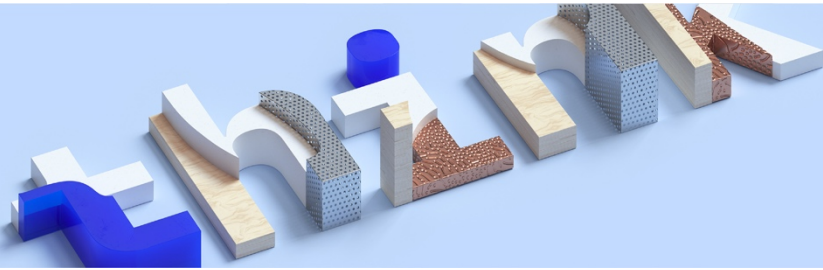


think 2018



Lab Center – Hands-on Lab

Session **9604**

Session Title **Reliable and Traceable Rich Push Notifications using IBM Bluemix Push Notification Service**

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About the Lab

In this Lab Session you will learn to track end to end lifecycle of a Push Notification using IBM Cloud Push Notification Service.

IBM Cloud Push Notification offers Advanced Plan with which, end to end Push Notifications can be tracked, including success and failures.

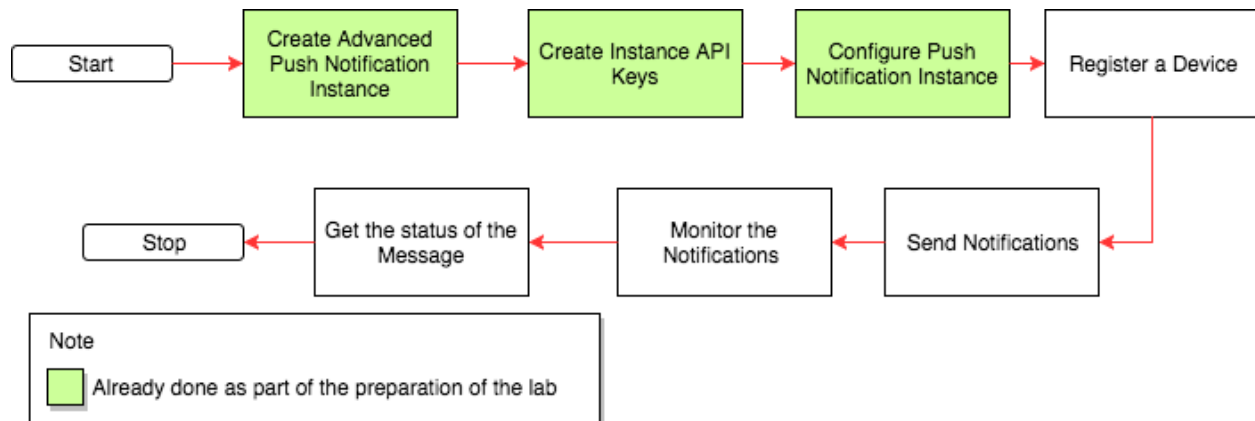
The Lab uses the following tools/services that to track the Push Notifications

- IBM Push Notification Service
- Android Studio

Prerequisite

- Basic knowledge of Android Programming
- IBM Cloud Id

High-level Flow of the lab



About IBM Push Notifications

Features

- **Scalable and reliable Push Notifications service for mobile and web applications**

You can use simple and uniform REST APIs to configure, subscribe, send, and monitor push notifications to mobile devices and web applications. Also provides Client SDKs (Android, iOS, Cordova and Web) and Server SDKs for sending notifications (Java, Node JS and Swift)

- **Send notifications by various criteria and also analyze effects**

You can send messages as push notifications to either all application users, or to a specific set of users or devices. Both interactive notifications and silent notifications are supported. Customers can also choose to subscribe to specific tags or topics for notification. The Push Notification service also enables you to analyze the number of devices that are registered to receive notifications and the number of notifications sent.

Details of Advanced Push Notifications Instance

In this exercise, Push Notification Instance is created. Advanced Instance of IBM Cloud Push Notifications Service provides advanced features like End to End Lifecycle tracking of a Push Notification and parametrize Push Notifications.

