

Node-RED





Node-RED

❖ Node-RED

- ▶ Node.js is a run-time interpreter of JavaScript packages and has become popular for development.
- ▶ You will quickly come to rely on it if you have not already!
- ▶ Node-RED really shows off the versatility of node and is emerging as a leading means of developing IoT applications
- ▶ It's a form of "drag-and-drop" programming





Node-RED

❖ Initial Setup

▶ Install Node-RED Packages

```
↳ $ dnf update  
↳ $ dnf install node  
↳ $ dnf install npm  
↳ $ npm -g install node-red  
↳ $ npm -g install node-red-contrib-artik  
↳ $ npm -g install node-red-contrib-artik-cloud
```



Node-RED

❖ Initial Setup

▶ Install Node-RED Packages

↳ # dnf install node npm

```
[root@localhost ~]# dnf install node npm
Last metadata expiration check: 1:19:48 ago on Sat Jan 21 10:31:45 2017.
Dependencies resolved.
=====
 Package           Arch      Version       Repository   Size
=====
Installing:
 libax25          armv7hl  1.0.5-2.fc24    fedora      41 k
 node             armv7hl  0.3.2-19.fc24   fedora      66 k
 npm              armv7hl  1:2.15.11-3.fc24  updates     24 k
 xinetd           armv7hl  2:2.3.15-17.fc24  fedora     124 k
Upgrading:
 nodejs           armv7hl  1:4.7.2-3.fc24   updates     5.6 M
Transaction Summary
=====
Install 4 Packages
Upgrade 1 Package

Total download size: 5.9 M
Is this ok [y/N]: y
```



Node-RED

❖ Initial Setup

▶ Install Node-RED Packages

```
↳ # npm -g install node-red node-red-contrib-artik node-red-contrib-artik-cloud
```

```
[root@localhost ~]# npm -g install node-red node-red-contrib-artik node-red-contrib-artik-cloud
|
> epoll@0.1.20 install /usr/lib/node_modules/node-red-contrib-artik/node_modules/onoff/node_modules/epoll
> node-gyp rebuild

gyp [WARN] EACCES user "root" does not have permission to access the dev dir "/root/.node-gyp/4.7.2"
gyp [WARN] EACCES attempting to reinstall using temporary dev dir "/usr/lib/node_modules/node-red-contrib-artik/node_modules/onoff/node_modules/epoll/.node-gyp"
make: Entering directory '/usr/lib/node_modules/node-red-contrib-artik/node_modules/onoff/node_modules/epoll/build'
  CXX(target) Release/obj.target/epoll/src/epoll.o
  SOLINK_MODULE(target) Release/obj.target/epoll.node
  COPY Release/epoll.node
make: Leaving directory '/usr/lib/node_modules/node-red-contrib-artik/node_modules/onoff/node_modules/epoll/build'
npm [WARN] deprecated node-uuid@1.4.7: use uuid module instead
npm [WARN] deprecated i18next-client@1.10.3: you can use npm install i18next from version 2.0.0
\
> bcrypt@1.0.2 install /usr/lib/node_modules/node-red/node_modules/bcrypt
> node-pre-gyp install --fallback-to-build
```



Node-RED

❖ Starting Node-RED

- ▶ Node-RED is a server running on ARTIK, and a Web browser on your host PC will be its client
- ▶ Therefore, your computer must be connected to the **same** Wi-Fi network as the ARTIK Wi-Fi

```
[root@localhost ~]# ifconfig wlan0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
      inet 192.168.10.45 netmask 255.255.255.0 broadcast 192.168.10.255
        inet6 fe80::722c:1fff:fe23:e315 prefixlen 64 scopeid 0x20<link>
          ether 70:2c:1f:23:e3:15 txqueuelen 1000 (Ethernet)
            RX packets 91038 bytes 79257264 (75.5 MiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 47739 bytes 5864340 (5.5 MiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```



Node-RED

❖ Starting Node-RED

▶ Start Node-RED

↳ \$ node-red &

```
[root@localhost ~]# node-red &
[1] 14662
[root@localhost ~]# 21 Jan 12:06:54 - [info]

