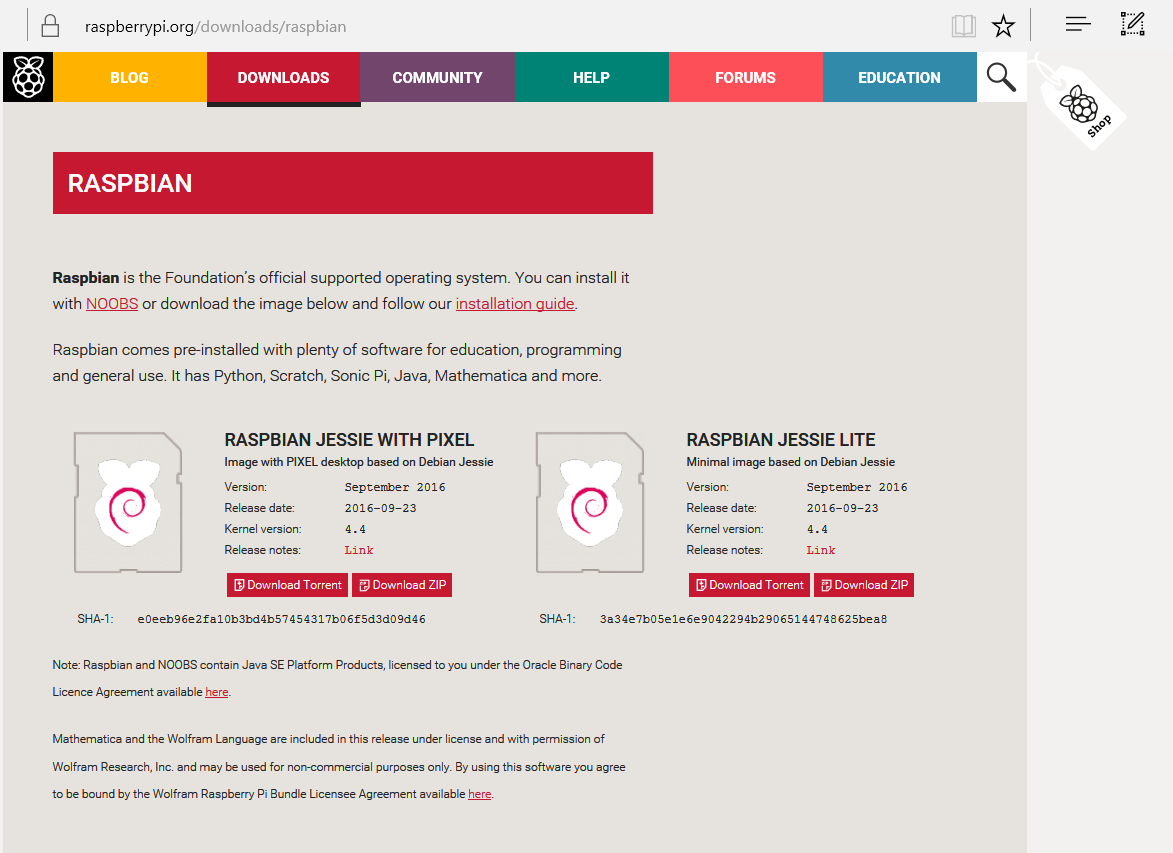
Steps Overview /Outline

1. Create Raspbian (Jessie / full desktop) image on a SD Card ( >= 8 GB, class 10 recommended)
2. First Boot / Setup OS , using **raspi-config**
   1. Expand File System (use entire SD card)
   2. Change password
   3. Set internationalization & keyboard defaults
   4. Advanced Options
      1. Change hostname
      2. Enable SSH
      3. HDMI audio output
      4. reboot
   5. Create share
3. Install needed components
   1. Setup VNC Server (X11VNC) <= not needed for Jessie-with-pixel
   2. Test connectivity with VNC client
   3. Setup remote administration / WebMin
   4. Setup a web-browser in kiosk-mode / IceWeasel
   5. Setup the web-engine
      1. NodeJS , and other required node\_modules
      2. Allow node to Run on port 80
   6. Setup Forever
   7. Remove some modules which are not needed
4. Setup & Configure IDE Visual Studio 2015
   1. Install Visual Studio 2015 – with update 3 or higher
   2. Install VS plugins
      1. Node.js Tools 1.2 for Visual Studio 2015   
         <https://www.visualstudio.com/vs/node-js/>
      2. …
   3. Get InfoDisplay from GitHub & open solution in VS
   4. Upgrade packages
   5. Build & Install program
5. Configure InfoDisplay on PI
   1. Create a shared folder
   2. Configure Scheduled Jobs
      1. Enable/Disable HDMI
      2. Enable/Disable web-browser
   3. Auto start after boot
      1. Start InfoDisplay
      2. Start WebBrowser
6. Test InfoDisplay
   1. On local RPI
   2. On remote computer using a WebBrowser

