

# Media Device API Guide Program

## Outline

MediaAPI guide program is a guide application for eGov Device API, using the mobile device API framework to be used as a tool and a reference when developing hybrid applications. It supports the inquiry of Media related functions of mobile smart devices through JavaScript-based Media DeviceAPI.

Also, it is comprised of a feature to send and inquire Media information within the Device, in conjunction with eGovFramework based web server application.

### Feature

This Guide Program provides **receive Media file list from server** and **Media player** features.

It uses Media API to play media file or send media file created with the device's record function to server.

### Preconditions

Category	Description
Local Device Environments	eGovFramework Runtime Environment 3.5, Android SDKAPI 22(version 5.0 Lollipop)
Server-side Developmental Environment	Runtime Environment for eGov Standard Framework 3.5
Works in sync with Mash up Open API	N/A
Test Device	Galaxy S2
Test Platform	Android 2.3
Libraries Added	N/A

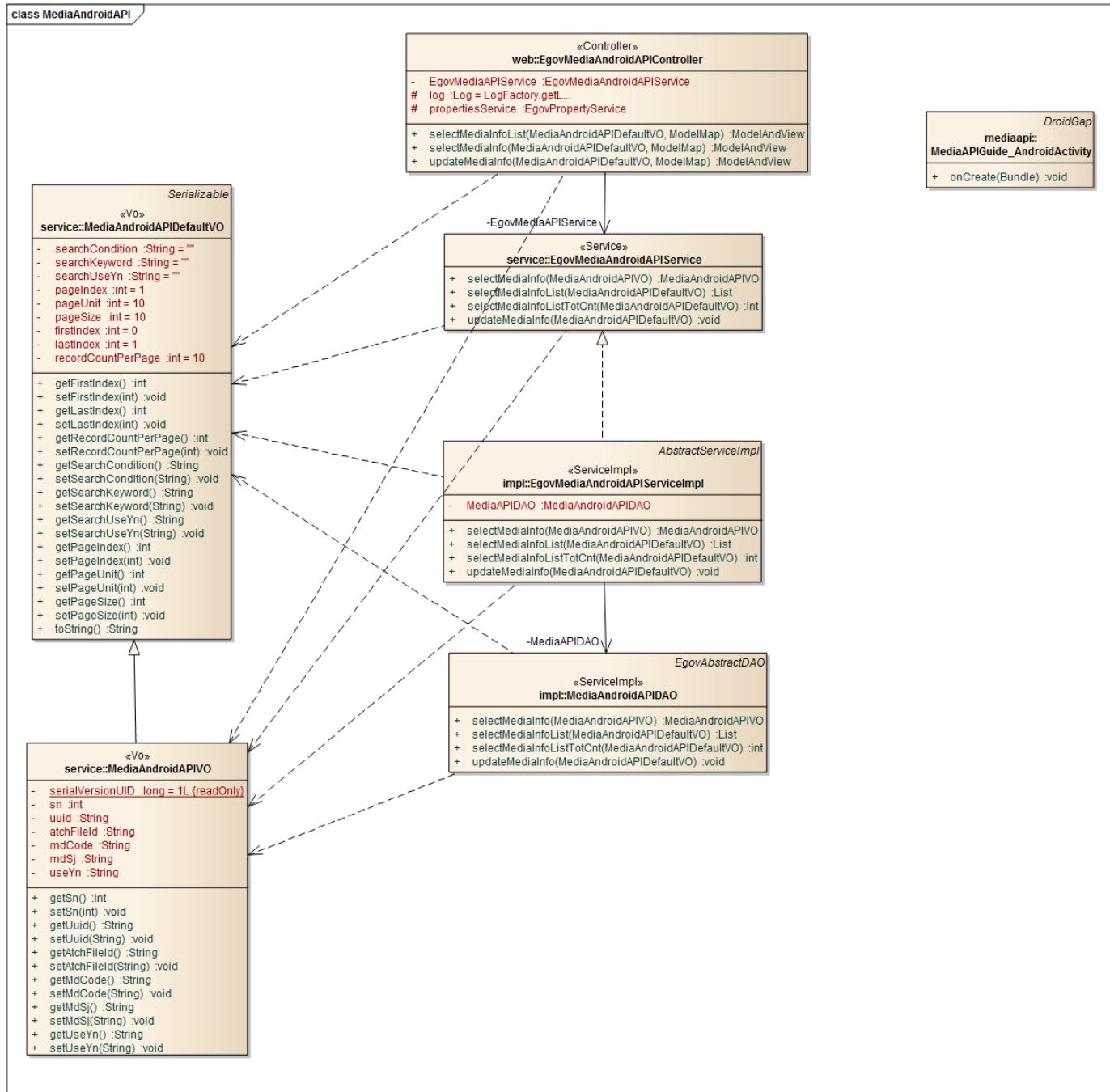
### Restriction

Category	Description
Using cross domain	When using certain outside domains or its subdomains on PhoneGap, add such domains on <code>&lt;access origin="" /&gt;</code> at Res/xml/config.xml.

