Easily Port Web Apps to Tizen & Develop with Tizen Device APIs

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Content

1. Tizen Web Application
2. Porting an HTML5 App to Tizen IDE
3. Tizen Web Device APIs
4. TAU Introduction

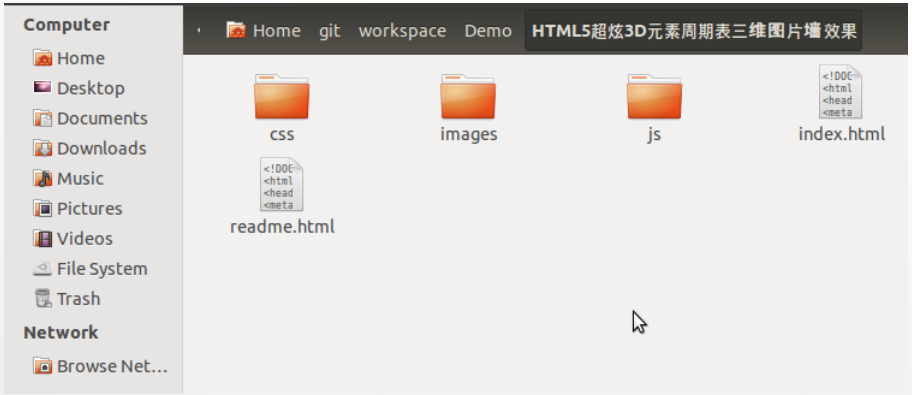
Tizen Web Application

Overview on web application

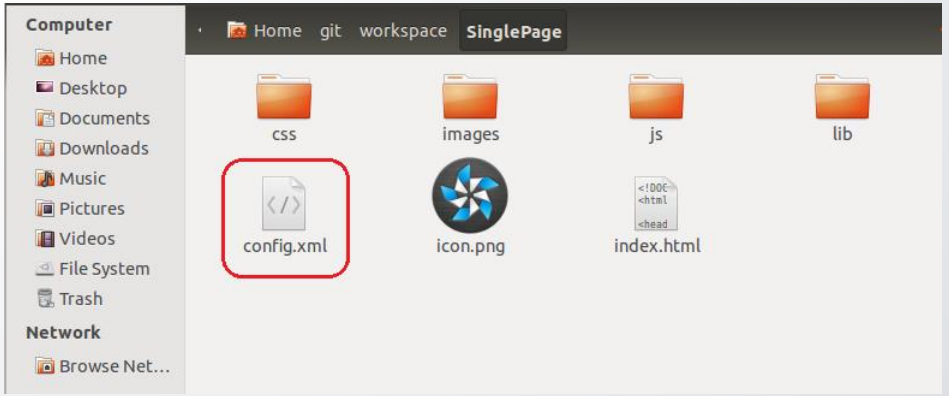
HTML5 App & Tizen Web App (1/3)

Difference in file structure：

HTML5 App

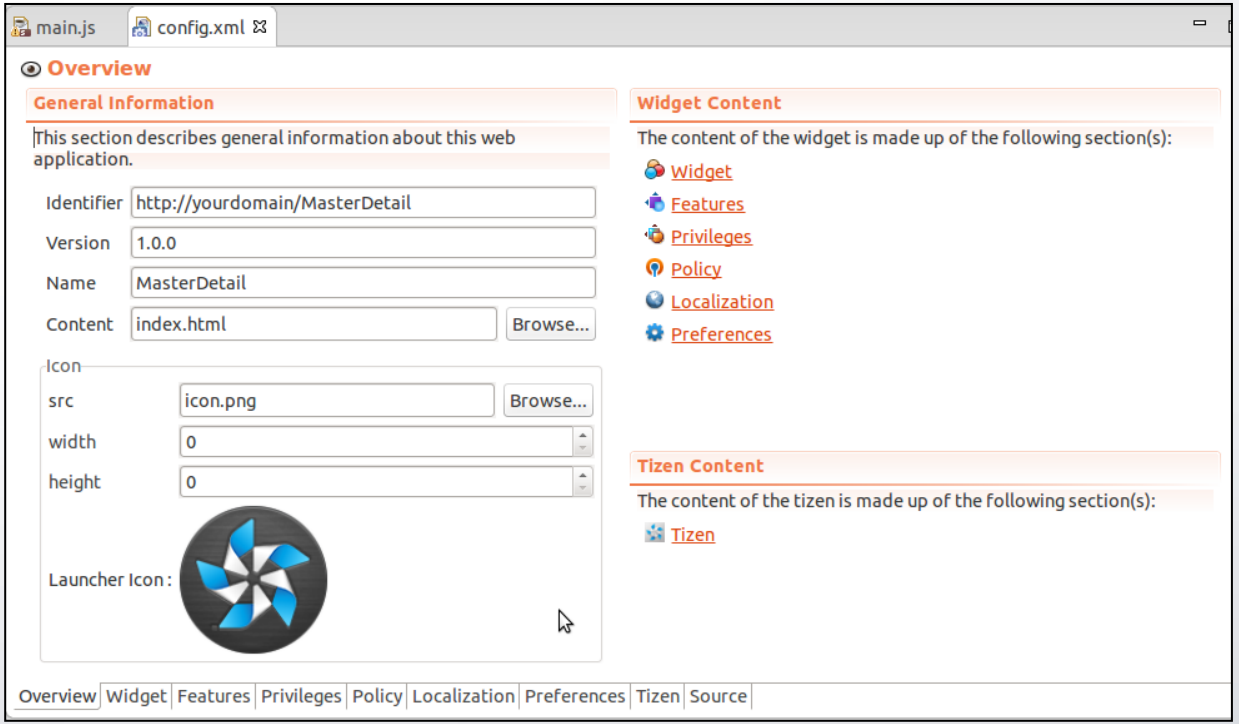


Tizen Web App
(with configure file)



HTML5 App & Tizen Web App (2/3)

Configure File ：
User Interface, modify the features, privileges, policy, and etc.



HTML5 App & Tizen Web App (3/3)

Configure File ：

Source Code, modify the features, privileges, policy, and etc.

```
<access origin="*" subdomains="true"/>
```

```
<?xml version="1.0" encoding="U
<widget xmlns="http://www.w3.or
    <access origin="*" subdomai
    <tizen:application id="2ixfkqTgBW.btconn" package="2ixfkqTgBW" required_version="2.3"/>
    <content src="index.html"/>
    <feature name="http://tizen.org/feature/screen.size.all"/>
    <feature name="http://tizen.org/feature/camera"/>
    <name>btconn</name>
    <tizen:privilege name="http://tizen.org/privilege/application.launch"/>
    <tizen:privilege name="http://tizen.org/privilege/bluetooth.admin"/>
    <tizen:privilege name="http://tizen.org/privilege/bluetooth.gap"/>
    <tizen:privilege name="http://tizen.org/privilege/bluetooth.spp"/>
    <tizen:profile name="wearable"/>
    <tizen:setting background-support="disable" encryption="disable" hwkey-event="enable"/>
</widget>
```

```
<feature name="http://tizen.org/feature/screen.size.all"/>
<feature name="http://tizen.org/feature/camera"/>
```

```
<tizen:privilege name="http://tizen.org/privilege/application.launch"/>
<tizen:privilege name="http://tizen.org/privilege/bluetooth.admin"/>
<tizen:privilege name="http://tizen.org/privilege/bluetooth.gap"/>
<tizen:privilege name="http://tizen.org/privilege/bluetooth.spp"/>
```

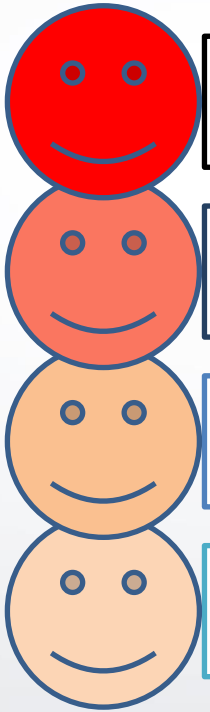
Porting an HTML5 App to Tizen IDE

Content

Common Porting Step：

1. Create a Web Project in SDK
2. Copy Web App to SDK Project
3. Modify configure file
4. Run project in Tizen Target

Why to port HTML5 Apps to Tizen IDE?



Tizen Platform has more chance than other platform, and porting is so easy.

