FileReadWrite Device API Guide Program

Outline

FileReadWrite 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 file information of mobile smart devices through JavaScript-based FileReadWrite DeviceAPI.
Also, it is comprised of a feature to send and inquire information of files within the Device, in conjunction with eGovFramwork based web server application.

Feature

This Guide Program provides **read file from mobile device**, **write file in mobile device**, **send created file to server**, and **restore sent file to device** features.

Preconditions

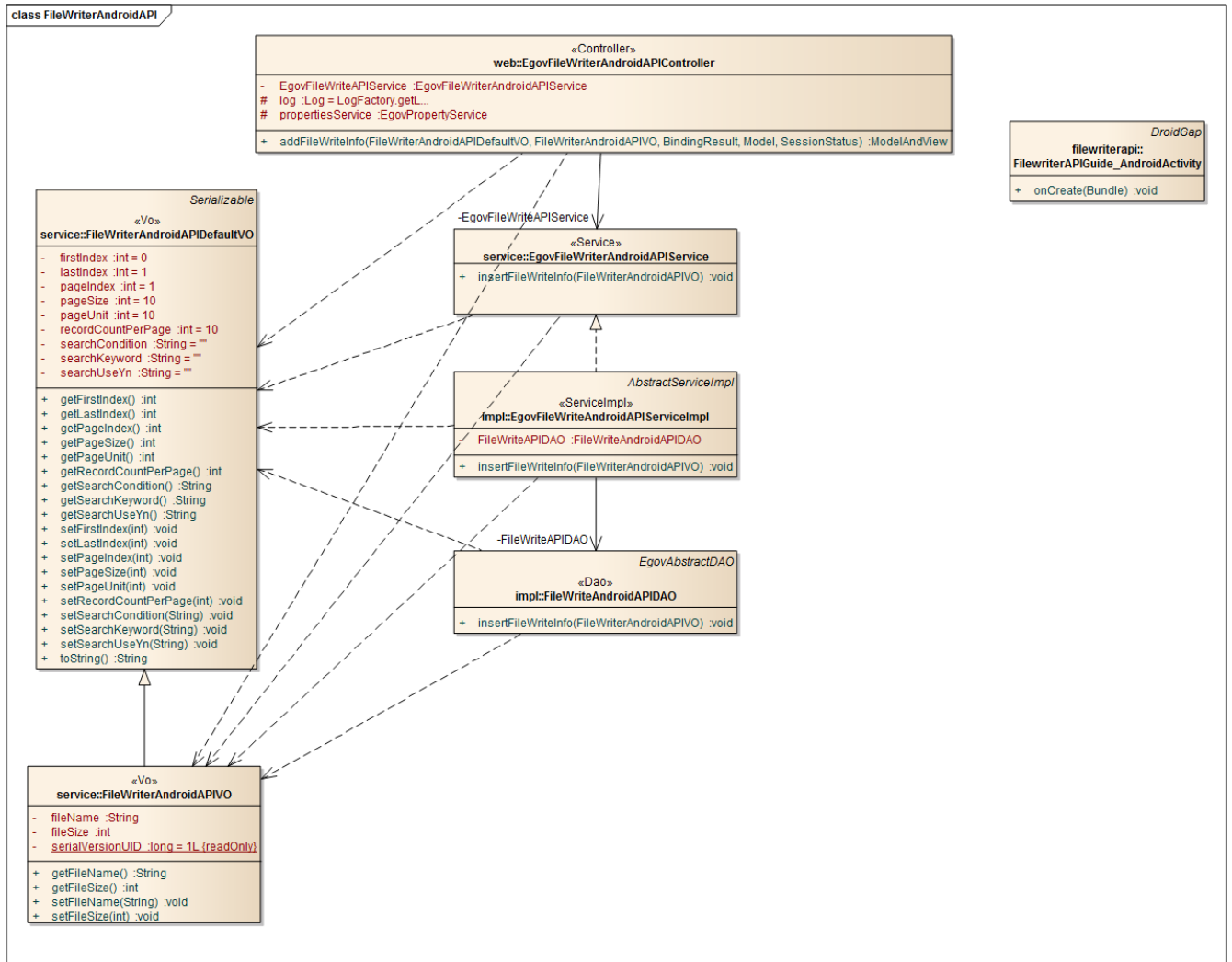| Category	Description
Local Device Environments	eGovFramework Runtime Environment 3.5, Android SDKAPI 22(version 5.0 Lollipop)
Server-side Developmental Environment	Runtime Environment for eGov Standard Framework 3.5
Works in sync with Mash up Open API	N/A
Test Device	Galaxy S2
Test Platform	Android 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 <access origin=”” /> at Res/xml/config.xml.