With Advanced plan one can track the status of a Message (Represent by a Message ID, is submitted by the user to the Push Notifications service to be delivered to the specified target) sent, and the notifications (The message as sent to an individual device) received on the device. Following are the status of a Message –

- **Accepted:** The message has been accepted for delivery by the Push Notifications service.
- **Dispatching:** The notification has been received by notification provider - APNs, FCM, or Web, and is about to be dispatched. A notification that is in the process of being dispatched can also return a failure with the status Dispatching failed.
- **Dispatched:** The notification has been dispatched by the notification provider.
- **Processing:** The message is being processed, to be dispatched to the notification provider gateway. A notification that is being processed can also return a failure with the status Processing failed.
- **Unknown:** The status of the notification cannot be determined.

To track if the notification is received in the device following are the status –

- **Sent:** Sent by the Push Notification service to the Service Provider.
- **Seen:** Received by the device
- **Open:** User opened the app by clicking the notification in the device
- **Invalid –** Invalid notification and is not sent to the device. To track more details, refer to the message status mentioned above.

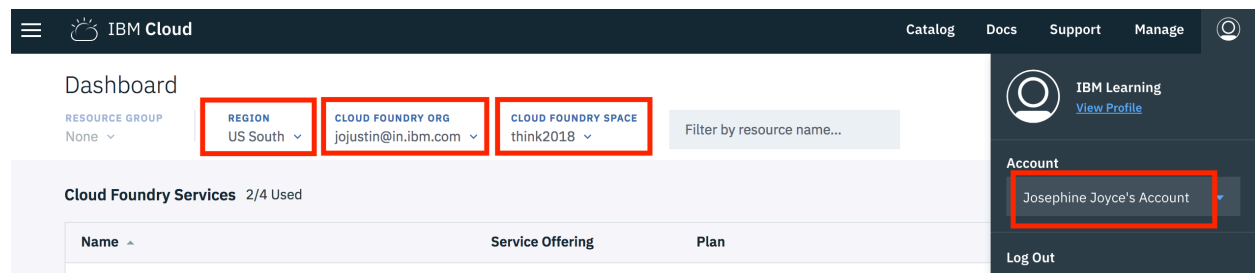
Exercise 1: Create Push Notification Service Instance

Note: This exercise is already completed in the account and the instance named “Think2018Push” exists. The below steps mention how this instance is created.

Login to IBM Cloud using one of the following user ids. Password for all these users are “bluemix123”.

- instructor0210@ibmlearning.org
- instructor0211@ibmlearning.org
- instructor0212@ibmlearning.org
- instructor0213@ibmlearning.org
- instructor0214@ibmlearning.org
- instructor0215@ibmlearning.org
- instructor0217@ibmlearning.org
- instructor0218@ibmlearning.org
- instructor0219@ibmlearning.org

Once logged in create a Push Notification Service Instance. Make sure the account selected is Josephine Joyce. In this account you would be able to create a Advanced plan.



Create a Push Notification Instance with the right org and space.

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[Docs](#)
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Push Notifications

The Push Notifications service provides a unified push service to send real-time notifications to mobile and web applications. The service provides the ability to personalize and send notifications to a segment of users, single user or broadcast to all users.

Service name:

Think2018Push

Choose a region/location to deploy in:

US South

Choose an organization:

jojustin@in.ibm.com

Choose a space:

think2018

Lite

IBM

[View Docs](#)

AUTHOR

IBM

PUBLISHED

03/07/2018

TYPE

Service

Features

- Scalable and reliable Push Notifications service for mobile and web applications**
 You can use simple and uniform REST APIs to configure, subscribe, send, and monitor push
- Send notifications by various criteria and also analyze effects**
 You can send messages as push notifications to either all application users, or to a specific set of users or

Select the plan as Advanced. Features of the plan is described as you see below.

