MOPHUN™ CERTIFICATION PROCESS

Version 1.22

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I NTRODUCTION

This document describes the process of getting mophun games certified. The process is necessary in order to run the games on mobile devices.

The document is targeted at game developers and publishers who develop games for mophun™ enabled mobile devices. The term *applicant* is used in this document to refer to the developer or publisher.

CERTIFICATION PROCESS

1. Game idea submission

Applicants who want to be sure of getting their games certified before starting the development of the game should submit the game idea to Synergenix. Game ideas are sent to submission@mophun.com using the submission form on www.mophun.com. If the game idea complies with the requirements as described in Appendix A it will be approved.

This step is not mandatory.

2. Agreement

A standard developer & agency agreement between the applicant and Synergenix must be signed. The applicant downloads it from www.mophun.com, signs two copies and sends them to Synergenix.

3. Game submission

When a game is completed it is sent to submission@mophun.com for certification. The email should contain the submission form and a zip file containing:

- The game and level files
- gameinfo.xml
- test.txt

The zip file filename should be the game title. For sample submission zip files see http://www.mophun.com/files/SampleGameSubmissions.zip

Game and level files

The game should be supplied as an mpn file, compiled using the latest mophun SDK.

Pay per level games should also supply all extra level files in separate mpc files

gameinfo.xml

gameinfo.xml is a Windows text file containing certification information about the game and levels. The file format is defined by an XML schema: http://www.mophun.com/files/MophunGame.xsd (You can edit xml files with any text editor but if you use an xml-editor such as xmlspy you get validation automatically, such as the file ID is always 1 for the game file). The xml file has the following sections:

xml tag	comment
`<Title>`	The game title
`<GameID>`	This tag is not used when first submitting a game for certification. When recertifying a game this tag should include the already issued game ID
`<Version>`	The game version should be specified in the standard `MAJOR.MINOR` format. This tag is very helpful for distributors when the game is later updated.
`<Language>`	The language of the game is specified RFC 1766 standard in the format languagecode-country/regioncode, where languagecode is a two-letter code derived from ISO 639-1 and country/regioncode is a two-letter code derived from ISO 3166 (see for example http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpref/html/frlrfSystemGlobalizationCultureInfoClassTopic.asp). There can be multiple `<Language>` tags if multiple languages are supported in the game.

`<DeviceCompatibility>`	A game can be declared as being compatible with a specific device, several devices or whole *categories* of devices. The categories are defined in Appendix B.
	
	 For example to indicate that the game only runs on the Sony Ericsson T300:
	 `<DeviceCompatibility>`
	`    <Category1><Model1/></Category1>`
	`</DeviceCompatibility>`
	
	 A game that is created to run on all Category2 devices would specify:
	
	 `<DeviceCompatibility>`
	`    <Category2/>`
	`</DeviceCompatibility>`
	
	 A game that is truly cross platform would specify all categories:
	
	 `<DeviceCompatibility>`
	`    <Category1/>`
	`    <Category2/>`
	`    <Category3/>`
	`    <Category4/>`
	`</DeviceCompatibility>`

`<DRM>`	This tag indicates what kind of Digital Rights Management the certified game should use:
	
	`<IMEILockRequired/>` indicates that the game will only run once signed with the IMEI number (or UID) of the device at the time of purchase.
	
	`<IMEILockOptional/>` indicates that the game does not need to be, but can be locked to the IMEI number at the time of purchase.
	
	If you specify both of these tags, two versions of the game will be certified and each will be returned in a separate zip file with the corresponding DRM value in each gameinfo.xml file:
	
	`<DRM>`
	`    <IMEILockRequired/>`
	`    <IMEILockOptional/>`
	`</DRM>`

`<BusinessModel>`	This tag indicates which business model the game is created for: `<PayPerDownload>` indicates a regular game without extra levels. It includes a `<Game>` tag. `<PayPerLevel>` indicates a game that charges for extra levels/credits etc. It includes a `<Game>` tag and a `<Levels>` tag.

`<GameFile>`	Within the `<Game>` part of the business model section the `<GameFile>` tag describes the .mpn file. It includes:
	
	 `<ID>` indicating the file ID (always 1 for the game file).
	
	 `<Filename>` indicating the name of the file as it should be delivered to the mobile device.
	