Description

FileReadWrite Device API Guide Program is comprised of **read file from mobile device**, **write file in mobile device**, **send created file to server**, **restore sent file to device** features. (refer to related features section)

Class Diagram

Device Application

Source

Type	Title	Remark
Activity	kr.go.egovframework.hyb.filereaderwriterapi.FileReadWriteAPI Guide_AndroidActivity	FileReadWriteAPI Guide Program Activity Class
CSS	assets/www/css/egovframework/mbl/hyb/FileReaderWriterAPI.css	FileReadWriteAPI Guide Program main Cascading Style Sheets
IMAGE	assets/www/images/egovframework/mbl/hyb/	FileReadWriteAPI Guide Program main Image folder
JS	assets/www/js/egovframework/mbl/hyb/FileReaderWriterAPI.js	FileReadWriteAPI Guide Program main JavaScript
RES	assets/www/res/	FileReadWriteAPI Guide Program main Resour

ce folder

| XML | AndroidManiFest.xml | Configuration XML for Android |

| HTML | assets/www/FileReaderWriterAPI.html | FileReadWriteAPI main page |

| HTML | assets/www/Intro.html | FileReadWriteAPI Intro page |

| HTML | assets/www/license.html | FileReadWriteAPI license page |

| HTML | assets/www/overview.html | FileReadWriteAPI feature description page |

APIs Used

LocalFileSystem

- Load the system information out of the mobile device

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

Parameter	Description	Remark
LocalFileSystem.PERSISTENT	Inquires the storages that cannot be removed by either user or application	
onSuccess	Callback function called upon successful inquiry to the files system	
onError	Callback function called upon inquiry failure	

FileTransfer[upload]

- Transfer selected file(s) to outside system.

var ft = new FileTransfer();
ft.upload(fileURI, encodeURI("http://some.server.com/upload.php"), win, fail, options);

FileTransfer[upload]

- Transfer selected file(s) from outside system to the mobile device.

var ft = new FileTransfer();
ft.download(fileURI, encodeURI("http://some.server.com/upload.php"), win, fail, options);

Server Application

Source

Type	Title	Remark
Controller	egovframework.hyb.add.frw.web.EgovFileReaderWriterAndroidAPIController.java	FileReadWriteAPI Guide Program Controller Class
Controller	egovframework.hyb.add.frw.service.impl.EgovFileMngAndroidUtil.java	FileReadWriteAPI Guide Program File Controller Class
Service	egovframework.hyb.add.frw.service.EgovFileReaderWriterAndroidAPIService.java	FileReadWriteAPI Guide Program Service Class

ServiceImpl	egovframework.hyb.add.frw.service.impl.EgovFileReaderWriterAndroidAPIServiceImpl.java	FileReadWriteAPI Guide Program ServiceImpl Class
VO	egovframework.hyb.add.frw.service.FileReaderWriterAndroidAPIVO.java	FileReadWriteAPI Guide Program VO Class
DAO	egovframework.hyb.add.frw.service.impl.FileReaderWriterAndroidAPIDAO.java	FileReadWriteAPI Guide Program Dao Class
QUERY XML	resources/egovframework/sqlmap/hyb/add/frw/EgovFileReaderWriterAndroidAPIGuide_SQL_xxx.xml	FileReadWriteAPI Guide Program QUERY XML

Related Tables

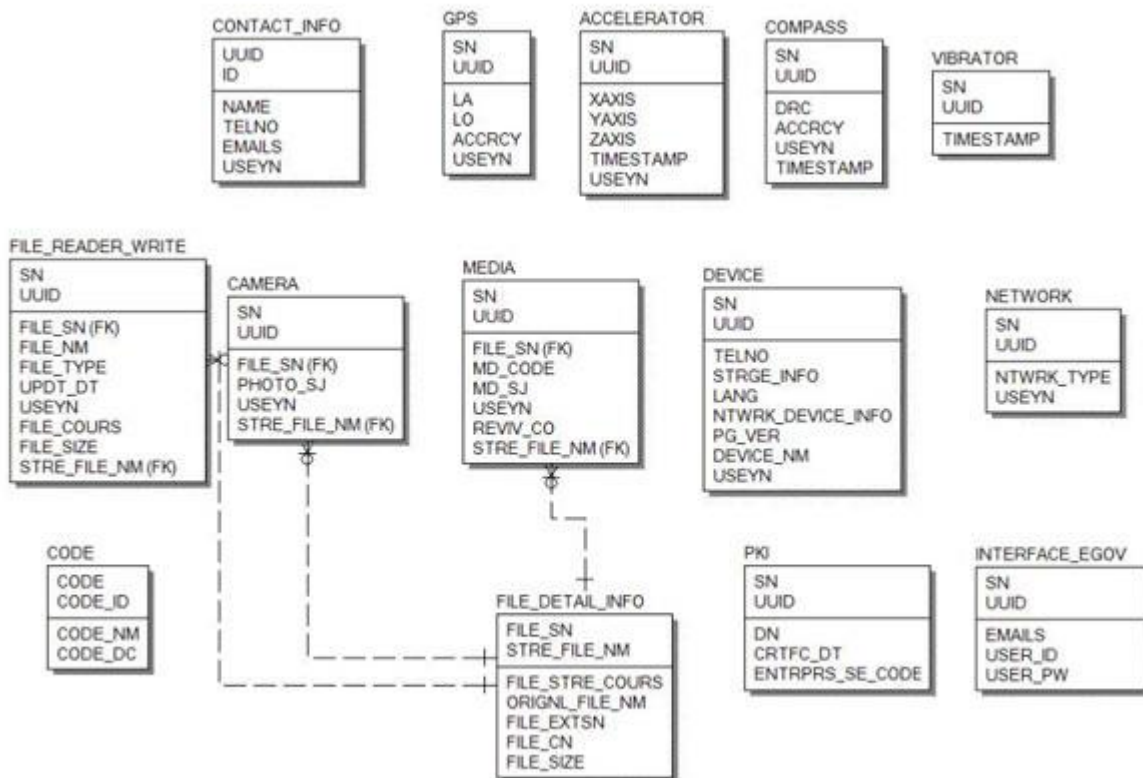| Title	Table	Remark
FileReader/Write	FILE_READER_WRITE	Manage file information
File details	FILE_DETAIL_INFO	Manage file details

