PRACTICAL LAB: IOT CONFIGURATION - RFID

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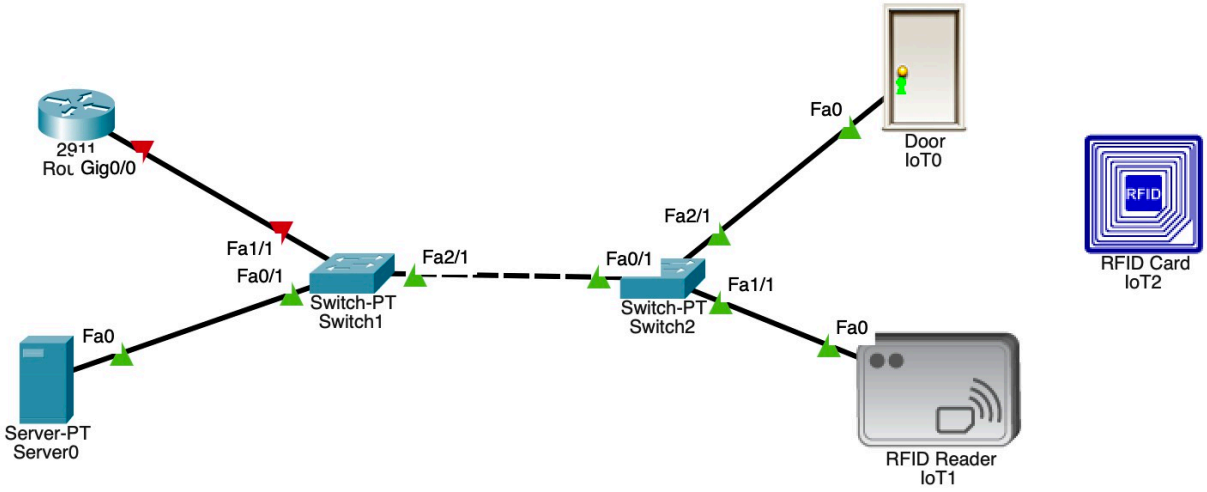
1 Introduction

For this practical we will be using *Cisco Packet Tracer,* a tool provided by Cisco to build and test Cisco networks. In this lab we are going to configure a door with an RFID reader.

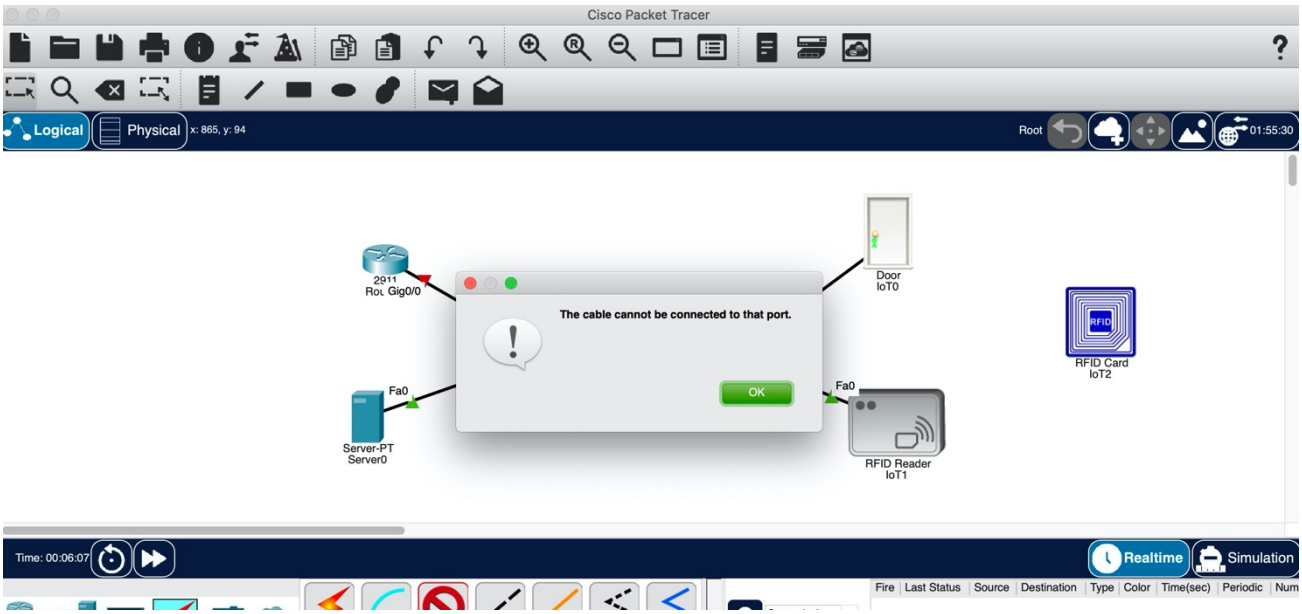
RFID stands for Radio Frequency Identification (RFID) and refers to a wireless system comprised of two components, RFID tags and readers. They are often used for door access, and in this lab we are going to configure RFID with a registration server.

2 Setting up Devices

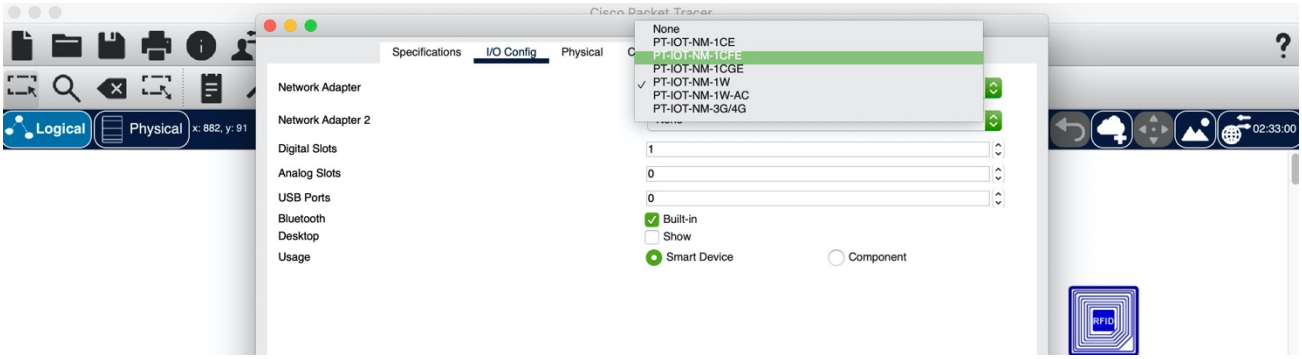
Add in the following devices:



If you cannot connect a cable to the door and receive the following message:

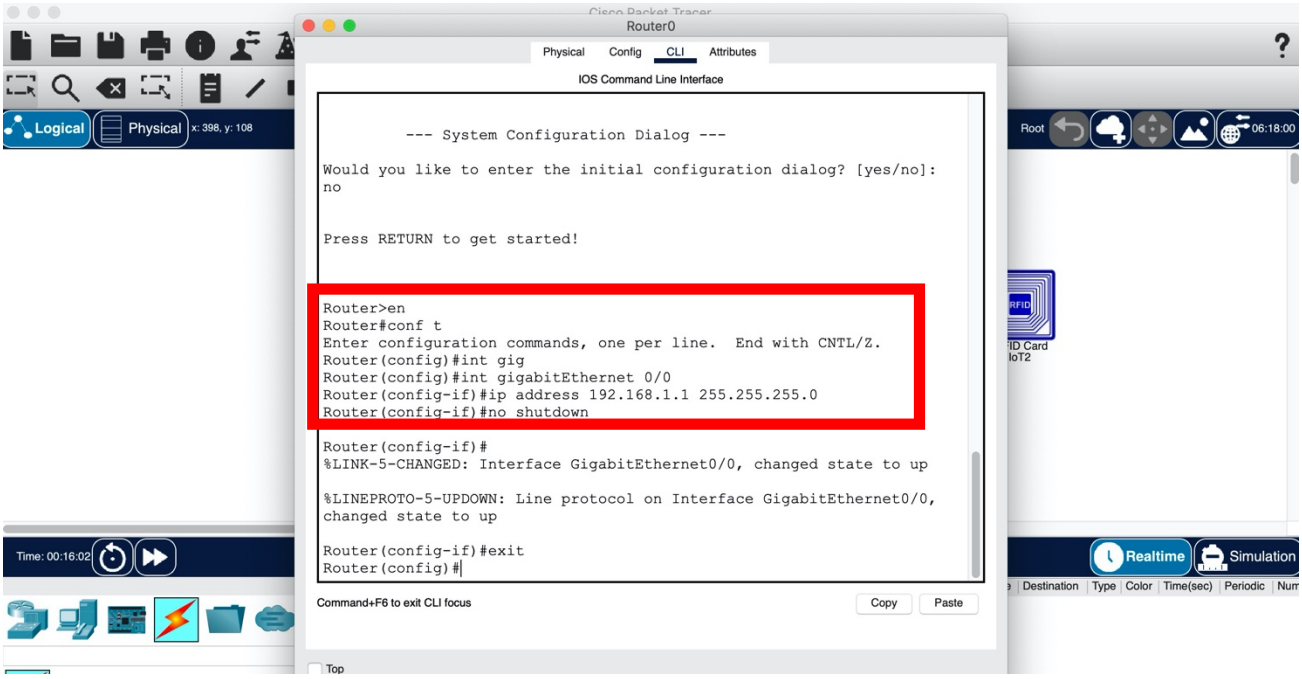


Then change the network adapter to PT-IOT-NM-1CFE as shown below.

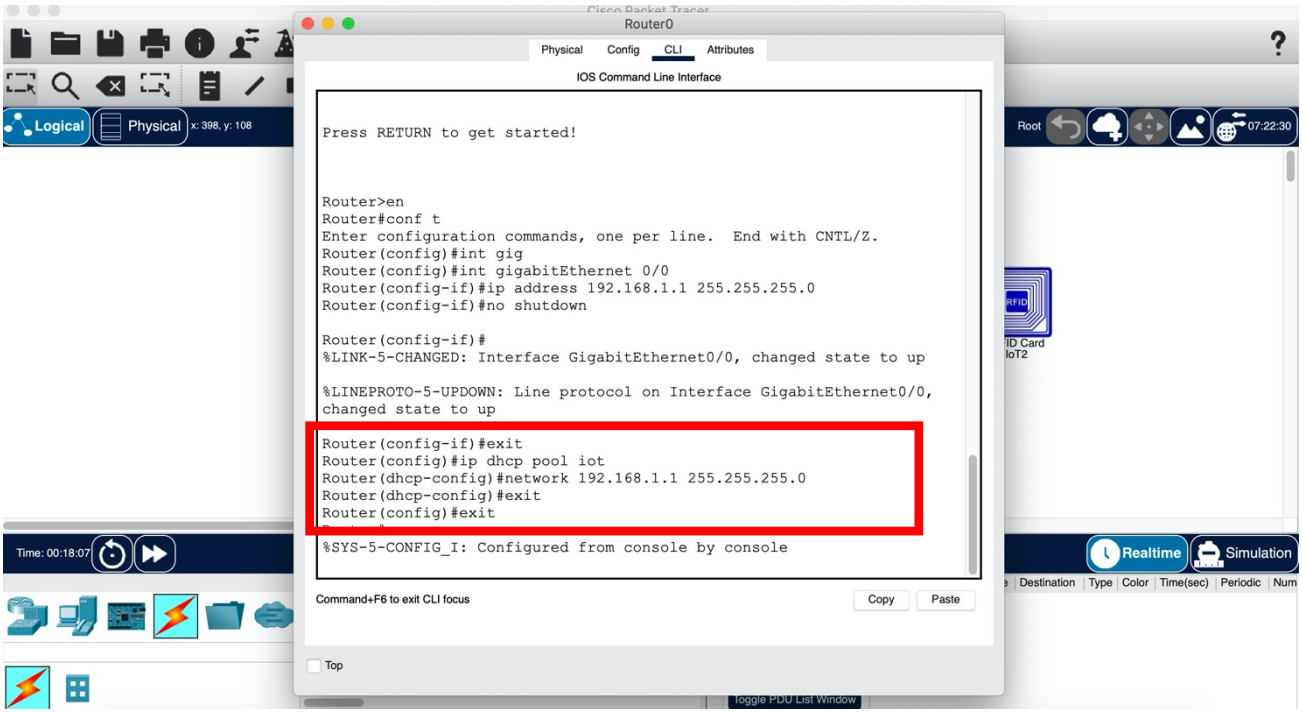


3 Router Configuration

Configure IP address for the gigabit ethernet interface:

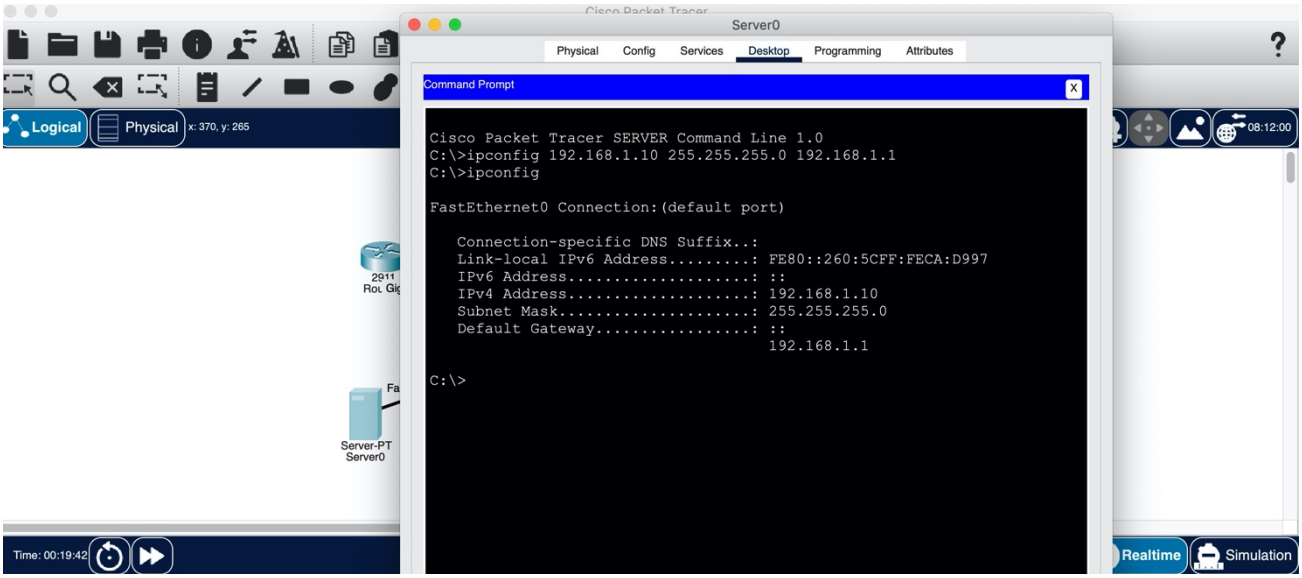


Now we are going to configure DHCP for the IoT devices:

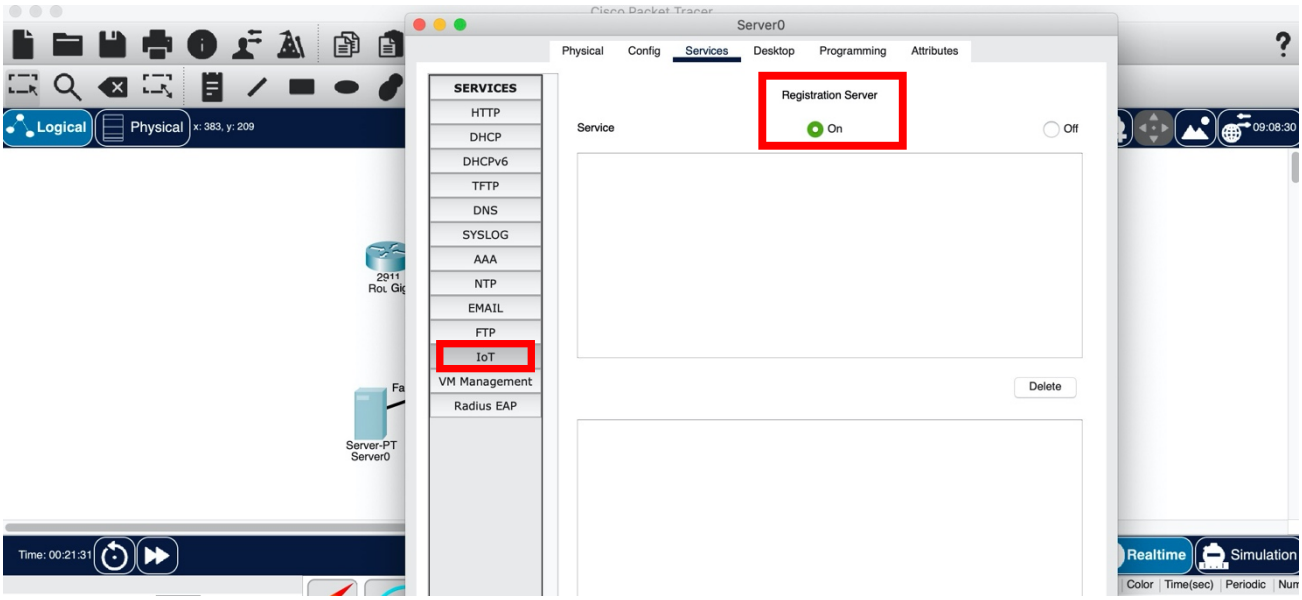


4 Configure Server

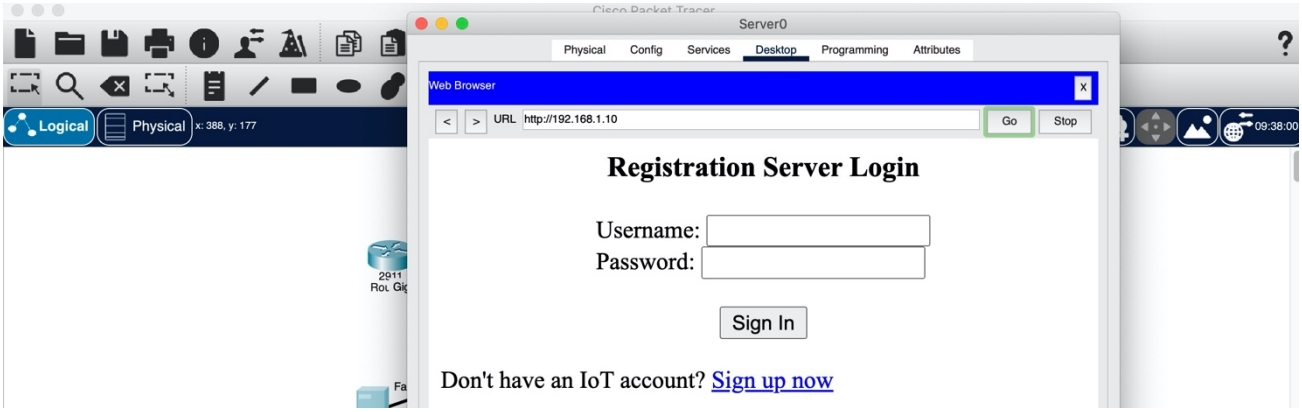
Configure IP address on server, set to 192.168.1.10



Now we need to go to the server services and make sure the registration server is checked to ‘On’ for IoT.

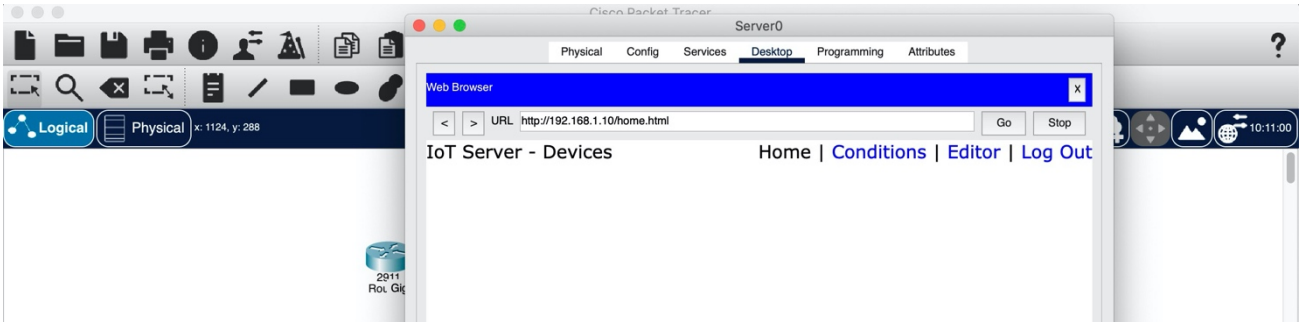


Now go to the server web browser, and type in the server IP address:



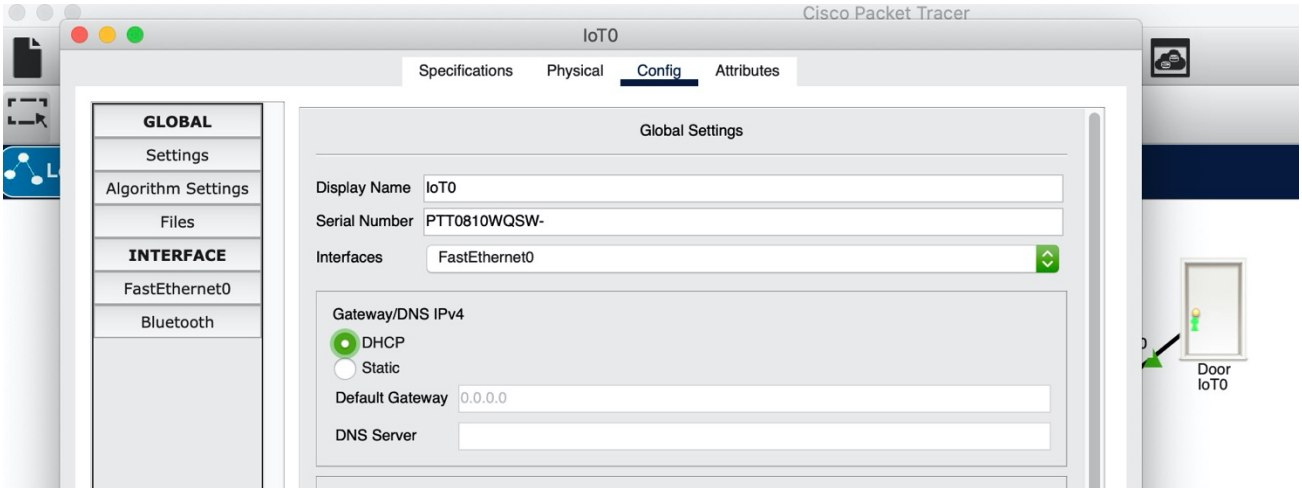
Click on 'Sign up now' and create a username and password.

You will then be taken to the following screen:

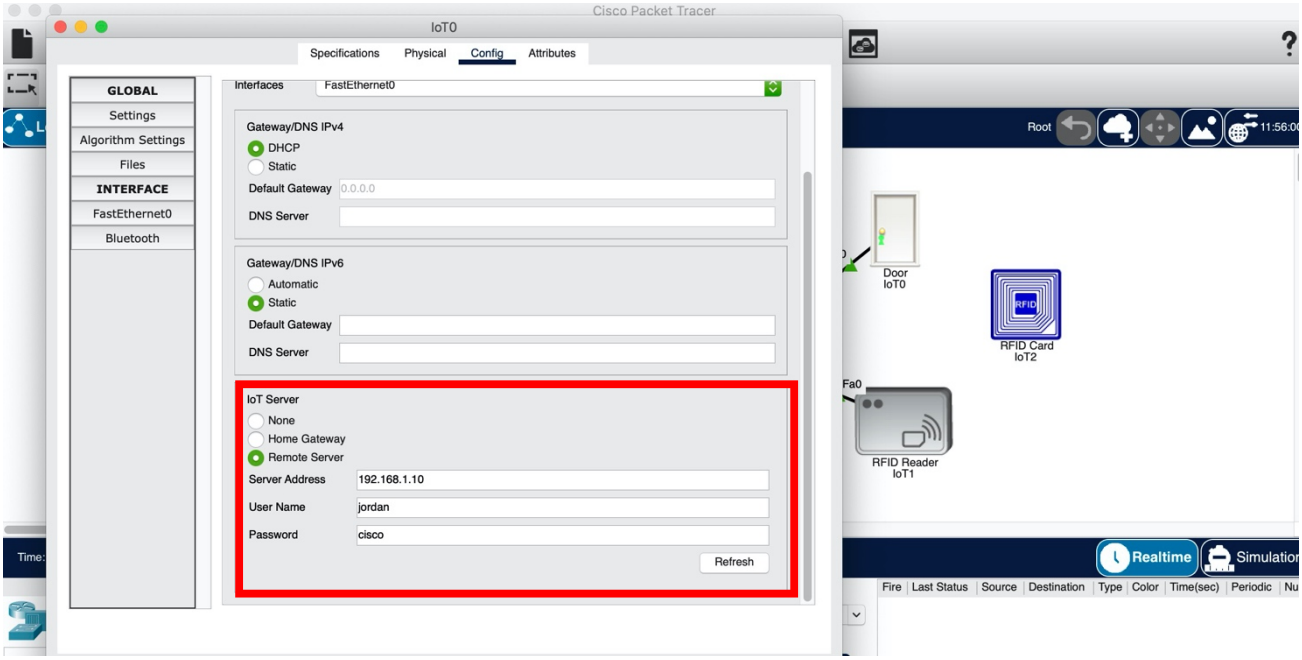


5 Connect IoT devices to the server

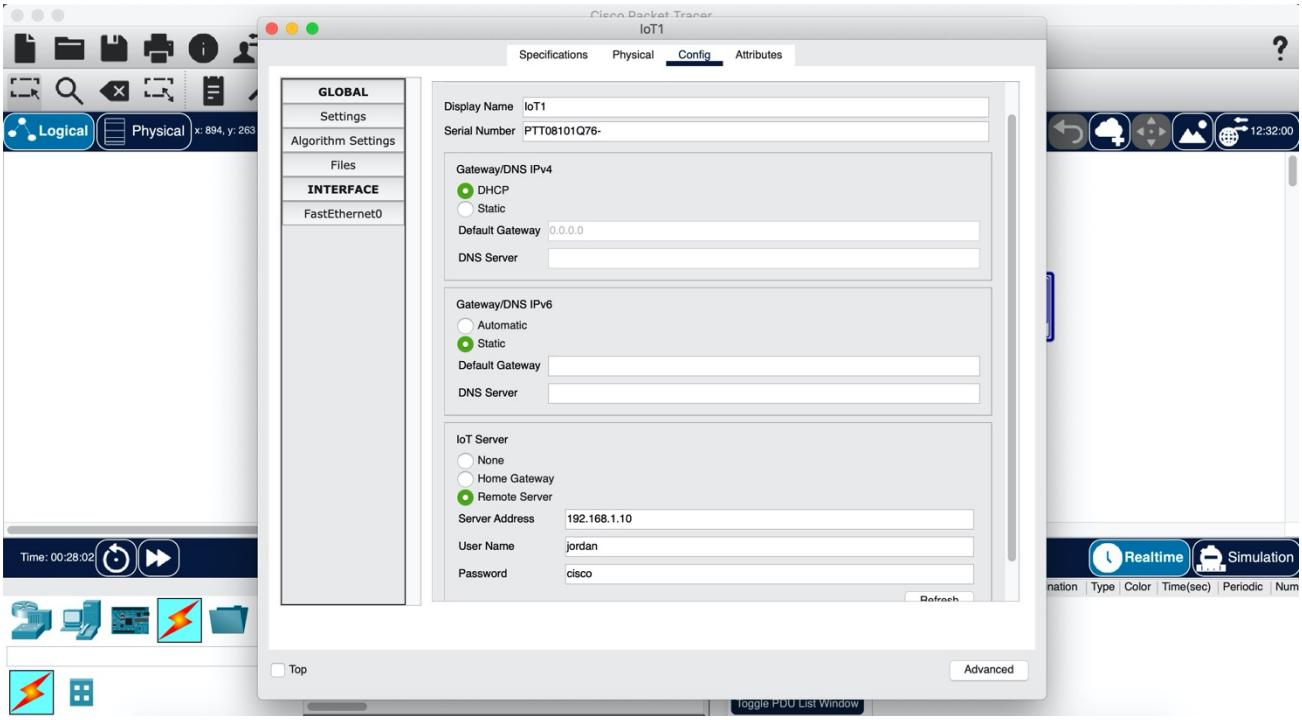
Click on the door, go to config, and select DHCP under Gateway/DNS



