

**SISTEM KOMUNIKASI NIRKABEL**  
**MODUL 1**

**SMART HOME INTERNET OF THINGS**  
**BERBASIS PACKET TRACER**

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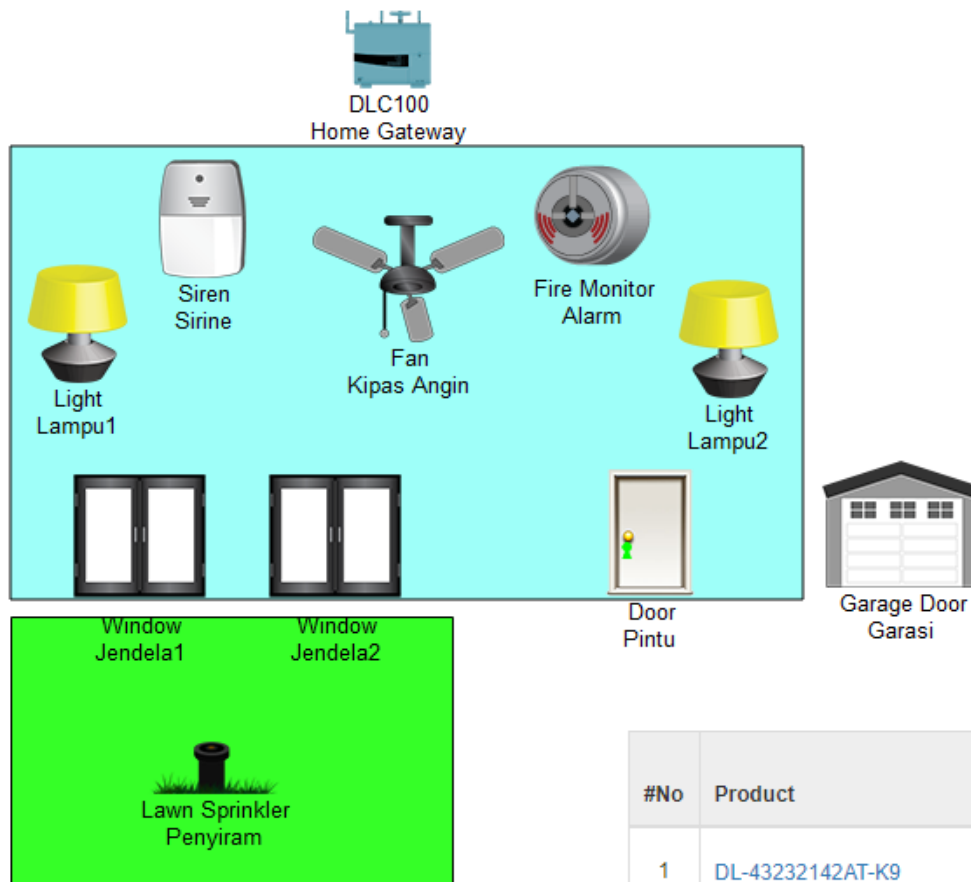
# TOPIK BAHASAN

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- Pengenalan sensor
- Design dengan Home Gateway
- Design dengan IoT Server

# Topologi Jaringan

- Designlah jaringan seperti berikut:



Home Gateway  
DLC-100



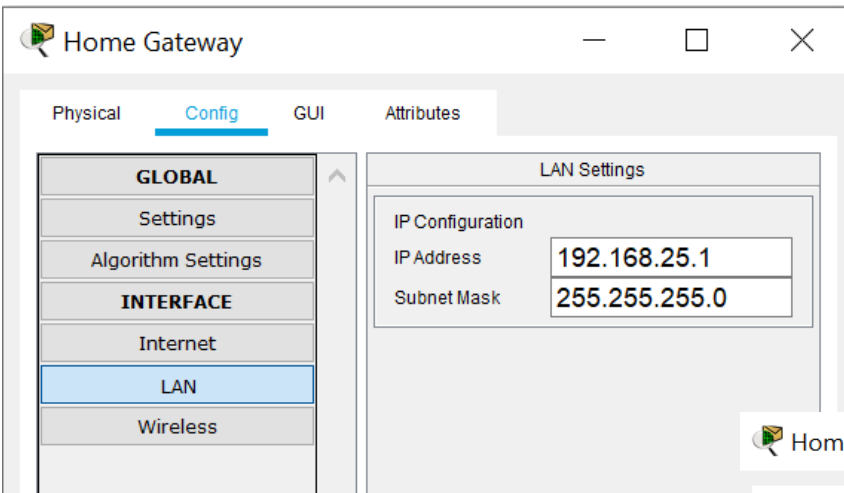
DLC-200



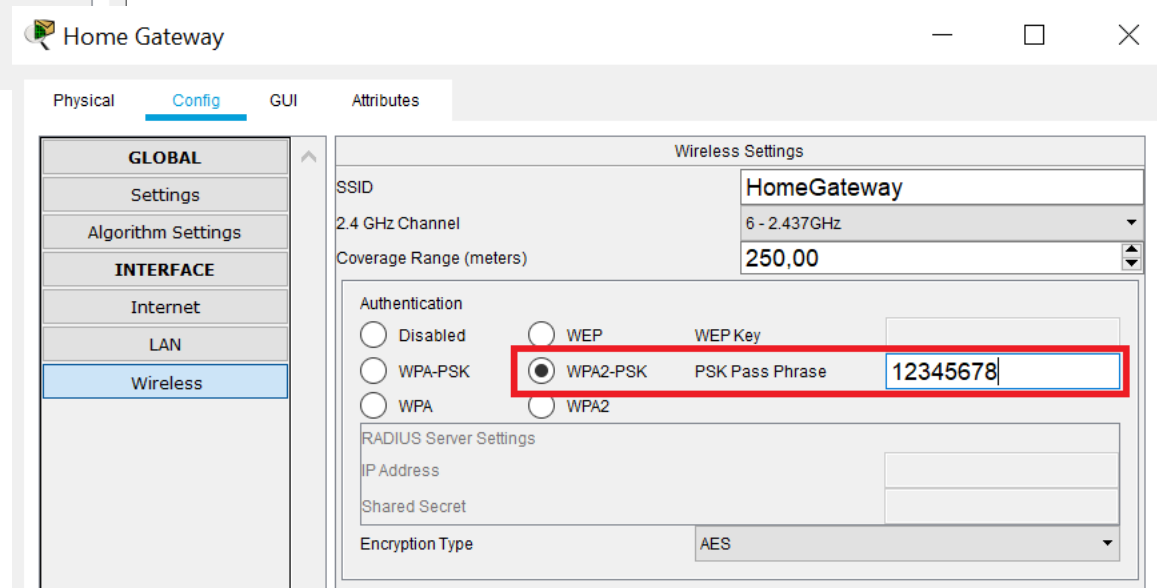
#No	Product	Description	List Price (USD)
1	DL-43232142AT-K9	AT&T DLC-200, EU Version (ZigBee, Z-Wave, AFM, Wi-Fi & 3G)	\$474.00

# Setting pada HomeGateway

## Setting IP Address (DHCP Server)



## Setting WiFi & Security



# Setting pada Perangkat Sensor IoT

Pintu

Specifications I/O Config Physical Config Thing Editor Programming Attributes

**Door**  
Open / Close / Unlock / Lock

Features:

- Registration Server Compatible
- Ability to vent Carbon Dioxide and Carbon Monoxide

Usage:

- Connect to the Door from SBC/MCU/Thing with IoT Custom Cable
- Use customWrite function to control the door and lock

Direct Control:

- ALT-click on keyhole to lock/unlock
- ALT-click on door to open/close

Local Control:

- Connect device to SBC/MCU/Thing. Use the "customWrite" API per Data Specifications

Remote Control:

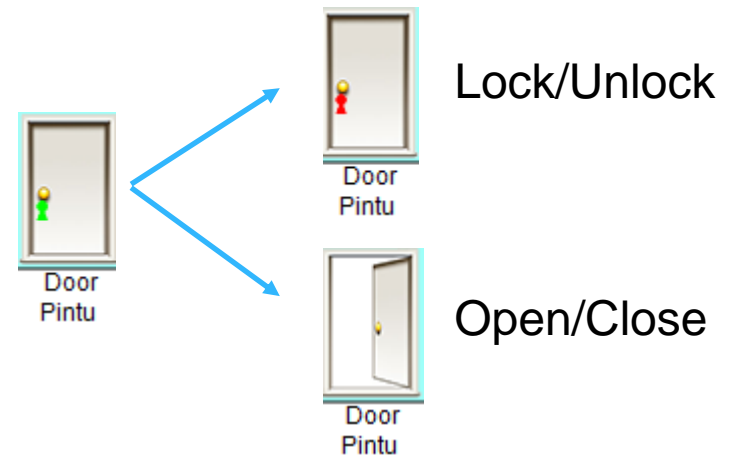
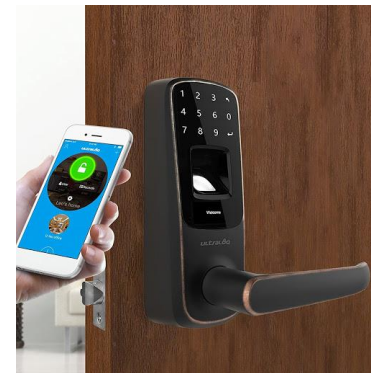
- Connect device to Registration Server using Config Tab

NOTE: opening and closing the door is not remote controllable

Data Specifications:  
Message Format: [door],[lock]  
door: 0 = closed, 1 = open, -1 = don't care  
lock: 0 = unlock, 1 = lock, -1 = don't care

Example:  
Connect a SBC to the door, send a customWrite and open the door to vent the Carbon Dioxide and Carbon Monoxide level

- Perhatikan Spesifikasi dari perangkat tsb.



# Setting pada Perangkat Sensor IoT

## Setting SSID dan passcode

The screenshot shows the 'Config' tab for the 'Wireless0' interface. The 'SSID' field is set to 'HomeGateway'. Under 'Authentication', 'WPA2-PSK' is selected, and the 'PSK Pass Phrase' is '12345678'. Under 'IP Configuration', 'DHCP' is selected, and the 'IP Address' is '192.168.25.100' with a 'Subnet Mask' of '255.255.255.0'. The 'Advanced' button is visible at the bottom right.

