Raspberry Pi Strech Setup Tutorial

Download and Install 7 Zip
http://www.7-zip.org/download.html

Download and install SD Formatter
https://www.sdcard.org/downloads/formatter_4/
This software formats all SD memory cards

Download and install Win32DiskImager on to a PC.
https://sourceforge.net/projects/win32diskimager/files/latest/download

Download and install Putty
http://www.putty.org/

Notepad++
https://notepad-plus-plus.org/

Download and load an operating system to your Raspberry PI
https://www.raspberrypi.org/downloads/raspbian/

When finished downloading extract the zipped file using 7 Zip.

The RaspberryPi image contained in the ZIP archive is over 4GB in size, which means that these archives use features which are not supported by older unzip tools on some platforms. If you find that the download appears to be corrupt or the file is not unzipping correctly, please try using 7Zip (Windows) or The Unarchiver (Macintosh). Both are free of charge and have been tested to unzip the image correctly.

Install the Raspberry Pi image on to your micro SD card using Win32DiskImager and your PC.

Review:
Download latest Raspberry Pi zip image
Use 7Zip to unzip file
Format your SD card using SD Formatter for Windows.
Use Win32DiskImager to put the downloaded image onto the micro SD card
Download and install Putty

When finished Insert the micro SD card into the Raspberry PI and plug the Raspberry PI 3 into your router with an Ethernet cable. Plug in your TV or monitor with HDMI. Plug in your USB keyboard and mouse, and lastly the power cord.

Raspberry PI will begin to boot. The Raspberry Pi image desktop and Light versions at this point will differ a little. The Raspberry Pi will resize the SD filesystem automatically.

Enable SSH
Change the default password
Change the time zone

reboot you Raspberry PI

Setup your router to give your Raspberry PI 3 a specific IP address.

Set Putty up with the IP Address of your Raspberry PI.

Update and upgrade you Raspberry PI

Once logged back into you Raspberry PI with PuttY, type in “sudo apt-get update” then “sudo apt-get upgrade” If prompted Select “Y” then “Enter”, Then finally “sudo reboot”

Setup SAMBA File Sharing
https://www.youtube.com/watch?v=iQwWEsuRWUw&t=118s

Log into your raspberry PI with Putty and type "sudo apt-get install samba"
You will get a prompt "Additional disk space will be used"
You will be asked if you want to continue y/n, type y and press “enter”. Once done type in "sudo nano /etc/samba/smb.conf" to edit the config file. Delete the contents by pressing ctrl key and the K button.
Copy this Configuration and paste it in to the file. Make sure to in-enlarge your putty screen.

```
[global]
netbios name = Jacobs PI
server string = The Pi File Center
workgroup = WORKGROUP
hosts allow =
socket options = TCP_NODELAY IPTOS_LOWDELAY SO_RCVBUF=65536 SO_SNDBUF=65536
remote announce =
remote browse sync =
[HOMEPI]
path = /home/pi
comment = No comment
browsable = yes
read only = no
valid users =
writable = yes
guest ok = yes
public = yes
create mask = 0777
directory mask = 0777
force user = root
force create mode = 0777
force directory mode = 0777
hosts allow =
[HOME]
path = /
comment = No comment
browsable = yes
```

read only = no
valid users =
writable = yes
guest ok = yes
public = yes
create mask = 0777
directory mask = 0777
force user = root
force create mode = 0777
force directory mode = 0777
hosts allow =

Exit by pressing ctrl and X keys then “Y” then enter.

Next create a user "pi"
To access the samba share.

