

AdvLinuxTU-2

User Manual

V1.0.4

ADVANTECH

Enabling an Intelligent Planet

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1. About This Manual

Thank you for choosing Advantech. This manual is for AdvLinuxTU-2 and can be copied and distributed in any medium.

AdvLinux-1 is based on Ubuntu 16.04.x.

AdvLinux-2 is based on Ubuntu 18.04.x.

This manual is only for AdvLinuxTU-2.

In the following chapters, AdvLinuxTU means AdvLinuxTU-2 if not specified.

2. AdvLinuxTU Overview

AdvLinuxTU is an embedded Linux system designed for Advantech embedded devices, and it is especially optimized for TPC/UNO/PPC/ITA series.

2.1. Hardware Support List

AdvLinuxTU can be installed on all Advantech devices theoretically, but only the following device is tested.

UNO-2484G;

UNO-1372G;

UNO-2271G;

TPC-B200;

UNO-420

UNO-247

2.2. Kernel Version

Kernel version: 4.15

2.3. Software version:

Xorg: 1.19.6

Qt: 5.9.5

glibc: 2.27

gcc: 7.3.0

2.4. User and Password

There are three users in AdvLinuxTU by default. The user and default password is as follows:

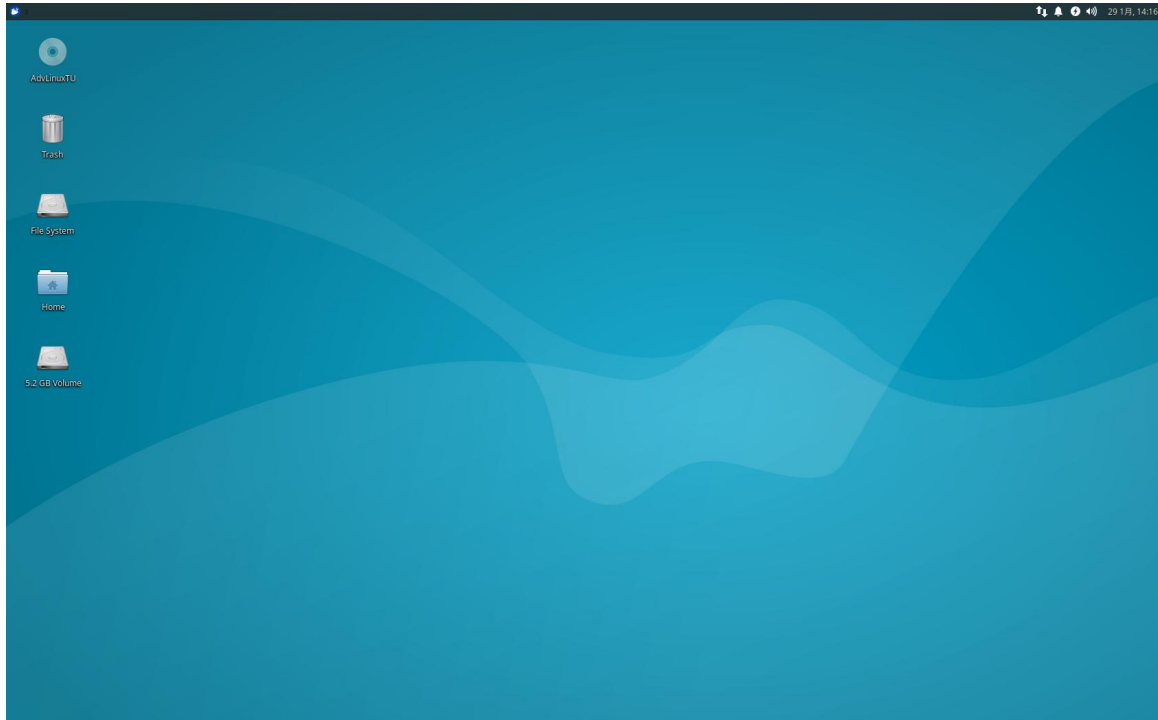
```
root:111111
advantech:111111
sysuser: 111111
```

2.5. Main Features

AdvLinuxTU has many important features coming for industrial customers. Here we list some of them and give a brief introduction. We will explain them in detail in later sections.

- Provide Embedded QT runtime environment
The user can run embedded QT application.
- Auto login
The installation offers an auto login option; if the user chooses it, the user will be able to auto login to AdvLinuxTU after the installation.
- USB installation support
The user can burn the AdvLinuxTU ISO to a USB disk, and then the user can install AdvLinuxTU to Advantech device from the USB disk.
- Hardware auto detection
When installing AdvLinuxTU, the installation will detect the hardware automatically and install all drivers it needs. Therefore, once the installation is completed, no more drivers will be needed unless the user adds some other devices such as Advantech data collecting card to the embedded device.
- Online Installation and Update
You can use apt-get command to install and update software, extending AdvLinuxTU functions.

2.6. AdvLinuxTU Screenshot



Picture 2-6-1 Default Desktop

3. Installation Guide

In this chapter, we will introduce the installation step by step.

3.1. System Requirements

Recommended requirements:

Storage size:

32 G or more

Memory size:

2 G or more

3.2. Prepare for Installation

We suggest that the user makes a copy of data in storage medium in order to prevent data lost in case of improper operation during installation.

