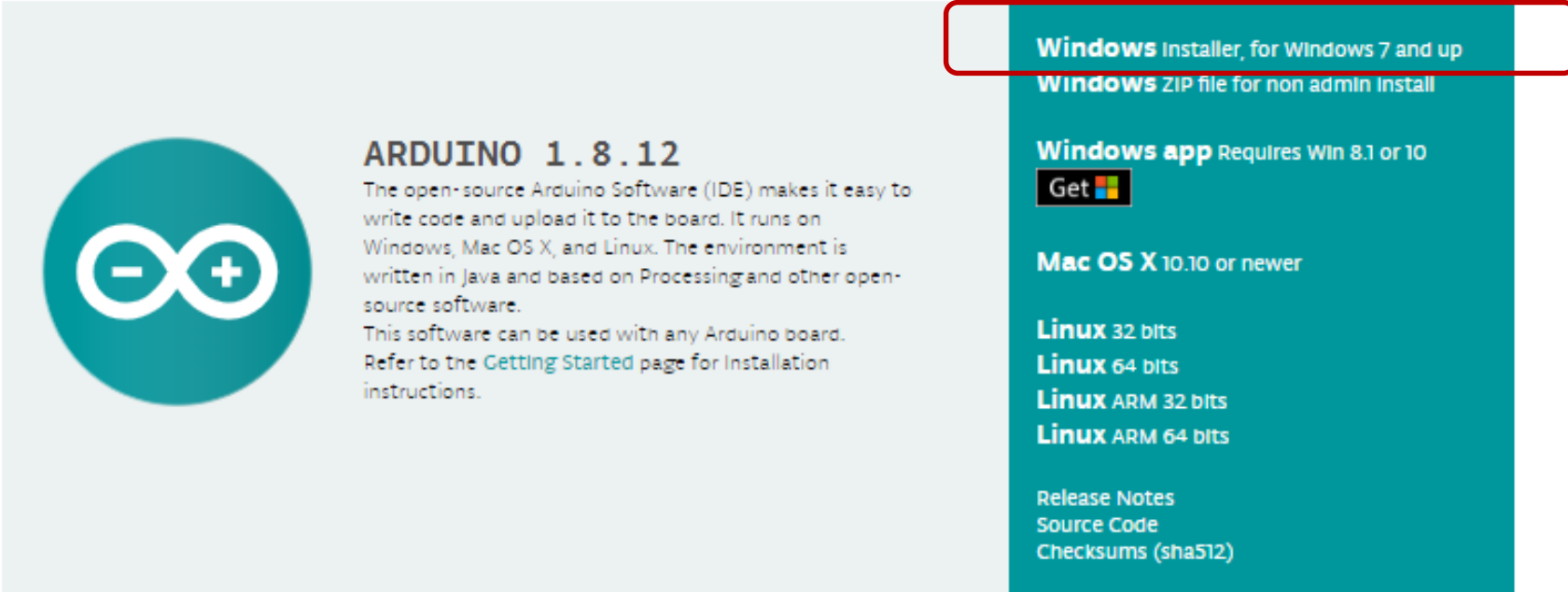

개발환경 구축

개발환경 구축

❖ Arduino IDE

- <https://www.arduino.cc/>
 - Software > DOWNLOADS


Download the Arduino IDE



The screenshot shows the Arduino IDE download page. On the left, there is a large teal circle containing the Arduino logo (an infinity symbol with a minus sign on the left and a plus sign on the right). To the right of the logo, the text reads: **ARDUINO 1.8.12**, followed by a paragraph describing the IDE as open-source software that runs on Windows, Mac OS X, and Linux. Below this, it states that the software can be used with any Arduino board and refers to the 'Getting Started' page for installation instructions. On the right side of the page, there is a teal sidebar with a white border. The top section of the sidebar is highlighted with a red rectangle and contains the text: **Windows** Installer, for Windows 7 and up, and **Windows** ZIP file for non admin install. Below this, there is a section for **Windows app** which requires Windows 8.1 or 10, with a 'Get' button featuring the Windows logo. Further down, there are links for **Mac OS X 10.10 or newer**, **Linux 32 bits**, **Linux 64 bits**, **Linux ARM 32 bits**, and **Linux ARM 64 bits**. At the bottom of the sidebar, there are links for **Release Notes**, **Source Code**, and **Checksums (sha512)**.

ARDUINO 1.8.12
The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software.
This software can be used with any Arduino board. Refer to the [Getting Started](#) page for Installation instructions.

Windows Installer, for Windows 7 and up
Windows ZIP file for non admin install

Windows app Requires Win 8.1 or 10
Get 

Mac OS X 10.10 or newer

Linux 32 bits
Linux 64 bits
Linux ARM 32 bits
Linux ARM 64 bits

[Release Notes](#)
[Source Code](#)
[Checksums \(sha512\)](#)












개발환경 구축

❖ Arduino IDE

- 디폴트로 설치 진행
 - C:\Program Files (x86)\Arduino

로컬 디스크 (C:) > Program Files (x86) > Arduino

이름

-  drivers
-  examples
-  hardware
-  java
-  lib
-  libraries
-  reference
-  tools
-  tools-builder
-  arduino
-  arduino.l4j

