Video – Accessing and Monitoring Smart Devices

Hello everyone, this is our Cisco Packet Tracer, Accessing and Monitoring Smart Devices walk-through video. This video is going to be great. Packet Tracer and IoT coming together and actually utilizing something called a smart home gateway are all happening right here, so let's get into it.

Right now we have a cable Internet connection hooked to a cable modem. What we're going to do is deploy a wireless home gateway. To do that we need to be in network devices and then the subcategory of wireless devices. So we'll click on it. Inside of here we'll see we have multiple devices. What we want right now is going to be the home gateway, which is right here. I'll click on the home gateway, and I'll click in my house and now we have it deployed. When we click on the home gateway we see the physical tab, and I see four wired connections from my house and one wired connection for the internet. Besides that we also have wireless connections in order to hook to wireless devices.

So let's do some cabling. I'll minimize the home gateway. And now we're going to go and click on our cabling connection. I'm going to click on my automatic cable. I'll click on the cable modem, and I'll click on the home gateway. And now this is going to carry Internet from the cable modem to the home gateway. So at this time we can go ahead and click back on the home gateway and we'll take a look at some of the tabs inside of here. Inside of here we have the config tab, and under the config tab we have basic settings for the home gateway, which includes the name then we have multiple settings for the three different types of connections, the internet connection, the LAN and wireless. Besides that we have the GUI tab and with the GUI tab we see that it's running a web server. This is a web registration server that operates on the home gateway. This allows us to connect our IoT devices to this registration server, in order to control and monitor them. Also we have the attributes tab, which includes specifications regarding mean time between failure, cost, power, and even rack units and wattage.

So let's take a look at actually getting some IoT devices in our smart home typology. So I'll minimize the home gateway a second time, and now it's time to pick out some IoT devices. I'm going to go ahead and click on end devices, then I'll click on home. Inside of home I want to deploy some IoT devices. For example, I'll take the ceiling fan. I'll click on that. I can deploy that on the left side of the house. Besides the IoT ceiling fan, we may also want an IoT lamp. I'll click on the lamp, and I'll deploy that upstairs. A door would be nice. For the front door, I'm going to go ahead and click on this smart IoT door here, and I'll deploy that at the front. And lastly something to monitor, I'm going to scroll all the way over to the side and near the end of our home smart devices, we'll see a wind detector. I'll click on the wind detector, and we'll deploy that at the top of the house. Now we have all these IoT devices deployed across my house. What we want to be able to do now is be able to configure these IoT devices to actually work with the home gateway.

With the home gateway we're going to use the wireless connections, and inside of config and inside of wireless, I'll be able to see the wireless name is Home Gateway. Besides that I need to make sure that my IoT devices understand how to connect to this home gateway device. So let me minimize the home gateway, and now I'm going to click on that fan. When I click on the fan, it opens up. With this fan we can see the basic specifications of how it works regarding off, low speed, high speed, and we can also see that it can be connected to a registration server. We can also interact directly with this fan by holding the alt key and clicking on it, but we want to control this from the home gateway. So we can take a look at this fan in the config tab, and in the config tab, we see how this fan connects to a network. It connects to a fast ethernet port. That's a cable, so we need to get this thing on wireless. To get it on a wireless we're going to click on the advanced button and when you click on advanced, now we have more tabs at the top. The one we want is IO config. We click on IO config, we can then see the network adapters that are possible. I want to change this fast ethernet adapter to a 1W. When I click 1W, now I have a wireless adapter on the fan. There's no apply button here. We're just going to go back to the config tab, and now in the config tab, I see I have a wireless interface. I can click on wireless, and we see here it's automatically set to Home Gateway. This is the name we had to make sure it matched. Also, we're receiving an IP address from the home gateway, as we see here inside of DHCP.

Let's repeat and do this with the remaining three devices. I'll minimize and now we see the fan is hooked up. Let's go to the door. We'll click on the door. The door opens up. Inside of the door we're going to go to our advanced

button. Input, output, IO config. Make sure we change the network adapter to wireless. To the config tab, make sure we're hooked to the wireless network, which we are. We're getting an IP address. And now the door is done, as well. Two more devices. We'll do the light and the wind detector, as well. Click on the light, and the light opens up. Head over to the advanced button. Config, set our wireless, and we'll make sure it connects to the wireless network. Awesome, the light is good. It also receives an address. Lastly, is going to be a wind detector. This is our sensor. We'll open the wind detector. When the wind detector opens up, same thing as you did before. Make sure we can get this thing with a wireless adapter on it, so we can hook this up to that registration server. Awesome.

So everything is hooked up right now, but in order for us to interact with these devices and that home registration server, we need something that can open a webpage and view that registration server. So I'm going to go back to my end devices and inside of my subcategory of end devices, I want a tablet, so I'm going to go find and say yeah, wireless tablet. I'll click on the tablet PC and I'll put it right next to the pool. Now I can click on that tablet PC and on the tablet PC itself, I'm going to click on the config tab and there we go, wireless. The wireless network name is default, and that's not the right one for this. We need to set this to Home Gateway like we saw previously with all of my IoT devices hooking to the home gateway wireless. Besides just Home Gateway for the SSID, which is the wireless name, I can click again on DHCP. I'm getting an address from the home gateway.

Now let's continue onwards and be able to configure and manage and monitor my IoT devices. So I'll click on desktop, and I'll click on web browser. The actual IP address of that home gateway is 192.168.25.1, when I click on go, this'll connect to that home gateway. The username and password here is admin, admin then I can click submit. Now that password can be modified at a later time. Right now I have no IoT devices deployed here, so what I need to do is actually hop on the IoT devices and tell them to register to the registration server, known as Home Gateway. To do it, I just need to hop on each one of those devices and there's a special place inside of config called settings. When I'm in the config tab and settings, I can scroll down to the bottom and you can see here, IoT server is none. I need to select the radial button of Home Gateway. When I click that button, I can then go back to my tablet and click go, and check it out, the ceiling fan now shows. We'll do the same thing on the other three IoT devices. The door, settings, use an IoT server of Home Gateway. Same with the lamp. And lastly, with my wind detector. And now that all the devices know to use a home gateway, we can check out that home gateway webpage one more time, and take a look at this. We have the ceiling fan, we have the door, we have the light, and there's the wind detector. I can click on any one of these devices. I can either control them like we see here with the ceiling fan or when I click on the wind detector, we can actually monitor that there's wind. We can even take a look at the door and the light and see the status of them and, of course, be able to make changes on some of these IoT devices.

So play with Cisco Packet Tracer. Build your own IoT smart home network, and become a Cisco IoT all-star.