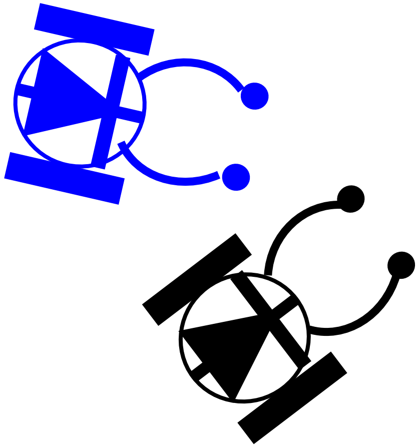
EQ-ROBO Programming Manual
(Flowchart Program)



Version : 1.0

2010-07

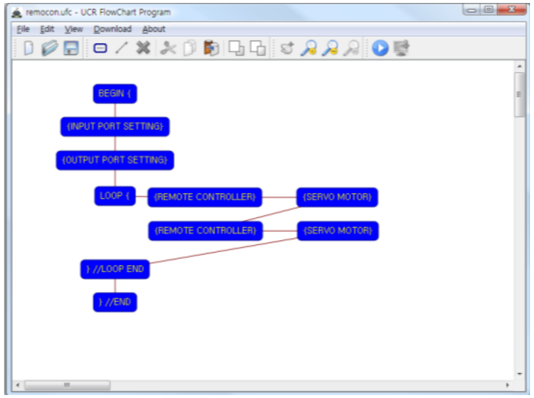
User Creative Robot

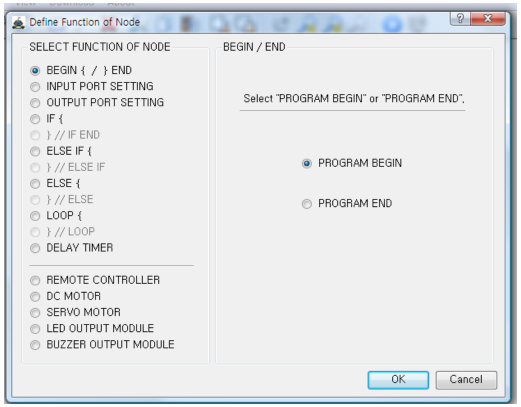
www.ucrobot.com

technical support : ucrobot @ ucrobot.com

< EQ-ROBO program >

- It is possible to program the robot without professional programming knowledge just only study about flowchart and logic.
- You can get the knowledge of professional programming method through the studying the programming with EQ-ROBO because it supports similar algorithm and program methods.
- EQ-ROBO software finds the error in your program, so you can learn more easily about flowchart and algorithm.





SELECT FUNCTION OF NODE

● BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF
○ ELSE {
○ } // ELSE
○ LOOP {
○ } // LOOP
○ DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

BEGIN / END

Select "PROGRAM BEGIN" or "PROGRAM END".

● PROGRAM BEGIN
○ PROGRAM END

※ EQ-ROBO is compatible to the Microsoft's WINDOWS XP, VISTA and 7.

< Programming method >

0. Prepare (only 1 time)

   ① Download software at www.ucrobot.com

   ② Install the USB Driver

   ③ Set the serial port for downloading

   ④ Execute the EQ-ROBO software

1. Robot Modeling and Assembling
2. Making robot program using EQ-ROBO
3. Save the program
4. Program error check
5. Connect USB cable between PC and robot
6. Download program to the robot
7. Test program using robot and modify the error
8. Repeat 3 ~ 7 for proper operating of robot desired

※ This manual describe only RED parts.

0-1. Program Download

MICROSOFT's
Windows XP

(0-1-1) Download software at www.ucrobot.com

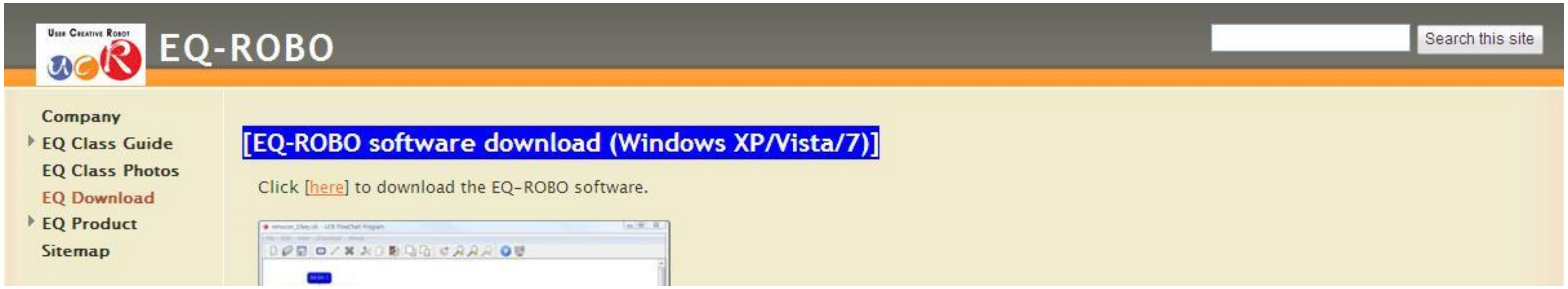
We need to download 2 files from www.ucrobot.com

① UCR-FCP_v1.zip

-. EQ-ROBO programming software

② CP210x_VCP_Win_XP_S2K3_Vista_7.exe

-. USB driver of Silicon Labs



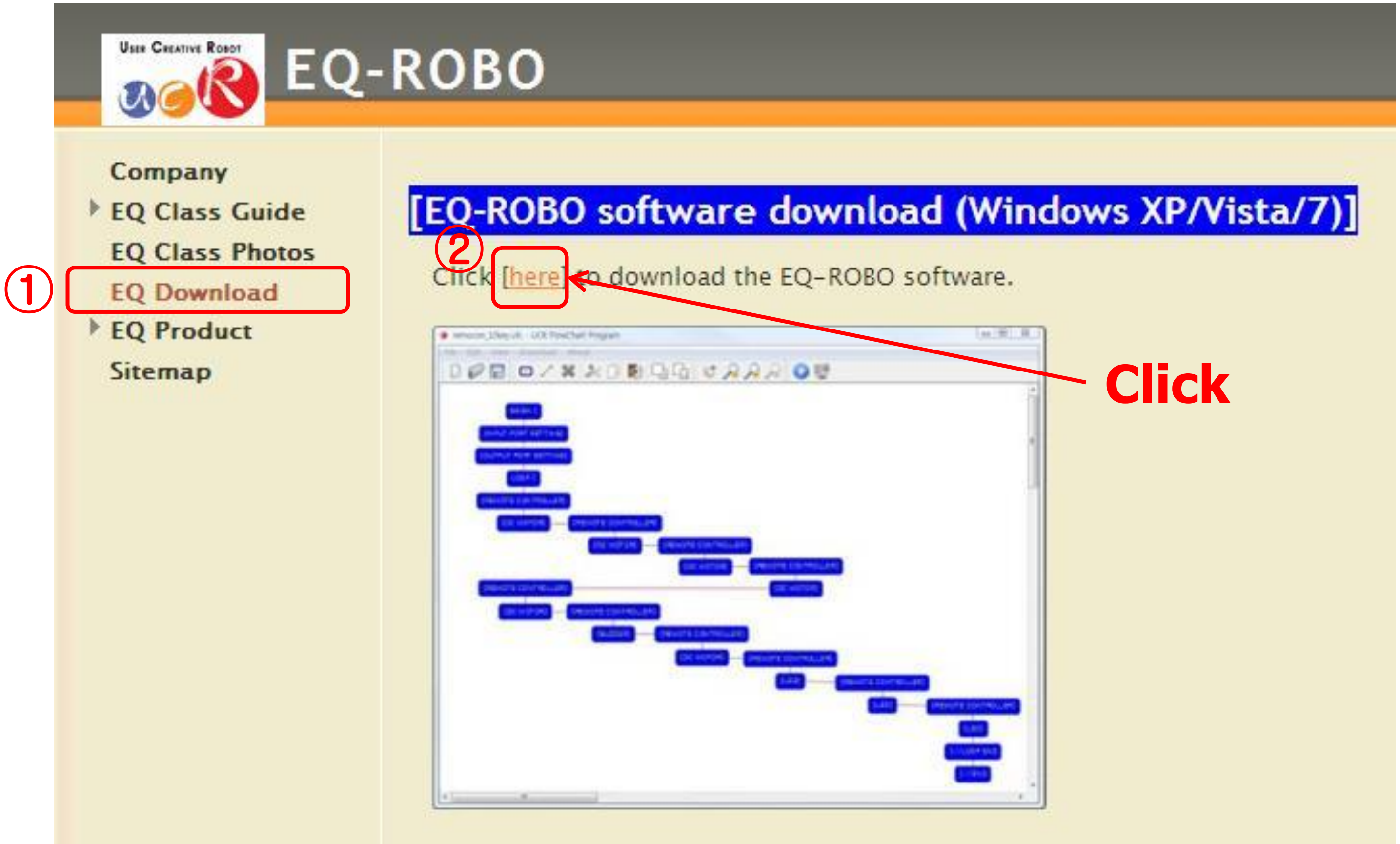
[EQ-ROBO software download (Windows XP/Vista/7)]

Click [here] to download the EQ-ROBO software.

0-1. Program Download

(0-1-2) Download UCR-FCP_v1.zip

www.ucrobot.com



User Creative Robot

EQ-ROBO

- Company
- EQ Class Guide
- EQ Class Photos
- ① EQ Download
- EQ Product
- Sitemap

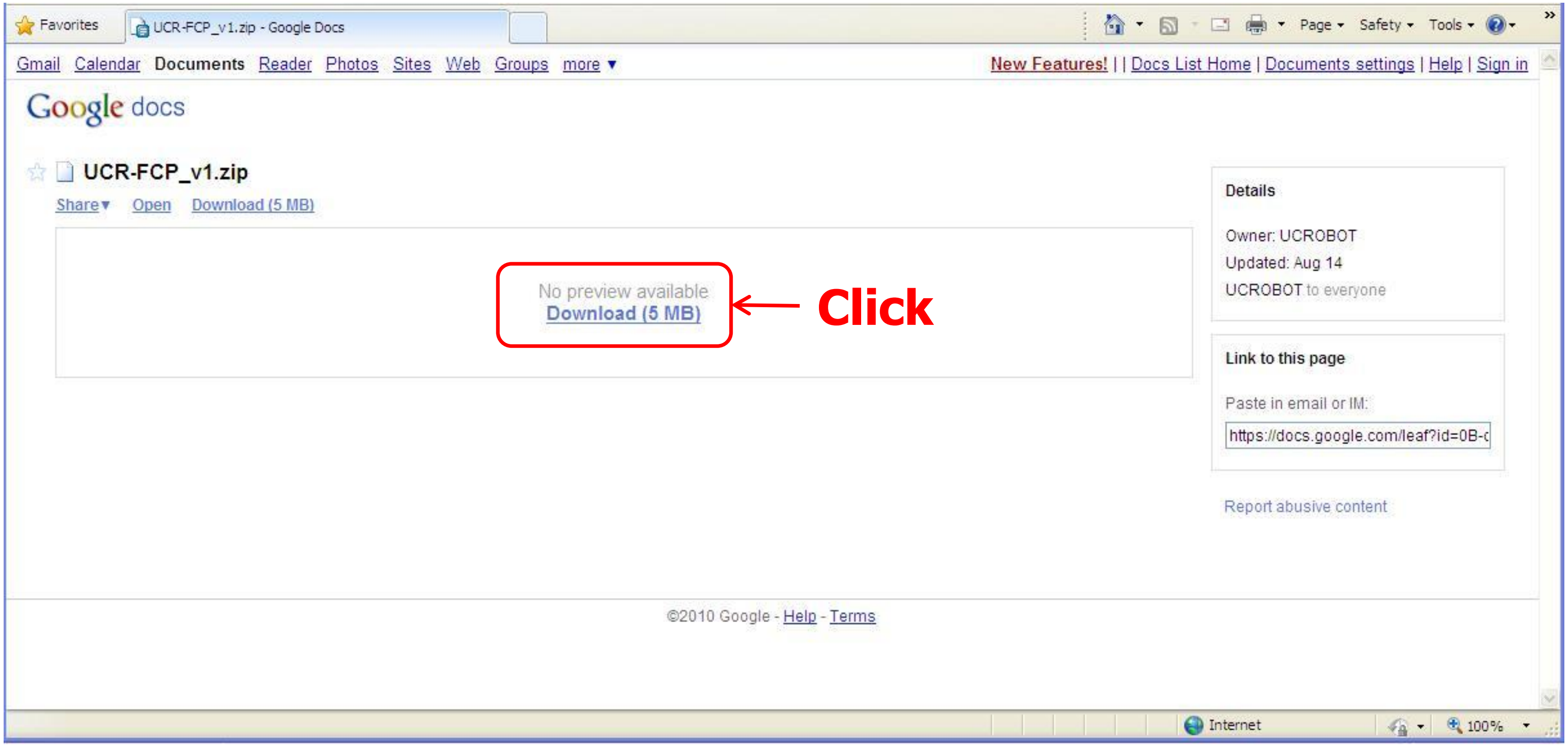
[EQ-ROBO software download (Windows XP/Vista/7)]

② Click [here] to download the EQ-ROBO software.

Click

0-1. Program Download

(0-1-2-1) Download UCR-FCP_v1.zip



Gmail Calendar **Documents** Reader Photos Sites Web Groups more ▾

New Features! | | Docs List Home | Documents settings | Help | Sign in

Google docs

UCR-FCP_v1.zip

Share ▾ Open Download (5 MB)

No preview available
Download (5 MB)

Click

Details

Owner: UCROBOT
Updated: Aug 14
UCROBOT to everyone

Link to this page

Paste in email or IM:

https://docs.google.com/leaf?id=0B-c

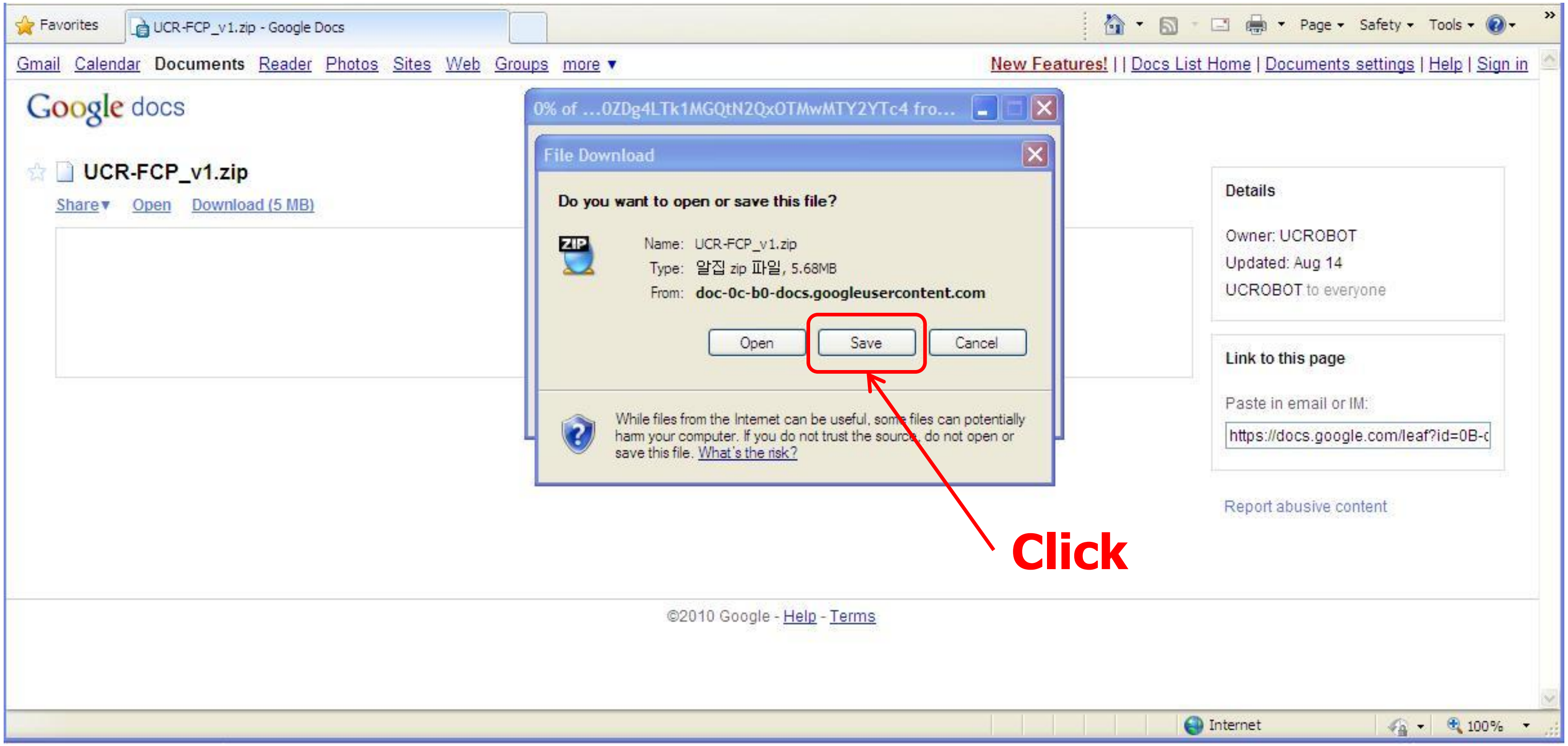
Report abusive content

©2010 Google - Help - Terms

0-1. Program Download

MICROSOFT's Windows XP

(0-1-2-2) Download UCR-FCP_v1.zip



Favorites | UCR-FCP_v1.zip - Google Docs

Gmail Calendar Documents Reader Photos Sites Web Groups more ▾ New Features! | | Docs List Home | Documents settings | Help | Sign in

Google docs

UCR-FCP_v1.zip

Share ▾ Open Download (5 MB)

0% of ...0ZDg4LTk1MGQtN2QxOTMwMTY2YTc4 fro...

File Download

Do you want to open or save this file?

Name: UCR-FCP_v1.zip
Type: 알집 zip 파일, 5.68MB
From: doc-0c-b0-docs.googleusercontent.com

Open | Save | Cancel

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

Details

Owner: UCROBOT
Updated: Aug 14
UCROBOT to everyone

Link to this page

Paste in email or IM:

https://docs.google.com/leaf?id=0B-c

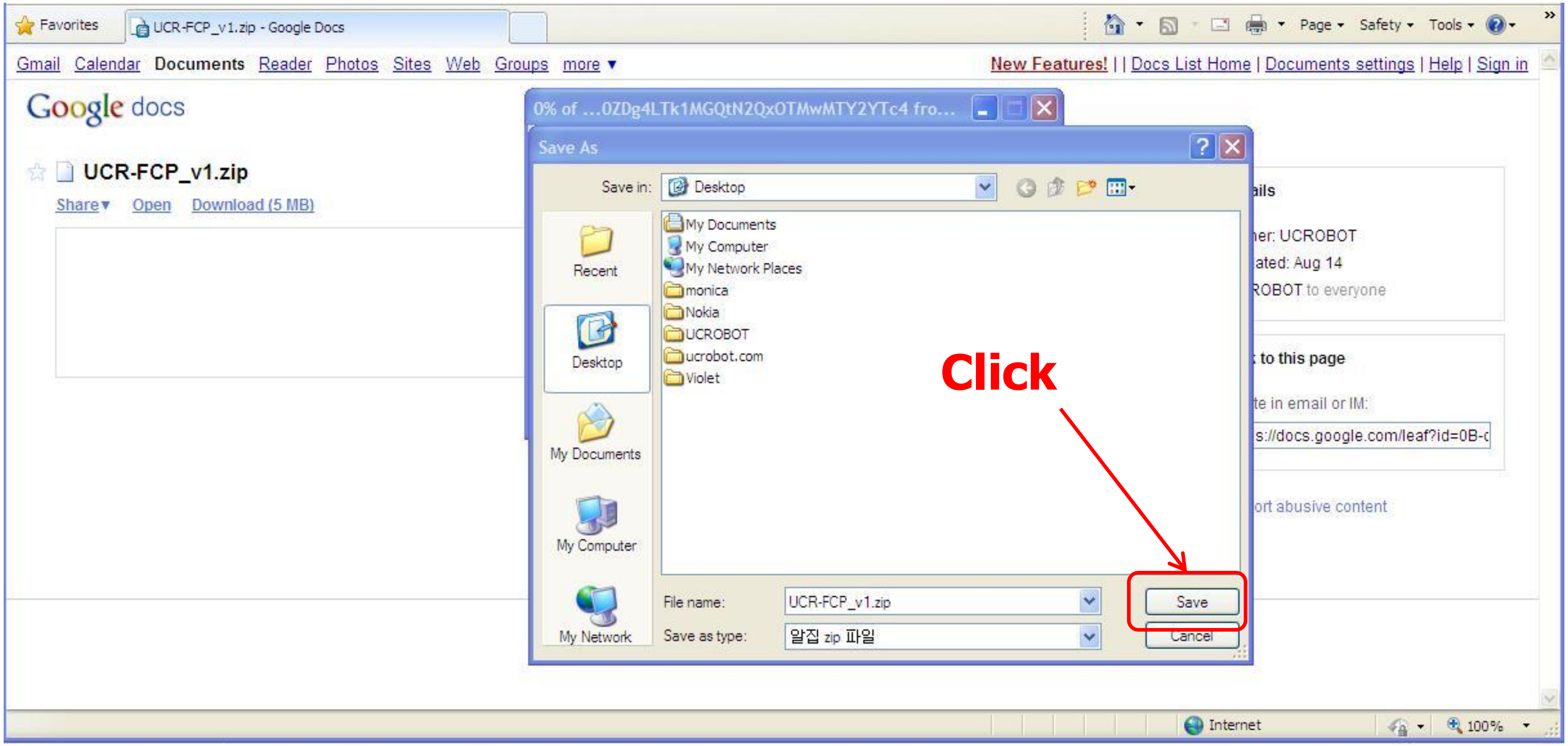
Report abusive content

©2010 Google - Help - Terms

Click

0-1. Program Download

(0-1-2-3) Download UCR-FCP_v1.zip



UCR-FCP_v1.zip - Google Docs

Google docs

UCR-FCP_v1.zip

0% of ...0ZDg4LTk1MGQtN2QxOTMwMTY2YTc4 fro...

Save As

Save in: Desktop

My Documents
My Computer
My Network Places
monica
Nokia
UCROBOT
ucrobot.com
Violet

File name: UCR-FCP_v1.zip

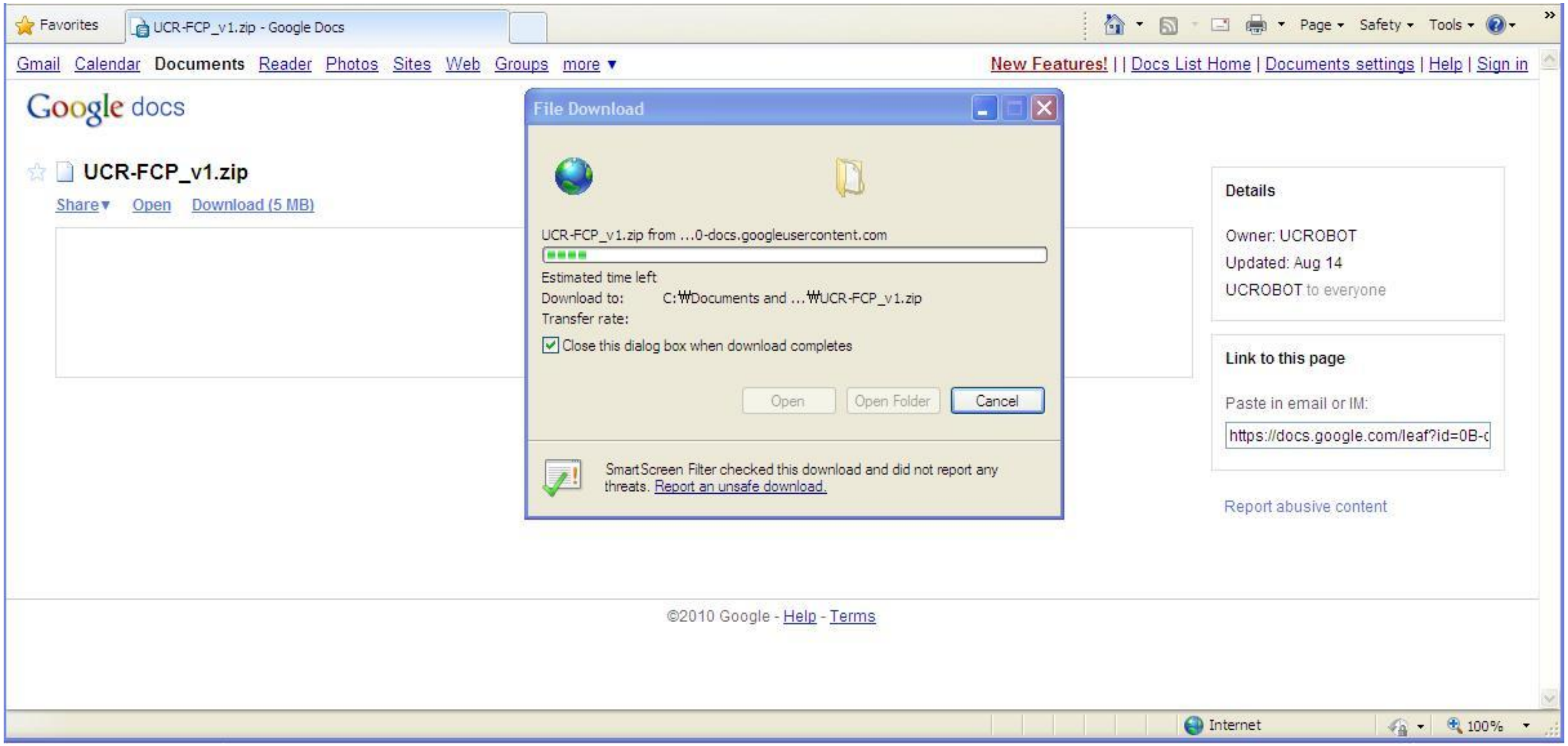
Save as type: 알집 zip 파일

...ner: UCROBOT
...ated: Aug 14
...ROBOT to everyone

...s://docs.google.com/leaf?id=0B-c

0-1. Program Download

(0-1-2-4) Download UCR-FCP_v1.zip



Favorites
UCR-FCP_v1.zip - Google Docs
Page ▾ Safety ▾ Tools ▾
Gmail Calendar Documents Reader Photos Sites Web Groups more ▾
New Features! | | Docs List Home | Documents settings | Help | Sign in
Google docs

UCR-FCP_v1.zip

Share ▾ Open Download (5 MB)

File Download

UCR-FCP_v1.zip from ...0-docs.googleusercontent.com

Estimated time left

Download to: C:₩Documents and ...₩UCR-FCP_v1.zip

Transfer rate:

☑ Close this dialog box when download completes

Open | Open Folder | Cancel

SmartScreen Filter checked this download and did not report any threats. Report an unsafe download.

Details

Owner: UCROBOT

Updated: Aug 14

UCROBOT to everyone

Link to this page

Paste in email or IM:

https://docs.google.com/leaf?id=0B-(

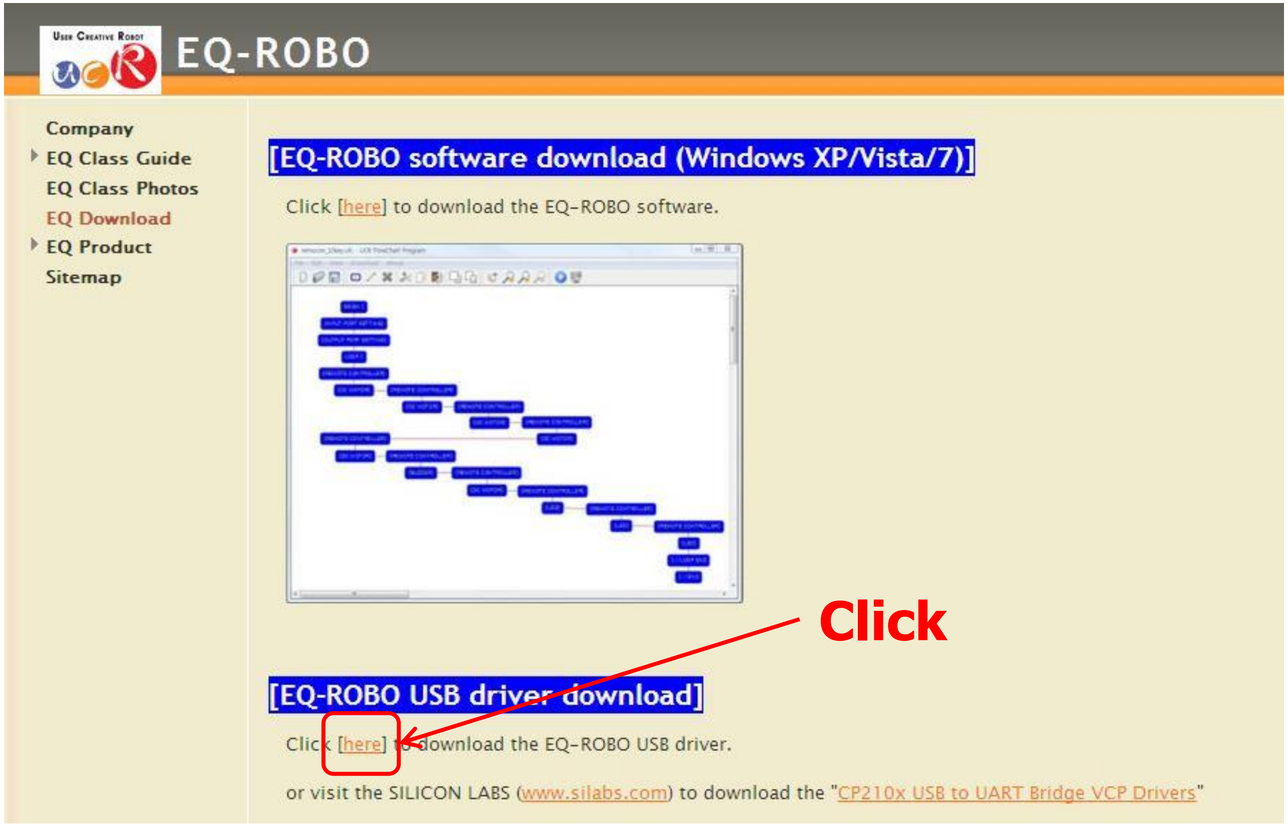
Report abusive content

©2010 Google - Help - Terms

0-1. Program Download

(0-1-3) Download CP210x_VCP_Win_XP_S2K3_Vista_7.exe

www.ucrobot.com


User Creative Robot
EQ-ROBO

Company
EQ Class Guide
EQ Class Photos
EQ Download
EQ Product
Sitemap

[EQ-ROBO software download (Windows XP/Vista/7)]

Click [here] to download the EQ-ROBO software.

[EQ-ROBO USB driver download]

Click [here] to download the EQ-ROBO USB driver.

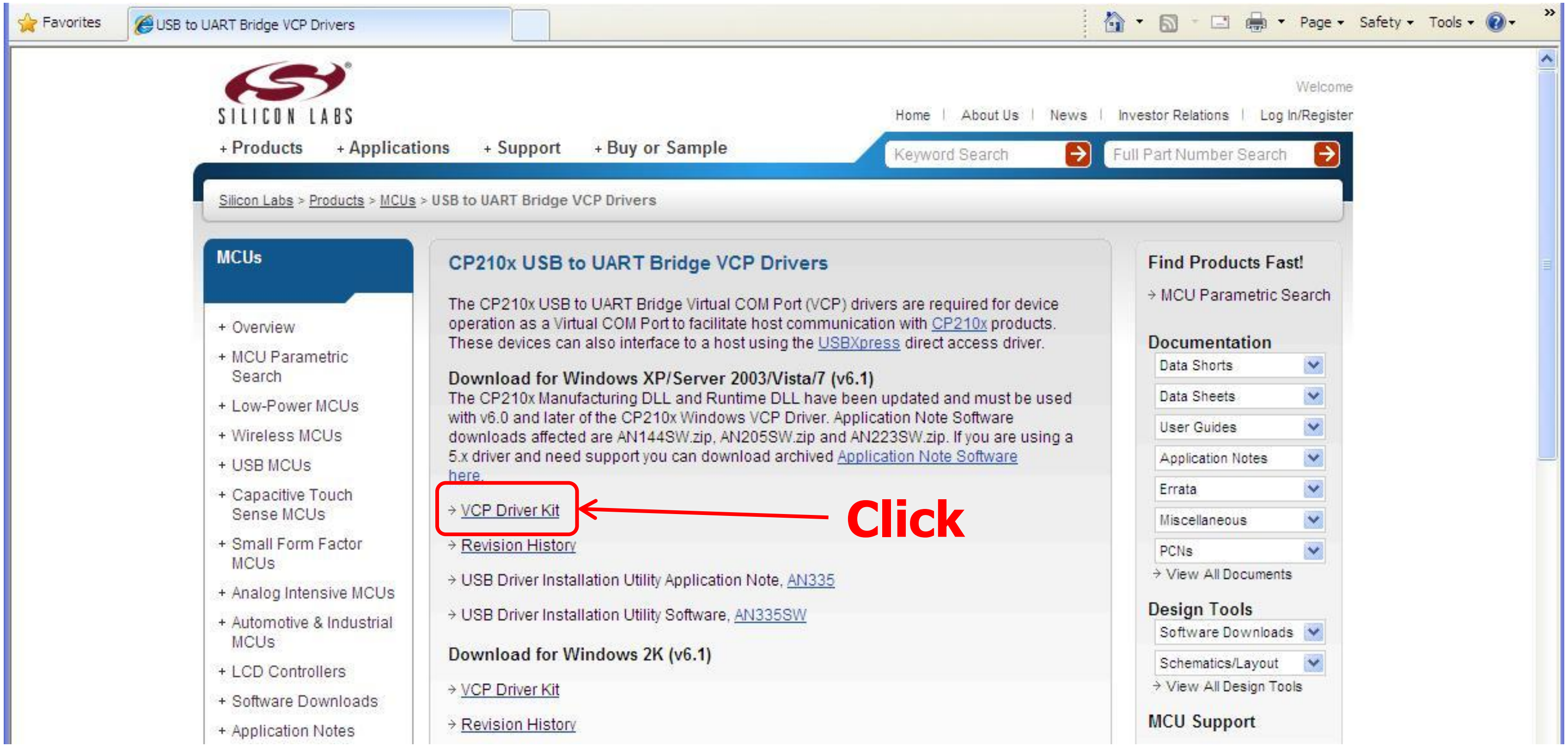
or visit the SILICON LABS (www.silabs.com) to download the "CP210x USB to UART Bridge VCP Drivers"

Click

0-1. Program Download

MICROSOFT's
Windows XP

(0-1-3-1) Download CP210x_VCP_Win_XP_S2K3_Vista_7.exe



CP210x USB to UART Bridge VCP Drivers

The CP210x USB to UART Bridge Virtual COM Port (VCP) drivers are required for device operation as a Virtual COM Port to facilitate host communication with CP210x products. These devices can also interface to a host using the USBXpress direct access driver.

Download for Windows XP/Server 2003/Vista/7 (v6.1)
The CP210x Manufacturing DLL and Runtime DLL have been updated and must be used with v6.0 and later of the CP210x Windows VCP Driver. Application Note Software downloads affected are AN144SW.zip, AN205SW.zip and AN223SW.zip. If you are using a 5.x driver and need support you can download archived Application Note Software here.

- VCP Driver Kit
- Revision History
- USB Driver Installation Utility Application Note, AN335
- USB Driver Installation Utility Software, AN335SW

Download for Windows 2K (v6.1)

- VCP Driver Kit
- Revision History

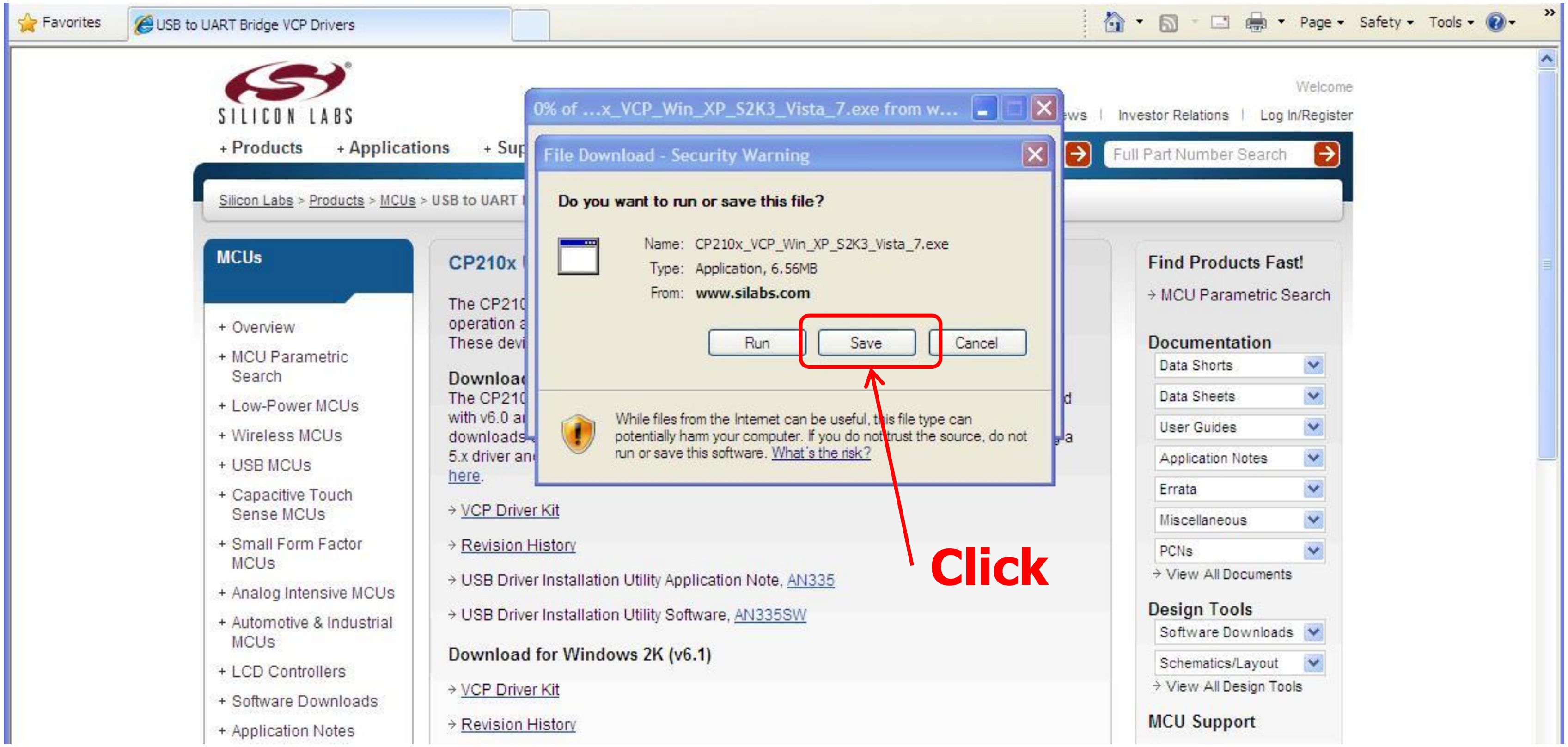
Click

technical support : ucrobot @ ucrobot.com

0-1. Program Download

MICROSOFT's
Windows XP

(0-1-3-2) Download CP210x_VCP_Win_XP_S2K3_Vista_7.exe



Do you want to run or save this file?

Name: CP210x_VCP_Win_XP_S2K3_Vista_7.exe
Type: Application, 6.56MB
From: www.silabs.com

While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

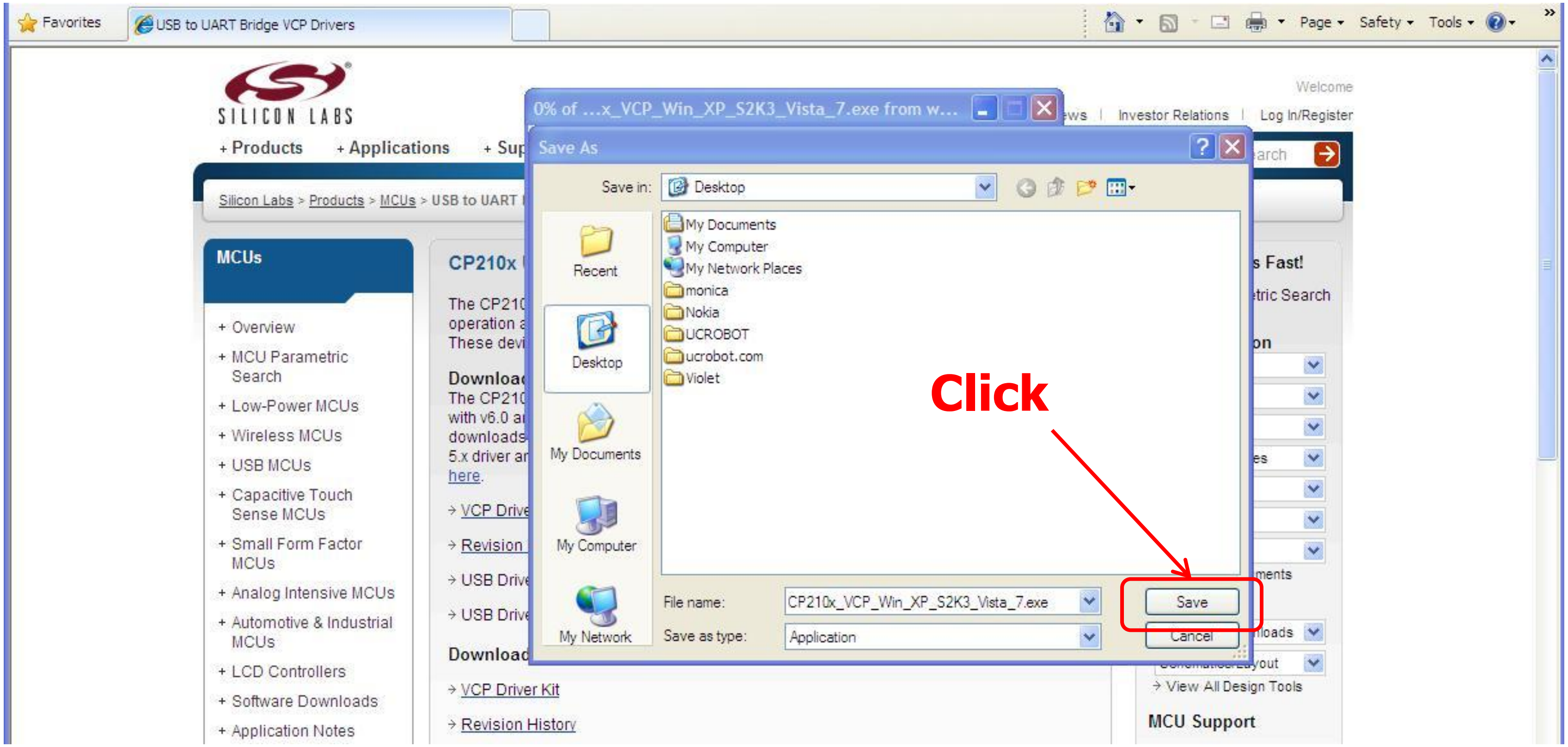
Click

technical support : ucrobot @ ucrobot.com

0-1. Program Download

MICROSOFT's Windows XP

(0-1-3-3) Download **CP210x_VCP_Win_XP_S2K3_Vista_7.exe**

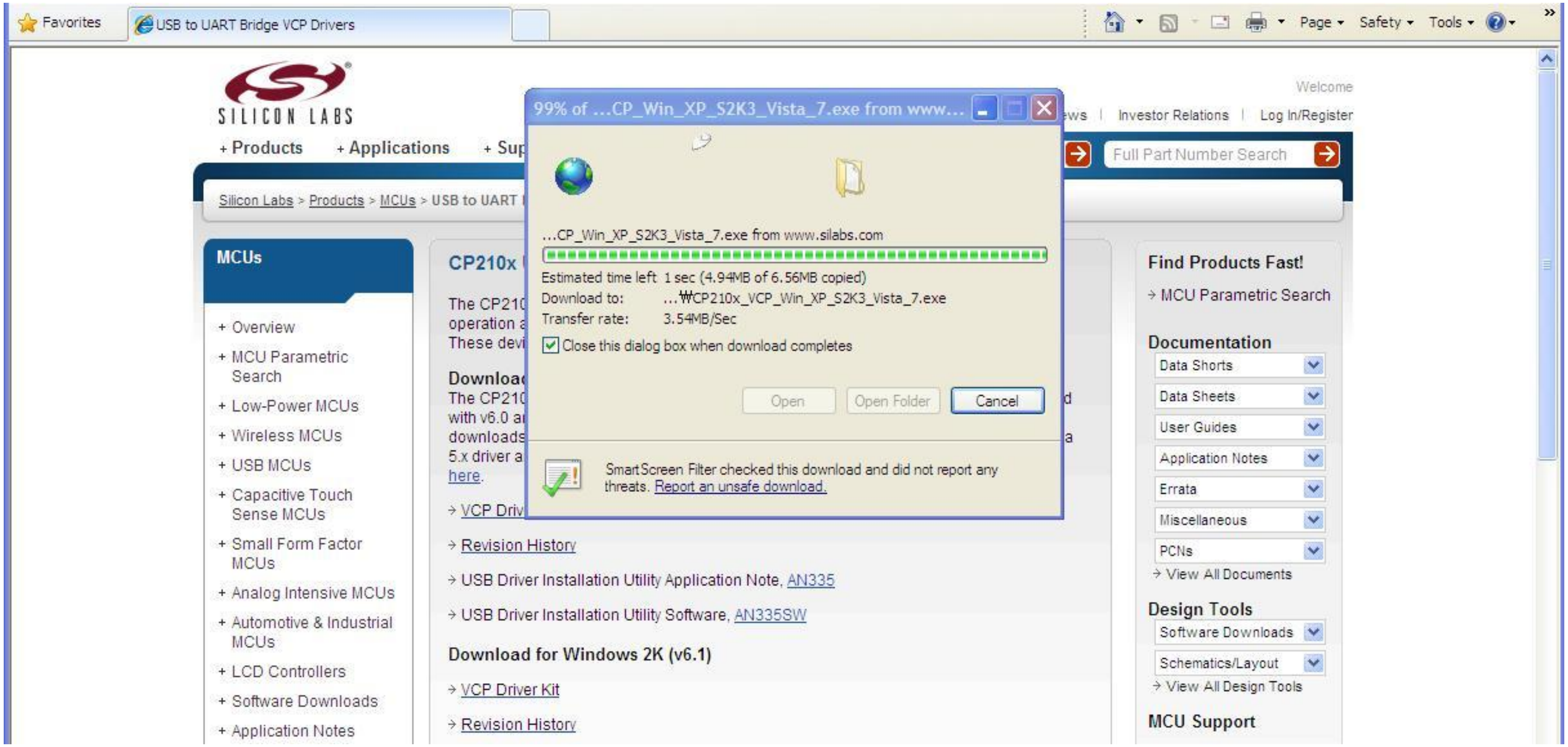


technical support : ucrobot @ ucrobot.com

0-1. Program Download

MICROSOFT's
Windows XP

(0-1-3-4) Download **CP210x_VCP_Win_XP_S2K3_Vista_7.exe**



99% of …CP_Win_XP_S2K3_Vista_7.exe from www…

…CP_Win_XP_S2K3_Vista_7.exe from www.silabs.com

Estimated time left 1 sec (4.94MB of 6.56MB copied)
Download to: …₩CP210x_VCP_Win_XP_S2K3_Vista_7.exe
Transfer rate: 3.54MB/Sec

☑ Close this dialog box when download completes

SmartScreen Filter checked this download and did not report any threats. Report an unsafe download.

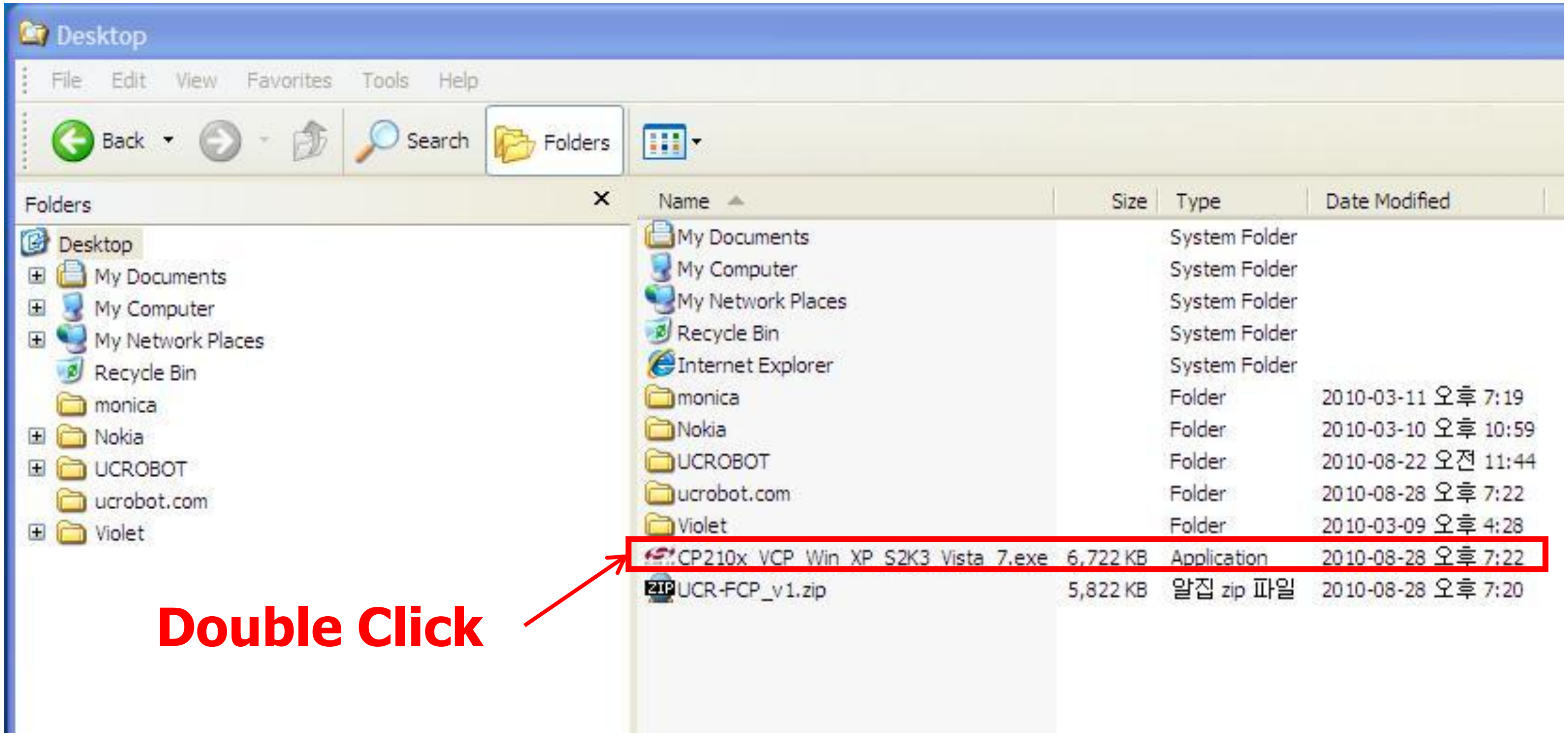
technical support : ucrobot @ ucrobot.com

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-1) Install the USB driver

1. Before installation the USB driver, disconnect the USB cable between Robot and PC.
2. Double click the “CP210x_VCP_Win_XP_S2K3_Vista_7 .exe”.



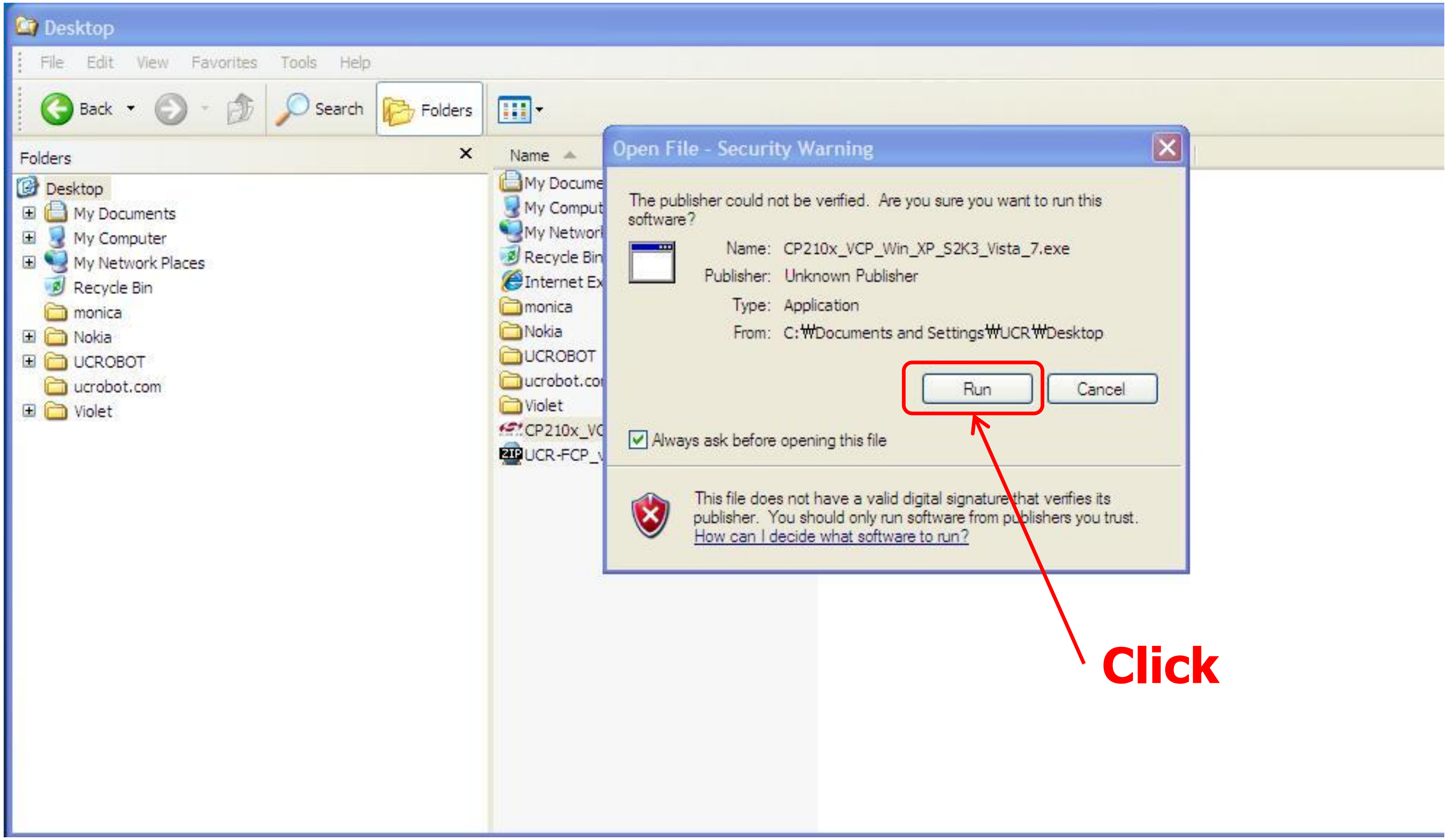
Name	Size	Type	Date Modified
My Documents		System Folder	
My Computer		System Folder	
My Network Places		System Folder	
Recycle Bin		System Folder	
Internet Explorer		System Folder	
monica		Folder	2010-03-11 오후 7:19
Nokia		Folder	2010-03-10 오후 10:59
UCROBOT		Folder	2010-08-22 오전 11:44
ucrobot.com		Folder	2010-08-28 오후 7:22
Violet		Folder	2010-03-09 오후 4:28
CP210x_VCP_Win_XP_S2K3_Vista_7.exe	6,722 KB	Application	2010-08-28 오후 7:22
UCR-FCP_v1.zip	5,822 KB	알집 zip 파일	2010-08-28 오후 7:20

Double Click

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-2) Install the USB driver



Open File - Security Warning

The publisher could not be verified. Are you sure you want to run this software?

Name: CP210x_VCP_Win_XP_S2K3_Vista_7.exe

Publisher: Unknown Publisher

Type: Application

From: C:₩Documents and Settings₩UCR₩Desktop

☑ Always ask before opening this file

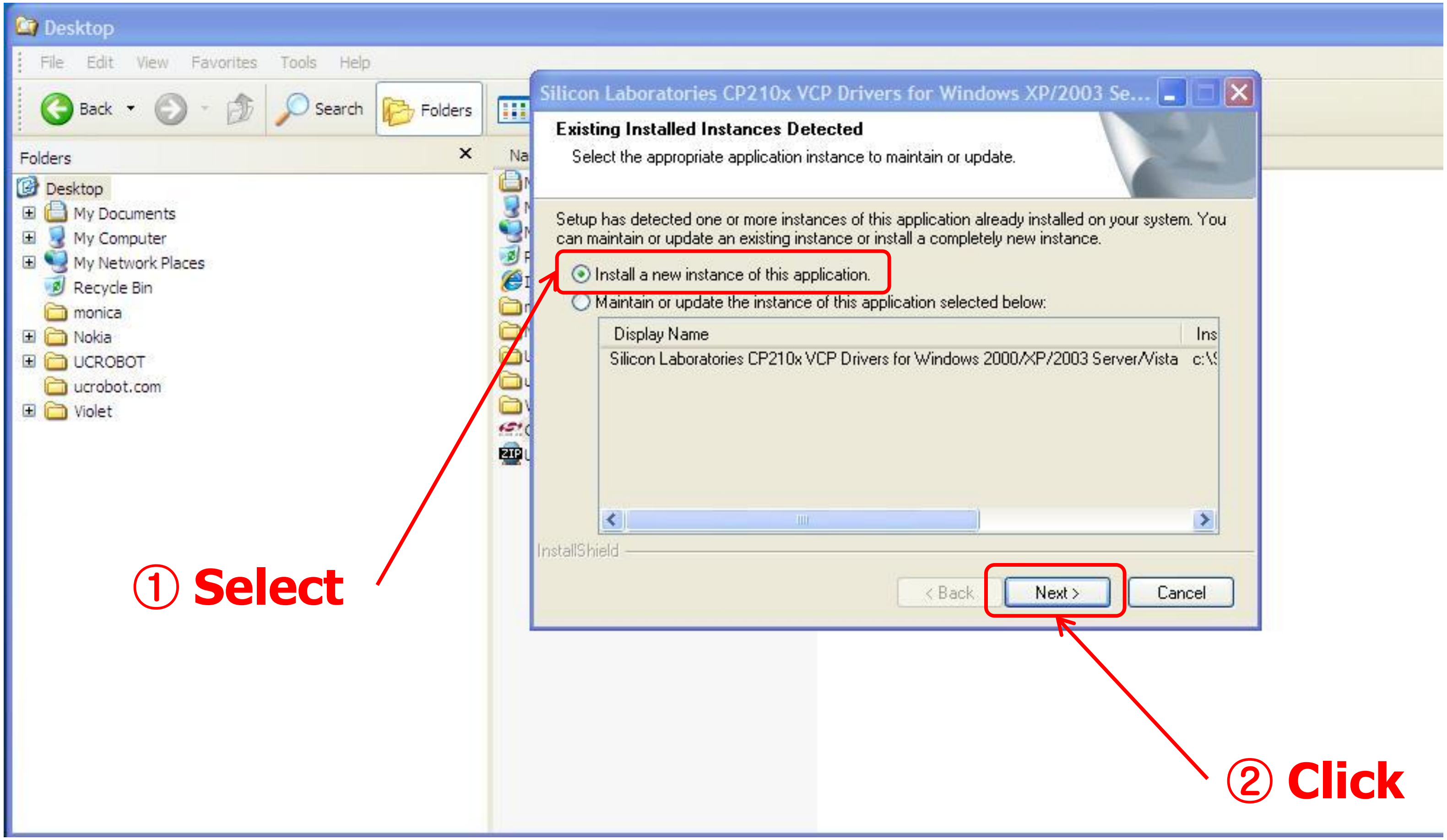
This file does not have a valid digital signature that verifies its publisher. You should only run software from publishers you trust. How can I decide what software to run?

Click

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-3) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Se...

Existing Installed Instances Detected

Select the appropriate application instance to maintain or update.

Setup has detected one or more instances of this application already installed on your system. You can maintain or update an existing instance or install a completely new instance.

● Install a new instance of this application.

