

TIZEN Development Environment

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■ 앱 개발 모델

- ✓ 구네이티브 앱 : C++
- ✓ 웹 앱 : HTML5, CSS, JavaScript, jQuery
- ✓ 네이티브 앱 : C, C++

	모바일	기어	카메라
구 네이티브	Ο	X	X
웹	Ο	Ο	X
네이티브	Ο	Ο	Ο

■ 웹 애플리케이션

- ✓ 한번 개발로 다양한 기기 및 플랫폼 지원
- ✓ 초기 진입 용이
- ✓ HTML5, CSS, JavaScript, jQuery, ...



3

■ 디바이스 API

- ✓ 자바스크립트 기반의 디바이스 제어 API
- ✓ 애플리케이션의 라이프 사이클, 스케쥴, 데이터 싱크, NFC 등 기존 네 이티브 API와 동등한 수준의 API를 제공
- ✓ Category
 - Tizen Common
 - Application
 - Communication
 - Content
 - Input/Output
 - Social
 - System
 - User Interface

4

■ 웹 런타임

- ✓ 웹 애플리케이션을 담고 있는 컨테이너
- ✓ 웹 애플리케이션을 스탠드얼론으로 설치, 구동할 수 있도록 하는 엔진
- ✓ 웹 애플리케이션을 조금 더 최적화된 형태로 구동할 수 있음
- ✓ 애플리케이션 관리
 - Profile, Life cycle
- ✓ API 서포트
 - W3C, Device
- ✓ 보안, 프라이버시
 - Profile, Source code...

■ 네이티브 프레임워크

- ✓ C/C++로 애플리케이션 개발
- ✓ 빠르고 가벼운 라이브러리
- ✓ 네이티브 API 및 EFL API로 구성
- ✓ 웹 및 구 네이티브 프레임워크의 기반
- ✓ NX300및 기어2의 많은 앱이 EFL로 개발됨

애플리케이션					
웹 애플리케이션			네이티브 애플리케이션		
웹 프레임워크			네이티브 프레임워크 Public API		
W3C/HTML5 Video Touch CSS3 WebGL Worker	Device APIs BT Call LBS NFC Msg Web Runtime		Social/Content Locations Uix Media V Net/Telephony/Messaging Graphics/UI Base/IO/Text/Locales App/Security/System Se		Media Web/Xml araphics/Ul y/System Services
코어 프레임워크				코어	애플리케이션
Application Framework	Graphics & UI	Multimedia	Web	Messaging	Location
Security	System	Base	Connectivity	Telephony	PIM

플랫폼 개발

■ 오픈 소스

✓ 타이젠이 사용하는 수 많은 오픈 소스

- X Windows, Cairo, EFL for UI & Graphics
- Gstreamer, PulseAudio, OpenAL for Multimedia
- Connman, Bluez, libsoup, wpa_supplicant for Connectivity
- WebKit2 for Web
- SMACK & OpenSSL for Security
- Dbus, glibc for Base
- Sqlite for Database & PIM
- Linux for OS Kernel
- Eclipse for Tizen SDK
- QEMU, U-Boot for Target Emulator
- GCC, llvm, cmake, gbs for build
- 기타등등

플랫폼 개발

■ 오픈 소스

✓ 타이젠에서 수정한 패치가 해당 오픈소스에도 반영 됨

 Linux, WebKit2, EFL, GStreamer, U-Boot, FFMPEG, GTK+, WebCL, Cai ro, Bluez, QEMU, GCC 등



플랫폼 개발

■ 오픈 소스

✔ 타이젠을 위해 신규 구현한 모듈을 오픈소스로 공개

 app-core, app-service, slp-pkgmgr, WRT(Web RunTime), system- server, sensor-fw, libslp-pm, msg-service, email-service, telephony-daemon, aud io-session-manager, contacts-service, slp- calendar, accounts-svc, syncfw, cert-svc, secure-storage, nfc- manager 등





■ Tizen 웹사이트

- ✓ <u>http://www.tizen.org</u> 메인 웹사이트
- ✓ <u>http://developer.tizen.org</u> 애플리케이션 개발자 용
- ✓ <u>http://source.tizen.org</u> 플랫폼 개발자용



