Matlab in HPC 2

It's kind of a pain

Licenses

- The HPC uses shared UF Matlab licenses

- There aren't always enough of these

- If you submit large numbers of jobs you may end up waiting on a license

Compiled Code

- The HPC 2 will only run Matlab code after it has been compiled

- You can compile your code on the HPC 2

- You have to use development sessions

Development Sessions

- You can start a development session from SSH

- Load the module UFRC
```
>module load ufrc
```

- Start dev session, request processors, memory, and time
```
>srundev --time=60 --cpus-per-task=4 --mem-
per-cpu=4g
```

Development Sessions

- Inside the session you compile your Matlab code (code needs to be in your current folder)

- Use the Matlab compiler (mcc) to compile

```
>mcc -R -singleCompThread -m
yourcode_name.m
```

- You can automate with a bash script

Running Compiled Code

- Once your code is compiled you can run it directly or as a batch job with a job script

- Anything running longer than 30 mins needs to be a batch job

- The compiled code is run with the line

```
>./yourcode_name
```

Simple Example - Code

```
function [m,t] = test();
  m = magic(2);  % Assign 2x2 matrix
  t = m .^ 3;    % Cube each element
  disp(t);       % Display t.
  csvwrite('test.txt',t) %Write to file
```

Simple Example – Job Script

```
#!/bin/sh
#SBATCH --job-name=mat_test      #Job name
#SBATCH --mail-type=FAIL #Mail events(NONE, BEGIN, END, FAIL, ALL)
#SBATCH --mail-user=___@ufl.edu    # Where to send mail
#SBATCH --mem-per-cpu=5gb    # Per processor memory
#SBATCH -t 30:00:00     # Walltime hrs:min:sec
#SBATCH -o mat_test.out       # Name output file
#
pwd; hostname; date

cd /ufrc/bliznyuk/iduerr/Matlab

module load matlab

./test
```