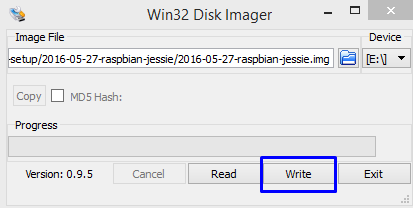
# Create Raspbian image on a SD Card

Download ZIP file from: <https://www.raspberrypi.org/downloads/raspbian/>  
UNZIP the Raspbian Jessie with Pixel image



Write the image to the SD card (under windows, using Win32 Disk Imager)  
Make sure you select

* + The Image File (the image you have downloaded)
  + The target “Device”. Select the drive letter which contains the SD card.
  + Select “Write” to write the image to the SD card

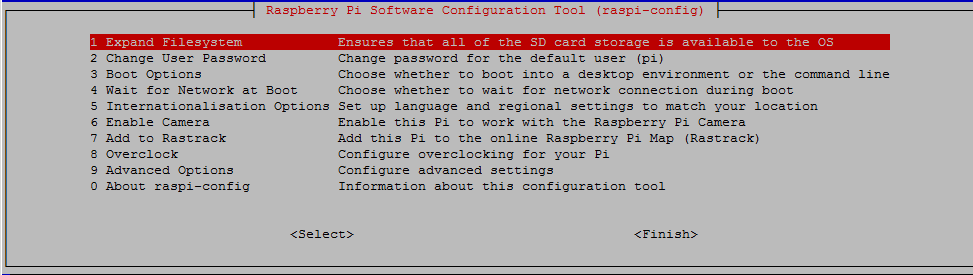


# First Boot / Setup OS

Login ***pi*** with default password ***raspberry***

Open a terminal and startup the configuration tool

sudo raspi-config



1. Select “Expand File System” (use entire SD card)
2. Select “Change user password” and set (and remember) a new password.
3. Set Internationalization Options
   1. Change Locale: en\_GB.UTF-8 UTF-8 (default)
   2. Change Timezone: Europe / Amsterdam
   3. Change Keyboard Layout:
      1. *Generic 105-key (intl) PC*
      2. *English (US*) *– US international with dead keys*
      3. Key to function as AltGr: *Right Alt*
      4. Compose key: *Right Control*
      5. Use Ctrl-Alt-BS to terminate the X-Server ? *No*
4. From the menu select “Advanced Options”.
   1. Select “Hostname” , and set your desired computer name *(InfoDisplay01)*
   2. SSH: Enable SSH (remote command line)
   3. Audio output: Force HDMI
   4. Finish. Reboot: **<Yes>**
5. Create a Shared folder ( accessible with a Windows computer)

Check your windows machine domain with: net config workstation (and when domain is not WORKGROUP then use that other name below where WORKGROUP is listed)

Install SAMBA

sudo apt-get install samba

sudo nano /etc/samba/smb.conf

Read through the file and make sure you have the following parameters (see [global] setting area):

workgroup = WORKGROUP

wins support = yes

Create the folder you would like to share

mkdir /home/pi/shared

chmod 777 /home/pi/shared

Scroll to the bottom of the file smb.conf and add the following:

[PiShare]

 comment=Pi Shared Folder

 path=/home/pi/shared

 browseable=Yes

 writeable=Yes

 only guest=no

 create mask=0777

 directory mask=0777

 public=no

To let Samba know that “pi” is a network user run the command:

sudo smbpasswd -a pi

and enter pi’s password twice. Then restart the Samba Service

sudo systemctl restart smbd.service

Now, On Windows, Open a browser and enter **\\[hostname]\PiShare**

You need to add a user WORKGROUP\pi and passwd.

