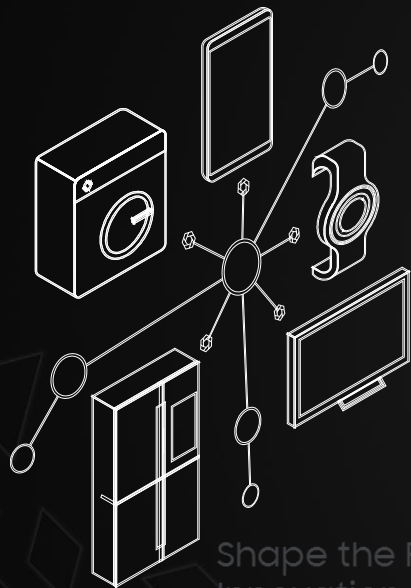


Tizen IoT 환경설정의 모든 것

Tizen IoT 알아보기

August 21, 2018



Shape the Future with
Innovation and Intelligence

Tizen IoT 알아보기

- I 타이젠 스튜디오 설치하기
- II 타이젠의 다양한 프로파일 소개
- III 타이젠 IoT 개발환경 소개

Tizen Studio 설치

SAMSUNG Research

타이젠 스튜디오 다운로드

The screenshot shows the Tizen Developers website with a navigation bar containing links for Developers, Design, Development, Distribution, Blog, Community, and IoT Preview. The main banner features the text 'TIZEN STUDIO 2.4 RELEASE' and 'Power your various devices with Tizen 4.0 M2'. Below the banner, the 'Tizen Studio Download' section states that Tizen Studio is the official IDE for developing web and native applications for Tizen. A red box highlights the 'Tizen Studio 2.4' download button, which includes the Tizen logo. To the right of the text, there is an image of a smartwatch, a smartphone, and a laptop displaying the Tizen Studio IDE interface.

<https://developer.tizen.org/>

Tizen developer 사이트에 접속하여 타이젠 스튜디오 다운로드 페이지에 접속합니다.

Tizen Studio 2.5 버전을 다운받으세요.
(18/08/21 기준)

Tizen Studio 설치

SAMSUNG Research

📦 Tizen Studio 다운로드

Training Guides API Reference Sample **Tizen Studio** Visual Studio Tools for Tizen Visual Studio Code Extension for Tizen

Overview | **Download** | Native Tools | Web Tools | Platform Tools | RT IDE | Extension SDK | Configurable SDK

Installing Tizen Studio

Configuring the Package Manager

Uninstalling Tizen Studio

Release Notes (2.4)

Download

The Tizen Studio is a comprehensive set of tools for developing Tizen native and Web applications. It consists of an IDE, Emulator, toolchain, sample code, and documentation. Tizen Studio runs on Windows®, Ubuntu and macOS. Tizen applications can be developed without relying on the official Tizen Studio, as long as the application complies with the Tizen packaging rules.

Tizen Studio 2.4 Download

Select OS: Windows Mirror Location: Origin [Installation Guide >](#)

Tizen Studio 2.4 with IDE installer

May 29, 2018	497M	Windows/Origin	32bit	64bit
--------------	------	----------------	-------	-------

Tizen Studio 2.4 with CLI(command line interface) installer

May 29, 2018	147M	Windows/Origin	32bit	64bit
--------------	------	----------------	-------	-------

Click the package name to download the Tizen Studio. For installation instructions, see [Installing Tizen Studio](#). For more information, see [Release Notes](#).

TOP

<https://developer.tizen.org/development/tizen-studio/download>

Tizen Studio 2.5 with IDE installer를 다운로드 합니다. (18/08/21 기준)
PC의 OS버전에 맞는 인스톨러를 다운로드 합니다.

타이젠 스튜디오를 설치하기 위해서는
JDK의 설치되어 있어야 합니다.

Java SE Development Kit (Latest)
<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

PC에 JDK가 설치되어 있지 않은 경우,
Installer를 실행하는 과정에서 JDK를 설치하라는 팝업 창이 뜨게 됩니다.
팝업 창에서 바로 JDK 설치 페이지로 이동할 수 있습니다.

Tizen Studio 설치

SAMSUNG Research

❖ Installer로 Tizen Studio 설치

다운로드 받은 인스톨러를 실행합니다.

