# Linux Screen (35 Series) Development Guide

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# **Chapter 1 Environment Setup**

## 1.1 Ubuntu16.04 Configuration

#### 1.1.1 Introduction

This chapter will introduce the installation of a virtual machine and the configuration of Ubuntu16.04. If you have already installed Ubuntu16.04, you can <u>click here</u>.

#### 1.1.2 Environment Requirements

CPU: no specific requirement Memory: generally over 2G.

Host machine OS: Windows XP, Windows 7 and above.

Software version: you can choose VMware workstation 10 and above for Windows according to your needs, it is not recommended to use previous versions.

#### Note:

This example will use VMware Workstation 15 Pro for installation demonstration.

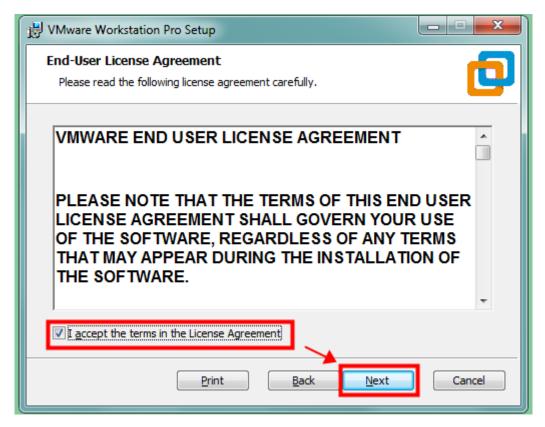
#### 1.1.3 VMware Workstation Installation

(1) Download VMware Workstation pro installation package on the official website below. https://www.vmware.com/products/workstation-pro.html

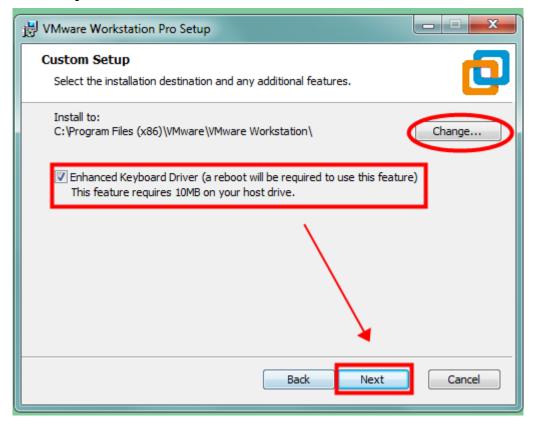
(2) Double clicks on downloaded exe file to start the installation and click "Next".



(3) Select "I accept the terms in the License Agreement" and click "Next".

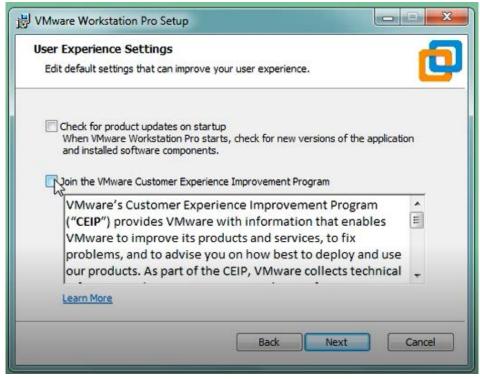


(4) Select the installation destination. Click "Change" if you want to install on another destination. Select "Enhanced Keyboard..." and then click "Next".

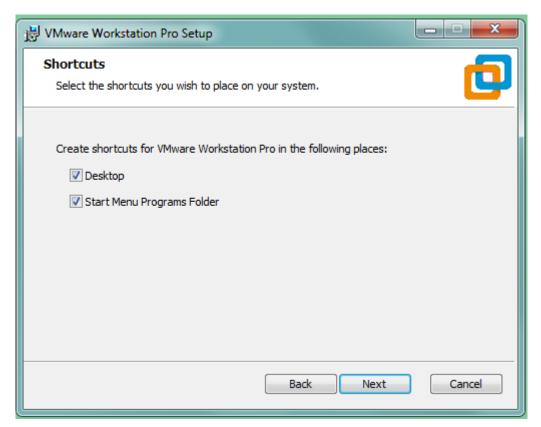


(5) Select "Check for product updates on startup" and "Join the VMware Customer Experience Improvement Program" based on what you need. Then click "Next".

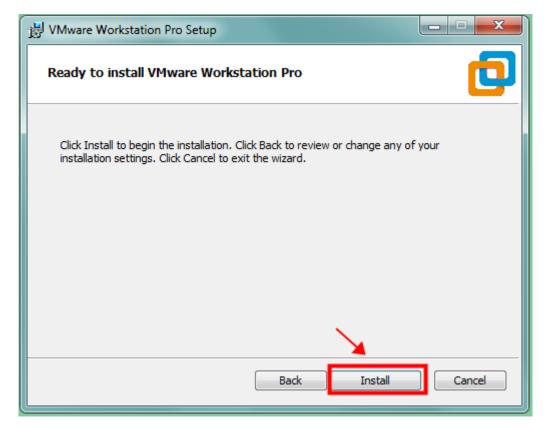
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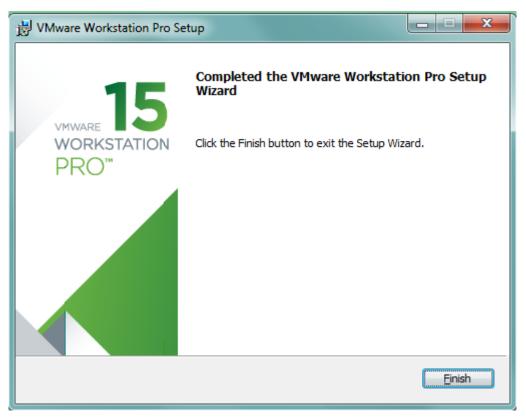
(6) Select the shortcuts you wish to place on your system. It's recommended to select both. Click "Next".



(7) Click "Install" to start the installation.



(7) The installation is completed. Click "Finish" to exit the Setup Wizard.



#### 1.1.4 Download Ubuntu

(1) Download Ubuntu 16.04 from the official website below.

https://releases.ubuntu.com/16.04/

(2) Select "64-bit PC(AMD64) desktop image" to download "ubuntu-16.04.7-desktop-amd64.iso".