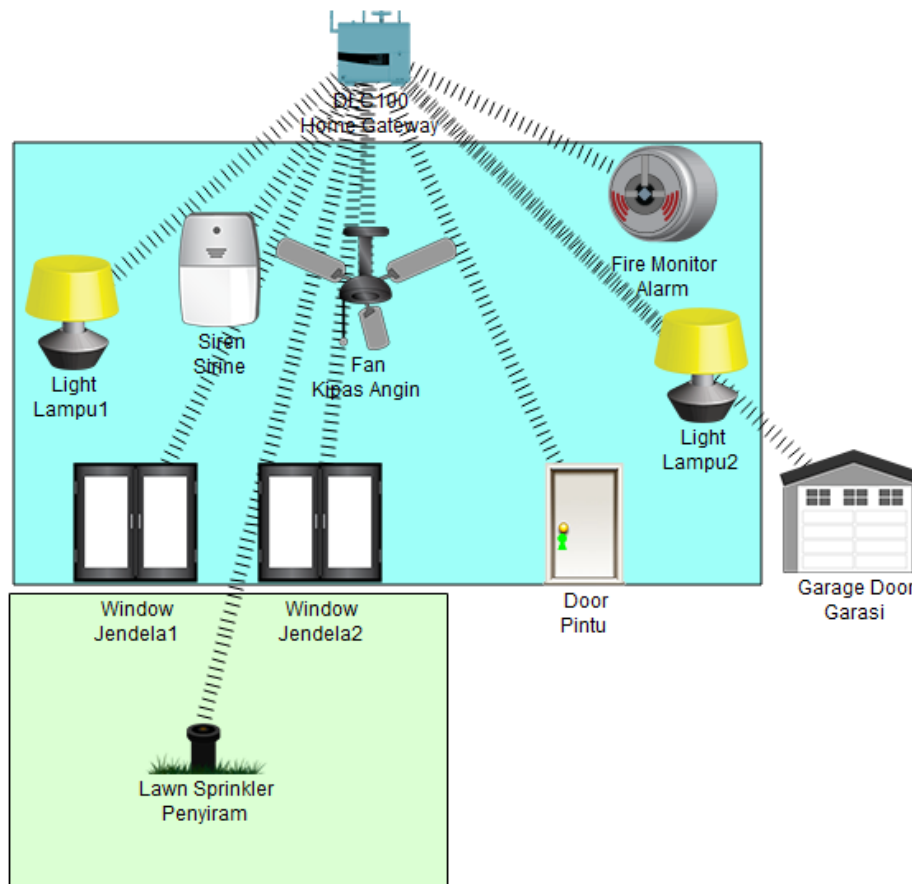
## Setting DHCP dan koneksi ke IoT Server

The screenshot shows the 'Global Settings' section. Under 'Gateway/DNS IPv4', 'DHCP' is selected and the 'Gateway' is '192.168.25.1'. Under 'Gateway/DNS IPv6', 'DHCP' is selected. Under 'IoT Server', 'Home Gateway' is selected. The 'Advanced' button is visible at the bottom right.

- Lakukan hal yang sama pada semua perangkat IoT

# Interkoneksi Perangkat IoT

Semua perangkat IoT sudah terhubung ke HomeGateway



# Monitoring Perangkat IoT

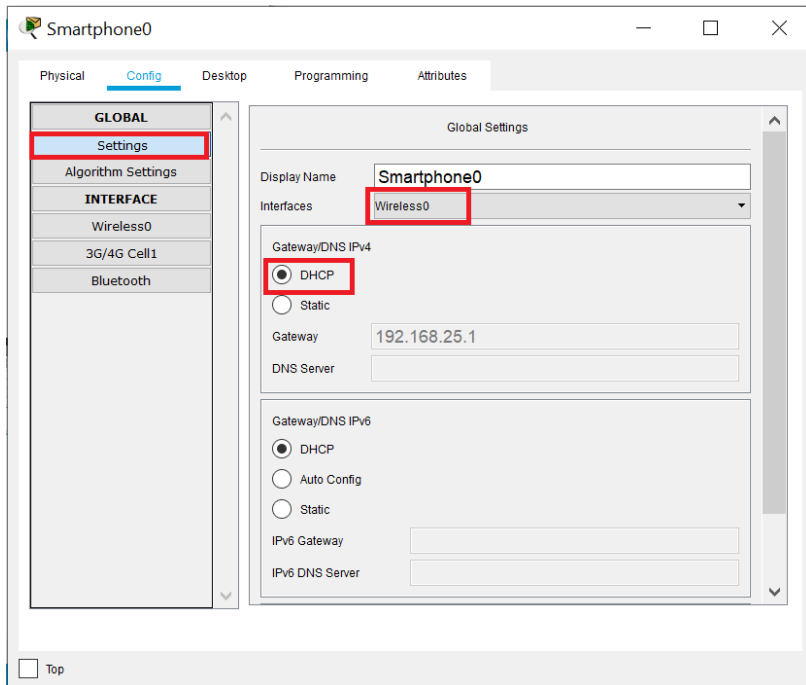
The image displays a web-based IoT monitoring interface. On the left, a network diagram shows a central 'DECT Home Gateway' connected to various IoT devices: 'SMARTPHONE-PT Smartphone0', 'Fire Monitor Alarm', 'Light Lampu1', 'Siren Sirine', 'Fan Kipas Angin', 'Light Lampu2', 'Window Jendela1', 'Window Jendela2', 'Door Pintu', 'Garage Door Garasi', and 'Lawn Sprinkler Penyiram'. The right side shows a 'Smartphone0' configuration window with a list of devices and their status.

