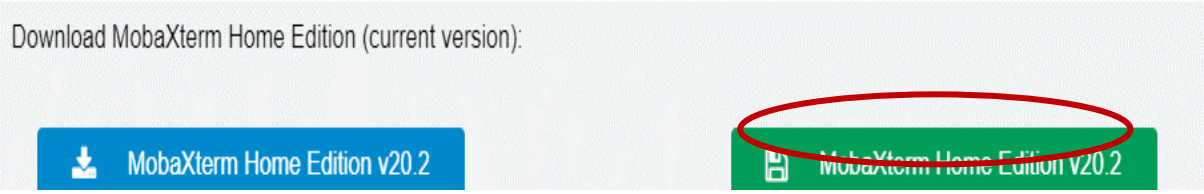
Remote Login to Lab Computer (e.g. Software Lab B)

Follow these instructions if you need to remotely send commands to a computer for execution. You send commands over the terminal and see the result on your own computer. For example, if you want to connect a Linux Machine in Software Lab B.

First you must connect to the VPN, as per the instructions on page 5. Before you can use the remote connection you will need to install **MobaXterm**.

Install MobaXterm

Visit https://mobaxterm.mobatek.net/download.html
Scroll down the page
Click **Download Now** on the **Free Edition**

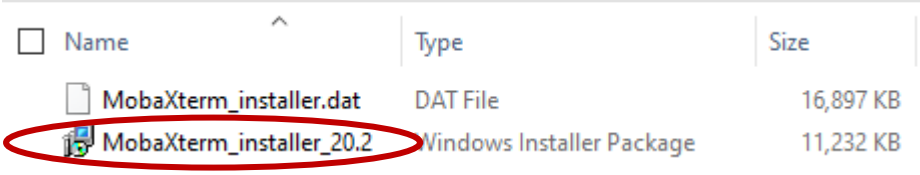


Select the Green **Installer Edition** on the right.

Find the downloaded file in Windows Explorer.
(e.g Ctrl+J to open downloads in your browser, right click select **Show In Folder**).

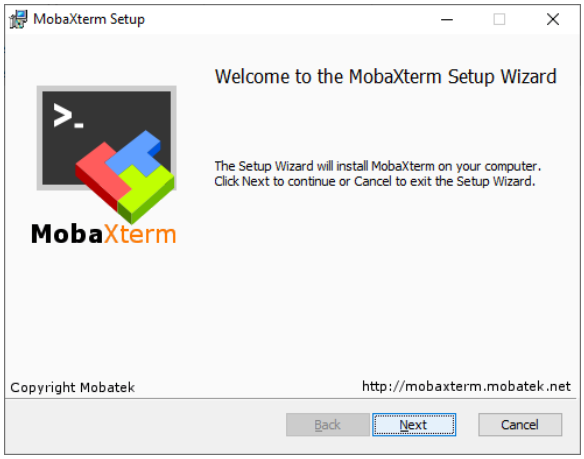
Extract it (as it is a .zip file), by right clicking and selecting **Unzip / Extract.**

Select the new unzipped folder, to see a .dat and a Windows Installer Package



Double click on the Windows Installer Package **MobaXterm_installer_20.2** to **run**

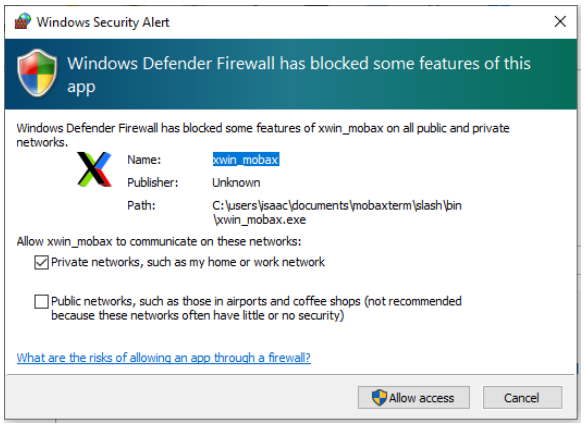
Follow the on screen installation guide. There is **no need to change any defaults.**



