

Contents

What you will learn	1
Prerequisites	1
Simulator Setup	2
Simulator Test.	5
Takeaway.....	13

What you will learn: Simulator

Day 1 of 5. Topics covered :

SAP business objects simulator

- Publish SAP simulated events that represents mocked JSON structures
- Publish events from 5 different SAP object- Salesorders, Business Partners, Chart of Accounts, Material Master, and Notifications
- Test Simulated SAP events being published and subscribed too using the AEM broker and the SAP Ui5 dashboard.

Prerequisites

1: BTP subaccount with a developer space enabled in Cloud Foundry

2: CloudFoundry CLI installation (Only needed if upload doesn't work)

To start with, we will be installing the CloudFoundry CLI for the deployment process. Follow the steps mentioned over here [Installing the CF CLI](#) for detailed instructions on this.

3 : Downloading the deployable artifacts

Download the following files artefact files and save them in the same directory:

- capm-erp-simulation-exec.jar : <https://github.com/Solacelabs/aem-sap-integration/blob/main/deployable/capm-erp-simulation-exec.jar>

- manifest.yml: <https://github.com/Solacelabs/aem-sap-integration/blob/main/deployable/manifest.yml>

SAP Simulator setup

The SAP Cloud Application Programming Model (CAP) is a framework of languages, libraries, and tools for building enterprise-grade services and applications. It guides developers along a 'golden path' of proven best practices and a great wealth of out-of-the-box solutions to recurring tasks. CAP-based projects benefit from a primary focus on domain. Instead of delving into overly technical disciplines, we focus on accelerated development and safeguarding investments in a world of rapidly changing cloud technologies.

For more information on SAP CAP, you can refer to the link: [SAP Cloud Application Programming Model](#)

To showcase the integration capability of SAP CAP and AEM, we have created a CAP based Java microservice which will publish different SAP business object events into your AEM instance. This application can be deployed in your SAP CloudFoundry space.

1 : Identify CF Domain address

In order to deploy the simulator to your CloudFoundry space, you need to identify the domain address which is a part of the API endpoint.

- Navigate to your SAP BTP Sub account Overview page
- Copy the specified section of the API Endpoint in the Cloud Foundry Environment as shown below:

The screenshot displays the SAP BTP Cockpit interface. The left sidebar contains a menu with 'Overview' highlighted, marked with a red circle '1'. The main content area is titled 'Subaccount: trial - Overview'. It shows various metrics and details for the subaccount. In the 'Cloud Foundry Environment' section, the 'API Endpoint' is listed as 'https://api.cf.us10-001.hana.ondemand.com', which is highlighted with a red circle '2'. Other details include 'Org Name', 'Org ID', and 'Org Memory Limit'. A table at the bottom shows 'Spaces (1)' with columns for Name, Applications, and Service Instances.

Name	Applications	Service Instances
dev	1	0

2: Update the manifest file

- Open the manifest.yml file which you downloaded earlier in a text editor
- Replace the placeholder text {API_ENDPOINT} on line number 12 with the value copied from the API Endpoint
- Also in the route name "capm-erp-simulation-aem-workshop.cfapps.{API_ENDPOINT}", change the name workshop to your company name
- Example capm-erp-simulation-aem-solace.cfapps.{API_ENDPOINT},

```
1  # Generated manifest.yml based on template version 0.1.0
2  # appName = capm-erp-simulation
3  # language=java
4  # multitenancy=false
5  ---
6  applications:
7  # -----
8  # Backend Service
9  # -----
10 - name: capm-erp-simulation
11   routes:
12     - route: capm-erp-simulation-aem-workshop.cfapps.{API_ENDPOINT}
13     path: srv/target/capm-erp-simulation-exec.jar
14     memory: 1G
15     disk_quota: 512M
16     env:
17       JBP_CONFIG_SPRING_AUTO_RECONFIGURATION: '{ enabled: false }'
18     buildpack: sap_java_buildpack
19   # random-route: true
20
21
```

