

Business Process Automation and Advanced Event Mesh

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Your Hosts

		
Brad Caldwell Senior Solution Engineer	Christian Holtfurth Distinguished Engineer	Stefan Ressing SAP Chief Architect
		
Sumeet Koshal Distinguished Engineer	Scott Dillon VP SAP Ecosystem	

Goals

- Understand how to use BPA to review event exceptions

- Understand how to use a Dead Message Queue
- Introduction to Rest Deliver Points

Prerequisites

- SAP Business Process Automation Activated
- Access to SAP BTP Cockpit and ability to create BTP Destinations
- Access to Cloud Integration and ability to create development artifacts
- Access to the AEM Console

Scenario Overview

In the world of Event Driven Asynchronous messaging, sometimes events cannot be successfully processed by a consumer and as a result, they need to be dealt with on an exception basis. As a result, there is built in capability within the broker referred to as a Dead Messages Queue. Essentially, messages can be placed into a special queue where they can later be reviewed and properly dealt with. Should you wish to read more on the concept of Dead Message Queues, please refer to the following link.

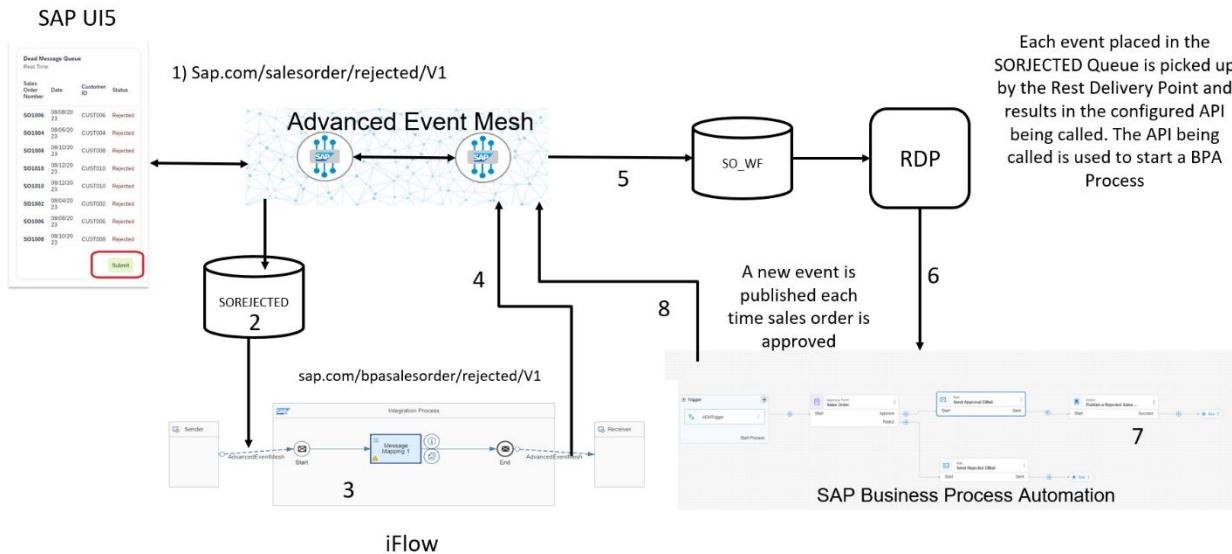
[Link to Blog](#)

In our scenario, we will artificially create a situation where messages cannot be delivered to the endpoint. As a result, they end up in the Dead Message Queue and the application shown below has an integration card on it called "Dead Message Queue". This card is a very simple Queue browser. It displays the messages without removing them from the Queue unless you hit the submit button. The steps and diagram below walk through the exact flow you will be implementing.

In the following diagram, you can see the flow you are about to implement.

- Step 1 -> The user decides to investigate the item displayed in the dead message queue so they hit the submit button which causes the message to be published on the topic shown.
- Step 2 -> There a queue that you will create called SOREJECTED that has a subscription to attract these events.
- Step 3 -> The cloud integration iFlow is listening on the SOREJECTED queue for these events.
- Step 4 -> The iFlow is responsible for transforming the message into a different format that can be used later by the BPA API.
- Step 5 -> The SO_WF queue is attracting events with this new format.
- Step 6 -> A rest delivery point will use the information in the event to call the API for starting the BPA process
- Step 7 -> The BPA Process will place an entry in the Inbox for Approval
- Step 8 -> Once the SalesOrder is approved via the Form, it will be re-published for processing which triggers an update on the original screen that started the entire process.

Process Automation scenario



Creating the Queues for BPA Scenario

The following tool is provided to you to save time creating objects via the Web Console. Should you wish to know more about how this tool was created, please ask Sumeet Koshal, he wrote it for us and is supporting the workshop this week.

Note: If you prefer not to use the CI/CD tool, check out the Appendix further down to find instructions to do it manually.

[Link to CI/CD Tool](#)

The screenshot shows the AEM Rapid Pilot interface with the title "AEM Rapid Pilot - Automatic Configuration". At the top, there are tabs for "aem-north-america" and "aem-north-america-admin". Below the tabs, there is a JSON configuration window containing the following code:

```
{
  "Queues": [
    {
      "name": "SO_WF",
      "owner": "#rdp/RDP1",
      "access-type": "non-exclusive",
      "redelivery": true,
      "try-forever": false,
      "max-redelivery-count": 3,
      "non-owner-permission": "consume",
      "subscriptions": [
        "sap.com/bpasalesorder/rejected/V1"
      ]
    }
  ]
}
```

Below the configuration window is a "Create Configuration" button. To the right of the configuration window, there is a vertical scroll bar. In the bottom right corner of the configuration window, there is a small "..." icon.

In the bottom right corner of the entire interface, there is a "Tasks Complete, process will now exit..." message.

Below you will find the JSON structure to paste into the window. The only other thing you will need is the SEMP (Solace Element Management Protocol) Connection details. Details to find the SEMP API will be provided after the JSON Structure.

```
{
  "Queues": [
    {
      "name": "SO_WF",
      "owner": "#rdp/RDP1",
      "access-type": "non-exclusive",
      "redelivery": true,
      "try-forever": false,
      "max-redelivery-count": 3,
      "non-owner-permission": "consume",
      "subscriptions": [
        "sap.com/bpasalesorder/rejected/V1"
      ]
    },
    {
      "name": "SORJECTED",
      "access-type": "exclusive",
      "owner": "",
      "redelivery": true,
      "non-owner-permission": "consume",
      "subscriptions": [
        "sap.com/salesorder/rejected/V1"
      ]
    }
  ]
}
```

}

From the manage tab within the web console, towards the bottom, you will see "Other Management Tools", expand the "SEMP - REST API" section. From there, you can find the 4 pieces of information you need to execute the tool above.

The screenshot shows the Solace Event Broker Service Settings page. At the top, there are three main sections: Authentication (Enabled), Certificate Authorities (0 Client Certificate Authorities, 1 Domain Certificate Authority), and Client Profiles (1 Client Profile). Below these are Broker Manager Quick Settings for Message VPN, Clients, Queues, Access Control, and Bridges. At the bottom, the Other Management Tools section is expanded, showing the SEMP - REST API details. The URL <https://montrealbroker.messaging.solace.cloud:943/SEMP/v2/config> is highlighted with a red box. The SEMP Credentials section shows fields for Message VPN Name (montrealbroker-10-1), Username (montrealbroker-10-1-admin), and Password (redacted). A gear icon labeled 'API' is also present.

Copy/paste those details into the tool above along with the JSON structure and press the "Create Configuration" Button and voila, you should have your 2 queues and subscriptions created. ***
When copying the details over, make sure not to copy over extra spaces like I did on my first 3 attempts :)

**** Of course, it would be a great idea to check the queues on the console and verify that you have 2 new queues SOREJECTED and SO_WF :-)

Creating the Rest Delivery Point

*** PLEASE NOTE: This is the one section of the 4 days that folks have the most trouble with. Might be workshop fatigue, might be your attention to detail LOL, might be the instructions (I doubt that because I wrote them) or because this section has a bunch of steps to complete that all need to be completed. SOOOOO, don't skip any steps and pay careful attention to the next few pages ***



RDP or Rest Delivery Point is a frequently used feature on the AEM broker. Essentially, based on receipt of a certain event type, the broker can be configured to directly call a Rest Service.

Navigate to the clients tab as shown on the left and then click the + Rest Delivery Point Button.. The name of the RDP is "RDP1"

The screenshot shows the SAP AEM Broker interface. The left sidebar has a 'Clients' link under the 'Messaging' section. The top navigation bar has tabs for 'Clients Summary', 'Solace Clients', 'MQTT', 'REST', and 'AMQP'. The 'REST' tab is active. A modal dialog is open in the center, titled 'Create REST Delivery Point'. It has a 'RDP Name' field with 'RDP1' typed into it. There are two other input fields above it that are currently empty. At the bottom of the dialog are 'Cancel' and 'Create' buttons. To the right of the dialog is a summary card for the broker 'montrealbroker-10-1-'. It shows 'Operational State' as 'Up' and 'Time Connections Blocked (%)' as '0'. At the top right of the card is a '+ REST Delivery Point' button. The overall interface is light gray with blue and black text.

You will now create a Rest Consumer that will be the target for your Events.

The screenshot shows the SAP AEM Broker interface. The left sidebar has a 'Clients' link under the 'Messaging' section. The top navigation bar has tabs for 'REST Delivery Points | RDP1', 'Summary', 'Settings', 'REST Consumers', 'Queue Bindings', and 'Stats'. The 'REST Consumers' tab is active. A modal dialog is open in the center, titled 'REST Consumers'. It has a 'Search by name' input field and a 'REST Consumer Name' input field. Below these are 'Enabled', 'Operational State', and 'Outgoing Connections (Up/Configured)' status indicators. At the bottom of the dialog are 'Cancel' and 'Create' buttons. To the right of the dialog is a summary card for the broker 'montrealbroker-10-1-'. It shows 'Operational State' as 'Up' and 'Outgoing Connections (Up/Configured)' as '0'. At the top right of the card is a '+ REST Consumer' button. The '+ REST Consumer' button is highlighted with a red rectangle. The overall interface is light gray with blue and black text.

Enter "SO_WF_REST_CONSUMER" and press "Create".

Create REST Consumer

REST Consumer Name
SO_WF_REST_CONSUMER

Cancel Create

In order to fill out the information for the Rest_Consumer, we need to get the authentication information for the Rest Consumer.

From the BTP Cockpit, we need to find the service key for the BPA Service. Navigate to the sub-account where you can find the BPA service. From there, click on the "Instances and Subscriptions" and navigate to the 3 "..." at the end.

Application	Plan	Created On	Changed On	Status
SAP Build Process Automation	standard	12 Sept 2023	16 Oct 2023	Subscribed

Instance	Service	Plan	Runtime En...	Scope	Credentials	Status
SOLACEBPA	SAP Build Process Automation	standard	Cloud Foun...	SOLACEDEVBPA	1 key	Created

To the right of the service key, you should again see 3 "..." where you can click "View". This will display the service key.

Subaccount: USEASTBPA - Instances and Subscriptions

Subscriptions (1)

Applications to which your subaccount is currently subscribed

Application	Status
SAP Build Process ...	Subscribed

Instances (1)

Service instances created in: Cloud Foundry | Kyma/Kubernetes | Other environments

Instance	Status
SOLACEBPA	Created

Environments (1)

Environment instances created in this subaccount.

Name	Status
useastbpa-p8xih3g...	Created

SOLACEBPA

Runtime Environment: Cloud Foundry Created On: 12 Sep 2023
Scope: SOLACEDEVBPA Changed On: 12 Sep 2023
Status: Created

Bound Applications (0) Service Keys (1) Labels (0)

Service Keys (1)

Name	Status
BPAServiceKey	Created

Labels (0)

No labels assigned to this instance. Click 'Add' to assign labels.

