Raspbian ISS edition

1 Impostazione iniziali

```
sudo apt-get update
sudo apt-get upgrade
```

1.1 Configurazione di rete

```
auto lo

iface lo inet loopback

auto eth0
iface eth0 inet static
      address 192.168.137.2
      netmask 255.255.255.0
      gateway 192.168.137.1

allow-hotplug wlan0
iface wlan0 inet dhcp
pre-up wpa_supplicant -Dwext -i wlan0 -c /boot/mywifi.conf -B
iface default inet dhcp
```

Listing 1: /etc/network/interfaces

```
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1

ap_scan=1
eapol_version=1
fast_reauth=1

network={
      ssid="<SSID>"
      scan_ssid=1
      key_mgmt=WPA-PSK
      psk="<PASSWORD>"
}
```

Listing 2: /boot/mywifi.conf

1.2 Bash

```
[ -z "$PS1" ] && return

shopt -s histappend
HISTCONTROL=ignoreboth
HISTSIZE=1000
HISTFILESIZE=2000

shopt -s checkwinsize

if [ -z "$debian_chroot" ] && [ -r /etc/debian_chroot ]; then
   debian_chroot=$(cat /etc/debian_chroot)
fi

case "$TERM" in
```

```
    xterm-color) color_prompt=yes;;
esac

force_color_prompt=yes

if [ -n "$force_color_prompt" ]; then
    if [ -x /usr/bin/tput ] && tput setaf 1 >&/dev/null; then
  color_prompt=yes
    else
  color_prompt=
    fi
fi

if [ "$color_prompt" = yes ]; then
    PS1='${debian_chroot:+($debian_chroot)}\[\033[01;32m\]\u@\h\[\033[00m\]
        \[\033[01;34m\]\w \$\[\033[00m\] '
else
    PS1='${debian_chroot:+($debian_chroot)}\u@\h:\w\$ '
fi
unset color_prompt force_color_prompt

case "$TERM" in
xterm*|rxvt*)
    PS1="\[\e]0;${debian_chroot:+($debian_chroot)}\u@\h: \w\a\]$PS1"
    ;;
*)
    ;;
esac

if [ -x /usr/bin/dircolors ]; then
    test -r ~/.dircolors && eval "$(dircolors -b ~/.dircolors)" || eval
        "$(dircolors -b)"
    alias ls='ls --color=auto'
    alias grep='grep --color=auto'
    alias fgrep='fgrep --color=auto'
    alias egrep='egrep --color=auto'
fi

alias ll='ls -l'
alias la='ls -A'
alias l='ls -CF'

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

if [ -f /etc/bash_completion ] && ! shopt -oq posix; then
    . /etc/bash_completion
fi
```

Listing 3: /home/pi/.bashrc

1.3 Software

```
sudo apt-get install vim htop ncdu mc
```

2 Tight VNC

2.1 Installazione

```
sudo apt-get install tightvncserver
```

2.2 Configurazione

```
su pi -c "vncserver :1"
exit 0
```

Listing 4: /etc/rc.local

Per impostare la password per il server VNC, sul terminale di raspberry eseguire il commando:

```
sudo vncserver :1
```

3 udhcp

3.1 Installazione

```
sudo apt-get install udhcpd
```

3.2 Configurazione

```
start   192.168.137.1
end     192.168.137.1
interface eth0
max_leases 1
opt lease 160
option subnet 255.255.255.252
```

Listing 5: /etc/udhcpd.conf

```
# Comment the following line to enable
#DHCPD_ENABLED="no"

# Options to pass to busybox' udhcpd.
#
# -S  Log to syslog
# -f  run in foreground

DHCPD_OPTS="-S"
```

Listing 6: /etc/default/udhcpd

4 samba

4.1 Installazione

```
sudo apt-get install samba
```

4.2 Configurazione

```
[global]
   workgroup = INFOLAB
   netbios name = raspberrypi
   realm = raspberrypi
      server string = %h server
   security = user
   map to guest = Bad User
      guest account = pi
   syslog only = yes
   log level = 0
      name resolve order = host wins bcast
      #hosts allow = 192.168.137.1
   printing = bsd
   printcap name = /dev/null

#  dns proxy = no
#  disable spoolss = yes
#  hostname lookups = yes
#  local master = yes
#  preferred master = yes
#  os level = 65
#  encrypt passwords = yes

[home_pi]
      path = /home/pi/
      read only = No
      create mask = 0644
      guest ok = Yes
```