개발환경 구축

❖ 한글 설정

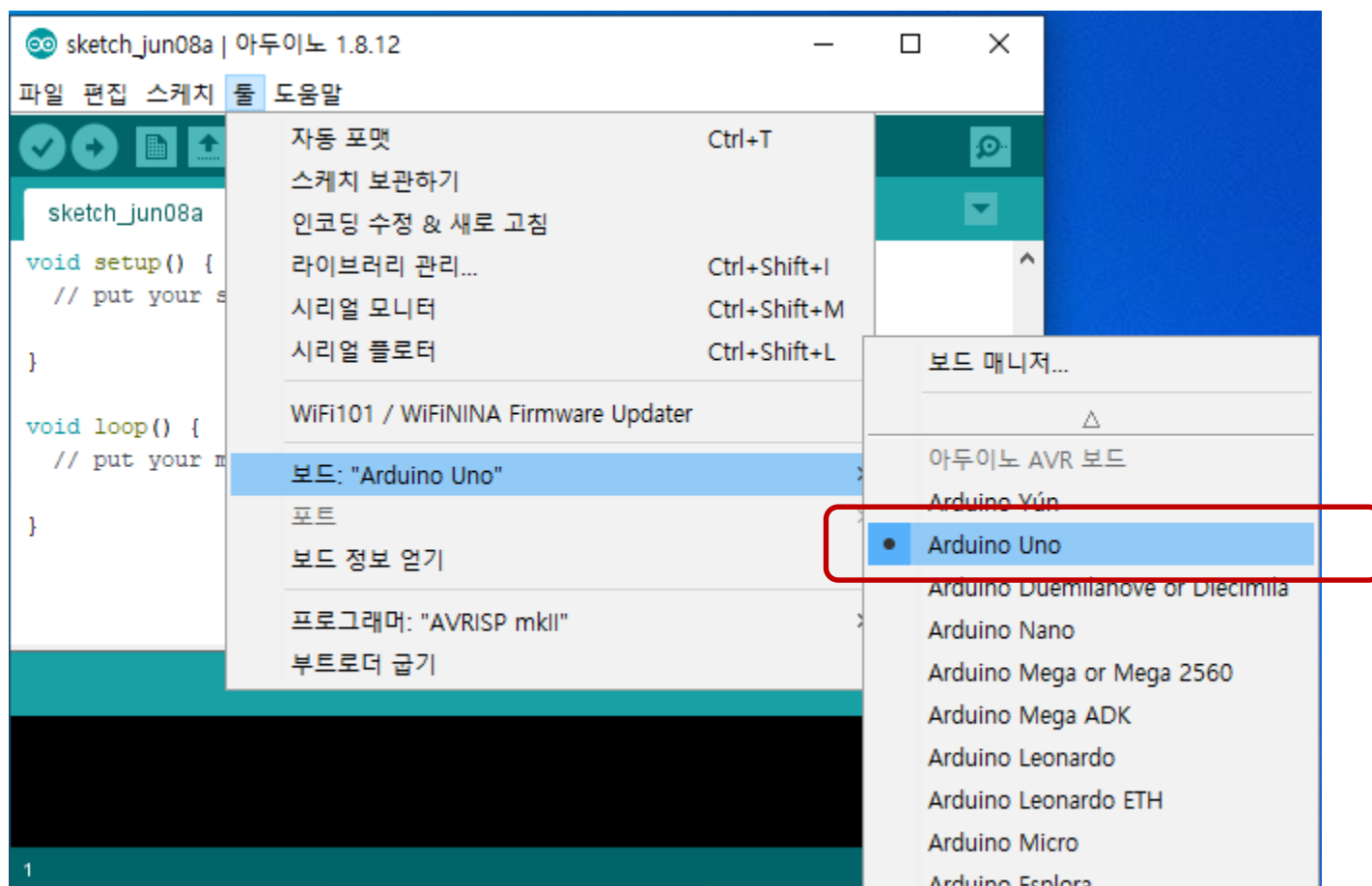
- 아두이노 설치 폴더
 - `arduino_debug.14j.ini`, `arduino.14j.ini`
 - java 머신의 설정파일

```
-Xms128M  
-Xmx512M  
-Dfile.encoding=UTF8  
-Djava.net.preferIPv4Stack=true  
-DDEBUG=false
```