- After replacing your manifest file should look like this:

```

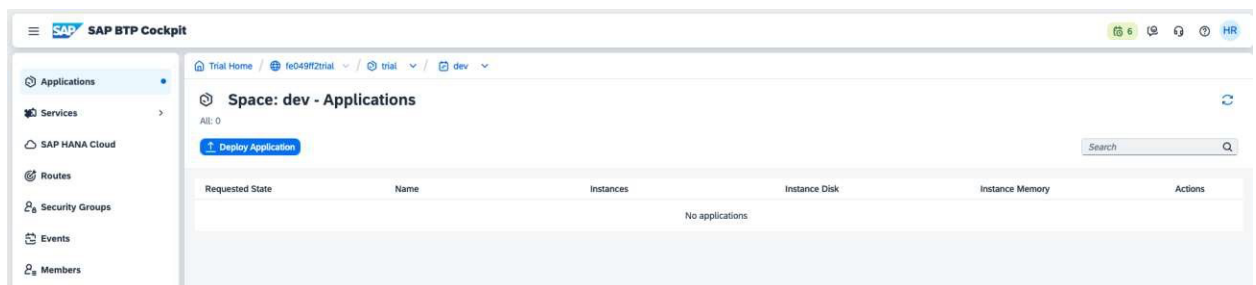
1  # Generated manifest.yml based on template version 0.1.0
2  # appName = capm-erp-simulation
3  # language=java
4  # multitenancy=false
5  ---
6  applications:
7  # -----
8  # Backend Service
9  # -----
10 - name: capm-erp-simulation
11   routes:
12   | - route: capm-erp-simulation-aem-workshop.cfapps.us10-001.hana.ondemand.com
13     path: srv/target/capm-erp-simulation-exec.jar
14     memory: 1G
15     disk_quota: 512M
16     env:
17       JBP_CONFIG_SPRING_AUTO_RECONFIGURATION: '{ enabled: false }'
18     buildpack: sap_java_buildpack
19   # random-route: true
20
21

```

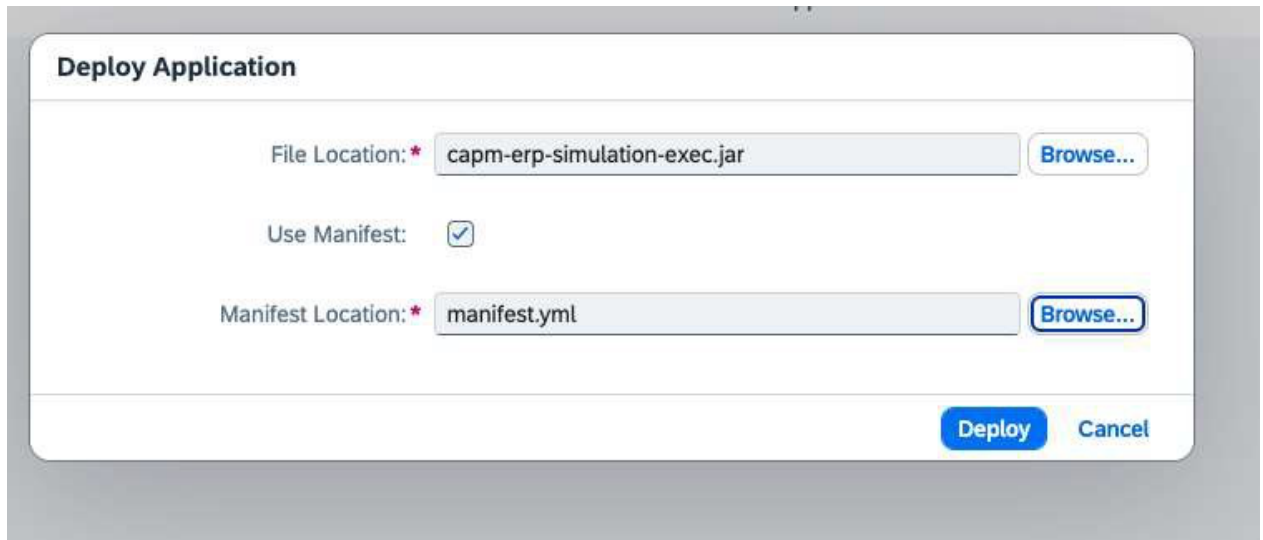
Save and close the file.

