How to use MRAID API within ad creatives?

What is MRAID and why it is needed?

Ad creatives need to use MRAID technology in case Ads are targetted to mobile APPs. It basically provides a common API for Mobile Rich media Ads that will run in APPs. Apps behave differently than corresponding mobile browsers and MRAID is a technology designed for in-app advertising with some specific functionalities.

In-app inventory is fundamentally different from mobile web, because the app in which the creative is displayed is not running HTML5 and JavaScript. Instead, it is running the native code of the devices operating system (Objective-C for iOS, Java for Android). The creative is displayed in a container called a WebView, which is a fully functional, ad sized web page that is running HTML5 and JavaScript. Now the problem is the creative and the container it's running in (the app) cannot speak to each other, because the creative only speaks HTML5/JS and the app only speaks Objective-C or Java. This is where MRAID comes in, it defines a set of commands that allows the creative to use JavaScript to communicate with the native code of the app and ask it to perform various actions. MRAID is therefore not designed to replace HTML5 and JavaScript, it is designed to allow creatives that use JavaScript to interact with the native operating system that is running the app in which the creative is shown.

What can MRAID do?

The main functionality of MRAID is to allow a creative that is running on In-App:

- to change its size
- get the information about its position on the screen
- get information about the screen size
- open click-through links within embedded In-APP browsers (but it may be the device's native browser as well)
- check whether the Ad is visible or not
- Triggering certain actions on click
- Also, there are additional functions that allow the creative to store photos in the device memory, create a calendar events, and access the native video player, etc.

Below is a list of all the methods available in the API defined by MRAID, grouped by functionality:

Methods used for size change / expansion

- close
- expand
- resize
- getCurrentPosition
- getDefaultPosition
- getMaxSize
- getResizeProperties
- getExpandProperties
- getScreenSize
- getState
- setExpandProperties
- setResizeProperties
- useCustomClose

Other UI functionality

- open
- createCalendarEvent
- playVideo
- storePicture

Non UI functionality

- addEventListener
- getPlacementType
- getVersion
- isViewable
- removeEventListener
- supports

Read more about MRAID 2.0 API **here**

NOTE!!! Sanoma's mobile inventory includes both apps and mobile web so your ad creative must work in both environments.

Avoid Hyperlinks within in-APP ads

When the user clicks on an HTML hyperlink (defined by a tag) in an MRAID ad, there are two possibilities: the linked page could load in the existing ad web view, or the content could open a separate browser window and load the indicated HTML link there. MRAID-compliant SDKs can opt for either strategy, so ad designers should avoid using inline hyperlinks and window.location changes. mraid.open() is the appropriate and correct way for an MRAID ad to specify that a link should open a page in a separate browser. Loading a new web page in the ad view that is not written to the MRAID spec can leave the ad, and possibly the app, in an unusable state.

MRAID example 1:
Simple Image Ad which uses mraid.open for opening click-through URL's inside embedded/native browsers

```
//Note:Include mraid.js in your Ad

<script src="mraid.js"></script>
<script type="text/javascript">
function doReadyCheck()
{
    if (mraid.getState() == 'loading')
    {
        //Wait until mraid library is ready and loaded so listen for ready event
        mraid.addEventListener("ready", mraidIsReady);
    }
    else
    {
        showMyAd();
    }
}
function showMyAd()
{
    //Add mraid related event listeners here e.g
    //mraid.addEventListener("stateChange", stateChangeHandler);
    //mraid.addEventListener("sizeChange", sizeChangeHandler);
    //mraid.addEventListener("viewableChange", viewableChangeHandler);
    //mraid.addEventListener("error", errorHandler);

    //you can add the rest of the Javascript code related to your Ad here e.g
    var adContainer = document.querySelector('#imageContainer');
    addEvent("click", adContainer , function (e) {
        e.preventDefault();
        mraid.open('http://media.sanoma.fi');
        return false;
    });
}
function mraidIsReady()
{
    //Remove the ready event listener
    mraid.removeEventListener("ready", mraidIsReady);

    showMyAd();
}

function addEvent(evnt, elem, func) {
    if (elem.addEventListener) {  // W3C DOM
        elem.addEventListener(evnt, func, false);
    } else if (elem.attachEvent) { // IE DOM
        elem.attachEvent("on" + evnt, func);
    } else { // No much to do
        elem[evnt] = func;
    }
}

doReadyCheck();
</script>

<div id="imageContainer">
    <img src="adImage.jpg" width="300" height="300"/>
</div>
```

MRAID example 2:

Simple Image Ad which uses mraid.expand for opening click-through URL's within the expanded Ad view (i.e. Not inside the browsers- so that user never leaves the APP)

```
//Note:Include mraid.js in your Ad
<script type="text/javascript" src="mraid.js"></script>
<script type="text/javascript">
function doReadyCheck()
{
    if (mraid.getState() == 'loading')
    {
        //Wait until mraid library is ready and loaded so listen for ready event
        mraid.addEventListener("ready", mraidIsReady);
    }
    else
    {
        showMyAd();
    }
}
function showMyAd()
{
    //Add mraid related event listeners here e.g
    //mraid.addEventListener("stateChange", stateChangeHandler);
    //mraid.addEventListener("sizeChange", sizeChangeHandler);
    //mraid.addEventListener("viewableChange", viewableChangeHandler);
    //mraid.addEventListener("error", errorHandler);

    //you can add the rest of the Javascript code related to your Ad here e.g
    var adContainer = document.querySelector('#imageContainer');
    addEvent("click", adContainer , function (e) {
        e.preventDefault();
        mraid.expand('http://media.sanoma.fi');
        return false;
    });
}
function mraidIsReady()
{
    //Remove the ready event listener
    mraid.removeEventListener("ready", mraidIsReady);

    showMyAd();
}

function addEvent(evnt, elem, func) {
    if (elem.addEventListener) {  // W3C DOM
        elem.addEventListener(evnt, func, false);
    } else if (elem.attachEvent) { // IE DOM
        elem.attachEvent("on" + evnt, func);
    } else { // No much to do
        elem[evnt] = func;
    }
}

doReadyCheck();
</script>

<div id="imageContainer">
    <img src="adImage.jpg"  width="300" height="300"/>
</div>
```

Sources

- IAB Mobile Rich Media Ad Interface Definitions (MRAID): iab.com/guidelines/mobile-rich-media-ad-interface-definitions-mraid/
- MRAID Examples: wiki.operamediaworks.com/display/AMS/MRAID+Sample+Ads