○ Maintain or update the instance of this application selected below:

Display Name	Ins
Silicon Laboratories CP210x VCP Drivers for Windows 2000/XP/2003 Server/Vista	c:\

① Select

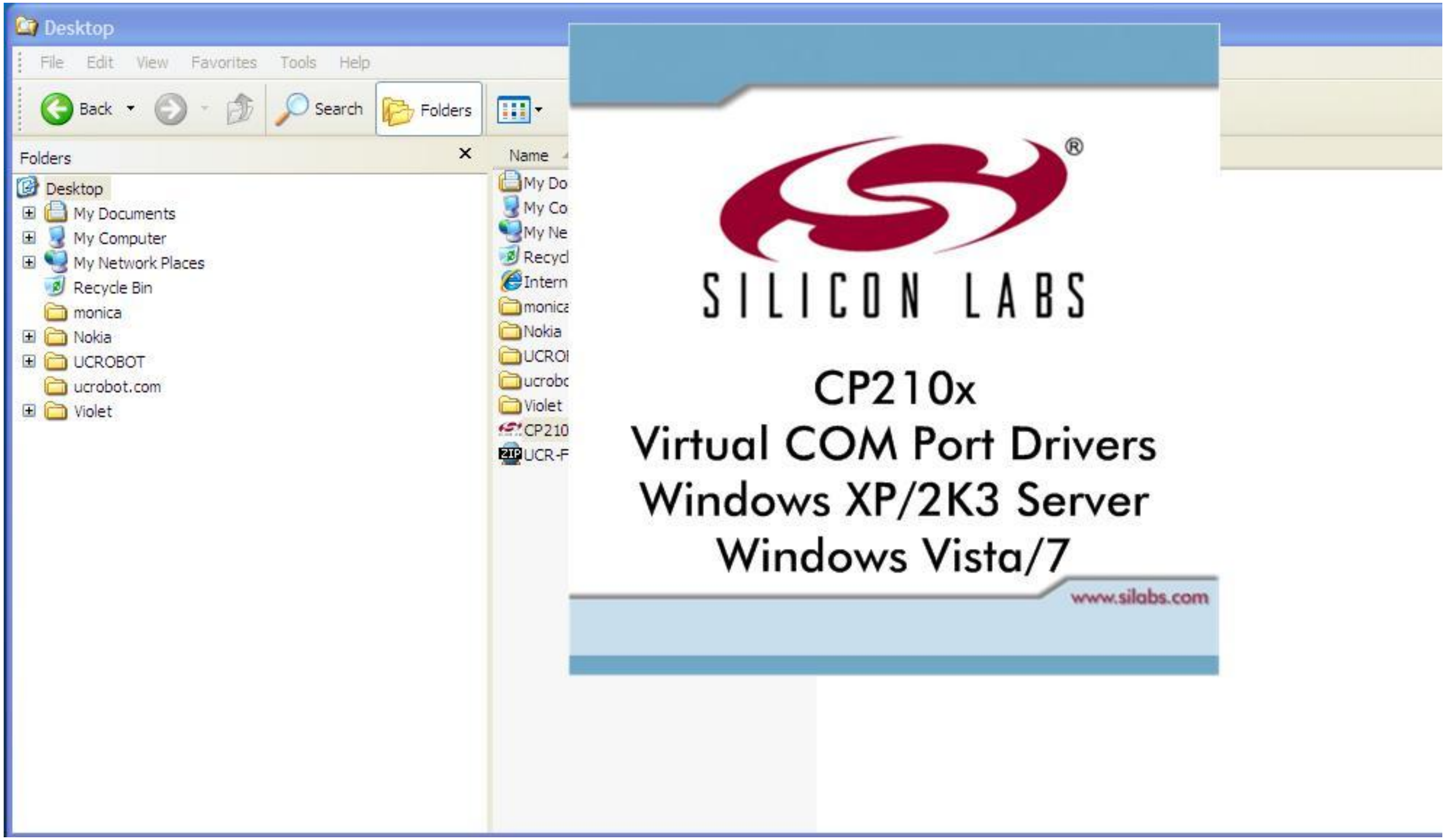
② Click

technical support : ucrobot @ ucrobot.com

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-4) Install the USB driver



CP210x
Virtual COM Port Drivers
Windows XP/2K3 Server
Windows Vista/7

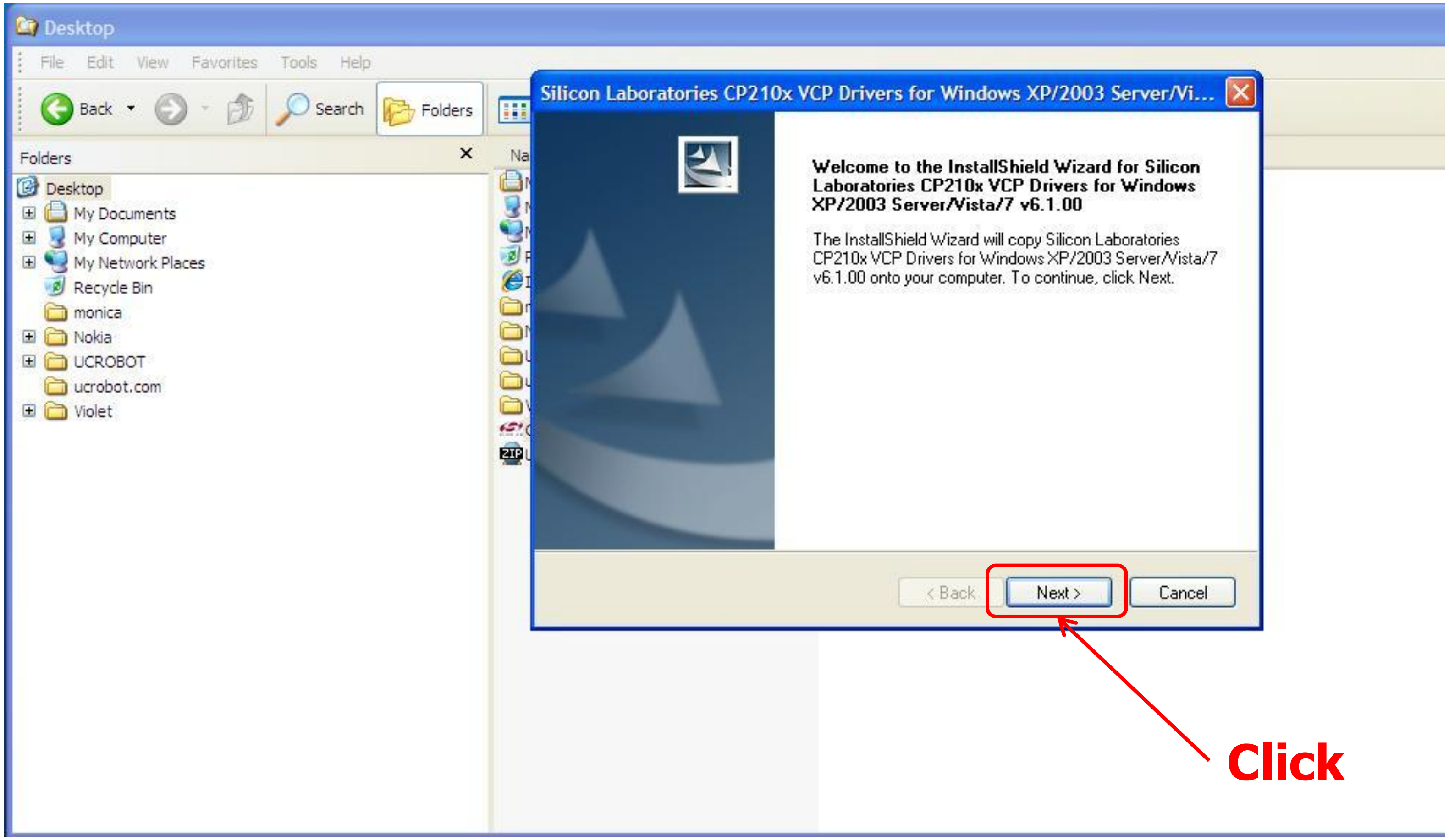
www.silabs.com

technical support : ucrobot @ ucrobot.com

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-5) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi...

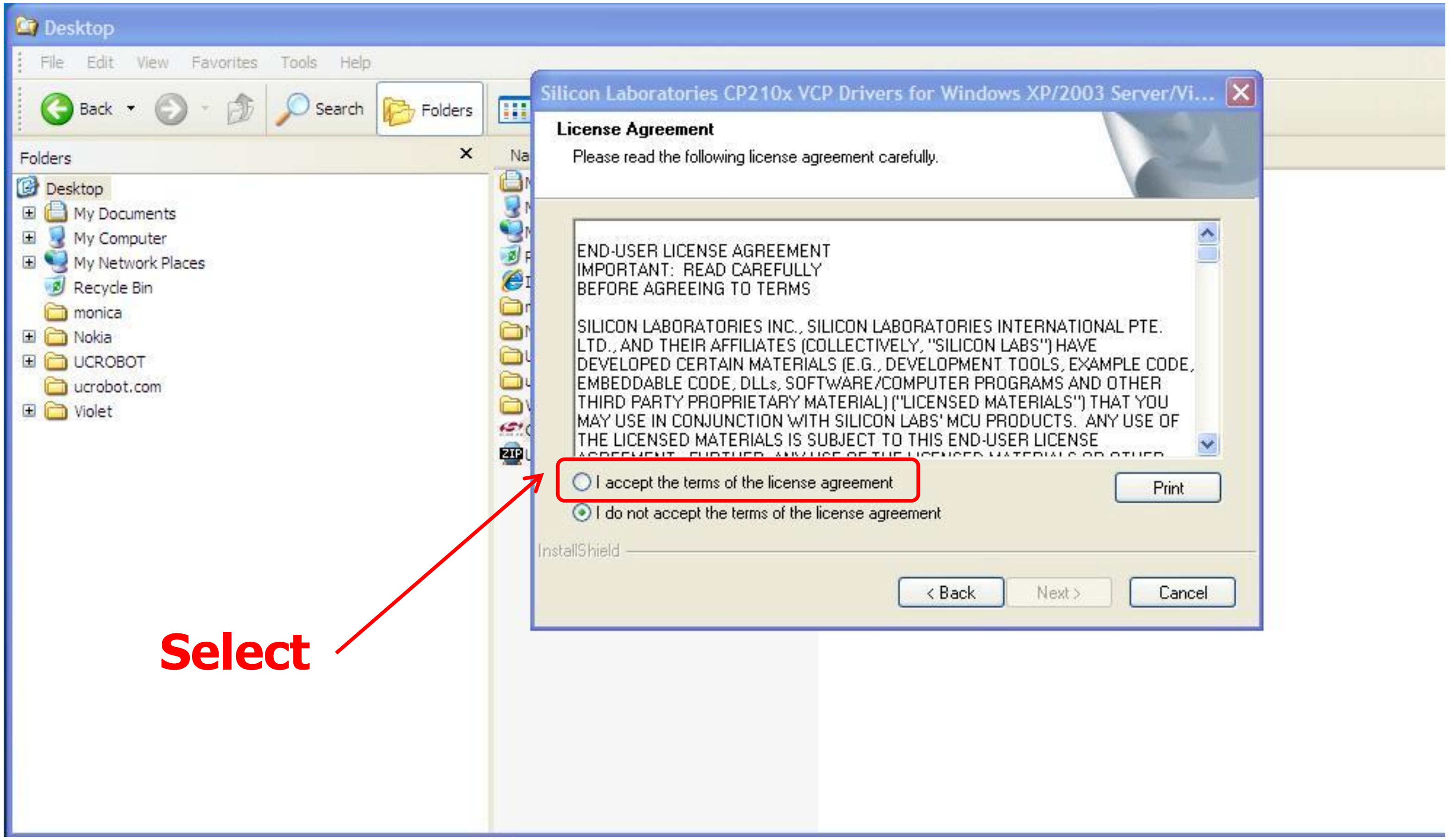
Welcome to the InstallShield Wizard for Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00

The InstallShield Wizard will copy Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 onto your computer. To continue, click Next.

Click

0-2. Install the USB Driver

(0-2-6) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi...

License Agreement

Please read the following license agreement carefully.

END-USER LICENSE AGREEMENT
IMPORTANT: READ CAREFULLY
BEFORE AGREEING TO TERMS

SILICON LABORATORIES INC., SILICON LABORATORIES INTERNATIONAL PTE. LTD., AND THEIR AFFILIATES (COLLECTIVELY, "SILICON LABS") HAVE DEVELOPED CERTAIN MATERIALS (E.G., DEVELOPMENT TOOLS, EXAMPLE CODE, EMBEDDABLE CODE, DLLs, SOFTWARE/COMPUTER PROGRAMS AND OTHER THIRD PARTY PROPRIETARY MATERIAL) ("LICENSED MATERIALS") THAT YOU MAY USE IN CONJUNCTION WITH SILICON LABS' MCU PRODUCTS. ANY USE OF THE LICENSED MATERIALS IS SUBJECT TO THIS END-USER LICENSE AGREEMENT. FURTHER, ANY USE OF THE LICENSED MATERIALS OR OTHER

○ I accept the terms of the license agreement

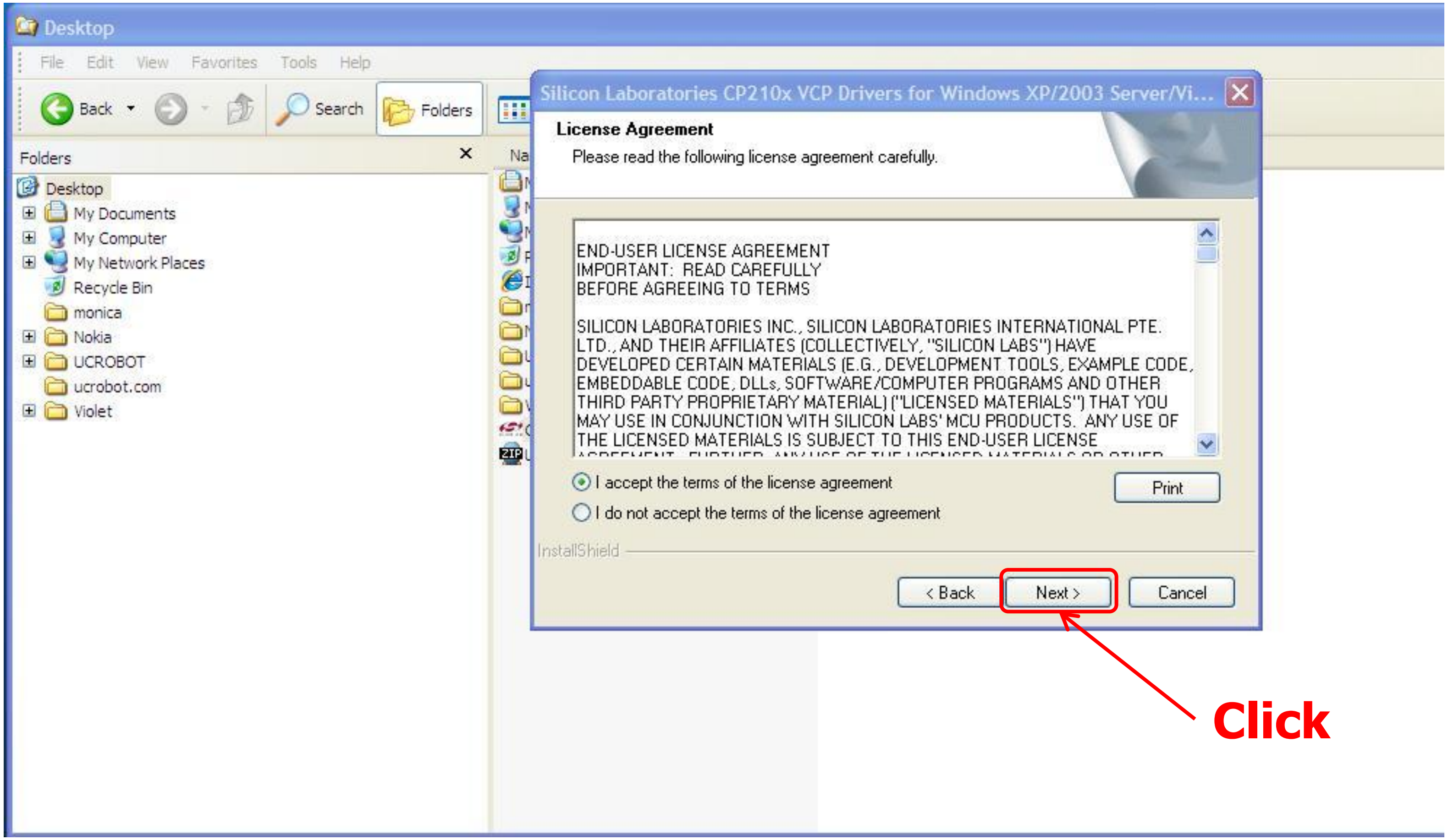
● I do not accept the terms of the license agreement

Select

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-7) Install the USB driver



License Agreement

Please read the following license agreement carefully.

END-USER LICENSE AGREEMENT
IMPORTANT: READ CAREFULLY
BEFORE AGREEING TO TERMS

SILICON LABORATORIES INC., SILICON LABORATORIES INTERNATIONAL PTE. LTD., AND THEIR AFFILIATES (COLLECTIVELY, "SILICON LABS") HAVE DEVELOPED CERTAIN MATERIALS (E.G., DEVELOPMENT TOOLS, EXAMPLE CODE, EMBEDDABLE CODE, DLLs, SOFTWARE/COMPUTER PROGRAMS AND OTHER THIRD PARTY PROPRIETARY MATERIAL) ("LICENSED MATERIALS") THAT YOU MAY USE IN CONJUNCTION WITH SILICON LABS' MCU PRODUCTS. ANY USE OF THE LICENSED MATERIALS IS SUBJECT TO THIS END-USER LICENSE

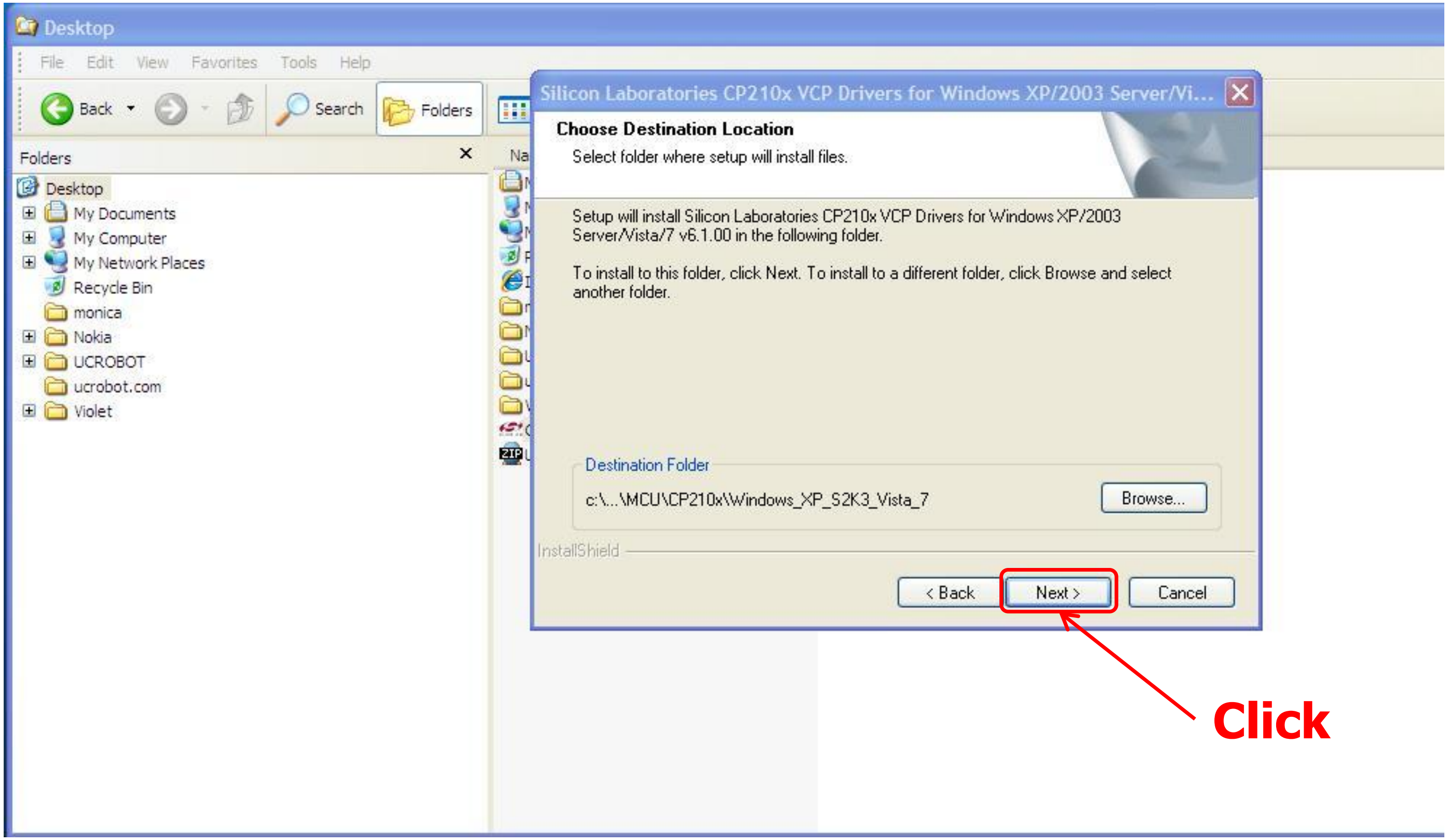
● I accept the terms of the license agreement

○ I do not accept the terms of the license agreement

Click

0-2. Install the USB Driver

(0-2-8) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vi...

Choose Destination Location

Select folder where setup will install files.

Setup will install Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder

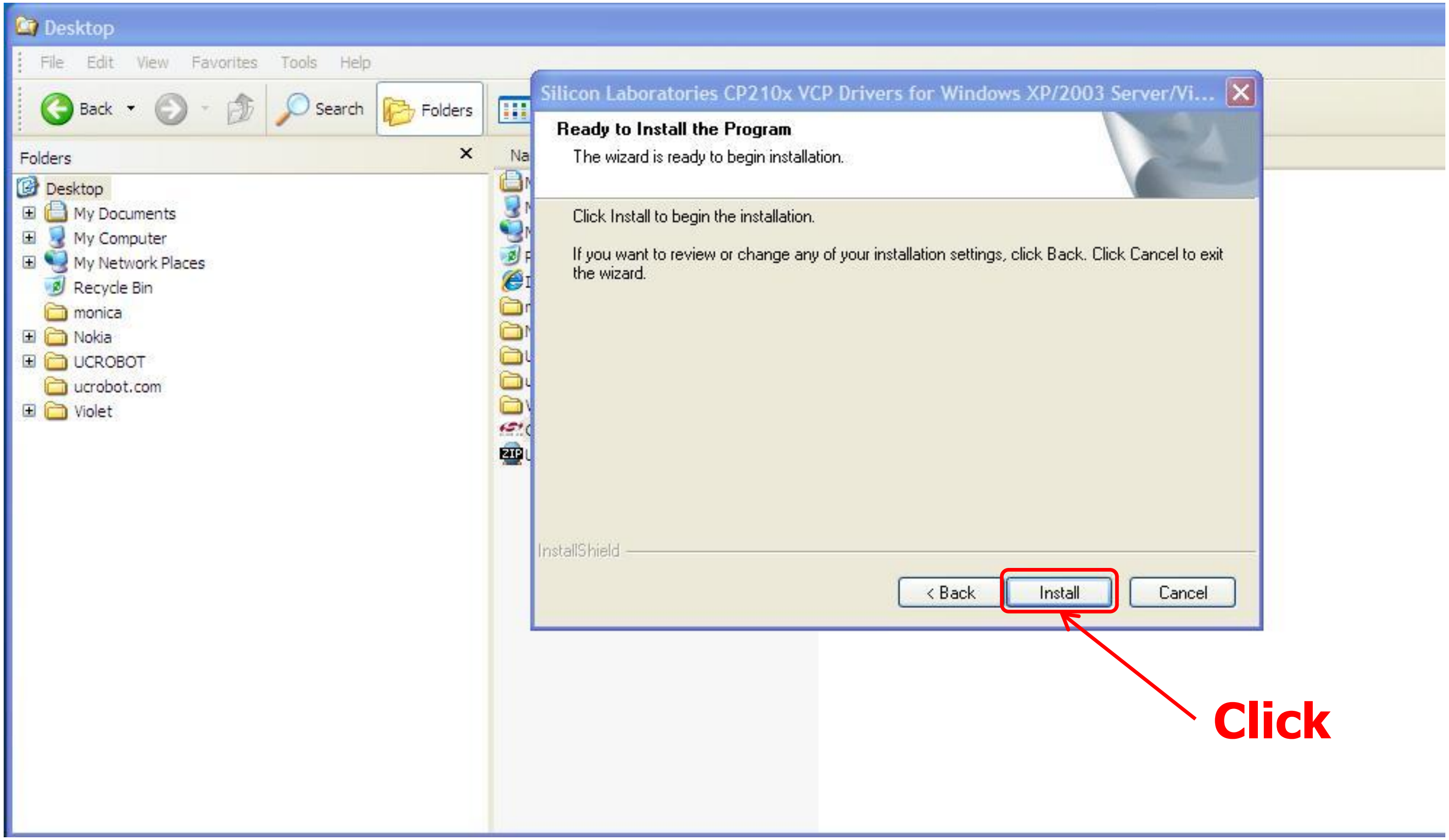
c:\...\MCU\CP210x\Windows_XP_S2K3_Vista_7

Click

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-9) Install the USB driver



Ready to Install the Program

The wizard is ready to begin installation.

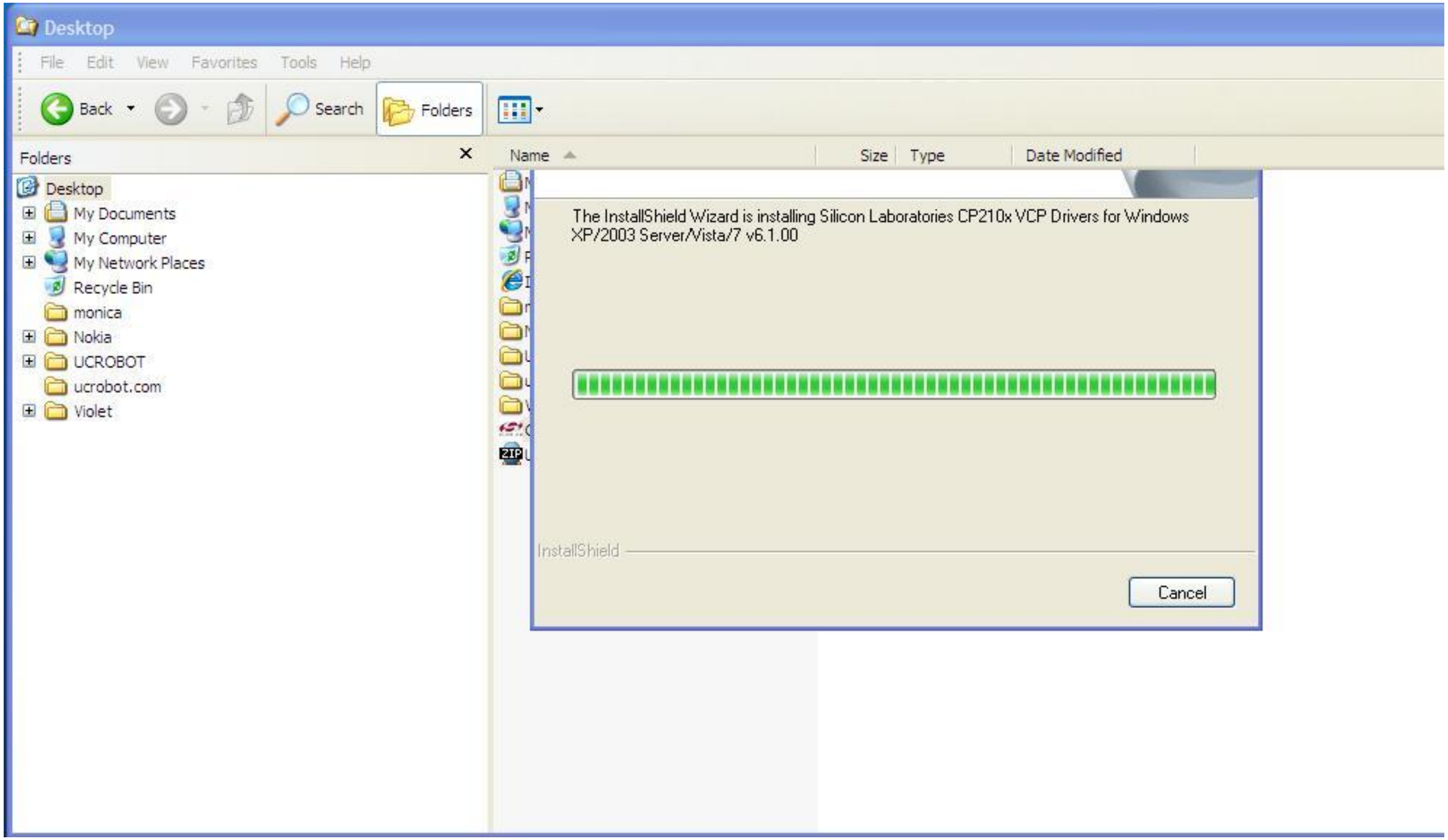
Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

Click

0-2. Install the USB Driver

(0-2-10) Install the USB driver

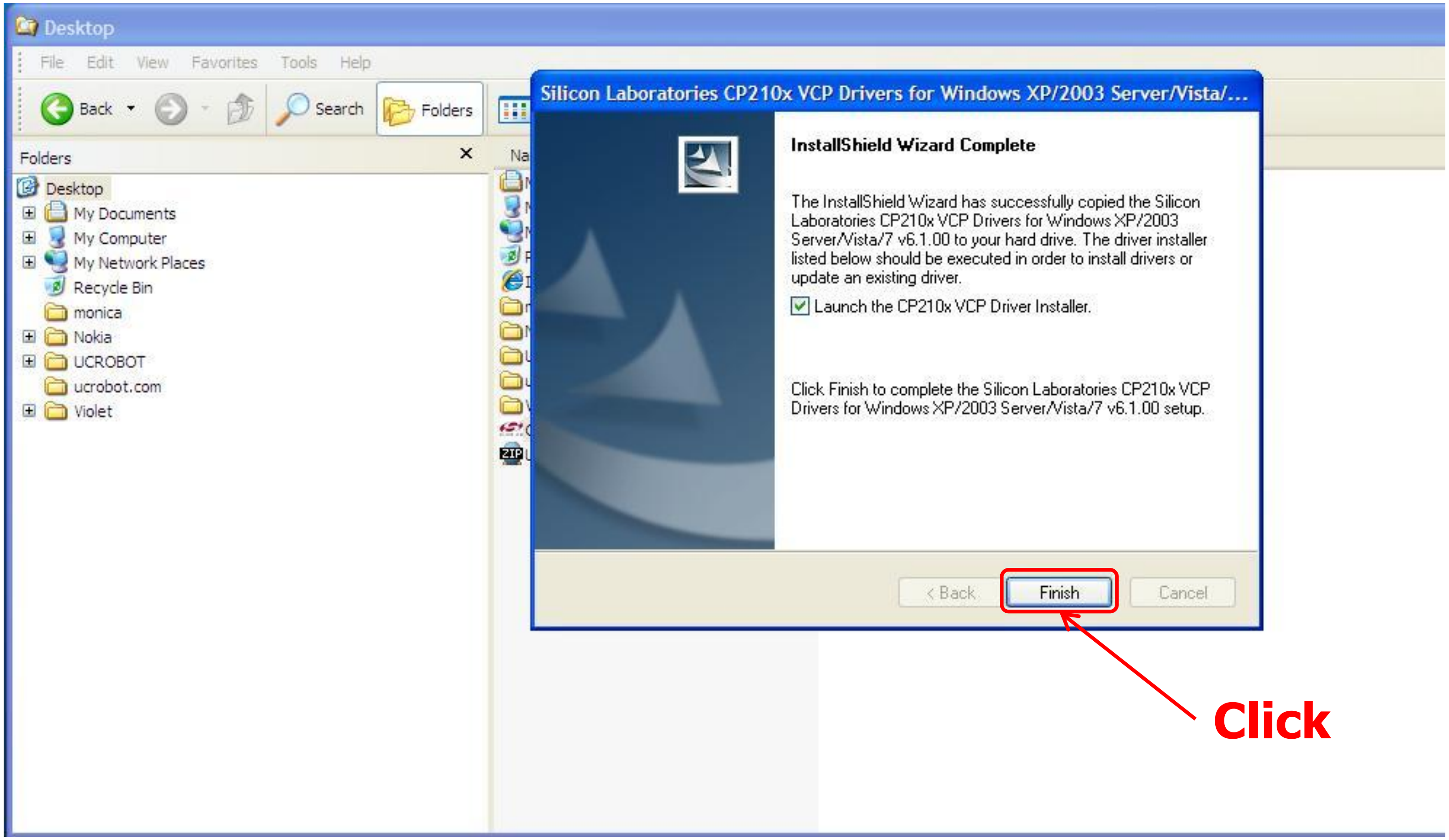


The InstallShield Wizard is installing Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00

0-2. Install the USB Driver

MICROSOFT's
Windows XP

(0-2-11) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/...

InstallShield Wizard Complete

The InstallShield Wizard has successfully copied the Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 to your hard drive. The driver installer listed below should be executed in order to install drivers or update an existing driver.

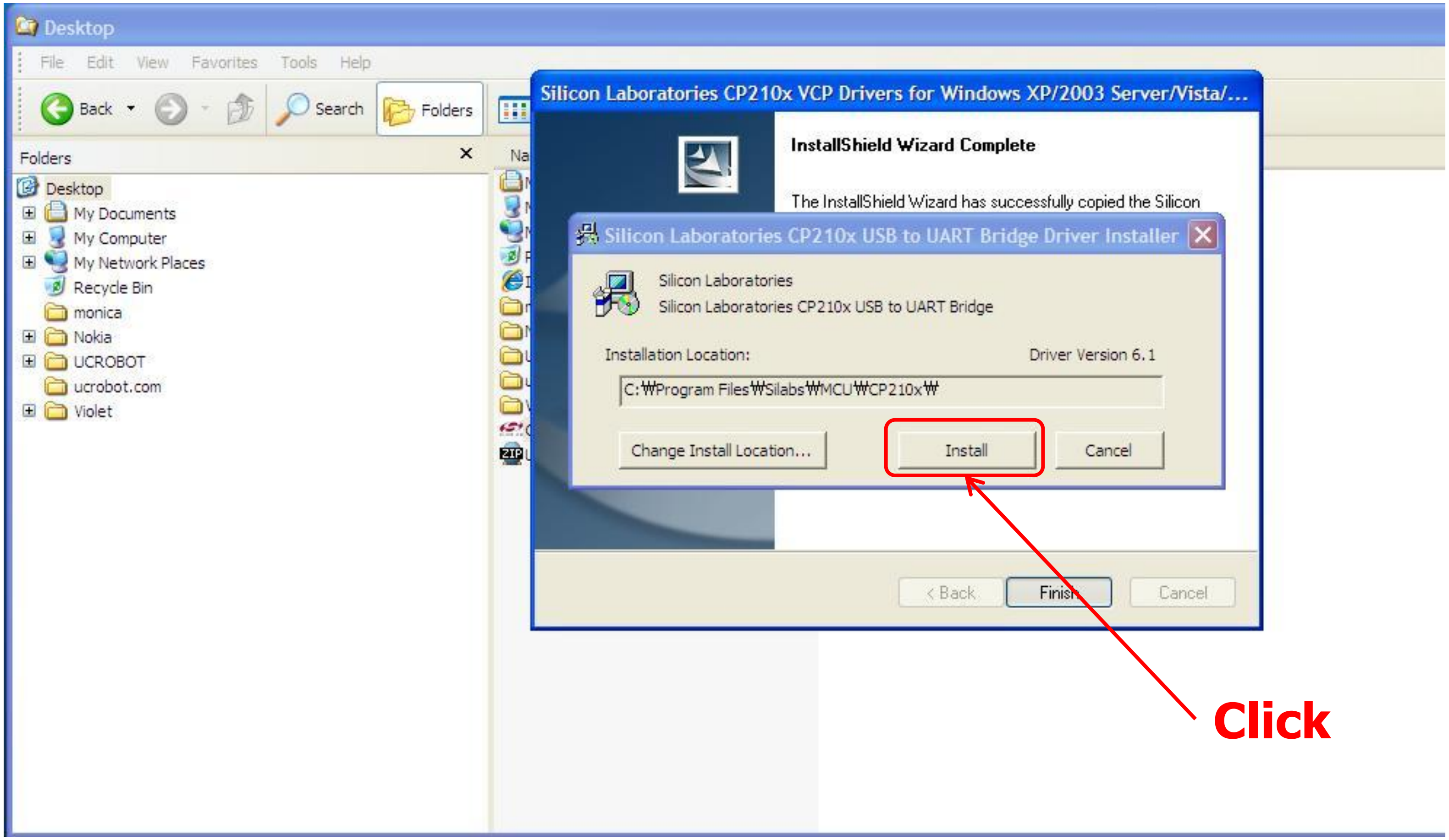
☑ Launch the CP210x VCP Driver Installer.

Click Finish to complete the Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.1.00 setup.

Click

0-2. Install the USB Driver

(0-2-12) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/...

InstallShield Wizard Complete

The InstallShield Wizard has successfully copied the Silicon

Silicon Laboratories CP210x USB to UART Bridge Driver Installer

Silicon Laboratories
Silicon Laboratories CP210x USB to UART Bridge

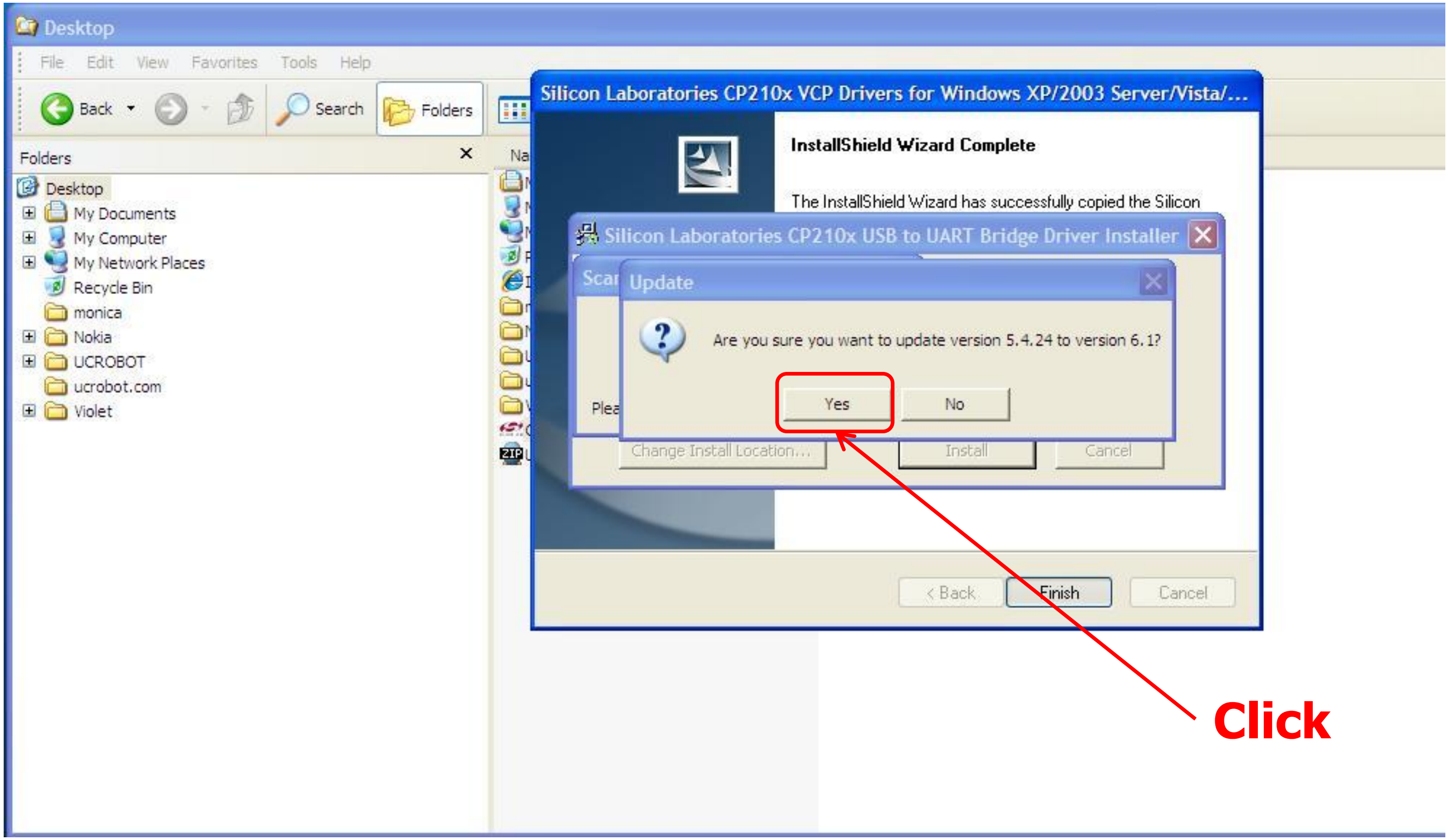
Installation Location: Driver Version 6.1

C:₩Program Files₩Silabs₩MCU₩CP210x₩

Click

0-2. Install the USB Driver

(0-2-13) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/...

InstallShield Wizard Complete

The InstallShield Wizard has successfully copied the Silicon

Silicon Laboratories CP210x USB to UART Bridge Driver Installer

Update

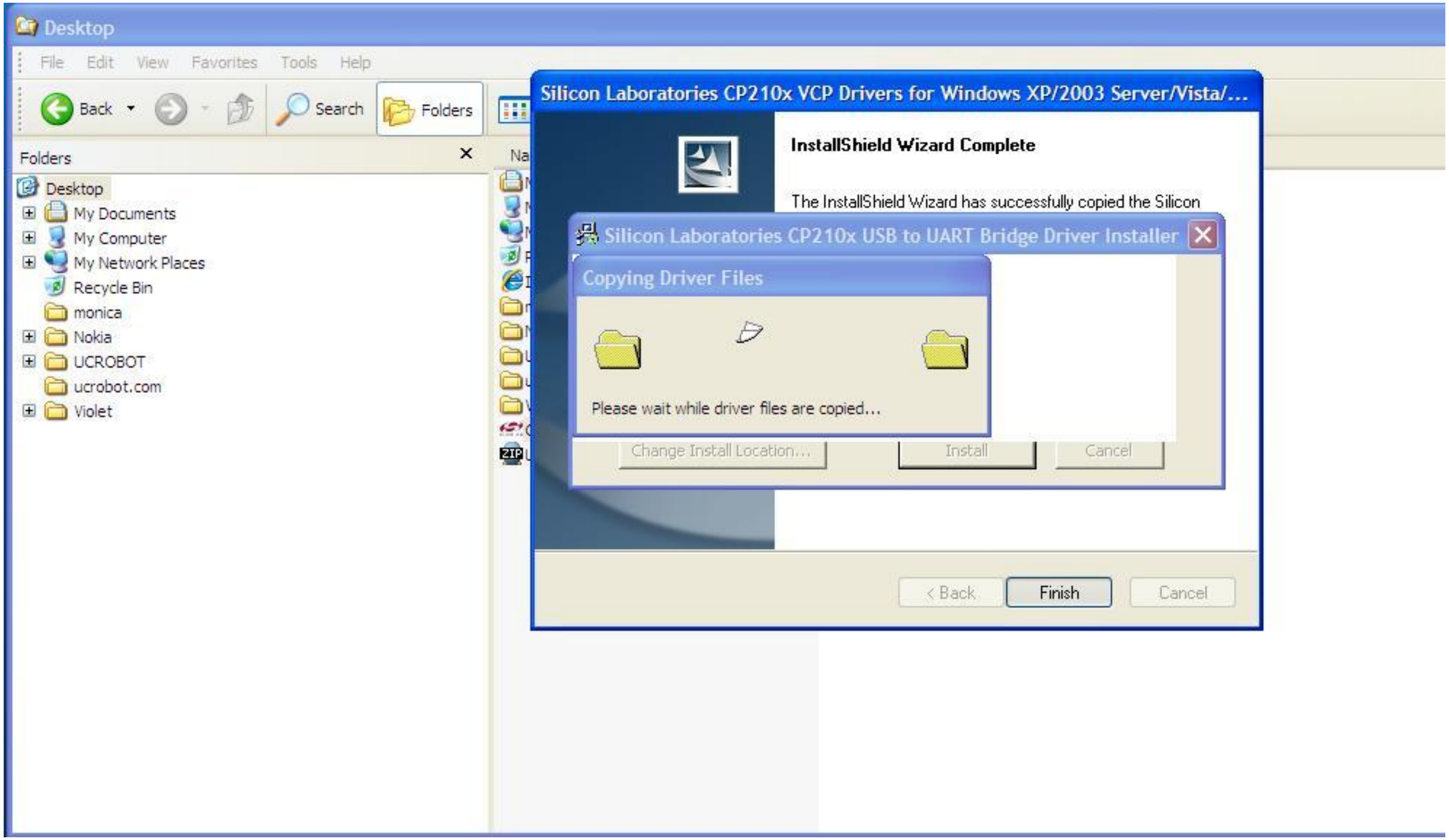
Are you sure you want to update version 5.4.24 to version 6.1?

Click

0-2. Install the USB Driver

MICROSOFT's Windows XP

(0-2-14) Install the USB driver



Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/...

InstallShield Wizard Complete

The InstallShield Wizard has successfully copied the Silicon

Silicon Laboratories CP210x USB to UART Bridge Driver Installer

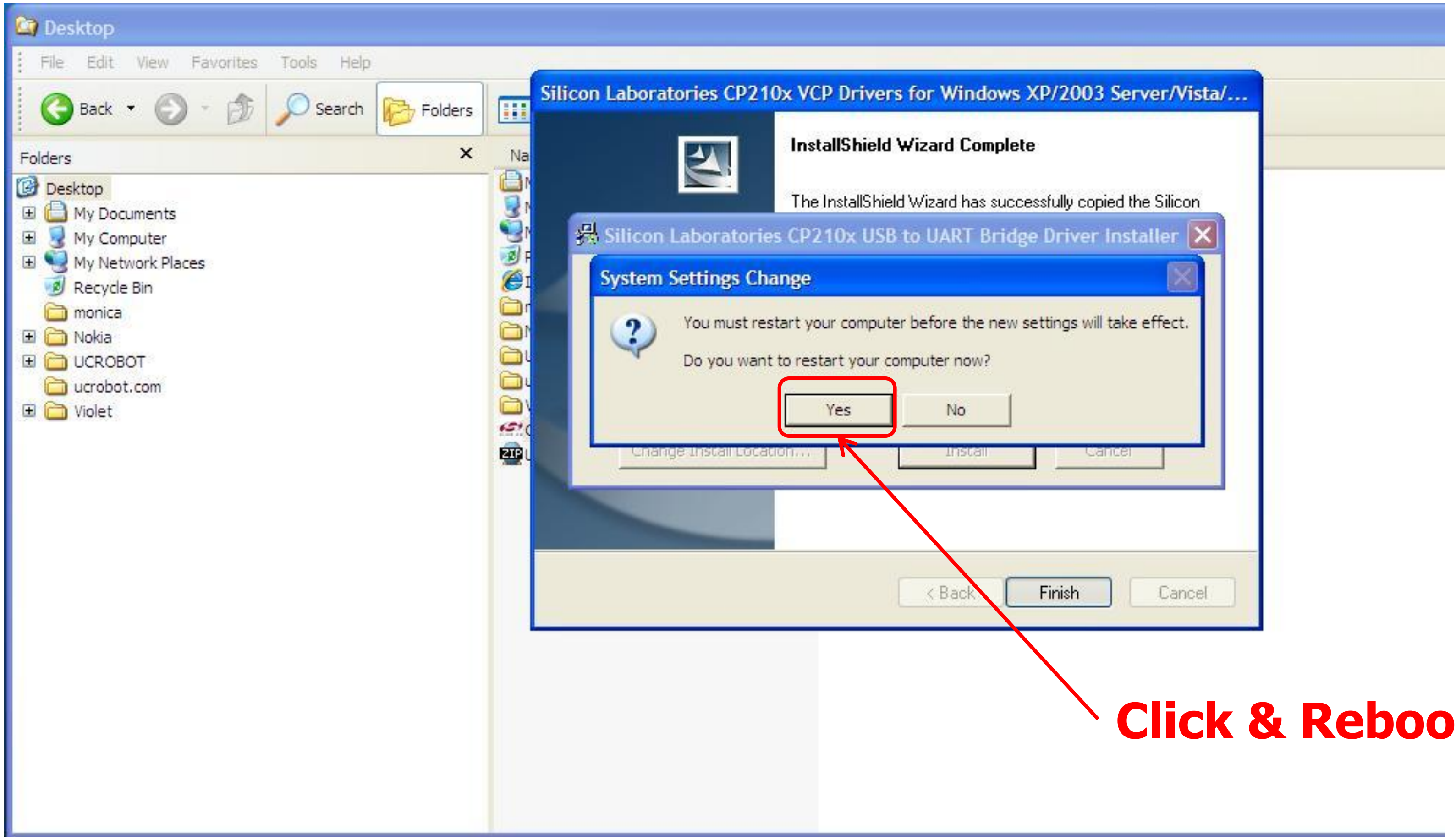
Copying Driver Files

Please wait while driver files are copied...

technical support : ucrobot @ ucrobot.com

0-2. Install the USB Driver

(0-2-15) Install the USB driver


Desktop
File Edit View Favorites Tools Help
Back Search Folders
Folders
Desktop
My Documents
My Computer
My Network Places
Recycle Bin
monica
Nokia
UCROBOT
ucrobot.com
Violet
Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/...
Silicon Laboratories CP210x USB to UART Bridge Driver Installer
System Settings Change
Yes
No
Change Install Location...
Install
Cancel
< Back
Finish
Cancel

InstallShield Wizard Complete

The InstallShield Wizard has successfully copied the Silicon

You must restart your computer before the new settings will take effect.

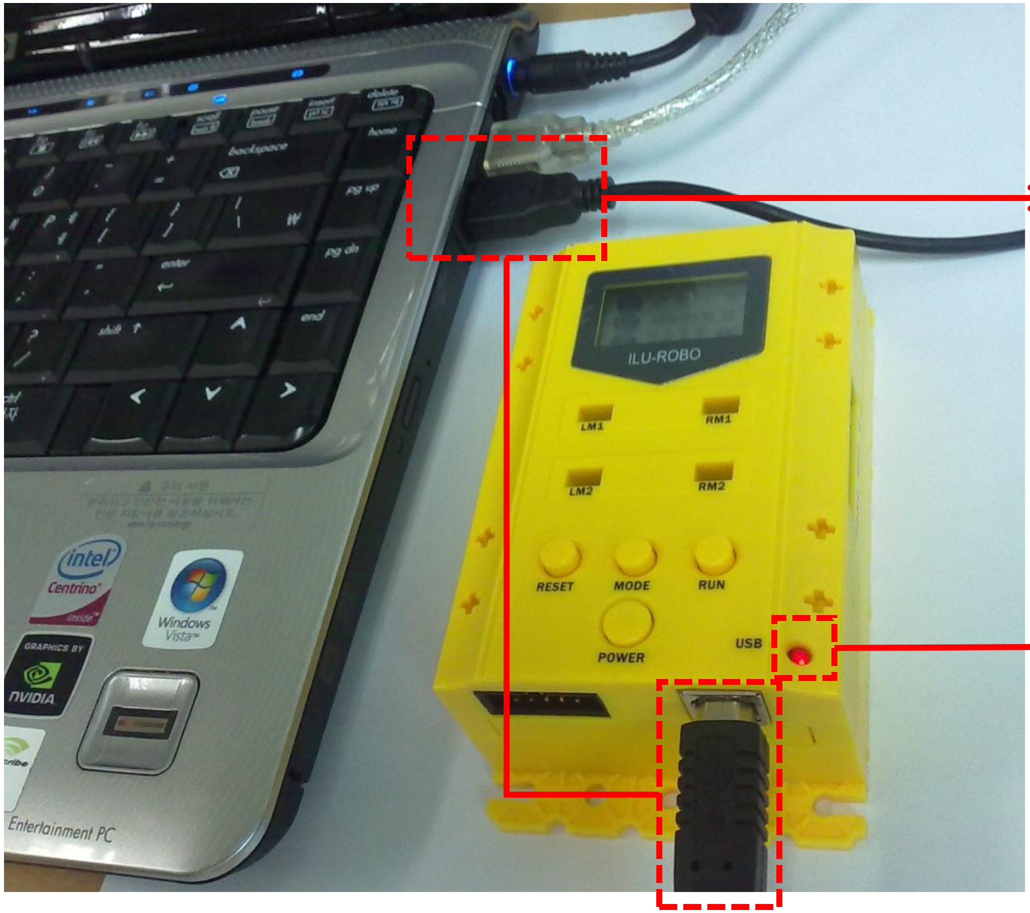
Do you want to restart your computer now?

Click & Reboot

0-3. Set the serial port

MICROSOFT's
Windows XP

(0-3-1) Set the serial port for downloading

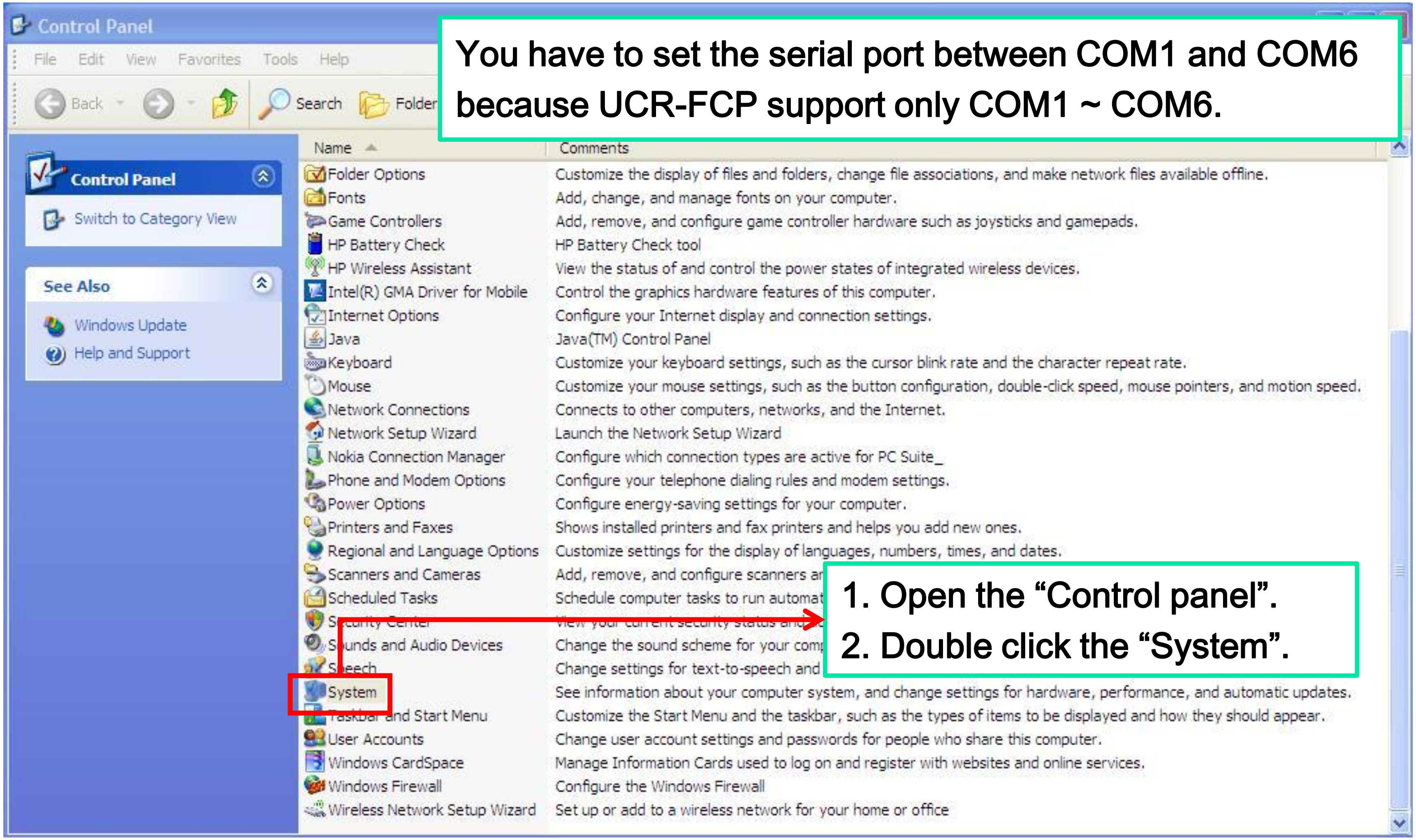


Connect USB cable between PC and Mainboard.

If PC detect the USB device in Mainboard, LED is on.

0-3. Set the serial port

(0-3-2) Set the serial port for downloading



You have to set the serial port between COM1 and COM6 because UCR-FCP support only COM1 ~ COM6.

Name	Comments
Folder Options	Customize the display of files and folders, change file associations, and make network files available offline.
Fonts	Add, change, and manage fonts on your computer.
Game Controllers	Add, remove, and configure game controller hardware such as joysticks and gamepads.
HP Battery Check	HP Battery Check tool
HP Wireless Assistant	View the status of and control the power states of integrated wireless devices.
Intel(R) GMA Driver for Mobile	Control the graphics hardware features of this computer.
Internet Options	Configure your Internet display and connection settings.
Java	Java(TM) Control Panel
Keyboard	Customize your keyboard settings, such as the cursor blink rate and the character repeat rate.
Mouse	Customize your mouse settings, such as the button configuration, double-click speed, mouse pointers, and motion speed.
Network Connections	Connects to other computers, networks, and the Internet.
Network Setup Wizard	Launch the Network Setup Wizard
Nokia Connection Manager	Configure which connection types are active for PC Suite_
Phone and Modem Options	Configure your telephone dialing rules and modem settings.
Power Options	Configure energy-saving settings for your computer.
Printers and Faxes	Shows installed printers and fax printers and helps you add new ones.
Regional and Language Options	Customize settings for the display of languages, numbers, times, and dates.
Scanners and Cameras	Add, remove, and configure scanners ar
Scheduled Tasks	Schedule computer tasks to run automat
Security Center	View your current security status and
Sounds and Audio Devices	Change the sound scheme for your comp
Speech	Change settings for text-to-speech and
System	See information about your computer system, and change settings for hardware, performance, and automatic updates.
Taskbar and Start Menu	Customize the Start Menu and the taskbar, such as the types of items to be displayed and how they should appear.
User Accounts	Change user account settings and passwords for people who share this computer.
Windows CardSpace	Manage Information Cards used to log on and register with websites and online services.
Windows Firewall	Configure the Windows Firewall
Wireless Network Setup Wizard	Set up or add to a wireless network for your home or office

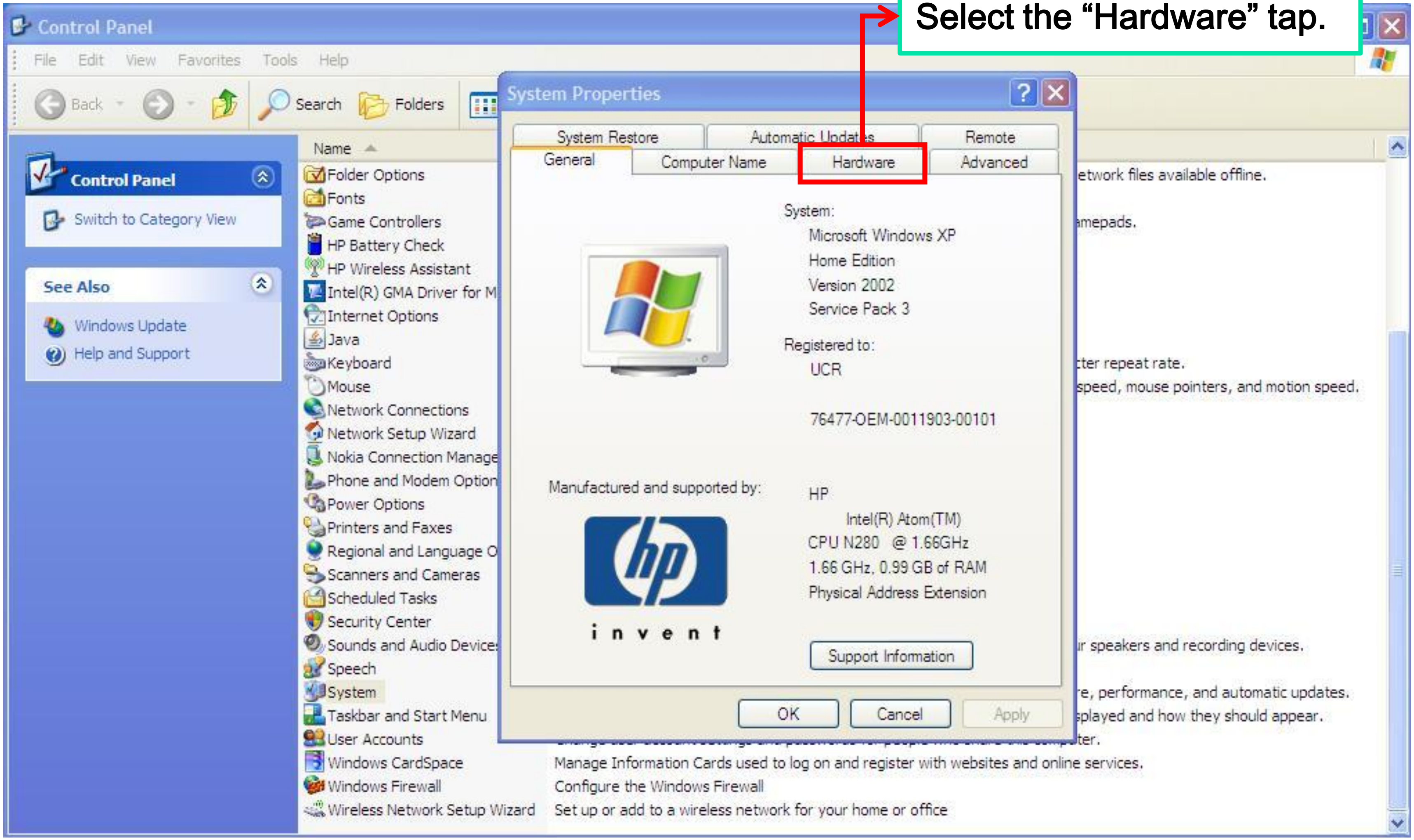
1. Open the "Control panel".
2. Double click the "System".

