



2 Days Training on IoT Architecture and Simulation using ns-3

LAB 1

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Lab 1 – Install and Run ns3

1. Download and install vmplayer
2. Download and install Fedora
3. Download and install ns-3
4. Install Netanim.
5. Run first example



1. Download and install vmplayer

Download and Install vmplayer

[https://www.vmware.com/my/
products/workstation-player/
workstation-player-
evaluation.html](https://www.vmware.com/my/products/workstation-player/workstation-player-evaluation.html)



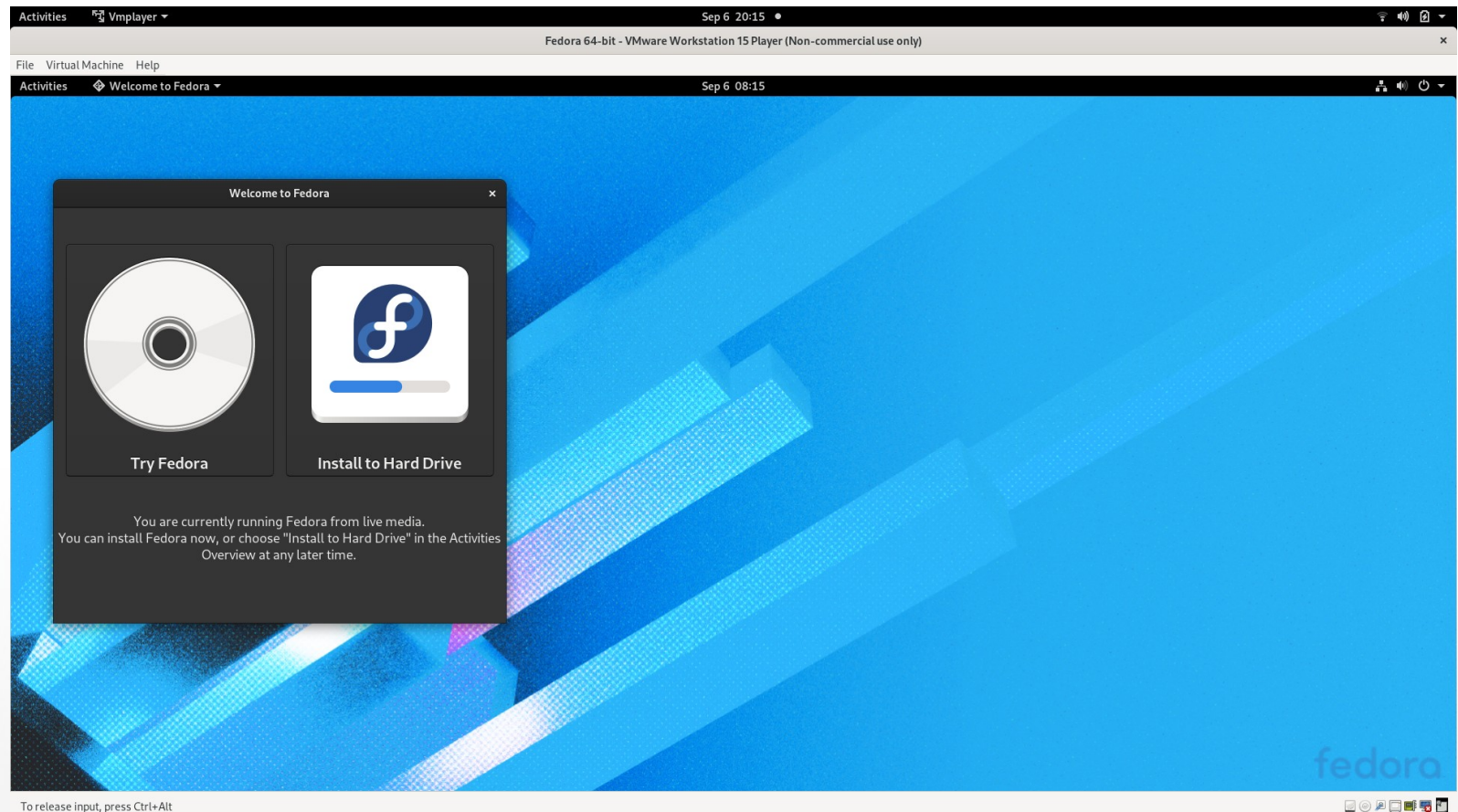
2. Download and install Fedora

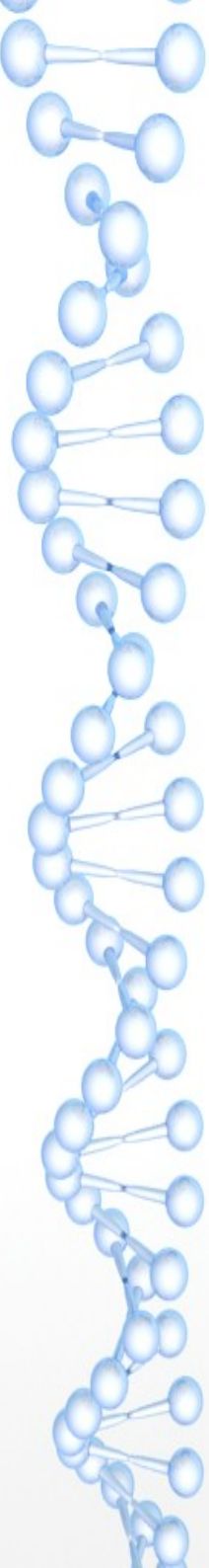
Download fedora iso from:

`https://
download.fedoraproject.org/pub/
fedora/linux/releases/32/
Workstation/x86_64/iso/Fedora-
Workstation-Live-x86_64-32-
1.6.iso`

2. Download and install Fedora

Install Fedora Virtual Machine

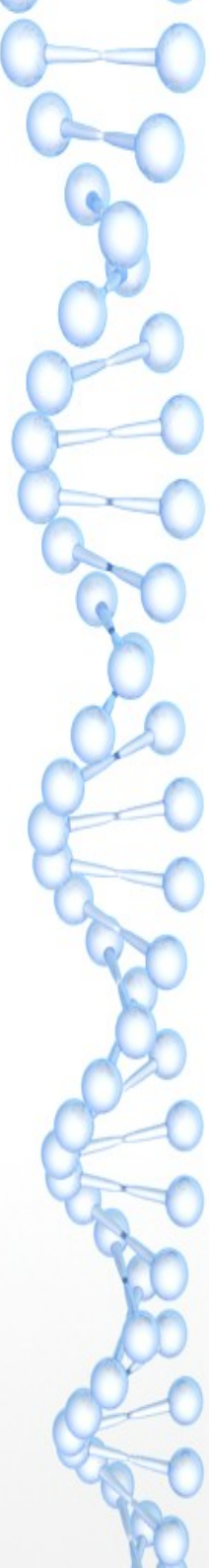




3. Download and install ns-3

Follow this link:

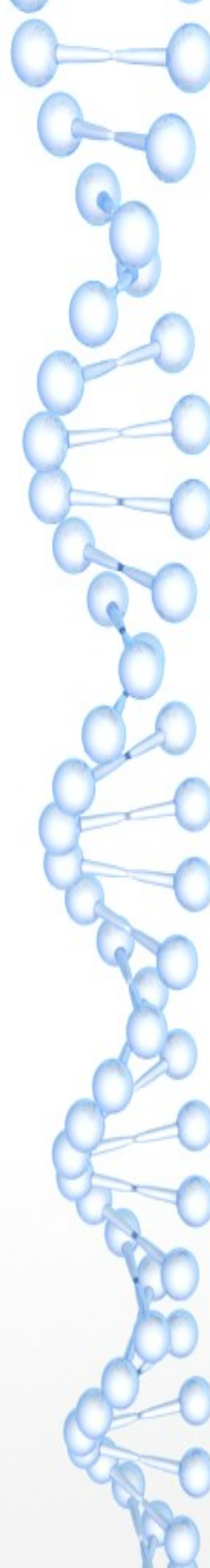
<https://kecsong.wordpress.com/2016/02/24/installing-and-testing-ns-3-with-netanim-on-fedora-23-2/>