# Install needed components on the PI

After reboot, login via putty (SSH) with Login ***pi*** with your ***new*** password

## 3.a. Setup VNC Server (X11VNC) **(might not be needed anymore, since RealVNC is included in the Raspian Jessie with pixel image**)

Setup for **remote session** (headless operation / without a screen), where you can access the console/X view (not separate session like in tightvncserver).  
Setup X11VNC: <https://blog.tonywall.co/2013/07/setting-up-raspberry-pi-for-headless-mode-with-x11vnc/>

sudo apt-get install x11vnc

x11vnc –storepasswd

; then set a password for remote access. This will be encrypt and saved in /home/pi/.vnc/passwd

; or, when storepasswd fails, then do: x11vnc -usepw

nano ~/.xsessionrc

#Start X11VNC

x11vnc -bg -nevershared -forever -tightfilexfer -usepw -display :0

chmod 775 ~/.xsessionrc

sudo nano /boot/config.txt

Set the following line to force HDMI to be the only detected connection, i.e. disable the analogue video default:

hdmi\_force\_hotplug=1

Set screen to: Full HD 1920×1080@60Hz:

hdmi\_group=2

hdmi\_mode=82

Now reboot and test the connectivity

sudo reboot

3.b. Test connectivity with any VNC client,

Download & Install a VNC client like [TightVNC](http://www.tightvnc.com/) viewer or [RealVNC](https://www.realvnc.com/download/viewer/) viewer.  
Open the viewer and connect to the **hostname** *(InfoDisplay01)*

You can even download VNC clients for mobile phones, allowing you to fully control them from anywhere. You might want to check the screen resolution from X with command: xdpyinfo

## 3.c. Setup WebMin

We will use [WebMin](http://www.webmin.com/) for remote administration tasks (this is a web based open source utility)

**Find WebMin and download it on the PI.**Find & download latest (debian) release of from <https://sourceforge.net/projects/webadmin/files/webmin/>

; I found **1.810**

sudo wget http://prdownloads.sourceforge.net/webadmin/webmin\_**1.810**\_all.deb

then install WebAdmin with the command

sudo dpkg --install webmin\_1.810\_all.deb

If Debian complains about missing dependencies, you can install them with the command :

sudo apt-get install perl libnet-ssleay-perl openssl libauthen-pam-perl libpam-runtime libio-pty-perl apt-show-versions python

If that still fails or remark is given for statement “apt-get -f install”; then complete the install with the following commands:

sudo apt-get update

sudo apt-get -f install

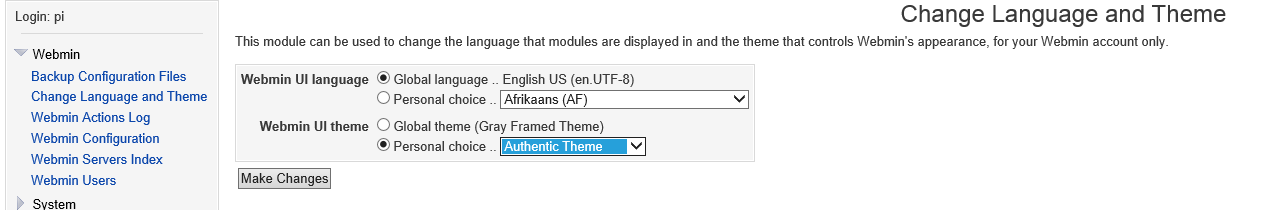
**Startup the webmin web-interface**, after suc6full install open a web browser on:

https://FQDN:1000

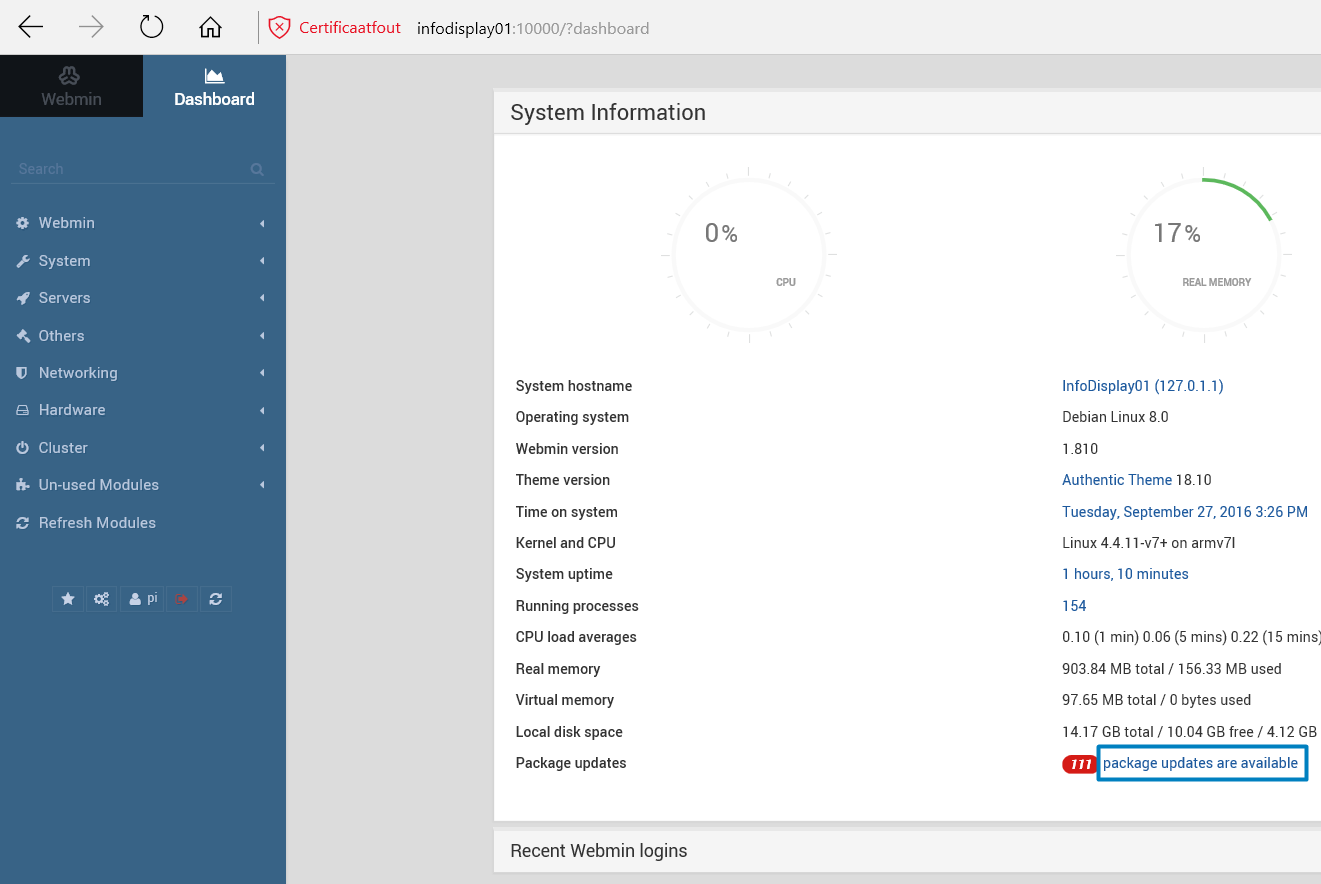
where FQDN is the fully qualified domain name / hostname / or IP adress.

login with the pi login and its password.

**Change the Theme to Authentic Theme**



**Update / Upgrade the OS & installed packages**



In next screen select “Update Packages” and then “Install Now” (this might take some time…)

**Activate the virtual keyboard (if you have a touchscreen)**

<http://raspberrypi.stackexchange.com/questions/41150/virtual-keyboard-activation>

sudo apt-get install matchbox-keyboard

Now you can access the keyboard: MENU >> ACCESSORIES >> KEYBOARD

## 3.d. Setup a web-browser in kiosk-mode / IceWeasel

- TODO: use firefox (chromium)

3.e. Setup the web-engine / NodeJS and other required node\_modules

1. Allow node to Run on port 80 (without root permissions)

sudo setcap 'cap\_net\_bind\_service=+ep' /usr/bin/nodejs

3.f. …