Tables Breakdown

- FileReader/Write

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	FILE_NM	File name	VARCHAR	255	Null	
5	FILE_COURS	File directory	VARCHAR	2000	Null	
6	FILE_TYPE	File type	VARCHAR	40	Null	
7	UPDT_DT	Date updated	DATE		Null	
8	FILE_SIZE	File size	NUMERIC	8	Null	
9	USEYN	Activation	CHAR	1	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	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

Properties

Necessary sections and settings for using file information inquiry feature of the mobile device, provided by FileReadWriteAPI Device API Guide Program, are as follows.

Device Application

res/xml/config.xml

```
<plugins>
<pluginname="File"value="org.apache.cordova.FileUtils"/>
<pluginname="FileTransfer"value="org.apache.cordova.FileTransfer"/>
<pluginname="Capture"value="org.apache.cordova.Capture"/>
<!-- PhoneGap Plugin for eGov Interface Device API Class -->
```

```
<pluginname="EgovInterfacePlugin"value="kr.go.egovframework.hyb.plugin.EgovInterfacePlugin"/
>
</plugins>
```
res/xml/config.xml

```
<cordova>
<!--setting for file downloads using the FileTransfer method (allowed IP or domain)-->
<accessorigin=".*"/>
</cordova>
```
res/values/serverinfo.xml

```
<!-- Server Directory for eGov Interface Device API Class -->
<?xmlversion="1.0"encoding="utf-8"?>
<resources>
        <stringname="SERVER_URL">http://192.168.100.222:8080/DeviceAPIGuideTotal_Web
_V1.7.1</string>
</resources>
```
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/dvc/EgovFileReaderWriterAndroidAPIGuide_S
QL_[DB NAME].xml"/>
```

Functions

FileReadWriteAPI Device API Guide Program is comprised of features to a) inquire file information within mobile device and b) send inquired file information to server and inquire it.

Read file from mobile device

Business Logic

- Check the network. If the network is not Wi-Fi, function based on the user approval.
- File systems available for inquiry in Android platform is limited to folders and files accessable with normal user authority.

Related Codes

Updates the local file system

```
function fn_egov_localStorageInfo() {
    window.requestFileSystem(LocalFileSystem.PERSISTENT, 0,
                        function(fs){ // success get file system
                                console.log('DeviceAPIGuide fn_egov_localStorageInfo
Success');

                                fileSystem = fs;
                                dirEntry = fs.root;
                                rootDirEntry = fs.root;
                                fn_egov_readDirectory();
```

```
                }, function(evt){ // error get file system
                        console.log('DeviceAPIGuide fn_egov_localStorageInfo Fail');
                }
        );
}
```

Create instance and acquire information in order to acquire directory information

```
function fn_egov_readDirectory() {
    var directoryReader = dirEntry.createReader();
    directoryReader.readEntries(fn_egov_listDir, fn_egov_fileError);
}
```

Gets directory information

```
function fn_egov_goDirectory(directoryEntry) {
    console.log('DeviceAPIGuide fn_egov_readDirectory Success');
    dirEntry = directoryEntry;
    fn_egov_readDirectory();
}
```

Gets location information in the current file system

```
function fn_egov_chdir(dir) {
    if (dir == "../") {
        dirEntry.getParent(fn_egov_goDirectory, fn_egov_fileError);
    } else if (dir == "/") {
        dirEntry = fileSystem.root;
        fn_egov_readDirectory();
    } else {
        dirEntry.getDirectory(dir, {}, fn_egov_goDirectory, fn_egov_fileError);
    }
}
```

Related Screen and Implementation Manual

File List
(Android App)

기능설명　　주요기능　　라이선스

File Reader API 기능을 이용하여 모바일 디바이스의 디렉토리 및 파일을 조회 및 삭제하는 기능을 제공 함

M1346748138837.MOV
File

M1346389763132.MOV
File

M1345443390938.MOV
File

delete : delete selected file
close : close popup window

Write file in mobile device

Business Logic

- Check the network. If the network is not Wi-Fi, function based on the user approval.
- Uses video capture feature in order to write files.

Related Codes

Calls video capture feature of the device.

```
function fn_egov_captureVideo() {
```

```
        navigator.device.capture.captureVideo(fn_egov_captureSuccess, fn_egov_captureError, {limit:
2});
}
```
Copies inquired video file to root folder

```
function fn_egov_onResolveFileSuccess(fileEntry) {
        console.log('DeviceAPIGuide fn_egov_onResolveFileSuccess Success');
        var date = new Date().getTime();
        fileEntry.copyTo(rootDirEntry, "M" + date + ".MOV", fn_egov_onFileCopySuccess,
fn_egov_fail);
}
```

Related Screen and Implementation Manual

Capture video: takes video and saves file

Send created file to server

Business Logic

- Check the network. If the network is not Wi-Fi, function based on the user approval.
- File transfer to outside system uses FileTransfer API.

Related Codes

Calls file upload on selected file(s).