Device Name	ID	Type	Status
Pintu	(PTT081082OQ-)	Door	On
Sirine	(PTT0810SL3U-)	Siren	On
Lampu1	(PTT0810ZHH7-)	Light	On
Kipas Angin	(PTT08101ZPP-)	Ceiling Fan	High
Alarm	(PTT0810UH6H-)	Fire Sensor	On
Lampu2	(PTT0810P96C-)	Light	On
Garasi	(PTT0810824S-)	Garage Door	On
Jendela2	(PTT0810I3SN-)	Window	On
Jendela1	(PTT0810I36M-)	Window	On
Penyiram	(PTT08109921-)	Lawn Sprinkler	On

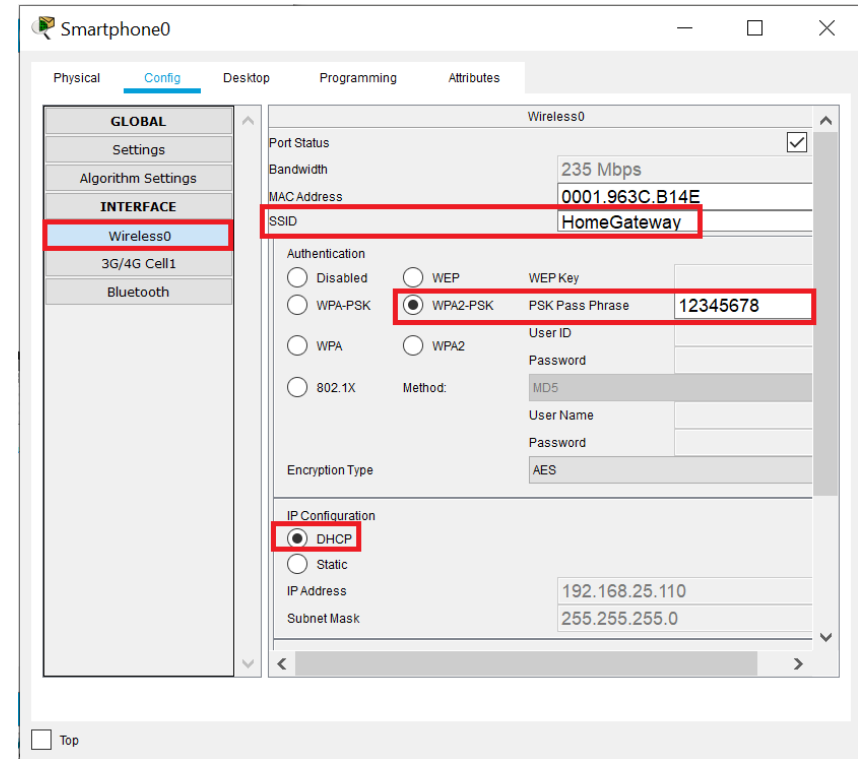


# Setting Smartphone

## Setting Wireless Interface dan GW

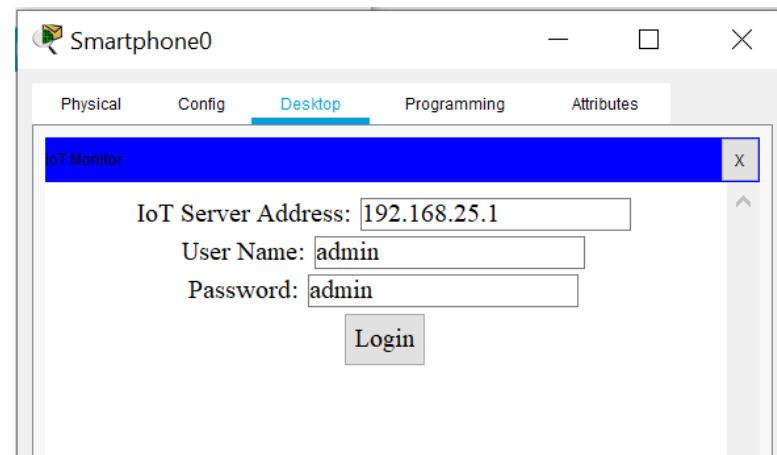
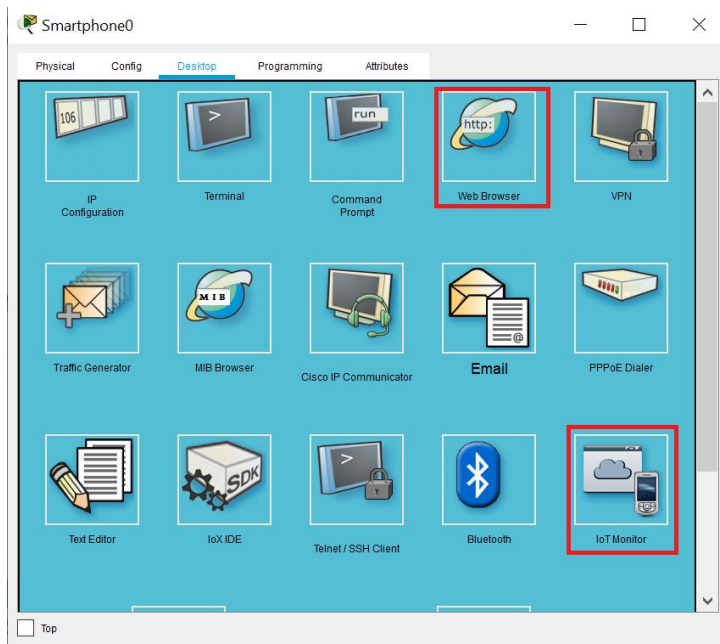


