CS-541
Wireless Sensor Networks

Contiki Crash Notes

Spring Semester 2015-2016

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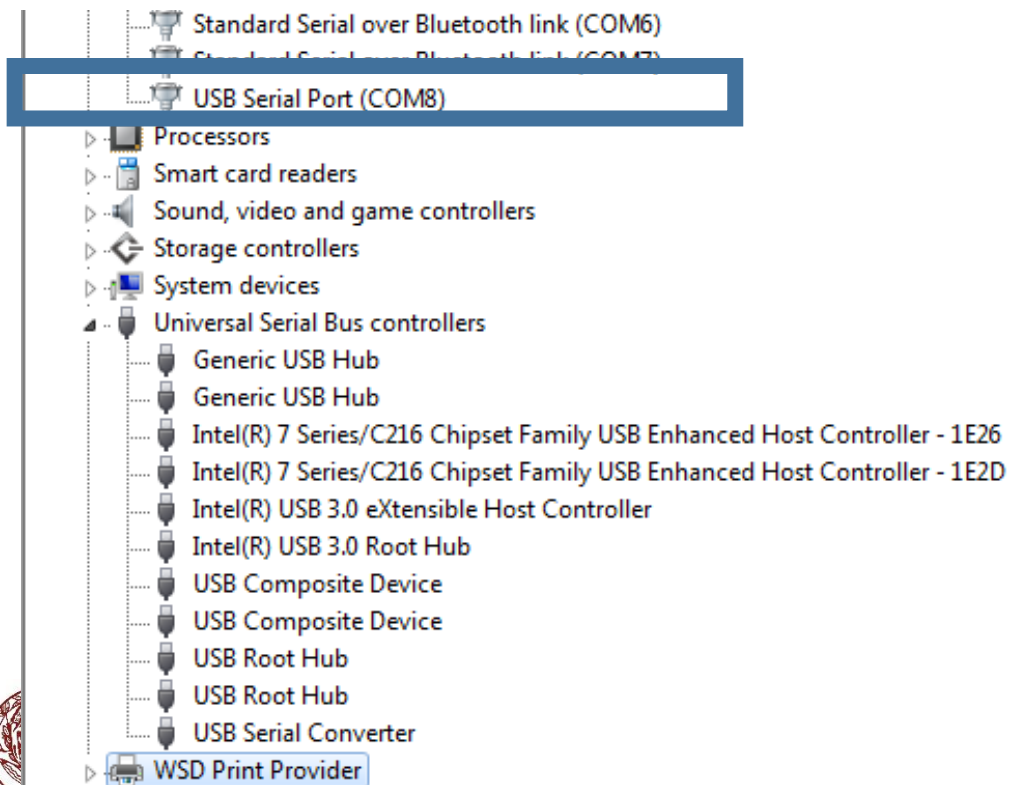
WINDOW OS USERS:

Contiki 3.0 available here (INSTANT for WINDOW OS)

