

ROBOTC Programming

using MINDSTORMS EV3

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Gyeonggido Office of Education



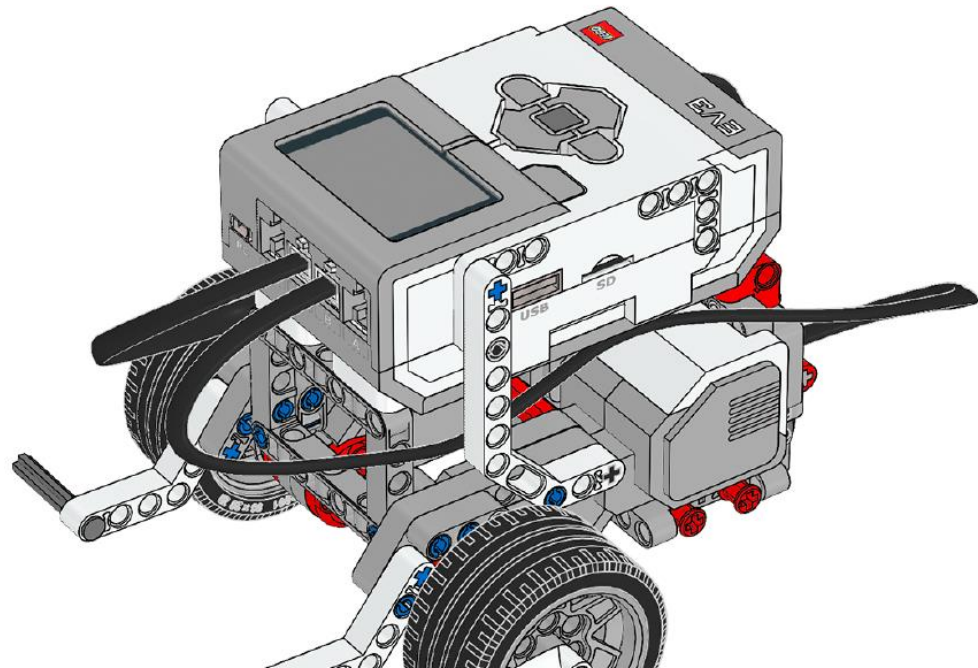
저작자를 밝히면 이용이 가능하지만, 영리 목적으로 이용할 수 없으며, 내용을 수정해서도 안 됩니다

02 ROBOTC 설치

1. EV3 로봇 조립하기
2. ROBOTC 소프트웨어 설치하기

EDUCATOR 조립하기

- Educator Vehicle with Attachments
 - Driving Base
 - Touch Sensor
 - Ultrasonic Sensor
 - Color Sensor Down
 - Gyro Sensor
 - Medium Motor



02 ROBOTC 설치

1. EV3 로봇 조립하기
2. ROBOTC 소프트웨어 설치하기

ROBOTC 소프트웨어 설치

1. <http://www.robotc.net> 접속



The screenshot shows the ROBOTC website homepage. At the top is a red navigation bar with links: Download, Support, Education, Community, and Purchase. A search bar is on the right. Below the navigation bar, the ROBOTC logo is displayed with the tagline "a C Programming Language for Robotics". To the right of the logo is a "Change Region" dropdown menu set to "USA" with a US flag, and social media icons for Facebook, Twitter, YouTube, Pinterest, and LinkedIn. The main content area features a large video player showing a red arrow pointing right with various programming languages (C#, C++, Java, JavaScript, Perl, PHP) written on it. Below the video player are four smaller video thumbnails: "What is ROBOTC?", "RVW Level Builder", "Robot Virtual Worlds", and "RVW Measuring Tool". To the right of the video player, there is a text block describing ROBOTC as a cross-robotics-platform programming language for educational robotics systems. Below this is a "Free Trial Download" button. Further down, there is a section titled "Download your evaluation copy today!" with bullet points: "Blazing fast High Performance Firmware." and "Interactive Run-Time Debugger". At the bottom, a line of text says "Don't forget to check out our free training, curriculum, and support!"

ROBOTC
a C Programming Language for Robotics

Change Region
USA

ROBOTC is a cross-robotics-platform programming language for popular educational robotics systems.

ROBOTC is the premiere robotics programming language for educational robotics and competitions. ROBOTC is a C-Based Programming Language with an Easy-to-Use Development Environment.

Free Trial Download

Download your evaluation copy today!

- Blazing fast High Performance Firmware.
- Interactive Run-Time Debugger

Don't forget to check out our free training, curriculum, and support!

ROBOTC 소프트웨어 설치

2. [Download]-[ROBOTC 4.x MINDSTORMS] 메뉴 선택

The screenshot displays the ROBOTC website interface. At the top, a red navigation bar contains the following links: Download, Support, Education, Community, and Purchase. A red circle with the number '1' highlights the 'Download' link. Below the navigation bar, the main content area features a large red button labeled 'ROBOTC' and a smaller blue button labeled 'a C Programming Language'. A red circle with the number '2' highlights the 'ROBOTC 4.x for MINDSTORMS' option in the dropdown menu. The dropdown menu also lists other options: 'ROBOTC 4.x for VEX Robotics', 'ROBOTC 3.x for MINDSTORMS', 'ROBOTC 3.x for CORTEX & PIC', 'ROBOTC 3.x for Arduino', 'Robot Virtual Worlds', 'ROBOTC 3.x for VEX PIC', and 'ROBOTC 2.x for RCX'. To the right of the main content, there is a 'Change Region' section with a dropdown menu set to 'USA' and a list of social media icons (Facebook, Twitter, YouTube, Pinterest, LinkedIn). Below this, a paragraph describes ROBOTC as a cross-robotics-platform programming language for popular educational robotics systems. Another paragraph states that ROBOTC is the premiere robotics programming language for educational robotics and competitions, and is a C-Based Programming Language with an Easy-to-Use Development Environment. A blue button labeled 'Free Trial Download' is positioned below the text. At the bottom, a section titled 'Download your evaluation copy today!' lists two bullet points: 'Blazing fast High Performance Firmware.' and 'Interactive Run-Time Debugger.' A final paragraph encourages users to check out free training, curriculum, and support.