```
function fn_egov_request_uploadFile(fileName){
    if(!fn_egov_network_check(true)) {
        return;
    }

    $.mobile.showPageLoadingMsg();
    dirEntry.getFile(fileName, null, fn_egov_uploadFile, fn_egov_fail);
}
```

Upload file(s) delivered through a parameter

```
function fn_egov_uploadFile(fileEntry) {
    console.log('DeviceAPIGuide fn_egov_uploadFile Success');
    var options = new FileUploadOptions();
    options.fileKey="file";
    options.fileName=fileEntry.name;
    options.mimeType="video/mp4";

    var params = {uuid :   device.uuid};
    options.params = params;

    window.plugins.EgovInterface.geturl(function(serverURL) {
        var ft = new FileTransfer();
        ft.upload(fileEntry.fullPath, serverURL + "/frw/xml/fileUpload.do?uuid=" +
encodeURI(device.uuid), fn_egov_onFileUploadSuccess, fn_egov_fail, options);
    });
}
```
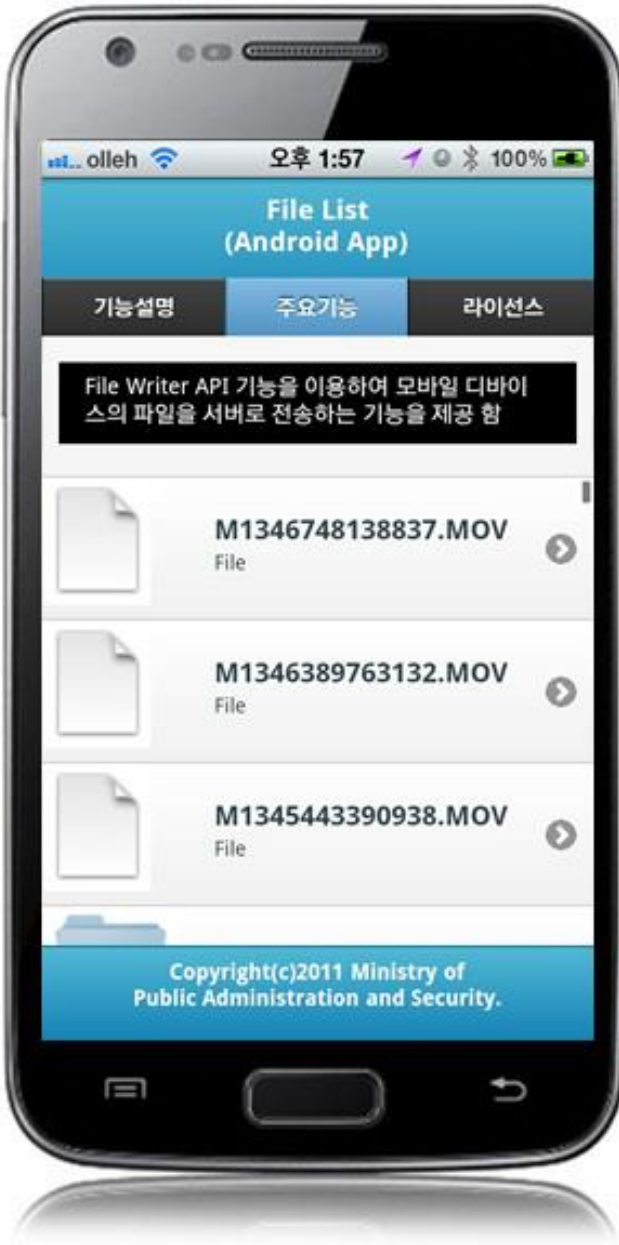
File upload Success Callback Function

```
function fn_egov_onFileUploadSuccess(r) {
    console.log('DeviceAPIGuide fn_egov_onFileUploadSuccess request Completed');
    if(r. responseCode == 200 && r.response == "%22ok%22"){
        navigator.notification.alert("File upload completed. Check server list.", null, 'Info');
    }else{
        navigator.notification.alert("File upload failed", null, 'Info');
    }
    $.mobile.hidePageLoadingMsg();
}
```

Related Screen and Implementation Manual

Action	URL	Controller method	QueryID
File upload	/frw/xml/fileUpload.do	fileUpload	fileReaderWriterAndroidAPIDAO.insertFileInfo

fileReaderWriterAndroidAPIDAO.insertFileDetailInfo

upload: uploads file to server
close: close popup window

Restore sent file to device

Business Logic

- Check the network. If the network is not Wi-Fi, function based on the user approval.
- File transfer to outside system uses FileTransfer API.

Related Codes

Prints file list inquired in server in a list form

```
function fn_egov_make_FileInfoList(data){
    console.log('DeviceAPIGuide fn_egov_make_FileInfoList Success');
```