AdvLinuxTU supports installing from USB disk.

Prepare:

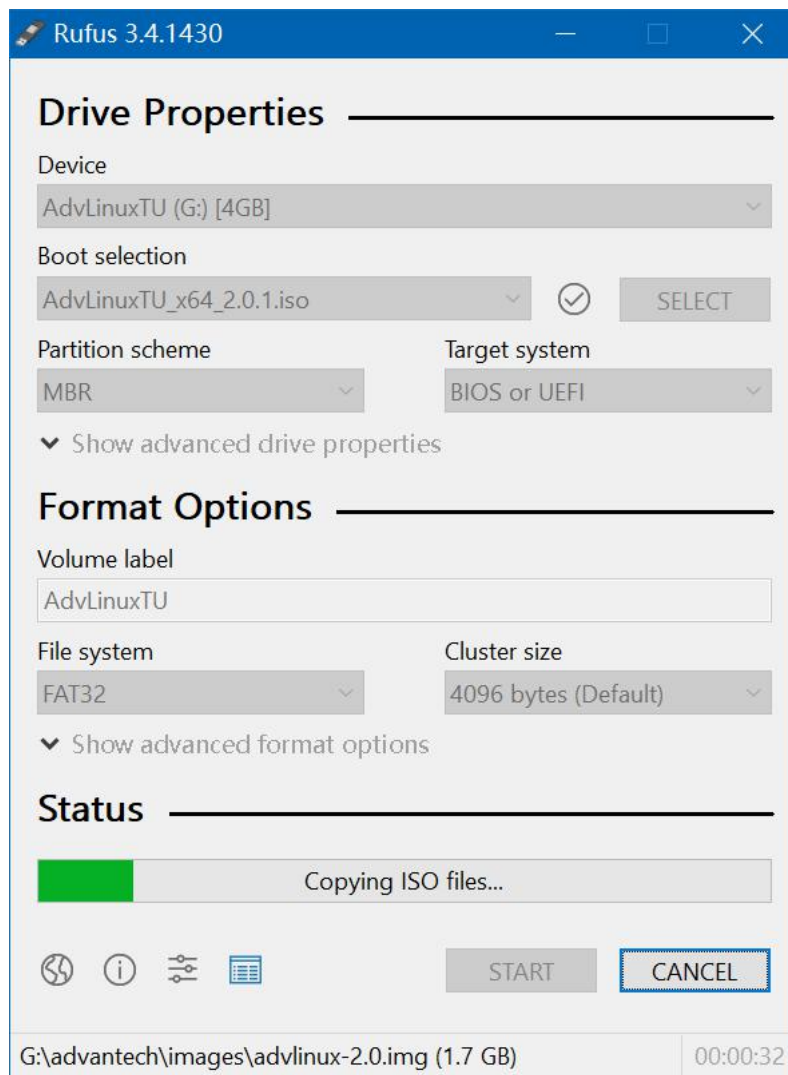
- ✓ AdvLinuxTU ISO
- ✓ USB Disk (storage size is more than 2G)
- ✓ Rufus utility

3.3. Install from USB disk

We use Rufus tool to Burn AdvLinuxTU ISO file to USB disk, Rufus is a utility that helps format and create bootable USB flash drives, Rufus is open source and is 100% Free Software (GPL v3), You can download from <https://rufus.ie/>

System Requirements for Rufus:

Windows 7 or later, 32 or 64 bit doesn't matter. Once downloaded, the application is ready to use.