*** PC에 JDK가 설치되어 있지 않은 경우, Installer를 실행하는 과정에서 JDK를 설치하라는 팝업 창이 뜨게 됩니다. 팝업 창에서 바로 JDK 설치 페이지로 이동할 수 있습니다.

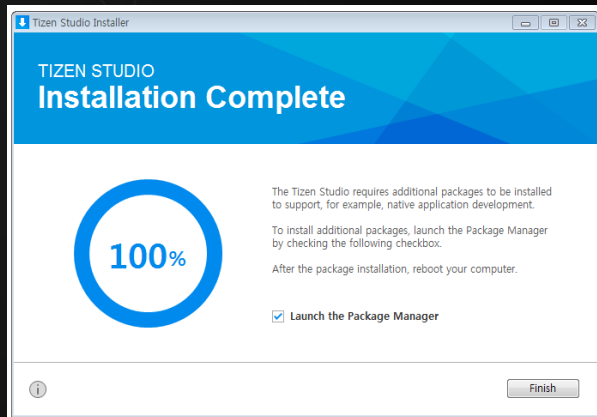
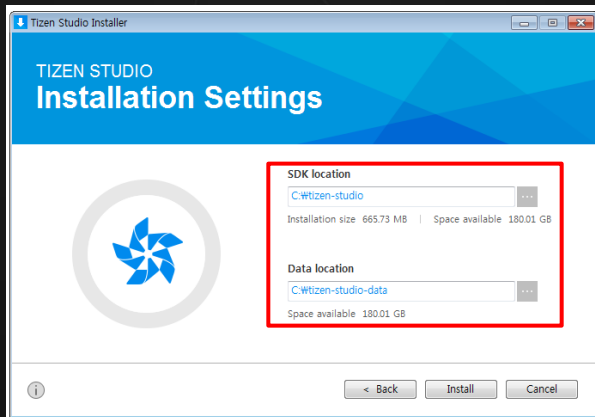
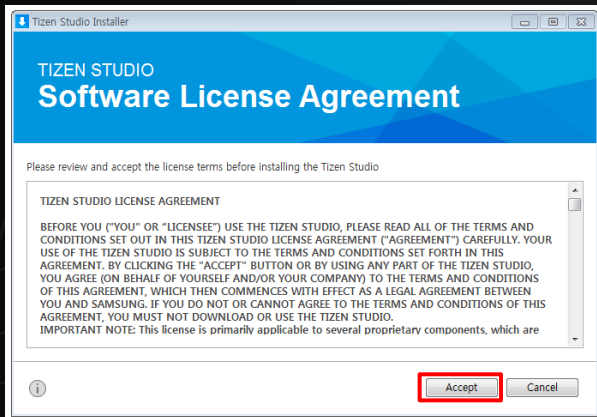
타이젠 스튜디오가 설치될 경로를 선택합니다.

<Default location>

C:\tizen-studio

C:\tizen-studio-data

타이젠 스튜디오의 설치 과정이 완료되면, **Launch the Package Manger**를 선택하고 **Finish**를 눌러 패키지 매니저를 실행합니다.

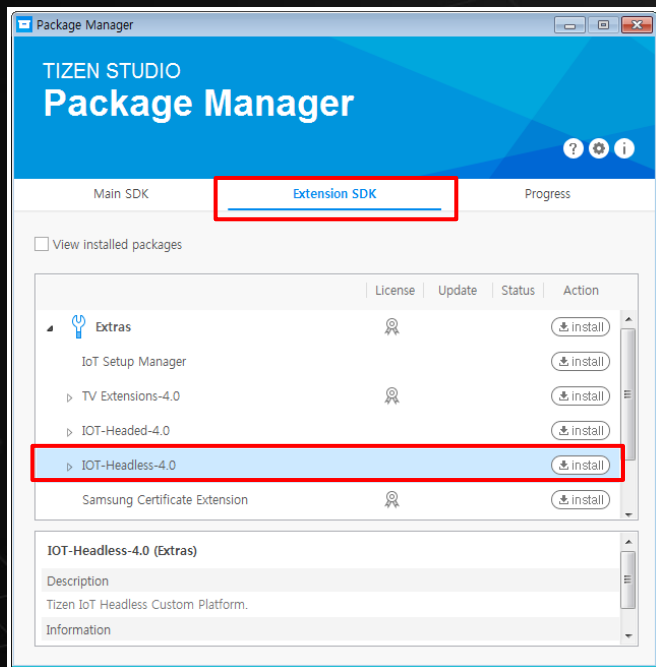


Tizen Studio 설치

SAMSUNG Research

Package Manager 실행하여 패키지 설치하기 1/2

Extension SDK > IoT Headless 4.0 패키지 설치



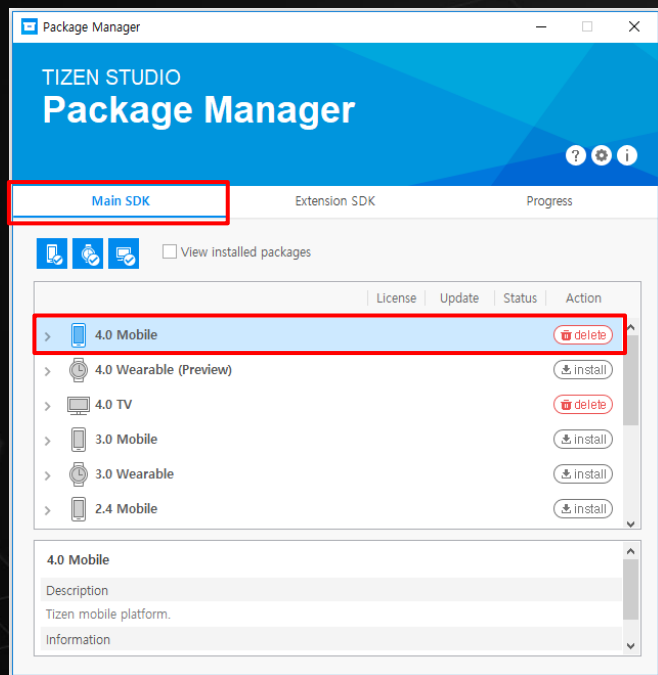
Eagleye 530s 보드에 UI가 없는 Headless 앱을 타이젠 스튜디오로 만들어서 올릴 예정이므로, IoT Headless 4.0 패키지 설치가 필요합니다.