## Setting SSID dan Passcode

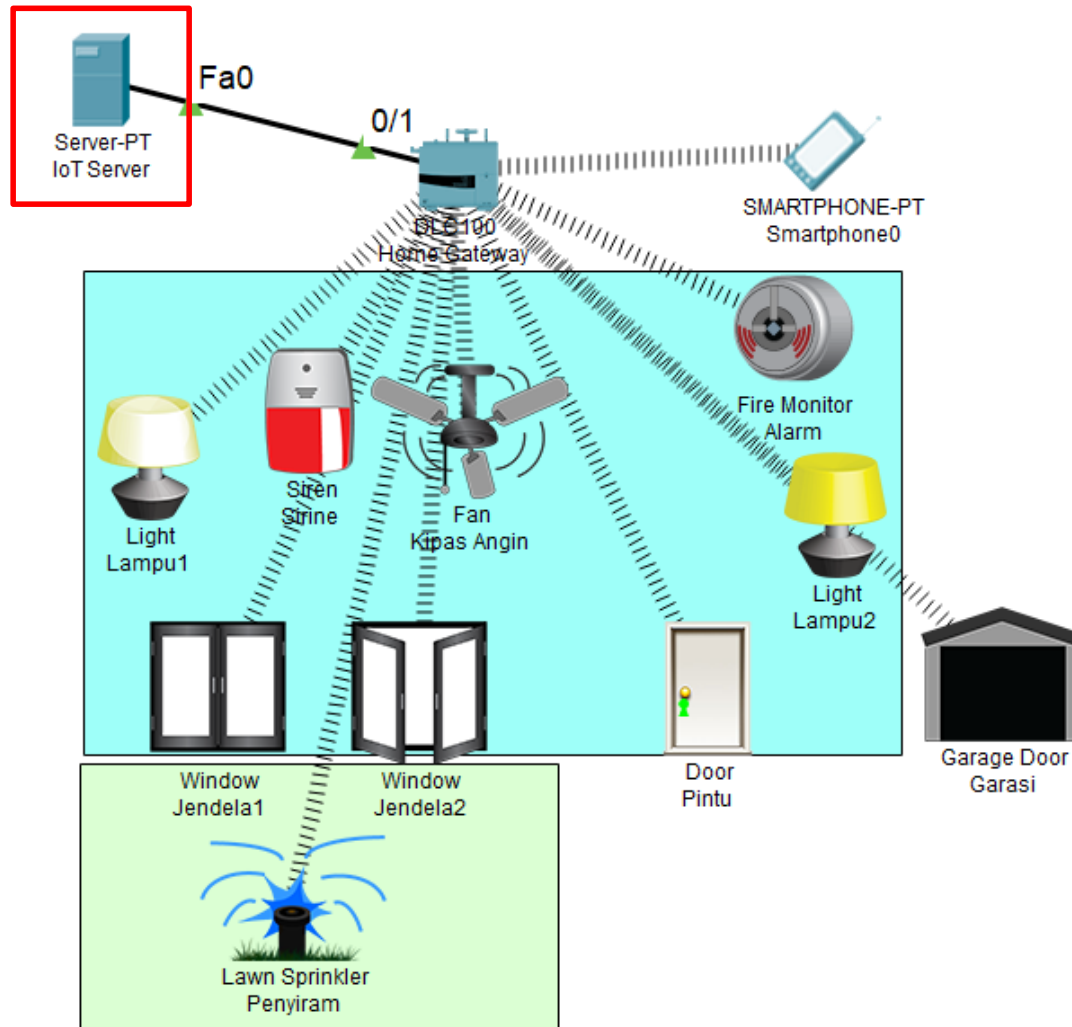


# Setting Aplikasi Monitoring

Untuk monitoring, bisa melalui **Web Browser** atau **IoT Monitor**

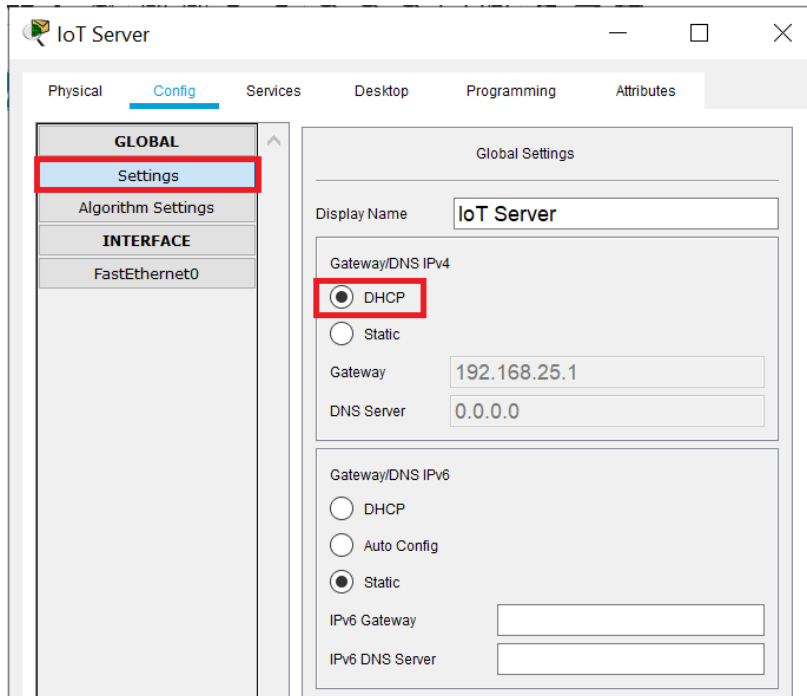