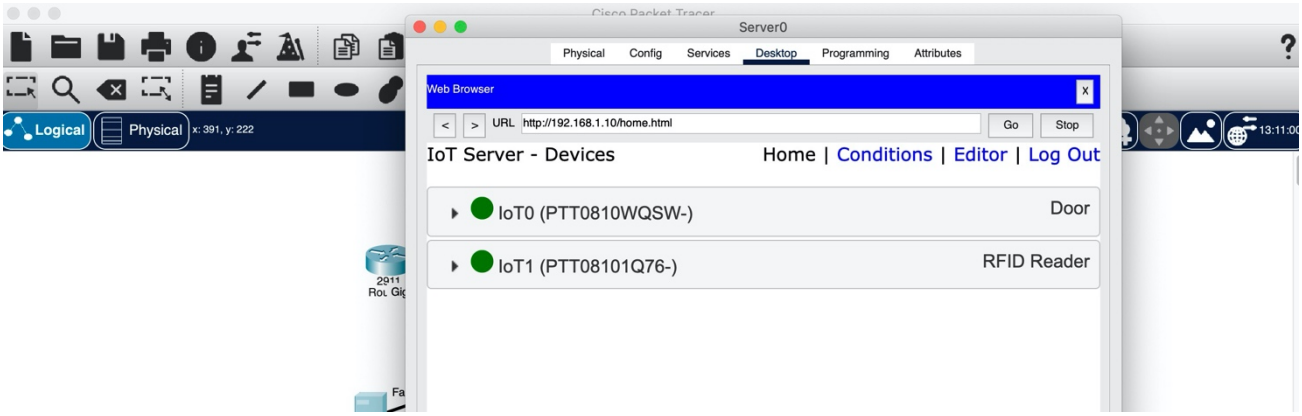
Then scroll down and under IoT Server, choose remote server. Then type in the IP address of your server, and your username and password which you set before.



Now complete the same steps but for the RFID reader.

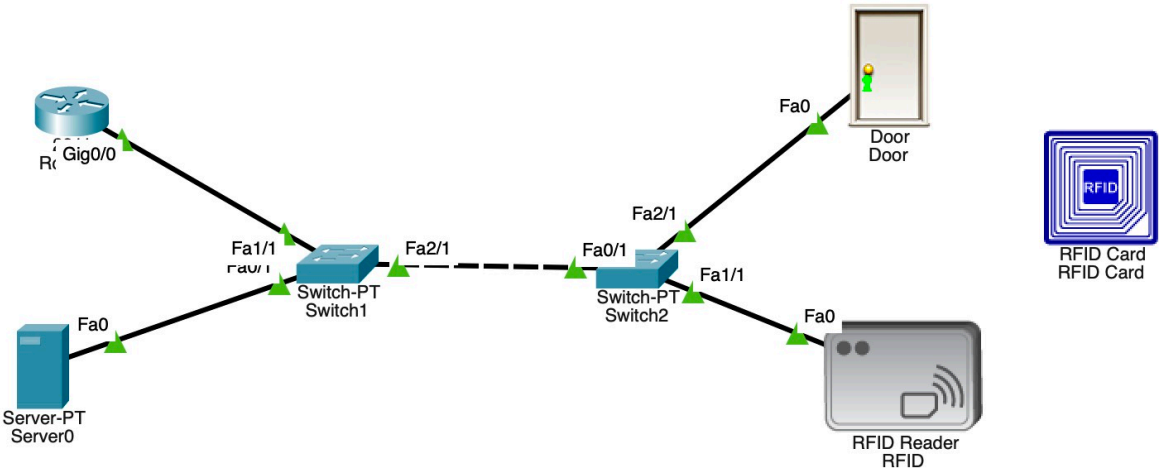


If you now go back to the server, you can see how both devices are now connected.

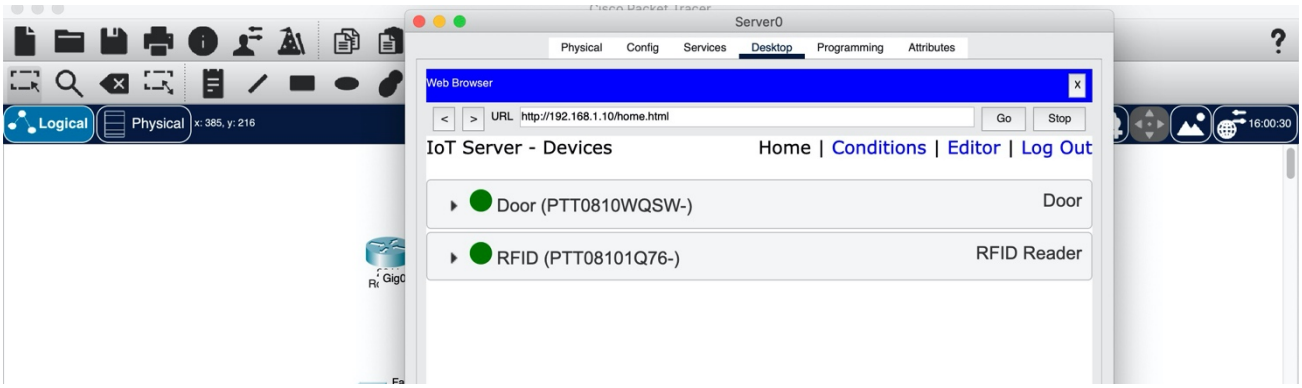


6 Create device conditions

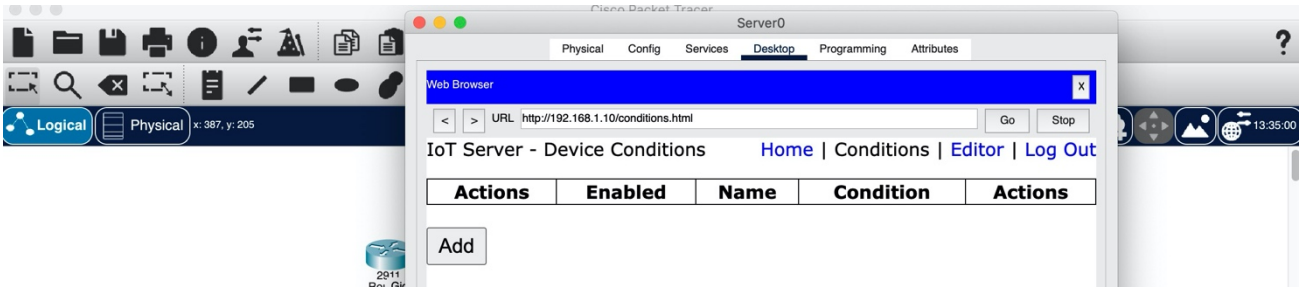
Currently our devices are named IoT0 and IoT1, this is not very helpful, particularly if configuring many devices, so let's rename our devices first, you can do this by simply clicking on their current name.