Click through each page selecting **Next. Allow any pop ups.**

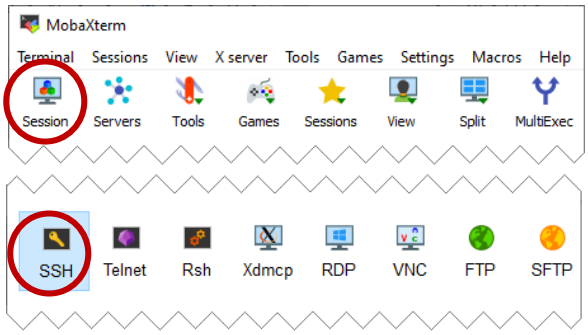
Once installed, search for **MobaXterm** in the Windows Start menu. Click to launch.

If Windows Defender Firewall pops up, click **Allow access**



Using MobaXterm

Click **Session**

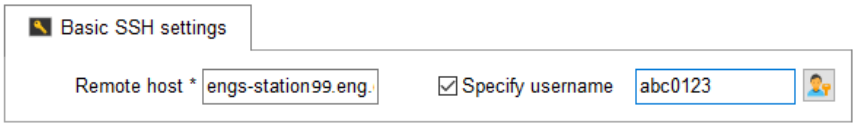


Select SSH

For **Remote host** enter the **server name or IP address**.

e.g. If you want to log into fictitious PC 99 in Software Lab B you would use ***engs-station99.eng.ox.ac.uk***

You should be given a server name or IP by your CWM organiser.

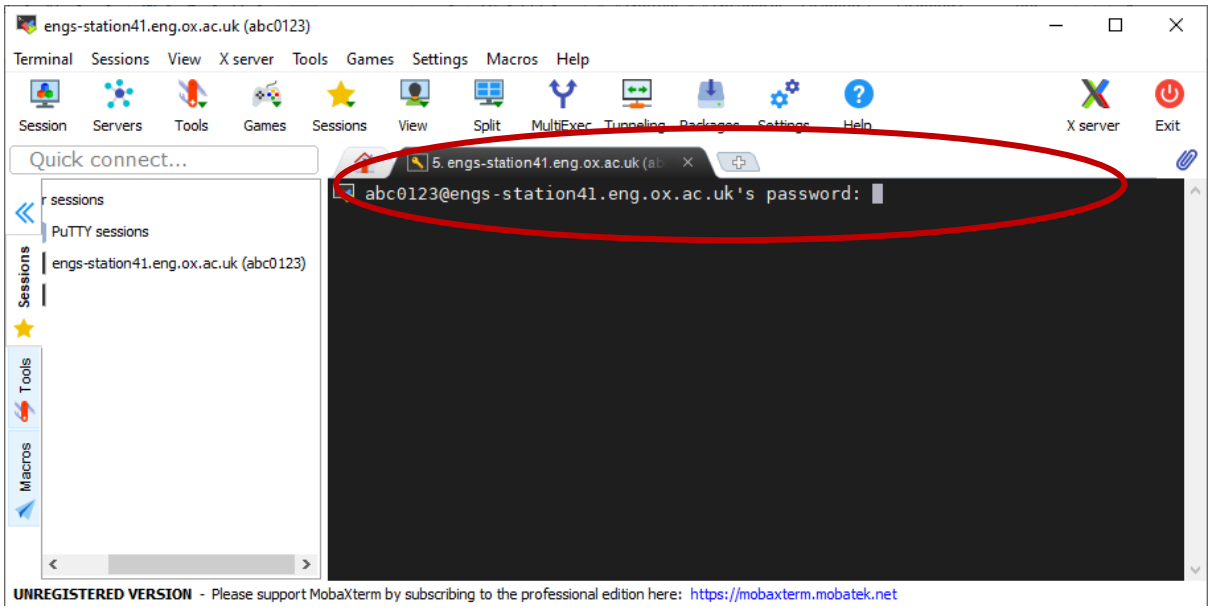


Click the tick box and **specify a username.**

This must be your Departmental Username (same as your Single sign On).