■ 소스코드

- ✓ 소스코드 공개
- ✓ Git : <u>http://review.tizen.org/git/</u>
- ✓ Gerrit : <u>http://review.tizen.org/gerrit</u>

projects / re Search List all projects Project Description Owner All-Projects.git Access inherited by all other ... summary | shortlog | log | tree summary | shortlog | log | tree Legacy-Projects.git Lock-Projects.git summary | shortlog | log | tree Private-Projects.git summary | shortlog | log | tree Public-Projects.git summary | shortlog | log | tree adaptation/alsa-scenario-scn-data-O-base.git summary | shortlog | log | tree Domain: System; adaptation/alsa-scenario-scn-data-0-mc1n2.git Domain: System; summary | shortlog | log | tree adaptation/ap_samsung/audio-hal-e3250.git summary | shortlog | log | tree adaptation/ap_samsung/audio-hal-e4x12.git summary | shortlog | log | tree adaptation/ap_samsung/camera-firmware.git summary | shortlog | log | tree adaptation/ap_samsung/device-manager-plugin-exynos.git Domain: System; summary | shortlog | log | tree adaptation/ap_samsung/device-manager-plugin-exynos3250.git summary | shortlog | log | tree adaptation/ap_samsung/gst-plugins-camera-e3250.git summary | shortlog | log | tree adaptation/ap samsung/gst-plugins-e4x12.git Domain: Multimedia; summary | shortlog | log | tree Domain: Multimedia; adaptation/ap_samsung/gst-plugins-fimcconvert.git summary | shortlog | log | tree adaptation/ap_samsung/gst-plugins-s5pc2xx.git Domain: Multimedia; summary | shortlog | log | tree adaptation/ap_samsung/libcamsrcjpegenc-hw-e3250.git summary | shortlog | log | tree adaptation/ap_samsung/libdrm-slp-gem.git Domain: Graphics & UI Framework; summary | shortlog | log | tree summary | shortlog | log | tree adaptation/ap_samsung/libomxil-e3250-v4l2.git adaptation/ap_samsung/libomxil-e4x12.git Domain: Multimedia; summary | shortlog | log | tree adaptation/ap_samsung/libomxil-s5pc2xx.git Domain: Multimedia; summary | shortlog | log | tree Domain: Graphics & UI Framework; adaptation/ap_samsung/libtbm-emulator.git summary | shortlog | log | tree adaptation/ap_samsung/libtbm-exynos4412.git Domain: Graphics & UI Framework; summary | shortlog | log | tree

■ 설치 순서

- 1. Oracle JDK Java SE 8 설치
- 2. Tizen SDK 2.4 설치
- 3. Tizen Emulator device 생성
- 4. Security profile 설정

■ Oracle JDK 설치

<u>http://www.oracle.com/technetwork/java/javase/downloads</u>





■ Oracle JDK 설치

- ✓ 개발환경에 맞는 파일을 다운
 - Accept License Agreement 체크 후 다운

Java SE Development Kit 8u73 You must accept the Oracle Binary Code License Agreement for Java SE to download this software.							
Accept License Ag	reement O	Decline License Agreement					
Product / File Description	File Size	Download					
Linux ARM 32 Hard Float ABI	77.73 MB	jdk-8u73-linux-arm32-vfp-hflt.tar.gz					
Linux ARM 64 Hard Float ABI	74.68 MB	jdk-8u73-linux-arm64-vfp-hflt.tar.gz					
Linux x06	154.75 MD	idk 0u70 linux i500.rpm					
Linux x86	174.91 MB	jdk-8u73-linux-i586.tar.gz					
Linux x04	102.70 MD	juk-ou7o-iinux-xo4.rpm					
Linux x64	172.91 MB	jdk-8u73-linux-x64.tar.gz					
Mac OS X x64	227.25 MB	jdk-8u73-macosx-x64.dmg					
Solaris SPARC 64-bit (SVR4 package)	139.7 MB	jdk-8u73-solaris-sparcv9.tar.Z					
Solaris SPARC 64-bit	99.08 MB	jdk-8u73-solaris-sparcv9.tar.gz					
Solaris x64 (SVR4 package)	140.36 MB	jdk-8u73-solaris-x64.tar.Z					
Solaris x64	96.78 MB	jdk-8u73-solaris-x64.tar.gz					
Windows x86	181.5 MB	jdk-8u73-windows-i586.exe					
Windows x64	186.84 MB	jdk-8u73-windows-x64.exe					

