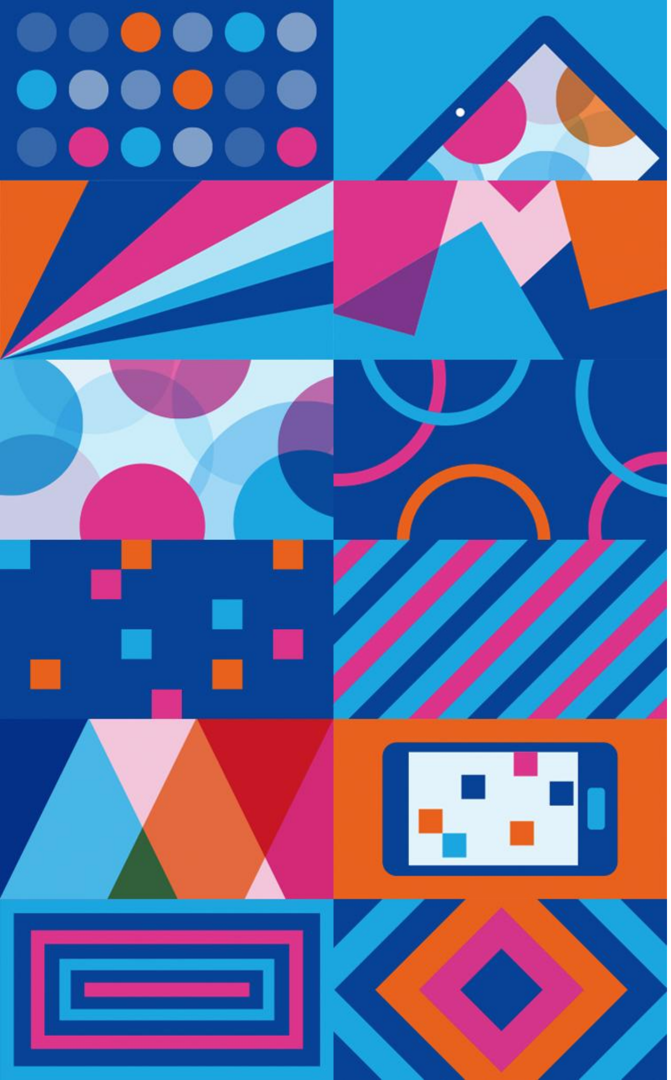


Gear SDK

Rodrigo Borrozino r.borrozino@samsung.com
Software Architect
Samsung SIDI

Samsung Gear 2 and Gear 2 Neo

Gear 2 Specs

Display	1.63 Super AMOLED (320 x 320)
Platform	Tizen based Wearable Platform
CPU	1.0 GHz Dual Core Processor
Memory	RAM: 512MB Storage: 4GB Internal Memory
Camera	Gear 2: 2.0 Megapixel Auto Focus (1920x1080, 1080x1080, 1280x960) Gear 2 Neo: N/A
Connectivity	Bluetooth® v4.0 LE, IrLED
Sensors	Accelerometer, Gyroscope, Heart Rate
Video	Codec: H.264, H.263 Format: 3GP, MP4 HD (720p, @30fps) Playback & Recording
Audio	Codec: MP3/AAC/AMR/Vorbis Format: MP3, M4A, AAC, OGG

Gear SDK

PART 01 **SDK**

PART 02 **Gear Connected**

PART 03 **Development Environment**

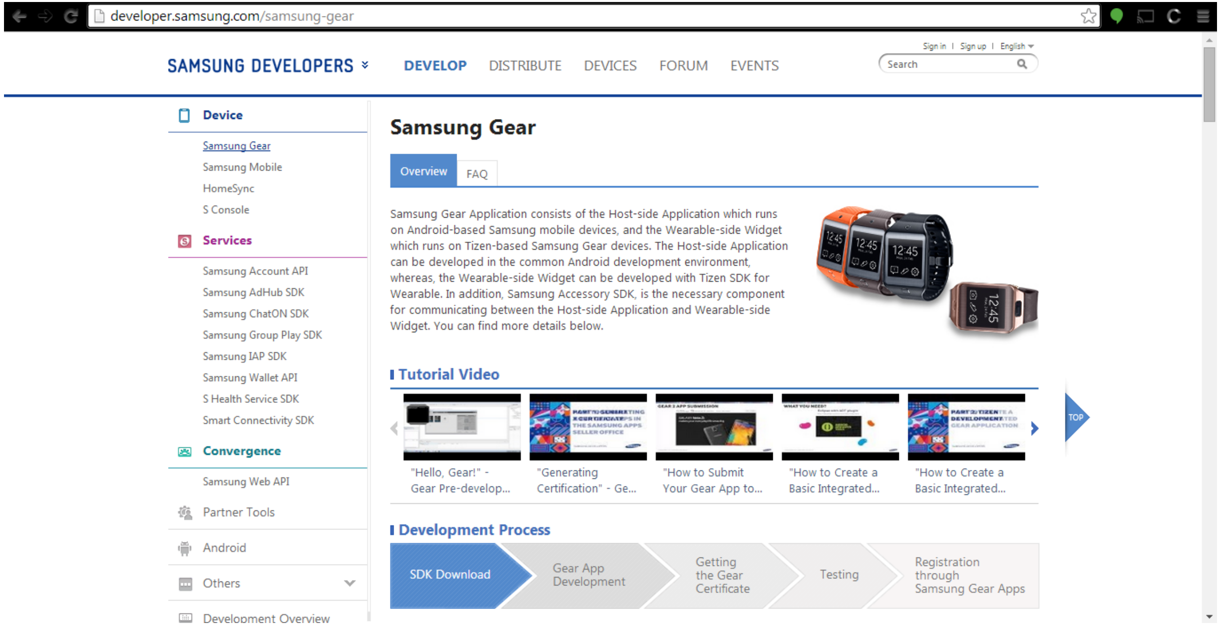
PART 04 **Developing Apps for Gear 2**

PART 05 **Recommendations**

PART 01 SDK

Components

Where is SDK?



developer.samsung.com/samsung-gear

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Search

Device
- Samsung Gear
- Samsung Mobile
- HomeSync
- S Console

Services
- Samsung Account API
- Samsung AdHub SDK
- Samsung ChatON SDK
- Samsung Group Play SDK
- Samsung IAP SDK
- Samsung Wallet API
- S Health Service SDK
- Smart Connectivity SDK

Convergence
- Samsung Web API

Partner Tools

Android

Others

Development Overview

Samsung Gear

Overview FAQ

Samsung Gear Application consists of the Host-side Application which runs on Android-based Samsung mobile devices, and the Wearable-side Widget which runs on Tizen-based Samsung Gear devices. The Host-side Application can be developed in the common Android development environment, whereas, the Wearable-side Widget can be developed with Tizen SDK for Wearable. In addition, Samsung Accessory SDK, is the necessary component for communicating between the Host-side Application and Wearable-side Widget. You can find more details below.