[Catalog](#)
[Docs](#)
[Support](#)
[Manage](#)

Lite	100,000 digital messages per month 50 addressable devices	Free
Basic	First 1 million digital messages and 10000 addressable devices free	€0.75 EUR/Ten Thousand Addressable Devices €0.75 EUR/Million Digital Messages
✓ Advanced	Charged per Instance Includes 100 million digital messages and 1 million addressable devices Advanced Capabilities - Parameterize messages - End to End message lifecycle tracking	€75.22 EUR/Instance €0.37 EUR/Million Digital Messages €0.37 EUR/Million Addressable Devices

A push notification sent to a unique device/end point or a webhook event constitutes a digital message. An Addressable Device is a device upon which an application is installed that is addressable by the Cloud Service.

[Terms](#)

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Estimate Monthly Cost
[Cost Calculator](#)

Create

Click on the Create button to create the instance.

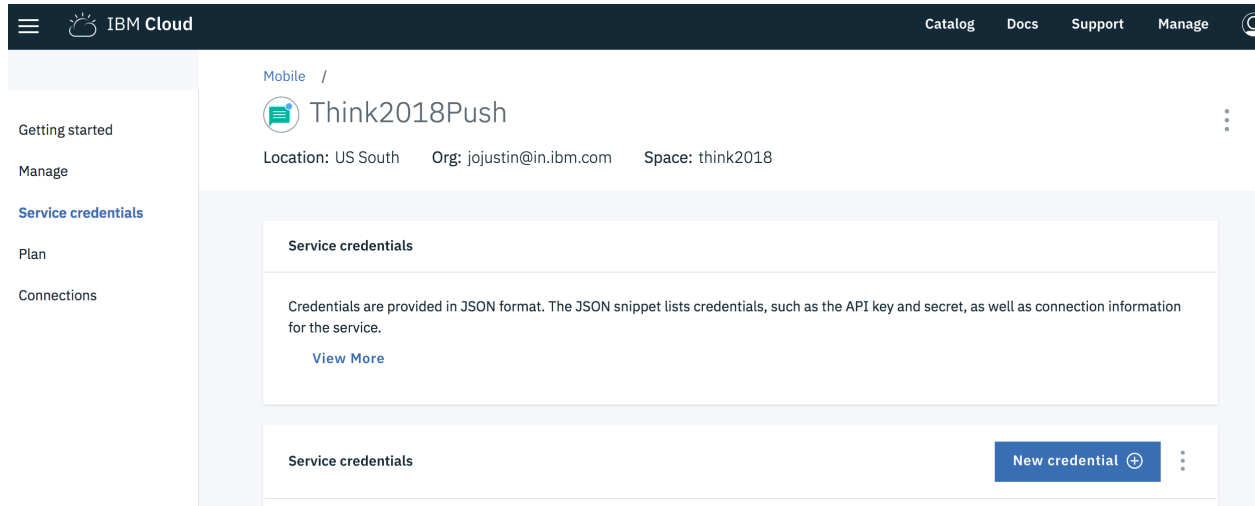
Exercise 2: Generate Service Credentials

Note: This exercise is already completed in the account and the instance is generated with the credentials. The below steps mention how this instance credentials are generated.

Create the service credentials to use the REST APIs.

- From the IBM Cloud dashboard home page click on the Think2018Push instance. Navigate to the “Service Credentials” page.