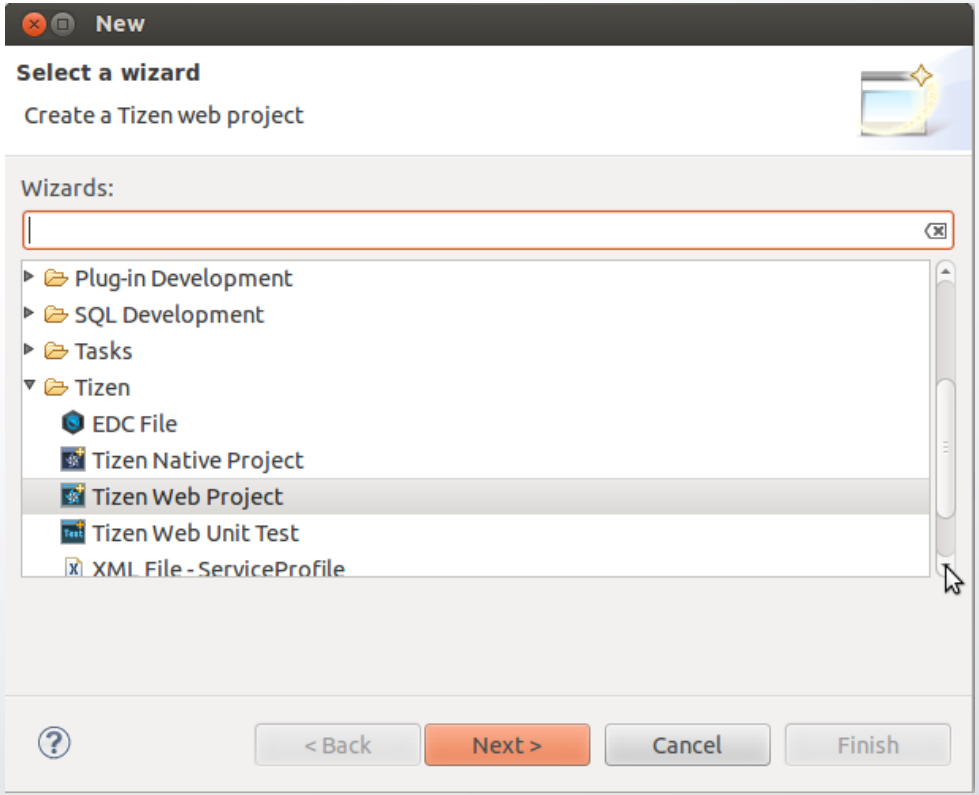
Tizen Platform support HTML5 technique very well.

HTML5 technique is common, can be used in different platform.

HTML5 Apps can do many things as well as native Apps.

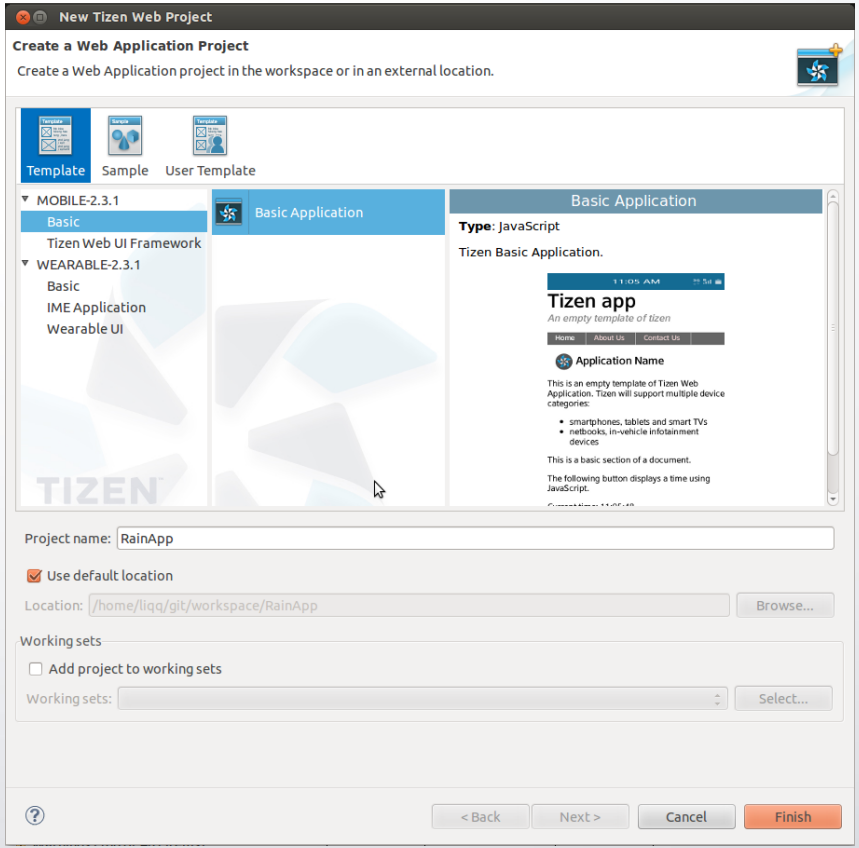
Create a Web Project in SDK (1/2)

1. Create a web project
   New -> Project



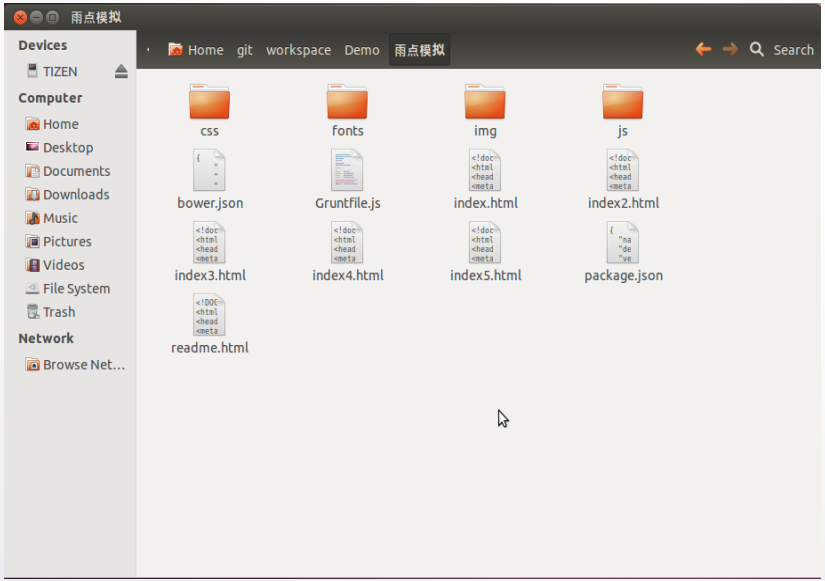
Create a Web Project in SDK (2/2)

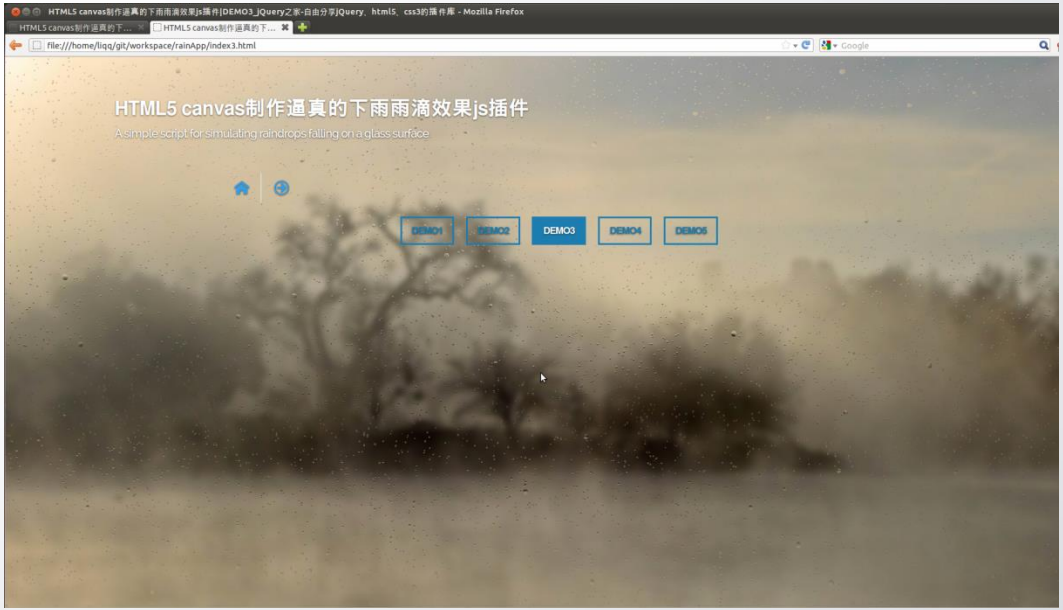
2. Select a template, and input Project Name.
    2.1 Mobile
    2.2 Wearable



Copy Web App to SDK Project (1/3)

