

Cloud Integration Training

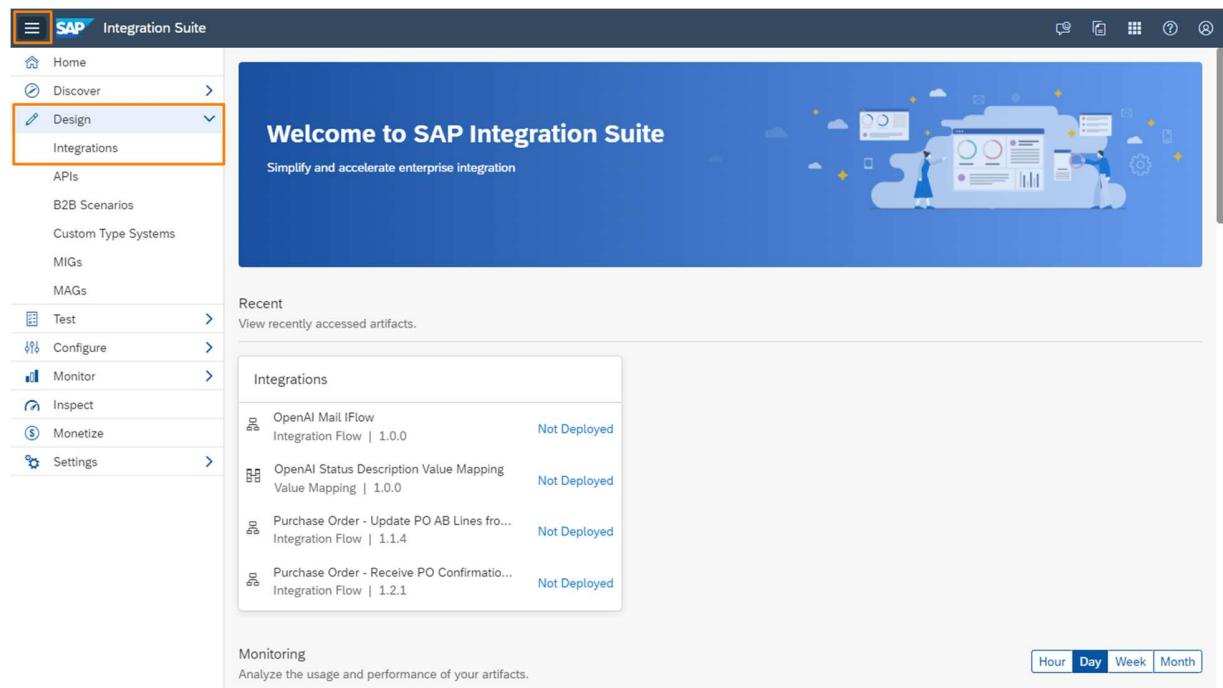
Chapter 1 Contents:

- Create package.
- Create iFlow.
- Content modifier.
- Test with Postman.

Prerequisites:

- BTP Trial Account configured with Cloud Integration subscription.
- Postman account created and app installed (or you can use the web version)
<https://www.postman.com/downloads/>

Access Integration Suite home screen, click the “hamburger” icon on the top left of the screen, then click on Design > Integrations.



The screenshot shows the SAP Integration Suite interface. The left sidebar contains a navigation menu with the following items:

- Home
- Discover
- Design** (highlighted with an orange box)
- Integrations
- APIs
- B2B Scenarios
- Custom Type Systems
- MIGs
- MAGs
- Test
- Configure
- Monitor
- Inspect
- Monetize
- Settings

The main content area features a blue banner with the text "Welcome to SAP Integration Suite" and "Simplify and accelerate enterprise integration". Below the banner, there is a section titled "Recent" with the sub-instruction "View recently accessed artifacts." A "Recent" table lists four integration flows:

Integration	Status
OpenAI Mail IFlow Integration Flow 1.0.0	Not Deployed
OpenAI Status Description Value Mapping Value Mapping 1.0.0	Not Deployed
Purchase Order - Update PO AB Lines fro... Integration Flow 1.1.4	Not Deployed
Purchase Order - Receive PO Confirmatio... Integration Flow 1.2.1	Not Deployed

At the bottom of the main content area, there is a "Monitoring" section with the sub-instruction "Analyze the usage and performance of your artifacts." To the right of this section are four buttons: Hour, Day, Week, and Month. The "Day" button is currently selected.