Picture 3-3-1 Select the AdvLinuxTU ISO File and start to burn

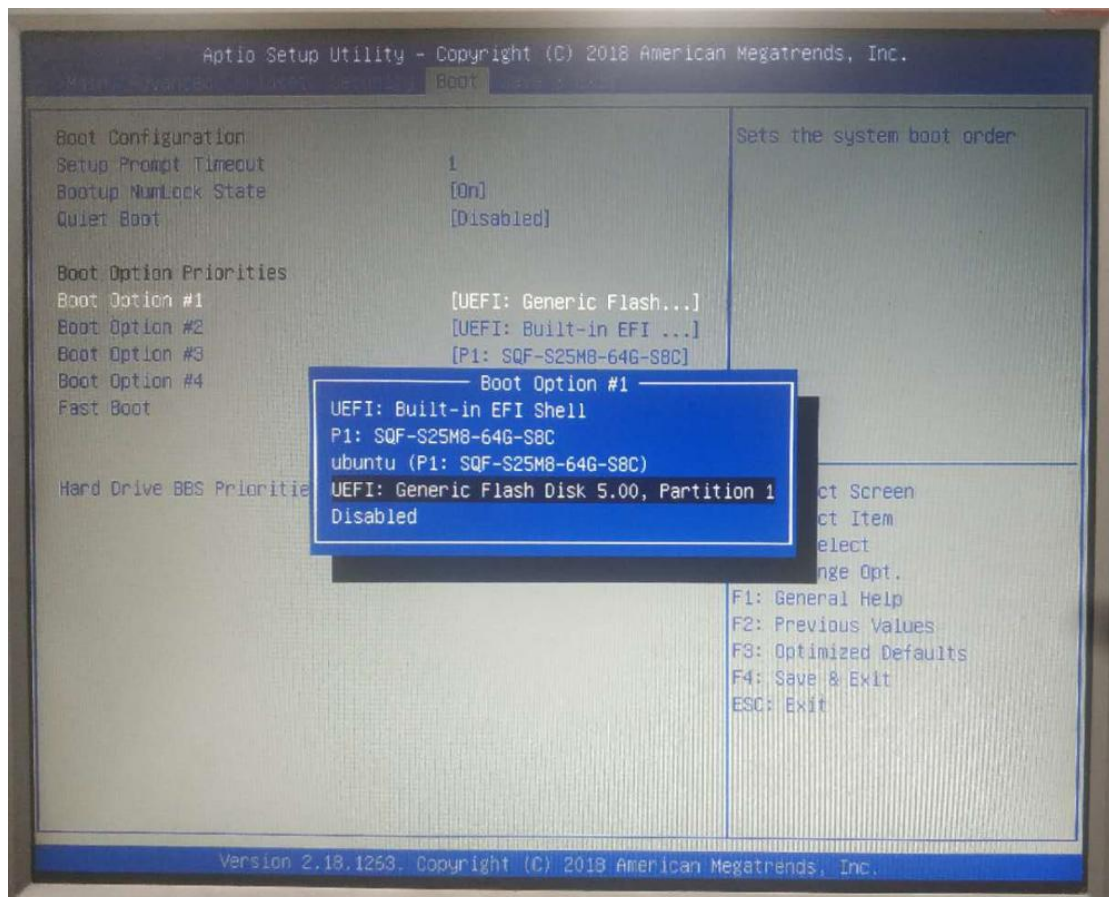
Burn the ISO as follows:

- a) Insert USB disk to windows PC
- b) Start Rufus tool
- c) Select AdvLinuxTU ISO
- d) Click START to start burn

3.4. Installation Step

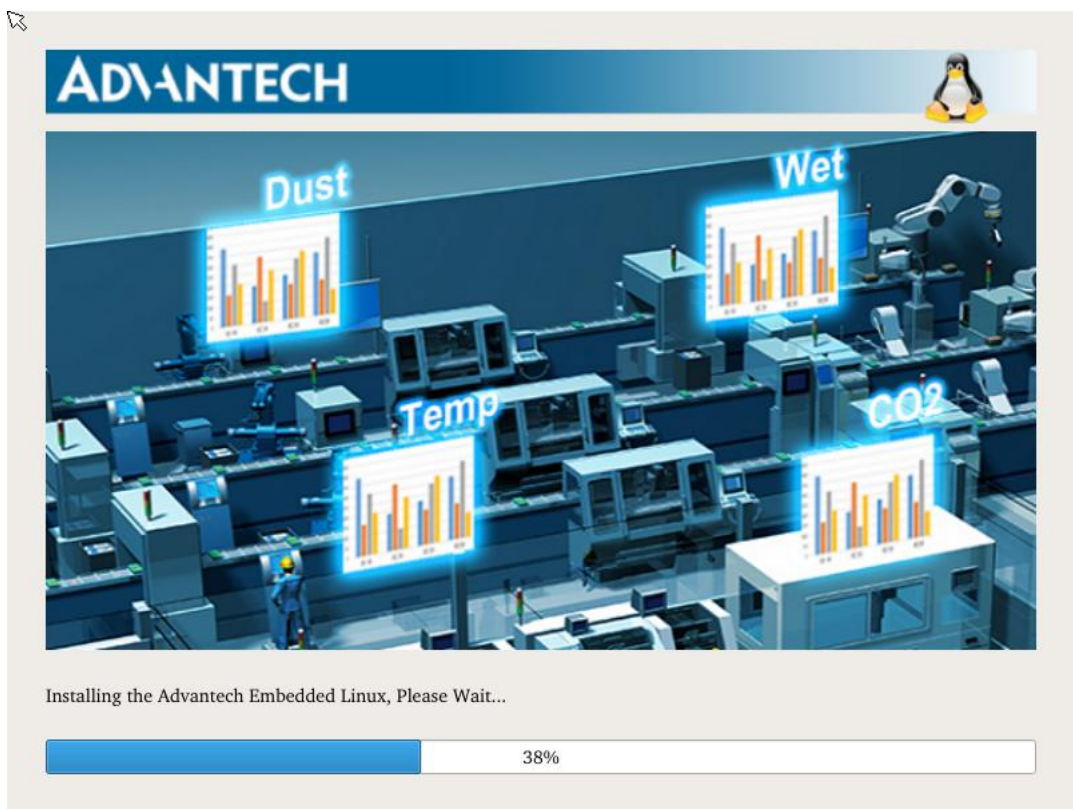
3.4.1. Step 1: Welcome page for graphic installation

First, insert the USB disk to Advantech device and then configure the BIOS to select boot for USB disk.



Picture 3-4-1 Configure BIOS

Save and reboot, then installation will install the AdvLinuxTU automatically.



Picture 3-4-2 AdvLinuxTU Installing



Picture 3-4-3 AdvLinuxTU Install finish

After the installation is completed, please remove the CD from CDROM and press “reboot” to restart the system. Now the system installation is finished, please enjoy it!