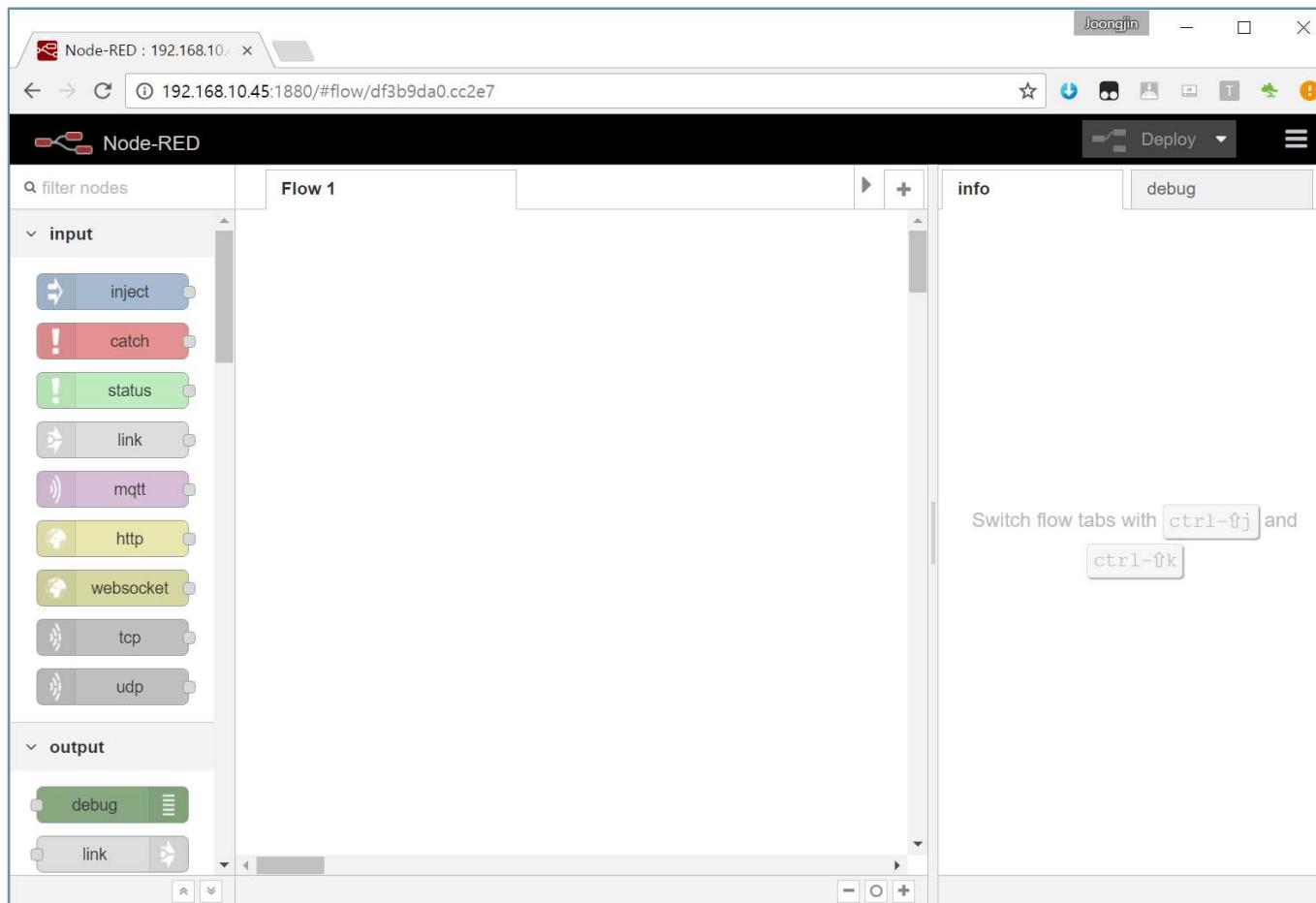
Welcome to Node-RED
=====
21 Jan 12:06:54 - [info] Node-RED version: v0.16.1
21 Jan 12:06:54 - [info] Node.js  version: v4.7.2
21 Jan 12:06:54 - [info] Linux 4.1.15-0710GC0F-41F-01Q6 arm LE
21 Jan 12:06:55 - [info] Loading palette nodes
21 Jan 12:07:01 - [warn] -----
21 Jan 12:07:01 - [warn] [rpi-gpio] Info : Ignoring Raspberry Pi specific node
21 Jan 12:07:01 - [warn] -----
21 Jan 12:07:01 - [info] Settings file  : /root/.node-red/settings.js
21 Jan 12:07:01 - [info] User directory : /root/.node-red
21 Jan 12:07:01 - [info] Flows file    : /root/.node-red/flows_localhost.json
21 Jan 12:07:01 - [info] Creating new flow file
21 Jan 12:07:01 - [info] Starting flows
21 Jan 12:07:01 - [info] Started flows
21 Jan 12:07:01 - [info] Server now running at http://127.0.0.1:1880/
[1]
```



Node-RED

❖ Starting Node-RED

▶ Connect to Node-RED Server



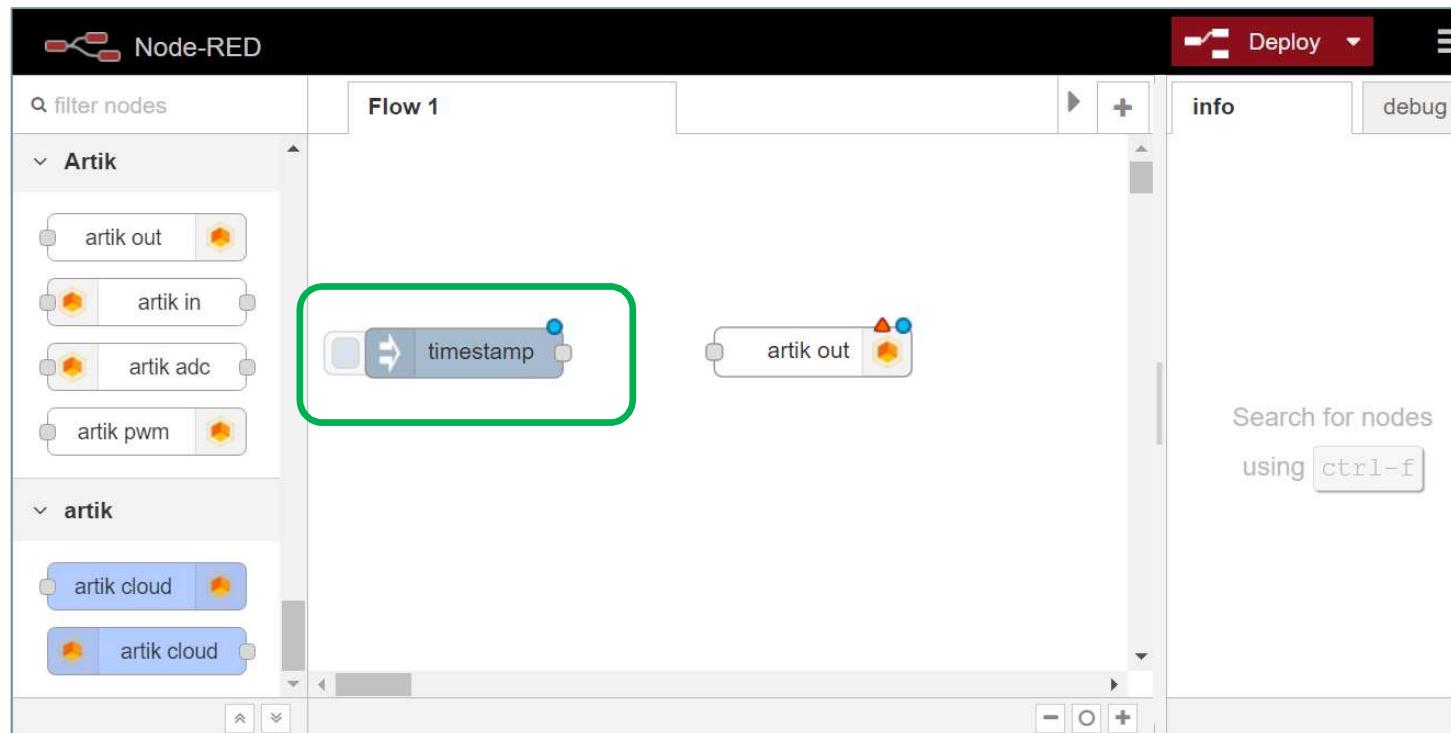
Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)

↳ Select an "Inject" Input node:

- ▶ Click on and drag an **inject** input node from the palette in the left pane to the canvas ("inject" changes to "timestamp").



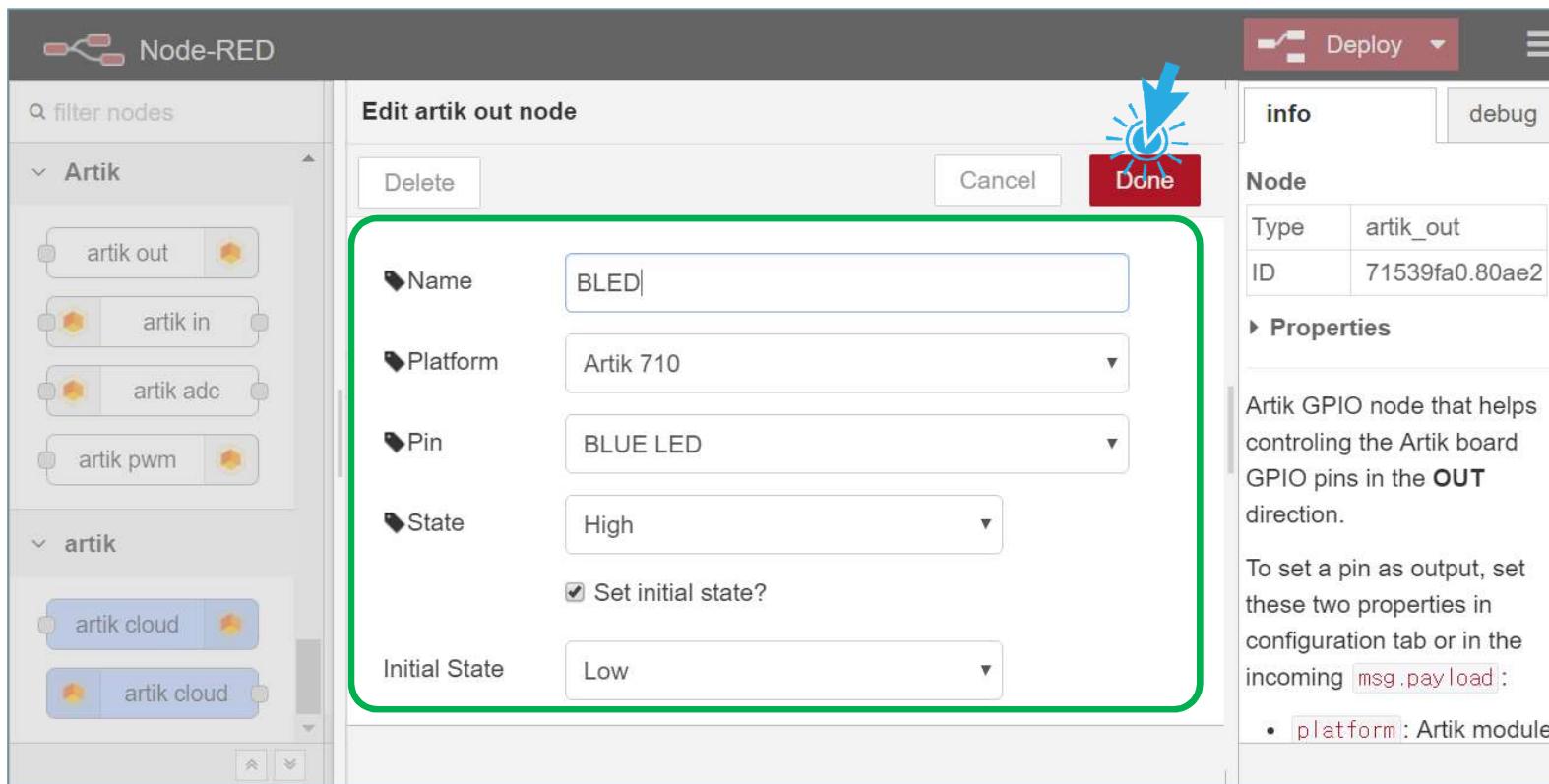


Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)

↳ double click ‘artik out’ and edit





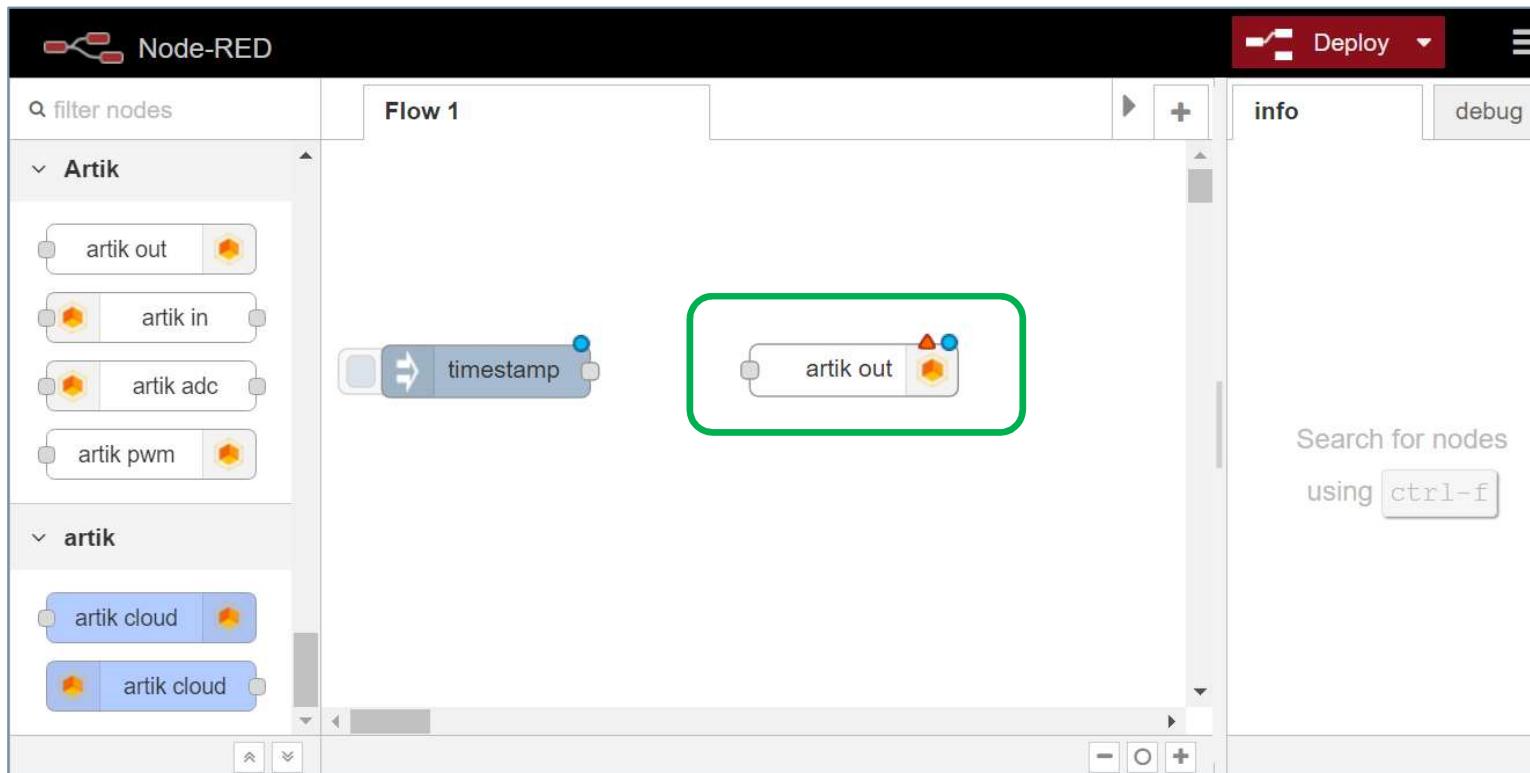
Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)

- ↳ Set up a node to control a GPIO pin as an output

- ▶ Click on and drag an artik out node to the canvas.



Node-RED

❖ Node-RED Application

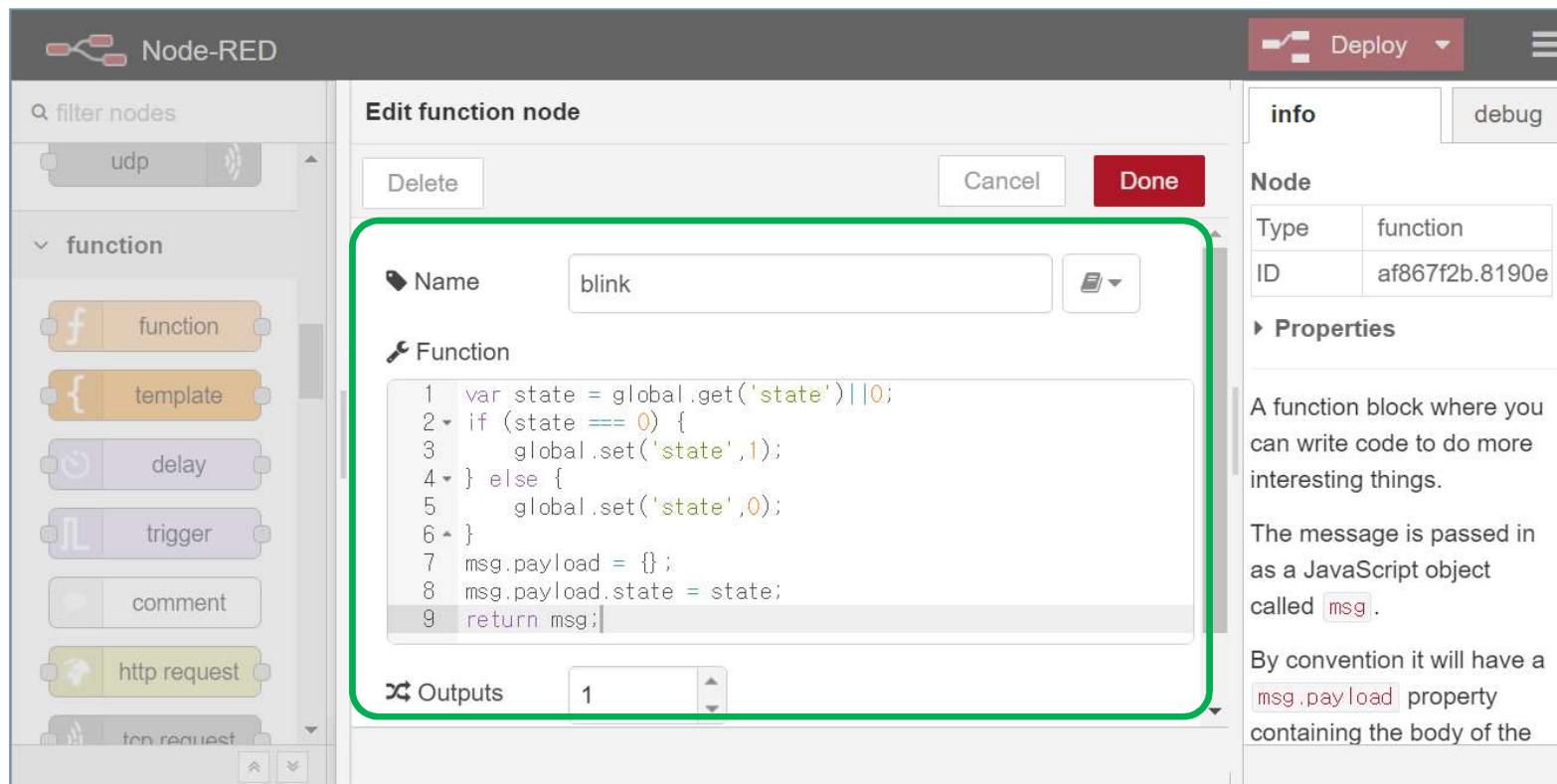
- ▶ Turn on LED (ARTIK 7 Internal LED)
 - ➔ Click on and drag a function node to the canvas.



Node-RED

❖ Node-RED Application

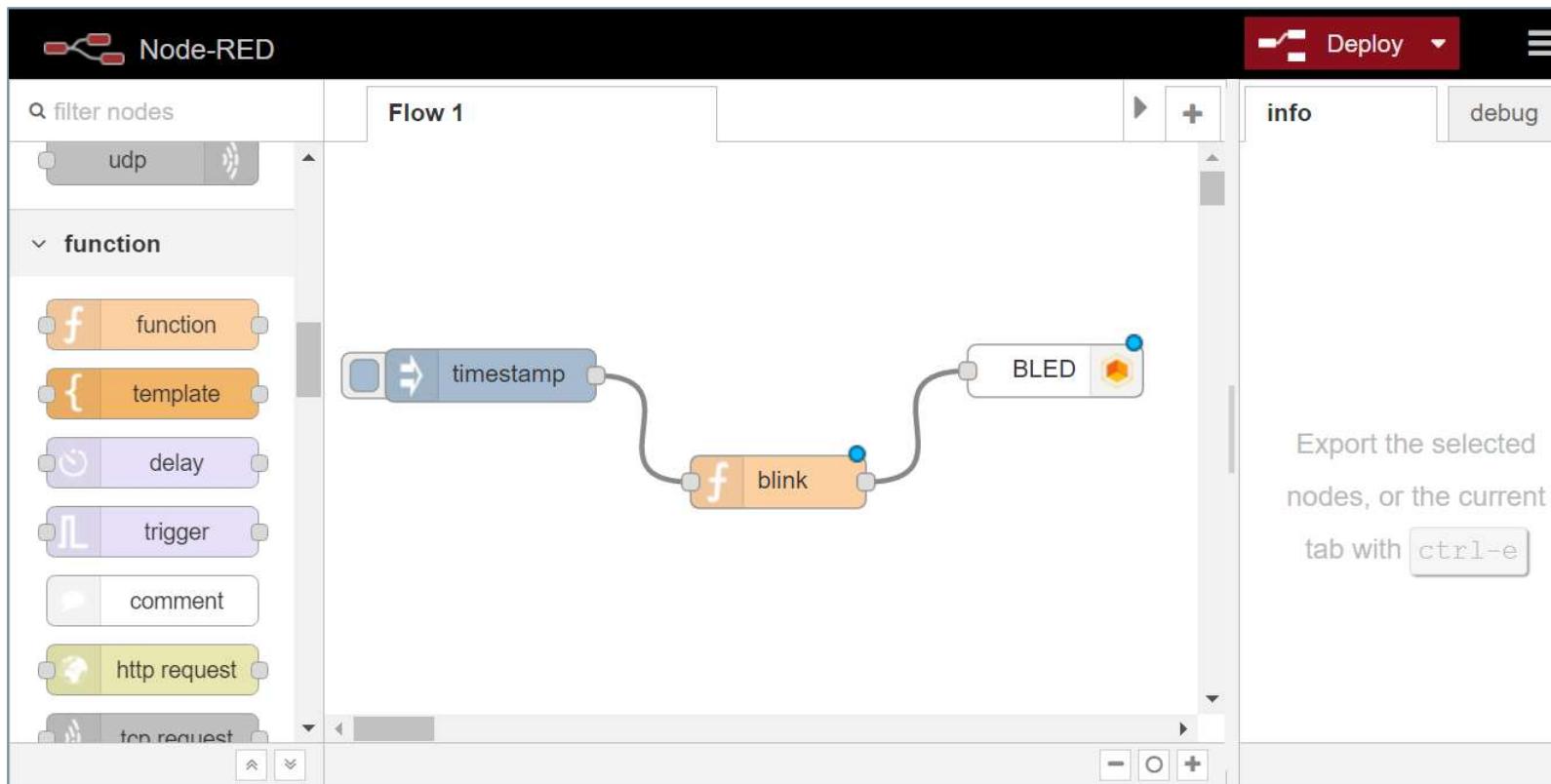
- ▶ Turn on LED (ARTIK 7 Internal LED)
 - ↳ add function node and edit node.js code



Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)
 - ↘ Connect the nodes by dragging a "wire"





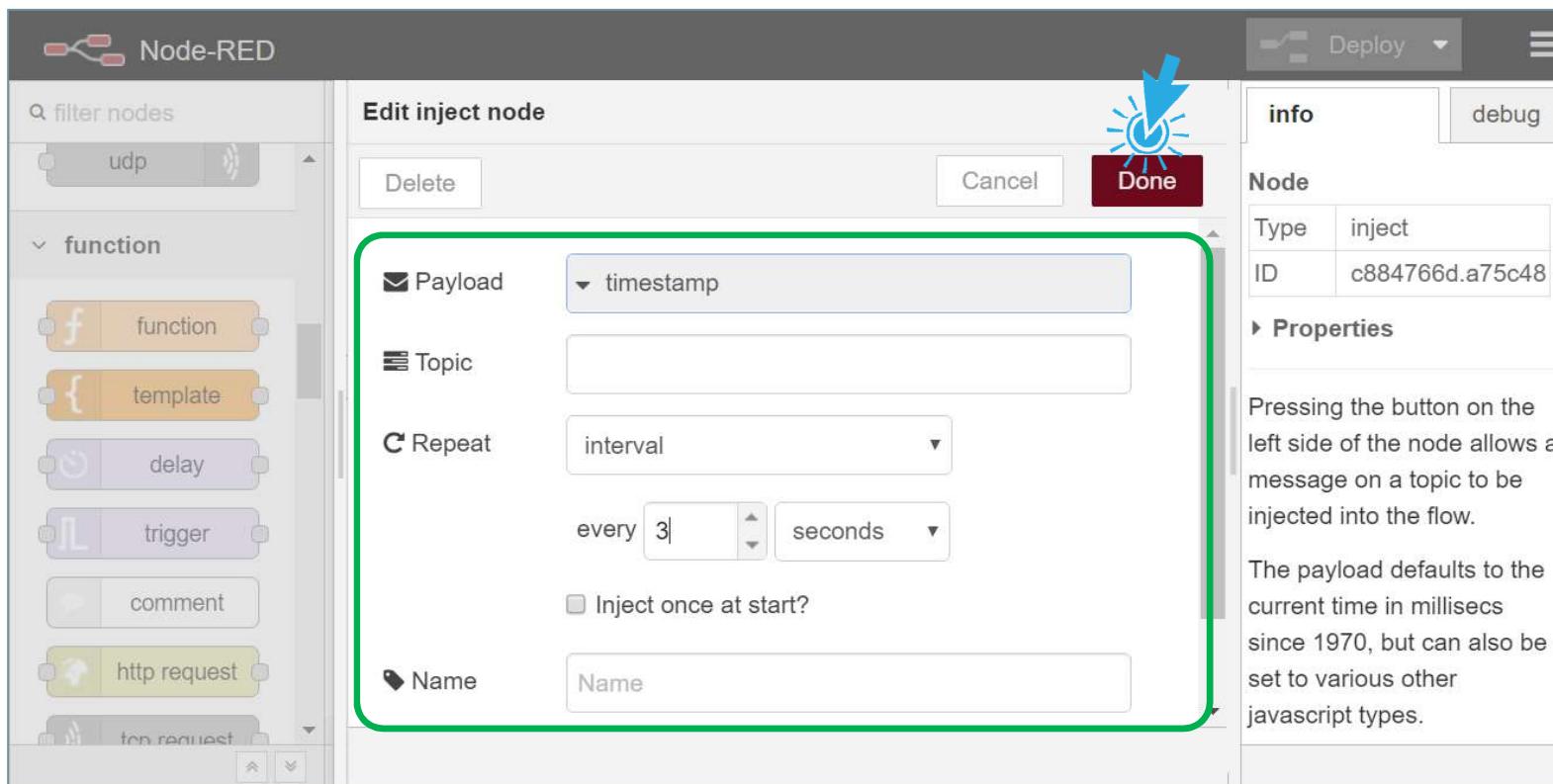
Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)

- ↘ double click 'timestamp' and edit

- ▶ Set Repeat to 'Interval', and make it repeat the flow every 3 second.

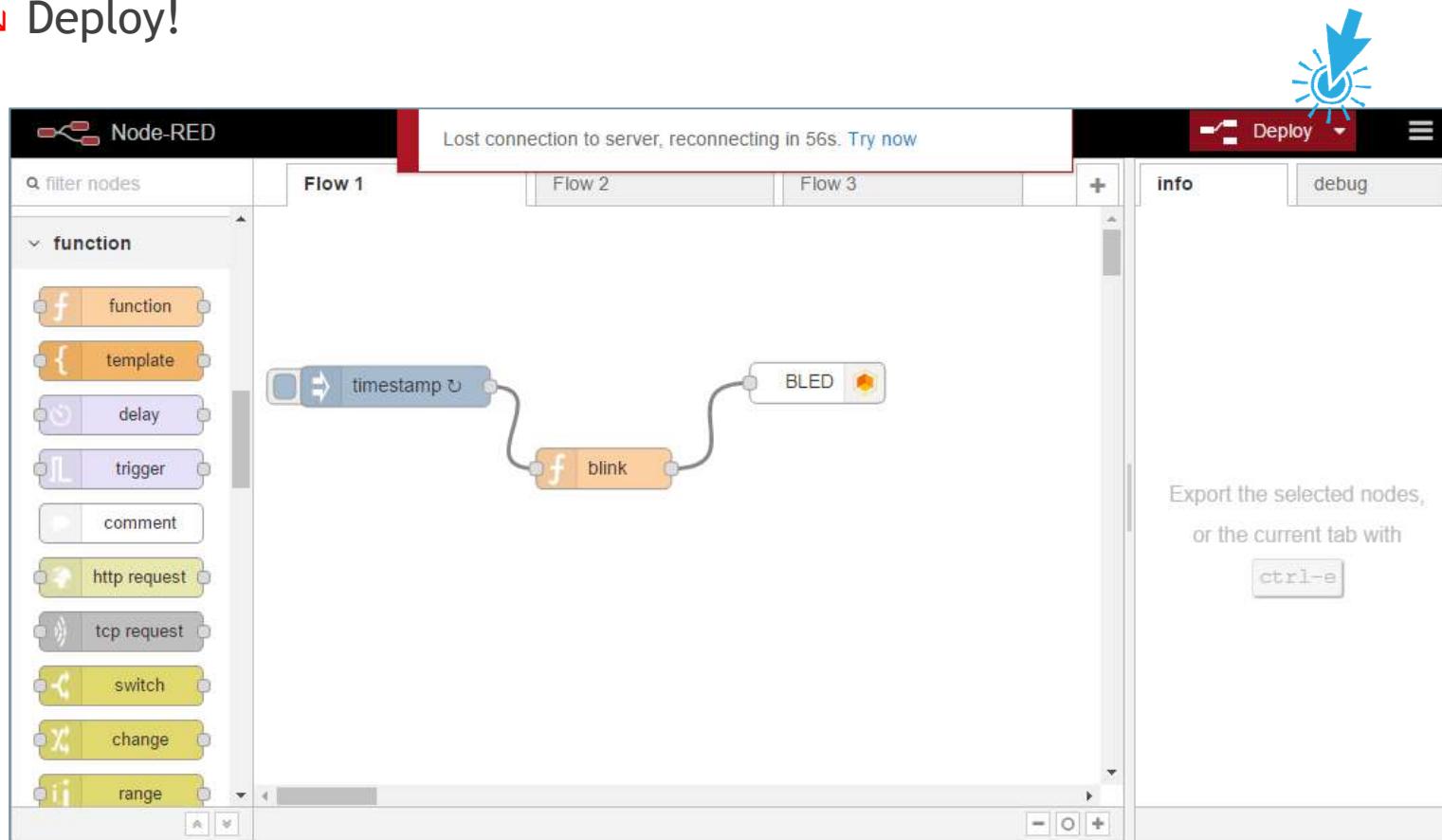


Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)

↵ Deploy!





Node-RED

❖ Node-RED Application

- ▶ Turn on LED (ARTIK 7 Internal LED)

- ↙ node-red log

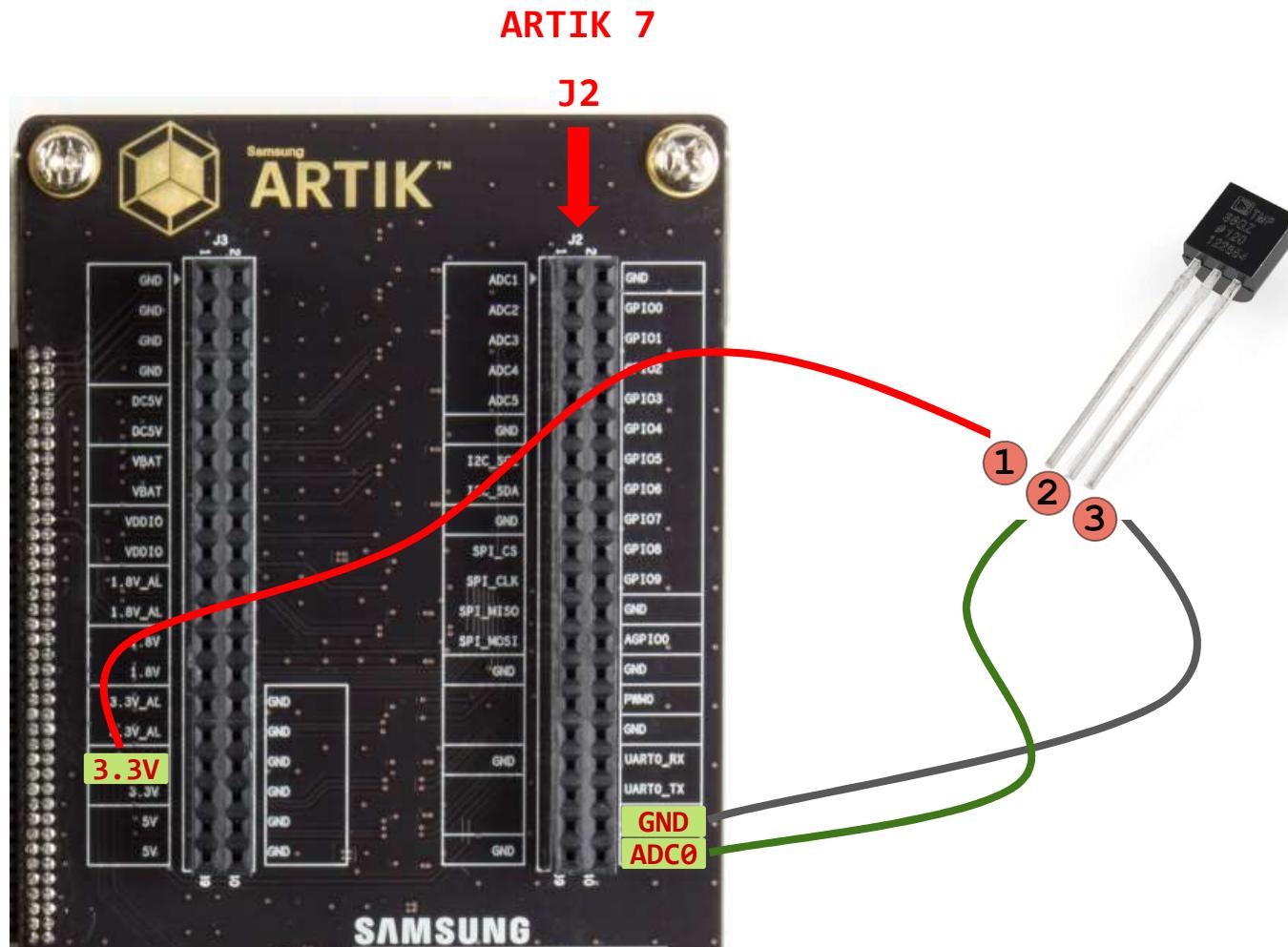
- Watch your LED blinking

