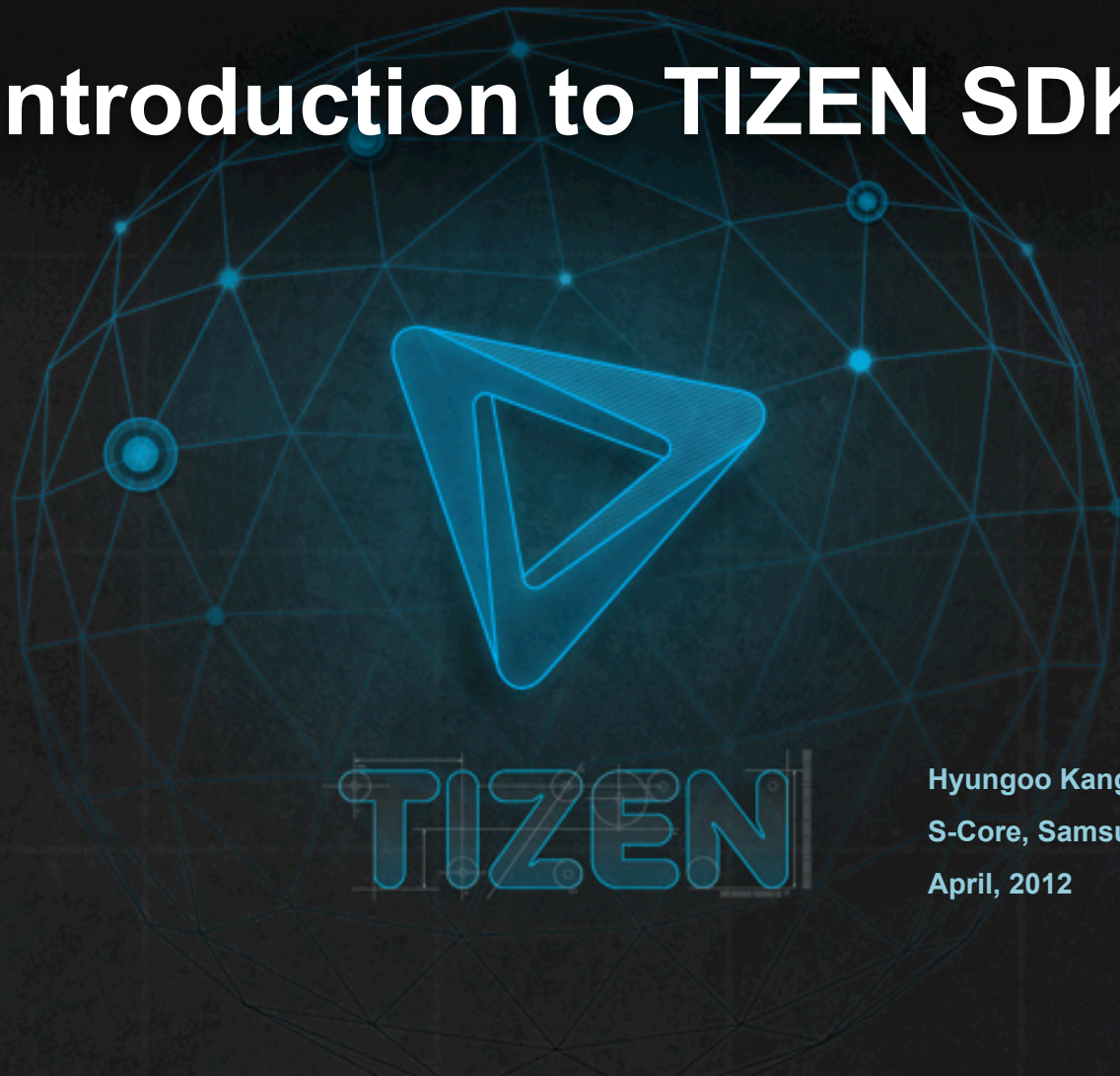


# Introduction to TIZEN SDK



Hyungoo Kang, Kangho Kim  
S-Core, Samsung  
April, 2012

# Contents

- **Overview**
- **Tizen SDK (selected features)**
- **Demo (10 minutes)**
- **Conclusion**

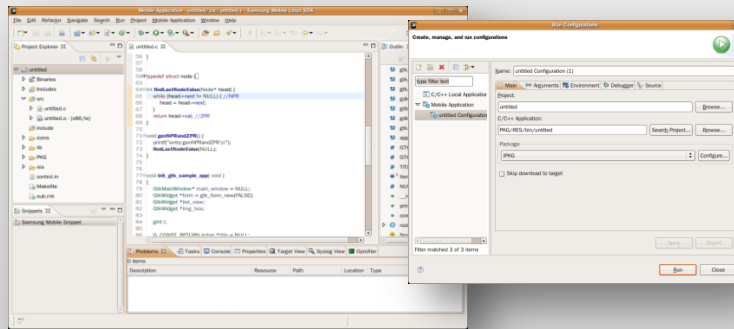


# Overview (1/3)

- Tizen SDK is a comprehensive set of tools for Tizen app development

## IDE

- Competitive editor for HTML, CSS, Javascript
- Project management, templates, samples, documentation
- Multiple target (Emulator/Device) management



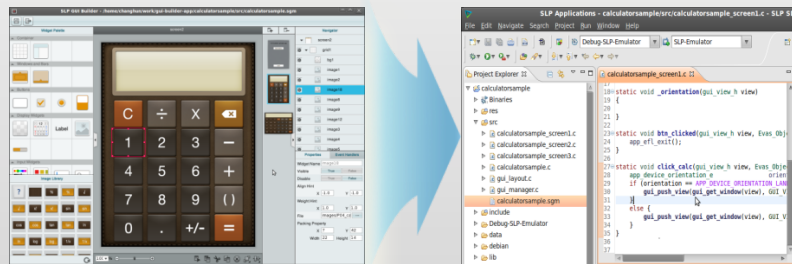
## Target like Emulator

- Various Device Emulation based on open source QEMU
- Event Injector such as Call/SMS send and receive



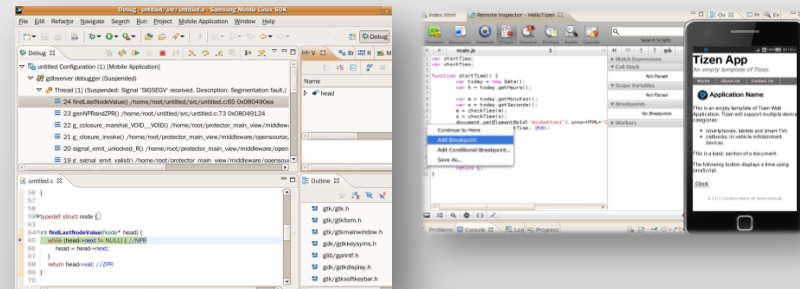
## GUI Builder

- Productive and visual WYSIWYG builder
- Web GUI Builder supporting Tizen JQM based UI framework (TBD)



## Others

- Debugging & profiling based on remote web inspector
- One step install, Multi-OS support
- Platform development (native) support



# Overview (2/3)

- Screenshot (IDE)

