



How Tizen Compliance Reduces Fragmentation

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Topics

- **The Problem**
- **Compliance Goals**
- **State of the program**
- **Compliance Profiles**
- **Feature comparison: mobile, wearable, TV, IVI**
- **Compliance Development Process**

Wikipedia: When a combination of software and hardware do not provide a consistent, top-level experience for the vast majority of its user-base. The cause is when a finite combination of both software and hardware is made available to consumers.

The Fragmentation Problems

In possible order of severity:

1. Different versions of app need to be made even though it is all Tizen
If app widely available this is bad for devs but invisible to users
... until a new unsupported device arrives
2. App is not available on some devices
This is irritating to users. *How come I can not get WhatsApp?*
3. App is available but does not work on some devices
Really bad, users download or buy and have a bad experience
Probably customer lost forever

Tizen Compliance Goals

- **Reduce fragmentation**
- **Enable applications written for one platform to run on another platform**
- Clarify what Tizen means via specification and test suite.
- Communicate Tizen platform and product features
- Increase quality of Tizen products and Tizen brand
- Increase confidence to participate for partners, operators, OEMs, ISVs, and developers

What is Tizen Compliance?

Platform requirements and recommendations

MUST vs. SHOULD

Hardware features: Screen resolution, GPS, Accelerometer, etc

Software features: Push, security, UI, etc.

Specification

Tizen Compliance Specification (TCS)

Mobile, Wearable, IVI, TV, other...

Test Suite

Tizen Compliance Tests (TCT)

<https://source.tizen.org/compliance>

Tizen Compliance Strategy

Divide devices into categories - Profiles

Be very careful about obsoleting things at version change

Provide ways for apps to query features at runtime so they can adapt to feature availability

And provide way to query at install time:

- identify specific features the app requires

- identify specific Tizen version the app requires

- identify Tizen profile the app requires

Note: using these helps with the worst of the three Fragmentation Problems - *app does not work* - but not with the other two

Tizen Compliance in Brief

A subset of Tizen platform, presented as a mandatory/supported API

Devices promise to provide it

- They cannot call themselves Tizen otherwise

- Prove by running TCT

Apps get compatibility promise if they code to this set

Example: Tizen Mobile Profile

Defined for various mobile devices

Flexibility to cover low to high-end mobile devices

Tizen Mobile 2.3 includes both Native and Web APIs

Full version of source code is available:

<http://source.tizen.org>



Tizen Profile Mapping



Phones / Tablets
(Mobile Profile)



Wearables
(Wearable Profile)



Automobile
(IVI Profile)



TVs
(TV Profile)



Cameras
(Mobile Profile*)



Appliances
(Mobile Profile*)

* Application runtime requirements are the same as mobile devices and may share the same profile..

Tizen Profile Differences

Only in Mobile Profile

Many specs from W3C/HTML5 APIs, FullScreen API in Supplementary API

Many Tizen Device API modules

Web UI Framework

User Interface sections including Theme and Notification Tray

HW requirements, e.g. RAM size, Camera (rear-facing), HW keys (Menu, Volume), Display, Keyboard, Wi-Fi Direct

Developer Tools OProfile and Dynamic Analyzer

Mandatory platform Application Controls

Tizen Profile Differences

In Wearable Profile

A number of things optional: hdw requirements, themes, ui, AppControls etc.
For Samsung devices, use Samsung Extension to offer new API modules like IrLED, SAP and Motion

In TV profile:

Web APIs only, no native
Support for remote control
TV-appropriate display resolutions and matching themes

Example Manifest Declarations

Each profile has specific feature keys to identify features present/absent

Web:

```
<feature name="http://tizen.org/feature/network.nfc"/>  
<tizen:privilege name="http://tizen.org/privilege/application.launch"/>
```

Native:

```
<Requirements>  
  <Feature Name="http://tizen.org/feature/camera">true</Feature>  
</Requirements>  
<Privileges>  
  <Privilege>http://tizen.org/privilege/notification</Privilege>  
</Privileges>
```

Example Manifest Declarations

The profile can be identified in the manifest:

Web:

```
<widget xmlns=http://www.w3.org/ns/widgets
        xmlns:tizen="http://tizen.org/ns/widgets" ...>
  <tizen:profile name="mobile"/>
```

Native:

```
<manifest xmlns="http://tizen.org/ns/packages" api-version="2.3.1"...>
  <profile name="mobile">
```

Tizen Profile Strategy

The following profiles have been defined:

- Mobile: low to high-end phones and tablets

- IVI: automobile console and entertainment system

- Wearable: wearable device adaptation

- TV: smart television

Try to keep number of profiles small

- More profiles mean more to keep track of

- More profiles encourages special features, make apps less portable

Common and Optional Web Device APIs

All profiles that support the Web API *must* provide Tizen Common Device APIs

Each profile includes additional mandatory APIs

Tizen optional device APIs may be included in any profile

Tizen Optional Device APIs

Content	Power	Bookmark	Bluetooth	Notification	Display Control
Sys Setting	Download	NFC	Call History	Sensor	TV Window
Activity Monitoring	Web Setting	Calendar	Push	Secure Element	TV Channel
Contact	Data Sync	Audio Control	Messaging	NBS	

Tizen Common Device APIs

Tizen	Alarm	Application
Package	System Information	FileSystem
Time	Message Port	Data Control

Profile-Specific Mandatory Device APIs

Each profile includes mandatory APIs (beyond common)

A device can include any optional device APIs (previous slide)

If an optional API is supported, it must be reported by the feature mechanism

The app store client shows apps that match the device's supported features

Best App Portability: Use Web APIs

Create app manifest (config.xml) before uploading to Tizen Store

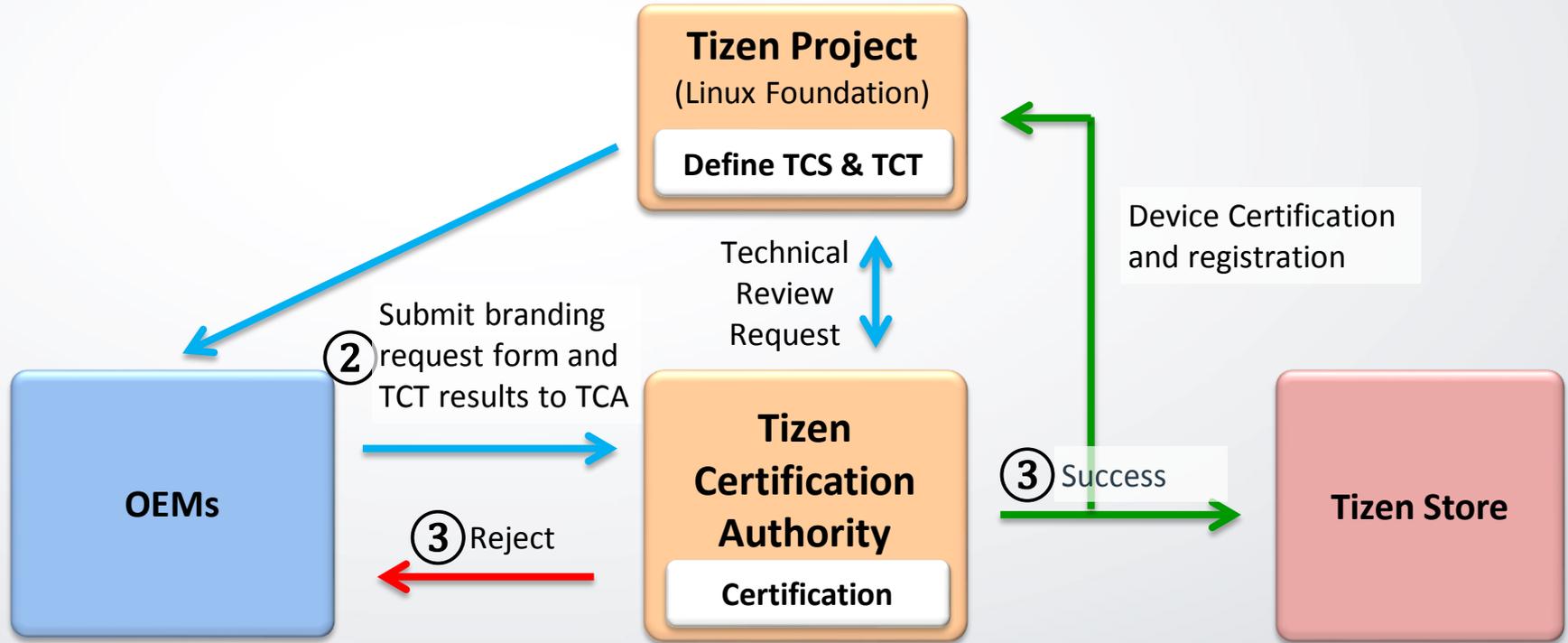
- Specify the profiles the app will run on (at least one)

- Specify the device features the app requires to run (e.g. Bluetooth)

The store client will not show the app if a device does not support a listed profile or all the features required to run the app.



Tizen Compliance Workflow





Thank You!



Questions?





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