```
21 Jan 12:20:13 - [info] Starting flows
21 Jan 12:20:13 - [info] Started flows
21 Jan 12:20:13 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:16 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:19 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:22 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:25 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:28 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:31 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:34 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:20:37 - [info] [artik_out:BLED] Successfully set GPIO pin
```

Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

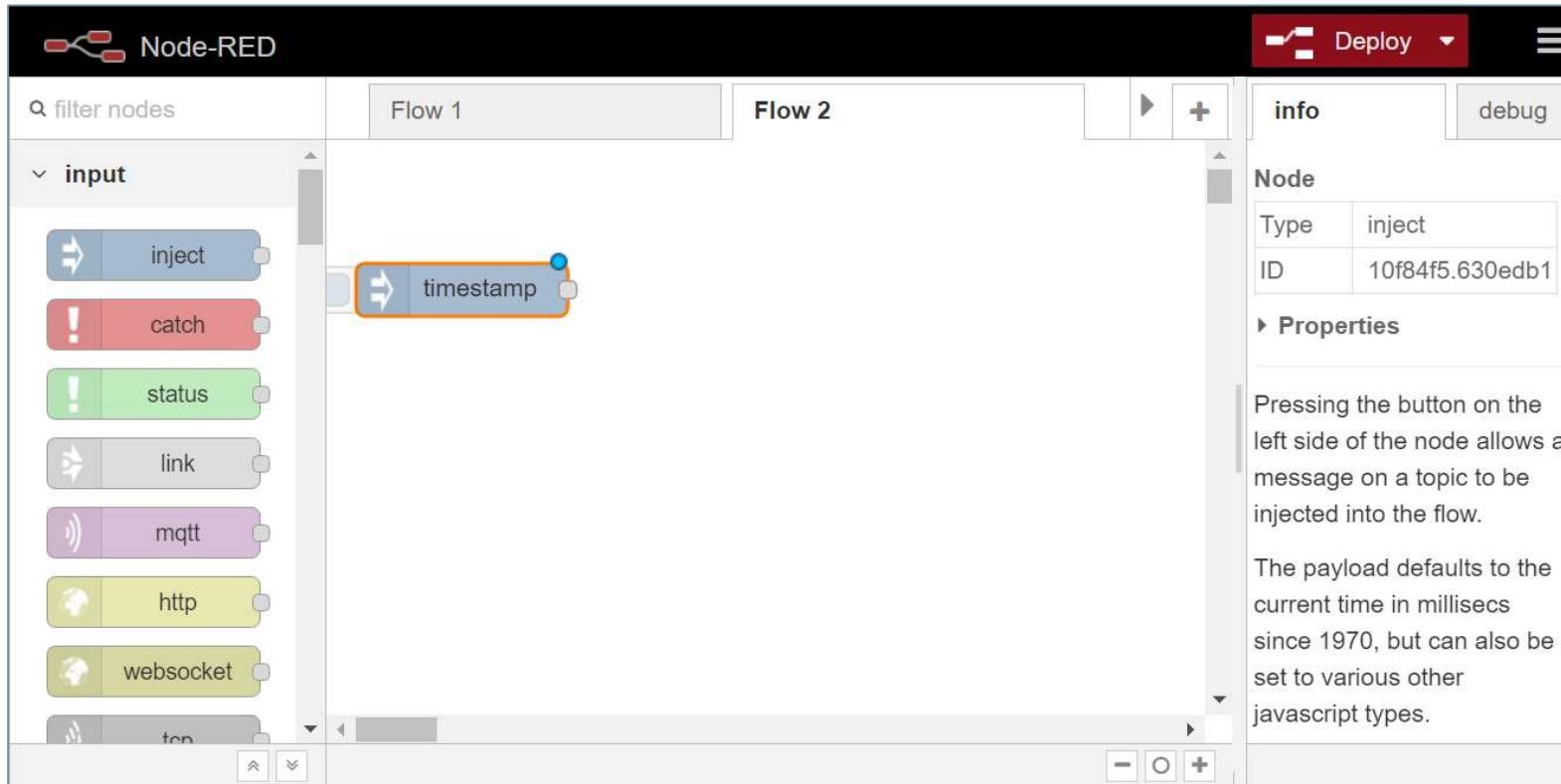


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Add 'inject' node

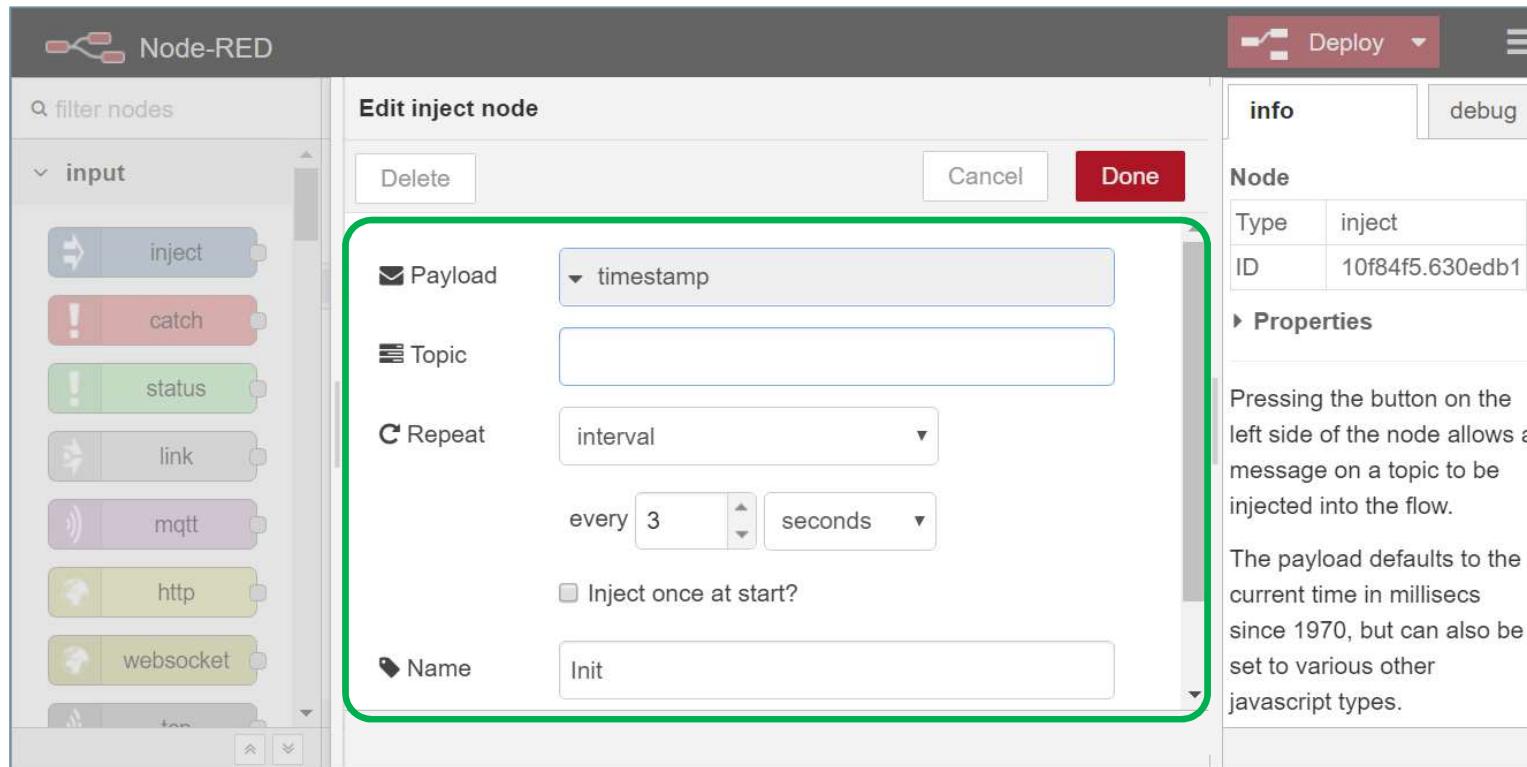


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

↳ Double Click 'inject' node & Edit

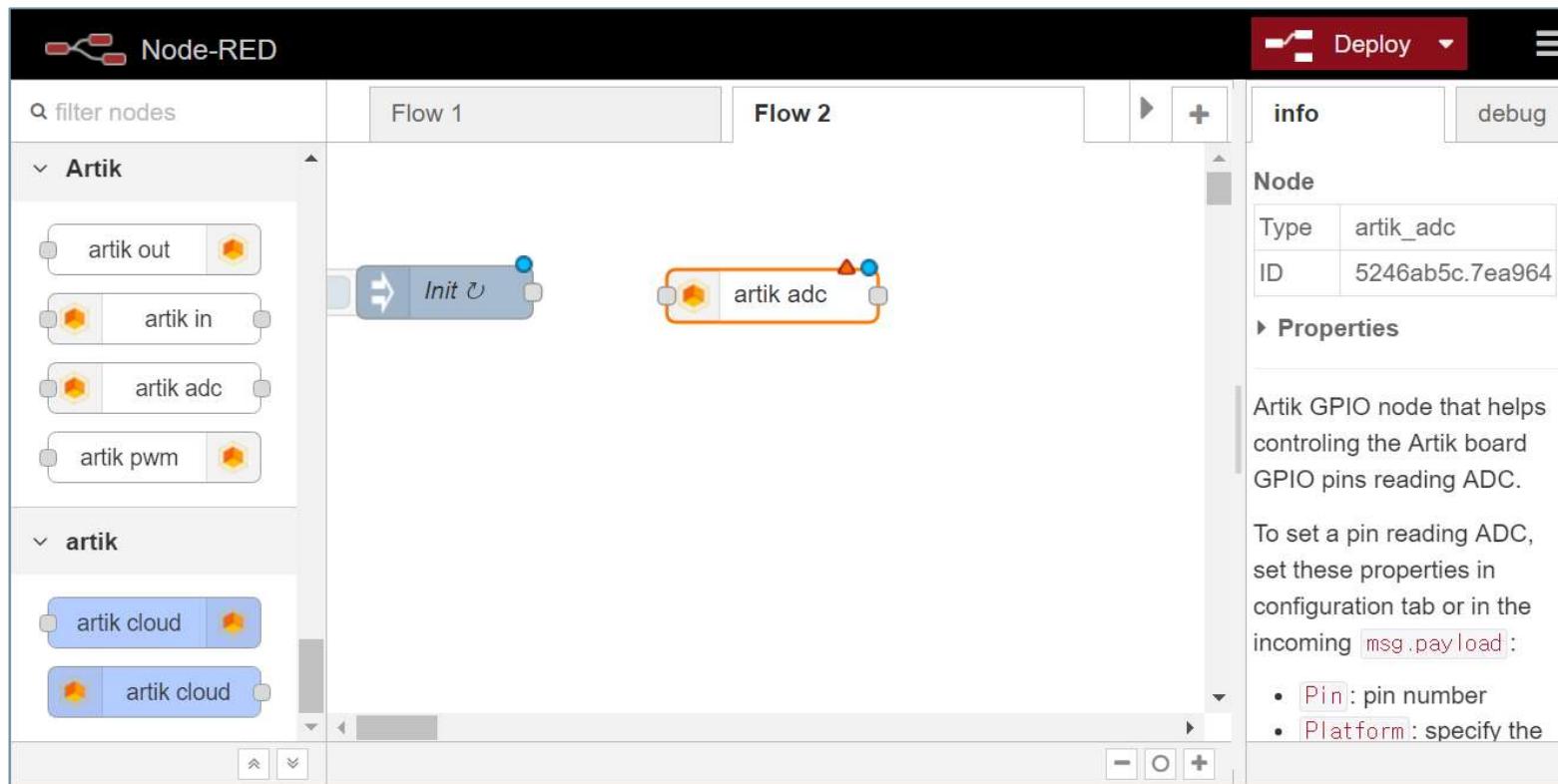


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Add 'artik out' node

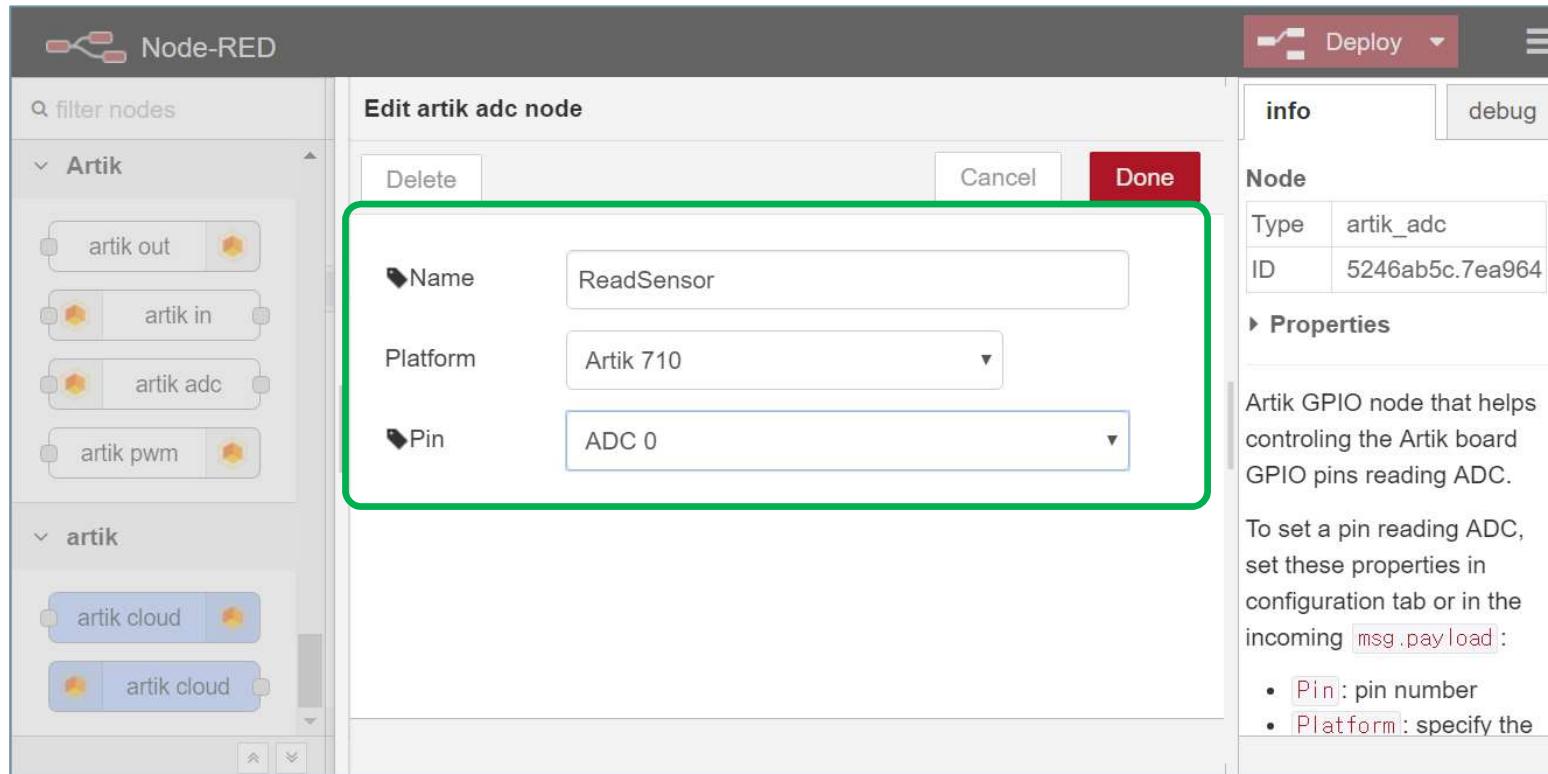


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

↳ Edit 'artik out' node

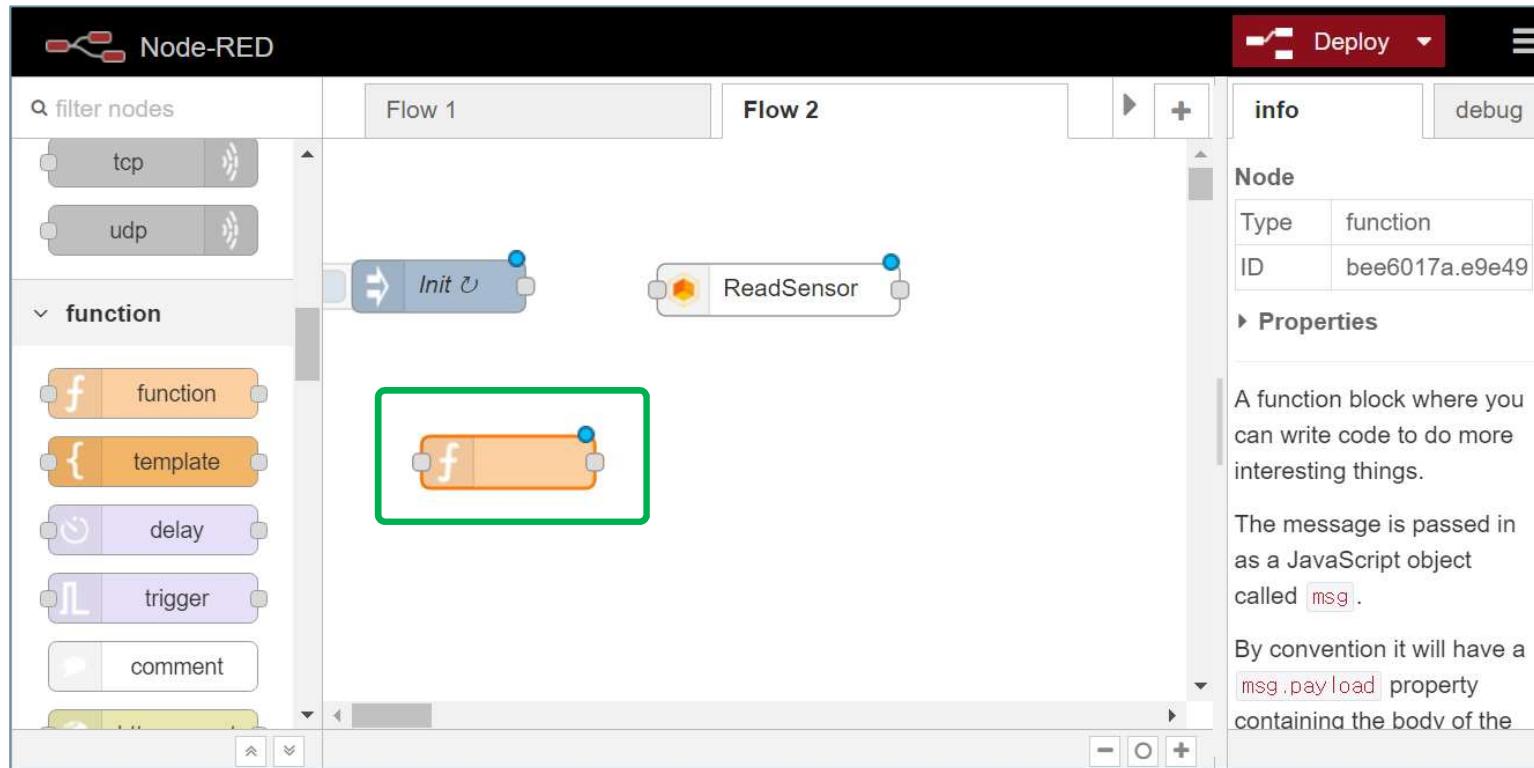


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Add 'function' node

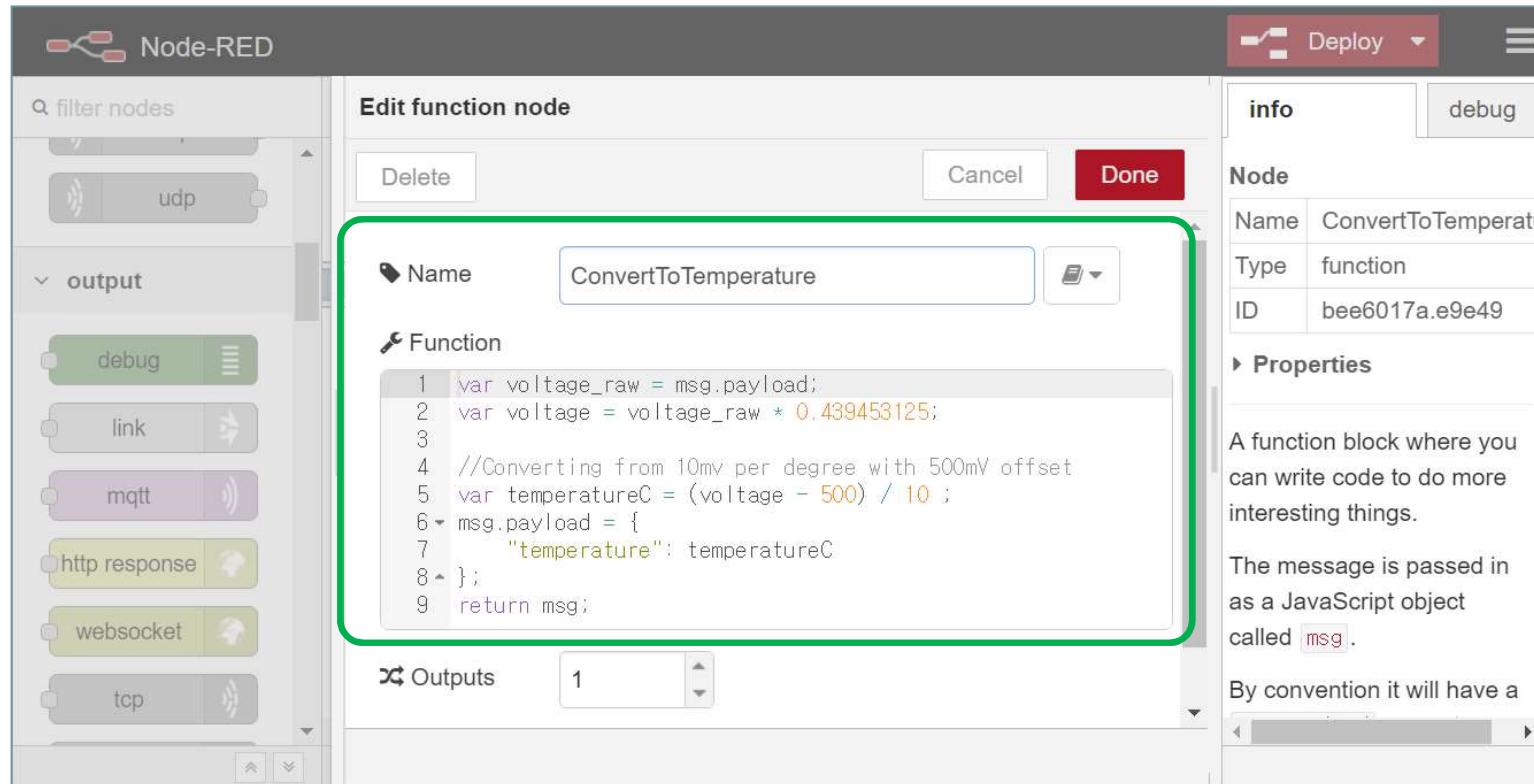


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Edit 'function' node

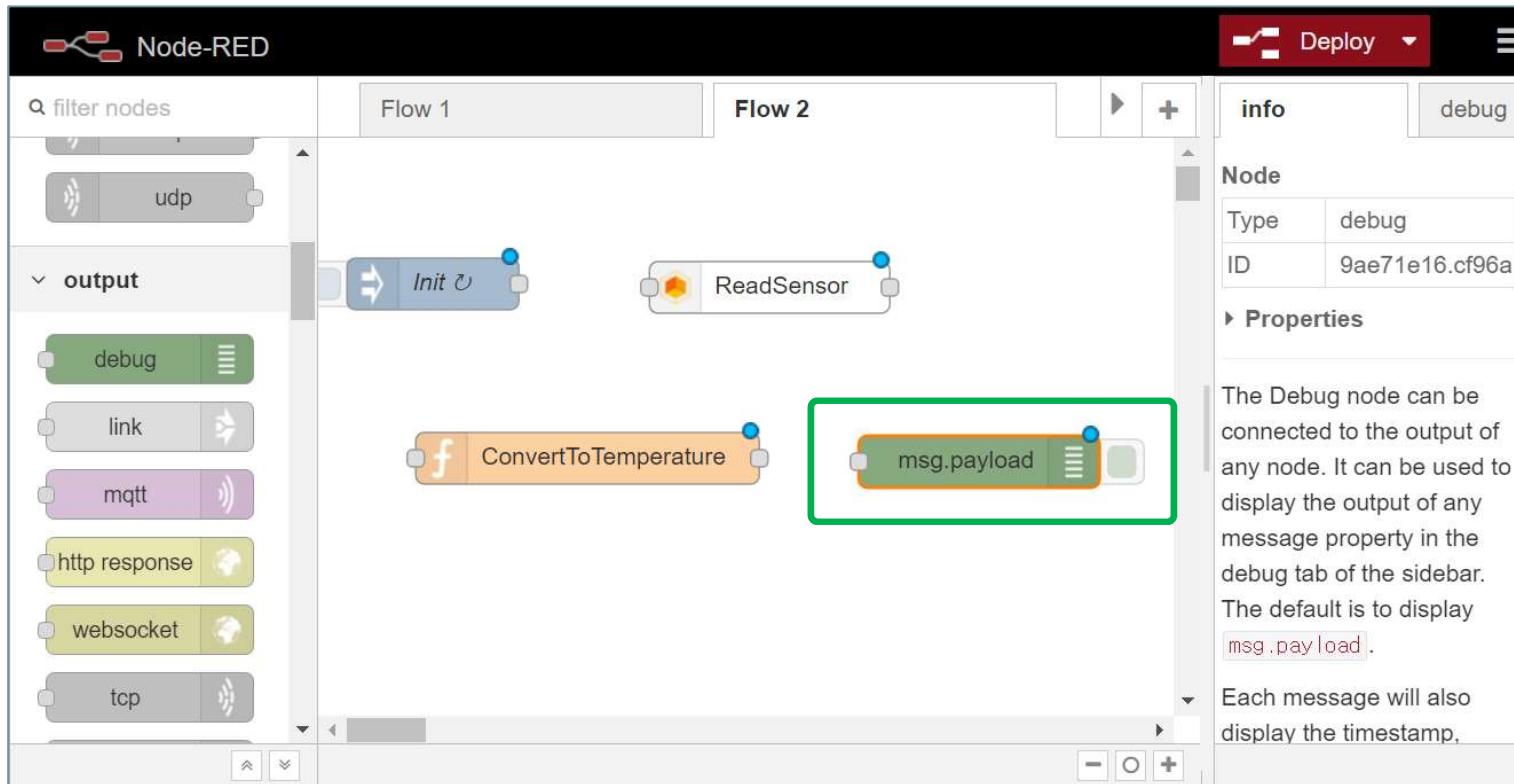


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Add 'debug' node

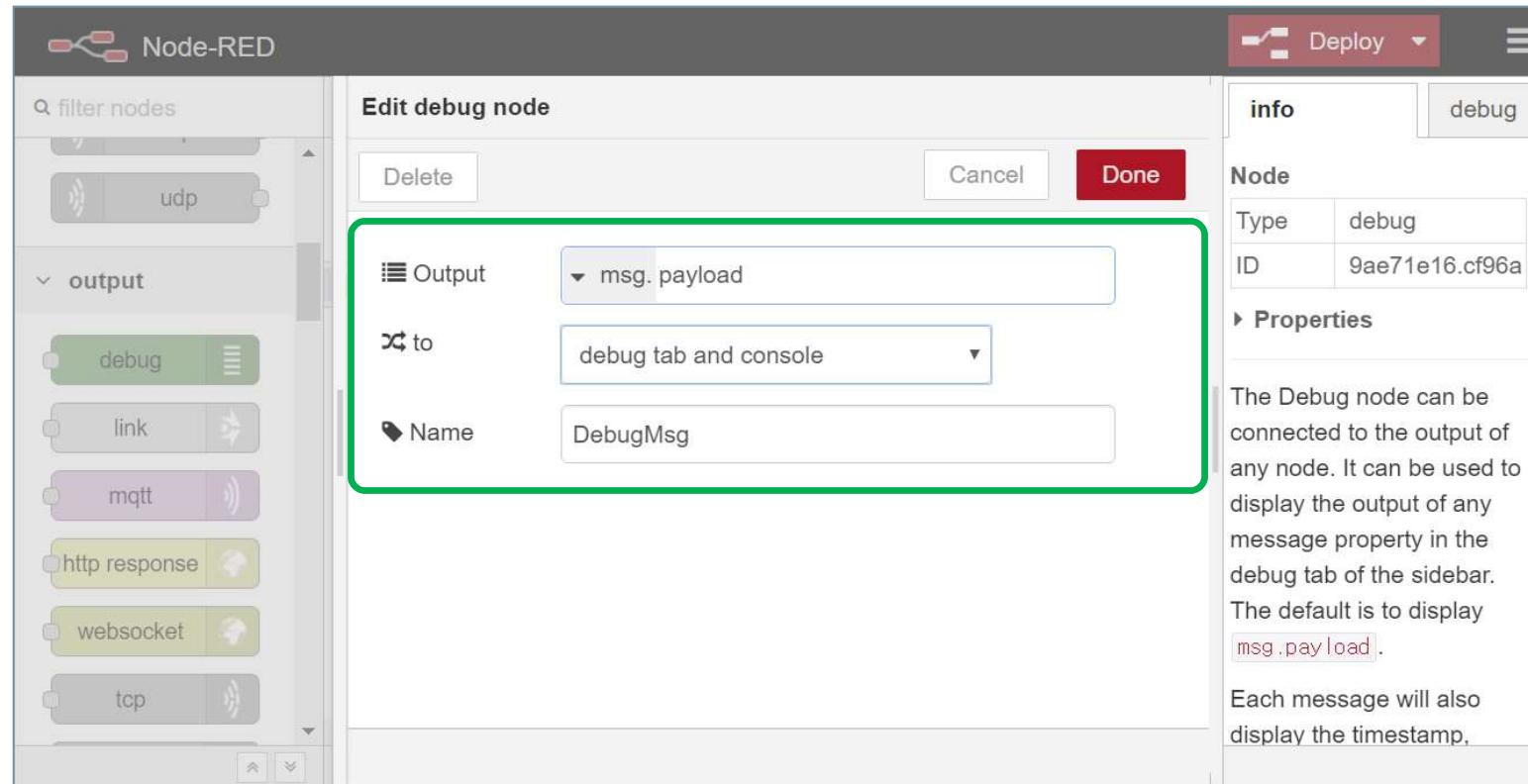


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Edit 'debug' node

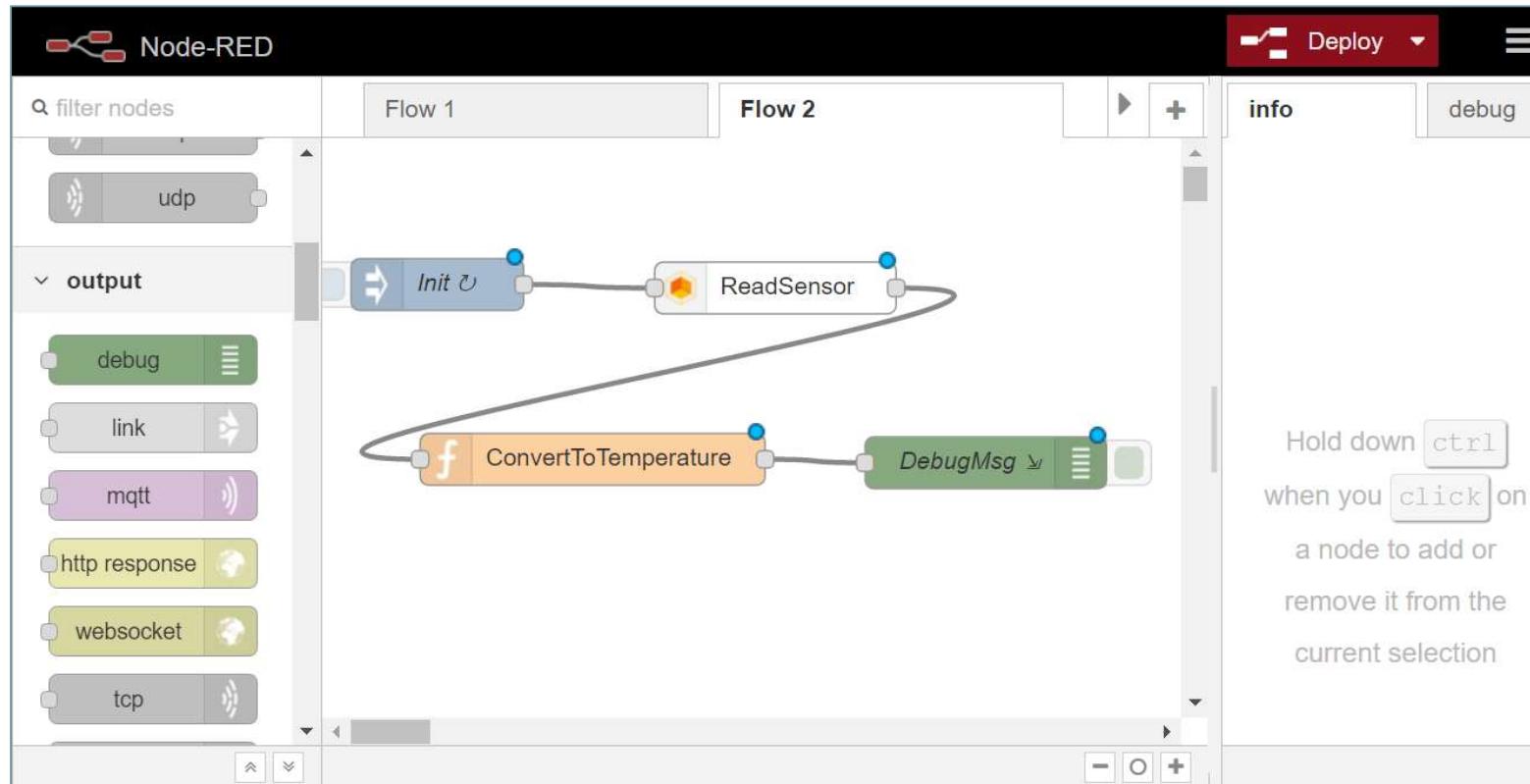


Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

↘ Connect the nodes & 'Deploy'





Node-RED (ADC)

❖ Node-RED ADC Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↙ Watch Node-RED logs

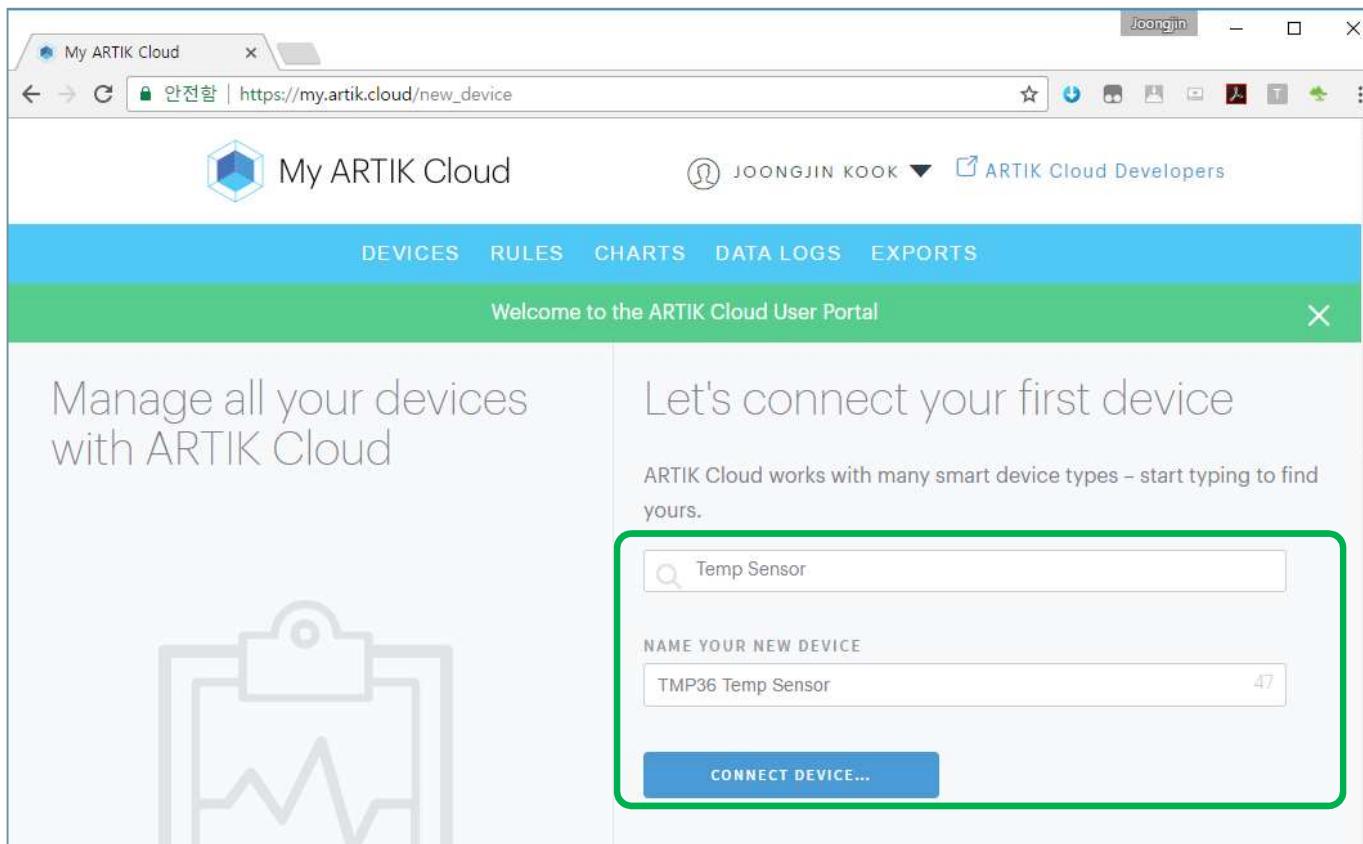
```
21 Jan 12:41:30 - [info] Starting flows
21 Jan 12:41:30 - [info] Started flows
21 Jan 12:41:30 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:41:33 - [info] [debug:DebugMsg]
{ temperature: 22.900962829589844 }