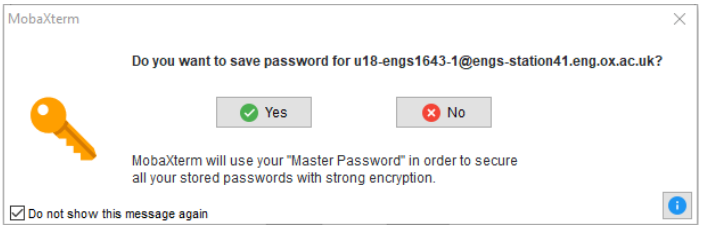
Select **OK**

If you successfully connect, you will be prompted for your **password.**



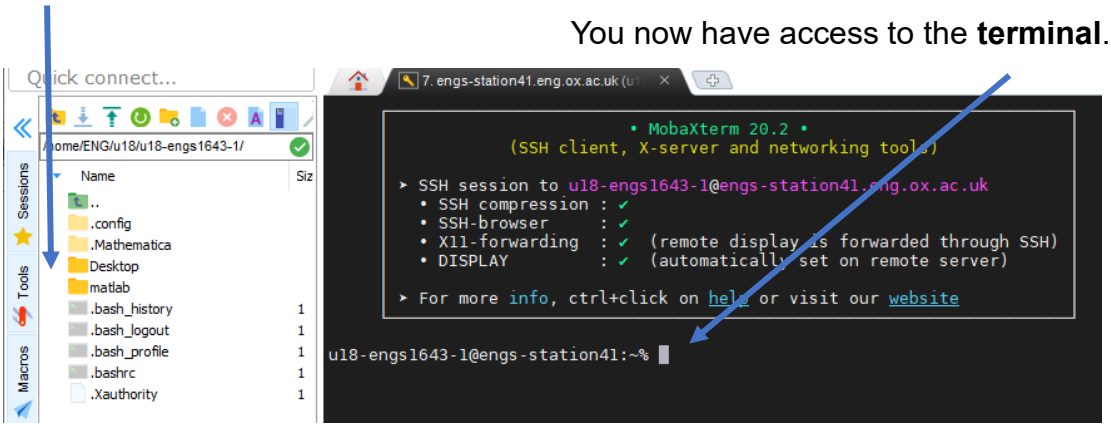
Use your **Departmental Password**[3]**.** For security, it will not be shown as you type.

Once you have successfully entered your password, it will ask if you would like to save your password. **Tick the box** 'Do not show this message again' and select **No.**



Your **files and folders** (aka directories) are shown on the left.

You now have access to the **terminal**.



[3] Password used when logging onto computers for labs in the Design Office/Software Lab A. Different to your SSO password. It can be reset by a member of TDSG (Teaching Support) or IT. More information available (when using VPN) at www2.eng.ox.ac.uk/intranet/it-eng/knowledge-base/username-and-password-guidance

Launching Software from the Terminal

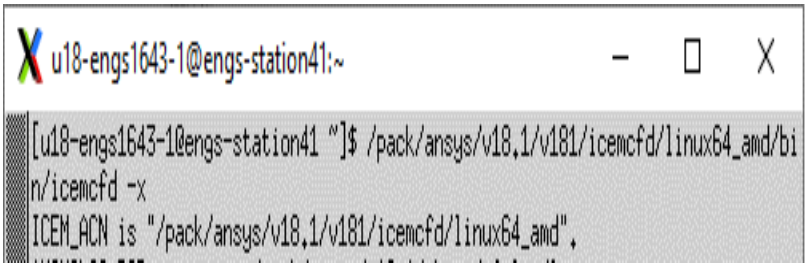
After you have successfully logged onto one of the machines, you won't see the full desktop. You must use the **terminal** to launch applications. For example, the command **`matlab &`** launches MATLAB 2019b. A brief overview of key **commands** is given below. If you want more details, see the P5 Computing notes (on Canvas).

