

# 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.

### Assumptions

Category	Description
Local Device Environments	Xcode 6.3.2, PhoneGap 4.3.0
Server-side Developmental Environment	eGov Standard Framework Deveelopment Environment 3.5
Works in sync with Mash up Open API	N/A
Test Device	iPhone4, iPhone6
Test Platform	iOS 7.1.2, iOS 8.3
Libraries Added	N/A

### Restriction

#### Supported devices and platforms

For iPhone devices, there may be issues due to device's processing power.

- Problem: PhoneGap error.
- Solution: delay PhoneGap loading sequence with setTimeout() function.

```
document.addEventListener('DOMContentLoaded', function () { setTimeout(loaded, 200); }, false);
```

- Problem: iScroll5 content height calculation error.

- Solution: use setTimeout() to ensure iscroll is generated after css application to contents is complete.

```
setTimeout(function()  
  {  
    myScroll = new iScroll(thisPage,  
      {  
        checkDOMChanges: true,  
        onBeforeScrollStart:function(e)  
        {  
        }  
      });  
  },  
  500);
```

In case PhoneGap libraries, one must pre-generate a file and designate a file path for said file in order to use recording feature on iPhone devices. (only .wav format is supported)

Play wav files after downloading media file as wav files cannot be streamed in binary data.

#### **Using cross domain**

When using certain outside domains or its subdomains on PhoneGap, add such domains on <access origin="ExternalHosts"/> at [Project\_Name]/Supproting Files/config.xml

