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Instructions for running IoTivity Node.js programs on Raspberry Pi

Here are instructions for running a blinking light test using node.js on a Raspberry Pi.

1. Load NOOBS to an SD card. This will allow you to install the Raspian OS (a linux distro). https://www.raspberrypi.org/downloads/noobs/ The regular version downloads all the files you'll need so you can set up the Pi without an Internent connection. The lite version just load the key files. The Pi will need an Internet connection to complete the installation.
2. Insert the SD card with NOOBS in the Pi and power on the Pi. This will walk you through the Raspian installation process. It's like any linux installation process.
3. create workspace directory
    a. cd ~
    b. mkdir workspace
    c. cd workspace
4. Install IoTivity using the instructions here:
    a. sudo apt-get install scons build-essential libboost-dev libexpat1-dev libboost-thread-dev uuid-dev libssl-dev
    b. sudo apt-get install libglib2.0-dev autoconf libtool
    c. download iotivity
        i. open a browser and go to www.iotivity.org
        ii. click on the link in "Latest Downloads"
        iii. click on "Source Download" (zip or tar.gz should both work)
        iv. open the zip archive and copy the iotivity folder to ~/workspace/
    d. cd ~/workspace/iotivity-1.2.1 (or whatever version of iotivity was installed)
    e. scons //(I think you can just type this alone, but if not)
        i. //scons TARGET_ARCH=arm WITH_RA=1 WITH_RA_IBB=1
        ii. if you are asked to install cbor, use the line provided in the message and run scons again
5. install nvm
    a. sudo apt-get update
    b. curl https://raw.githubusercontent.com/creationix/nvm/v0.33.1/install.sh | bash (or whatever version is latest)
    c. close the terminal window and reopen
6. Use nodejs version 6.10:
    a. Cd ~/workspace/iotivity-1.2.1

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   b. nvm install 6.10
   c. nvm ls (to verify that 6.10 is the default)
      i. if nvm ls does not indicate version 6.10 as the default, type: nvm use 6.10
7. Install IoTivity-node using the instructions here:
   a. cd ~/workspace
   b. git clone https://github.com/otcshare/iotivity-node
   c. cd iotivity-node
   d. npm install
   e. open new terminal window (to run the server)
      i. cd ~/workspace/iotivity-node
      ii. node js/server.get.js
   f. go back to previous terminal window (to run the client)
      i. cd ~/workspace/iotivity-node
      ii. node js/client.get.js
   g. client should cause server to list resources, then print out what was returned from the server
8. Install rpi-gpio using the instructions here:
   a. npm install rpi-gpio
9. Get the client.get.ocf.js and server.get.ocf.js code here:
10. Put the code in the directory
11. Wire up the light by connecting the LED circuit between GPIO pins 6 and 7
12. Set the gpio pin to output mode and test
   a. gpio mode 7 out (this can probably be put in the server program)
   b. to test: gpio write 7 1
   c. to test: gpio write 7 0
13. Run the iotivity-node code to control the light
   a. open the server terminal window (to run the server)
      i. cd ~/workspace/iotivity-node
      ii. node js/server.get.ocf.js
   b. open the client terminal window (to run the client)
      i. cd ~/workspace/iotivity-node
      ii. node js/client.get.ocf.js
      iii. type the "1" key to turn on the light and any other key to turn it off.

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