**Editors**  
- HTML / JavaScript / CSS file

**Project Explorer**  
- Hierarchical view of resources

**Outline**  
- Structural summary

**Event Injector**  
- Virtual I/O (SMS/Sensor/Geo..) for the emulator

**Properties**  
- Show and edit

**Connection Explorer**  
- Tree view of target devices  
- File system of target device access

**Logs Console**  
- Framework log view  
- IDE log view

**HTML Preview**  
- WebKit-based preview in browser

**CSS Preview**  
- Instant look & feel of CSS file

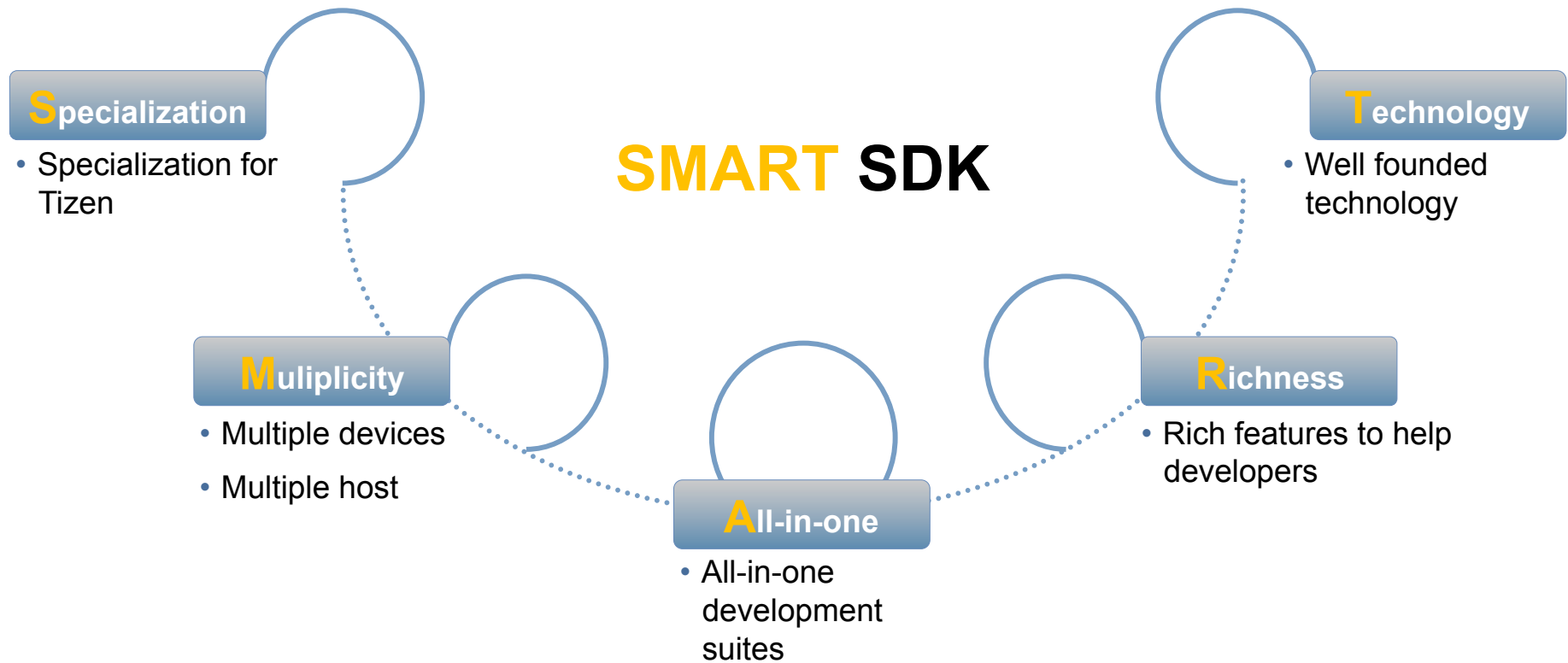
The screenshot shows the Tizen IDE interface with a central editor displaying HTML code for a multi-page application. The code includes links to internal pages and a footer. Surrounding the editor are various toolbars and panels: Project Explorer on the left showing a file tree, a Palette with HTML 4.0 widgets, an Outline view on the right showing the document structure, and an Event Injector panel. At the bottom, there is a Connection Explorer showing a tree of target devices, a Logs Console with a table of log messages, and HTML/CSS Preview panels showing a rendered view of the application.

Time	Level	Pid	Message
03-12 16:16:20.470	Debug	2138	[view_logic_apps_support.cpp:82] deinitialize(): Deinitialized
03-12 16:16:20.470	Debug	2138	[WRT_PLUGIN [view_logic_apps_support.cpp:51] deinitializeStorage(): deinitializeStorage
03-12 16:16:20.470	Debug	2138	[WRT_PLUGIN [view_logic_apps_support.cpp:463] disconnectCallbacks(): Disconnecting callbacks ...
03-12 16:16:20.470	Debug	2138	[WRT_PLUGIN [view_logic_apps_support.cpp:421] disconnectCallbacks(): Disconnecting callbacks done
03-12 16:16:20.470	Debug	2138	[WRT_PLUGIN [view_logic_apps_support.cpp:421] disconnectViewCallbacks(): disconnectViewCallbacks callbacks ...
03-12 16:16:20.470	Debug	2138	[WRT_PLUGIN [view_logic_apps_support.cpp:421] disconnectViewCallbacks(): disconnectViewCallbacks callbacks done



# Overview (3/3)

- Tizen SDK in terms of S•M•A•R•T



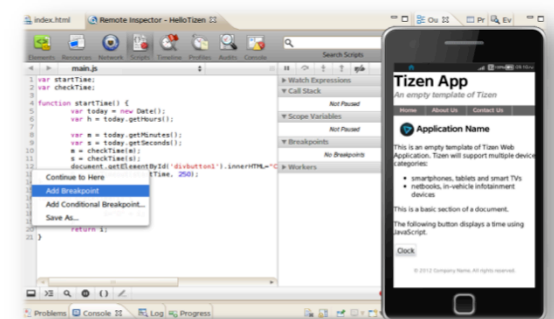
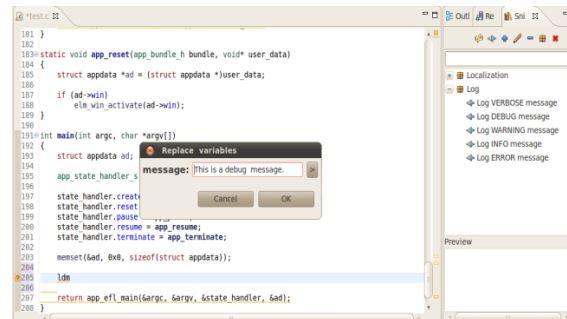
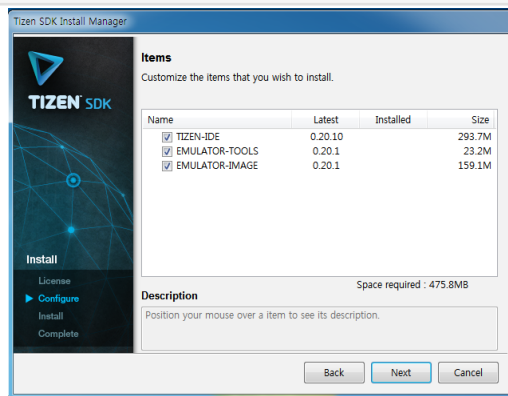
# All-in-one Suites

- Tizen SDK is all-in-one suites from installation to development
  - One-step installer for whole SDK module installation
  - Development with rich assistance of editor and GUI builder
  - Build, test and debug with both emulator and real devices
  - Support tizen platform development as well (in one IDE)
    - Tizen platform developer can develop her own (native/library) platform module, replacing the platform image in the target