0-3. Set the serial port

MICROSOFT's
Windows XP

(0-3-3) Set the serial port for downloading

Select the "Hardware" tap.



System:
Microsoft Windows XP
Home Edition
Version 2002
Service Pack 3

Registered to:
UCR

76477-OEM-0011903-00101

Manufactured and supported by:
HP
Intel(R) Atom(TM)
CPU N280 @ 1.66GHz
1.66 GHz, 0.99 GB of RAM
Physical Address Extension

etwork files available offline.

amepads.

cter repeat rate.

speed, mouse pointers, and motion speed.

ur speakers and recording devices.

re, performance, and automatic updates.

splayed and how they should appear.

ter.

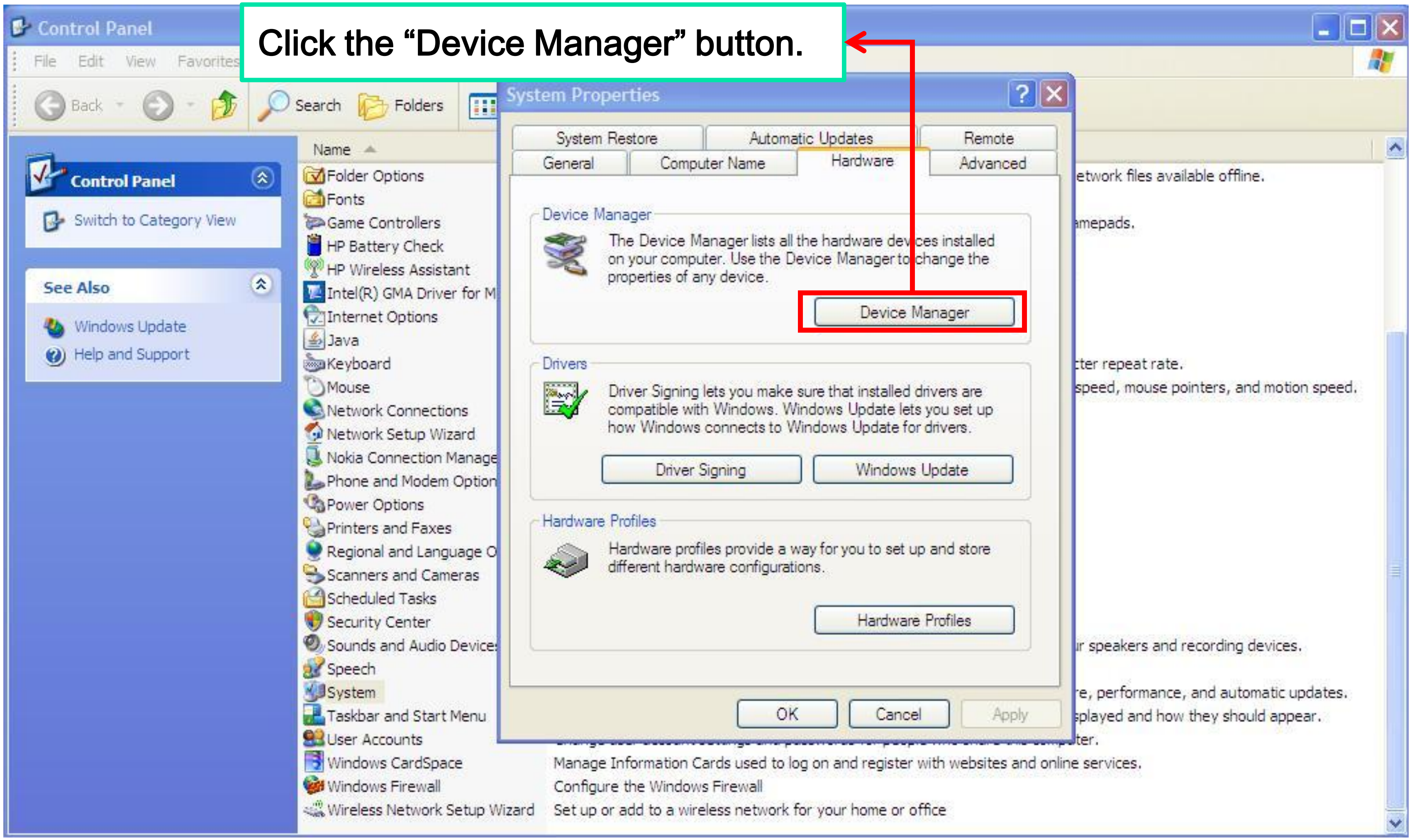
Manage Information Cards used to log on and register with websites and online services.

Configure the Windows Firewall

Set up or add to a wireless network for your home or office

0-3. Set the serial port

(0-3-4) Set the serial port for downloading



Click the "Device Manager" button.

etwork files available offline.

mepads.

ter repeat rate.

speed, mouse pointers, and motion speed.

r speakers and recording devices.

e, performance, and automatic updates.

splayed and how they should appear.

ter.

Manage Information Cards used to log on and register with websites and online services.

Configure the Windows Firewall

Set up or add to a wireless network for your home or office

The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.

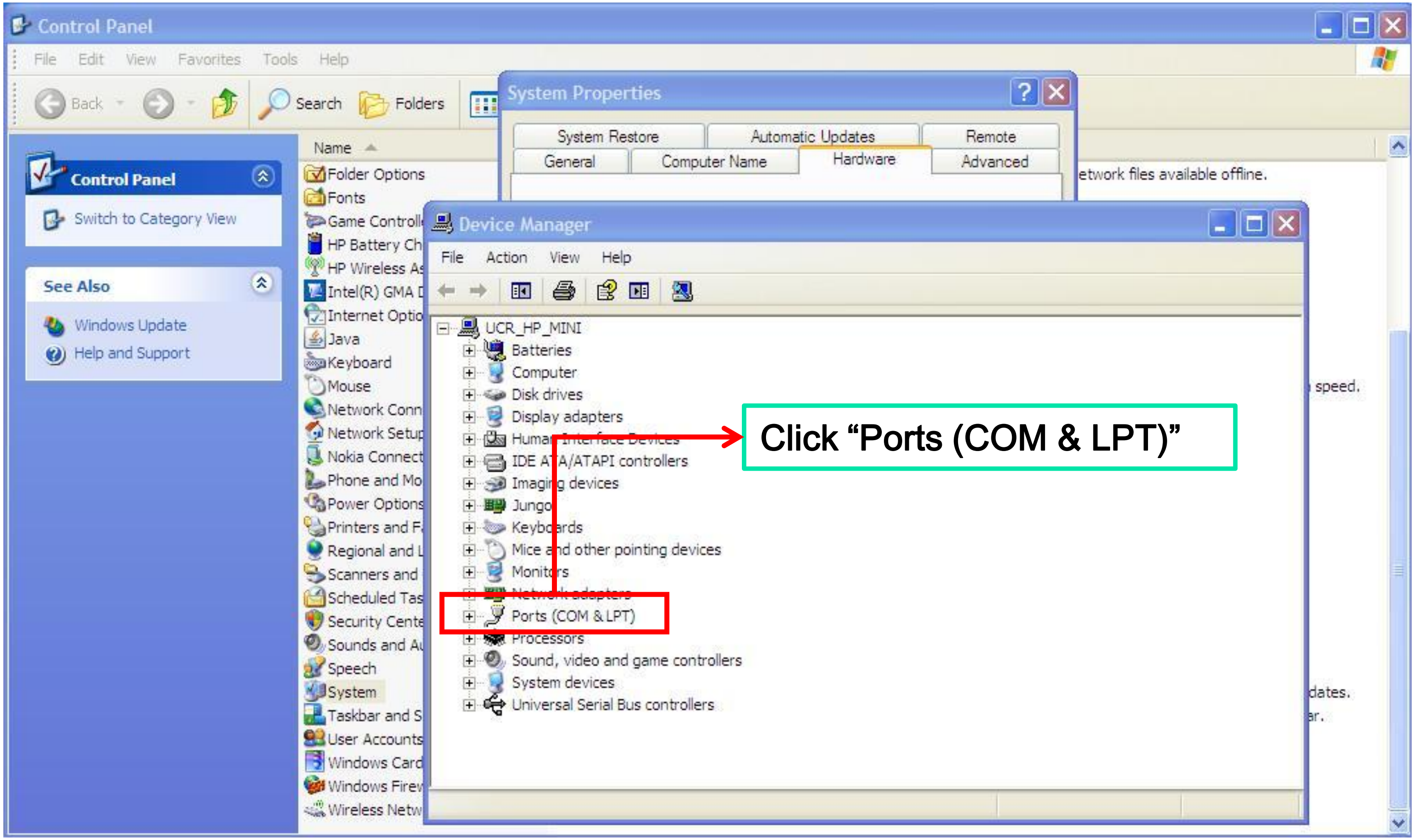
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.

Hardware profiles provide a way for you to set up and store different hardware configurations.

0-3. Set the serial port

MICROSOFT's
Windows XP

(0-3-5) Set the serial port for downloading

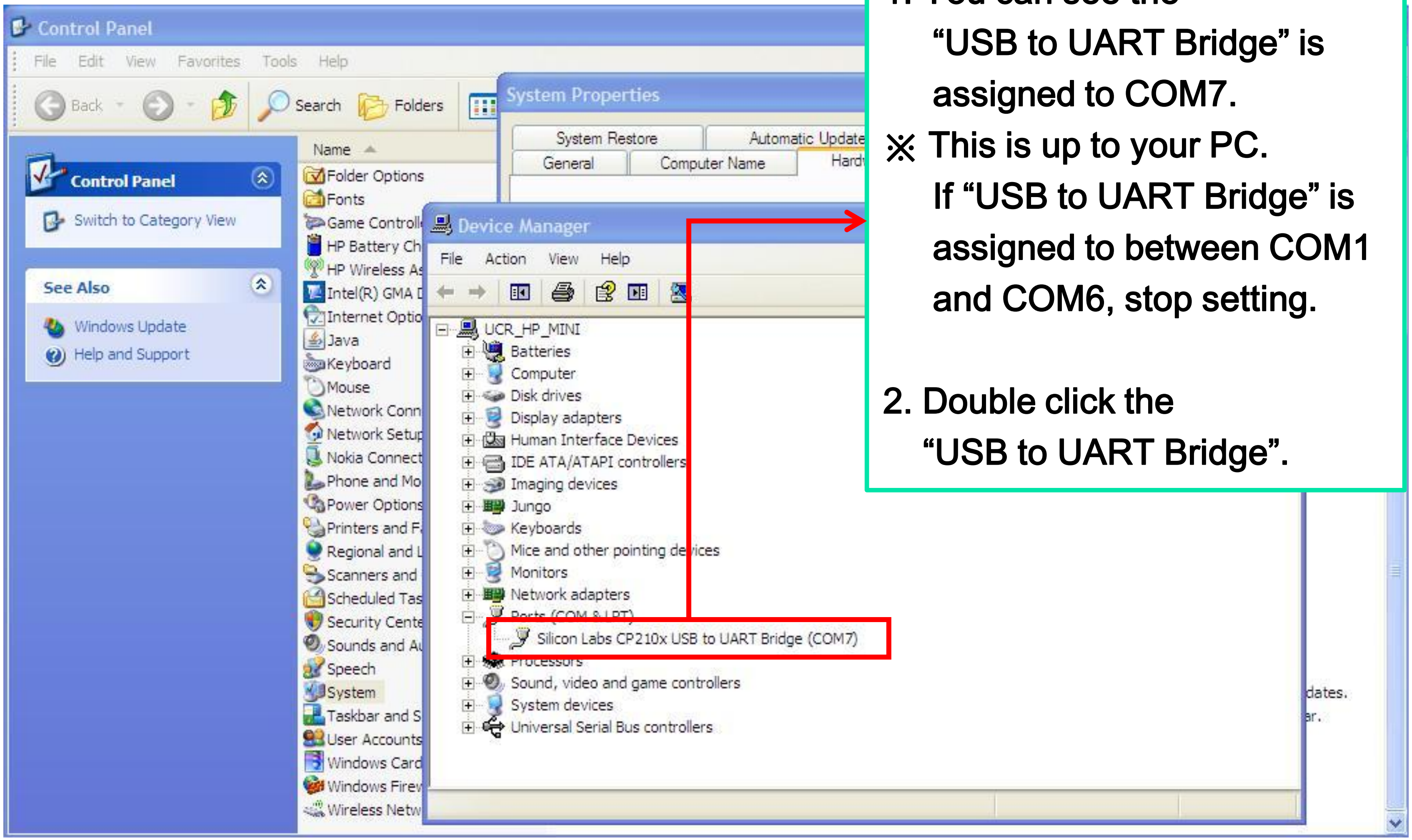


Click "Ports (COM & LPT)"

technical support : ucrobot @ ucrobot.com

0-3. Set the serial port

(0-3-6) Set the serial port for downloading



1. You can see the "USB to UART Bridge" is assigned to COM7.

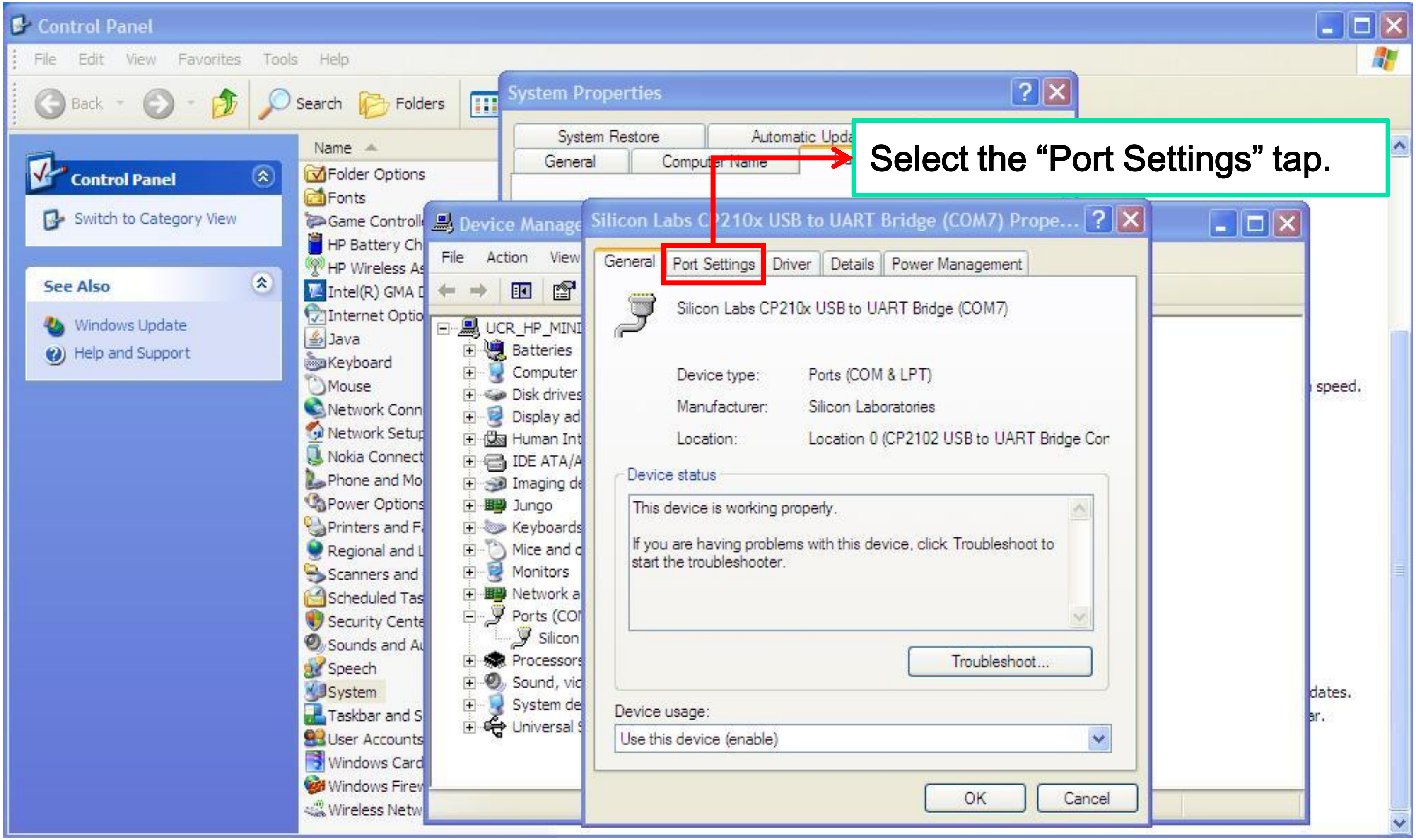
※ This is up to your PC. If "USB to UART Bridge" is assigned to between COM1 and COM6, stop setting.

2. Double click the "USB to UART Bridge".

0-3. Set the serial port

MICROSOFT's
Windows XP

(0-3-7) Set the serial port for downloading



Silicon Labs CP210x USB to UART Bridge (COM7)

Device type: Ports (COM & LPT)

Manufacturer: Silicon Laboratories

Location: Location 0 (CP2102 USB to UART Bridge Cor

Device status

This device is working properly.

If you are having problems with this device, click Troubleshoot to start the troubleshooter.

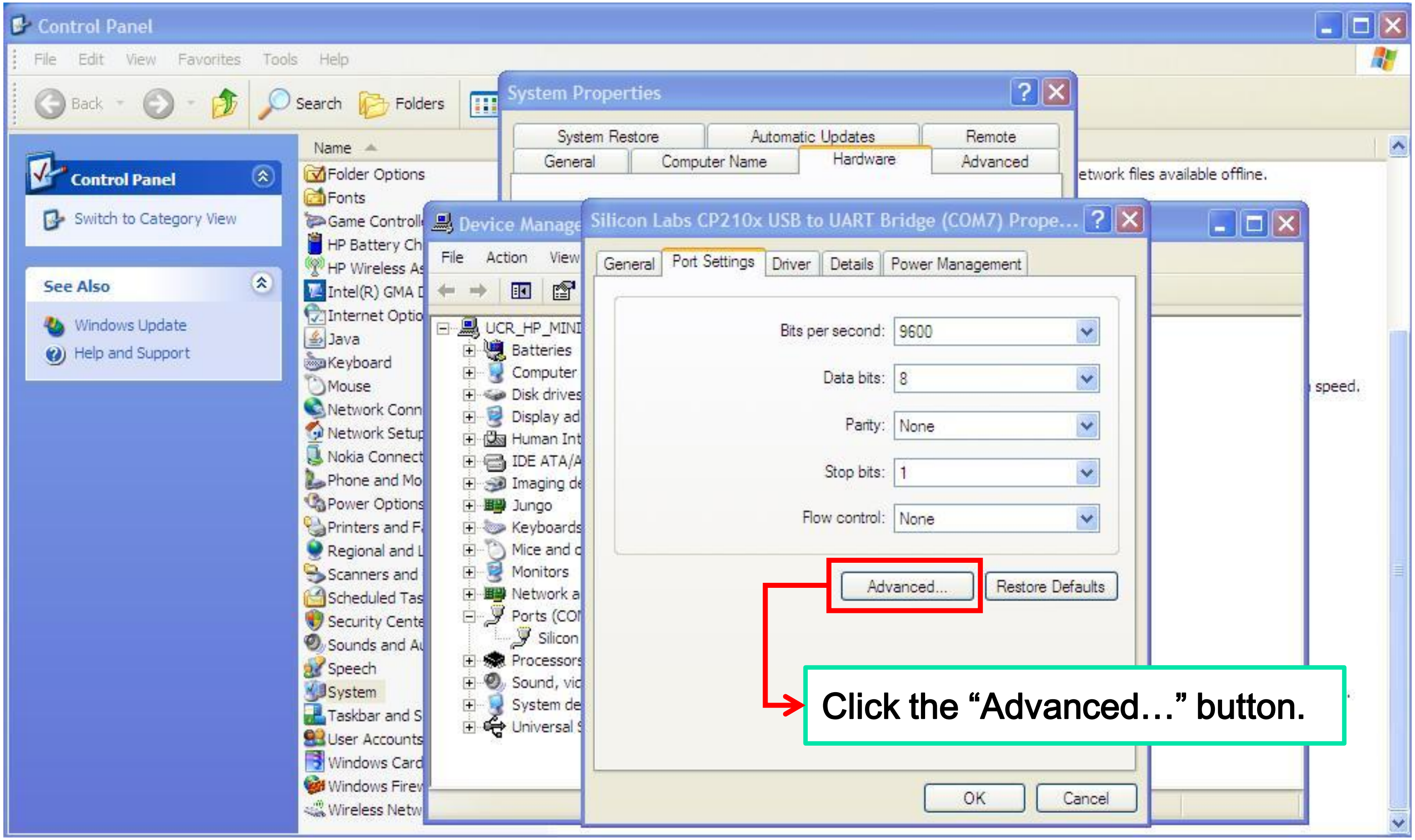
Device usage: Use this device (enable)

Select the "Port Settings" tap.

0-3. Set the serial port

MICROSOFT's Windows XP

(0-3-8) Set the serial port for downloading



Bits per second: 9600

Data bits: 8

Parity: None

Stop bits: 1

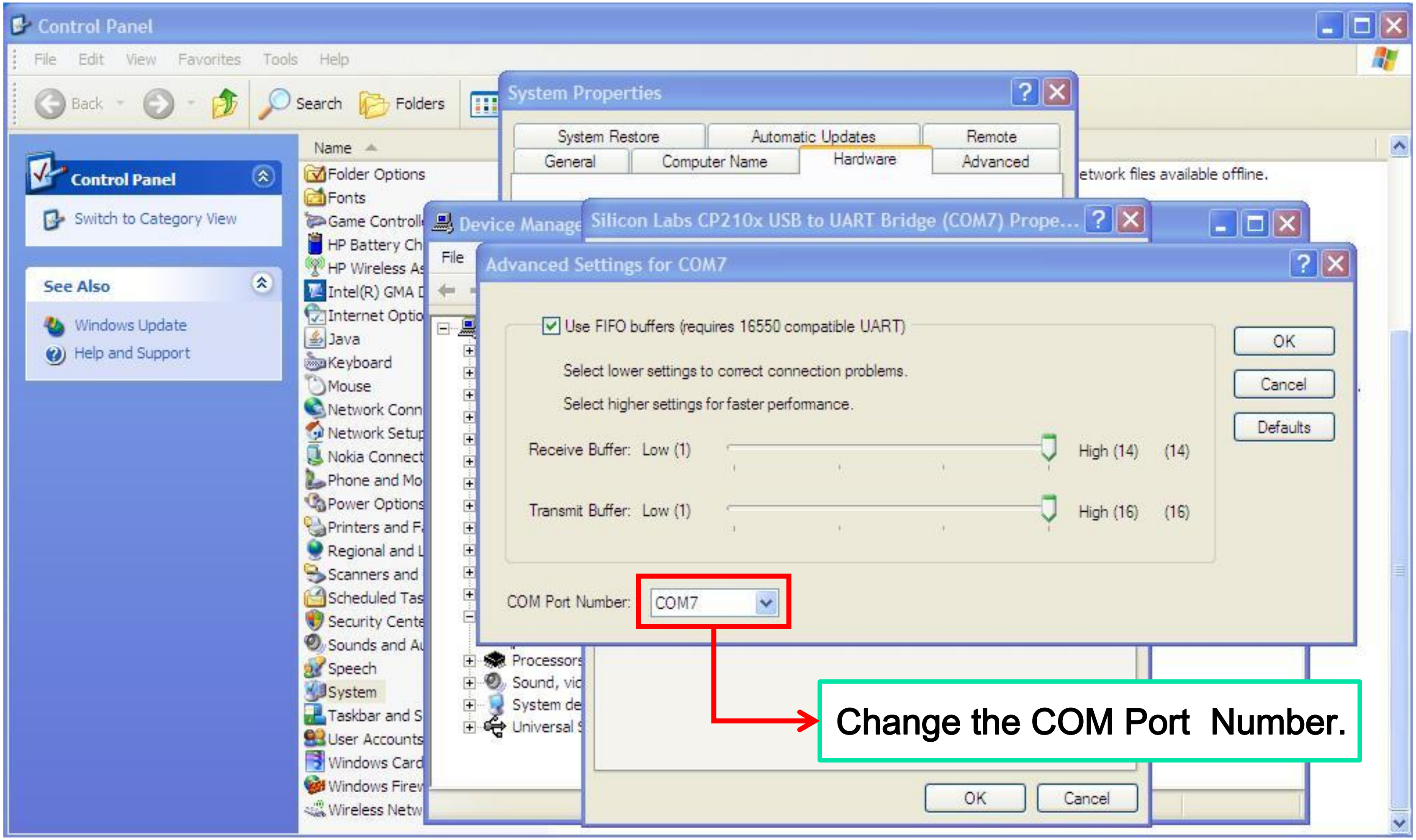
Flow control: None

Click the "Advanced…" button.

0-3. Set the serial port

MICROSOFT's
Windows XP

(0-3-9) Set the serial port for downloading



Advanced Settings for COM7

☑ Use FIFO buffers (requires 16550 compatible UART)

Select lower settings to correct connection problems.

Select higher settings for faster performance.

Receive Buffer: Low (1) High (14) (14)

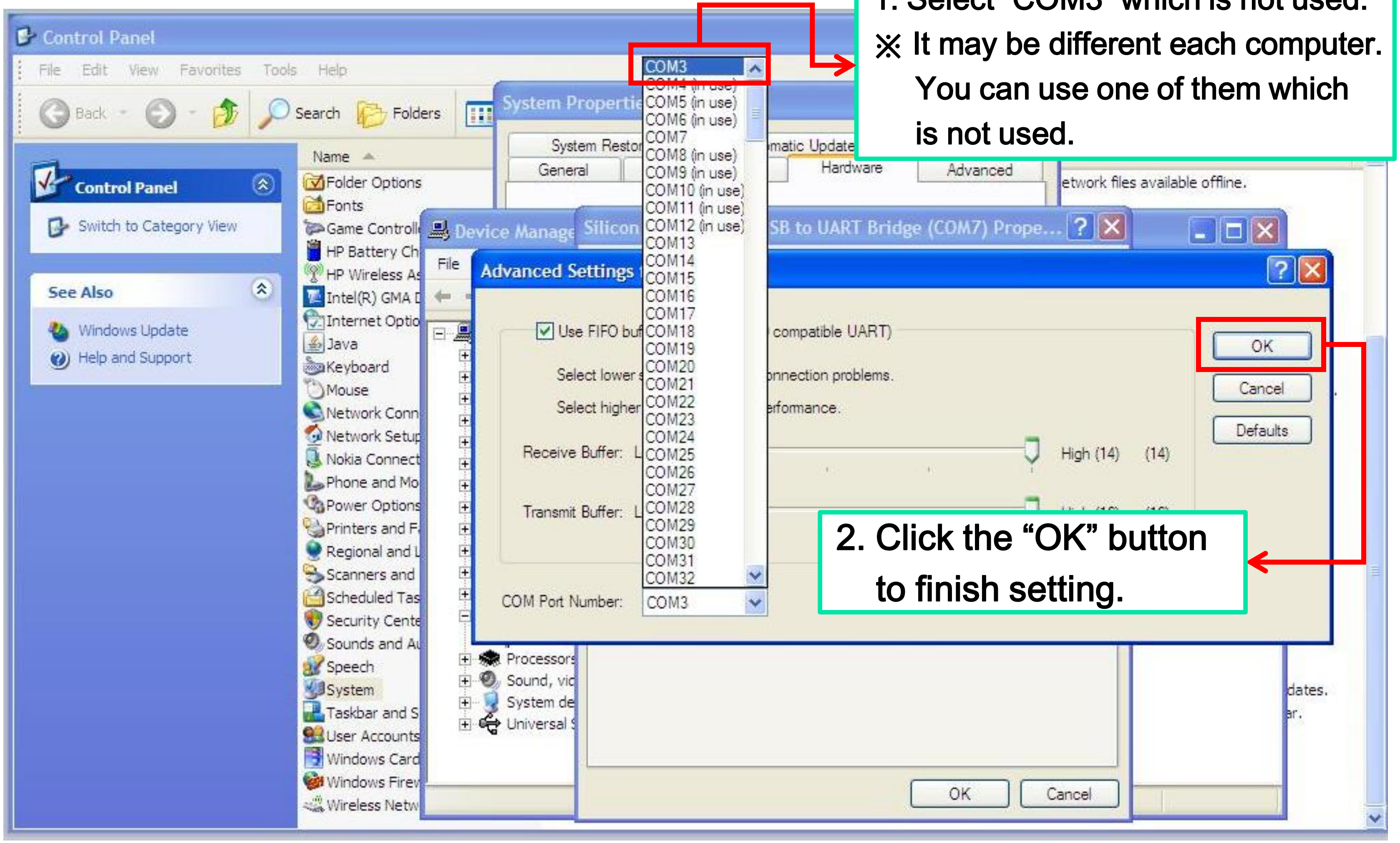
Transmit Buffer: Low (1) High (16) (16)

COM Port Number: COM7

Change the COM Port Number.

0-3. Set the serial port

(0-3-10) Set the serial port for downloading



☑ Use FIFO buf... compatible UART)

Select lower s... nnection problems.

Select higher ... rformance.

Receive Buffer: L ... High (14) (14)

Transmit Buffer: L

COM Port Number: COM3

COM3
COM4 (in use)
COM5 (in use)
COM6 (in use)
COM7
COM8 (in use)
COM9 (in use)
COM10 (in use)
COM11 (in use)
COM12 (in use)
COM13
COM14
COM15
COM16
COM17
COM18
COM19
COM20
COM21
COM22
COM23
COM24
COM25
COM26
COM27
COM28
COM29
COM30
COM31
COM32

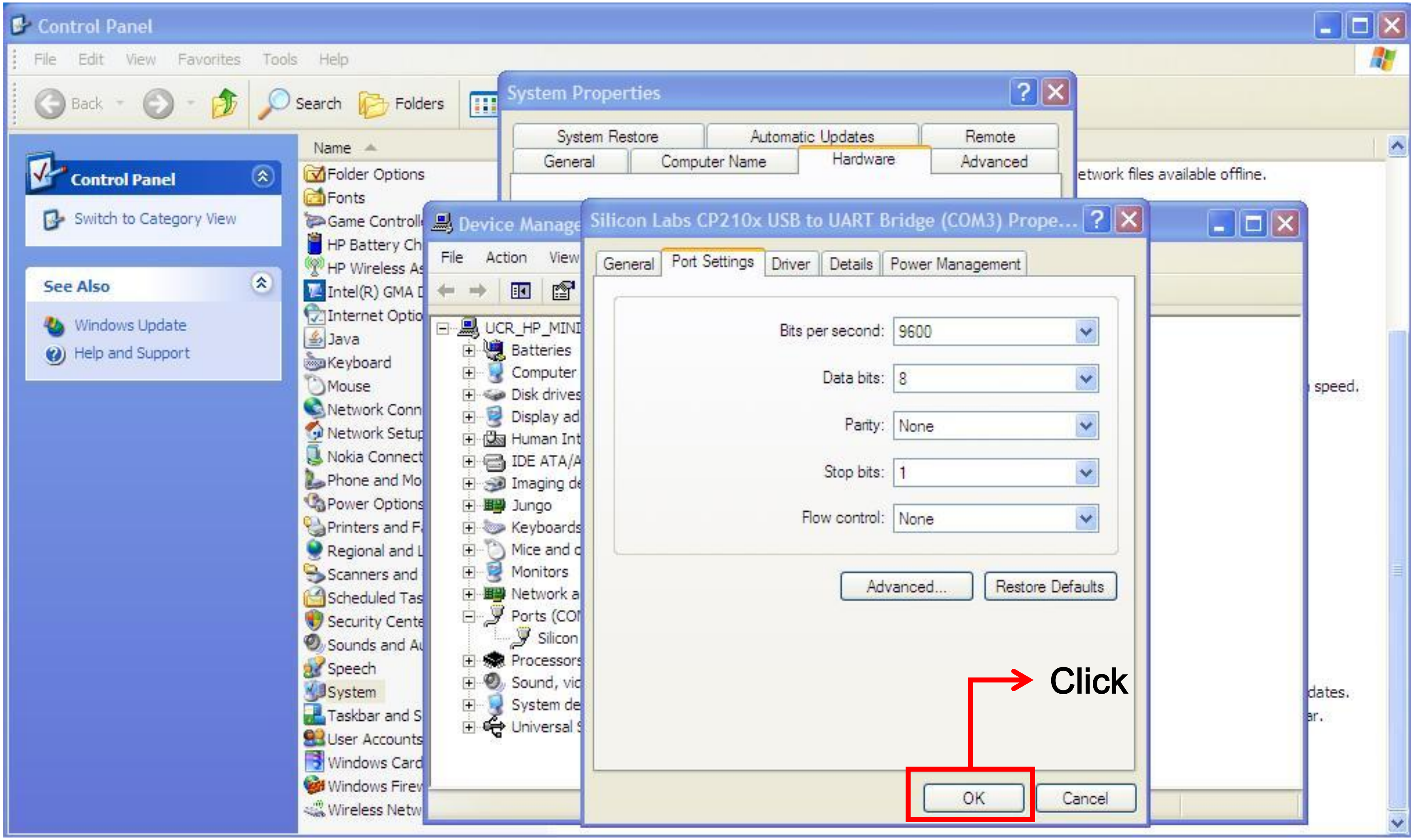
1. Select "COM3" which is not used.
※ It may be different each computer.
You can use one of them which
is not used.

2. Click the "OK" button
to finish setting.

0-3. Set the serial port

MICROSOFT's Windows XP

(0-3-11) Set the serial port for downloading



Silicon Labs CP210x USB to UART Bridge (COM3) Prope...

Port Settings

Bits per second: 9600

Data bits: 8

Parity: None

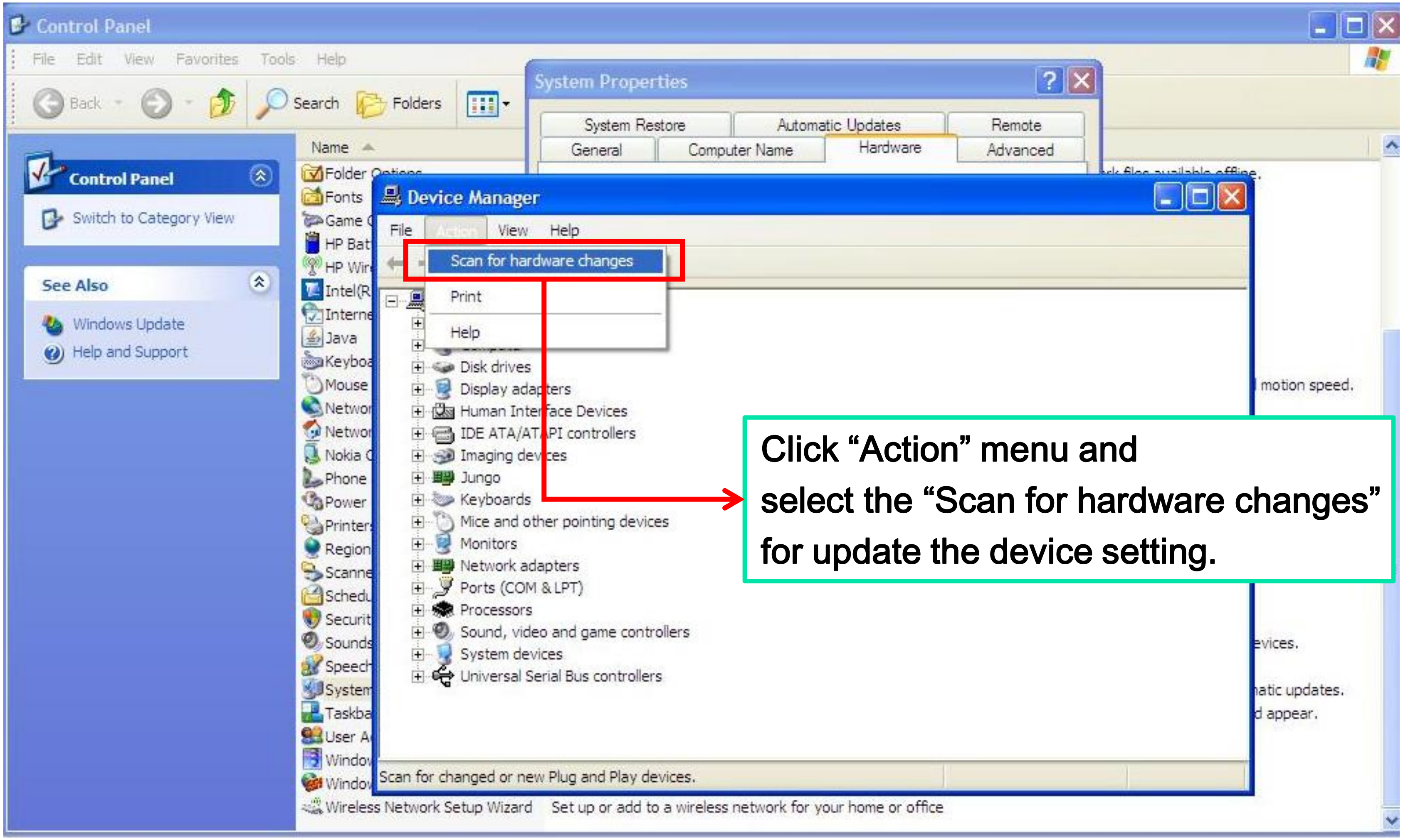
Stop bits: 1

Flow control: None

technical support : ucrobot @ ucrobot.com

0-3. Set the serial port

(0-3-12) Set the serial port for downloading



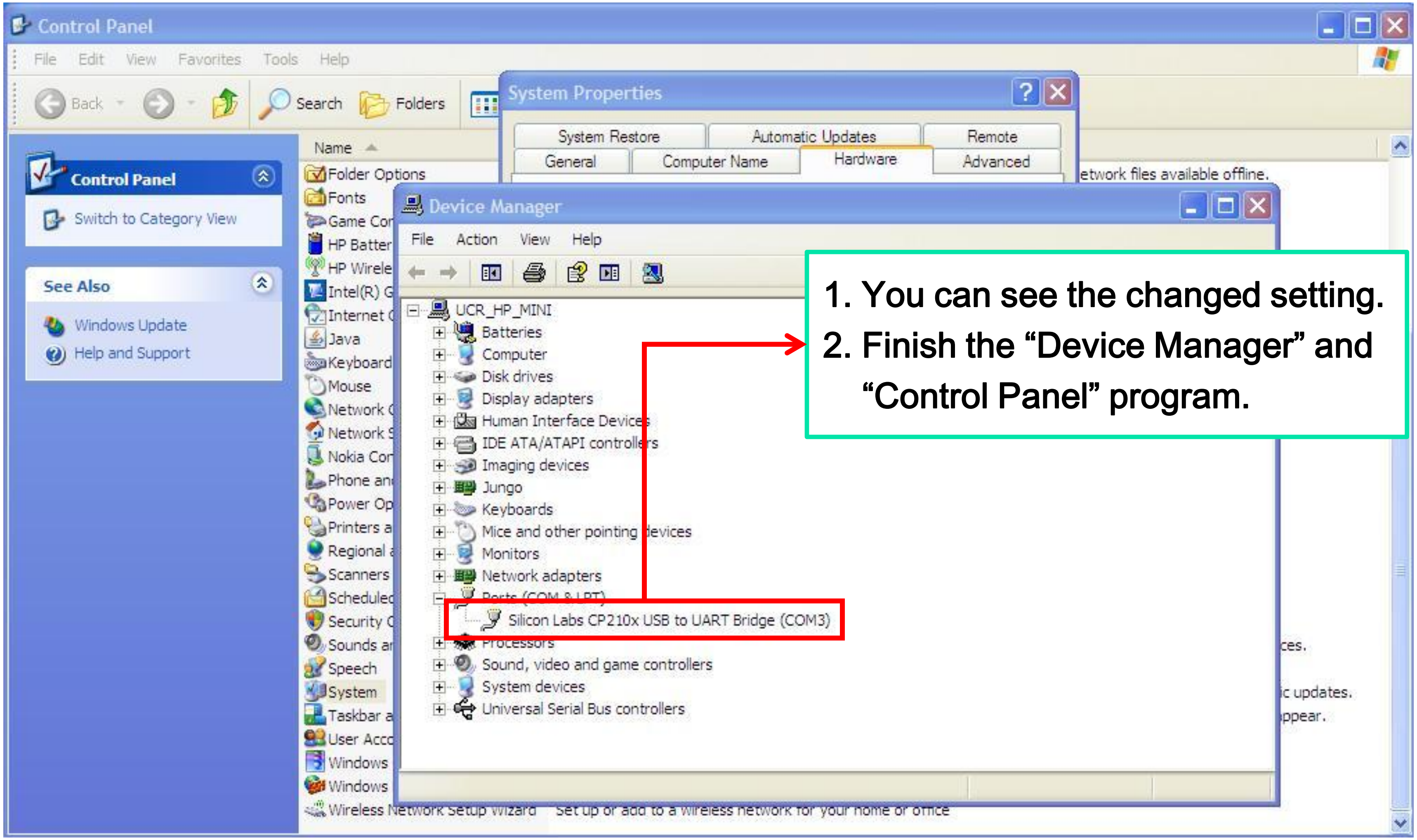
Scan for changed or new Plug and Play devices.

Wireless Network Setup Wizard Set up or add to a wireless network for your home or office

Click "Action" menu and
select the "Scan for hardware changes"
for update the device setting.

0-3. Set the serial port

(0-3-13) Set the serial port for downloading



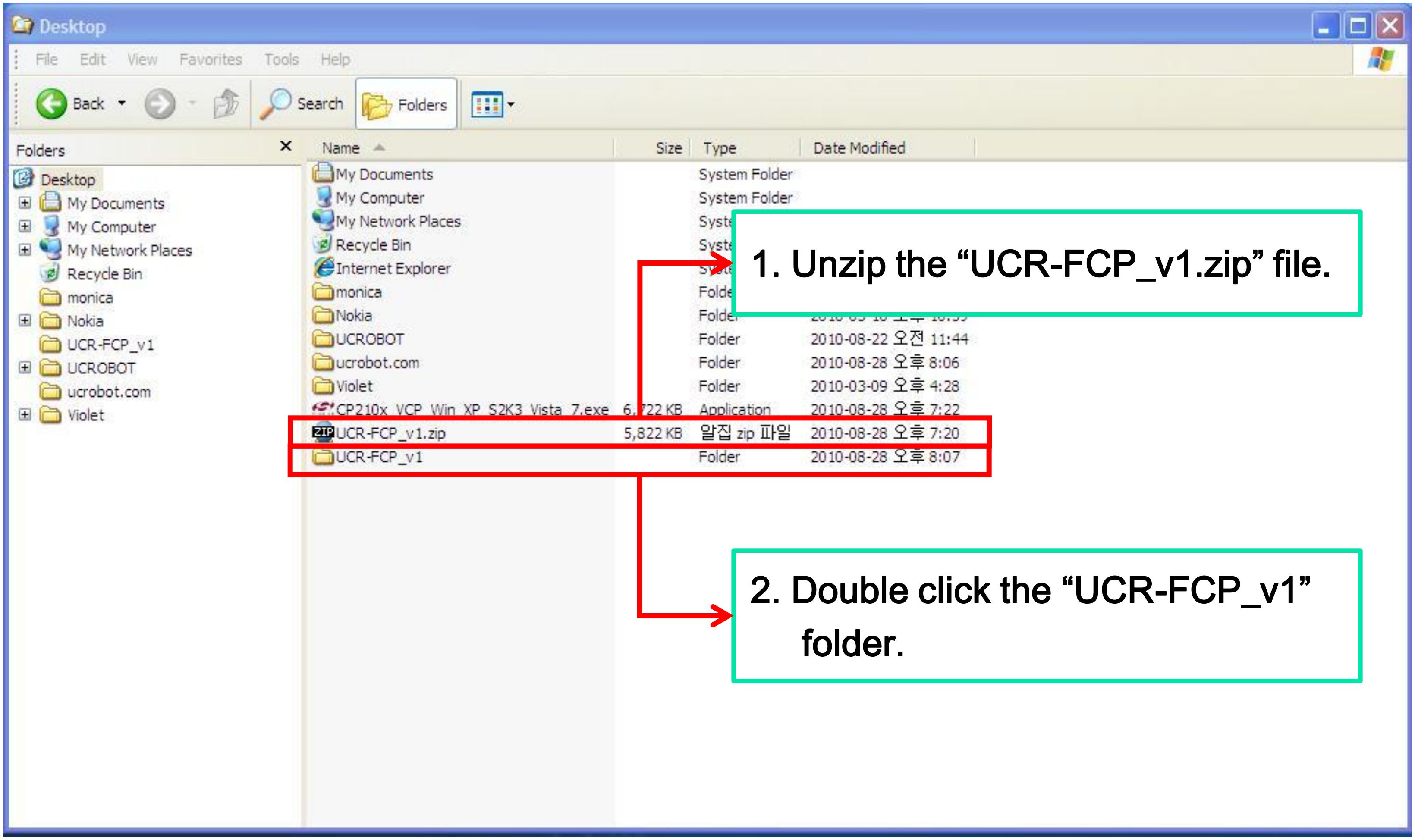
Silicon Labs CP210x USB to UART Bridge (COM3)

1. You can see the changed setting.
2. Finish the "Device Manager" and "Control Panel" program.

0-4. Execute the EQ-ROBO

MICROSOFT's
Windows XP

(0-4-1) Start the UCR-FCP software



Name	Size	Type	Date Modified
My Documents		System Folder	
My Computer		System Folder	
My Network Places		Syste	
Recycle Bin		Syste	
Internet Explorer		Syste	
monica		Folde	
Nokia		Folde	[illegible]
UCROBOT		Folder	2010-08-22 오전 11:44
ucrobot.com		Folder	2010-08-28 오후 8:06
Violet		Folder	2010-03-09 오후 4:28
CP210x_VCP_Win_XP_S2K3_Vista_7.exe	6,722 KB	Application	2010-08-28 오후 7:22
UCR-FCP_v1.zip	5,822 KB	알집 zip 파일	2010-08-28 오후 7:20
UCR-FCP_v1		Folder	2010-08-28 오후 8:07

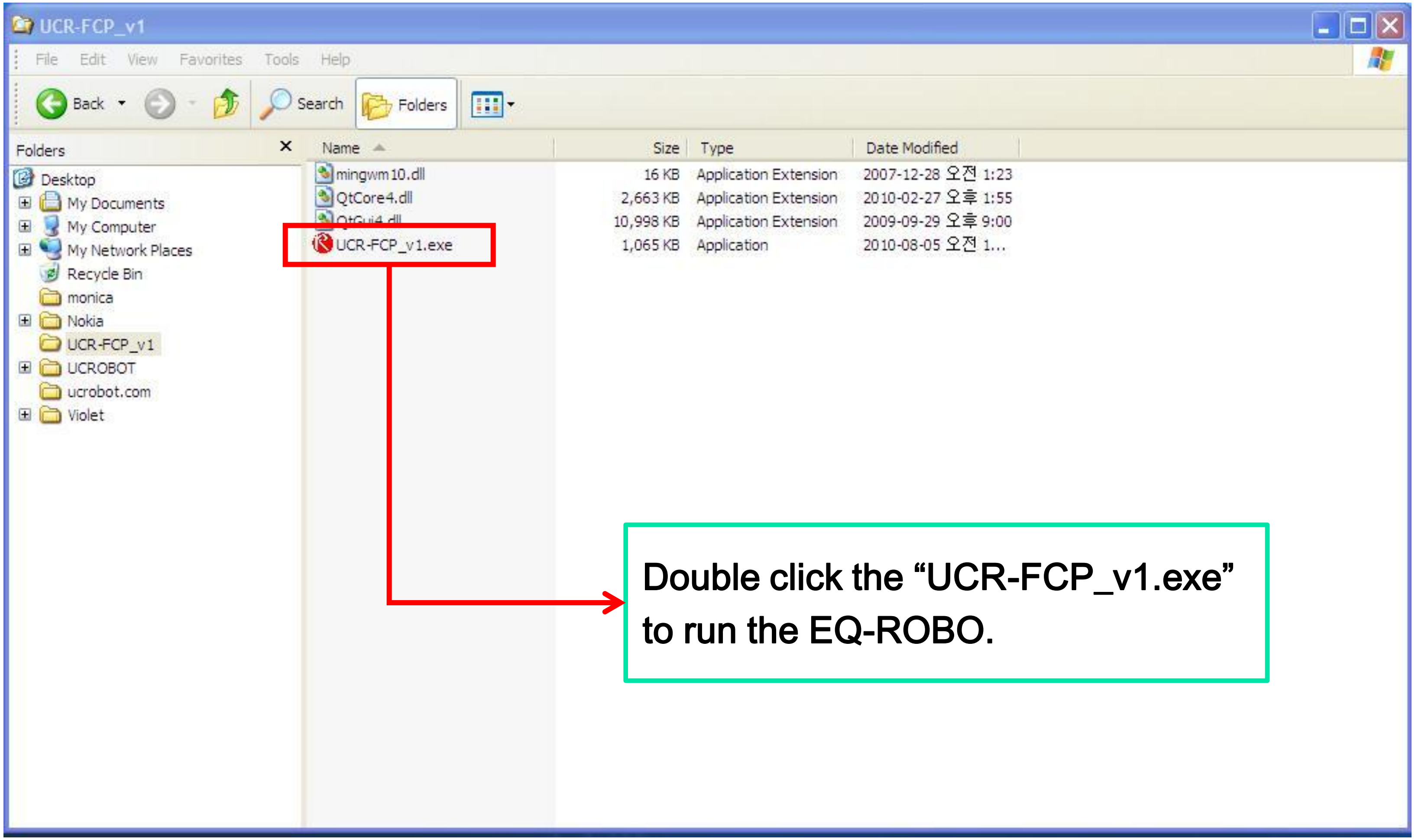
1. Unzip the "UCR-FCP_v1.zip" file.

2. Double click the "UCR-FCP_v1" folder.

0-4. Execute the EQ-ROBO

MICROSOFT's
Windows XP

(0-4-2) Start the UCR-FCP software

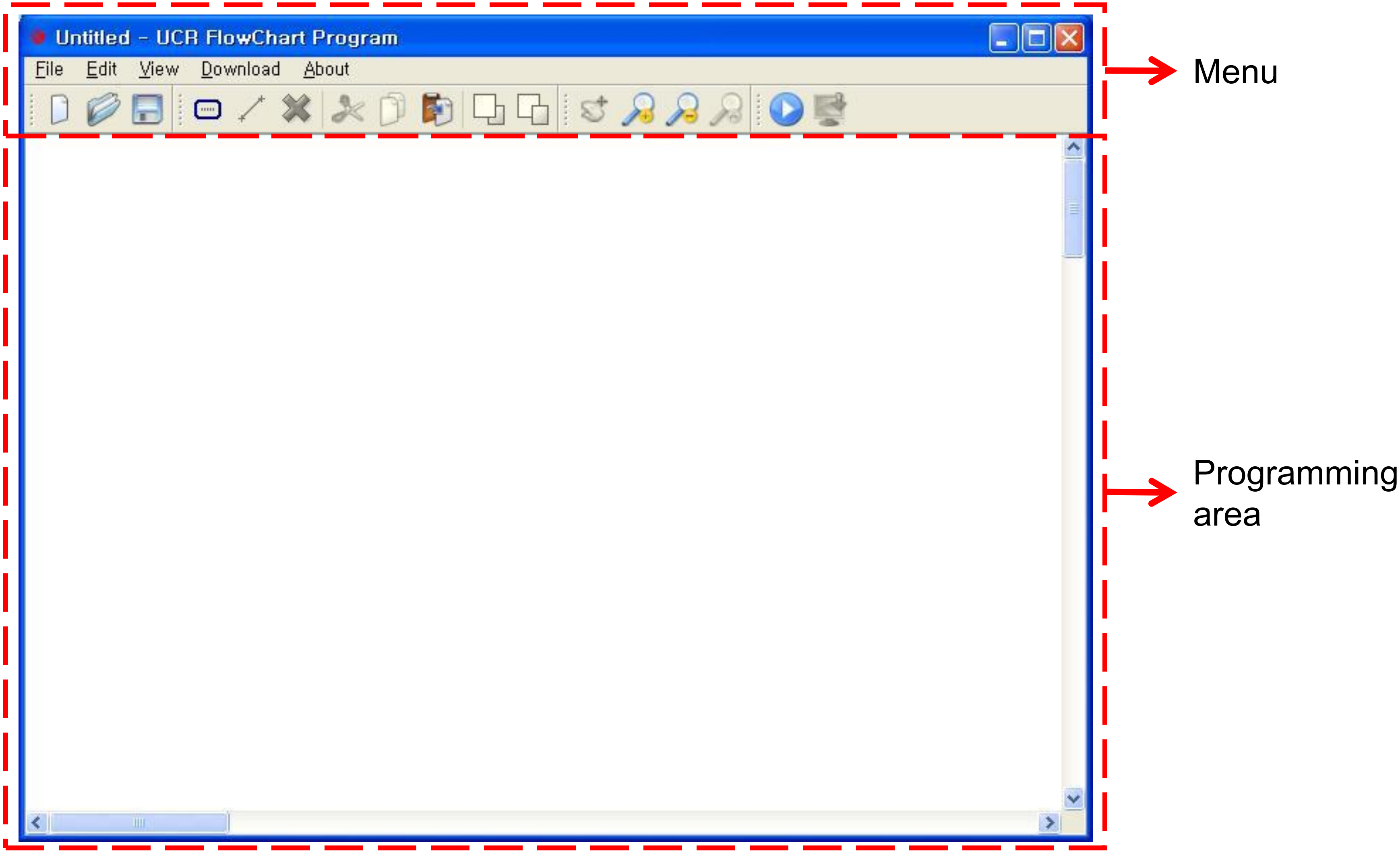


Name	Size	Type	Date Modified
mingwm10.dll	16 KB	Application Extension	2007-12-28 오전 1:23
QtCore4.dll	2,663 KB	Application Extension	2010-02-27 오후 1:55
QtGui4.dll	10,998 KB	Application Extension	2009-09-29 오후 9:00
UCR-FCP_v1.exe	1,065 KB	Application	2010-08-05 오전 1...

Double click the "UCR-FCP_v1.exe" to run the EQ-ROBO.

1. UCR Flowchart Program

MICROSOFT's Windows XP

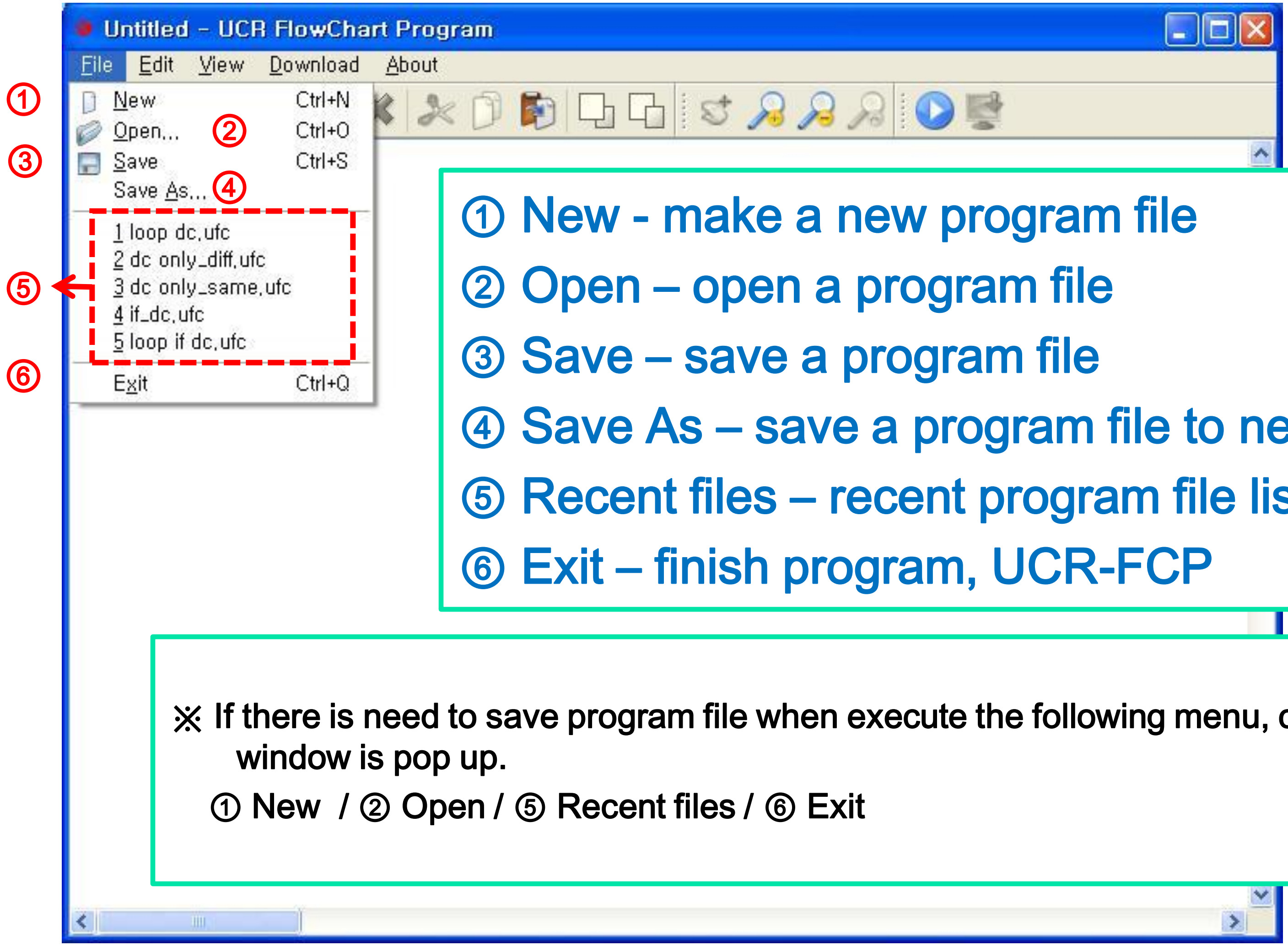


technical support : ucrobot @ ucrobot.com

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-1-1) Menu bar - File menu



① New - make a new program file

② Open – open a program file

③ Save – save a program file

④ Save As – save a program file to new name

⑤ Recent files – recent program file list

⑥ Exit – finish program, UCR-FCP

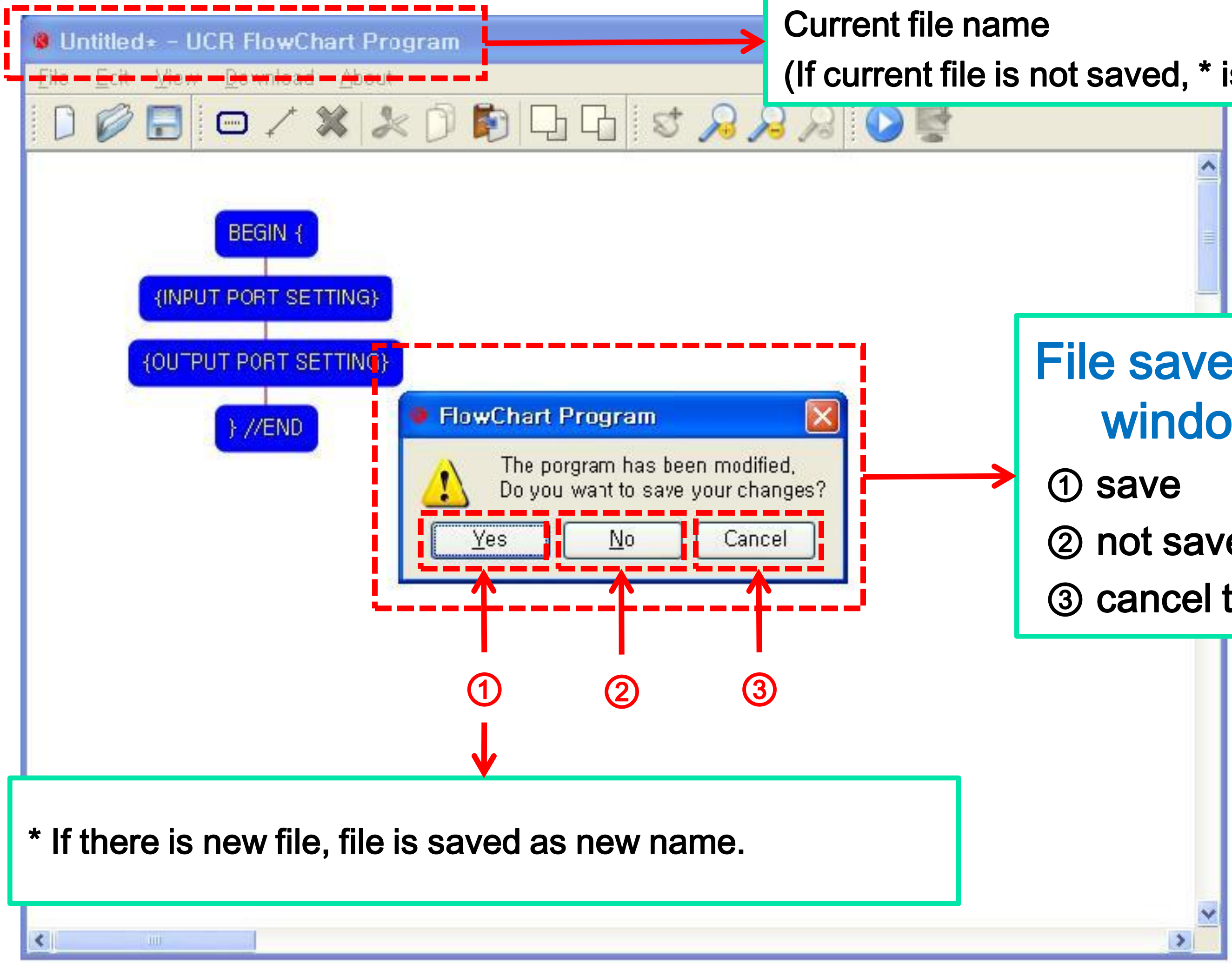
※ If there is need to save program file when execute the following menu, check window is pop up.