Launching Ansys (For CFD CWM)

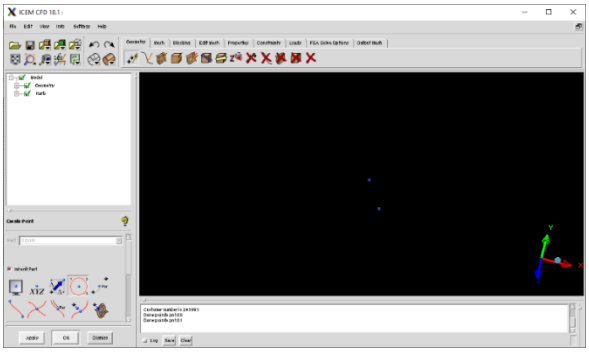
For the CFD Coursework Module, you will need Ansys. The command **`start_ansys &`** launches a terminal with Ansys executables[4].

In the terminal, type

`icemcfd -x &`



To launch ICEMCFD



You can also launch Fluent with the command **`fluent &`**

Putting the "**&**" sign after the **command**, will allow you to type other commands in the terminal after the software has launched. If you forget this, you will need to close the terminal and reconnect to get a new terminal.

[4] If you receive a "**`Command not found`**" message, then your config files need correcting. Contact Eric.peasley@eng.ox.ac.uk for support.

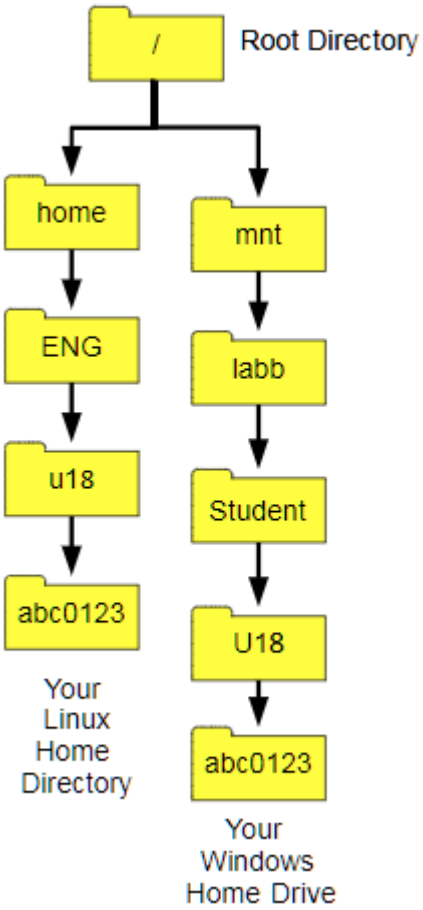
File Storage

If you want to store or access files in a specific location, you will need to use terminal commands to navigate as you will not be able to see a File Explorer Window. All students are given a Home Directory: an area to store files, sometimes called the H Drive. To start with you will be in this area:

home\ENG\u18\abc0123

where **abc0123** is **your username**

Use the command **`pwd`** to show where you are.



The command **`ls`** will display the contents of your current location. You may see something like:

```
Desktop     Downloads       java.log.31856  Pictures  Templates
Documents   java.log.30721  Music           Public    Videos
```

To access a folder, use the command **`cd`** (**c**hange **d**irectory). For example:

`cd Documents`

To move to a higher folder, use **`cd ..`**

As you can see in the top right image, there are two separate areas: one for Linux and one for Windows. The location **home\ENG\u18\abc0123 is the Linux Area.**

Mounting Your Home Directory (Documents Drive)

In order to access the Windows area, you must **mount** the drive before you can see it. Use the commands:

`kinit`

Type your Departmental password, it will **not** be shown as you type.

`mount /mnt/labb`

Navigate to your area using the command:

`cd ../../../../mnt/labb/Student/U18/abc0123`

where **abc0123** is **your username.**

Logging out

If you have mounted your Home Directory (as per the previous section) then before logging off, you must **unmount the drive**. To do this follow the steps below:

1. **Navigate out of /mnt/labb:**

   Work out where you are by typing **`pwd`** to “print working directory”

   (i.e. list the location you are in). If you are in the mounted area, e.g.

   `/mnt/labb/[followed by anything!]`

   you will need to move up, through the directories before you can unmount**.**

   If you are in the location

   `/mnt/labb/Student/U18/abc0123/MyFolder`

   then type **`cd ../../../../../../`**

2. **Unmount the drive:**

   Use the command:

   `umount /mnt/labb` (Note: this is NOT uNmount. It is umount.)