Install/update

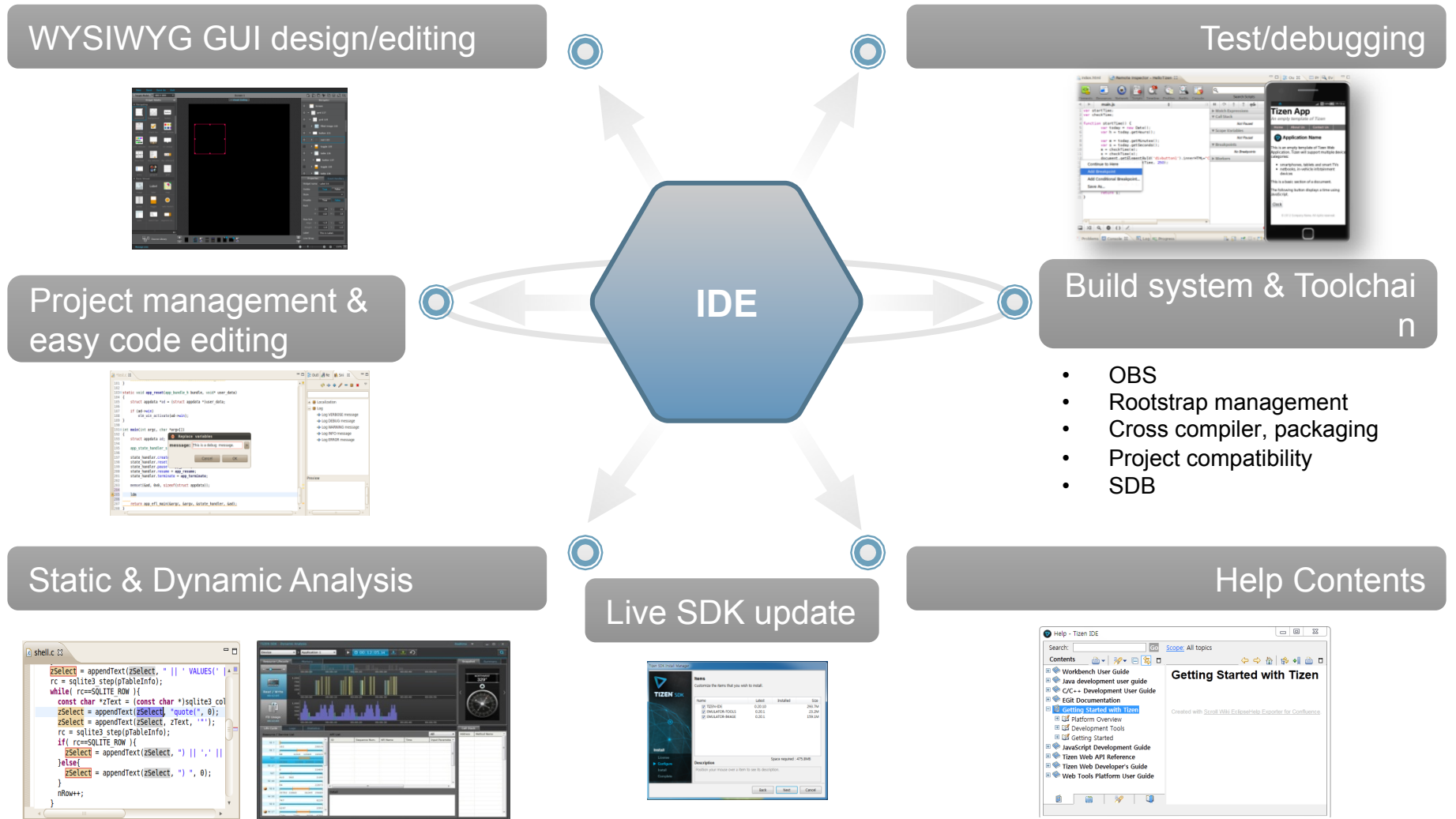
Develop/update

Test & debug



# All-in-one Suites

- Tizen SDK provides various tools and documents integrated with IDE



# Specialization for Tizen

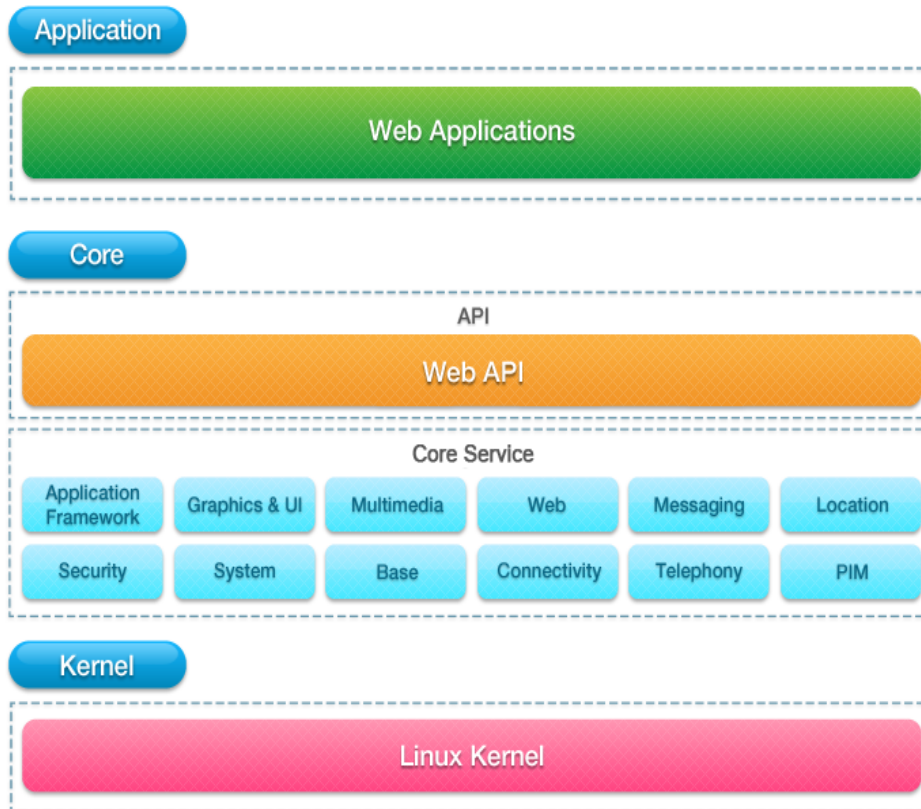
- **Best tool for developing Tizen web application**
  - project management
    - project wizard & explorer
    - Various templates & Sample
    - User template
  - Configuration editor for Tizen web app (W3C widget configuration)

The image displays the Tizen development environment interface. On the left, a sidebar shows the 'Template' section with options: 'Basic', 'Tizen Web UI Framework', 'jQuery Mobile', 'HTML5 Boilerplate', and 'Web Presentation'. The 'Tizen Web UI Framework' is selected, leading to a 'Single-Page Application' template. The main area shows the 'Tizen Web UI FW Single-Page Application' configuration, including a preview of a mobile device displaying the application. On the right, the 'Project Explorer' shows the file structure: 'untitled' (JavaScript Resources, css, js, WebContent, config.xml, icon.png, icon1.png, index.html, untitled.wgt). Below it, the 'config.xml' configuration editor is open, showing the 'Overview' tab with fields for Identifier, Name, Version, Author, Email, Web Site, Content, Icon, and Description, along with 'Attribute Information' for Widget UI (Width, Height, View Modes) and License.



# Specialization for Tizen

- Hover and Auto-completion for Tizen API



```
function startTime() {  
    var today = new Date();  
    var h = today.getHours();  
  
    var m = today.  
    var s = today.  
    m = checkTime(  
    s = checkTime(  
    document.getEl  
    t = setTimeout  
}
```