Tizen Studio 설치

SAMSUNG Research

Package Manager 실행하여 패키지 설치하기 2/2

Main SDK > 4.0 Mobile 패키지 설치



이후 세션에서 Mobile 프로파일을 사용하여 앱을 만드는 과정이 있어서 4.0 Mobile 패키지도 미리 설치해두겠습니다.

Tizen Profiles

SAMSUNG Research

타이젠이 지원하는 Profiles



[Learn more >](#)



[Learn more >](#)



[Learn more >](#)

TIZEN, Connect Everything

TIZEN allows you to create powerful applications and execute them on a full spectrum of devices.
Learn how to connect everything with TIZEN.



Mobile
[Start >](#)



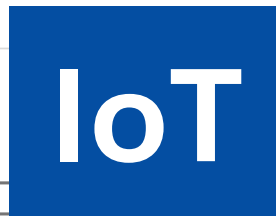
Wearable
[Start >](#)



TV
[Start >](#)



IVI
[Start >](#)



Tizen Profiles

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🔗 <https://developer.tizen.org/tizen>

Mobile

Wearable

TV

IVI

IoT

Tizen Profiles

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🔗 <https://developer.tizen.org/development/iot-preview>

Mobile

Wearable

TV

IVI

IoT

TIZEN™

Developers

Design

Development

Distribution

Blog

Community

IoT Preview

[IoT and Tizen IoT](#)

[Getting Started with Tizen](#)

[Customized Platform Guide](#)

[IoT APIs](#)

[Samples](#)

IoT and Tizen IoT

The Internet of Things (IoT) is connected networks of various types of things, such as sensors, actuators, electronic devices, home appliances, and so on. These networks of end-devices, hubs, and servers enable exchange of data and execution of operations among things for specific purposes. Communications and executions through the connections are designed to happen without human interventions. In the broad sense, the IoT means a combination of software and platforms for automatic and intelligent services, as well as the networks itself.

The IoT applications are extensive, for example, home automation with smart consumer electronics and appliances, smart factories that consist of connected manufacturing equipment, and transportation systems for connected vehicles and traffic control, etc. Each application is realized through the operations of physical device control, networking, data analysis, and decision making. In general, the IoT end devices are lightweight, low-cost, and power-efficient. While, the back-end systems have the capability to analyze data from the end devices and to make decisions based on pre-defined algorithms or trained intelligence. For competitive IoT ecosystems, it is required to be scalable in attaching new forms of devices to the networks; and to be sufficient controls available from the networks. Further, from the end devices to the services, all the components have to be tightly integrated throughout the whole ecosystem.

To address IoT-specific requirements, Tizen IoT is derived from Tizen. Tizen IoT is the Tizen implementation for the [SmartThings ecosystem](#).

Tizen IoT is composed of:

- [Lightweight OS](#) for IoT devices,
- [Peripheral I/O API](#) for the access and control of the devices, and
- [Things SDK API](#) for the integration with the [SmartThings Cloud](#).

Connected with the Cloud, the SmartThings App on your smart phone provides easy and convenient ways for users to manage and configure the devices and the services. For more information about Samsung's SmartThings solution, see [SmartThings website](#).

Tizen IoT란

❖ Linux kernel 기반의 모든 유형의 IoT 디바이스를 지원

- 기존 IoT 생태계(SmartThings™)에 연결되는 IoT 디바이스 개발 지원
- Customized platform features 제공

❖ 개발 지원이 가능한 디바이스

- Raspberry Pi 3 **Reference board**
- ARTIK 530 development kit **Reference board**
- Eagleeye530s (ARTIK 533s 탑재) **Compatible board**

Tizen IoT Image = Boot Image + Platform Image

ARTIK 530 & ARTIK 530s

- ◈ Boot Image
- ◈ Platform Image
 - ◈ Headless
 - ◈ Headed
 - ◈ Customized (By Craftroom)

Raspberry Pi 3

- ◈ Boot Image
- ◈ Platform Image
 - ◈ Headless
 - ◈ Customized (By Craftroom)

Headless

디스플레이가 없는 IoT Platform Image

Headed

디스플레이가 있는 IoT Platform Image
(UI Framework가 포함되어 있음)

Tizen IoT Image 다운로드

TIZEN Developers Design Development Distribution Blog Community **IoT Preview**

Getting Started with Tizen Customized Platform Guide IoT APIs Samples

Installing Tizen Studio | **Flashing Tizen Images** | Hardware Configuration | Developing Applications with Things SDK API
| Setting up the SmartThings Cloud | Testing with SmartThings App

Flashing Tizen Images

Prerequisite and Overview

You must have the binary images in your computer. You can download the binary images from the **Release 버전** section.