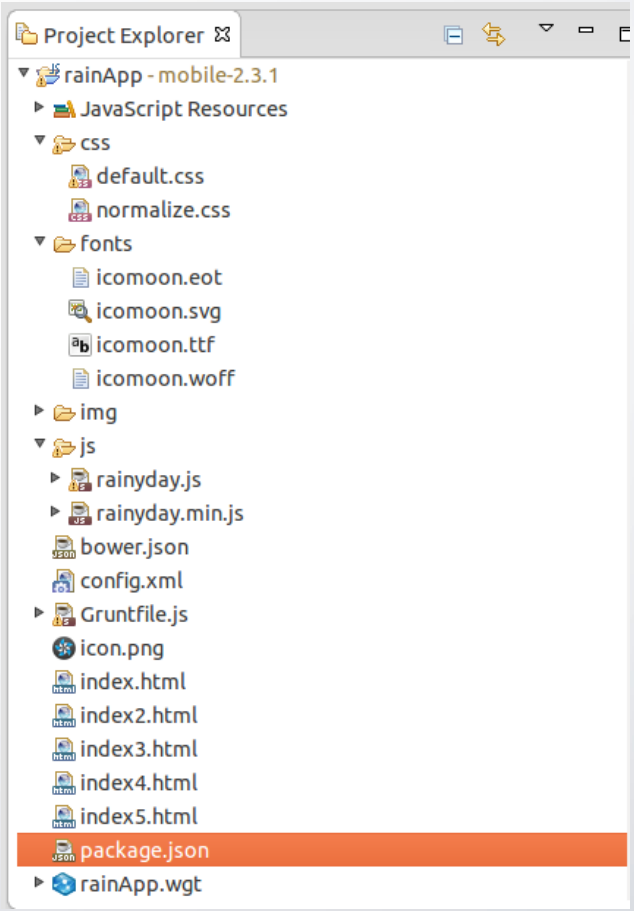
1. A web app sample download from internet





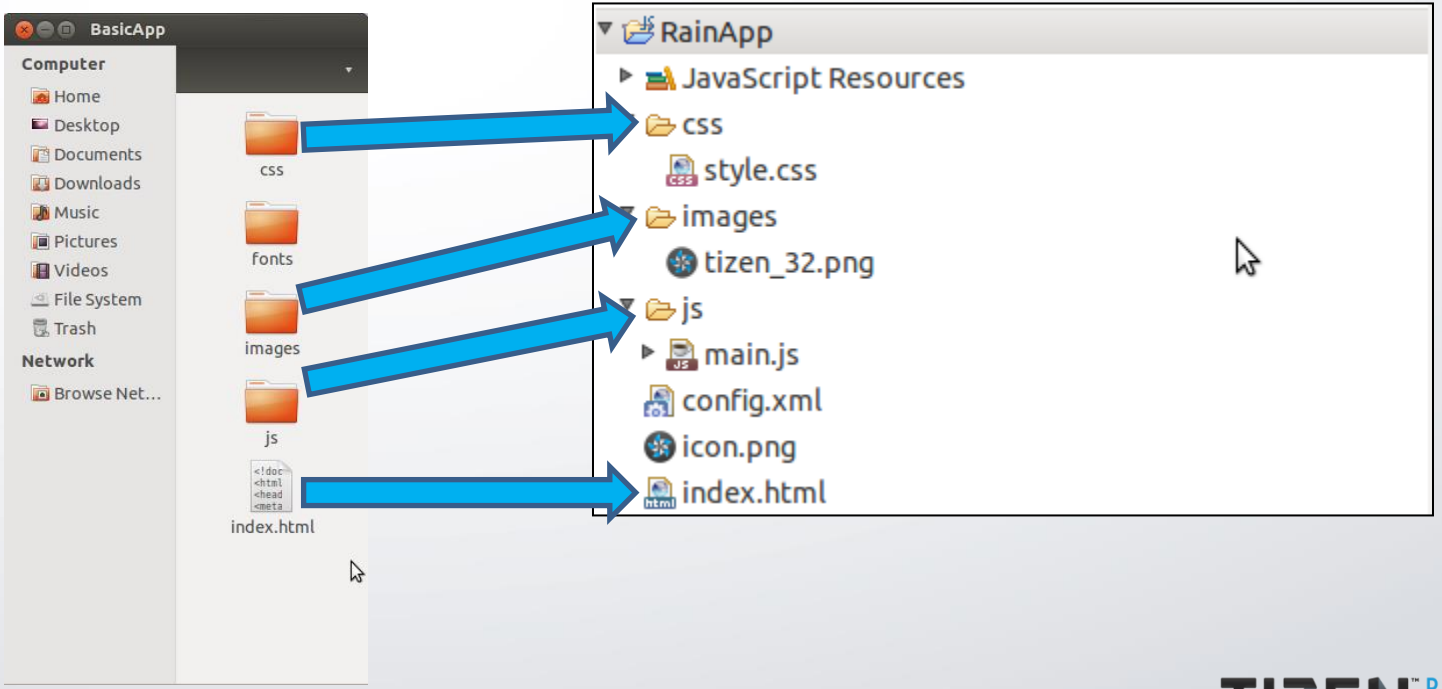
Copy Web App to SDK Project (2/3)

2. SDK Project Directory
   Folder: css、js、images
   File: config.xml、index.html



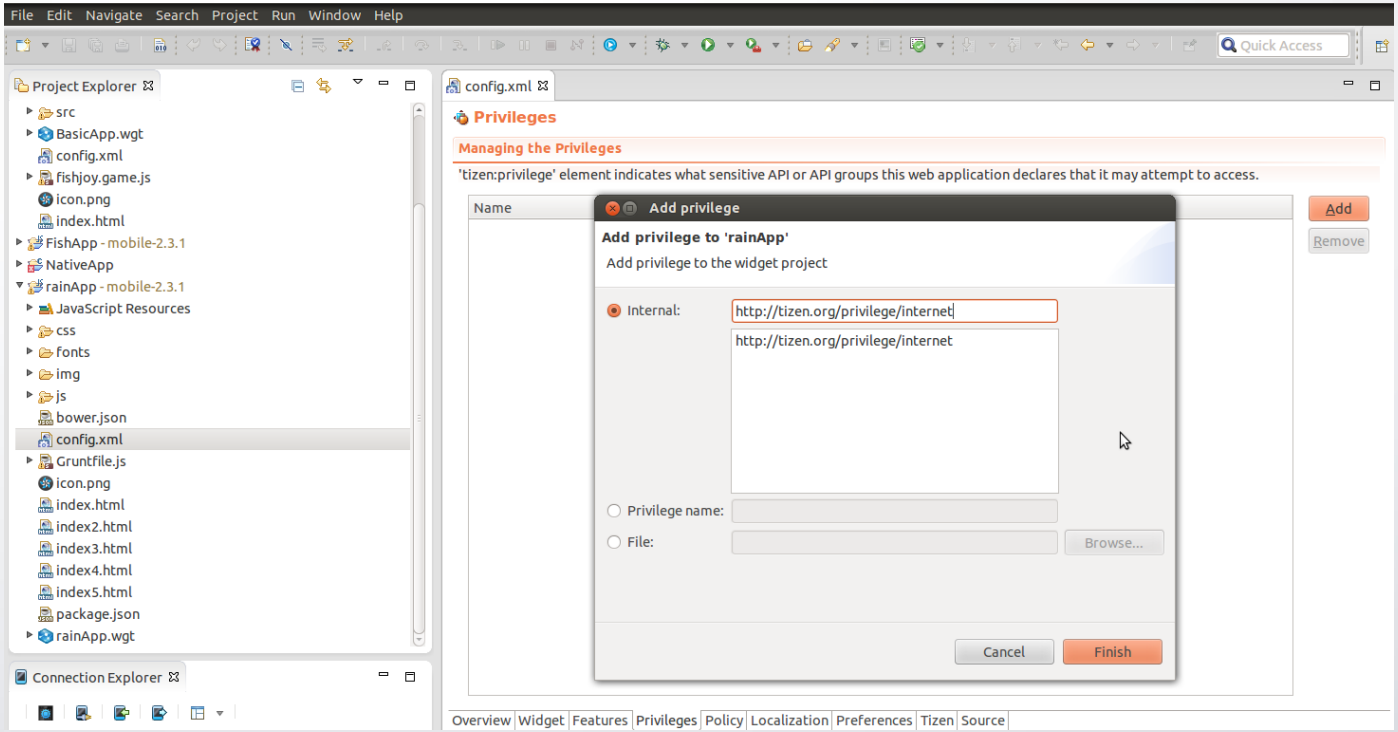
Copy Web App to SDK Project (3/3)

