ROOT

A tutorial on programming with ROOT!

There will be a small project to work through in the second half of the session. To be able to work along through it you will need to have ROOT installed. As this can take some time, it will be better to try and install ROOT beforehand. As everyone will have different machinery setups, it's difficult to give exact instructions, but hopefully this can get you started. But if you are unable to get ROOT installed, the instructor will work though the examples live, and you can watch along and in that way still be able to take part in the tutorial.

ROOT install instructions:

There are many ways to get ROOT. There are lots more details here https://root.cern/install/, so if the below doesn't work for you check out the info there. It will be quicker to get the pre-compiled binaries, but if that doesn't work for whatever reason you can try building from source.

The first thing to do is make sure you have all the things ROOT depends on. A list of these, with instructions for different operating systems, can be found here: https://root.cern/install/dependencies/

MacOS:

Install homebrew https://brew.sh
Install XCode from the App Store
In a terminal, type: brew install root
cd root
source /usr/local/Cellar/root/6.26.06_2/bin/thisroot.sh (maybe the version and/or location are different)

Unix:

Get the precompiled binaries for your system from here:https://root.cern/releases/release-62802/
tar xvf root_v6.28.02.Linux-centos8-x86_64-gcc8.5.tar
source root/bin/thisroot.sh
More detailed walk through https://www.youtube.com/watch?v=QItrmchEQWE (he builds from source but you can do this with the precompiled tar files)

Windows:

I think you should have access to Windows Subsystem for Linux or similar
It will probably be easiest to use the above Unix instructions within that
Then install XMing https://sourceforge.net/projects/xming/
type: export DISPLAY="localhost:0"
More detailed walk through https://www.youtube.com/watch?v=pmfM4Zq6OQU (he builds from source but you can do this with the precompiled tar files)

(Alternative) Building from Source:

Once you have the dependencies, get the source file here https://root.cern/releases/release-62802/
cd root
./configure –disable-castor –disable-rfio –disable-x11 –disable-gfal –disable-ldap (these disabled options are all things I've found problems with on various systems, and we won't need them for the simple examples/project)
make
source bin/thisroot.sh

To check it's worked, type root. The terminal prompt should now be root [0]. If so, it seems root is installed ok! Now try TCanvas c1, if a blank window pops up, the graphics are all working too and you are good to go :)

If that all sounds like gobbledigook, please do not worry!! In the tutorial we will try and go through the installation process. (It can take time though so ideally we want to get as far through the process as possible beforehand.) But if you can't get it installed in time, you can just watch the tutorial without working along with it and that will be fine!

If you're having problems but are keen, there are many resources you can use online. https://root.cern/install/ is the place to start but there are countless guides, videos, and forums online. Someone will have encountered your problem before, it's working out what to google which can be tricky! Hopefully this is enough to get you started and point you in the direction of where to find info for your specific setup.

Good luck! And to reiterate, if you can't get root installed, it won't completely preclude you from taking part in the tutorial

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