# IoT SERVER pada Smart Home

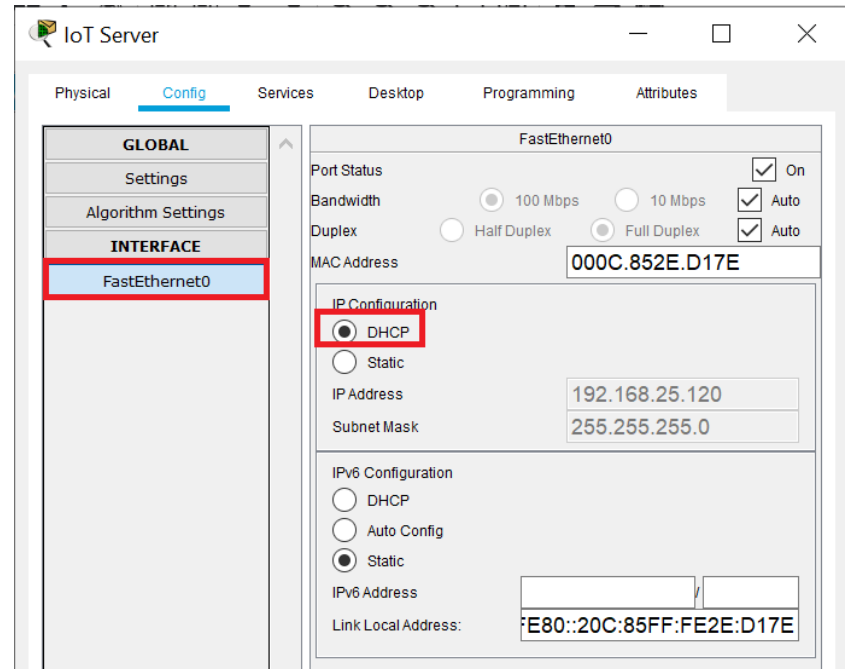


# Setting Interface pada IoT Server

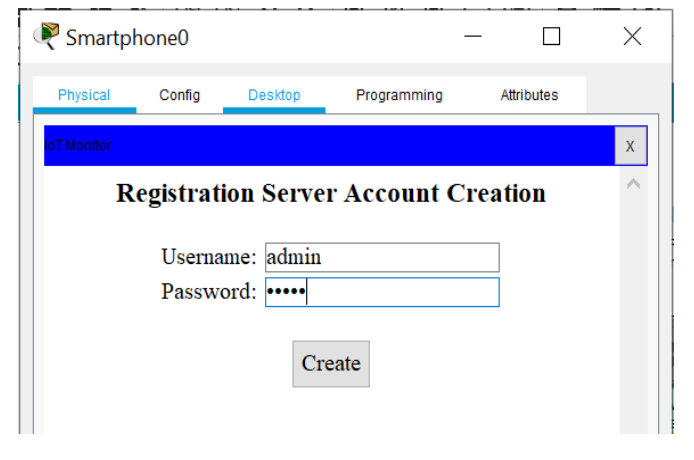
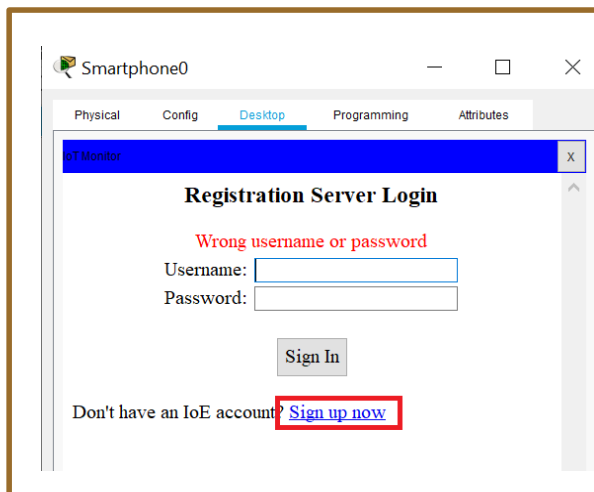