3. Download and install ns-3

Step 1: Downloading ns-allinone-3.24.1 tarball according to most recent version by using the following link

<https://www.nsnam.org/release/>

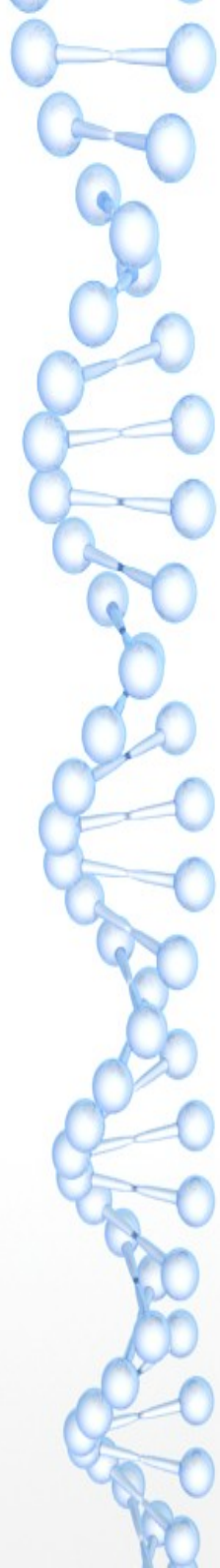


3. Download and install ns-3

Step 2: Go to Home Directory via terminal and unzip the ns-allinone-3.24.1.tar.bz2 tarball

```
[root@localhost ~]# pwd
```

```
/home/user
```

3. Download and install ns-3

Step 3: Go in ns-allinone-3.24.1 folder and give the following command for installation:

```
[root@localhost ~]# cd ns-allinone-3.24.1/
```

```
[root@localhost ~] # ./build.py --enable-examples --enable-tests
```

After a sometime, if the build is successful you may see the following message

Leaving directory './ns-3.24.1'



4. Download and install Netanim.

Installing NetAnim.

1. `cd` to NetAnim directory.