ROBOTC

Download

Support

Education

Community

Purchase

Search... Go

ROBOTC

a C Programming Language

ROBOTC 4.x for MINDSTORMS

ROBOTC 4.x for VEX Robotics

ROBOTC 3.x for MINDSTORMS

ROBOTC 3.x for CORTEX & PIC

ROBOTC 3.x for Arduino

Robot Virtual Worlds

ROBOTC 3.x for VEX PIC

ROBOTC 2.x for RCX

Change Region

USA

ROBOTC is a cross-robotics-platform programming language for popular educational robotics systems.

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Free Trial Download

Download your evaluation copy today!

- Blazing fast High Performance Firmware.
- Interactive Run-Time Debugger

Don't forget to check out our free training, curriculum, and support!

ROBOTC 소프트웨어 설치

3. [Download version 4.56] 버튼 클릭

**ROBOTC**

Download ▾ Support ▾ Education ▾ Community ▾ Purchase ▾

ROBOTC for LEGO MINDSTORMS

Platforms: EV3, NXT
Version: 4.56
Date Posted: August 16, 2017



Free 10-day Trial!

Download version 4.56
(includes free trial)

Download .msi file

Before you can use ROBOTC for EV3, you will need to update your EV3's Firmware. take a look at the "Getting Started" guide for more information.

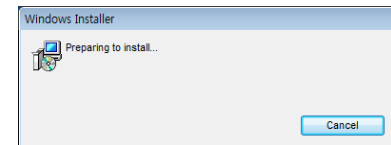
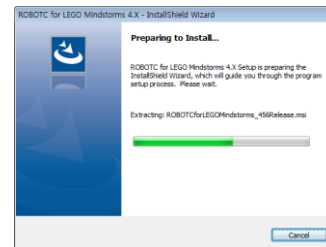
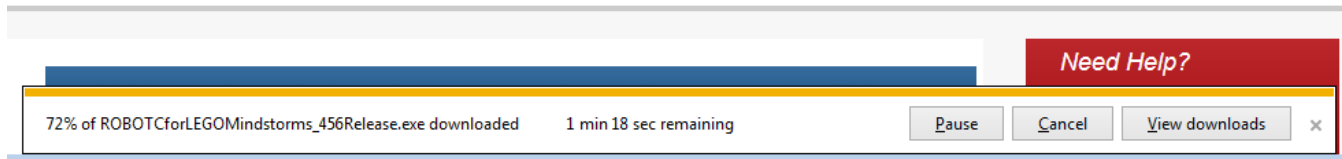
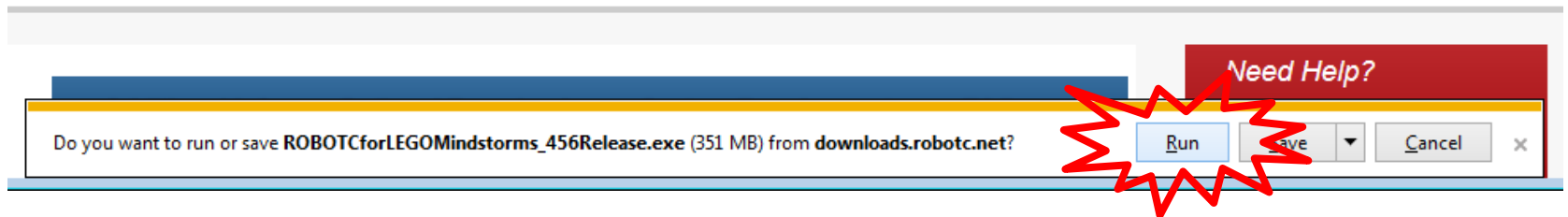
EV3 Documentation Links

- [Getting Started Guide](#)
- [ROBOTC for LEGO MINDSTORMS 4.0 Users Guide](#)

Upgrade your license today:
Go to the [purchase page](#) »

