

[Tutorial] Integrating Banner Advertisement into Web Application

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LGDEV-044

Home Entertainment Company
LG Electronics, Inc.

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About This Document

Revision History

Document Version	Date	Comment
1.0	September 30, 2011	Initial Version

Purpose

This document describes how to integrate banner ads (advertisements) into Web applications.

Reference Documents

Refer to the following documents:

- LG Web Application Development Guide
- LG Advertisement API Reference Guide

Conventions

Codes

Source code and examples are indicated in the `grey Courier New` font.

Note, Caution

Note and caution are used to emphasize information.
The following samples describe when each is used.

Note

Contains information about something that is helpful to you.

Caution

Contains important information about something that you should know.

Abbreviation

The following table defines the abbreviations used in this document.

Abbreviation	Description
Ad, ad	Advertisement
API	Application Programming Interface

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1 Introduction

This chapter provides an overview of the types of banner ads and banner ad API.

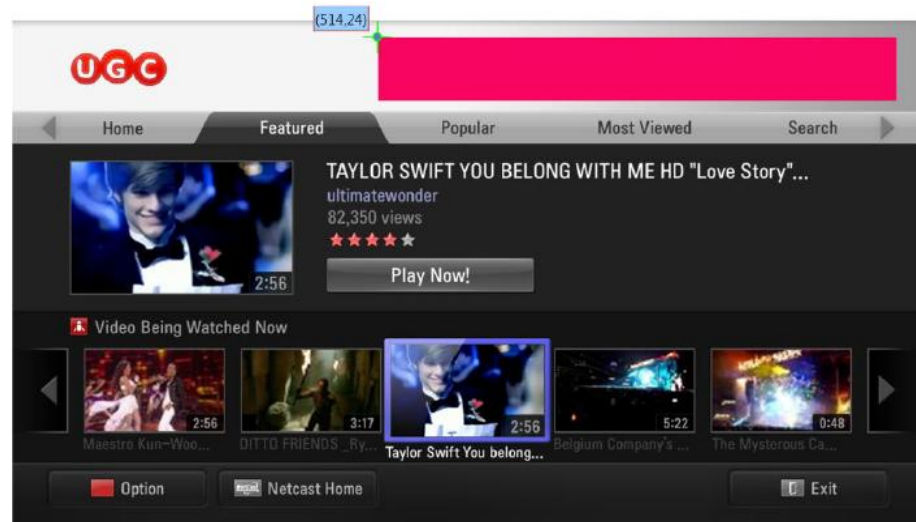
1.1 Types of Banner Ads

1.2 Banner Ad API

1.1 Types of Banner Ads

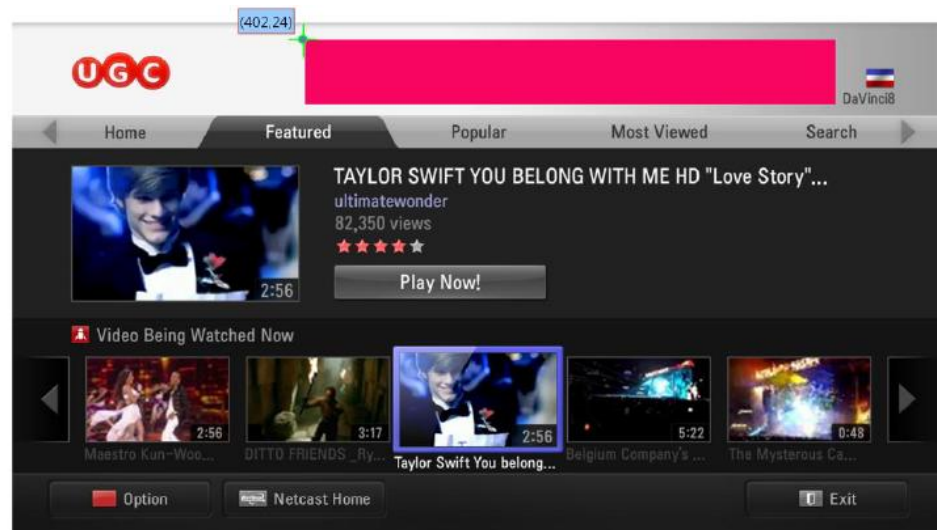
You can display 728x90 px (pixel) sized banner at the upper right corner of your Web application screen. You can choose one of the following positions:

- nomargin (Figure 1)
 - a. x-position: 514 px
 - b. y-position: 24 px



[Figure 1] Banner position without margin

- margin (Figure 2)
 - a. x-position: 402 px
 - b. y-position: 24 px



[Figure 2] Banner position with margin

1.2 Banner Ad API

The BannerAd class contains four functions: displayBanner, removeAd, setFocus, and removeFocus. These functions are used to:

- display the banner
- remove the banner
- set the focus to the banner
- remove the focus from the banner

[Table 1] Description of the BannerAd class

Class	Function Name	Description
BannerAd	displayBanner()	Displays a banner advertisement.
	removeAd()	Removes the banner and releases all the banner resources.
	setFocus()	Sets the focus on the banner. The banner must get focused using the 4-way keys of the regular remote control.
	removeFocus()	Removes the focus from the banner. The banner must get focused using the 4-way keys of the regular remote control.

Class	Attribute	Description
BannerAd	isExist	Whether or not requested banner is currently displaying.

For more information on these functions, refer to “LG Advertisement API Reference Guide.”

Note

In Emulator for LG Smart TV, Advertisement API will not operate normally.



2 Creating Web Applications Containing Banner Ads

This chapter describes how to create web applications that contain banner ads.

2.1 Importing Library JavaScript File

2.2 Displaying Banner on Web Application

2.3 Setting Focus to Banner Div / Removing Focus from Banner Div

2.4 Removing Banner

2.1 Importing Library JavaScript File

LG SmartAd library files for Web applications reside at <http://smartservice.lgappstv.com>. You need to import the bannerAd.js file from the server using script tags such as the following:

```
<script type="text/javascript" onload='scriptLoaded=true'
onerror='scriptLoaded=false'
src="http://smartservice.lgappstv.com/library/apps/ad/lib/bannerAd.js"
></script>
```

Note that the value of the boolean variable scriptLoaded is set to true if the script is loaded successfully; otherwise, it is set to false. The application must run properly with the banner removed even if it fails to access the library server. Success/failure of accessing the library server should not affect any other operations of the application. Hence, it is highly recommended you to check whether the script is loaded successfully.

2.2 Displaying Banner on Web Application

Displaying a banner is very simple.

Follow the steps below to display a banner on your Web application.

1. Declare an object variable for the BannerAd class.
2. Call the BannerAd constructor by passing the following three parameters:
 - Callback function to be called when the banner gets focused
 - A div name that will contain the banner div. The BannerAd constructor will create a div for the banner. The banner div will be created as a child div of the parameter
 - Banner Type: "margin" or "nomargin," described in Chapter 1.
3. Invoke the function.

Note

The holderDivParam div MUST start at the position of (x,y) = (0,0) and contain the area of banner to be displayed.

Sample Code

```
var bannerAd = null;
function initPage() {
    if (scriptLoaded) {
        bannerAd = new BannerAd(setCurrentDivAsBannerDiv, 'div_holder',
            'nomargin');
        bannerDiv = bannerAd.displayBanner();
    }
}
function setCurrentDivAsBannerDiv() {
    if (currentDiv)
        if (currentDiv != bannerDiv)
            currentDiv.className = 'divmouseout';
    setCurrentDiv(bannerDiv);
}
```

2.3 Setting Focus to Banner Div / Removing Focus from Banner Div

The library contains the `setFocus()` function. If app users move their mouse cursor over the banner or out of the banner using the Magic Motion remote control, the focus is set or removed automatically. However, `setFocus()` and `removeFocus()` should be invoked explicitly in order to implement the 4-way keys using a regular remote control.

Consider following case:

- If `firstDiv` is the currently focused div, then the focus is moved to banner div by pressing the right arrow button on the remote control.
- If the `bannerDiv` is the currently focused div, then the focus is moved to banner div by pressing the left arrow button on the remote control.
- If there is no div that has the focus, the focus is set to the `firstDiv` by pressing either button.