3 : Deploying the SAP Simulator application

- Navigate to the CloudFoundry space where you want to deploy the application and click on the **Deploy Application** button as below :

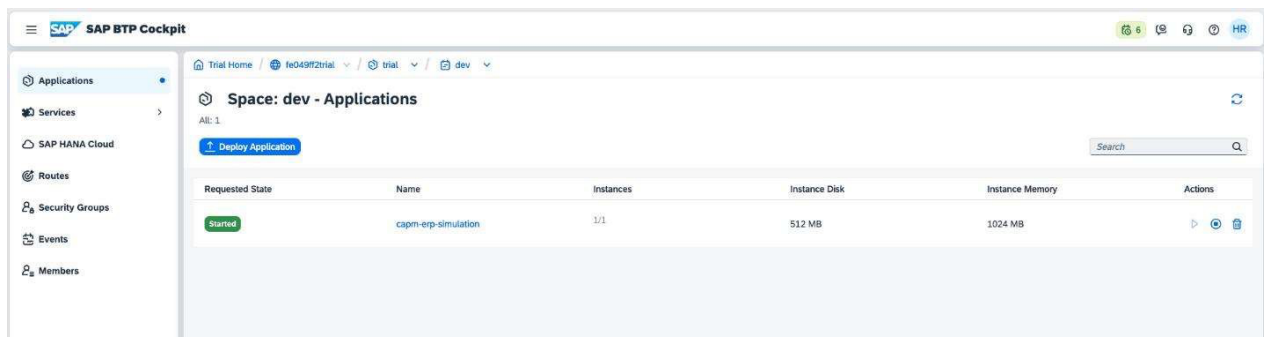


- A **Deploy Application** modal window will be displayed where you can browse and select the **capm-erp-simulation-exec.jar** and **manifest.yml** as below



The image shows a 'Deploy Application' dialog box. It has two input fields: 'File Location' with the value 'capm-erp-simulation-exec.jar' and 'Manifest Location' with the value 'manifest.yml'. Both fields have a 'Browse...' button to their right. There is a 'Use Manifest' checkbox which is checked. At the bottom right, there are 'Deploy' and 'Cancel' buttons.

- Click on the deploy button **Note : this action will take some time to completely execute as it uploads the jar deployable and also start the application.**
- Once the upload is completely executed, you should be able to see the application deployed and running as below:



The screenshot shows the SAP BTP Cockpit interface. The left sidebar contains navigation links for Applications, Services, SAP HANA Cloud, Routes, Security Groups, Events, and Members. The main area displays 'Space: dev - Applications' with a 'Deploy Application' button. Below this is a table showing the deployment status of the 'capm-erp-simulation' application.

Requested State	Name	Instances	Instance Disk	Instance Memory	Actions
Started	capm-erp-simulation	1/1	512 MB	1024 MB	> ⚙️ 🗑️

CMD Line Deployment Option

Login to CloudFoundry space

You can log in to the SAP CloudFoundry space in your account as below:

Use the command : `cf login` to log in, which will prompt for your SAP login credentials.

Once authenticated, the details of the default cloudfoundry space will be displayed.

Deploying the SAP Simulator application

Navigate to the directory where the above deployable artifact files are saved.

Run the command `cf push --random-route` which will upload the jar file and use the manifest.yml for properties. Note : this command will take some time to completely execute as it uploads the jar deployable and also start the application.