① New / ② Open / ⑤ Recent files / ⑥ Exit

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-1-①②⑤⑥) File save check window



The porgram has been modified.
Do you want to save your changes?

Current file name
(If current file is not saved, * is displayed)

File save check window

① save

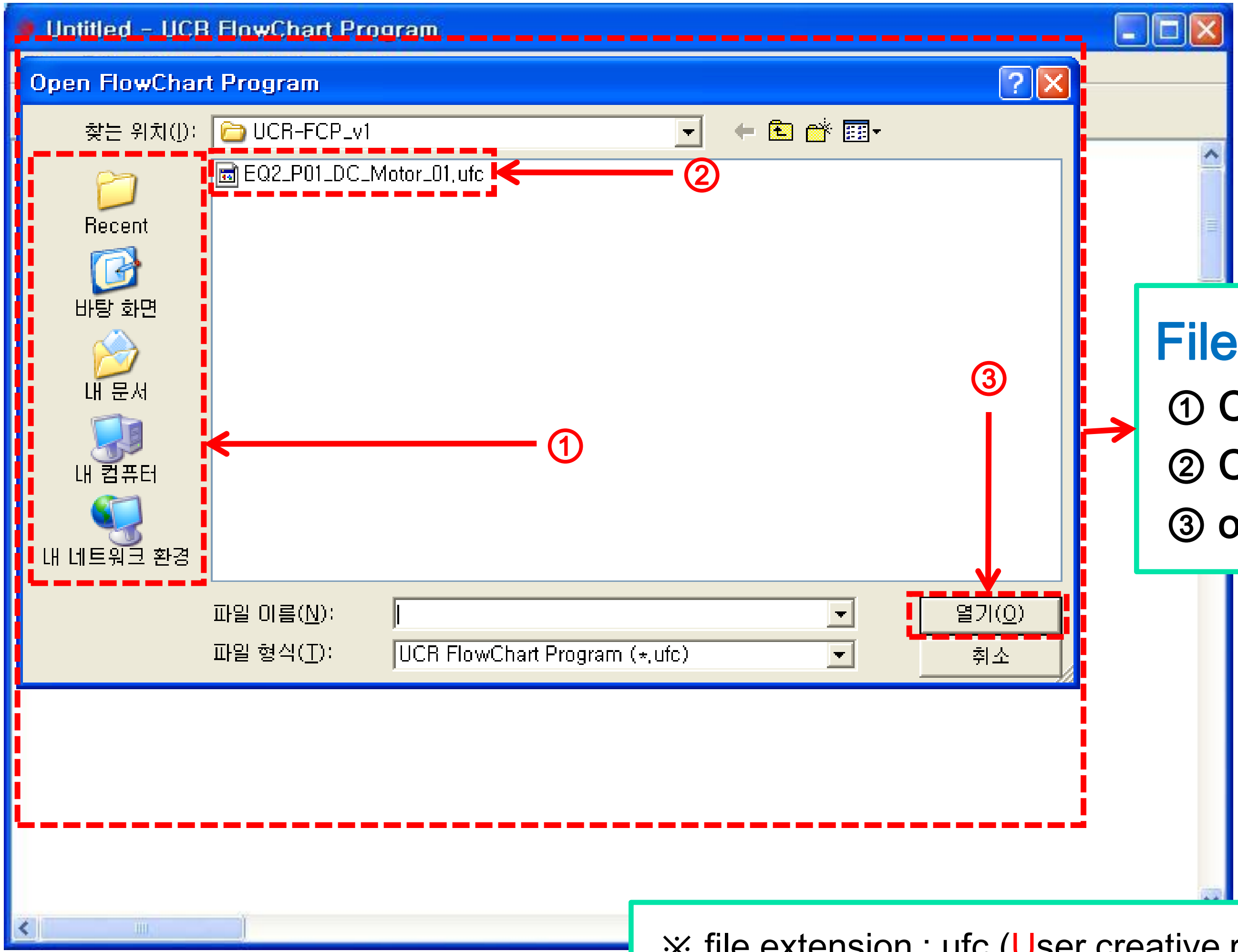
② not save

③ cancel the command

* If there is new file, file is saved as new name.

2. UCR-FCP Menu

(2-1-②) file open (Open)



Untitled - UCR FlowChart Program

Open FlowChart Program

찾는 위치(I): UCR-FCP_v1

EQ2_P01_DC_Motor_01.ufc

파일 이름(N):

파일 형식(T): UCR FlowChart Program (*.ufc)

File open

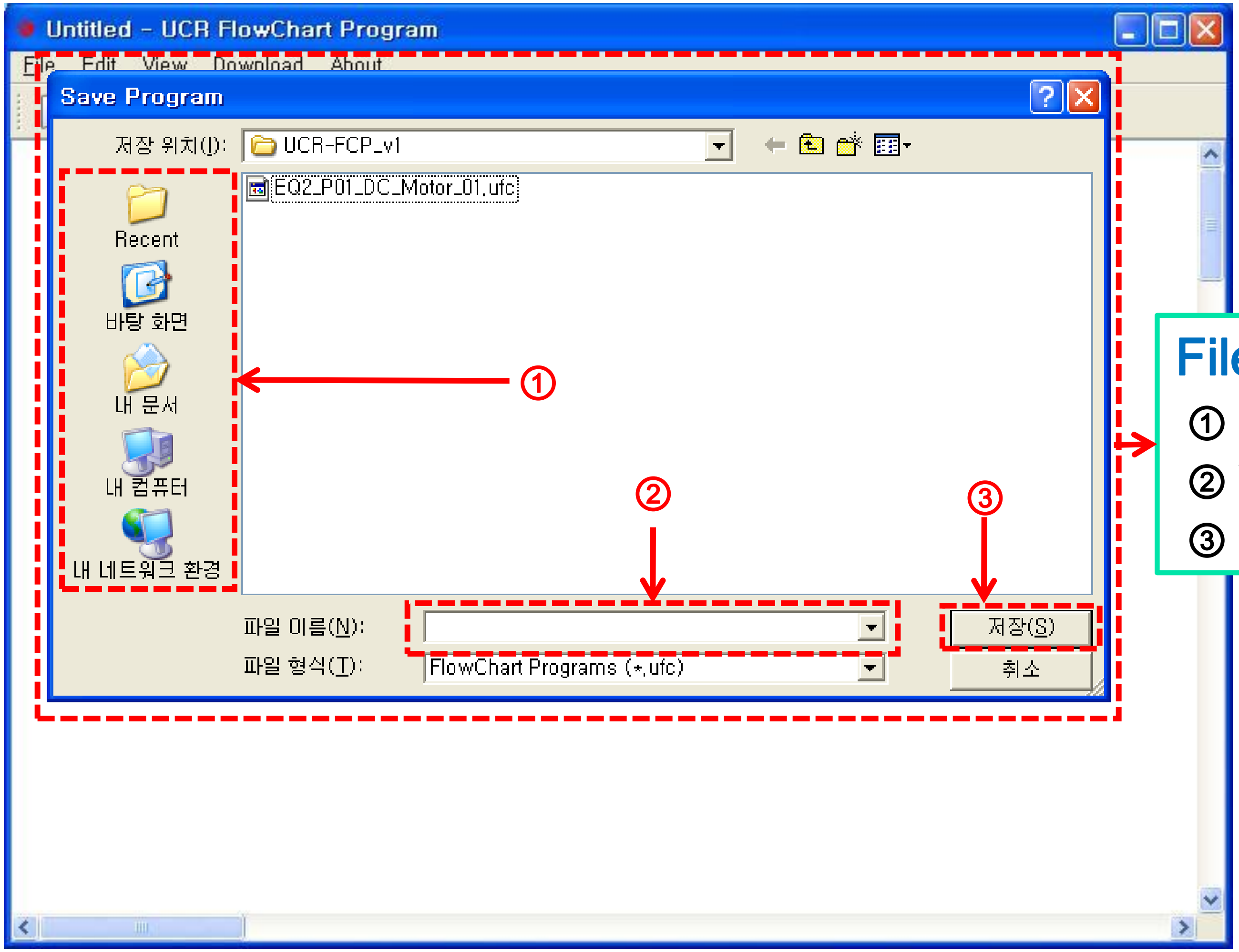
① Choose the folder
② Choose the file
③ open file

※ file extension : ufc (User creative robot FlowChart)

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-1-③④) file save (Save) & save as new file (Save As)



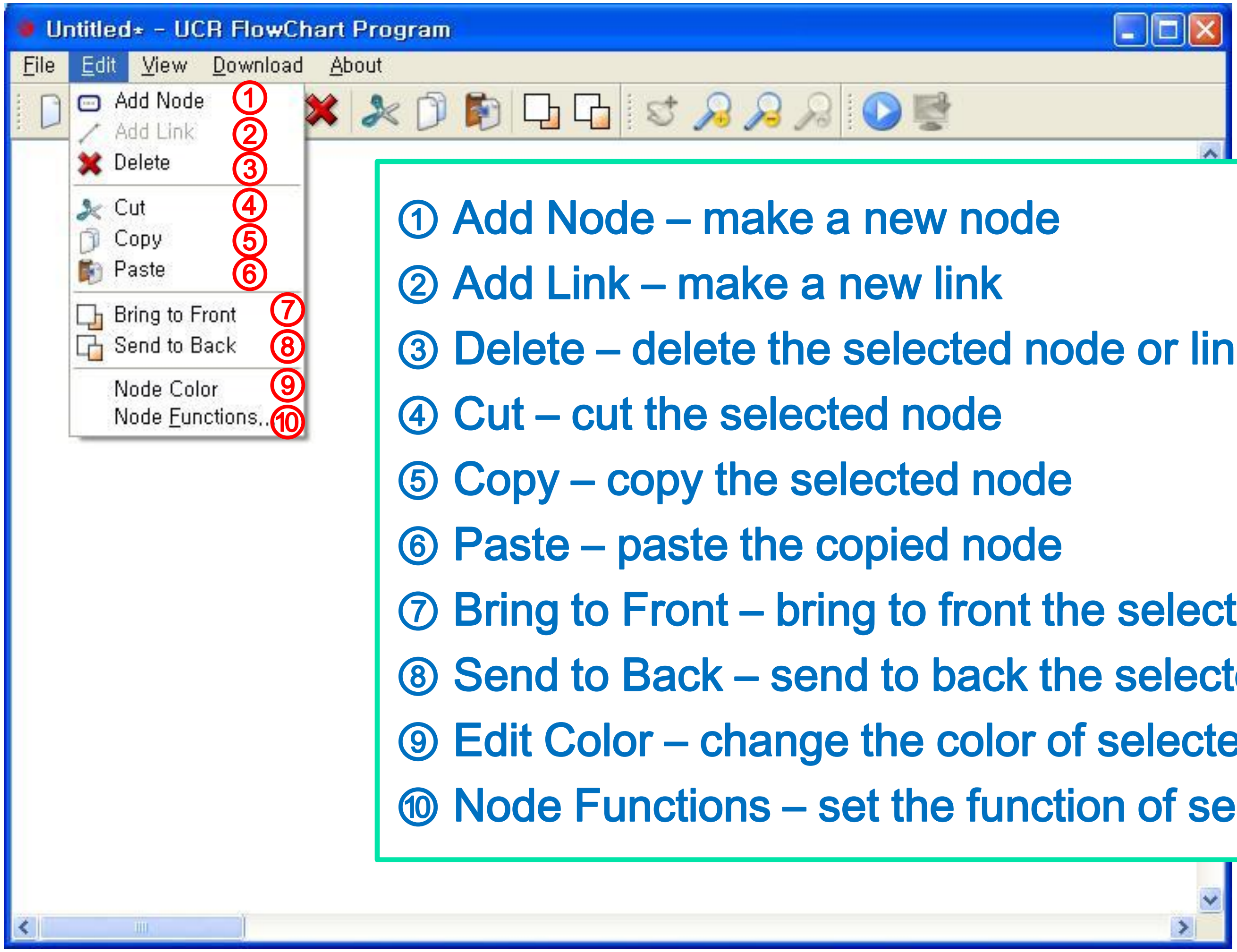
File Save

① Choose the folder
② Write the name
③ save the file

technical support : ucrobot @ ucrobot.com

2. UCR-FCP Menu

(2-2) Menu bar – Edit menu



① Add Node – make a new node

② Add Link – make a new link

③ Delete – delete the selected node or link

④ Cut – cut the selected node

⑤ Copy – copy the selected node

⑥ Paste – paste the copied node

⑦ Bring to Front – bring to front the selected node

⑧ Send to Back – send to back the selected node

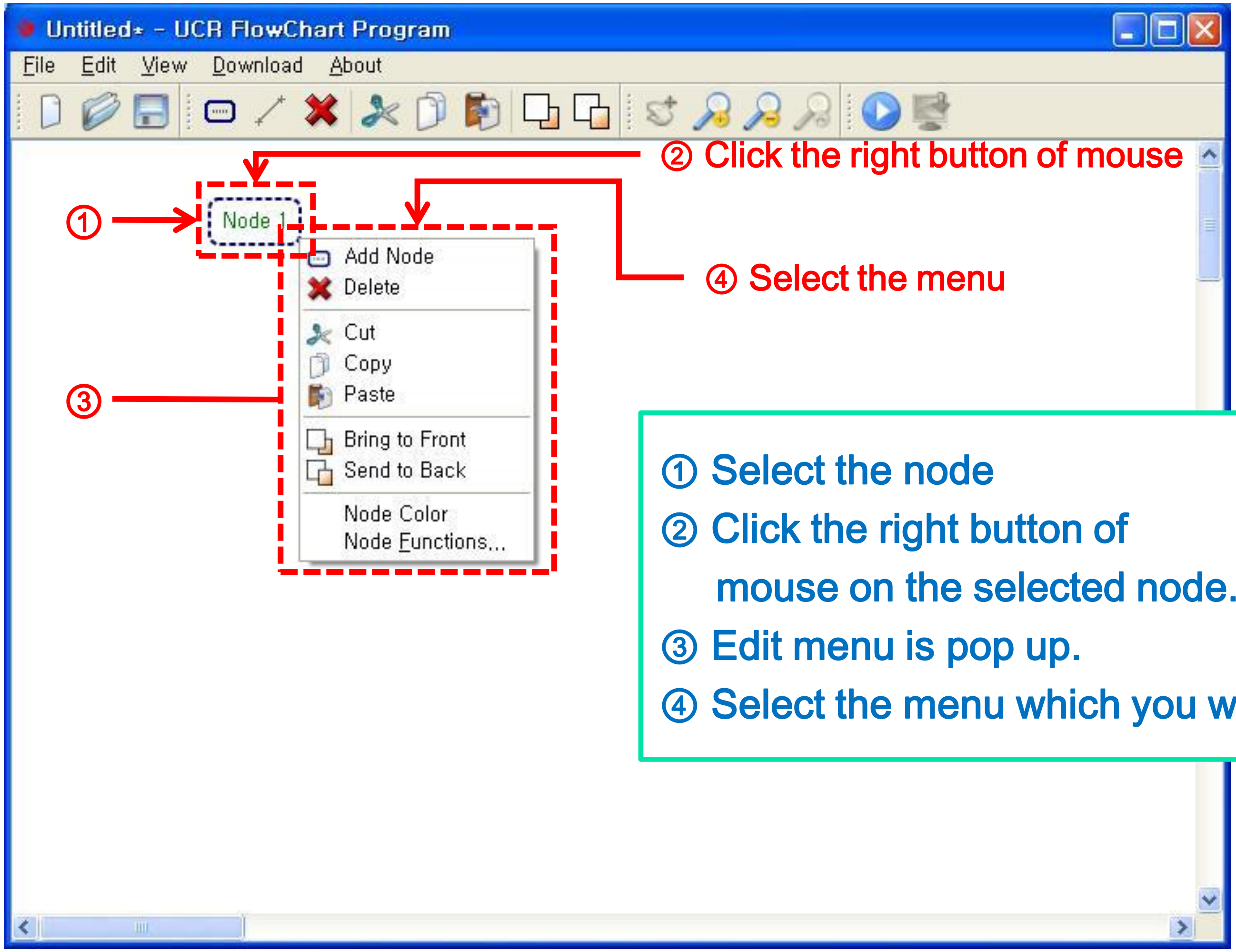
⑨ Edit Color – change the color of selected node

⑩ Node Functions – set the function of selected node

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-2+) Another method to run the "Edit menu"



① Select the node

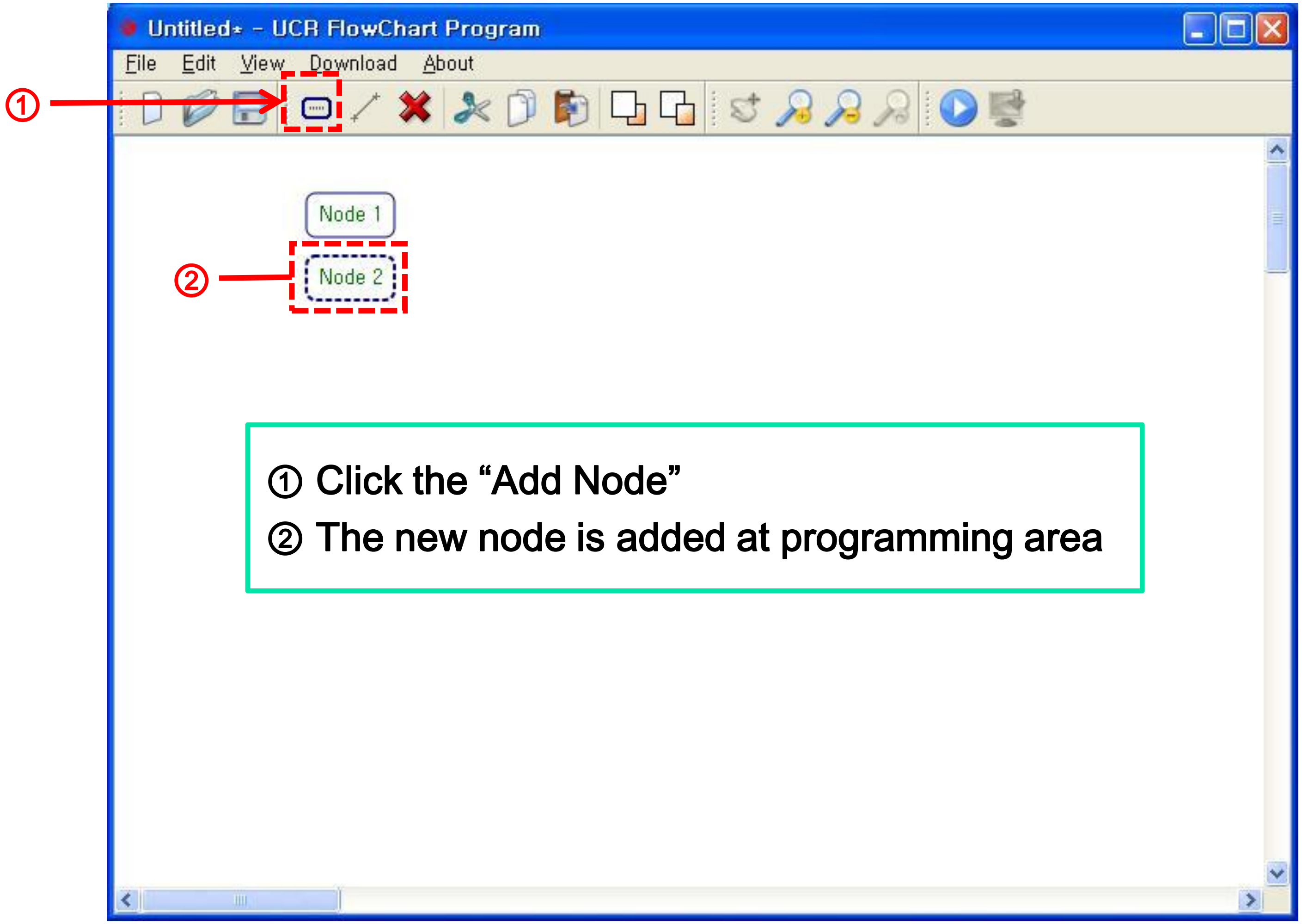
② Click the right button of mouse on the selected node.

③ Edit menu is pop up.

④ Select the menu which you want.

2. UCR-FCP Menu

(2-2-①) Make a new node (Add Node)

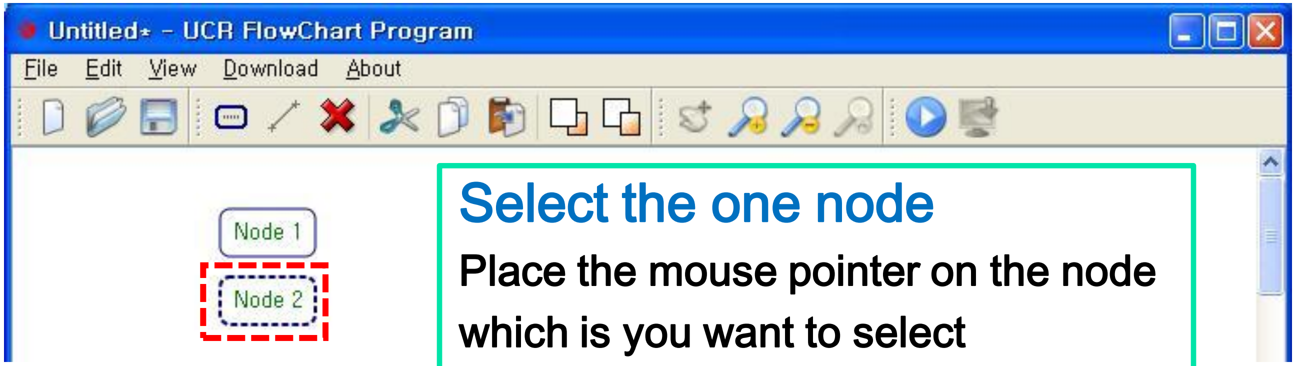


① Click the "Add Node"

② The new node is added at programming area

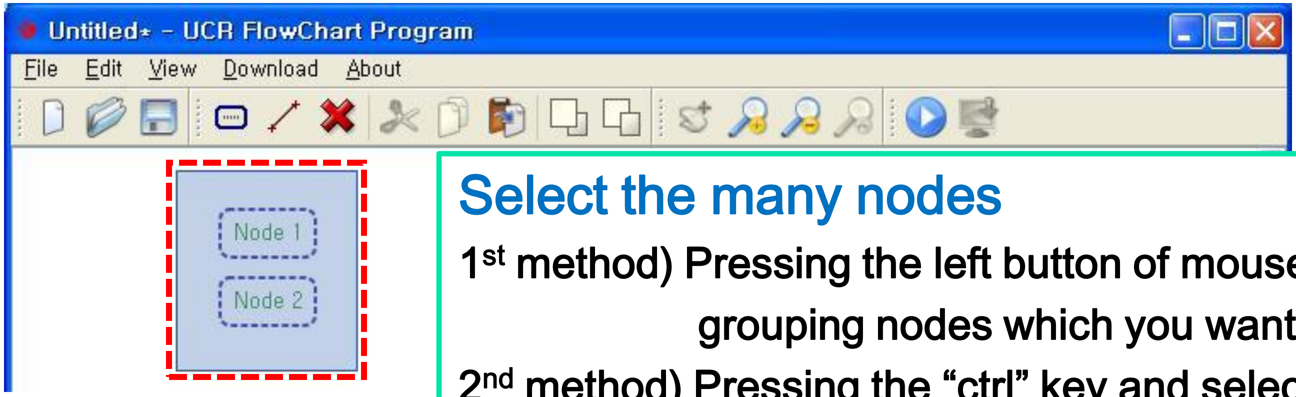
2. UCR-FCP Menu

(2-2-①+) Select the node



Select the one node

Place the mouse pointer on the node which is you want to select and click the left button of mouse.



Select the many nodes

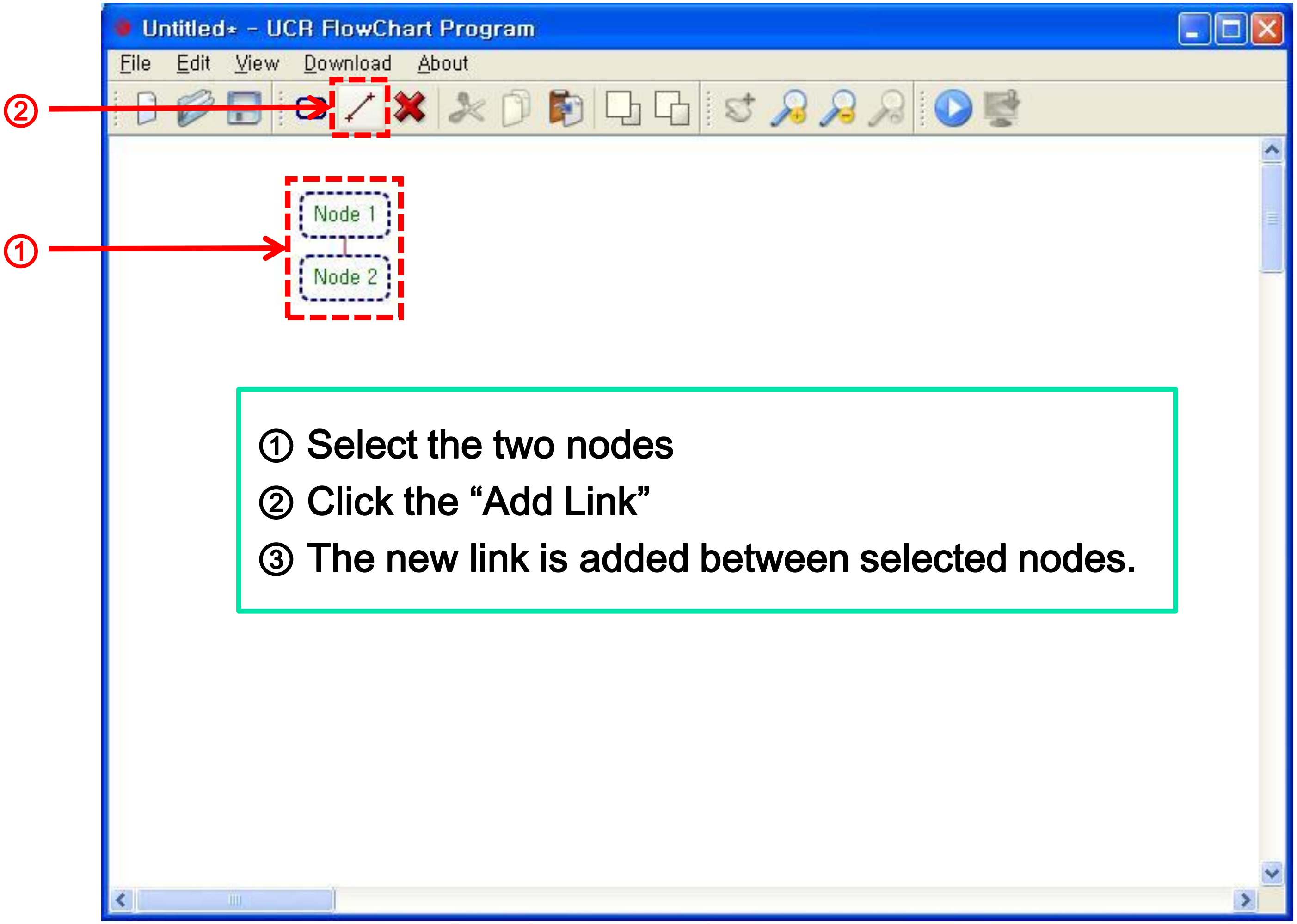
1st method) Pressing the left button of mouse and grouping nodes which you want to select.

2nd method) Pressing the "ctrl" key and select the node which you want clicking the left button of mouse one by one.

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-2-②) Make a new link (Add Link)

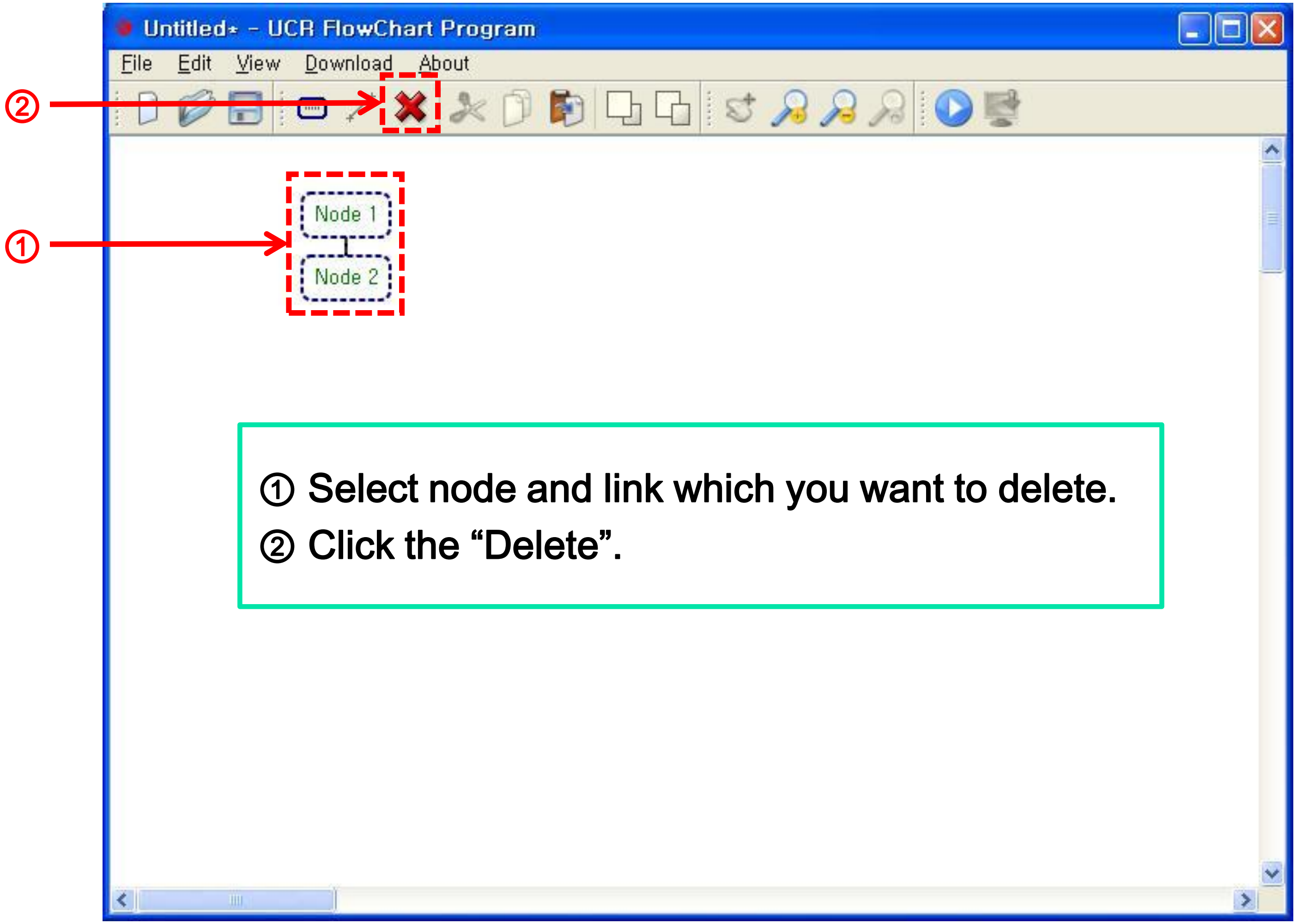

Untitled* - UCR FlowChart Program
File Edit View Download About
②
①
Node 1
Node 2

① Select the two nodes
② Click the "Add Link"
③ The new link is added between selected nodes.

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-2-③) Delete the selected node or link (Delete)

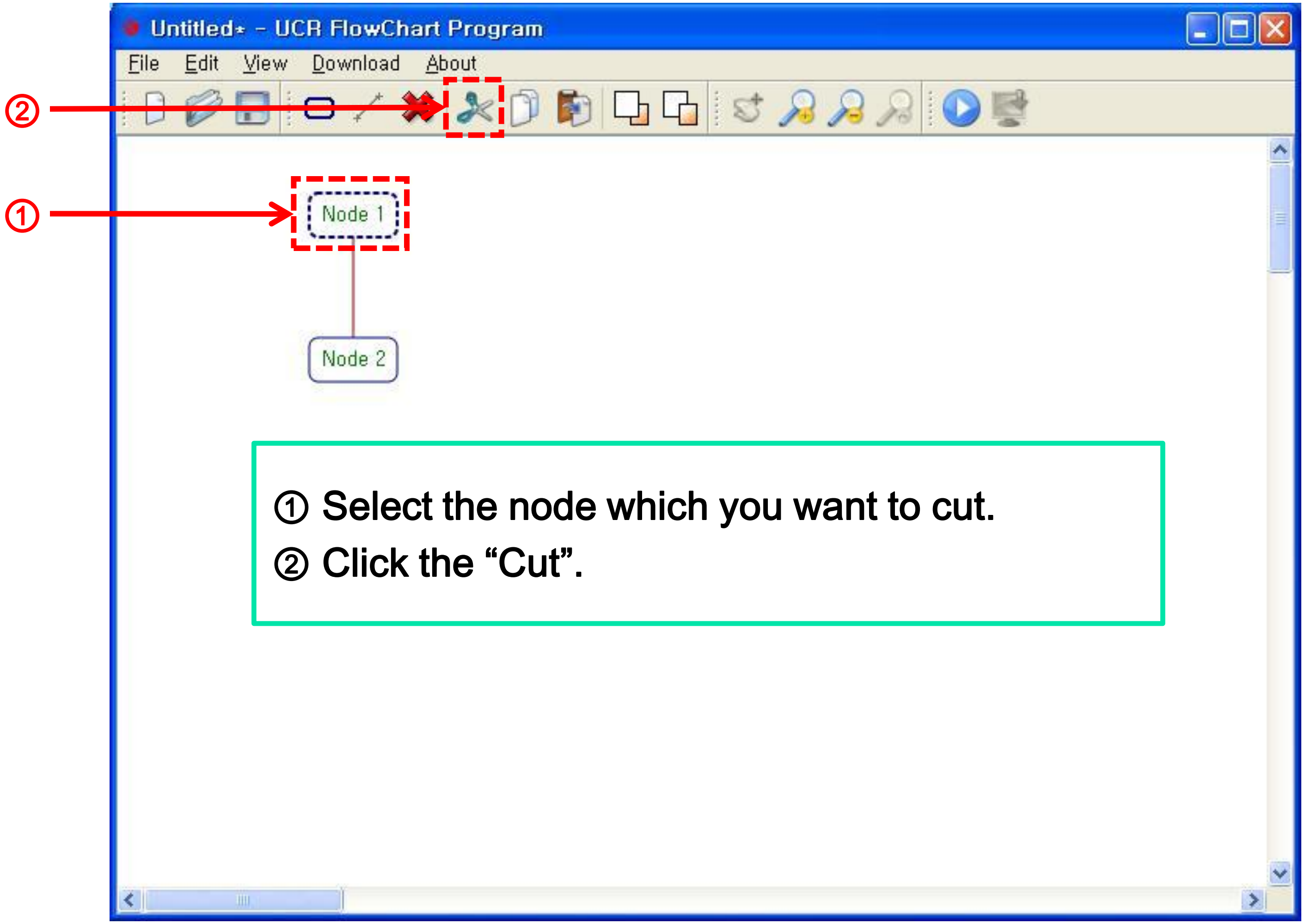


① Select node and link which you want to delete.

② Click the "Delete".

2. UCR-FCP Menu

(2-2-④) Cut the selected node (Cut)


Untitled* - UCR FlowChart Program
File Edit View Download About
②
①
Node 1
Node 2

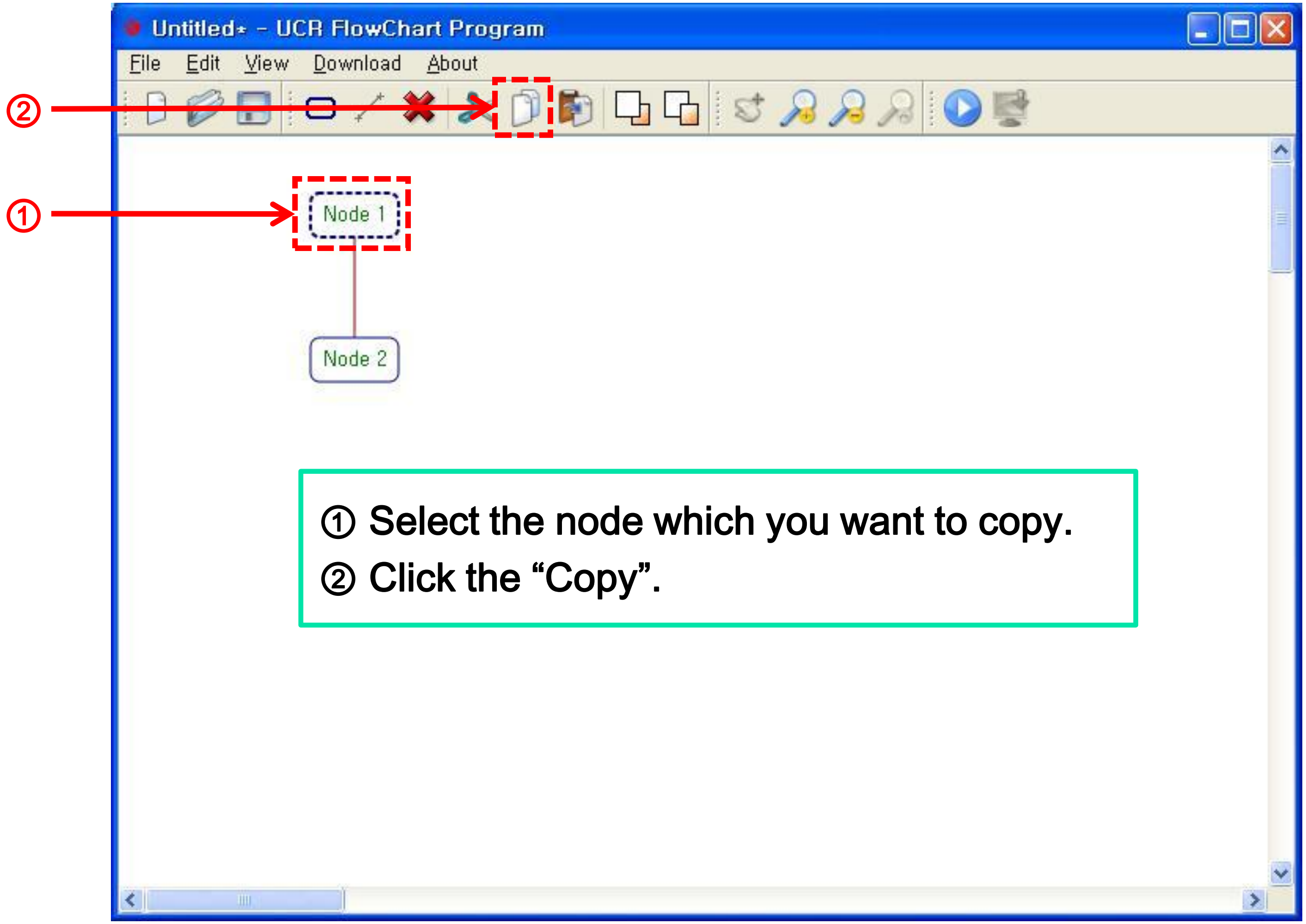
① Select the node which you want to cut.

② Click the "Cut".

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-2-⑤) Copy the selected node (Copy)



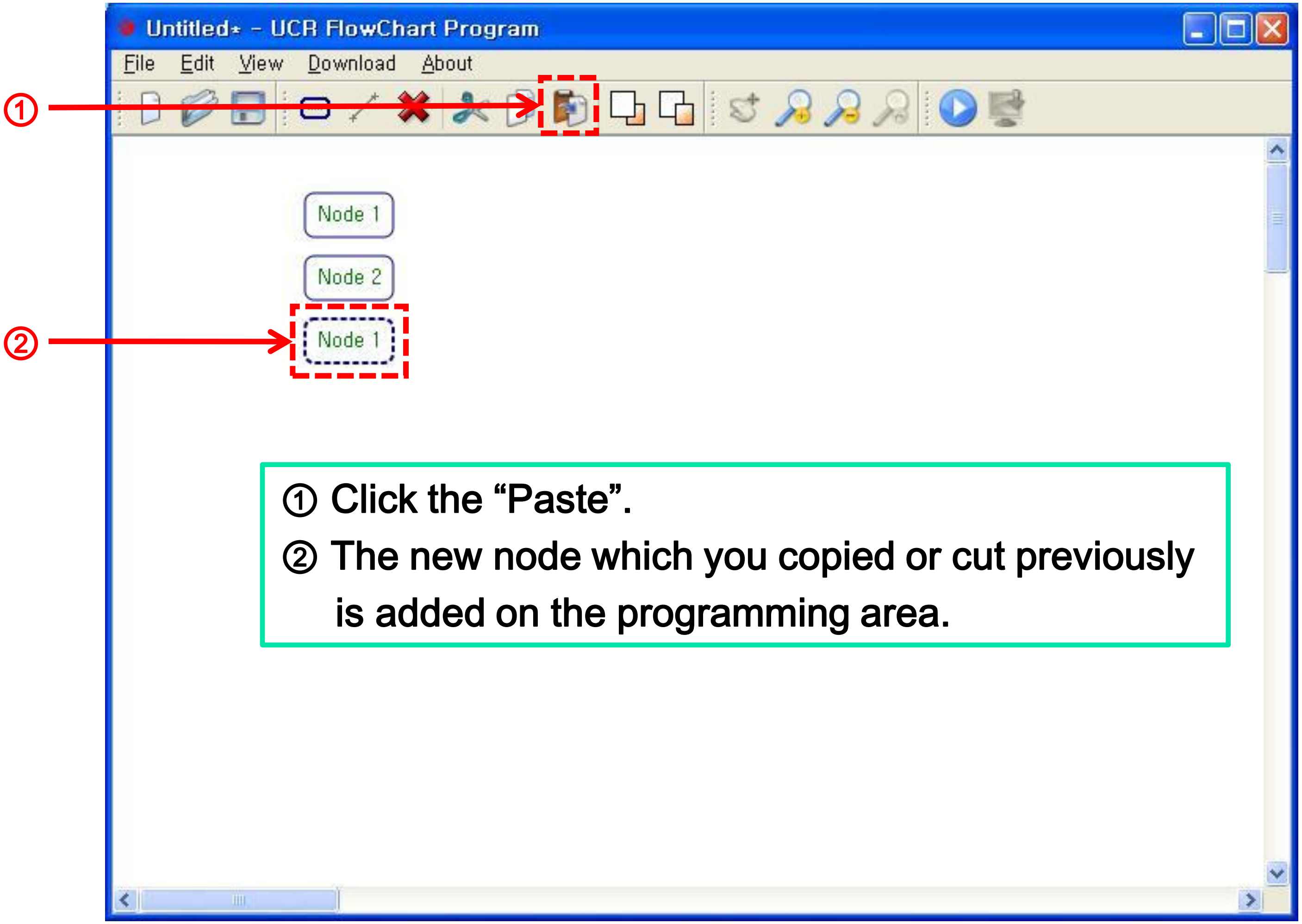
Untitled* - UCR FlowChart Program
File Edit View Download About
②
①
Node 1
Node 2

① Select the node which you want to copy.

② Click the "Copy".

2. UCR-FCP Menu

(2-2-⑥) Paste the copied node (Paste)

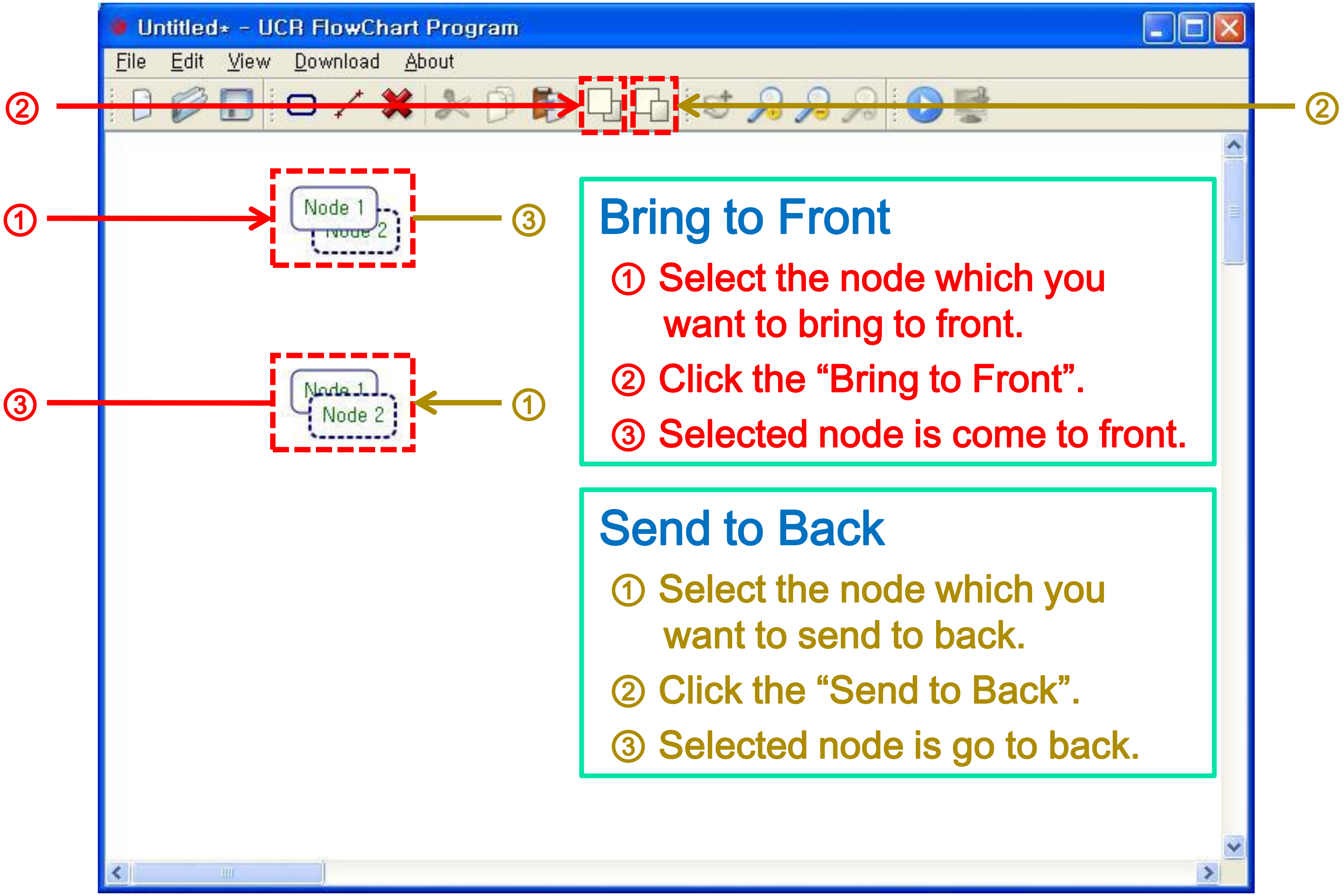

Untitled* - UCR FlowChart Program
File Edit View Download About
①
②
Node 1
Node 2
Node 1

① Click the "Paste".

② The new node which you copied or cut previously is added on the programming area.

2. UCR-FCP Menu

(2-2-⑦⑧) Bring to Front / Send to Back



Bring to Front

① Select the node which you want to bring to front.

② Click the "Bring to Front".

③ Selected node is come to front.

Send to Back

① Select the node which you want to send to back.

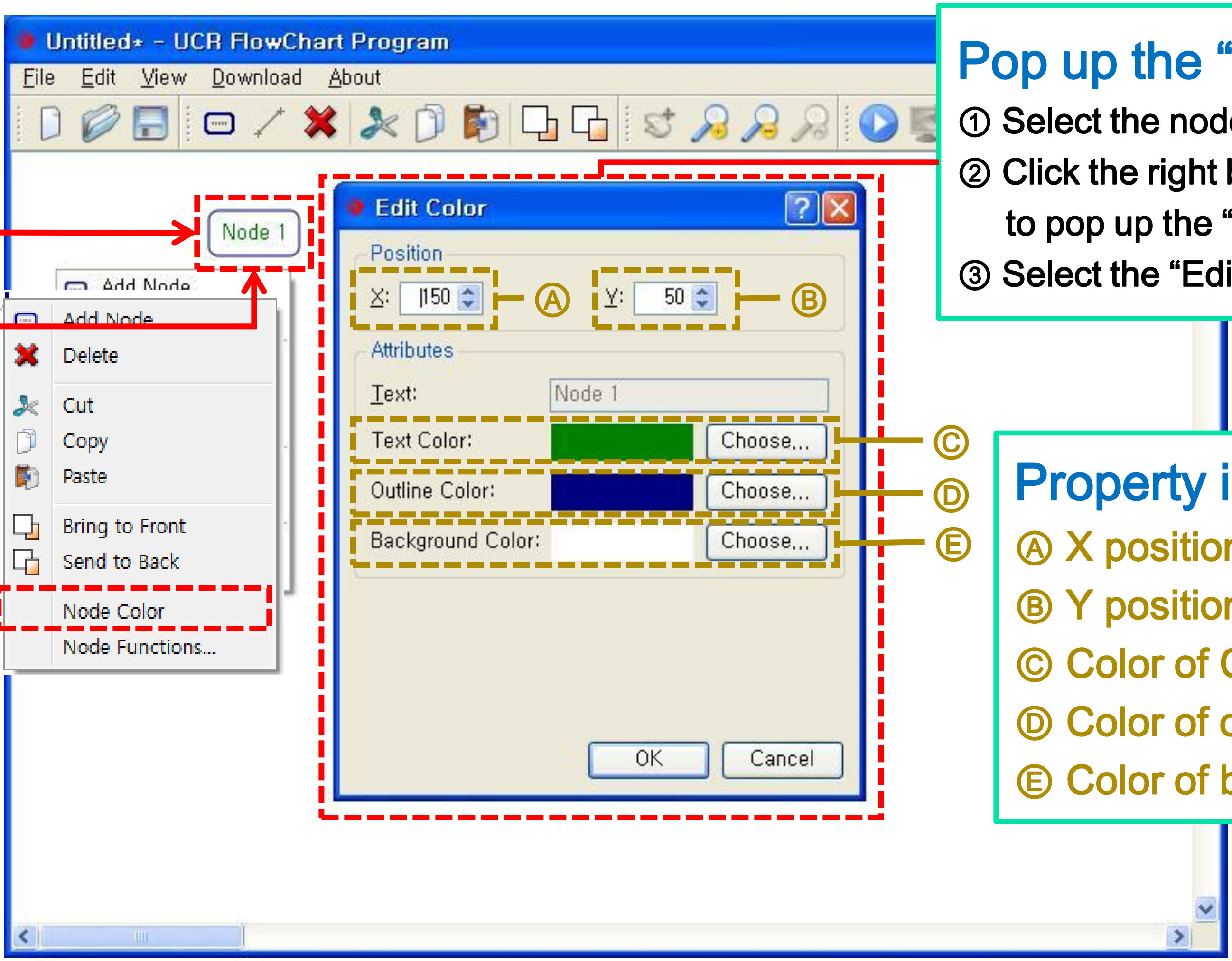
② Click the "Send to Back".

③ Selected node is go to back.

2. UCR-FCP Menu

MICROSOFT's Windows XP

(2-2-⑨) Change the color of selected node (Edit Color)



Pop up the "Edit Color"

① Select the node.

② Click the right button of mouse to pop up the "Edit Menu"

③ Select the "Edit Color".

Property in Edit Color

Ⓐ X position

Ⓑ Y position

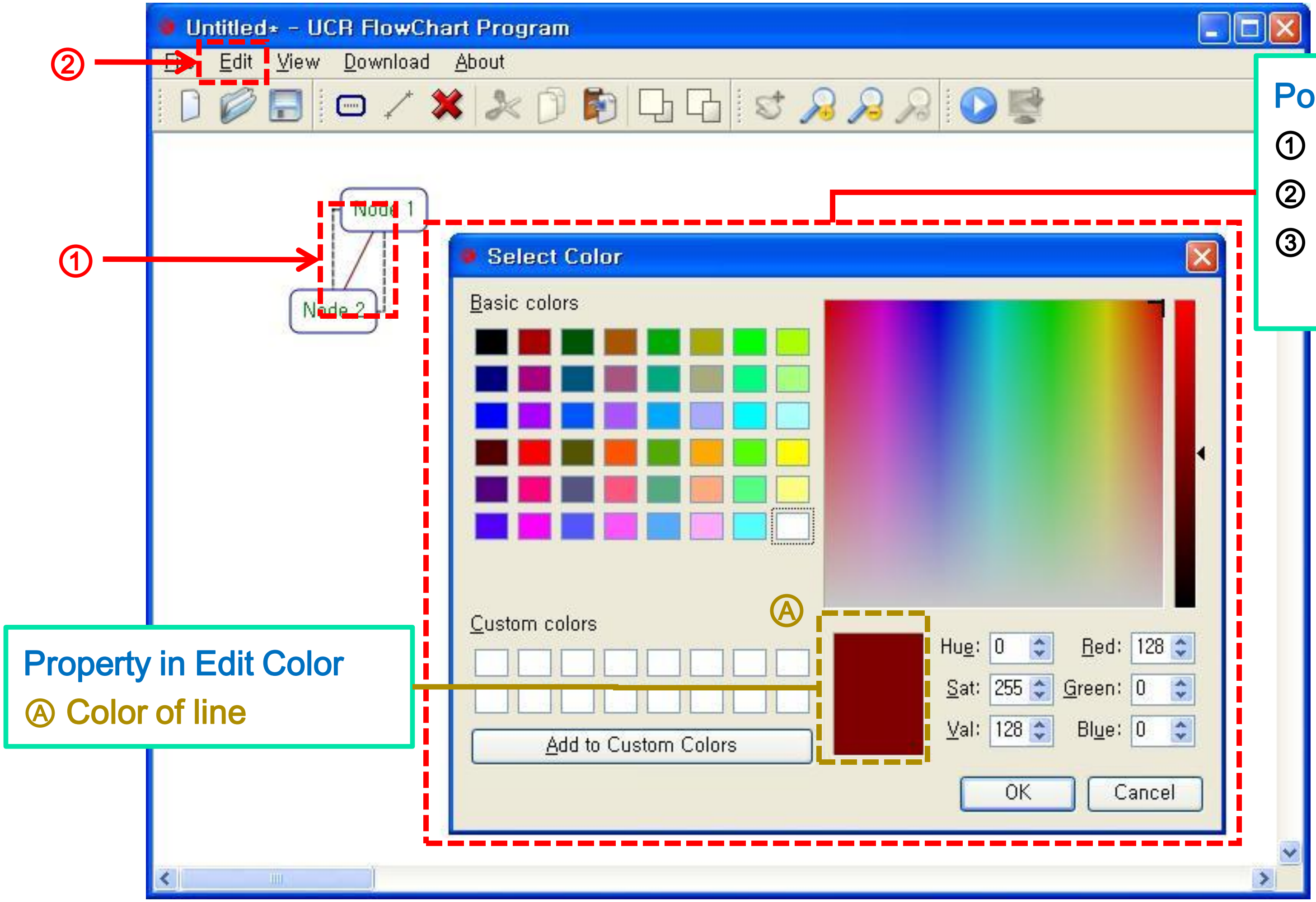
Ⓒ Color of Character

Ⓓ Color of out line

Ⓔ Color of back ground

2. UCR-FCP Menu

(2-2-⑨+) Change the color of selected link (Edit Color)



Hue: 0
Sat: 255
Val: 128
Red: 128
Green: 0
Blue: 0

Pop up the "Edit Color"

① Select the link.

② Click the "Edit Menu".

③ Select the "Node Color".

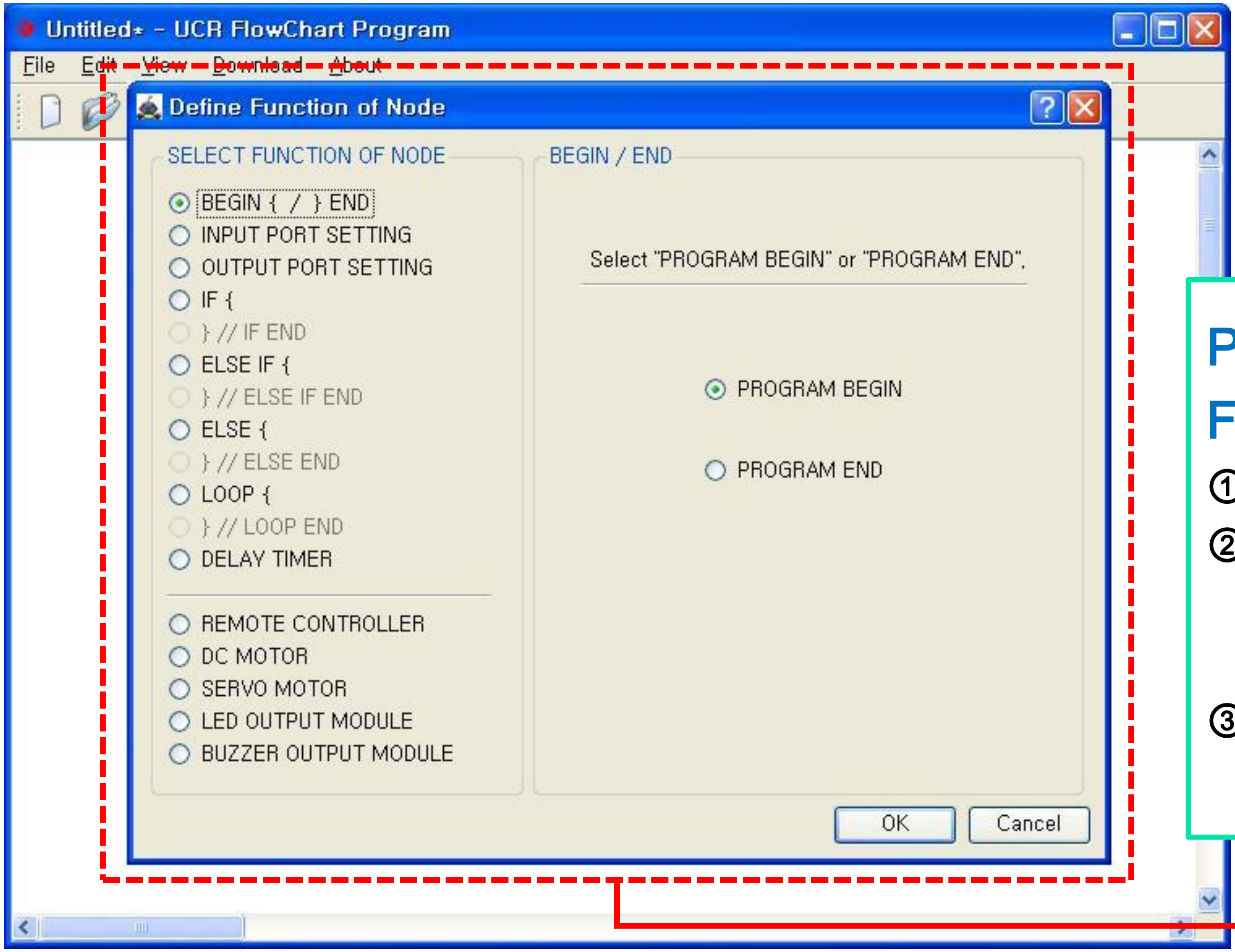
Property in Edit Color

Ⓐ Color of line

2. UCR-FCP Menu

MICROSOFT's Windows XP

(2-2-⑩) Set the function of selected node (Node Functions)



Untitled* - UCR FlowChart Program
File Edit View Download About
Define Function of Node

SELECT FUNCTION OF NODE

- ● BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

BEGIN / END

Select "PROGRAM BEGIN" or "PROGRAM END".