## Description

Media Device API Guide Program is comprised of features that a) plays media file saved on server and b) sends and inquires alarm information set using the device's record function to web application. (refer to related functions section)

### Class Diagram



Device Application

### Source

Type

Title

Remark

Activity	kr.go.egovframework.hyb.mediaapi.MediaAPIGuide_AndroidActivity	MediaAPI Guide Program Activity Class
CSS	assets/www/css/egovframwork/mbl/hyb/MediaAPI.css	MediaAPI Guide Program main Cascading Style Sheets
IMAGE	assets/www/images/egovframwork/mbl/hyb/	MediaAPI Guide Program main Image folder
JS	assets/www/js/egovframwork/mbl/hyb/MediaAPI.js	MediaAPI Guide Program main JavaScript
JS	assets/www/js/egovframwork/mbl/hyb/messages_ko.js	JavaScript for Validate Message Processing
RES	assets/www/res/	MediaAPI Guide Program main Resource folder
XML	AndroidManiFest.xml	Configuration XML for Android
HTML	assets/www/MediaAPI.html	MediaAPI main page
HTML	assets/www/Intro.html	MediaAPI Intro page
HTML	assets/www/license.html	MediaAPI license page
HTML	assets/www/overview.html	MediaAPI feature description page

### APIs Used

#### Media

- An object that provides the audio file play function or audio record function.

```
var media = new Media(src, mediaSuccess, [mediaError], [mediaStatus]);
    media.getCurrentPosition
```

- Gets the current position of a media file

```
media.getCurrentPosition(mediaSuccess, [mediaError]);
    media.getDuration
```

- Gets the duration of a media file

```
media.getDuration();
    media.pause
```

- Pauses a media file

```
media.pause();
    media.play
```

- Plays a media file

```
media.play();
```

media.release

- Releases an audio file registered in OS or memory.

```
media.release();  
mediaError
```

- Media API error code

Error Code	Description	Remark
MEDIA_ERR_ABORTED	Plays aborted media	
MEDIA_ERR_NETWORK	Network error encountered	
MEDIA_ERR_DECODE	Decoding error (codec error)	
MEDIA_ERR_SRC_NOT_SUPPORTED	Media not supported	

LocalFileSystem

- A file system that supports access to the device's root file system.

```
window.requestFileSystem(LocalFileSystem.PERSISTENT, 0, onSuccess, onError);  
DirectoryEntry
```

- An object related to the file system directory that follows W3C Directories and Systems.
- entry.getDirectory : loads or creates folder.

```
var entry = entry.getDirectory("newDir", {create: true, exclusive: false}, success, fail);  
FileTransfer [upload]
```

- File transfer object that enables file upload to server.

```
var options = new FileUploadOptions();  
options.fileKey="file";  
options.fileName=fileURI.substr(fileURI.lastIndexOf('/')+1);  
options.mimeType="text/plain";
```

```
var params = new Object();  
params.value1 = "test";  
params.value2 = "param";
```

```
options.params = params;
```

```
var ft = new FileTransfer();  
ft.upload(fileURI, "http://some.server.com/upload.php", transferSuccess, transferFail, options);  
FileUploadOptions
```

- Upload options object that defines transfer parameters for file uploads

Option	Description	Remark
--------	-------------	--------

fileKey	Name of the file to be uploaded	Default is "file."
fileName	Name of the file to be saved on server	Default is "image.jpg."
mimeType	Sets mimeType when uploading data.	Default is "image/jpeg."
params	Additional parameters to be sent to server.	
chunkedMode	Whether or not to use large streaming.	Default is "true."