Once the command is completely executed, run the command `cf apps` to view a listing of the apps in your cloudfoundry space

Verify that the app capm-erp-simulation is deployed and started

Testing the Simulator

1 : Accessing the SAP Simulator application

- Navigate to the Cloud Foundry environment in your SAP BTP Cockpit
- You should see a screen like below

Space: hari_cf_space - Applications ↻

All: 1

[Deploy Application](#)

Requested State	Name	Instances	Instance Disk	Instance Memory	Actions
Started	capm-erp-simulation	1/1	512 MB	1024 MB	▶ 👁 🗑

- Click on the application name: **capm-erp-simulation** and enter the application overview screen.

Application: capm-erp-simulation - Overview ↻

Started

[Restart](#) [Start](#) [Stop](#) [🔄 Instance](#) [🔄 Instance](#) [🗑 Delete](#)

Application Routes

<https://capm-erp-simulation.cfapps.us10-001.hana.ondemand.com>

Application Information

Instances: 1

Package Uploaded: 27 Sept 2023, 13:11:25 (GMT+02:00) (STAGED)

Buildpack: sap_java_buildpack

Stack: Cloud Foundry Linux-based filesystem (Ubuntu 22.04) (cflinuxfs4)

[Change Stack](#)

Instance Details

Instance Memory: 1024 MB (available memory 3072 MB)

Instance Disk: 512 MB

[Change Instance Details](#)

Instances

#	State	Since	CPU	Memory	Disk
0	RUNNING	29 Sept 2023, 15:48:21 (GMT+02:00)	0.6%	181.2 MB <div><div></div></div>	474.5 MB <div><div></div></div>

- Click on the application route as highlighted below. Note: this route url will differ from for different SAP BTP accounts.

Application: capm-erp-simulation - Overview

Started

Restart Start Stop Instance Instance Delete

Application Routes

<https://capm-erp-simulation.cfapps.us10-001.hana.ondemand.com>

Application Information

Instances: 1
 Package Uploaded: 27 Sept 2023, 13:11:25 (GMT+02:00) (STAGED)
 Buildpack: sap_java_buildpack
 Stack: Cloud Foundry Linux-based filesystem (Ubuntu 22.04) (cflinuxfs4)
[Change Stack](#)

Instance Details

Instance Memory: 1024 MB (available memory 3072 MB)
 Instance Disk: 512 MB
[Change Instance Details](#)

Instances

#	State	Since	CPU	Memory	Disk
0	RUNNING	29 Sept 2023, 15:48:21 (GMT+02:00)	0.6%	181.2 MB	474.5 MB

2 : Connecting to SAP AEM and running the simulator

- As you click on the above application route **url**, you will be redirected to the simulator screen as below

solace. Welcome to the Advanced Event Mesh - ERP Simulator **SAP**

Host URL: VPN Name: Username: Password:

[Connect to broker](#)

Here you can connect to your SAP AEM instance to publish events.

As long as both of your SAP AEM services are connected to the event mesh, messages will flow freely between the two of them. Due to this intelligent routing, you can connect the simulator to either of your AEM services created earlier.

- The connection parameters for the simulator can be captured from below:

SAP > MontrealBroker-10.1 Open Broker Manager

Status **Connect** Manage Monitoring Configuration Try Me!

Messaging Activity

20 % Active Connections

53 % Guaranteed Messaging Endpoints

1 % Queue Usage

AMQP 0
 MQTT 0
 SMF 20
 REST 0
 Web 0

Queues 52
 Topic Endpoints 1

Messages Queued 161721
 Spool Usage 0.07 GB

Availability and Versioning

Rapid Pilot Day 1

Service Details: **AEM_CommunityCentral** Status **Connect** Manage Monitoring Configuration Try Me! [Open Broker Manager](#)

> Connect with Java
Solace JCSMP, Solace Java, Solace JMS over SMF, Paho over MQTT, QPID JMS 1.1 over AMQP, QPID JMS 2.0 over AMQP