2. Click on “New Credential” button to create one.
3. You can create more than one credential for the same service.



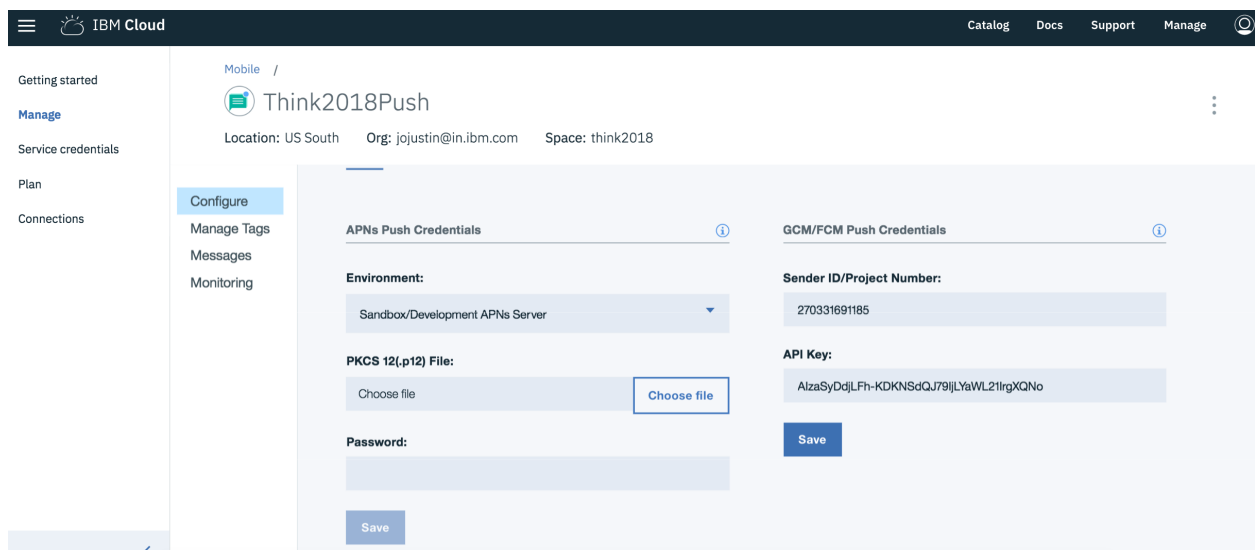
Exercise 3: Configure Push Notification Service Instance

Note: This exercise is already completed in the account and the instance is configured with the GCM project details. The below steps mention how this instance is created.

To know entire steps to get the FCM configuration details refer

https://console.bluemix.net/docs/services/mobilepush/push_step_1.html#push_step_1

1. Click on the Manage > Configure navigation
2. Provide the FCM credentials to the configuration.



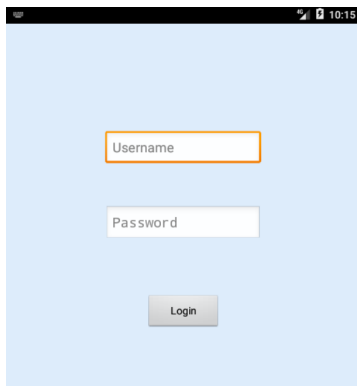
Exercise 4: Run the sample app

In this exercise you will run an existing Sample app, and execute it on an android emulator and see the App working.

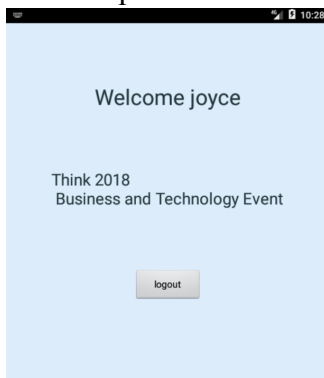
1. App code can be retrieved from the github url
<https://github.com/JosephineJoyce/MessageTracking>. Download the zip from this URL to get started.
2. Unzip the file to a folder, if this is not already done.
3. Bring up the Android Studio from the desktop.
4. Open the MainActivity.java file and search for the string “initialize”
5. Make sure to update the push.initialize with the right appId & clientSecret.

```
push.initialize(this, "d6ea2612-2751-4cfe-93db-2a3ff67ef426", "1529b665-af59-4ac5-9e8e-4c8182828a79")
```

6. Run the app in android simulator.
7. If you face any app installation issue on the simulator, delete the /hellopush/app/build folder.
8. App initial page – login page – gets displayed



9. This login feature is not a fully implemented one. Once logged in, registers the device with the push notification instance.