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## Select an image

Ubuntu is distributed on two types of images described below.

#### Desktop image

The desktop image allows you to try Ubuntu without changing your computer at all, and at your option to install it permanently later. This type of image is what most people will want to use. You will need at least 384MiB of RAM to install from this image.

#### 64-bit PC (AMD64) desktop image

Choose this if you have a computer based on the AMD64 or EM64T architecture (e.g., Athlon64, Opteron, EM64T Xeon, Core 2). If you have a non-64-bit processor made by AMD, or if you need full support for 32-bit code, use the i386 images instead. Choose this if you are at all unsure.

#### 32-bit PC (i386) desktop image

For almost all PCs. This includes most machines with Intel/AMD/etc type processors and almost all computers that run Microsoft Windows, as well as newer Apple Macintosh systems based on Intel processors.

#### Server install image

#### 64-bit PC (AMD64) server install image

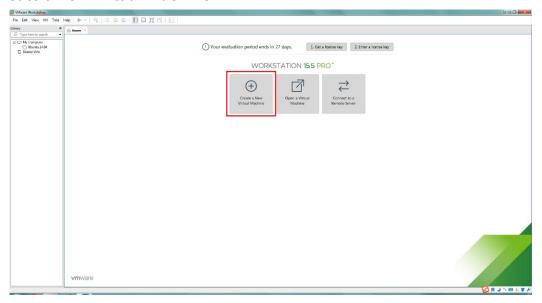
Choose this if you have a computer based on the AMD64 or FM64T architecture (e.g., Athlon64, Opterop, FM64T Yeon, Core

#### 1.1.5 Install Ubuntu

(1) Open VMware Workstation Pro.



(2) Click "Create a new virtual machine".

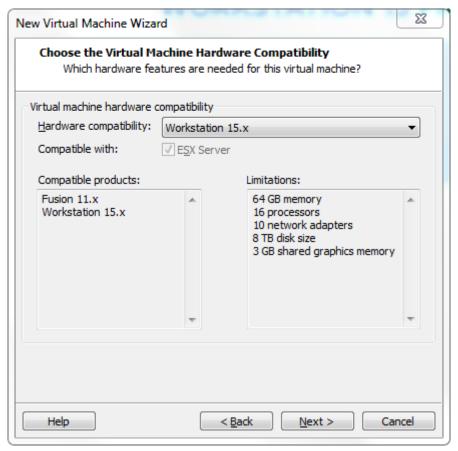


(3) Select "Custom (advanced)" and click "Next".



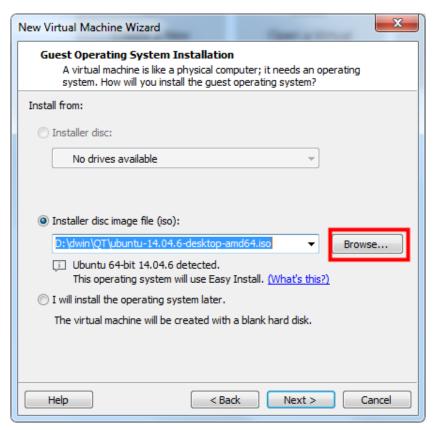


#### (4) Click "Next"

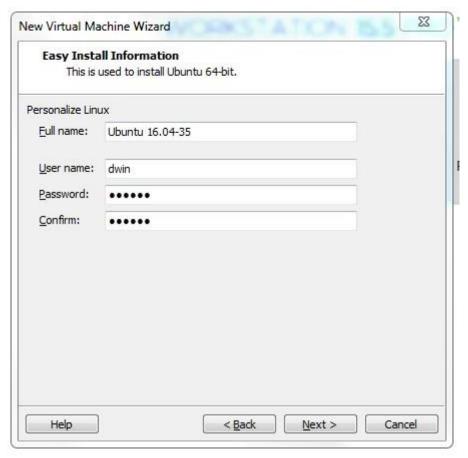


(5) Select "Installer disc image file (iso)", next click "Browse...", and select the downloaded Ubuntu \*\*\*.iso file. This installer will automatically recognize and read file. Click "Next".

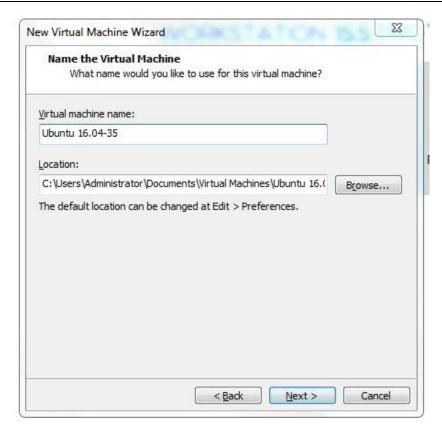
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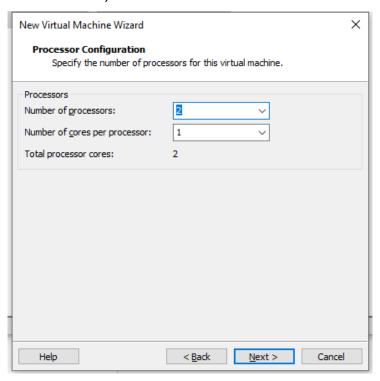
(6) Enter the custom name and password. The password is the Ubuntu login password and sudo privilege password. Click "**Next**".



(7) Set the Ubuntu name and location, and click "Next".

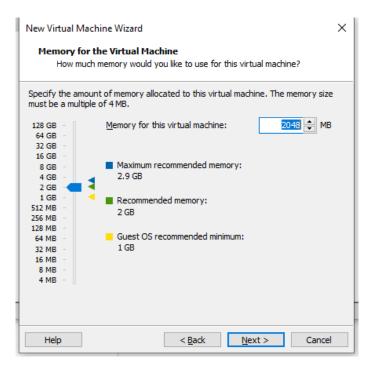


(8) According to needs and the computer configuration, allocate processors and cores (here the total number of processor cores is set to 2). Then click "**Next**".