Arduino IDE

❖ 보드 선택

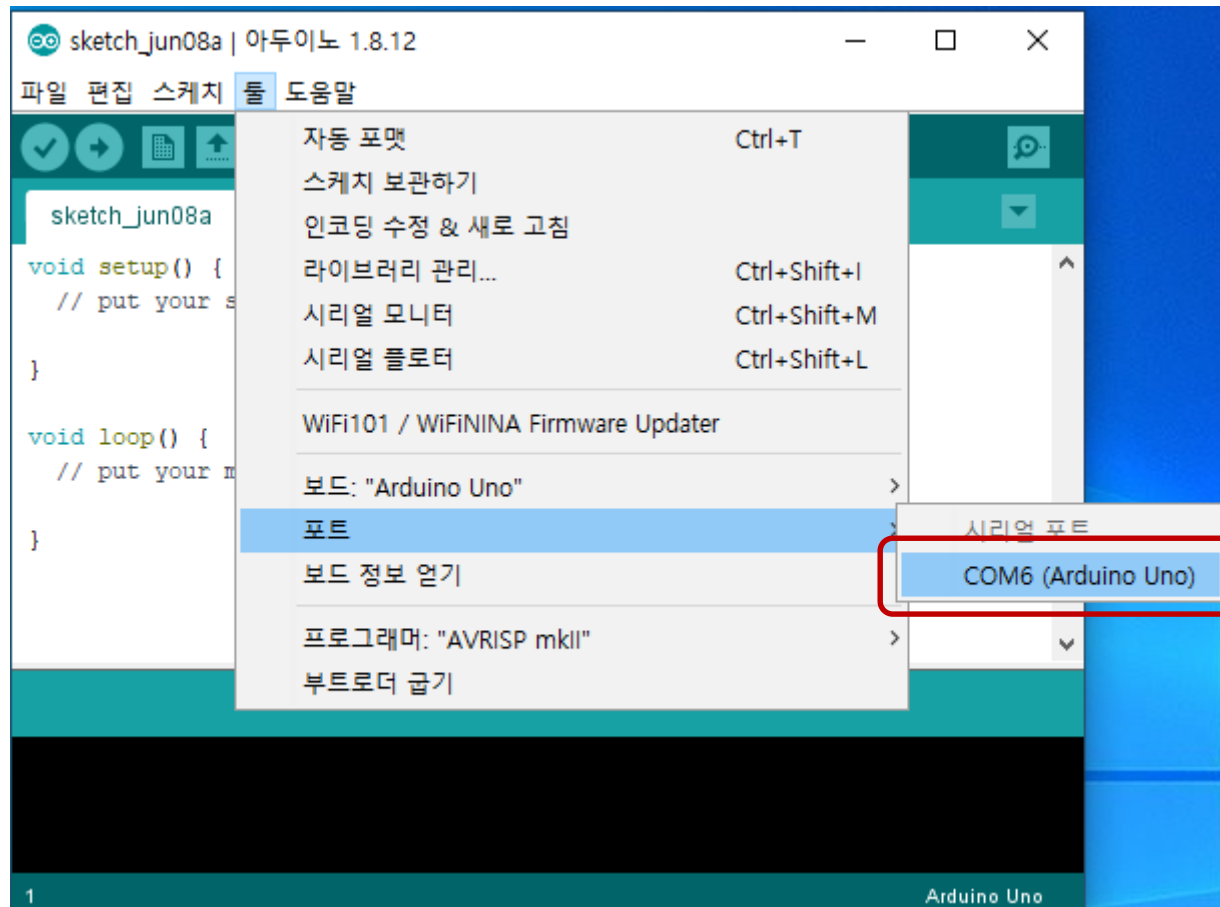
- 툴 > 보드 > Arduino Uno



Arduino IDE

❖ 포트 선택

- 툴 > 포트 > COM 번호 선택 (각 컴퓨터마다 다름)



Arduino IDE

❖ 아두이노 프로그램 구조

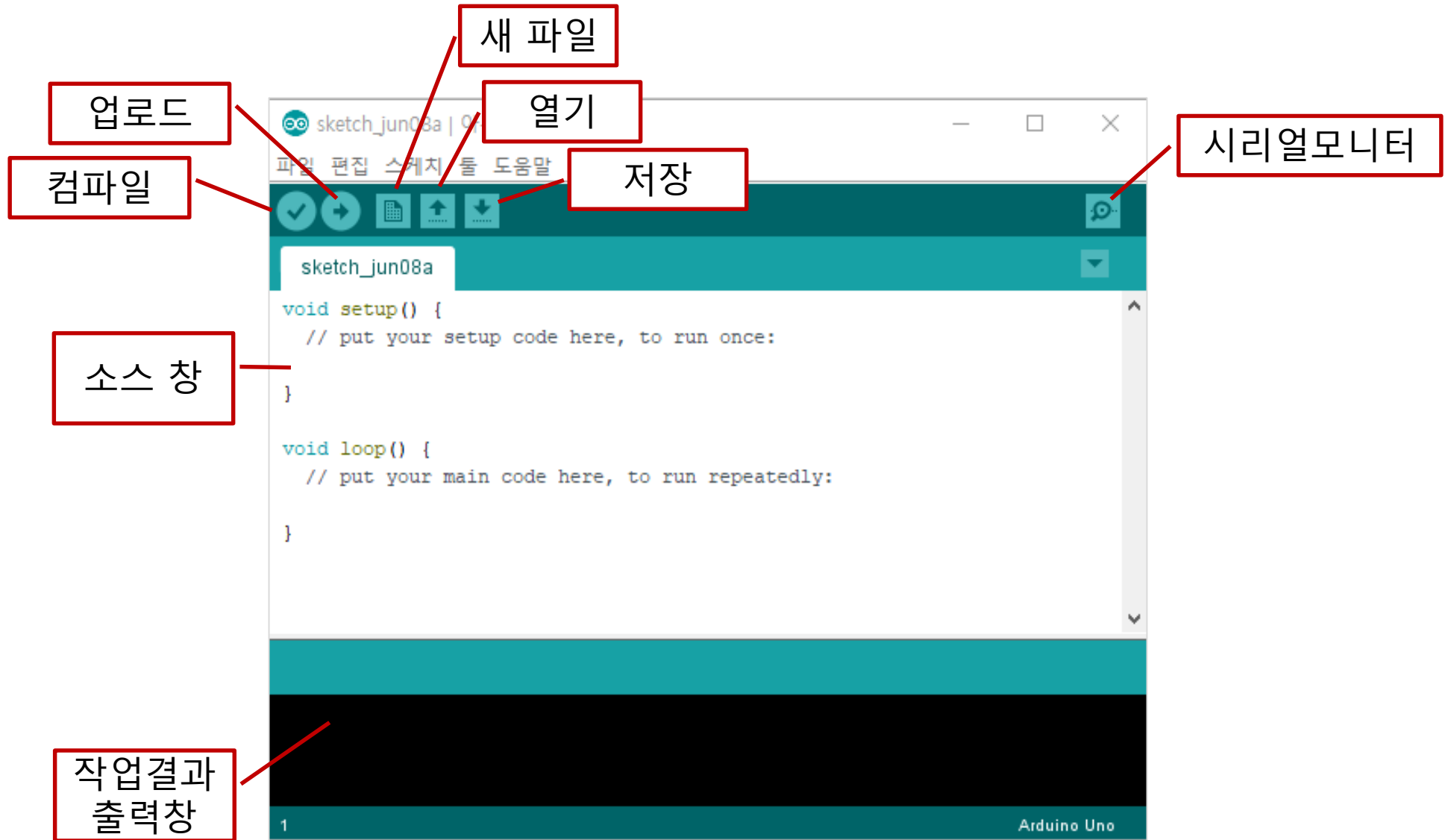
```
#include <Arduino.h>
```

```
void setup() {  
    // 초기화 코드  
}
```

```
void loop() {  
    // 메인 루프  
}
```

```
void main() {  
    setup();  
    while(true) {  
        loop();  
    }  
}
```

Arduino IDE



Arduino IDE

❖ 새 파일

```
void setup() {  
    Serial.begin(9600);           // 시리얼통신 시작(속도:9600)  
    Serial.print("hello, Arduino"); // 시리얼모니터에 "hello, Arduino"를 출력  
}  
  
void loop() {  
}
```