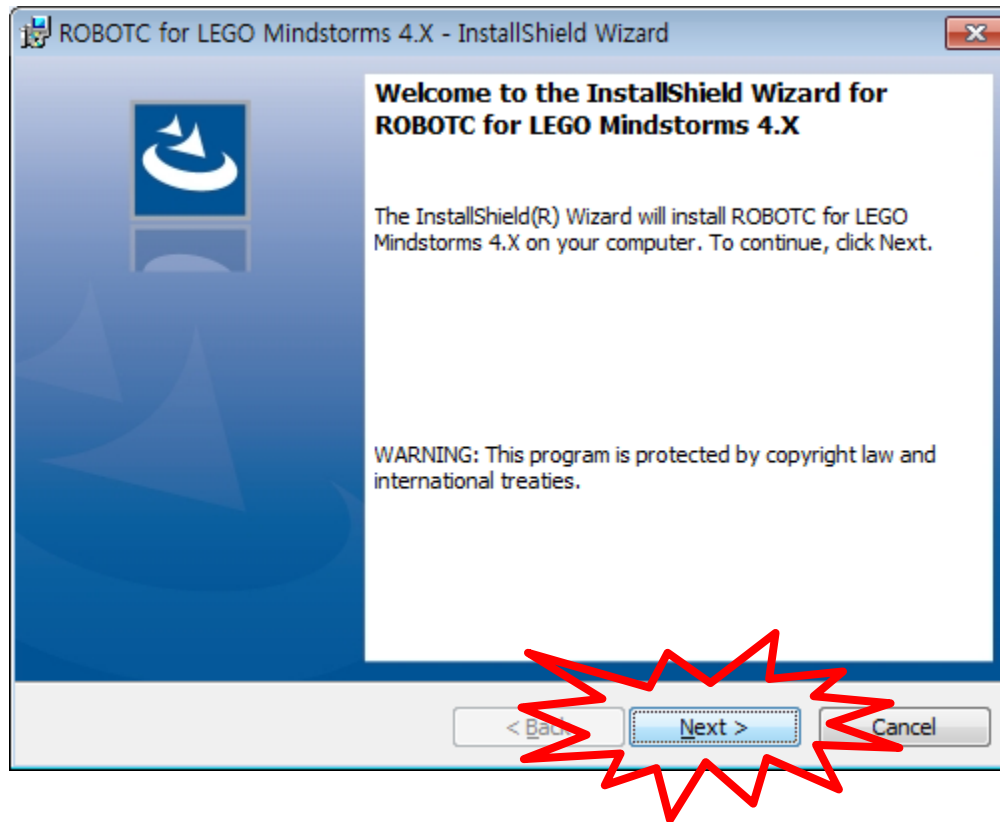
ROBOTC 소프트웨어 설치

4. [Run] 클릭



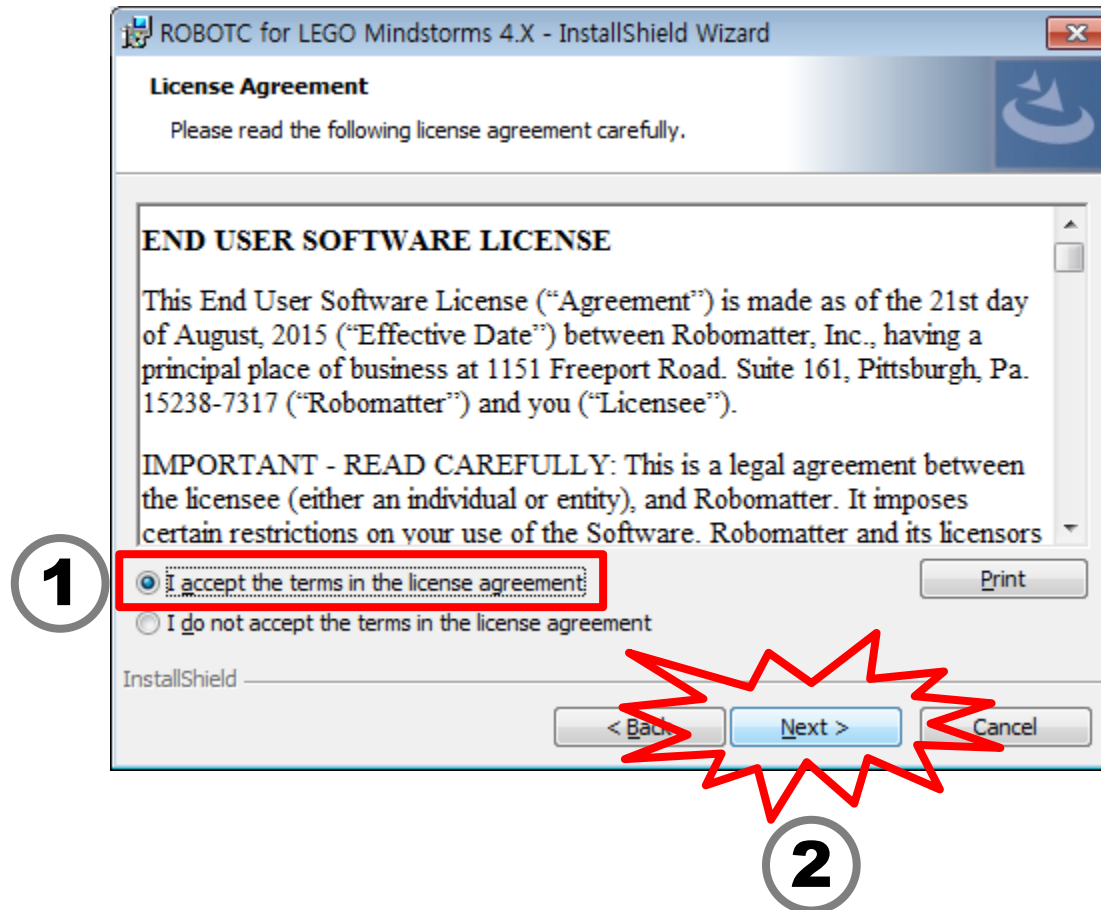
ROBOTC 소프트웨어 설치

5. [Next] 클릭



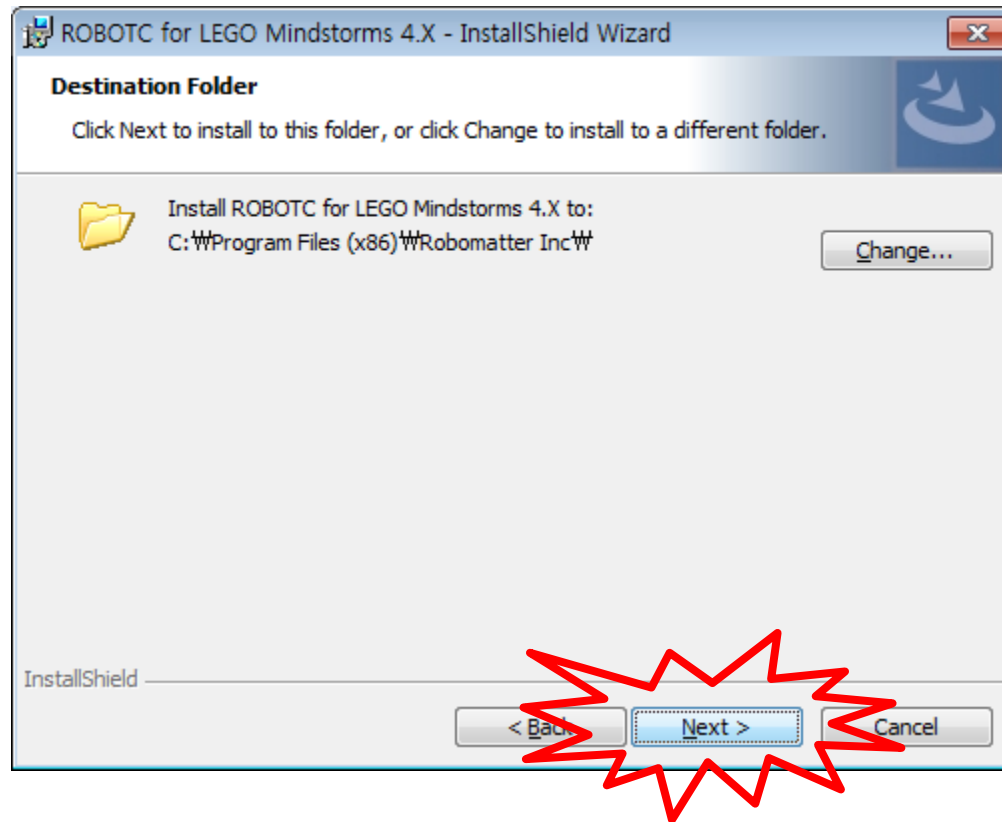
ROBOTC 소프트웨어 설치

5. [I accept the terms ...] 선택 후, [Next] 클릭