When the right arrow button is pressed, the following code handles the case:

```
function handleRightKey() {
  switch(currentDiv) {
    case firstDiv:
      if (bannerAd.isExist) {
        bannerAd.setFocus();
        firstDiv.className = 'divmouseout';
      }
      break;
    case null:
      firstDiv.className = 'divmouseover';
      setCurrentDiv(firstDiv);
      break;
  }
}
```

When the left arrow button is pressed, the following code handles the case:

```
function handleLeftKey() {
  switch(currentDiv) {
    case bannerDiv:
      bannerAd.removeFocus();
    case null:
      firstDiv.className = 'divmouseover';
      setCurrentDiv(firstDiv);
      break;
  }
}
```

2.4 Removing Banner

You can remove a banner at any point while your application is running by invoking `removeAd()`, which will remove the banner from your application and release the resources that have been allocated for displaying the banner. It is highly recommended you to invoke the `removeAd()` function before you exit your application.

A typical case for removing the banner from the screen would be when the user leaves the Web page.

The following example handles such case:

```
function deInitPage() {  
    bannerAd.removeAd();  
}  
  
<body onkeydown=processKeyDown(event); onload=initPage();  
onunload=deInitPage()>
```



3 B_Margin Sample Application

This chapter provides the directory structure and source code of sample application, called B_Margin.

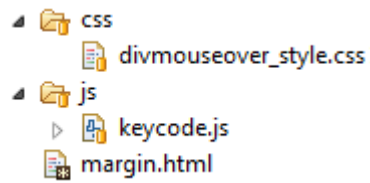
- 3.1 Overview of B_Margin Sample Application
- 3.2 Directory Structure of B_Margin Sample Application
- 3.3 Source Code of divmouseover_style.css
- 3.4 Source Code of margin.html

3.1 Overview of B_Margin Sample Application

The sample application called B_Margin displays a 728x90px banner at position (x,y)=(402px, 24px). B_Margin has three div's that can be focused: firstDiv, secondDiv, and bannerDiv. Users can navigate between div's using the 4-way keys on a regular remote control as well as the Magic Motion remote control. Pressing the Enter key when the bannerDiv is focused will open up a new full page that shows more details on the ad.

3.2 Directory Structure of B_Margin Sample Application

The directory structure of B_Margin is shown in the figure below:



[Figure 3] Directory structure of B_Margin

3.3 Source Code of divmouseover_style.css

divmouseover_style.css contains the style sheet for firstDiv and secondDiv.
The following is the source code:

```
.divmouseover {border:2px solid #06F;}  
.divmouseout {border:1px solid #CCC;}
```

3.4 Source Code of margin.html

Source code of margin.html is as follows:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<LINK rel=stylesheet href="./css/divmouseover_style.css">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Banner Ad Testing Page 2/2 (Upper Right Corner with Right
Margin)</title>
<script text="text/javascript" src="./js/keycode.js"></script>
<script type="text/javascript" onload='scriptLoaded=true'
onerror='scriptLoaded=false'
src="http://smartservice.lgapstv.com/library/apps/ad/lib/bannerAd.js"
></script>
<script type="text/javascript">
    var currentDiv = null;
    var firstDiv = null;
    var secondDiv = null;
    var bannerDiv = null;
    var bannerAd = null;
    var divHolder = null;

    function initPage() {
        firstDiv = document.getElementById('first_div');
        secondDiv = document.getElementById('second_div');
        if (scriptLoaded) {
            bannerAd = new BannerAd(setCurrentDivAsBannerDiv, 'div_holder',
'margin');
            bannerDiv = bannerAd.displayBanner();
        }
    }
    function deInitPage() {
        bannerAd.removeAd();
    }
    function setCurrentDivAsBannerDiv() {
        if (currentDiv)
            if (currentDiv != bannerDiv)
                currentDiv.className = 'divmouseout';
        setCurrentDiv(bannerDiv);
    }
    function processKeyDown(e) {
        var keycode;
        if(window.event) {
            keycode = e.keyCode;
        } else if(e.which) {
            keycode = e.which;
        }
        switch(keycode) {
            case VK_BACK: goDashBoard(); break;
            case VK_UP: handleUpKey(); break;
            case VK_LEFT: handleLeftKey(); break;
            case VK_RIGHT: handleRightKey(); break;
            case VK_DOWN: handleDownKey(); break;
        }
    }
    function handleUpKey() {
        switch(currentDiv) {
            case secondDiv:
            case null:
                secondDiv.className = 'divmouseout';
                firstDiv.className = 'divmouseover';
                setCurrentDiv(firstDiv);
                break;
        }
    }
    function handleDownKey() {
        switch(currentDiv) {
```