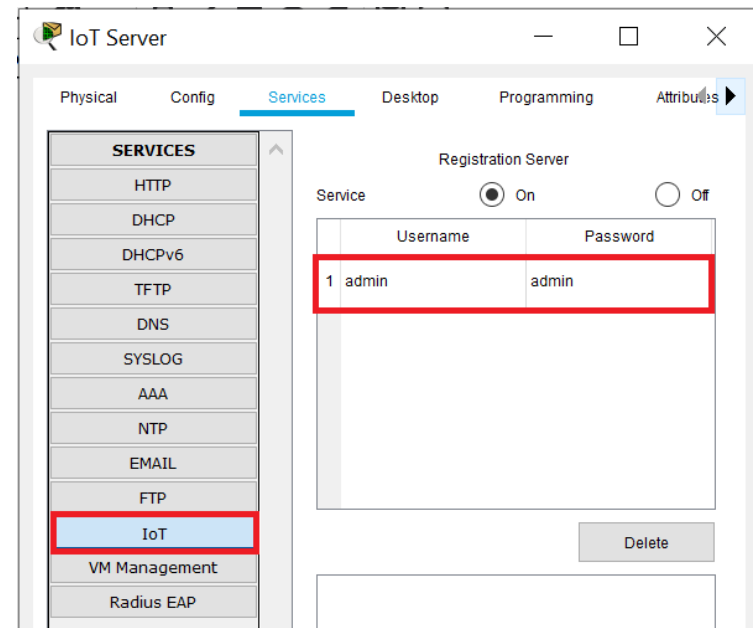
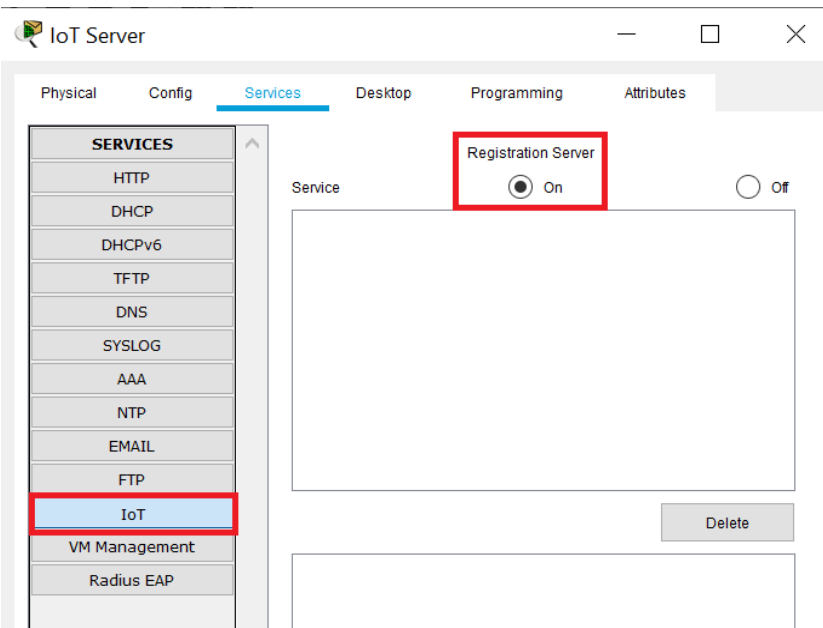
## Setting IP GW dengan DHCP



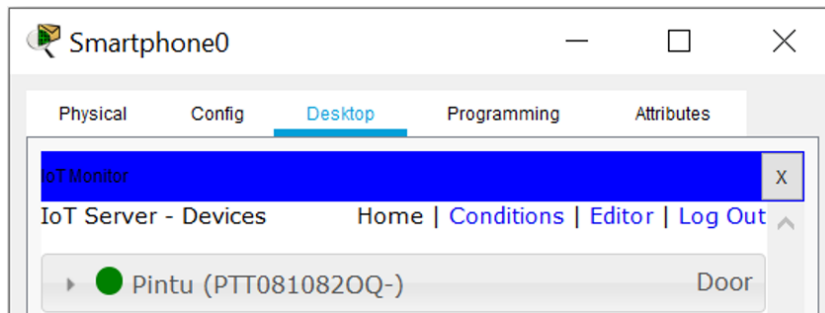
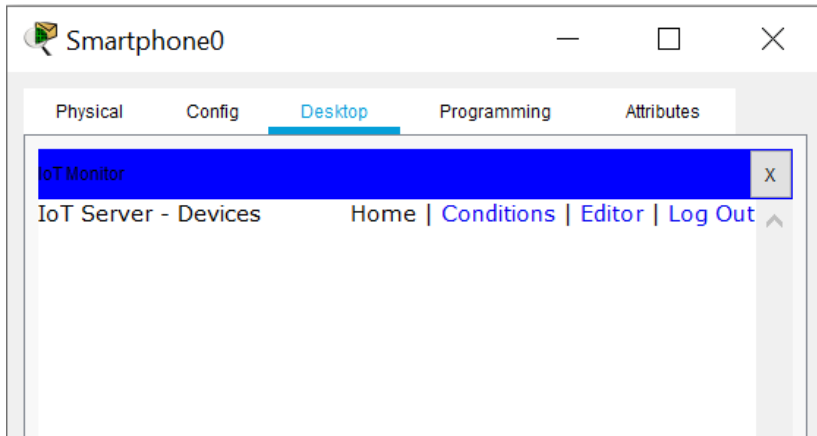
## Setting Interface dengan DHCP