4. Advantech device driver

AdvLinuxTU supports Advantech products, and the related drivers, the related drivers will be installed in `/usr/src/advantech` and auto loaded during the booting process. Here are some examples or demos in `/usr/src/advantech/driver name/example/`.

5. AdvLinuxTU X-Windows Introduction

5.1. X-Windows overview

The Advantech Linux's Desktop-system is based on Xorg and XFCE.

➤ Xorg

It is a cost-free standard X server software with high configurability. All graphic cards on the market have certain configuration for Xorg.

For further details, please refer to <http://www.x.org/>

➤ Xfce4

Xfce is a lightweight desktop environment.

Official website: <http://www.xfce.org/>

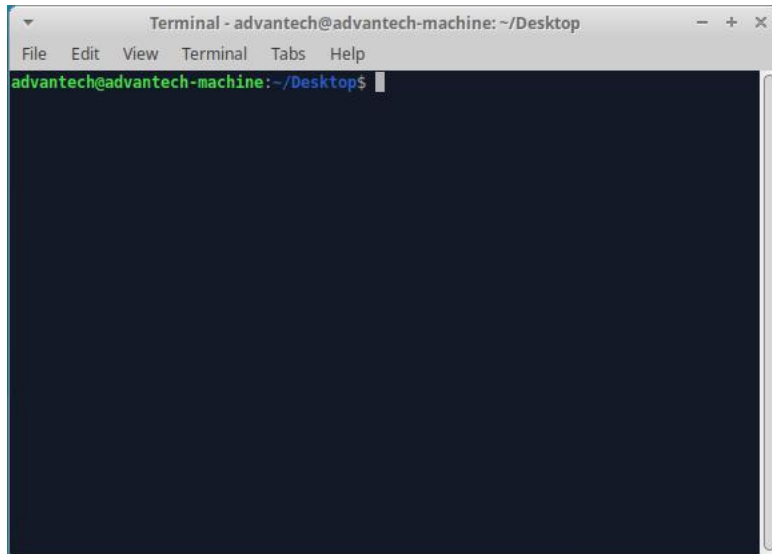
For further details, please refer to <http://docs.xfce.org/>

5.2. X-windows tools

AdvLinuxTU provides many tools based on X-Windows. Here we mainly introduce some important tools that the user may use frequently.

5.2.1. X Terminal

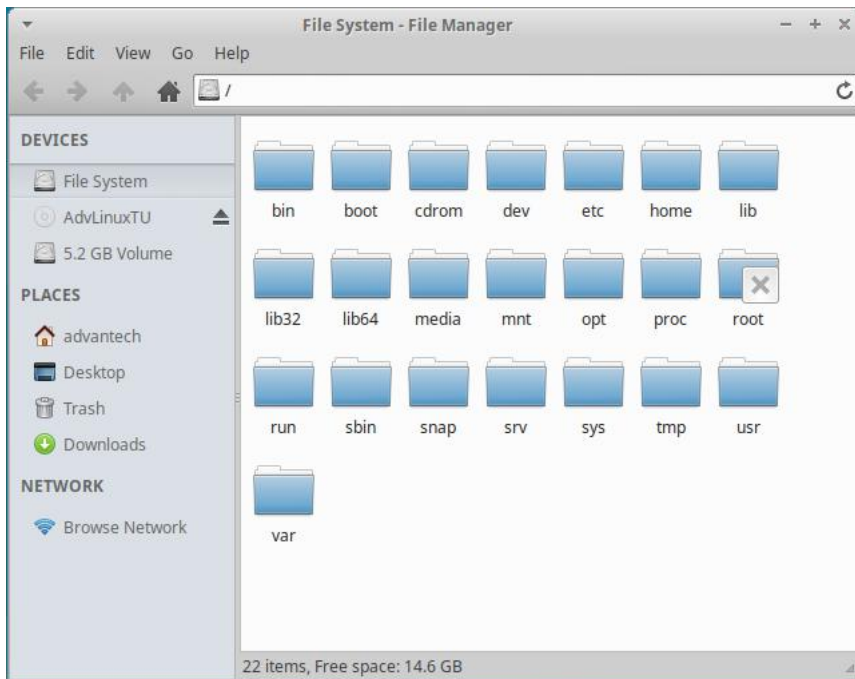
It is a terminal tool for X environment.



Picture 5-2-1 X Terminal

5.2.2. Thunar

It provides folder management functions similar to windows.