- ARTIK 530 or ARTIK 530s
 - Boot image:
 - ARTIK 530: [tizen-4.0-unified_20180118.1_iot-boot-armv7l-artik530.tar.gz](#)
 - ARTIK 530s: None
 - Platform image:
 - Headless (without display): [tizen-4.0-unified_20180118.1_iot-headless-2parts-armv7l-artik530_710.tar.gz](#)
 - Headed (with display): [iot-headed-3parts-armv7l-artik530_710/tizen-4.0-unified_20180118.1_iot-headed-3parts-armv7l-artik530_710.tar.gz](#)
 - Customized image: Create and download the customized image as explained in the Customized Platform Guide.
- Raspberry Pi 3:
 - Boot image: [tizen-4.0-unified_20180118.1_iot-boot-arm64-rpi3.tar.gz](#)
 - Platform image:
 - Headless (without display): [tizen-4.0-unified_20180118.1_iot-headless-2parts-armv7l-rpi3.tar.gz](#)
 - Headed (with display): Not available
 - Customized image: Create and download the customized image as explained in the Customized Platform Guide.

Note

To make a device with a display, select **Headed** image, which consists of the UI framework. To make a device without a display, select **Headless** image. Currently, the ARTIK boards support Headed.

TOP

Release 버전 (18/08/21 기준)

<https://developer.tizen.org/development/iot-preview/getting-started-tizen/flashing-tizen-images>

Latest 버전

<http://download.tizen.org/snapshots/tizen/4.0-unified/latest/images/standard/>

*** 디바이스에 맞는 이미지를 선택하여 다운로드 받으세요.

예시) Artik 533s의 Boot Image를 다운받으려고 하는 경우,
1. iot-boot-armv7l-artik533s를 선택하여 해당 디렉토리로 진입
2. tizen-4.0-unified_20180809.1_iot-boot-armv7l-artik533s.tar 다운로드

디렉토리 안에 여러 파일이 있을텐데요, 확장자가 *.tar인 파일을 받으면 됩니다. 확장자가 보이지 않는다면 크기가 가장 큰 파일을 선택하세요.

Tizen IoT가 지원하는 개발 환경

Tizen Studio (2.0 이상)

- ✧ Tizen IoT 앱을 개발하기 위한 IDE
- ✧ Raspberry Pi 3, ARTIK 530, ARTIK 530s 개발 지원

IoT Setup Manager

- ✧ IoT 디바이스에 Tizen Platform Image를 쉽게 설치할 수 있는 툴
- ✧ Raspberry Pi 3, ARTIK 530 지원 (ARTIK 530s는 command-line으로만 설치 가능)

IoT APIs

- ✧ Tizen IoT 앱을 만드는데 제공되는 API 그룹으로 Common set API와 IoT-specific API가 있음
- ✧ Tizen IoT API는 native "C" API로 구성

Craftroom

- ✧ Tizen IoT 개발 커뮤니티
- ✧ Tizen OS를 사용하는 개발자 간의 프로젝트 정보 교류
- ✧ Customized Platform Image를 생성하고 다운로드 받을 수 있음

Tizen IoT 개발 환경 – Tizen Studio

SAMSUNG Research

IoT 앱을 만들기 위한 Tizen Studio 설정 [실습]

❖ Package Manager 실행

- Tizen Studio를 사용하여 실행

[Screenshot – Launching Package Manager using Tizen Studio](#)

- Tizen Studio를 사용하지 않고 실행

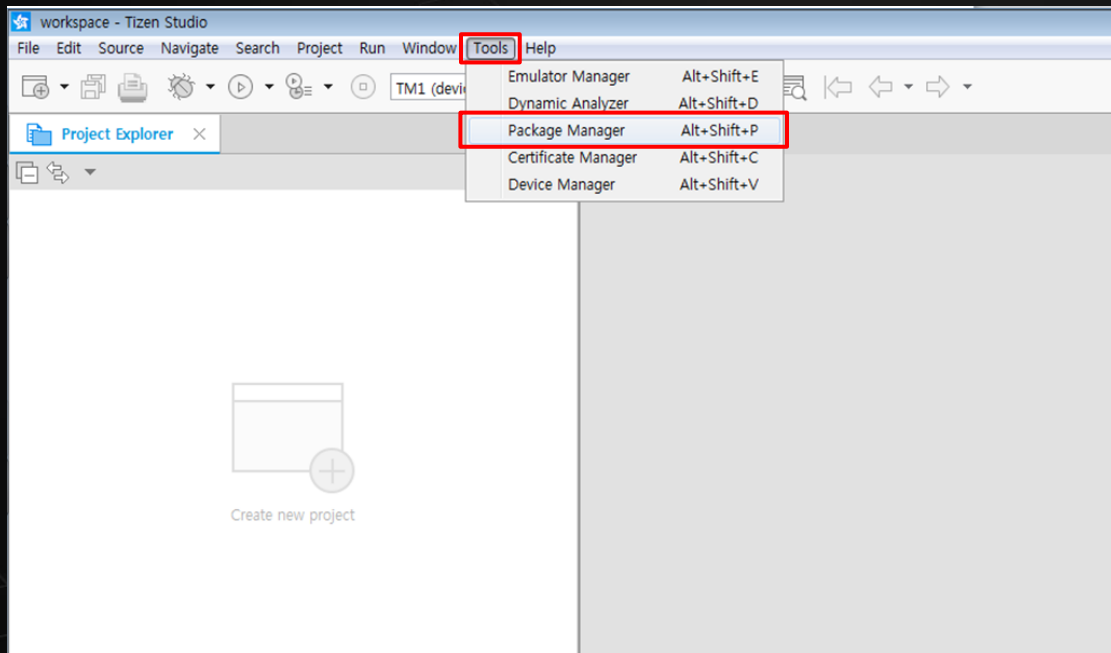
시작 메뉴 > 모든 프로그램 > Tizen Studio > Tools > Package Manager