   If you receive the message

   `umount: /mnt/labb is not mounted (according to mtab)` this means you either

   i) Did not do Step 1 so are still on the mounted drive and therefore cannot unmount

   ii) Never mounted the drive to begin with

3. **Log out using command `logout`**

Alternative: Using PuTTY and Xming

If the MobaXterm did not work, you may want to try PuTTY/Xming.

First you must connect to the VPN, as per the instructions on page 5. Before you can use the remote connection you will need to install two pieces of software:

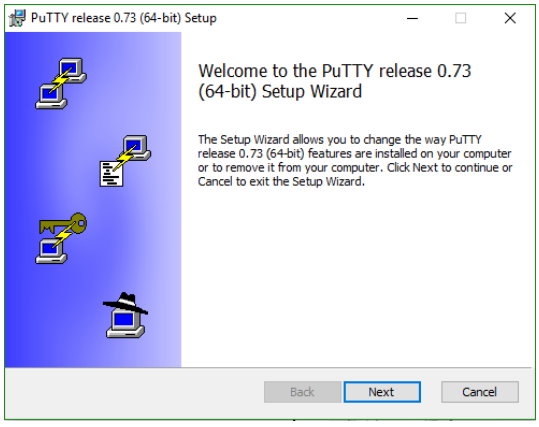
- A secure shell client (also known as **SSH**) to connect to the remote computer. We recommend PuTTY.
- An **X-server** to display graphics/windows produced by the remote computer. We recommend Xming.

Install a Secure Shell Client (PuTTY)

Download an installation file for PuTTY from: https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

Either **MSI ('Windows Installer')** will work. Choose 32 or 64 bit depending on your version on Windows, see the FAQ on that page.

Once downloaded, **run the file** by clicking on it. If you cannot see the file you downloaded, try **Ctrl+J** while on your web browser, this will show your downloads.



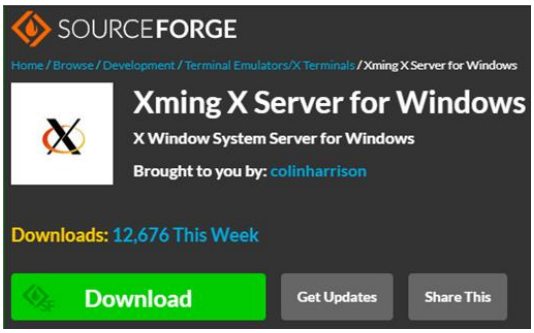
Follow the on screen installation guide.
There is **no need to change any defaults.**

Install an X-Server (Xming)

Download an installation file for Xming-mesa from: http://sourceforge.net/projects/xming/files/Xming-mesa/6.9.0.31/Xming-mesa-6-9-0-31-setup.exe/download

Reject or **Accept** the Privacy Policy pop-up.

If the download does not automatically start, click the **Download** button.

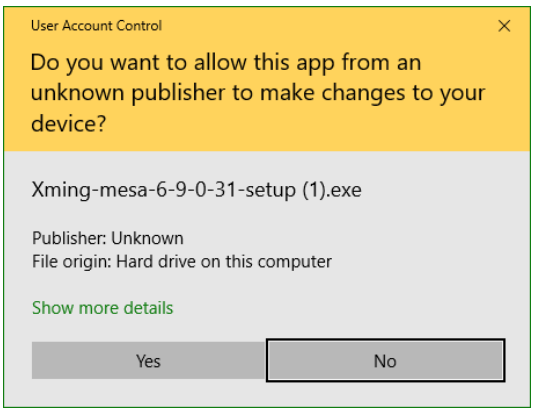


Once downloaded, **run file Xming-mesa-version-setup.exe** file by clicking on it.

(Cannot see the file you downloaded? Try **Ctrl+J** while on your web browser, this will show your downloads.)

You may need to **Allow Changes**.

Click **Yes.**



Follow the on screen installation guide.