The service key has all the information you need. In this screenshot, copy from the Service Key as shown in this screenshot to configure the oAuth authentication. Pay attention to the detail that outlines the necessary information to be added to the Token URL

Notice there is no visible spot for clientsecret, once you place this screen into Edit mode, you will see a "change client secret". Use this option to enter the secret.

Service Key from BTP

```
{
  "endpoints": {
    "api": "https://spa-api-gat...[REDACTED]"
  },
  "html5-apps-repo": {
    "app_host_id": "9060e053-e05b-4654-a959-30de519f64b4",
    "app_id": "ad4b90b-4bf1-4965-a6a6-d71ce7fc5300",
    "plan_id": "9cd6ff5e-f33f-459e-90de-3se17718e6e1",
    "region": "3be0da62-2508-4651-8794-579a6dd30303"
  },
  "aaaservertryenable": true,
  "sap.cloud.service": "com.sap.spa.processautomation",
  "sap.cloud.service.alias": "spa",
  "users": [
    {
      "clientid": "eb-737dae08-62fc-4...[REDACTED]",
      "clientsecret": "e9992c...[REDACTED]JRTpwaXU192w7sFOCizNkH7IUL9YAmF3Jc",
      "identityzone": "useastbpa-p8xih3g",
      "identityzonename": "e349f1cc-8212-402c-8f39-f869fa3ealal",
      "password": "e349f1cc-8212-402c-8f39-f869fa3ealal",
      "tenantid": "spa",
      "suburl": "https://internal-xsecur.authentication.us10.hana.ondemand.com",
      "apiurl": "https://api.authentication.us10.hana.ondemand.com",
      "verificationkey": "-----BEGIN PUBLIC KEY-----\nMIIBIjANBgkqhkiG9wBAQEFAAOCAg8AMhIBAgKCAQEAxip3czSu3dFtYq9BDXnExr4cNJSn6StkuK1DgC6oW\n6t9HxDgYhFW5d4DgR2kdnVbyvBDRIRG3pD61SW21U9w\ncM01CNBV41wPfU7ykA8cJA76PB1w7RK128vfHfstQFpAjYSUFS\nINhQzz/3O...[REDACTED]\n-----END PUBLIC KEY-----",
      "subtenantid": "e349f1cc-8212-402c-8f39-f869fa3ealal",
      "usedomain": "authentication.us10.hana.ondemand.com",
      "zoneid": "e349f1cc-8212-402c-8f39-f869fa3ealal",
      "credential-type": "binding-secret"
    }
  ]
}
```

OAuth Options Tab (Screenshot)

- Port: 443
- Proxy Name: (dropdown)
- HTTP Method: POST
- TLS Enabled: (checkbox)
- Outgoing Connection Count: 1
- Retry: Max Response Wait Time (sec): 60, Connection Retry Delay (sec): 3
- Authentication Scheme: OAuth 2.0 Client Credentials
- OAuth 2.0 Client Credentials Authentication:
 - Client ID: eb-737dae08-62fc-4...[REDACTED]
 - Token Endpoint URL: https://useastbpa-p8xih3g...[REDACTED]/oauth/token
 - Token Expiry Default: 60
 - Scope: (dropdown)

Notice that the URL used for "Token Endpoint URL" needs to have "/oauth/token" appended to the end.

Next you will create the connection between the Rest Consumer and the Queue that it will use. Select Queue Bindings and then click the "+Queue Binding".

The screenshot shows the SAP REST Delivery Points interface for 'MontrealBroker-10.1'. The 'Queue Bindings' tab is highlighted with a red box. A search bar and a checkbox for 'Queue Name' are visible. A blue button labeled '+ Queue Binding' is located in the top right corner.

From the dropdown, select the previously created Queue "SO_WF".

The dialog box is titled 'Create Queue Binding'. It has a dropdown menu for 'Queue Name' containing 'SO_WF', which is highlighted with a red box. At the bottom right is a large blue 'Create' button, also highlighted with a red box. A 'Cancel' button is located to its left.

This is where you will enter the remainder of the endpoint...aka the endpoint for creating the Workflow Instances. This should be the same so you can use the same value
"/workflow/rest/v1/workflow-instances"

The screenshot shows the 'Queue Bindings | SO_WF' settings page. The 'Settings' tab is selected. Under 'Post Request Target', the value '/workflow/rest/v1/workflow-instances' is entered in a text input field, which is highlighted with a red box. Other tabs like 'Request Headers' and 'Protected Request Headers' are visible at the top.

The type of content that we will send to the API is of JSON format. In order to indicate this, we need to create a request header called "Content-Type" and set the value to "application/json".



This next step is the step that many many people have either:

- Forgotten completely
- Misplaced
- Incorrect Copy Paste

***** IF THIS HEADER IS NOT included, it will not work *****

The screenshot shows the SAP Fiori interface for managing queue bindings. The left sidebar shows navigation options like MontrealBroker-10.1, Change VPN, Messaging (Message VPN, Clients, Queues, Connectors), and others. The main area is titled "Queue Bindings | SO_WF" and shows the "Request Headers" tab selected. It displays a table with one row: Content-Type (Header Name) and application/json (Header Value). There are buttons for Action and + Request Header.

Last but not least, one last small change. The RDP process will be the owner of this queue so now that we have the RDP Created, lets ensure that we set the owner properly. Modify the owner of the SO_WF as per the following screenshot.

Queues | SO_WF

Summary **Settings** Subscriptions Consumers Messages Queued Stats

Incoming	<input checked="" type="checkbox"/>
Outgoing	<input checked="" type="checkbox"/>
Access Type	<input checked="" type="button"/> Exclusive <input type="button"/> Non-Exclusive
Messages Queued Quota (MB)	5000
Owner	#rdp/RDP1
Non-Owner Permission	No Access
Maximum Consumer Count	1000

At this point, you should have a functioning RDP. The operational status on the screen should say Up for all components with the exception of the RDP Client. If any of them indicate "Down", you will need to Troubleshoot, go back and double check your settings. There is also a Stats link that you can use to see the Error Messages.

REST Delivery Points | RDP1

montréalbroker-10-1-...

Summary Settings REST Consumers Queue Bindings Stats

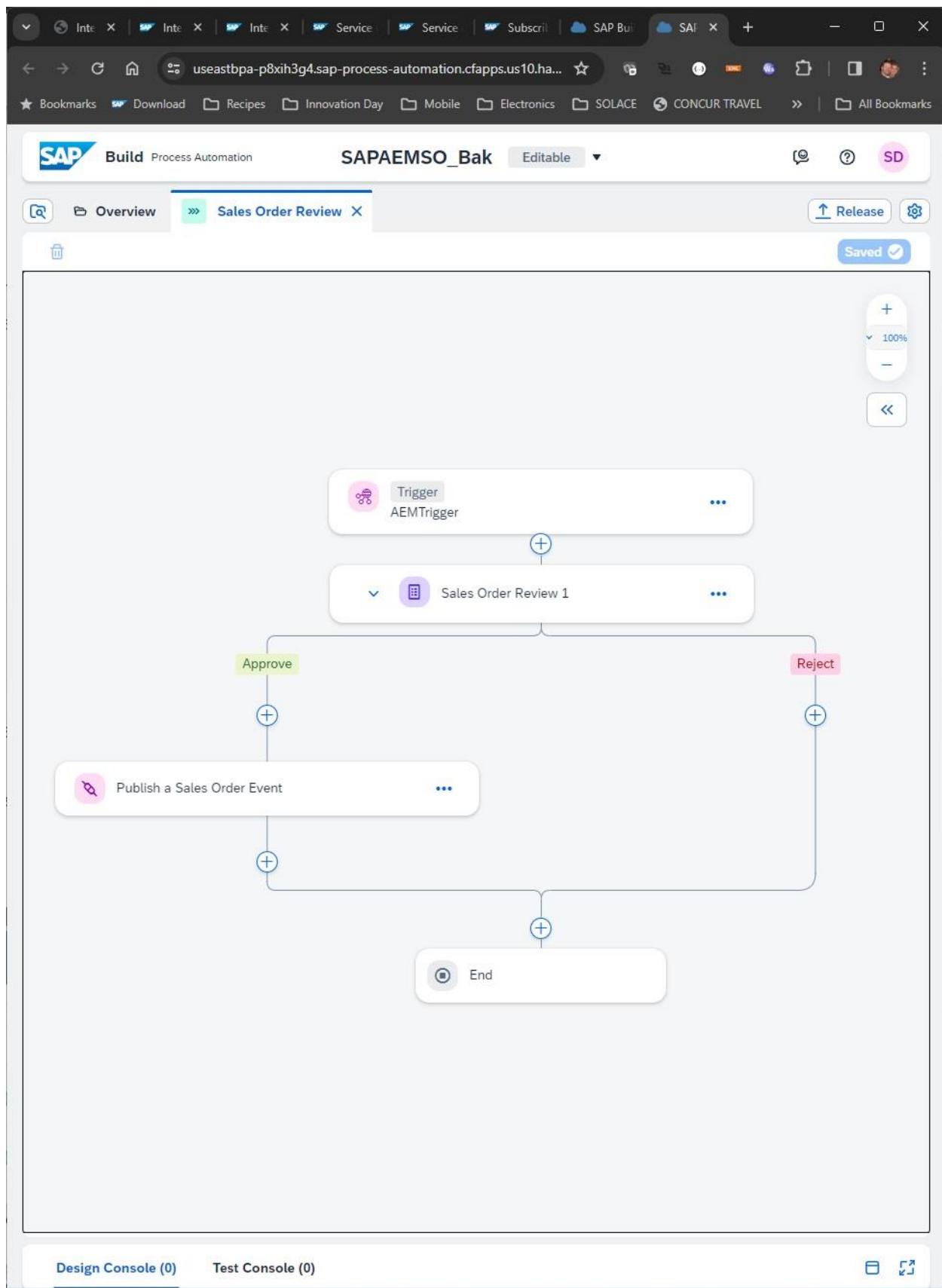
RDP1 Assets Search by name

Asset Type	Asset Name	Action	Operational State
Connector / RDP	RDP1		Up
RDP Client	#rdp/RDP1		N/A
REST Consumer	SO_WF_REST_CONSUMER		Up
Queue	SO_WF		Up
Queue Binding	SO_WF		Up

Congratulations, you have completed setup of the Rest Delivery Point. Each time a message is placed into the Queue, it will automatically call the API associated with the RDP.

Creating a BTP Destination for BPA

The business process that we will deploy is activated by an API Trigger which can be seen in the diagram and the last step of the process is the publishing of an event. This process uses a Rest Call to the broker that is encapsulated in the SAP BPA "Action" which can be seen in the screenshot immediately following the "Approve" action.



The "Action" component needs to be associated with a destination. In order to create the destination, you will need "REST" connectivity information from your broker. Navigate to your AEM Cloud Console, you will select the Cluster Manager and then you will select your broker. From there, you will select the "Connect" option at the top. On this screen, make sure that the "View By" is set to Protocol as the first step. From there, expand the REST protocol and everything you need to create the destination will be visible.

SAP | MontrealBroker-10.1

Status Connect Manage Monitoring Configuration Try Me

Open Broker Manager ...

Connect Using a Supported Client Library

Select a connection point and supported client library below to start messaging.