3. Copy files
   Same name folder: copy files directly
   Otherwise: create new folder, and then copy files



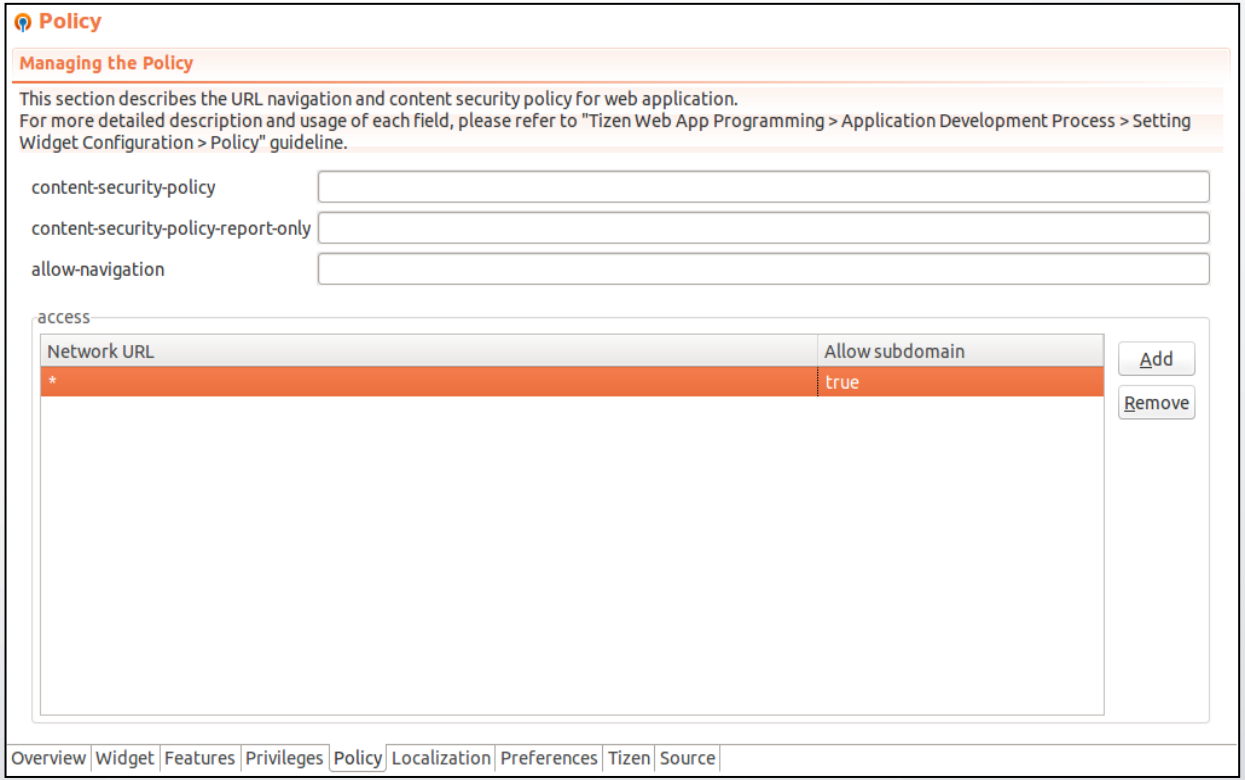
Modify configure file (1/3)

1. Configure privilege
   Example: Network permission



Modify configure file (2/3)

2. Configure Policy
   Example: Network permission



Modify configure file (3/3)

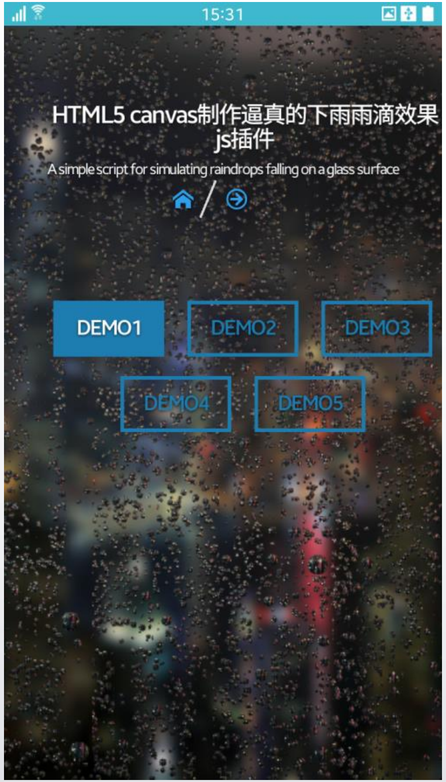
3. Configure source code
   Example: Network permission

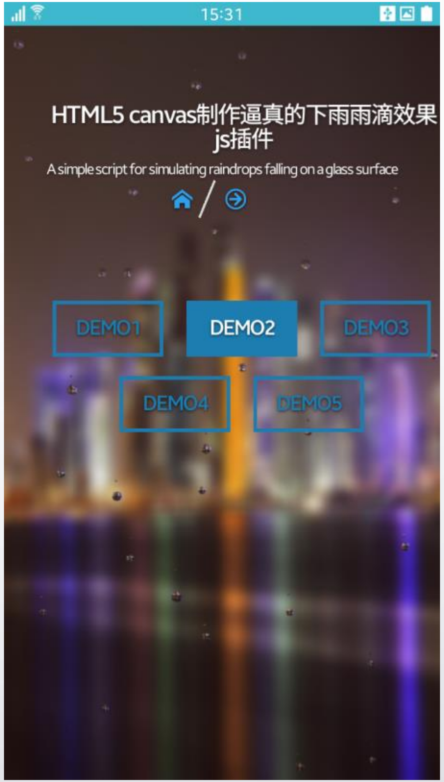
config.xml

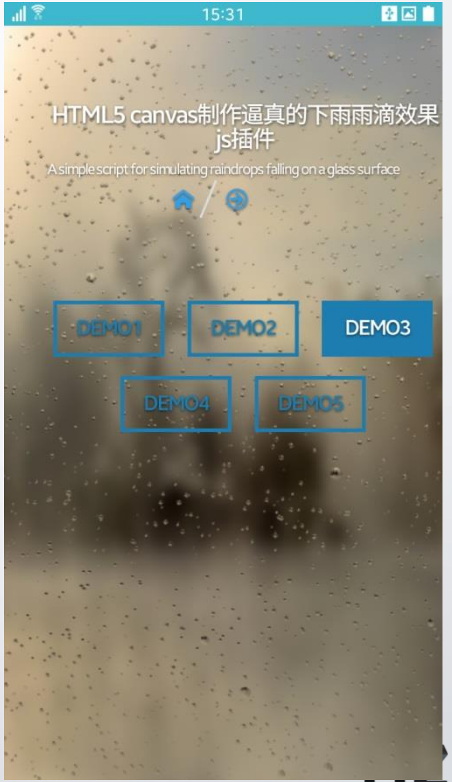
```
<?xml version="1.0" encoding="UTF-8"?>
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:tizen="http://tizen.org/ns/widgets" id="http://yourdomain/rainApp"
    <access origin="*" subdomains="true"></access>
    <tizen:application id="YINVXjrf6r.rainApp" package="YINVXjrf6r" required_version="2.3.1"/>
    <content src="index.html"/>
    <feature name="http://tizen.org/feature/screen.size.all"/>
    <icon src="icon.png"/>
    <name>rainApp</name>
    <tizen:privilege name="http://tizen.org/privilege/internet"/>
    <tizen:profile name="mobile"/>
</widget>
```

Run project in Tizen Target (1/2)