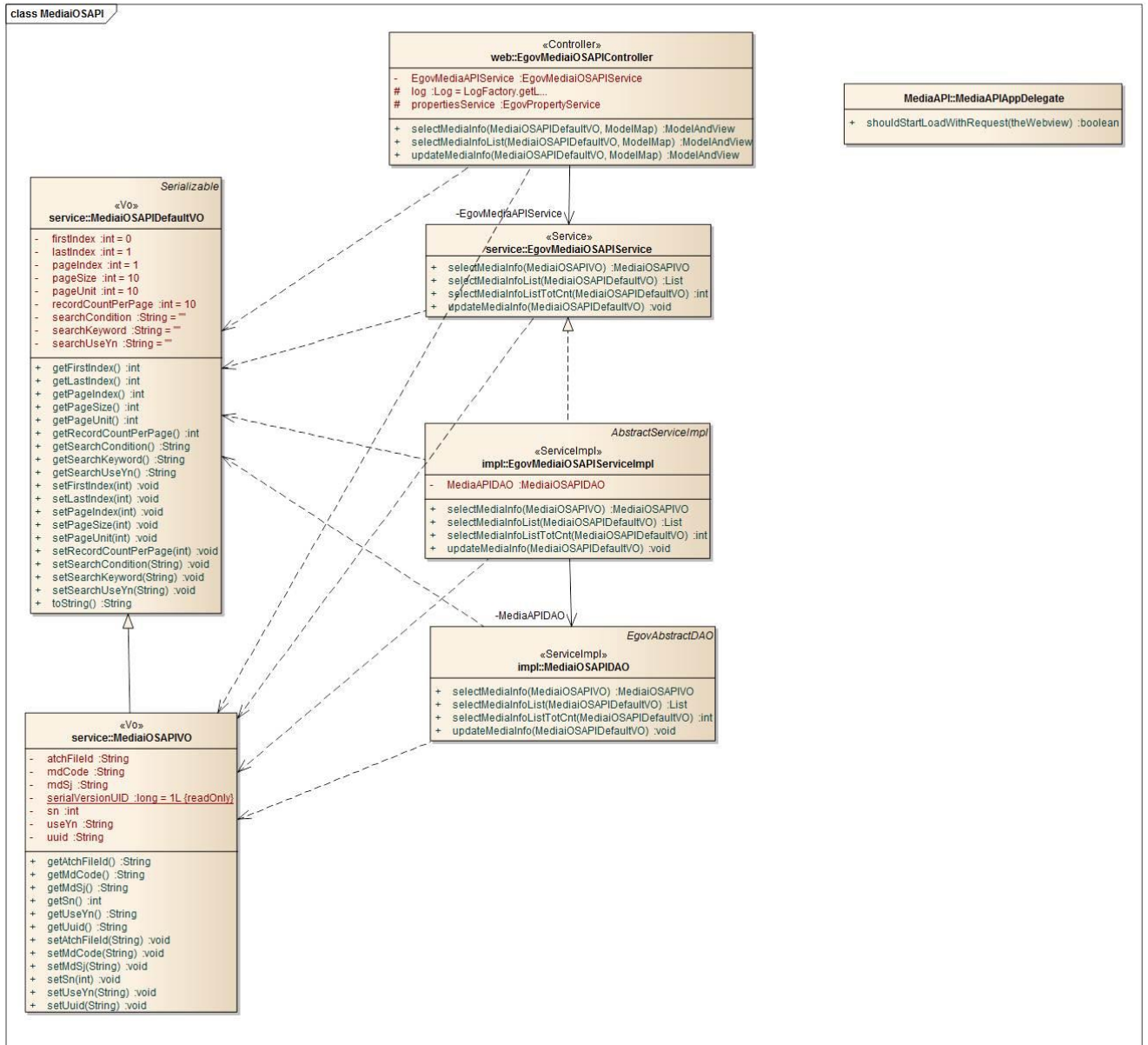
#### **License**

N/A

## **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
CSS	<a href="http://www/css/egovframework/mbl/hyb/MediaAPI.css">www/css/egovframework/mbl/hyb/MediaAPI.css</a>	MediaAPI Guide Program main Cascading Style Sheets
IMAGE	<a href="http://www/images/egovframework/mbl/hyb/">www/images/egovframework/mbl/hyb/</a>	MediaAPI Guide Program main Image folder
JS	<a href="http://www/js/egovframework/mbl/hyb/MediaAPI.js">www/js/egovframework/mbl/hyb/MediaAPI.js</a>	MediaAPI Guide Program main JavaScript
HTML	<a href="http://www/MediaAPI.html">www/MediaAPI.html</a>	MediaAPI main page

HTML [www/license.html](http://www/license.html) MediaAPI license page

HTML [www/overview.html](http://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);
    FileTransfer [download]
```

- File transfer object that enables file download from server.

```
var fileTransfer = new FileTransfer();
var uri = encodeURI("http://some.server.com/download.php");
```