#### Server Application

##### Source

Type	Title	Remark
Controller	egovframework.hyb.add.mda.web.EgovMediaAndroidAPIController.java	MediaAPI Guide Program Controller Class
Service	egovframework.hyb.add.mda.service.EgovMediaAndroidAPIService.java	MediaAPI Guide Program Service Class
ServiceImpl	egovframework.hyb.add.mda.service.impl.EgovMediaAndroidAPIServiceImpl.java	MediaAPI Guide Program ServiceImpl Class
VO	egovframework.hyb.add.mda.service.MediaAndroidAPIDefaultVO.java	MediaAPI Guide Program VO Class
VO	egovframework.hyb.add.mda.service.MediaAndroidAPIFileVO.java	MediaAPI Guide Program VO Class
VO	egovframework.hyb.add.mda.service.MediaAndroidAPIVO.java	MediaAPI Guide Program VO Class
VO	egovframework.hyb.add.mda.service.MediaAndroidAPIXMLVO.java	MediaAPI Guide Program XML related VO Class
DAO	egovframework.hyb.add.mda.service.impl.MediaAndroidAPIDAO.java	MediaAPI Guide Program Dao Class
QUERY XML	resources/egovframework/sqlmap/hyb/add/mda/EgovMediaAndroidAPIGuide_XXX_mysql.xml	MediaAPI Guide Program QUERY XML
Idgen XML	resources/egovframework/spring/com/context-idgen.xml	MediaAPI Guide Program ID generation Idgen XML

##### ID Generation

- In order to use ID Generation Service, FILE (FILE information ID) entry must be added to COMTECOPSEQ, a sequence saving table.

##### Related Tables

Title	Table	Remark
Media	MEDIA	Manage Media information

File details FILE\_DETAIL\_INFO Manage file's detailed information

**Table Definition**

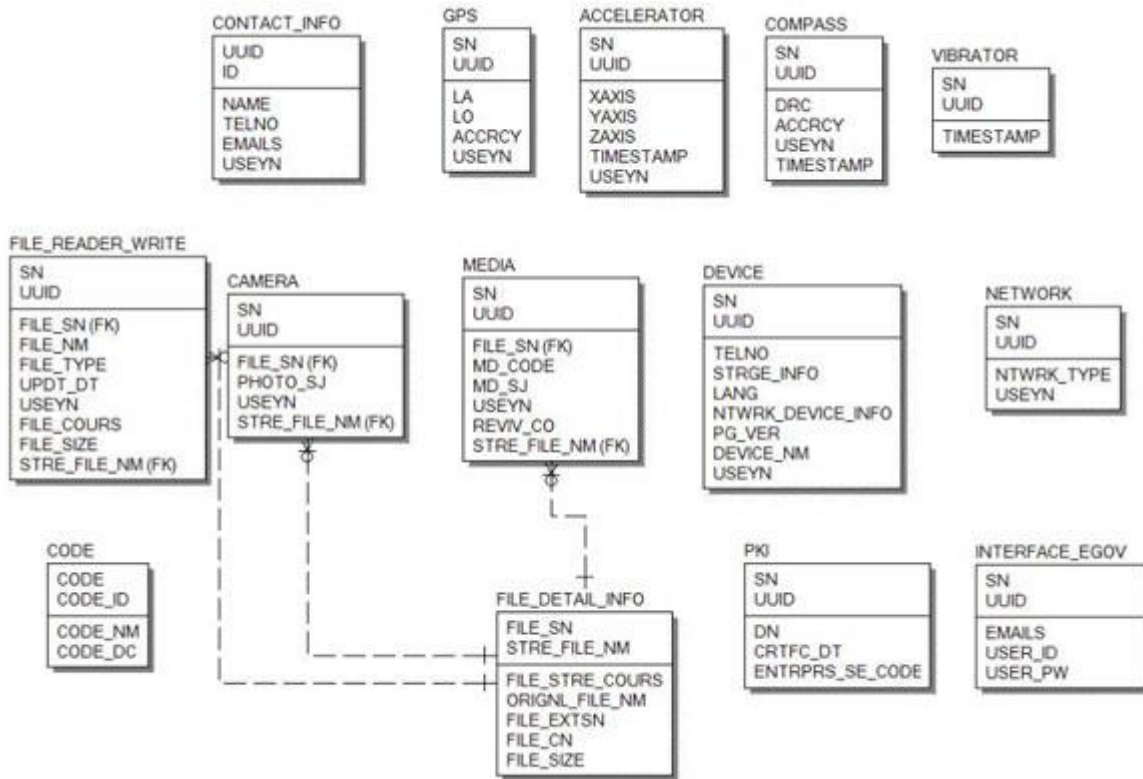
- MEDIA

No	Column ID	Title of Column	Type	Length	NULL
1	SN	Serial No.	NUMERIC	6	NotNull
2	UUID	UUID	VARCHAR	50	NotNull
3	FILE_SN	File Serial Number	NUMERIC	20	NotNull
4	MD_CODE	Media code	VARCHAR	40	Null
5	MD_SJ	Title of photo	VARCHAR	255	Null
6	USEYN	Activation	CHAR	1	Null
7	REVIV_CO	Play count	VARCHAR	40	Null

