

Bahan Ajar

Chapter 2



Materi Pembelajaran

Matakuliah :

# **INTERFACING PERIPHERAL**

Kode Matakuliah : SKO 20416

Prodi : **SISTEM KOMPUTER**

Dosen Pengampu Matakuliah:

Bayu Nugroho, S.Kom., M.Eng

# Tables of Content

## Getting Started with Raspberry Pi

- Linux on the Raspberry Pi
- Create a Linux SD Card Image for the RPi
- Connecting to a Network
- Ethernet Crossover Cable

## Tugas Mandiri



# Linux on the Raspberry Pi

- Raspbian Jessie: An image based on Debian Jessie (Debian version 8.x) that has full desktop support. (Image size: approximately 1.3 GB compressed, 4 GB extracted)
- Raspbian Jessie Lite: A minimal image that is based on Debian Jessie. It has limited desktop support, but this can be added easily at a later stage. (Image size: approximately 375 MB compressed, 1.4 GB extracted)
- Raspbian Wheezy: An older image based on Debian Wheezy (Debian version 7.x) that is available for compatibility with some software packages. You should choose the Jessie image if possible, particularly if you are planning to cross-compile applications.

## **Create a Linux SD Card Image for the RPi**

- **Windows:** Use Win32DiskImager (available from [tiny.cc/erpi202](http://tiny.cc/erpi202)). Insert the SD card before you start the application—double-check that you chose the correct drive for your SD card.
- **Mac OS and Linux:** Use the dd disk cloning tool (carefully). First identify the device. It should appear as `/dev/mmcblkXp1` or `/dev/sddX` under Linux, or `/dev/rdiskX` under Mac OS, where X is a number.

# Connecting to a Network

There are two main ways to connect to and communicate with the RPi over the network: using regular Ethernet or using an Ethernet crossover cable.

## ADVANTAGES

You have full control over IP address settings and dynamic/static IP settings.

You can connect and interconnect many RPi boards to a single network (including wireless devices).

The RPi can connect to the Internet without a desktop computer being powered on.

## DISADVANTAGES

You might need administrative control or knowledge of the network infrastructure.

The RPi needs a source of power, which can be a mains-powered adapter or Power over Ethernet (PoE)(see Chapter 12).

The setup is more complex for beginners if the network structure is complex.

# Ethernet Crossover Cable

An Ethernet crossover cable is a cable that has been modified to enable two Ethernet devices to be connected directly without the need for an Ethernet switch.

## ADVANTAGES

When you do not have access to network infrastructure hardware, you can still connect to the RPi.

RPi may have Internet access if the desktop has two network adapters and sharing is enabled.

Provides a reasonably stable network setup.

## DISADVANTAGES

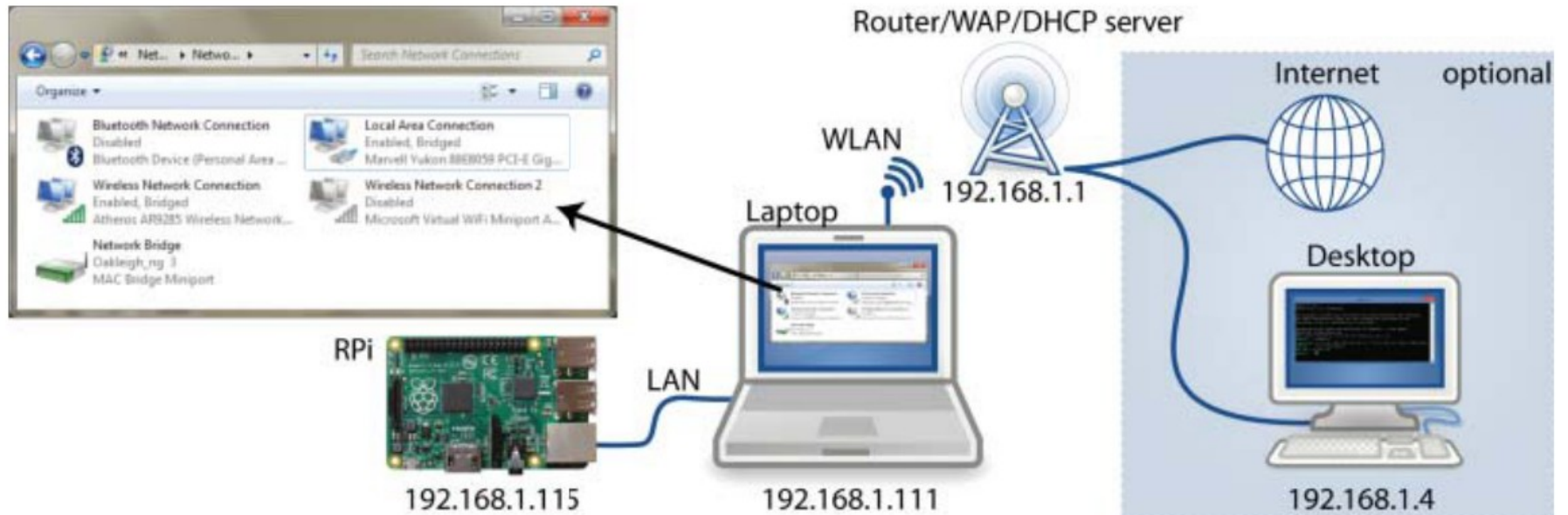
If your desktop machine has only one network adapter, you will lose access to the Internet. It is best used with a device that has multiple adapters.