Tutorial Video

"Hello, Gear!" - Gear Pre-develop...

"Generating Certification" - Ge...

"How to Submit Your Gear App to...

"How to Create a Basic Integrated...

"How to Create a Basic Integrated...

TOP

Development Process

SDK Download → Gear App Development → Getting the Gear Certificate → Testing → Registration through Samsung Gear Apps

http://developer.samsung.com/samsung-gear

SDK Packages

Getting Started

- Wearable Application Development Guide

SAP (Samsung Accessory Protocol)

- API Reference and Programming Guides
- accesssory.jar

Host Manager

- Integration Guidelines

UI Concepts

- UI Guidelines for Web App Development

Samples

- HelloGear

Three Development Environments

Windows Distribution

- SDK

MacOS Distribution

- SDK

Ubuntu Distribution

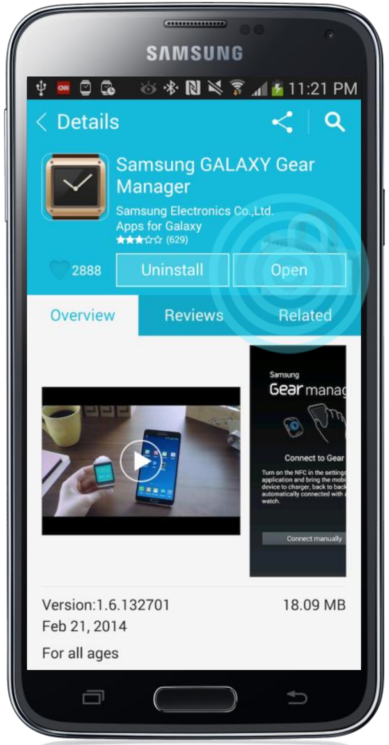
- SDK

PART 02 Gear Connected

Gear Manager and it’s Role

Connecting the Pieces

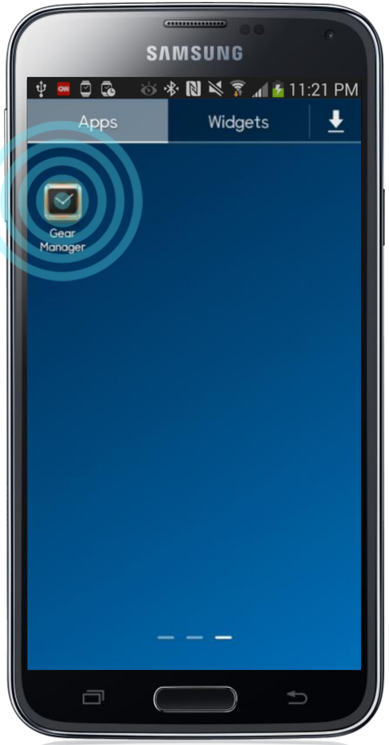
Gear Manager

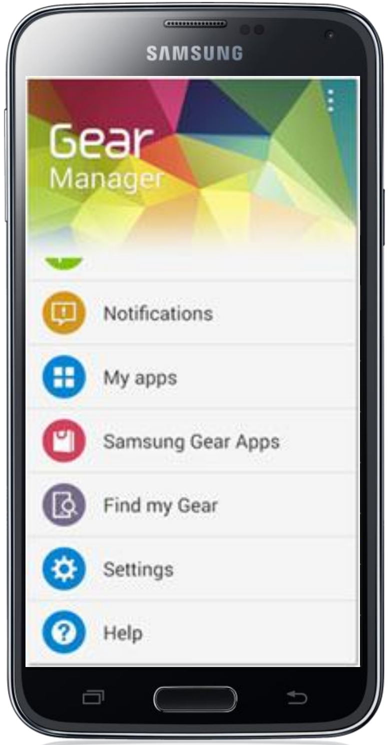


Samsung GALAXY Gear Manager
Samsung Electronics Co.,Ltd.
Apps for Galaxy
★★★☆☆ (629)

Turn on the NFC in the setting application and bring the mobi device to charger, back to back automatically connected with watch.