- ● PROGRAM BEGIN
- ○ PROGRAM END

Pop up the "Define Function of Node"

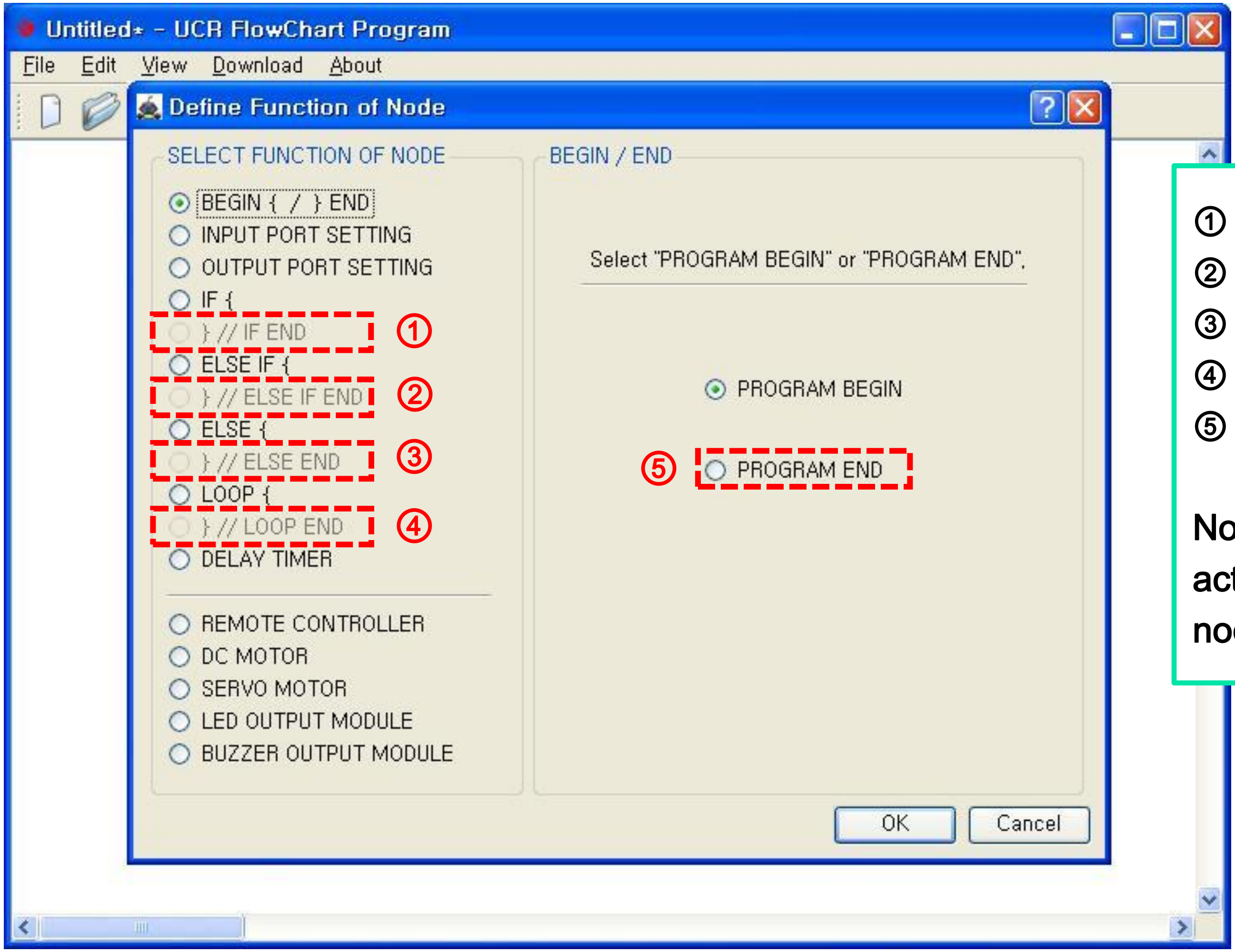
① Select the node.

② Click the right button of mouse to pop up the "Edit Menu"

③ Select the "Node Functions".

2. UCR-FCP Menu

(2-2-⑩+) Foretasting the node properties (1)



Untitled* - UCR FlowChart Program

File Edit View Download About

Define Function of Node

SELECT FUNCTION OF NODE

- ● BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END ①
- ○ ELSE IF {
- ○ } // ELSE IF END ②
- ○ ELSE {
- ○ } // ELSE END ③
- ○ LOOP {
- ○ } // LOOP END ④
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

BEGIN / END

Select "PROGRAM BEGIN" or "PROGRAM END".

- ● PROGRAM BEGIN
- ⑤ ○ PROGRAM END

OK Cancel

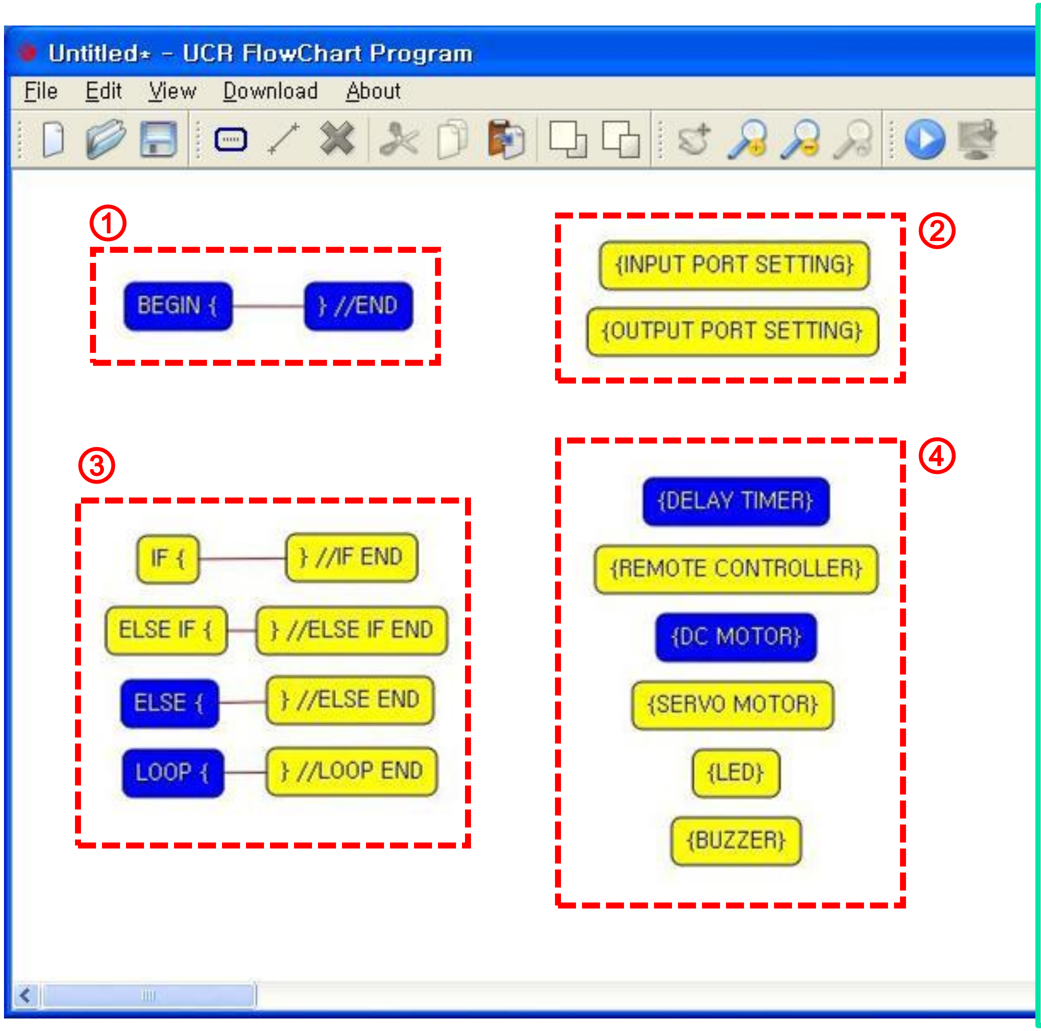
① "} // IF END"
② "} // ELSE IF END"
③ "} // ELSE END"
④ "} // LOOP END"
⑤ "} // END"

Node has pair is not activated before starting node is not defined.

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-2-⑩+) Foretasting the node properties (2)



Node (instruction) description

① Begin and End point of program
- -. "BEGIN {" & "} //END"

② Definition the Input/Output of robot
- -. "{INPUT PORT SETTING}"
- -. "{OUTPUT PORT SETTING}"

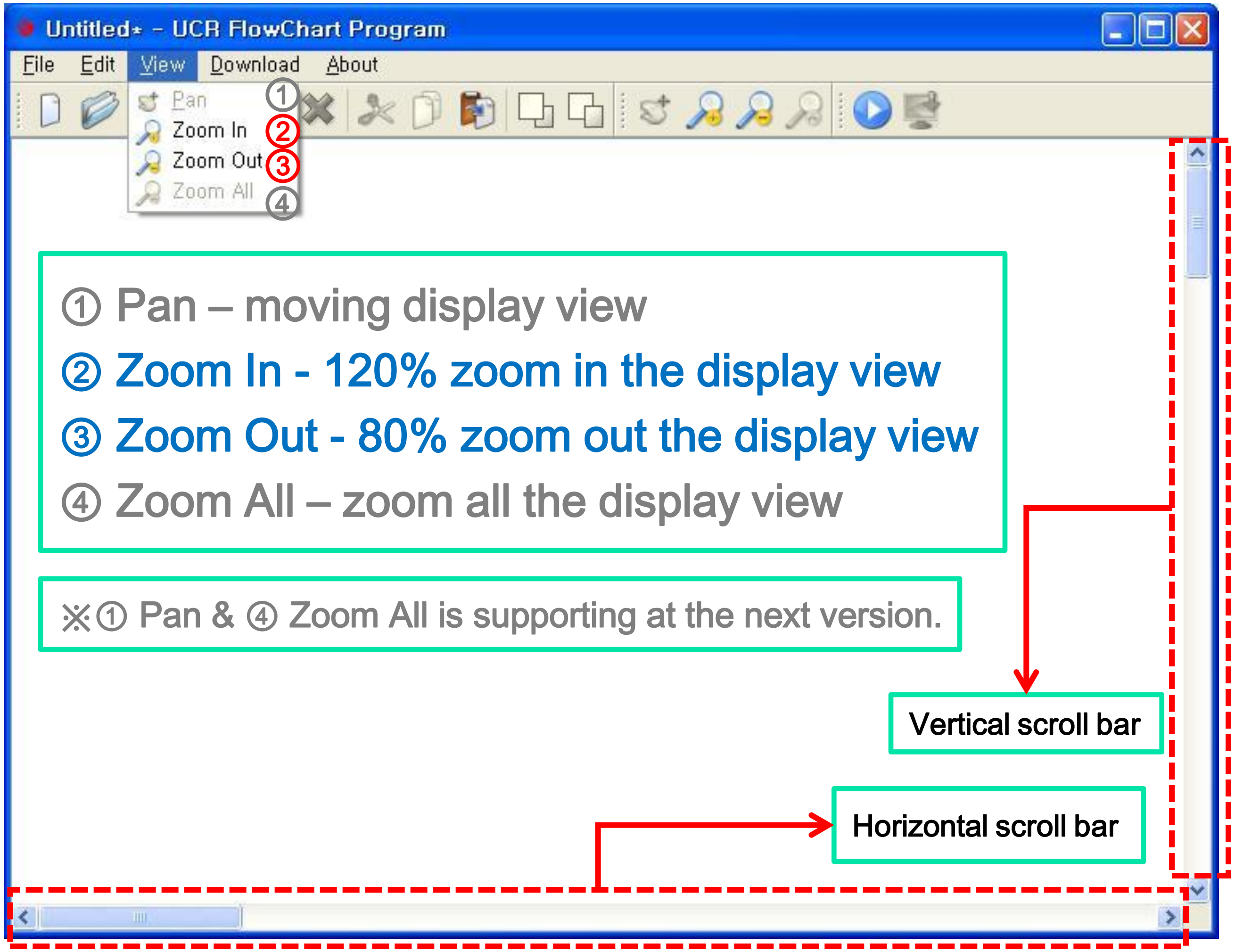
③ Condition, Repetition
- -. "IF {" & "} //IF END"
- -. "ELSE IF {" & "} //ELSE IF END"
- -. "ELSE {" & "} //ELSE END"
- -. "LOOP {" & "} //LOOP END"

④ Others
- -. "{DELAY TIME}"
- -. "{REMOTE CONTROLLER}"
- -. "{DC MOTOR}"
- -. "{SERVO MOTOR}"
- -. "{LED}"
- -. "{BUZZER}"

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-3) Menu bar - View menu



① Pan – moving display view

② Zoom In - 120% zoom in the display view

③ Zoom Out - 80% zoom out the display view

④ Zoom All – zoom all the display view

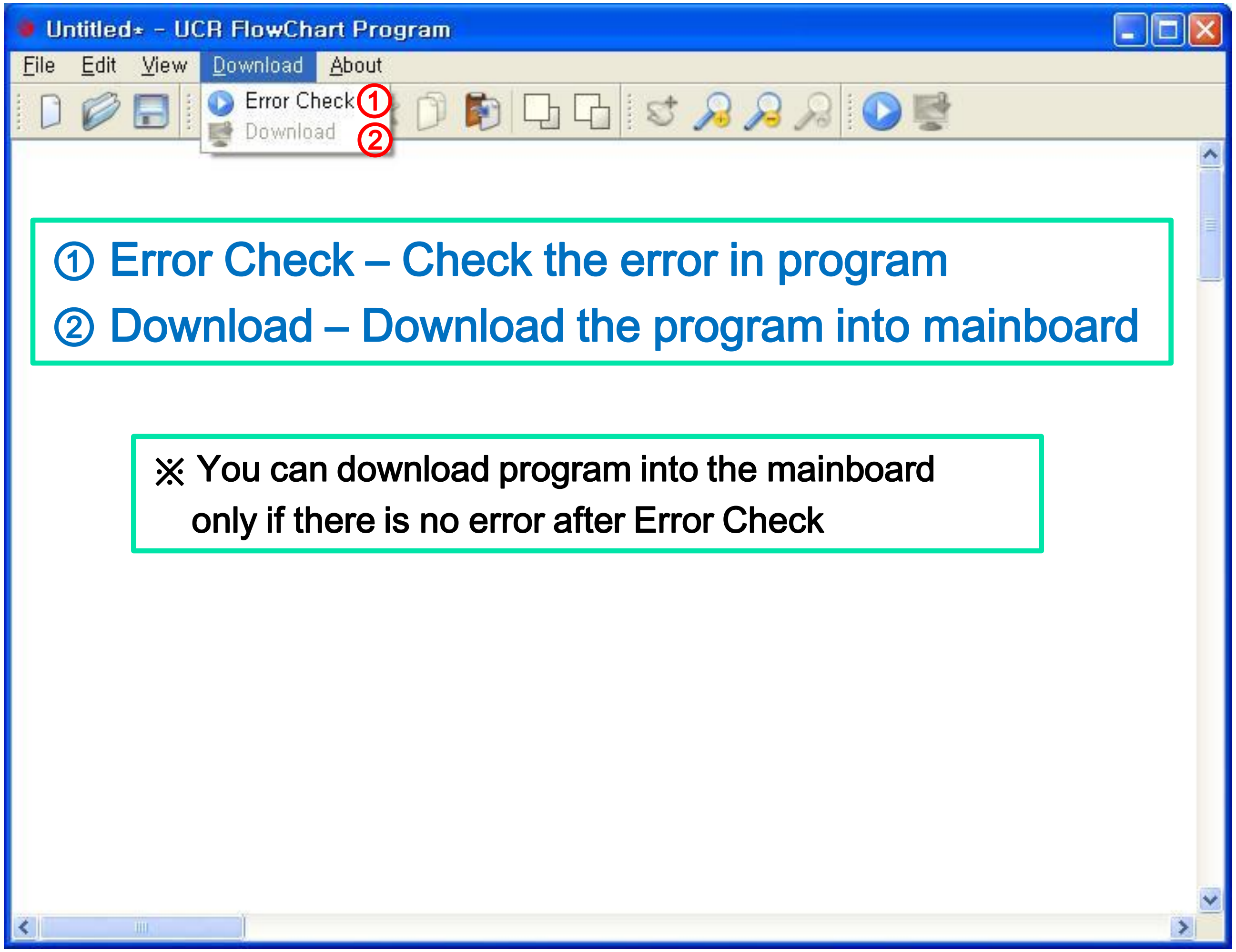
※① Pan & ④ Zoom All is supporting at the next version.

Vertical scroll bar

Horizontal scroll bar

2. UCR-FCP Menu

(2-4) Menu bar - Download menu



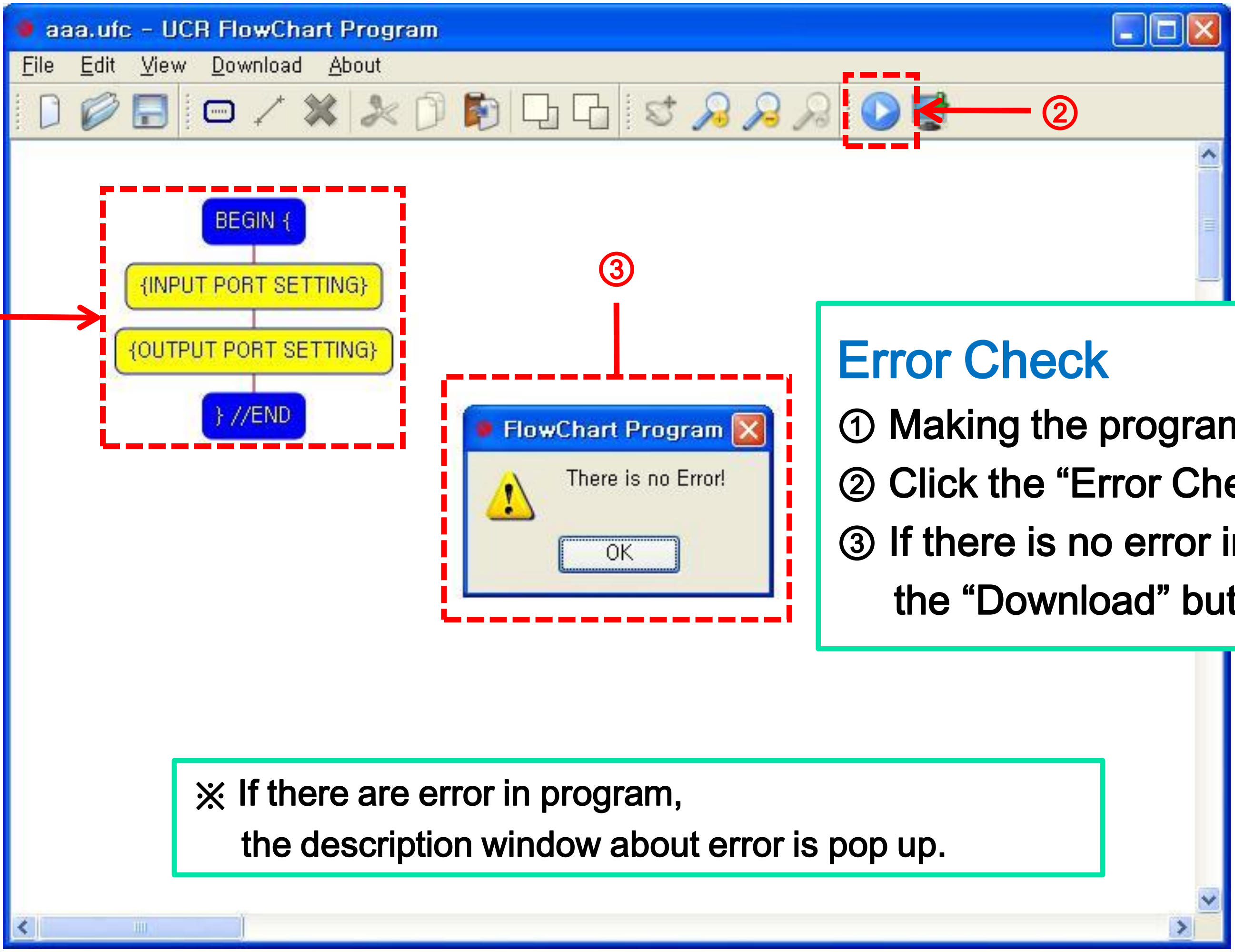
① Error Check – Check the error in program

② Download – Download the program into mainboard

※ You can download program into the mainboard only if there is no error after Error Check

2. UCR-FCP Menu

(2-4-①) Checking the error in program (Error Check)



There is no Error!

Error Check

① Making the program.

② Click the "Error Check"

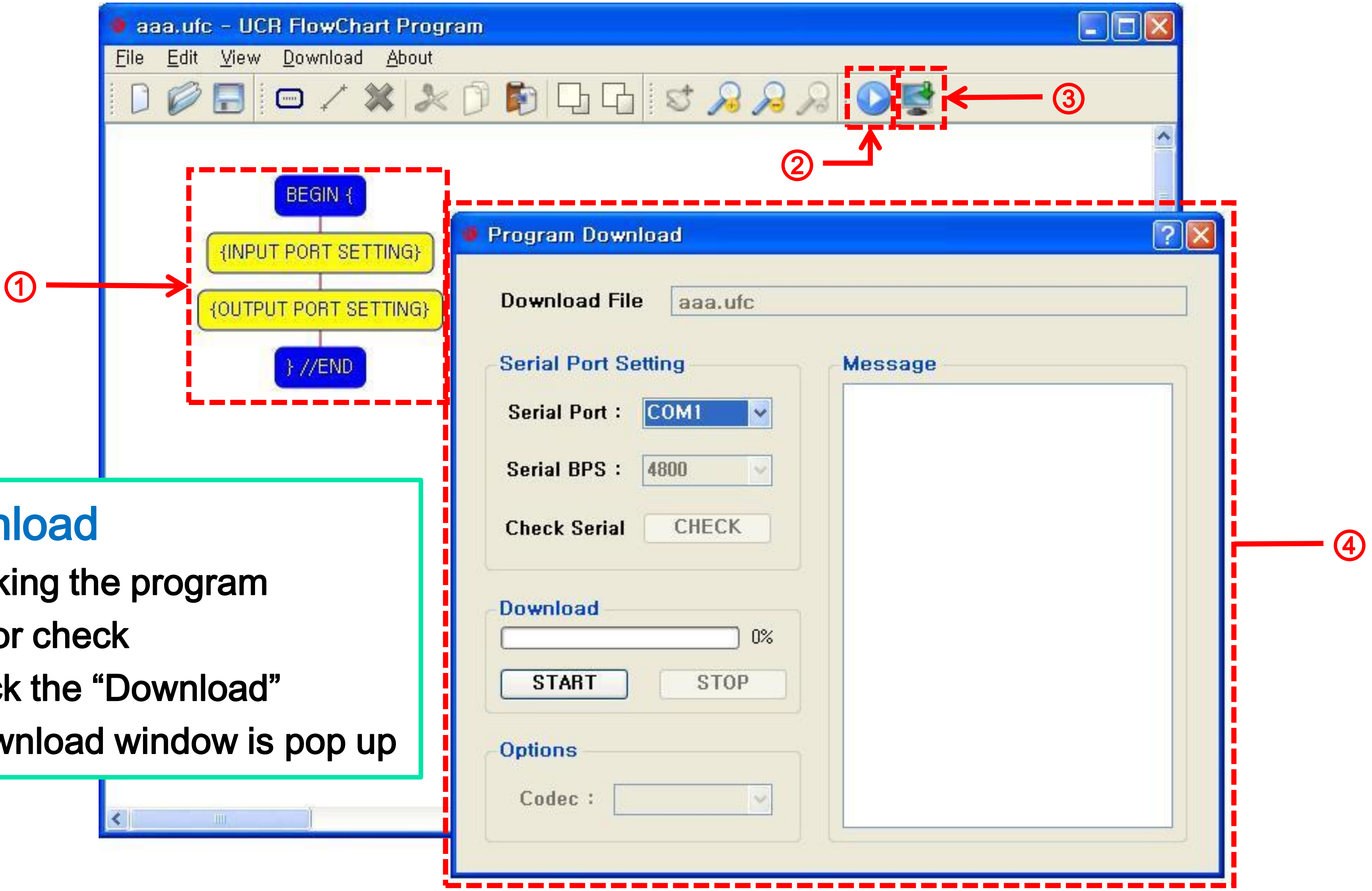
③ If there is no error in program,
the "Download" button is activated.

※ If there are error in program,
the description window about error is pop up.

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-4-②) Download the program into the mainboard (Download)



Download File: aaa.ufc

Serial Port Setting
Serial Port : COM1
Serial BPS : 4800
Check Serial: CHECK

Message

Download
0%
START STOP

Options
Codec :

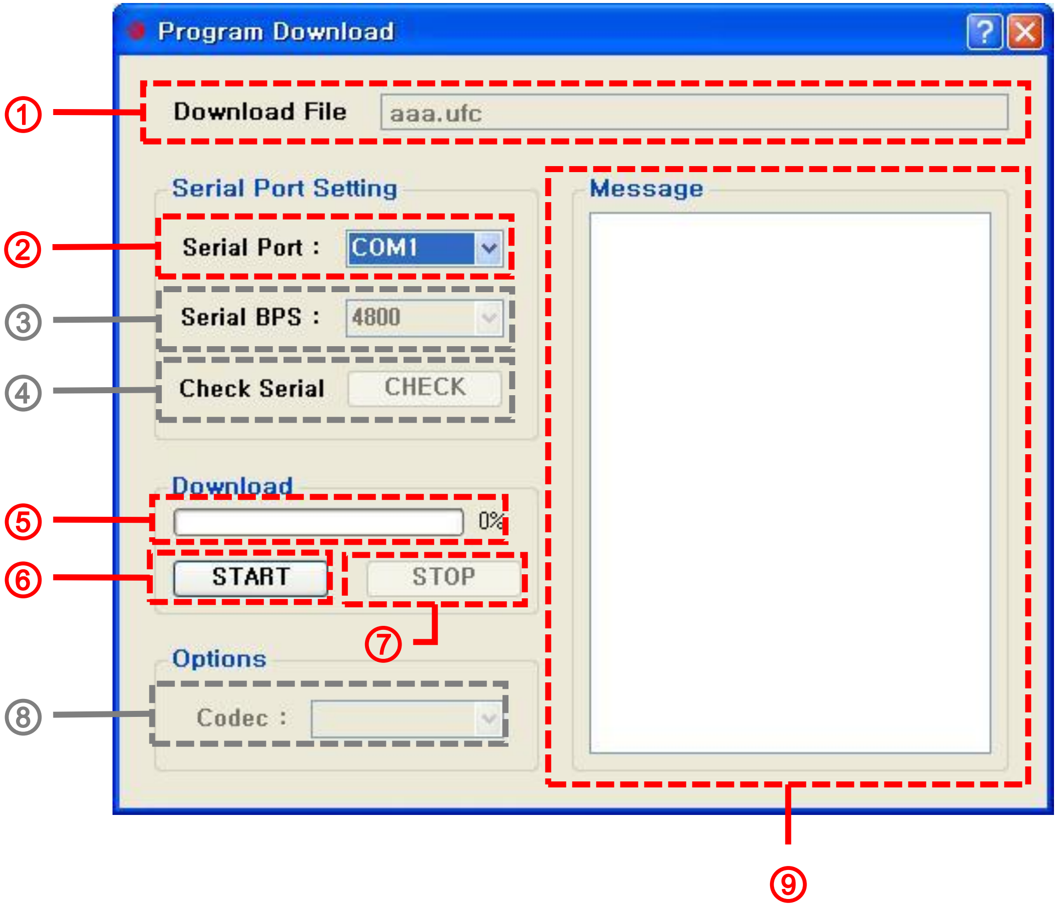
Download

① Making the program
② Error check
③ Click the "Download"
④ Download window is pop up

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-4-②+) Description of Download window



Program Download

Download File: aaa.ufc

Serial Port Setting

Serial Port : COM1

Serial BPS : 4800

① file name of downloading

② serial port of downloading
(Check the control panel)

③ Communication speed (BPS)

④ Check the serial port

⑤ Downloading progress bar

⑥ Start of downloading

⑦ Stop of downloading

⑧ Communication code spec.

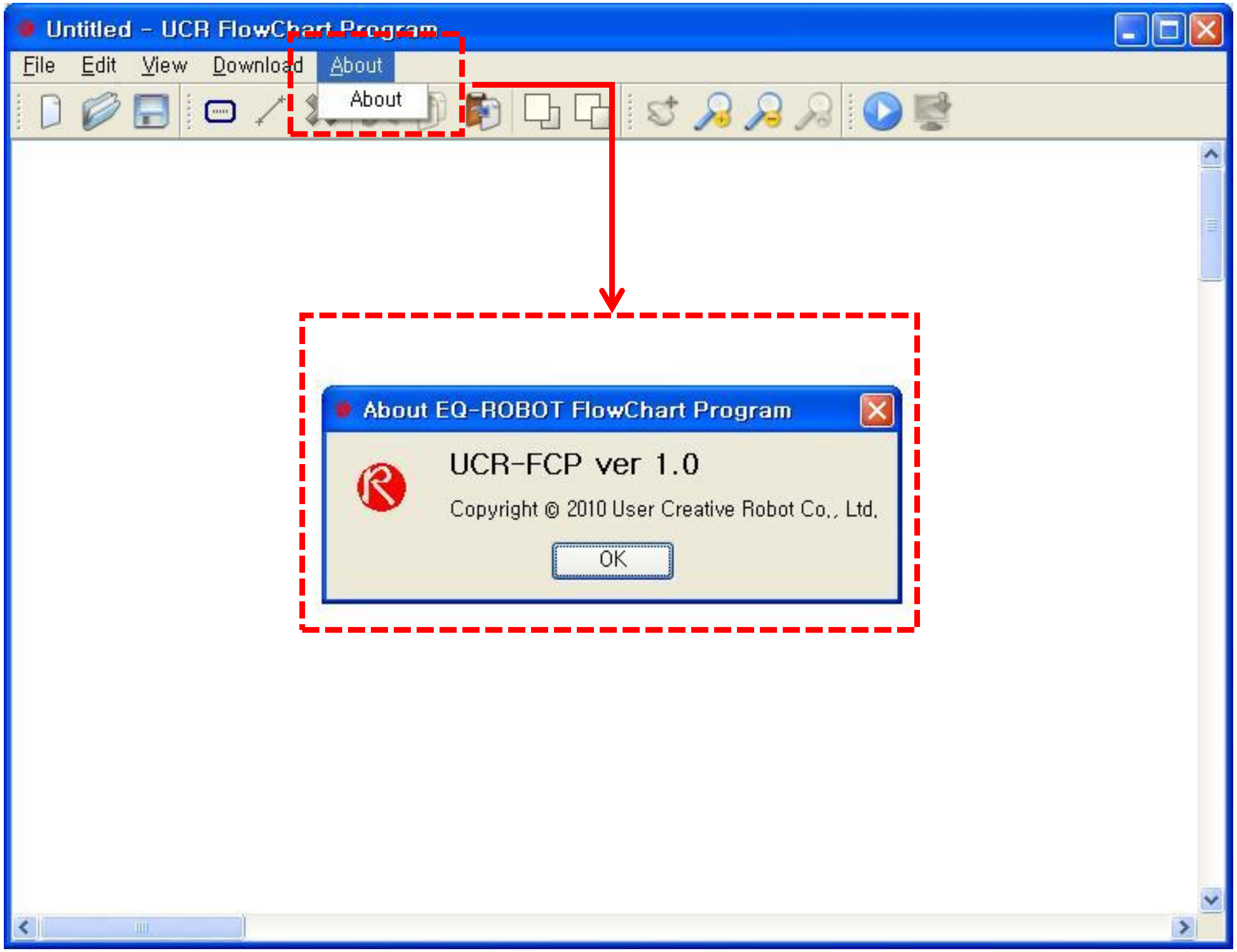
⑨ Message window

※ ③, ④, ⑧ is supporting
at the next version.

2. UCR-FCP Menu

MICROSOFT's
Windows XP

(2-5) Menu bar - About menu



Untitled - UCR FlowChart Program
File
Edit
View
Download
About
About
About EQ-ROBOT FlowChart Program
OK

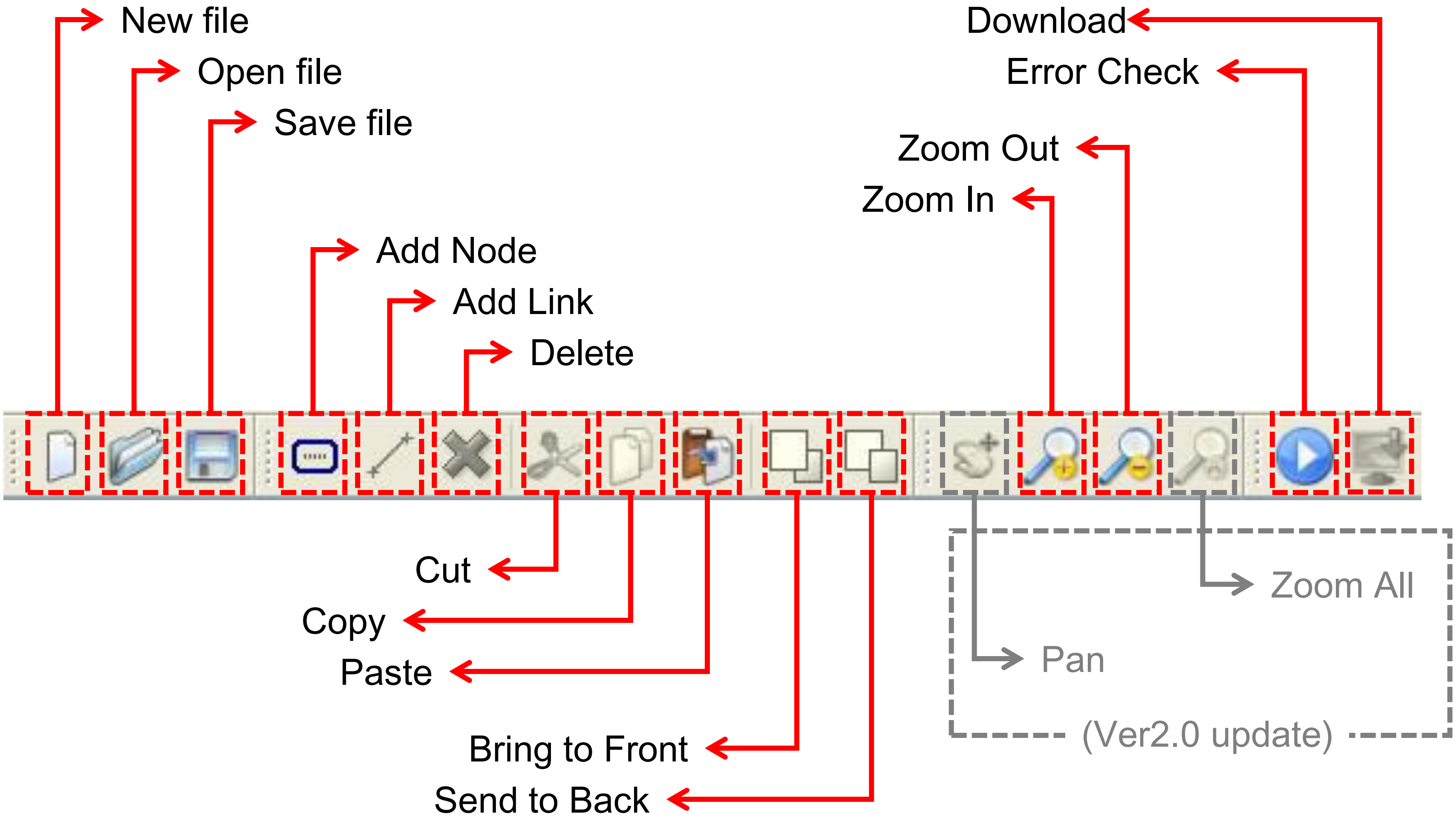
UCR-FCP ver 1.0

Copyright © 2010 User Creative Robot Co., Ltd.

2. UCR-FCP Menu

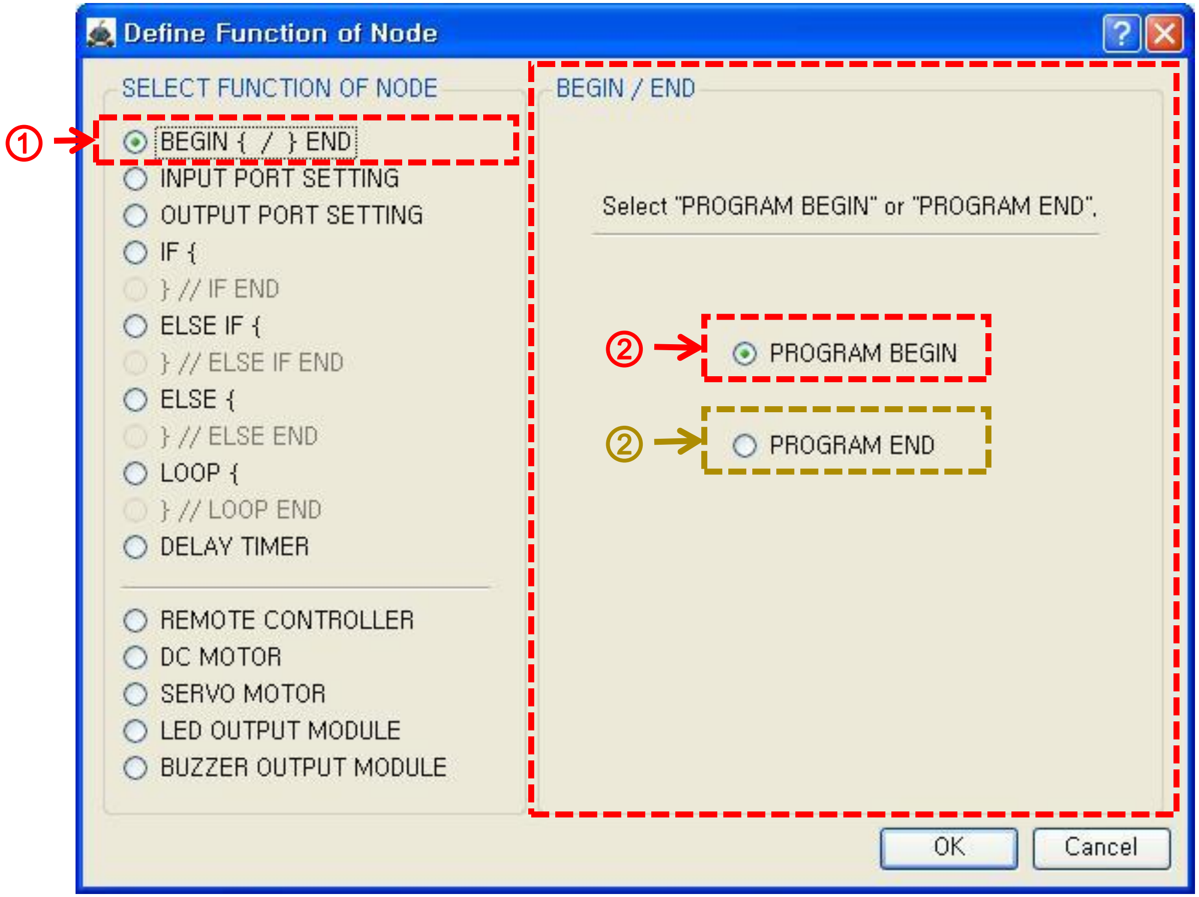
MICROSOFT's Windows XP

(2-6) TOOL BAR



3. Define Node's function

(3-1) Begin & End point of program : "BEGIN {" & "} //END"



Define Function of Node

SELECT FUNCTION OF NODE

- ● BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

BEGIN / END

Select "PROGRAM BEGIN" or "PROGRAM END".

- ● PROGRAM BEGIN
- ○ PROGRAM END

[Program Begin]

① Select "Node functions…"
: BEGIN{ / } END

② Select
: PROGRAM BEGIN

[Program END]

① Select "Node functions…"
: BEGIN{ / } END

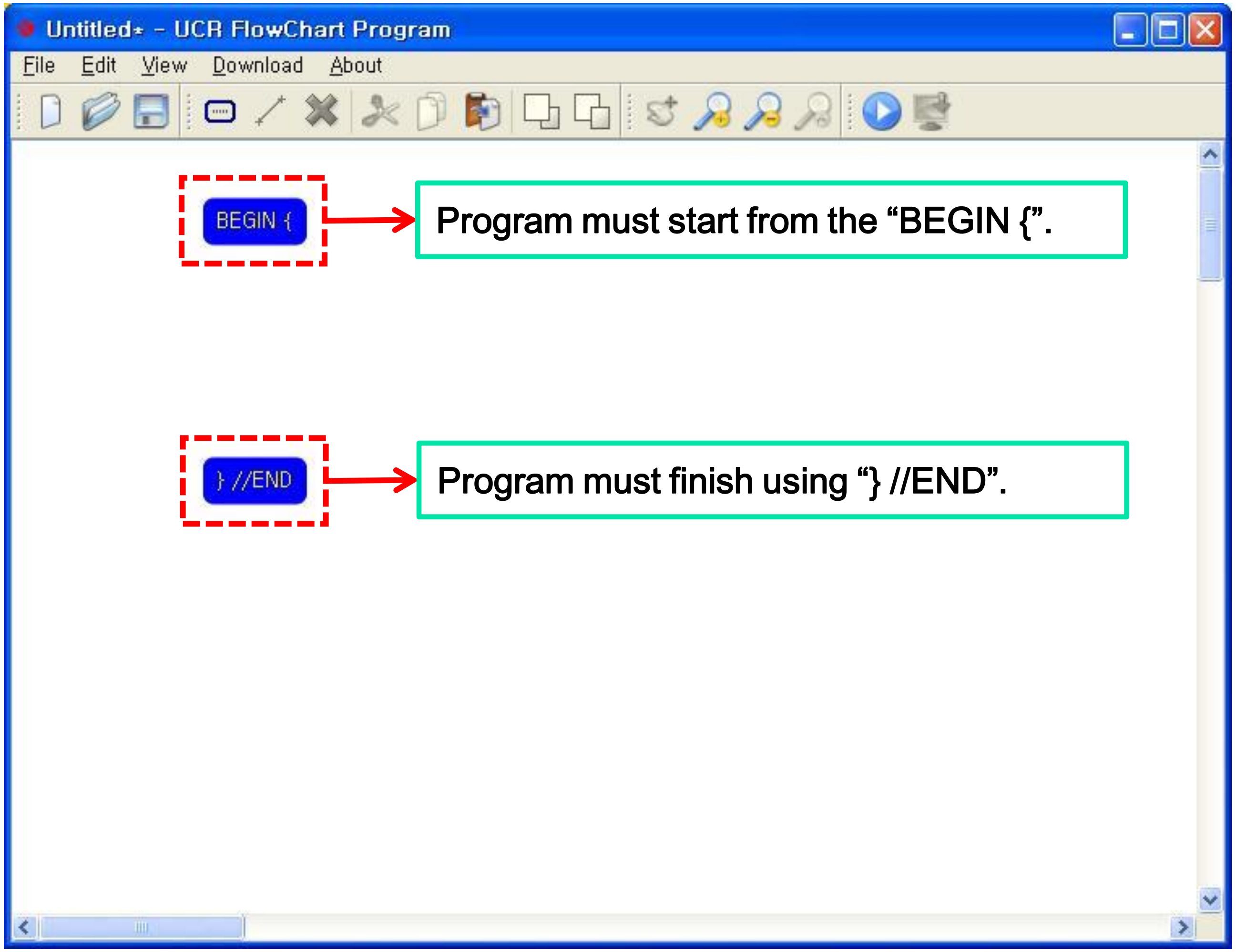
② Select
: PROGRAM END

※ Program must have begin and end point.

3. Define Node's function

MICROSOFT's
Windows XP

(3-1-ex) Begin & End point of program : "BEGIN {" & "} //END"

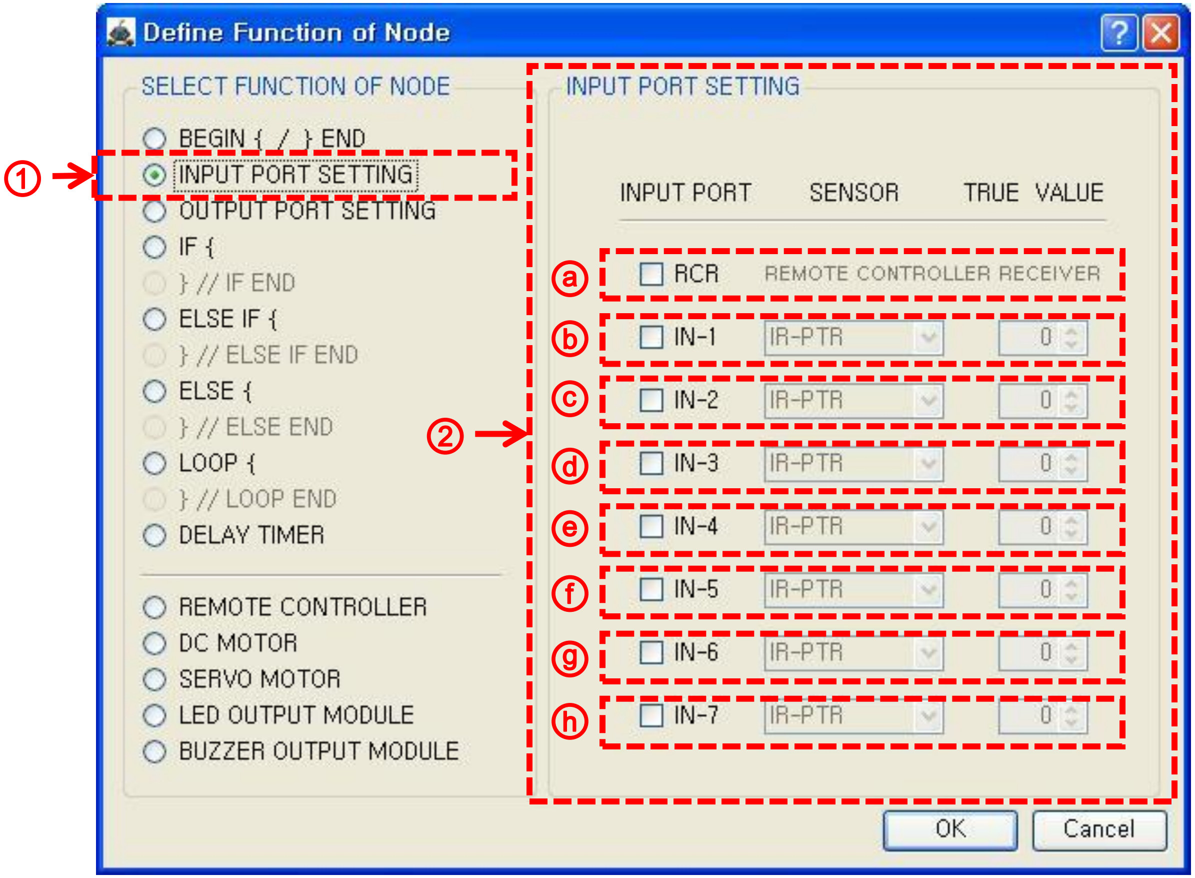


Program must start from the "BEGIN {".

Program must finish using "} //END".

3. Define Node's function

(3-2-1) Definition the Input of robot : "{INPUT PORT SETTING}"



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ● INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

INPUT PORT SETTING

	INPUT PORT	SENSOR	TRUE VALUE
ⓐ	□ RCR	REMOTE CONTROLLER RECEIVER	
ⓑ	□ IN-1	IR-PTR	0
ⓒ	□ IN-2	IR-PTR	0
ⓓ	□ IN-3	IR-PTR	0
ⓔ	□ IN-4	IR-PTR	0
ⓕ	□ IN-5	IR-PTR	0
ⓖ	□ IN-6	IR-PTR	0
ⓗ	□ IN-7	IR-PTR	0

[Define the Input]

① Select the "Node Functions…"
: INPUT PORT SETTING

② Define the Input

ⓐ RCR : Remote Controller
ⓑ IN-1 : IN1 Input
ⓒ IN-2 : IN2 Input
ⓓ IN-3 : IN3 Input
ⓔ IN-4 : IN4 Input
ⓕ IN-5 : IN5 Input
ⓖ IN-6 : IN6 Input
ⓗ IN-7 : IN7 Input

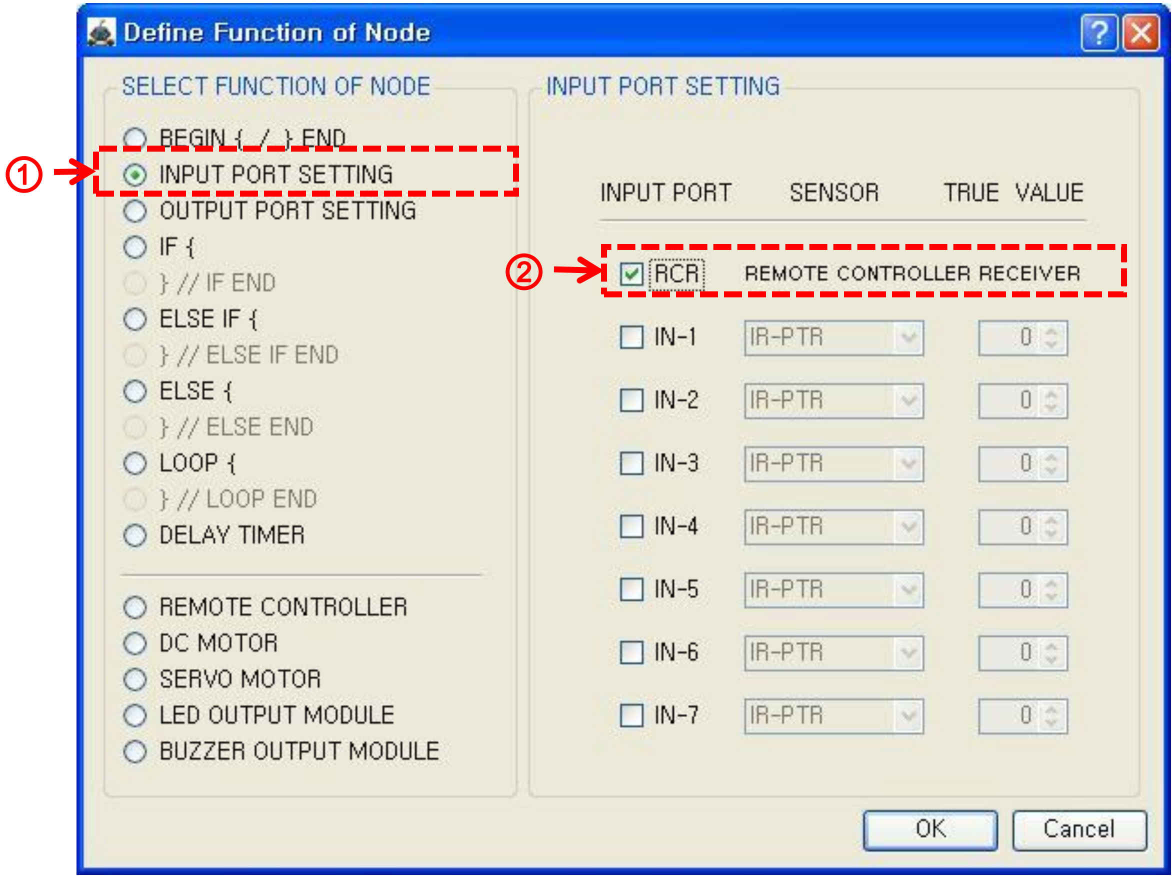
※ Program must have the "Input Port Setting".

※ Input definition must be same to real input condition of robot. If not, it will maybe wrong operations.

3. Define Node's function

MICROSOFT's
Windows XP

(3-2-2) "{INPUT PORT SETTING}"- REMOTE CONTROLLER



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
① ● INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

INPUT PORT SETTING

INPUT PORT	SENSOR	TRUE VALUE
② ☑ RCR	REMOTE CONTROLLER RECEIVER	
☐ IN-1	IR-PTR	0
☐ IN-2	IR-PTR	0
☐ IN-3	IR-PTR	0
☐ IN-4	IR-PTR	0
☐ IN-5	IR-PTR	0
☐ IN-6	IR-PTR	0
☐ IN-7	IR-PTR	0

[Remote Controller]

① INPUT PORT SETTING

② RCR

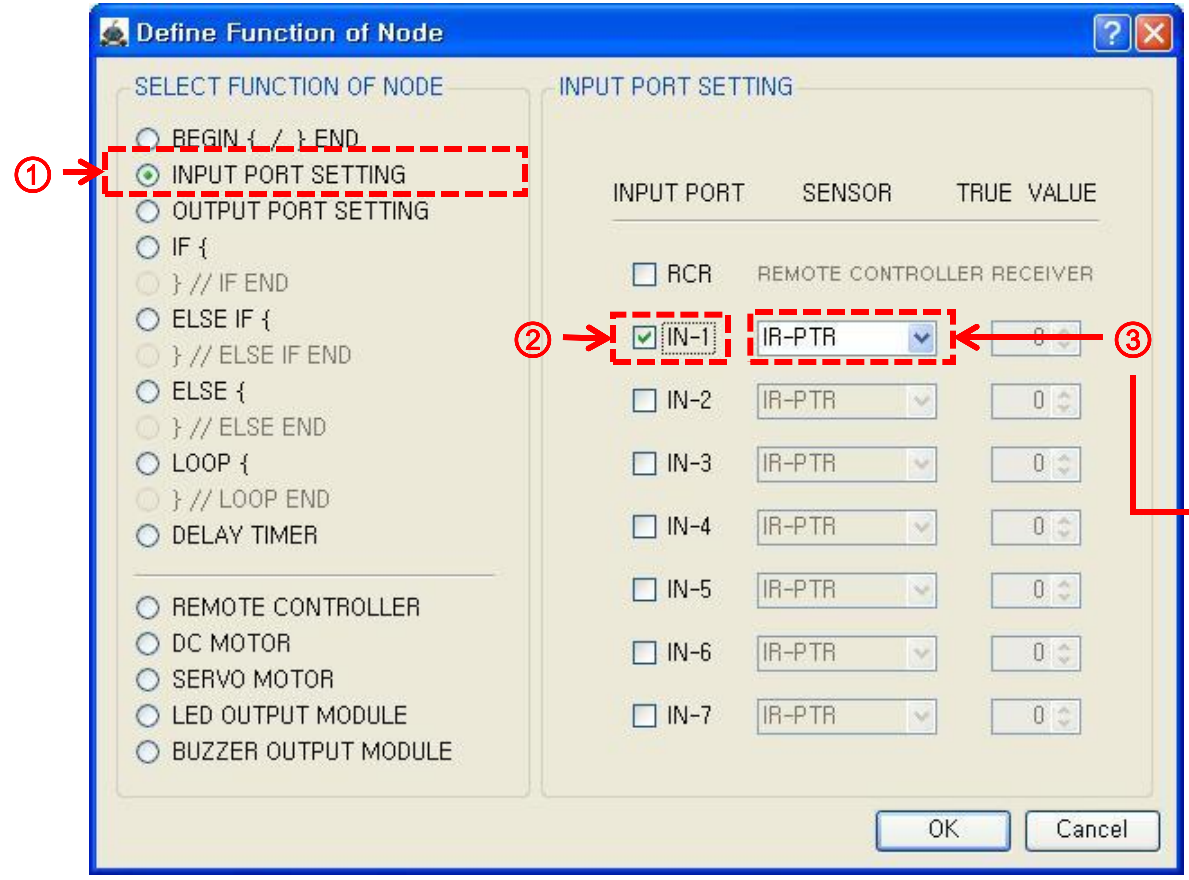
※ RCR can not be selected
together other inputs.

※ Remote Signal Receiver must be connected to RCR input port of main controller.

3. Define Node's function

MICROSOFT's
Windows XP

(3-2-3) "{INPUT PORT SETTING}"- IN1 ~ IN7



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ● INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

INPUT PORT SETTING

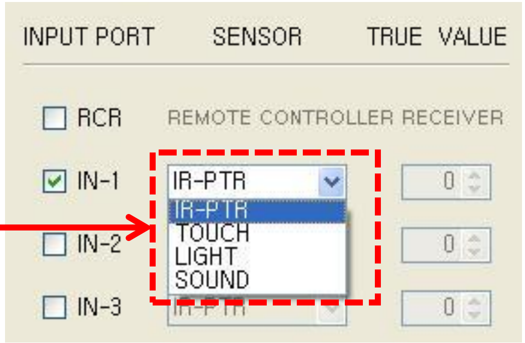
INPUT PORT	SENSOR	TRUE VALUE
□ RCR	REMOTE CONTROLLER RECEIVER	
☑ IN-1	IR-PTR	0
□ IN-2	IR-PTR	0
□ IN-3	IR-PTR	0
□ IN-4	IR-PTR	0
□ IN-5	IR-PTR	0
□ IN-6	IR-PTR	0
□ IN-7	IR-PTR	0

[IN1 ~ IN7 sensor]

① INPUT PORT SETTING

② IN-1 ~ IN-7

③ Define the kinds of sensor



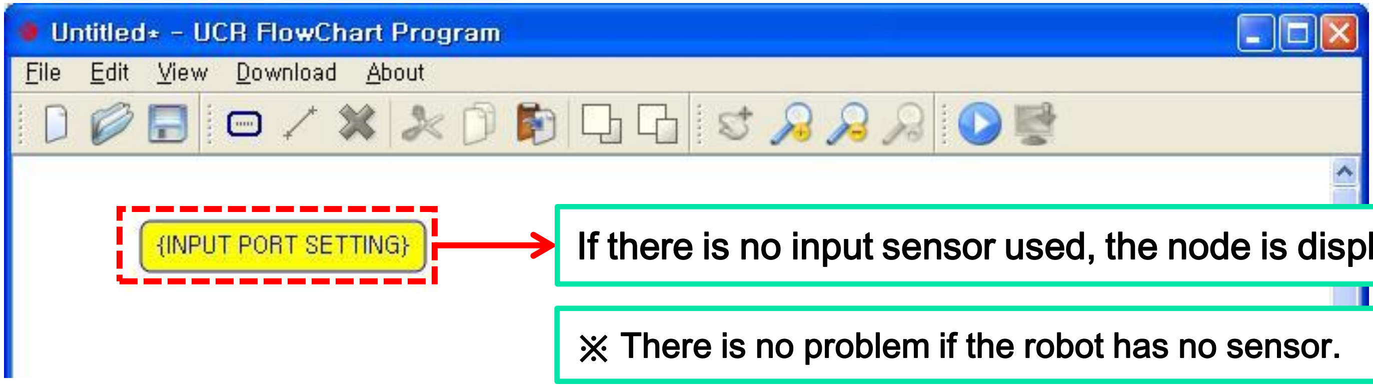
INPUT PORT	SENSOR	TRUE VALUE
□ RCR	REMOTE CONTROLLER RECEIVER	
☑ IN-1	IR-PTR	0
□ IN-2		0
□ IN-3	IR-PTR	0

※ If no definition of sensor, you can not define the conditions in IF, ELSE IF.

※ If the port is checked at ②, the combo box of sensor kinds is enabled.

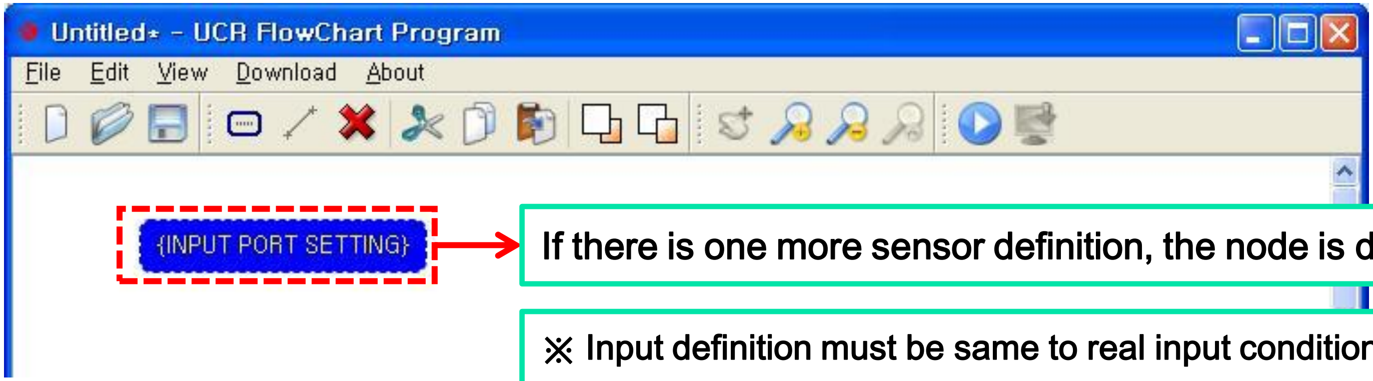
3. Define Node's function

(3-2-ex) "{INPUT PORT SETTING}"


Untitled* - UCR FlowChart Program
File Edit View Download About
{INPUT PORT SETTING}

If there is no input sensor used, the node is displayed yellow color.

※ There is no problem if the robot has no sensor.