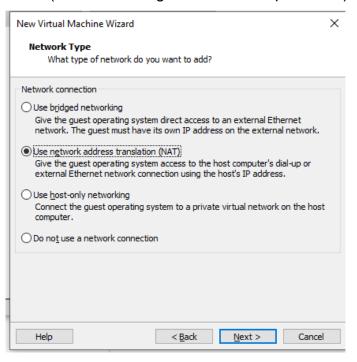


(9) The default operating memory is 2G (enough and changeable), click "Next".

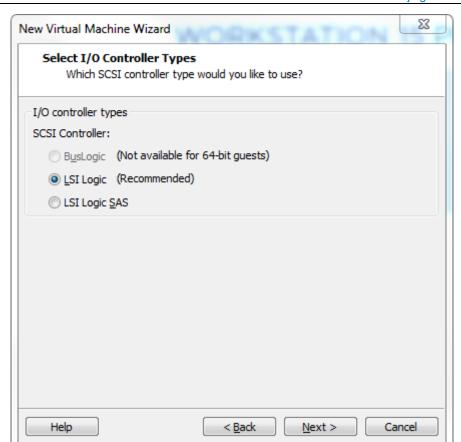
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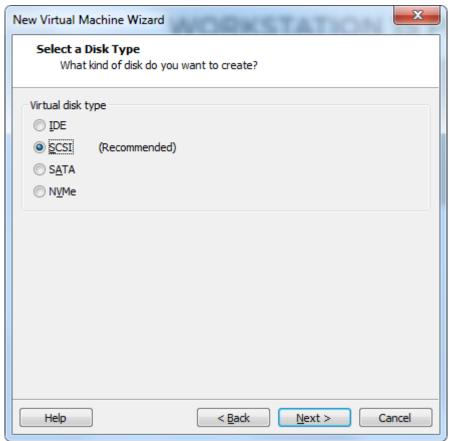
(10) Keep default configuration (or choose bridge network for tftp transfer). Click "Next".



(11) Keep default and click "Next".

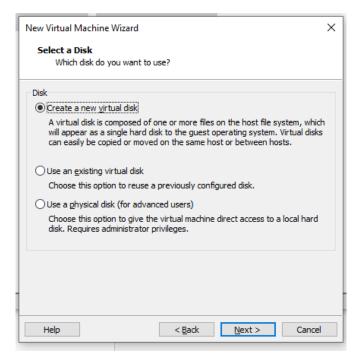


(12) Keep default and click "Next".

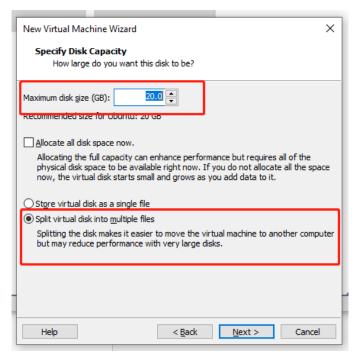


(13) Select "Create a new virtual disk" and click "Next".

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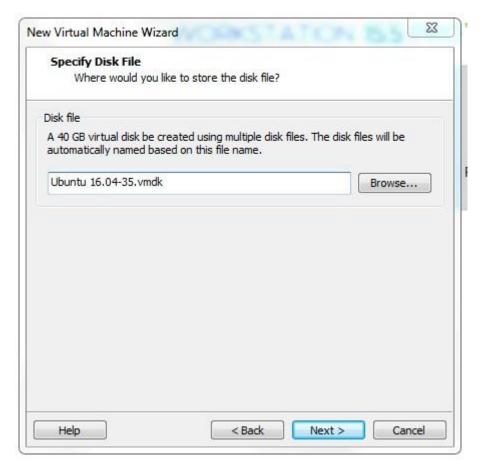


(14) Specify the disk capacity. If there is enough computer memory, it is recommended to set 30G or more because small memory may not be able to meet the subsequent demand. Select "Split virtual disk into multiple files". Click "Next". If the disk capacity is small, you can expand it (see subsequent sections).

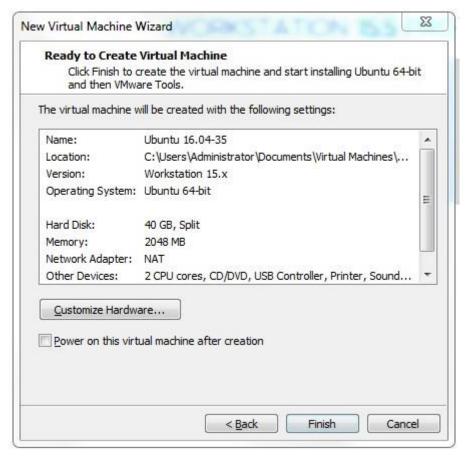


(15) The disk will be named automatically. Keep the default and click "Next".

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(16) Click "Finish" and the virtual machine will be opened and installed.



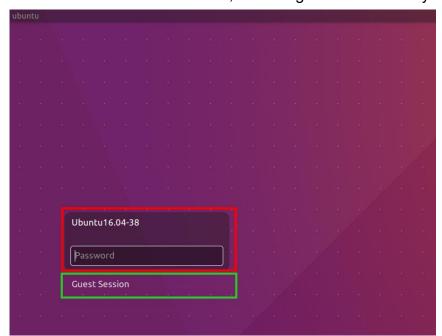
(17) Wait for a while.

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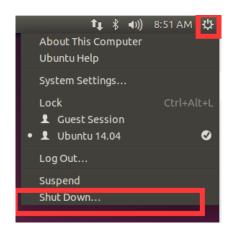
(18) When this page appears, the installation of Ubuntu is complete (Note: The login interface has two user login entries. The red box is user-defined, and the green box is the system default).