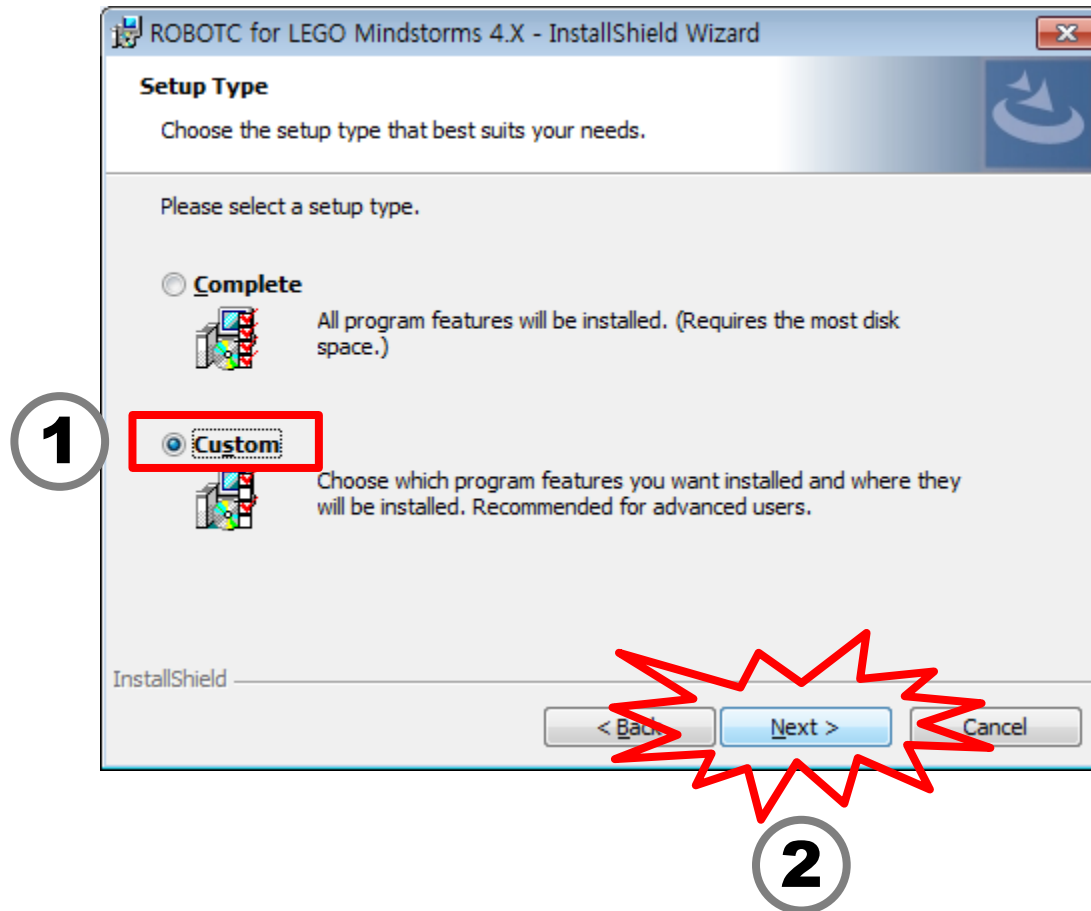
ROBOTC 소프트웨어 설치

6. [Next] 클릭



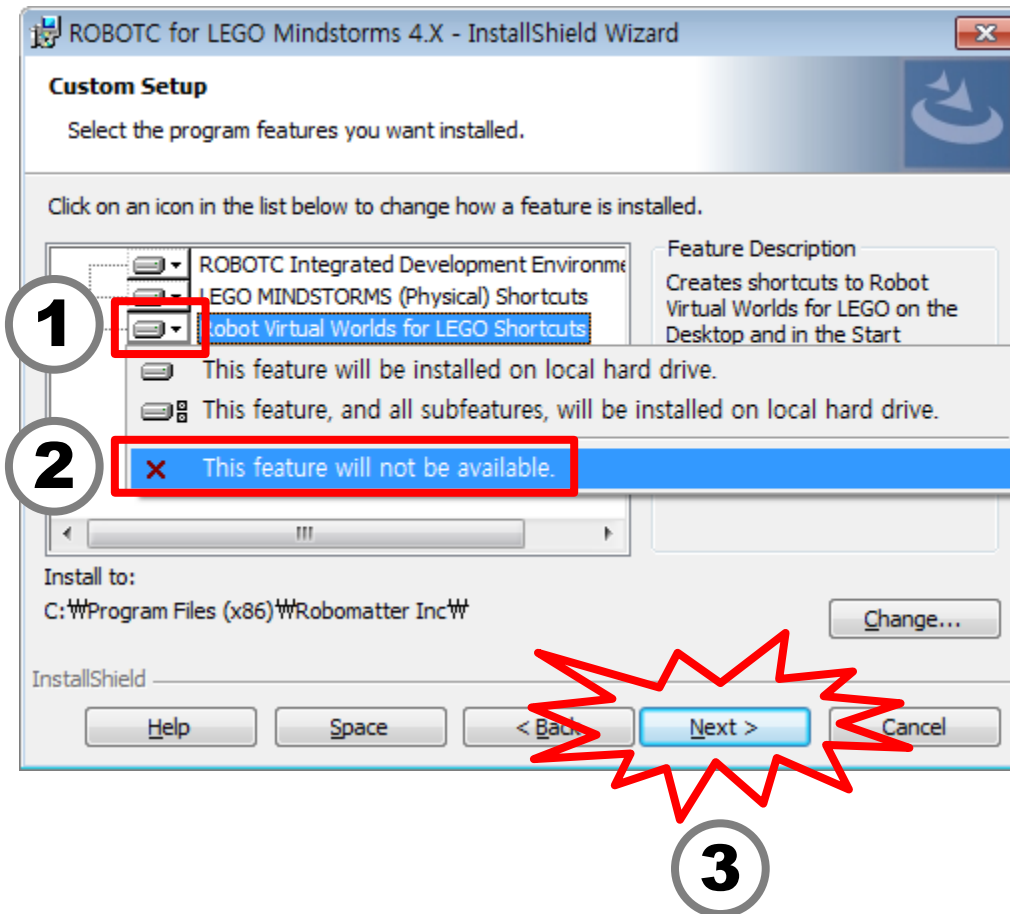
ROBOTC 소프트웨어 설치

7. [Custom] 선택 후, [Next] 클릭



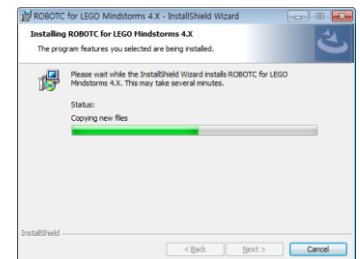
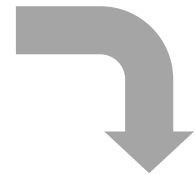
