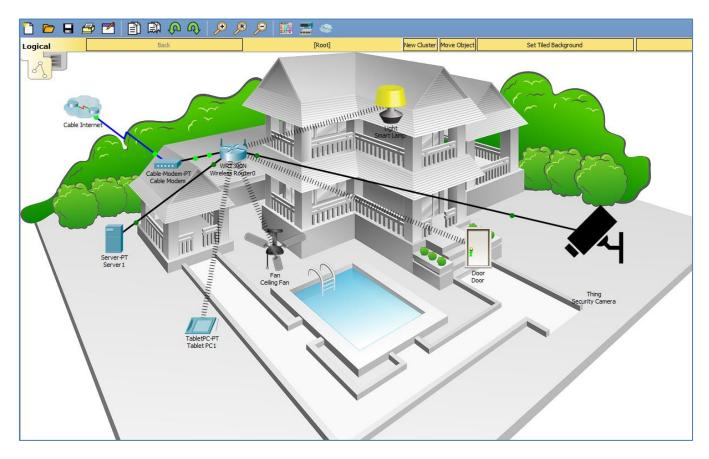
# Packet Tracer – Modify Your Thing

## The Smart Home Network



## Objectives

Part 1: Modify Your Thing

Part 2: Test Modified Thing

## **Background / Scenario**

In this activity you will modify the security camera IoT device created in the previous activity.

## Part 1: Modify Your Thing

## Step 1: Open the Modify Your Thing.pkt file and save the file to your computer.

## Step 2: Add additional device icon.

Select the **Security Camera** on the Packet Tracer workspace to open the device configuration window.

Click on **Advanced** button in the bottom right of the device configuration window, then click on **Thing Editor** Tab, and then the **Properties** tab.

🥐 Security Camera	-		×
Specifications         I/O Config         Physical         Config         Desktop         Thing Editor         Programming         Attributes			
Properties Layout Rules			
Component Name: Security Camera	Remove	e	
Slot Mapping			
O None			
New O Digital			
Slot 1			
Add Component			

Click on the **New** button.

The Choose Image window will open allowing you to browse for a new icon. Select a different image for the security camera for when it is activated.

🥐 Secuirty Camera	_		×
Specifications I/O Config Physical Config Desktop Thing Editor Programming Attributes			
Properties Layout Rules Component Name: Security Camera	Remove	2	
Image: Solution of the second seco			
Add Component			

Next, click on the  $\ensuremath{\textbf{Rules}}$  tab.

Click the Add Button.

Secuirty Cam	era							-	
pecifications	I/O Config	Physical	Config	Desktop	Thing Editor	Programming	Attributes		
Properties	Layout	Rules							
	Sub Compor	nent		Slot Value			Image		
1									
	Remo	ve							
Add									
Add									

Click in the **Sub Component** column and select Security Camera in the drop down menu.

The Slot Value should change to LOW and the Image should show the security camera image that will be used as the icon when the camera is deactivated.

Pro	operties Layout Rules		
	Sub Component	Slot Value	Image
1	Security Camera	LOW	<b>≮</b> 4

Click the Add Button again.

Click in the **Sub Component** column and select Security Camera in the drop down menu.

Click in the **Slot Value** column and select **HIGH** and click in the **Image** column and select the second security camera image that will be used as the activated icon.

Propertie	es Layout Rules		
	Sub Component	Slot Value	Image
1	Security Camera	LOW	K
2	Security Camera	HIGH	A

#### Step 3: Copy programming code to the security camera.

a. View the existing programming code.

Click on the **Programming** tab.

đ	🖲 Security Cam	iera									_	×
	Specifications	I/O Config	Physical	Config	Desktop	Thing Editor	Programming	Attributes				
	No Project Opened       Open       New       Delete       Rename       Import         Install to Desktop       Run       Clear Outputs       Help											
	Blink (Javas com.cisco.m com.cisco.m	ngttbroke										
	com.cisco.ii	Iqueenerit										

Notice there is no code yet for the device.

Minimize the Security Camera configuration window.

b. Copy code from existing Packet Tracer IoT device.

Add the Motion Detector IoT Device to the Packet Tracer Workspace.

- <b>- -</b>
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Click on the **Motion Detector** to open the device configuration window, click on **Advanced** button, then click on **Programming** tab.

In the Programming tab, click on Motion Detector (JavaScript) in the Left Pane and click Open.

Red Motion De	tector		_		×					
Specification	Specifications I/O Config Physical Config Thing Editor Programming Attributes									
Open N										
	Motion Detector (JavaScript) * Motion Detector (Python)									

Then click on **main.js** in the Left Pane and click **Open**. This opens the code associated with the Motion Detector in the code edit window to the right.