Click “Create” button to create a Package.

The screenshot shows the SAP Integration Suite interface. The left sidebar has a tree structure with nodes like Home, Discover, Design (selected), Integrations (selected), APIs, B2B Scenarios, Custom Type Systems, MIGs, MAGs, Test, Configure, Monitor, Inspect, Monetize, and Settings. The main area is titled 'Integrations / Design' and shows a table titled 'Packages (0)'. The table has columns: Name, Mode, Ver..., Created By, Created Date, Description, and A... (with a dropdown arrow). A search bar with placeholder 'No data' is at the top of the table. At the top right of the main area are buttons for 'Create' (highlighted with an orange box), 'Import', and other icons. The top navigation bar includes the SAP logo, the title 'Integration Suite', and various global navigation icons.

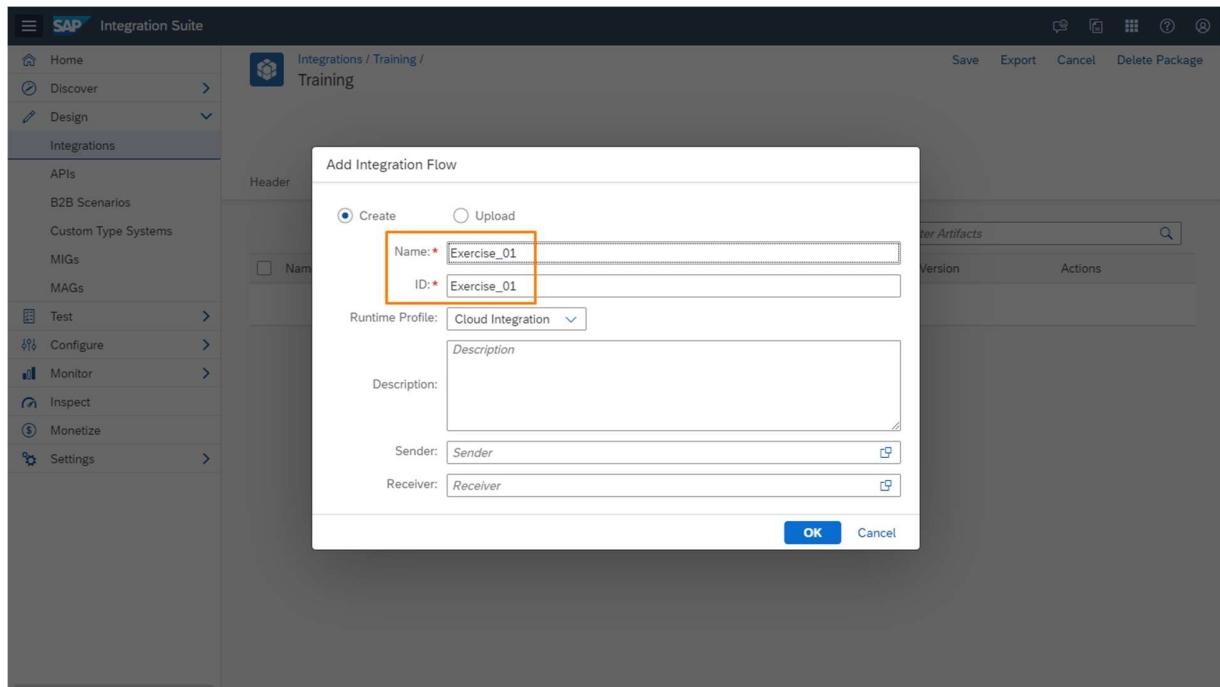
Fill Name and Short Description with “Training” – Technical Name is filled automatically

The screenshot shows the SAP Integration Suite interface. On the left, there is a navigation sidebar with various options like Home, Discover, Design, APIs, B2B Scenarios, etc. The 'Integrations' section is currently selected. In the center, a dialog box titled 'Integrations / New Package / Training' is open. The 'Header' tab is selected. The 'Name' field contains 'Training', 'Technical Name' also contains 'Training', and 'Short Description' contains 'Training'. These three fields are highlighted with an orange border. Below them, there are empty fields for 'Version' and 'Vendor'. At the top right of the dialog, there are 'Save' and 'Cancel' buttons, with 'Save' being highlighted with an orange border.

