

Packing Flash Lite content in a WRT widget

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Flash

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Change history

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1 Introduction

This document provides additional information on the Web Runtime (WRT) widget code and other development considerations for packaging Adobe Flash Lite content within a widget.

There are three methods that can be employed to distribute Flash Lite content for installation on Nokia devices:

- The Flash Lite files can be distributed in a ZIP file. Using this file the user unpacks and then copies the content to their device. The user then runs the application by opening the main *.swf file from their device's file browser application.
- To pack the *.swf files and content into a Symbian Installation System (SIS) file. This requires use of the Symbian build tools and signing of the SIS file with a self-create certificate. The SIS file is then installed by the user and the application run from an icon in the device's application menu or from a shortcut on the device's home screen.
- Embed the Flash Lite content within a WRT widget. The widget is then installed by the user and the application run from an icon in the device's application menu or from a shortcut on the device's home screen. The widget may also be created to include a read-only home screen view.

Embedding Flash Lite within a widget is the recommended approach to distributing Flash Lite content. This method offers the user a simple installation method, access to the content in the device menu or home screen, and a simple packaging method (zipping the widgets content into a file with the extension *.wgz) that does not require signing.

In addition, widgets enable you to combine Flash Lite with content created with standard web technologies (such as HTML, CSS, and the JavaScript™ language). As many websites use both HTML and Flash, by using Flash Lite within a widget a mobile optimised version of a rich internet experience can be made available for mobile devices. As such, this combination of technologies provides an attractive way for media and content partners, social networking companies, and other internet based businesses to optimise their web property for consumption on mobile devices by leveraging their existing web development skills.

2 About the author

Omega Mobile is a technology-driven design studio that obsesses about mobile and devices. The company is passionate about clean design, simple user interfaces, and targeted experiences. Its specialty is mobile design, user interfaces, user experiences, prototypes, and Flash Lite. Omega Mobile has been producing mobile Flash applications since 1999. For help on a mobile project or for more information, please visit <http://www.omegamobile.com> or contact Omega Mobile at +1-415-596-6342 or contact2010@omegamobile.com.

3 Open Screen Project Fund

Announced by Nokia and Adobe in 2009, the Open Screen Project Fund awards grants to help developers create exciting new applications and content. Grants are made from a fund of US\$10 million and the fund will remain available until December 2010. The fund also provides marketing and educational support for the Open Screen Project, which aims to establish cross-platform runtimes, remove development and distribution barriers, and innovate through industry collaboration. To learn more about the Fund, visit [Get Started page of the Fund's website](#).

4 Structure of a widget

WRT widgets can be thought of as small websites that are installed on a mobile device and then run in the same way as any other application. Each widget is contained in a folder that must contain at least two files, a HTML file and the `info.plist` file. These mandatory files can be supplemented with additional HTML files, CSS files, JavaScript code files, and content files. Content may include Flash Lite content, images, audio, or other content that can be rendered by the S60 Web Browser. These additional files can be stored anywhere within the container folder. However, these files are commonly stored in suitably named folder, as shown in Figure 1.

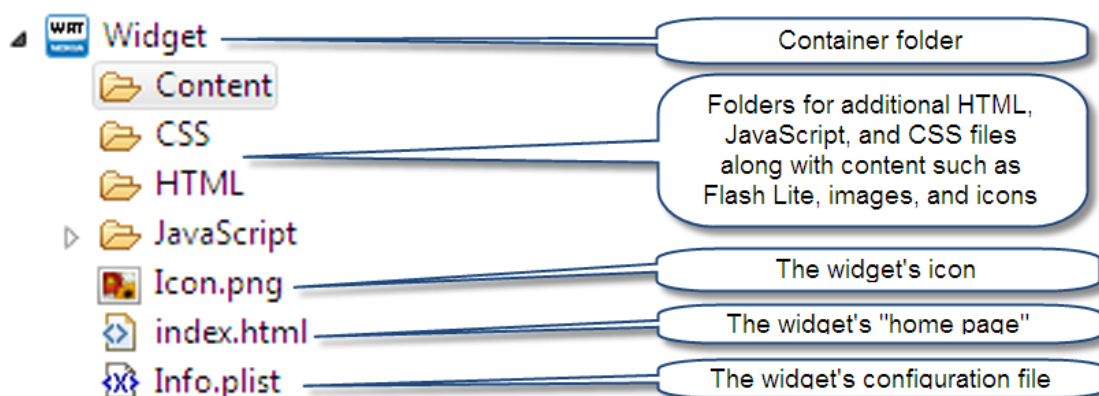


Figure 1: The content of a typical WRT widget.