```
var list_html = "";
var nLoop = 0;
$(xmldata).find("fileInfoList").each(function(){
        var fileSn = $(this).find("fileSn").text();
        var fileNm = $(this).find("fileNm").text();
        var fileSize = $(this).find("fileSize").text();
        var linkVal = "javascript:fn_egov_open_down_dialogue('" + fileSn + "','" + fileNm + "');";
        nLoop++;
        list_html += '<li><a href="' + linkVal + '">';
        list_html += '<h3>' + fileNm + '</h3>';
        list_html += '<p><strong>Size : ' + fileSize + '</strong></p></a></li>';
});

var theList = $('#fileList');
theList.html(list_html);

$.mobile.changePage("#serverFileList", "slide", false, false);
theList.listview("refresh");
}
```

Create process selection dialogue on the selected file (delete or download)

```
function fn_egov_open_down_dialogue(fileNum) {
    var btmItem = [{id : 'button1', value: "download"},
                   {id : 'button2', value: "delete"}];
    jActionSheet('', 'File Info', 'c', btmItem , function(r) {
                    if(r == "download"){
                        fn_egov_downloadFile(fileNum);
                    }else if(r == "delete"){
                        fn_egov_delete_fileInfo(fileNum);
                    }
                    });
}
```
            Download selected file from server

```
function fn_egov_downloadFile(fileNum){
    // displays the warning message that data charges will be incurred when using 3G.
    if(!fn_egov_network_check(true)) {
        return;
    }

    $.mobile.showPageLoadingMsg();

    fileSystem.root.getFile(fileNm, {create: true, exclusive: false}, function(fileEntry) {
        var localPath = fileEntry.fullPath;
        localpath = localPath.substring(7);