Tizen IoT 개발 환경 – Tizen Studio

SAMSUNG Research

IoT 앱을 만들기 위한 Tizen Studio 설정 [실습]

📸 Screenshot - Launching Package Manager using Tizen Studio

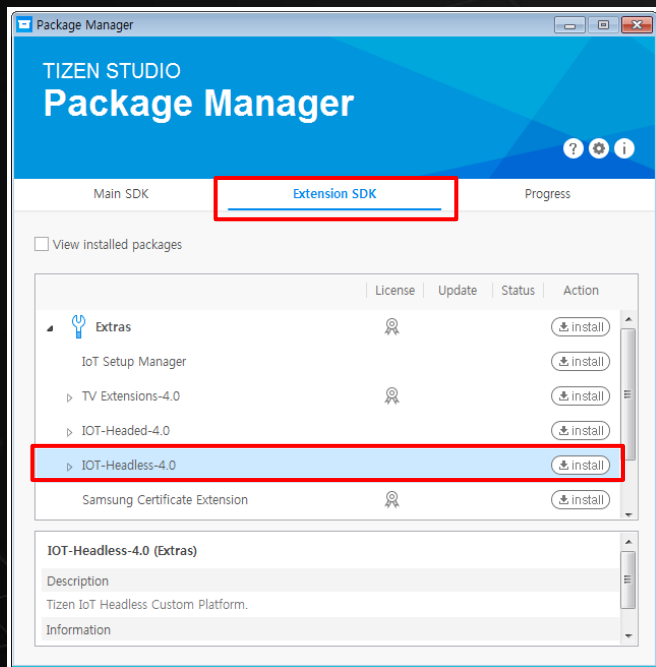


Tizen IoT 개발 환경 – Tizen Studio

SAMSUNG Research

IoT 앱을 만들기 위한 Tizen Studio 설정 [실습]

IoT Headless 4.0 패키지 설치



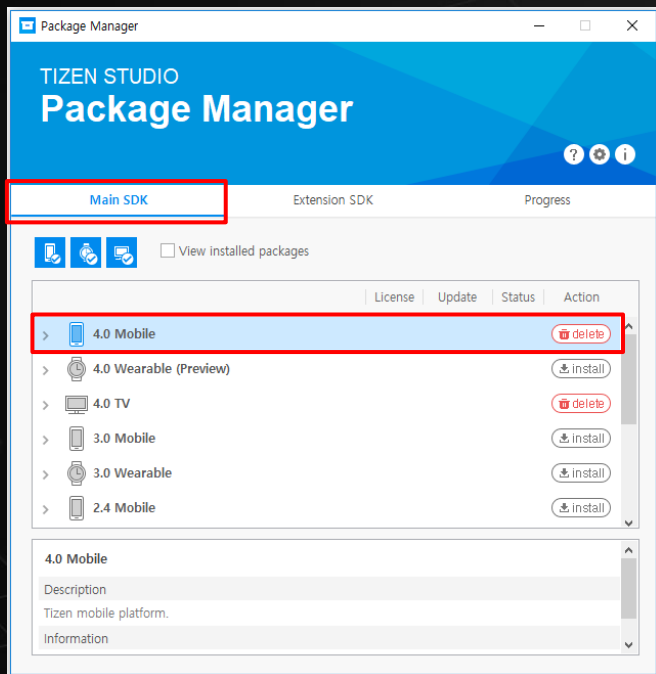
Package Manager 실행
Extension SDK > IoT Headless 4.0 설치

Tizen IoT 개발 환경 – Tizen Studio

SAMSUNG Research

* 추가 설치 [실습]

📦 4.0 Mobile 패키지 설치



Package Manager 실행
Main SDK > 4.0 Mobile 설치

Tizen IoT 개발 환경 – IoT Setup Manager

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IoT 디바이스에 Tizen Platform을 설치하기 위한 방법