1. Run in the Tizen target
   Run As -> Tizen Web Application

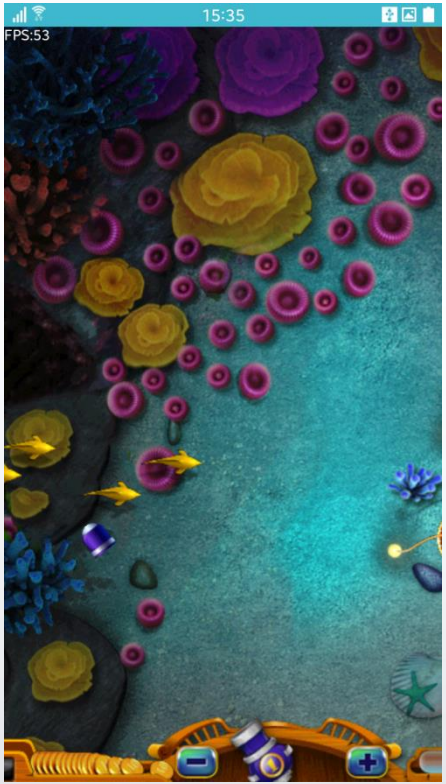


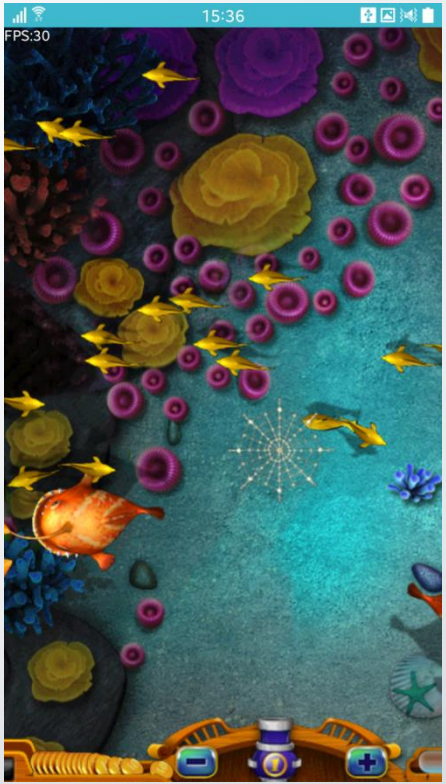




Run project in Tizen Target (2/2)

2. Launch app in target





Tizen Web Device APIs

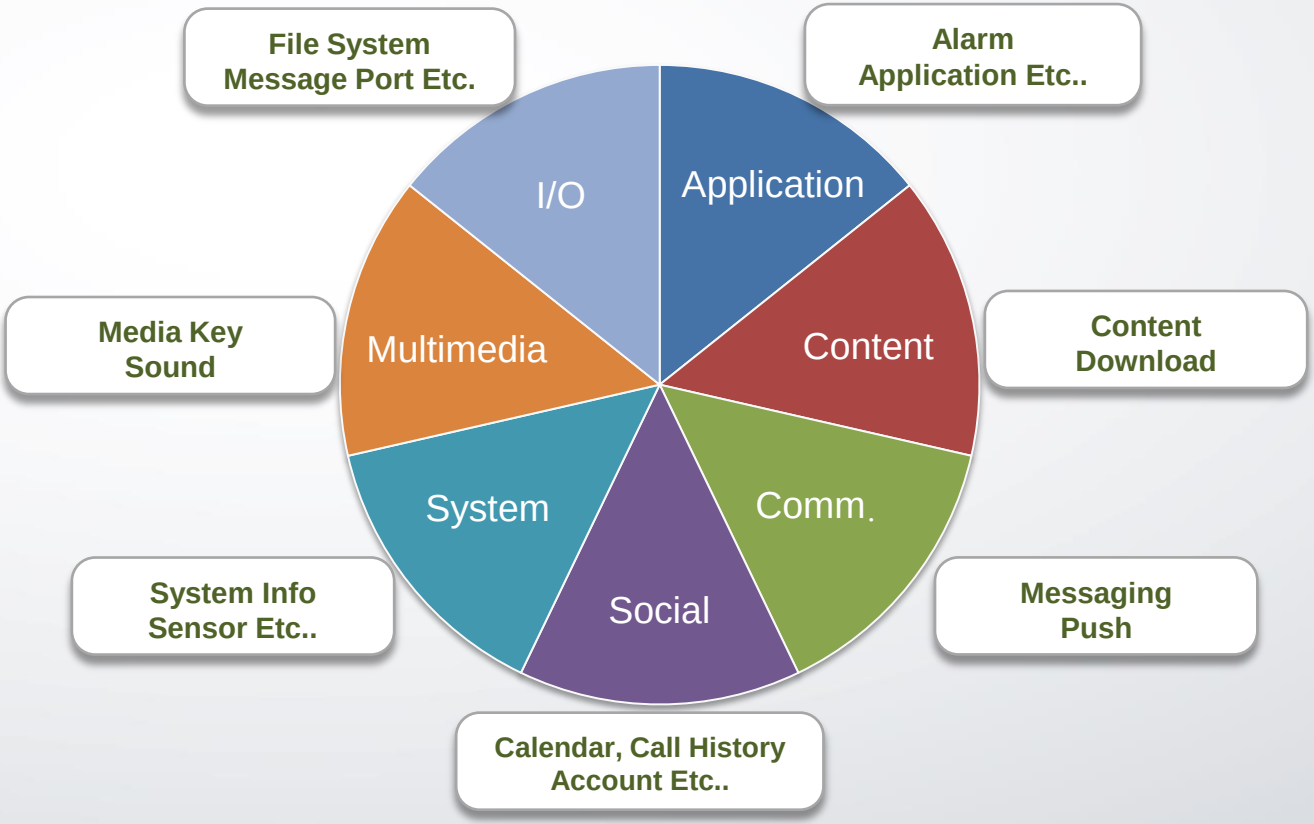
Content

1. Overview
2. Privilege
3. Help content introduction
4. Use Bluetooth Device API

Overview (1/2) Tizen Web Device APIs

1. Apps need access to device features outside of the HTML
2. Can access various device features via Web Device API
3. Apps to work like native apps with minimum porting effort

Overview (2/2) Tizen Device APIs



Privilege

Optional – defines the API access privilege required by the Web App

Device API specific privilege setting

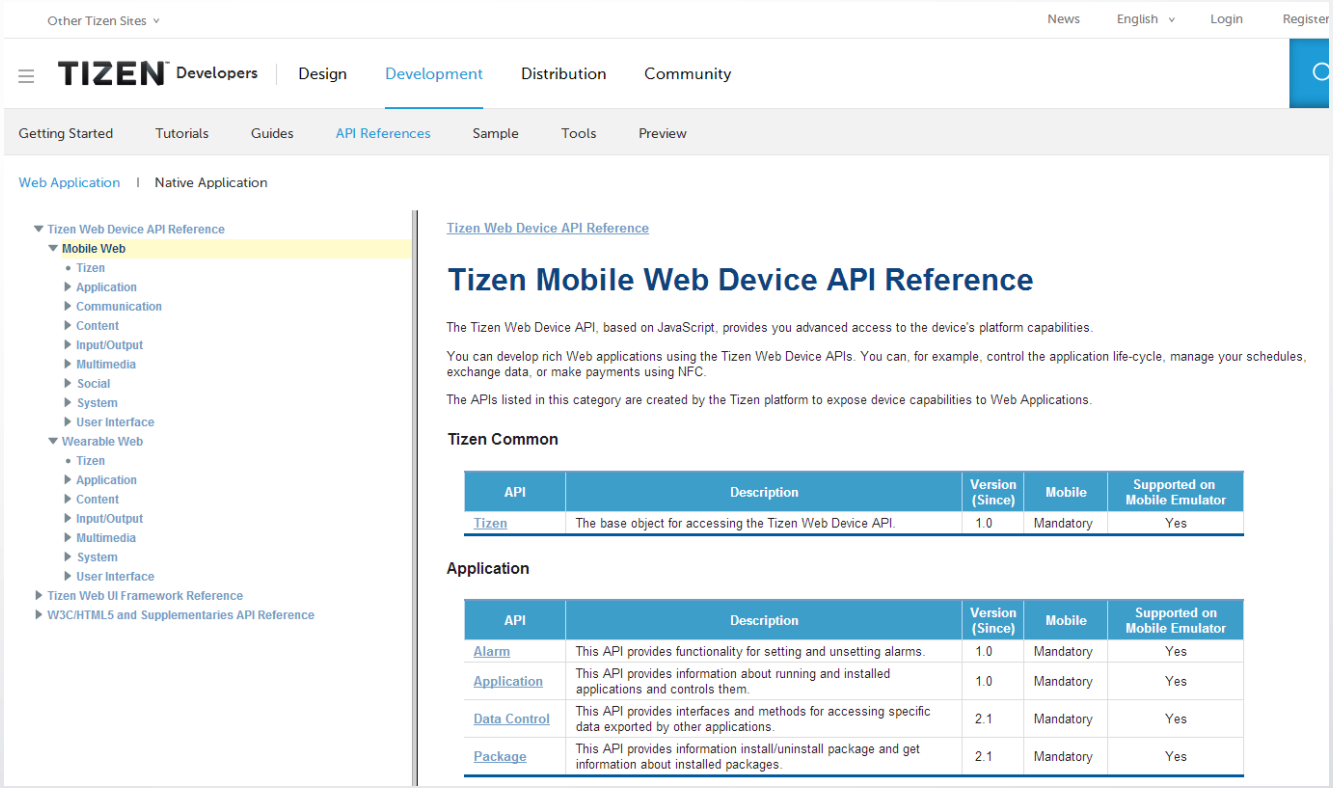
```
<?xml version="1.0" encoding="UTF-8"?>
<widget xmlns="http://www.w3.org/ns/widgets"
        xmlns:tizen="http://tizen.org/ns/widgets"
        id="http://yourdomain/BtSample"
        version="2.2.0" viewmodes="maximized">
        <tizen:application id="b9zxN75unx.BtSample" package="b9zxN75unx"
        required_version="2.2"/> <content src="index.html"/>
        <tizen:privilege name="http://tizen.org/privilege/filesystem.read"/>
</widget>
```

```
<tizen:privilege name="http://tizen.org/privilege/application.launch"/>
<tizen:privilege name="http://tizen.org/privilege/content.read"/>
<tizen:privilege name="http://tizen.org/privilege/content.write"/>
<tizen:privilege name="http://tizen.org/privilege/filesystem.read"/>
```