🤻 Motion Detector	- 🗆 X
Specifications I/O Config Physical Confi	Thing Editor Programming Attributes
Motion Detector (JavaScript) - main.js	
Open New Delete Rename Import	Run Clear Outputs Help
	Reload Copy Paste Undo Redo Find Replace Zoom: + -
main.js	var DEACTIVATE TIMER = 5; // in seconds
2	
3	<pre>var current_time = 0;</pre>
4	
	<pre>* function setup() {</pre>
	<pre>v IoEClient.setup({</pre>
8	-11
	* states: [{
10	
11	
12	
14	
15	
16	
10	

To select all the programming script, click in the code edit window and type **Ctrl+a** on the keyboard. Once all script is selected, click **Copy** in the code edit window menu.

Motion [	Detect	or (Java	Script) - r	nain.js							-			
Open	New	Delete	Rename	Import			1	-			Run	Clear C	Outputs	Help
 main.is		1				1	Reload Co	opy Paste	Undo	Redo	Find	Replace	Zoom:	+ -
main.js			1		IVATE_TIMER	= 5; //	in second	da						
			2	var state										
			3	var curren	nt_time = 0;	£2								
			4	function a	internet 1									
			6	runceron a	becup() [									
			7 *	IOEC1:	ient.setup(	E								
			8	5	pe: "Motion	n Detecto	r",							
			9 -	81	tates: [{									
			10		name: "Or									
			11		type: "be controlle		220							
			13	31		abre: rei	ae.							
			14	));	13									
			15	0.125										
			16	state	= restoreP:	roperty("	state", (	0);						
			17	setSta	ate (state);									
			18	ł										
			19	Function .	restoreProp			defeniet.	Zo Zotovik (					
			21 -		rescorerrop	erey (prop	erežuane.	, derautes	varue)					
			22	1C	alue = getDe	eviceProp	erty(get)	Name(), pr	ropertyNa	ame);				
			23 -		(value									
			24		f ( typeof(			"number" )	1					
			25		value = 1	Number (va	lue);							
			26 27		tDevicePro	on the loss	Name ()	n non o stadio		101.0				
			28		turn value		name (7, 1	propercyna	une, valu	ue);				
		4	29	1	reader value,	2.6								×

Close the motion detector configuration window.

c. Paste copied code to the security camera IoT device.

Open the Security Camera window and select the **Programming** tab if not already selected.

Click the **New** project button above the left pane.

Security Camera									_	>
Specifications I/	O Config	Physical	Config	Desktop	Thing Editor	Programming	Attributes			
No Project Opened Open New Delete Rename Import Install to Desktop Run Clear Outputs Help										
Blink (JavaScrip com.cisco.mqttl com.cisco.mqtt	broke									

This opens the Create Project window.

🥐 Security Camera		– 🗆 X
Specifications I/O Config Physical	Config Desktop Thing Editor Programming	Attributes
No Project Opened Open New Delete Rename Im Blink (JavaScript) com.cisco.mqttbrokk com.cisco.mqttclient	port	Install to Desktop Run Clear Outputs Help
	Create Project Enter a project name and select the provide Name: New Project (a) Template Empty - JavaScript (c) Global Script Project MQTT Broker - (Python) Create	>ject type.
Serial Outputs		

In the Create Project window, create a new programming project named Security Camera by typing Security Camera in the **Name** box and clicking **Create**.

Create Project X
Enter a project name and select the project type. Name: Security Camera
Template
Empty - JavaScript 🔹
🔿 Global Script Project
MQTT Broker - (Python) 🔻
Create Cancel

To view the new project just created click on the .. in the left pane and click **Open**.

Security Camera					>
Specifications I/O Config	Physical Config	Desktop Thing Edito	r Programming	Attributes	
Security Camera (Java Open New Delete				Install to Desktop F	Run Clear Outputs Help

Notice there is now a Security Camera (JavaScript) project in the left pane. Click on Security Camera project and click **Open**.

🌾 Security Can	nera								-		×
Specifications	I/O Config	Physical	Config	Desktop	Thing Editor	Programming	Attributes				
No Project Open Nev		Rename I	mport				Install to Desktop	Run	Clear Outp	outs H	elp
com.cisco.r	Script) amera (Javas ngttbroker (F ngttclient (Py	Python)									

Now click main. js and click Open.

🖗 Security Camera	- 🗆 X
Specifications I/O Config Physical Config Desktop Thing Editor	Programming Attributes
Security Camera (JavaScript) Open New Delete Rename Import	Install to Desktop Run Clear Outputs Help
main.js	

You can now paste the copied code from the Motion Detector into the code edit window on the right.