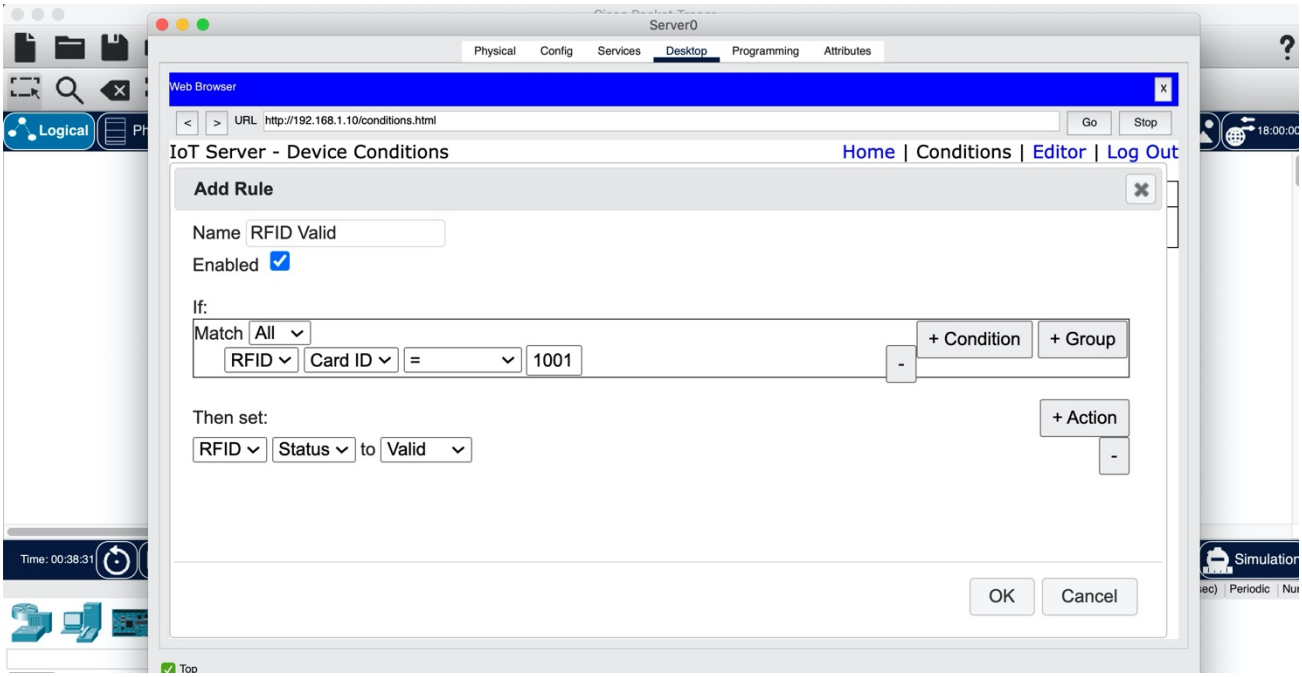
Much better, now go back to the server, and see how the names have also been updated:



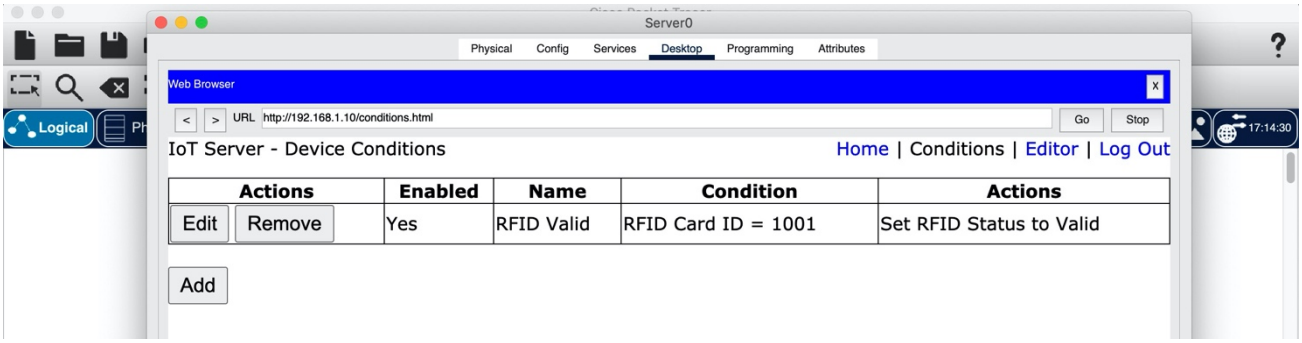
Now we need to create device conditions so that we can set up the RFID to work. Click on conditions as shown below and then click 'Add'



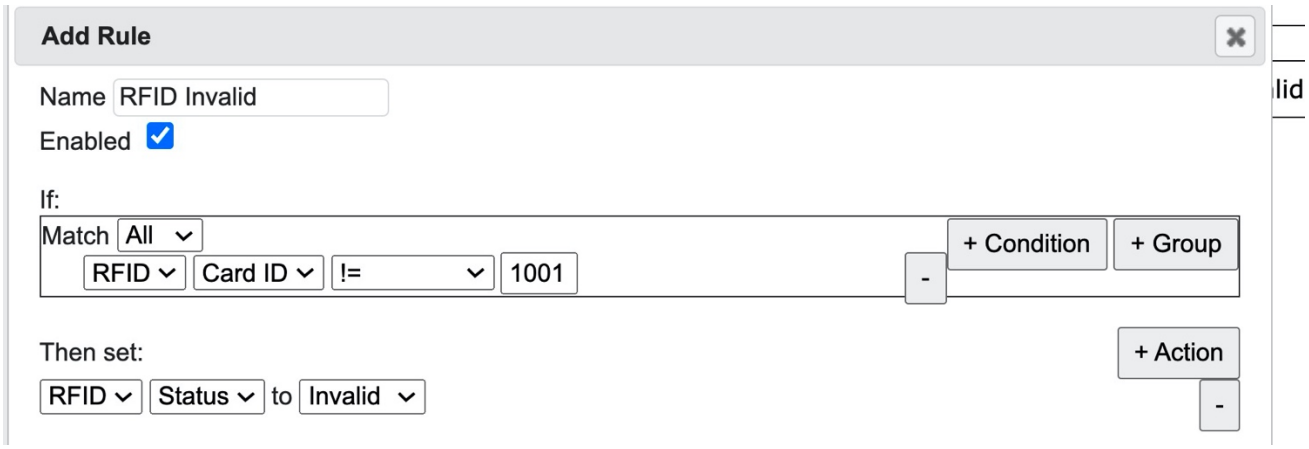
Add the following condition and then click 'OK':