IoT Setup Manager

- ARTIK 530, Raspberry Pi 3 지원
- Linux / Windows 지원

Commnad-line

- ARTIK 530, ARTIK 530s, Raspberry Pi 3 지원
- Linux Only

Tizen IoT 개발 환경 – IoT Setup Manager

SAMSUNG Research

IoT Setup Manager 소개

Select burning profile: new_profile [Create] [Edit]

Burning info:
Target: ARTIK530_HEADLESS
Created: 14:21:00 6월. 30, 2018
Boot image: tizen- 4.0- unified_iot- boot- armv7l- artik530.tar.gz
Platform image: tizen- 4.0- unified_iot- headless- 2parts- armv7l- artik530_710.tar.gz
RPM bundles:
Network configuration: Wifi: ssid = artik-tizen, pw = artik- tizen
Working storage: SD

Select Drive: [Dropdown] [Text Field] [Burn]

SD card is not found

IoT Setup Manager 실행화면

- IoT 디바이스에 Tizen IoT Image를 설치할 수 있는 툴
- 기능

- Binary Image를 SD 카드로 플래시
- Rpm 패키지(bundle) 추가 설치 가능
- IoT 디바이스의 로컬 네트워크 연결

Wi-Fi (SSID 및 암호) / 이더넷 (정적 정보) 세부 정보를 입력하면, 장치를 시작할 때 자동으로 로컬 네트워크에 연결 가능

- 지원하는 디바이스

Raspberry Pi 3, ARTIK 530 (ARTIK 530s는 command-line으로만 설치 가능)

Tizen IoT 개발 환경 – IoT Setup Manager

SAMSUNG Research

IoT Setup Manager 설정 [실습]

❖ 사전 설치

- OS
 - Windows 7 이상 (64/32 bit)
 - Ubuntu 14.04 LTS 이상 (64/32 bit)
- Java Runtime Environment (JRE) version 1.8 이상

IoT Setup Manager 설치 시 주의 사항

JRE가 컴퓨터에 설치되어 있는지 확인하세요.

- 확인방법 : Ubuntu에서 shell 터미널을 열거 나 Windows에서 명령 프롬프트를 열고 다음 명령을 실행하세요. Java ™ SE 런타임 환경이 출력에 표시되지 않거나 오류가 발생하면 JRE가 컴퓨터에 설치되어 있지 않음을 의미합니다.

```
$ java -version  
java version "1.8.0_112"  
Java(TM) SE Runtime Environment (build 1.8.0_112-b15)  
Java HotSpot(TM) 64-Bit Server VM (build 25.112-b15, mixed mode)
```

Ubuntu 사용자라면 rpm2cpio, cpio 패키지를 설치하세요.

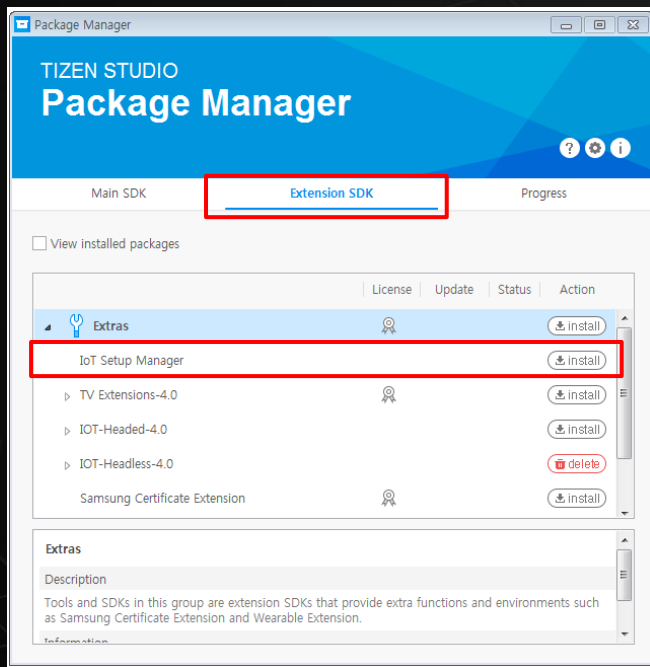
```
$ sudo apt-get install rpm2cpio  
$ sudo apt-get install cpio
```

Tizen IoT 개발 환경 – IoT Setup Manager

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IoT Setup Manager 설정 [실습]

IoT Setup Manager 설치



Package Manager 실행
Extension SDK > IoT Setup Manager 설치

Tizen IoT 개발 환경 – IoT Setup Manager

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IoT Setup Manager 설정 [실습]

❖ IoT Setup Manager 실행

- Tizen Studio를 사용하여 실행

[Screenshot – Launching IoT Setup Manager using Tizen Studio](#)