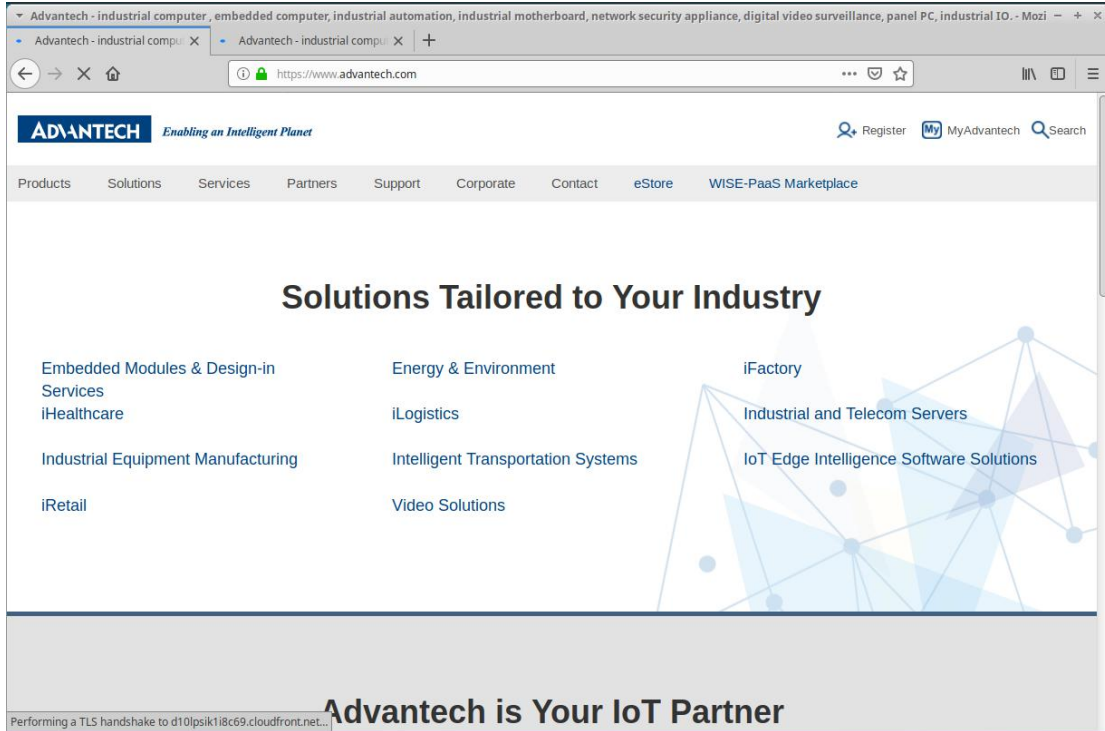


Picture 5-2-2 Thunar

Thunar is a fast and easy-to-use file manager for XFCE desktop environment.
Official site: <http://thunar.xfce.org/>

5.2.3. Browser

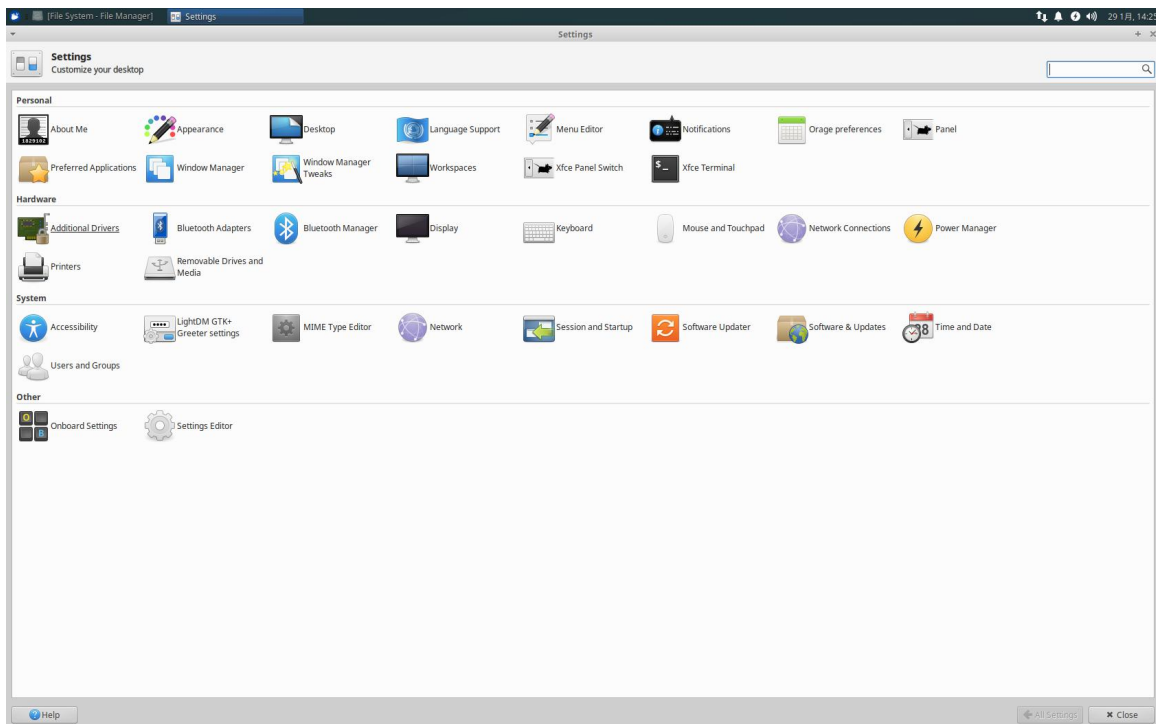
Firefox browser:



Picture 5-2-3 Lightweight picture-viewer Ristretto

5.3. X-Windows Configuration

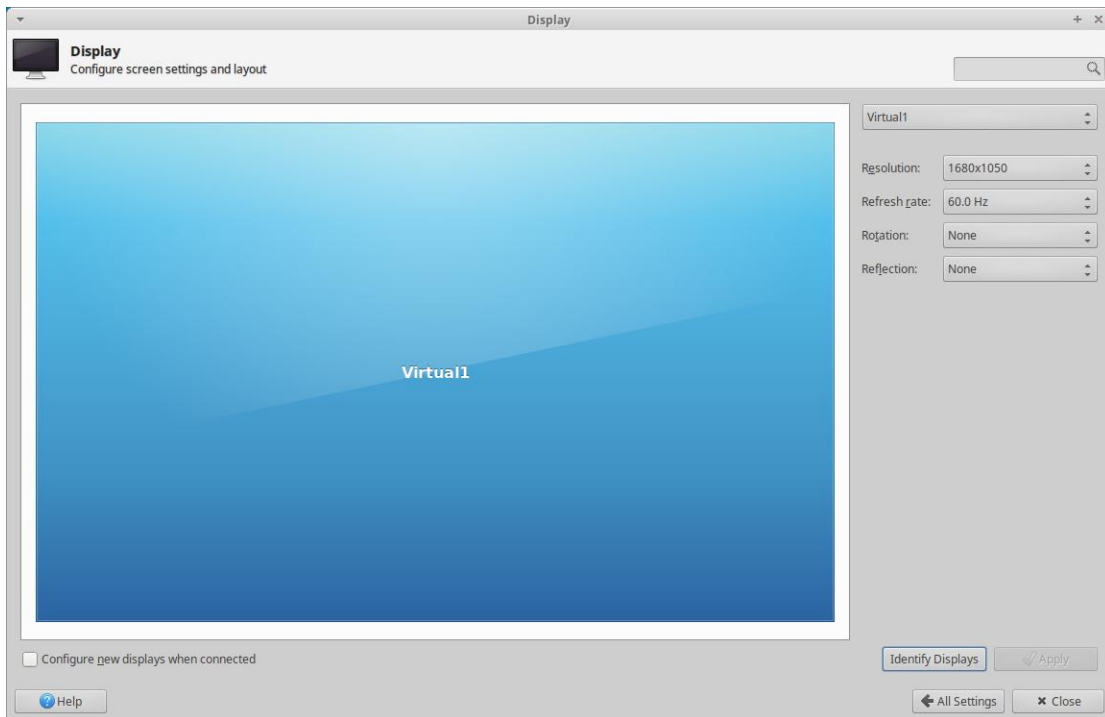
AdvLinuxTU provides many helpful tools, most of which can be opened from the XFCE setting manager, for user configuration. In the following sections, we will introduce some of them which are helpful for the user to configure the system.



Picture 5-3-1 XFCE setting manager

5.3.1. Resolution configuration

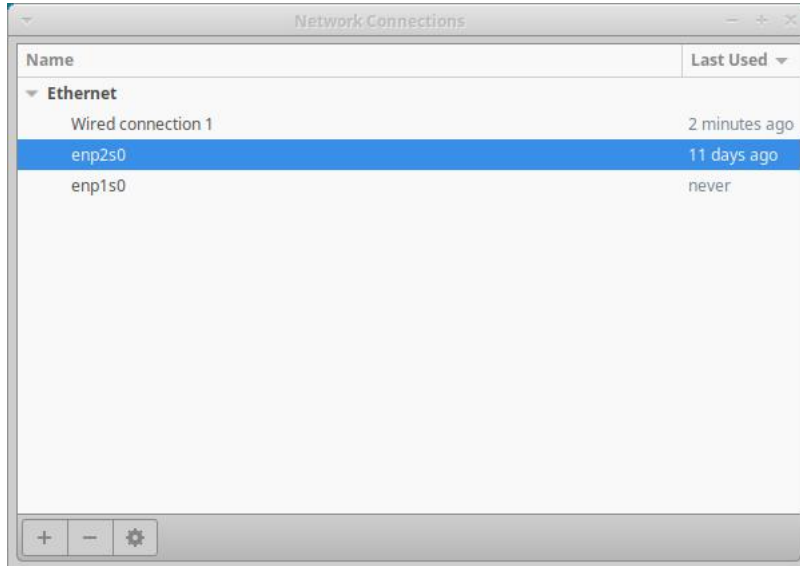
Select the Display item from list to change the Xorg resolution.