■ Oracle JDK 설치

✓ 다운로드 받은 파일 압축 해제

\$ tar xvzf jdk-8u45-linux-x64.tar.gz

✓ 압축풀린 디렉토리 이동

\$ sudo mkdir -p /usr/lib/jvm/jre1.8.0
\$ sudo mv jdk1.8.0_45/* /usr/lib/jvm/jre1.8.0/

✓ Oracle JDK 실행 설정

\$ sudo update-alternatives --install <link> <name> <path> <priori
ty>
\$ sudo update-alternatives --install /usr/bin/java java /usr/lib/jvm/j
re1.8.0/bin/java 0



■ Oracle JDK 설치

✓ 필수 패키지 설치

\$ sudo apt-get install expect gtk2-engines-pixbuf libgnome2-0 qe mu-user-static libwebkitgtk-1.0-0 gettext gksu module-init-tools li budev-dev libsdl1.2debian ruby

✓ 설치된 JDK 확인

\$ java -version

java version "1.8.0_45" Java(TM) SE Runtime Environment (build 1.8.0_45-b14) Java HotSpot(TM) Server VM (build 25.45-b02, mixed mode)

■ Tizen SDK 설치

<u>http://www.tizen.org</u>



TIZEN 2.4 SDK RELEASE

The Tizen SDK is a comprehensive set of tools for developing Tizen web and native applications. Create your own app today.



■ Tizen SDK 설치

✓ 운영체제에 맞는 파일 다운로드

Platform	Installer	File Size	MD5 Checksum	Upd Date
Ubuntu® 32bits (CLI)	tizen-web-cli_TizenS DK_2.4.0_Rev2_ubunt u-32.bin Alternative Locations: Global Brazil China India	108M	f3e8e1bfec24a8eea56ec84502bd2690	Dec 2015
Ubuntu® 32bits (IDE)	tizen-web-ide_TizenS DK_2.4.0_Rev2_ubunt u-32.bin Alternative Locations: Global Brazil China India	417M	8540823f39057db24cf9b73eea1b276a	Dec 2015

■ Tizen SDK 설치

✓ 다운로드 받은 파일 실행 권한 부여

\$ chmod +x tizen-web-ide_TizenSDK_2.4.0_Rev2_ubuntu-32.bin

✔ 다운로드 받은 파일 실행

\$./tizen-web-ide_TizenSDK_2.4.0_Rev2_ubuntu-32.bin

 × Tizen SDK Installer (0. 	1.9)		
	Re	eady to Install?	
	Software Lie	ense Agreement 🔤 Accept	Ě
	Install Size Space Avaliable Installation Location	508.11 MB 11.30 GB /home/yongjae/tizen-sdk	Quit

■ Tizen SDK 설치

✓ Software License Agreement 체크 후 다운로드 버튼 클릭

V × Tizen SDK Installer (0.1.9)						
TIZEN [®] SDK	Re	Ready to Install?				
	Software Lic	ense Agreement 🔽 Accept	Ŀ			
	Install Size	508.11 MB				
	Space Avaliable	11.30 GB				
	Installation Location	/home/yongjae/tizen-sdk	Quit			

■ Tizen SDK 설치 ✓ 다운로드 완료후 Done 버튼클릭

× Tizen SDK Installer (0.1.9)

TIZEN SDK Installation has been completed! Info > Some Tizen SDK packages may not work yet. Please restart your computer before using Tizen SDK.

Info > To develop "Native App", you need to install additional packages using "Update Manager".



- Tizen SDK 설치
 - ✓ Update Manager 실행

× X Tizen SDK Installer (0.1.9)					
TIZEN [®] SD ^W × Tizen SDK Installer					
Ins					
P Ir a	Done				

■ Tizen SDK 설치

✓ All Packages 탭에서 추가적으로 필요한 패키지 다운

 × Tizen Update Manager (0.2.21) 						
TIZEN	SDK					
Installed Packages	All Packages	Progress			2	000
				Accept All	9	Update
+ 2.4 Mobile						
+ 🚺 2.3.1 Mobi	le					
+ 🖸 2.3.1 Wear	rable					
🕂 🔍 Tizen SDK	tools					
 + 2.4 Mobile + 2.3.1 Mobile + 2.3.1 Weat + 2.3.1 Weat + Tizen SDK 	ile rable tools					