- FILE\_DETAIL\_INFO

No	Column ID	Title of Column	Type	Length	NULL
1	FILE_SN	File Serial Number	NUMERIC	20	NotNull
2	FILE_STRE_COURS	File directory	VARCHAR	2000	Null
3	STRE_FILE_NM	Stored file name	VARCHAR	255	Null
4	ORIGNL_FILE_NM	Original file name	VARCHAR	255	Null
5	FILE_EXTSN	File extension	VARCHAR	20	Null
6	FILE_CN	File contents	BLOB		Null
7	FILE_SIZE	File size	NUMERIC	8	Null

## ERD



Caution

### File generation

- When using record function through media object, a media file will be created within the egovMediaAPI folder of the root within LocalFileSystem.

### File upload

- When uploading file, the file is saved through FileTransfer object from File API provided by Phonegap.

### Streaming

- On non-Wi-Fi networks, one must be mindful of data usage when media is played, as legacy web streaming methods are used.
- Due to the streaming method, media errors or delays in streaming may occur depending on network conditions. (Delay: 2 sec)

```

function fn_setMediaDuration() {
    var counter = 0;
    timerDur = setInterval(function() {
        counter = counter + 50;
        if (counter > 2000) {
    
```

```

        clearInterval(timerDur);
        timerDur = null;
        fn_error();
    }
    var dur = mediaObj.getDuration();
    if (dur > 0) {

        ...

        clearInterval(timerDur);
        timerDur = null;
    }
    }, 100);
}

```

## Properties

Necessary sections and settings for using alarm related features of mobile device, provided by Vibrator Device API Guide Program, are as follows.

Device Application

**res/xml/config.xml**

```
<pluginname="Media" value="org.apache.cordova.AudioHandler"/>
```

```
<pluginname="File" value="org.apache.cordova.FileUtils"/>
```

```
<pluginname="FileTransfer" value="org.apache.cordova.FileTransfer"/>
```

**res/values/serverinfo.xml**

```
<string
```

```
name="SERVER_URL">http://192.168.100.222:8080/DeviceAPIGuideTotal_Web_V1.7.1</string>
```

```
<!-- Server Directory for eGov Interface Device API Class -->
```

```
<?xmlversion="1.0" encoding="utf-8"?>
```

```
<resources>
```

```
    <stringname="SERVER_URL">Server_URL</string>
```

```
</resources>
```

**AndroidManifest.xml**

```
<uses-permissionandroid:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
```

```
<uses-permissionandroid:name="android.permission.RECORD_AUDIO"/>
```

```
<uses-permissionandroid:name="android.permission.MODIFY_AUDIO_SETTINGS"/>
```

```
<uses-permissionandroid:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
```

Server Application

**context-properties.xml**

- Upload directory

```
<entrykey="fileStorePath" value="File_Save_Path"/>
```



**resource/egovframework/sqlmap/sql-map-config\_[DB NAME].xml**

`<sqlMapresource="egovframework/sqlmap/hyb/add/mda/EgovDeviceAndroidAPIGuide_SQL_[DB NAME].xml"/>`

## Functions

Receive Media file list from server

### Business Logic

Inquires a list of files saved in server/recorded files uploaded to server.

### Code

```
function fn_selectMediaList() {  
  
    var url = "/mda/mediaInfoList.do";  
    var acceptType = "xml";  
  
    var params = {  
                                                mdCode : "media"  
    };  
    $.mobile.showPageLoadingMsg();  
    egovHyb.post(url, acceptType, params, function(xmldata) {  
  
        console.log("DeviceAPIGuide fn_selectMediaList request Completed");  
  
        fn_displayList(xmldata);  
    });  
}
```

### Related Screen and Implementation Manual

Action	URL	Controller method	QueryID
--------	-----	-------------------	---------

View List /mda/mediaInfoList.do selectMediaInfoList “mediaAndroidAPIDAO.selectMediaInfoList”



Inquires list of media files uploaded to server and displays on the device.

Feature description: moves to **feature description** page.

License: moves to **License** page.

Media file content: moves to **Media player** page.

Media player

#### **Business Logic**

Through Device API: a) inquires Media creation/deletion, Media play/stop, and length b) saves record files through record start/stop to the server.