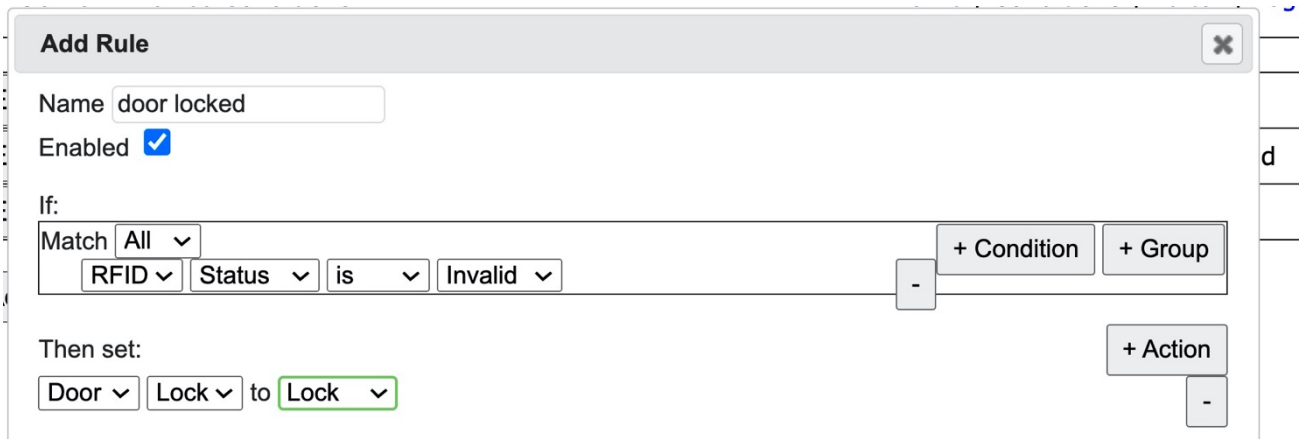


This condition will be added to the list of conditions.

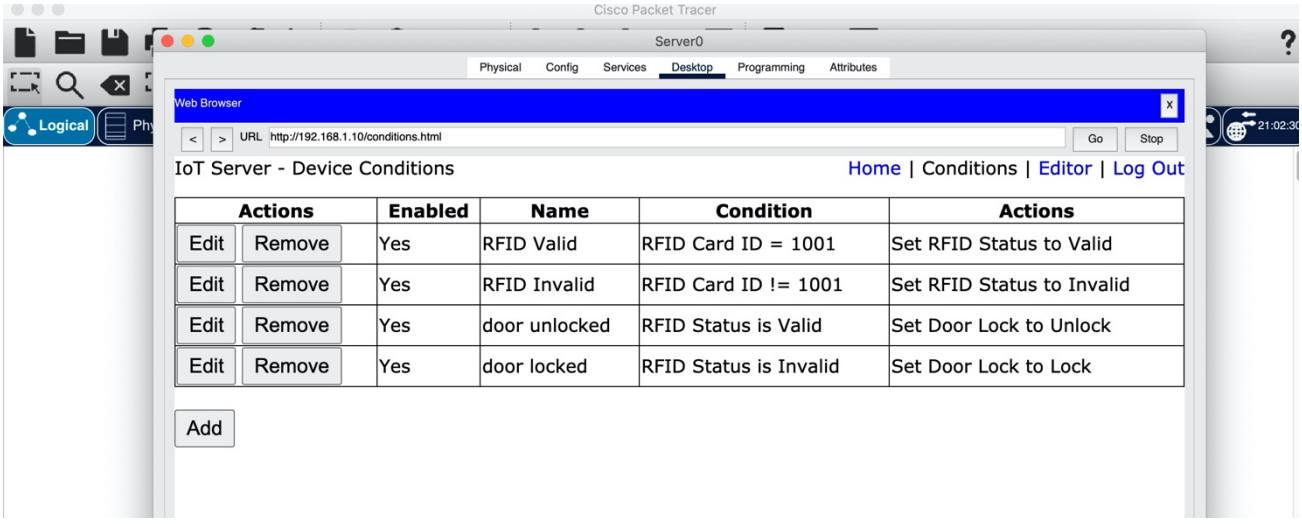


Now add the following other three conditions:



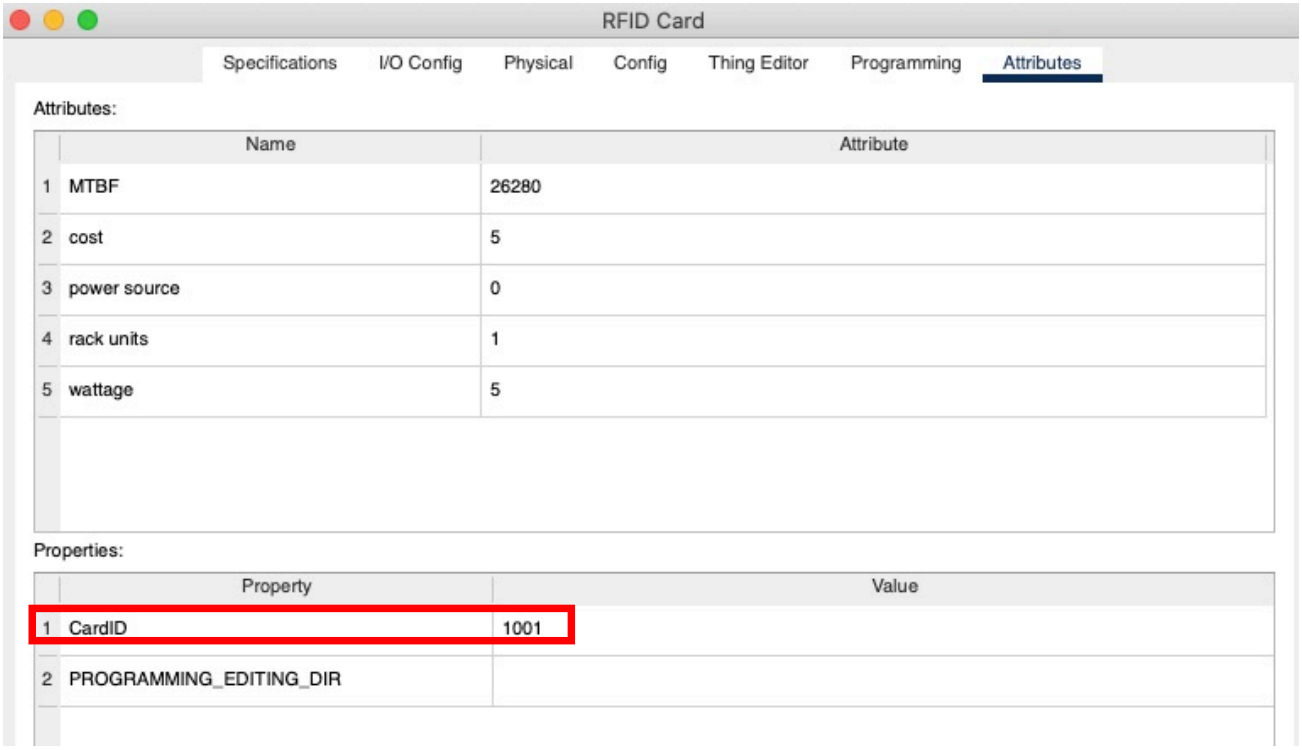


We should now have the following conditions (rules):