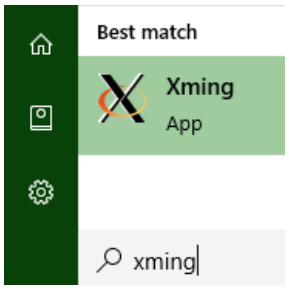
There is **no need to change any defaults.**

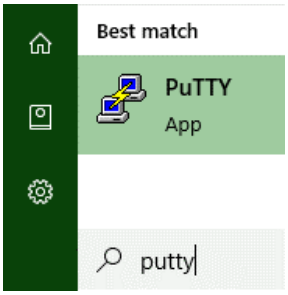
Using Xming and PuTTY for Remote Connection

Run Xming

It is searchable from the Windows start menu.

Nothing will pop up but the icon will appear on lower right System Tray.





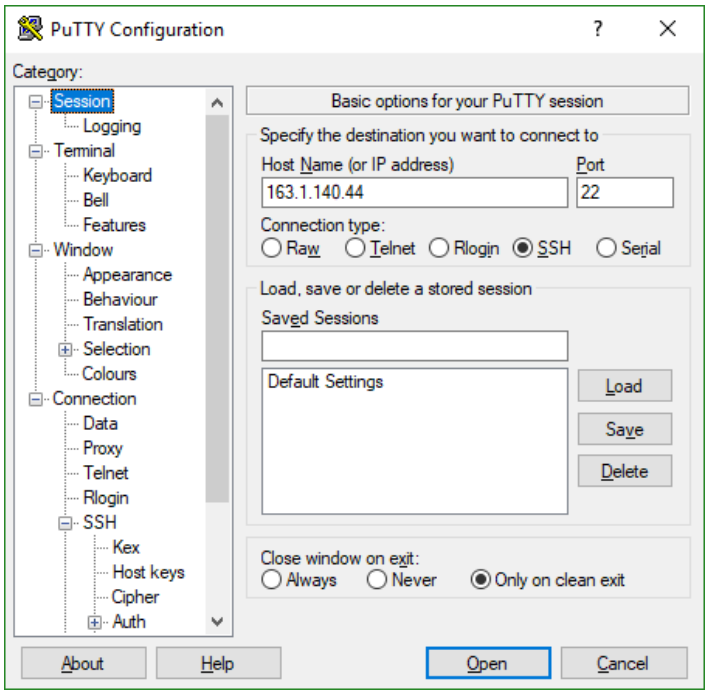
Run PuTTY

In the configuration panel,

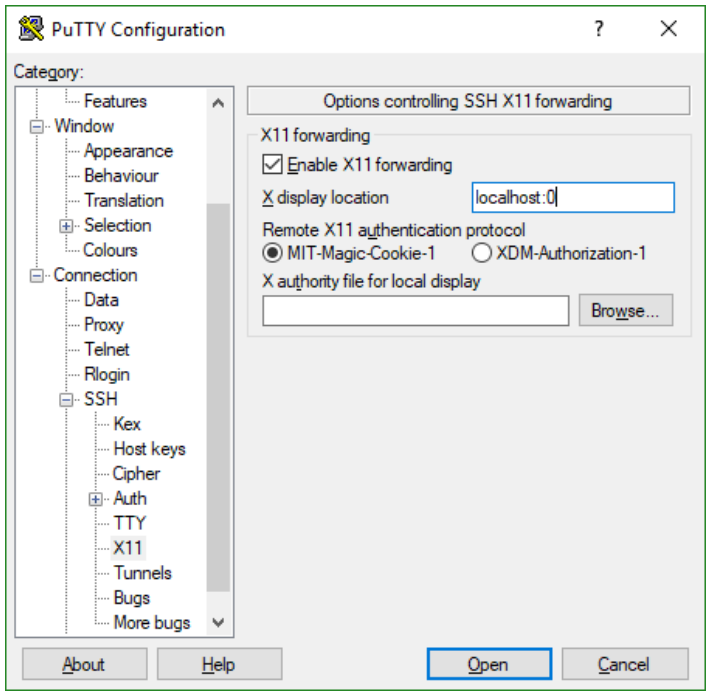
Enter your assigned IP address.