View by: Protocol Expand all

- > Solace Messaging Start messaging with client libraries that use the Solace Message Format (SMF) protocol over TCP.
- > Solace Web Messaging Start messaging with client libraries that use the Solace Message Format (SMF) protocol over Web Sockets or HTTP.
- > AMQP Start messaging with open APIs that use the AMQP.
- > MQTT Start messaging with open APIs that use the MQTT protocol.
- > REST Start messaging with the Solace Messaging REST API.

solace•

solace•

AMQP

MQTT

REST

Client Libraries

solace•	Solace REST Messaging API REST	Get Started
----------------	-----------------------------------	-------------

Connection Details

Username: solace-cloud-client

Password: 3cp8ujsrcu9776rrt0dos20

Secured REST Host: https://mr-connection-qhgik3f2ezp.messaging.solace.cloud:9443

Public Internet: https://montrealbroker.messaging.solace.cloud:9443

Navigate to the BTP Cloud Cockpit

Once you have the connectivity information, Navigate to the Destinations Section within the BTP Cockpit, Select the "New Destination" option. You will be creating a destination called "AEMBROKERREST".

Cloud Foundry

Spaces

Space Quotas

Org Members

HTML5 Applications

New Destination Import Destination Certificates Download Trust Download IDP Metadata Renew Trust

Type	Name	Basic Properties
HTTP	AEMBROKERREST	Authentication: BasicAuthentication ProxyType: Internet URL: https://montrealbroker.messaging.solace.cloud:9443

You will populate the Destination information as shown below and you will add two properties that are both set to true.

- sap.applicationdevelopment.actions.enabled – true
- sap.processautomation.enabled – true

When your destination is created, double check to make sure both properties are there.

The screenshot shows the Solace configuration interface. At the top, there are tabs: New Destination, Import Destination, Certificates, Download Trust, Download IDP Metadata, and Renew Trust. Below this is a table titled "Basic Properties" with two rows:

Type	Name	Authentication	ProxyType
HTTP	AEMBROKERREST	BasicAuthentication	Internet https://montrealbroker.messaging.solace.cloud:9443

Below the table is another section titled "Destination Configuration" for the "AEMBROKERREST" destination. It contains fields for Name, Type, Description, URL, Proxy Type, Authentication, User, and Password. To the right of these fields is a "Additional Properties" section with two entries: "sap.applicationdevelopment.actions.enabled" and "sap.processautomation.enabled", both set to "true". There is also a checked checkbox for "Use default JDK truststore".

At the bottom of the configuration section are buttons for Edit, Clone, Export, Delete, and Check Connection.

Creating the SAP BPA Project

For the SAP BPA setup, we will be importing 1 File that contains several components:

- 11 Artifacts
- 1 Trigger
- 1 Dependency for the Action Group that represents the action group
- a project of type "Process Automation"

We will import the SAPAEMSO_3.1.0.mtar file. Select the import option which is highlighted by the red square. When prompted, select the SAPAEMSO_3.1.0.mtar file for import. Once it's successfully imported, you will see 1 project listed as per the screenshot below *** You can download the file here https://github.com/SolaceLabs/aem-sap-integration/blob/main/deployable/SAPAEMSO_3.1.0.mtar ***

Welcome to SAP Build

Create apps, automate processes, and build business sites using productivity or no-code tools.

Quick Start

All Projects (1)

Name	Versions	Type	Last Accessed	Members	Options
SAPAEMSO	Process Automation	Dec 5, 1:03 pm	Me	...	

In order to deploy the BPA project, you need to associate the project with the Destination that you have already created in BTP. The deployment process will ask you to select a Destination so you need to register the destination with the BPA tooling. Expand the menu options on the top left.

Lobby

Connectors

Store

Monitoring

Control Tower

Welcome to SAP Build

Create apps, automate processes, and build business sites using productivity or no-code tools.

Quick Start

All Projects (1)

Name	Versions	Type	Last Accessed	Members	Options
SAPAEMSO	2 Available Latest: 1.0.1	Process Automation	Dec 5, 8:18 pm	Me	...

Click on the Control Tower and Select Destinations

The screenshot shows the SAP Build Control Tower interface. The left sidebar includes links for Lobby, Connectors, Store, Monitoring, and Control Tower (which is selected). The main area is divided into three sections: Tenant Configuration (with a search icon), Backend Configuration (with icons for Mail Server, SAP Cloud ALM, Destinations, and External Authentication), and Agent Configuration (with icons for Agents, Agent Groups, Agent Management, Agent Attributes, Mass Registrations, Agent Update, and External IP Safelist).

When you click "New Destination", you should see the Destination you created in BTP called "AEMBROKERREST", if you don't, you have not specified the properties correctly and you will need to investigate. Select the Destination and you should see it populate in the UI. Now, we can deploy the project.

The screenshot shows the SAP Build Control Tower Destinations section. The left sidebar includes links for Lobby, Connectors, Store, Monitoring, and Control Tower (selected). The main area displays a table of destinations:

	Name & Description	Type	Host Address	Authentication Type	Actions
	AEMBROKERREST Rest Endpoint for AEM Broker	HTTP	https://montrealbroker.mess...	BasicAuthentication	

Head back to the Lobby and Click on the SAPAEMSO project.

The screenshot shows the SAP Build interface. On the left, there's a sidebar with links to 'Lobby', 'Connectors', 'Store', 'Monitoring', and 'Control Tower'. The main area has a purple header 'Welcome to SAP Build' with the sub-header 'Create apps, automate processes, and build business sites using productivity or no-code tools.' Below this is a 'Quick Start' section with two cards: 'Access our SAP Build Learning Journeys' (with a document icon) and 'Usability & Layout Improvements in the Process Editor' (with a server icon). The main content area is titled 'All Projects (1)' with a search bar and a 'Create' button. A table lists one project: 'SAPAEMSO' (Process Automation, Version 2 Available, Last Accessed Dec 5, 8:18 pm, Members Me, Options three dots).

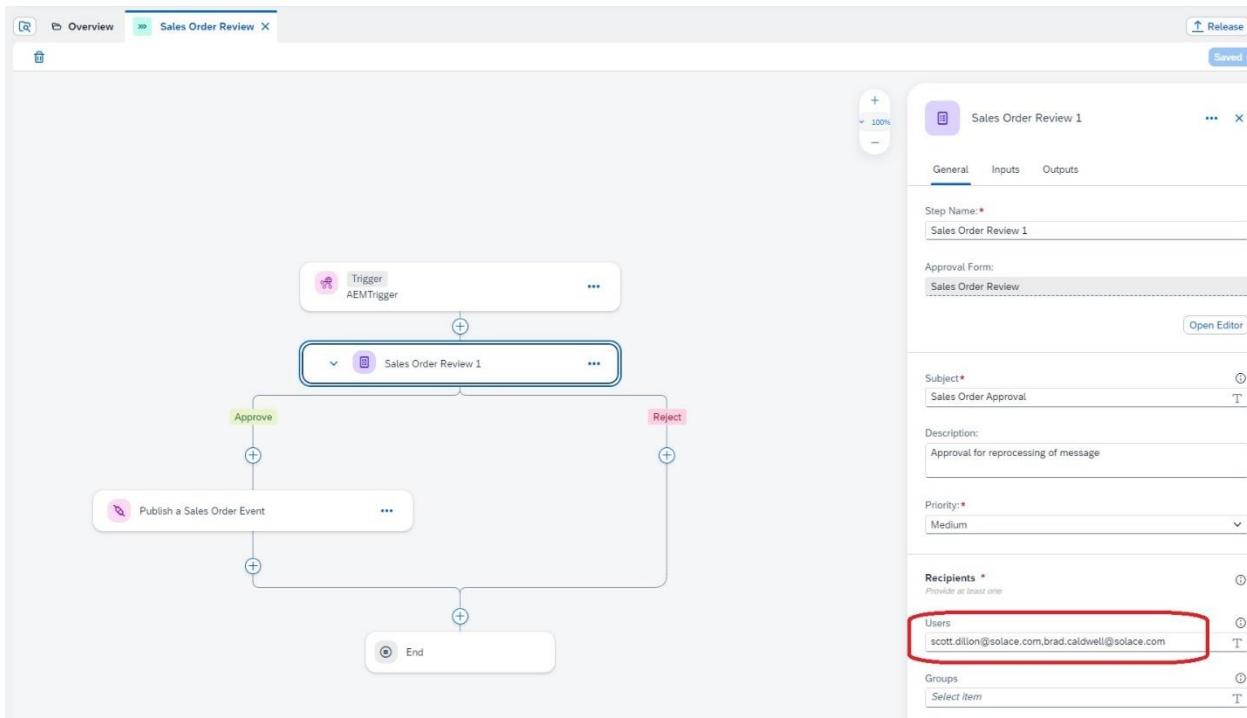
Prior to releasing the project, we have to make a small change to the project. Lets start by clicking on the "Sales Order Review" Process.

The screenshot shows the 'SAPAEMSO' project overview in SAP Build. At the top, there are tabs for 'Overview' and 'Process Automation'. The main area displays project details: Update (Last updated on: October 14, 2023, By: You), Creation (Created on: October 14, 2023, By: You), and Bundle Size (Project Size: 57.14 KB, Estimated Package Size: 45.55 KB). On the right, there are buttons for 'Release' (highlighted with a red box) and other project actions. Below this, the 'Artifacts (10)' tab is selected, showing a list of artifacts. One artifact, 'Sales Order Review', is highlighted with a red box. The table lists the artifacts:

Name	Description	Type	Last edited	Last edited by	Created On
customer		Data Type	2 days ago	scott.dillon@solace.com	October 14, 2023
End		Process	2 days ago	scott.dillon@solace.com	October 14, 2023
orderHeader		Data Type	2 days ago	scott.dillon@solace.com	October 14, 2023
orderHeaderList		Data Type	2 days ago	scott.dillon@solace.com	October 14, 2023
orderItem		Data Type	2 days ago	scott.dillon@solace.com	October 14, 2023
orderSchedule		Data Type	2 days ago	scott.dillon@solace.com	October 14, 2023
Sales Order Review		Process	2 days ago	scott.dillon@solace.com	October 14, 2023
Sales Order Review		Form	2 days ago	scott.dillon@solace.com	October 14, 2023
SalesOrderItem		Data Type	2 days ago	scott.dillon@solace.com	October 14, 2023
TestForm		Form	2 days ago	scott.dillon@solace.com	October 14, 2023

In the business process, we must indicate which users will have the notification delivered to their inbox. Click on the Approval Form for Sales Order. You will see properties appear on the right side of the screen. Specify the userid of users who should have the notification sent to their inbox. In this case, I have specified 2 IDs separated by a comma. Once you have made the change, we now need to release and deploy the project. Click the "Release" option in the upper right.

******NOTE: In my case, my email address is my ID. In some cases, it is not your email address. If you deploy your project and don't see any items appearing in your inbox, you might have not specified the correct ID in this field. This has been a popular GOTCHA in previous workshops******



You can select the appropriate version with either of the radio boxes and then press the release button.

Release Project

Version:

- Contains only patches
- Contains minor changes
- Contains significant changes which may impact dependent projects

Version Number:

3.0.2

Version Comment:

Enter a comment to easily identify your different package versions

Optimize for faster execution. For more information, click here.

Release

Cancel

Once the project is released, you should see the Deploy Button. Press it to reveal a new feature that will ask you to select an environment. Select the "Public" environment and press "Upgrade". **Note, in my case, I have several versions already deployed, so if it's the first deployment, it might not say "upgrade" as in the screenshot.**

The screenshot shows the SAP Build Process Automation interface. At the top, there is a navigation bar with icons for SAP, Build, Process Automation, and tenant selection. Below the navigation bar, the page title is "SAPAEMSO 3.1.1 Released". On the left, there is a sidebar with a purple icon and the text "Overview". The main content area displays the project details for "SAPAEMSO 3.1.1 Released". It includes sections for "Creation" (Created On: February 26, 2024, By: You), "Artifacts (9)", "Triggers (1)", and "Dependencies (3)". On the right, there is a "Choose an Environment" dialog box. The "Public" environment is selected, and a note states: "This public environment can be accessed by all registered users for this tenant." Below this, it says "Active Version Deployed 3.0.0: (See 10 inactive)". At the bottom right of the dialog are "Upgrade" and "Undeploy" buttons.