Once all the necessary code and content has been created in the widget folder, the folder is archived into a ZIP file. This file is given the extension `*.wgz`. This file can now be distributed for installation on mobile devices.

For more details on the content of a WRT widget see the Forum Nokia [Web Runtime QuickStart](#) page.

5 Tutorial widget code

This section provides a description of the various code files included in the widgets delivered with the tutorials.

5.1 main.html

This is the html file that you use to embed your Flash Lite content into the widget. The HTML code defines two views by using two `div` containers, as shown in Example 1. The first view is used on the home screen of devices, such as the Nokia N97 mobile computer and Nokia N97 mini, that provide the mini-view feature. The second view is a full-screen view that is triggered when you select the widget from the home screen or from the device's Applications menu.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
    "http://www.w3.org R/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
    <head>
        <!-- Disable caching -->
        <meta http-equiv="Pragma" content="no-cache" />
        <meta http-equiv="Cache-Control" content="no-cache" />
        <link rel="stylesheet" href="style/general.css" type="text/css"
    />
        <link rel="stylesheet" href="style/home_screen.css"
            type="text/css" title="Home Screen" />
        <script type="text/javascript" src="script/main.js" />
        <title>Widget Page Title</title>
    </head>
    <body>
        <div id="homeScreenContainer">
            
        </div>

        <div id="widgetContainer">
            <object classid="clsid:d27cdb6e-ae6d-11cf-96b8-444553540000"
width="360" height="640" id="flEvent" align="middle">
                <param name="allowScriptAccess" value="sameDomain" />
                <param name="movie" value="widget_name.swf" />
                <param name="loop" value="false" />
                <param name="menu" value="false" />
                <param name="quality" value="high" />
                <param name="wmode" value="opaque" />
                <param name="bgcolor" value="#ffffff" />
                <embed src="widget_name.swf" loop="false" menu="false"
quality="high" wmode="opaque" bgcolor="#ffffff" width="360" height="640"
name="Finish" align="middle" allowScriptAccess="always"
type="application/x-shockwave-flash"
pluginspage="http://www.macromedia.com/go/getflashplayer" />
            </object>
        </div>
    </body>
</html>
```

Example 1: The main.html file delivered in the tutorial examples.

5.2 info.plist

This file, as shown in Example 2, contains information about the widgets properties. For the examples the key properties are:

- **Widget Name** — the title of your widget displayed in the device's Applications menu.
- **com.demos.widget_name** — the path of the widget application data on the device.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Nokia//DTD PLIST 1.0//EN"
"http://www.nokia.com/NOKIA_COM_1/DTDs/plist-1.0.dtd">
<plist version="1.0">
  <dict>
    <key>DisplayName</key>
    <string>Widget Name</string>
    <key>Identifier</key>
    <string>com.demos.widget_name</string>
    <key>Version</key>
    <string>1.0</string>
    <key>MainHTML</key>
    <string>main.html</string>
    <key>AllowNetworkAccess</key>
    <true/>
    <key>MiniViewEnabled</key>
    <true />
  </dict>
</plist>
```

Example 2: The info.plist file delivered in the tutorial examples.

5.3 main.js

This file, as shown in Example 3, contains the JavaScript functions that are used in `main.html` to initialise the widget and detect whether the widget is displaying on the main or home screen. Using information about the screen on which the widget is displaying, the code loads the appropriate CCS.