21 Jan 12:41:33 - [info] [artik_adc:ReadSensor] Successfully read ADC
21 Jan 12:41:33 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:41:36 - [info] [debug:DebugMsg]
{ temperature: 22.669219970703125 }
21 Jan 12:41:36 - [info] [artik_adc:ReadSensor] Successfully read ADC
21 Jan 12:41:36 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:41:39 - [info] [debug:DebugMsg]
{ temperature: 22.74646759033203 }
21 Jan 12:41:39 - [info] [artik_adc:ReadSensor] Successfully read ADC
21 Jan 12:41:39 - [info] [artik_out:BLED] Successfully set GPIO pin
21 Jan 12:41:42 - [info] [debug:DebugMsg]
{ temperature: 22.823715209960938 }
21 Jan 12:41:42 - [info] [artik_adc:ReadSensor] Successfully read ADC
21 Jan 12:41:42 - [info] [artik_out:BLED] Successfully set GPIO pin
```

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Connect 'My ARTIK Cloud' & Add Device



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

↳ My Device: TMP36 Temp Sensor

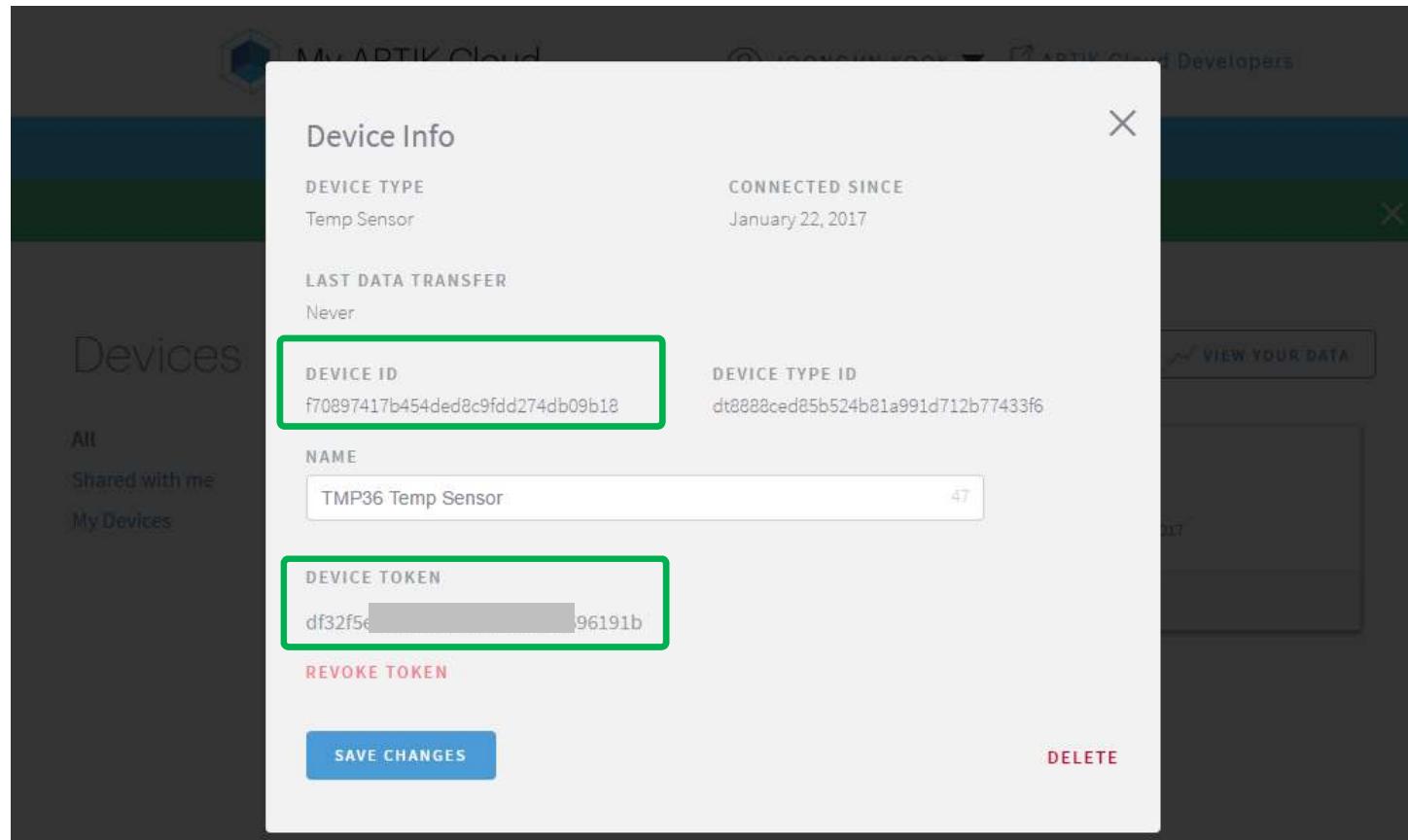
The screenshot shows the My ARTIK Cloud dashboard. At the top, there is a navigation bar with tabs for DEVICES, RULES, CHARTS, DATA LOGS, and EXPORTS. A green banner at the top of the main content area states "Your new device 'TMP36 Temp Sensor' has been added!" with a close button (X). Below this, the "Devices" section is visible. On the left, there is a sidebar with filters: "All", "Shared with me", and "My Devices". A button "+ Add Another Device..." is located in the center of the devices list. To the right, a card for the "TMP36 Temp Sensor" device is shown, featuring a blue sun-like icon with a cursor pointing at it. The card also displays the text "Temp Sensor - Added January 22, 2017". A green rectangular box highlights this card.

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Device ID & Device Token

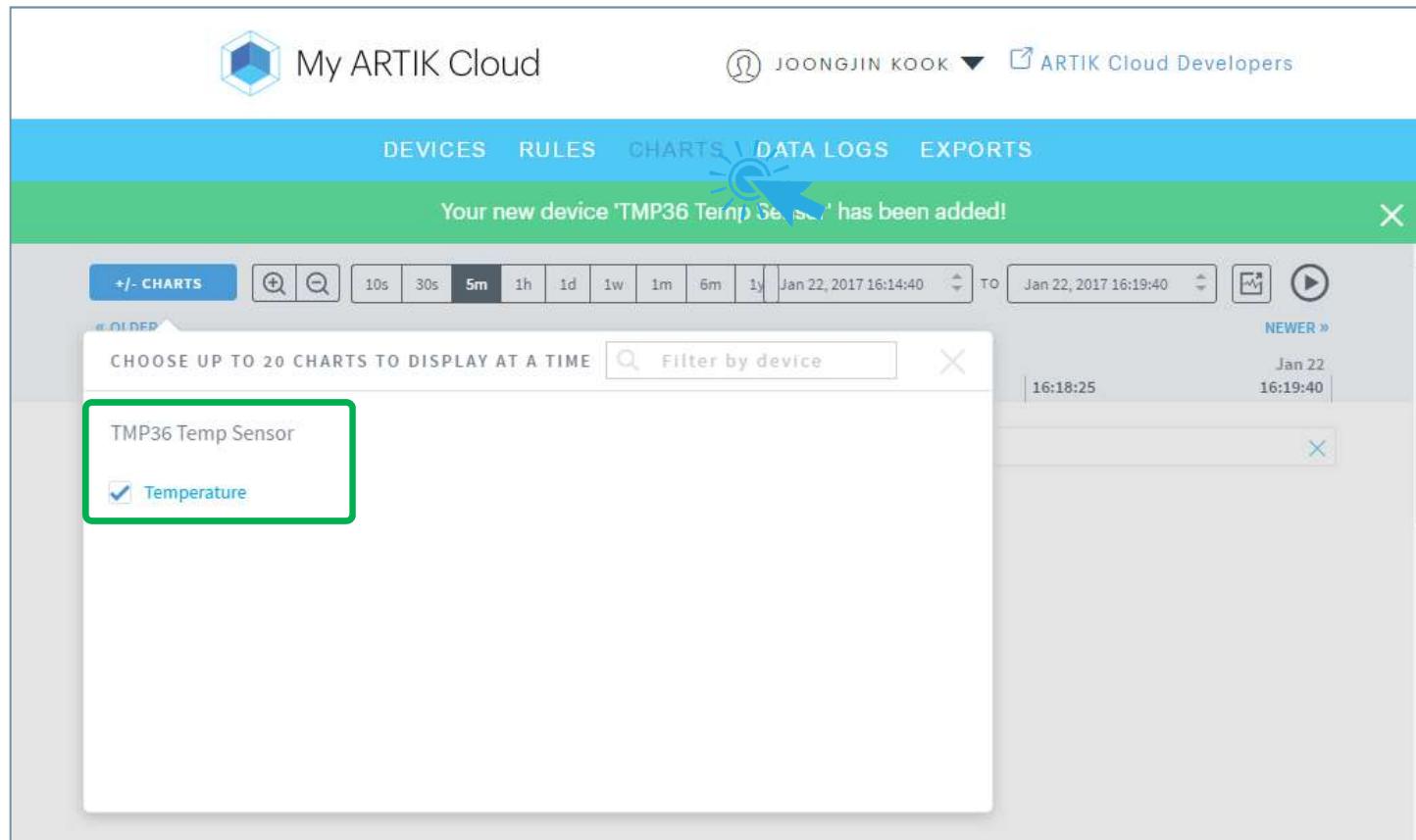


Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

↳ 'Charts' → Select 'Temperature'

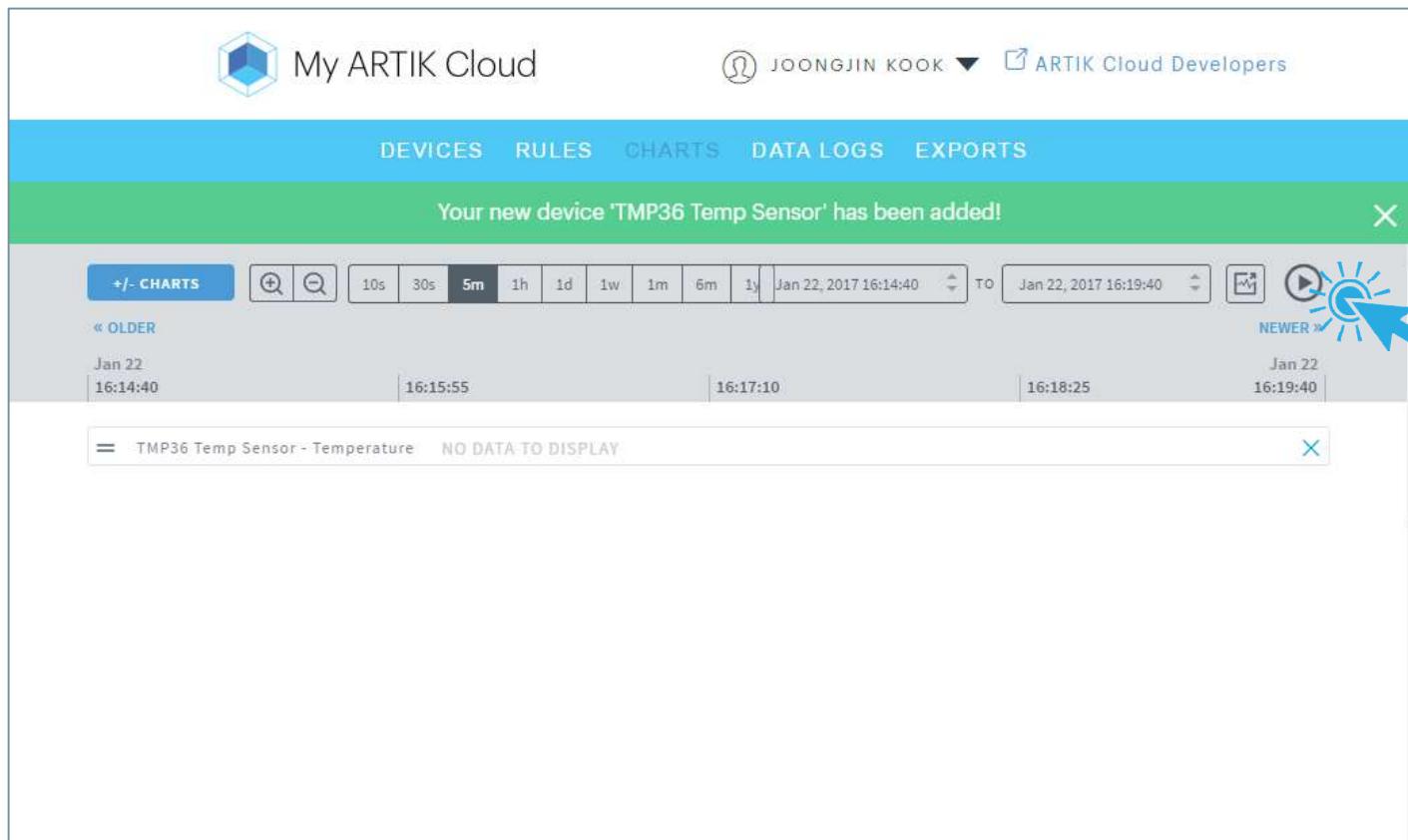


Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

↳ Chart

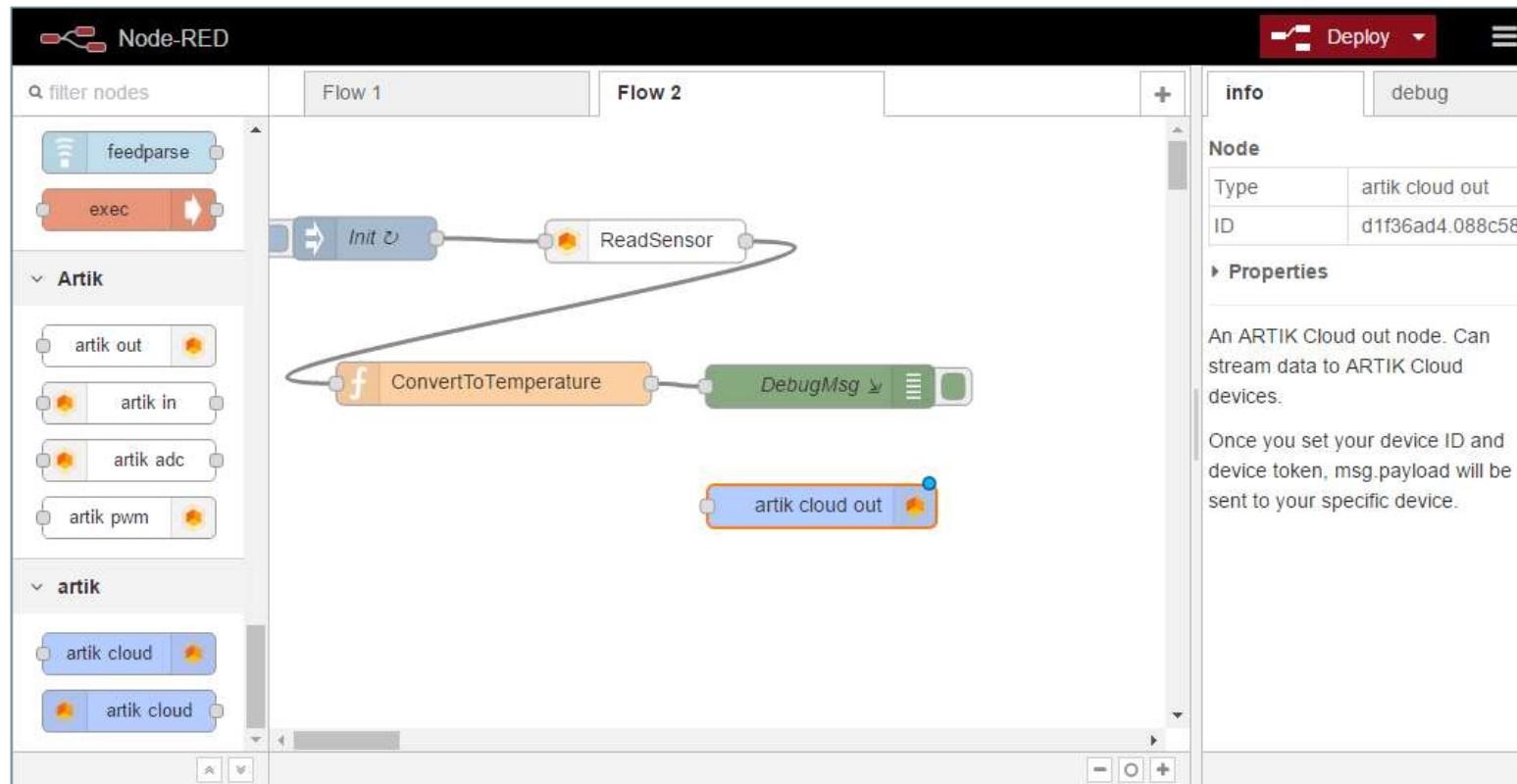


Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ TMP36 Temperature Sensor (ADC0)

↳ Add 'artik cloud out' node

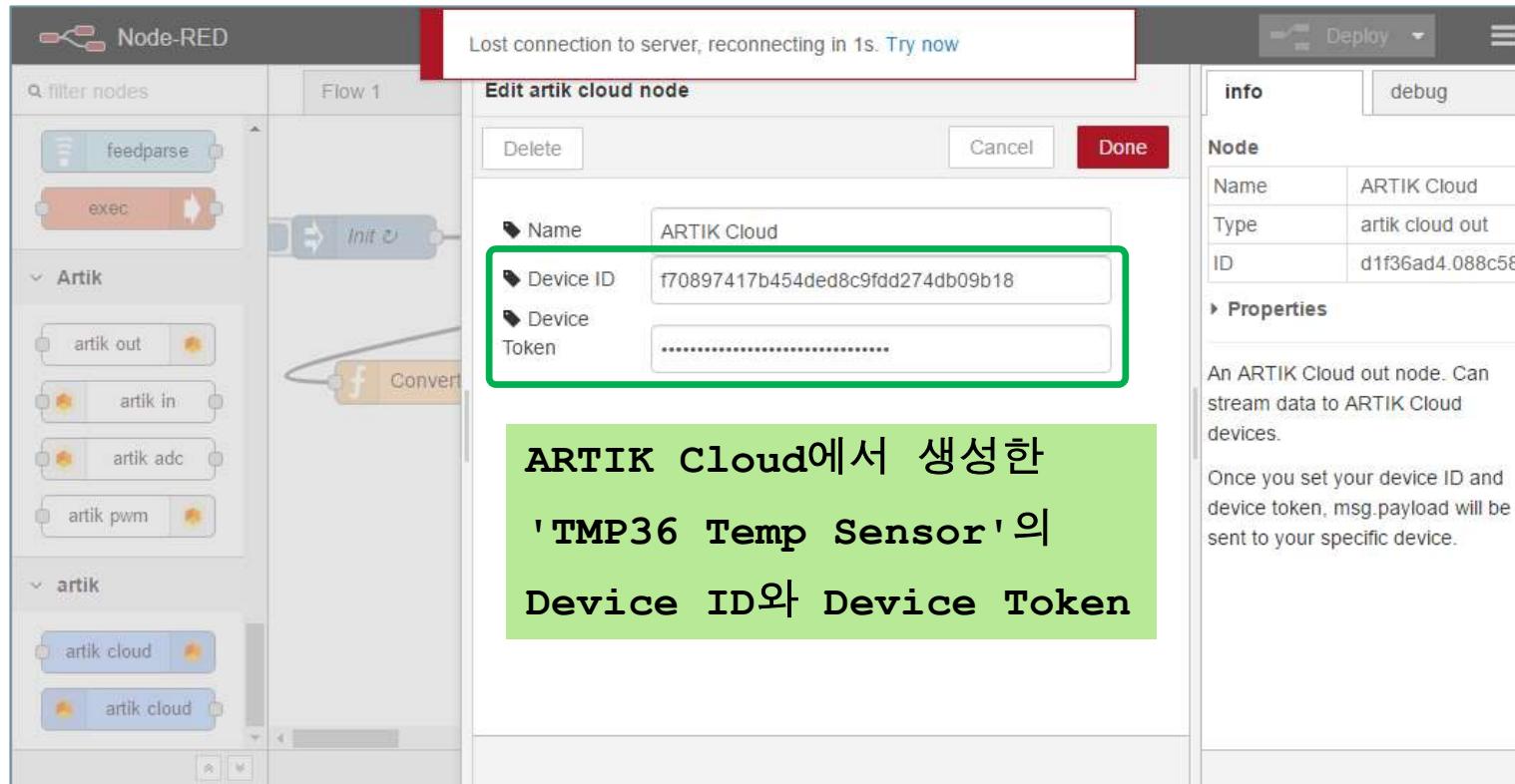


Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

- ↳ Edit 'artik cloud out' node

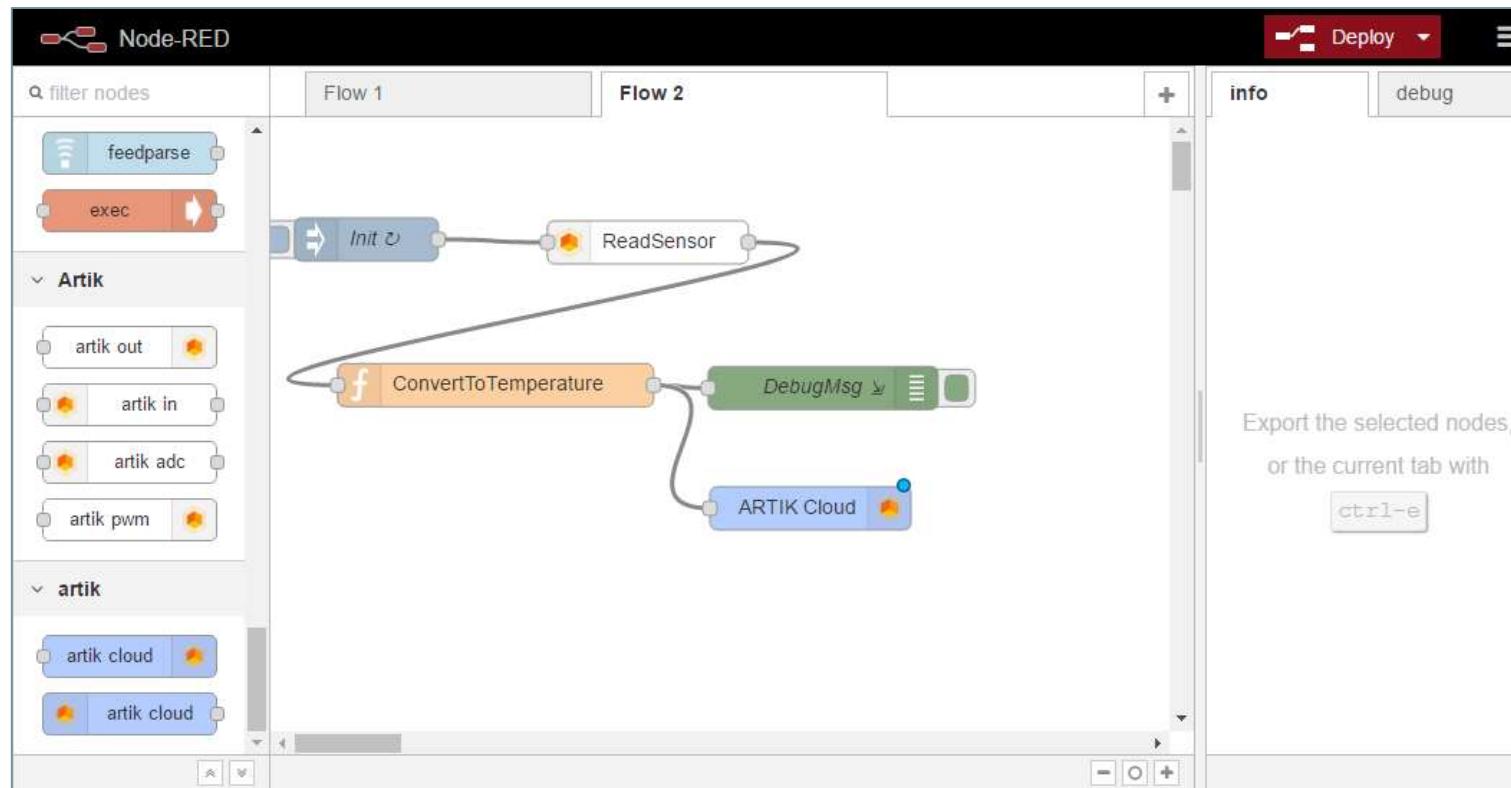


Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ TMP36 Temperature Sensor (ADC0)

- ↳ Connect 'convertToTemperature' node to 'ARTIK Cloud' node
- ↳ 'Deploy'



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ TMP36 Temperature Sensor (ADC0)

↘ Watch the Chart



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Linking an ARTIK Cloud Device to an ARTIK Module Output
 - ↳ Add another device: 'My ARTIK LED'

The screenshot shows the ARTIK Cloud web interface. At the top, there is a navigation bar with a logo, the text "My ARTIK Cloud", a user profile icon, and "ARTIK Cloud Developers". Below the navigation bar is a blue header bar with links for "DEVICES", "RULES", "CHARTS", "DATA LOGS", and "EXPORTS". A green banner at the top of the main content area says "Your new device 'TMP36 Temp Sensor' has been added!" with a close button. On the left, there is a sidebar with the text "Manage all your devices with ARTIK Cloud" and a large icon of a clipboard with a graph. On the right, there is a section titled "Connect another device" with the sub-instruction "ARTIK Cloud works with many smart device types - start typing to find yours.". A search bar contains the text "ARTIK Smart Parking LED". Below it is a "NAME YOUR NEW DEVICE" input field containing "My ARTIK LED" with a character count of "52". At the bottom of this section is a blue button labeled "CONNECT DEVICE...". A green rectangular box highlights the "CONNECT DEVICE..." button.

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

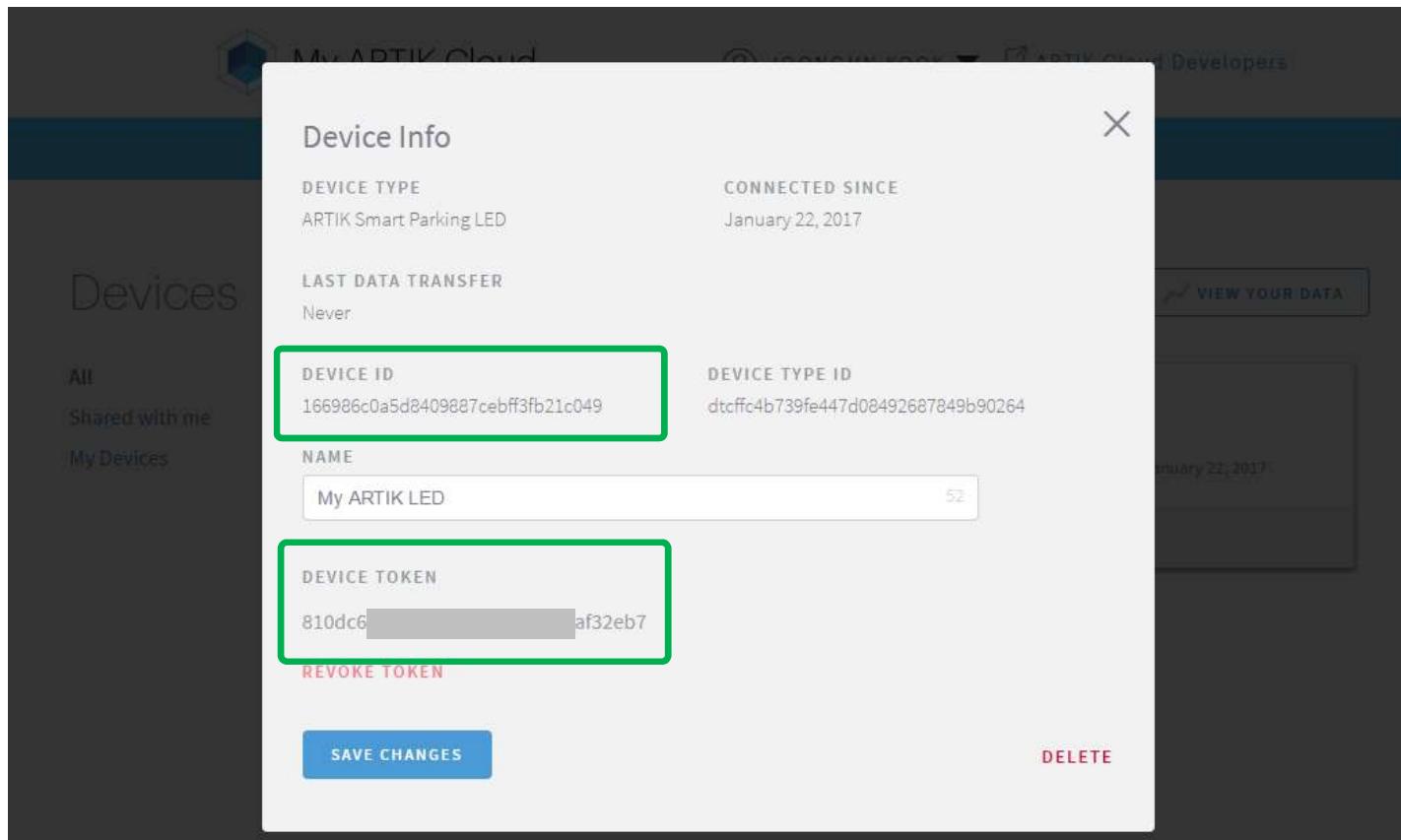
- ▶ Linking an ARTIK Cloud Device to an ARTIK Module Output
- ↳ My Device: 'My ARTIK LED'