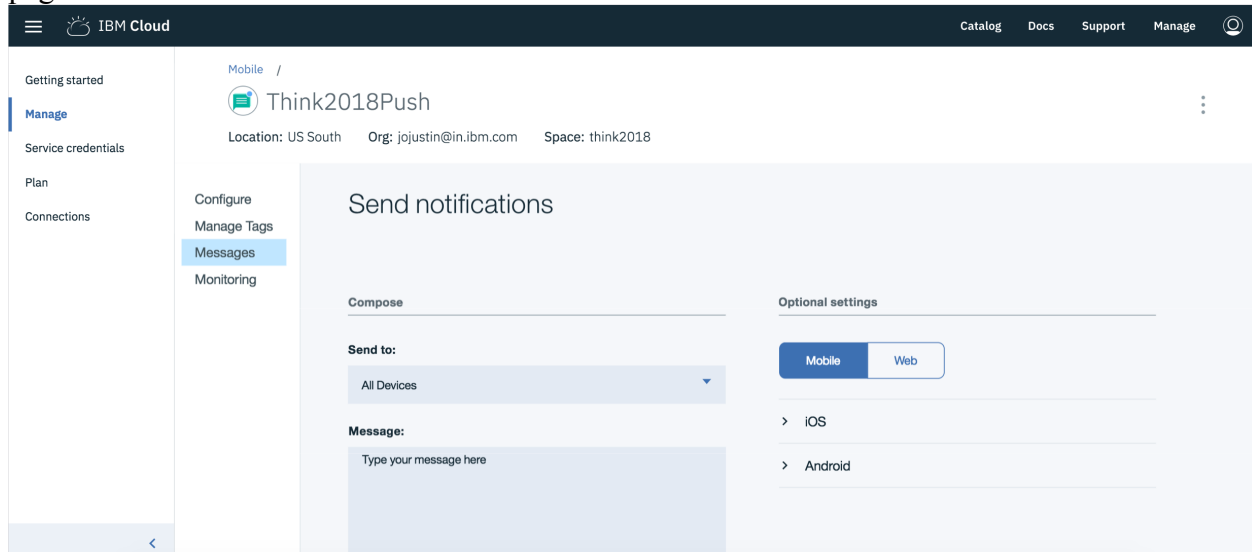


10. Once registered the device is ready to receive notifications.

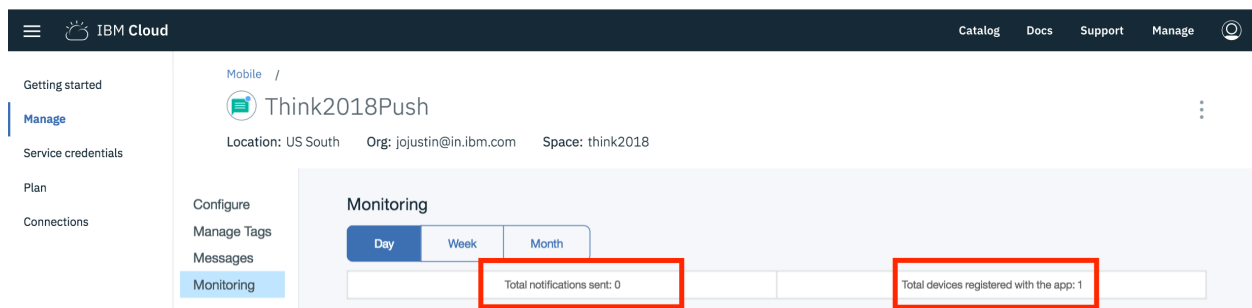
Exercise 5: End to End lifecycle tracking

In this exercise you will verify the status of the Push Notification send to the device.

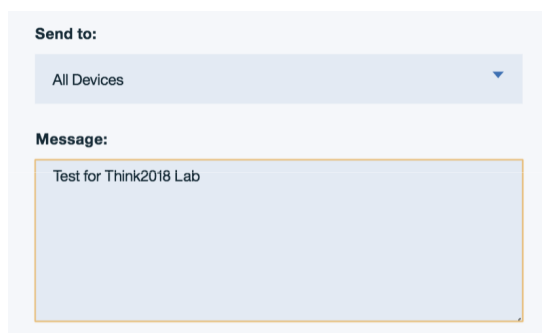
If there are no messages sent using this device, “Messages” tab would show the new notification page.



Monitoring page shows the devices and the notifications sent using this instance.