You will likely get a warning message that indicates this deployment could have an affect on already deployed triggers..." press deploy.

Effect on Triggers

Deploying this project version affects triggers that have already been created.



AEMTrigger

Will be updated

Executes



Sales Order Review

Deploy

Cancel

Here you must select your destination for the action. If your destination is not in the dropdown, something has not been configured properly in the Settings of the project.

Define Variables

"AEMBROKERREST" in "SAPAEMSO 3.1.1"

Data type: Destination

[Set new value](#) [Use existing value](#)

Destination:

AEMBROKERREST

X ▾

[Deploy](#)

[Cancel](#)

This is the last step to deploy your business process, click Deploy.

1 Overview — 2 Runtime Variables — 3 Triggers

Triggers

Name	Type	Changes	Will execute
AEMTrigger	API	Will be updated	Sales Order Review

Back

Deploy

You should now see "Deployed" and "Active" on the top left of the screen and your process should now be running.

The screenshot shows the SAP Build Process Automation interface. The main title bar reads "SAP Build Process Automation" and "SAPAEMSO 3.0.2 DEPLOYED". The top navigation bar includes links for Bookmarks, Download, Recipes, GENYOUTH, HCP, HCP Workshop, www.google.ca, Innovation Day, GazMet, Mobile, Electronics, Google Dev, SOLACE, CONCUR TRAVEL, and All Bookmarks. The main content area is titled "Overview" for the "SAPAEMSO 3.0.2 DEPLOYED ACTIVE" process. It displays basic information: Update (Last updated on: October 16, 2023), Creation (Created on: October 14, 2023), Bundle Size (Project Size: 60.27 KB), Agent version (No value), and Collaborators (You). Below this, there are tabs for Artifacts (10), Triggers (1), and Dependencies (1). The "Artifacts" tab lists 10 items:

Name	Description	Type
customer		Data Type
End		Process
orderHeader		Data Type
orderHeaderList		Data Type
orderItem		Data Type
orderSchedule		Data Type
Sales Order Review		Process
Sales Order Review		Form
SalesOrderItem		Data Type
TestForm		Form

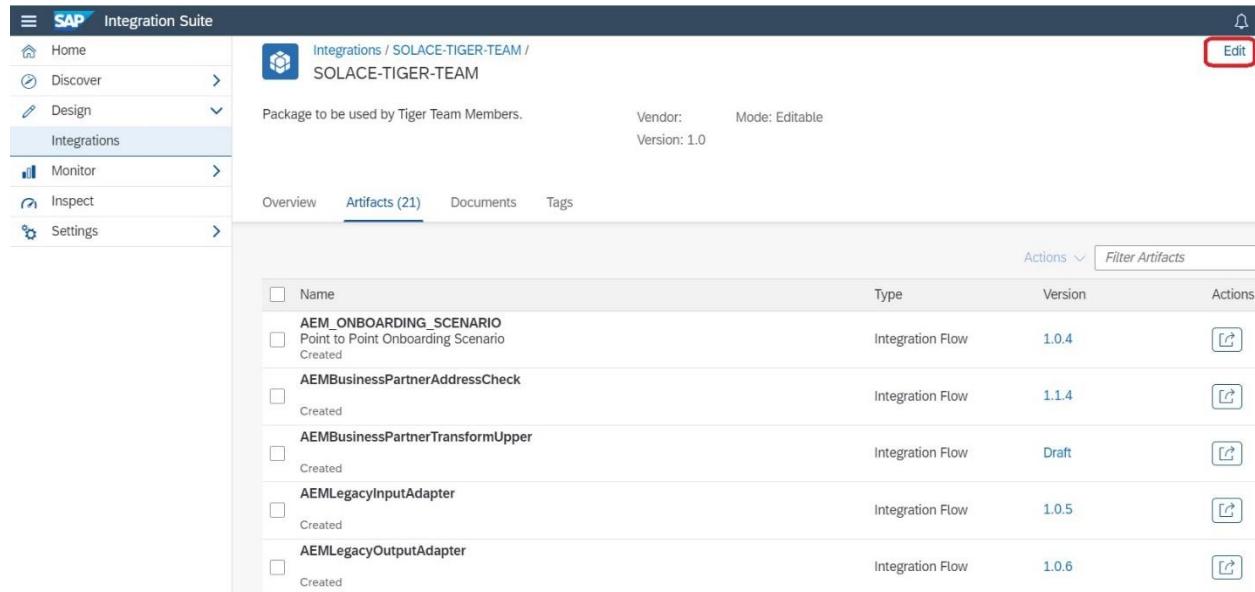
At the bottom, there is a "Deployment Console (0)" section.

The process should now be running. Now we need to add an iFlow to transform messages so that they can be used to Trigger the process.

Integration Suite Setup

In the Business Process Automation scenario, we will activate an instance each time a record from the Dead Message Queue is submitted for review. The Sales Order Event from the Queue will need to be augmented with some additional metadata that is required for the BPA API. In order to augment the message with the additional elements, we will use 2 Cloud Integration Artifacts to do this:

- SOTOBPASOV2 – This message mapping artifact will map the incoming Sales Order Event to the Structure required for the BPA API
- <https://github.com/SolaceLabs/aem-sap-integration/blob/main/deployable/SOTOBPASOV2.zip>
- SalesOrderToBPAiFlow – This iFlow will connect to the Advanced Event Mesh and pull in all orders that have been submitted for processing from the UI5 application. Technically, the iFlow connects to a Queue that you will create on the broker. Once the Sales Order event is received, it will be routed through the mapping and then published onto a new topic with the augmented schema.
- <https://github.com/SolaceLabs/aem-sap-integration/blob/main/deployable/SalesOrderToBPAiFlow.zip>



The screenshot shows the SAP Integration Suite interface. On the left, there's a navigation sidebar with options like Home, Discover, Design (with a dropdown for Integrations), Monitor, Inspect, and Settings. The 'Integrations' option is currently selected. The main area displays a package named 'SOLACE-TIGER-TEAM'. It shows the package is intended for 'Tiger Team Members' and is in 'Editable' mode, version 1.0. Below this, there are tabs for Overview, Artifacts (21), Documents, and Tags. The 'Artifacts (21)' tab is active, showing a list of artifacts. The first artifact listed is 'AEM_ONBOARDING_SCENARIO', which is an 'Integration Flow' version 1.0.4. There are 20 other artifacts listed, each with a checkbox, a name, a type, a version, and an 'Edit' button. A red box highlights the 'Edit' button for the first artifact.

Name	Type	Version	Actions
AEM_ONBOARDING_SCENARIO	Integration Flow	1.0.4	
Point to Point Onboarding Scenario			
Created			
AEMBusinessPartnerAddressCheck	Integration Flow	1.1.4	
Created			
AEMBusinessPartnerTransformUpper	Integration Flow	Draft	
Created			
AEMLegacyInputAdapter	Integration Flow	1.0.5	
Created			
AEMLegacyOutputAdapter	Integration Flow	1.0.6	
Created			

Once you have the package in edit mode, select the DropDown under "Add" and select "Message Mapping".

SAP Integration Suite

Integrations / SOLACE-TIGER-TEAM / SOLACE-TIGER-TEAM

Header Overview Artifacts (21) Documents Tags

Add Migrate Delete

Name
AEM_ONBOARDING_SCENARIO
Point to Point Onboarding Scenario
Created
AEMBusinessPartnerAddressCheck
Created
AEMBusinessPartnerTransformUpper
Created
AEMLegacyInputAdapter
Created
AEMLegacyOutputAdapter
Created

Integration Flow
SOAP API
Value Mapping
OData API
Script Collection
REST API
Message Mapping
Function Libraries
Integration Adapter
Data Type
Message Type

At the top of this form, you will select "Upload" and then you will select the zip file with the name "SOTOBAPS0V2" for Message Mapping.

Add Message Mapping

1 Add

1. Add

Create

Upload

ES Repository

Message Mapping: *

Name: *

ID: *

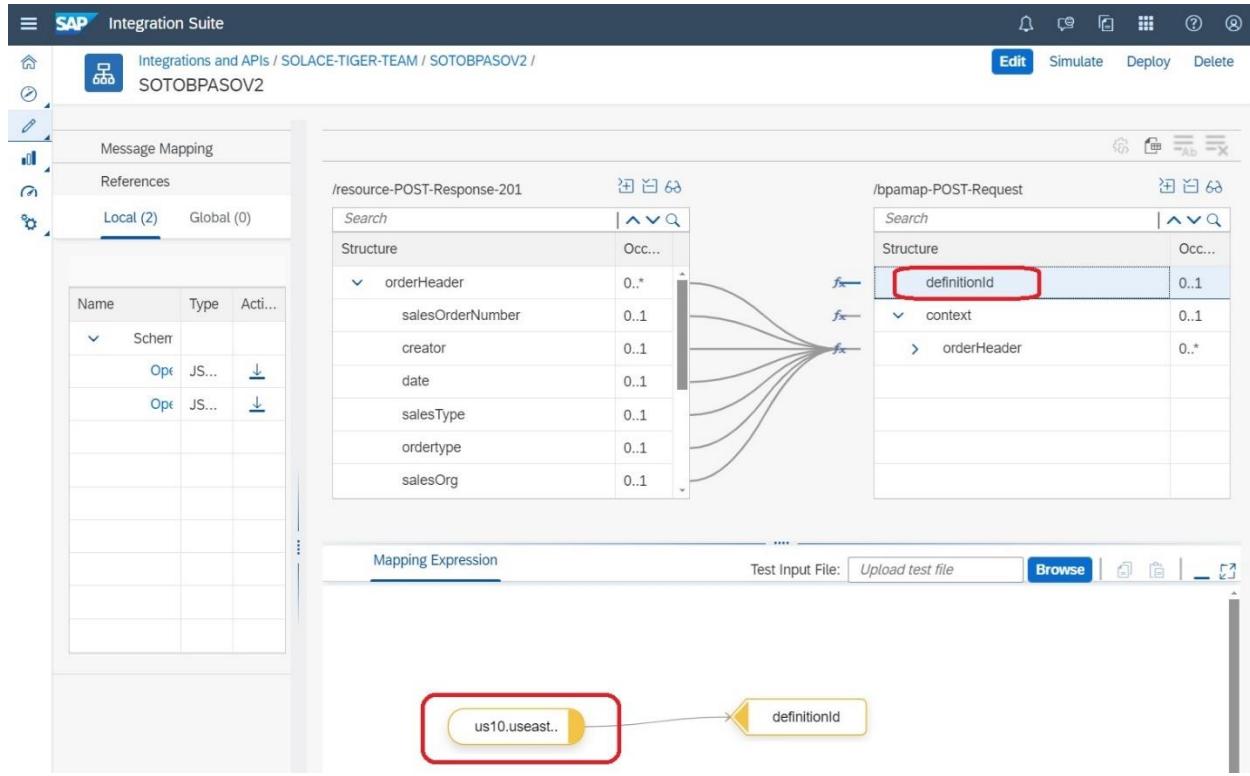
Description

Description:

[Add and Open in Editor](#)

[Cancel](#)

Once the artifact is uploaded, you will open it up and edit one of the properties. You will see one of the attributes in the target mapping is "DefinitionID". This is the unique ID of the Business Process Automation process that we will be activating. This ID will be taken from the BPA environment. Within the BPA environment, navigate to the Monitor section, find your business process and you will find the ID that needs to be entered. (** Go see the next screenshot to see specific details on how to find ID**) Once you have modified the ID, be sure to hit Save at the top and then you can hit "Deploy" from there or back from the main screen as shown below.