#### **Code**

Detailed Inquiry

```
function fn_selectMediaInfoDetail(sn) {
```

```

var url = "/mda/mediaInfoDetail.do";
var acceptType = "xml";

var params = {
                                sn : sn
                                };
$.mobile.showPageLoadingMsg();
egovHyb.post(url, acceptType, params, function(xmldata) {
    console.log("DeviceAPIGuide fn_selectMediaInfoDetail request Completed");
    fn_displayDetail(xmldata);
});
}
    Plays media

function fn_mediaPlayEvent() {
    ...
    fn_mediaPlay();

    playTimer = setInterval(function(){
        mediaObj.getCurrentPosition(fn_currentPositionSuccess,
fn_currentPositionError);
    }, 1000);
}
    Record media

function fn_mediaRecordStartEvent() {
    ...
    var recordSj = fn_mediaRecordStart();
    recTime = 0;
    ...
    recordTimer = setInterval(function() {
        recTime = recTime + 1;
        ...
    }, 1000);
}
    File upload

function fn_insertRecordFile() {
    var file = fileURL.substr(fileURL.lastIndexOf('/') + 1);
    var options = new FileUploadOptions();

```

```

options.fileKey = "file";
options.fileName = file;
options.mimeType = "audio/mp3";

var params = {
    mdSj : file,
    uuid : encodeURI(device.uuid)
};

options.params = params;

var ft = new FileTransfer();

ft.upload(fileURL, loadServer + "/mda/mediaRecordUpload.do", fn_insertSuccess, fn_error,
options);
}
}

```

#### Related Screen and Implementation Manual

Action	URL	Controller method	QueryID
Inquire media details	/mda/mediaInfoDetail.do	selectMediaInfoDetail	"mediaAndroidAPIDAO.selectMediaInfoDetail"
Edit number of times media is played	/mda/mediaInfoDetail.do	selectMediaInfoDetail	"mediaAndroidAPIDAO.updateMediaInfoReplayCo"
Inquire media file	/mda/mediaInfoDetail.do	getImageInfo	"mediaAndroidAPIDAO.selectMediaFileInfo"



#### Play

Serves a media player function, using streaming method to play/pause/jump media files saved in server.

Feature description: moves to **feature description** page.

License: moves to **License** page.

List: move to **Inquire Media list** page.

Record: activates **Record** feature.

Play/stop: plays/stops a **media file**.

#### Record

Creates media file. Uploads said file to the server through the stop button.

Feature description: moves to **feature description** page.

License: moves to **License** page.

List: move to **Inquire Media list** page.

Play: Activates **play previous media file** feature.

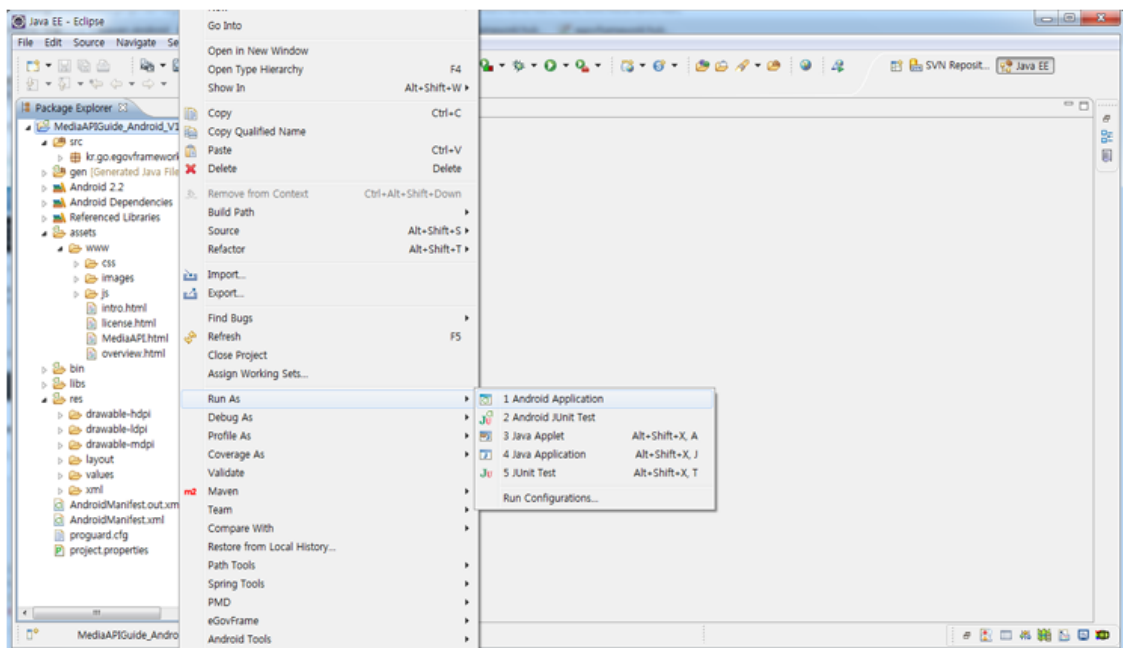
Record/stop: records/stops a **media file**.