	 Example:
	
	 `<GameFile>`
	`    <ID>1</ID>`
	`    <Filename>Cubed.mpn</Filename>`
	`</GameFile>`
	
	 Note that `<Filename>` also indirectly designates the unlock filename to check for if providing demo functionality. The unlock filename will be the same as `<Filename>` but with the .mpc extension. In the above example it would be "Cubed.mpc".

`<LevelFile>`	Within the `<Levels>` part of the business model section `<LevelFile>` tags describe the .mpc files. It includes:
	
	 `<ID>` indicating the file ID. The file ID:s should be enumerated starting at 2.
	
	 `<Filename>` indicating the name of the file as it should be delivered to the mobile device.
	
	 Example:
	
	 `<Levels>`
	`    <LevelFile>`
	`        <ID>2</ID>`
	`        <Filename>MobileQuest_Quest2_qst.mpc</Filename>`
	`    </LevelFile>`
	`    <LevelFile>`
	`        <ID>3</ID>`
	`        <Filename>MobileQuest_Quest2B_qst.mpc</Filename>`
	`    </LevelFile>`
	`    <LevelFile>`
	`        <ID>4</ID>`
	`        <Filename>MobileQuest_Chars_qst.mpc</Filename>`
	`    </LevelFile>`
	`</Levels>`

`<DemoFunctionality/>`	Within the `<Game>` part of the business model section there can be a `<DemoFunctionality/>` tag indicating that the game behaves as a teazer before it's purchased/signed.
`<Extensions>`	If the game support custom extensions these is specified here

test.txt

A Windows text file containing a detailed description of how to test the data certificate functionality, i.e. how to determine which state the game is in: demo mode and/or which extra levels are available. Example:

```
When the game is started it immediately checks if it's in demo mode. In demo-mode the
word "demo" will flash in the top right corner of the screen and the player is only
allowed to play for 40 seconds. The in-game menu lists all purchased extra levels,
although the built-in level must be finished before playing them.
```

If the game uses custom tags they should also be documented in test.txt.

4. Certification

If the game complies with the requirements as described in Appendix A it will be certified. The zip file will be returned with the following changes:

- The .mpn file now contains the certified game

- The issued game ID is added to the gameinfo.xml file.

- If you specify both <DRM> options two versions of the game will be certified and each will be returned in a separate zip file with the corresponding DRM value in each gameinfo.xml file. The games will get different game ID:s

Synergenix reserves the right to terminate the certificate of a game at any time.

5. Publishing

The certified game can be published anywhere, for example at the mophun.com marketplace making it available for any distributor (see distributor & agency agreement for details on that). See also mophun publishing document.

APPENDIX A. CERTIFICATION REQUIREMENTS

The purpose of this appendix is to provide you with a guideline when developing your mophun applications, things you should have in mind, things that are required before you send your application for certification, and suggestions that may help you, not only during development but when time will come to commercialize your application.

Conformity with this guideline is a requirement for certification.

If there are any issues/topics not covered in this document, propose them through the mophun.com forum, they will be reviewed and may become part of this document.

Generic

The following are generic issues that should be taken into account in any application.

Generalize: Try covering all categories with the same game version, it will speed up certification and support from your side, not having to handle many different versions.

Use of Screen Area: Games should run full screen in vertical, horizontal or both directions. Games adapting to different screen sizes may need to adapt in game graphics to maintain playability and look.

Appropriate Names: Choose an appealing and catching name. The name may tell everything or nothing about what the end user is about to purchase.

Soft Buttons: Make cautious use of soft buttons, since upcoming phone models within the same category may not support them.

Screen Content: The screen content must be readable to the naked eye. Care must be taken to avoid visually confusing screen content, such as selection, scrolling and text highlighting. All elements must provide appropriate contrast for readability. Make selected elements/items very clear to the end-user. When the screen content is changed, this change must be smooth and must avoid flickering or slow screen changes. The screen must not be refreshed unnecessarily.

Data Loss Message: Where an action to be performed may result in data-loss, a dialog must be displayed indicating that data-loss will occur, and the user should be given an option to cancel the current operation.

Version and Build Number. The application must have a unique build number and a version number accessible to the user within the application. This can be done either in the about menu.

Localizations: Localizations are common requests from distributors. Provide all the texts available within an application as a text file. Prepare the application for these kind of events in order to speed up and facilitate these kind of actions. Try supporting as many main languages as you can in the application. This will facilitate future localizations of the product. Support Unicode in case you are interested in targeting the Asian market. Some of the languages worth supporting are:

English, Spanish, French, German, Italian, Simplified Chinese

About: developer and support information must be available within the application. Who is the developer behind the application, who they should contact in case they run into problems, i.e. mail or web adress.