❖ 저장 > hello

- '내 문서\Arduino\hello\hello.ino' 경로로 저장됨

Arduino IDE

❖ 컴파일

컴파일



작업결과
출력창

Arduino IDE

❖ 업로드

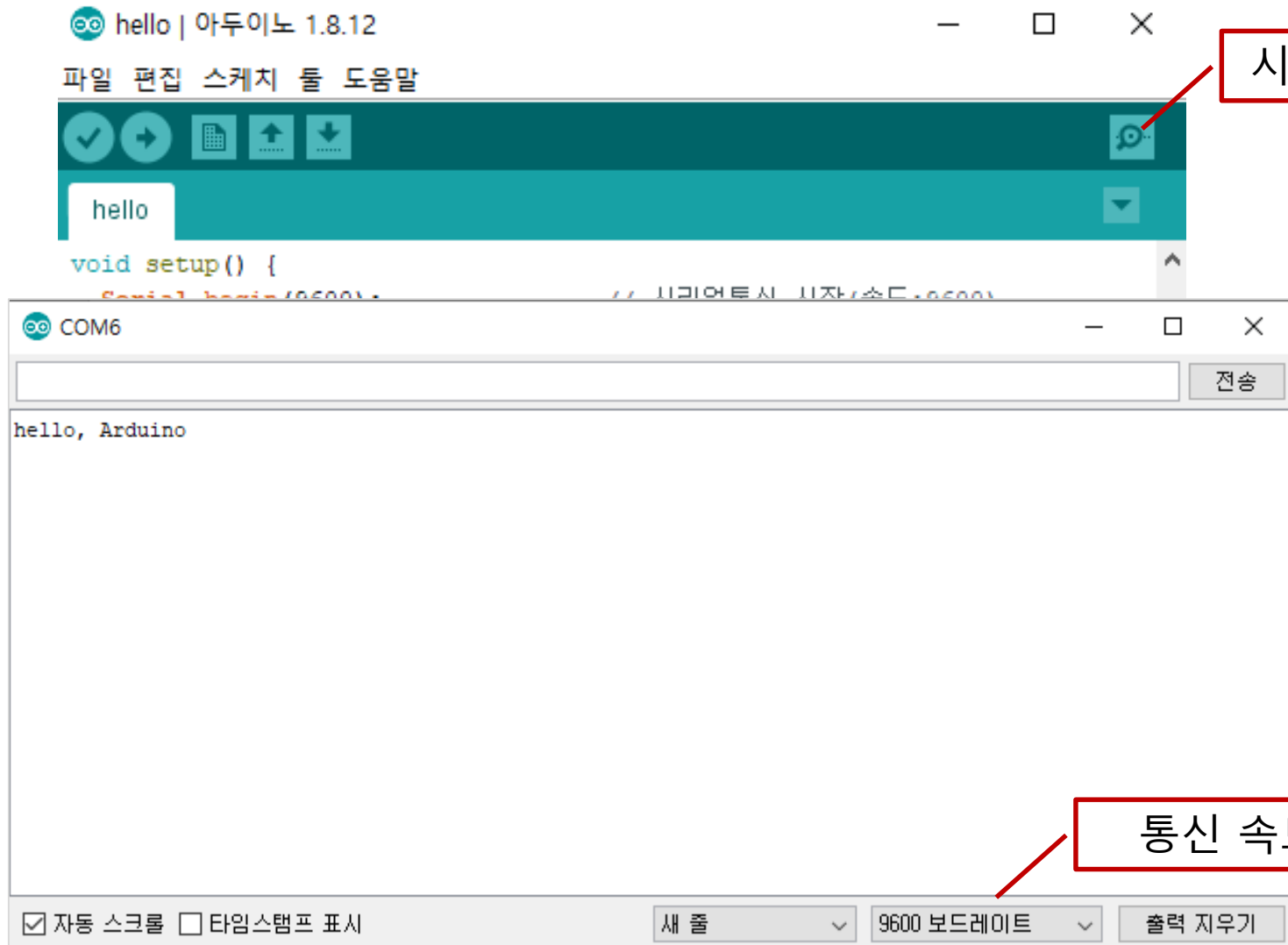
업로드



작업결과
출력창

Arduino IDE

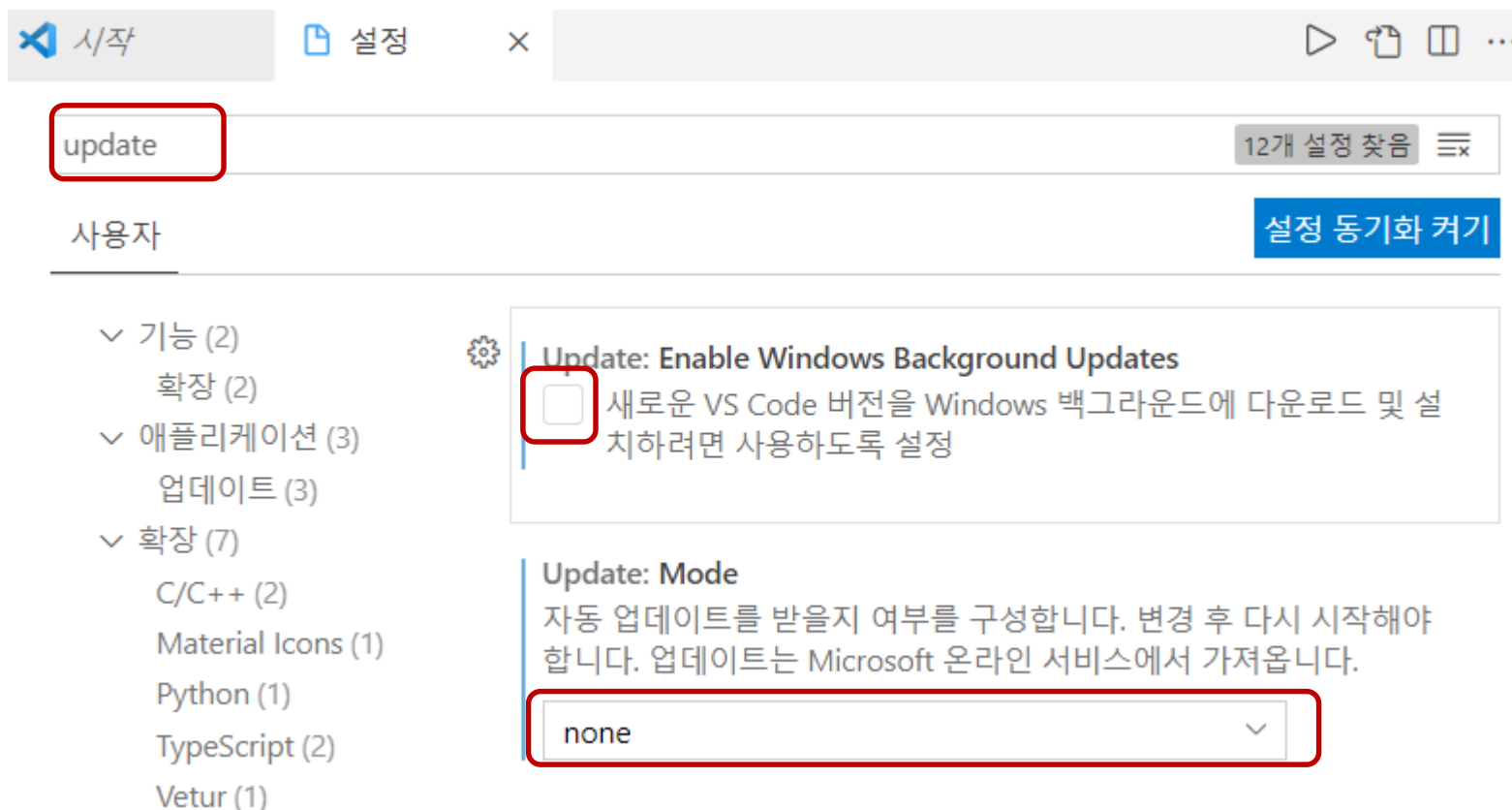
❖ 시리얼 모니터



개발환경 구축 - VSCode

❖ VSCode 1.58.2 버전 사용

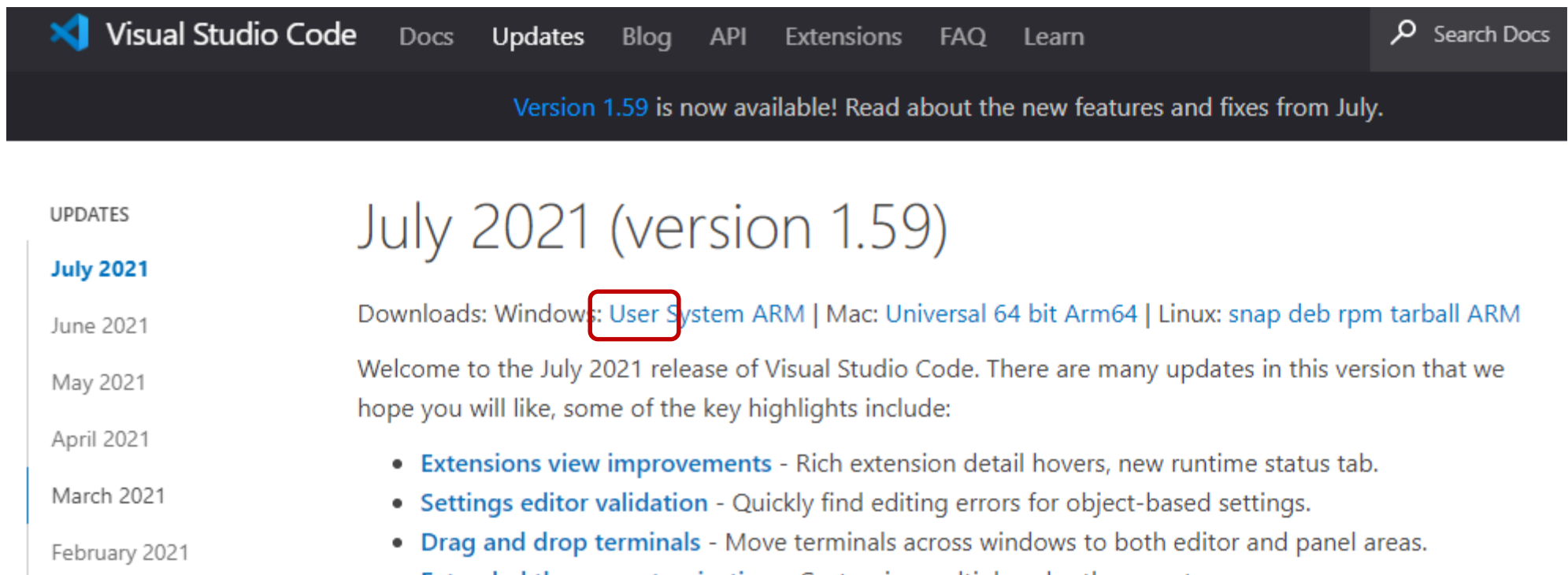
- 최신 버전(1.59.1) 은 버그 있음
- 설정에서 자동 업데이트 기능 끈 후 vscode 삭제
 - update 항목 검색



개발환경 구축 - VSCode

❖ VSCode 1.58.2 버전 사용

- https://code.visualstudio.com/updates/v1_52



Visual Studio Code Docs Updates Blog API Extensions FAQ Learn Search Docs

Version 1.59 is now available! Read about the new features and fixes from July.

UPDATES

- July 2021
- June 2021
- May 2021
- April 2021
- March 2021
- February 2021

July 2021 (version 1.59)

Downloads: Windows: **User System ARM** | Mac: Universal 64 bit Arm64 | Linux: snap deb rpm tarball ARM

Welcome to the July 2021 release of Visual Studio Code. There are many updates in this version that we hope you will like, some of the key highlights include:

- **Extensions view improvements** - Rich extension detail hovers, new runtime status tab.
- **Settings editor validation** - Quickly find editing errors for object-based settings.
- **Drag and drop terminals** - Move terminals across windows to both editor and panel areas.