All privileges are described @https://www.tizen.org/privilege

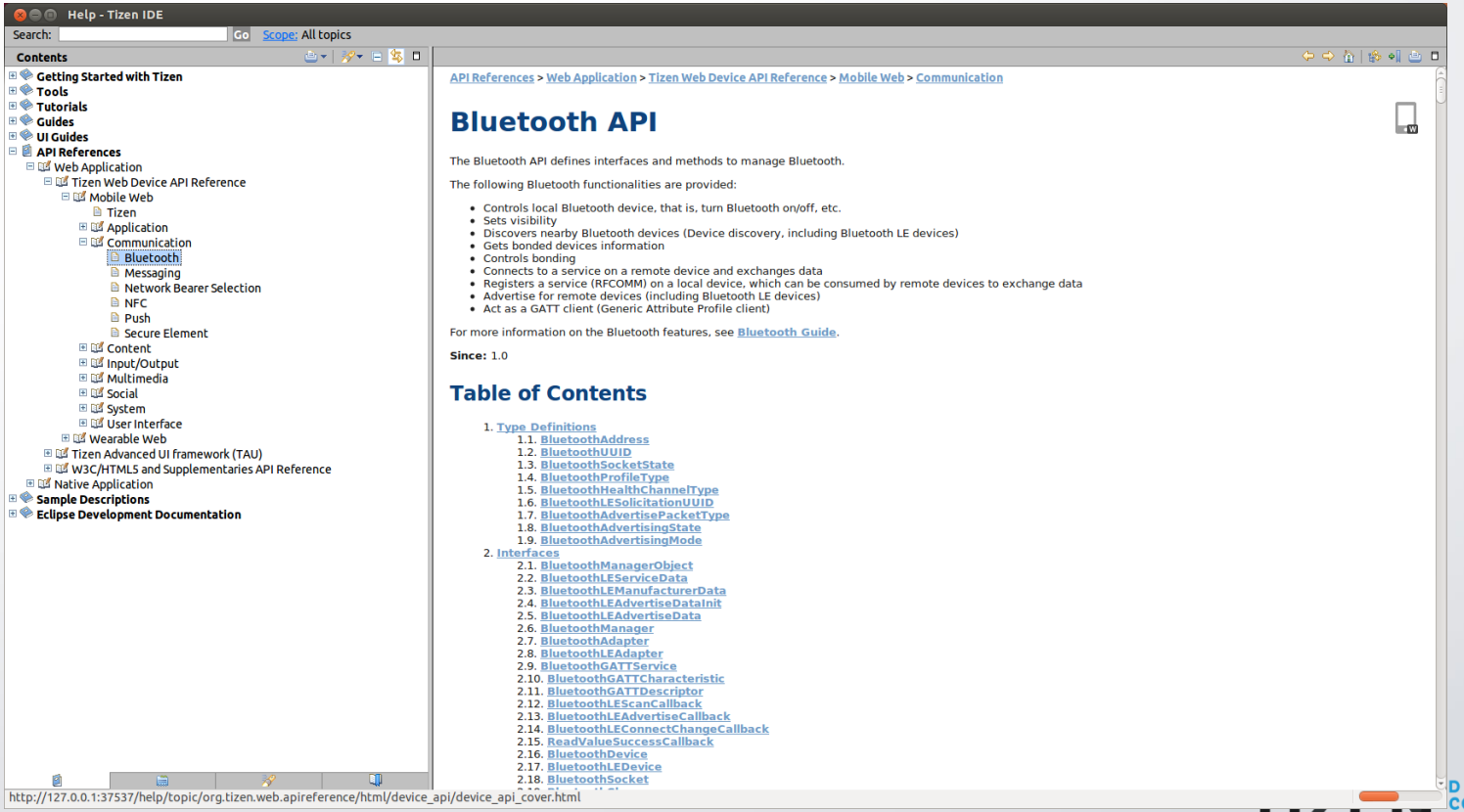
Help content introduction (1/2)

Help guide online: https://developer.tizen.org



Help content introduction (2/2)

Help content on SDK



Use Bluetooth Device API (1/6)

Search Bluetooth target & Connect it

Use Bluetooth Device API (2/6)

Add Privilege

```
<?xml version="1.0" encoding="UTF-8"?>
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:tizen="http://tizen.org/ns/widgets" id="http://yo
    <tizen:application id="XubhEoac7s.BluetoothChat" package="XubhEoac7s" required_version="2.3"/>
    <content src="index.html"/>
    <feature name="http://tizen.org/feature/screen.size.all"/>
    <icon src="icon.png"/>
    <name>BluetoothChat</name>
    <tizen:privilege name="http://tizen.org/privilege/application.launch"/>
    <tizen:privilege name="http://tizen.org/privilege/bluetooth.admin"/>
    <tizen:privilege name="http://tizen.org/privilege/bluetooth.gap"/>
    <tizen:privilege name="http://tizen.org/privilege/bluetooth.spp"/>
    <tizen:profile name="mobile"/>
    <tizen:setting screen-orientation="portrait" context-menu="disable" background-support="disable"
</widget>
```

Use Bluetooth Device API (3/6)

Use Application APIs to control App lifecycle

```
window.onload = function () {
    // TODO:: Do your initialization job

    // add eventListener for tizenhwkey
    document.addEventListener('tizenhwkey', function(e) {
        if(e.keyName == "back")
    try {
        tizen.application.getCurrentApplication().exit();
    } catch (ignore) {
    }
    });
```

Use Bluetooth Device API (4/6)

Add BT Adapter, Register Search Callback

```
var adapter = tizen.bluetooth.getDefaultAdapter();
function startDiscovery()
{
    var discoverDevicesSuccessCallback =
    {
        onstarted: function()
        {
            console.log("Device discovery started...");
        },
        ondevicefound: function(device)
        {
            console.log("Found device - name : " + device.name + ", Address : "+ device.address);
        },
        ondevicedisappeared: function(address)
        {
            console.log("Device disappeared : " + address);
        },
        onfinished: function(devices)
        {
            //find the device
            console.log("discover finished");
            var message;
            $("#btlist").html('');
            var listr = "";
            for (var i=0;i<devices.length; i++)
            {
                message = "devices Name : " + devices[i].name + ", Address: " + devices[i].ad
                console.log(message);
                devicesAddr.push(devices[i].address);
                listr = "<li>" + devices[i].name + "</li>";
                $("#btlist").append(listr);
            }
            message += "Total : " + devices.length;
            console.log(message);

            if (devices.length > 0) {
                $("#btlist").children("li").bind("click", function(){
                    var $thisli = $(this);
                    selectIndex = $thisli.index();
                    console.log("li index:" + select
                });
            }
        }
    };
    // start searching for nearby devices, for 12 se
    console.log("discoverDevices");
    adapter.discoverDevices(discoverDevicesSuccessCallback, function(e){
        console.log("Failed to search devices : " + e.message + "(" + e.name + ")");
    });
```

```
var adapter = tizen.bluetooth.getDefaultAdapter();
function startDiscovery()
{
    var discoverDevicesSuccessCallback =
```

```
$("#btlist").html('');
var listr = "";
for (var i=0;i<devices.length; i++)
{
    message = "devices Name : " + devices[i].name + ", Address: " + devices[i].address + "\n";
    console.log(message);
    devicesAddr.push(devices[i].address);
    listr = "<li>" + devices[i].name + "</li>";
    $("#btlist").append(listr);
}
message += "Total : " + devices.length;
console.log(message);
```

```
adapter.discoverDevices(discoverDevicesSuccessCallback, function(e){
    console.log("Failed to search devices : " + e.message + "(" + e.name + ")");
});
```

Use Bluetooth Device API (5/6)

Start to search targets

```
function onSetPoweredError(e)
{
    console.log("Could not turn on device, reason : " + e.message + "(" + e.name + ")");
}
try
{
    console.log("setPowered");
    adapter.setPowered(true, startDiscovery, onSetPoweredError);
}
catch(e)
{
    console.log(e.message);
}
```