> Connect with C and C++
Solace C API over SMF, Paho over MQTT

> Connect with Python
Solace Python API over SMF, Paho over MQTT

> Connect with Go
Solace Go API over SMF

> Connect with JavaScript
Solace Javascript API over SMF, Paho over MQTT

> Connect with Node.js
Solace Node.js API over SMF, AMPQP10 Open Source over AMQP

> Connect with .NET
Solace .NET API over SMF, Paho over MQTT

> Connect with Spring
Spring Cloud Stream, Spring Boot

Java

C

python

GO

JavaScript

node

.NET

spring

Technology	Library	Protocol	
	Spring Cloud Stream	smf	Get Started
	Spring Boot Java API	smf	Get Started
	Spring Boot JMS API	smf	Get Started

Spring Boot Java API

Connection Details
Username
solace-cloud-client
Password

Message VPN
aem_communitycentral
Host URIs
Secured SMF URI
tcps://mr-connection-h9tkb3o1b6w.messaging.solace.cloud:55443
TrustStore
[Download PEM](#)

[Get Started](#)

Enter the appropriate value as specified below

- Host URL: Public Endpoint
- VPN Name : Message VPN
- Username: Username
- Password : Password

You can choose which events to simulate and its frequency by using the sliders. As you change a schedule, the submit button in the bottom will be enabled.

solace. Welcome to the Advanced Event Mesh - ERP Simulator SAP

tcp://montrealbroker.messaging.solace montrealbroker-10-1 solace-cloud-client Password

Connect to broker

Success! Broker connected successfully

Sales Order Create event frequency: 10 minute

Sales Order Change event frequency: 6 minute

Business Partner Create event frequency: 15 minute

Business Partner Change event frequency: 4 minute

Material Master Create event frequency: 1 minute

Material Master Change event frequency: 0 minute

Chart of Accounts Create event frequency: 0 minute

Chart of Accounts Change event frequency: 0 minute

Notification Create event frequency: 0 minute

Notification Change event frequency: 0 minute

Submit

- In case you want to disable any of the events, then pull the slider to **0** and click submit and the event will be disabled immediately.

solace. Welcome to the Advanced Event Mesh - ERP Simulator SAP

tcp://montrealbroker.messaging.solace montrealbroker-10-1 solace-cloud-client Password

Connect to broker

Success! Broker connected successfully

Sales Order Create event frequency: 0 minute

Sales Order Change event frequency: 6 minute

Business Partner Create event frequency: 15 minute

Business Partner Change event frequency: 4 minute

Material Master Create event frequency: 1 minute

Material Master Change event frequency: 0 minute

Chart of Accounts Create event frequency: 0 minute

Chart of Accounts Change event frequency: 0 minute

Notification Create event frequency: 0 minute

Notification Change event frequency: 0 minute

Submit

3 : Test the incoming events

You can easily test the simulator by using the **Cluster Manager - Try-Me** as below:> aside negative
> As mentioned earlier due to the intelligent routing in the event mesh, you can connect the simulator and try-me to either of the two SAP AEM services in the event mesh and see the messages flowing freely.

Rapid Pilot Day 1

Cluster Manager > Service Details

Service Details: AEM_CommunityCentral Status Connect Manage Monitoring Configuration **Try Me!**

Get Started with Try Me!

Connect your event broker!

Learn about hierarchical topics and wildcards to achieve fine grained management of your events. [Learn about Try Me!](#)

Copy your credentials below. Then open Broker Manager and follow the 3 easy steps on the right.

Client Username solace-cloud-client

Client Password *****

[Open Broker Manager](#)

Broker Manager

Publisher

Establish Connection
Not Connected

Broker URL
[pre-filled for you]

Message VPN
[pre-filled for you]

Client Username
[pre-filled for you]

Client Password
[pre-filled for you]

Paste 2

Try Me!