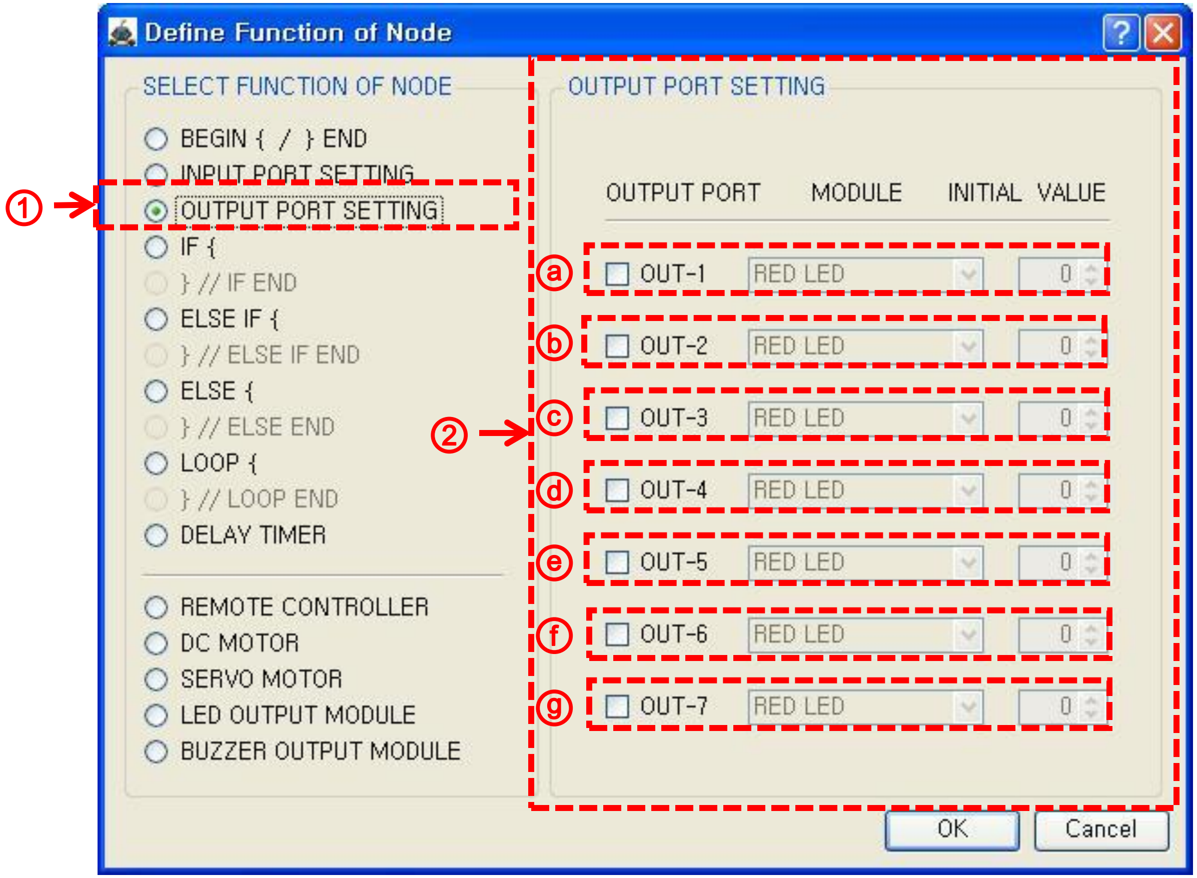

Untitled* - UCR FlowChart Program
File Edit View Download About
{INPUT PORT SETTING}

If there is one more sensor definition, the node is displayed blue color.

※ Input definition must be same to real input condition of robot.
If not, it will maybe wrong operations.

3. Define Node's function

(3-3-1) Definition the Output of robot : "{OUTPUT PORT SETTING}"



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ● OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

OUTPUT PORT SETTING

OUTPUT PORT	MODULE	INITIAL VALUE
□ OUT-1	RED LED	0
□ OUT-2	RED LED	0
□ OUT-3	RED LED	0
□ OUT-4	RED LED	0
□ OUT-5	RED LED	0
□ OUT-6	RED LED	0
□ OUT-7	RED LED	0

OK　Cancel

[Define the Output]

① Select the "Node Functions…"
: OUTPUT PORT SETTING

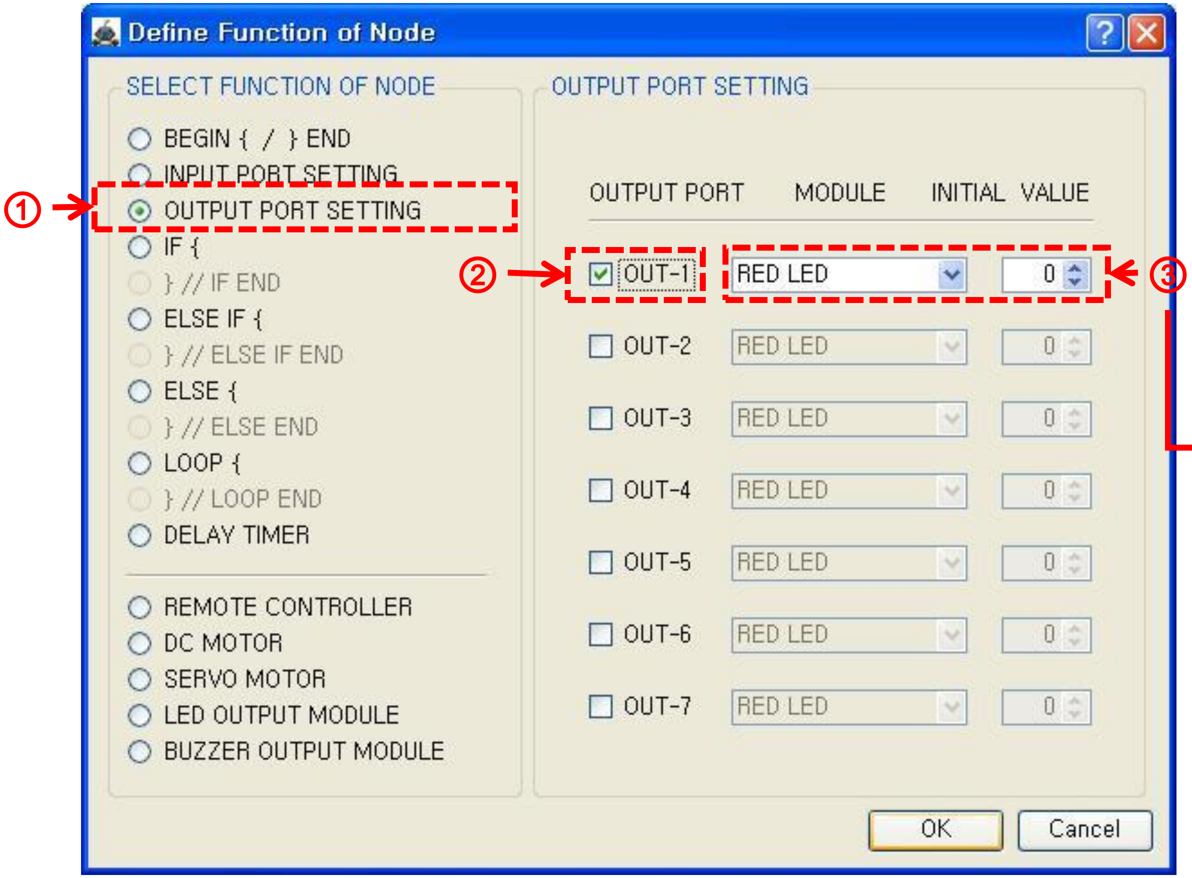
② Define the output
- ⓐ OUT-1 : OUT1 Output
- ⓑ OUT-2 : OUT2 Output
- ⓒ OUT-3 : OUT3 Output
- ⓓ OUT-4 : OUT4 Output
- ⓔ OUT-5 : OUT5 Output
- ⓕ OUT-6 : OUT6 Output
- ⓖ OUT-7 : OUT7 Output

※ DC motors must be connected to the DC motor connector of main controller not output port.

※ Output definition must be same to real output condition of robot. If not, it will maybe wrong operations.

3. Define Node's function

(3-3-2) "{OUTPUT PORT SETTING}"- OUT1 ~ OUT7



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ● OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

OUTPUT PORT SETTING

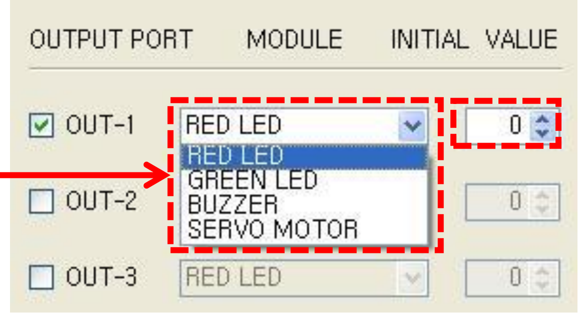
OUTPUT PORT	MODULE	INITIAL VALUE
☑ OUT-1	RED LED	0
□ OUT-2	RED LED	0
□ OUT-3	RED LED	0
□ OUT-4	RED LED	0
□ OUT-5	RED LED	0
□ OUT-6	RED LED	0
□ OUT-7	RED LED	0

[OUT1 ~ OUT7 Output]

① OUTPUT PORT SETTING

② OUT1 ~ OUT7

③ Define the kinds of Output



OUTPUT PORT	MODULE	INITIAL VALUE
☑ OUT-1	RED LED	0
□ OUT-2		0
□ OUT-3	RED LED	0

[Initial value]

① LED : 0 or 1

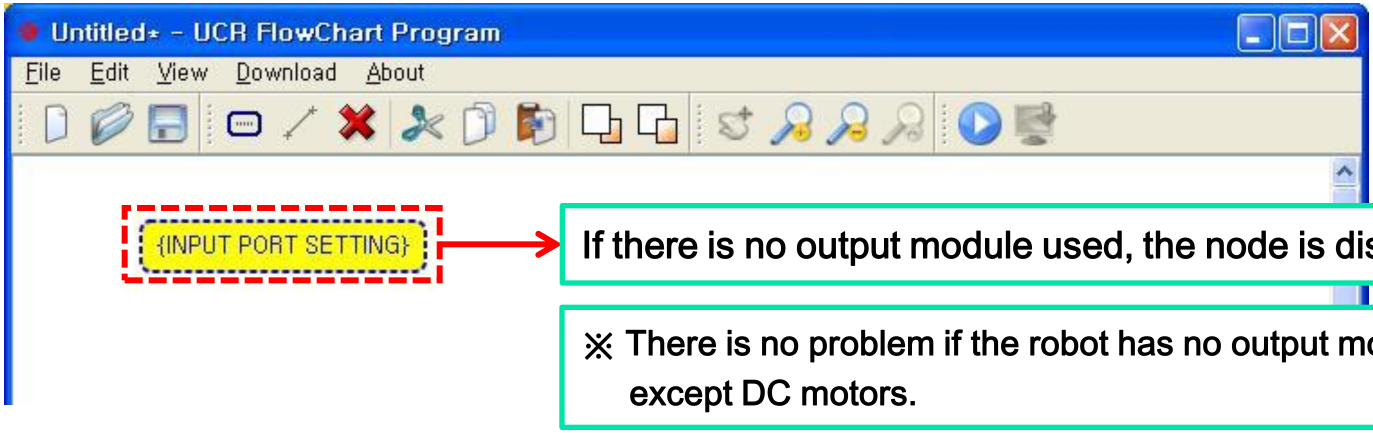
② BUZZER : 0 or 1

③ SERVO MOTOR : 0 ~ 180

※ Initial value of LED and BUZZER is the same as 1, if the value is more than 1.

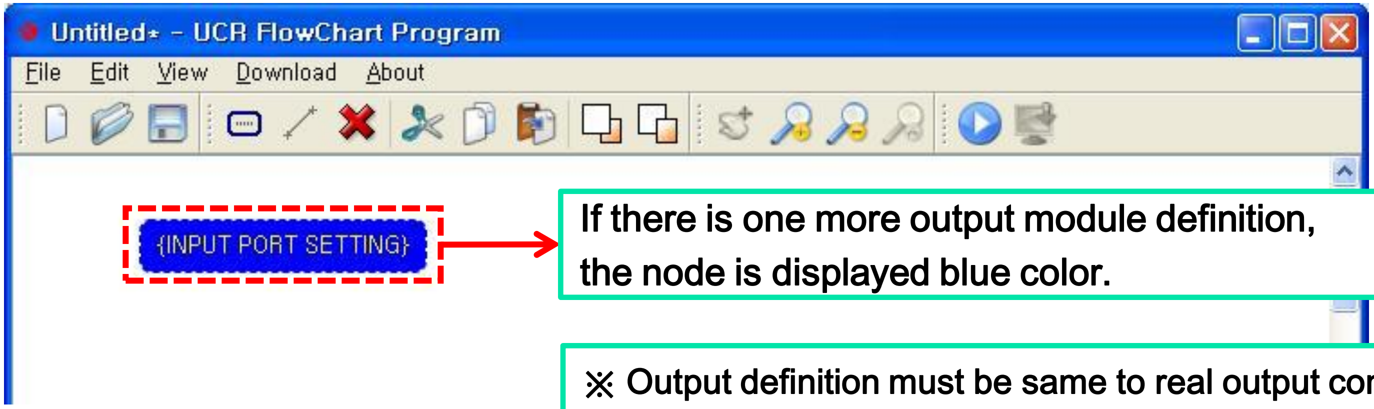
3. Define Node’s function

(3-3-ex) “{OUTPUT PORT SETTING}”



If there is no output module used, the node is displayed yellow color.

※ There is no problem if the robot has no output module except DC motors.



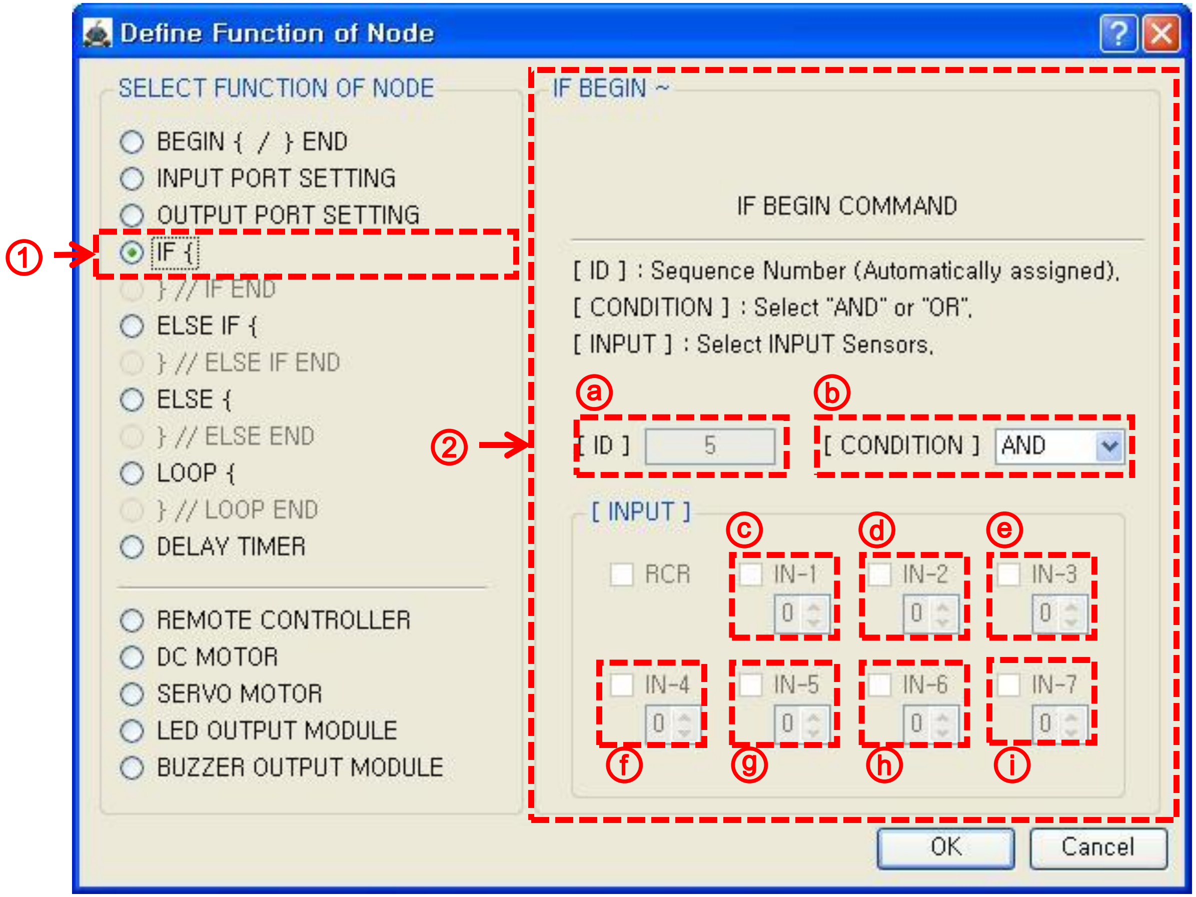
If there is one more output module definition, the node is displayed blue color.

※ Output definition must be same to real output condition of robot. If not, it will maybe wrong operations.

3. Define Node's function

MICROSOFT's Windows XP

(3-4-1) Definition the begin point of IF condition : "IF {"



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
● IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

IF BEGIN ~

IF BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned).
[CONDITION] : Select "AND" or "OR".
[INPUT] : Select INPUT Sensors.

[ID] 5 [CONDITION] AND

[INPUT]

□ RCR □ IN-1 0 □ IN-2 0 □ IN-3 0
□ IN-4 0 □ IN-5 0 □ IN-6 0 □ IN-7 0

OK Cancel

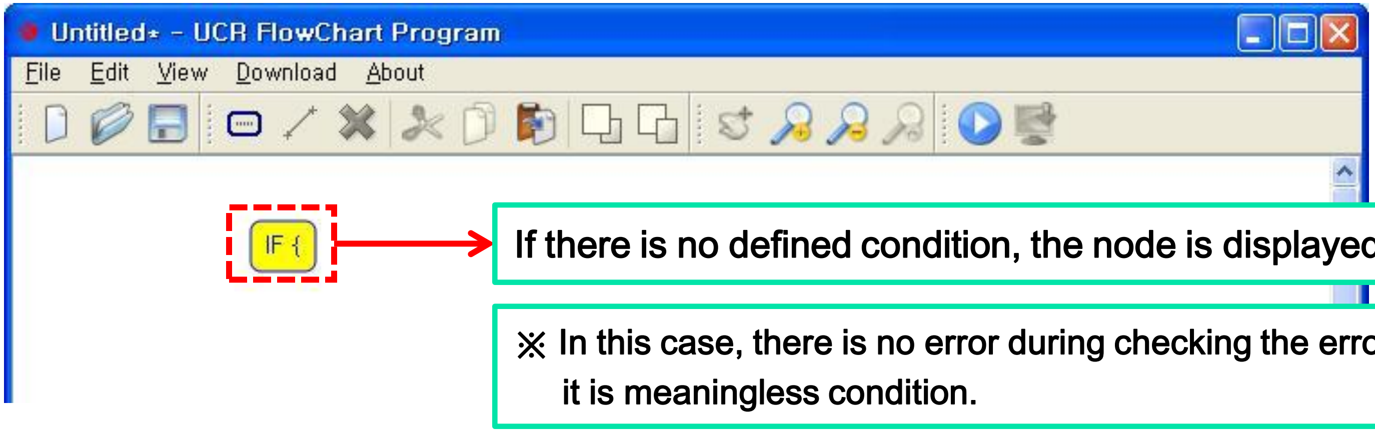
[IF condition]

① Select the "Node Functions…"
 : IF {
② Define the input condition
 ⓐ ID : sequence number
 (automatically assigned)
 ⓑ CONDITION : AND/OR
 ⓒ IN-1 : IN1 input condition
 ⓓ IN-2 : IN2 input condition
 ⓔ IN-3 : IN3 input condition
 ⓕ IN-4 : IN4 input condition
 ⓖ IN-5 : IN5 input condition
 ⓗ IN-6 : IN6 input condition
 ⓘ IN-7 : IN7 input condition

※ The only inputs which were defined at "{INPUT PORT SETTING}" are enabled .

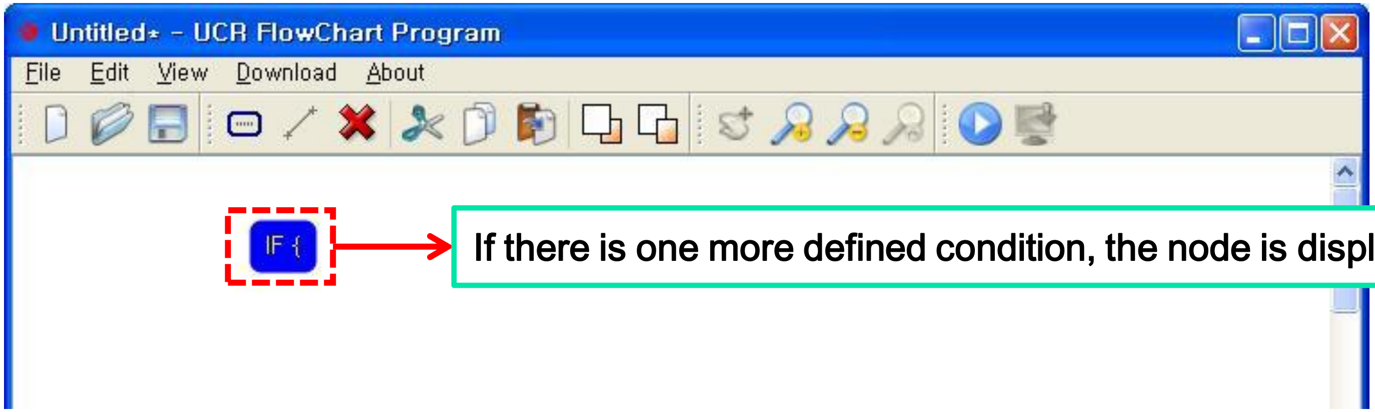
3. Define Node's function

(3-4-ex1) "IF {"


Untitled* - UCR FlowChart Program
File Edit View Download About
IF {

If there is no defined condition, the node is displayed yellow color.

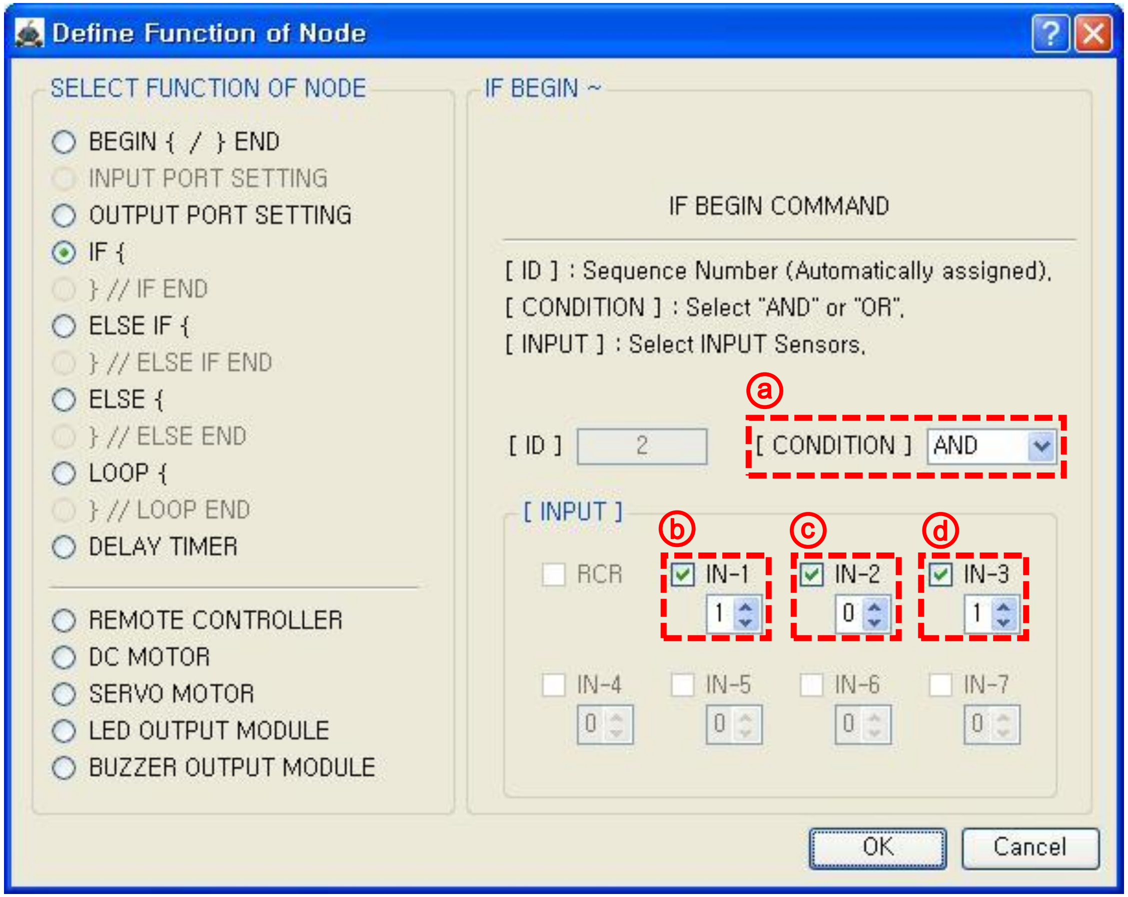
※ In this case, there is no error during checking the error,
it is meaningless condition.


Untitled* - UCR FlowChart Program
File Edit View Download About
IF {

If there is one more defined condition, the node is displayed blue color.

3. Define Node's function

(3-4-ex2) "IF {"



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ● IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

IF BEGIN ~

IF BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned).
[CONDITION] : Select "AND" or "OR".
[INPUT] : Select INPUT Sensors.

[ID] 2

ⓐ [CONDITION] AND

[INPUT]

□ RCR

ⓑ ☑ IN-1 1

ⓒ ☑ IN-2 0

ⓓ ☑ IN-3 1

□ IN-4 0

□ IN-5 0

□ IN-6 0

□ IN-7 0

[Description]

-. Line tracing robot

-. Input : 3 IR sensors are connected to IN-1, IN-2, IN-3.

-. Condition define : only IR sensor of IN-2 detect the black line.

[Define the IF condition]

ⓑ Check IN-1 for use
: Input value is 1 (white)

ⓒ Check IN-2 for use
: Input value is 0 (black)

ⓓ Check IN-3 for use
: Input value is 1 (white)

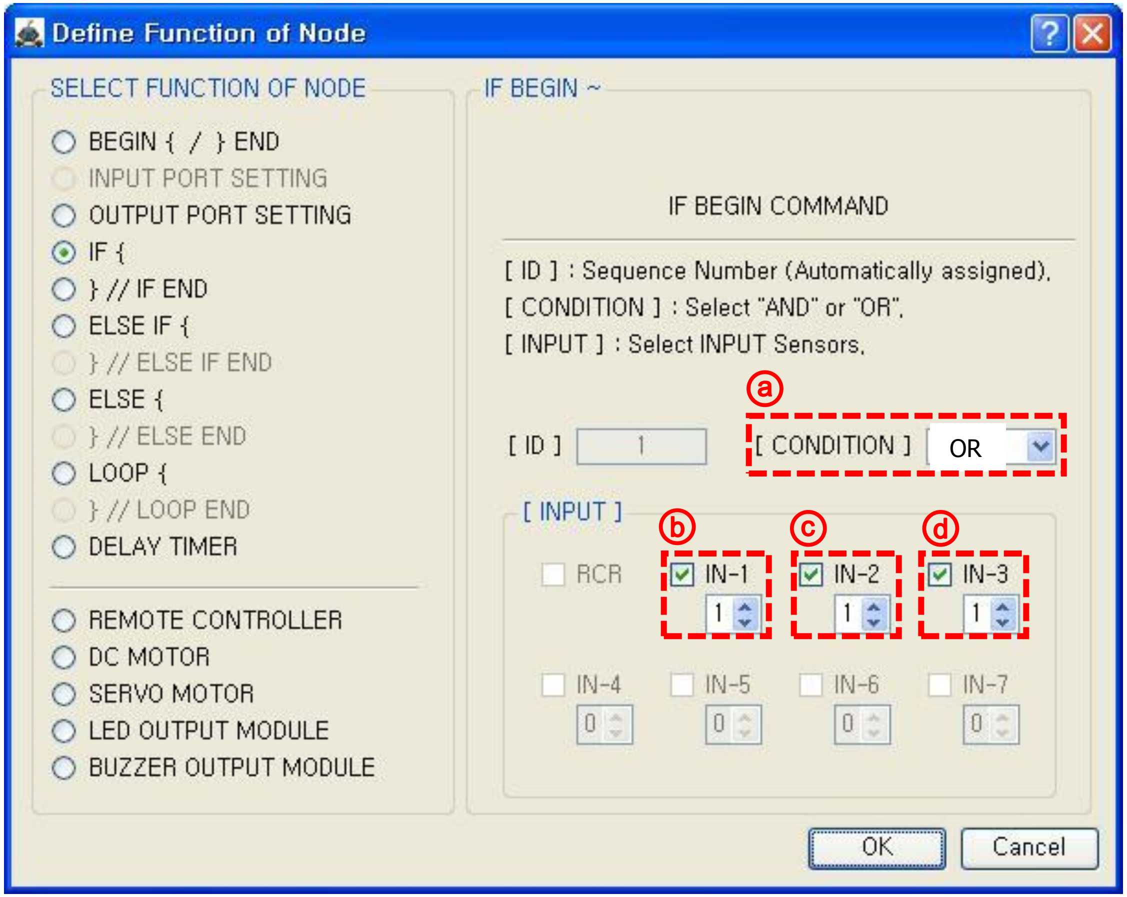
ⓐ Select "AND" condition
: All above 3 conditions are satisfied concurrently.

※ The input value of IR sensor is 1 when it detects the white color. (White color mirrors the Infrared rays).

3. Define Node's function

MICROSOFT's
Windows XP

(3-4-ex3) "IF {"



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ● IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

IF BEGIN ~

IF BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned).
[CONDITION] : Select "AND" or "OR".
[INPUT] : Select INPUT Sensors.

[ID] 1

ⓐ [CONDITION] OR

[INPUT]

□ RCR	ⓑ ☑ IN-1 1	ⓒ ☑ IN-2 1	ⓓ ☑ IN-3 1
□ IN-4 0	□ IN-5 0	□ IN-6 0	□ IN-7 0

[Description]

-. Obstacle avoiding robot

-. Input : 3 IR sensors are connected to IN-1, IN-2, IN-3.

-. Condition define : more than one of 3 IR sensor detect the obstacle

[Define the IF condition]

ⓑ Check IN-1 for use
: Input value is 1 (obstacle)

ⓒ Check IN-1 for use
: Input value is 1 (obstacle)

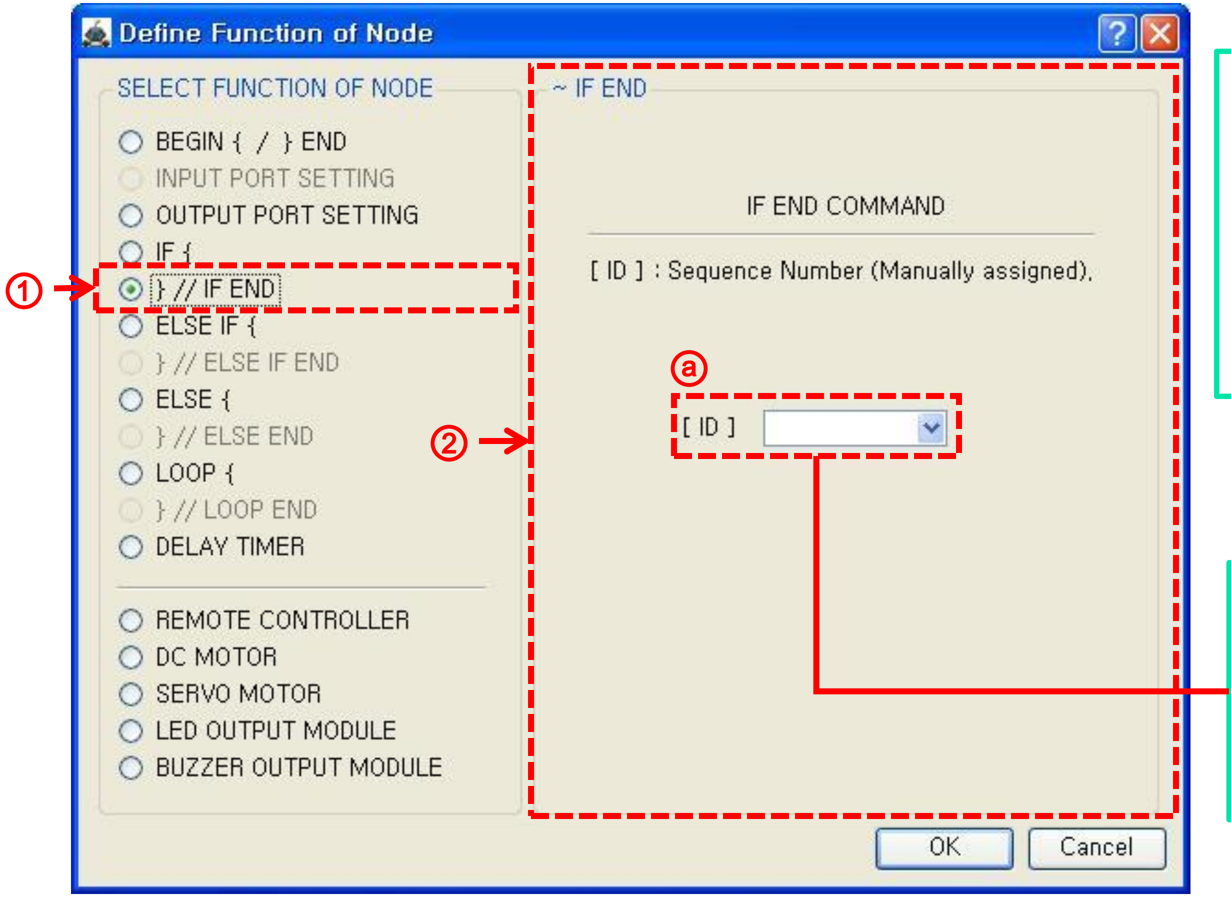
ⓓ Check IN-1 for use
: Input value is 1 (obstacle)

ⓐ Select "OR" condition
: more than one of 3 IR sensor are satisfied

※ The input value of IR sensor is 1 when it detects obstacle.
(Dark obstacle is not detected because it does not reflect the Infrared rays).

3. Define Node’s function

(3-5-1) Definition the end point of IF condition : “} // IF END”



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
● } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

~ IF END

IF END COMMAND

[ID] : Sequence Number (Manually assigned).

[ID]

[IF END condition]

① Select the “Node Functions…”
: } // IF END

② Define the ID of “IF {”

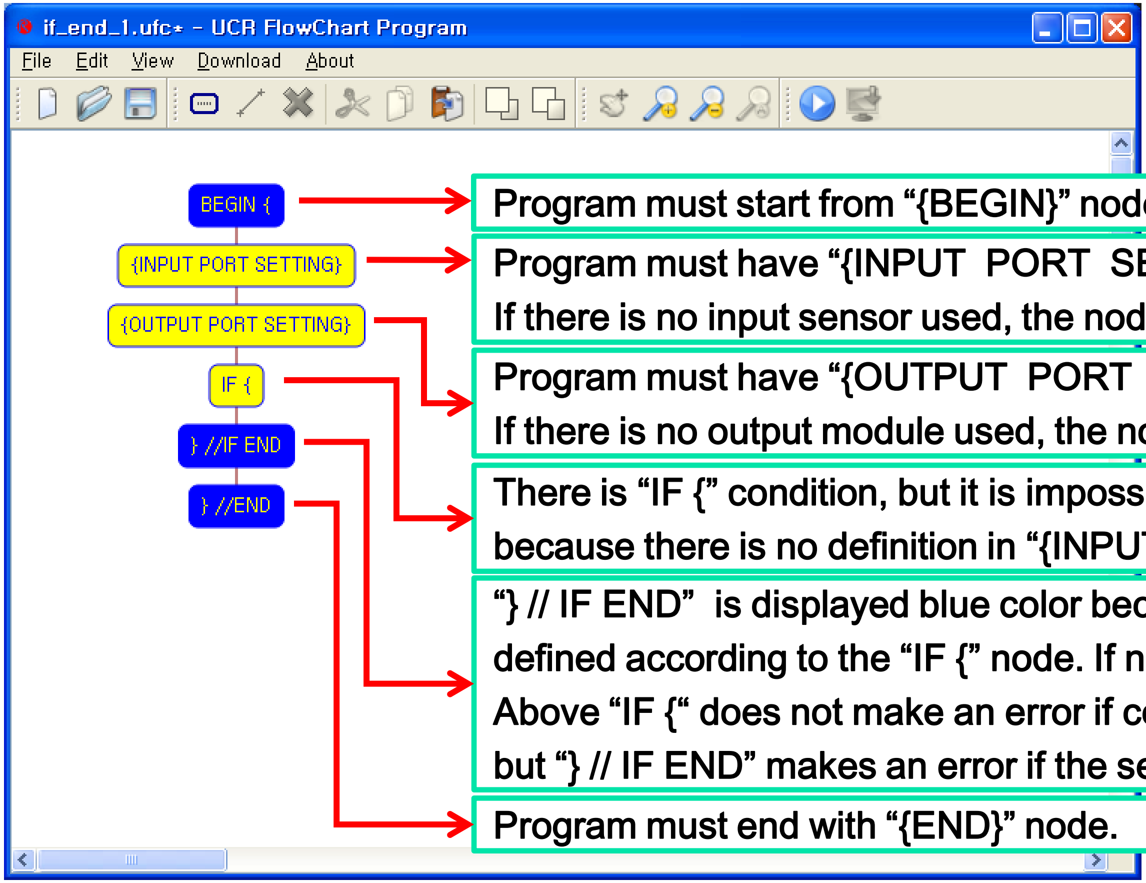
ⓐ ID : Sequence number of
paired “IF condition”

→ It contains automatically
all the sequence numbers of
“IF {“.
Select one matched.

※ You must select the corresponding sequence number of “IF {” in “} // IF END”.

3. Define Node's function

(3-5-ex1) " IF { " & " } // IF END "



Program must start from "{BEGIN}" node.

Program must have "{INPUT PORT SETTING}" node.
If there is no input sensor used, the node is displayed yellow color.

Program must have "{OUTPUT PORT SETTING}" node.
If there is no output module used, the node is displayed yellow color.

There is "IF {" condition, but it is impossible to define the condition because there is no definition in "{INPUT PORT SETTING}" node.

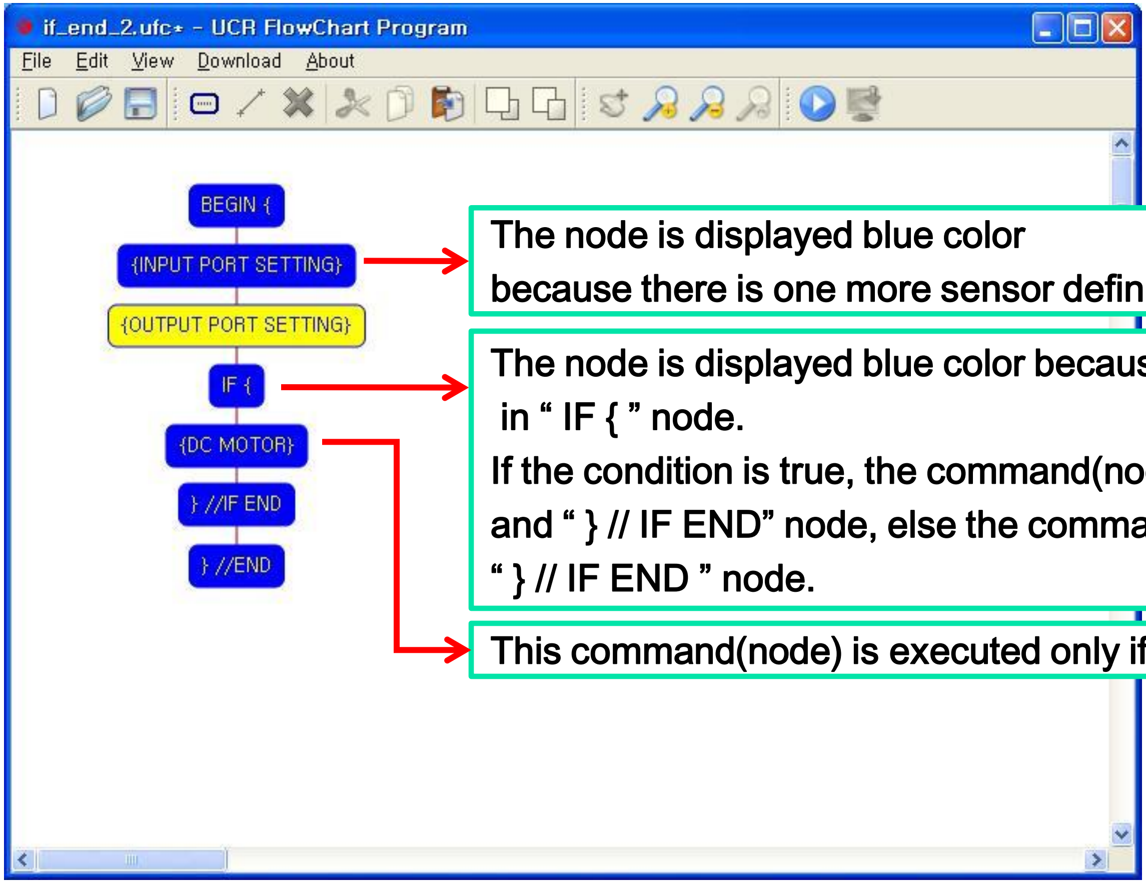
"} // IF END" is displayed blue color because the sequence number is defined according to the "IF {" node. If not it is displayed yellow color.
Above "IF {" does not make an error if condition is not defined,
but "} // IF END" makes an error if the sequence number is not defined.

Program must end with "{END}" node.

※ Above program is useless because the robot does not operating.
But there is no error because all nodes are defined properly.

3. Define Node's function

(3-5-ex2) " IF { " & " } // IF END "



The node is displayed blue color
because there is one more sensor definition.

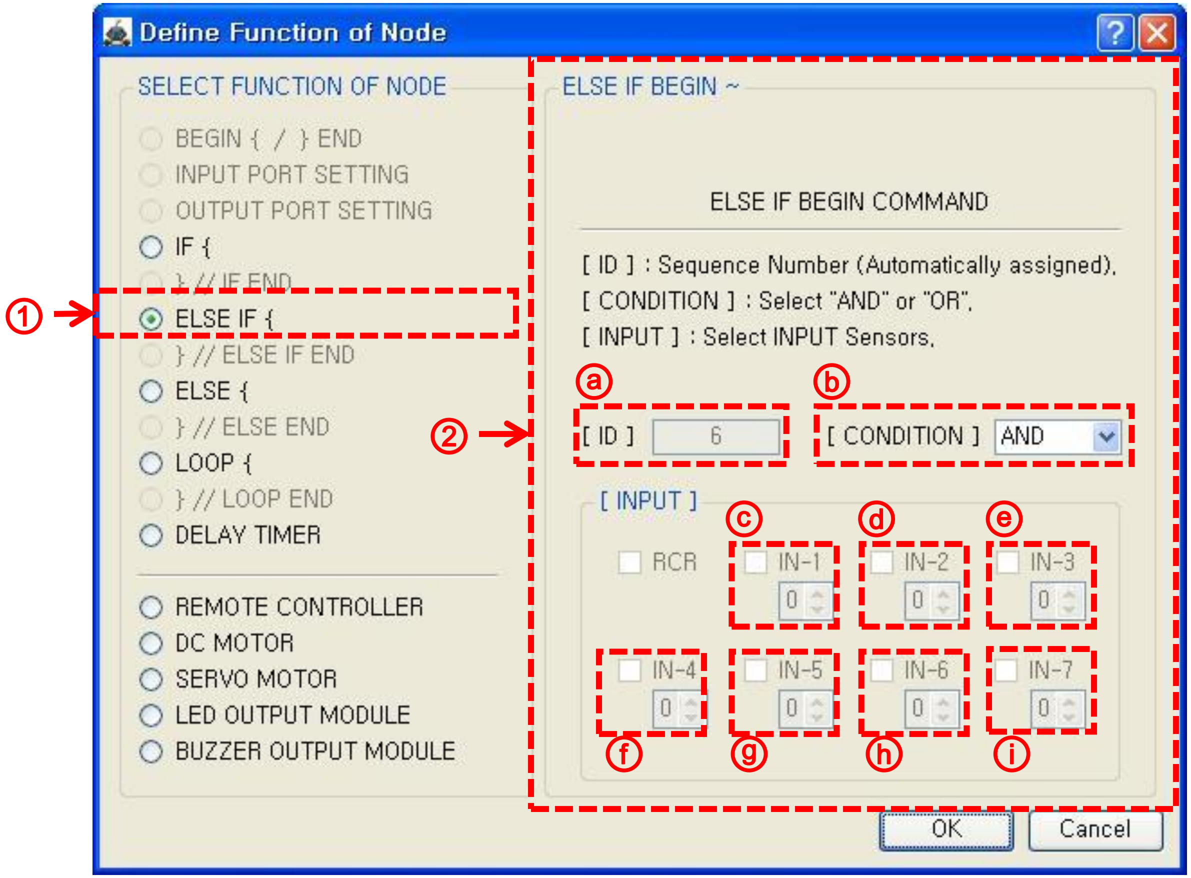
The node is displayed blue color because there is defined condition
in " IF { " node.
If the condition is true, the command(node) is executed between " IF { "
and " } // IF END" node, else the command(node) is executed after
" } // IF END " node.

This command(node) is executed only if the condition of "IF { " is true.

※ DC motor is running or not according to the condition of " IF { " in above program.

3. Define Node’s function

(3-6-1) Definition the begin point of ELSE IF condition : “ELSE IF {”



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ● ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

ELSE IF BEGIN ~

ELSE IF BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned).
[CONDITION] : Select "AND" or "OR".
[INPUT] : Select INPUT Sensors.

[ID] 6

[CONDITION] AND

[INPUT]

□ RCR
□ IN-1 0
□ IN-2 0
□ IN-3 0
□ IN-4 0
□ IN-5 0
□ IN-6 0
□ IN-7 0

[ELSE IF condition]

→ same as [IF condition]

If(condition1) {command1;}
else if(condition2) {command2;}

→ if [condition1] is true
[command1] is executed,

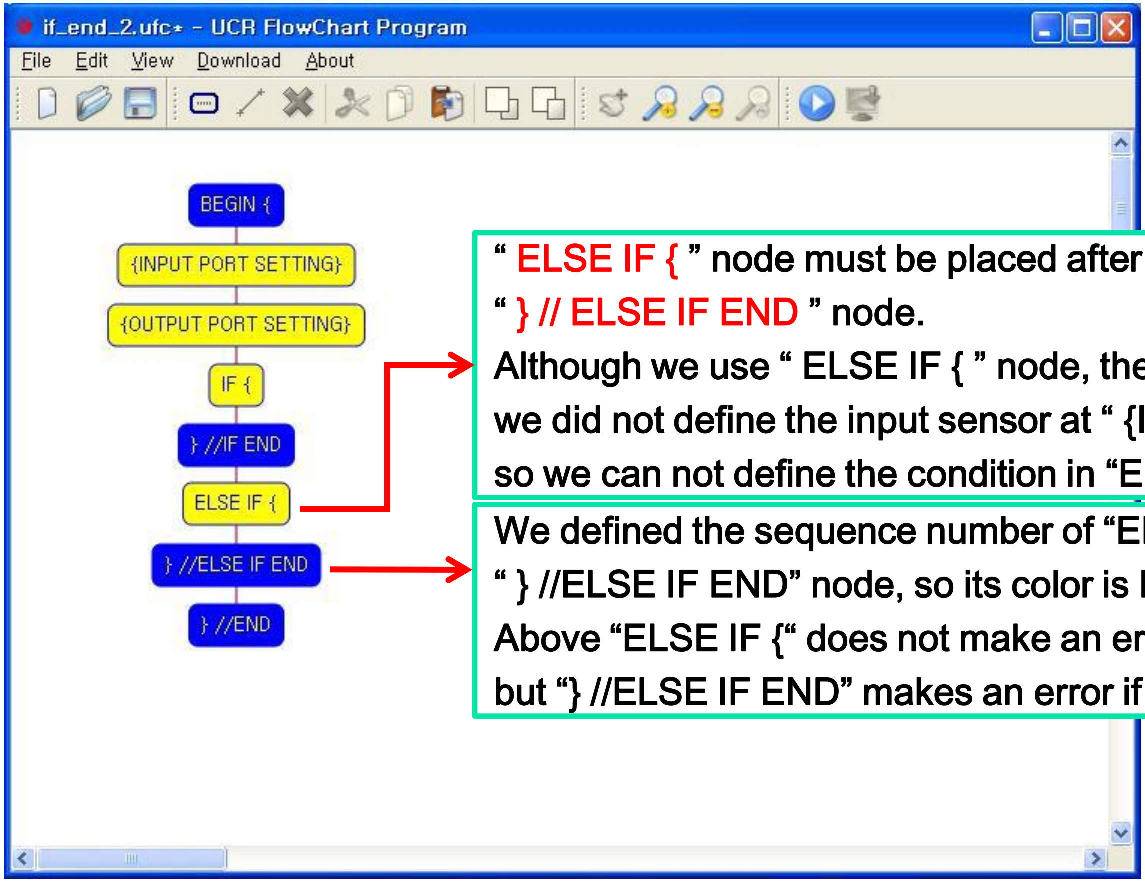
if [condition1] is false and
[condition2] is true
[command2] is executed.

if [condition1] and [condition2]
are false, both [command1] and
[command2] are not executed.

※ ELSE IF cannot be used individually, it must be following the IF condition.

3. Define Node's function

(3-6-ex1) "ELSE IF {"



" ELSE IF { " node must be placed after " } // IF END " or " } // ELSE IF END " node.
Although we use " ELSE IF { " node, the node color is yellow because we did not define the input sensor at " {INPUT PORT SETTING} " so we can not define the condition in "ELSE IF {" node.

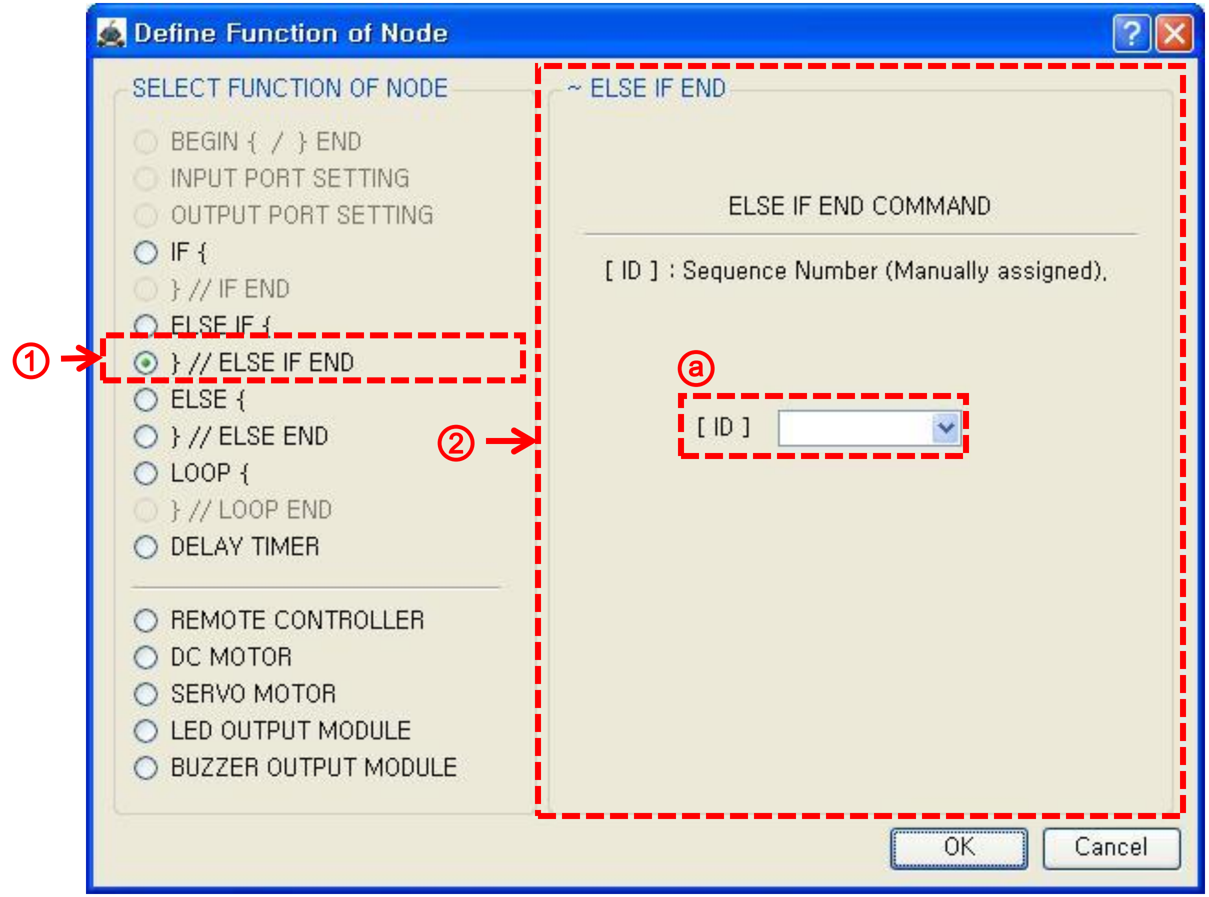
We defined the sequence number of "ELSE IF { " node at " } //ELSE IF END" node, so its color is blue.
Above "ELSE IF {" does not make an error if condition is not defined, but "} //ELSE IF END" makes an error if the sequence number is not defined.

※ Above program is useless because the robot does not operating.
But there is no error because all nodes are defined properly.

3. Define Node's function

MICROSOFT's
Windows XP

(3-7-1) Definition the end point of ELSE IF condition : "} // ELSE IF"


Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
① → ● } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER
○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

② → ~ ELSE IF END

ELSE IF END COMMAND

[ID] : Sequence Number (Manually assigned).

ⓐ [ID]

["} //ELSE IF" condition]

→ same as ["} // IF" condition]

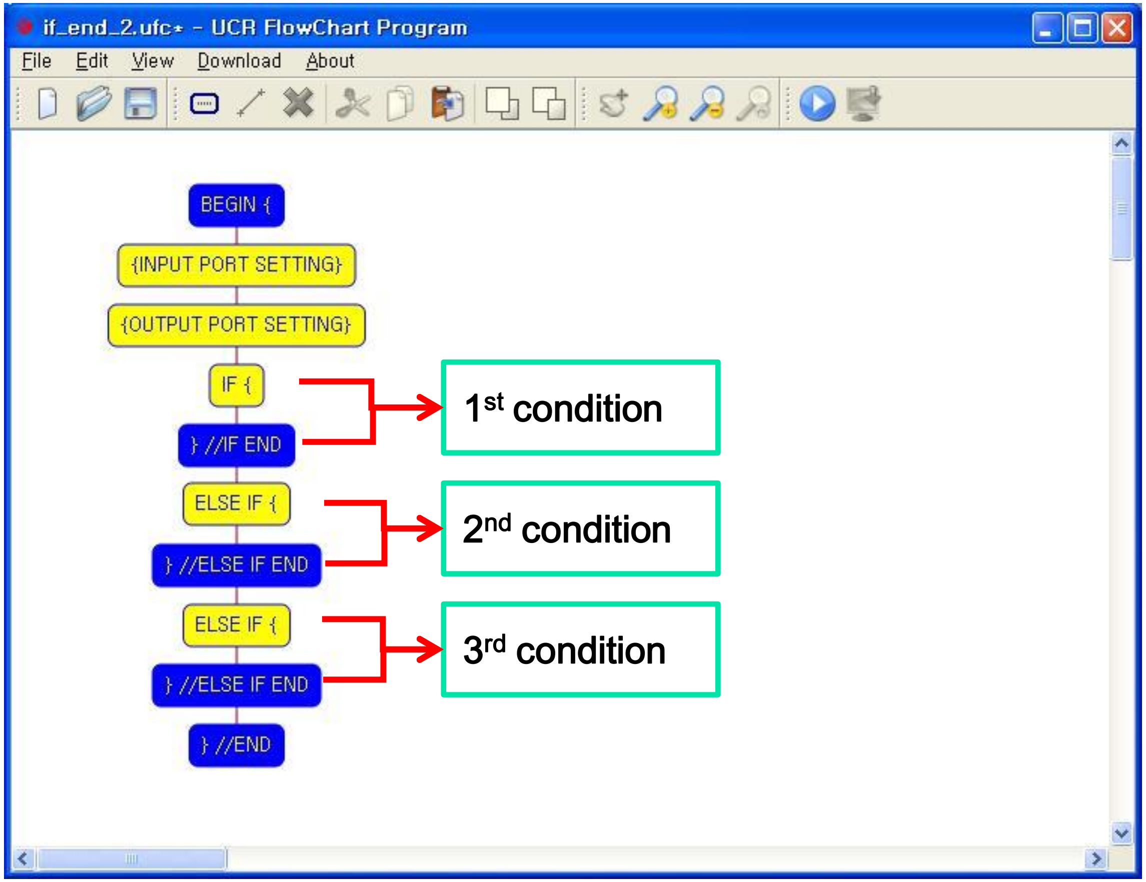
If(condition1) {command1;}
else if (condition2) {command2;}
else if (condition3) {command3;}
…

→ If you have many conditions,
you can check all conditions
using "else if" as above.

※ You must select the corresponding sequence number of "ELSE IF {" in "} //ELSE IF END".

3. Define Node's function

(3-7-ex1) "} // ELSE IF"



1st condition

2nd condition

3rd condition

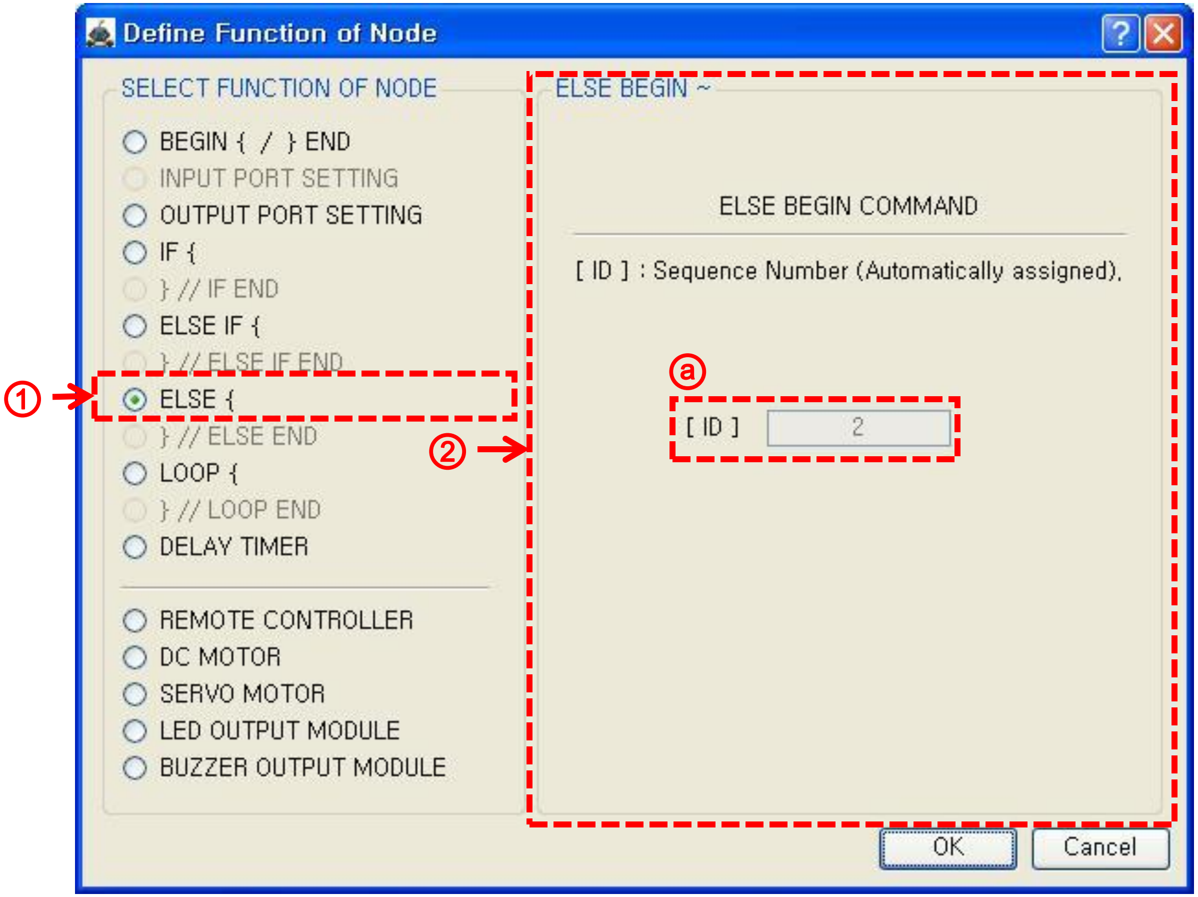
If(condition1) {command1;}
else if (condition2) {command2;}
else if (condition3) {command3;}
…

→ If you have many conditions, you can check all conditions using "else if" as above.