Click in the code edit window and click on the **Paste** button to paste in the copied code.

Open New	Delete	Rename	Import Install to Desktop Run Clear Outputs	Help
 main.js	^		Reload Copy Paste Undo Redo Find Replace Zoom: +	•
nannja			<pre>var DEACTIVATE_TIMER = 5; // in seconds</pre>	1
			<pre>var state = 0; var current time = 0;</pre>	
		4	var currenc_crme = 0,	
		5 -	<pre>function setup() {</pre>	
		6		
		7 *	IoEClient.setup({	
		8 9 <del>-</del>	type: "Motion Detector", states: [{	
		10	name: "On",	
		11	type: "bool",	
		12	controllable: false	
		13	31	
		14 15	});	
		16	<pre>state = restoreProperty("state", 0);</pre>	
		17	setState(state);	
		18	}	
		19		
		20 21 -	<pre>function restoreProperty(propertyName, defaultValue) f</pre>	
		22	<pre>var value = getDeviceProperty(getName(), propertyName);</pre>	
		23 -	if ( !(value === ""    value == "undefined") ){	
		24	<pre>if ( typeof(defaultValue) == "number" )</pre>	
		25	<pre>value = Number(value);</pre>	
		26 27	<pre>setDeviceProperty(getName(), propertyName, value);</pre>	
		28	return value;	
	$\sim$	29	}	1

### Step 4: Edit the security camera programming code

The code copied from the Motion Detector needs to be edited to change the type to Security Camera Click on the line that identifies the device and change the name.

7 -	IoEClient.setup({
8	type: "Motion Detector",
9 -	states: [{
10	name: "On",
11	type: "bool",
12	controllable: false
1.0	2.2

Change "Motion Detector" to "Security Camera"

7 -	IoEClient.setup({
8	type: "Security Camera",
9 *	states: [{
10	name: "On",
11	type: "bool",
12	controllable: false
1.0	11

Run the program by clicking on the **Run** button.

Security Camera (JavaScript) - main.js Open New Delete Rename Import  main.js 1 var DEACTIVATE_TIMER = 5; // in 2 var state = 0; 3 var current_time = 0; 4 5 ~ function setup() {	
<pre>main.js 1 var DEACTIVATE_TIMER = 5; // in 2 var state = 0; 3 var current_time = 0; 4 5 function setup() { 6</pre>	
<pre>7 V IoEClient.setup{{ 8 type: "Security Camera", 9 v states: [{ 10 name: "On", 11 type: "bool", 12 controllable: false 13 }] 14 }); 15 16 state = restoreProperty("stat 17 setState(state); 18 } 19 20 function restoreProperty(propert 21 v { 22 var value = getDeviceProperty(propert 23 v if ( !(value === ""    value 24 if ( typeof(defaultValue 25 value = Number(value 26 value = Number(value 26 value = Number(value 26 value = Number(value 27 setDeviceProperty(getNam 28 return value; 29 } Serial Outputs</pre>	<pre>te", 0); yName, defaultValue) y(getName(), propertyName); == "undefined") ){ } == "number" )</pre>

Close the Security Camera configuration window.

## Part 2: Test Modified Thing

#### Step 1: Access the Registration Server from the Tablet PC.

Click on the Tablet-PC to open the configuration window. Click on the **Desktop** tab, and select the **Web Browser** icon.

In the web browser window type in the URL of the registration server 192.168.0.106 and click **Go**. In the Registration Server Login window type in the following credentials and click **Sign In**.

Tablet PC1	—		)
Physical Config Desktop Programming Attributes			
Web Browser			Х
< > URL http://192.168.0.106	Go	Stop	
Registration Server Login			^
Username: cisco			
Password: ••••••			
Sign In			

In the Server-Devices Window click on the Security Camera to expand the device information. Notice the Security Camera is On but not activated.

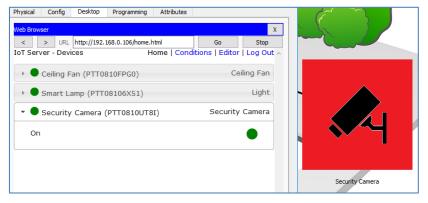


#### Step 2: Activate the Security Camera.

Move the Tablet configuration window out of the way but still visible so that the Packet Tracer workspace is visible.

Hold down the Alt key on the keyboard and move the mouse curser over the Security Camera icon.

Notice the icon will change to the image used as the activated icon and the Security Camera status changes to activated indicated by the green dot in the Server-Devices list on the Registration Server.



#### Step 3: Experiment.

Experiment by adding other types of IoT devices and editing the programming of those devices to perform different functions.

#### Step 4: Close Packet Tracer.