

MESA on ast – a Quick Guide

Jakob Rørsted Mosumgaard*

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This is a small guide on how to use MESA¹ on the *ast*-machines².

1 How to Login

You login to our servers using SSH³. If you are running Windows, see the next section. Otherwise, open your terminal emulator and write

```
ssh -Y USER@ast1d.phys.au.dk
```

where USER is your nfit-username. Here `ast1d` is the specific machine you want to use and the `-Y` option is to enable (trusted) X11-forward.

1.1 Windows

For Windows you will need third-party software to access the servers. The usual solution is to download the SSH-client PuTTY⁴ and the X11-program (to show graphical windows) Xming⁵. An alternative solution is to download MobaXterm⁶, which is terminal for Windows with SSH- and X11-capabilities. To access files on the servers, you can use a tool like WinSCP⁷.

The workflow (assuming PuTTY+Xming) is something like:

- Start Xming (will just run in the background)
- Open PuTTY
- Activate X11 Forwarding in PuTTY (located in the *X11*-sub-menu)
- Connect to `ast1d.phys.au.dk` (the default port 22 is just fine).
- Work on the server
- To download files from the server to your own laptop, open WinSCP and connect to `ast1d.phys.au.dk` using the SFTP-protocol.

* jakob@phys.au.dk

¹(Modules for Experiments in Stellar Astrophysics, see <http://mesa.sourceforge.net/>)

²The common name for the Linux servers used by the astronomy group. At the moment, only `ast1d` runs MESA.

³Secure Shell, see https://en.wikipedia.org/wiki/Secure_Shell

⁴www.putty.org

⁵www.straightrunning.com/XmingNotes/

⁶mobaxterm.mobatek.net

⁷www.winscp.net

2 Using MESA

On the remote machine `ast1d` we have made a system-wide installation of MESA, which is very easy to use.

To activate the code and set the path correctly⁸ run:

```
source /opt/mesa/init_mesa.csh
```

Now, a complete (and compiled!) MESA-installation is available to you in the directory `$MESA_DIR`.

The work-directory, which you want to copy for every new project (see the next section) can be copied from

```
$MESA_DIR/star/work
```

3 Tutorial

As a first exercise, we will follow the first steps of the online tutorial⁹.

Start by changing to your home directory and create a folder to work in:

```
cd ~; mkdir stars; cd stars
```

Then copy the MESA working directory:

```
cp -r $MESA_DIR/star/work tutorial; cd tutorial  
./mk
```

Now you can follow the rest of the guide to learn how to run the code and modify the input file.

⁸If you are running `bash` instead of `C-shell`, use the script with the `.sh` extension instead.

⁹<http://mesa.sourceforge.net/starting.html>