Navigation

Make sure it is user friendly to navigate between menus and straightforward to get started playing the game. See controls section for detailed information on how keys should be mapped.

The application loading screens offers Developers a valuable opportunity to identify themselves to the end user and build their brand.

A Suggested Start-Up Sequence may look as follows:

Mophun Logo – max 2 s. Can be interrupted by the user. ALWAYS the first screen to be displayed. Not necessary on Category3 and 4 devices, since it is displayed automatically.
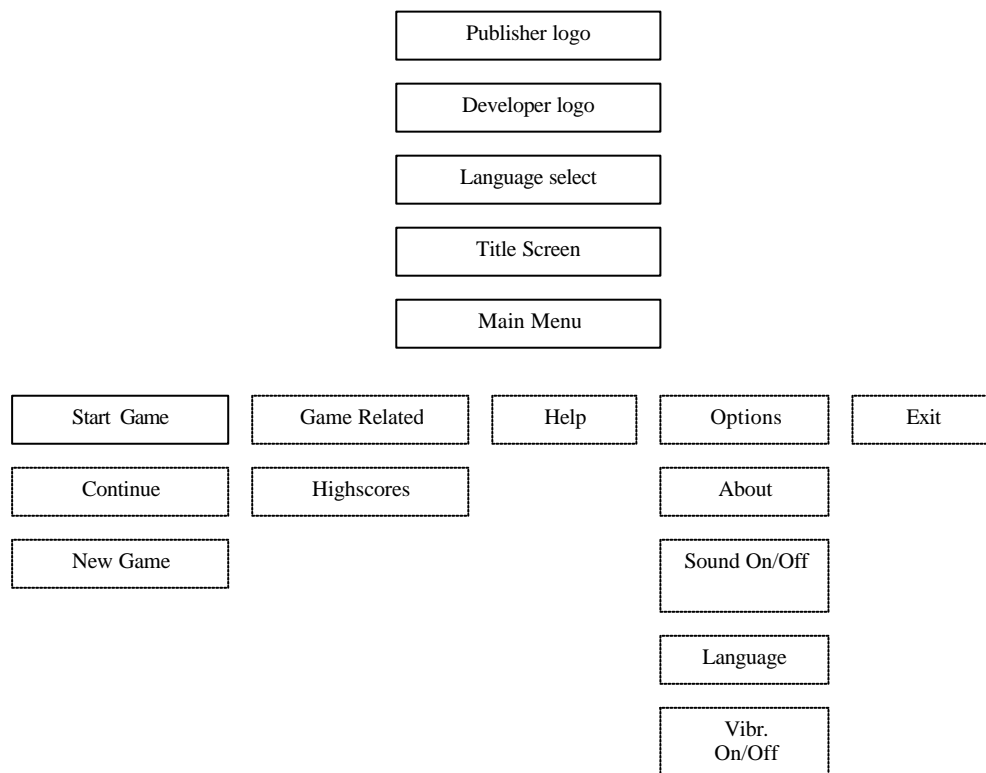
Publisher Logo – max 2 s. Can be interrupted by the user.

Developer Logo – max 2 s. Can be interrupted by the user.

Language Select: If the device provides access to the selected language in the phone it should be matched, otherwise the user may choose the default language of the game. He may also change it from the options menu.

Title Screen – The background shall occupy the entire screen. Copyright message should be displayed at the bottom of the screen. Display "press any key to start" text.

A tree view of menus that could be available:

| Publisher logo |
| Developer logo |
| Language select |
| Title Screen |
| Main Menu |

| Start Game | Game Related | Help | Options | Exit |

| Continue | Highscores | | About | |

| New Game | | | Sound On/Off | |

| | | | Language | |

| | | | Vibr. On/Off | |

Main Menu

The main menu appears after the splash screens and is a required component of a mophun application. There are required and optional items in the main menu. The menus displayed in the above picture, are just a reference, grouping is optional. You may want to have all menus in the main section. Make sure selected items are clear, visible and readable.

Start Game – This is a required item, though the exact text to signify this action is up to the individual Developer. Possible text includes: Start Game, New Game, Login, etc.

Game Related Menus – These menu items are optional and depend on the application in question. For a game, additional items may include High Score, Save Game, Resume/Continue.