Listing 7: /etc/samba/smb.conf

Per riavviare il sevizio

```
sudo service samba restart
```

5 screen

5.1 Installazione

```
sudo apt-get install screen
```

5.2 Configurazione

```
#turn welcome message off
startup_message off

#use 256 colors
term screen-256color

#information statusbar

hardstatus off
hardstatus alwayslastline
hardstatus string '%{= kG}[ %{G}%H %{g}][%= %{=
    kw}%?%-Lw%?%{r}(%{W}%n*%f%t%?(%u)%?%{r})%{w}%?%+Lw%?%?%= %{g}][%{B} %m-%d %{W}
    %c %{g}]'

```

```
#turn off visual bell
vbell off
```

Listing 8: /home/pi/.screenrc

6 i2c

6.1 Installazione

```
sudo apt-get install i2c-tools
```

6.2 Configurazione

```
# blacklist spi and i2c by default (many users don't need them)

#blacklist spi-bcm2708
#blacklist i2c-bcm2708
```

Listing 9: /etc/modprobe.d/raspi-blacklist.conf

```
# /etc/modules: kernel modules to load at boot time.
#
# This file contains the names of kernel modules that should be loaded
# at boot time, one per line. Lines beginning with "#" are ignored.
# Parameters can be specified after the module name.

snd-bcm2835
i2c-bcm2708
i2c-dev
```

Listing 10: /etc/modules

7 pi-blaster

7.1 Installazione

```
git clone https://github.com/sarfata/pi-blaster.git

sudo apt-get install autoconf

./autogen.sh
./configure
make

#To start pi-blaster and have it relaunched automatically on every reboot:
sudo make install

#To start pi-blaster manually run:
sudo ./pi-blaster
```

8 Wiging Pi

8.1 Installazione

```
sudo apt-get install git-core
```

```
git clone git://git.drogon.net/wiringPi
```

```
cd ~/wiringPi
git pull origin
```

```
cd ~/wiringPi
./build
```

9 Pi4J

9.1 Installazione

```
wget http://pi4j.googlecode.com/files/pi4j-0.0.5.deb
```

```
sudo dpkg -i pi4j-0.0.5.deb
```

9.2 Configurazione

When attempting to compile a Java program using the Pi4J libraries, make sure to include the Pi4J lib folder in the classpath:

```
javac -classpath .:classes:/opt/pi4j/lib/'*' ...
```

When attempting to start a Java program using the Pi4J libraries, make sure to include the Pi4J lib folder in the classpath:

```
sudo java -classpath .:classes:/opt/pi4j/lib/'*' ...
```

10 Java RxTx Library

10.1 Installazione

```
sudo apt-get install librxtx-javat
```

11 Configurazione

```
sudo ln -s /usr/lib/jni/librxtxSerial-2.2pre1.so
    /usr/lib/jvm/jdk-8-oracle-arm-vfp-hflt/jre/lib/a librxtxSerial.so
sudo ln -s /usr/lib/jni/librxtxSerial-2.2pre1.so
    /usr/lib/jvm/jdk-8-oracle-arm-vfp-hflt/jre/lib/arm/librxtxSerial.so
```

12 shellinabox

12.1 Installazione

```
sudo apt-get install shellinabox
```

13 BrickPi

13.1 Installazione

```
sudo git clone https://github.com/DexterInd/BrickPi.git
```

```
cd ~/BrickPi/Setup\ Files/
sudo bash install.sh
```

14 BrickPi Python

14.1 Installazione

```
git clone https://github.com/DexterInd/BrickPi_Python.git
```

```
sudo apt-get install python-setuptools
```

```
cd ~/BrickPi_Python/
sudo python setup.py install
```

15 Open CV

15.1 Installazione

```
sudo apt-get install build-essential cmake pkg-config python-dev libgtk2.0-dev
sudo apt-get install libgtk2.0 zlib1g-dev libpng-dev libjpeg-dev libtiff-dev
sudo apt-get install libjasper-dev libavcodec-dev swig
```

```
wget http://downloads.sourceforge.net/project/opencvlibrary/
   opencv-unix/2.4.7/opencv-2.4.7.tar.gz
```

```
cd ~/opencv-2.4.7/
```

```
cmake -DCMAKE_BUILD_TYPE=RELEASE -DCMAKE_INSTALL_PREFIX=/usr/local
   -DBUILD_PERF_TESTS=OFF -DBUILD_opencv_gpu=OFF -DBUILD_opencv_ocl=OFF
```

```
make
```

```
sudo make install
```

16 Open CV Raspicam Library

16.1 Installazione

```
http://sourceforge.net/projects/raspicam/files/
```

```
tar xvzf raspicamxx.tgz
cd raspicamxx
mkdir build
cd build
cmake ..
```

```
make
sudo make install
```

16.2 Configurazione

```
raspicam_test
raspicam_cv_test
```

Link utili