## Compiling, debugging, distributing

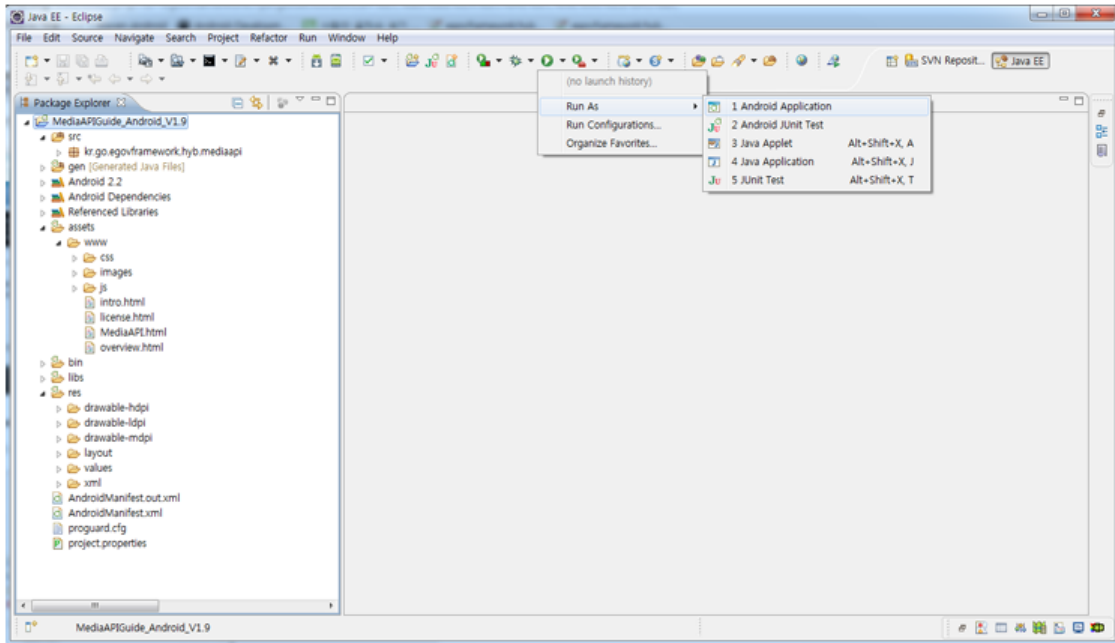
Compiling

### MediaAPI Device Application Compile Method

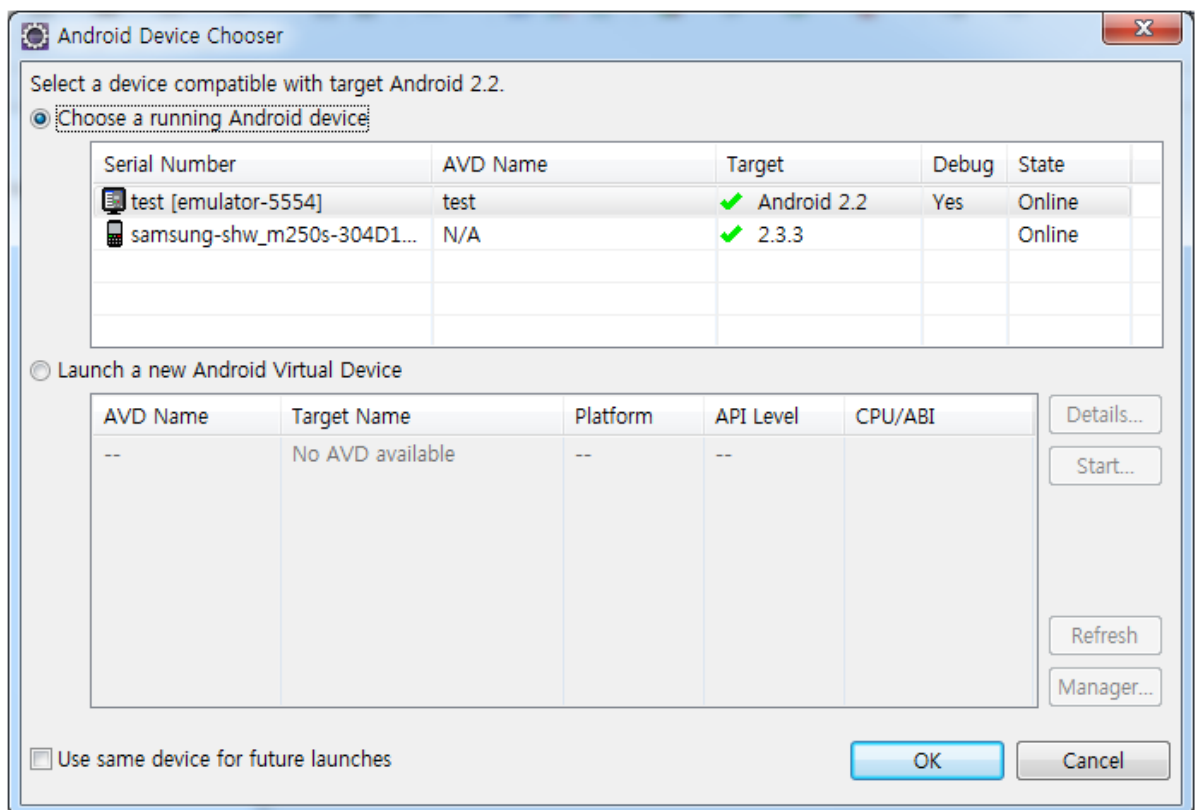
- Choose project > Right-click > Run As > Android Application



- Top menu > Run As > Android Application



- Select target to run > emulator, Device(debug mode)



- Program display on the emulator



- Program display on the device

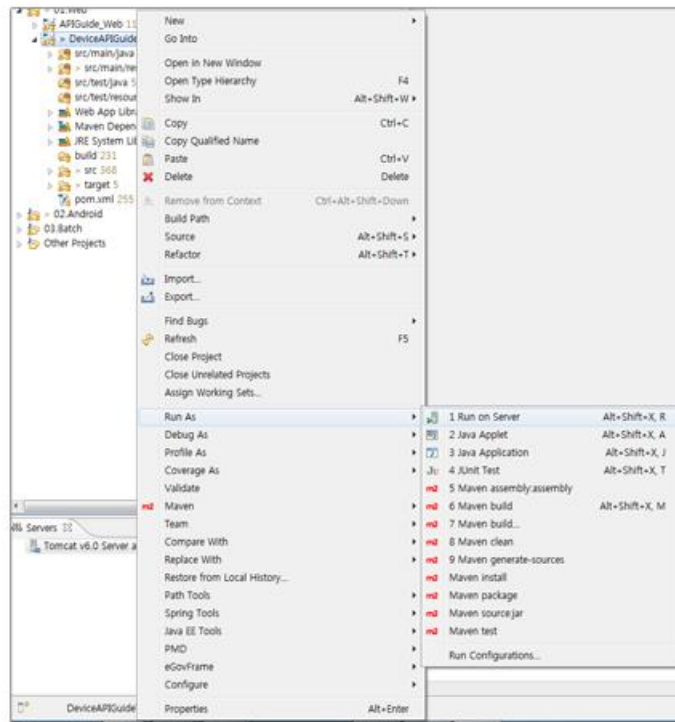






#### How to compile MediaAPI Server Application

- Right-click on the project and click on Run As>Run On Server in order to run the MediaAPI server-side Guide Program.



- When the build is successfully completed, a message reading 'Server Startup in xxx ms' will display on the console window on the Eclipse.

```

2012-09-14 09:15:49,759 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Returning cached instance of singleton bean 'org.springframework.web.serv
2012-09-14 09:15:49,767 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Returning cached instance of singleton bean 'org.springframework.web.serv
2012-09-14 09:15:49,768 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Creating instance of bean 'org.springframework.web.servlet.view.DefaultRe