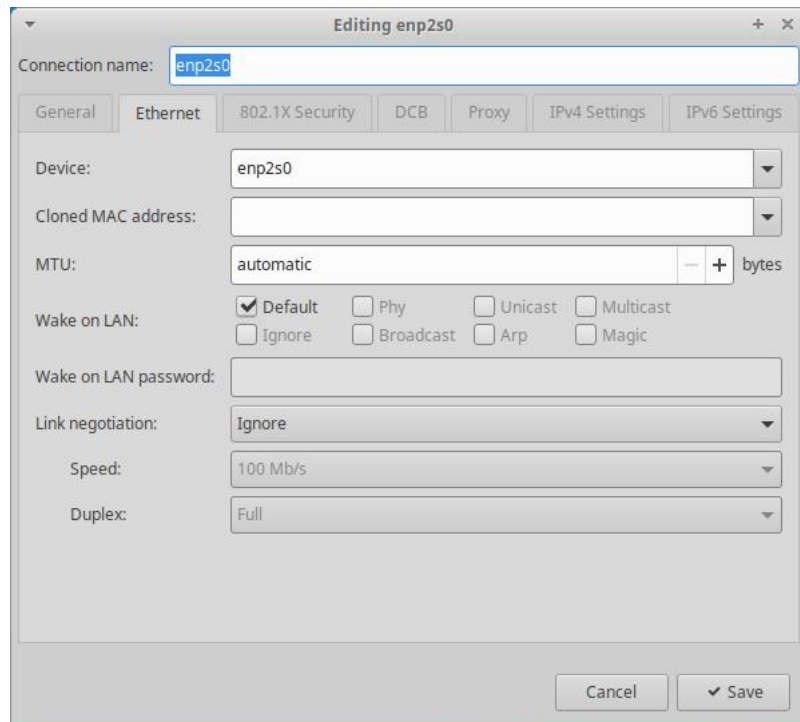
Picture 5-3-2 Resolution Setting

5.3.2. IP configuration

AdvLinuxTU gets IP according to DHCP default. If you want to get IP by static, you can use “Network Connections”. To set static IP, you must restart the service of NetworkManager. Please run: `systemctl restart NetworkManager.service`.

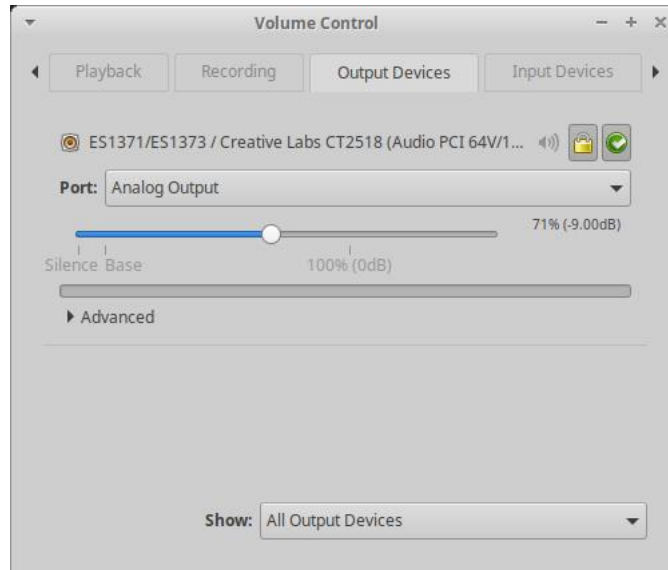


Picture 5-3-3 Network Connections



Picture 5-3-4 Network IP Setting

5.3.3. Sound card configuration

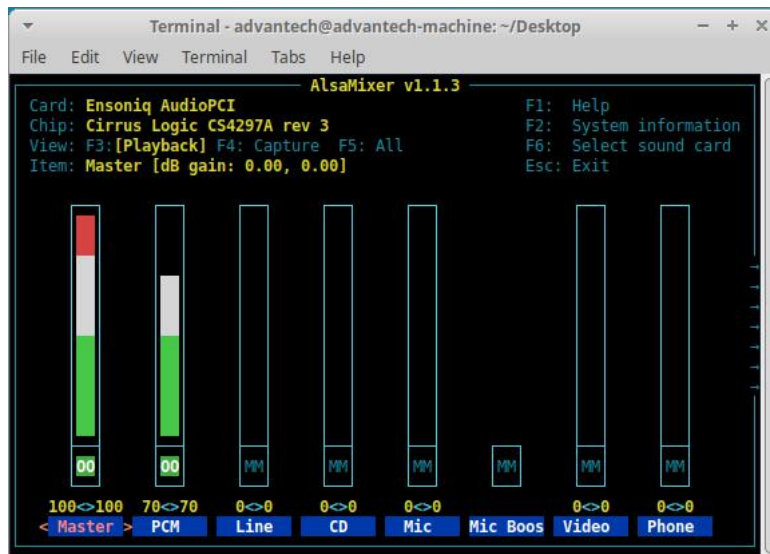


Picture 5-3-5 Sound Settings

To install the text mode, please run

```
#alsamixer
```

The Sound configuration tools will be shown as below:



Picture 5-9 Audio Setting

6. Introduction of console mode tools

6.1. Date and time configuration

Use the date command to modify the date

Usage:

```
#date [OPTION]... [+FORMAT]
```

```
#date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]
```

For example:

```
Fri Oct 18 09:11:05 CST 2013
```

```
#date 101809112013.05
```

6.2. Ftp service

The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files between a client and a server on a computer network.

Note: You may stop firewall to allow the user to login to your machine.