The screenshot shows the 'Devices' page of the My ARTIK Cloud web interface. At the top, there is a navigation bar with the 'My ARTIK Cloud' logo, a user profile icon labeled 'JOONGJIN KOOK', and a link to 'ARTIK Cloud Developers'. Below the navigation bar is a blue header bar with tabs: 'DEVICES' (which is selected), 'RULES', 'CHARTS', 'DATA LOGS', and 'EXPORTS'. The main content area is titled 'Devices'. On the left, there is a sidebar with filter options: 'All', 'Shared with me', and 'My Devices'. The 'My Devices' option is selected. In the center, there are two device cards. The first card, which is unselected, contains the text '+ Add Another Device...'. The second card, which is highlighted with a green border, contains the text 'My ARTIK LED' and 'ARTIK Smart Parking LED - Added January 22, 2017'. Below these cards is a small arrow icon pointing right.

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

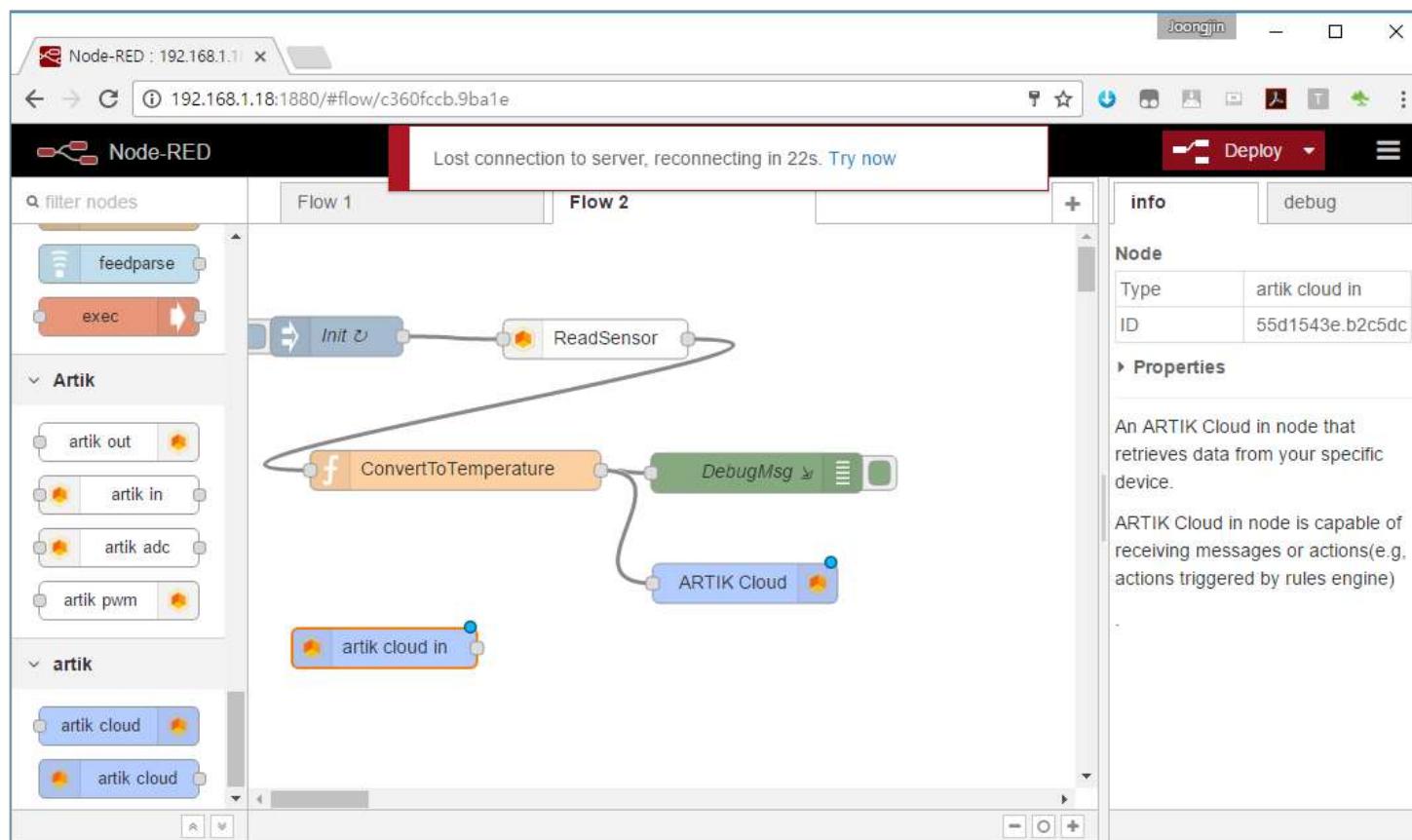
- ▶ Linking an ARTIK Cloud Device to an ARTIK Module Output
 - ↘ Device ID & Device Token



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

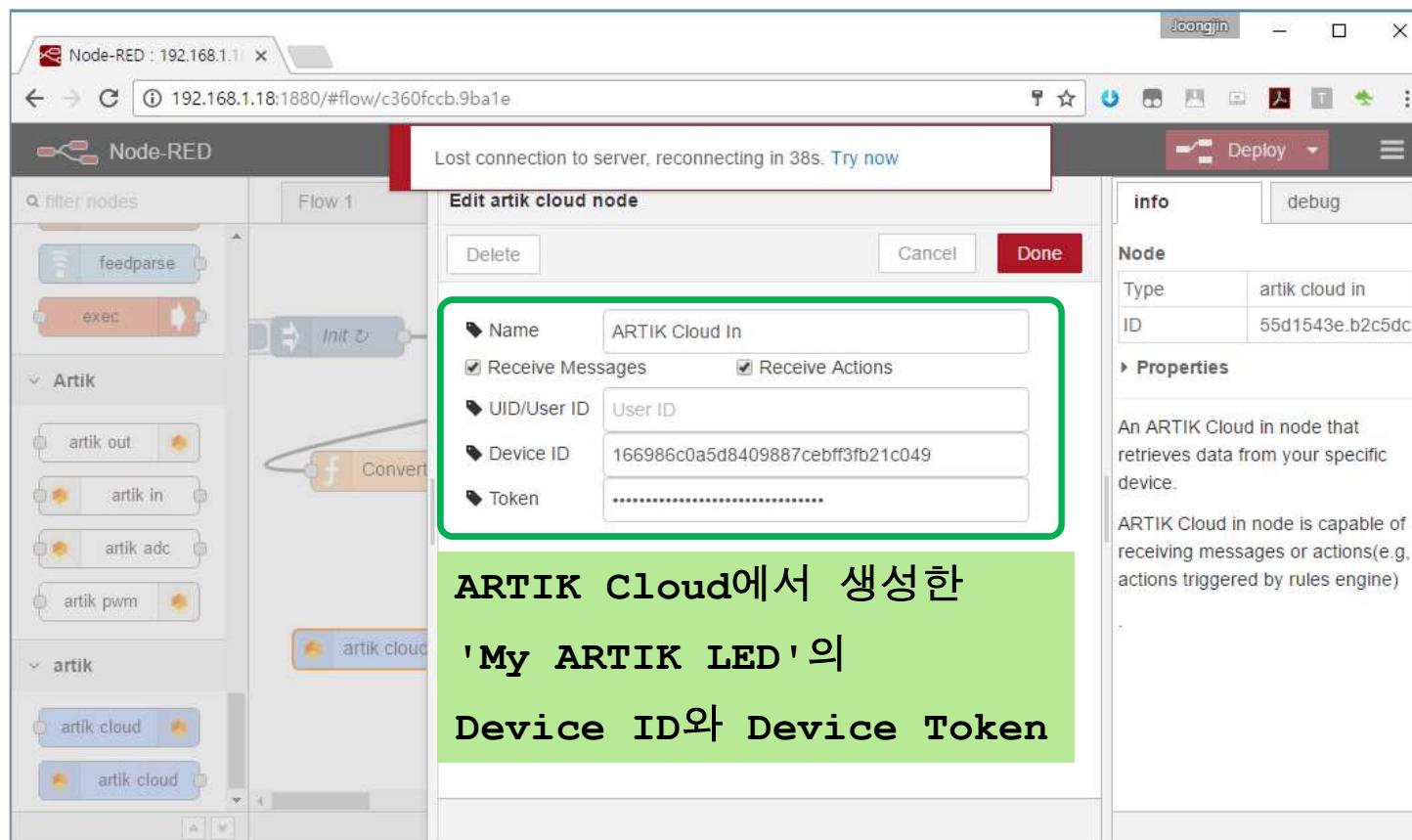
- ▶ Linking an ARTIK Cloud Device to an ARTIK Module Output
 - ↳ Add 'artik cloud in' node



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Linking an ARTIK Cloud Device to an ARTIK Module Output
 - ↳ Edit 'artik cloud in' node



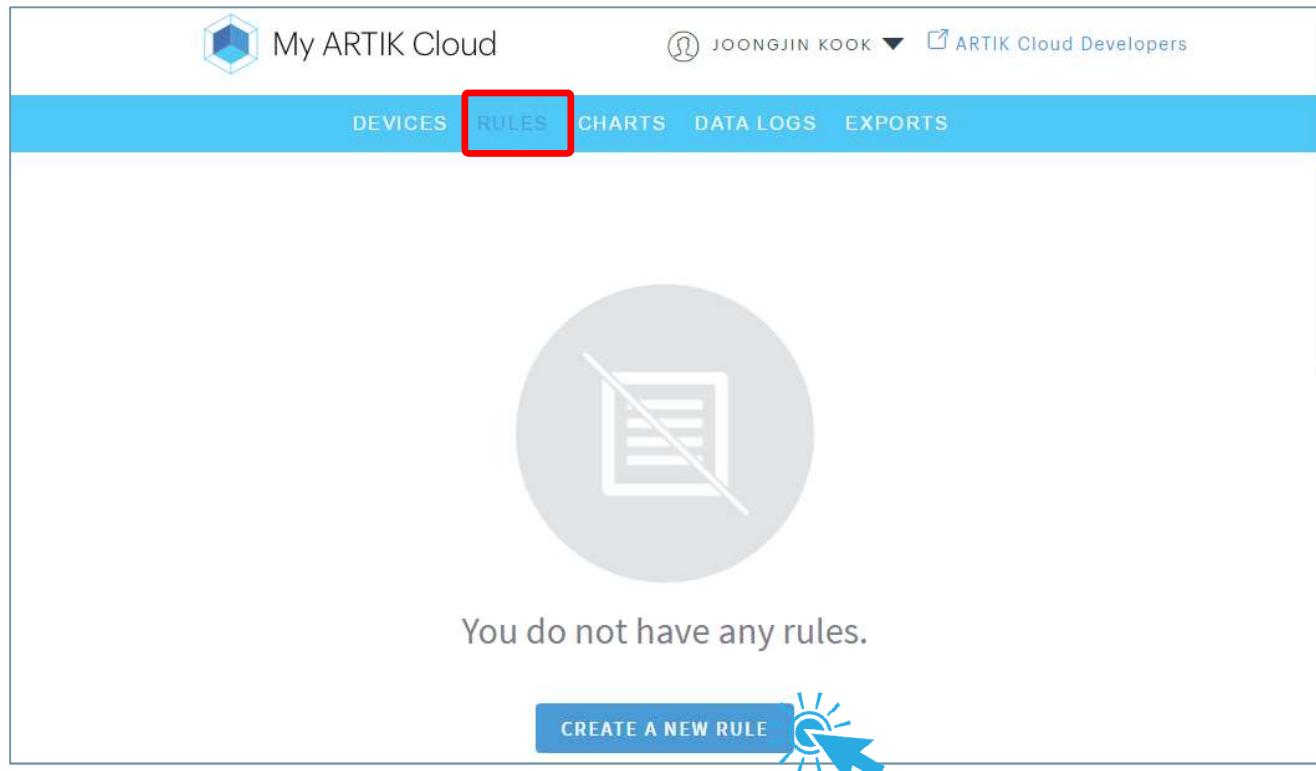
Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Writing Rules

- Add rules so that “TMP36 Temp Sensor” can turn on or off “My ARTIK LED” when certain conditions are met.

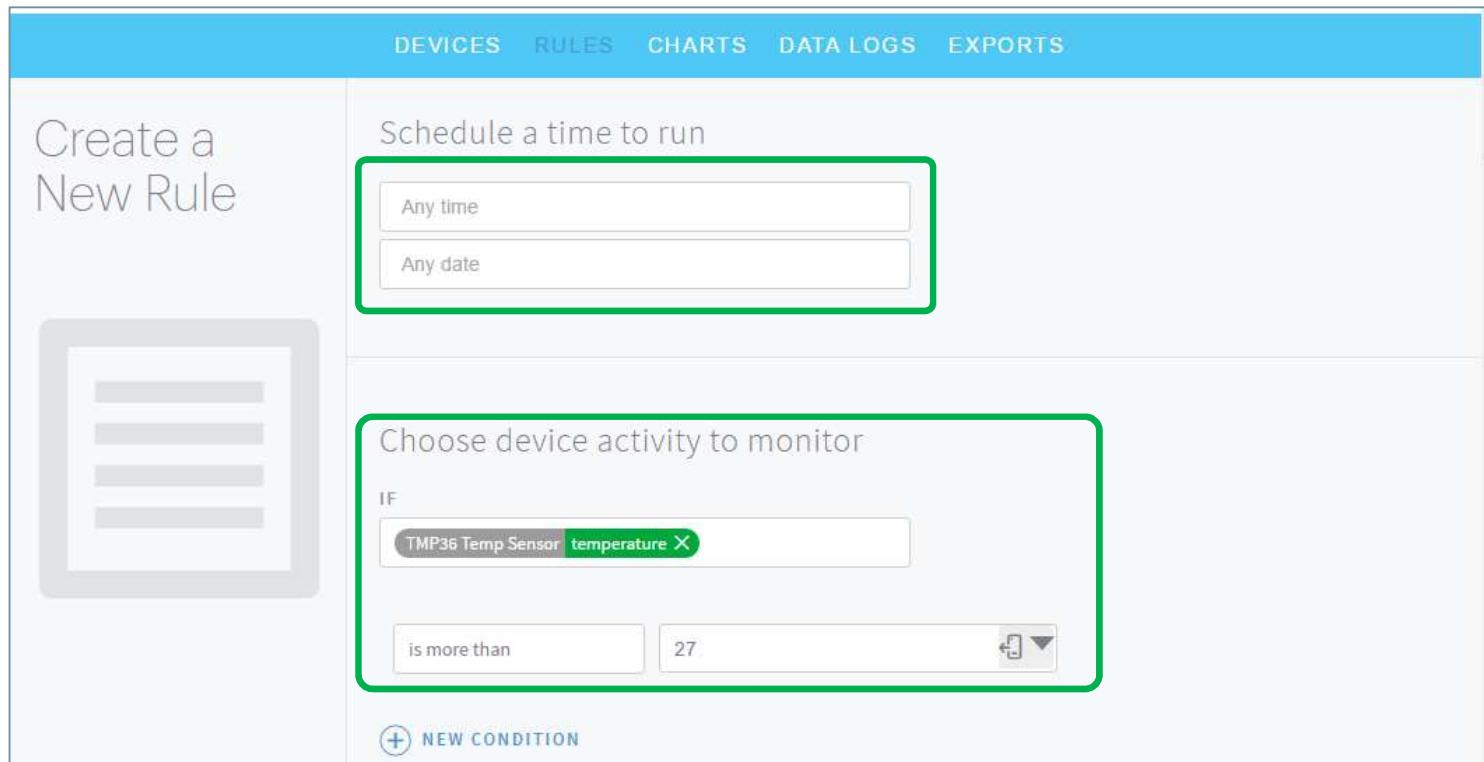




Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Receiving Actions from ARTIK Cloud
- ↳ Writing Rules



The screenshot shows the Node-RED interface with the 'RULES' tab selected. On the left, there's a sidebar with the title 'Create a New Rule' and a large icon of a document with horizontal lines. The main area has two sections outlined with green boxes:

- Schedule a time to run:** Contains fields for 'Any time' and 'Any date'.
- Choose device activity to monitor:** Contains an 'IF' condition section. It shows a node configuration for 'TMP36 Temp Sensor' with the 'temperature' output. Below it, a comparison operator 'is more than' is set to the value '27'. A small dropdown menu is visible next to the number '27'.