        window.plugins.EgovInterface.geturl(function(serverURL) {
                var fileTransfer = new FileTransfer();
                fileTransfer.download(
                        serverURL + "/frw/xml/fileDownload.do?uuid=" +
encodeURI(device.uuid) + "&fileSn=" + fileSn,
                        localpath,
```
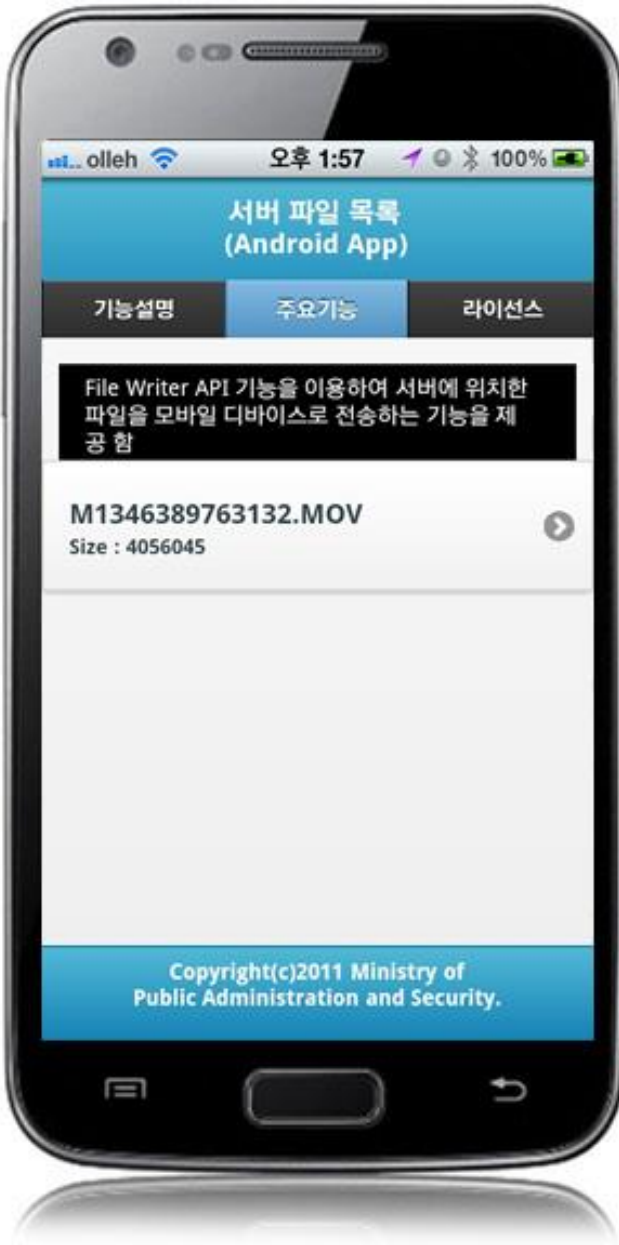
```
                    function(entry) {
                            console.log('DeviceAPIGuide fn_egov_downloadFile request
Completed');
                            navigator.notification.alert("Download Complete. Confirm by
reading files..", null, 'Info');
                            $.mobile.hidePageLoadingMsg();
                    },
                    function(error) {
                            console.log('DeviceAPIGuide fn_egov_downloadFile Fail');
                            $.mobile.hidePageLoadingMsg();
                    }
            );
        });
    }, fn_egov_fail);
}
```

Related Screen and Implementation Manual

Action	URL	Controller method	QueryID
Inquire server file li st	/frw/xml/fileInfoList.do	selectFileInfoListX ml	fileReaderWriterAndroidAPIDAO.selectFileInfoList
File download	/frw/xml/fileDownload.d o	fileDownload	fileReaderWriterAndroidAPIDAO.selectFileInfo
Delete from server	/frw/xml/deleteFile.do	deleteFile	fileReaderWriterAndroidAPIDAO.deleteFileInfo fileReaderWriterAndroidAPIDAO.deleteFileDetailIn fo

서버 파일 목록
(Android App)

기능설명	주요기능	라이선스

File Writer API 기능을 이용하여 서버에 위치한 파일을 모바일 디바이스로 전송하는 기능을 제공 함

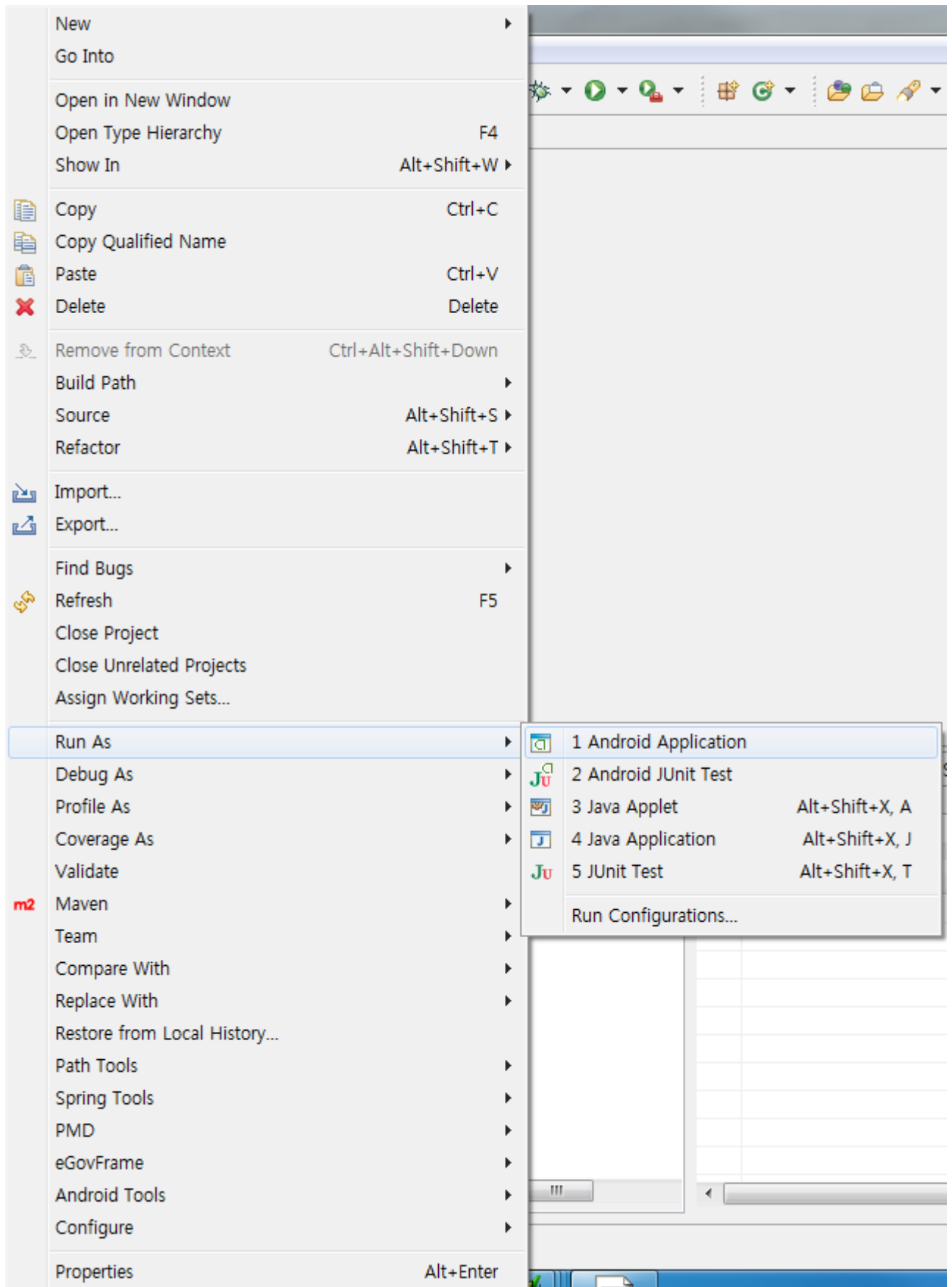### M1346389763132.MOV
Size : 4056045　　　　　　　　　　　　　　❯

download: download selected file(s) to device
delete: delete selected file(s) from server list