6.3. Qt Runtime and Development Environment

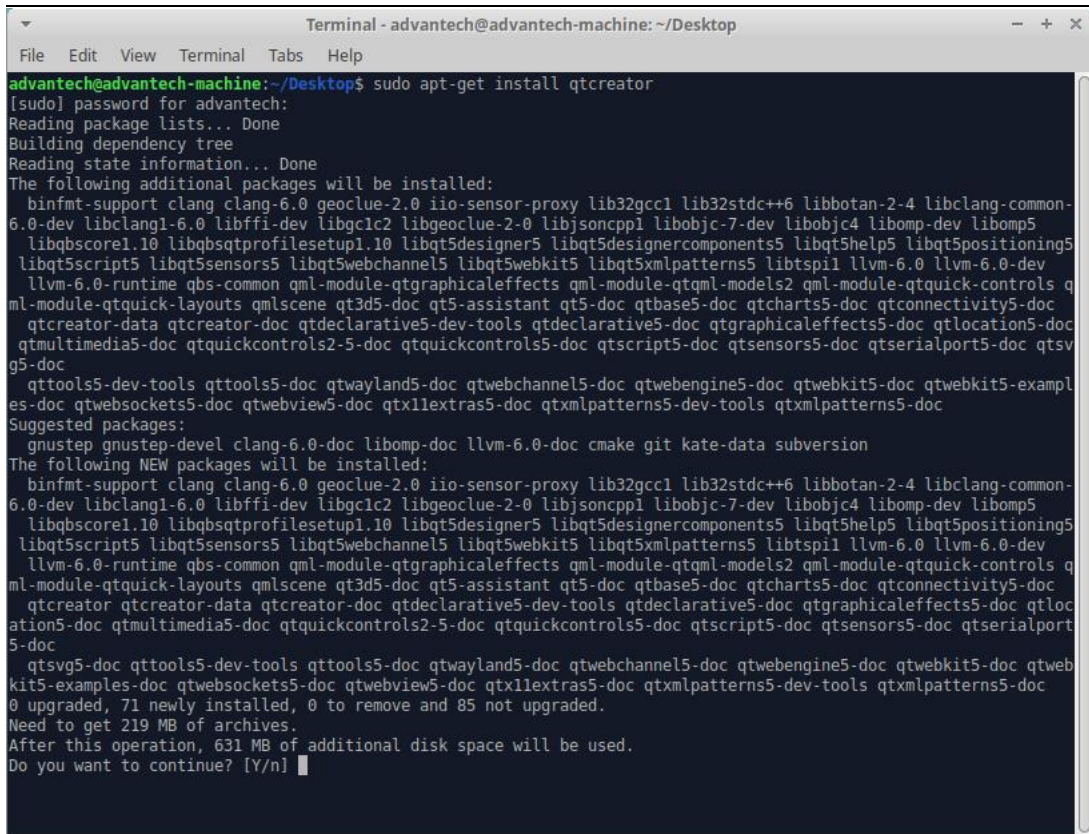
6.3.1. Qt runtime environment

AdvLinuxTU provide QT-5.9.5 library/

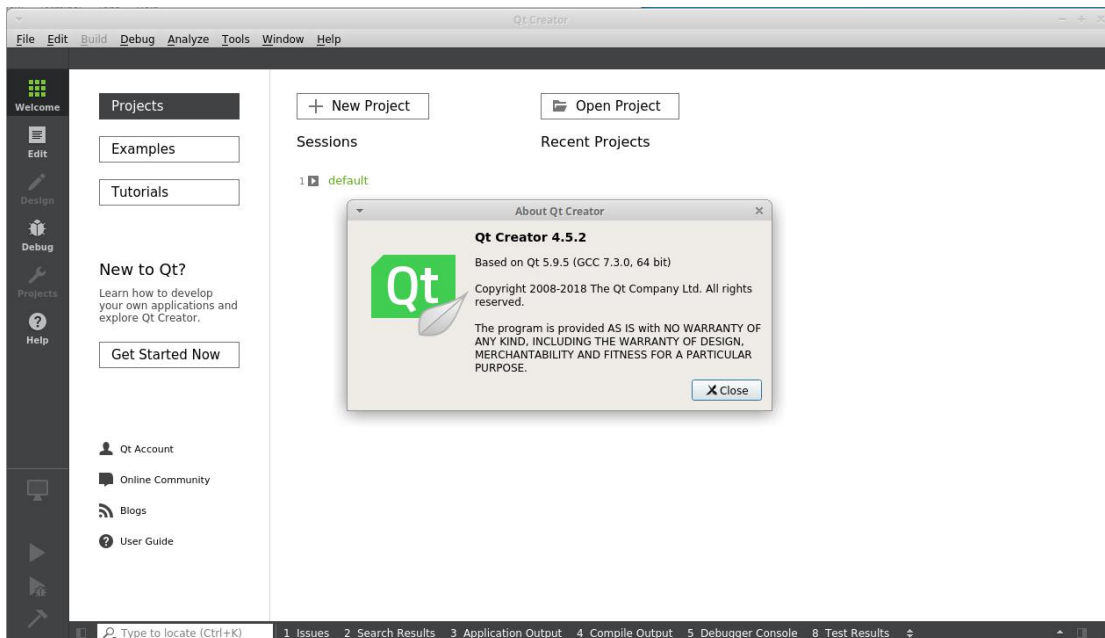
6.3.2. Qt Development environment

Suggest using Qt Creator to develop Qt application.

User can install the Qt Creator online.



Picture 6-3-1 Install Qt Creator



Picture 5-3-2 Qt Creator