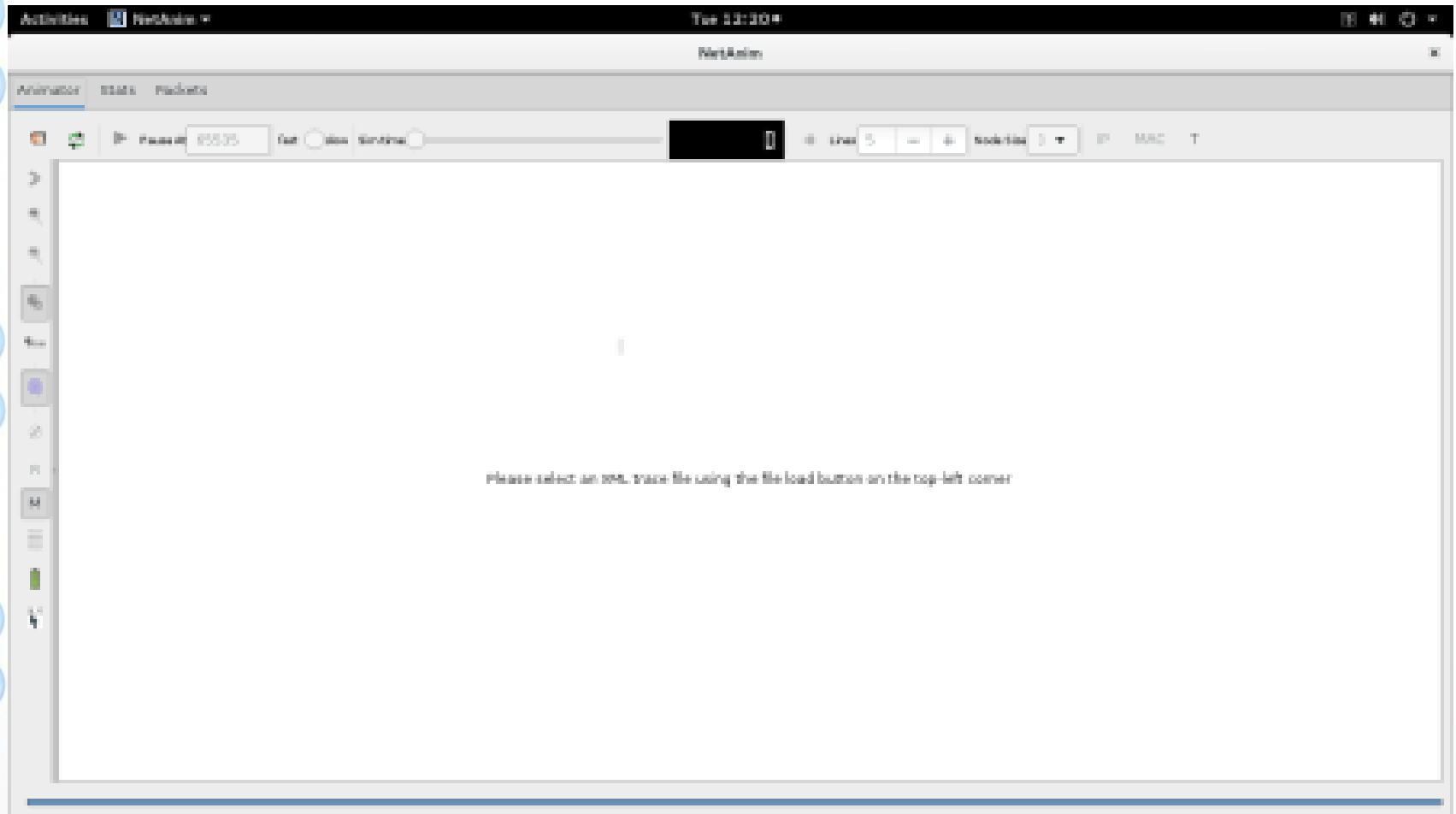
2. `#make clear`

3. `#make-qt NetAnim.pro`

if can't install qt-devel and qt5-devel

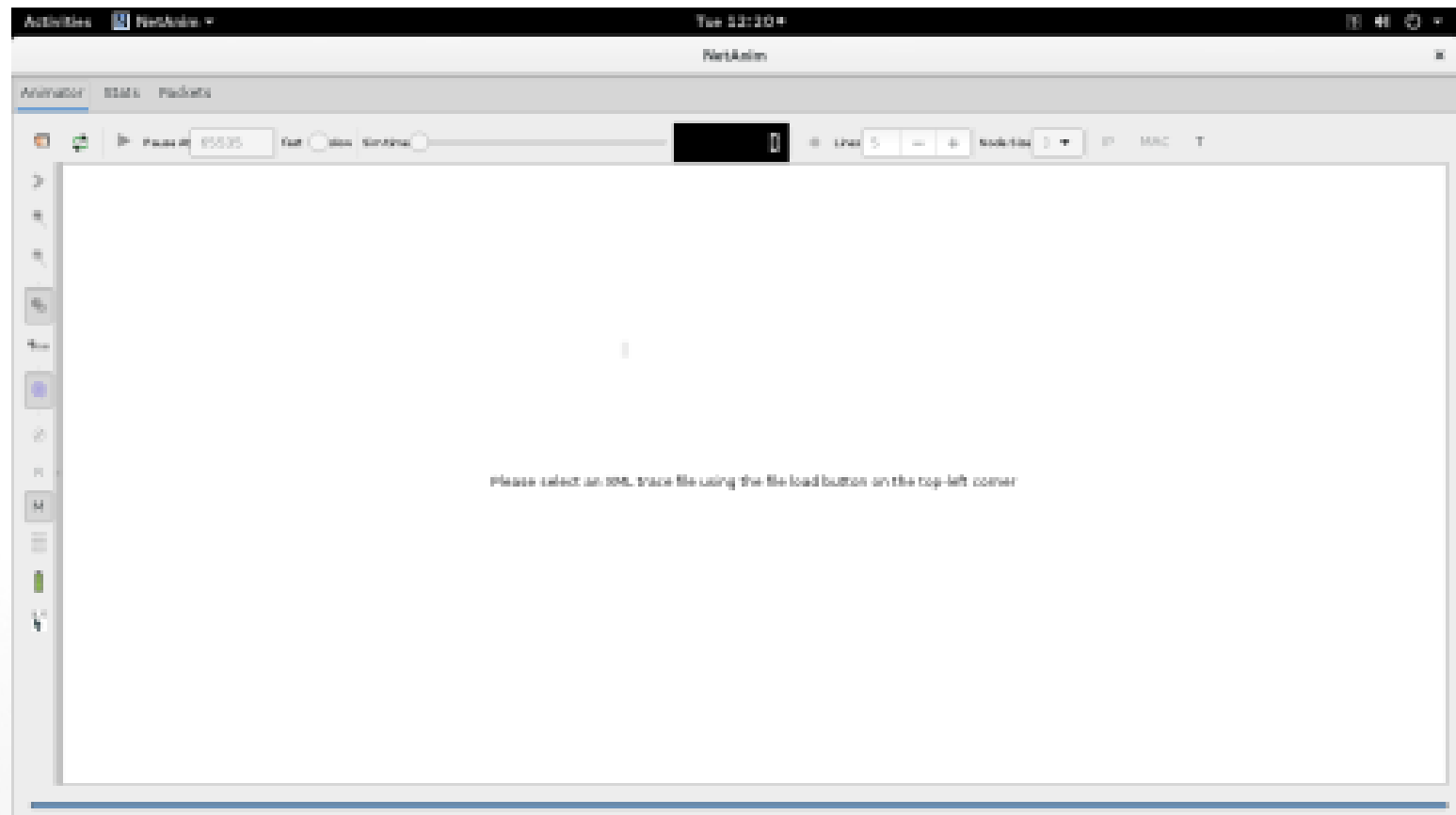
4. Then run `./NetAnim`

4. Download and install NetAnim.



4. Download and install NetAnim.

This will appear





5. Run First Example (without NetAnim)

1. `#cd ns-3.31`
2. `#cp examples/tutorial/first.cc
scratch/`
3. `#./waf --run scratch/first`



5. Run First Example (without NetAnim)

4. Below output appear:

'build' finished successfully (0.939s)

At time 2s client sent 1024 bytes to 10.1.1.2 port 9

**At time 2.00369s server received 1024 bytes from 10.1.1.1
port 49153**

**At time 2.00369s server sent 1024 bytes to 10.1.1.1 port
49153**

**At time 2.00737s client received 1024 bytes from 10.1.1.2
port 9**

[msrohmad@craft ns-3.31]\$



6. Run First Example (with NetAnim)

1. `#cd ns-3.31`
2. `#cp examples/tutorial/first.cc
scratch/`
3. Edit `first.cc`



6. Run First Example (with NetAnim)

Add below lines (in bold):

```
20 #include "ns3/point-to-point-  
module.h"
```

```
21 #include "ns3/applications-module.h"
```

```
22 #include "ns3/netanim-module.h"
```



6. Run First Example (with NetAnim)

Add below lines (in bold):

```
78 // add this  
79 AnimationInterface anim("first_anim.xml");  
80 anim.SetConstantPosition(nodes.Get(0),1.0,10.0);  
81 anim.SetConstantPosition(nodes.Get(1),50.0,10.0);  
82  
83  
84 Simulator::Run ();  
85 Simulator::Destroy ();  
86 return 0;  
87 }
```