RPi still needs a source of power (can be a mains-powered adapter).

May require a specialized Ethernet crossover cable or adapter. However, your computer likely has Auto-MDIX.

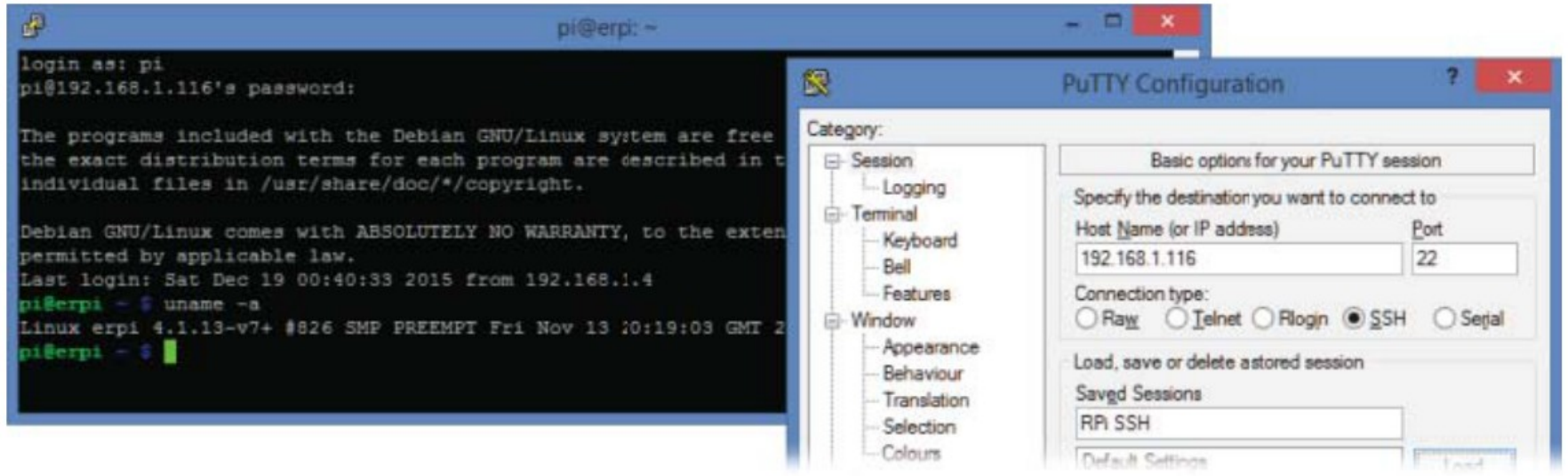
## Chapter 2

# Ethernet Crossover Cable

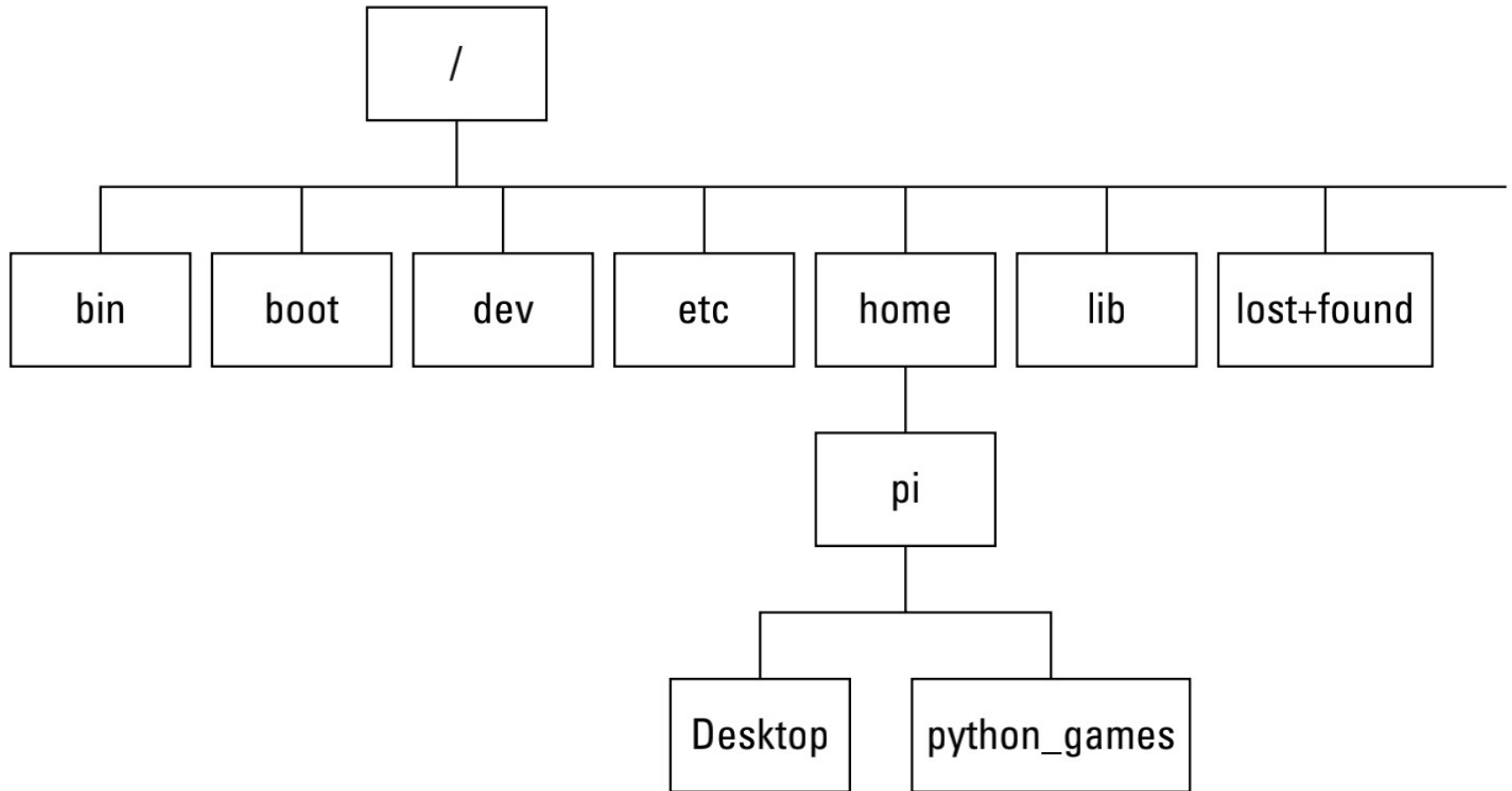


## Chapter 2

# Secure Shell Connections Using PuTTY



# Understanding the directory tree



# Useful First Commands in Linux

COMMAND	DESCRIPTION
<code>more /etc/issue</code>	Returns the Linux distribution you are using
<code>ps -p \$\$</code>	Returns the shell you are currently using (e.g., bash)
<code>whoami</code>	Returns who you are currently logged in as
<code>uptime</code>	Returns how long the system has been running
<code>top</code>	Lists all of the processes and programs executing. Press Ctrl+C to close the view.



## **Tugas Mandiri (teori):**

1. Apa perbedaaan mendasar antara Raspberrry Pi dan Arduino?
2. Sebutkan port yang terdapat pada Raspberrry Pi.

## **Tugas Mandiri (prakt):**

Jelaskan urutan langkah-langkah instalasi Raspberri Pi dan penggunaan perintah dasar Raspberri Pi.

end