Version:1.6.132701 18.09 MB
Feb 21, 2014
For all ages

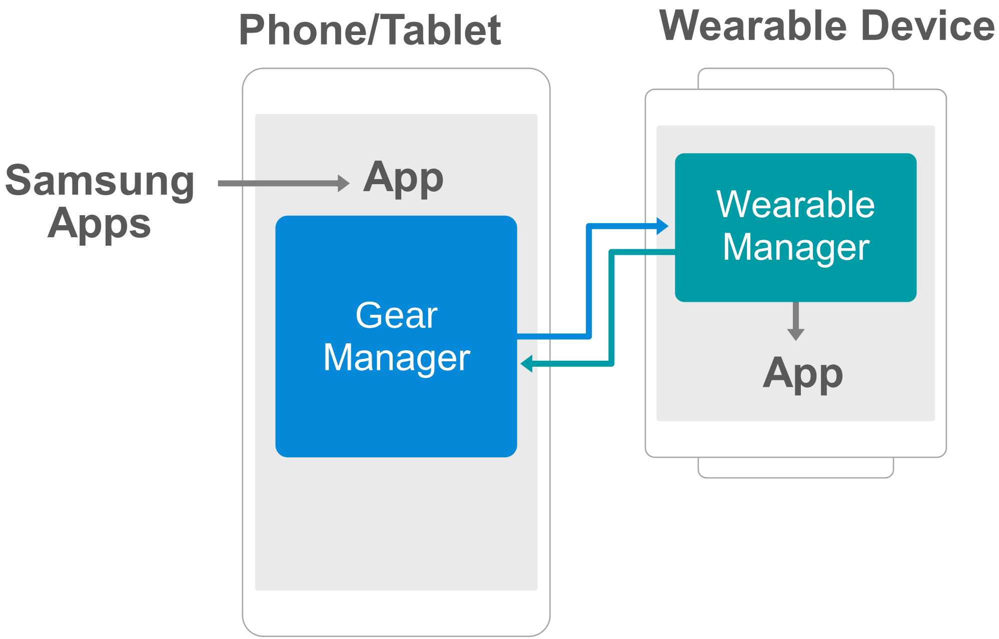




Gear Manager

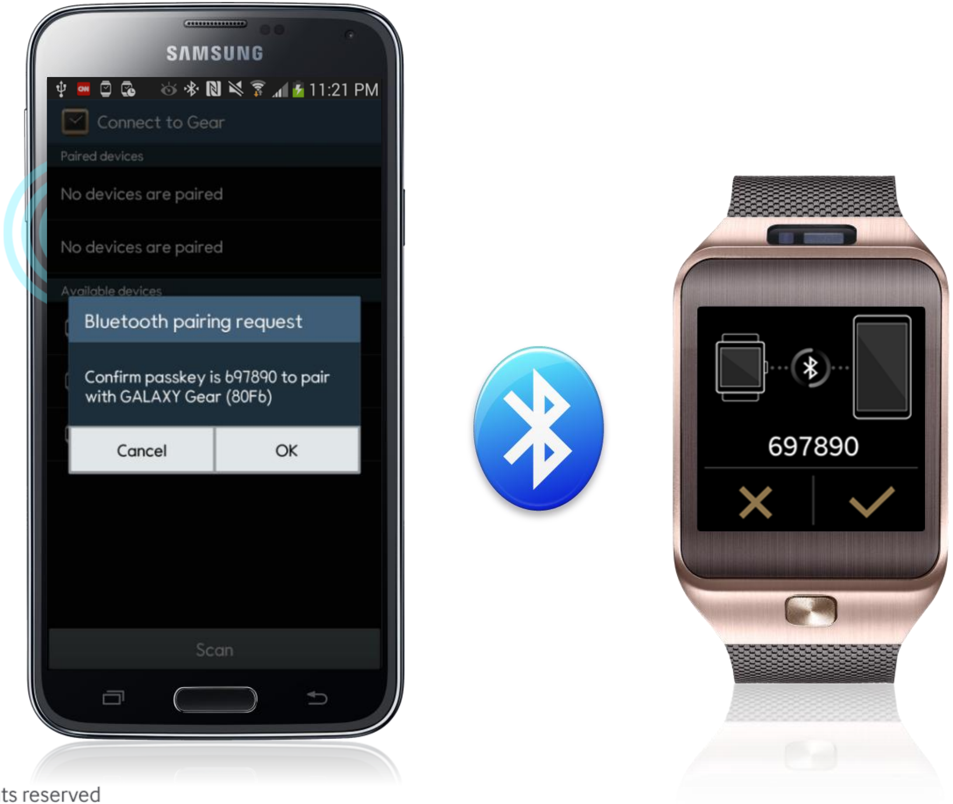
Manages the Gear

- Maintains the list of apps installed on the Gear
- Maintains and pushes new app settings and clock faces to the Gear
- Removes apps from the Gear
- Installs apps to the Gear



Connecting the Devices

Establish Bluetooth connection



Connect to Gear

Paired devices

No devices are paired

No devices are paired

Available devices

Bluetooth pairing request

Confirm passkey is 697890 to pair with GALAXY Gear (80F6)

Cancel | OK

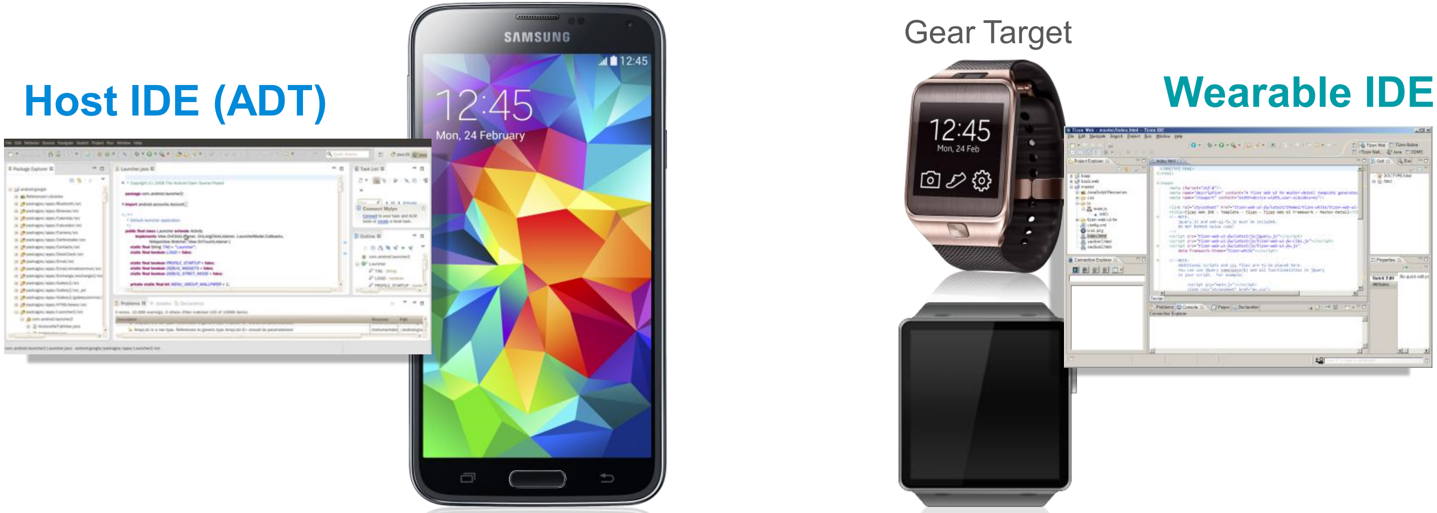
Scan

697890

PART 03 Development Environment

Setting up your Development Environment

Two components: Host SDK and Wearable SDK



Host IDE (ADT)