Navigate Back to the SAP Business Process Automation Environment temporarily. From the Business Process environment, navigate to the "Monitoring" section. To find this, simply click on the SAP Icon at the top to reveal the main menu. From there, on the left side, Click "Monitoring" and then "Processes and Workflows".

The screenshot shows the SAP Build interface under the 'Monitoring' tab. On the left sidebar, 'Monitoring' is highlighted. The main area is titled 'Monitor' and contains four cards: 'Process and Workflow Instances' (0 Failed today), 'Automation Jobs' (0 Errors today), 'Acquired Events' (0 errors today), and 'Automation Overview'. Below these is a section titled 'Automation Concurrent Quota Usage Today' with two rows: 'Simultaneous execution Unattended 0/0' and 'Simultaneous execution Attended 0/0'. At the bottom is a 'Manage' section with three cards: 'Processes and Workflows' (3 Deployed), 'Visibility Scenarios' (0 Deployed), and 'Business Rules'.

You should now see the "Sales Order Review" process listed and right below it you should see the ID. This is the ID you want to copy and paste into the iFlow mapping section. You will take the ID and you will use it in the iFlow to uniquely identify the Workflow to be started. Essentially, the API from SAP is very generic. You call the API with the ID of the workflow to be started with the payload and voila, you can start the process. *** If for some reason, the Sales Order Review process is not visible, select "Navigation" at the top to select Sales Order Review.

The screenshot shows the SAP Build interface under the 'Navigation' tab. The 'Monitoring / Process and Workflow Definition / Sales Order Review' path is highlighted. The main content area shows the 'Sales Order Review' process with its ID: us10.useastbpa-pbx, Version: 13, and Project: SAPAEMSO v3.1.1. Buttons for 'Show Instances', 'Start New Instance', and 'Download Model' are visible. The 'ID: us10.useastbpa-pbx' field is circled.

Now we will import the iFlow using the same approach we just followed for the Message Mapping.

SAP Integration Suite

Integrations / SOLACE-TIGER-TEAM / SOLACE-TIGER-TEAM

Header Overview Artifacts (21) Documents Tags

Add Migrate Delete

Name	Type
AEM_ONBOARDING_SCENARIO	Point to Point Onboarding Scenario
AEMBusinessPartnerAddressCheck	Created
AEMBusinessPartnerTransformUpper	Created
AEMLegacyInputAdapter	Created
AEMLegacyOutputAdapter	Created
AEMSalesOrderAddressCheck	

Select the "Upload" checkbox and use the 2nd zip file called "SalesOrderToBPAiFlow.zip".

Add Integration Flow

Create Upload

Integration Flow: *

Name: *

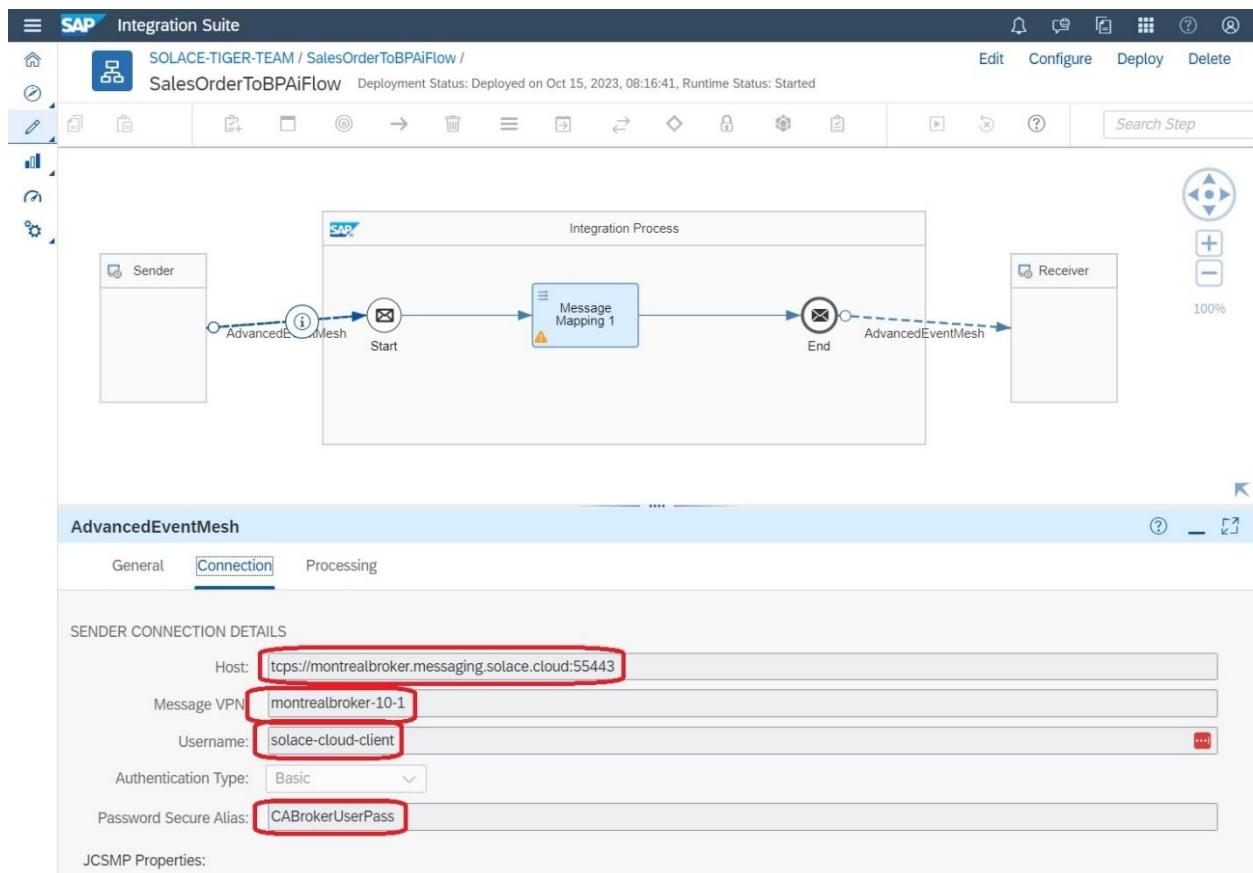
ID: *

Description:

Sender:

Receiver:

Once after the iFlow is successfully imported, we need to configure the appropriate connection information to connect to the AEM Service. You should know where to find this information now :-)



On this screen, we will configure the iFlow to be watching the Queue "SOREJECTED"....short for Sales Orders Rejected.

SOLACE-TIGER-TEAM / SalesOrderToBPAiFlow /
SalesOrderToBPAiFlow Deployment Status: Deployed on Oct 15, 2023, 08:16:41, Runtime Status: Started
 Edit Configure Deploy Delete Search Step

The screenshot shows a process flow titled "Integration Process". It starts with a "Sender" node connected to a dashed "AdvancedEventMesh" line, which then connects to a "Start" event. This leads to a "SAP" node, followed by a "Message Mapping 1" step, and then another "AdvancedEventMesh" line leading to an "End" event. Finally, it connects to a "Receiver" node. The "AdvancedEventMesh" component is expanded to show its configuration details:

AdvancedEventMesh	
	Processing
SENDER PROCESSING DETAILS	
Consumer Mode:	Guaranteed
Parallel Consumers:	1
Queue Name:	SOREJECTED
Selector:	
Acknowledgment Mode:	Automatic On Exchange Complete
Settlement Outcome After Maximum Attempts:	Failed
Maximum Message Processing Attempts:	5
Retry Interval (in ms):	1000
Maximum Retry Interval (in ms):	30000
Exponential Backoff:	3.0

Now we need to configure the publishing component of the iFlow. It will be the same connection information as the consumer above.

SOLACE-TIGER-TEAM / SalesOrderToBPAiFlow /
 SalesOrderToBPAiFlow Deployment Status: Deployed on Oct 15, 2023, 08:16:41, Runtime Status: Started

Edit Configure Deploy Delete Search Step

AdvancedEventMesh

- General
- Connection**
- Processing
- Message Properties

RECEIVER CONNECTION DETAILS

Host:	tcp://montrealbroker.messaging.solace.cloud:55443
Message VPN:	montrealbroker-10-1
Username:	solace-cloud-client
Authentication Type:	Basic
Password Secure Alias:	CABrokerUserPass

JCSMP Properties:

Now we configure the iFlow. We will publish to a topic called "sap.com/bpasalesorder/rejected/V1". The thought here is that we still have a Sales Order but it's been formated for the Business Process Automation API. Earlier in the exercise you setup a Queue listening for this event so it's really important that these 2 topics match so that all BPA rejected sales orders get attracted into the right Queue. You could add another level to the Topic to reflect the use case or embed something in the name like I have done.

SOLACE-TIGER-TEAM / SalesOrderToBPAiFlow /
 SalesOrderToBPAiFlow Deployment Status: Deployed on Oct 15, 2023, 08:16:41, Runtime Status: Started

Edit Configure Deploy Delete Search Step

AdvancedEventMesh

- General
- Connection
- Processing**
- Message Properties

PUBLISHER PROCESSING DETAILS

Delivery Mode:	Direct
Endpoint Type:	Topic
Destination Name:	sap.com/bpasalesorder/rejected/V1
Message Type:	Automatic

SYNCHRONOUS REQUEST PROCESSING DETAILS

Convert Publish Into Synchronous Requester?:

Now that both the message mapping and the iFlow have been imported and configured, you need to deploy them both. You have a few ways to deploy an artifact. As you are editing within the editor and have saved your changes, you can deploy from within the editor. The 2nd option is from the list of artifacts within the folder.

Artifact Name	Type	Status	Actions
DevTest1	Integration Flow	Draft	Edit
Created			
halitest	Message Mapping	1.0.0	Edit
Created Locked by: brad.caldwell@solace.com			
JPTest	Integration Flow	1.0.0	Edit
Created Unsaved Changes			
mmNotifTechnician	Message Mapping	1.0.2	Edit
Created			
NotificationsToWF	Integration Flow	1.0.2	Edit
Created			
NotificationsToWF_copy	Integration Flow	1.0.5	Edit
Created			
NotificationsViaAMQP	Integration Flow	1.0.2	Edit
Created			
PubSubPlusAdapterSample	Integration Flow	Draft	Edit
Created			
SalesOrderOrchestration	Integration Flow	Draft	Edit
Created			
SalesOrderOrchestration	Integration Flow	Copy	Edit
Created			
SalesOrderToBPASalesOrderMM	Message Mapping	Download	Edit
Created			

Once both of the artifacts have been deployed, your last step is to create the secure parameter. Under "Monitor" Select Integrations.

SAP Integration Suite

Overview

Manage Integration Content

All 13
Started 12

Manage Security

Security Material 23
Artifacts

Keystore 10
Entries

From here, you will create a Secure Parameter and you will use the name "CABrokerUserPass" **or you can use another name, just be sure to use the same one in the iFlow** You will enter the corresponding password for the solace-cloud-client Username.

SAP Integration Suite

Overview / Manage Security Material

Security Material (23)

MarkusPassAlias	Secure Parameter	Deployed	markus.hebach@s olace.com	Aug 24, 2023, 12:24:49	
amack.us1.aem.pwd	Secure Parameter	Deployed	andrew.mackenzie @solace.com	Aug 18, 2023, 02:37:42	
known.hosts	SSH Known Hosts	Deployed	christian.holtfurther @solace.com	Aug 11, 2023, 09:45:27	
sftpuser	User Credentials	Deployed	christian.holtfurther @solace.com	Aug 08, 2023, 12:24:49	
BradCred	User Credentials	Deployed	brad.caldwell@s olace.com	Jul 18, 2023, 12:45:44	
dh-production-adapter	Secure Parameter	Deployed	benjamin.gottstein @solace.com	Jul 18, 2023, 02:37:42	
DQMCred	OAuth2 Client Credentials	Deployed	scott.dillon@s olace.com	Jul 12, 2023, 07:55:30	
CABrokerUserPass	Secure Parameter	Deployed	christian.holtfurther @solace.com	Jul 11, 2023, 09:45:27	

User Credentials

- OAuth2 Client Credentials
- OAuth2 SAML Bearer Assertion
- OAuth2 Authorization Code
- Secure Parameter

Create Upload Refresh Settings

Before proceeding, please check the monitor to ensure that both artifacts have been deployed successfully.

