

Redes Móveis e Sem Fios

TinyOS Installation Guide

Revised on 2015-3-6

Requirements

- Linux operating system (Ubuntu, Linux Mint).

1. TinyOS Installation

1.1. Remove previous versions of TinyOS (If you do not have previous versions you can advance to 1.2.).

```
$ sudo apt-get remove tinyos-2.1.2
```

1.2. Change the file sources.list.

```
$ sudo gedit /etc/apt/sources.list
```

Add to the bottom of the file the package from the Stanford University.

```
# TinyOS
deb http://tinyos.stanford.edu/tinyos/dlsts/ubuntu lucid main
```

Save and close the file.

1.3. Update the sources.list file

```
$ sudo apt-get update
```

1.4. Install TinyOS-2.1.2

```
$ sudo apt-get install tinyos-2.1.2 (This command might take some time).
```

After we will need to change the ownership of the folder.

```
$ sudo chown <your-username>:<your-username> -R /opt/tinyos-2.1.2/
```

```
$ sudo chown <your-username> -R /opt/tinyos-2.1.2
```

In <your-username> you must put your username, for example:

```
sudo chown diogo:diogo -R /opt/tinyos-2.1.2
```

Check the username here:

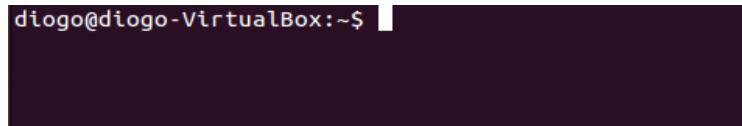


Figure 1- Check username.

1.5. Add the variables to the environment

```
$ cd /opt/tinyos-2.1.2
```

Create a file called tinyos.sh and add some lines to that file.

```
$ sudo gedit tinyos.sh
```

```
#!/usr/bin/env bash

# Here we setup the environment

# Variables needed by the tinyos

# make system

echo "Setting up for TinyOS 2.1.2 Repository Version"

export TOSROOT=

export TOSDIR=

export MAKERULES=

TOSROOT="/opt/tinyos-2.1.2"

TOSDIR="$TOSROOT/tos"

CLASSPATH=$CLASSPATH:$TOSROOT/support/sdk/java

MAKERULES="$TOSROOT/support/make/Makerules"

export TOSROOT

export TOSDIR

export CLASSPATH

export MAKERULES
```

1.6 Add some changes to bashrc file.

```
$ sudo gedit ~/.bashrc
```

```
# Start TinyOS environment pathing
export TOSROOT=/opt/tinyos-2.1.2
export TOSDIR=$TOSROOT/tos
export CLASSPATH=$TOSROOT/support/sdk/java/tinyos.jar:.$CLASSPATH
export MAKERULES=$TOSROOT/support/make/Makerules
export PATH=/opt/msp430/bin:$PATH
export PATH=/opt/msp430-46/bin:$PATH
source /opt/tinyos-2.1.2/tinyos.sh
#End Tinyos pathing
```

Update the file bashrc.

```
$ source ~/.bashrc
```

1.7 Compile the java libraries that come with tinyos.

```
$ cd $TOSROOT/support/sdk/java
```

```
$ sudo tos-install-jni
```

```
$ make
```

```
$ make install
```

1.8 Check msp430-gcc compiler version that you have and install the newest version

```
$ msp430-gcc --version
```

Remove older versions.

```
$ sudo apt-get autoremove --purge msp430*
```

Add a key to the newest version.

```
$ gpg --keyserver keyserver.ubuntu.com --recv - keys 34EC655A
```

```
$ gpg - a --export 34EC655A | sudo apt-key add -
```

```
$ sudo gedit /etc/apt/sources.list
```

Navigate to the bottom of the file and add

```
#TinyOS MSP430 GCC Compile repo  
deb http://tinyprod.net/repos/debian squeeze main  
deb http://tinyprod.net/repos/debian msp430-46 main
```

```
$ sudo apt-get update
```

```
$ sudo apt-get install msp430-46 nesc tinyos-tools
```

1.9 Add some files to the environment

```
$ sudo gedit ~/.bashrc
```

Add the line after the last export in 1.6 and before of the source.

```
export PATH=/opt/msp430-46/bin:$PATH
```

Update the bashrc file.

```
$ source ~/.bashrc
```

DONE!

2.MICAz

```
$ motelist
```

```
$ sudo chown 666 tty/ttyUSB1
```

```
$ cd $TOSROOT
```

Here we have some programs that already come with the tinyos

```
$ cd apps
```

for example no we are going to install blink

```
$ cd Blink
```

we will need to compile the blink for micaz

make micaz