1. **DO NOT START THE VM YET.**

2. Download the FTDI Drivers available here.

3. Depending on the version of your Windows **READ** the instructions at the respective installation guide (available here) to install the FTDI drivers on your computer.
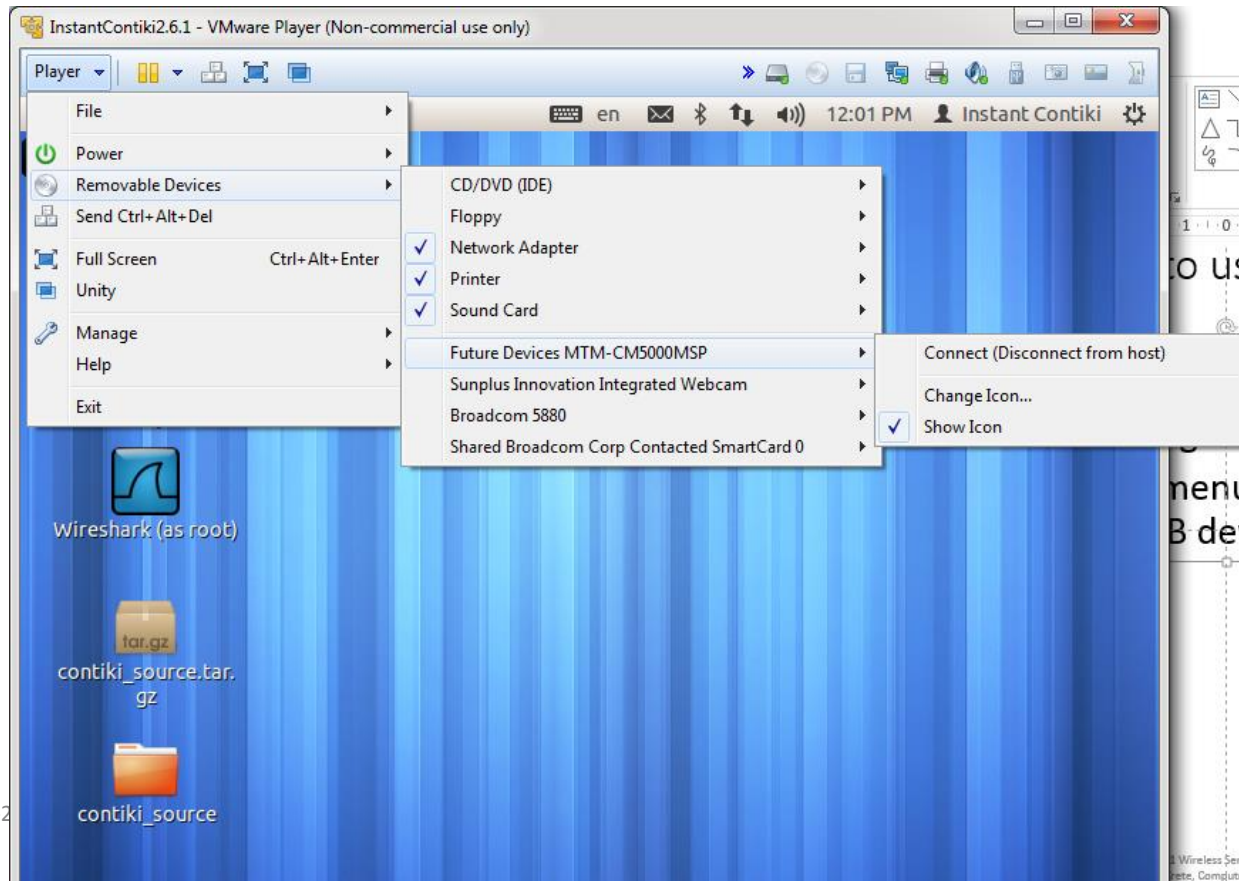
WINDOW OS USERS (cont')

4. After the successful install of the mote on your computer, verify that it has been assigned with a comport number at the device manager
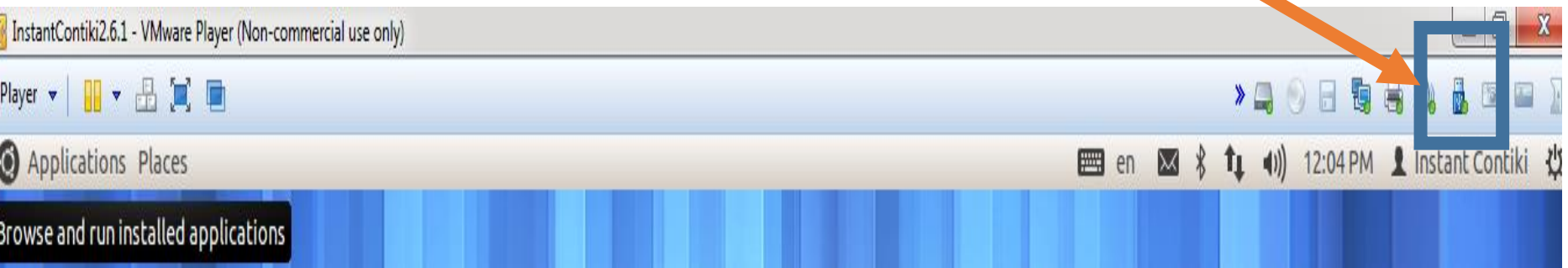
WINDOW OS USERS (cont')

4.   Start the VM and log in

5.   Locate on the VM menu the option for connecting to a USB device e.g.,

WINDOW OS USERS (cont')

4. Press Connect. You should see the USB device enabled on your VM menu, e.g.

5. Open the command line terminal and add user to the dialout group:

sudo addgroup user dialout

LOG out and LOG back in for the command to take effect.