SAP Integration Suite

Home

Discover >

Design

Integrations

Monitor

Integrations

Inspect

Settings >

Integrations / Design

Packages (11)

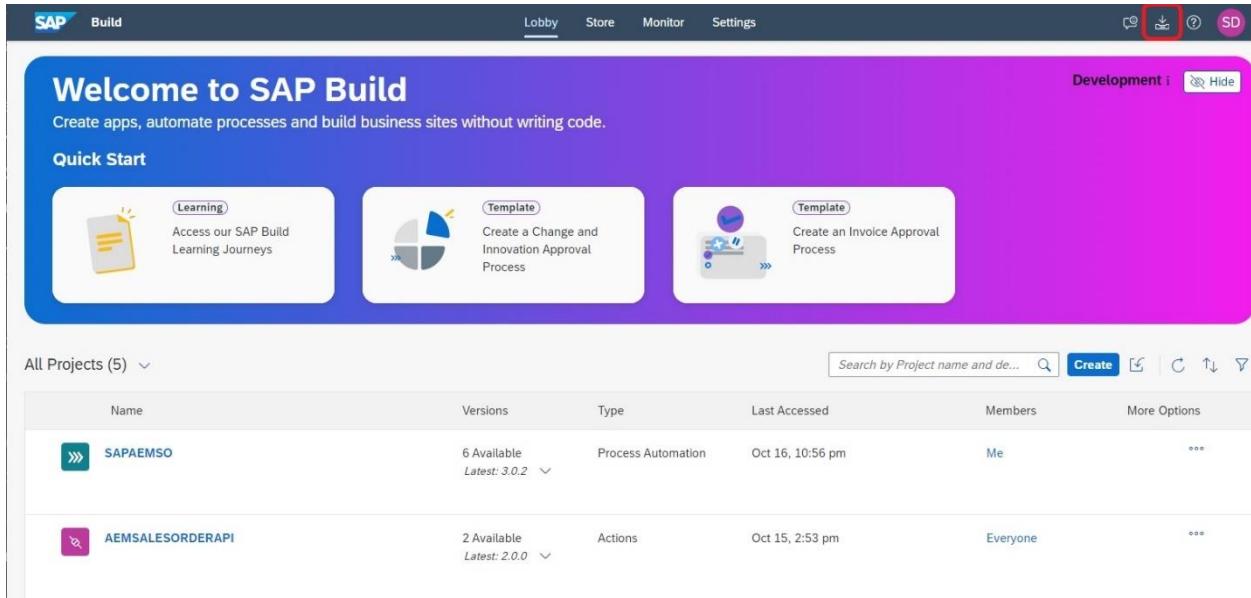
Name	Mode
AEM-Rapid-Pilot	Editable
AEMAdapter-EATest	Editable

Testing the Components

At the moment, you should have a fully integrated scenario.

From the Sales Order Dashboard, hit "Submit" on the "Dead Message Queue" card to send a message for review. Now we to check if the event triggered a creation of an Inbox Item.

From the main screen of the BPA Lobby, you can see in the upper right, a little inbox symbol...Click It.



The screenshot shows the SAP Build Lobby interface. At the top, there's a navigation bar with tabs: Lobby (which is selected), Store, Monitor, and Settings. To the right of the tabs are icons for Help, Logout, and SD. Below the navigation bar is a purple header with the text "Welcome to SAP Build" and a sub-instruction: "Create apps, automate processes and build business sites without writing code.". Underneath this is a "Quick Start" section with three cards: one for "Access our SAP Build Learning Journeys" (labeled "Learning"), one for "Create a Change and Innovation Approval Process" (labeled "Template"), and one for "Create an Invoice Approval Process" (labeled "Template"). In the main content area, there's a heading "All Projects (5) ▾". Below it is a search bar with placeholder text "Search by Project name and de..." and a "Create" button. A table lists five projects:

Name	Versions	Type	Last Accessed	Members	More Options
SAPAEMSO	6 Available Latest: 3.0.2	Process Automation	Oct 16, 10:56 pm	Me	***
AEMSALESORDERAPI	2 Available Latest: 2.0.0	Actions	Oct 15, 2:53 pm	Everyone	***
(empty)					
(empty)					

Now you will see the form that we created to display the contents of a Sales Order Event.

SAP My Inbox

All Tasks (1)

🔍
✖

Sales Order Review	Medium
sb-clone-390ed564-...	

Sales Order

AEM RAPID PILOT - BPA Sales Order Sample

Sales Order Header

Sales Order Number *

SalesType

Date

Sales Org

Distribution Channel

Customer Details

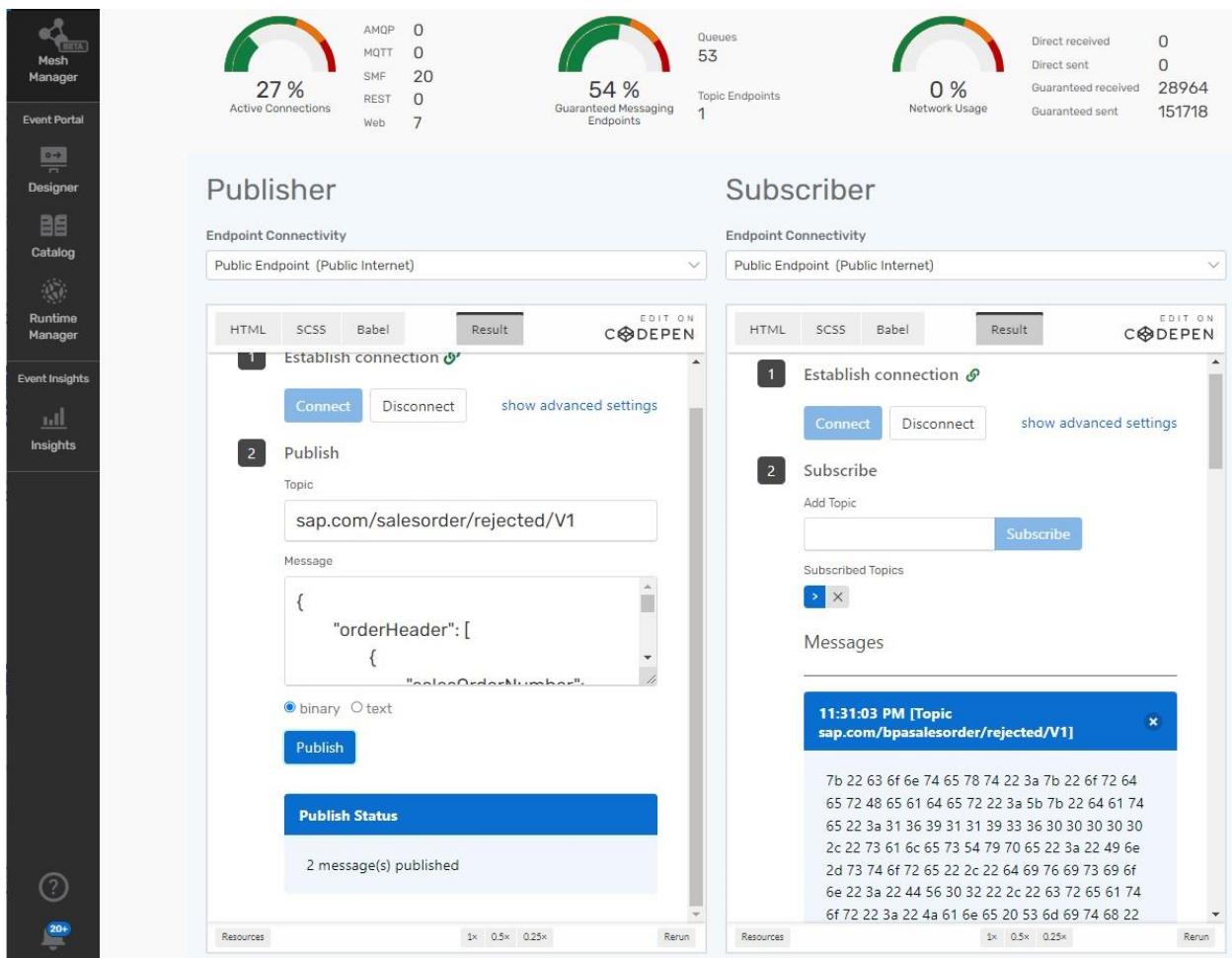
Customer	Customer Id	Customer Name	ZipCode
+	<input type="text" value="CUST002"/>	<input type="text" value="XYZ Ltd"/>	<input type="text" value="54321"/> ✖

Sales Order Items

Order Items	Item	Material	Material Type
+	<input type="text" value="ITEM002"/>	<input type="text" value="MAT002"/>	<input type="text" value="Service"/> ✖

Of course, this is the Happy Path :-) Everything Worked. However, what if you don't see the item in the inbox ?

My first suggestion would be to use the "Try Me" tab on the broker with the configured Rest Delivery Point and let's do some simple tests.



On this screen, we can test several things. For starters, we can confirm that the iFlow that we deployed is working and successfully transforming our message. On the publisher side, connect to the broker and use "sap.com/salesorder/rejected/V1" as the topic and for the message use the following structure. This will simulate an event being submitted for Review from the Integration Card.

```
{
  "orderHeader": [
    {
      "salesOrderNumber": "S01001",
      "creator": "John Doe",
      "date": "2023-08-04",
      "salesType": "Online",
      "ordertype": "Standard",
      "salesOrg": "SA01",
      "distributionChannel": "DC01",
      "division": "DV01",
      "netvalue": 375,
      "currency": "USD",
      "customer": [
        {
          "customerId": "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": "MAT001",
            "materialType": "Product",
            "itemType": "Standard",
            "itemDescription": "Rocky Ridge
Mountain bike",
            "orderSchedule": [
                {
                    "scheduleNumber":
"SCH001",
                    "quantity": 100,
                    "uom": "EA"
                }
            ]
        }
    ]
}

```

On the subscriber side, connect to the broker and use ">" as your topic. This will show everything. When you publish your message, you should immediately see a message appear in the subscriber window and you should be looking for a couple of things:

- The message that you published above
- A new message with a different Topic - sap.com/bpasalesorder/rejected/V1
- The body of the message should essentially be the same BUT it has a new wrapper called "context" and a new attribute called "definitionId". If you don't see both of these things, something is wrong with the iFlow. It's important that the "definitionID" is populated with the definition ID that represents your process or it won't work.
- After you publish the event, you should see a new item in your inbox. If the message appears to have the right structure in the subscriber window, then your iFlow is working as designed. If the iFlow is working then the next place to look is the configuration of the Rest Delivery

Point. The RDP will be listening for these rejected messages and then calling the API to start the BPA process. Below we have a section that outlines how to see the logs associated with the rest delivery point. Last but not least, check to see if messages are accumulating in SO_WF.