※ Above program is useless because the robot does not operating.
But there is no error because all nodes are defined properly.

3. Define Node's function

(3-8-1) Definition the begin point of ELSE condition : "ELSE {"



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ● ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

ELSE BEGIN ~

ELSE BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned).

[ID] 2

[ELSE condition]

① Select the "Node Functions…"
: ELSE {

② Define the function

ⓐ ID : sequence number
(automatically assigned)

If (condition1) {command1;}
else {command2; }

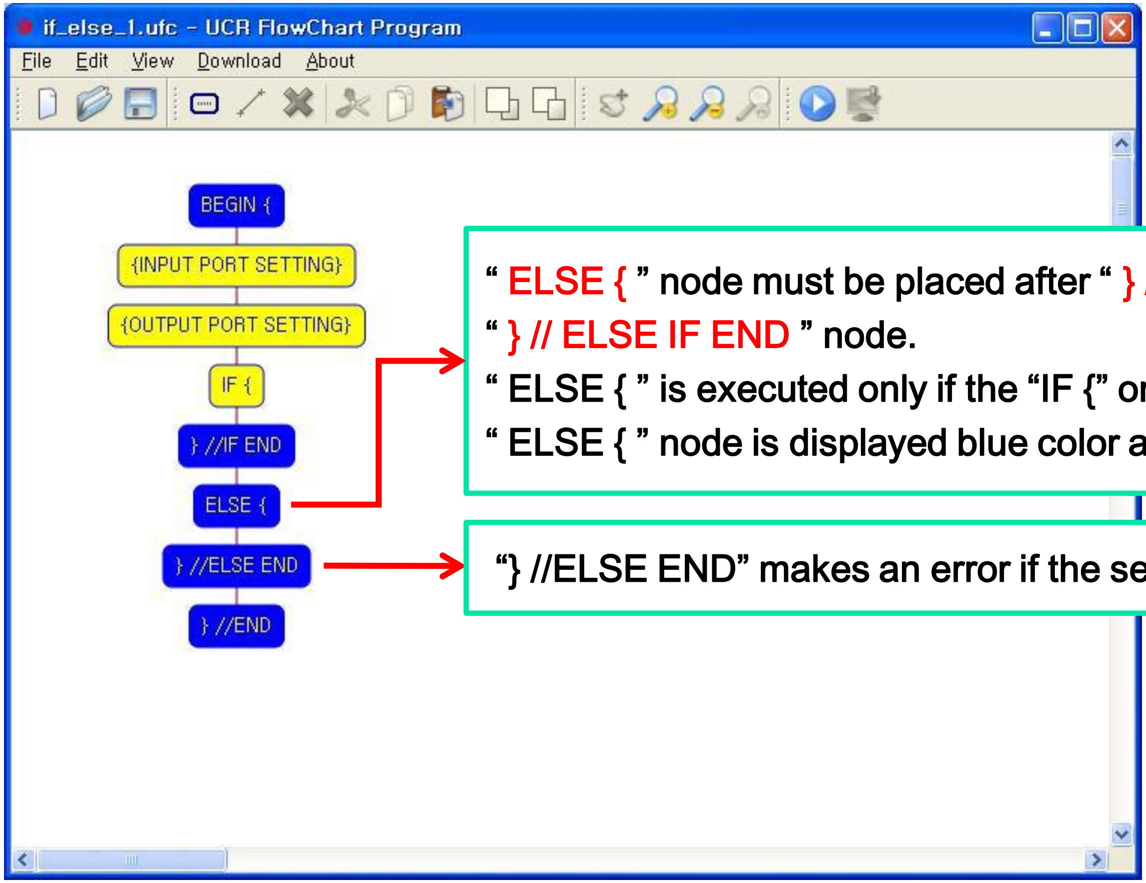
→ If [condition1] is true,
[command1] is executed,

else (if [condition1] is false),
[command2] is executed.

※ ELSE cannot be used individually, it must be following the IF or ELSE IF condition.

3. Define Node's function

(3-8-ex1) "ELSE {"



" ELSE { " node must be placed after " } // IF END " or " } // ELSE IF END " node.
" ELSE { " is executed only if the "IF {" or "ELSE IF {" is not true.
" ELSE { " node is displayed blue color always.

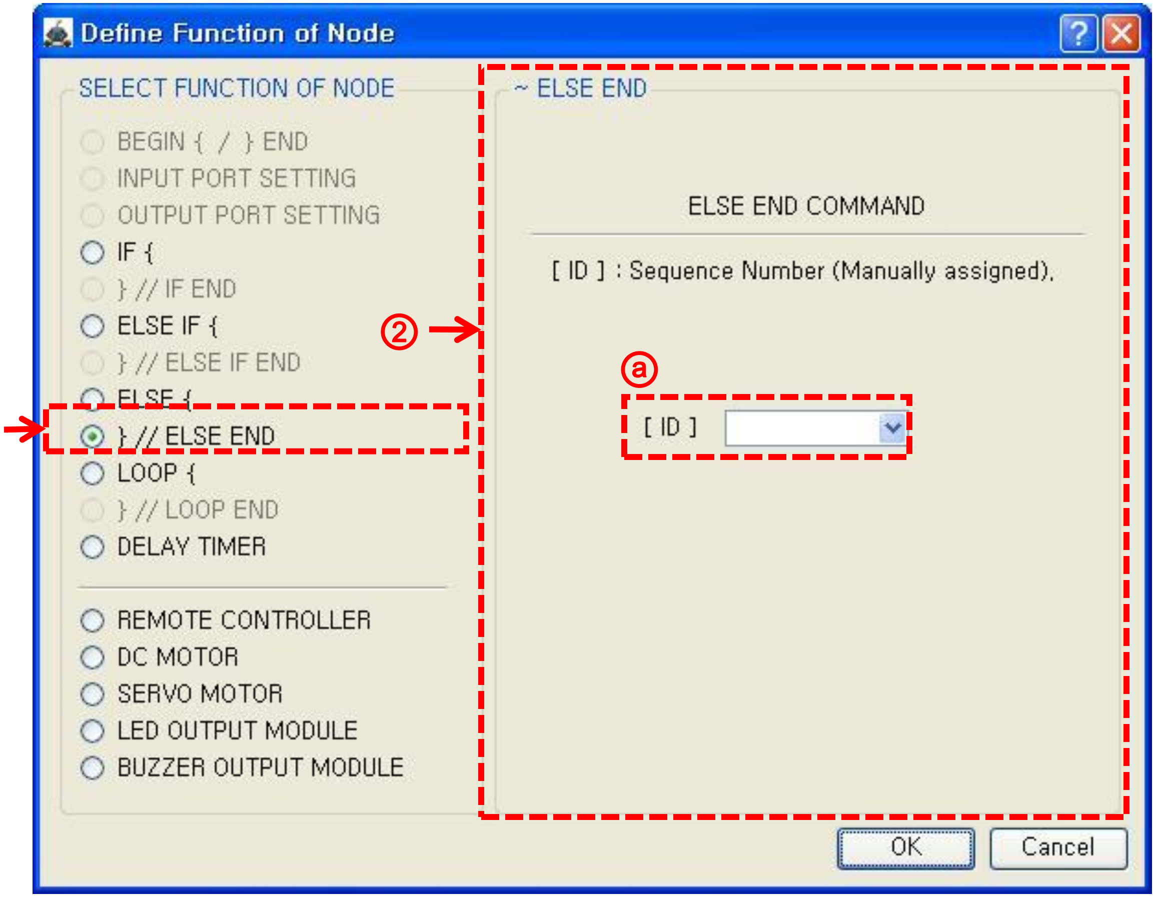
"} //ELSE END" makes an error if the sequence number is not defined.

※ ELSE cannot be used individually, it must be following the IF or ELSE IF condition.

MICROSOFT's
Windows XP

3. Define Node's function

(3-9-1) Definition the end point of ELSE condition : "} // ELSE END"



SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ● } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER

- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

~ ELSE END

ELSE END COMMAND

[ID] : Sequence Number (Manually assigned).

[ID]

["} // ELSE END" condition]

① Select the "Node Functions…"
 : } // ELSE END

② Define the ID of "ELSE {"

 ⓐ ID : Sequence number of
 paired "ELSE condition"

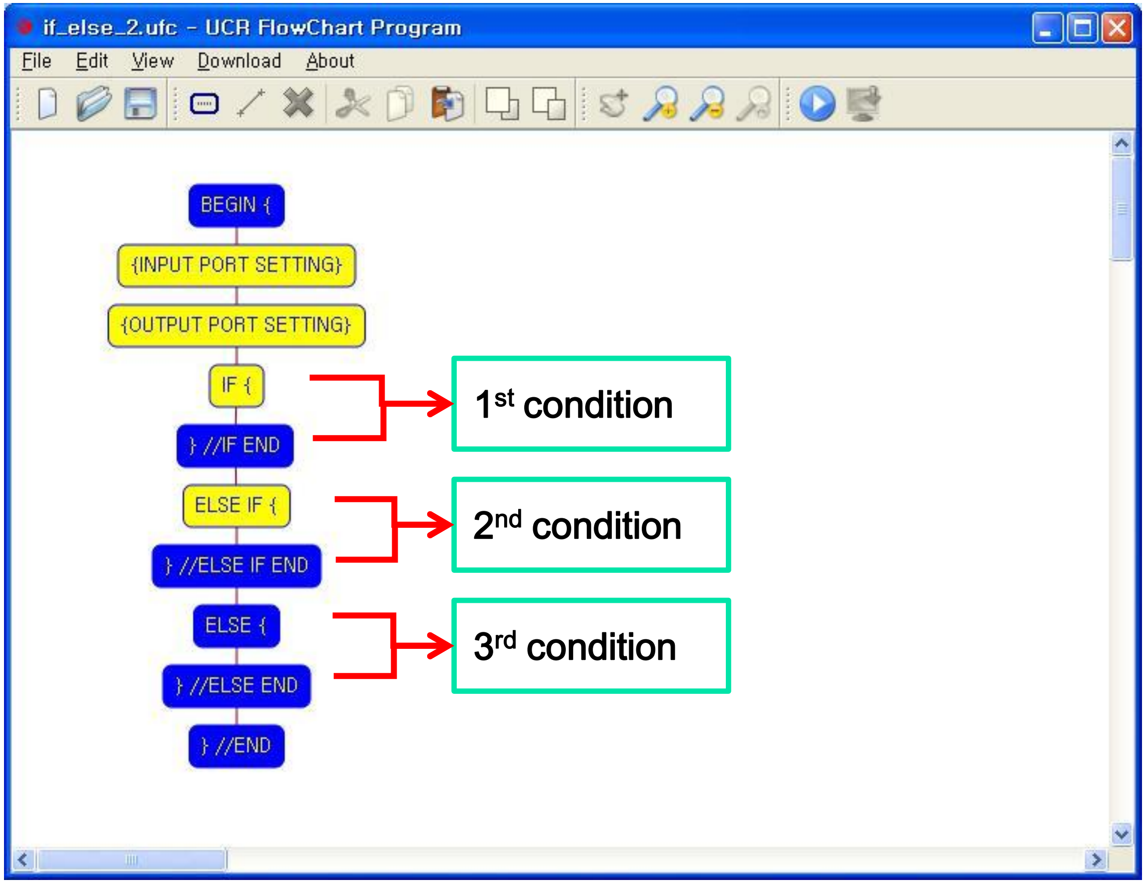
If (condition1) {command1;}
else if (condition2) {command2;}
else {command3;}

→ If you have 3 conditions to check, you can use "if", "else if" and "else" condition.

※ You must select the corresponding sequence number of "ELSE {" in "} // ELSE END".

3. Define Node's function

(3-9-ex1) "} // ELSE"



1st condition

2nd condition

3rd condition

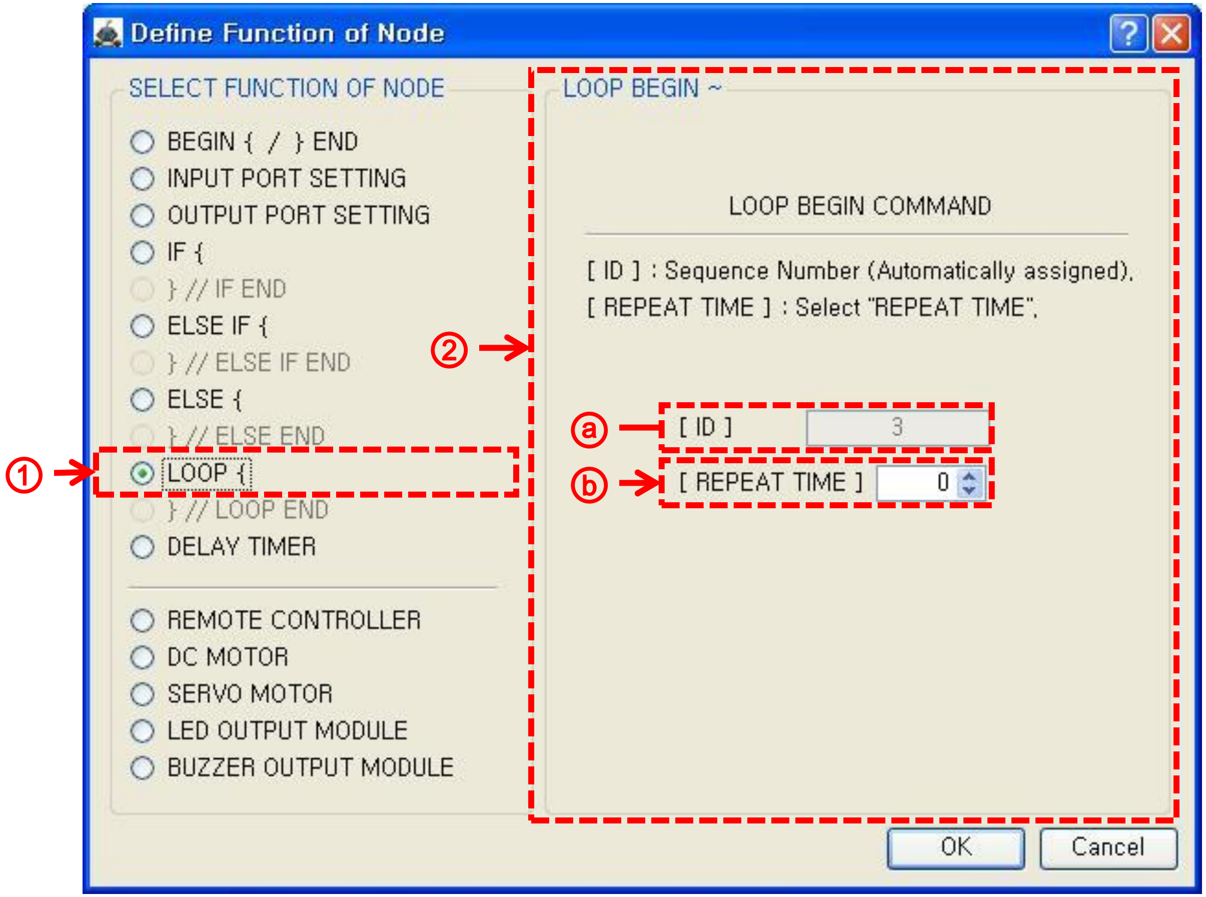
If (condition1) {command1;}
else if (condition2) {command2;}
else {command3;}

→ If you have 3 conditions to check, you can use "if", "else if" and "else" condition.

※ ELSE cannot be used individually, it must be following the IF or ELSE IF condition.

3. Define Node’s function

(3-10-1) Definition the begin point of LOOP repetition : “LOOP {”



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
● LOOP {
○ } // LOOP END
○ DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

LOOP BEGIN ~

LOOP BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned).
[REPEAT TIME] : Select "REPEAT TIME".

[ID] 3

[REPEAT TIME] 0

[Define LOOP]

① Select the “Node Functions…”
: LOOP {

② Define the LOOP

ⓐ ID : sequence number
(automatically assigned)

ⓑ REPEAT TIME

0 : limitless

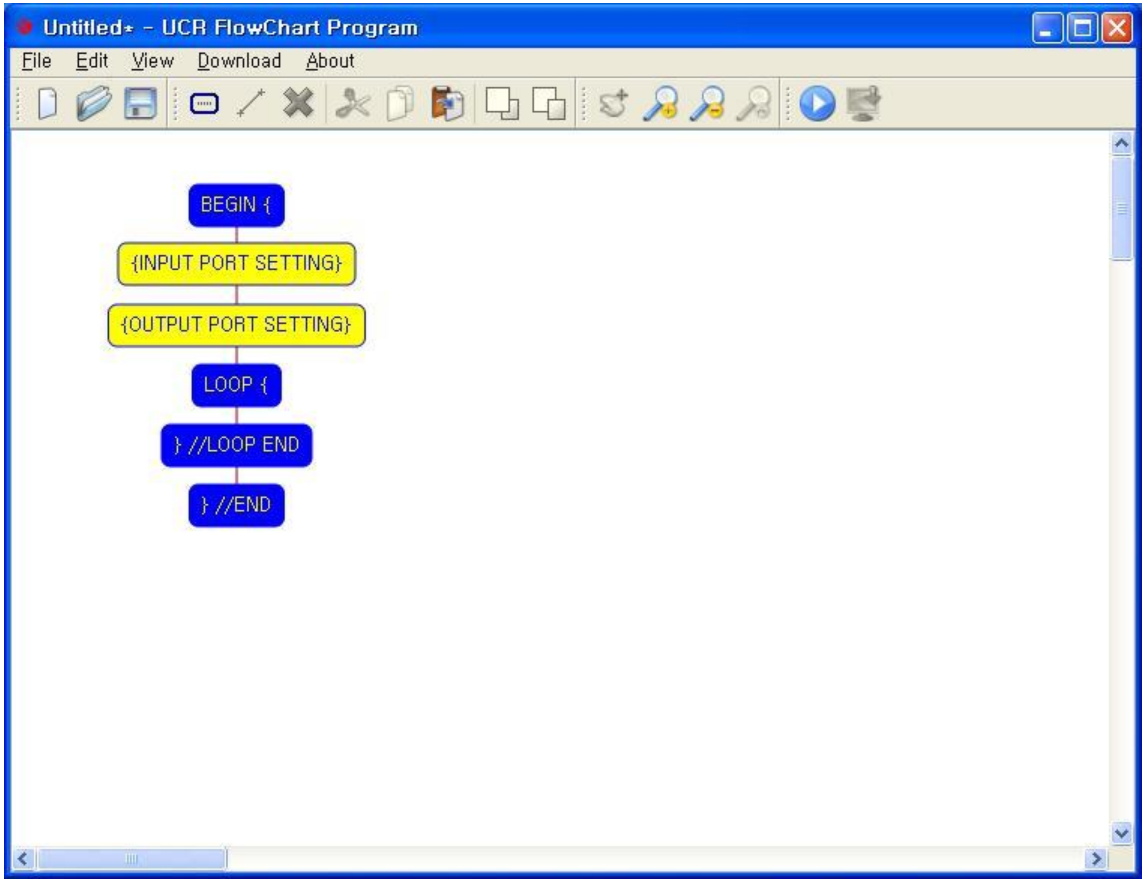
1 ~ 99 : repetition times

※ If you want limited repetition, you have to select the “REPEAT TIME” between 1 and 99.

3. Define Node’s function

MICROSOFT’s
Windows XP

(3-10-ex1) “LOOP {”



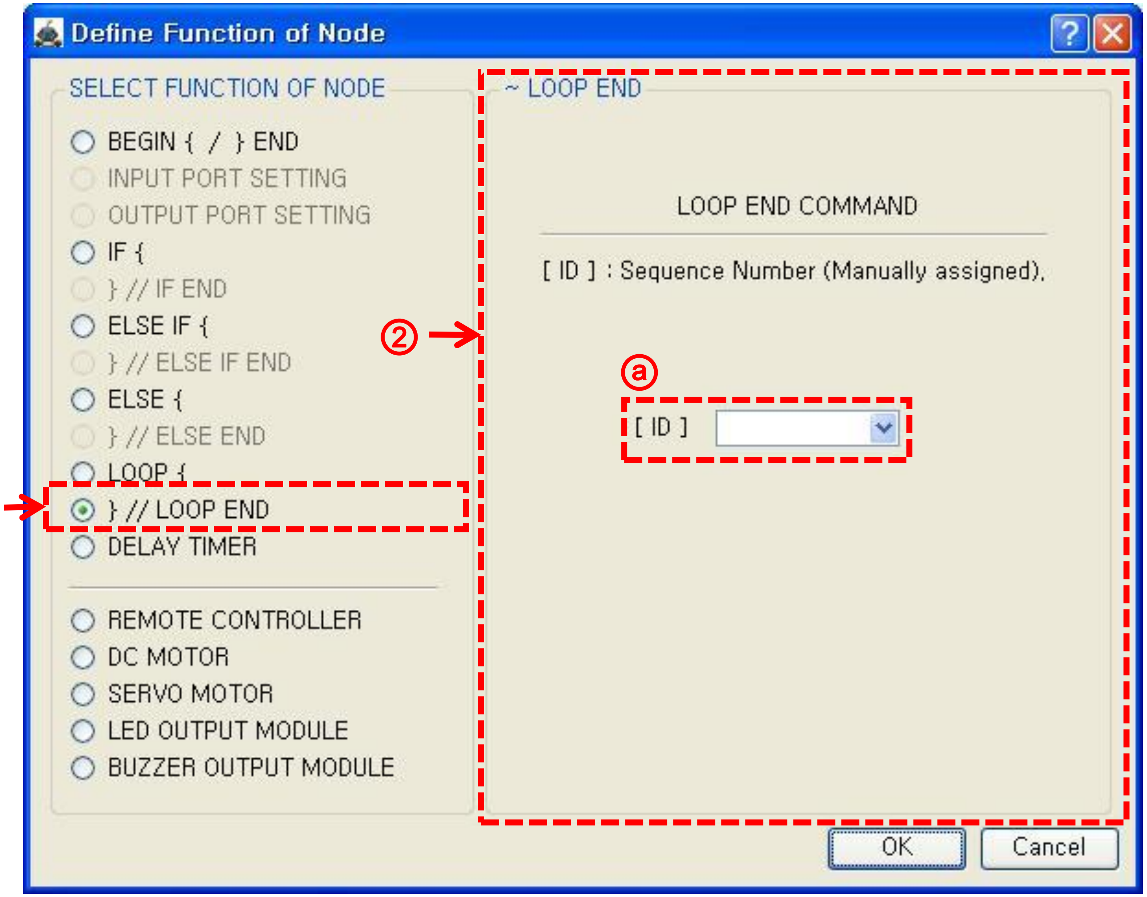
```
Loop (repetition time)
{
      command;
}
```

→ Repeat the command according to the repetition time.

※ Above program is useless because the robot does not operating.
But there is no error because all nodes are defined properly.

3. Define Node's function

(3-11-1) Definition the end point of LOOP : "} // LOOP END"



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ● } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

~ LOOP END

LOOP END COMMAND

[ID] : Sequence Number (Manually assigned).

[ID]

[LOOP END]

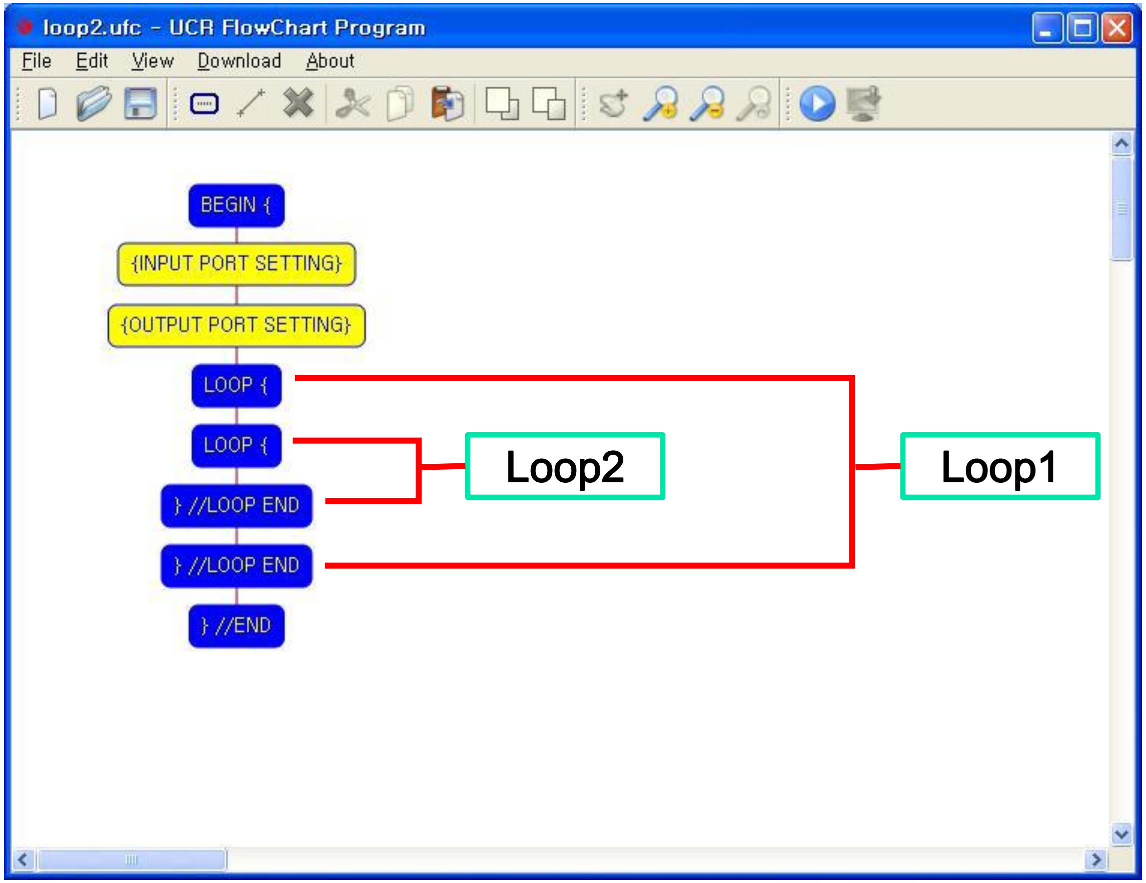
① Select the "Node Functions…"
: } // LOOP END

② Define the ID of "LOOP {"
ⓐ ID : Sequence number of paired "LOOP {"

※ You must select the corresponding sequence number of "LOOP {" in "} // LOOP END".

3. Define Node's function

(3-11-ex1) "} // LOOP END"



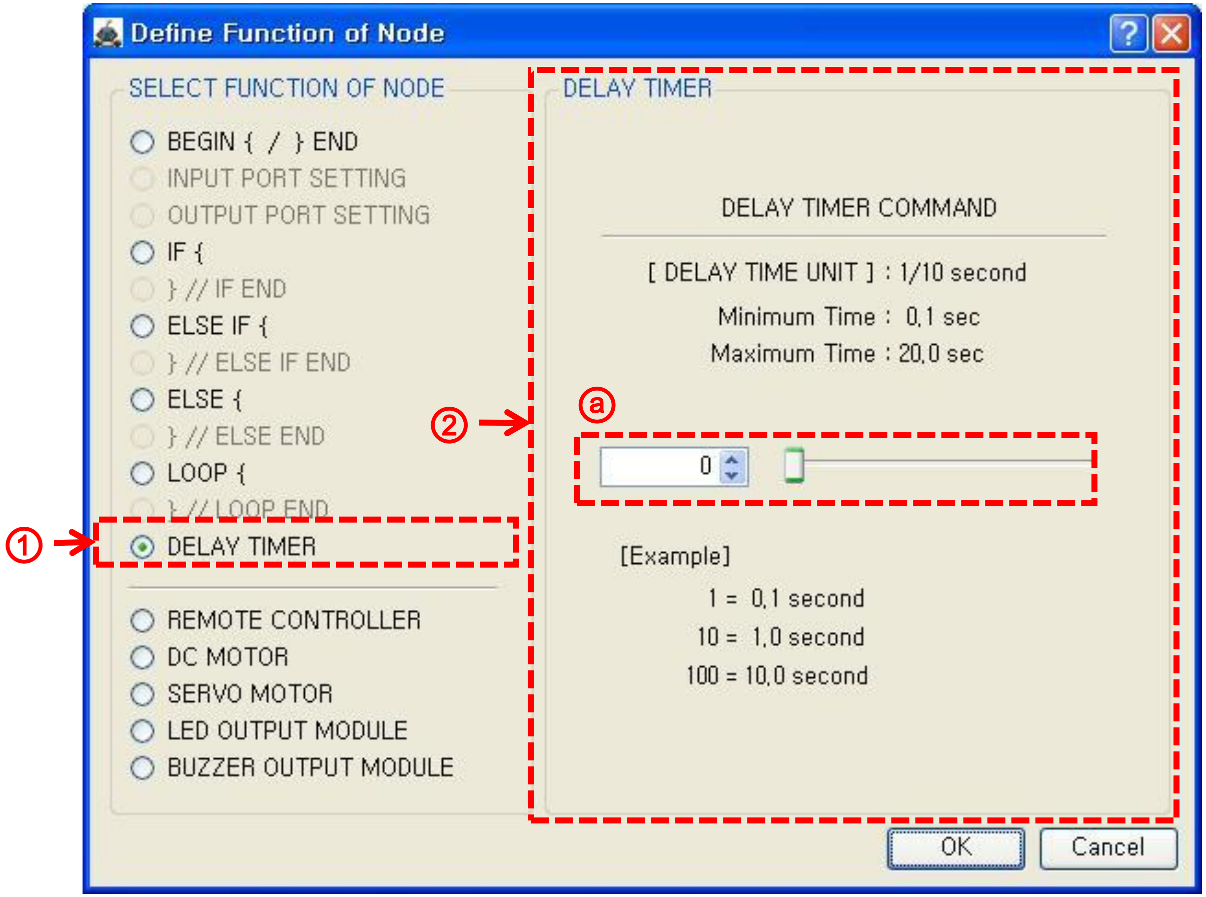
```
Loop1 (repetition time1)
{
    command1;
    Loop2 (repetition time2)
    {
        command2;
    }
}
```

→ While [command1] is executed, [command2] is executed repetition time2.
That is to say, [command2] is executed totally repetition time1 * repetition time2.

※ Above program is useless because the robot does not operating.
But there is no error because all nodes are defined properly.

3. Define Node's function

(3-12-1) DELAY TIMER : "{DELAY TIMER}"



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
● DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

DELAY TIMER

DELAY TIMER COMMAND

[DELAY TIME UNIT] : 1/10 second

Minimum Time : 0.1 sec
Maximum Time : 20.0 sec

0

[Example]

1 = 0.1 second
10 = 1.0 second
100 = 10.0 second

[DELAY TIMER]

① Select the "Node Functions…"
: DELAY TIMER

② Define the function

ⓐ Define the delay time

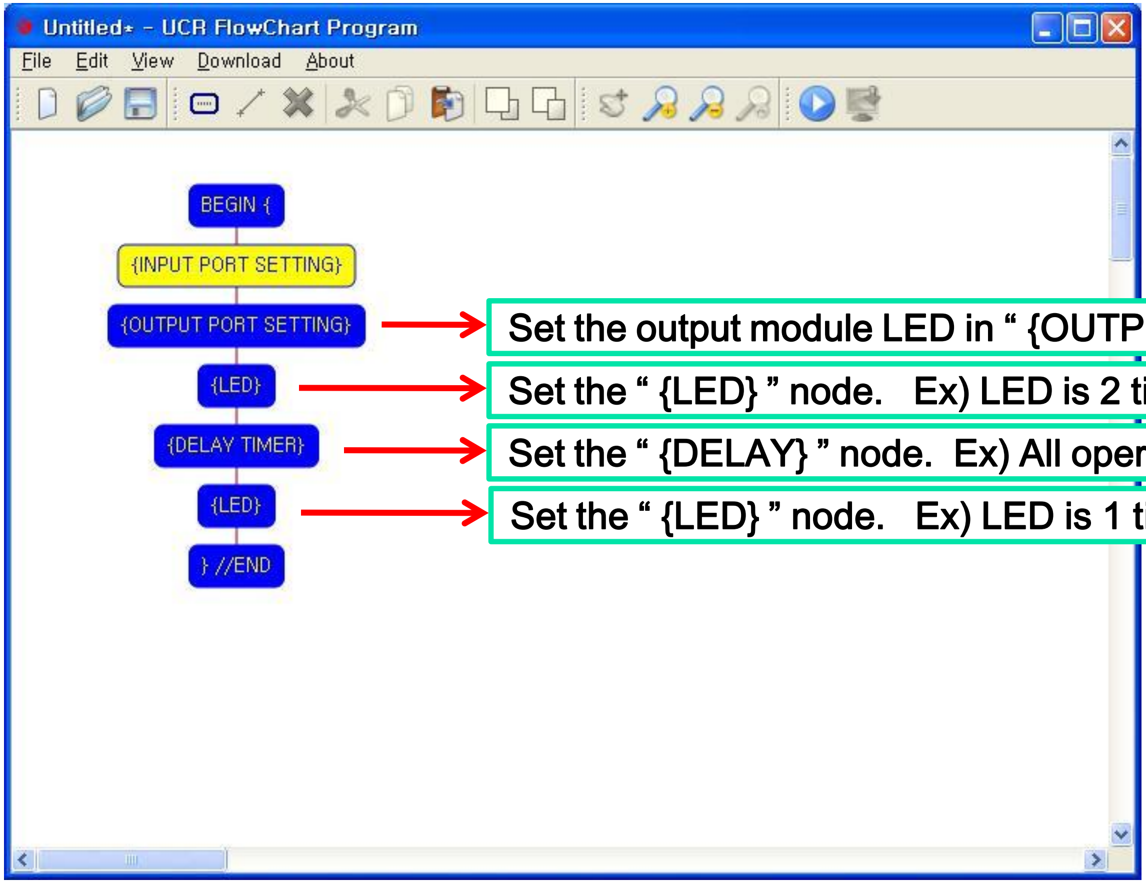
-. Min. : 0 => 0 second

-. Max. : 200 => 20.0 second

3. Define Node's function

MICROSOFT's
Windows XP

(3-12-ex1) "{DELAY TIMER}"



Set the output module LED in " {OUTPUT PORT SETTING} node.

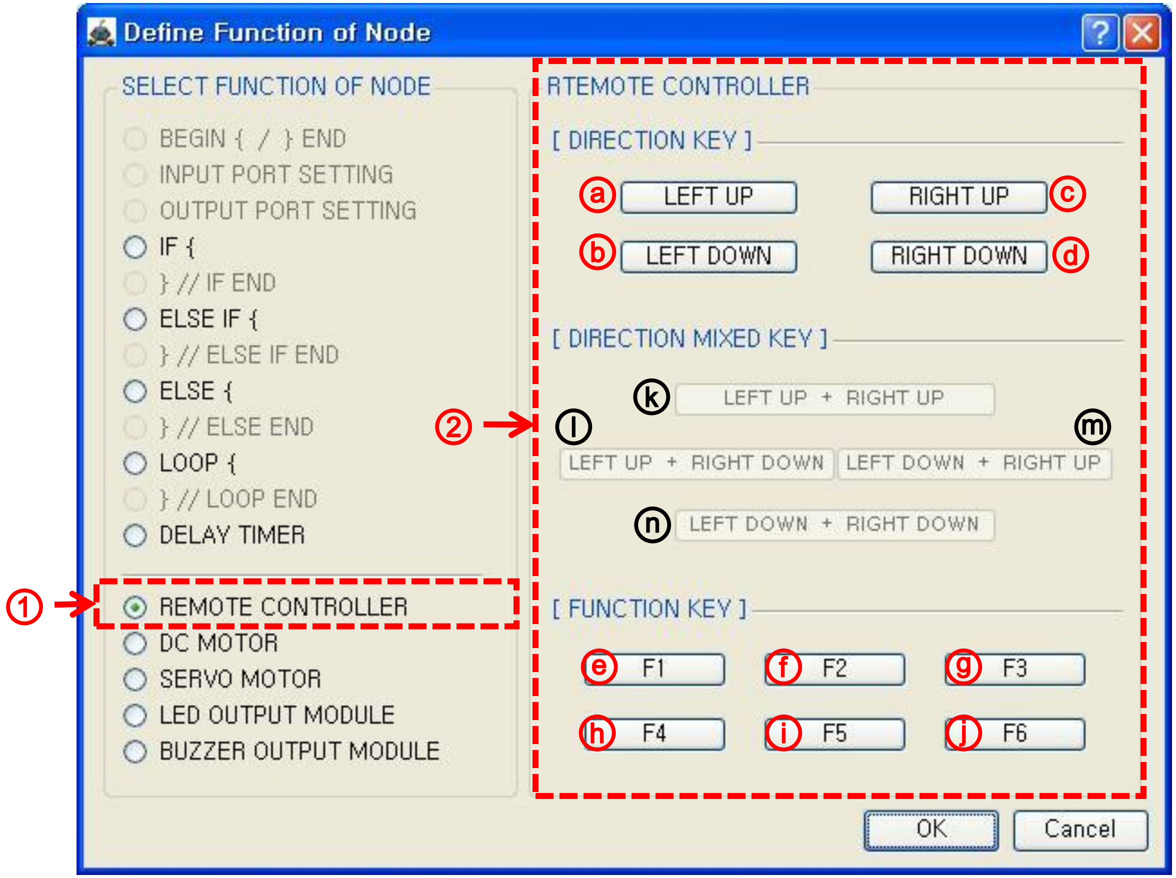
Set the " {LED} " node. Ex) LED is 2 times blinking on OUT1

Set the " {DELAY} " node. Ex) All operation is stopping for 1 second.

Set the " {LED} " node. Ex) LED is 1 time blinking on OUT2

3. Define Node's function

(3-13-1) REMOTE CONTROLLER : " {REMOTE CONTROLLER} "



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER
● REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

RTEMOTE CONTROLLER

[DIRECTION KEY]

ⓐ LEFT UP   RIGHT UP ⓒ
ⓑ LEFT DOWN   RIGHT DOWN ⓓ

[DIRECTION MIXED KEY]

ⓚ LEFT UP + RIGHT UP
ⓛ LEFT UP + RIGHT DOWN   LEFT DOWN + RIGHT UP ⓜ
ⓝ LEFT DOWN + RIGHT DOWN

[FUNCTION KEY]

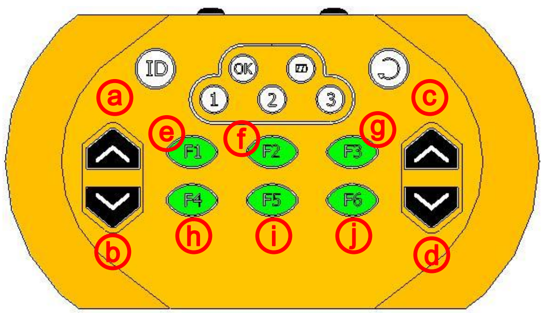
ⓔ F1   ⓕ F2   ⓖ F3
ⓗ F4   ⓘ F5   ⓙ F6

OK   Cancel

[REMOTE CONTROLLER]

① Select the "Node Functions…"
: REMOTE CONTROLLER

② Define the Key assignment

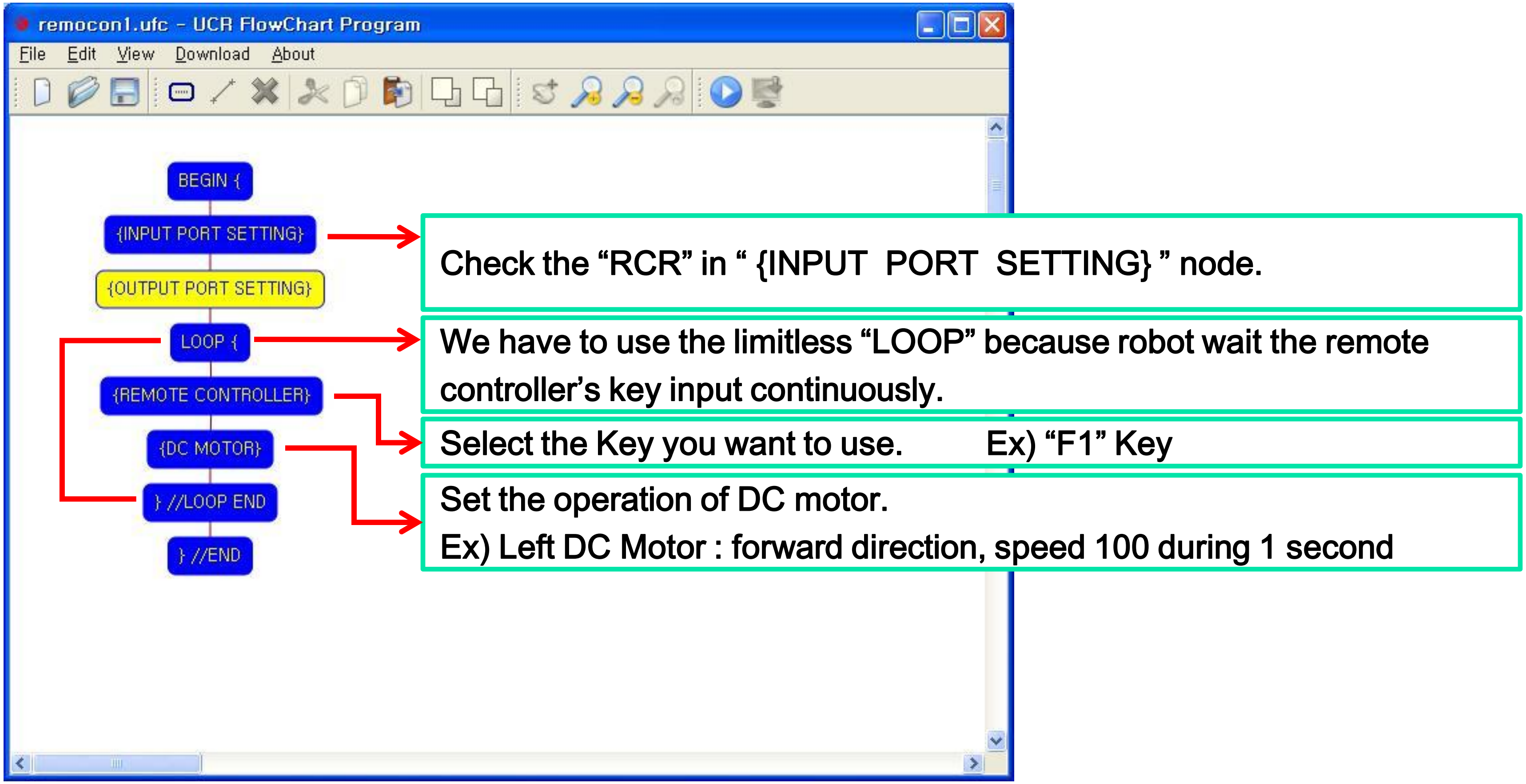


※ [DIRECTION MIXED KEY] are supporting from next version.

※ If you click the Key you want, it is selected.

3. Define Node’s function

(3-13-ex1) “ {REMOTE CONTROLLER} ”



Check the “RCR” in “ {INPUT PORT SETTING} ” node.

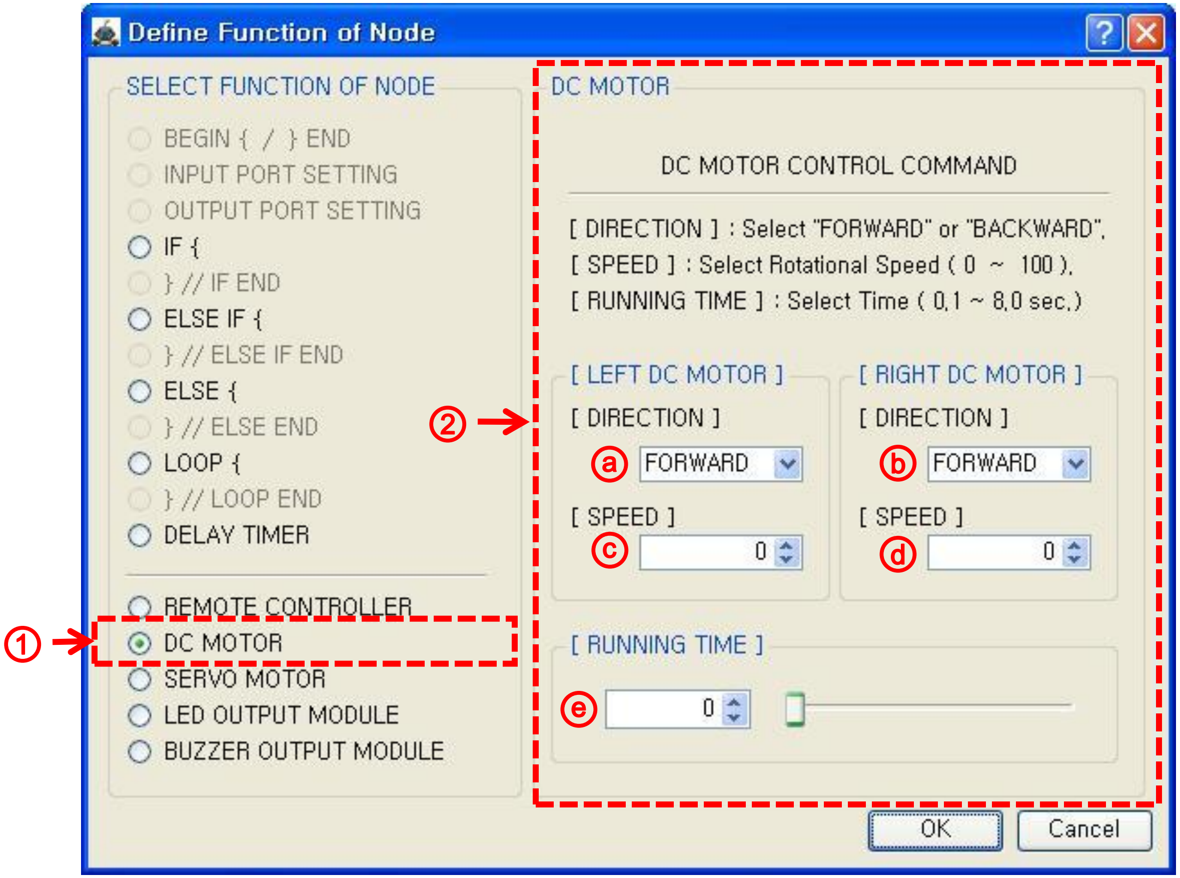
We have to use the limitless “LOOP” because robot wait the remote controller’s key input continuously.

Select the Key you want to use. Ex) “F1” Key

Set the operation of DC motor.
Ex) Left DC Motor : forward direction, speed 100 during 1 second

3. Define Node's function

(3-14-1) DC MOTOR : " {DC MOTOR} "



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ● DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

DC MOTOR

DC MOTOR CONTROL COMMAND

[DIRECTION] : Select "FORWARD" or "BACKWARD".
[SPEED] : Select Rotational Speed (0 ~ 100).
[RUNNING TIME] : Select Time (0.1 ~ 8.0 sec.)

[LEFT DC MOTOR]
[DIRECTION] ⓐ FORWARD
[SPEED] ⓒ 0

[RIGHT DC MOTOR]
[DIRECTION] ⓑ FORWARD
[SPEED] ⓓ 0

[RUNNING TIME] ⓔ 0

[DC MOTOR]

① Select the "Node Functions…"
  : DC MOTOR

② Define the function

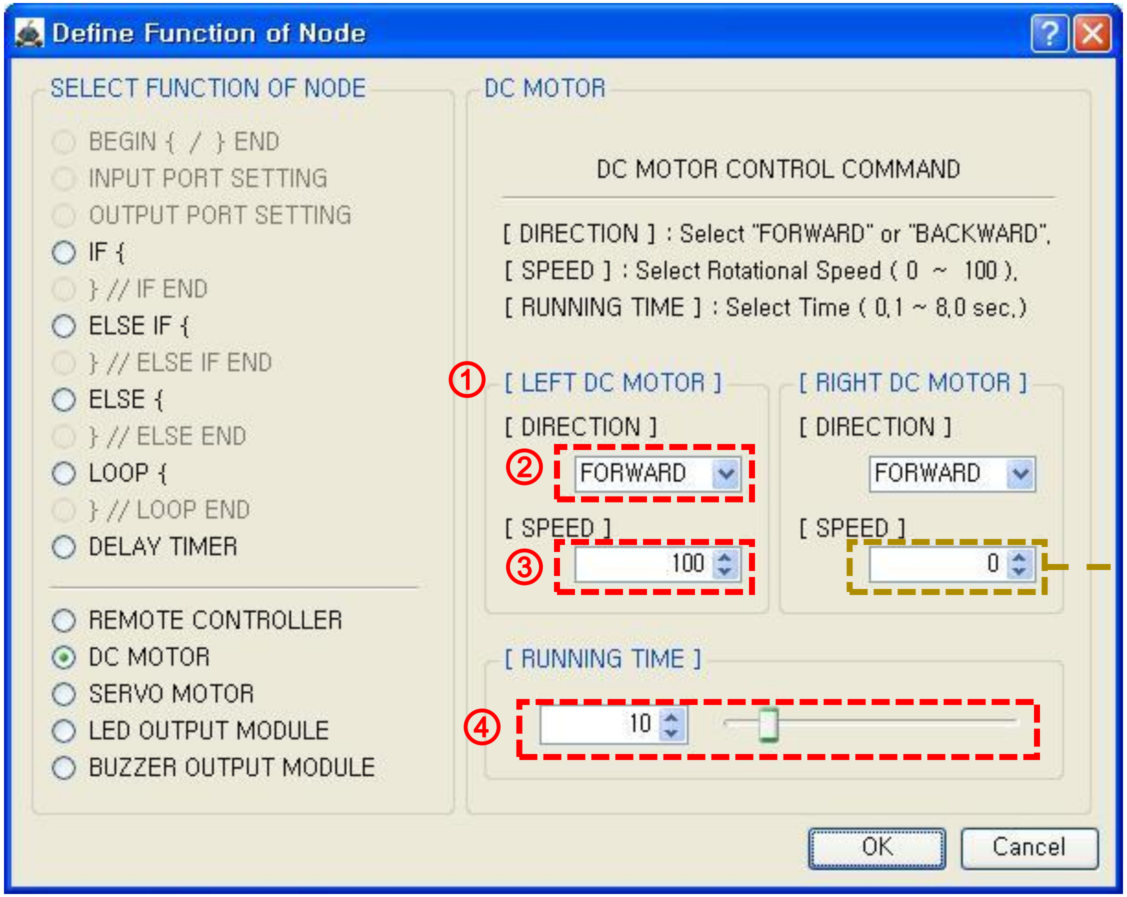
ⓐ Left DC Motor's Direction
ⓑ Right DC Motor's Direction
-. FORWARD
-. BACKWARD
ⓒ Left DC Motor's speed
ⓓ Right DC Motor's speed
-. Min. : 0
-. Max. : 100
ⓔ Operating time
-. Min. : 0 => 0 second
-. Max. : 80 => 8.0 second

※ The real direction of DC motor is decided by the connection direction of DC motor and main controller.

3. Define Node's function

MICROSOFT's
Windows XP

(3-14-ex1) " {DC MOTOR} "



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER

○ REMOTE CONTROLLER
● DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

DC MOTOR

DC MOTOR CONTROL COMMAND

[DIRECTION] : Select "FORWARD" or "BACKWARD".
[SPEED] : Select Rotational Speed (0 ~ 100).
[RUNNING TIME] : Select Time (0.1 ~ 8.0 sec.)

① [LEFT DC MOTOR]
[DIRECTION]
② FORWARD
[SPEED]
③ 100

[RIGHT DC MOTOR]
[DIRECTION]
FORWARD
[SPEED]
0

[RUNNING TIME]
④ 10

[DC MOTOR]

① Motor : Left DC Motor
② Direction : Forward
③ Speed : 100
④ Op. time : 1초

If you want not to use,
you have to set the speed as 0.

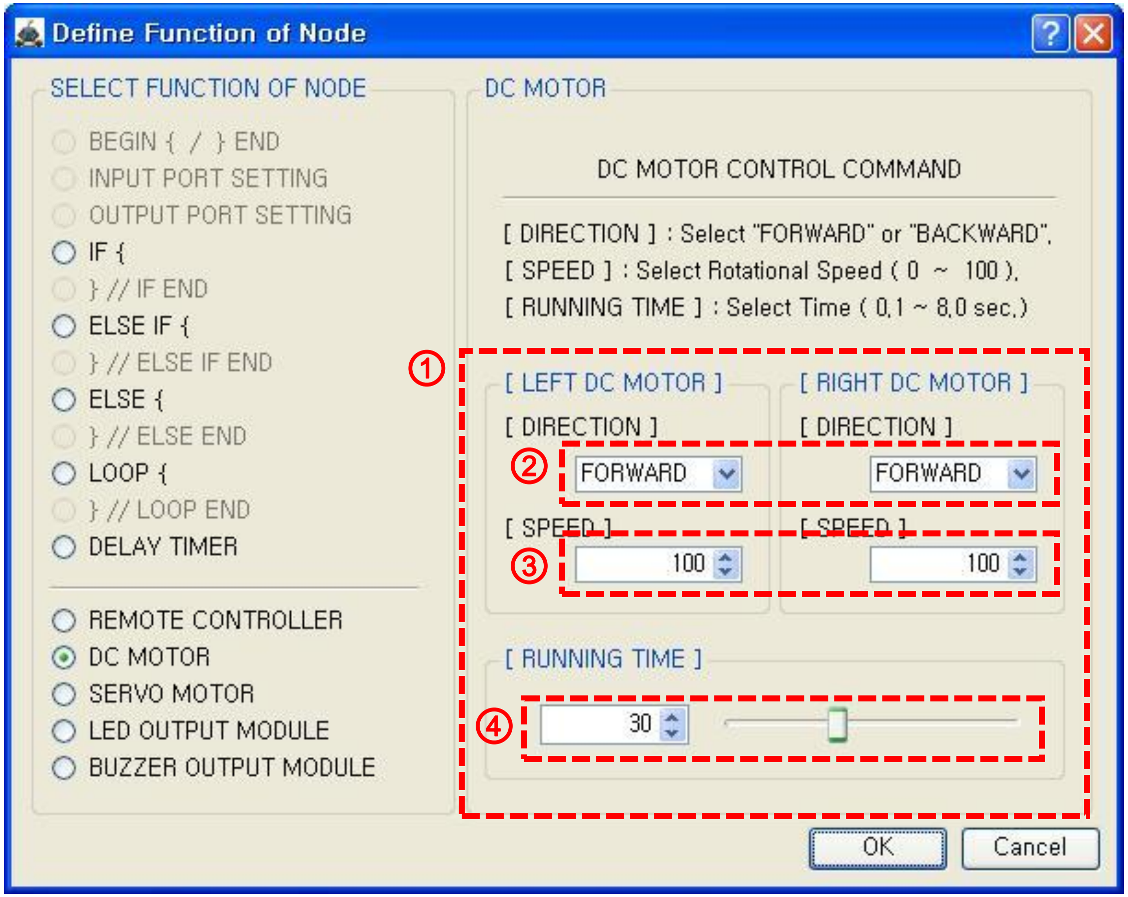
※ DC motor has no relation to the " {OUTPUT PORT SETTING} " node setting.

technical support : ucrobot @ ucrobot.com

3. Define Node's function

MICROSOFT's Windows XP

(3-14-ex2) " {DC MOTOR} "



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ● DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

DC MOTOR

DC MOTOR CONTROL COMMAND

[DIRECTION] : Select "FORWARD" or "BACKWARD".
[SPEED] : Select Rotational Speed (0 ~ 100).
[RUNNING TIME] : Select Time (0.1 ~ 8.0 sec.)

①

[LEFT DC MOTOR]

[DIRECTION]

② FORWARD

[SPEED]

③ 100

[RIGHT DC MOTOR]

[DIRECTION]

FORWARD

[SPEED]

100

[RUNNING TIME]

④ 30

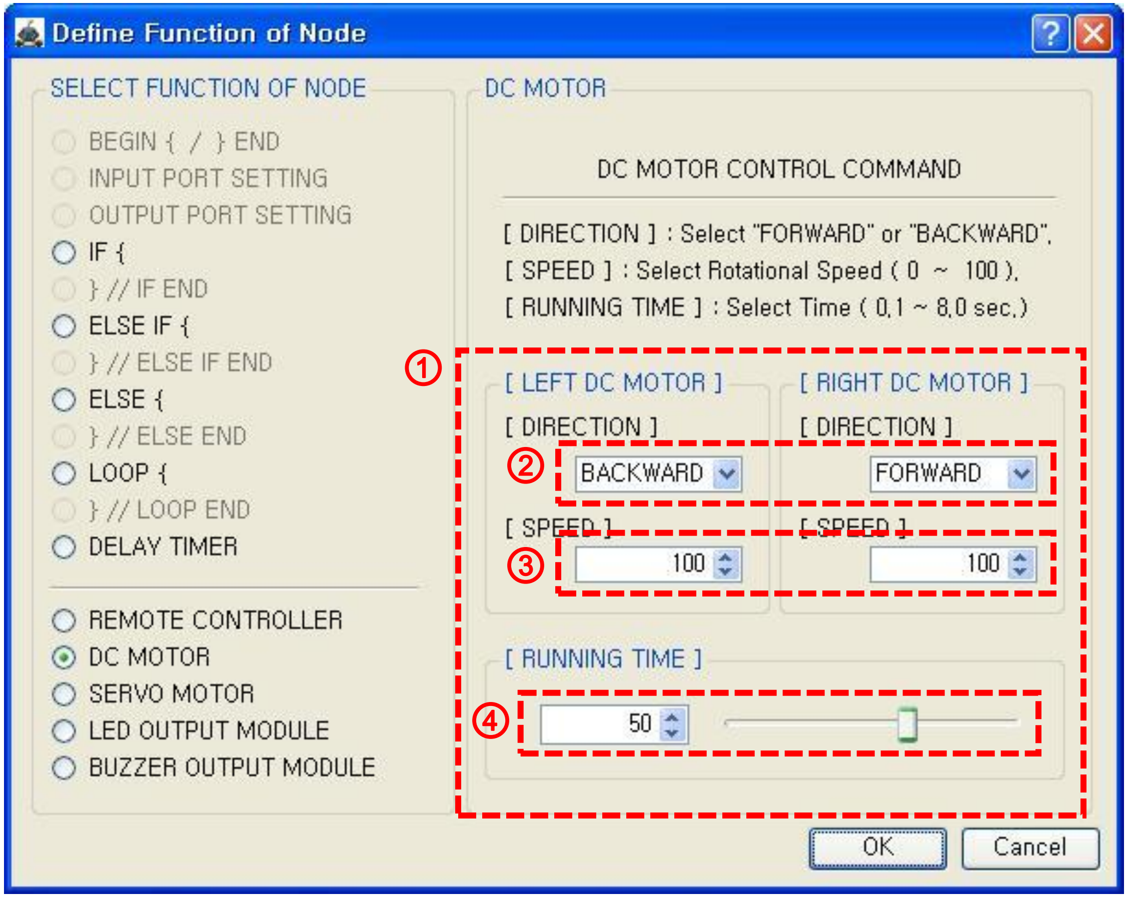
[forward direction
/ speed 100 during 3 second]

① Motor : Both DC Motor
② Direction : Forward
③ Speed : 100
④ Op. time : 3 seconds

technical support : ucrobot @ ucrobot.com

3. Define Node's function

(3-14-ex3) " {DC MOTOR} "



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ● DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

DC MOTOR

DC MOTOR CONTROL COMMAND

[DIRECTION] : Select "FORWARD" or "BACKWARD".
[SPEED] : Select Rotational Speed (0 ~ 100).
[RUNNING TIME] : Select Time (0.1 ~ 8.0 sec.)