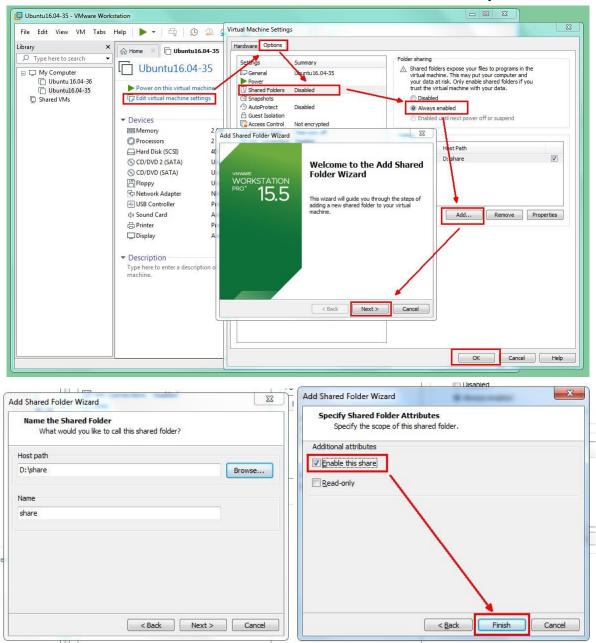
(19) Next, we'll start configuring some of the required settings for Ubuntu.

## 1.1.6 Shared Folder Settings

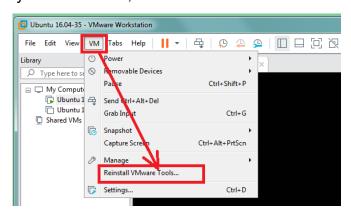
(1) Shut down Ubuntu.



(2) After shutdown, click "Edit Virtual Machine Settings" -> "Options" -> "Shared Folder" -> "Always Enable" -> "Add", to add a folder as a medium for file transfer between the host and the virtual machine. click "Next" and follow the Add Shared Folder Wizard. Finally click "OK".



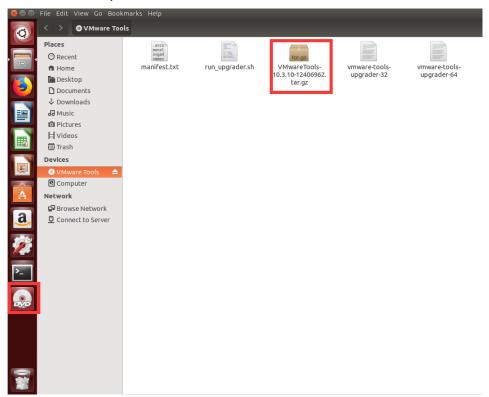
(3) Click "Power on this virtual machine" to start the virtual machine. Click "VM" -> "Install VMware Tools" (Note: The 'Install VMware Tools' is only selectable after powering on. In the example, VMware Tools have already been installed, so it shows 'Reinstall VMware Tools').



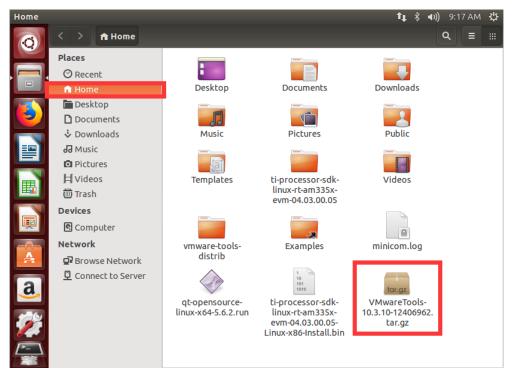
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(4) Click the "DVD" icon and open it to see a tar file "VMwareTools-10.3.10-12406962.tar.gz".



(5) Right click the tar file and click "copy to" a path with permission, e.g., to "Home".



(6) At this point, we need to open the terminal as shown. Click the upper left icon and enter "**Terminal**" and click the "**Terminal**" icon (the terminal can be locked in the taskbar by right-clicking the icon and select "**Lock to Launcher**"). You can also press [Ctrl]+[Alt]+[T] to open the terminal.

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(7) We can see that we are in the root directory "~" (i.e., /home/dwin). Enter the command: **Is -I** (enter) as shown. Then the target file is in red inoperable state, you need to change the access permission.



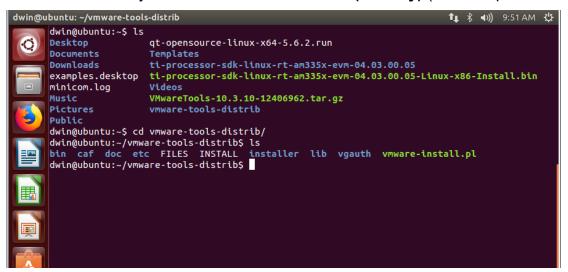
(8) Enter the command to enable the operable privilege: **sudo chmod +x VM** (to display the full name by **Tab** key) (**enter**), then enter the command: **Is -I (enter)**, and then you can see the target file become a green operable file. (Note: for the first time to use the administrator sudo privilege, you need to enter the password, i.e., the login password, which is not visible when entering.)

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```
| dwingubuntu:~ | sudo chmod +x VMwareTools-10.3.10-12406962.tar.gz | dwingubuntu:~$ sudo chmod +x VMwa
```

(9) Enter the decompression command: **tar -xvf VM (Tab key) (Enter)**, then it will automatically extract the tar file to the current directory. You can see the decompressed file named "vmware-tools-distrib" in the current directory. Enter the command: **cd vm (Tab key)** (The rest part is omitted).



(10) Enter the operation command: **sudo**. **/vm (Tab)**, and then the installation will start. When [yes] or [no] appears, just type **yes** and enter for all the following options until the installation is complete as shown.

```
Skipping rebuilding initrd boot image for kernel as no drivers to be included in boot image were installed by this installer.

vmware-tools start/running
The configuration of VMware Tools 10.3.10 build-13959562 for Linux for this running kernel completed successfully.

Found VMware Tools CDROM mounted at /media/dwin/VMware Tools. Ejecting device /dev/sr0 ...

Enjoy,

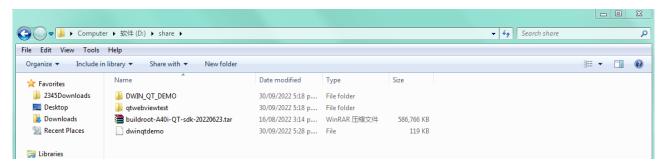
--the VMware team
```

(11) At this time, we can enter the command: **cd /mn** (Tab all the way to the shared folder you set), the path is /mnt/hfgs/\*\*\*, and the shared folder is set up here.



#### 1.2 Install A40i Toolchain

(1) Use the shared folder or SFTP to move the A40i tar file to Ubuntu.



- (2) Move the tar file (file name: buildroot-A40i-QT-sdk-20220623.tar.gz) to the root directory (/home/dwin) by shared folder. Enter the command: **sudo mv buil (Tab)~**. Wait a while and it will be moved to the root directory.
- (3) Enter the command tar -xvf bu(TAB)(enter) to extract the tar file.
- (4) Enter the following command in substance:

#### cd bui(TAB)(enter)

#### source env-setup(enter)

(5) Enter the command **qmake -v** to check the version of qmake and see if the environment is successfully built.