개발환경 구축 - VSCode

❖ VSCode - Arduino 확장 팩

- 확장팩
 - Arduino 검색
 - Microsoft가 제공하는 확장팩 설치



Arduino

vsciot-vscode.vscode-arduino

미리 보기

Microsoft

668,582

★★★★☆

저장소

라이선스

0.3.0

Arduino for Visual Studio Code

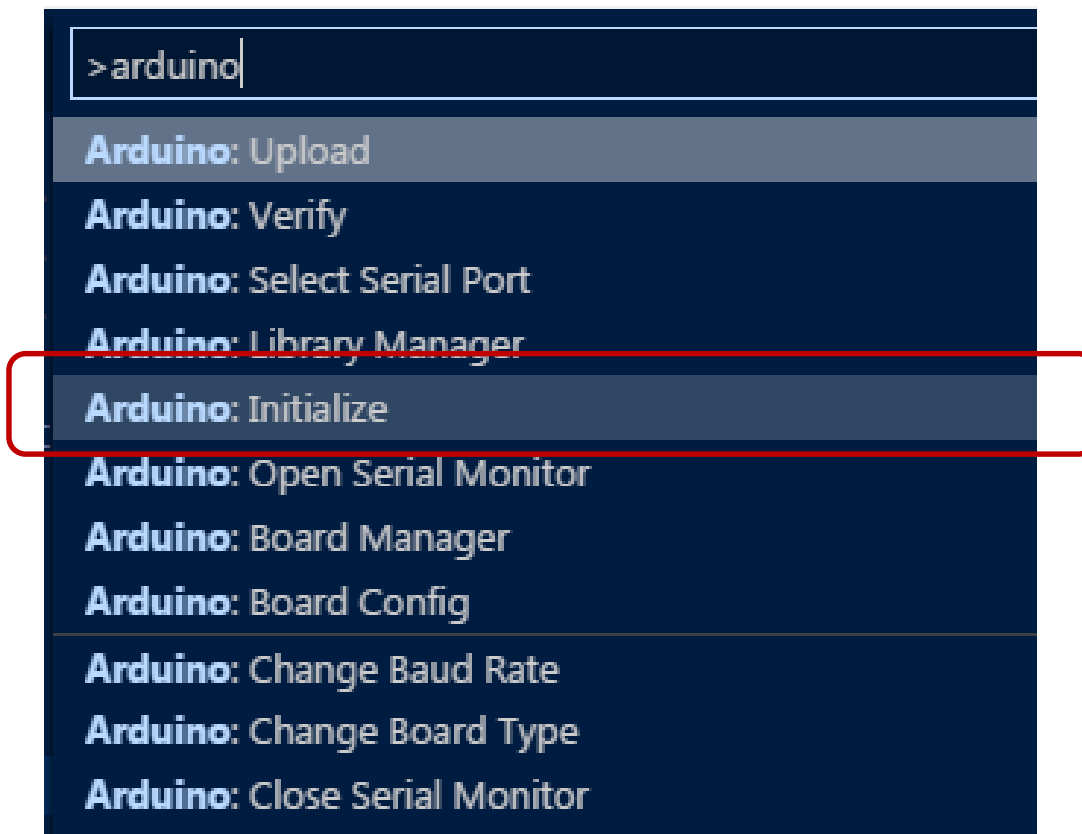
설치

[세부 정보](#) [기능 기여도](#) [변경 로그](#) [종속성](#)

개발환경 구축 - VSCode

❖ .vscode/arduino.json

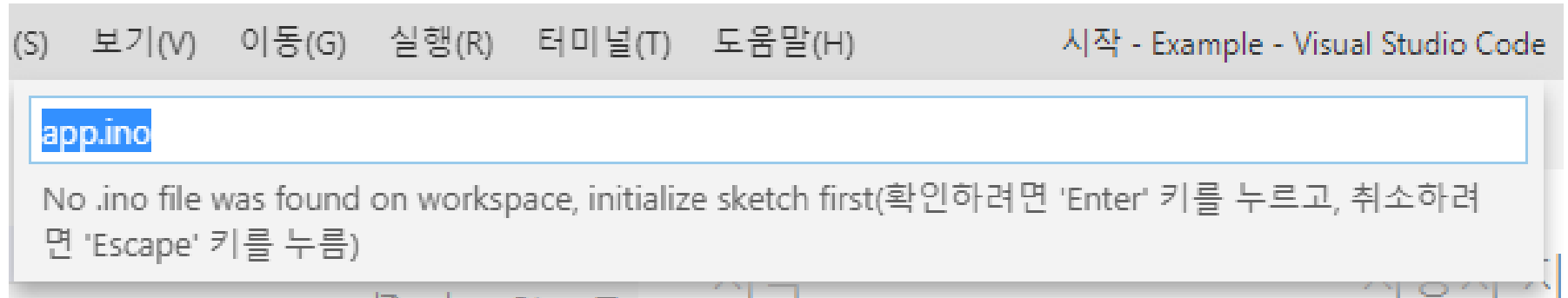
- 아두이노 초기화 명령으로 자동 생성
 - F1 > Arduino: Initialize