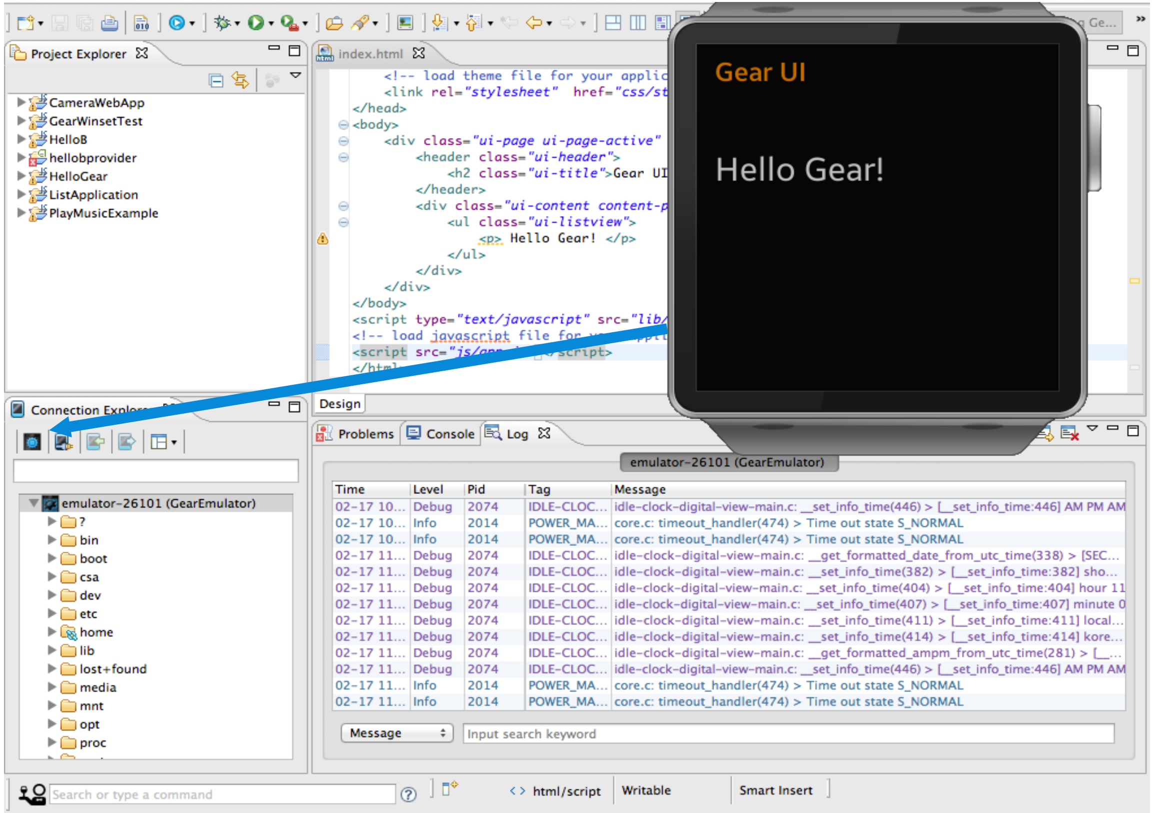
Host Device

Gear Target

Wearable IDE

Gear Emulator

Gear : Eclipse based IDE



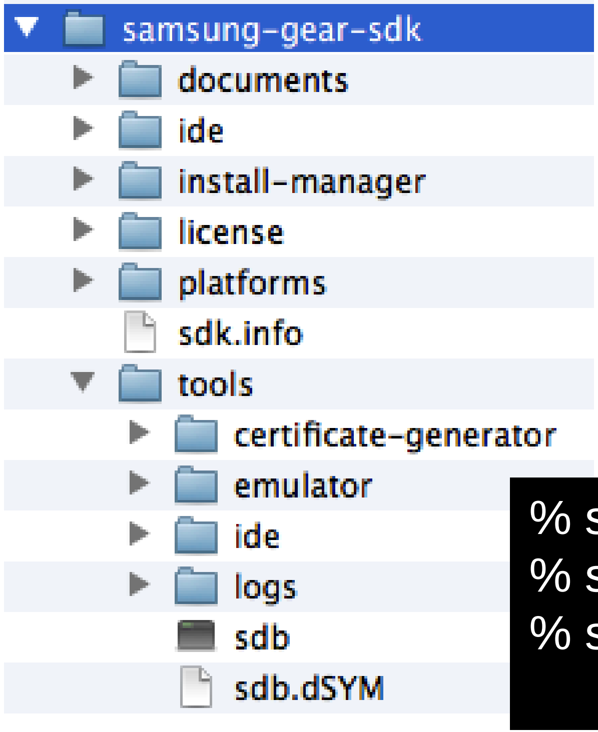
```
    <!-- load theme file for your applic
    <link rel="stylesheet"  href="css/st
</head>
<body>
    <div class="ui-page ui-page-active"
        <header class="ui-header">
            <h2 class="ui-title">Gear UI
        </header>
        <div class="ui-content content-p
            <ul class="ui-listview">
                <p> Hello Gear! </p>
            </ul>
        </div>
    </div>
</body>
<script type="text/javascript" src="lib/
<!-- load javascript file for your appli
<script src="js/app.js"></script>
</html>
```

emulator-26101 (GearEmulator)

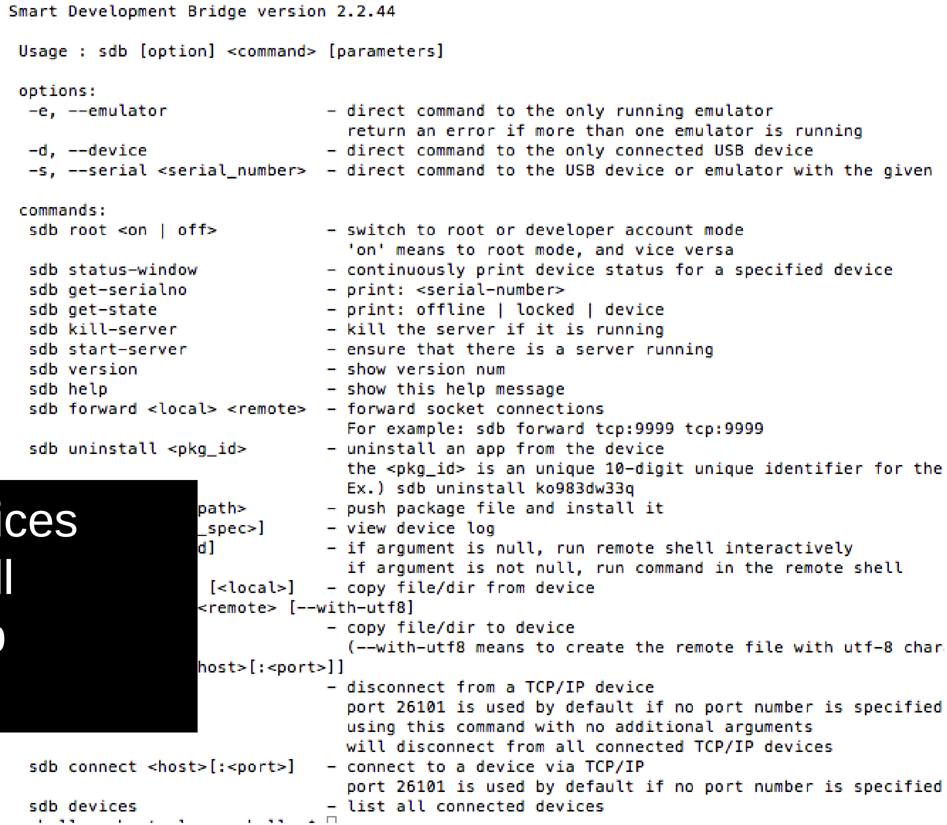
Time	Level	Pid	Tag	Message
02-17 10...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(446) > [__set_info_time:446] AM PM AM
02-17 10...	Info	2014	POWER_MA...	core.c: timeout_handler(474) > Time out state S_NORMAL
02-17 10...	Info	2014	POWER_MA...	core.c: timeout_handler(474) > Time out state S_NORMAL
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __get_formatted_date_from_utc_time(338) > [SEC...
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(382) > [__set_info_time:382] sho...
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(404) > [__set_info_time:404] hour 11
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(407) > [__set_info_time:407] minute 0
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(411) > [__set_info_time:411] local...
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(414) > [__set_info_time:414] kore...
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __get_formatted_ampm_from_utc_time(281) > [__...
02-17 11...	Debug	2074	IDLE-CLOC...	idle-clock-digital-view-main.c: __set_info_time(446) > [__set_info_time:446] AM PM AM
02-17 11...	Info	2014	POWER_MA...	core.c: timeout_handler(474) > Time out state S_NORMAL
02-17 11...	Info	2014	POWER_MA...	core.c: timeout_handler(474) > Time out state S_NORMAL