Click connect button to pair target

```
$("#conn_btn").click(function(){
    $("#statuslist").html('');
    var message = "start to connect.";
    printfMessage(message);

    alert(selectIndex);
    paireDevice(selectIndex);
});
```

A Bluetooth Sample (6/6)

Pair target & Show it

```
function paireDevice(index)
{
    var i;
    function onBondingSuccess(device)
    {
        pairedDevice = device;
        console.log("Device Name :" + device.name);
        console.log("Device Address :" + device.address);

        for (i=0;i<device.uuids.length; i++) {
            console.log("["+i+"]" + "Device Service UUIDs :" + device.uuids[i]);
        }

        //console.log("Device Service UUIDs :" + device.uuids);//device.uuids.join("\n")

        if (pairedDevice.uuids.indexOf("5BCE9431-6C75-32AB-AFE0-2EC108A30866") != -1) {
            console.log("------------connectToServiceByUUID----------");
            pairedDevice.connectToServiceByUUID("5BCE9431-6C75-32AB-AFE0-2EC108A30866", onSocketConnected,
              console.log ("Error connecting to service. Reason: " + e.message);
            });
        }

        var message = "pared device name: " + device.name + "success !!!";
        printfMessage(message);
    }
    function onError(e)
    {
        console.log ("Could not create bonding, reason :" + e.message);
    }
    var adapter = tizen.bluetooth.getDefaultAdapter();
    adapter.createBonding(devicesAddr[index], onBondingSuccess, onError);
}
```

```
var message = "pared device name: " + device.name + "success !!!";
printfMessage(message);
```

```
var adapter = tizen.bluetooth.getDefaultAdapter();
adapter.createBonding(devicesAddr[index], onBondingSuccess, onError);
```

TAU Introduction

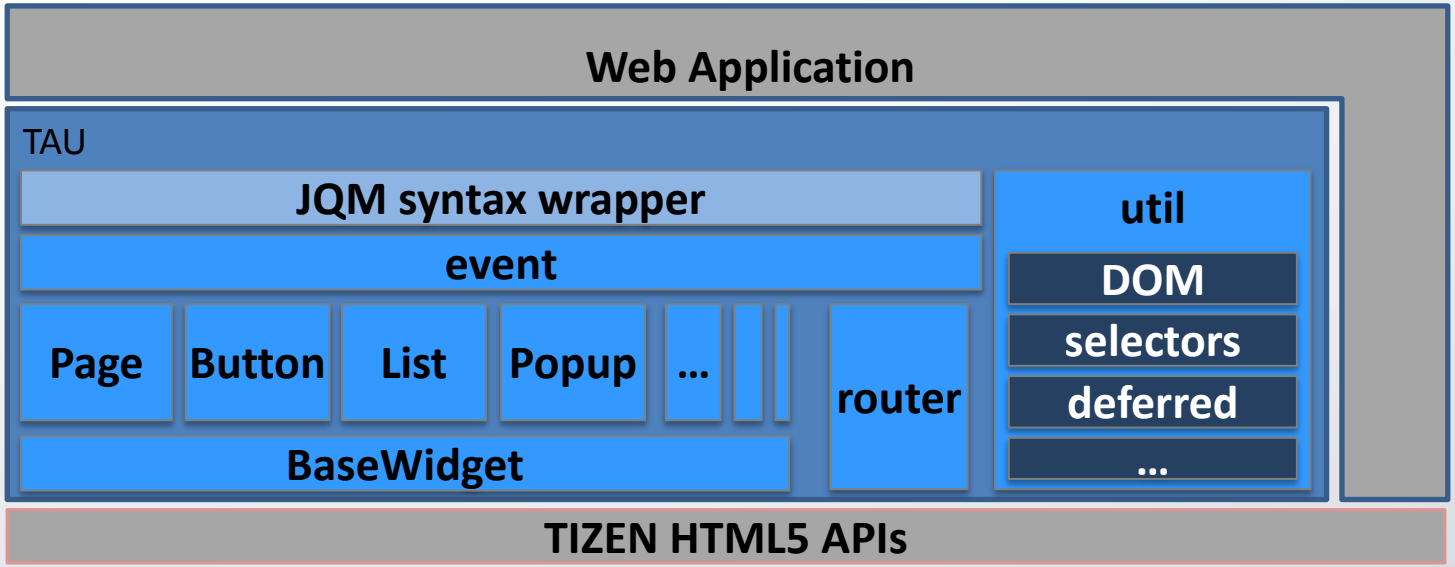
Content

1. Overview
2. Page Structure
3. TAU Components

Overview (1/2)

Tizen Advanced UI framework

A collection of library providing TIZEN UI for web apps, consists of CSS and Javascript

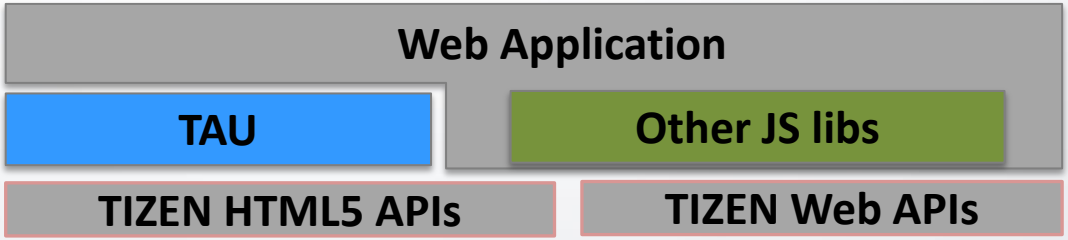


Overview (2/2)

Tizen provides most HTML5 specs

TAU is optional to web apps

- Mainly for using Tizen look&feel UI controls
  - Typical header/content/footer style mobile/wearable/TV apps
- Useful for the apps who wants to use Tizen UI



Page Structure (1/4)

1. Header

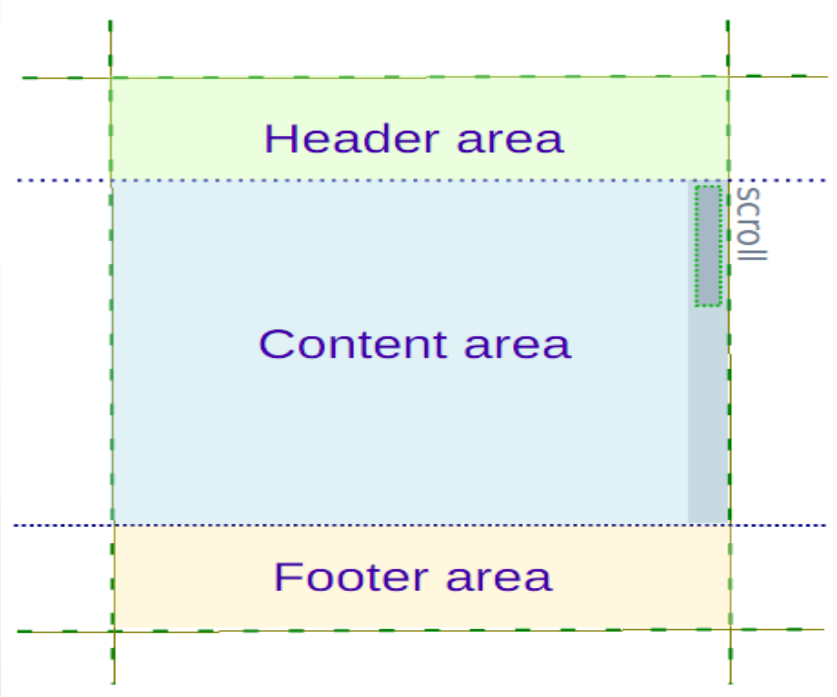
   best place to mark out to user what page is currently opened, it can contain buttons, menus and toolbars (optional)

2. Content

   where the main application content resides, it has an optional scroll bar

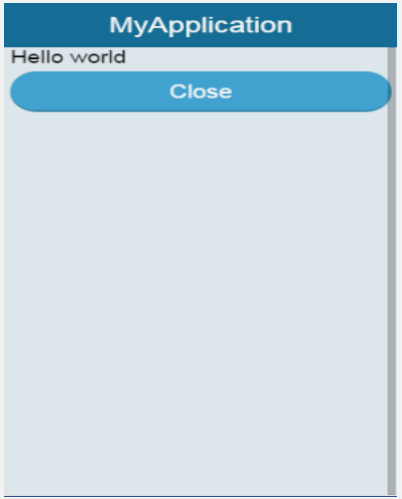
3. Footer

   here you can put a status line or buttons (optional)