Publish
Select a topic or queue to publish to
☒ Topic ☐ Queue

Learn about topic taxonomy

Expand 1 Connect 3

Click on the **Connect Open Broker Manger** button in the **Subscriber** side of the panel as below

Send and Receive

Publisher

Establish Connection
% Connected

Broker URL
[pre-filled for you]

Message VPN
[pre-filled for you]

Client Username
[pre-filled for you]

Client Password
[pre-filled for you]

Publish
Select a topic or queue to publish to
☒ Topic ☐ Queue

Learn about topic taxonomy

Subscriber

Establish Connection
% Connected

Broker URL
[pre-filled for you]

Message VPN
[pre-filled for you]

Client Username
[pre-filled for you]

Client Password
[pre-filled for you]

Subscribe
How do you want to receive messages
Subscribe to a topic to receive direct messages

Tune into Eventual
Apply topic filtering to achieve fine-grained control of your data

Starts with
[pre-filled for you]

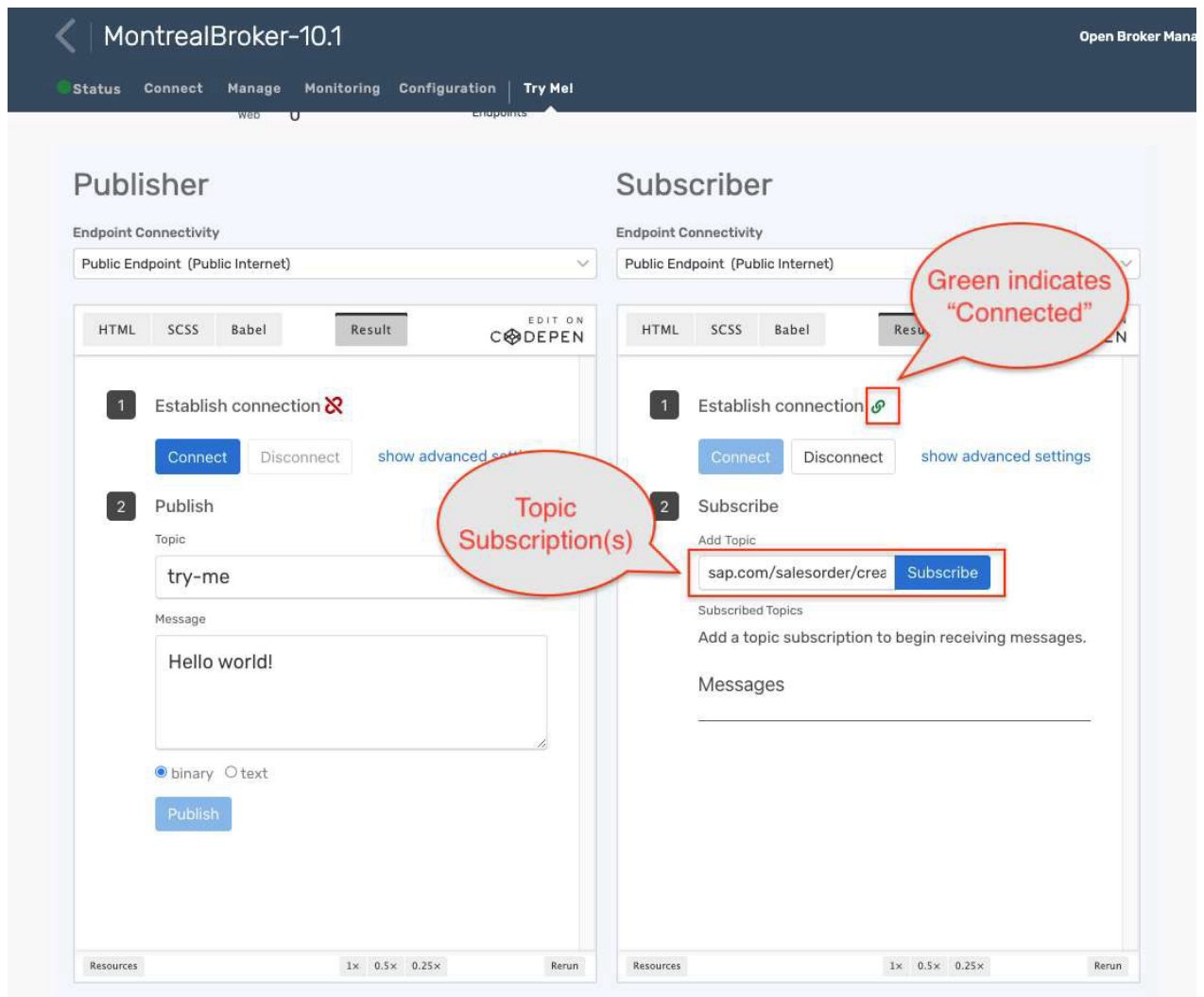
Maintain Connection details from Web_Messaging and connect Published and Subscriber.