Message
Input search keyword

Gear : Command Line Tools



```
samsung-gear-sdk
    documents
    ide
    install-manager
    license
    platforms
    sdk.info
    tools
        certificate-generator
        emulator
        ide
        logs
        sdb
        sdb.dSYM
```



```
Smart Development Bridge version 2.2.44

 Usage : sdb [option] <command> [parameters]

 options:
  -e, --emulator                - direct command to the only running emulator
                                  return an error if more than one emulator is running
  -d, --device                  - direct command to the only connected USB device
  -s, --serial <serial_number>  - direct command to the USB device or emulator with the given

 commands:
  sdb root <on | off>           - switch to root or developer account mode
                                  'on' means to root mode, and vice versa
  sdb status-window             - continuously print device status for a specified device
  sdb get-serialno              - print: <serial-number>
  sdb get-state                 - print: offline | locked | device
  sdb kill-server               - kill the server if it is running
  sdb start-server              - ensure that there is a server running
  sdb version                   - show version num
  sdb help                      - show this help message
  sdb forward <local> <remote>  - forward socket connections
                                  For example: sdb forward tcp:9999 tcp:9999
  sdb uninstall <pkg_id>        - uninstall an app from the device
                                  the <pkg_id> is an unique 10-digit unique identifier for the
                                  Ex.) sdb uninstall ko983dw33q
                     path>      - push package file and install it
                     _spec>]    - view device log
                     d]         - if argument is null, run remote shell interactively
                                  if argument is not null, run command in the remote shell
                      [<local>] - copy file/dir from device
                     <remote> [--with-utf8]
                                - copy file/dir to device
                                  (--with-utf8 means to create the remote file with utf-8 char
                     host>[:<port>]]
                                - disconnect from a TCP/IP device
                                  port 26101 is used by default if no port number is specified
                                  using this command with no additional arguments
                                  will disconnect from all connected TCP/IP devices
  sdb connect <host>[:<port>]   - connect to a device via TCP/IP
                                  port 26101 is used by default if no port number is specified
  sdb devices                   - list all connected devices
```