- Tizen Studio를 사용하지 않고 실행

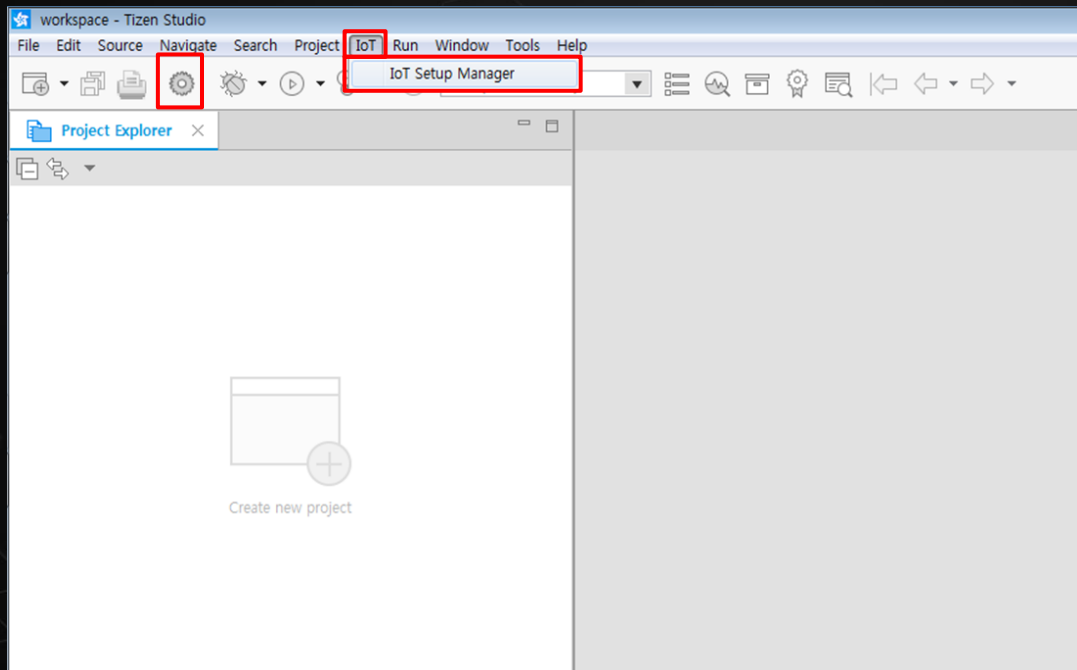
시작 메뉴 > 모든 프로그램 > Tizen Studio > Tools > IoT Setup Manager

Tizen IoT 개발 환경 – IoT Setup Manager

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IoT Setup Manager 설정 [실습]

❖ Screenshot - Launching IoT Setup Manager using Tizen Studio



Tizen IoT 개발 환경 – IoT APIs

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IoT APIs 소개

Common set API

- Tizen 4.0 common profile 기반
- Mobile, Wearable, TV, IoT profile을 지원하는 Common set API

IoT-specific API

- Things SDK API
- Peripheral I/O API

* Tizen IoT APIs 는 **native "C" API**로 구성 (다른 언어 API 개발 예정)

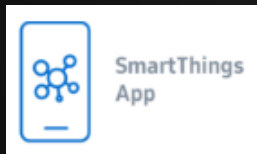
Tizen IoT 개발 환경 – IoT APIs

SAMSUNG Research

IoT-specific API

Things SDK API

- SmartThings Cloud와의 통합을 위한 SDK API
- Things SDK API를 사용하면 SmartThings 앱에서 SmartThings Cloud를 통해 IoT 디바이스를 integrate, control, monitor 할 수 있음



* 참고 링크

[Things SDK API](#)

[Things SDK API Reference](#)

<https://smarthings.developer.samsung.com> (smartThings developer 사이트)

Peripheral I/O API

- Actuators와 Sensor 같은 주변 장치를 제어하는 데 사용되는 API
- 산업 표준 프로토콜과 인터페이스 사용



* 참고 링크

[Peripheral I/O API](#)

[Tizen Common Headed API Reference](#)

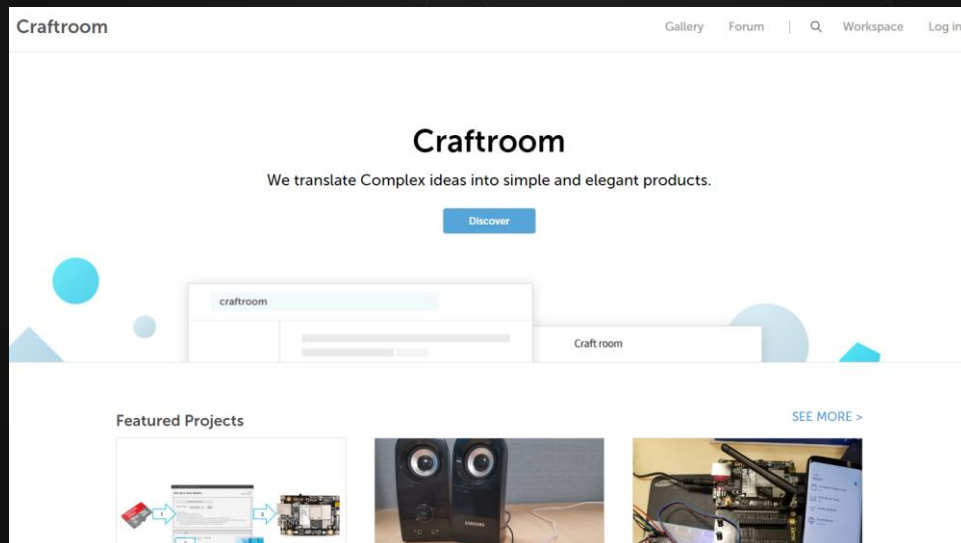
[Tizen Common Headless API Reference](#)