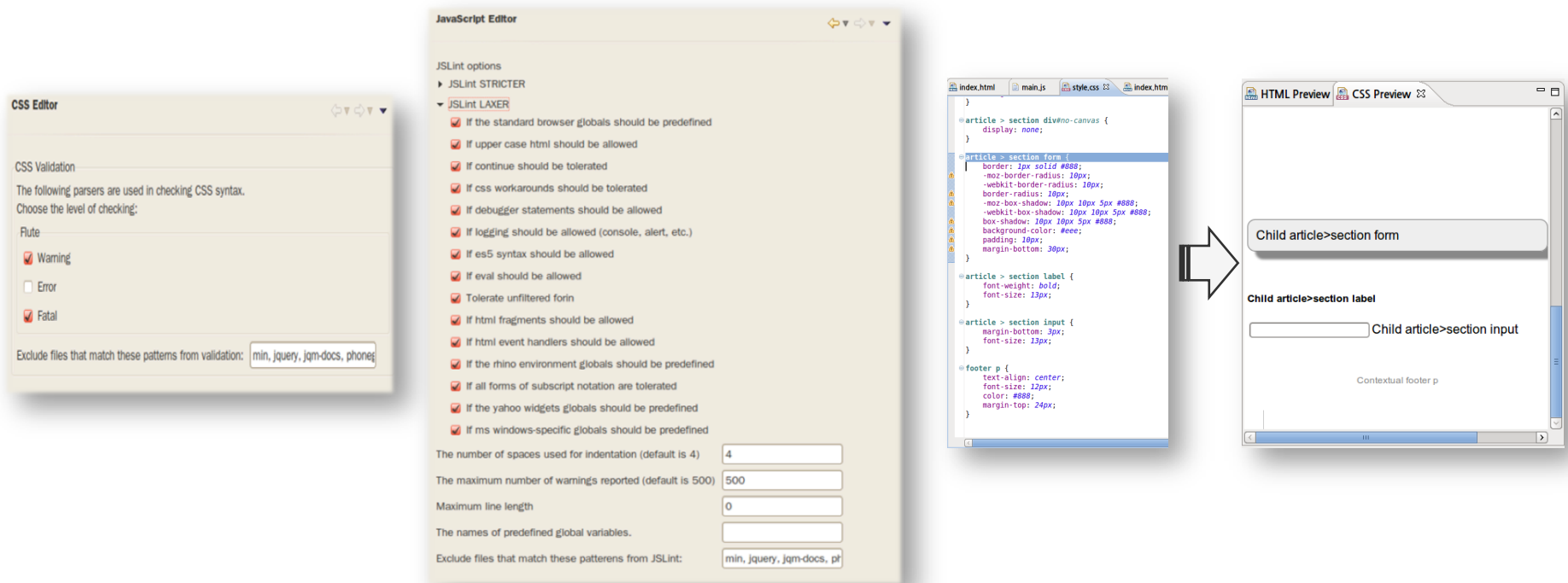
**Number Date.getHours()**  
function getHours()  
**Since:**  
Standard ECMA-262 3rd. Edition  
Level 2 Document Object Model Core  
Definition.  
**@memberOf**  
Date  
**@returns**  
{Number}

```
tizen.  
}  
function c  
    if (i  
        i=  
    }  
    return  
}
```

- alarm AlarmManager - Tizen
- application Application - Tizen
- bluetooth BluetoothManager - Tizen
- calendar CalendarManager - Tizen
- call CallManager - Tizen
- constructor Function - Object
- contact ContactManager - Tizen
- filesystem FileSystemManager - Tizen
- geocoder Geocoder - Tizen
- mediacontent MediaSourceManager - Tizen
- messaging Messaging - Tizen

# Richness: General features

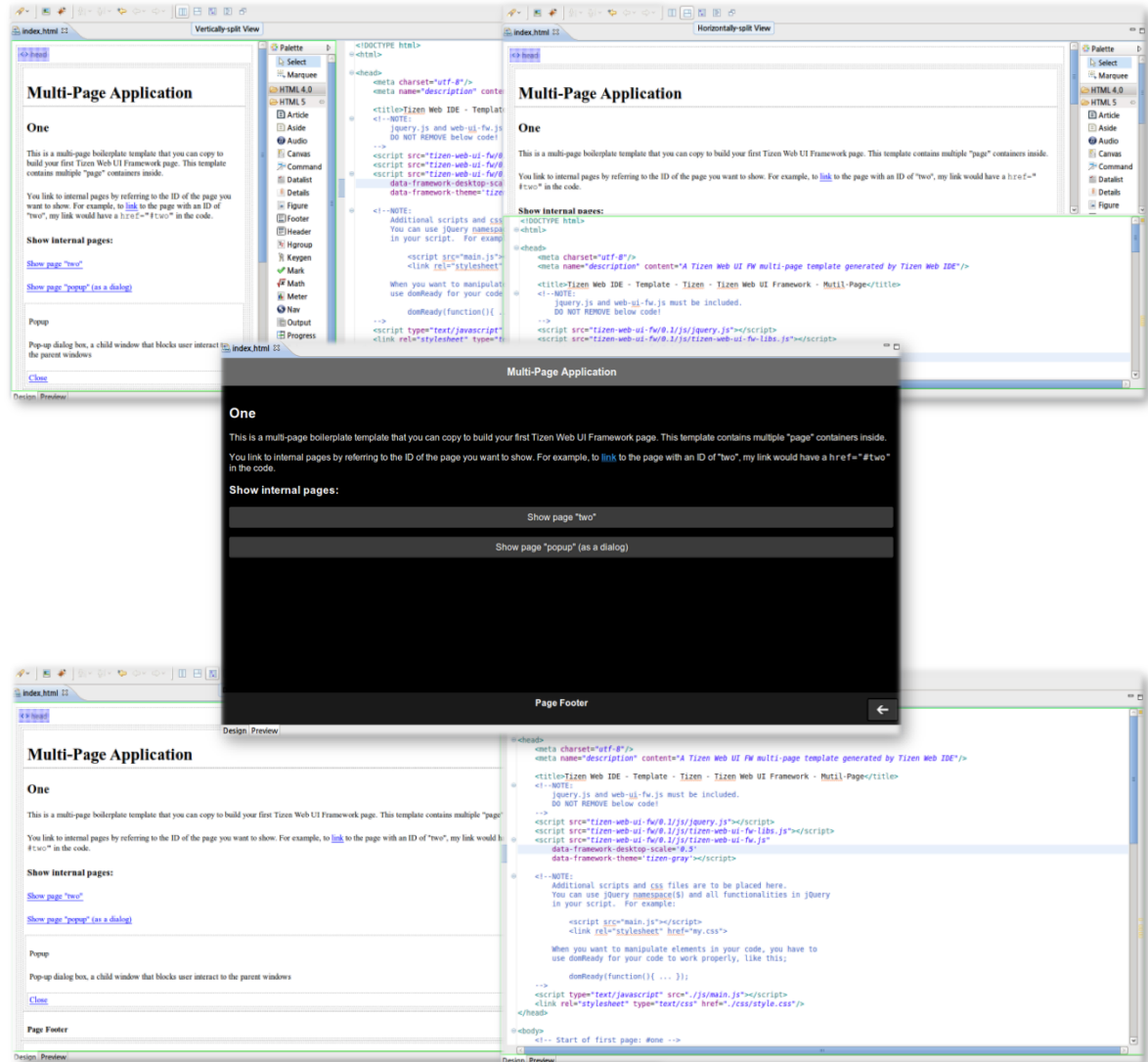
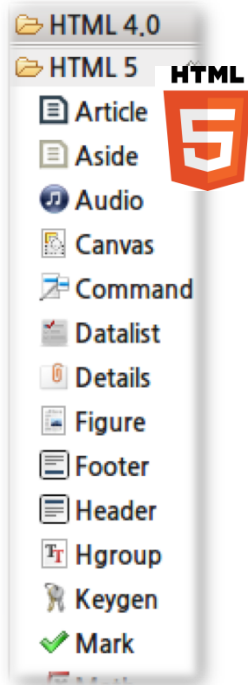
- Not just specialized features for Tizen, but also **general features to help web app development**
  - Javascript/CSS syntax check, Minification of javascript/css file, CSS/HTML preview



- **Familiar IDE**
  - Tizen SDK is based on Eclipse, JSDT for web app, CDT for native platform development, with which many web developers are familiar
  - Extensibility: each developers can enrich the Tizen SDK by adding custom-user plug-ins by need