■ Tizen SDK 설치

✓ Install 버튼을 통해 설치

TIZEN	DK		
Installed Packages	All Packages	Progress	? 0 2
			Advanced
E 2.4 Mobile			🛨 Install
Emulator			🛨 Install
Native app.	development (IDE)		🛨 Install
Web app. de	velopment (IDE)		😏 Updatable
+ 2.3.1 Mobil	e		🛨 Install
+ 🖸 2.3.1 Wear	able		🛨 Install
+ 2.3 Mobile			🛨 Install
+ 🖸 2.3 Wearab	le		🛨 Install 🔻

■ Tizen IDE 실행

✓ 타이젠 IDE 설치 폴더로 이동

\$ cd tizen-sdk/ide/

✓ 타이젠 IDE eclipse 실행

\$./eclipse



■ Tizen IDE 실행

✓ 타이젠 IDE workspace 설정

× Workspace Launcher

Select a workspace

Tizen IDE stores your projects in a folder called a workspace. Choose a workspace folder to use for this session.

Workspace: //home/yongjae/workspace	▼	Browse
Use this as the default and do not ask again		
ose ans as the derudit and do not ask again	Cancel	OK

■ Tizen IDE 실행

✓ 실행된 타이젠 IDE 화면

🔺 🖂 🗙 Tizen Web - Ti	zen IDE		
<u>F</u> ile <u>E</u> dit <u>N</u> avigate Se <u>a</u> rch	<u>P</u> roject <u>R</u> un <u>W</u> indow <u>T</u> izen Tool	<u>H</u> elp	
T 🕈 🛛 🖸 🖸 🖉 🔻 🖓 🕇	Y 💽 V 隆 V 🧕 🖬 🖪 🐷 V		/* /*
		Quick Access	🖹 🛛 🎯 Tizen Web
Project Ex X □ □ □ 🏝 🏹			P 않 "1 □ □
	Problems 🛛 🗐 Console 0 items		
		Search or type a command	

■ Tizen IDE 실행

- ✓ Tizen project 생성
 - File New Tizen Web Project

\land 🗸 🗙 Tizen Web - Ti	zen IDE		×-
File Edit Navigate Search	Proiect Run Window	Tizen Tool Help	
New	Shift+Alt+N ►	Tizen Web Project	→ ▼ = /* /*
орен гне		Ploject	Access
Close	Ctrl+W	<u>O</u> ther	Ctrl+N
Close All	Shift+Ctrl+W		- C P 🛛 🖓 - C
Save	Ctrl+S		
Save As			~
Save All	Shift+Ctrl+S		Proper Value
Revert			Proper value
Move			
Rename	F2		
Refresh	F5		
Convert Line Delimiters To	•		
Print	Ctrl+P		
Switch Workspace	•		
Restart		Console	
Import			
Export			
Properties	Alt+Enter		
Exit		2 Sear	rch or type a command

■ Tizen IDE 실행

- ✓ Tizen project 생성
 - Mobile 2-4 Basic Application 선택 후 finish

× New Tizen Web Project			
Create a Web Application Project			
Create a Web Application project in the workspa	ce or in an external location.		-
Yerkide W min W min			
Template Online Sample User Template			
🗸 type filter text 🛛 🔏 📮	Basic A	pplication	
+ MOBILE-2.3.1	Tizen app	Required Version	
MOBILE-2.4	 A set of the set of	mobile-2.3	
Basic Application	 The second second second field and the second field and the second field and the second field and the second second	1.0	
- WEARABLE-2.3.1	 A provincipality of the control of the	Size	
Basic application		N/A	•
Project name: BasicApplication			Â
Profile: o mobile O wearable			
Version 24			
version: 2.4 v			~
Location			
	< Back Next >	Cancel	nish

■ Tizen IDE 실행

✓ 생성된 Tizen Project



■ Tizen Emulator device 설정

✓ Tizen tool > Emulator Manager > Create New

😣 🖨 🗊 Emulato	r Manager		
mobile	all		9 G
		🌒 item 🌒 tree	
			Detail
	Create New VM		
Create New		No items selected	