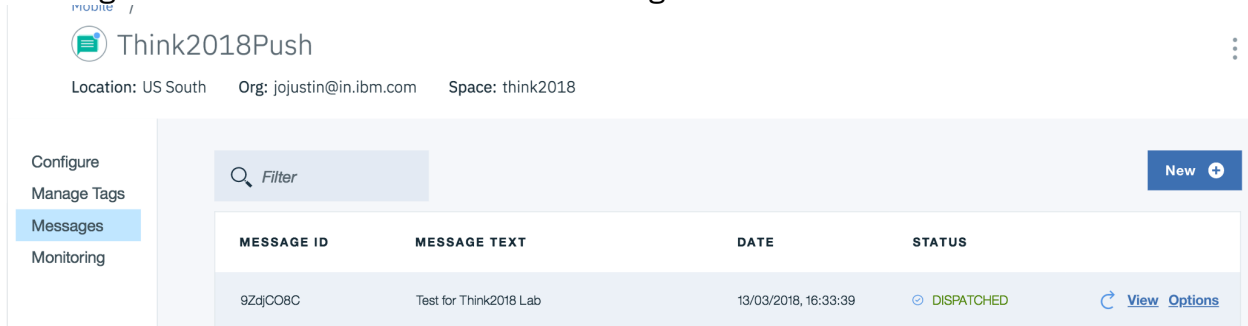


From the “Messages” tab, send the notification.



Click the “Send” button to send the notification.

Messages tab now shows the lasts 10 messages with their status –

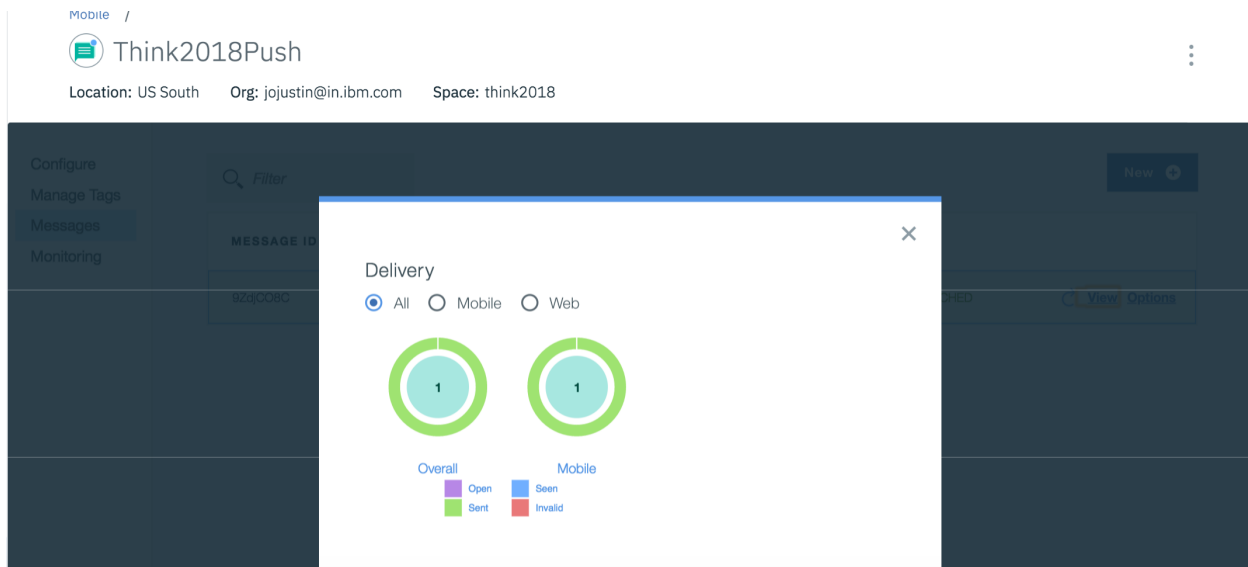


The screenshot shows the 'Think2018Push' interface with the 'Messages' tab selected. The header includes 'Location: US South', 'Org: jojustin@in.ibm.com', and 'Space: think2018'. A sidebar on the left lists 'Configure', 'Manage Tags', 'Messages', and 'Monitoring'. The main area features a 'Filter' input and a 'New +' button. Below is a table with the following data:

MESSAGE ID	MESSAGE TEXT	DATE	STATUS
9ZdjCO8C	Test for Think2018 Lab	13/03/2018, 16:33:39	DISPATCHED

Each row has a 'View' link and an 'Options' link.