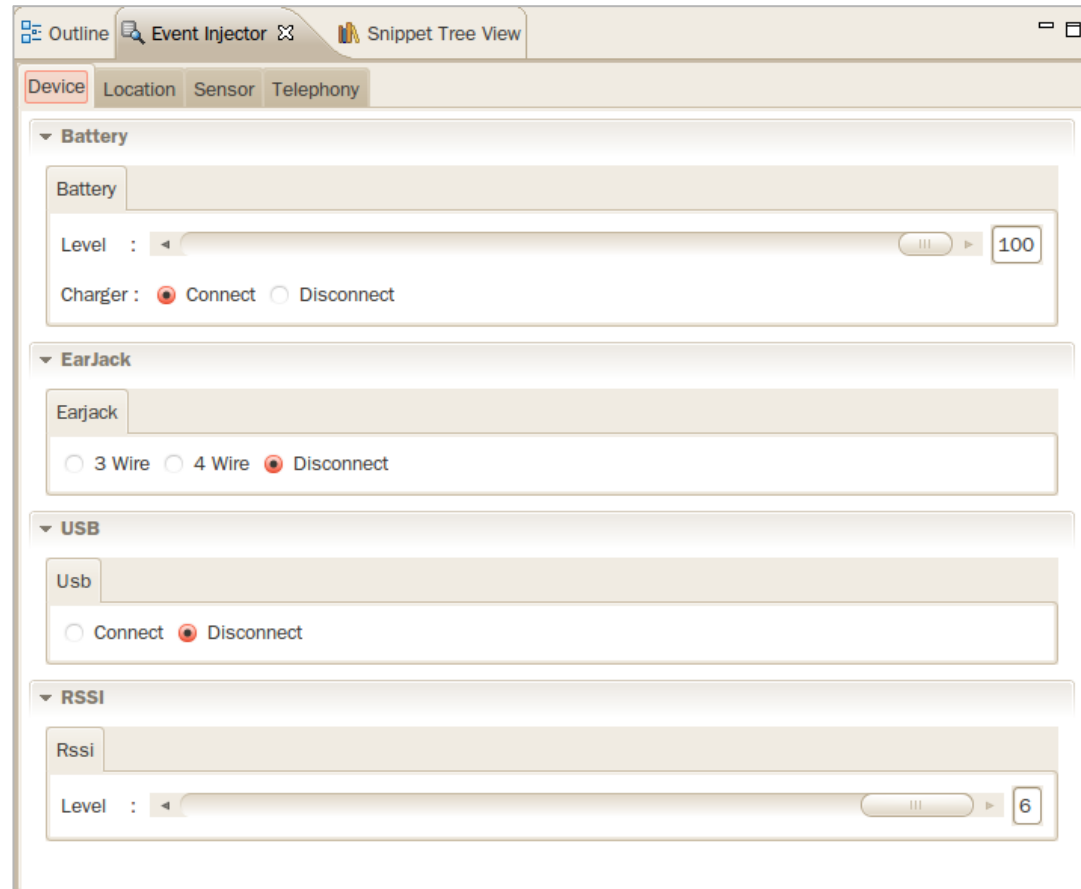
# Richness: HTML Editor

- **Variety of view mode**
  - vertically split
  - horizontally split
  - only design
  - only source
  - preview
- **HTML5 palette**
  - Supports HTML5 tag



# Richness: Event Injector

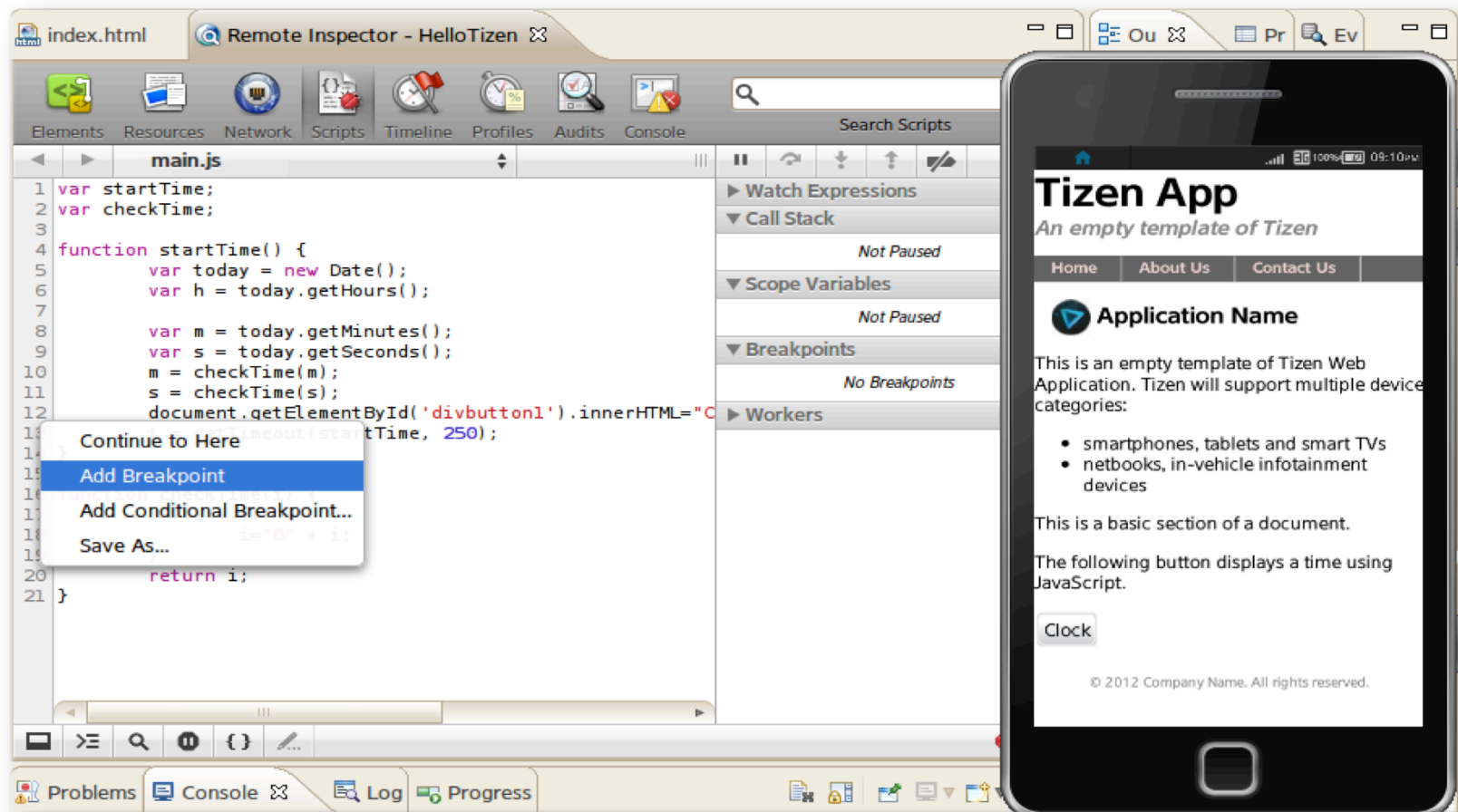
- Rich event injection for ease of test
  - Sensors
    - Accelerometer
    - Gyroscope
    - Geomagnetic
    - Proximity
    - Light
    - Motion
  - Location
    - Manual/Map/Log file
  - Telephony
    - Call/SMS
  - NFC
    - NDEF message
    - NFC Tag
    - P2P
  - Device
    - Battery level
    - Earjack
    - USB
    - RSSI