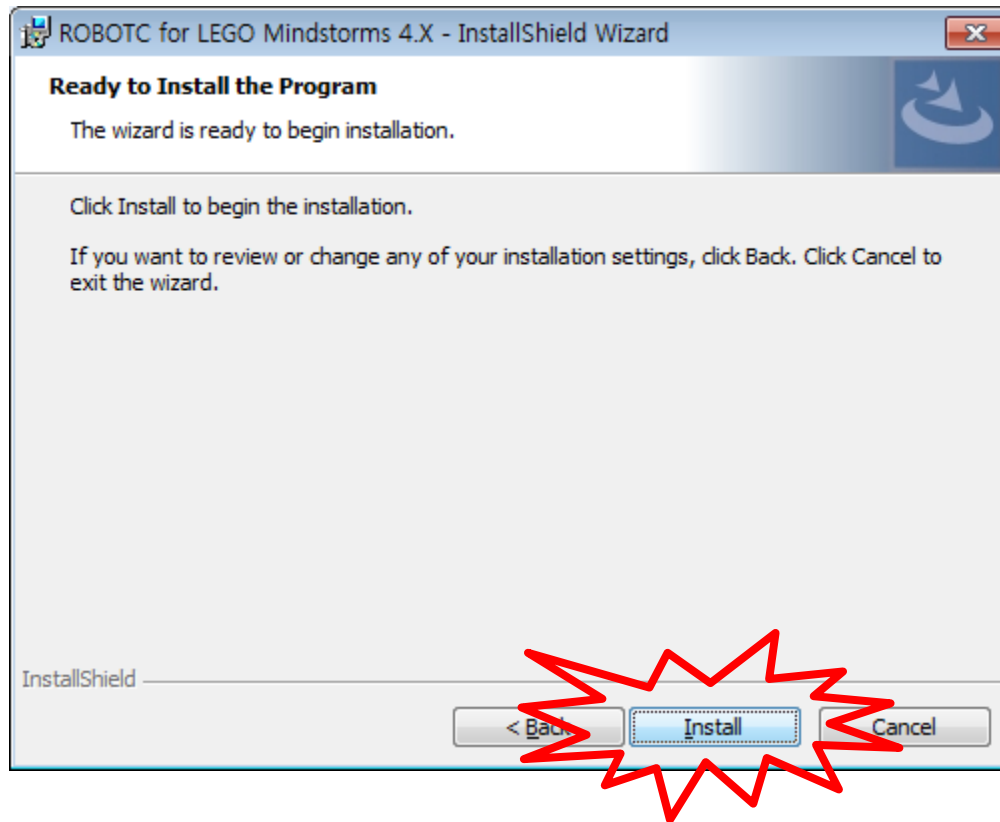
ROBOTC 소프트웨어 설치

8. [Robot Virtual Worlds...] 선택 해제 후, [Next] 클릭



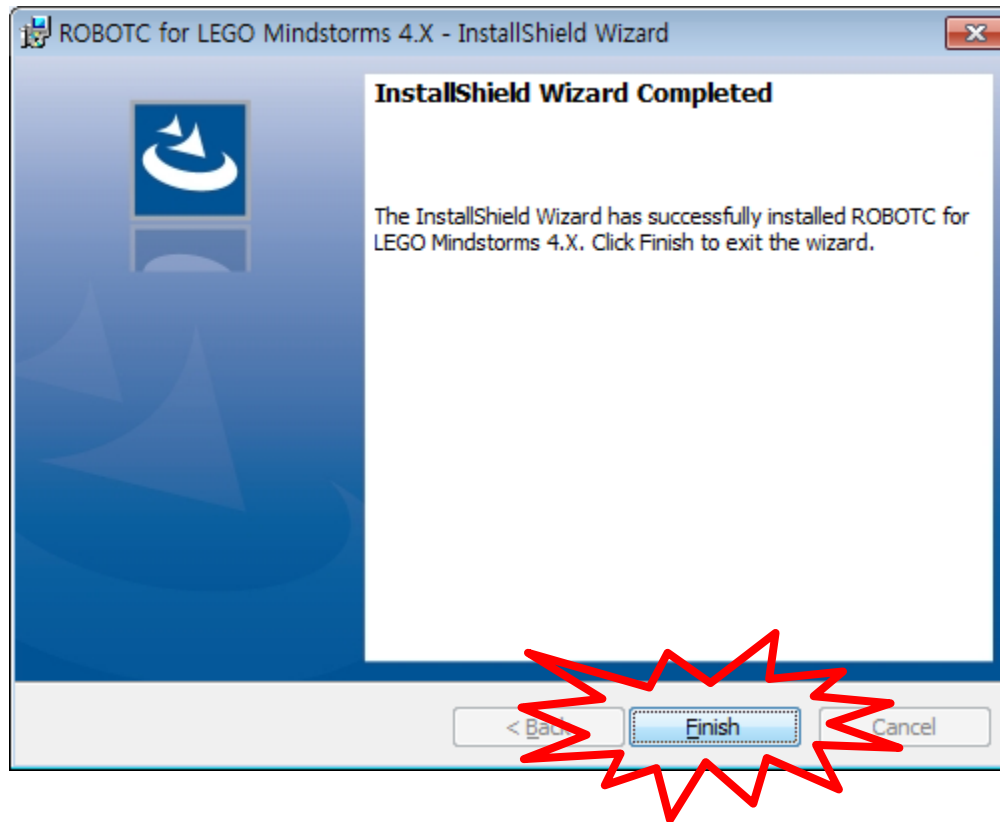
ROBOTC 소프트웨어 설치

9. [Install] 클릭



ROBOTC 소프트웨어 설치

10. [Finish] 클릭



(퀴즈)

- 다음 중 우리는 어떤 프로그램을 실행시켜야 할까요?