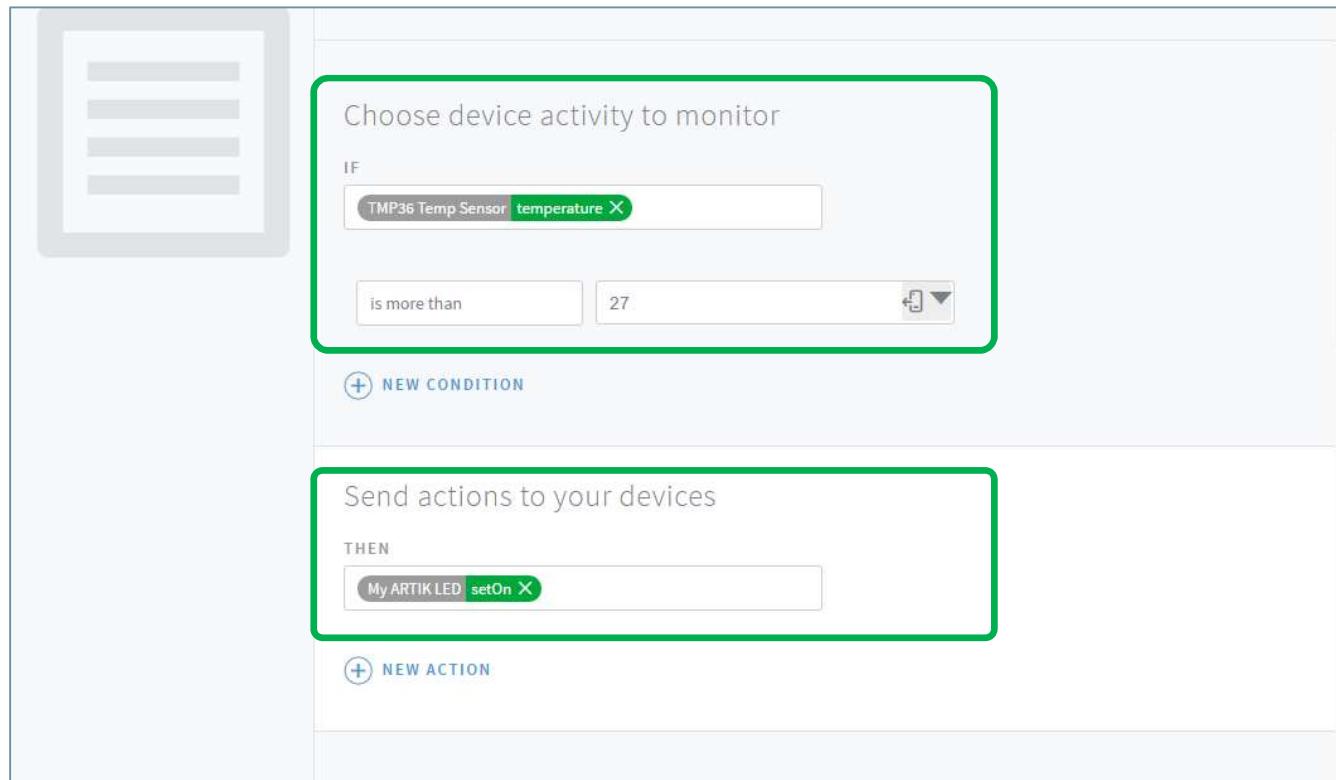
At the bottom of the configuration area, there's a button labeled '+ NEW CONDITION'.

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Writing Rules: 'TMP36 Temp Sensor'의 **temperature**가 27 보다 크면, **My ARTIK LED**의 **setOn** 액션을 발생시켜라!

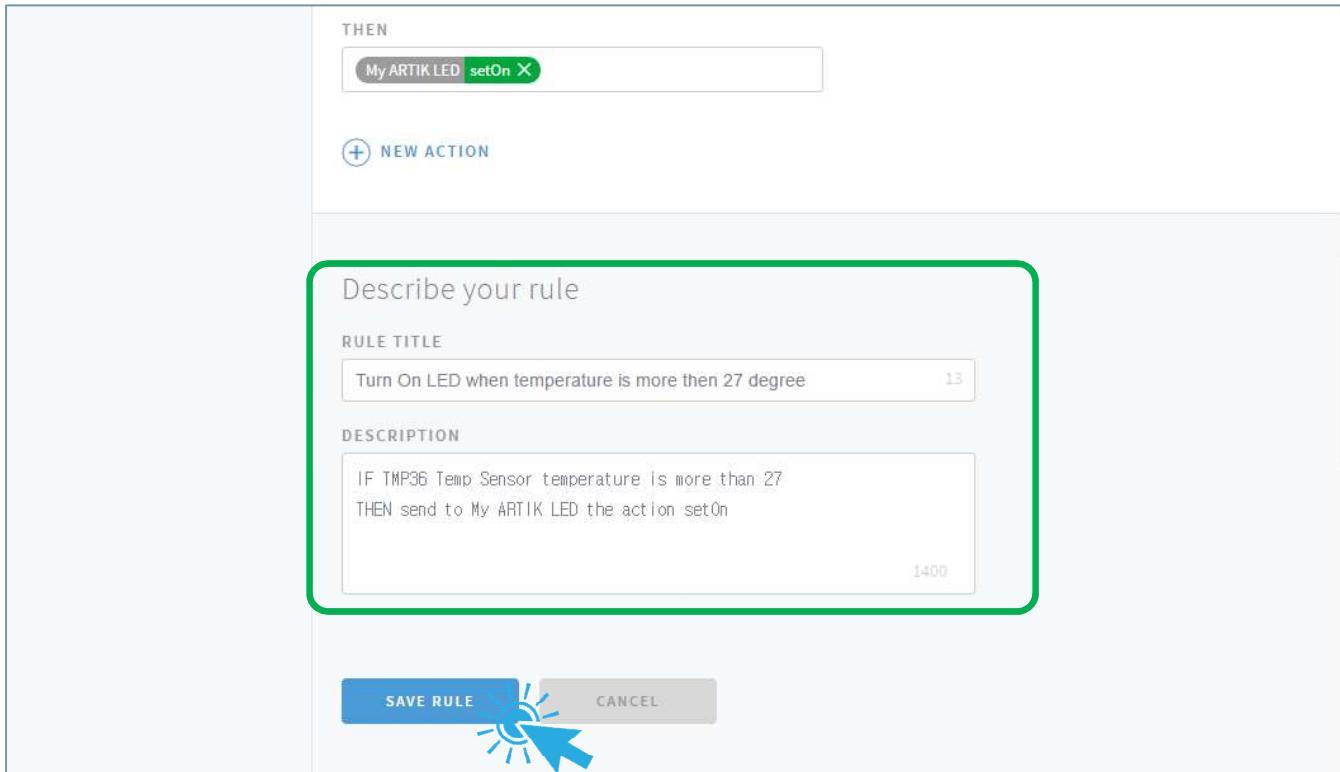


Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Receiving Actions from ARTIK Cloud

- ↙ Writing Rules



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Receiving Actions from ARTIK Cloud
- ↳ Writing Rules

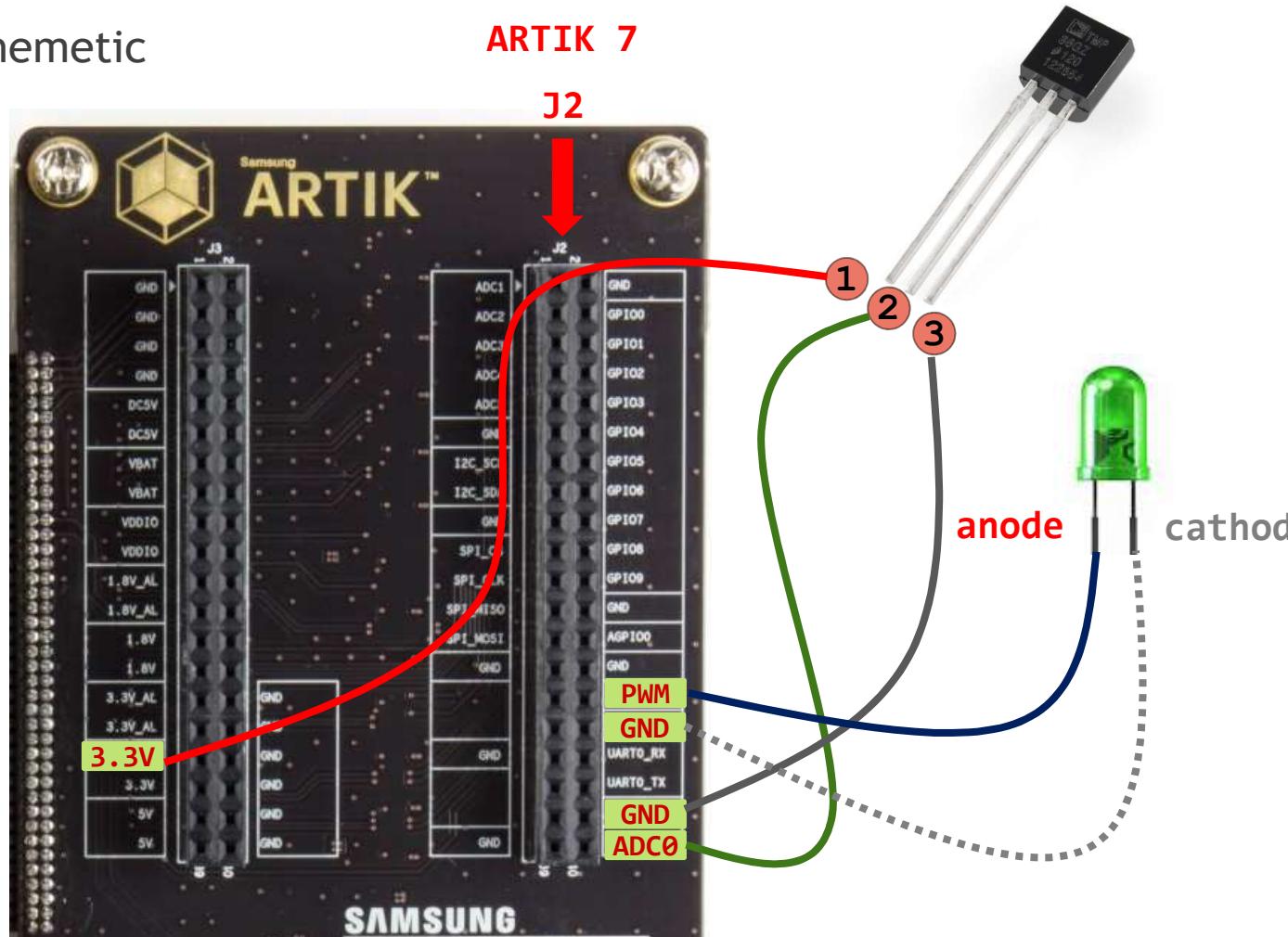
The screenshot shows the Node-RED interface with the 'RULES' tab selected. The top navigation bar includes 'DEVICES', 'RULES', 'CHARTS', 'DATA LOGS', and 'EXPORTS'. Below the navigation bar, the word 'Rules' is displayed, followed by three buttons: 'EXPAND ALL', 'COLLAPSE ALL', and '+ NEW RULE'. A single rule is listed in a card:
» TURN ON LED WHEN TEMPERATURE IS MOR... IF TMP36 Temp Sensor temperature is more than 27 THEN send to My ...

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Receiving Actions from ARTIK Cloud

↳ Schematic



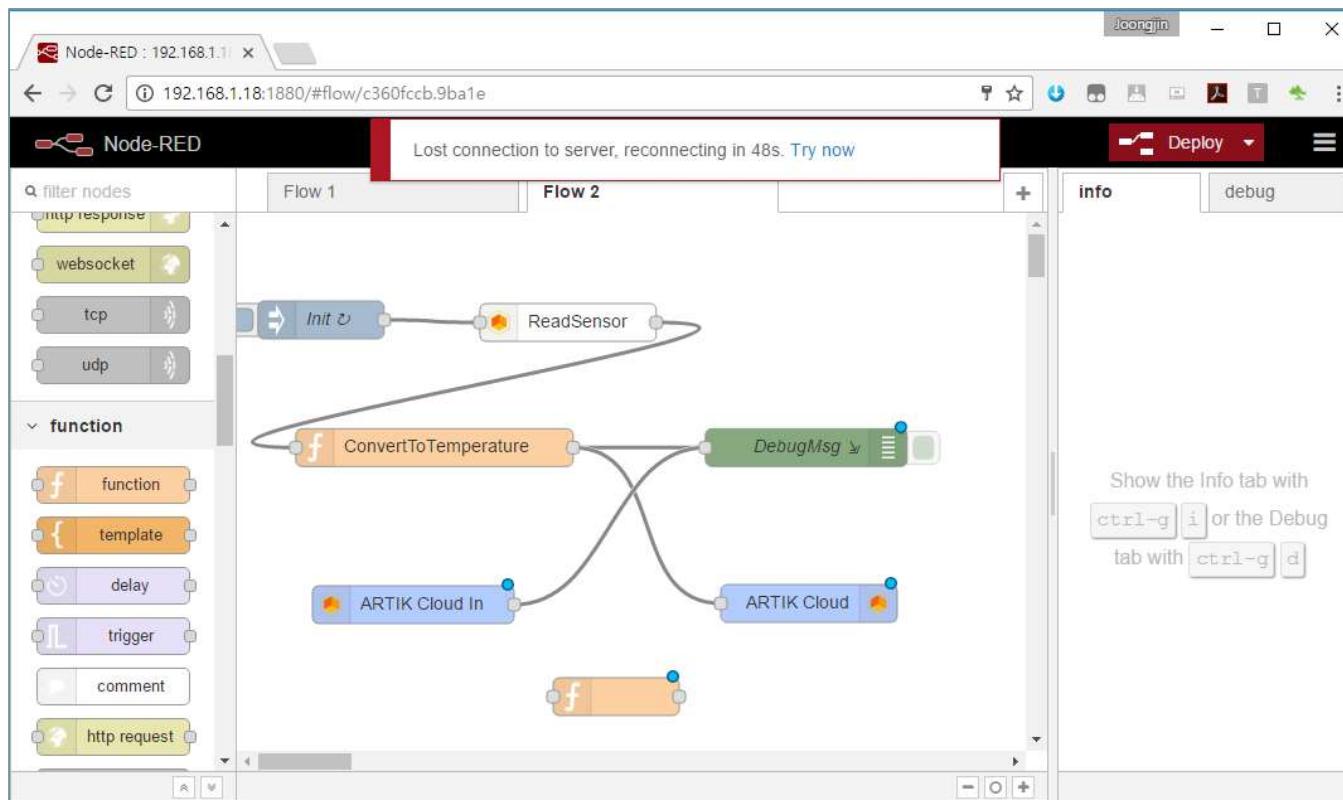
Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Receiving Actions from ARTIK Cloud

- ↳ Setting up Cross-Device Actions

- Add 'function' node



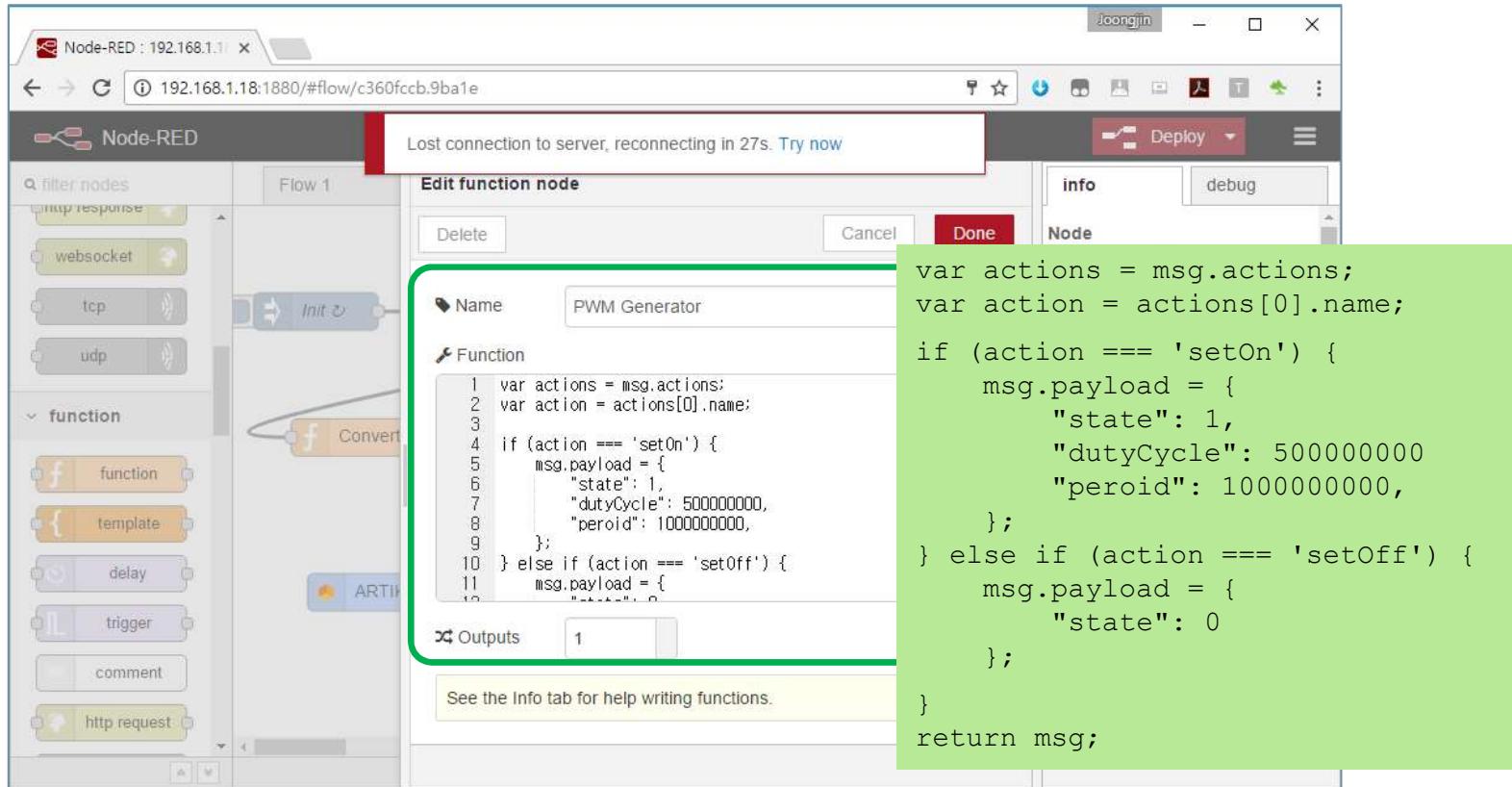
Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

▶ Edit 'function' node



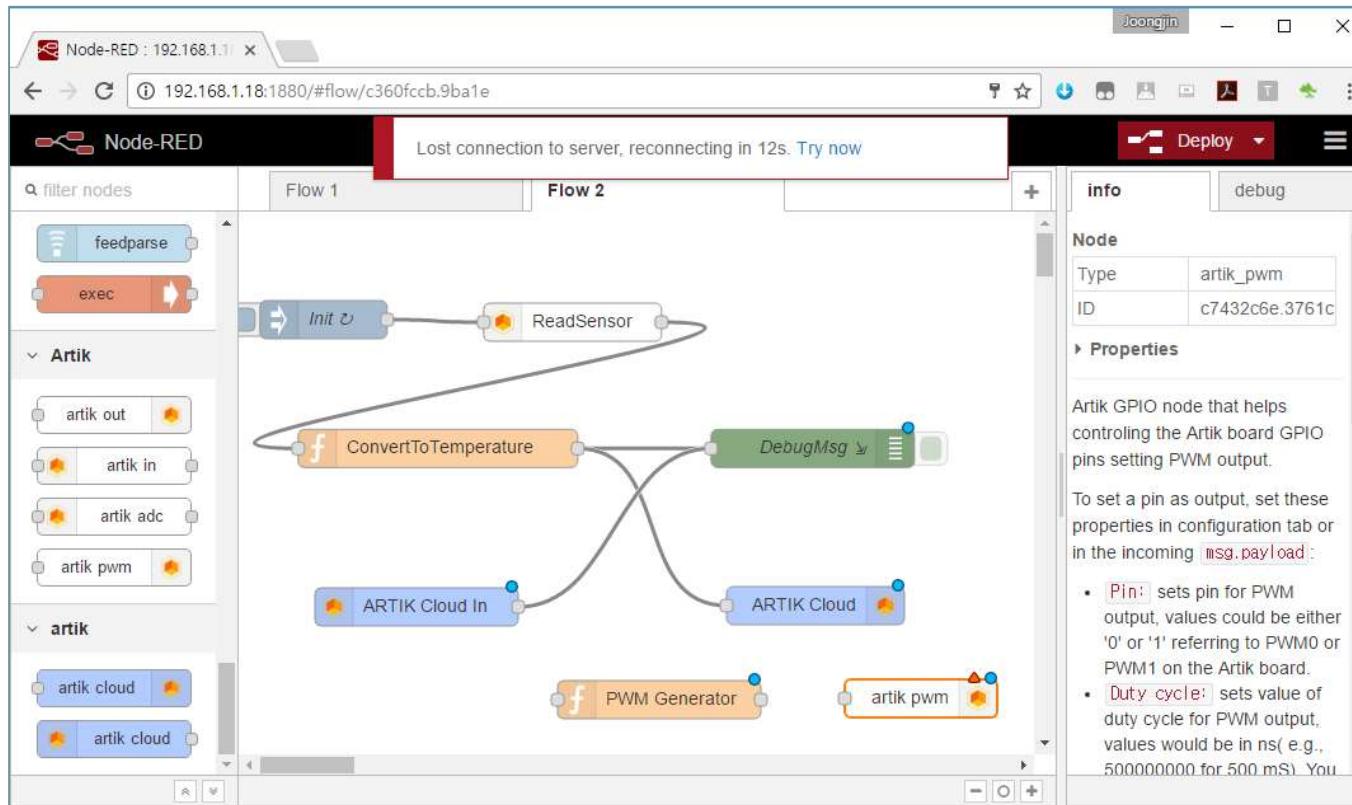
Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

- Add 'artik pwm' node



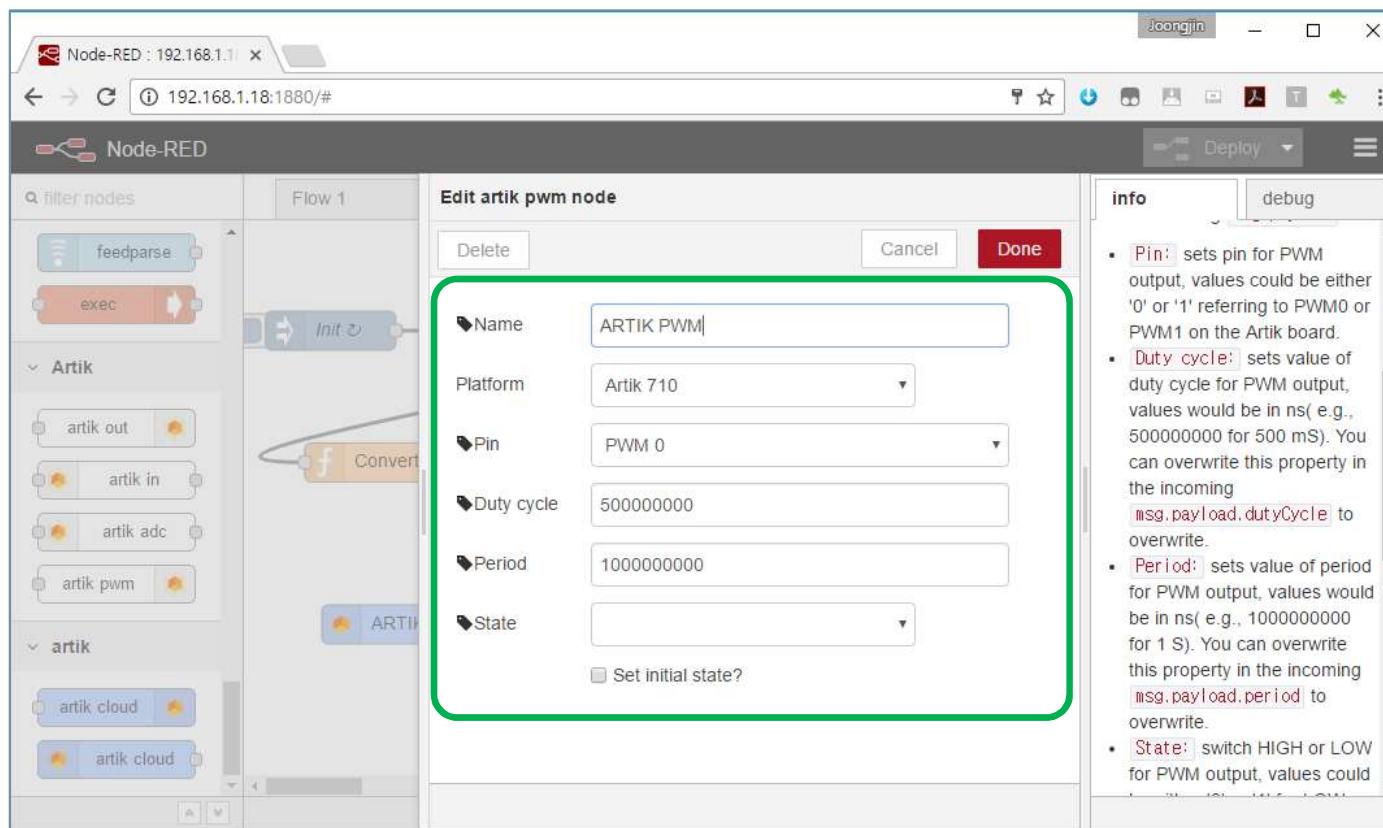
Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

➤ Edit 'artik pwm' node



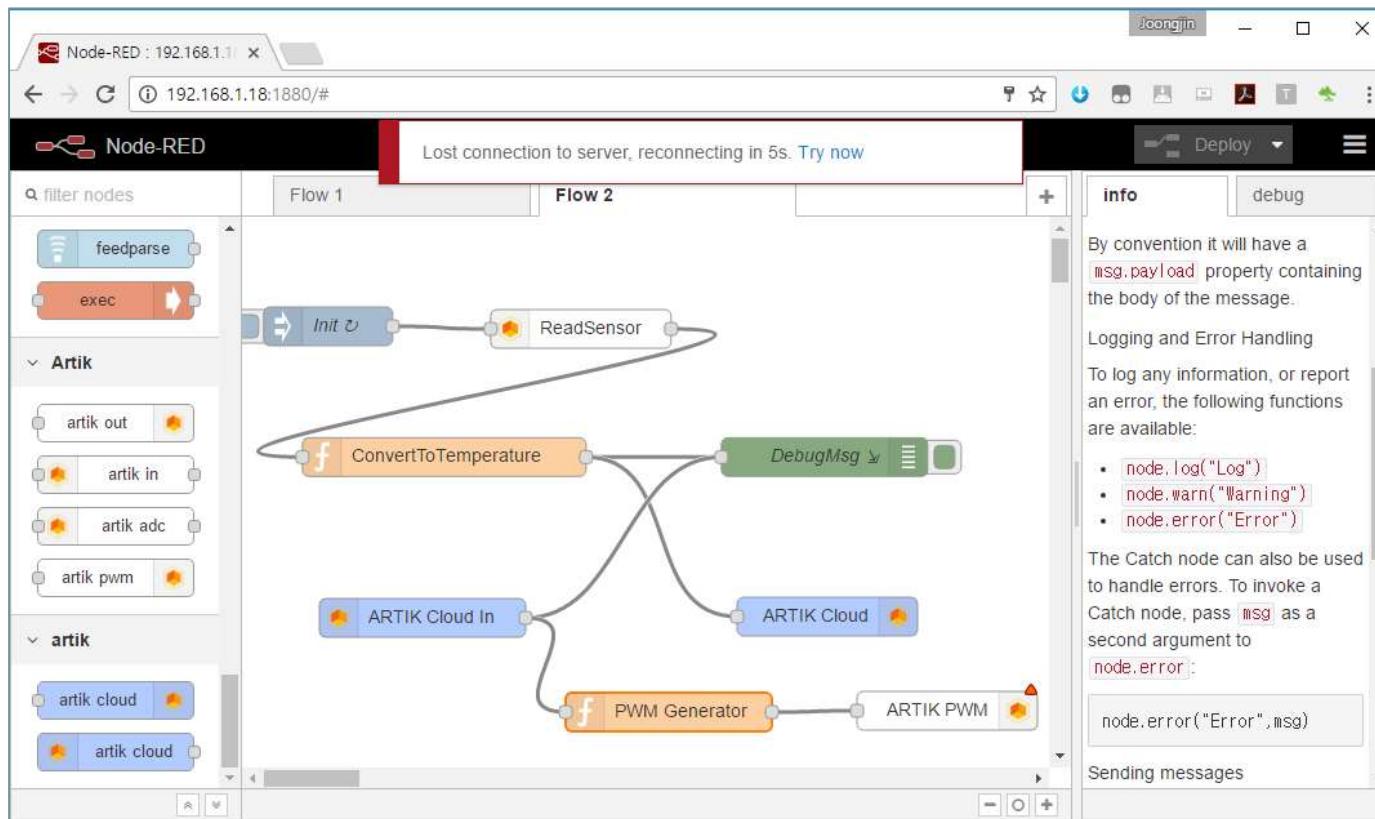
Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

▶ Connect the nodes



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

- ▶ Receiving Actions from ARTIK Cloud
 - ↳ Setting up Cross-Device Actions
 - ARTIK Cloud Chart



Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

➤ Node-RED logs