# Setting Aplikasi IoT pada Server

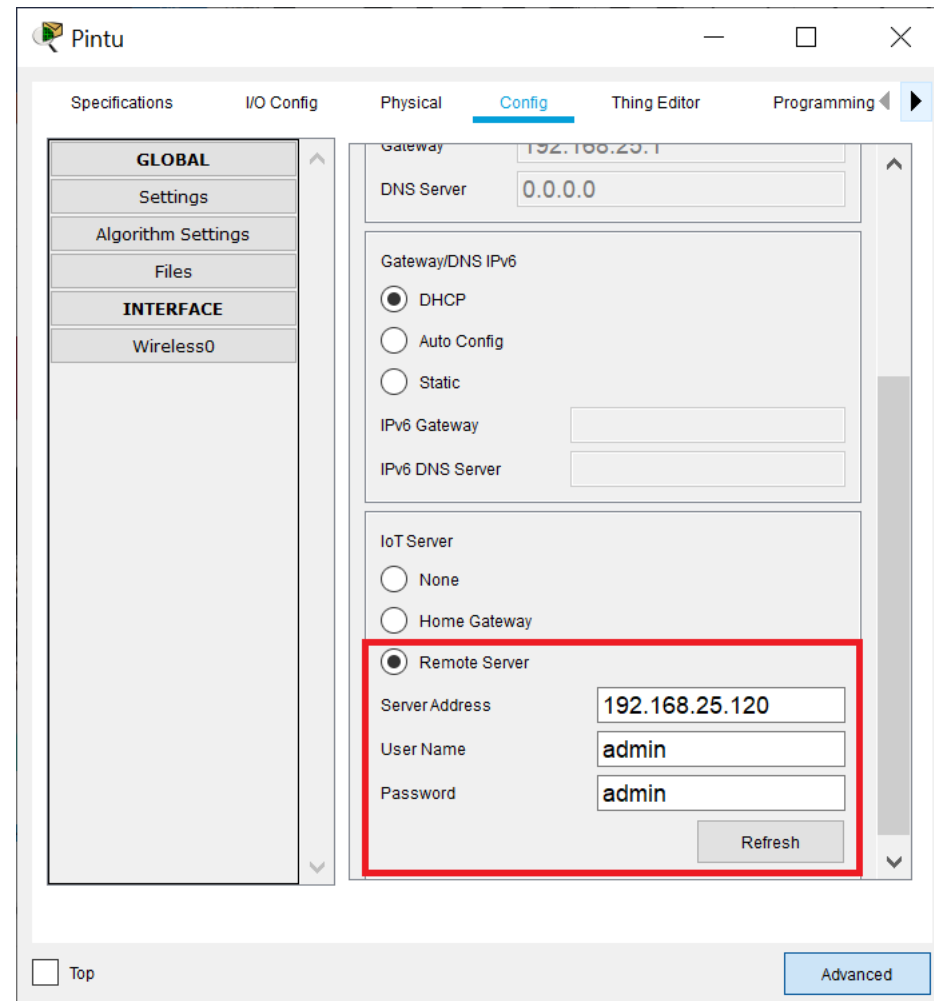


# Setting Perangkat IoT



Lakukan hal yang sama pada semua perangkat IoT

## Setting perangkat IoT: "Pintu"



# TUGAS

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- Desainlah sebuah smart environment:
  - Smart Home
  - Smart Office
  - Smart Agriculture
  - Smart Factory
- Setting seperti contoh sebelumnya menggunakan “HomeGateway”
- Gantilah HomeGateway tersebut dengan perangkat:
  - IoT Server
  - Access Point

# TUGAS

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- Buatlah laporan resmi dengan melampirkan:
  - Desain dan penjelasannya di file word
  - Desain di packet tracer
  - Terakhir pengumpulan: hari Sabtu jam 23.59
- Upload di:  
[https://drive.google.com/drive/folders/1X0\\_PyMb2b4Hkpr7wdHQb6yGpUy9pkIIg?usp=sharing](https://drive.google.com/drive/folders/1X0_PyMb2b4Hkpr7wdHQb6yGpUy9pkIIg?usp=sharing)