1



Graphical
Robot Virtual
Worlds -
LEGO 4.X

2



Robot Virtual
Worlds -
LEGO 4.X

3

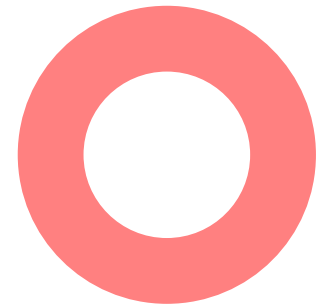


Graphical
ROBOTC for
LEGO
Mindstorms
4.X

4

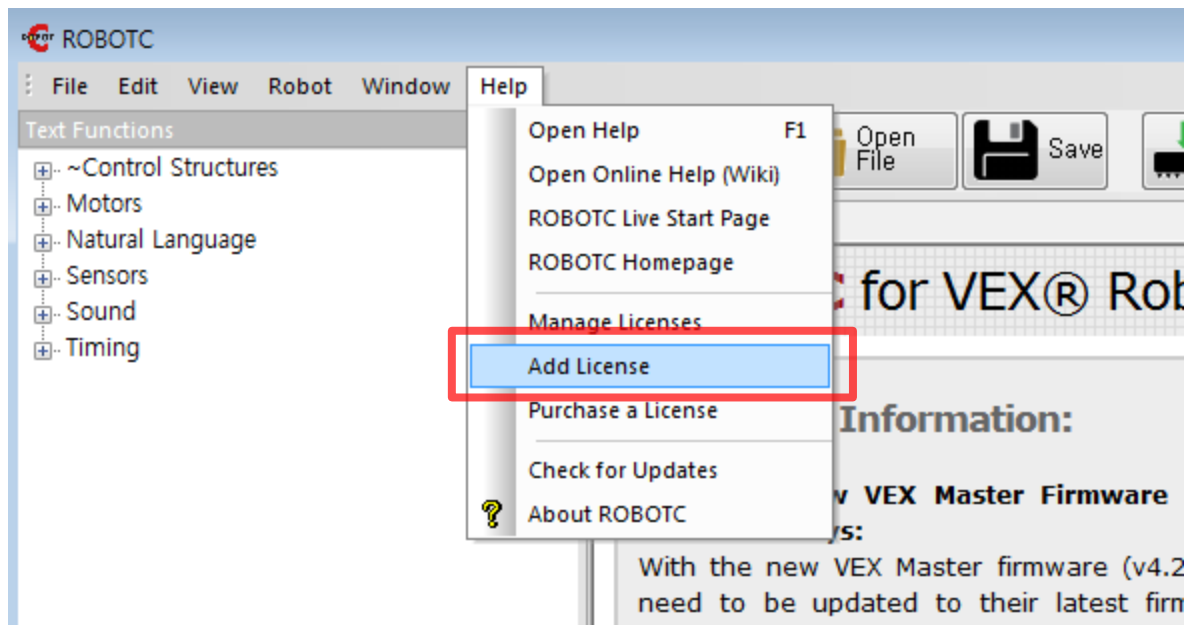


ROBOTC for
LEGO
Mindstorms
4.X

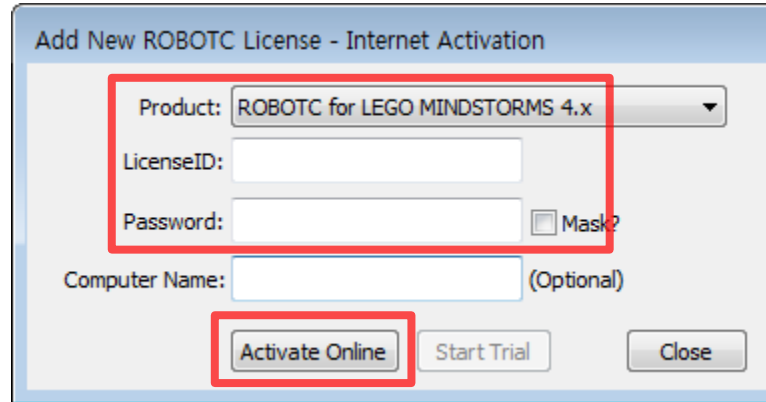


라이선스 등록

1. [Help]-[Add License] 선택



라이선스 등록



Add New ROBOTC License - Internet Activation

Product: ROBOTC for LEGO MINDSTORMS 4.x

LicenseID:

Password: ☐ Mask?

Computer Name: (Optional)

