Video – Creating PDUs in Simulation Mode

Hello everyone. This is our CISCO Packet Tracer: Creating PDUs in Simulation Mode video. What does that mean? That means we are going to be creating messages that will move between devices in this network. We're going to be able to open up those messages and even view them.

So, what is a PDU? A PDU is a protocol data unit. It is a message type that is going to be transferring between network devices. In previous videos, we've used CISCO Packet Tracer in real-time mode. As you see in the bottom right corner, real-time mode is the default. It's right here with a clock on it. Today, we're going into simulation mode. Simulation mode allows us to create PDUs and even view their content. So, let's get started in simulation mode. First thing, to go into simulation mode you will click on the word Simulation with the stopwatch. When we click on that we will see a simulation panel. This will give us event lists of traffic moving through our network. We also have a Reset button to bring it back to the restart. We have a Constant Delay that is usually checked by default. But we will uncheck it. We have a little slider down here where we control the speed of our network data moving across the network. I like to increase it about two thirds up. We're going to have a go backwards button in events, a go forwards button in events, or just a play and watch the traffic move. Now down below we have this event list filters.

The first thing I'd like you to do is take that huge list that you see in front of you and click Show All None. This takes all your events to nothing. We don't want to see any network traffic. But then we can click the Edit Filters button. And when you click Edit Filters, you can see all the Packet Tracer traffic that we can watch. We've got IPv4 traffic, IPv6 traffic, and miscellaneous. This is awesome. We're going to go to IPv4 and, today, we want to watch ICMP traffic. So, we'll have ICMP traffic selected. We can close this little red box here. And now you'll see your event list will be looking for ICMP. Now we'd like to see the actual traffic we're going to create. So in the bottom right corner of Packet Tracer there's this little gray arrow; it's pointing to the left. Go ahead and click on that and that'll expand a nice simulation pane for us.

So let's get started. Let's have some fun and actually create some traffic. So, if you take a look at your topology here; we've got our PC, we've got a laptop. We're going to do some network traffic between those two. Up here, right above the graphic, we have two envelopes; one that's closed and one that's open. If you highlight over the closed envelope you'll see Add Simple PDU pop up. So, what we're going to do, we're going to create some traffic using the Add Simple PDU button. When we click on the envelope, our cursor changes to an envelope. We will now click on the PCU, which says, I am the source. We will click on the laptop, which says, this is the destination. And you'll see immediately pop up on the event list: we have traffic at device, it's ICMP traffic. Down below we actually see in our little event pane here in this simulation mode: in progress, source PC, destination laptop. So, how do we make it move? Well, what you can do is either manually click on this forward button one by one by one. Or we can click on the play button. Let's do it manually. We'll click on the forward button. The traffic goes from the PC to the wireless router. We can watch it move. Click it again. Wireless router goes to the laptop. Laptop is receiving the traffic. Hit the forward button again. The laptop has received the traffic. Awesome, another laptop must respond. And click the forward button again. Keep going. There we go. Thank you laptop. And laptop builds its response, sends that back to the wireless router, who then sends it back to the PC. Look at that, green check mark. PC is happy. It's received its ping. If you look down here in the window of the bottom right corner we see Successful. The PC has successfully pinged the laptop and gotten a response. Awesome. What we're going to do now is click the Reset Simulation button and it goes back to the initial stage of the ping. If you didn't want to use that forward button, this is where you can just click the play and you can just watch the traffic move on its own. There's a little bit of delay between the steps and you can use your slider down here to control that speed. Again, watching the traffic as it's working between the PC, wireless router, laptop. Laptop back to the router, back to the PC, and again, green check mark. To stop the process from happening, you can click the play button again so it's no longer blue, and it goes back to where you're at. If you hit Reset Simulation, it resets it all over again. So that's awesome! But it's just a ping.

What if you wanted more complicated traffic. Well, we can send other messages. First thing we're going to do is use this Delete button, down here next to this pane, and that'll get rid of the entire ping. It's gone. The ping never existed. What we want to do next is let's create a more complex PDU. And if you go back above your topology

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graphic of your network, and you hover over the open envelope, we'll see Add Complex PDU. Here we get options. So click on that envelope. And now we get our envelope icon. We'll click on the PC just like last time. And whoah, look at that! We automatically have a new window popping up. That's interesting. And inside of here, it says destination address, source address, TTL, TOS, sequence number, you name it. What we want to do next is click on the laptop. And when I click on the laptop, you'll see it auto filled in the destination IP which is the IP on the laptop. The source is the PC which is the PC's port. It auto selected that for us. Now we could just send a ping like before, but hit that dropdown menu and take a look at all the different type of traffic we can send using this Complex PDU button. This is awesome! So if you wanted to send, for example, a SFTP; secure file transfer protocol, you could do it. If you want to send an email message using SMTP or receiving it through POP3, you can do it. This is awesome. If you want to simulate TELNET traffic or TFTP, you could do it. If we left the default of PING, and we again, we need this destination IP address; we just click on the laptop. Source IP address we don't need because it's coming from that source PC already which is already selected. We'll go into the sequence number; give ourselves an initial sequence number. How 'bout two. Size; you can change the size of your ping message. We can make it 10. Down below we have the timers. We can say one-shot which is just right now, one time. Or periodic interval. With periodic interval I can say send this ping every five seconds. From there, I can click the Create PDU button and check it out. We'll see it right here in the event list. It's at the device of PC. It's an ICMP message. Down below, we can see the source is PC, destination is going to be the address of the laptop. All I have to do is go ahead and click play. And now this custom built message moves from the PC to the router, router to the laptop, and of course so forth just like before. If you don't want to see it step by step, you can always just uncheck that play button and you can move it manually with that forward button just like we saw previously. And guess what? That ping? Awesome. If I hit the play button, remember, every five seconds this thing's going to keep moving, going through my network, verifying connectivity on a periodic interval timer of five seconds. I love it! That's awesome. See it started again, right there at five. And it just continues going.

So have some fun with this. With CISCO Packet Tracer, it doesn't end here. You can make this as complicated as you want or as easy as you want. Reset the simulation mode using that Reset button. This starts us from the beginning again. You can delete this message like we saw before. Create a new one. Have fun with it and learn. Please make sure you play with the PDU creation and being able to test out connectivity, because the next video, we're going into the viewing of the contents of these PDU messages and we're going to take a closer look at the data actually inside them.

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