Help –The application should provide the user clear instructions on the controls that may be used. This may be conveyed through the user documentation or via online help screens. When selected, the "Help" menu item should provide the user with a high-level description of the application and detail the keys it uses.

About Application - When selected, the "About" menu item should display company/developer name, brand, contact information, application version and support information (email or web address).

Options – Game related options as Sounds, Input, etc.

Exit/Quit – The last menu item should enable the user to exit the program normally.

MENU EXAMPLE

When a game enters a submenu the option to return to the upper level must exist, by clicking on the back key or a back option must be present. A sequence of possible menus are listed below:

Start Game
    Continue/Resume: Resumes the latest saved game. Only shown when there is a saved game.
    New Game: Starts a brand new game from the beginning
    Instructions: Gives a description of how to play the game.

Help: Gives a description of the game and how to play the game.
About: Credits and support information.
Options
    Keys: The user will be presented with the current key configuration, will be able to change it and restore to the default configuration.
    Sound:
        FX level
        Music level
        All sounds Off
        All sounds On
    Vibrator:
        On
        Off
    Language: Set of supported languages.
High-Scores
    Reset
    Send
    Receive
Pause Menu
    Resume
    Options
    Help
    Game Specific
    Quit/Exit
Quit/Exit
    Yes
    No

Graphics

In general, the look and feel of the game, is a critical success factor. Put some work into it, although it may have a fantastic game-play it will not be noticed until the end-user tries it, hence the importance of visually attract him. Here is where the marketing mtrl comes into place. Make this mtrl as attractive as possible from an end-user perspective.

Always test the games on target hardware. If you do not have access to our test facilities send a request to mocert@mophun.com to enable your phones for testing.

Make important objects clear to the eye.

Controls

Do not assume the standard key setup is the best suited to play your game. Navigation controls may differ from gameplay controls.

Must be clear: Application screens should clearly indicate the relevant keys and functions involved in the running of application at any given moment.

Must be consistent : The use of the keypad and other keys should be consistent throughout the application and with their standard use in other applications running on the same device.

Navigation controls: For cross-compatibility reasons, always, or as often as possible, use mophun-keys (not terminal-specific keys). In other words: Its better to use KEY_UP with vGetButtonData than to use '2' with vTestKey.

Key mapping:
Use KEY_SELECT for things like: Back / Exit / NO / Show ingame menu
Use KEY_FIRE for things like: Enter / Select / YES / Confirm / Fire / Jump.

Functionality

There is generic functionality in the game that you should think about supporting.

Language Option: English should be used as default language.

Support demo mode: If it does, the game will run on demo mode if it has not been signed. The demo mode should not be extensive, a substancial amount of gameplay should be saved for the unlocked version.

High score support: A must on score based games.

Resume functionality: A must on level based games.

Pause functionality: Certain main functions are made available when the game is paused during play. These are restricted to the functions the user will access most often whilst playing the game. Pause functionality can only be accessed by using the escape key or […] buttons. Resume functionality, game options, quit game and other game related functionality should be available from the pause menu.

Options: in the game menu (sound on/off, volume, exit, resume)

Conditional Exit: When leaving the game ask for confirmation (are you sure?)

Screen orientation: Some devices allow the user to flip the screen 90 degrees. Use vSetOrientation to override that if your game only supports the default orientation.

Coding Tips

Certificate Check:
Data certificates must be verified by the game. (see Mophun Programming Guidelines)

Metadata:
Each game must have meta data, including at least version number and title.
Each game must have a magic number and a security resource.
Help, "how to" text, max length 512 characters. This is optional as help shall be included in the menu options in the game.
Gameinfo:
- Title, max length 60 characters
- Copyright info, max length 60 characters
- Vendor, max length 60 characters
- Program version, max length 6 characters
- Program icon

File sizes:
Operators may have different requirements regarding game sizes. E.g AT&T will not distribute T3XX games above 60.000 bytes. As a general thumb rule, keep file sizes as low as possible.

Memory Usage:
Different phones may have different memory limitations, make sure to use the latest SDK and emulator when developing your applications, to ensure these limitations are met.

Loading times:
Try minimizing loading times, it is painful for the end-user having to wait for the game to start. You can do so by:
No extensive use of vResOpen, vResClose, vStreamOpen, vStreamClose).
Always compress resources (use vDecompress uses vResOpen).
Load and unpack during loading of splash screens.
Group resources using morc.

Other:
Always use vClipWindow and vDisplayWindow.
Place all strings in defines, constants or as resources to make it easier to localize.