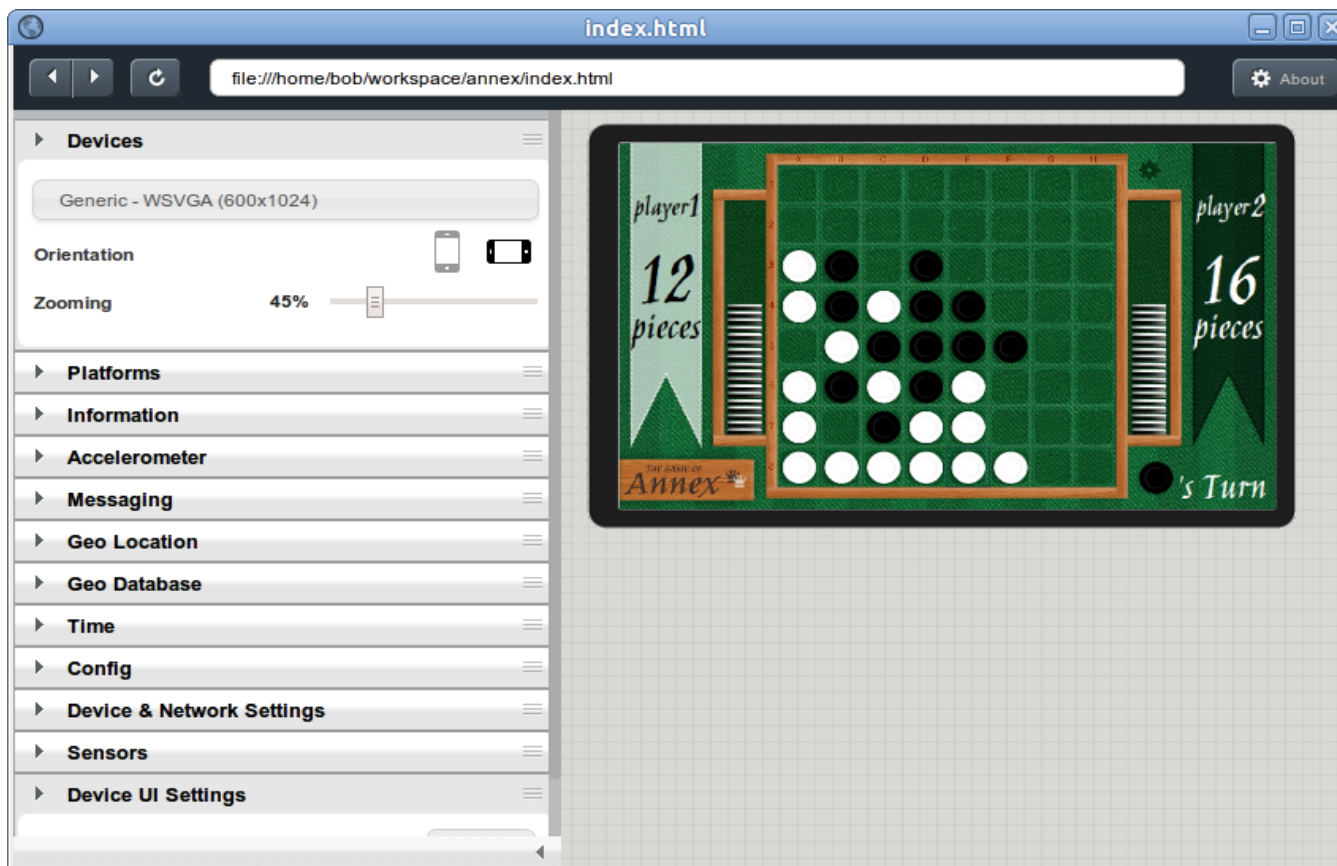
# Richness: Debugging & Profiling

- Remote inspector, integrated in Tizen SDK, provides powerful debugging/profiling facilities for your web application
  - JavaScript Debugging, DOM Inspection, CSS Style Inspection, Resources Inspection, Timeline and Profiles



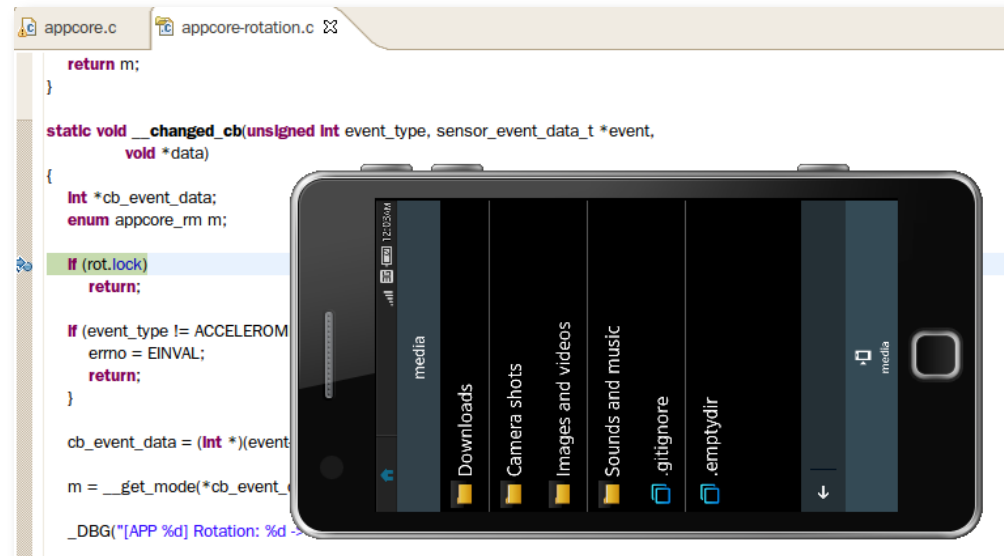
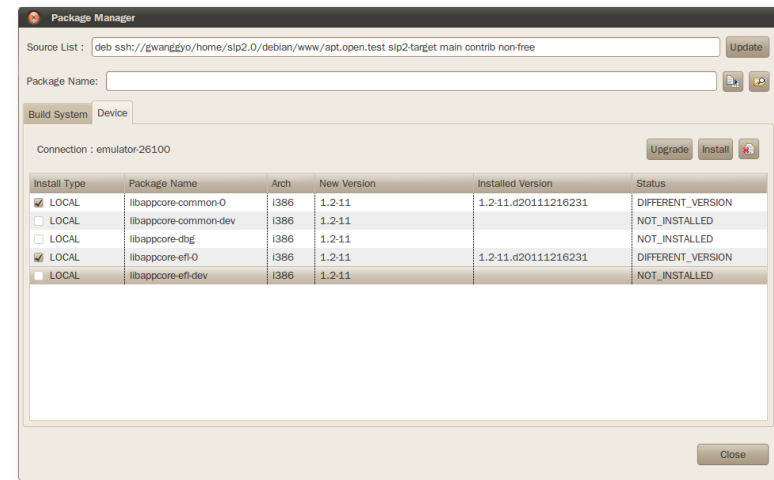
# Richness: Web App Simulator

- A browser with some (subset) Tizen API simulation
  - No packaging/installation process to target (real device or emulator)
  - Run web app w/o target for the purpose of quick/instant test (e.g., UI mock-up)



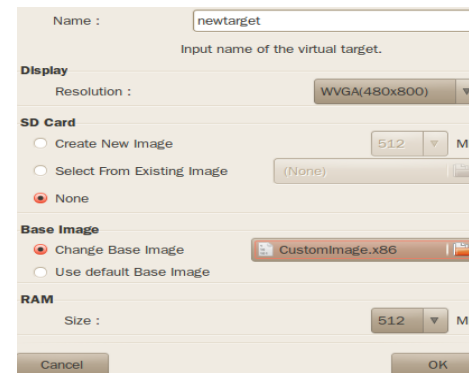
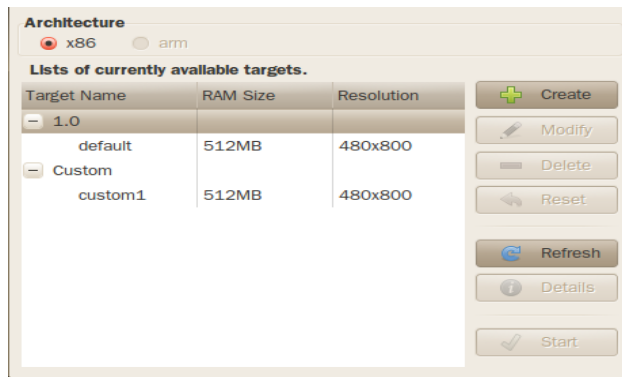
# Richness: platform SDK

- You can develop Tizen platform modules (libraries) using Tizen SDK
  - Git integration
  - Cross toolchain with QEMU
    - Scratchbox2
    - OBS
  - Package Manager
  - Attach and CoreDump Debugging



# Multiplicity

- **Multi-OS**
  - Tizen SDK runs in Windows (XP/7) & Linux (Ubuntu)
  - Mac & 64 bit ('12,2Q)
- **Multi-device**
  - The emulator enables you to test one app for **multiple devices** (virtually)
    - Configurable virtual HW: resolution (WVGA phone, HD TV), RAM, storage, devices, ...
    - HW configuration (e.g., GPU, codec) independent execution of Tizen platform