The example uses

163.1.140.44



Expand the SSH Tab →



Under X11:

Tick the box to **Enable X11 forwarding**

Set **X display location** to **localhost:0**

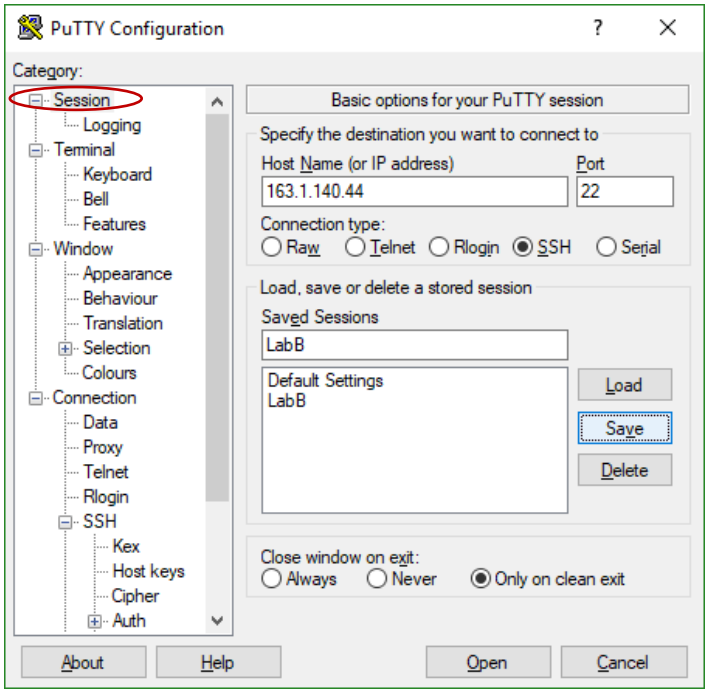
Go back to **Session**, the top setting

Under **Saved Sessions** type a name for this IP address and configuration

Call it **LabB**

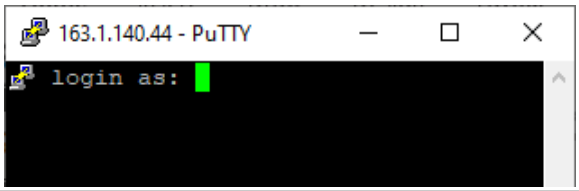
Click **Save**

Select **Open** to connect.

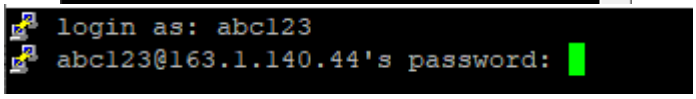


Click **Yes** to the PuTTY security alert

A **terminal window** should pop up



You need to **log in** to the machine



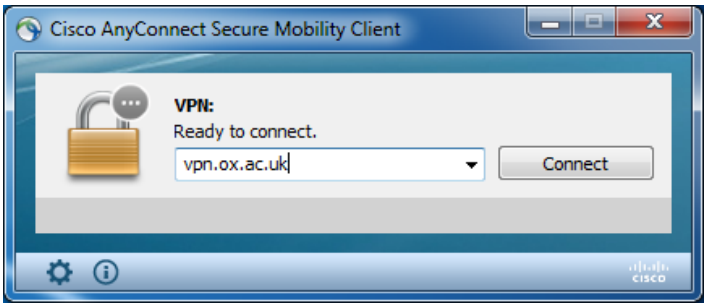
Type your **Departmental Account Username** (same as your SSO). Press **Enter**.
Type your **Departmental Account Password** (different to your SSO).
It will **not** show any letters when you are typing.
If you need to reset your departmental password, e-mail thehub@eng.ox.ac.uk
More information available (when using VPN) at www2.eng.ox.ac.uk/intranet/it-eng/knowledge-base/username-and-password-guidance

Quick Start Guide with PuTTY/XMing

The second time you connect, after everything has been installed and configured the first time, you can follow this quick start guide.