①

[LEFT DC MOTOR]
[DIRECTION]
② BACKWARD
[SPEED]
③ 100

[RIGHT DC MOTOR]
[DIRECTION]
FORWARD
[SPEED]
100

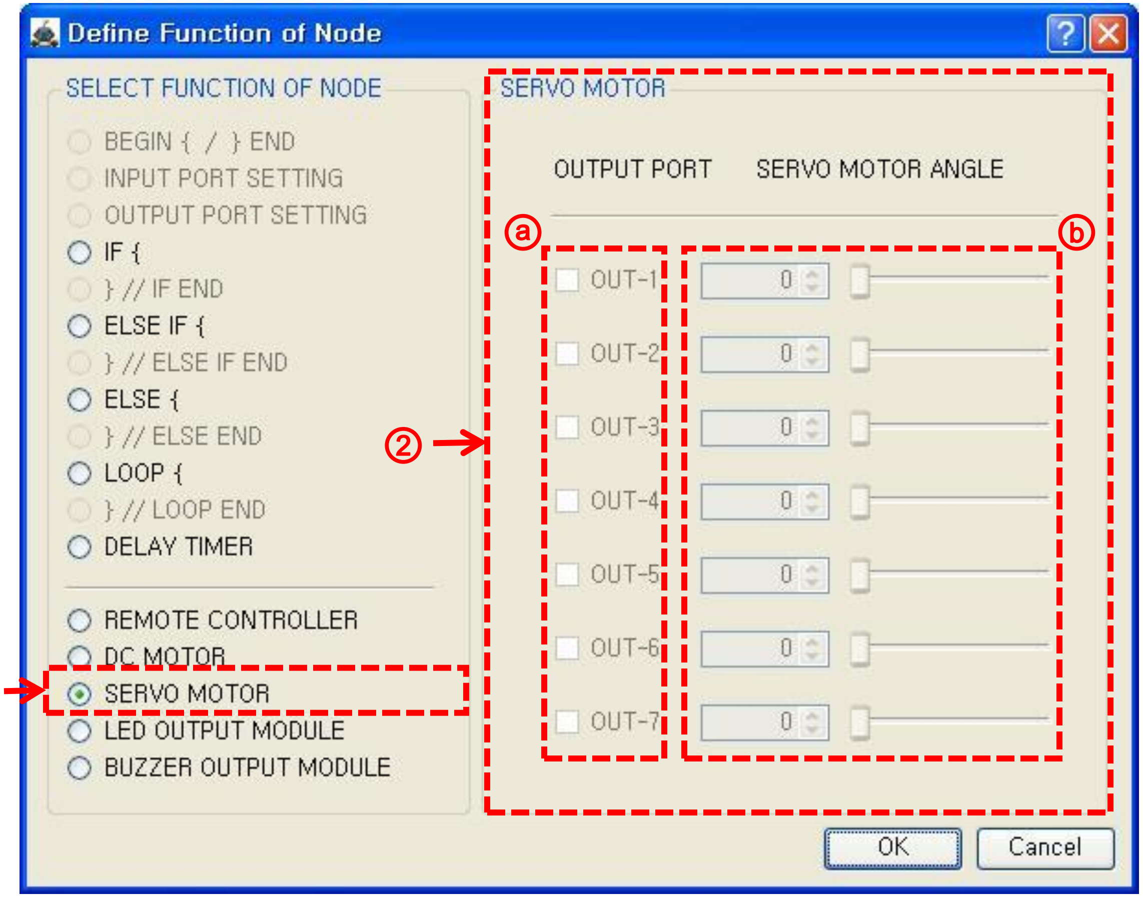
[RUNNING TIME]
④ 50

[Spin with 100 speed
for 5 seconds.]

① Motor : Both DC Motor
② Direction
- Left DC Motor : Backward
- Right DC Motor : Forward
③ Speed : 100
④ Op. time : 5 seconds

3. Define Node's function

(3-15-1) SERVO MOTOR : " {SERVO MOTOR} "



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ● SERVO MOTOR
- ○ LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

SERVO MOTOR

OUTPUT PORT	SERVO MOTOR ANGLE
□ OUT-1	0
□ OUT-2	0
□ OUT-3	0
□ OUT-4	0
□ OUT-5	0
□ OUT-6	0
□ OUT-7	0

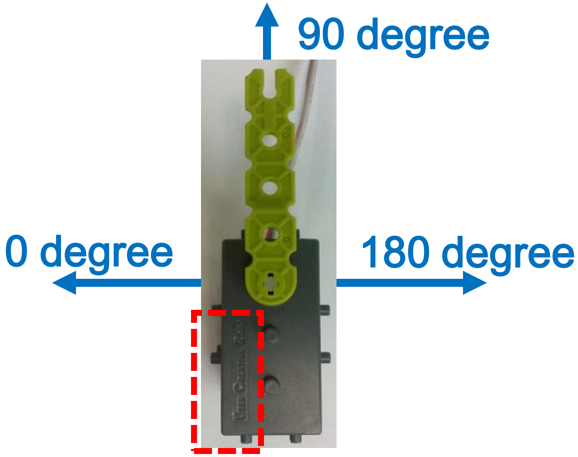
[SERVO MOTOR]

① Select the "Node Functions…"
: SERVO MOTOR

② Define the function

ⓐ Select the output ports of Servo motor

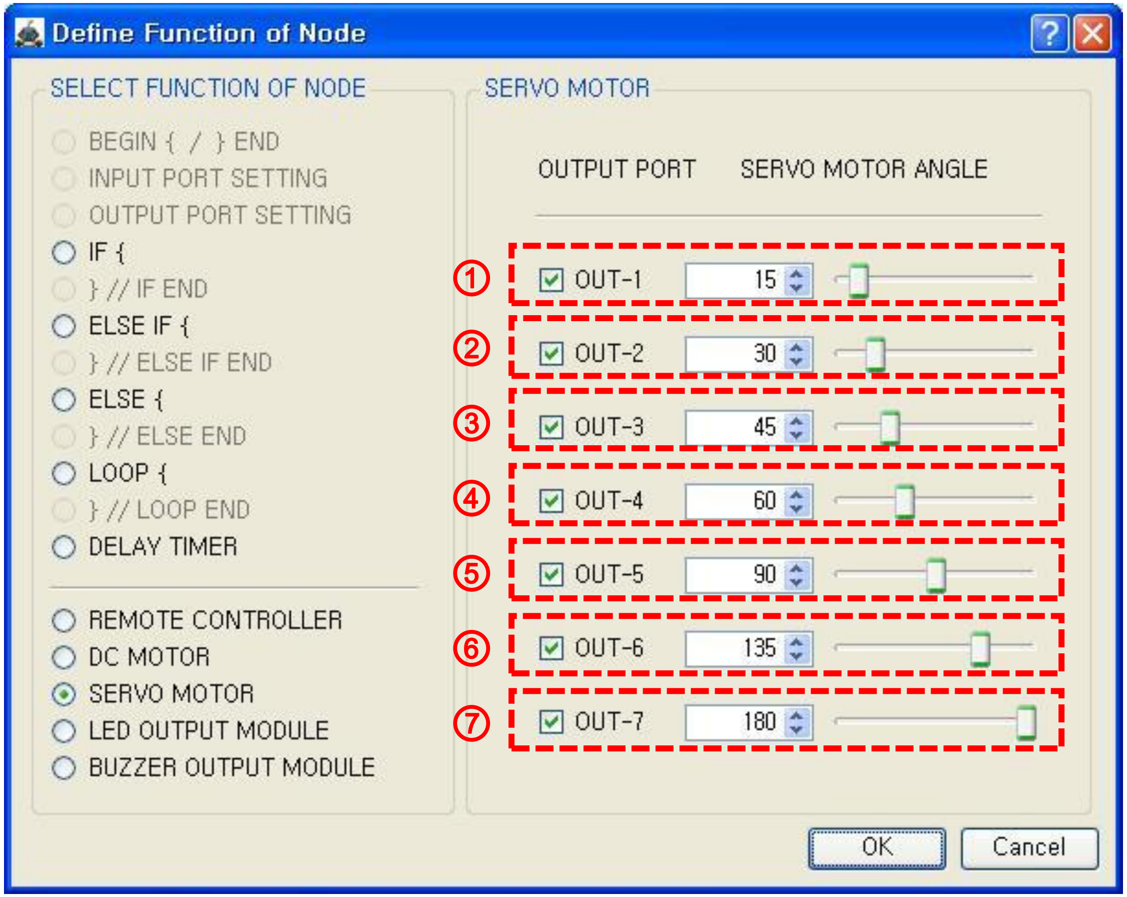
ⓑ Target angle (0~180)



※ The angle of above photo is based on the face of "User Creative Robot" engraved.

3. Define Node's function

(3-15-ex1) " {SERVO MOTOR} "



	OUTPUT PORT	SERVO MOTOR ANGLE
①	☑ OUT-1	15
②	☑ OUT-2	30
③	☑ OUT-3	45
④	☑ OUT-4	60
⑤	☑ OUT-5	90
⑥	☑ OUT-6	135
⑦	☑ OUT-7	180

[Setting the angle of Servo motor on OUT1 ~ 7]

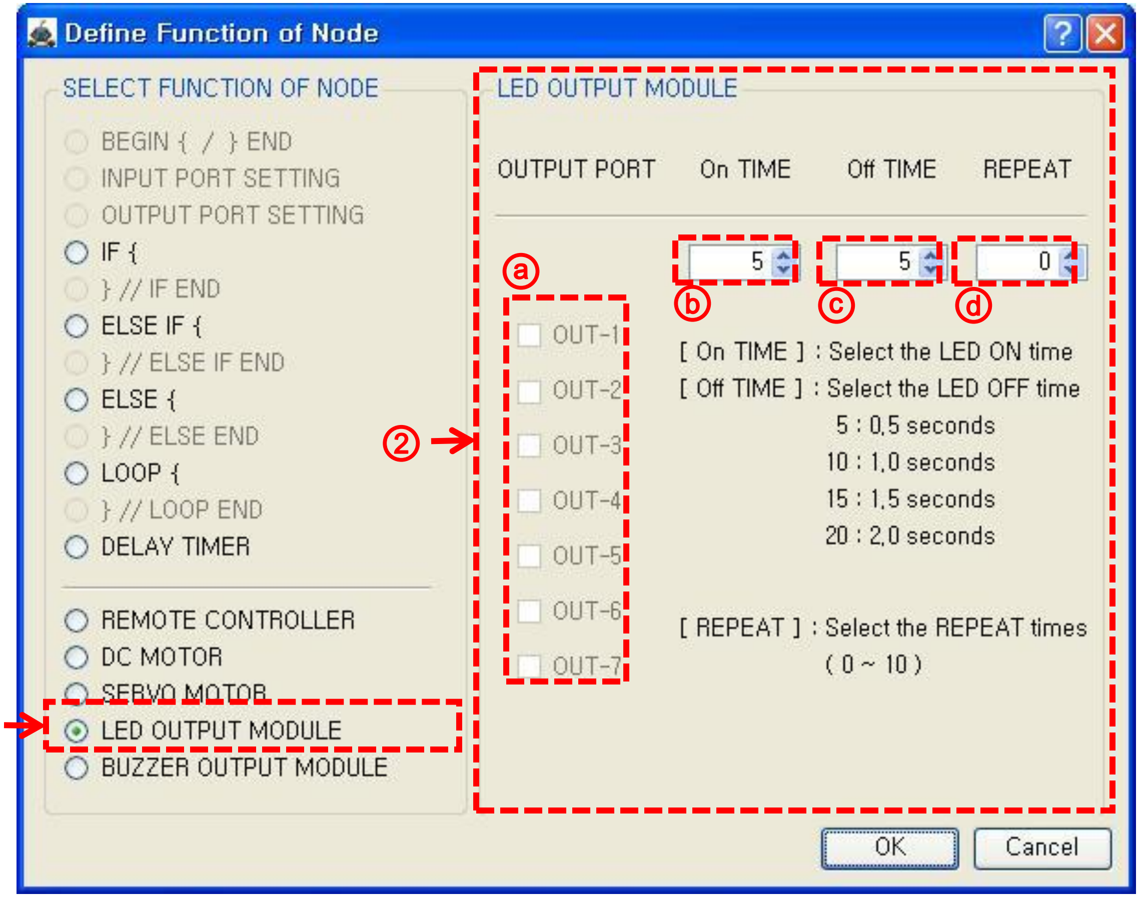
① OUT1 Servo : 15 degree
② OUT2 Servo : 30 degree
③ OUT3 Servo : 45 degree
④ OUT4 Servo : 60 degree
⑤ OUT5 Servo : 90 degree
⑥ OUT6 Servo : 135 degree
⑦ OUT7 Servo : 180 degree

※ If the output port is not defined at " {OUTPUT PORT SETTING} ", you can't select the port of Servo motor.

3. Define Node's function

MICROSOFT's
Windows XP

(3-16-1) LED OUTPUT MODULE : " {LED OUTPUT MODULE} "



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER
○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
● LED OUTPUT MODULE
○ BUZZER OUTPUT MODULE

LED OUTPUT MODULE

OUTPUT PORT	On TIME	Off TIME	REPEAT
□ OUT-1 □ OUT-2 □ OUT-3 □ OUT-4 □ OUT-5 □ OUT-6 □ OUT-7	5	5	0

[On TIME] : Select the LED ON time
[Off TIME] : Select the LED OFF time
5 : 0.5 seconds
10 : 1.0 seconds
15 : 1.5 seconds
20 : 2.0 seconds

[REPEAT] : Select the REPEAT times
(0 ~ 10)

[LED Module]

① Select the "Node Functions…"
: LED OUTPUT MODULE

② Define the function

ⓐ Select the output port

ⓑ LED on time

ⓒ LED off time

-. 5 : 0.5 second
-. 10 : 1.0 second
-. 15 : 1.5 second
-. 20 : 2.0 second

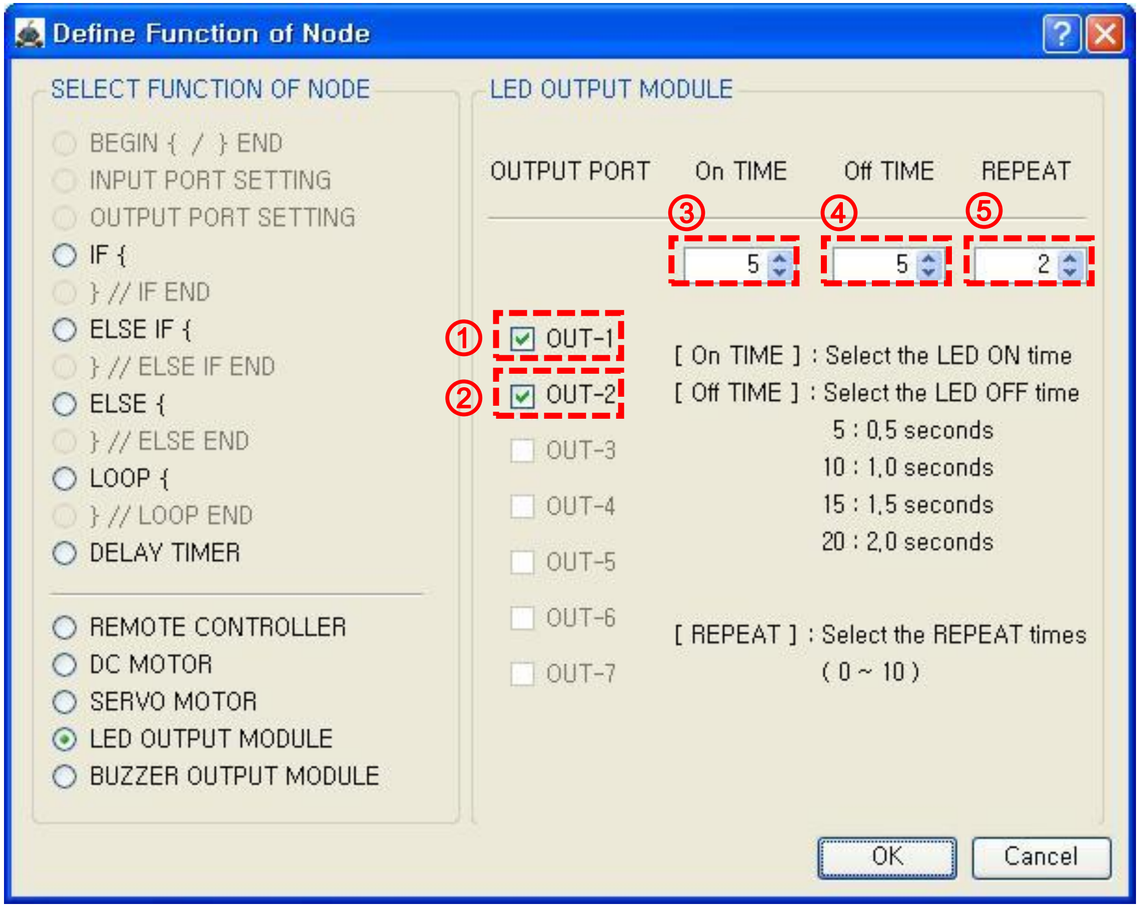
ⓓ LED on/off times

-. 0 ~ 10
(If you select 0,
LED does not turn on.)

※ If the output port is not defined at " {OUTPUT PORT SETTING} ", you can't select the port of LED module.

3. Define Node’s function

(3-16-ex1) “ {LED OUTPUT MODULE} ”



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ● LED OUTPUT MODULE
- ○ BUZZER OUTPUT MODULE

LED OUTPUT MODULE

OUTPUT PORT	On TIME	Off TIME	REPEAT
	5	5	2

- ① ☑ OUT-1
- ② ☑ OUT-2
- □ OUT-3
- □ OUT-4
- □ OUT-5
- □ OUT-6
- □ OUT-7

[On TIME] : Select the LED ON time
[Off TIME] : Select the LED OFF time
5 : 0.5 seconds
10 : 1.0 seconds
15 : 1.5 seconds
20 : 2.0 seconds

[REPEAT] : Select the REPEAT times
(0 ~ 10)

[LED1-OUT1, LED2-OUT2
on time : 0.5 second
off time : 0.5 second
repetition : 2 times]

① select the OUT-1
② select the OUT-2
③ select the 5 for 0.5 second at on time
④ select the 5 for 0.5 second at off time
⑤ select the 2 at repeat

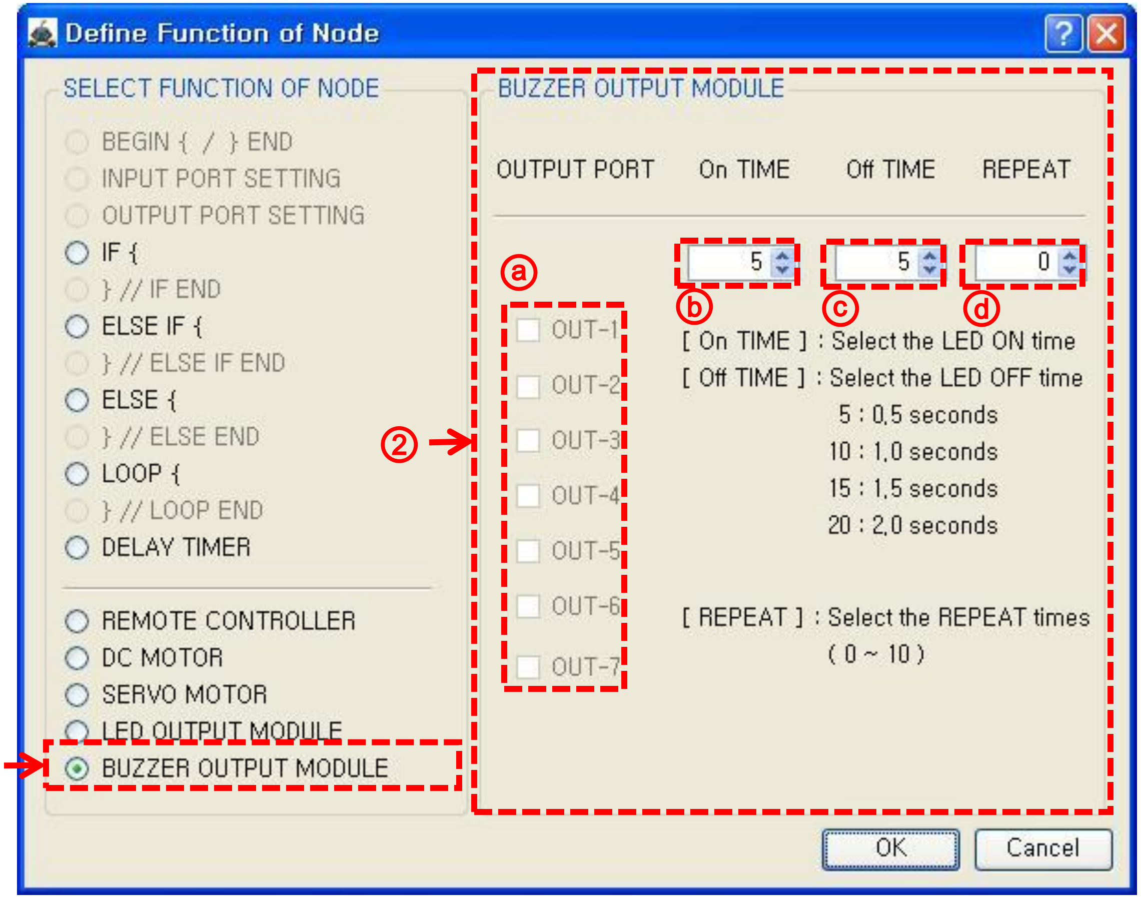
※ LED modules are connected to the OUT1 and OUT2 of main controller.

※ If the output port is not defined at “ {OUTPUT PORT SETTING} ”, you can’t select the port of LED module.

3. Define Node's function

MICROSOFT's
Windows XP

(3-17-1) BUZZER OUTPUT MODULE : " {BUZZER OUTPUT MODULE} "



Define Function of Node

SELECT FUNCTION OF NODE

- ○ BEGIN { / } END
- ○ INPUT PORT SETTING
- ○ OUTPUT PORT SETTING
- ○ IF {
- ○ } // IF END
- ○ ELSE IF {
- ○ } // ELSE IF END
- ○ ELSE {
- ○ } // ELSE END
- ○ LOOP {
- ○ } // LOOP END
- ○ DELAY TIMER
- ○ REMOTE CONTROLLER
- ○ DC MOTOR
- ○ SERVO MOTOR
- ○ LED OUTPUT MODULE
- ● BUZZER OUTPUT MODULE

BUZZER OUTPUT MODULE

OUTPUT PORT	On TIME	Off TIME	REPEAT
□ OUT-1 □ OUT-2 □ OUT-3 □ OUT-4 □ OUT-5 □ OUT-6 □ OUT-7	5	5	0

[On TIME] : Select the LED ON time
[Off TIME] : Select the LED OFF time
5 : 0.5 seconds
10 : 1.0 seconds
15 : 1.5 seconds
20 : 2.0 seconds

[REPEAT] : Select the REPEAT times
(0 ~ 10)

[BUZZER Module]

① Select the "Node Functions…"
: BUZZER OUTPUT MODULE

② Define the function

ⓐ Select the output port

ⓑ BUZZER on time

ⓒ BUZZER off time

-. 5 : 0.5 second
-. 10 : 1.0 second
-. 15 : 1.5 second
-. 20 : 2.0 second

ⓓ BUZZER on/off times

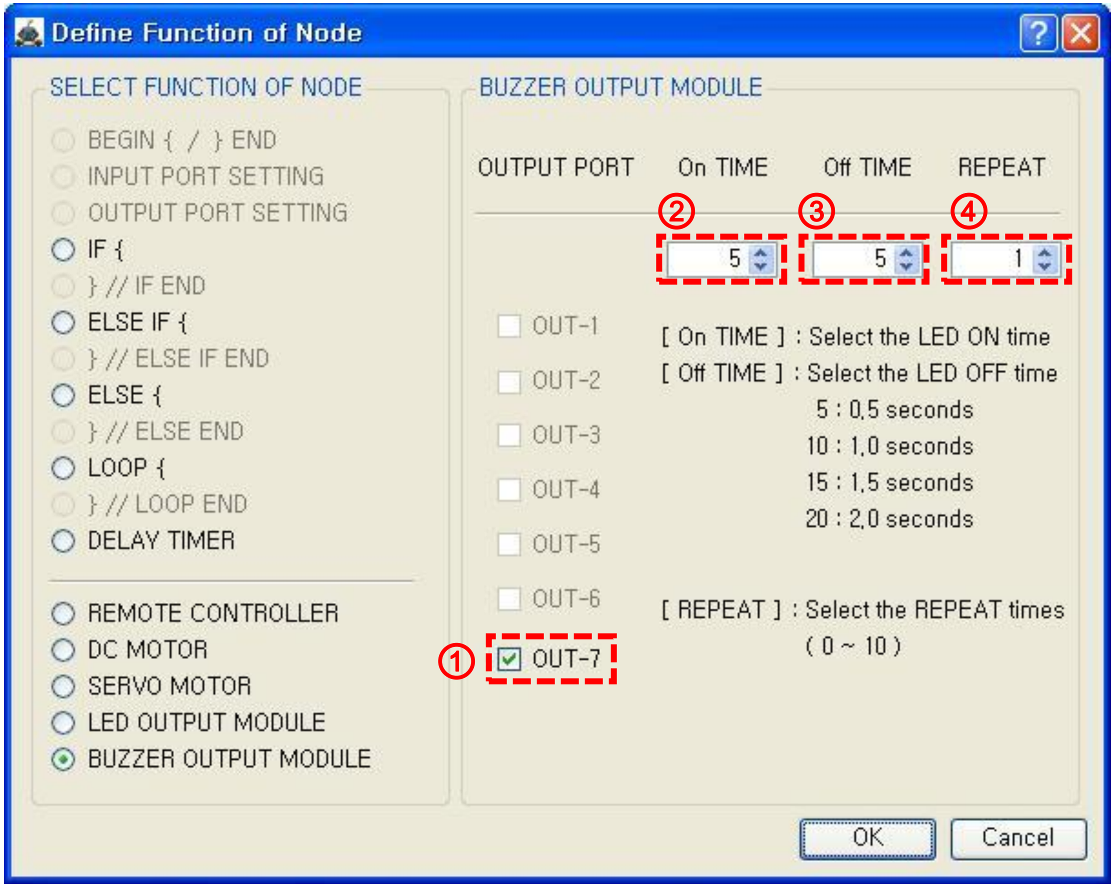
-. 0 ~ 10
(If you select 0, BUZZER does not turn on.)

※ If the output port is not defined at " OUTPUT PORT SETTING}", you can't select the port of BUZZER module.

3. Define Node's function

MICROSOFT's
Windows XP

(3-16-ex1) " {LED OUTPUT MODULE} "



Define Function of Node

SELECT FUNCTION OF NODE

○ BEGIN { / } END
○ INPUT PORT SETTING
○ OUTPUT PORT SETTING
○ IF {
○ } // IF END
○ ELSE IF {
○ } // ELSE IF END
○ ELSE {
○ } // ELSE END
○ LOOP {
○ } // LOOP END
○ DELAY TIMER

○ REMOTE CONTROLLER
○ DC MOTOR
○ SERVO MOTOR
○ LED OUTPUT MODULE
● BUZZER OUTPUT MODULE

BUZZER OUTPUT MODULE

OUTPUT PORT	On TIME	Off TIME	REPEAT
	② 5	③ 5	④ 1

□ OUT-1
□ OUT-2
□ OUT-3
□ OUT-4
□ OUT-5
□ OUT-6
① ☑ OUT-7

[On TIME] : Select the LED ON time
[Off TIME] : Select the LED OFF time
5 : 0.5 seconds
10 : 1.0 seconds
15 : 1.5 seconds
20 : 2.0 seconds

[REPEAT] : Select the REPEAT times
(0 ~ 10)

[BUZZER1-OUT7,
on time : 0.5 second
off time : 0.5 second
repetition : 1 time

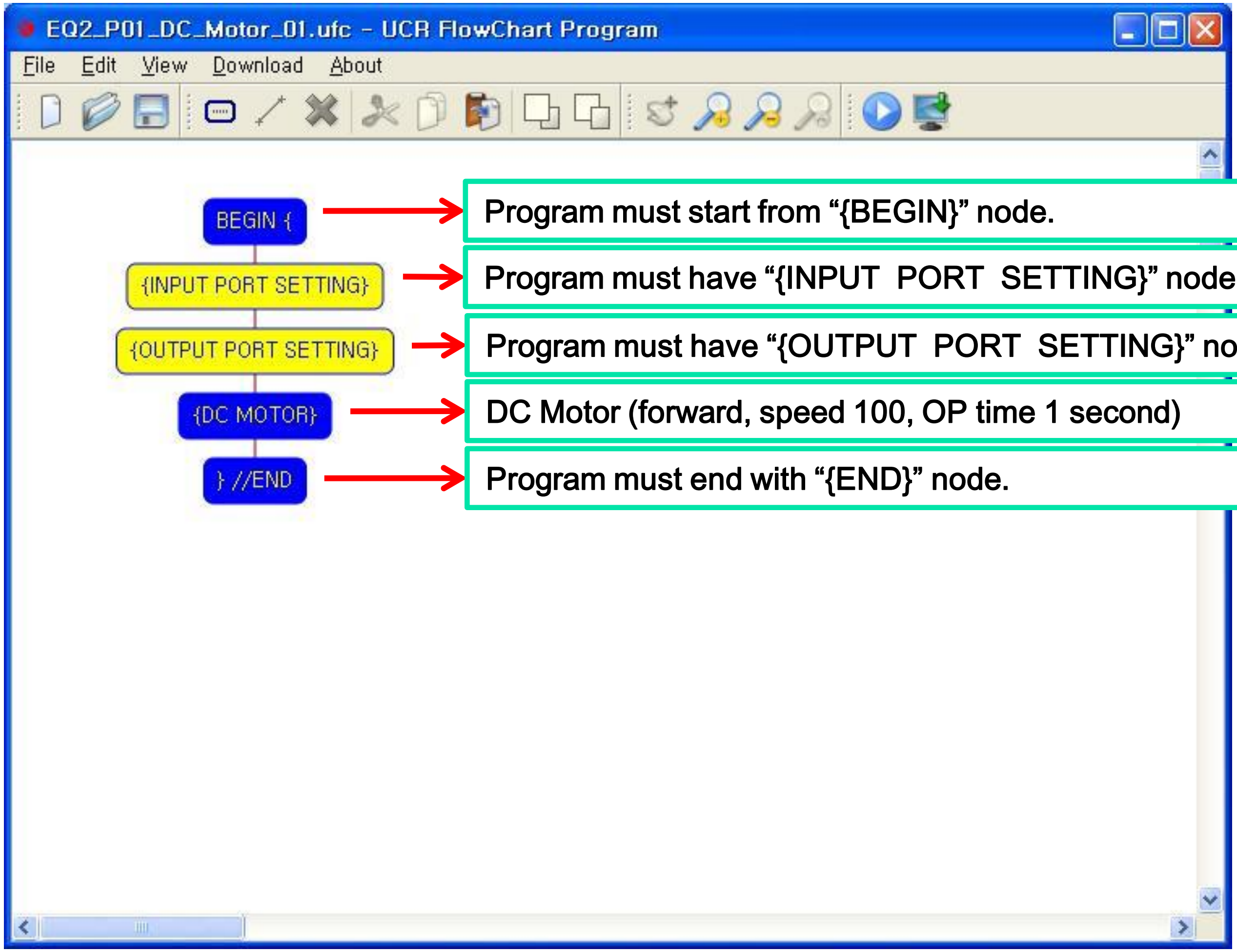
① select the OUT-7
② select the 5 for 0.5 second at on time
④ select the 5 for 0.5 second at off time
⑤ select the 1 at repeat

※ BUZZER modules are connected to the OUT7 of main controller.

※ If the output port is not defined at " OUTPUT PORT SETTING}", you can't select the port of BUZZER module.

4. Program download

(4-1) Making a program and save


EQ2_P01_DC_Motor_01.ufc - UCR FlowChart Program
File Edit View Download About
BEGIN {
{INPUT PORT SETTING}
{OUTPUT PORT SETTING}
{DC MOTOR}
} //END

Program must start from "{BEGIN}" node.

Program must have "{INPUT PORT SETTING}" node.

Program must have "{OUTPUT PORT SETTING}" node.

DC Motor (forward, speed 100, OP time 1 second)

Program must end with "{END}" node.

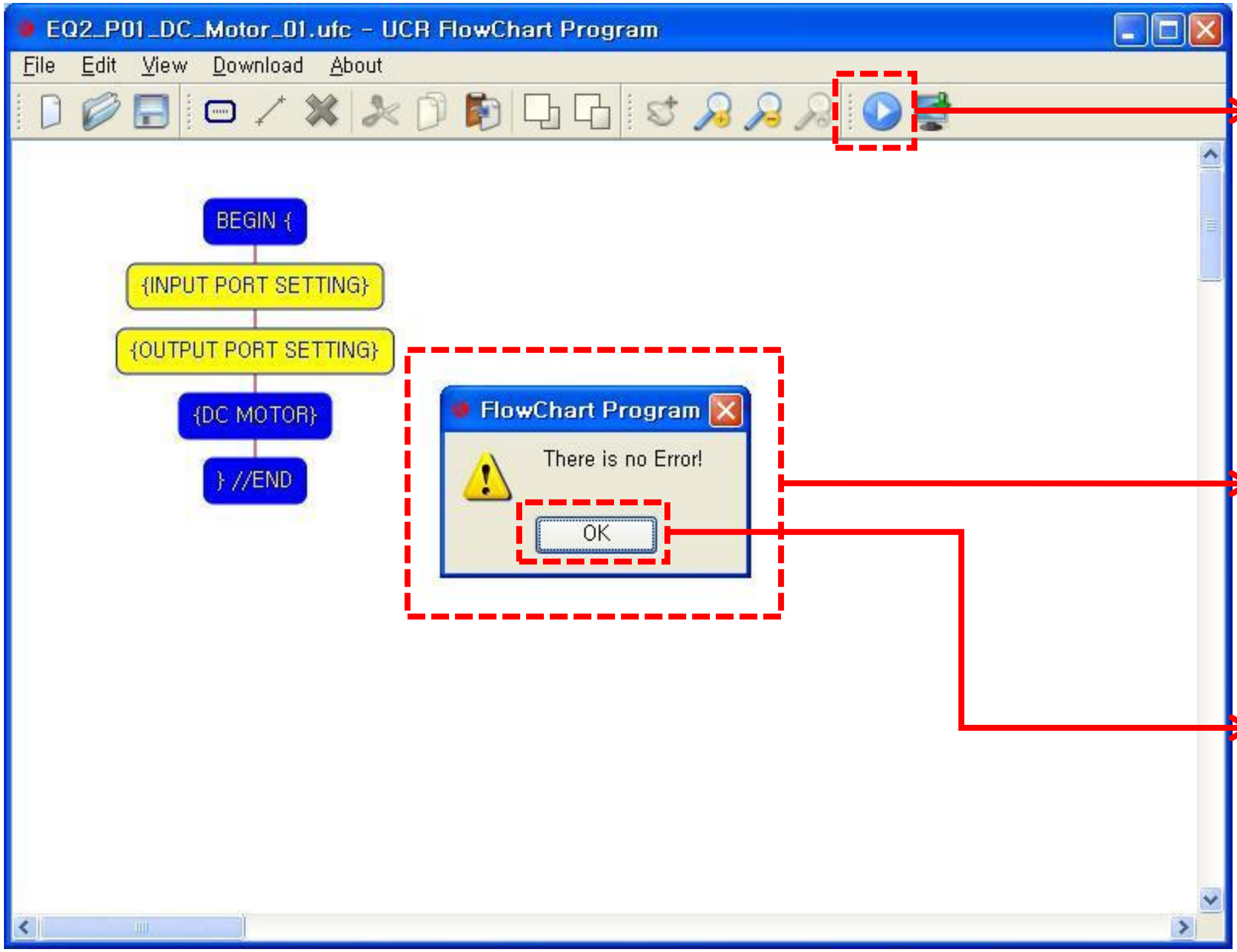
1. Make a program.

2. Save a program.

4. Program download

MICROSOFT's
Windows XP

(4-2) Check the error of program



There is no Error!

3. Check error.

If there is no error,
this window is pop up.

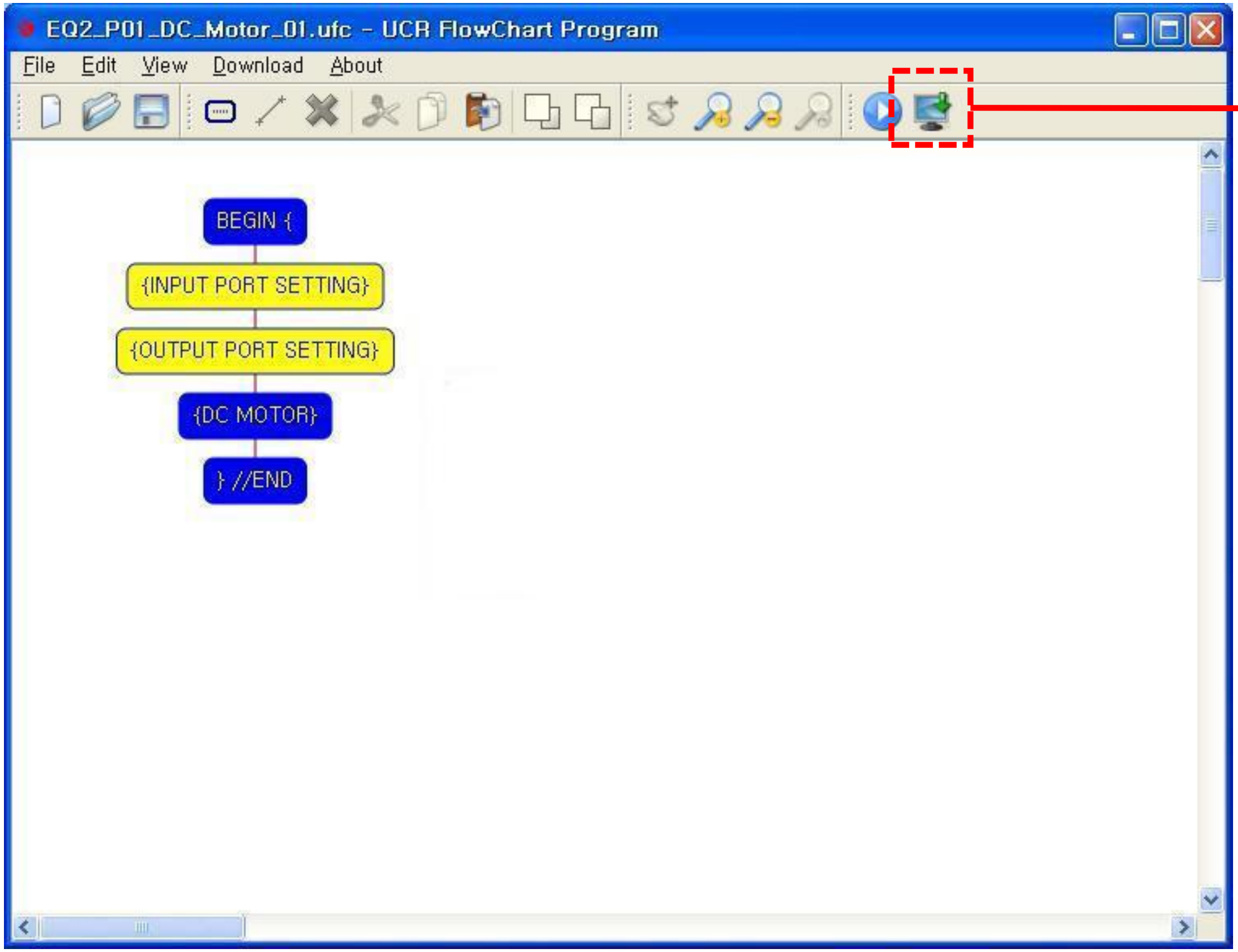
4. Click "OK"

technical support : ucrobot @ ucrobot.com

4. Program download

MICROSOFT's
Windows XP

(4-3) Download icon is enabled

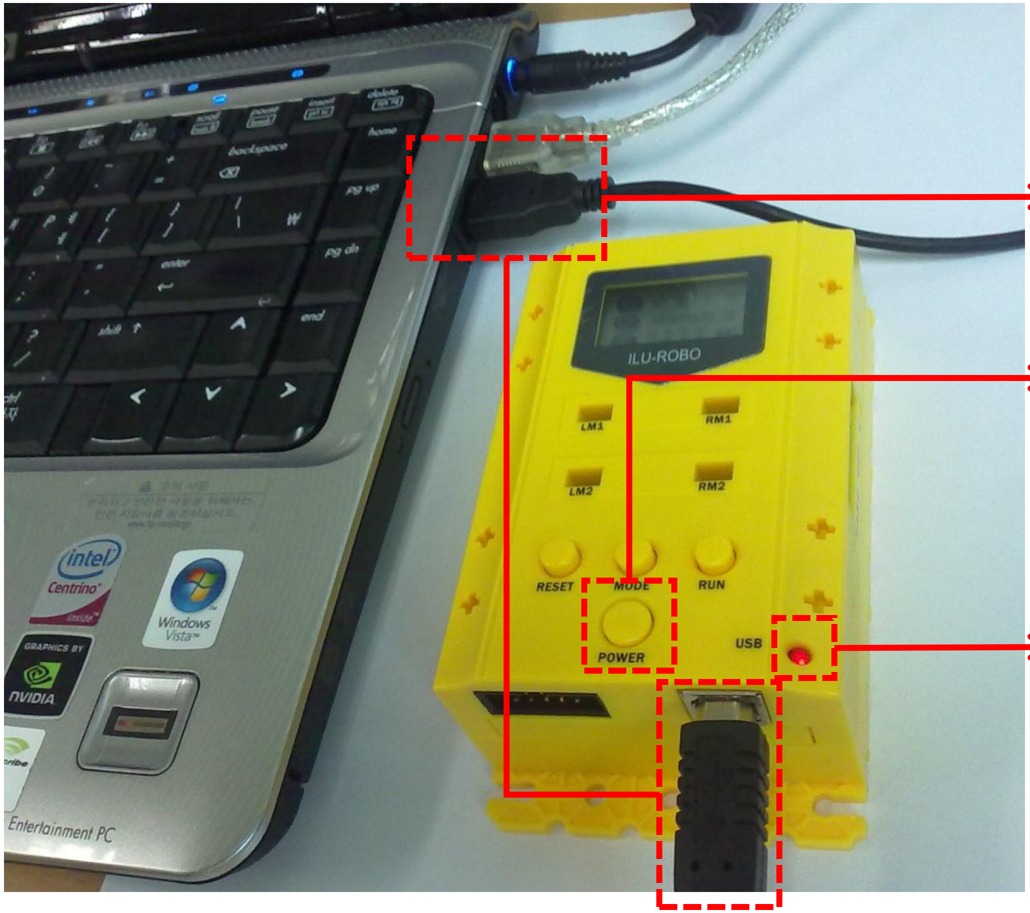


If there is no error,
download icon is enabled.

technical support : ucrobot @ ucrobot.com

4. Program download

(4-4) Connect main controller to your computer



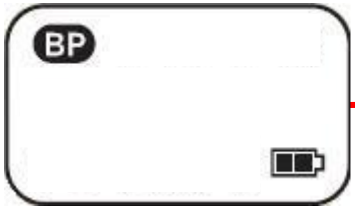
5. Connect main controller
to your computer using
USB cable.

6. Power on
the main controller

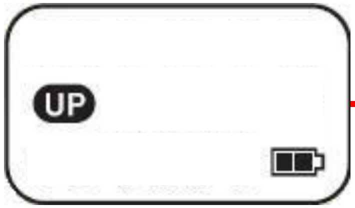
If your computer detect the
USB communication from
main controller,
this LED is on.

4. Program download

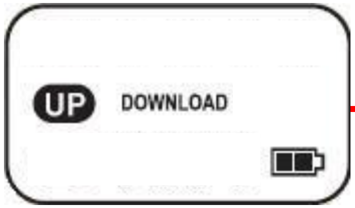
(4-5) Prepare the main controller for downloading the program



7. Select “UP” mode pressing [MODE] button of main controller.



8. Press [RUN] button of main controller to execute the “DOWNLOAD” mode.

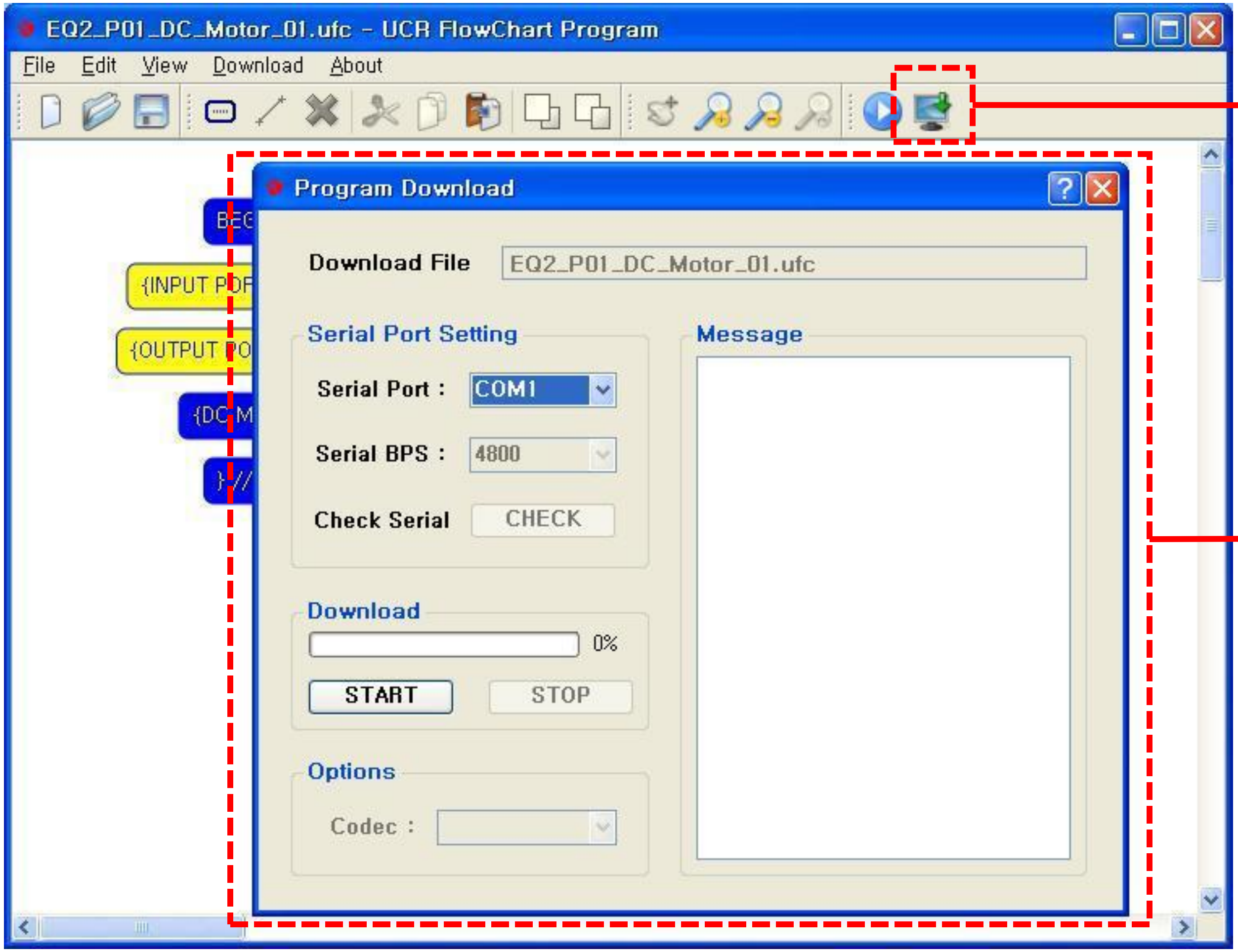


9. Press [RUN] button again to execute the “DOWNLOAD” ready state.
“DOWNLOAD” is blinking 2 times.

4. Program download

MICROSOFT's Windows XP

(4-6) Download window is pop up



Download File: EQ2_P01_DC_Motor_01.ufc

Serial Port Setting

Serial Port : COM1

Serial BPS : 4800

Check Serial: CHECK

Message

Download

0%

START STOP

Options

Codec :

10. Click the download icon.

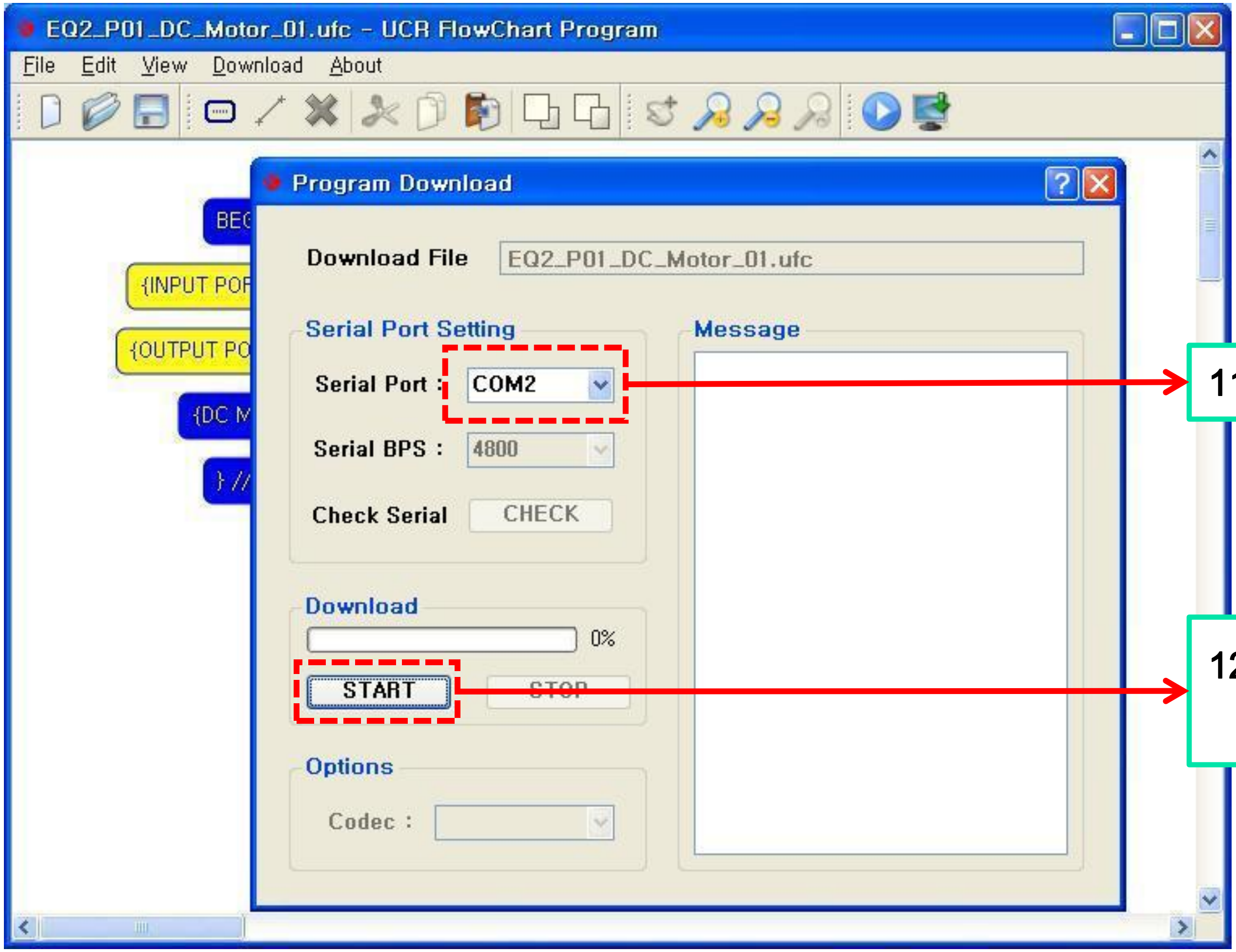
Download window is pop up

technical support : ucrobot @ ucrobot.com

4. Program download

MICROSOFT's
Windows XP

(4-7) Set the serial port and start the download



Download File: EQ2_P01_DC_Motor_01.ufc

Serial Port Setting

Serial Port : COM2

Serial BPS : 4800

Check Serial: CHECK

Message

Download

0%

START

STOP

Options

Codec :

11. Set the serial port.

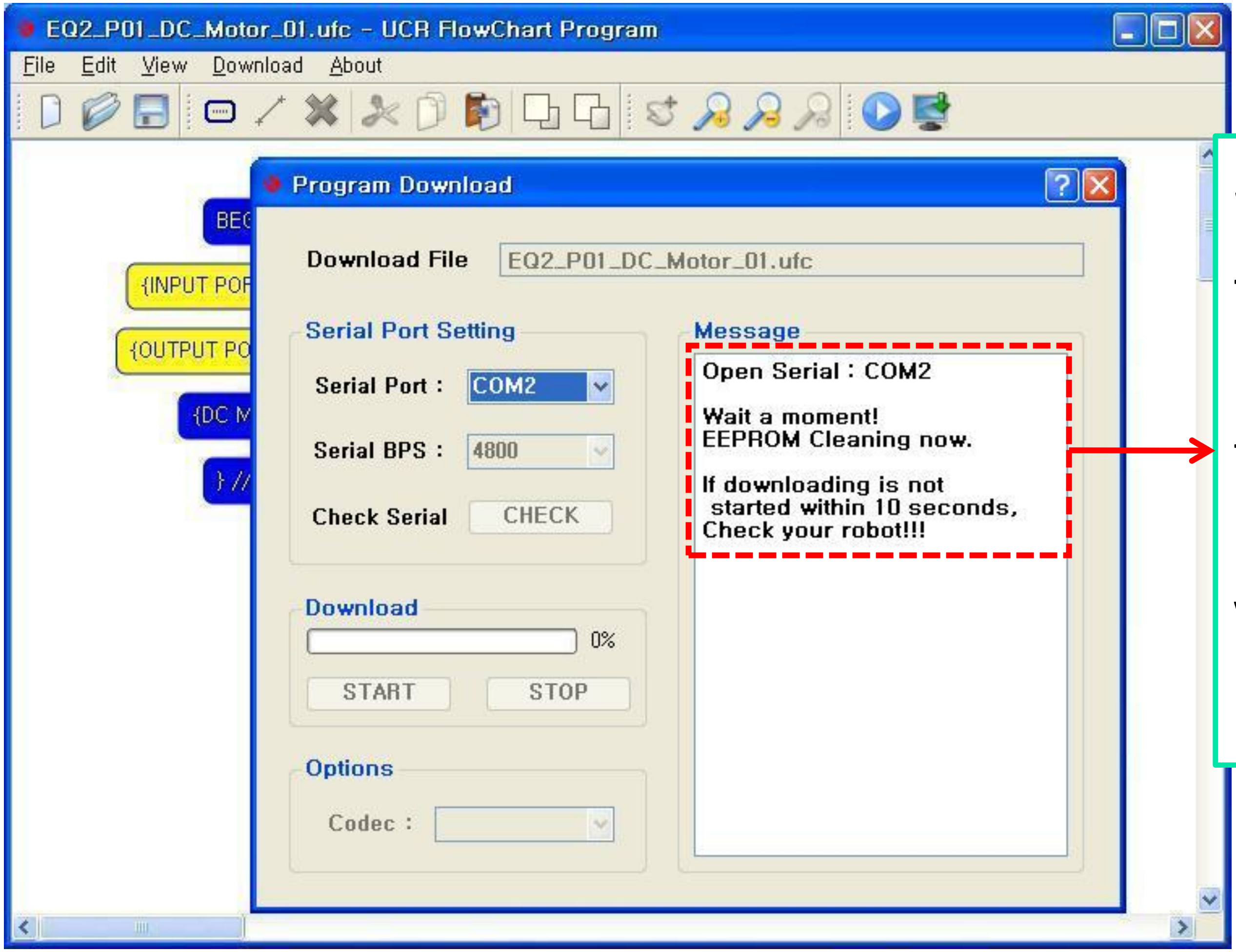
12. Click the "START" to download.

technical support : ucrobot @ ucrobot.com

4. Program download

MICROSOFT's
Windows XP

(4-8) Downloading – Delete the EEPROM data from main controller



Download File: EQ2_P01_DC_Motor_01.ufc

Serial Port : COM2

Serial BPS : 4800

Open Serial : COM2

Wait a moment!
EEPROM Cleaning now.

If downloading is not
started within 10 seconds,
Check your robot!!!

Serial port : COM2

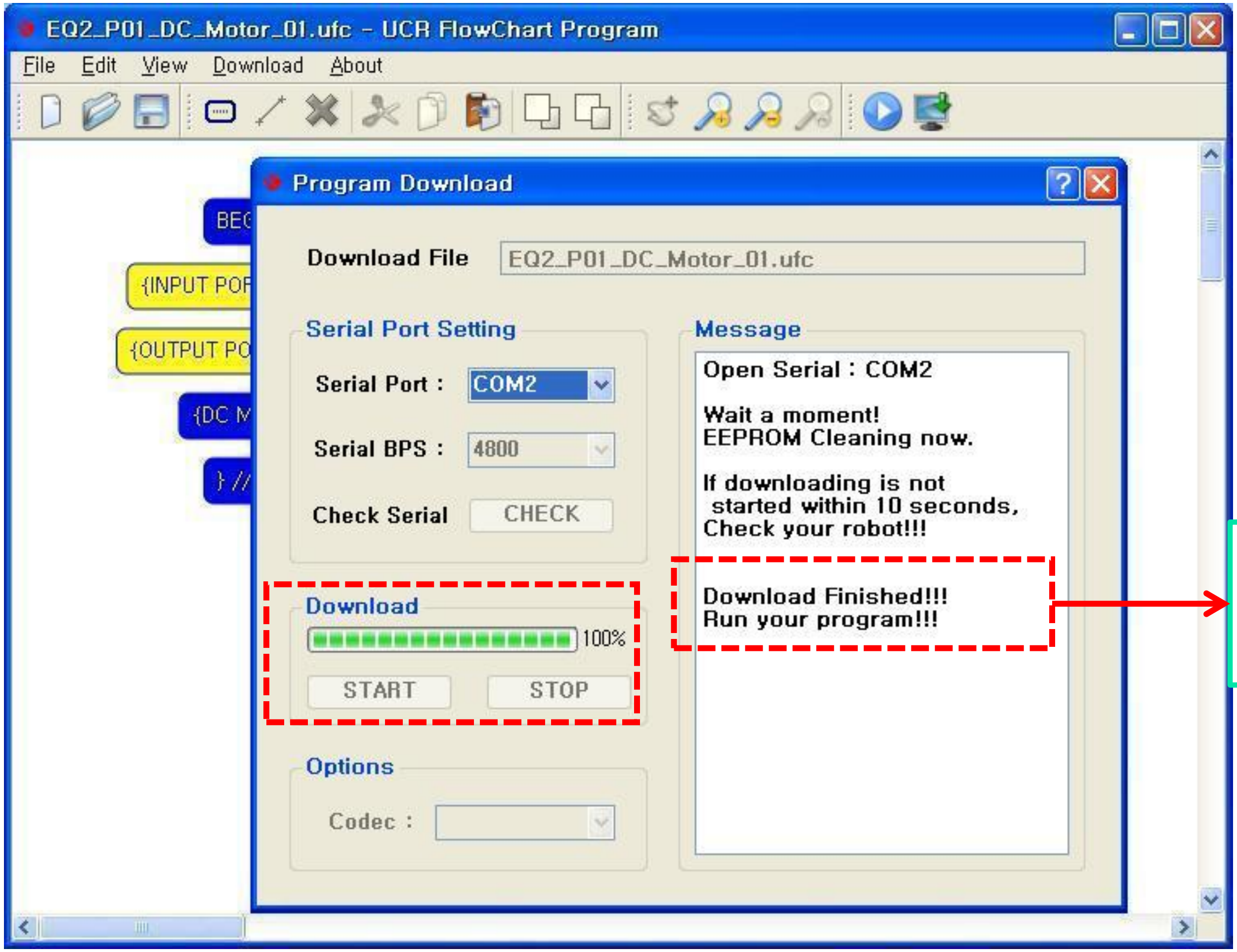
To save the program data on main controller,
before downloading delete the EEPROM data at first.

If download does not start within 10 second,
main controller is not ready.
Please check again the 4-5.

4. Program download

MICROSOFT's Windows XP

(4-9) Downloading success



Download File: EQ2_P01_DC_Motor_01.ufc

Serial Port : COM2

Serial BPS : 4800

Check Serial: CHECK

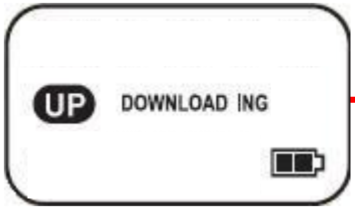
Download: 100%

```
Open Serial : COM2

Wait a moment!
EEPROM Cleaning now.

If downloading is not
 started within 10 seconds,
Check your robot!!!

Download Finished!!!
Run your program!!!
```

Download is finished.
Run your program !!!

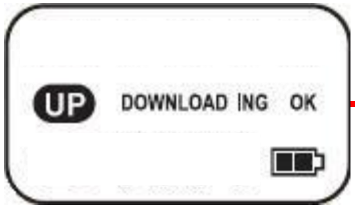
4. Program download

(4-10) Checking the downloading on main controller



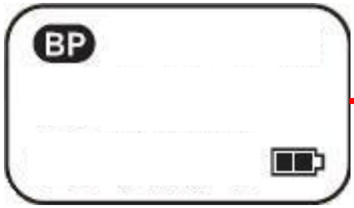
UP DOWNLOAD ING

"ING " is displayed during downloading the program from computer to main controller.



UP DOWNLOAD ING OK

"OK" is displayed after finishing the download.



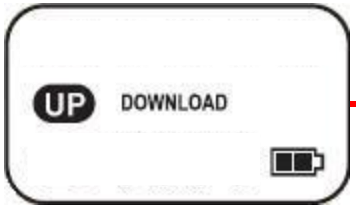
BP

13. Press [RESET] button to initialize the main controller.

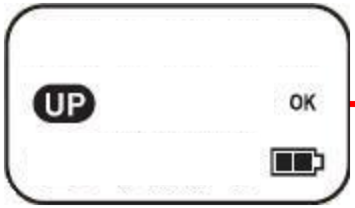
4. Program download

(4-11) Run the downloaded program on main controller

14. Press [RUN] button of main controller to execute the “DOWNLOAD” mode.



15. Press [MODE] button of main controller to execute the “OK” mode.



16. Press [RUN] button of main controller to execute the program downloaded.
“OK” is blinking 2 times and run the program.

※ If you want to re-execute the program, press [RESET] button and do 15 ~ 16.