Connect with Node.js
Solace Node.js API over SMF, AMQP10 Open Source over AMQP

Technology Library Protocol

solace Solace Node.js API web-messaging [Get Started](#)

node.js




- You can use the below topic structures for different event types:
 - Sales Order :**
 - Create: `sap.com/salesorder/create/>`
 - Change: `sap.com/salesorder/change/>`
 - Business Partner :**
 - Create: `sap.com/businesspartner/create/>`
 - Change: `sap.com/businesspartner/change/>`
 - Chart of Accounts :**
 - Create: `sap.com/chartofaccounts/create/>`
 - Change: `sap.com/chartofaccounts/change/>`
 - Material Master :**
 - Create: `sap.com/material/create/>`
 - Change: `sap.com/material/change/>`

Rapid Pilot Day 1

0 Notifications :

- Create: `sap.com/notification/create/>`
- Change: `sap.com/notification/change/>`
- As the simulator publishes events to the broker you should see events appearing in the subscribed topic(s)

Subscriber

Establish Connection
 Connected

Subscribe
How do you want to receive messages
Subscribe to a topic to receive direct messages

Tune into Events!
Apply topic filtering to achieve fine-grained control of your data!

Wildcards
noun / * / * / property / >
Starts with
noun / >

Suggestions

flight / >

flight / boarding / * / yow / >

flight / * / * / yow / >

Topic Subscriber

Subscribe

Subscribed Topics
sap.com/salesorder/create/> X

Bind to an endpoint to receive guaranteed messages

Messages (Most Recent 20)
3 Direct 0 Persistent 0 Non-Persistent
2024-09-11 11:47:37.381 [Topic sap.com/salesorder/create/V1/SA01/DC01/DV01/CUST001]
Delivery Mode: Direct
DMQ Eligible: Yes
Priority: 4
{\"orderHeader\":{\"salesOrderNumber\":\"SO1001\",\"creator\":\"John Doe\",\"date\":\"2023-08-04\",\"salesType\":\"Online\",\"ordertype\":\"Standard\",\"salesOrg\":\"SA01\",\"distributionChannel\":\"DC01\",\"division\":\"DV01\",\"netvalue\":375.00,\"currency\":\"USD\",\"customer\":{\"cust omerid\":\"CUST001\",\"customerName\":\"ABC Corp\",\"zipCode\":\"12345\",\"street\":\"Main Street\",\"phone\":\"555-123-4567\",\"country\":\"USA\",\"city\":\"New York\",\"emailAddress\":{\"email\":\"john.doe@abccorp.com\"}}},\"orderitem\":{\"item\":\"ITEM001\",\"material\":\"MAT00 1\",\"materialType\":\"Product\",\"itemType\":\"Standard\",\"itemDescription\":\"Rocky Ridge Mountain bike\",\"orderSchedule\":{\"scheduleNumber\":\"SCH001\",\"quantity\":100.0,\"uom\":\"EA\"}}}}}

Takeaways

- || Deploy SAP Simulator in BTP
- || Test Events with AEM Try Me Tab