IF YOU SEE MESSAGES IN THE INBOX....WOOHOO

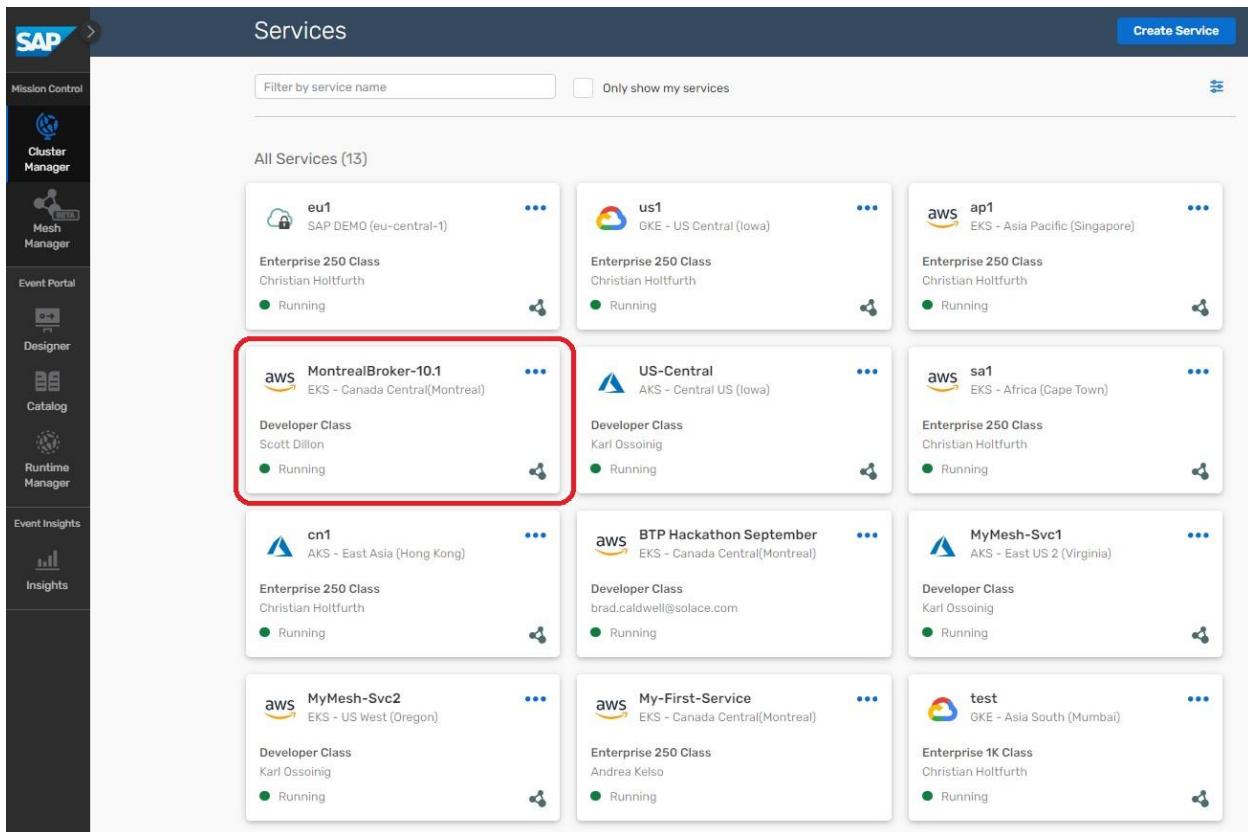
Debugging an RDP Error

Below steps will allow you to connect to AEM CLI console and look at the logs.

Enable the Access to Port 22

Before accessing the CLI, we need to make sure that access to port 22 (default ssh port) is open

From the SAP AEM Console, select your service that you want to debug



The screenshot shows the SAP AEM Services interface. On the left, there's a sidebar with icons for Mission Control, Cluster Manager, Mesh Manager, Event Portal, Designer, Catalog, and Runtime Manager. The main area is titled 'Services' and shows a grid of 13 services. Each service card includes the provider (aws or eu1), name, location, owner, status (Running), and a three-dot menu icon. The service 'aws MontrealBroker-10.1' is highlighted with a red box. The other services listed are: eu1 SAP DEMO (eu-central-1), us1 GKE - US Central (Iowa), ap1 EKS - Asia Pacific (Singapore), us1 GKE - US Central (Iowa), sa1 EKS - Africa (Cape Town), cn1 AKS - East Asia (Hong Kong), MyMesh-Svc1 AKS - East US 2 (Virginia), aws BTP Hackathon September EKS - Canada Central(Montreal), My-First-Service EKS - Canada Central(Montreal), test GKE - Asia South (Mumbai), aws MyMesh-Svc2 EKS - US West (Oregon), and Enterprise 250 Class Christian Holtfurth.

Select Manage and then Advanced Options

Event Broker Service Settings

Open Broker Manager ...

Status Connect Manage Monitoring Configuration Try Me!

Advanced Options

Authentication
Enabled

Certificate Authorities
0 Client Certificate Authorities
1 Domain Certificate Authority

Client Profiles
1 Client Profile

Broker Manager Quick Settings

- Message VPN
- Clients
- Queues
- Access Control
- Bridges

This will open up New Advanced Management Options Page

SAP > MontrealBroker-10.1

Open Broker Manager ...

Status Connect Manage Monitoring Configuration Try Me!

< Back to Management

Syslog Forwarding: Inactive

Add

Enable syslog forwarding to receive event, command and system service logs on a configured syslog server

Forwarding Destination Name	Hostname/IP Address	Port Number	Protocol Type	Syslog Facilities	Manage
No configured Syslog Facilities.					

Distributed Tracing: Disabled

Enable

Distributed tracing can help you track event movement across your mesh. [Learn more about distributed tracing](#)

Rotate Broker Passwords

This action will rotate the password used for this Event Broker Service and automatically update the console links with the new credentials. Rotating passwords does not change the password for your SAP Integration Suite, advanced event mesh Console login.

Pick the role on broker you would like to rotate:

Rotate messaging editor permissions
 Rotate messaging viewer permissions

Rotate Password

Scroll down to "Port Configuration" Section. On the Public Endpoint section, select "..." to edit the port configuration.

The screenshot shows the Solace Broker Manager interface for the broker "MontrealBroker-10.1".

Hostnames:

Creating an event broker service automatically creates a unique hostname for the service. You can add five additional hostnames as alternatives. You can set any of these hostnames as the default and use it to access the Broker Manager.

Hostname	Assigned Endpoint	Manage
mr-connection-qhgik3f2ezp.messaging.solace.cloud * Default	Public Internet	...
montrealbroker.messaging.solace.cloud	Public Internet	...

Port Configuration:

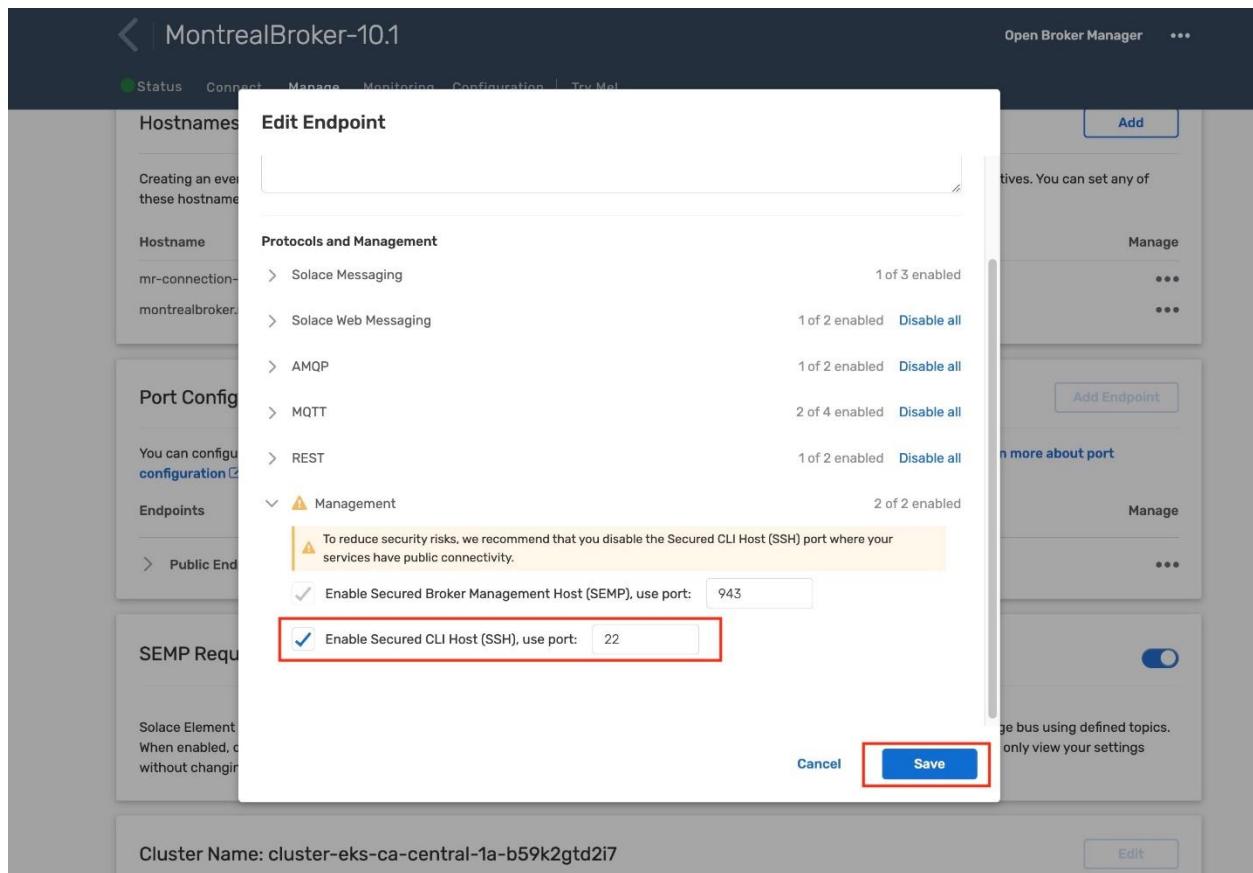
You can configure the ports of the protocols and endpoints that clients use to connect event broker services using the public Internet. [Learn more about port configuration](#)

Endpoints	Connectivity	Description	Manage
Public Endpoint	Public Internet		...

SEMP Request Over Message Bus - Show Commands: Enabled

Solace Element Management Protocol (SEMP) Request Over Message Bus allows client applications to make SEMP requests over the message bus using defined topics. When enabled, only Show commands on the specified Message VPN are allowed. By enabling this, messaging applications that use APIs can only view your settings without changing them. [Learn more in the SEMP documentation](#)

Scroll down to "Management" and check the "Enable Secured CLI Host (SSH), use port" option. This will allow access to the broker command line utility



Go back to Manage Tab from Advanced Management Options page.

The screenshot shows the MontrealBroker-10.1 management interface. At the top, there is a navigation bar with links for Status, Connect, Manage, Monitoring, Configuration, Try Me!, Open Broker Manager, and more. A red box highlights the 'Back to Management' link.

Syslog Forwarding: Inactive

Enable syslog forwarding to receive event, command and system service logs on a configured syslog server

Forwarding Destination Name	Hostname/IP Address	Port Number	Protocol Type	Syslog Facilities	Manage
No configured Syslog Facilities.					

Distributed Tracing: Disabled

Distributed tracing can help you track event movement across your mesh. [Learn more about distributed tracing](#)

Rotate Broker Passwords

This action will rotate the password used for this Event Broker Service and automatically update the console links with the new credentials. Rotating passwords does not change the password for your SAP Integration Suite, advanced event mesh Console login.