Click on View link to know more on the devices type and the corresponding notifications



The screenshot shows the 'Think2018Push' interface with the 'Messages' tab selected. A modal window titled 'Delivery' is open, showing the status of the message '9ZdjCO8C'. The modal includes a 'Filter' input and a 'New +' button. The delivery status is shown as a donut chart with a green center and a green ring, indicating a status of '1'. The modal also includes a legend for 'Overall' and 'Mobile' status, with 'Open' (green), 'Sent' (blue), 'Seen' (red), and 'Invalid' (yellow).

Click on the Options link on the message status page to know the status specific to the device or user id. User id is the string provided for Username during the login to the app.

Mobile / Think2018Push

Location: US South Org: jojustin@in.ibm.com Space: think2018

Configure
Manage Tags
Messages
Monitoring

Filter

MESSAGE ID MESSAGE TEXT DATE STATUS

929jCO8C

Detailed message delivery status

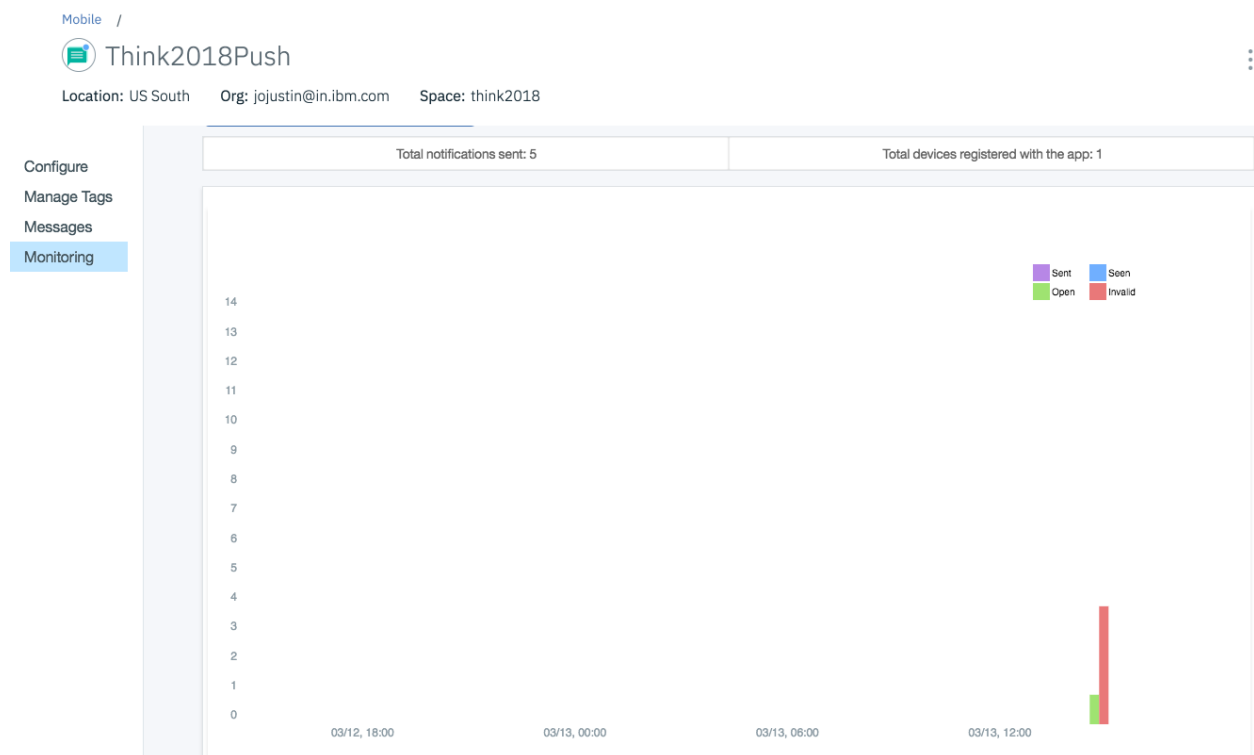
User Id Joyce Get

a117e028-9eb5-39f5-831e-b747e4d33345 : OPEN

View Options

This displays the status of the notification send to the device.

Monitoring page shows the notification related status information.



Summary

In this lab you have learned how to track the Push Notifications send using the IBM Cloud Push Notification Service. This lab helps in understanding the various status information for messages and the notifications and how the service can be used to track end to end of a notification.

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