2012-09-14 09:15:49,771 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Finished creating instance of bean 'org.springframework.web.servlet.view
2012-09-14 09:15:49,771 DEBUG [org.springframework.web.servlet.DispatcherServlet] Unable to locate RequestToViewNameTranslator with name 'viewNameTranslator'; using default
2012-09-14 09:15:49,771 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Returning cached instance of singleton bean 'org.springframework.web.serv
2012-09-14 09:15:49,772 DEBUG [org.springframework.web.servlet.DispatcherServlet] Published WebApplicationContext of servlet 'action' as ServletContext attribute with name [c
2012-09-14 09:15:49,772 INFO [org.springframework.web.servlet.DispatcherServlet] FrameworkServlet 'action': initialization completed in 1373 ms
2012-09-14 09:15:49,772 DEBUG [org.springframework.web.servlet.DispatcherServlet] Servlet 'action' configured successfully
2012. 9. 14 오전 9:15:49 org.apache.coyote.http11.Http11Protocol start
정보: Starting Coyote HTTP/1.1 on http-80
2012. 9. 14 오전 9:15:49 org.apache.jk.common.ChannelSocket init
정보: JK: ajp13 listening on /0.0.0.0:8009
2012. 9. 14 오전 9:15:49 org.apache.jk.server.JkMain start
정보: Jk running ID=0 time=0/30 config=null
2012. 9. 14 오전 9:15:49 org.apache.catalina.startup.Catalina start
정보: Server startup in 7209 ms