In addition, the code includes an exit function that is called by the Flash Lite content when it is closed.

```
window.onload = init;
window.onresize = onResizeEvent;

/*
Initiates the widget with the appropriate settings
*/
function init() {
  window.menu.hideSoftkeys();
  widget.setNavigationEnabled(false);
  widget.setDisplayPortrait();
  detectResolution();
}

/*
Called when the widget is activated in the full screen mode
*/
function activateFullScreenView() {
  setStyleSheet("Full Screen");
}

/*
Called when the widget is activated in the mini view home screen mode
*/
```



```

function activateHomeScreenView() {
    setStyleSheet("Home Screen");
}

/*
Closes the widget. Called by the ActionScript code in the Flash Lite
widget.
*/
function onExit() {
    window.close();
}

/*
Uses the current window size to determine if the home screen view or the
full screen view should be used.
*/
function detectResolution() {
    var screenHeight = screen.height;
    var windowHeight = window.innerHeight;

    if ( windowHeight < (0.5 * screenHeight) ) {
        activateHomeScreenView();
    } else {
        activateFullScreenView();
    }
}

/*
Called when the phone's orientation has changed
*/
function onResizeEvent() {
    detectResolution();
}

/*
Sets the general or homescreen css to be active
*/
function setStyleSheet(title) {
    var stylesheets = document.getElementsByTagName("link");
    for (var i = 0; i < stylesheets.length; i++) {
        var stylesheet = stylesheets[i];

        if (!stylesheet.getAttribute("title")) {
            continue;
        }

        if (stylesheet.getAttribute("title") != title) {
            stylesheet.disabled = true;
        } else {
            stylesheet.disabled = false;
        }
    }
}

```

Example 3: The main.js file delivered in the tutorial examples.

5.4 general.css

This CSS file, as shown in Example 4, is used by the widget in full screen view.

```

* {
    margin: 0;
}

```

```
#homeScreenContainer{
    display:none;
}

#widgetContainer{
    width:360px;
    height:640px;
    background: rgb(0,0,0);
    display:block;
}
```

Example 4: The general.css file delivered in the tutorial examples.

5.5 home_screen.css

This CSS file, as shown in Example 5, is used by the widget in home screen view.

```
* {
    margin: 0;
}

#homeScreenContainer{
    display:block;
    background: rgb(0,0,0);
    width:312px;
    height:85px;
}

#widgetContainer{
    display:none;
}
```

Example 5: The home_screen.css file delivered in the tutorial examples.

6 Packaging the widget

To package a demonstration application into a widget, using the files in the tutorial's widget folder included in the tutorial package, take the following steps:

- In `main.html`, update *Widget Page Title* to reflect your application name.
- If desired, create a graphic of 312 x 85 pixels to represent your widget in home screen. In `main.html`, update `widget_homescreen_image.jpg` to refer to the new graphic.
- Publish your `*.swf` file (or take the one that came in the demonstration's folder) and, if necessary, in `main.html` update `widget_name.swf` to refer to the new `*.swf` file.
- In `info.plist`, update *Widget Name* to reflect the name of the widget you would like to be displayed in the device's menu. You can change the graphic that's displayed for the icon by replacing or updating `icon.png`.
- In `info.plist`, update `com.demos.widget_name` with the path on the device you want to use for the application's data.
- Zip the widget folder and change the extension of the resulting file from `*.zip` to `*.wgz`.

7 Platform integration

While it is possible to embed any Flash Lite content in a widget there are restrictions when it comes to using platform integration features. The WRT security model prevents Flash Lite content from making use of any device integration features, such as the ability to read contacts or determine a device's location. If Flash Lite content within a widget needs access to such information, it can be obtained using the JavaScript™ APIs and passing the data to the Flash Lite content using the `externalInterfaces` class.

8 Additional resources

The following articles from the [Forum Nokia Flash Lite Wiki](#) relate to the code discussed in this tutorial:

- [How to package Flash content in a Widget.](#)
- [Communicating with Flash Lite from JavaScript in a widget \(WRT\).](#)

You can also find extensive information on using Flash Lite in Nokia devices in the [Flash Lite Developer's Library](#). There are additional documents and code examples available from the [Documentation](#) section of the Forum Nokia website.

You can also find a wealth of information on the [Flash Lite on Nokia Devices discussion board](#).

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