LINUX USERS (only)

5. Plug a mote on a usb port. Add user (logged on Ubuntu) to the dialout group:
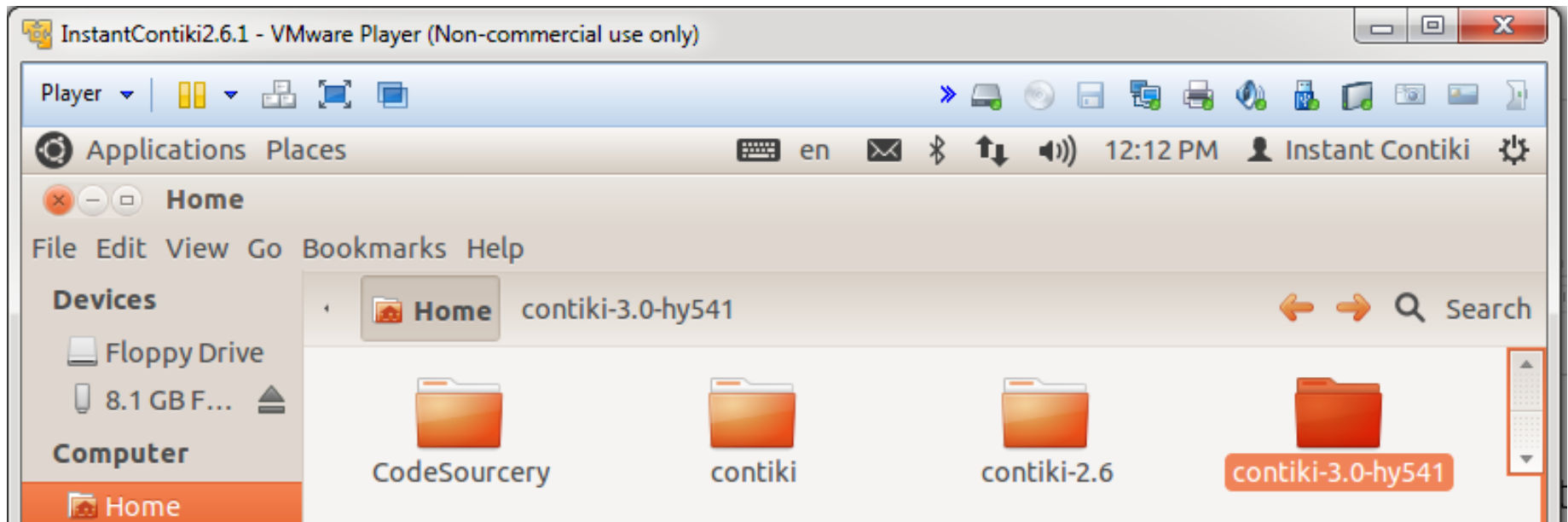
sudo addgroup <user> dialout

<user> = the user currently logged in Linux

LOG OUT and LOG BACK IN in order for the command to take effect.

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ALL (LINUX AND WINDOW USERS)

6. Copy **contiki-3.0-hy541** folder into a working directory where you have read/write access, e.g. your linux home directory

ALL (LINUX AND WINDOW USERS)