Activate Online Start Trial Close

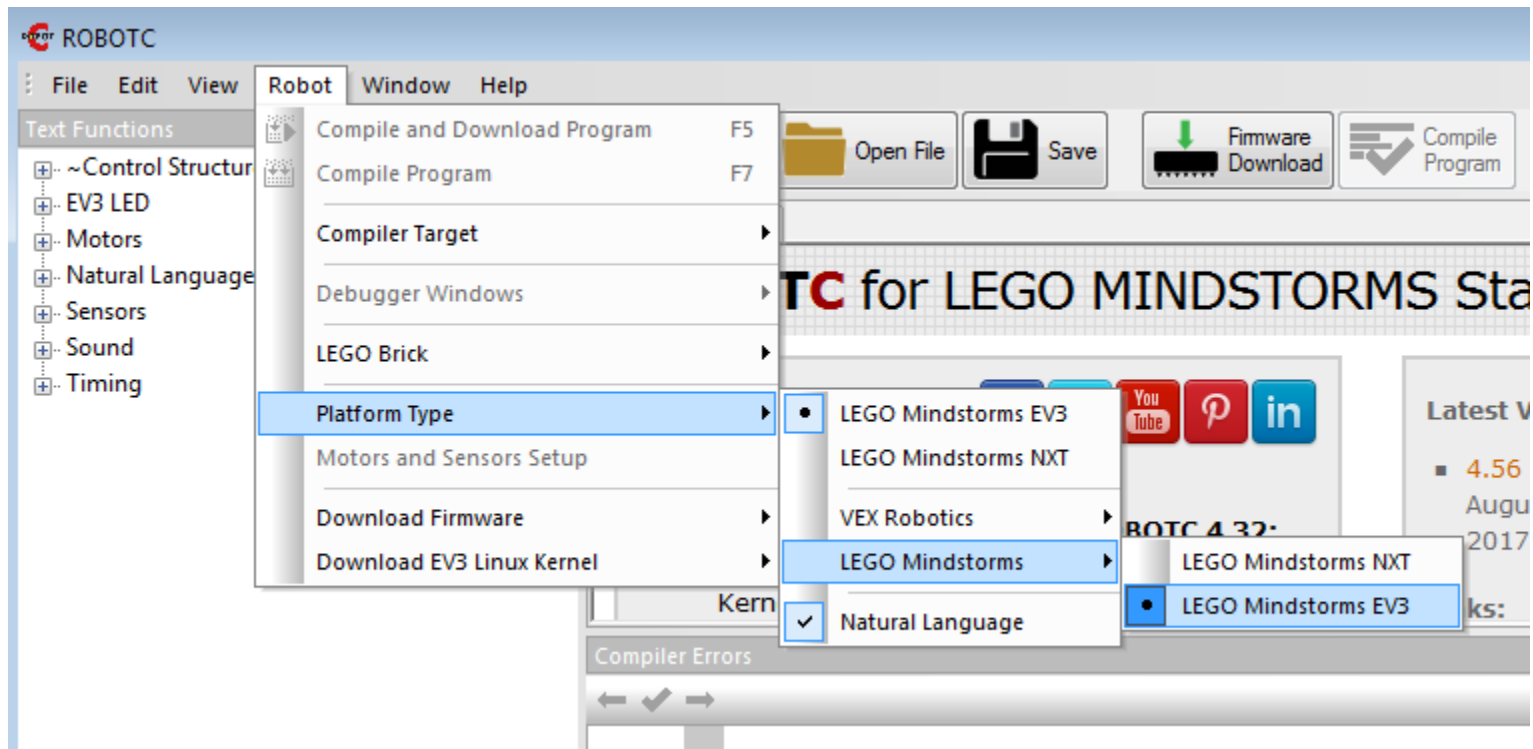
3. 라이선스 정보 입력

- Product: ROBOTC for LEGO MINDSTORMS 4.x
- LicenseID:
- Password:

4. [Activate Online] 클릭

로봇 형식(Platform Type) 지정

- 로봇 형식으로 LEGO Mindstorms EV3 지정
 - [Robot]-[Platform Type]-[LEGO Mindstorms]-[LEGO Mindstorms EV3]



리눅스 커널 및 펌웨어 업데이트

EV3를 ROBOTC에서 사용하기 위해서는...

리눅스 커널 업데이트를 시행하고,
펌웨어(공유 라이브러리)를 설치해야 한다.

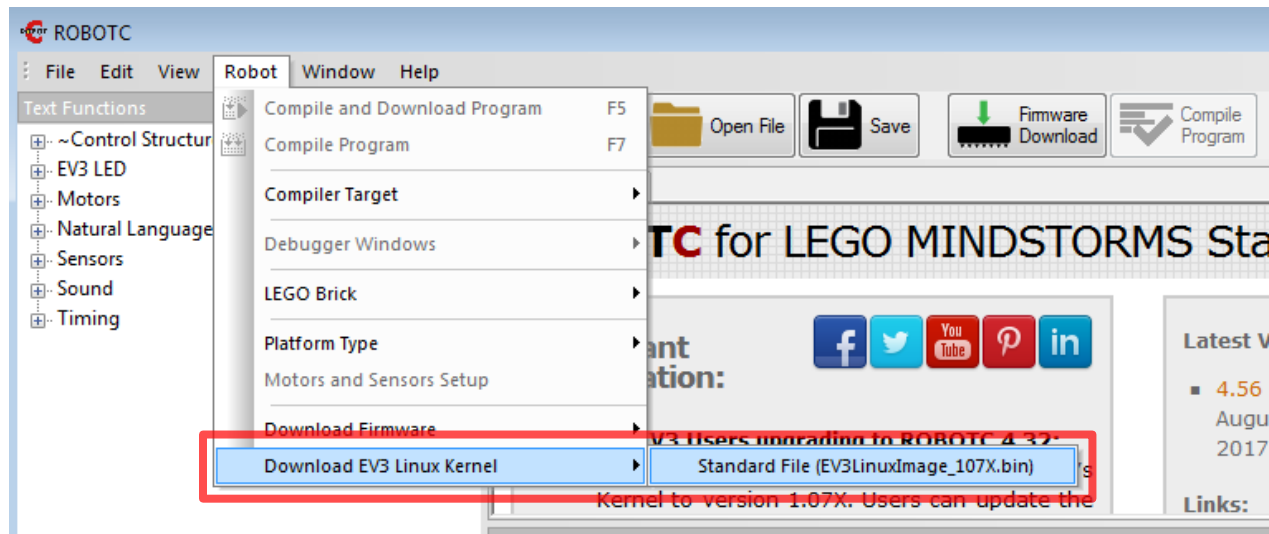
EV3 펌웨어(공유 라이브러리)는...

EV3와 PC 간의 인터페이스를 제공하는데,
EV3와 ROBOTC의 펌웨어 버전이 일치하지 않으면
EV3가 제대로 동작하지 않을 수 있다.