```

        case bannerDiv:
            bannerAd.removeFocus();
        case firstDiv:
            firstDiv.className = 'divmouseout';
            secondDiv.className = 'divmouseover';
            setCurrentDiv(secondDiv);
            break;
        case null:
            firstDiv.className = 'divmouseover';
            setCurrentDiv(firstDiv);
            break;
    }
}
function handleLeftKey() {
    switch(currentDiv) {
        case bannerDiv:
            bannerAd.removeFocus();
        case null:
            firstDiv.className = 'divmouseover';
            setCurrentDiv(firstDiv);
            break;
    }
}
function handleRightKey() {
    switch(currentDiv) {
        case firstDiv:
            if (bannerAd.isExist) {
                bannerAd.setFocus();
                firstDiv.className = 'divmouseout';
            }
            break;
        case null:
            firstDiv.className = 'divmouseover';
            setCurrentDiv(firstDiv);
            break;
    }
}
function divmouseOverClass (sourceDiv) {
    if (currentDiv) {
        if (currentDiv == bannerDiv)
            bannerAd.removeFocus();
        else
            currentDiv.className = 'divmouseout';
    }
    sourceDiv.className = 'divmouseover';
    setCurrentDiv(sourceDiv);
}
function divmouseoutClass (sourceDiv) {
    sourceDiv.className = 'divmouseout';
}
function setCurrentDiv(sourceDiv) {
    currentDiv = sourceDiv;
    if (currentDiv)
        document.getElementById('cur').innerHTML = '<p> currentDiv = ' +
currentDiv.id + ' /<p>';
    else
        document.getElementById('cur').innerHTML = '<p>currentDiv =
null!</p>';
}
function goDashBoard() {
    window.NetCastBack();
}
</script>
</head>
<body onkeydown=processKeyDown(event); onload=initPage();
onunload=deInitPage()>
    <div id=cur style="position:absolute; top:200px; left:800px;">
    </div>

    <div id=div_holder>
        <div id=first_div style="width:350px;" class=divmouseout

```

```
onmouseover=divmouseOverClass(this); onmouseout=divmouseOutClass(this);
currentDiv=this>
    <p>This page should display a banner in</p>
    <p>upper-right corner with margin</p>
    <p>Full screen Ad should be displayed if banner is clicked</p>
</div>
    <div id=second_div style="position:absolute; top:200px; width:500px;"
class=divmouseout onmouseover=divmouseOverClass(this);
onmouseout=divmouseOutClass(this);currentDiv=this>
    1. Aliquam accumsan est a quam convallis sed
    congue justo elementum. Suspendisse et sem augue, sed vehicula purus.
Vestibulum
    et ligula eu nunc condimentum consequat. Curabitur a purus non
turpis fermentum
    facilisis ac sit amet mauris. Vestibulum ante ipsum primis in
faucibus orci
    luctus et ultrices posuere cubilia Curae; Etiam semper massa velit,
in molestie
    nisl. Phasellus hendrerit tellus non libero ultrices sed malesuada
est volutpat.
    Phasellus aliquam imperdiet ultricies. Proin quis ipsum id lacus
bibendum
    commodo. Nam rhoncus egestas viverra. Sed bibendum neque non tellus
accumsan
    sagittis. Nunc sit amet rutrum leo. Vivamus tempor urna id enim
rutrum sit amet
    lobortis leo porttitor. Donec id leo urna, nec luctus erat. Nullam
mollis metus
    id nisl porttitor dignissim. Aliquam et magna quam, id tincidunt
nunc.
    </div>
</div>
</body>
</html>
```