```
dwin@ubuntu:~/buildroot-A40i-QT5_12_6-sdk$ source env-setup.sh
dwin@ubuntu:~/buildroot-A40i-QT5_12_6-sdk$ qmake -v
QMake version 3.1
Using Qt version 5.12.6 in /home/dwin/buildroot-A40i-QT5_12_6-sdk/sysroot/usr/local/Qt-5.12.6/lib
```

## 1.3 Development Board Configuration

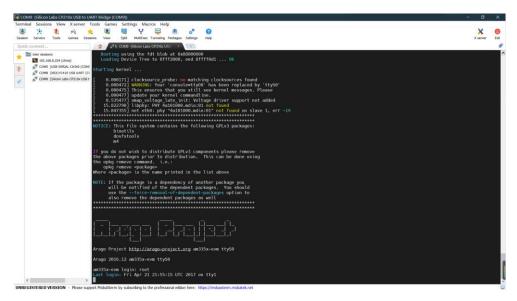
#### 1.3.1 Terminal Software

(1) You can download and use either SecureCRT or MobaXterm, and this section will introduce the use of MobaXterm.



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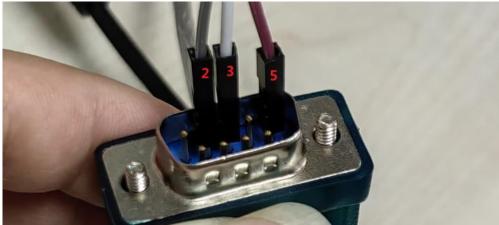


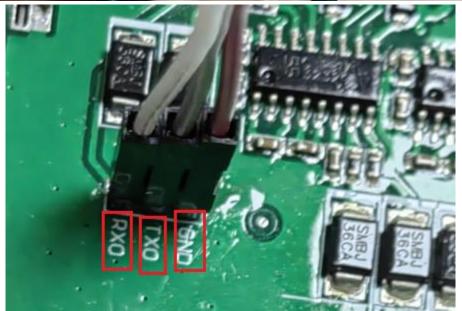


(2) There are two connection options: Serial (UART 0) connection and Telnet connection by a network cable.

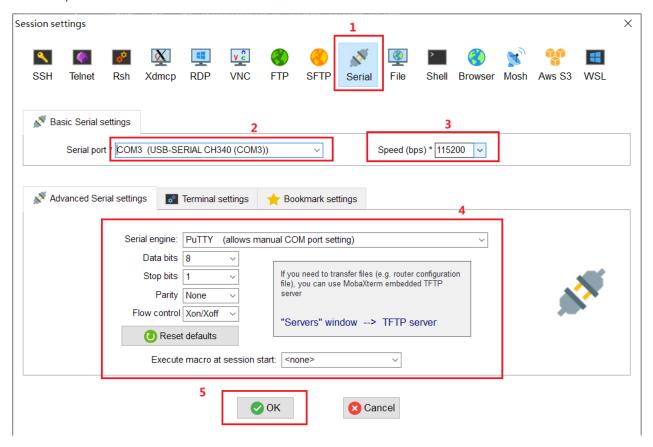
## 1.3.2 Serial Connection

(1) Serial (UART 0) connection. As illustrated in the following pictures, connect No.2 to TX, No.3 to RX and No.5 to GND.





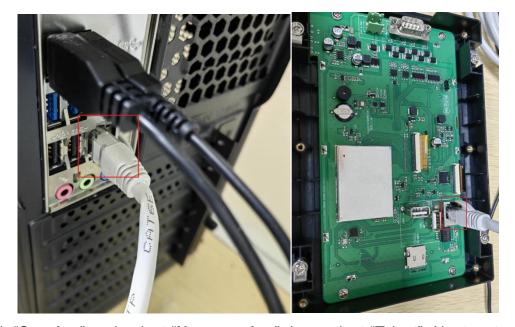
(2) Select [Sessions]-> [New Session]. First, select "serial". Next, select serial port and select speed. Last, check the information and click "OK" to finish.



(3) Power up the development board, enter "root" to start. (Note: If you operate after a while after power up, there may be no text on the displayed interface, and only a black screen with no boot information. In this case, you only need to enter "root").

#### 1.3.3 Telnet Connection

(1) Plug the network cable into the development board network port, an refer the specific notes on the Internet.

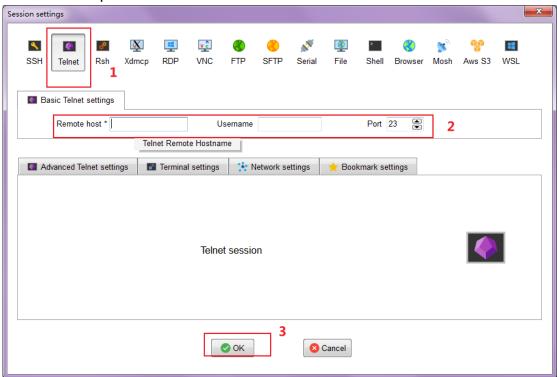


(2) First, click "**Session**" and select "**New session**" then select "Telnet". Next, enter the IP of the www.dwin-global.com

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development board and click "OK" (Note: the default IP of the development board is: 192.168.10.201 or 192.168.10.202. To achieve communication, the development board should be connected to the same LAN with the computer.



(3) Power on the development board and the following interface is displayed. Enter "root" to start.

## 1.3.4 IP Configuration

To modify the IP, you can enter: **vi** /**etc/init.d/netconfig** or **vi** /**etc/init.d/rcS** and move to the last line but two and press "i" to edit. Press "Esc" after modifying the IP and enter: (colon)wq (enter),

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which means save and exit. In this way. The IP is modified.