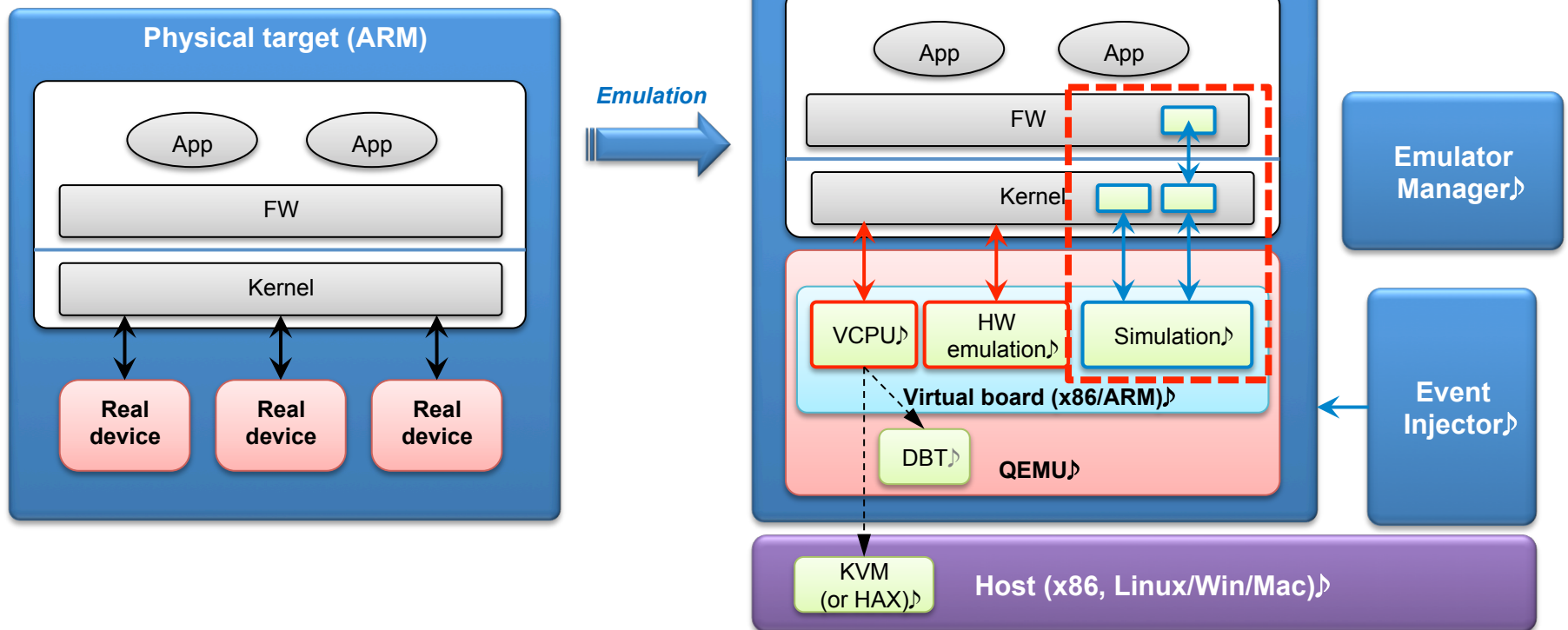


- Multi-target (X86 & ARM) support: cross-compiler, emulator
- **Multi-instance**
  - Concurrent execution of multiple emulator & real device instance
  - IDE supports multi-project debugging (e.g., testing device-to-device communication app)

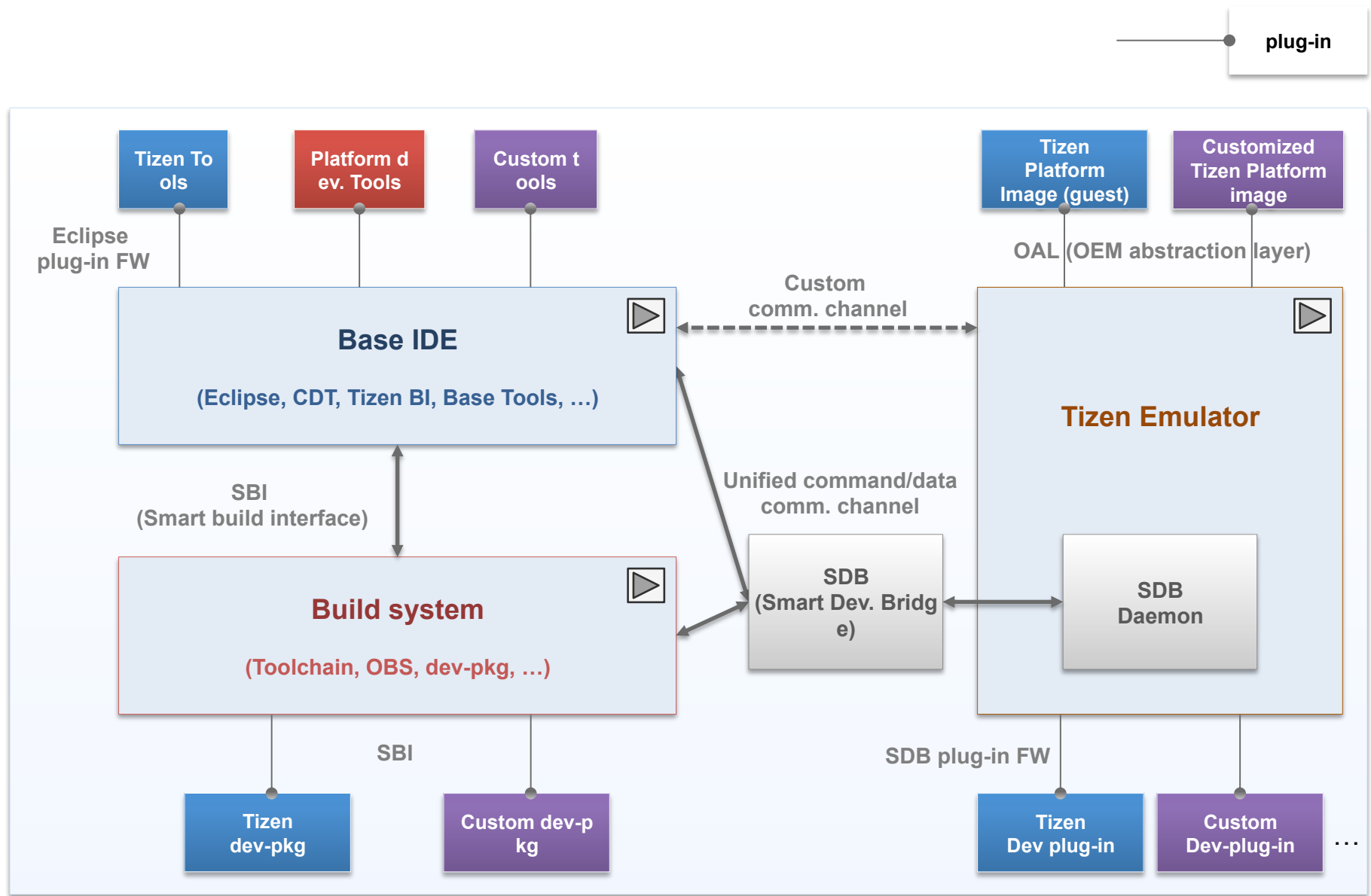


# Technology: emulator

- Emulation of physical target (currently, phone-like)
  - QEMU Virtual board + Event Injector + Emulator manager (configuration)
- **Better performance and portability**
  - Not all devices are emulated due to performance & portability
  - OpenGL, Audio/Video codec acceleration
- **Configurable virtual HW**