7. Check the executable access of: **msp430-bls-linux and serialdump-linux** located at:

$CONTIKIHOSTFOLDER/contiki-3.0-hy541/tools/sky

where $CONTIKIHOSTFOLDER is the folder containing contiki-3.0-hy541

Right click on the files -> Properties -> Permissions -> "Allow executing as program" option
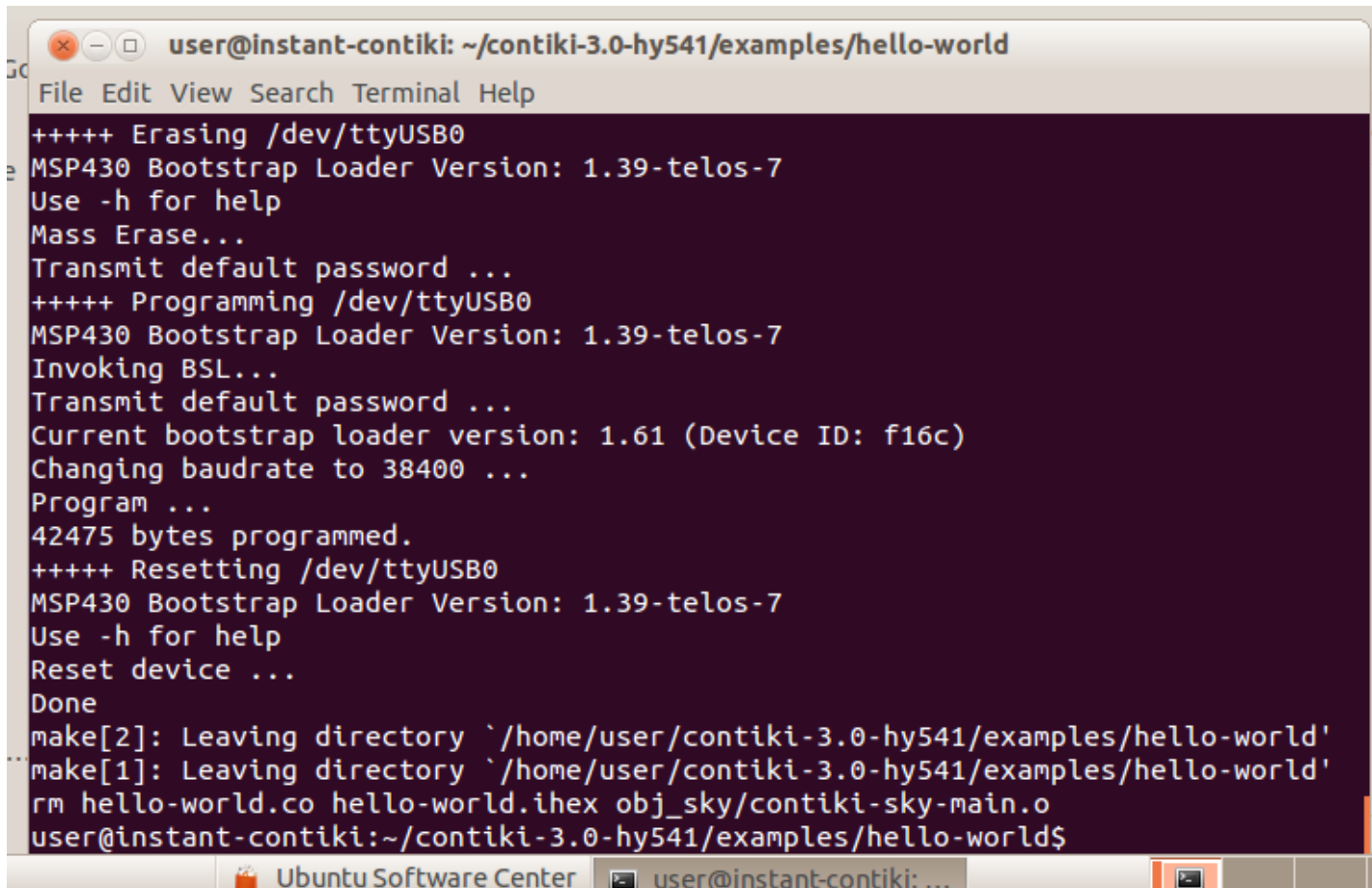
ALL (LINUX AND WINDOW USERS)

8.   Open a terminal and change to the directory
$CONTIKIHOSTFOLDER/contiki-3.0-hy541/examples/hello-world

9.   Type the following command for compiling and uploading hello-world program to your mote:

make TARGET=sky hello-world.upload

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ALL (LINUX AND WINDOW USERS)

10. Let the program compile and upload. Check that you see the following sequence of messages printed on your terminal.

IF NOT CHECK TROUBLESHOOTING SECTION

ALL (LINUX AND WINDOW USERS)

11. Open a new command terminal window or tab (File/Open new tab).

12. Serialdump program: accessing the output of printf messages from your contiki application

make TARGET=sky MOTES=/dev/ttyUSB0 login

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ALL (LINUX AND WINDOW USERS)

If you see the following output:

Congratulations ☺! You have successfully configured CONTIKI-3.0 and compiled your first program