```
A40i login: root
# vi /etc/init.d/netconfig
#!/bin/sh

#insmod /lib/modules/3.10.65/8821cu.ko
#ifconfig wlan0 up
#wpa_supplicant -i wlan0 -Dnl80211 -c /etc/wpa_supplicant.conf -B
#udhcpc -i wlan0 2>/dev/null &

ifconfig eth0 up

Change here

telnetd &
```

## 1.3.5 Application Upgrade Guide

- (1) Application upgrade bundle principle
- a. The /etc/emcversion file, which exists in the operating environment of DWIN Linux screen, stores the current version number.
- b. Only when the file name of the upgrade package is consistent with the version number can the upgrade be performed. Generally, the version number should be modified in the upgrade file to avoid repeated upgrades.
- c. The upgrade package should be named "the version number.tar".
- d. During the power-on and start-up process, DWIN Linux screen will automatically detect the USB flash drive and search for the update subdirectory under its root directory. If there is an upgrade package, it will automatically decompress and execute the install.sh script in the upgrade package.
- e. After the install.sh script gains control, it can copy files, modify file attributes, and complete the upgrade.
- (2) Build an upgrade bundle
- a. In ubuntu, store the files to be upgraded in a unified directory;
- b. Add the install.sh file to that directory. Modify the script to complete files copy and attributes modification.
- c. In ubuntu, use the command "tar -cvf DWIN V1.X.X.tar <INSTALL>" to compress the directory.
- d. Copy the "DWIN V1.X.X.tar" file to the /update directory in the USB flash drive.
- (3) Instruction for use of an upgrade bundle
- a. Check whether the standard program is burned in the DWIN Linux screen and whether the screen can be turned on normally.
- b. Choose an application upgrade bundle based on your need and copy that bundle to the /update directory in the USB flash drive.
- c. Insert that USB flash drive into the DWIN Linux screen before powering on the screen.
- d. Wait for the DWIN Linux to shut down automatically after powering on. Then the application has been successfully upgraded.
- (4) Upgrade bundle example
- a. The folder before compression is as follows

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emcversion: store the version number used to upgrade the version number in the DWIN Linux screen.

myapp folder: store the files to be modified.

Etc folder: store the script that may need to be modified in /etc/init.d/ directory. (May be not included if no file needs to be modified.)

install.sh file example is as follows. You can modify the file based on your need.

```
#!/bin/sh
copy_dir()
{
 if [ -d $1 ]; then
     for libfile in $1/*; do
        if [ -f $libfile ]; then
           cp $libfile $2/
           chmod $3 $2/${libfile##*/}
          #echo $2/${libfile##*/}
        fi
     done
 fi
}
instdir=$(cd `dirname $0`; pwd)
# update the emcversion
cp $instdir/emcversion /etc/
# copy application file
cp $instdir/myapp/myapp /usr/local/bin/myapp
# modify permission
chmod 755 /usr/local/bin/myapp
# modify runqt script file if needed
cp -a $instdir/etc/init.d/* /etc/init.d/
```



# **Chapter 2 QT Project cross-compilation**

## 2.1 qmake

(1) After enter the environment (running the "source env-setup.sh" command), enter the command "qmake-v" to check if the environment is correct.

Open the project folder you need to cross-compile (here using the provided folder named "DWIN\_QT\_DEMO" and adding it to "Ubuntu /home/dwin"). Enter the command: **qmake** (if the .pro file hasn't been generated, enter "**qmake -project**".) to generate the Makefile.



(2) Enter the command: **make**, and then a binary file named after the project will be generated. But the file cannot be run in Ubuntu, so you need to download it to the development board. You can refer to <u>2.2</u>.

```
dwin@ubuntu:~/buildroot-A40i-QT5_12_6-sdk$ source env-setup.sh
dwin@ubuntu:-/buildroot-A40i-QT5_12_6-sdk$ source env-setup.sh
dwin@ubuntu:-/buildroot-A40i-QT5_12_6-sdk$ source env-setup.sh
dwin@ubuntu:-/buildroot-A40i-QT5_12_6-sdk$ cd ..

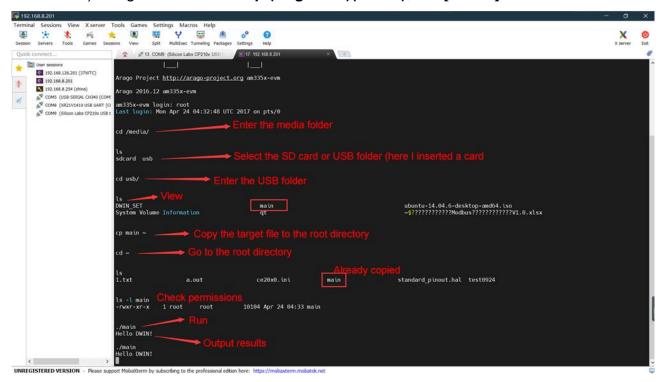
dwin@ubuntu:-/buildroot-A40i-QT5_12_6-sdk$ cd ..
dwin@ubuntu:-/buildroot-A40i-QT5_12_6-sdk$ cd ..
dwin@ubuntu:-/buildroot-A40i-QT5_12_6-sdk$ cd ..
dwin@ubuntu:-/DWIN_QT_DEMO$ ls
DWIN_QT_DEMO.pri DWIN_QT_DEMO$ pro
dwin@ubuntu:-/DWIN_QT_DEMO$ qmake
Info: creating stash file /home/dwin/DWIN_QT_DEMO/.qmake.stash
Project MESSAGE: You are running qmake on a generated .pro file. This may not wo
rk!
dwin@ubuntu:-/DWIN_QT_DEMO$ ls
DWIN_QT_DEMO.pri DWIN_QT_DEMO$ ls
DWIN_QT_DEMO.pri DWIN_QT_DEMO$ ls
DWIN_QT_DEMO.pri DWIN_QT_DEMO$ make
arm-linux-gnueabihf-g++ .c -pipe --sysroot=/home/dwin/buildroot-A40i-QT5_12_6-sd
k/sysroot -02 -std=gnu++11 -Wall -W -D_REENTRANT -fPIC -DQT_NO_DEBUG -DQT_WIDGET
S_LIB -DQT_GUI_LIB -DQT_SERIALPORT_LIB -DQT_SQL_LIB -DQT_CORE_LIB -I. -I../build
root-A40i-QT5_12_6-sdk/sysroot/usr/local/Qt-5.12.6/include/Qtwidgets -I../buildroot-A40i-QT5_12_6-sdk/sysroot/usr/local/Qt-5.12.6/include/QtGui-I../buildroot-A40i-QT5_12
6-sdk/sysroot/usr/local/Qt-5.12.6/include/QtSui -I../buildroot-A40i-QT5_12
6-sdk/sysroot/usr/local/Qt-5.12.6/inclu
```