Type in "sudo smbpasswd -a pi" type in the password you want to used and press enter.
You will be asked to re-enter it then press enter. Lastly restart the Samba Service by
typing "sudo reboot"

Install Zip

sudo apt-get install zip

Install Notepad++

https://notepad-plus-plus.org/

OpenHAB 2.1 Installation

Raspberry Pi 2 or newer, compare your existing device here if you are unsure.
SD card (16GB or more to support wear-leveling)
Steady power supply
Ethernet connection

Open Putty and login to you Raspberry Pi and type the following.

sudo apt-get update
sudo apt-get upgrade
You will be asked if you want to continue y/n, type y and press “enter”.

sudo apt-get install screen mc vim git htop

http://docs.openhab.org/installation/rasppi.html

Zulu is currently the recommended Java platform for openHAB

Make sure to download Zulu or Java 8, as openHAB is not yet compatible with Java 9

mkdir ~/zulu

wget http://cdn.azul.com/zulu-embedded/bin/ezdk-1.8.0_152-8.25.0.76-eval-linux_aarch32hf.tar.gz
tar xvfpz ezdk-1.8.0_152-8.25.0.76-eval-linux_aarch32hf.tar.gz -C ~/zulu

sudo update-alternatives --install /usr/bin/java java ~/zulu/ezdk-1.8.0_152-8.25.0.76-eval-linux_aarch32hf/bin/java 100

sudo update-alternatives --config java
Select 1 from the options

java -version

openjdk version”1.8.0_152”
OpenJKD Runtime Envionment (Zulu Embedded 8.25.0.76-linux-aarch32hf) (build 1.8.0_152-b76
OpenJDK Client VM (Zulu Embedded 8.25.0.76-linux-aarch32hf) (build 25.152-b76, mixed mode, Evalution

sudo adduser --system --no-create-home --group --disabled-login openhab

Download and extract the latest offical stable version of openHAB 2 from bintray.com/openhab to your host:

cd /tmp

wget -O openhab-download.zip https://bintray.com/...
https://bintray.com/openhab/mvn/download_file?file_path=org/openhab/distro/openhab/2.1.0/openhab-2.1.0.zip

sudo unzip openhab-download.zip -d /opt/openhab2
rm openhab-download.zip

cd ..

sudo chown -hR openhab:openhab /opt/openhab2
sudo su -s /bin/bash -c '/opt/openhab2/start.sh' openhab

http://YOUR RASPBERRY PI IP:8080

Close Putty and reopen Putty, and log back into your Raspberry PI

This will allow you to register openHAB as a service, so that it runs at startup and automatically restarts if openHAB crashes. The service will be running with the privileges of the user “openhab” and expects the openHAB files under /opt/openhab2.

Create the file “sudo nano /lib/systemd/system/openhab2.service” with the following content:

```
[Unit]
Description=The openHAB 2 Home Automation Bus Solution
Documentation=http://docs.openhab.org
Wants=network-online.target
After=network-online.target

[Service]
Type=simple
User=openhab
Group=openhab
GuessMainPID=yes
WorkingDirectory=/opt/openhab2
#EnvironmentFile=/etc/default/openhab2
ExecStart=/opt/openhab2/start.sh server
ExecStop=/bin/kill -SIGINT $MAINPID
Restart=on-failure

[Install]
WantedBy=multi-user.target
```

Next, enable the service to be executed on system startup, start the service and retrieve status information:

```
# initialize the new service (execute only once)
sudo systemctl daemon-reload
sudo systemctl enable openhab2.service

#start and retrieve status
sudo systemctl start openhab2.service
sudo systemctl status openhab2.service
```

The output of status after a successful execution should be similar to:

```
openhab2.service - The openHAB 2 Home Automation Bus Solution
  Loaded: loaded (/lib/systemd/system/openhab2.service; enabled)
  Active: active (running) since Thu 2016-08-14 01:16:00 GMT; 18h ago
    Docs: http://docs.openhab.org
```

http://docs.openhab.org/installation/linux.html#manual-installation

Other Links

http://docs.openhab.org/tutorials/beginner/1sttimesetup.html

https://blog.benjamin-cabe.com/2016/04/05/installing-the-zulu-open-source-java-virtual-machine-on-raspberry-pi

openHAB 2.1 Manual Installation
http://www.openhab.org/

Setup Raspberry Pi for Remote Desktop. (XRDP)

Get your Raspberry PI's IP address from your router devices list

Open Putty and login to you Raspberry Pi

"sudo apt-get install xrdp" You will get a prompt "Additional disk space will be used" you will be asked if you want to continue y/n, type "y" and press "enter". If you installed SAMBA, and Notepad ++ as described in a previous video, go to "Window Explore" from your PC (I'm using Windows 7) and navigate to your Raspberry Pi under "NETWORK". After you have logged in, navigate through the directories (.config) (lxsession) (LXDE-pi) until you get to the file called autostart. If for some reason you don't see these folders, go to the top of Windows Explorer and select "Tools" and select "Folder options" from the list. Once there click on the tab called "View" and select "Show hidden files and folders" if it isn't already, and click the "Apply" button at the bottom. Once found right click on top of the file and choose Notepad++ from the list. Once the file has been opened in Notepad++ paste @xhost si:localuser:root at the bottom of the list and save the file.

