

# Event source-based notifications in native Windows 8 applications

## Overview

Event source notifications are notification messages that are targeted to devices with a user subscription.

To learn more about the architecture and terminology of push notifications in IBM MobileFirst™ Platform Foundation, see the “Event source-based notifications in hybrid applications (../push-notifications-hybrid-applications/event-source-based-notifications/)” tutorial.

For more information about setting up push notifications in native Windows 8 applications, see the Push notifications in native Windows 8 applications (../)” tutorial.

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## Notification API: Server-side

### Creating an event source

Create a notification event source in the adapter JavaScript™ code at a global level (outside any JavaScript function).

```
WL.Server.createEventSource({
  name: 'PushEventSource',
  onDeviceSubscribe: 'deviceSubscribeFunc',
  onDeviceUnsubscribe: 'deviceUnsubscribeFunc',
  securityTest: 'PushApplication-strong-mobile-securityTest'
});
```

- name – A name by which the event source is referenced.
- onDeviceSubscribe – An adapter function that is called when the request for user subscription is received.
- onDeviceUnsubscribe – An adapter function that is called when the request for user unsubscription is received.
- securityTest – A security test from the authenticationConfig.xml file, which is used to protect the event source.

### Sending a notification

Notifications can be either polled from, or pushed by, the back-end system. In this example, a submitNotifications() adapter function is invoked by a back-end system as an external API to send notifications.

```
function submitNotification(userId, notificationText) {
    var userSubscription = WL.Server.getUserNotificationSubscription('PushAdapter.PushEventSource', userId)
    ;
    if (userSubscription === null) {
        return { result: "No subscription found for user :: " + userId };
    }
    var badgeDigit = 1;
    var notification = WL.Server.createDefaultNotification(notificationText, badgeDigit, {custom:"data"});
    WL.Server.notifyAllDevices(userSubscription, notification);
    return {
        result: "Notification sent to user :: " + userId
    };
}
```

## Notification API - Client-side

The first step is to create an instance of the `WLClient` class:

```
WLClient client = WLClient.getInstance();
```

You derive all push notification operations from the `WLPush` class.

`getPush` – Use this method to retrieve an instance of the `WLPush` class from the `WLClient` instance.

```
WLPush push = client.getPush();
```

`WLOnReadyToSubscribeListener` – When connecting to MobileFirst Server, the application attempts to register itself with the Google Cloud Messaging (GCM) server to receive push notifications.

```
OnReadyToSubscribeListener myOnReadyListener = new OnReadyToSubscribeListener();
push.onReadyToSubscribeListener = myOnReadyListener;
```

The `onReadyToSubscribe` method of `WLOnReadyToSubscribeListener` is called when the registration is complete.

```
public void onReadyToSubscribe()
{...}
```

## WLPush.registerEventSourceCallback

To register an alias on a particular event source, use the `WLPush.registerEventSourceCallback` method.

The API takes the following arguments:

`alias` - An alias name.

`Adaptername` - Adapter in which the event source is defined.

`EventSourceName` - The event source on which the alias is called.

Example:

```
WLCClient.getInstance().getPush().registerEventSourceCallback("myPush", "PushAdapter", "PushEventSource", this);
```

Typically, this method is called in the `onReadyToSubscribe` callback function.

```
public void onReadyToSubscribe()
{
    WLCClient.getInstance().getPush().registerEventSourceCallback("myPush", "PushAdapter", "PushEventSource", this)
    ;
}
```

## Subscribing to push notification

To set up subscription to push notification, use the `WLPush.subscribe(alias, pushOptions, responseListener)` API.

The API takes the following arguments:

`alias` – The alias to which the device must subscribe.

`pushOptions` – An object of type `WLPushOptions`.

`responseListener` – An object of type `WLResponseListener`, which is called when subscription completes.

Example:

```
WLPush push = WLCClient.getInstance().getPush();
MySubscribeListener mySubListener = new MySubscribeListener();
push.subscribe("myPush", null, mySubListener);
```

`MySubscribeListener` implements `WLResponseListener` and provides the following callback functions:

`onSuccess` – Called when subscription succeeds.

`onFailure` – Called when subscription fails.

## Unsubscribing from push notifications

To set up unsubscription from push notification, use the `WLPush.unsubscribe(alias, responseListener)` API.

The API takes the following arguments:

`alias` – The alias to which the device has subscribed.

`responseListener` – An object of type `WLResponseListener`, which is called when unsubscription completes.

Example:

```
WLPush push = WLCClient.getInstance().getPush();
MyUnsubscribeListener myUnsubListener = new MyUnsubscribeListener();
push.unsubscribe("myPush", myUnsubListener);
```

`MyUnsubscribeListener` implements `WLResponseListener` and provides the following callback functions:

onSuccess – Called when unsubscription succeeds.

onFailure – Called when unsubscription fails.

## Additional client-side API methods

isSubscribed() - Indicates whether the device is subscribed to push notifications.

```
WLCClient.getInstance().getPush().isSubscribed("myPush");
```

## Receiving a push notification

When a push notification is received, the onReceive method is called on an WLEventSourceListener instance.

```
class OnReadyToSubscribeListener : WLOnReadyToSubscribeListener, WLEventSourceListener{...}
```

The WLEventSourceListener instance is registered during the registerEventSourceCallback callback.

```
WLCClient.getInstance().getPush().registerEventSourceCallback("myPush", "PushAdapter", "PushEventSource", this);
```

The onReceive method displays the received notification on the screen.

```
public void onReceive(String props, String payload)
{
    Debug.WriteLine("Props: " + props);
    Debug.WriteLine("Payload: " + payload);
}
```

## Sample application

Click to download

(<http://public.dhe.ibm.com/software/products/en/MobileFirstPlatform/docs/v700/PushNotificationsNativeProject.zip>)  
the Studio project.

Click to download

(<http://public.dhe.ibm.com/software/products/en/MobileFirstPlatform/docs/v700/Windows8NativePushProject.zip>)  
the Native project.

The sample contains two projects:

- The PushNotificationsNativeProject.zip file contains a **MobileFirst native API** that you can deploy to your MobileFirst Server instance.
- The Windows8NativePushProject.zip file contains a **native Windows 8 application** that uses a MobileFirst native API library to subscribe to push notifications and receive notifications from Windows Notification Services (WNS).

Make sure to update the wlclient.properties file in Windows8NativePushProject with the relevant server settings.