% sdb devices

% sdb shell

% sdb help

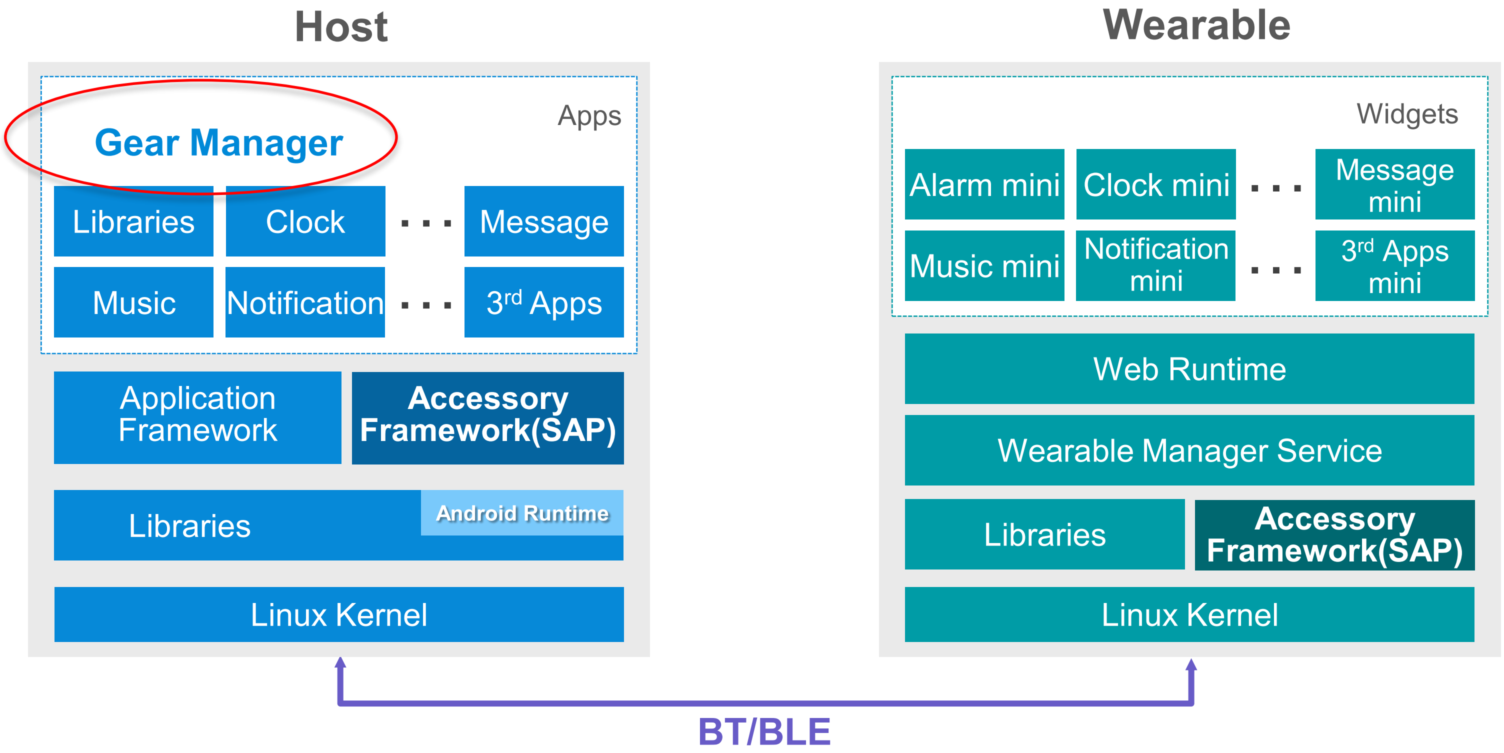
PART 04 Developing for the Gear

Architecture

Anatomy of an Application

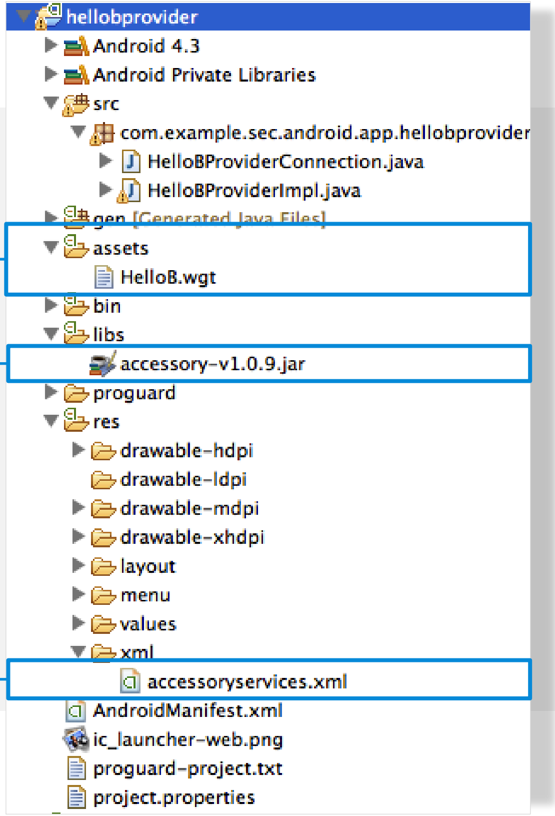
UI and Interaction Model

Architecture



Android App

Typically called the “Provider” App



```
▼ hellobprovider
  ▶ Android 4.3
  ▶ Android Private Libraries
  ▼ src
    ▼ com.example.sec.android.app.hellobprovider
      ▶ HelloBProviderConnection.java
      ▶ HelloBProviderImpl.java
  ▶ gen [Generated Java Files]
  ▼ assets
      HelloB.wgt
  ▶ bin
  ▼ libs
      accessory-v1.0.9.jar
  ▶ proguard
  ▼ res
    ▶ drawable-hdpi
      drawable-ldpi
    ▶ drawable-mdpi
    ▶ drawable-xhdpi
    ▶ layout
    ▶ menu
    ▶ values
    ▼ xml
        accessoryservices.xml
    AndroidManifest.xml
    ic_launcher-web.png
    proguard-project.txt
    project.properties
```

Wearable-side widget embedded in /assets folder

Samsung Accessory Protocol(SAP) Library

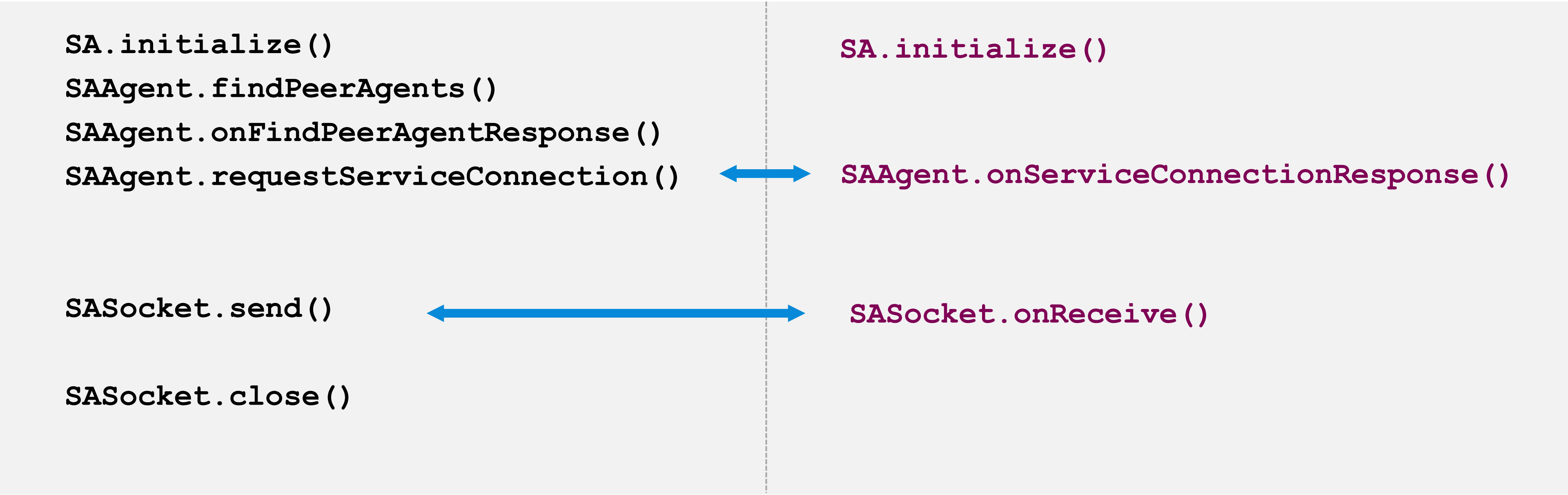
Configuration file defining the communication channel

Connecting the Phone and Watch Apps

SA

SAAgent

SASocket



SA.initialize()

SAAgent.findPeerAgents()

SAAgent.onFindPeerAgentResponse()

SAAgent.requestServiceConnection()

SASocket.send()

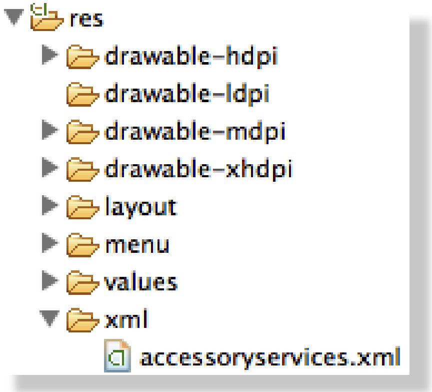
SASocket.close()