개발환경 구축 - VSCode

❖ 파일명

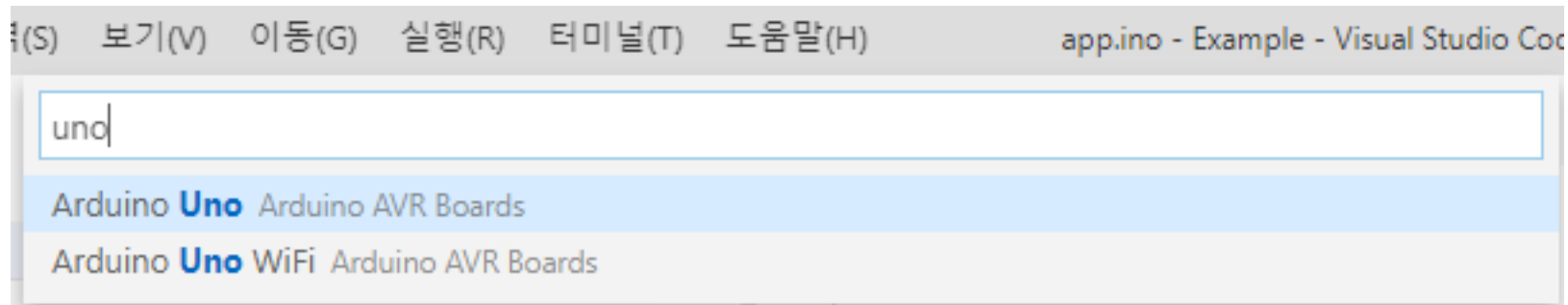
- app.ino



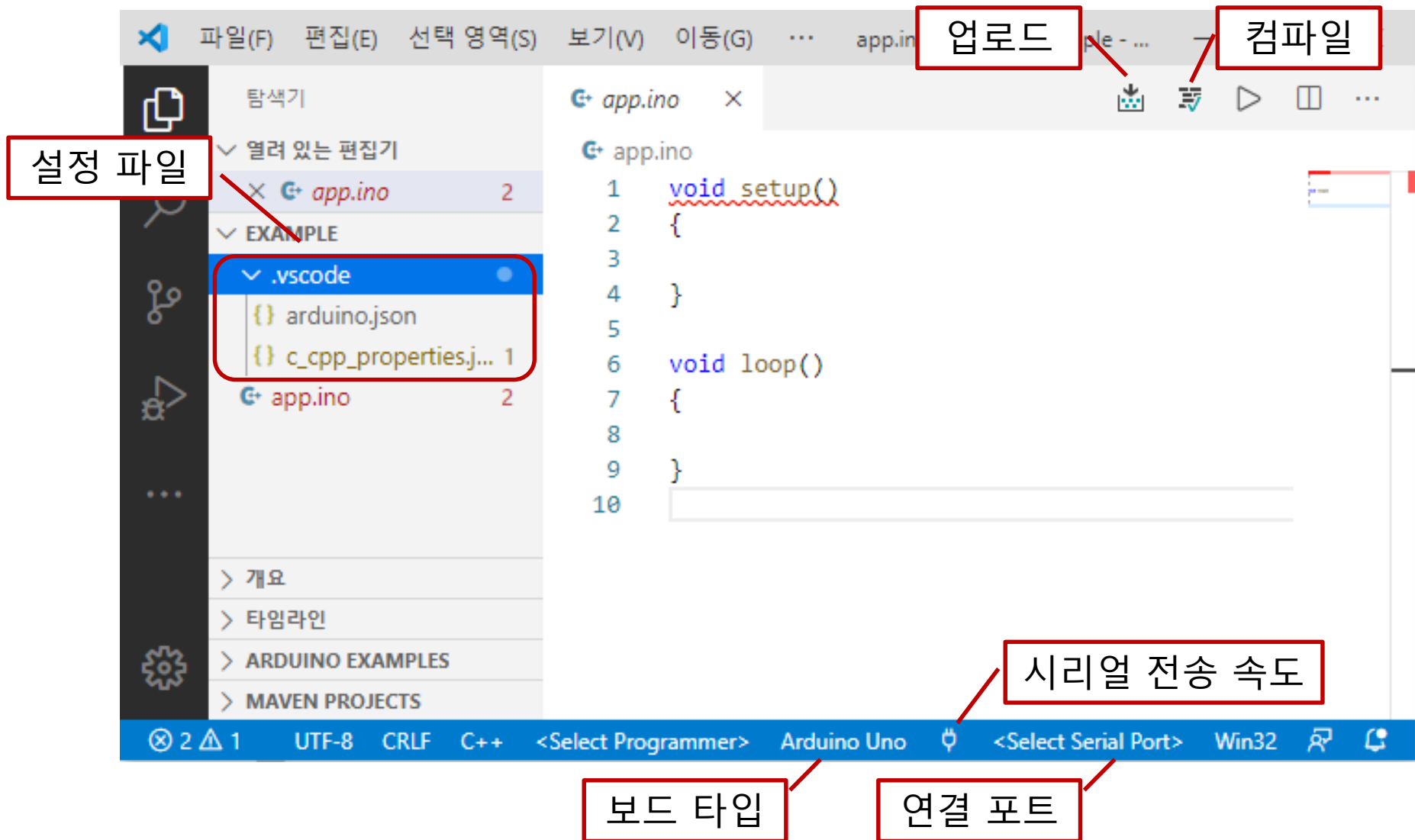
개발환경 구축 - VSCode

❖ 보드 선택

- Arduino Uno

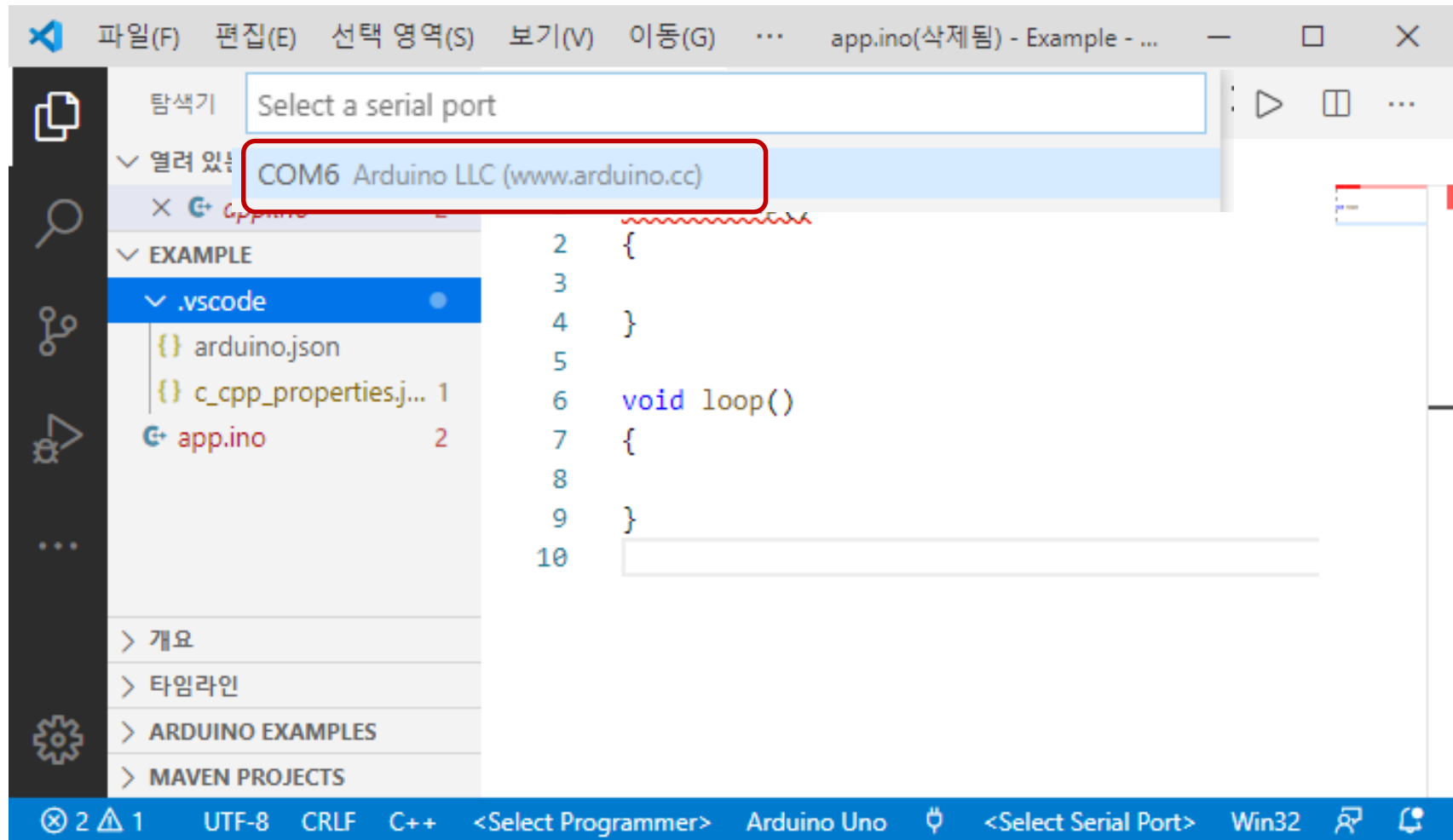


개발환경 구축 - VSCode



개발환경 구축 - VSCode

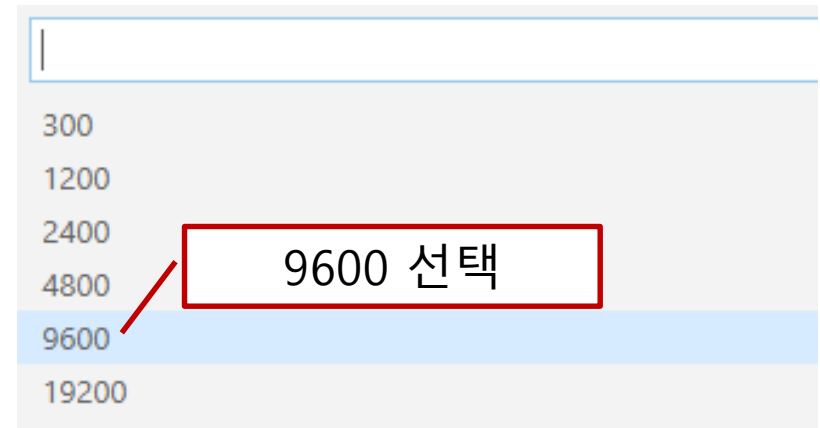
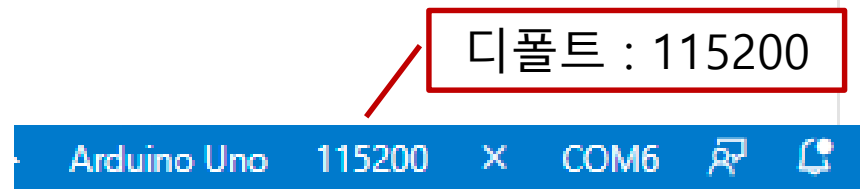
❖ 포트선택



연결 포트

개발환경 구축 - VSCode

❖ 전송 속도 설정



개발환경 구축 - VSCode

❖ .vscode/arduino.json

- 아두이노 초기화 명령으로 자동 생성

```
{  
  "sketch": "app.ino",  
  "board": "arduino:avr:uno",  
  "port": "COM6"  
}
```

개발환경 구축 - VSCode

❖ 컴파일 환경 정보: .vscode\c_cpp_properties.json

```
{
  "configurations": [
    {
      "name": "Win32",
      "includePath": [
        "C:\\Program Files (x86)\\Arduino\\tools\\**",
        "C:\\Program Files (x86)\\Arduino\\hardware\\arduino\\avr\\**"
      ],
      "forcedInclude": [
        "C:\\Program Files (x86)\\Arduino\\hardware\\arduino\\avr\\cores\\arduino\\
Arduino.h"
      ],
      "intelliSenseMode": "msvc-x64",
      "compilerPath": "C:\\Program Files\\mingw-w64\\x86_64-8.1.0-posix-seh-rt_v6-
rev0\\mingw64\\bin\\gcc.exe",
      "cStandard": "c11",
      "cppStandard": "gnu++14"
    }
  ],
  "version": 4
}
```