Tizen IoT 개발 환경 – Craftroom

SAMSUNG Research

<https://craftroom.tizen.org>

- Tizen OS를 사용하는 IoT 개발자 간의 프로젝트 정보 교류
- Customized Platform Image를 생성하고 다운로드 받을 수 있음



Tizen IoT 개발 환경 – Craftroom


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Craftroom 가입하기

Tizen Portal

Tizen OSForumAbout us

QLogin



Tizen

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Sign in to your [Tizen Portal](#) account

Log in

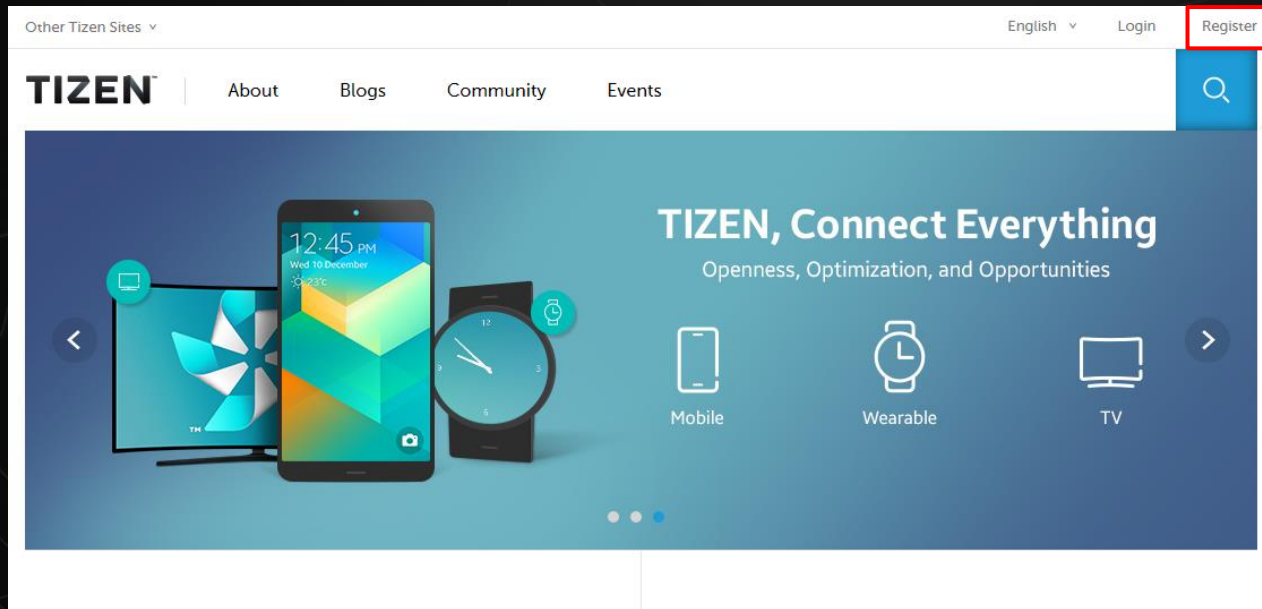
New here? [Create an account](#)

Tizen IoT 개발 환경 – Craftroom

SAMSUNG Research

Craftroom 가입하기 > Tizen.org 에서 통합 계정 가입하기

🔗 <https://www.tizen.org/>



<https://www.tizen.org/>

Tizen.org 사이트의 오른쪽 상단의 Register를 눌러 계정을 만들어주세요.

이미 가입되어 있다면 가입된 계정을 사용하시면 됩니다.

Tizen.org의 계정은 Craftroom에서 동일하게 사용됩니다.

Craftroom 가입하기 > Tizen.org 에서 통합 계정 가입하기

❖ 계정 만들 시 주의사항

REGISTER

Username *

Use lower case letters a-z and/or digits 0-9; no spaces, underscores, hyphens or other punctuation.

E-mail address *

A valid e-mail address. All e-mails from Tizen will be sent to this address. This e-mail address will receive certain news or notifications by e-mail. E-mail can not be changed after the account is created.

Confirm e-mail address *

Please re-type your e-mail address to confirm it is accurate.

First Name

계정을 만들고 나면 입력한 이메일로 패스워드를 설정할 수 있는 링크가 전달됩니다. 메일이 오지 않을 경우, [스팸함]을 확인해주세요.

Tizen: account details for Tizen (메일 제목)
noreply@tizen.org (발신자)

이메일로 전달 받은 링크에 들어가 패스워드를 설정하고 Save를 눌렀을 때 페이지가 넘어가지 않거나, 오류가 나는 경우가 있습니다.

이는 웹 페이지의 문제로, 위와 같은 문제가 발생하더라도 Save는 정상적으로 동작합니다. 일정 시간이 흐른 뒤 Save한 패스워드로 로그인을 하면 정상적으로 로그인이 됩니다.

Thank you