```
fileTransfer.download(
    uri,
    filePath,
    function(entry) {
        console.log("download complete: " + entry.fullPath);
    },
    function(error) {
        console.log("download error source " + error.source);
        console.log("download error target " + error.target);
        console.log("upload error code" + error.code);
    }
);
    FileUploadOptions
```

- Upload options object that defines transfer parameters for file uploads

Option	Description	Remark
<code>fileKey</code>	Name of the file to be uploaded	Default is "file."
<code>fileName</code>	Name of the file to be saved on server	Default is "image.jpg."

contentType Sets contentType 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.iOS.mda.web.EgovMediaiOSAPIController.java	MediaAPI Guide Program Controller Class
Service	egovframework.hyb.iOS.mda.service.EgovMediaiOSAPIService.java	MediaAPI Guide Program Service Class
ServiceImpl	egovframework.hyb.iOS.mda.service.impl.EgovMediaiOSAPIServiceImpl.java	MediaAPI Guide Program ServiceImpl Class
VO	egovframework.hyb.iOS.mda.service.MediaiOSAPIDefaultVO.java	MediaAPI Guide Program VO Class
VO	egovframework.hyb.iOS.mda.service.MediaiOSAPIFileVO.java	MediaAPI Guide Program VO Class
VO	egovframework.hyb.iOS.mda.service.MediaiOSAPIVO.java	MediaAPI Guide Program VO Class
VO	egovframework.hyb.iOS.mda.service.MediaiOSAPIXMLVO.java	MediaAPI Guide Program XML related VO Class
DAO	egovframework.hyb.iOS.mda.service.impl.MediaiOSAPIDAO.java	MediaAPI Guide Program Dao Class
QUERY XML	resources/egovframework/sqlmap/hyb/iOS/mda/EgovMediaAndroidAPIGuide_iOS_mysql.xml	MediaAPI Guide Program QUERY XML
Idgen XML	resources/egovframework/spring/com/context-idgen.xml	MediaAPI Guide Program ID generation Idgen XML

Related Tables

### Title

Title	Table	Remark
Media	MEDIA	Manage Media information

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

### Tables Breakdown

Camera

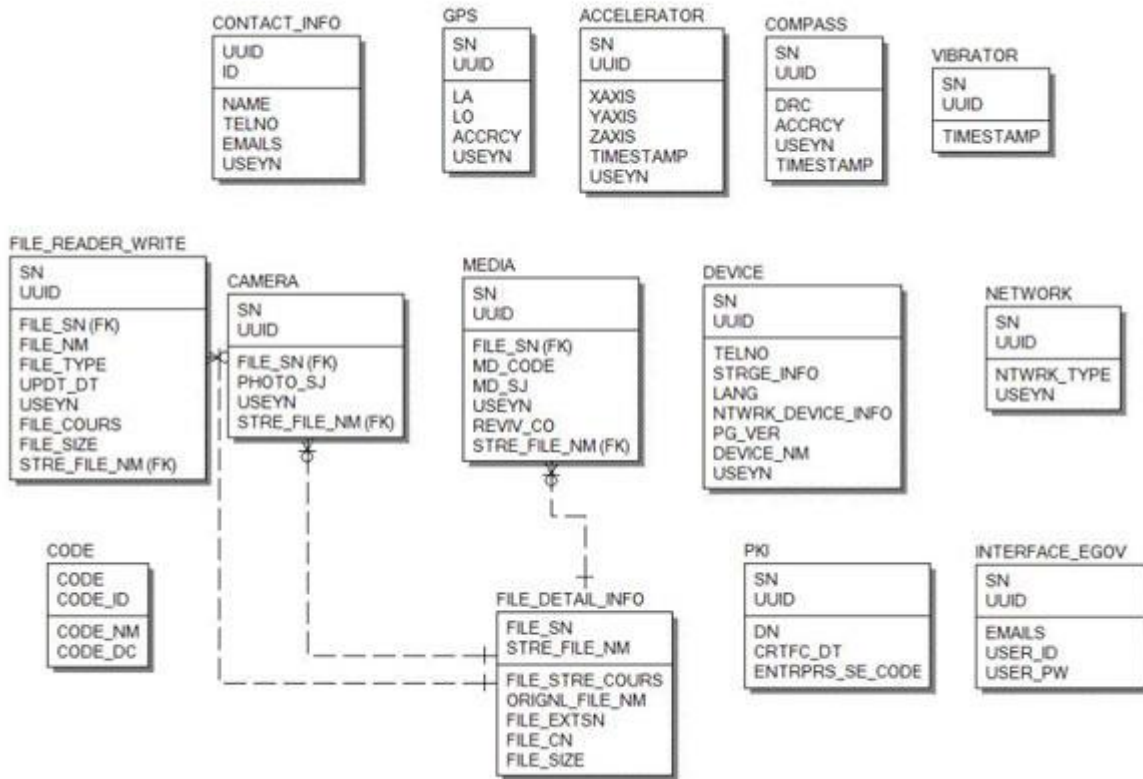
No.	Column	Title of Column	Type	Length	Null	KEY
1	SN	Serial No.	NUMERIC	6	NotNull	pk

2	UUID	UUID	VARCHAR	50	NotNull	pk
3	FILE_SN	File Serial Number	NUMERIC	20	NotNull	fk
4	MD_CODE	Media code	VARCHAR	40	NotNull	
5	MD_SJ	Title of media	VARCHAR	255	Null	
6	USEYN	Activation	CHAR	1	Null	
7	REVIV_CO	Play count	VARCHAR	40	Null	

File details

No.	Column	Title of Column	Type	Length	Null	KEY
1	FILE_SN	File Serial Number	NUMERIC	20	NotNull	pk
2	FILE_STRE_COURS	File directory	VARCHAR	2000	Null	
3	STRE_FILE_NM	Stored file name	VARCHAR	255	Null	pk
4	ORIGNL_FILE_NM	Original file name	VARCHAR	255	NotNull	
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 root folder of the App.

### File upload

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

### Streaming

- PhoneGap libraries only support recording in .wav files on iPhone mode. Play wav files after downloading media file as wav files cannot be streamed in binary data.

## Configuration Settings

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



Device Application

### **config.xml**

Plugin

```
<featurename="Media">
<paramname="ios-package" value="CDVSound"/>
</feature>
<featurename="File">
<paramname="ios-package" value="CDVFile"/>
</feature>
<featurename="FileTransfer">
<paramname="ios-package" value="CDVFileTransfer"/>
</feature>
```

ExternalHosts

```
<accessorigin="ExternalHosts"/>
```

Server Application

### **context-properties.xml**

```
<entrykey="serverContext" value="Server Directory "/>
<entrykey="fileStorePath" value="File_Save_Path"/>
resource/egovframework/sqlmap/sql-map-config_[DB_NAME].xml
```

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

## **Related features**

Receive Media file list from server

### **Business Logic**

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

### **Related Code**