If the application takes longer than 3 seconds to launch, a message must be displayed. This may be of the form of a progress dialog, or a "Loading, please wait" dialog. The application must give some visible indication to the user that the application is not frozen.

Run DATACERTIFICATETESTSUITE.CMD before sending the game to certification!

Content Restrictions

Games must have a significant game value to be approved as mophun™ quality games.

In general the following restrictions apply;

Games shall not be in violation of any applicable laws or government regulations:

- Games based on existing copyrights will not be approved if the developer does not have the rights on the license.
- So called clones, derivations of existing game ideas, may have to introduce enough changes, both from the graphics and logic side to avoid any conflict with the reference game.
- Games based on movies, books, characters, or any other brand that may suppose a legal conflict will not be approved without the existing consent of the brand holder.
- The developer is responsible for the content developed and published; Synergenix is not responsible for the above infringements although we take an active roll in prevention of any legal conflicts.

Games targeting Sony Ericsson handsets, the following applies:

Games shall not contain unsuitable or offending material, which includes, but is not limited to:

- Content that promotes sexually explicit materials. Ethically disorient or confuse minors with respect to sexuality (i.e., pornography).
- Violence, Incite violence or crimes, games that brutalize the player (i.e., those in which killing opponents is inherent part of the game).
- Discrimination based on race, sex, religion or national origin. Incite racism or intolerance, particularly against ethnic groups or religious beliefs. Discriminate against women (e.g., by presenting women as mere objects or in degrading sexual contexts).
- Glorify the Nazi reign, or play down Nazi crimes.
- Glorify war, or play down the consequences of war.
- Illegal activities
- Promotion of drugs, glorify drug abuse, or play down consequences of drug abuse.

APPENDIX B. DEVICE CATEGORIES

This is a list of the currently defined device categories and the models within each.

Category 1

mophun API	version 1
Connectivity	TCP/IP required
Display	minimum 100x80 8bit color display, maximum 128x128
Performance	at least the same performance as the T300.
Input	Joystick is not required but the device must have a numeric keypad.
Models	Model1 (this is the Sony Ericsson T300/T302/T306/T310/T312/T316) Model5 (this is the Sony Ericsson T226/T230)

Category 2

mophun API	version 1
Connectivity	TCP/IP required
Display	minimum 128x128 8bit color display, maximum 176x220
Performance	at least the same performance as the Sony Ericsson T610
Input	Joystick is not required but the device must have a numeric keypad.
Models	Model2 (this is the Sony Ericsson T610/T616/T618/Z600)

Category 3

mophun API	version 2
Connectivity	TCP/IP required
Display	minimum 128x160 16bit color display, maximum 176x220
Performance	at least the same performance as the Nokia 7650
Input	Joystick is not required but the device must have a numeric keypad.
Models	Model3 (this is the Nokia 7650) Model7 (this is the Nokia N-Gage) Model8 (this is the Nokia 3650)

Category 4

mophun API	version 2
Connectivity	TCP/IP required
Display	minimum 176x208 16bit color display, maximum 240x320
Performance	at least the same performance as the Nokia 7650
Input	Joystick not required (on-screen joystick) Numeric keypad not required
Models	Model4 (this is the Sony Ericsson P800) Model6 (this is the Motorola A920)

APPENDIX C. REVISION HISTORY

Revision	Date	Author	Change
1.1	2002-09	Björn Wennerström	First public release
1.12	2003-01-29	Björn Wennerström	more detailed info on gameinfo.xml
1.13	2003-02-19	Björn Wennerström	Pay per level clarifications
1.14	2003-03-12	Björn Wennerström	Revealed the product names of the new Sony Ericsson phones
1.15	2003-06-19	Björn Wennerström	Added optional tags: <Category3>,<Category4>, <Model3>,<Model4>,<Model5>, <Extensions>. Mandatory in-game support and help
1.16	2003-08-25	Björn Wennerström	renamed mophun API version 1.5 -> 2
1.17	2003-09-08	Björn Wennerström	Changed <Language> standard to allow script (backward compatible), Added new Sony Ericsson phones
1.18	2003-09-10	Björn Wennerström	Added Model6
1.19	2003-09-24	Mitri Wiberg	Major change to Certification Requirements section
1.20	2003-10-01	Björn Wennerström	Added Model7 and language select
1.21	2003-10-01	Björn Wennerström	Added Model8
1.22	2003-10-15	Björn Wennerström	Added info on setting the screen orientation