As of now the only thing that I know has been found is that you will not be able to shutdown, or restart your Raspberry Pi within Remote Desktop.

Once downloaded you should be able to remote desktop.

If you use Remote Desktop Connection regularly. You can type "remote Desktop Connection" in the run box, and right click on it and select "Send to" "Desktop (Create Shortcut)" to create a shortcut on your desktop, then when you open it, enter in the IP for your raspberry PI in the field called "Computer" and click the "Connect" button. You will get a prompt, click "Yes" you will then get a prompt for you username "pi" and the password you setup. If using default password use "raspberry"

Remote Desktop XRDP with Xorg is working well on Stretch after a fresh install.

In order to run 'Raspberry PI Configuration' tool and others that need 'sudo' to run in Remote GUI, I inserted X authorization of 'xhost' for 'root' in:

/home/pi/.config/lxsession/LXDE-pi/autostart --> Insert '@xhost si:localuser:root' as last line.

I should also point out that I no longer have to remove vnc server.

ie. this is NO LONGER REQUIRED WITH STRETCH as it was with jessie:
sudo apt-get purge realvnc-vnc-server

You may still want to do it to free up space but you no longer have to for XRDP to work.
I also like that XRDP now supports mouse scroll wheel, copy & paste - these were really needed and welcome improvements.

https://www.raspberrypi.org/forums/viewtopic.php?t=193912&p=1236162

/home/pi/.config/lxsession/LXDE-pi/autostart --> Insert '@xhost si:localuser:root' as last line.

cd /home/pi/.config/lxsession/LXDE-pi/autostart

HA Bridge V 5

Create the directory and make sure that ha-bridge-5.0.0.jar is in your /home/pi/habridge directory.
mkdir habridge
cd habridge
wget https://github.com/bwssytems/ha-bridge/releases/download/v5.0.0/ha-bridge-5.0.0.jar

System Control Setup on a pi
cd /etc/systemd/system
sudo nano habridge.service

Copy the text below into the editor nano.

[Unit]
Description=HA Bridge
Wants=network.target
After=network.target

[Service]
Type=simple
WorkingDirectory=/home/pi/habridge
ExecStart=/usr/bin/java -jar -Dconfig.file=/home/pi/habridge/data/habridge.config
/home/pi/habridge/ha-bridge-5.0.0.jar

[Install]
WantedBy=multi-user.target

Hit CTL-X and press Y and enter button to save.

cd ..
cd ..
cd ..
sudo systemctl daemon-reload
sudo systemctl start habridge.service
sudo systemctl enable habridge.service

cd /home/pi/habridge
nano starthabridge.sh

Then cut and paste this, modify any locations that are not correct

cd /home/pi/habridge
rm /home/pi/habridge/habridge-log.txt

nohup java -jar -Dconfig.file=/home/pi/habridge/data/habridge.config /home/pi/habridge/ha-bridge-5.0.0.jar > /home/pi/habridge/habridge-log.txt 2>&1 &

chmod 777 /home/pi/habridge/habridge-log.txt

Exit and save the file with ctrl-X and follow the prompts and then execute on the command line:

chmod u+x starthabridge.sh

Then execute the script:
./starthabridge.sh

The bridge should now be running.
http://192.168.1.119

You must configure devices before you will have anything for the Echo or other controller that is connected to the ha-bridge to receive.

Sources:

http://bwssystems.com/
https://github.com/bwssytems
https://github.com/bwssytems/ha-bridge
https://github.com/bwssytems/ha-bridge/releases