■ Tizen Emulator device 설정

✓ Detail 설정후 confirm



■ Tizen Emulator device 설정

✓ 생성된 devices



■ Tizen Security profile 설정

- ✓ Security profile 생성
 - preference > security profiles >> add

General * Security Secure Storage Tizen SDK Security Profiles Add Remove Author Certificate Certificate path Password Generate Edit Distributor Certificates No. Certificate path Password Certificate path Distributor Certificates No. Certificate path Password CA path (Optional) Root CA path (Optional) Edit	secu 🕱 🗥 Si	et an active profile				\$ ▼ \$ ▼ ▼
Security Security Secure Storage Tizen SDK Security Profiles Add Remaine Set Active Remove Author Certificate Certificate path Password Generate Edit Distributor Certificates No. Certificate path Password CA path (Optional) Root CA path (Optic 1 2 Distributor Legit	General	files			_	
Security Profiles Rename Security Profiles Set Active Remove Remove Author Certificate Generate Certificate path Password Edit Edit Distributor Certificates No. Certificate path No. Certificate path Password Author Certificates Edit Edit 1 2 1	▼ Security					Add
Security Profiles Security Profiles Set Active Remove Remove Author Certificate Generate Certificate path Password Generate Edit Edit Distributor Certificates Edit No. Certificate path Password CA path (Optional) Root CA path (Optional) I I I I I I I	Tizen SDK					Rename
Author Certificate Remove Certificate path Password Certificate path Edit Distributor Certificates Edit No. Certificate path Password CA path (Optional) Root CA path (Optic) Edit	Security Profiles					Sot Activo
Author Certificate Generate Certificate path Password Edit Distributor Certificates No. Certificate path Password CA path (Optional) Remove						SecActive
Author Certificate Certificate path Password Generate Edit Distributor Certificates No. Certificate path Password CA path (Optional) Root CA path (Optic Edit						Remove
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No. Certificate path Password CA path (Optional) Root CA path (Optional) 1		runcate path			Password	Edit
1 2	Dist	ributor Certificates			Password	Edit
	Dist	ributor Certificates	Password	CA path (Optional)	Root CA path (Optic	Edit
	Dist No.	ributor Certificates	Password	CA path (Optional)	Root CA path (Optic	Edit
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	Dist No 1	ributor Certificates	Password	CA path (Optional)	Root CA path (Optic	Edit
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Note: The second distributor is optional and is used only for special purposes	Dist No No	cributor Certificates	Password	CA path (Optional)	Root CA path (Optic	Edit
Note: The second distributor is optional and is used only for special purposes	Dist No No	te: The second distrib	Password	CA path (Optional)	Root CA path (Optic	Edit
Note: The second distributor is optional and is used only for special purposes Apply	Dist Ni 1 2 No	ributor Certificates . Certificate path te: The second distrib	Password	CA path (Optional)	Root CA path (Optic	Edit

■ Tizen Security profile 설정

- ✓ Security profile 생성
 - Profile 이름 설정 후 확인

😣 🗊 Preferences		
secu 🔇	Security Profiles	\$\langle\$ \$\nu\$\$ \$\nu\$\$ \$\nu\$\$ \$\nu\$\$
▼ General	Profiles	
 Security Secure Storage 	tizen (Active)	Add
 Tizen SDK 		Rename
Security Profiles		Set Active
		Remove

■ Tizen Security profile 설정

- ✓ Security profile 생성
 - preference > security profiles >> generate

secu 🛛	Security Profiles		
▼ General	Profiles		
Security	tizen (Active)		Add
 Tizen SDK 			Rename
Security Profiles			Set Active
			Remove
	Author Certificate		
	Certificate path	Password	Generate
			Edit
	Distributor Certificates		

■ Tizen Security profile 설정

✓ Security profile 생성

▪ 필요 정보 입력

tizen
•••••
•••••

■ Tizen Project 실행

✓ Index.html 의 body 수정



■ Tizen Project 실행

✓ Run > Run > Emulator 선택 후 실행

🕲 Cho	Choose Target Dialog				
Minimize Select Emulator					
Select a	n emulator and launch				
Name	Resolution	Status			
m-0304-	-1 480X800	Off			
?	Emulator Manager Re	fresh Cancel Launch			

■ Tizen Project 실행

✓ Emulator에 설치된 Tizen Project 실행





41