```
function fn_egov_show_mediaList()
{
    if(fn_egov_network_check(false))
    {
        var params = { mdCode : "media" };

        $.mobile.showPageLoadingMsg('a');
        // depending on device performance, delay using setTimeout to ensure next code is executed
        after ProgressDialog Show is completely loaded.
        setTimeout(function()
        {
            fn_egov_sendto_server("/mda/mediaiosInfoList.do",params);
        },
        500);
    }
}
```

## Related Screen and Implementation Manual

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

View List /mda/mediaiOSInfoList.do selectMediaInfoList “mediaiOSAPIDAO.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.

### Related Code

Detailed Inquiry

```
function fn_egov_open_mediaDetail(sn)
{
    if(fn_egov_network_check(false))
    {
        var params = {
            sn : sn
        };

        $.mobile.showPageLoadingMsg('a');
        // depending on device performance, delay using setTimeout to ensure next code is executed
        after ProgressDialog Show is completely loaded.
        setTimeout(function()
            {
                fn_egov_sendto_server("/mda/mediainOSInfoDetail.do",params);
            },
            500);
    }
}
    Plays media

function fn_mediaPlayEvent()
{
    $("#btnPause").show();
    $("#btnPlay").hide();

    fn_mediaPlay();

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

function fn_mediaRecordStart()
{
    var file = "Record_" + new Date().format("YYYYMMDDhhmmss") + ".wav";
    var src = null;
    entry.getFile(file, {create: true, exclusive: false},
        function(entry)
            {
                console.log("DeviceAPIGuide fn_mediaRecordStart Success");
                src = entry.fullPath;
            }
        )
}
```

```

        if(mediaRecordObj != null)
        {
            mediaRecordObj.release();
            mediaRecordObj = null;
        }

        mediaRecordObj = new Media(src, fn_success, fn_error);
        mediaRecordObj.startRecord();
    }, fn_error);

fileURL = entry.fullPath + "/" + file;
return file;
}

File upload

function fn_mediaRecordStopEvent()
{
    $("#recordSj").text("");
    $("#recordPosition").text("00:00:00");

    $("#btnRecordStart").show();
    $("#btnRecordStop").hide();

    fn_mediaRecordStop();
    clearInterval(recordTimer);
    recordTimer = null;

    jConfirm("Send to Server??", "Alert", "b",
        function(result)
        {
            if(result)
            {
                $.mobile.showPageLoadingMsg();

                if(fn_egov_network_check(true))
                {
                    var file = fileURL.substr(fileURL.lastIndexOf('/') + 1);

                    var options = new FileUploadOptions();
                    options.fileKey = "file";
                    options.fileName = file;
                    options.mimeType = "audio/wav";

                    var params = {};
                    options.params = params;

                    var ft = new FileTransfer();
                    var serverPath = loadServer +
"/mda/mediaiOSRecordUpload.do?mdSj="+encodeURIComponent(file)+"&uuid="+
encodeURIComponent(device.uuid);
                    ft.upload(fileURL, serverPath, fn_insertSuccess, fn_error, options);
                }
            }
        }
    )
}

```