SA.initialize()

SAAgent.onServiceConnectionResponse()

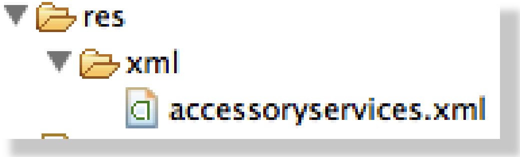
SASocket.onReceive()

Connecting the Phone and Watch Apps



```
<uses-permission
           android:name= “permission” />

"android.permission.BLUETOOTH”
"android.permission.BLUETOOTH_ADMIN”
"com.samsung.wmanager.APP”
"com.samsung.accessory.permission
                         .ACCESSORY_FRAMEWORK”
```

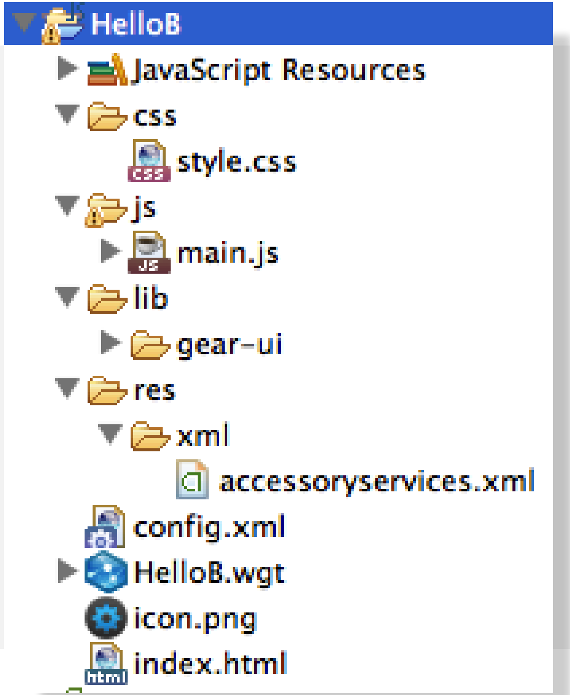


```
<tizen:privilege name=
     "http://developer.samsung.com
          /privilege/accessoryprotocol"/>
```

Anatomy of a Gear Web App

Also called the “Consumer App”

- config.xml
- index.html
- <app>.js
- style.css
- icon.png
- Additional Javascript libs
- JavaScript Resources
- <app>.wgt
- /res/accessoryservice.xml

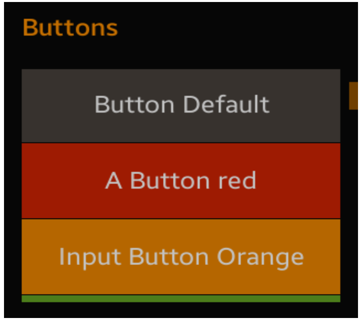


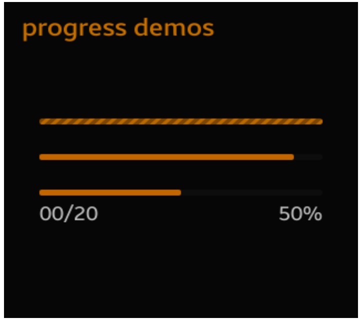
```
▼ HelloB
    ▶ JavaScript Resources
    ▼ css
        style.css
    ▼ js
      ▶ main.js
    ▼ lib
      ▶ gear-ui
    ▼ res
      ▼ xml
          accessoryservices.xml
      config.xml
    ▶ HelloB.wgt
      icon.png
      index.html
```

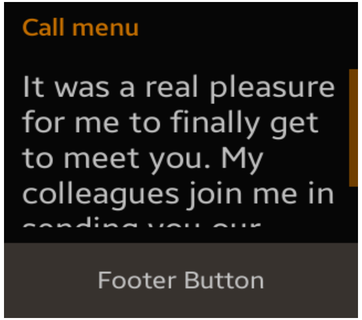
UI Guidelines

gear.ui.js (14 widgets)

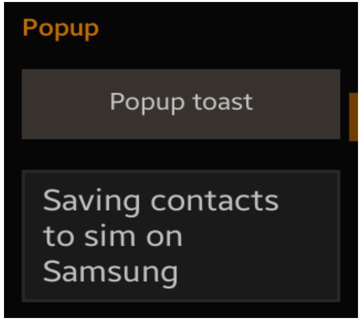
- includes jquery library (only some widgets exposed)
- implements some jquery mobile-like widgets



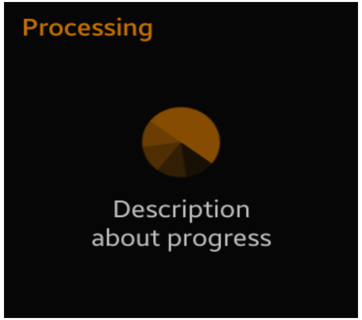




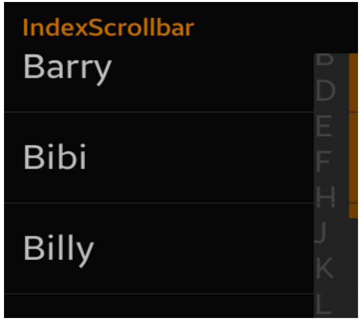
It was a real pleasure for me to finally get to meet you. My colleagues join me in sending you our