IF NOT check the troubleshooting section

TROUBLESHOOTING

1. Getting a permission error when trying to upload code to the mote

a. Make sure that after you added <user> at dialout group you have logout out and back in to your linux account.
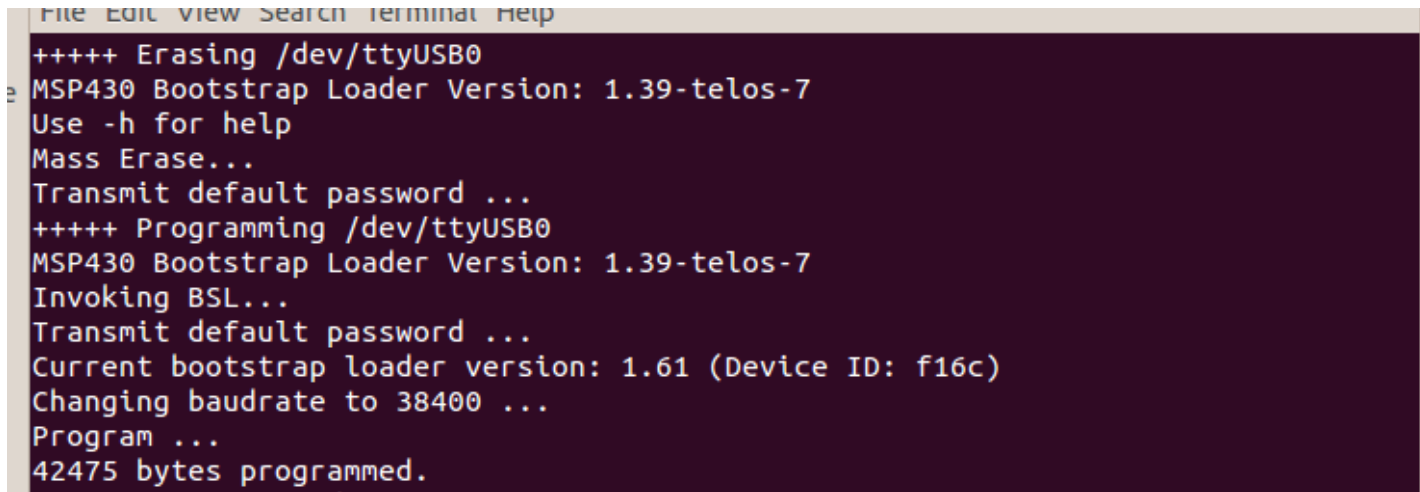
OR

b. Change the ownership of the device (this will not have effect if you log out and then back in, i.e. only works for the only for the current working session)

sudo chown <user> /dev/ttyUSB*

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TROUBLESHOOTING

2. You can compile the program, but it does not upload to the mote, i.e. if during the execution of make TARGET=sky hello-world.upload you don't see:

Check the permissions of contiki-3.0.-hy541 and make sure that:

a) The current user is the owner.

AND

b) The current user (owner) has execution rights.

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TROUBLESHOOTING

2. You can compile the program, but it does not upload to the mote (cont')

a) How to check that you (<user>) are the owner:

From your command terminal go to $CONTIKIHOSTFOLDER/contiki-3.0-hy541/tools/sky and then type:

ls –l

If <user> appears in the owner & group columns then you are the owner of the folder's contents

IF NOT, then type:

sudo chown –R <user>:<user> *

(in this example <user>=user

```
ant-contiki:~/contiki-3.0-hy541/examples/hello-world$ cd ../..
ant-contiki:~/contiki-3.0-hy541/tools/sky$ ls -l

  user user     3061 Aug 24  2015 check-size
  user user     4096 Aug 24  2015 lib
  user user      389 Aug 24  2015 Makefile
  user user     7588 Aug 24  2015 motelist-linux
  user user     1543 Aug 24  2015 motelist-macos
  user user   446514 Aug 24  2015 motelist-windows.exe
  user user    68624 Aug 24  2015 msp430-bsl-linux
  user user    81920 Aug 24  2015 msp430-bsl-windows.exe
  user user     1180 Aug 24  2015 plot-size
  user user   974909 Aug 24  2015 python23.dll
  user user     4096 Mar 25 13:24 serial
  user user     9923 Aug 24  2015 serialdump.c
  user user    14922 Nov  6  2013 serialdump-linux
  user user    24342 Aug 24  2015 serialdump-windows.exe
  user user     4096 Aug 24  2015 uip6-bridge
         contiki-3.0-hy541/tools/sky$
```

TROUBLESHOOTING

2. You can compile the program, but it does not upload to the mote (cont')

b) Change the execution rights of the owner

At the $CONTIKIHOSTFOLDER/contiki-3.0-hy541/tools/sky type

sudo chmod –R u+x *

And then **ls –l** to check the executable permissions of the folder

TROUBLESHOOTING

3. You get a permissions error when executing the login command

i.e., make TARGET=sky MOTES=/dev/ttyUSB0 login

(a) Make sure that you have execution access on the serialdump-linux (see steps above)

OR

(b) Try with sudo:

sudo make TARGET=sky MOTES=/dev/ttyUSB0 login

4. You get an device not found error when executing the login command

i.e., make TARGET=sky MOTES=/dev/ttyUSB0 login

Type:

ls –l /dev/ttyUSB* to see which is the serial device id of your mote and use that address for the MOTES macro. E.g. if the ls –l /dev/ttyUSB* command return as device id /dev/ttyUSB1, then

make TARGET=sky MOTES=/dev/ttyUSB1 login

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