6. Run First Example (with NetAnim)

4. Run again `#./waf --run
/script/first`

*(above command will save info
to anim1.xml)*



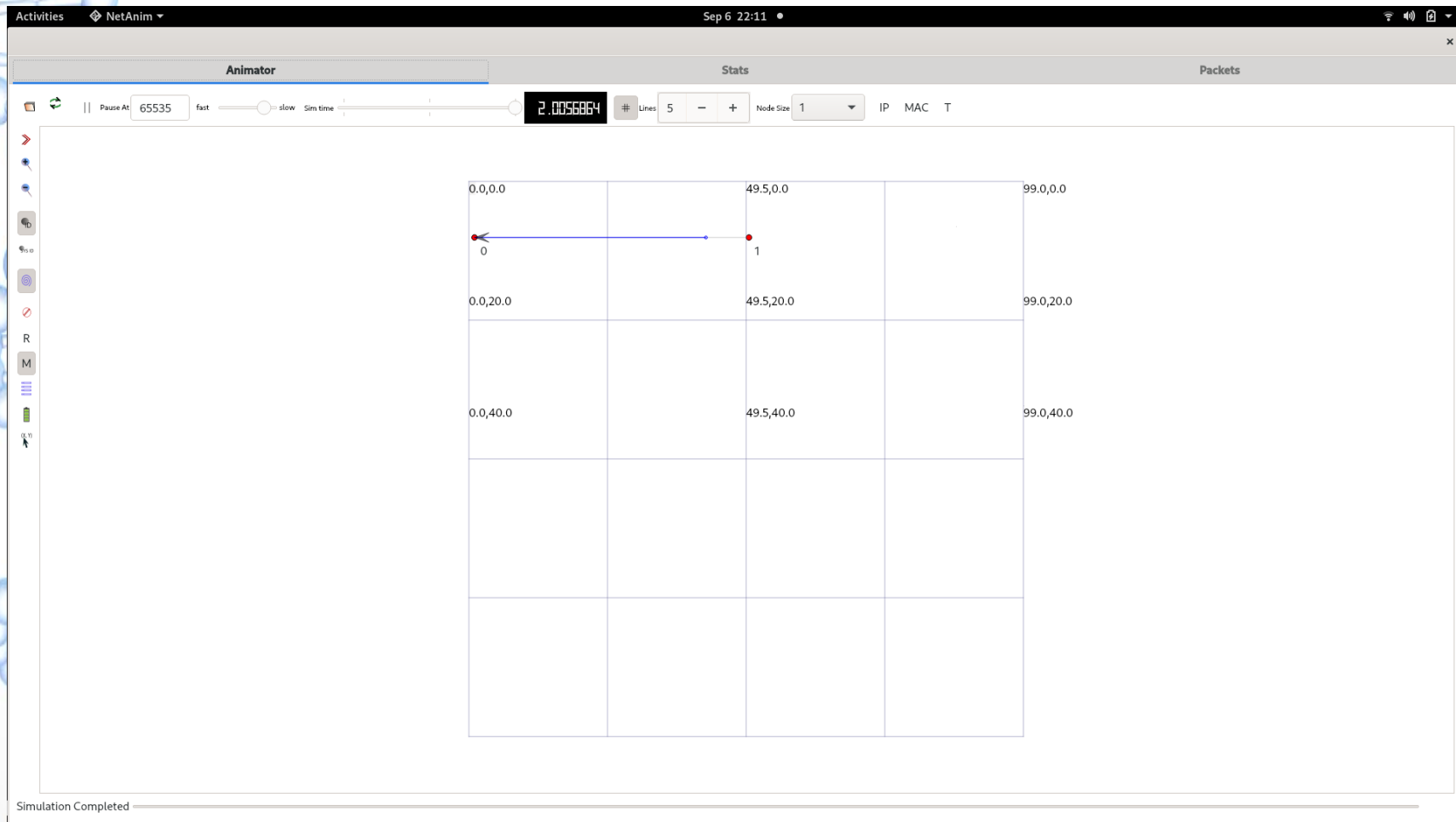
6. Run First Example (with NetAnim)

5. Run `./NetAnim`

6. Open File and Choose
`first_anim.xml`

7. Below will appear

6. Run First Example (with NetAnim)





Conclusion

1. Examine source code of .cc files
2. We are ready for ns-3 exploration.
3. You can test other sample in example directory.
4. Copy to scratch and test.