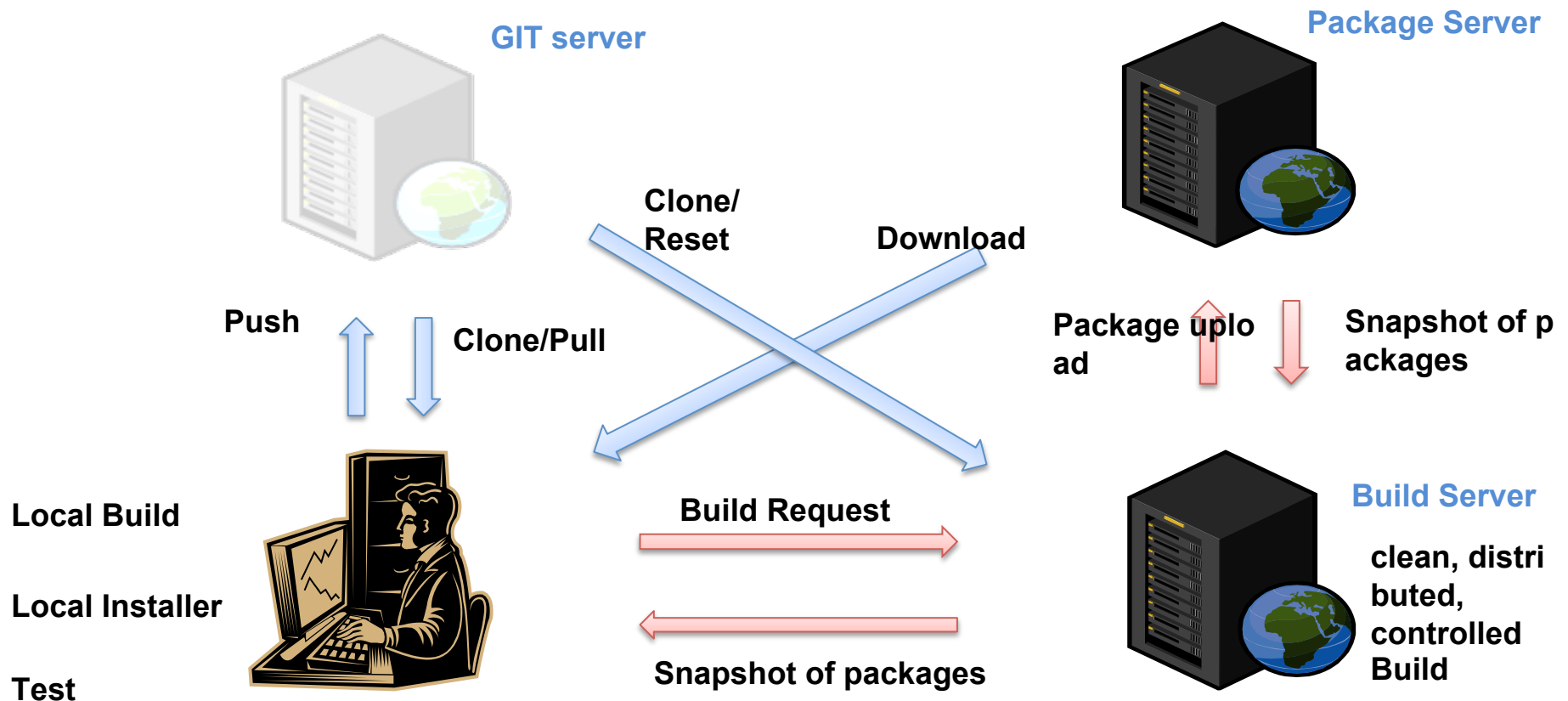


# Technology: extensible architecture

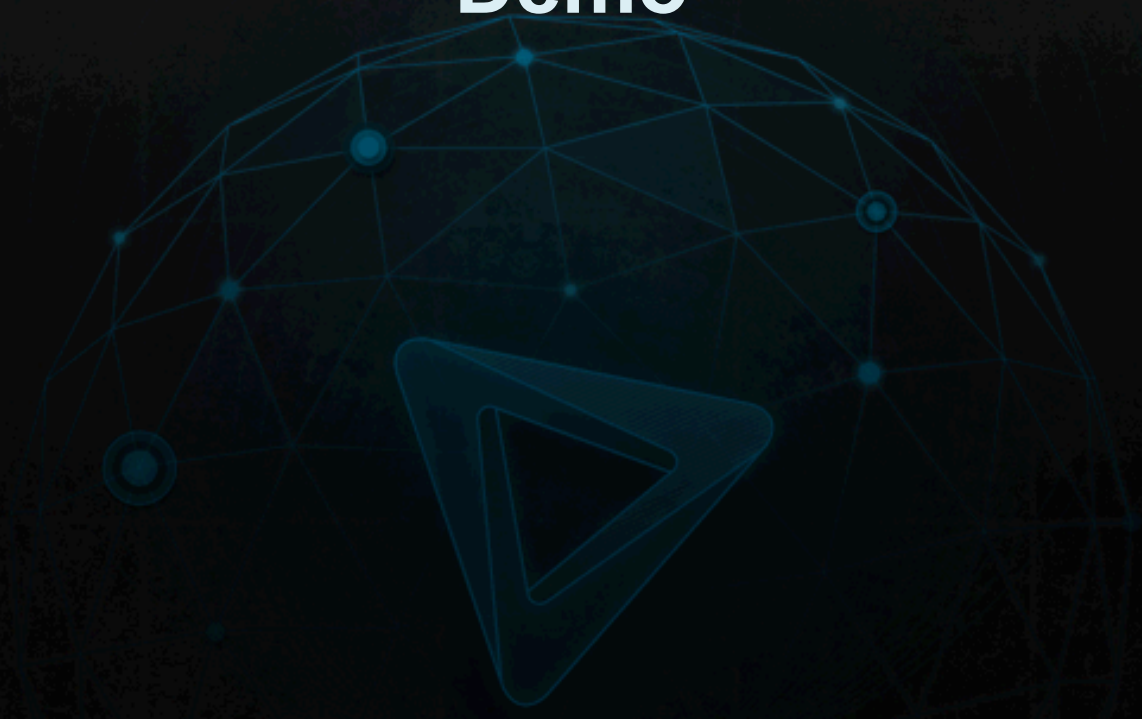


# Technology: robust development system

- Robust development system (build, packaging, testing, installer, CI) and collaboration model/process for SDK itself
  - SDK consists of a lot of tools with variety of distribution (version, multi-host OS, multi-target arch), which require well defined development/collaboration system
  - Consideration of open source / distributed development of each SDK module



Demo



TIZEN



# Conclusion

- **Done**
  - A “Smart” Tizen SDK 1.0 is now ready
    - <https://developer.tizen.org/sdk> (SDK binary),
  - Not only Tizen app development, but also Tizen platform development
- **Not finished**
  - Tizen platform/SDK is live (finished = dead)
- **Future works**
  - Native App: TBD
  - Web app GUI Builder
  - Mac & 64 bit support
  - Static/dynamic analysis tools for web app
  - ARM emulator
  - Variety of works are open to you: wish your interest & contribution
    - <https://source.tizen.org> (SDK source)

**Thank You.**



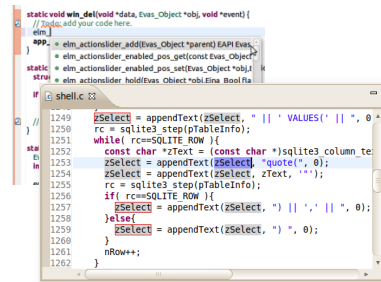
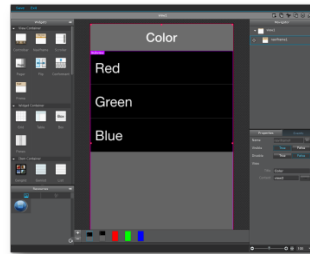
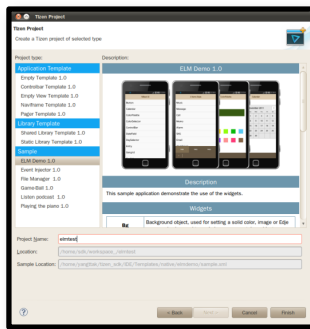
# Appendix.



TIZEN

# Native App SDK (TBD)

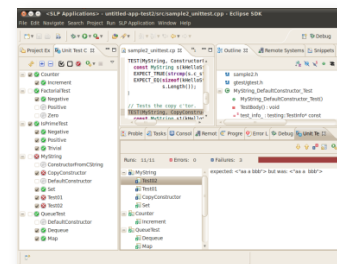
- **Native IDE**
  - Tizen SDK provides a rich and powerful Native IDE to develop native application
  - Native IDE is seamlessly integrated with various tools supporting developers during his development cycle



CREATE

DESIGN

CODE



RUN & DEBUG

TEST

ANALYZE