

## **// Third.cc**

```
#include "ns3/core-module.h"
#include "ns3/network-module.h"
#include "ns3/csma-module.h"
#include "ns3/internet-module.h"
#include "ns3/point-to-point-module.h"
#include "ns3/applications-module.h"
#include "ns3/ipv4-global-routing-helper.h"
#include "ns3/netanim-module.h"

using namespace ns3;

int main ()
{

    LogComponentEnable ("UdpEchoClientApplication",
LOG_LEVEL_INFO);
    LogComponentEnable ("UdpEchoServerApplication",
LOG_LEVEL_INFO);
    std::string animFile="third.xml";

    NodeContainer csmaNodes;
```

```
csmaNodes.Create (4);

CsmaHelper csma;
csma.SetChannelAttribute ("DataRate", StringValue
("5Mbps"));
csma.SetChannelAttribute ("Delay", StringValue ("2ms"));

NetDeviceContainer csmaDevices;
csmaDevices = csma.Install (csmaNodes);

InternetStackHelper stack;
stack.Install (csmaNodes);

Ipv4AddressHelper address;

address.SetBase ("10.1.1.0", "255.255.255.0");
Ipv4InterfaceContainer csmaInterfaces = address.Assign
(csmaDevices);

UdpEchoServerHelper echoServer (9);

ApplicationContainer serverApps = echoServer.Install
(csmaNodes.Get (3));
serverApps.Start (Seconds (1.0));
serverApps.Stop (Seconds (10.0));

UdpEchoClientHelper echoClient (csmaInterfaces.GetAddress
(3), 9);
echoClient.SetAttribute ("MaxPackets", UIntegerValue (1));
```

```
    echoClient.SetAttribute ("Interval", TimeValue (Seconds  
(1.0)));  
    echoClient.SetAttribute ("PacketSize", UIntegerValue  
(1024));  
  
    ApplicationContainer clientApps = echoClient.Install  
(csmaNodes.Get (0));  
    clientApps.Start (Seconds (2.0));  
    clientApps.Stop (Seconds (10.0));  
  
    Ipv4GlobalRoutingHelper::PopulateRoutingTables ();  
    AnimationInterface anim(animFile);  
    anim.SetConstantPosition(csmaNodes.Get(0), 45.0, 60.0);  
    anim.SetConstantPosition(csmaNodes.Get(1), 55.0, 60.0);  
    anim.SetConstantPosition(csmaNodes.Get(2), 65.0, 60.0);  
    anim.SetConstantPosition(csmaNodes.Get(3), 75.0, 60.0);  
  
    AsciiTraceHelper ascii;  
    csma.EnableAsciiAll(ascii.CreateFileStream("third.tr"));  
  
    Simulator::Run ();  
    Simulator::Destroy ();  
    return 0;  
}
```

**Output:**

SACHIN DSILVA  
4NM20IS120

```
student@isl08-27:~/ns-allinone-3.33/ns-3.33$ ./waf --run scratch/third.cc
Waf: Entering directory '/home/student/ns-allinone-3.33/ns-3.33/build'
[2843/2895] Compiling scratch/third.cc
[2844/2895] Compiling scratch/PRG1.cc
[2855/2895] Linking build/scratch/third
[2856/2895] Linking build/scratch/PRG1
Waf: Leaving directory '/home/student/ns-allinone-3.33/ns-3.33/build'
Build commands will be stored in build/compile_commands.json
'build' finished successfully (8.228s)
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:2 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:3 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:2 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:3 Does not have a mobility model. Use SetConstantPosition if it is stationary
At time +2s client sent 1024 bytes to 10.1.1.4 port 9
At time +2.01392s server received 1024 bytes from 10.1.1.1 port 49153
At time +2.01392s server sent 1024 bytes to 10.1.1.1 port 49153
At time +2.02484s client received 1024 bytes from 10.1.1.4 port 9
student@isl08-27:~/ns-allinone-3.33/ns-3.33$
```