```
in@ubuntu:~/DWIN_QT_DEMO$ ls
dwingtdemo
                         moc_toolbody.o
                                                    qrc_DWIN_QT_DEMO.o
DWIN_QT_DEMO.pri
                         moc toolcomtest.cpp
                         moc_toolcomtest.o
DWIN_QT_DEMO.pro
                        moc_toolheader.cpp
moc_toolheader.o
                                                    toolbasetest.o
                                                    toolbody.o
mainwindow.o
Makefile
                         moc_toolsqltest.cpp
                                                    toolcomtest.o
                        moc_toolsqltest.o
moc_toolstartpage.cpp
moc_toolstartpage.o
noc_mainwindow.cpp
                                                    toolheader.o
   _mainwindow.o
                                                    toolsqltest.o
moc_predefs.h
                                                    toolstartpage.o
moc_toolbasetest.cpp
                       moc_tooltouchtest.cpp
                                                    tooltouchtest.o
   _toolbasetest.o
                         moc_tooltouchtest.o
qrc_DW<u>I</u>N_QT_DEMO.cpp
                                                    tooltranslator.o
   toolbody.cpp
                                                    toolutility.o
dwin@ubuntu:~/DWIN_QT_DEMO$
```

## 2.2 USB Download

- (1) Put the cross-compiled files in the shared folder, you can copy the files using the command: **cp** (file name) (the path of shared folder), i.e., **cp** dwinqtdemo /mnt/hgfs/share/
- (2) Move the target file in the shared folder from the computer to the USB/SD card.
- (3) Insert the USB into the development board.

(4) Open MobaXterm and connect. Enter the command: **cd** /**mnt**/**usb** to open the "usb" folder and select "sdax" folder. Copy or move the target file to the target directory (you can customize the folder to avoid clutter) using the command: **cp** (**target file**)(**folder**),i.e. **cp dwinqtdemo** /**usr/bin**/.



## 2.3 Run The Dwinqtdemo Program

Configuration file should be modified to run the demo.

Enter the command: vi/etc/init.d/runqt(enter) and move the cursor to the beginning of the "qttesttool" line. Press i to enter insert mode. Input "#" to comment out this line. Move the cursor to the end of this line and press enter. Input the absolute path of dwinqtdemo+ a blank space +&. Then press Esc to exit insert mode. Enter ": wq" to save the modification.

You can run the demo using the command "./runqt".



```
# cd /etc/init.d/
# ./run
runhmi runqt runupdate
# ./rungt
```



Note: touch screen may not work because of the lack of the configuration of the environment variable. Reboot and you can configure the environment variable refer to /etc/init.d/rcS.

You can modify the /etc/init.d/rcS file if the initial setting isn't run "runqt" program. Change the last three lines as the following picture shows if you want to make the "runqt" program run on startup. Save the modification and reboot.

```
#/etc/init.d/runhmi
Metc/init.d/runqt
/adb.sh
```



#### 2.4 Network Connection

## 2.4.1 Network Configuration

It is recommended to connect the Linux screen to the PC using the serial port or two network cables under the same LAN.

(1) Insert the end of the network cable and enter the command "**route add default gw**" to configure the gateway IP (192.168.10.1 here). You can enter the command "**route -n**" to check whether the gateway is configured successfully.

```
# route add default gw 192.168.10.1
```

(2) Configure DNS. Enter the command: **vi /etc/resolv.conf**. Press i to enter insert mode. Input "**nameserver 8.8.4.4**" and press Esc. Enter ":wq" and exit after saving the change.

```
# vi resolv.conf
nameserver 8.8.4.4
~
```

(3) Ping a website

```
# ping www.baidu.com
PING www.baidu.com (112.80.248.75): 56 data bytes
64 bytes from 112.80.248.75: seq=0 ttl=55 time=88.332 ms
64 bytes from 112.80.248.75: seq=1 ttl=55 time=109.084 ms
64 bytes from 112.80.248.75: seq=2 ttl=55 time=68.276 ms
64 bytes from 112.80.248.75: seq=3 ttl=55 time=73.401 ms
64 bytes from 112.80.248.75: seq=4 ttl=55 time=103.740 ms
64 bytes from 112.80.248.75: seq=4 ttl=55 time=60.290 ms
64 bytes from 112.80.248.75: seq=6 ttl=55 time=58.539 ms
^C
--- www.baidu.com ping statistics ---
7 packets transmitted, 7 packets received, 0% packet loss round-trip min/avg/max = 58.539/80.237/109.084 ms
```

(4) If you want to permanently modify the gateway and DNS, you can add a statement after the ifconfig eth0 IP address in the /etc/init.d/S40network file: **route add default gw** "gateway address"; echo "nameserver 8.8.4.4" >> /etc/resolv .conf, as shown below after modification.

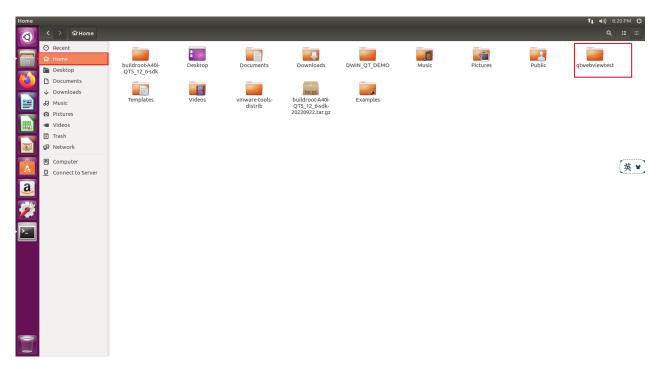
```
ifconfig eth0 192.168.10.205
route add default gw 192.168.10.1
echo "nameserver 8.8.4.4">> /etc/resolv.conf
```

#### 2.4.2 Browse Websites

(1) 35 series supports QtWebEngine, which can function as a web browser. Here we name the test program "gtwebviewtest" and put it in the "/home/dwin/" folder.

www.dwin-global.com 27 400 018 9008





(2) Configure the environment referring to 1.2 and enter the "**qmake -v**" command to check if the configuration is correct. Then enter "qtwebviewtest" folder and compile referring to 2.1.