리눅스 커널 및 펌웨어 업데이트

- 리눅스 커널 업데이트

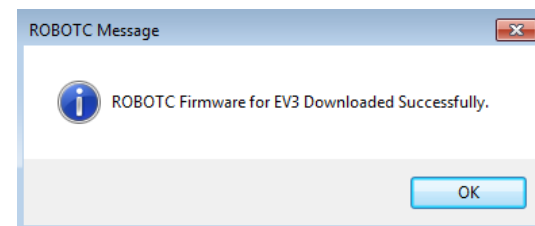
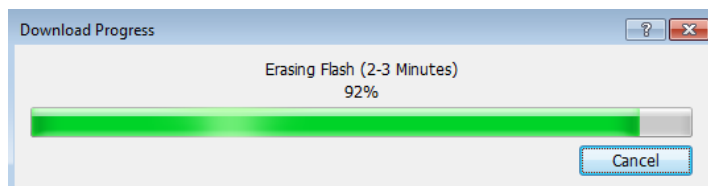
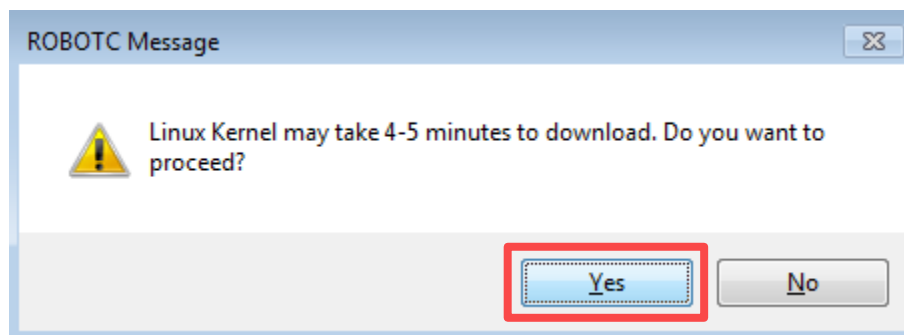
- ① EV3와 PC 연결
- ② EV3 전원 켜기
- ③ [Robot]-[Download EV3 Linux Kernel]-[Standard File (EV3LinuxImage_107X.bin)] 선택



리눅스 커널 및 펌웨어 업데이트

- 리눅스 커널 업데이트

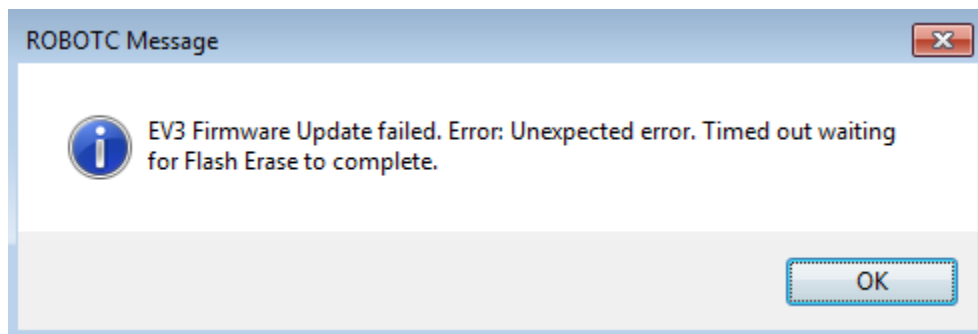
④ 진행 확인 메시지 창이 나타나면 [Yes] 클릭



리눅스 커널 및 펌웨어 업데이트

리눅스 커널 업데이트 진행 중 아래와 같이
업데이트 실패 메시지 창이 나타나면...

다시 한 번 업데이트 시도!



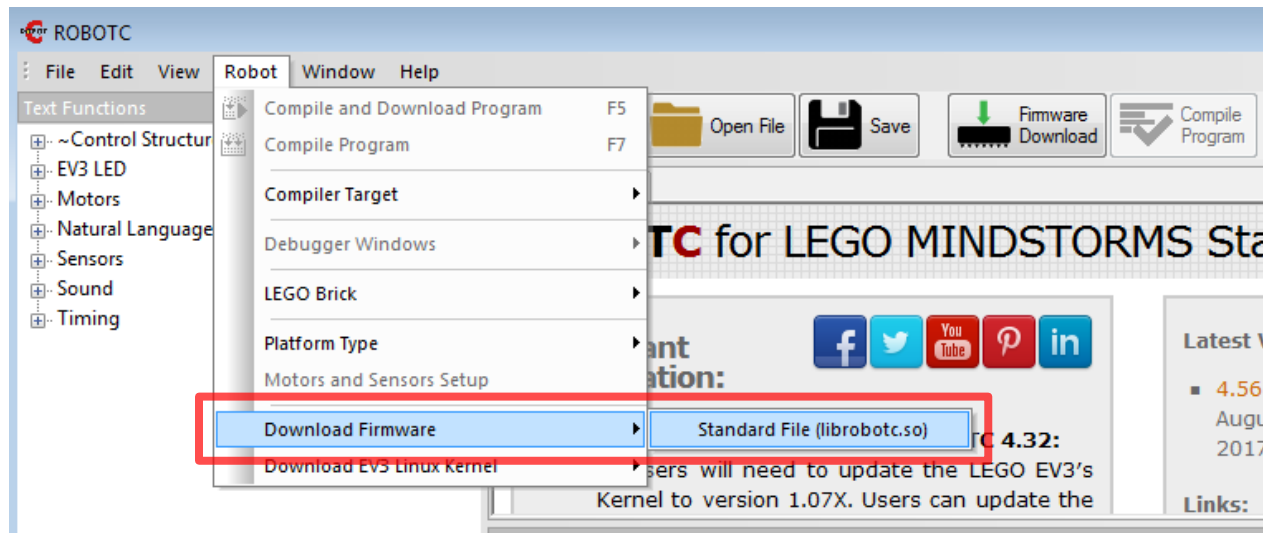
리눅스 커널 및 펌웨어 업데이트

- 펌웨어 업데이트

- ① EV3와 PC 연결

- ② EV3 전원 켜기

- ③ [Robot]-[Download Firmware]-[Standard File (librobotc.so)]
선택



[프로그램] EV3 브릭에 텍스트 표시

1. 새 파일 생성

[File]-[New]-[New File]

2. 저장

[File]-[Save]

☞ 파일명 입력 후 저장

[프로그램] EV3 브릭에 텍스트 표시

3. 코드 작성

```
task main()  
{  
    displayBigTextLine(1, "Hello, EV3!");  
    sleep(5000);  
}
```

[프로그램] EV3 브릭에 텍스트 표시

4. 컴파일 & 다운로드

[Robot]-[Compile and Download Program]

☞ 단축키: <F5>

5. 실행

Program Debug 창에서 [Start] 클릭

[프로그램] EV3 브릭에 텍스트 표시

- 코드 설명

```
task main()  
{  
    displayBigTextLine(1, "Hello, EV3!");  
    // EV3 화면의 두 번째 줄에 큰 글씨로 “Hello, EV3!” 표시  
  
    sleep(5000);  
    // 현재 상태를 5초간 유지  
}
```