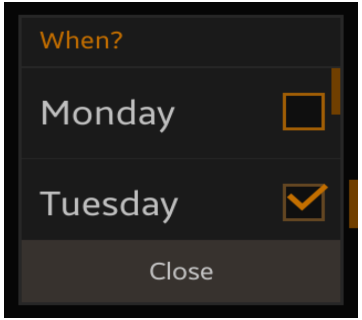


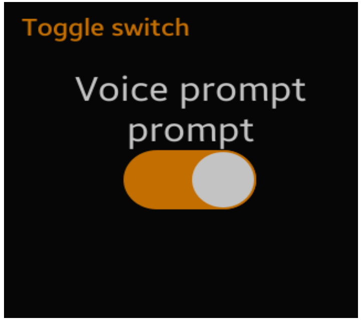
Saving contacts to sim on Samsung



Description about progress



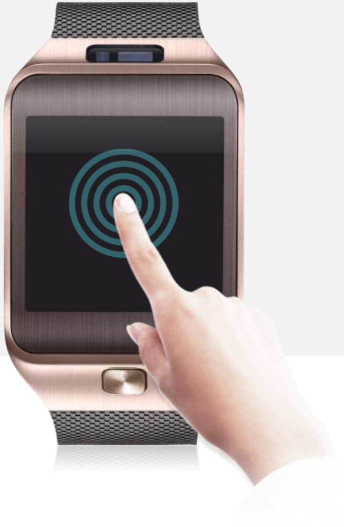




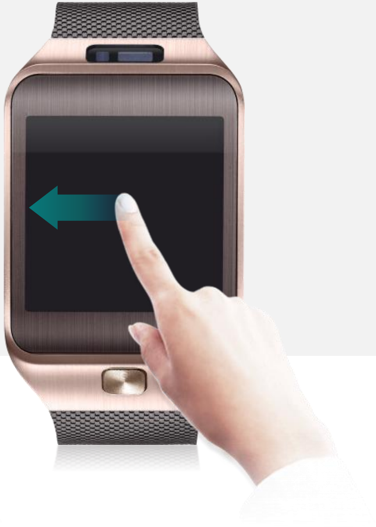
Interaction Model

Navigating Gear

Tap to select

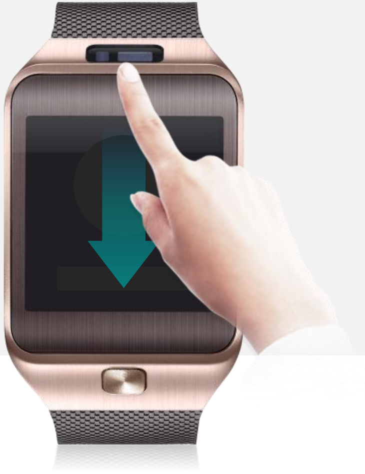


Swipe to navigate between screens



Going back

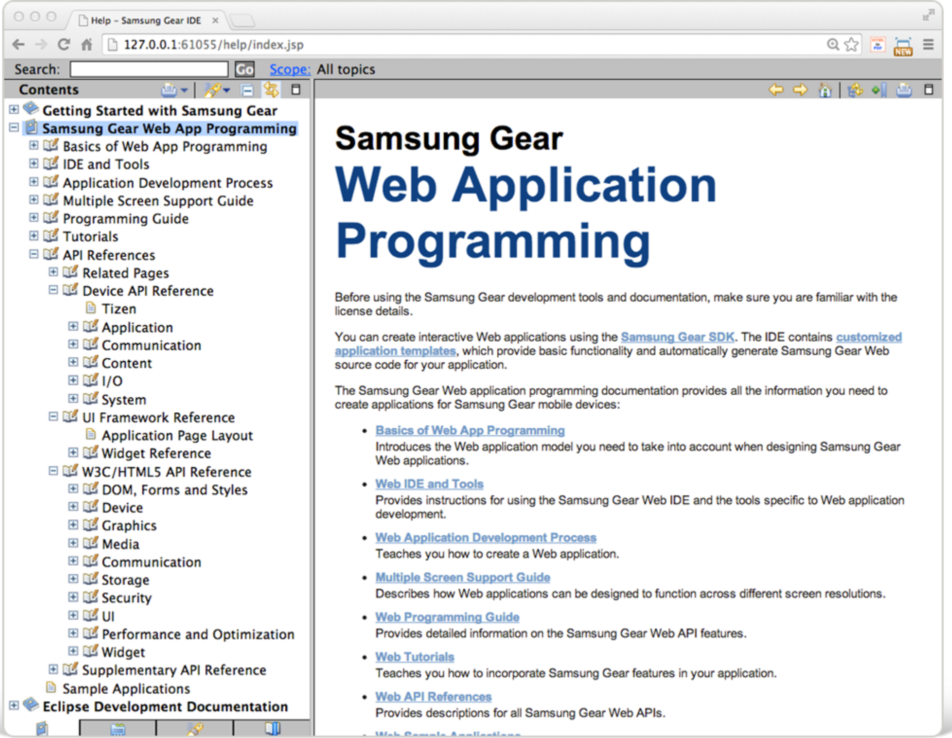
Swipe downwards from the top edge of the Gear screen



Implementing Back Programmatically

```
function () {
   window.addEventListener( 'tizenhwkey', function( ev ) {
     if( ev.keyName == "back" ) {
        var page = document.getElementsByClassName( 'ui-page-active' )[0],
                 pageid = page ? page.id : "";
        if( pageid === "main" ) {
             tizen.application.getCurrentApplication().exit();
        } else {
             window.history.back();
        }
      }
   } );
}
```

Implementing the rest



Samsung Gear
Web Application Programming

Before using the Samsung Gear development tools and documentation, make sure you are familiar with the license details.

You can create interactive Web applications using the Samsung Gear SDK. The IDE contains customized application templates, which provide basic functionality and automatically generate Samsung Gear Web source code for your application.

The Samsung Gear Web application programming documentation provides all the information you need to create applications for Samsung Gear mobile devices:

- Basics of Web App Programming
  Introduces the Web application model you need to take into account when designing Samsung Gear Web applications.
- Web IDE and Tools
  Provides instructions for using the Samsung Gear Web IDE and the tools specific to Web application development.
- Web Application Development Process
  Teaches you how to create a Web application.
- Multiple Screen Support Guide
  Describes how Web applications can be designed to function across different screen resolutions.
- Web Programming Guide
  Provides detailed information on the Samsung Gear Web API features.
- Web Tutorials
  Teaches you how to incorporate Samsung Gear features in your application.
- Web API References
  Provides descriptions for all Samsung Gear Web APIs.
- Web Sample Applications

WRT is a Webkit-based browser

- Web application is a viewport

HTML5 based on W3C standards

- API set includes device specific (sensors), industry standard (media), and UI widgets

Supports other libraries

- Jquery.js, Hammer.js, etc

Gear IDE Help Contents

- Web App Programming Guide
- API reference
- Tutorials

PART 05 Recommendations

Remember the interaction model

Android App != Gear App

- Screen size is different
- Interaction Model is different for wearables

Take advantage of swiping motions

- Back button not necessary

Build for Offline Mode

- Cannot launch web site from within Gear App
- Cannot connect to a backend server
- No WiFi or carrier service

Alternative for testing

Samsung Remote Test Lab

- http://developer.samsung.com/remotetestlab

Web Preview

- Chrome
- Tizen API is not supported

Samsung Gear 2 SDK

1 Visit Samsung Developer Site › 2 Download Samsung Mobile SDK › 3 Develop and Submit

http://developer.samsung.com

Thank you