```

    });
}
    File download

function fn_egov_get_mediaDownload(sn, fileName)
{
    if(fn_egov_network_check(true))
    {
        var fileType = fileName.substr(fileName.lastIndexOf('.')+1);
        var fileTransfer = new FileTransfer();
        fileTransfer.download(
            loadServer + "/mda/getMediaiOS.do?sn=" + sn,
            entry.fullPath + "/" + "Media."+fileType,
            function(entry)
            {
                console.log("DeviceAPIGuide
fn_egov_get_mediaDownload Success");
                $.mobile.hidePageLoadingMsg();
                fn_mediaAPIConfig(entry.fullPath);
                fn_mediaPlayInit();
                fn_setMediaDuration();
                $.mobile.changePage($("#detailPage"));
            },
            function(error)
            {
                console.log("DeviceAPIGuide
fn_egov_get_mediaDownload error");
                console.log("target : " + error.target + " source : " +
error.source + " code : "+error.code);
                $.mobile.hidePageLoadingMsg();
            }
        });
    }
}

```

#### Related Screen and Implementation Manual

Action	URL	Controller method	QueryID
Inquire media details	/mda/mediaiOSInfoDetail.do	selectMediaInfoDetail	“mediaiOSAPIDAO.selectMediaInfoDetail”
Edit number of times media is played	/mda/mediaiOSInfoDetail.do	selectMediaInfoDetail	“mediaiOSAPIDAO.updateMediaInfoRevivCo”
Inquire media file	/mda/getMediaiOS.do	getSoundFile	“mediaiOSAPIDAO.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.

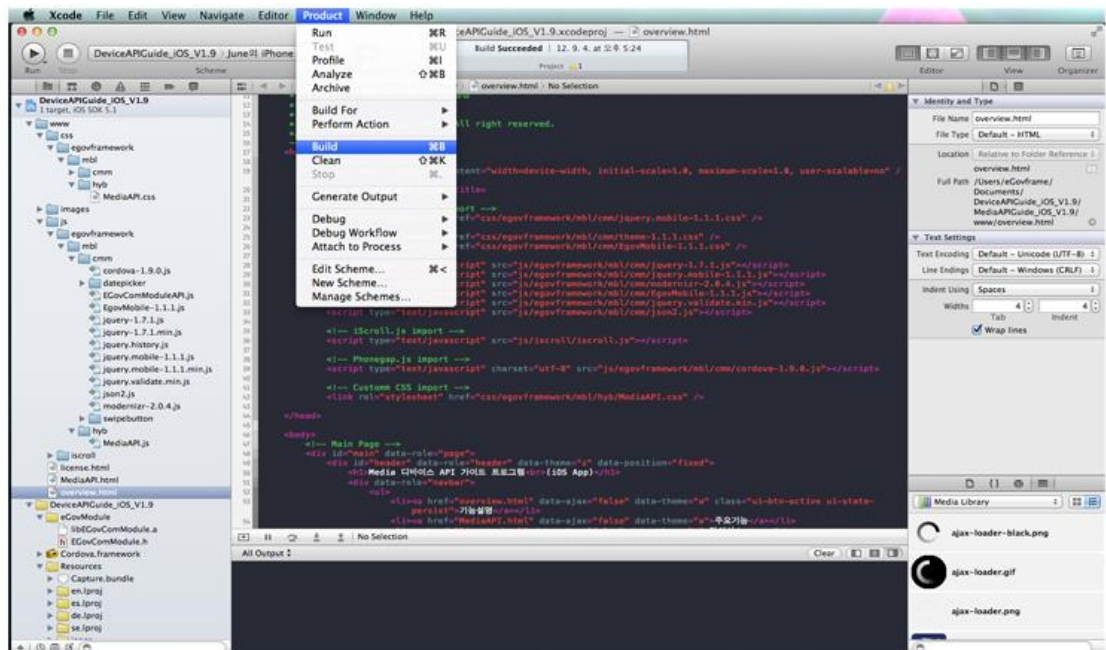
Record/stop: records/stops a **media file**.

## Compiling, debugging, distributing

Compiling

### Device Application

1. [MediaAPI installation link](#)
2. Click on "build" after checking MediaAPI project's installation status.