```
😑 🗊 dwin@ubuntu: ~/qtwebviewtest
dwin@ubuntu:~$ cd buildroot-A40i-OT5 12 6-sdk/
dwin@ubuntu:~/buildroot-A40i-QT5_12_6-sdk$ source env-setup.sh
dwin@ubuntu:~/buildroot-A40i-QT5_12_6-sdk$ cd ...
dwin@ubuntu:~$ cd qtwebviewtest/
dwin@ubuntu:~/qtwebviewtest$ qmake -v
QMake version 3.1
Using Qt version 5.12.6 in /home/dwin/buildroot-A40i-QT5_12_6-sdk/sysroot/usr/lo
cal/Qt-5.12.6/lib
dwin@ubuntu:~/qtwebviewtest$ ls
                               qtwebviewtest.pro webbrowser.h
main.cpp
                mainwindow.h
mainwindow.cpp mainwindow.ui webbrowser.cpp
dwin@ubuntu:~/qtwebviewtest$_qmake
Info: creating stash file /home/dwin/qtwebviewtest/.qmake.stash
dwin@ubuntu:~/qtwebviewtest$ ls
                mainwindow.h
                               Makefile
                                                  webbrowser.cpp
main.cpp
mainwindow.cpp mainwindow.ui qtwebviewtest.pro webbrowser.h
dwin@ubuntu:~/qtwebviewtest$_make
/home/dwin/buildroot-A40i-QT5_12_6-sdk/sysroot/usr/local/Qt-5.12.6/bin/uic mainw
indow.ui -o ui mainwindow.h
arm-linux-gnueabihf-g++ -c -pipe --sysroot=/home/dwin/buildroot-A40i-QT5_12_6-sd
k/sysroot -O2 -std=gnu++11 -Wall -W -D_REENTRANT -fPIC -DQT_NO_DEBUG -DQT_WEBENG
INEWIDGETS_LIB -DQT_WEBENGINECORE_LIB -DQT_QUICK_LIB -DQT_WIDGETS_LIB -DQT_GUI_L
IB -DQT_WEBCHANNEL_LIB -DQT_QML_LIB -DQT_NETWORK_LIB -DQT_POSITIONING_LIB -DQT_C
ORE_LIB -I. -I../buildroot-A40i-QT5_12_6-sdk/sysroot/usr/local/Qt-5.12.6/include
```

(3) After downloading file referring to <u>2.2</u>, enter the "vi /etc/init.d/runqt" command to modify the /etc/init.d/runqt file.

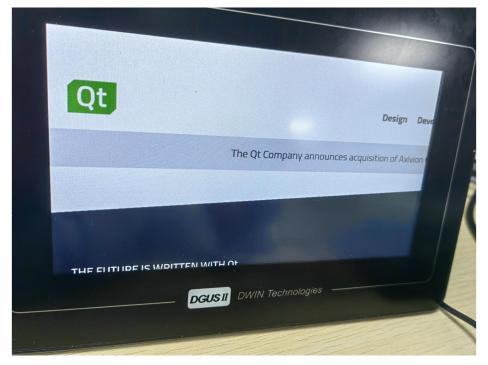


```
# vi runqt
#!/bin/sh
export LD_LIBRARY_PATH=/usr/local/Qt-5.12.6/lib:$LD_LIBRARY_PATH
export QT_PLUGIN_PATH=/usr/local/Qt-5.12.6/plugins
export QT_QPA_FONTDIR=/usr/local/Qt-5.12.6/fonts
export QT_QPA_FONTDIR=/usr/local/Qt-5.12.6/fonts
export QT_QPA_PLATFORM=PLUGIN_PATH=$QT_PLUGIN_PATH/platforms
export QT_QPA_PLATFORM="linuxfb:fb=/dev/fb0:size=1024x600:mmsize=169x179"
export PATH=/usr/local/Qt-5.12.6/bin:$PATH
export QTDIR=/usr/local/Qt-5.12.6
export QT_ROOT=/usr/local/Qt-5.12.6
export QT_QPA_GENERIC_PLUGINS=tslib,evdevmouse:/dev/input/event4
#export_QT_QPA_USF_DWINTOUCH=1
#qttesttool &
/usr/bin/qtwebviewtest --no-sandbox &
```

Move the cursor to the beginning of the "qttesttool" line and press I to enter insert mode. Enter "#", move the cursor to the end of this line and press enter. Input the absolute path of "qtwebviewtest"+a blank space+"--no-sandbox" + a blank space + &. Press Esc to exit the insert mode and enter ":wq" to save the modification.

(4) Configure network referring to <u>2.4.1</u>(invalid after reboot) before run the program. Then run the program under the "/ etc/init.d/" directory.

```
# ./runqt
# xkbcommon: ERROR: failed to add default include path /usr/share/X11/xkb
Failed to create xkb context
This plugin does not support createPlatformOpenGLContext!
Cannot open mouse input device /dev/input/event4 (No such file or directory)
evdevmouse: Failed to open mouse device /dev/input/event4
WebBrowser construct!
WebEngineContext used before QtWebEngine::initialize() or OpenGL context creation
n failed.
shared memfd open() failed: Function not implemented
url changed, url: "https://www.qt.io/"
js: UF: Pollyfill not needed, skipping.
```



The default web page (www.qt.io) shows up.



#### **Revision Records**

Rev	Revise Date	Content	Editor
00	2022-12-2	First Edition	Lvzhi Chen

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