```
22 Jan 03:13:31 - [info] [artik_pwm:ARTIK PWM] Successfully set pwm
22 Jan 03:13:33 - [info] [debug:DebugMsg]
{ temperature: 27 }
22 Jan 03:13:33 - [info] [artik_adc:ReadSensor] Successfully read ADC
22 Jan 03:13:33 - [info] [artik_out:BLED] Successfully set GPIO pin
22 Jan 03:13:33 - [info] [debug:DebugMsg] undefined
22 Jan 03:13:33 - [info] [artik_pwm:ARTIK PWM] Successfully set pwm
22 Jan 03:13:36 - [info] [debug:DebugMsg]
{ temperature: 26 }
22 Jan 03:13:36 - [info] [artik_adc:ReadSensor] Successfully read ADC
22 Jan 03:13:36 - [info] [artik_out:BLED] Successfully set GPIO pin
22 Jan 03:13:39 - [info] [debug:DebugMsg]
{ temperature: 26 }
22 Jan 03:13:39 - [info] [artik_adc:ReadSensor] Successfully read ADC
22 Jan 03:13:39 - [info] [artik_out:BLED] Successfully set GPIO pin
22 Jan 03:13:42 - [info] [debug:DebugMsg]
{ temperature: 25 }
22 Jan 03:13:42 - [info] [artik_adc:ReadSensor] Successfully read ADC
22 Jan 03:13:42 - [info] [artik_out:BLED] Successfully set GPIO pin
22 Jan 03:13:45 - [info] [debug:DebugMsg]
{ temperature: 25 }
22 Jan 03:13:45 - [info] [artik_adc:ReadSensor] Successfully read ADC
22 Jan 03:13:45 - [info] [artik_out:BLED] Successfully set GPIO pin
```

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

➤ Message Log

The screenshot shows the Node-RED ARTIK Cloud interface with the 'MESSAGES' tab selected. The table below displays the following data:

DEVICE	RECORDED AT	RECEIVED AT	DATA
TMP36 Temp Sensor	Jan 22 2017 17:14:06.478	Jan 22 2017 17:14:07.464	{"temperature":25}
TMP36 Temp Sensor	Jan 22 2017 17:14:03.458	Jan 22 2017 17:14:04.292	{"temperature":26}
TMP36 Temp Sensor	Jan 22 2017 17:14:00.426	Jan 22 2017 17:14:01.735	{"temperature":25}
TMP36 Temp Sensor	Jan 22 2017 17:13:57.404	Jan 22 2017 17:13:58.127	{"temperature":25}
TMP36 Temp Sensor	Jan 22 2017 17:13:54.376	Jan 22 2017 17:13:55.388	{"temperature":25}
TMP36 Temp Sensor	Jan 22 2017 17:13:51.356	Jan 22 2017 17:13:57.323	{"temperature":25}
TMP36 Temp Sensor	Jan 22 2017 17:13:48.335	Jan 22 2017 17:13:54.567	{"temperature":25}
TMP36 Temp Sensor	Jan 22 2017	Jan 22 2017	{"temperature":25}

Node-RED (ADC)

❖ Node-RED ARTIK Cloud Example

▶ Receiving Actions from ARTIK Cloud

↳ Setting up Cross-Device Actions

➤ Action Log

The screenshot shows the Node-RED interface with the 'ACTIONS' tab selected. A green box highlights the table containing the action logs.

DESTINATION DEVICE	SENT AT	SOURCE DEVICE	ACTION NAME	ACTION PARAMETERS
My ARTIK LED ARTIK Smart Parking LED 166986c0a5d840988...	Jan 22 2017 17:13:33.267	TMP36 Temp Sensor f70897417b454ded8...	setOn	None
My ARTIK LED ARTIK Smart Parking LED 166986c0a5d840988...	Jan 22 2017 17:13:30.955	TMP36 Temp Sensor f70897417b454ded8...	setOn	None
My ARTIK LED ARTIK Smart Parking LED 166986c0a5d840988...	Jan 22 2017 17:13:22.109	TMP36 Temp Sensor f70897417b454ded8...	setOn	None
My ARTIK LED ARTIK Smart Parking LED 166986c0a5d840988...	Jan 22 2017 17:13:21.060	TMP36 Temp Sensor f70897417b454ded8...	setOn	None
My ARTIK LED ARTIK Smart Parking LED 166986c0a5d840988...	Jan 22 2017 17:13:18.970	TMP36 Temp Sensor f70897417b454ded8...	setOn	None
My ARTIK LED ARTIK Smart Parking LED 166986c0a5d840988...	Jan 22 2017 17:13:18.970	TMP36 Temp Sensor f70897417b454ded8...	setOn	None