

## 05-2 Node-RED

The Internet of Things

## The Internet of Things (IoT)

Wikipedia

- What is IoT?
- The **Internet of Things(IoT)** is the interconnection of uniquely identifiable embedded computing devices within the existing Internet infrastructure.
- The embedded computing nature of many **IoT** devices means that low-cost computing platforms are likely to be used.
- To minimize the impact of such devices on the environment and energy consumption, low-power radios are likely to be used for connection to the Internet

## The Internet of Things (IoT)

Cisco

Techtarget

Techtarget

Microsoft

- Internet of Things(IoT)** is when the Internet and networks expand to places such as manufacturing floors, energy grids, healthcare facilities, and transportation
- The **Internet of Things(IoT)** is a scenario in which objects, animals or people are provided with unique identifiers and the ability to transfer data over a network
- The **Internet of Things** represents an evolution in which objects are capable of interacting with other objects.
- Empower your business and gain a competitive edge by connecting data from devices and sensors with the cloud and business intelligence tools

## IoT

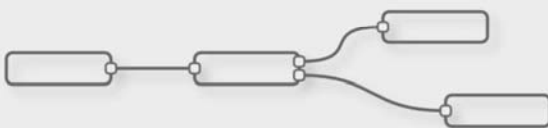
Yoder

- Making BeagleBone talk to other things
- See Cookbook to learn how to
  - Send email
  - Send SMS messages
  - Send and receive Tweets

## 05-2 Node-RED

### Node-RED

A visual tool for wiring the Internet of Things



## Node-RED

- Node-RED is a tool for wiring together hardware devices, APIs and online services in new and interesting ways.



## Installing node-RED

Already installed

```
bone$ cd# Change to home directory
bone$ gitclone https://github.com/node-red/node-red.git
bone$ cd node-red/
bone$ npminstall --production
# almost 6 minutes
bone$ cd nodes
bone$ gitclone https://github.com/node-red/node-red-nodes.git
# 2 seconds
```

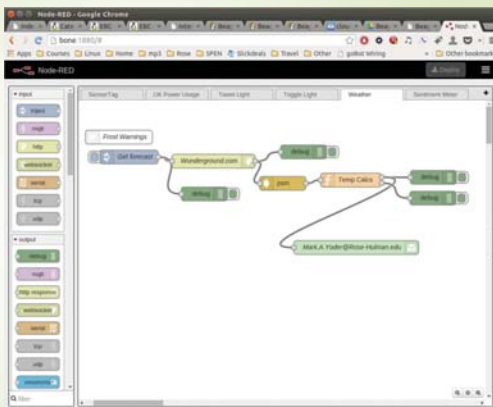
## Running node-RED

Already running

```
bone$ node-red
Welcome to Node-RED
*****
29 Sep 10:38:55 - [info] Node-RED version: v0.14.4
29 Sep 10:38:55 - [info] Node.js version: v0.12.15
29 Sep 10:38:55 - [info] Linux 4.4.22-bone13.1 arm LE
29 Sep 10:38:55 - [info] Loading palette nodes
29 Sep 10:39:13 - [warn] -----
29 Sep 10:39:13 - [warn] [i]pi-gpio info: Ignoring Raspberry Pi specific node
29 Sep 10:39:13 - [warn] -----
29 Sep 10:39:13 - [info] Settings file: /root/.node-red/settings.js
29 Sep 10:39:13 - [info] User directory: /root/.node-red
29 Sep 10:39:13 - [info] Flows file: /root/.node-red/flows_yoder-debian-bone.json
29 Sep 10:39:14 - [info] Creating new flow file
29 Sep 10:39:14 - [info] Starting flows
29 Sep 10:39:14 - [info] Started flows
29 Sep 10:39:14 - [warn] Communication server error: Error: listen EADDRINUSE
29 Sep 10:39:14 - [error] Unable to listen on http://127.0.0.1:1880/
29 Sep 10:39:14 - [error] Error: port in use
```

## Accessing node-RED

- Point your browser to 192.168.7.2:1880



## Node-RED Demo

- See cookbook for installing more nodes

```
bone$ apt-get install libbluetooth-dev
bone$ npminstall -g sensortag
bone$ npminstall -g badwordstwitteroauthsentiment wordposxml2js firmata
bone$ npminstall -g fs.notifyserialportfeedparserpushbulletircsimple-xmpp
bone$ npminstall -g redismongodbnodestringprep
bone$ npminstall -g imapjs2xmlparser nodemailerarduino-firmataheatmiserwemo
bone$ npminstall -g stomp-client wake_on_lannode-dweetiokomponistnmagrowl
bone$ npminstall -g node-prowl pusher pushover-notifications
snapchattwiliobone$ npminstall -g node-hue-apilevel pusher-client
mysqlsqlite3 suncalc
bone$ npminstall -g dynamodb-data-types node-postgres-named
```