```

### Debugging

Use console.log in order to check the details on any errors on the device application, and to conduct debugging. Debug codes in console.log are available in JavaScript syntaxes that you can use in both Eclipse and Xcode.

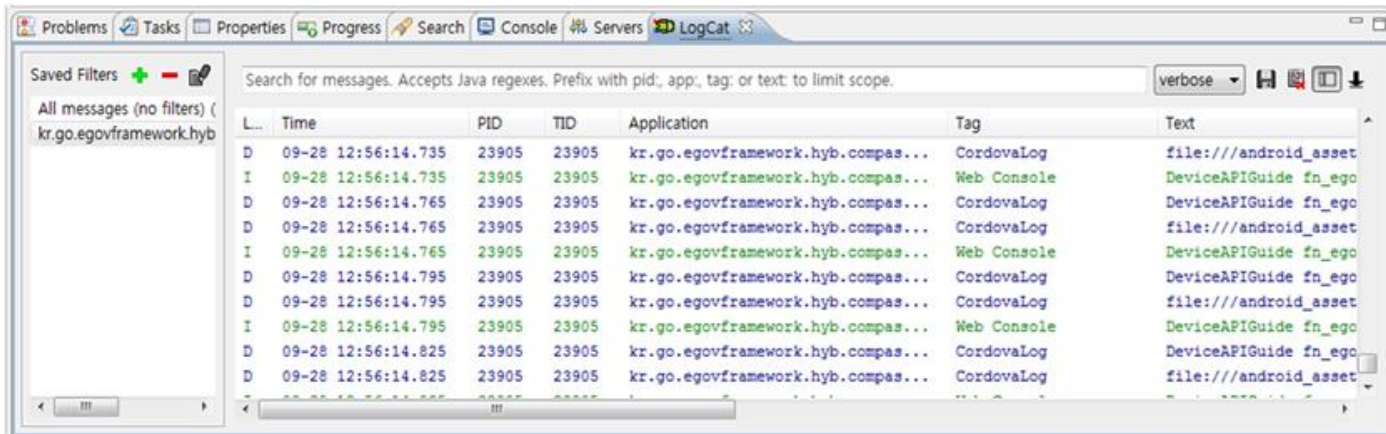
See the following for how to code console.log:

```

function fn_egov_network_check(doCheck)
{
    console.log('DeviceAPIGuide fn_egov_network_check');
    var networkState = navigator.network.connection.type;
    ...
}

```

When the debugging code is executed, check out the following console message appears:



Media Device API Guide Program will output the following console information for debugging.

Debug code	Debug information
DeviceAPIGuide fn_egov_deviceConfig Success	Successfully acquired the device's server information.
DeviceAPIGuide Media Config Success	Successfully executed Media Device API.
DeviceAPIGuide fn_egov_currentPositionSuccess Success	Successfully loaded current location when playing media file.
DeviceAPIGuide fn_egov_currentPositionError Error	Failed to load current location when playing media file.
DeviceAPIGuide fn_egov_insertRecordFile request Completed	Successfully uploaded file.
DeviceAPIGuide fn_egov_selectMediaList request Completed	Successfully inquired media file list.
DeviceAPIGuide fn_egov_selectMediaInfoDetail request Completed	Successfully inquired media details.
DeviceAPIGuide fn_egov_setMediaDuration Success	Successfully loaded media file playback time.
DeviceAPIGuide fn_egov_error Error	Overall error.

Distribution

Download Media Device API Guide: [Click](#)

## References

- UX/UI library : jQuery Mobile [Click](#)
- Phonegap 4.3.0 : [Click](#)