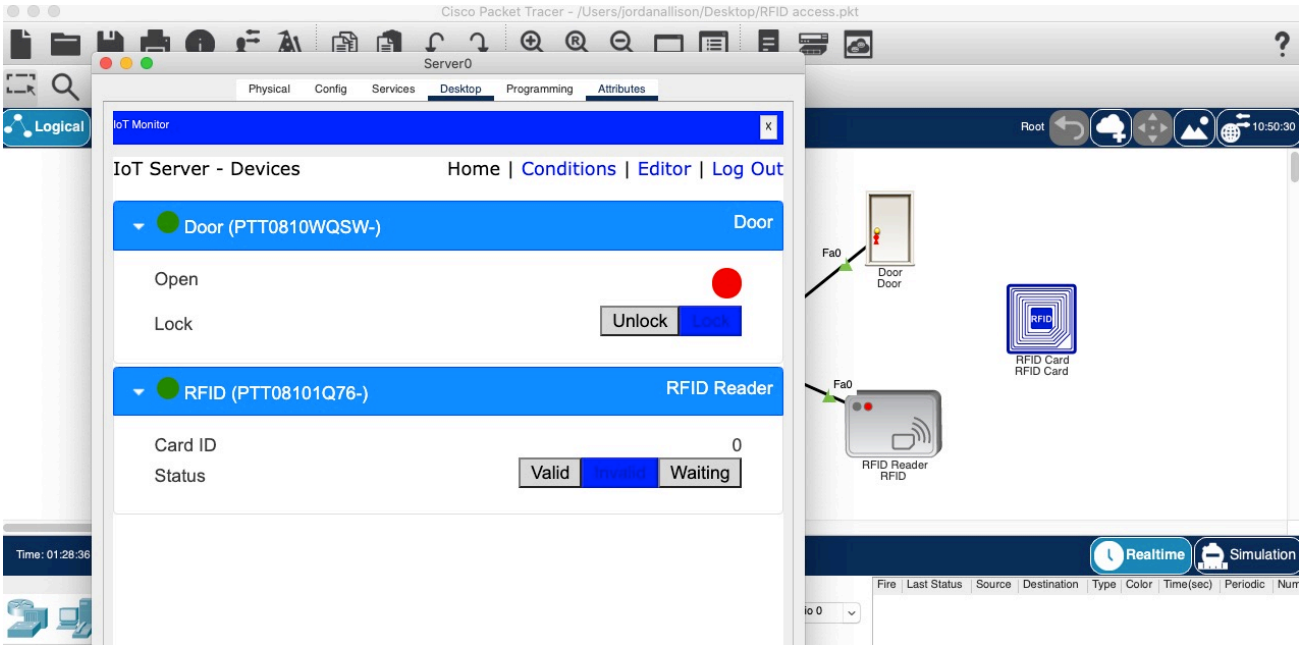
7 Check the RFID

Double check the RFID card settings, particularly that it is set up with the card ID of 1001



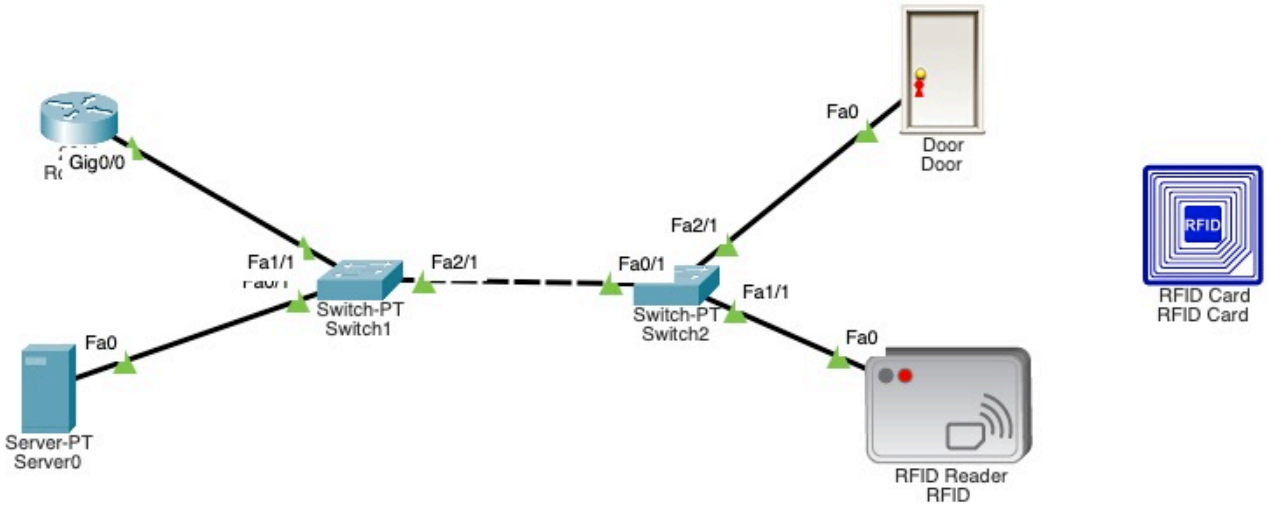
8 IoT Monitor

Go to the server, and choose IoT Monitor, make sure the door is locked by default as shown below:

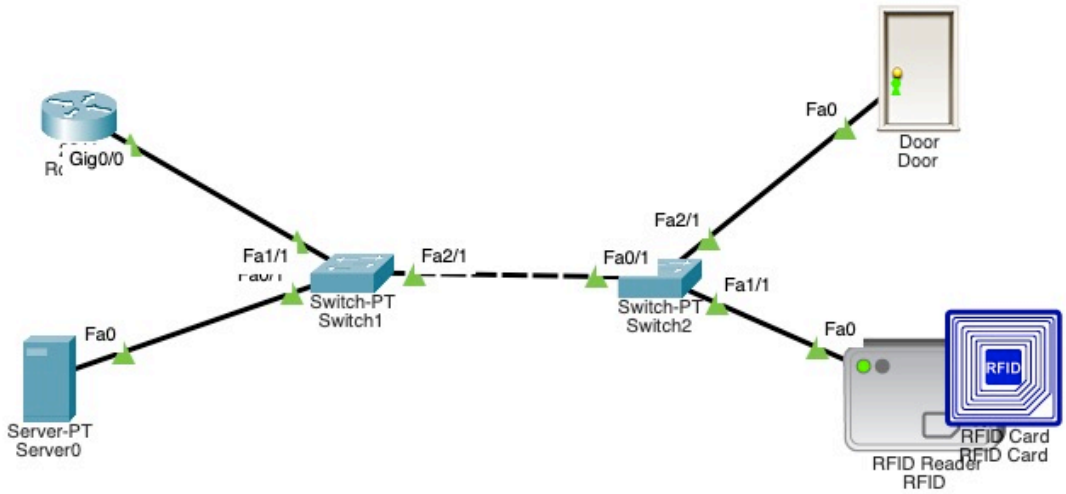


9 Test the RFID configuration

By default, the door will now be locked (red), and the RFID reader will show as red too.



However, if we move the RFID card over the RFID reader, the door will become unlocked (shown green) as shown below:



Congratulations, you have configured an RFID!