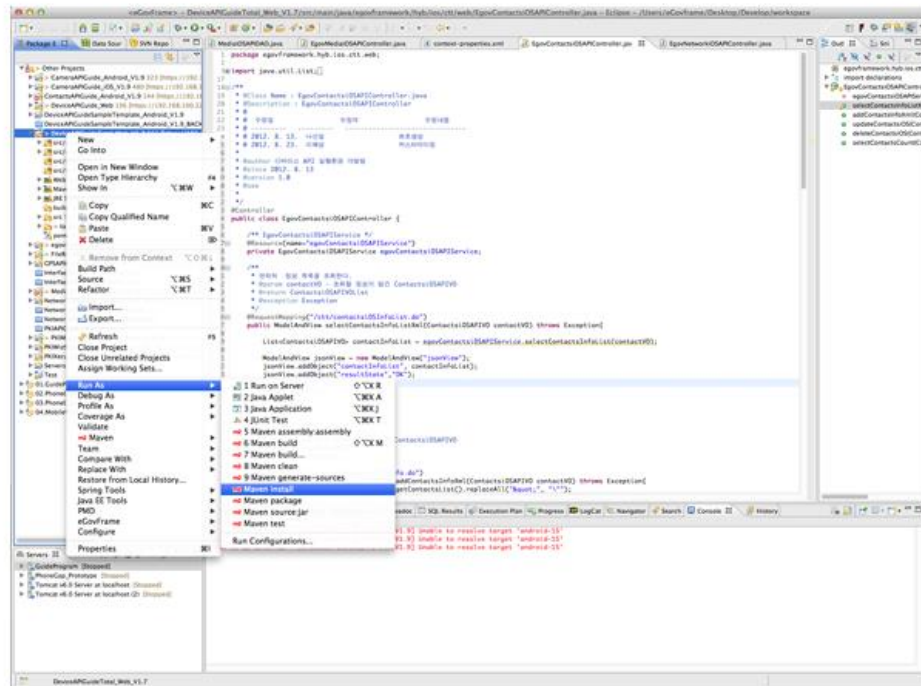
- The following screen will appear upon successful build.



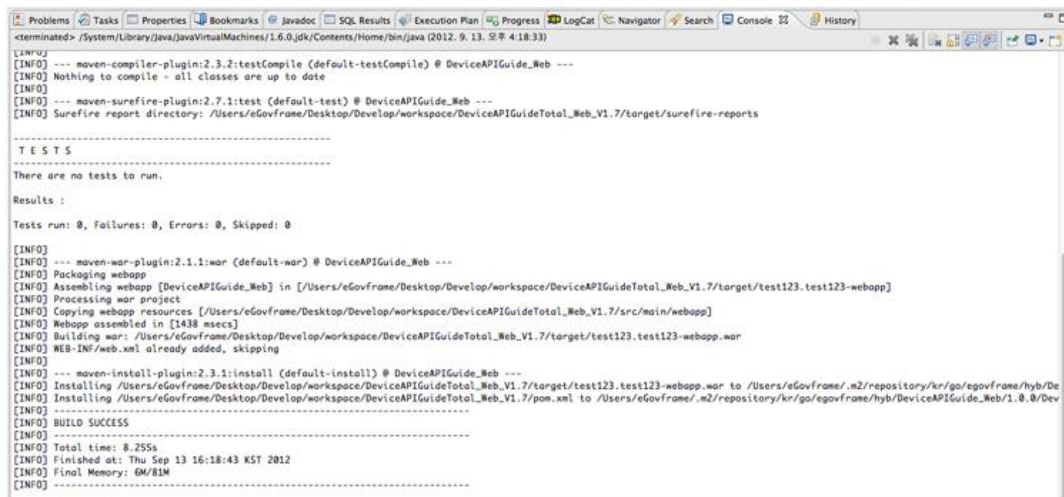
### Server Application

1. [Web Server installation link](#)

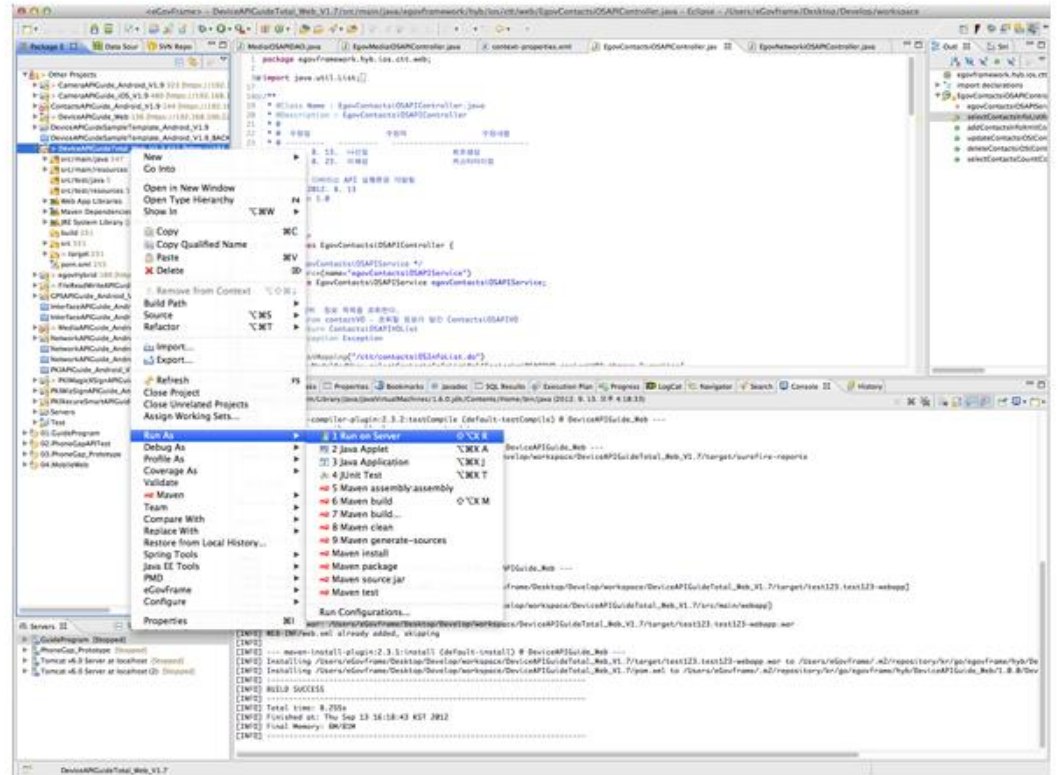
2. Right-click on the project>Run as>Maven install to build.



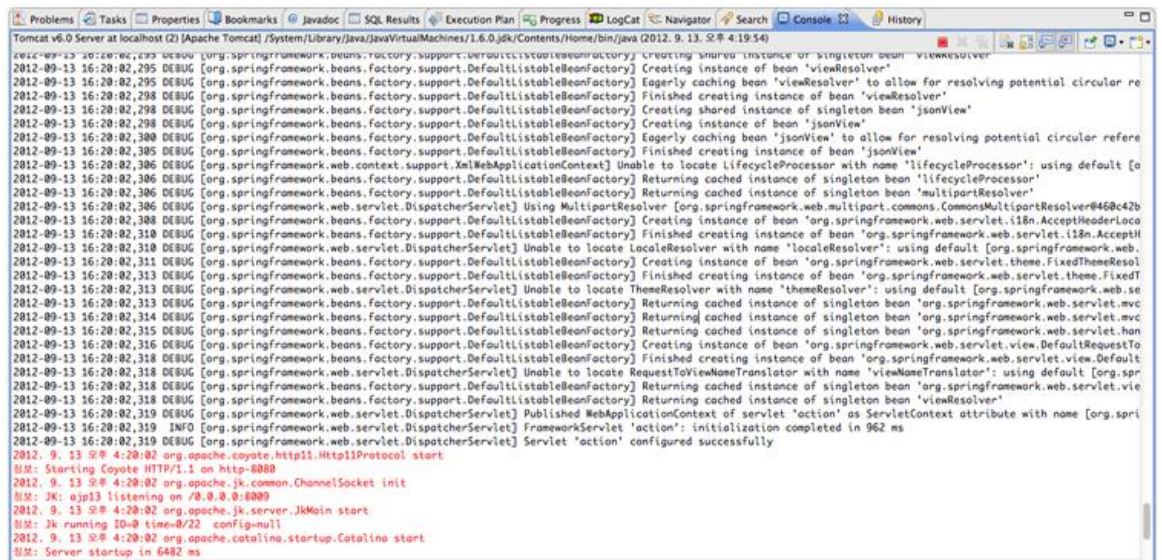
3. Build successful (check console information)



- Right-click on project>Run as>Run on Server to execute.



- Check to see if project is successfully executed.



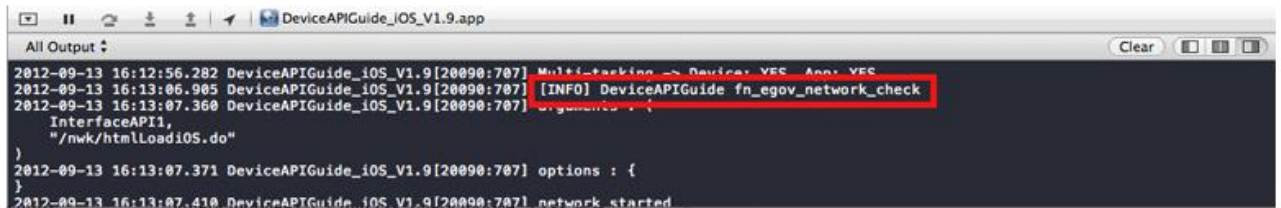
## Debugging

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.

- Example of actual console log

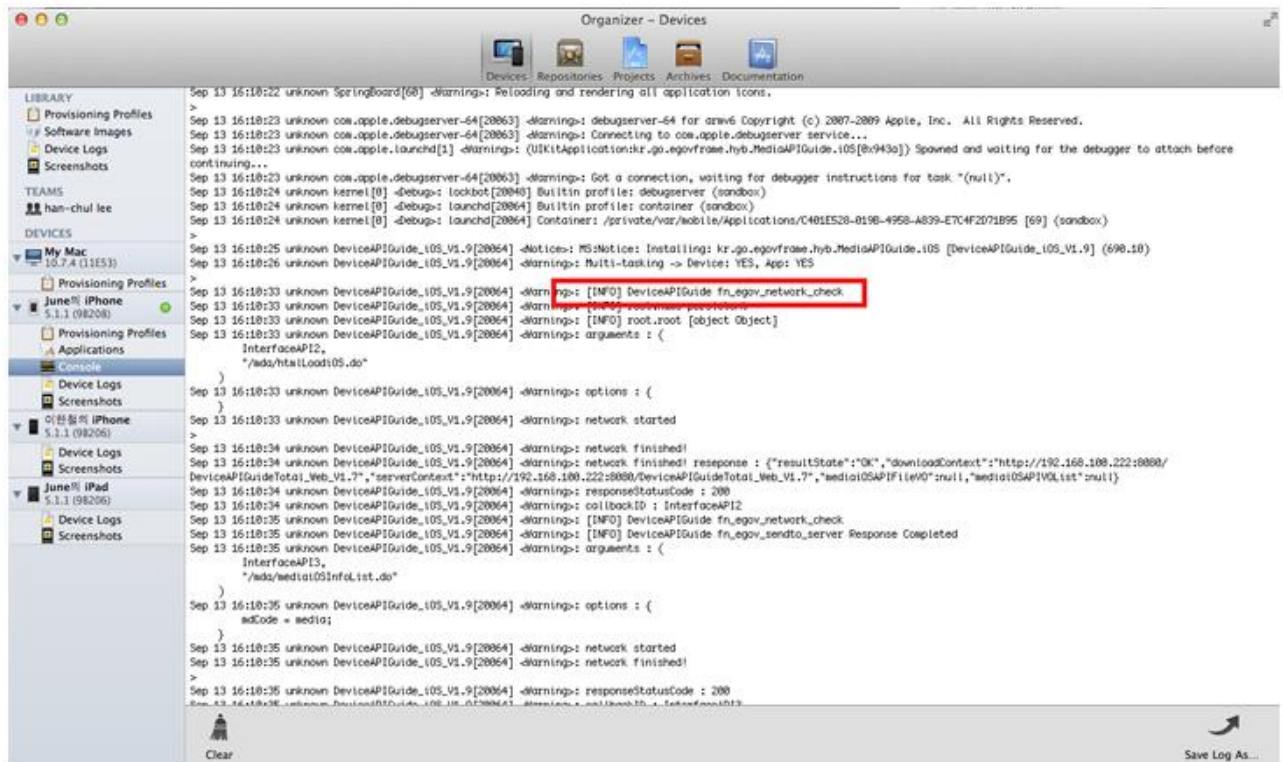
```
function fn_egov_network_check(doCheck)
{
    console.log('DeviceAPIGuide fn_egov_network_check');
    var networkState = navigator.network.connection.type;
    ...
}
```

- xCode console window