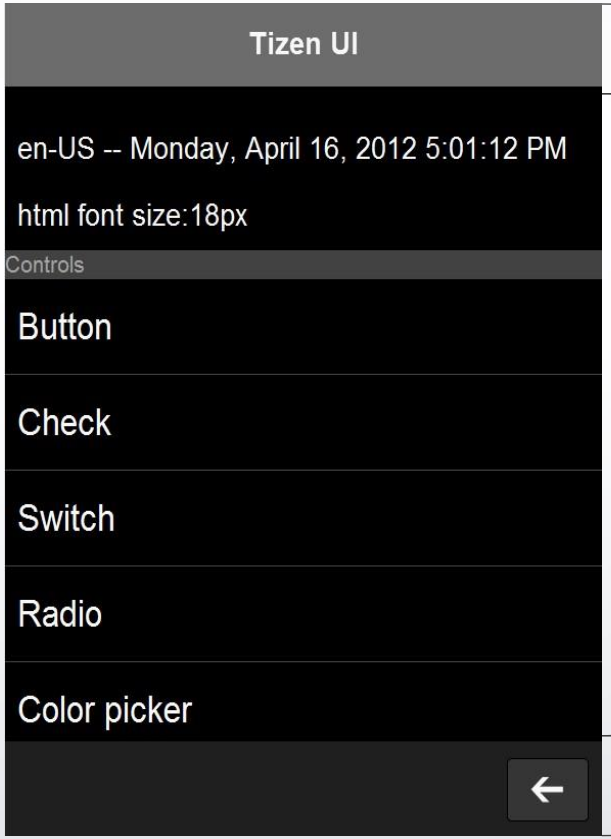


Page Structure (2/4)

```
<!DOCTYPE html>
<html>
<head>
  <meta name="viewport" content="width=device-width,user-scalable=no">
  <link rel="stylesheet" href="lib/tau/mobile/theme/default/tau.min.css">
  <script src="lib/tau/mobile/js/tau.min.js"></script>
</head>
<body>
        <div data-role="page">
          <div data-role="header">
                <h1>MyApplication</h1>
          </div>
          <div data-role="content">
            Hello world
            <button id="closeBtn">Close</button>
          </div>
        </div>
</body>
</html>
```



Page Structure (3/4)



Header

- button
- segmentControl
- search bar
- option header

Content

- various winset
  : list, picker, slider etc.

Footer

- Back button
- Controlbar
- button

Page Structure (4/4)

Change Page in TAU

1. Use <a href="#pageID">

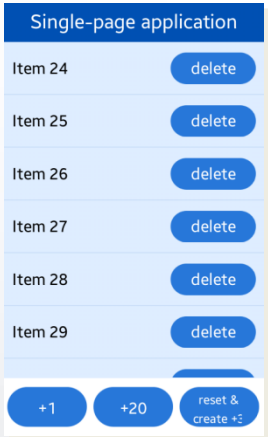
```
<a href="#page2"><button>Move to Page2</button></a>
```

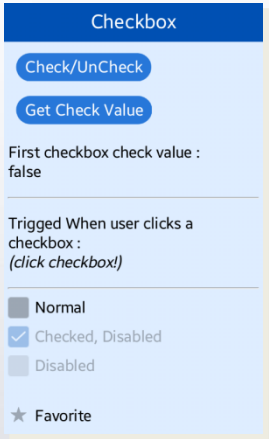
2. Use tau.changePage()

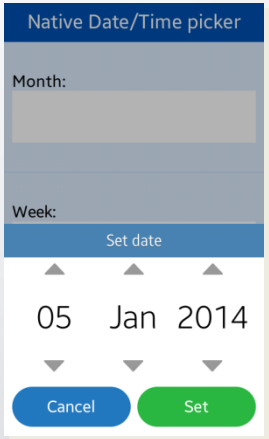
```
<button id="btn">Move to Page2</button>
<script>
  var button=document.querySelector("#btn");
  button.addEventListener("click", function() {
    tau.changePage("#page2");
  });
</script>
```

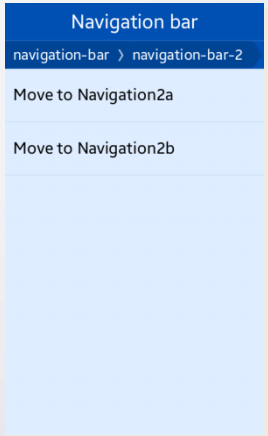
```
<div class="ui-page" id="page2">
        <div id="timer-up-total-time">00:00:00</div>
 </div>
```

TAU Components (1/4)



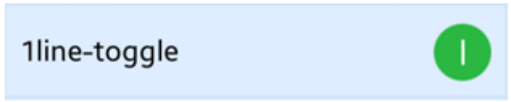






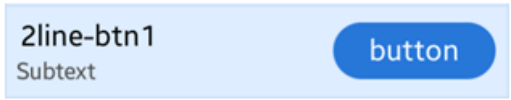
TAU Components (2/4)

– Dialogue → 1line toogle



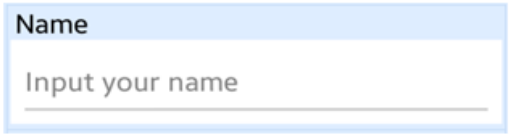

```
<li class="ui-li-dialogue">
    1line-toggle
    <select name="flip-11" id="flip-11" data-role="slider">
        <option value="off"></option>
        <option value="on"></option>
    </select>
</li>
```

– Dialogue → 2line-btn1




```
<li class="ui-li-has-multiline ui-li-dialogue ui-li-text-ellipsis">
    <a>
        2line-btn1 (with link)
        <span class="ui-li-text-sub">Subtext</span>
        <div data-role="button" data-inline="true">button</div>
    </a>
</li>
```

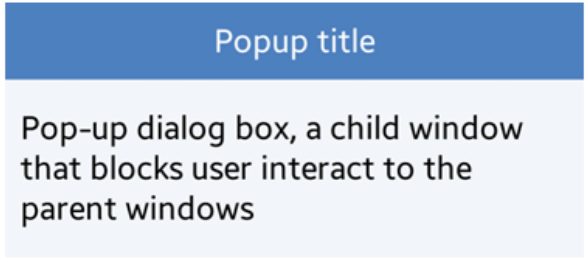
– Dialogue (edit mode) → Name




```
<li class="ui-li-dialogue ui-li-dialogue-edit">
    <div class="ui-edit-title">Name </div>
    <input placeholder="Input your name" />
</li>
```

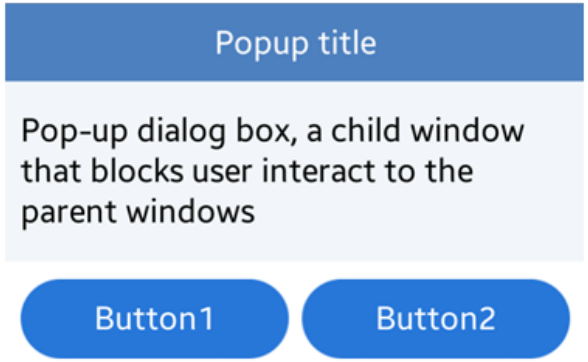
TAU Components (3/4)

– Popup → Popup with 1line title




```
<div id="center_title" data-role="popup" class="center_title">
    <div class="ui-popup-title">
        <h1>Popup title</h1>
    </div>
    <div class="ui-popup-text">
        Pop-up dialog box, a child
        window that blocks user interact
        to the parent windows
    </div>
</div>
```

– Popup → Popup with 2buttons




```
<div id="center_title_2btn" data-role="popup" class="center_title_2btn">
    <div class="ui-popup-title">
        <h1>Popup title</h1>
    </div>
    <div class="ui-popup-text">
        Pop-up dialog box, a child
        window that blocks user interact
        to the parent windows
    </div>
    <div class="ui-popup-button-bg">
        <a data-role="button" data-rel="back" data-inline="true">Button1</a>
        <a data-role="button" data-rel="back" data-inline="true">Button2</a>
    </div>
</div>
```

TAU Components (4/4)

Datetime Picker


```
<li><div data-role="fieldcontain">
    <label for="month">Month:</label>
    <input type="month" name="month" id="month" value="" />
</div></li>
```

Progress bar


```
<li data-role="list-divider">Progress bar(pending)</li>
<li id="pendingTest" >
    <div data-role="progress" data-style="pending" id="pending"></div>
</li>

<li data-role="list-divider">Progress circle</li>
<li id="progressingTest" >
    <div data-role="progress" data-style="circle" id="progressing"></div>
    Loading..
</li>
```

End

Thank You