Pick the role on broker you would like to rotate:

Rotate messaging editor permissions
 Rotate messaging viewer permissions

[Rotate Password](#)

Get the hostname, management userid and password of the service. Make sure to get the viewer credentials

The screenshot shows the Solace Broker Manager interface. At the top, there's a navigation bar with tabs: Status, Connect, Manage, Monitoring, Configuration, Try Me!, Open Broker Manager, and more. Below the navigation bar, there are five main tabs: Message VPN, Clients, Queues, Access Control, and Bridges. A sidebar titled "Other Management Tools" lists options like SEMP - REST API, Broker Manager - Web Application, and SolAdmin - Desktop Application. To the right of the sidebar, there are sections for "Broker Manager Credentials" (with fields for Username and Password) and "Viewers Credentials" (also with fields for Username and Password). Icons for each section are shown: a gear for API, a browser for Broker Manager, and a monitor for SolAdmin.

Accessing AEM Service Command Line Utility

8. Use any commandline utility and ssh to the service using valid hostname, userid and password as below:

```
ssh userid@hostname
```

```
nehasinha@Nehasinha ~ % ssh us-central-view@mr-connection-71adn5h/gpz.messaging.solace.cloud
The authenticity of host 'mr-connection-71adn5h/gpz.messaging.solace.cloud (20.84.193.164)' can't be established.
ECDSA key fingerprint is SHA256:76S4TDTsUSvULcUtt3g5ogwYmJuup+tU4AAcpKJctNo.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'mr-connection-71adn5h/gpz.messaging.solace.cloud' (ECDSA) to the list of known hosts.
Solace PubSub+ Enterprise
(us-central-view@mr-connection-71adn5h/gpz.messaging.solace.cloud) Password:

Solace PubSub+ Enterprise Version 10.2.1.32

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Operating Mode: Message Routing Node

developer-production-9g0t46eb3od-solace-primary-0>
```

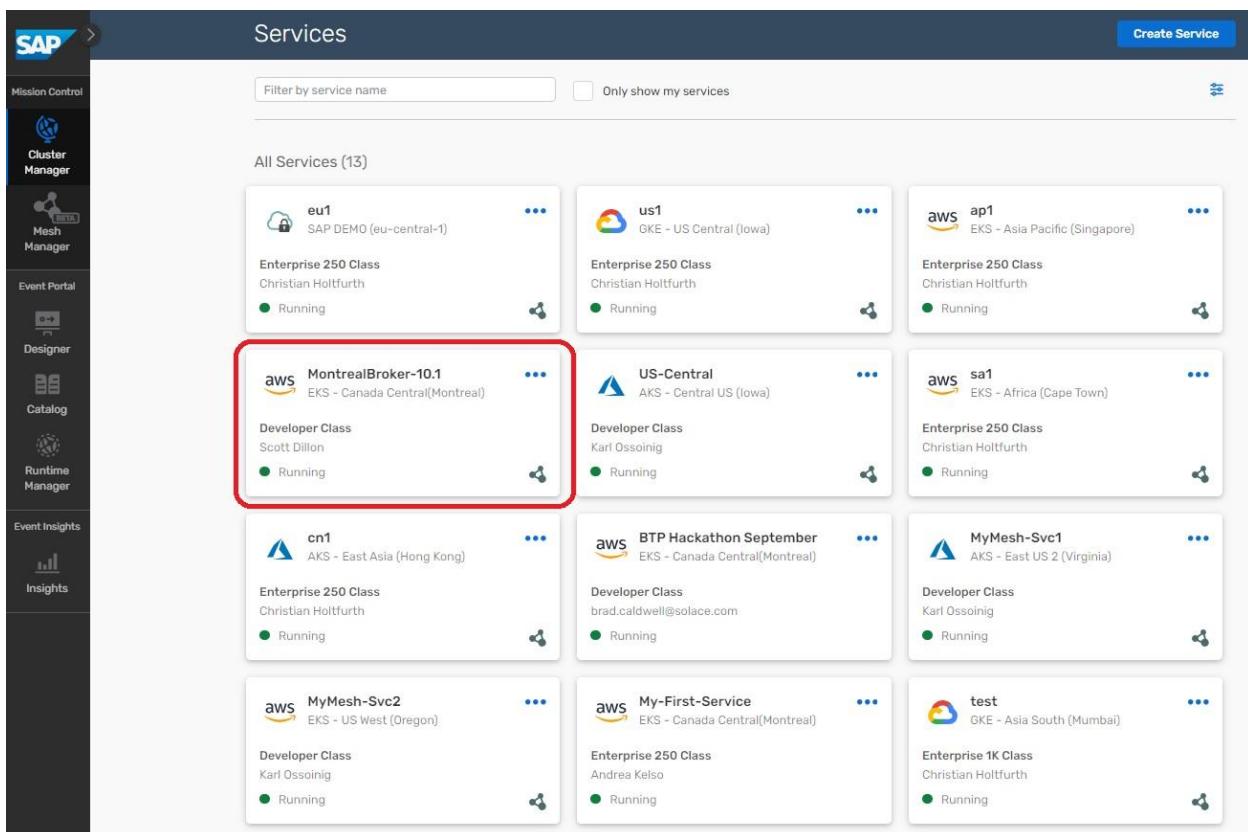
8. Now you can view the rdp error logs using the command

```
show log rest rest-delivery-point errors
```

This command will give you HTTP error (if any) that you might have received from BPA web endpoint.

Appendix – Creating Queues Manually for Section 4

If you want extra practice creating queues via the web console, you can follow these instructions and then return to section 4 to finish your configuration. Navigate to the main console and go to the cluster manager. From there, select the broker where you will be configuring your Rest Delivery Point.



The screenshot shows the SAP Cluster Manager Services page. On the left, there's a sidebar with icons for Mission Control, Cluster Manager (selected), Mesh Manager, Event Portal, Designer, Catalog, Runtime Manager, and Event Insights. The main area is titled 'Services' with a 'Create Service' button. A search bar and a filter for 'Only show my services' are at the top. Below is a section titled 'All Services [13]' containing 13 items:

- eu1** SAP DEMO (eu-central-1)
Enterprise 250 Class
Christian Holtfurth
Running
- us1** GKE - US Central (Iowa)
Enterprise 250 Class
Christian Holtfurth
Running
- aws ap1** EKS - Asia Pacific (Singapore)
Enterprise 250 Class
Christian Holtfurth
Running
- aws MontrealBroker-10.1** EKS - Canada Central(Montreal)
Developer Class
Scott Dillon
Running
- US-Central** AKS - Central US (Iowa)
Developer Class
Karl Ossoinig
Running
- aws sa1** EKS - Africa (Cape Town)
Enterprise 250 Class
Christian Holtfurth
Running
- cn1** AKS - East Asia (Hong Kong)
Enterprise 250 Class
Christian Holtfurth
Running
- aws BTP Hackathon September** EKS - Canada Central(Montreal)
Developer Class
brad.caldwell@solace.com
Running
- MyMesh-Svc1** AKS - East US 2 (Virginia)
Developer Class
Karl Ossoinig
Running
- aws MyMesh-Svc2** EKS - US West (Oregon)
Developer Class
Karl Ossoinig
Running
- aws My-First-Service** EKS - Canada Central(Montreal)
Enterprise 250 Class
Andrea Kelso
Running
- test** GKE - Asia South (Mumbai)
Enterprise 1K Class
Christian Holtfurth
Running

The service 'aws MontrealBroker-10.1' is highlighted with a red box.

From this screen, you will select the manage option at the top.

Messaging Activity

- AMQP: 0
- MQTT: 0
- SMF: 20
- REST: 0
- Web: 5

- Queues: 52
- Topic Endpoints: 1

- Queue Usage: 1%
- Messages Queued: 161693
- Spool Usage: 0.07 GB

Availability and Versioning

Service State	Running	Event Broker Service Version	10.4.1.76-2	High Availability	Single Node
Created By	Scott Dillon (scott.dillon@solace.com)	Service Creation Time	17 Nov. 2022 21:44:59		

DMR Cluster

This service is part of the mesh **GarageMesh** [View Mesh Details](#)

Hostname	mr-connection-qhgik3f2ezp.messaging.solace.cloud	Cluster Name	cluster-eks-ca-central-1a-b59k2gtd2l7	Cluster Password	*****
Message VPN	montrealbroker-10-1	Primary Router Name	developerproductionb59k2gtd2l7solaceprimary0		

Management Access

- Basic Authentication: Enabled
- LDAP Authentication: Disabled
- SSO Authentication: Disabled

You will then select "Queues" towards the middle of the screen. Selecting the Queue option will now re-direct you to a different screen and will open the Broker Manager for the selected broker.

Event Broker Service Settings

- Authentication: Enabled

Broker Manager Quick Settings

- Message VPN
- Clients
- Queues
- Access Control
- Bridges

Other Management Tools

- SEMP - REST API: The Solace Element Management Protocol (SEMP) is a REST API that you can use to manage the Event Broker Service.
- Broker Manager - Web Application: The Broker Manager is a browser-based administration console that you can use to manage the Event Broker Service.
- SolAdmin - Desktop Application: SolAdmin is a legacy desktop application that you can use to manage the Event Broker Service.

On this screen, we will start by creating a Queue and Subscription that will be used to capture the items from the DMQ that users would like to start review processes for. Click on the "+Queue" option.

The screenshot shows the SAP Integration Hub interface under the 'Queues' tab. On the left, there's a sidebar with navigation links like 'Change VPN', 'Messaging', 'Clients', 'Queues' (which is selected and highlighted), 'Connectors', 'Access Control', 'Telemetry', 'Replay', 'Bridges', 'JMS JNDI', 'Try Me!', 'Advanced Messaging', 'Caches', 'Transactions', 'System', and 'Clustering'. The main area displays a table of queues with columns: Queue Name, Incomi..., Outgoi..., Access Type, Partition Count, Messages Queued (%), Messages Queued (msgs), Messages Queued (MB), Messages Queued Quota (MB), Consum..., Replay State, and Dura... . A search bar at the top says 'Search by name'. In the top right, there are 'Action' and '+ Queue' buttons, with '+ Queue' being highlighted with a red box.

Create a new Queue with the name "SOREJECTED".

This screenshot shows the same SAP Integration Hub interface as the previous one, but now with a new queue named 'SOREJECTED' listed in the table. The queue has an 'Incomi...' status of 'On', 'Outgoi...' status of 'On', 'Access Type' as 'Exclusive', and 'Partition Count' of '0'. It has 'Messages Queued (%)' at 0, 'Messages Queued (msgs)' at 0, 'Messages Queued (MB)' at 0, and 'Messages Queued Quota (MB)' at 5,000. The 'Consum...' and 'Replay State' columns show 'N/A' and 'Yes' respectively. The '+ Queue' button in the top right is also highlighted with a red box.

Now we will create a subscription that will capture all the messages that are being pushed out from the Integration Card. Messages are published from the Integration Card and then removed from the Queue. Add a Subscription by Clicking the "+Subscription" button and then add the subscription "sap.com/salesorder/rejected/V1". Once messages are received into this Queue, they will be picked up by the Integration Flow that will augment the schema of the message. This iFlow will publish a message that will be used to activate the Business Process Automation process.

The screenshot shows the SAP Fiori interface for managing queues. The left sidebar shows 'MontrealBroker-10.1' and 'Queues' is selected. The main area is titled 'Queues | SOREJECTED' and shows one subscription. A red box highlights the topic 'sap.com/salesorder/rejected/V1'.

Repeat the process to add another Queue called "SO_WF". Add a subscription for "sap.com/bpasalesorder/rejected/V1". The iFlow that enriches the SalesOrder publishes the new message using that topic.

The screenshot shows the SAP Fiori interface for managing queues. The left sidebar shows 'MontrealBroker-10.1' and 'Queues' is selected. The main area is titled 'Queues | SO_WF' and shows one subscription. A red box highlights the topic 'sap.com/bpasalesorder/rejected/V1'.

Takeaways

- Understand concept of Dead Message Queues
- Understand how to use SAP BPA to process Dead Messages
- Understand how to use an iFlow with an Event for transformations
- Understand how to setup a Rest Delivery Point