```
DeviceAPIGuide_iOS_V1.9.app
All Output
2012-09-13 16:12:56.282 DeviceAPIGuide_iOS_V1.9[20090:707] Multi-tasking -> Device: YES, App: YES
2012-09-13 16:13:06.985 DeviceAPIGuide_iOS_V1.9[20090:707] [INFO] DeviceAPIGuide fn_egov_network_check
2012-09-13 16:13:07.360 DeviceAPIGuide_iOS_V1.9[20090:707]
    InterfaceAPI1,
    "/mwk/htmlLoadiOS.do"
}
2012-09-13 16:13:07.371 DeviceAPIGuide_iOS_V1.9[20090:707] options : {
}
2012-09-13 16:13:07.410 DeviceAPIGuide_iOS_V1.9[20090:707] network started
```

- Organizer log window



Log message	Value	Remark
DeviceAPIGuide fn_egov_network_check	Checks network condition	
DeviceAPIGuide fn_egov_get_mediaDownload Success	Media file download successful	
DeviceAPIGuide fn_egov_get_mediaDownload error	Media file download failed	
DeviceAPIGuide fn_egov_sendto_server Response Completed	Request to server successfully processed	
DeviceAPIGuide fn_egov_sendto_server Response Failed	Internal server process error	
DeviceAPIGuide fn_egov_sendto_server Request Failed	Communications error	
DeviceAPIGuide fn_mediaRecordStart Success	Recording successful	
DeviceAPIGuide fn_success Success	Support media object generation (play, record)	
DeviceAPIGuide fn_currentPositionSuccess	Successfully inquired the location of the media file currently being played	

DeviceAPIGuide fn\_currentPositionError Error Failed to locate current media's location

DeviceAPIGuide fn\_insertSuccess Success Recording file upload successful

DeviceAPIGuide fn\_error Error PhoneGap Library Error (Media, File related)

Distribution

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

## References

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