Launch **Cisco AnyConnect**
Join **vpn.ox.ac.uk** using:

- SSO Username (e.g. abc123)
- Remote Access Password



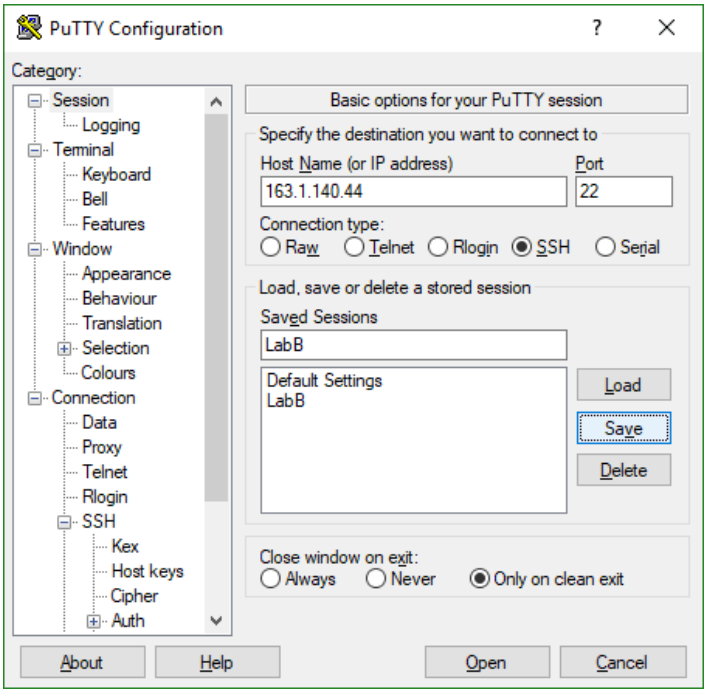
Launch Xming
Check Icon appears on System Tray

Launch PuTTY

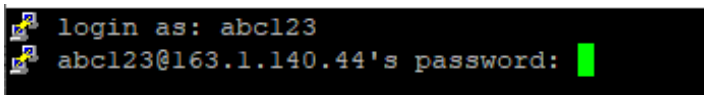
Select the **Saved Session** called **LabB**

Select **Load**
The IP Address should appear

Click **Open**



A **terminal window** should pop up.



Log in to the machine with:

- **Departmental Account Username** (same as your SSO)
- **Departmental Account Password** (different to your SSO)

Launch Software

```
start_ansys &
```

Risks with using Windows 7

As of January 2020, Windows 7 is no longer supported by Microsoft, it has reached its “end of life”. This means any security vulnerabilities that are found can, and likely will, be exploited. Microsoft will not be releasing any security patches or fixes. Therefore using a Windows 7 computer, connected to the internet, you run the risk of falling victim to hacking and potentially losing data. For example, see the WannaCry ransomware attack that exploited Windows vulnerabilities[5].

The UK's National Cyber Security Centre has issued a warning over the continued use of Windows 7 PCs and laptops[6]: "*We would urge those using the software after the deadline to replace unsupported devices as soon as possible, to move sensitive data to a supported device and not to use them for tasks like accessing bank and other sensitive accounts. Consider accessing email from a different device."*

You will still be able to take part in the Coursework Modules using a Windows 7 computer, but we recommend that over the summer you take some time to research the best option for you moving forward to minimise risks of using an end-of-life system. This may be:

- Taking extra care when using your computer, finding a more secure device to complete tasks such as internet banking or e-mail
- Backing up personal data in a more secure area, e.g use OneDrive (see pg 1)
- Reaching out to your college to see if there are bursaries for new computers.
- Consider upgrading to Windows 10 (available from Central IT OnTheHub for £15). **Important:** *Upgrading an Operating System is not a task to be undertaken lightly, and beforehand consider where you will get help if something goes wrong. The Department or Central IT cannot help with this, so you would need to find another source of support. If your computer is particularly old, you need to consider if upgrading will still provide you with the performance you need.*

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[5] https://www.telegraph.co.uk/news/2017/05/13/nhs-cyber-attack-everything-need-know-biggest-ransomware-offensive/ Accessed May 12th 2020

[6] https://www.telegraph.co.uk/news/2020/01/12/gchq-warns-not-use-windows-7-computers-banking-email-tuesday/ Accessed May 12th 2020