close: close the popup window

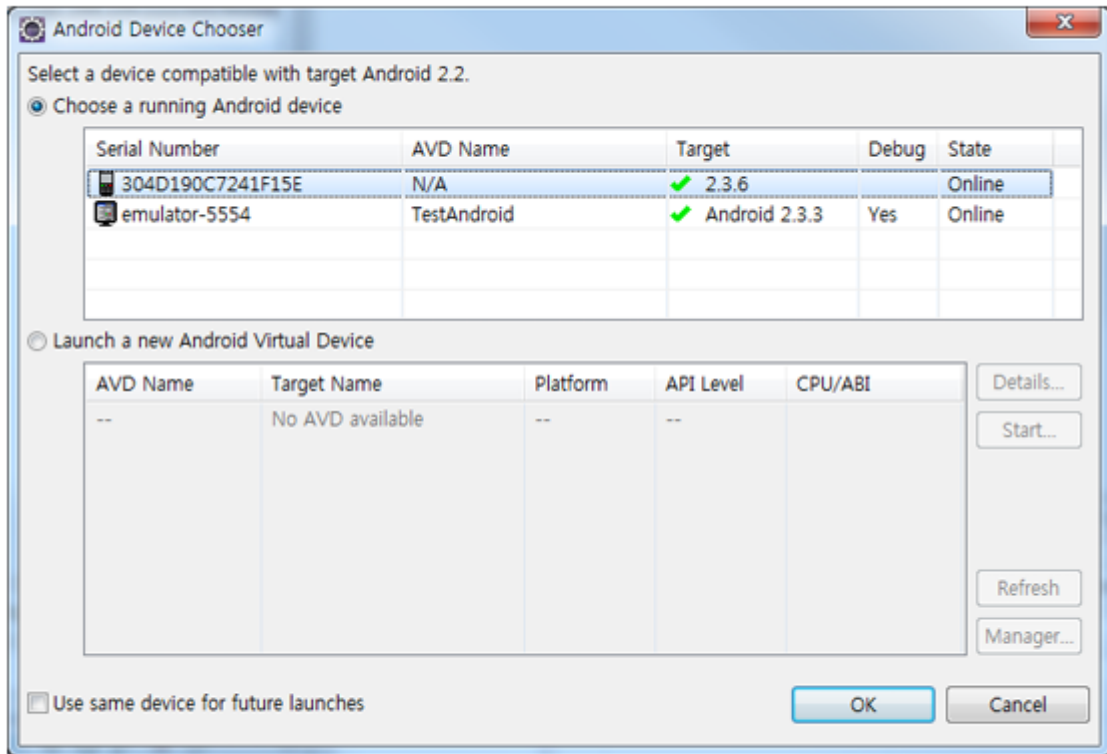# Compiling, debugging, distributing

Compiling

How to compile FileReadWriteAPI Device Applicaton

- Right-click on the Device API Guide(Android) project, and click on the "Android Application" at the "Run As" tab. The guide program will be built and installed into the Android device.

- When "Android Device Chooser" window appears, select appropriate device and click on the "OK" button.

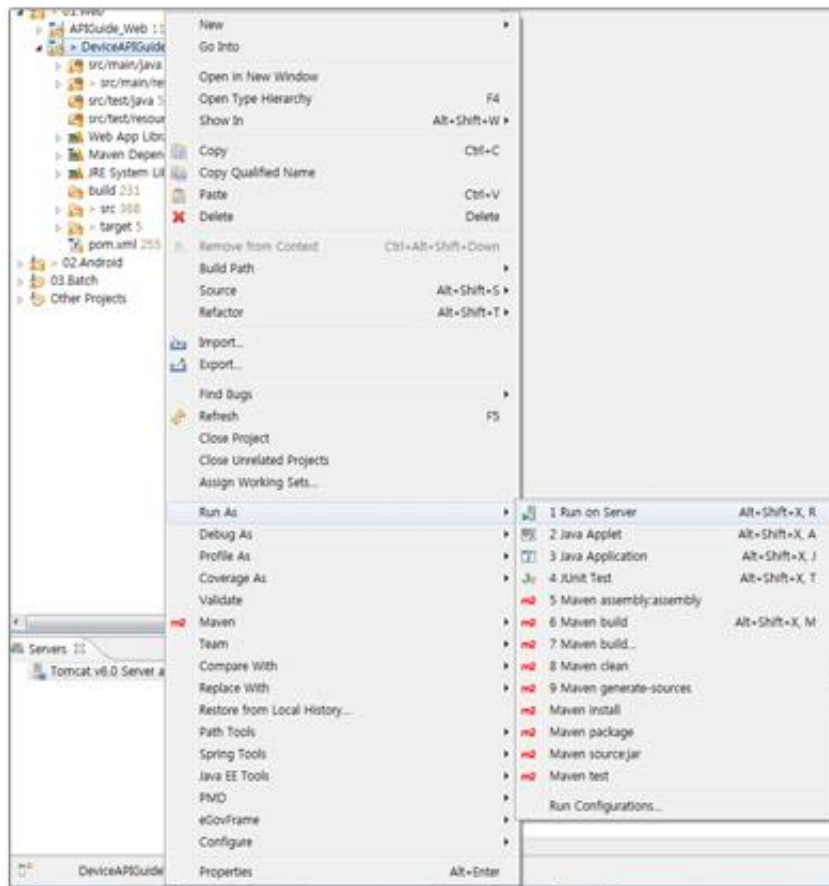- Program display on the emulator

- Program display on the device

How to compile FileReadWriteAPI Server Applicaton

- Right-click on the project and click on Run As>Run On Server in order to run the FileReadWriteAPI 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.se
2012-09-14 09:15:49,767 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Returning cached instance of singleton bean 'org.springframework.web.se
2012-09-14 09:15:49,768 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Creating instance of bean 'org.springframework.web.servlet.view.Default
2012-09-14 09:15:49,771 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Finished creating instance of bean 'org.springframework.web.servlet.vie
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.se
2012-09-14 09:15:49,771 DEBUG [org.springframework.beans.factory.support.DefaultListableBeanFactory] Returning cached instance of singleton bean 'viewResolver'
2012-09-14 09:15:49,772 DEBUG [org.springframework.web.servlet.DispatcherServlet] Published WebApplicationContext of servlet 'action' as ServletContext attribute with name
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 Eclipse.

See the following for how to code console.log:

```
function fn_egov_listDir(entries){
    console.log('DeviceAPIGuide fn_egov_listDir Success');
    $('#listView').text("");
```
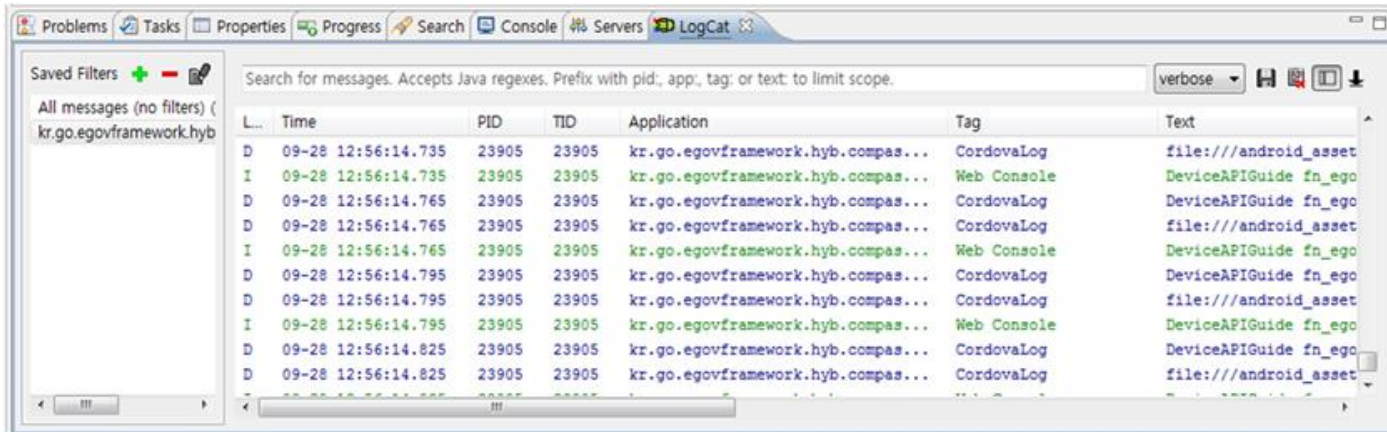
```
    var linkVal = "javascript:fn_egov_chdir('/');";
    ...
}
```

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

FileReadWriteAPI device API Guide Program will output the following console information for debugging.

Debug code	Debug information
DeviceAPIGuide fn_egov_localStorageInfo Success	Device file system information inquiry successful
DeviceAPIGuide fn_egov_localStorageInfo Fail	Device file system information inquiry failed
DeviceAPIGuide fn_egov_readDirectory Success	Directory inquiry successful
DeviceAPIGuide fn_egov_listDir Success	Directory information inquiry successful
DeviceAPIGuide fn_egov_fileError Fail	Directory information inquiry failed
DeviceAPIGuide fn_egov_uploadFile Success	Inquiry on file(s) to be uploaded to server successful
DeviceAPIGuide fn_egov_onFileUploadSuccess request Completed	File transfer to server successful
DeviceAPIGuide fn_egov_removeFileEntry Success	Inquiry on file(s) to be deleted successful
DeviceAPIGuide fn_egov_fileRemoved Success	File deletion from device successful
DeviceAPIGuide fn_egov_fail Fail	Function execution failed (common)
DeviceAPIGuide fn_egov_captureSuccess Success	Video capture successful
DeviceAPIGuide fn_egov_captureError Fail	Video capture failed
DeviceAPIGuide fn_egov_onResolveFileSuccess Success	Inquiry on captured video file information successful

DeviceAPIGuide fn_egov_onFileCopySuccess Success	Successfully copied video file to Root folder
DeviceAPIGuide fn_egov_make_FileInfoList Success	Server file system information inquiry successful
DeviceAPIGuide fn_egov_delete_fileInfo request Completed	Deletion of server's file information successful
DeviceAPIGuide fn_egov_downloadFile request Completed	File download from server successful
DeviceAPIGuide fn_egov_downloadFile Fail	File download from server failed
DeviceAPIGuide EgovInterface.get request Fail	HTTP GET Method request filed
DeviceAPIGuide EgovInterface.post request Fail	HTTP POST Method request failed
DeviceAPIGuide EgovInterface.geturl Fail	geturl function request failed

Distribution

Download FileReadWrite Device API Guide: Click

References

- UX/UI library : jQuery MobileClick
- Phonegap 4.3.0 : Click