As soon as the package is created, click on “Artifacts” tab and then click on “Add” button and “Integration Flow” to create your first iFlow.

The screenshot shows the SAP Integration Suite interface. On the left, there's a sidebar with various navigation options like Home, Discover, Design, APIs, B2B Scenarios, etc. The main area shows a breadcrumb path: Integrations / Training / Training. The top right has buttons for Save, Export, Cancel, and Delete Package. Below that, there are tabs: Header, Overview, Artifacts (which is highlighted with an orange box), Documents, and Tags. In the center, there's a table with columns for Name, Type, Version, and Actions. A modal window is open over the table, with its title bar also highlighted by an orange box. The modal contains a dropdown menu with the following options: Integration Flow, SOAP API, Value Mapping, OData API, Script Collection, REST API, Message Mapping, Function Libraries, Integration Adapter, Data Type, and Message Type. The 'Integration Flow' option is currently selected.

Fill name as Exercise_01 and click “Ok” button.



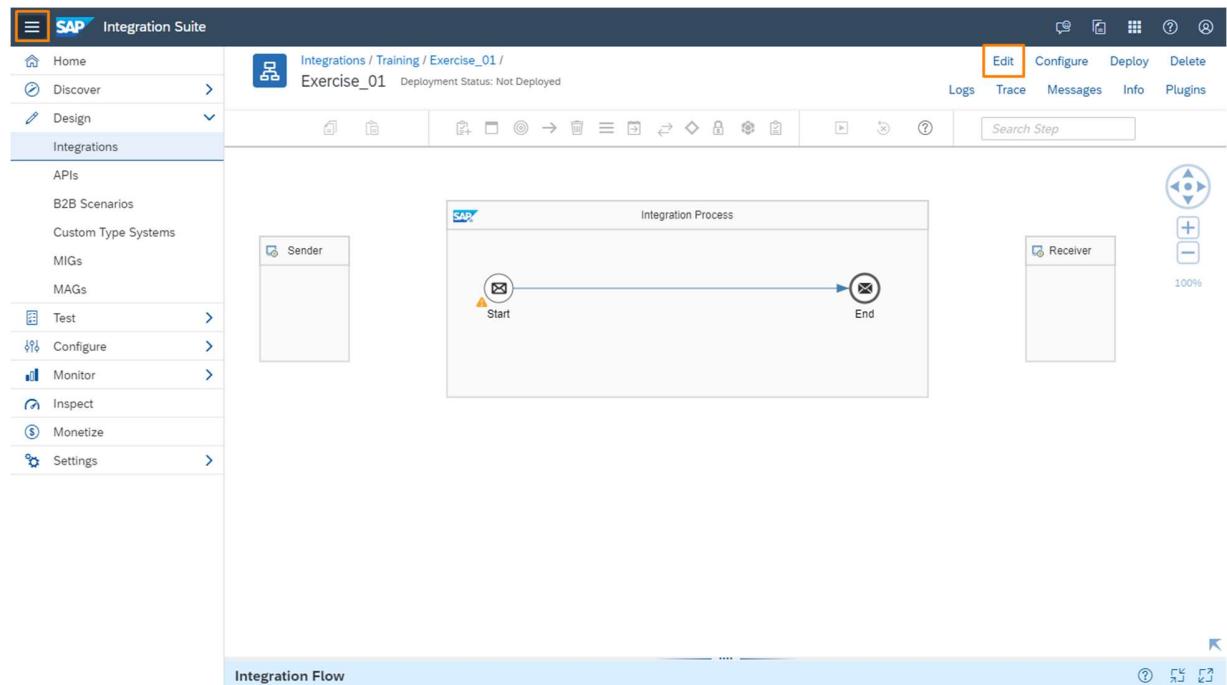
Open iFlow.

The screenshot shows the SAP Integration Suite interface. The left sidebar has a 'Discover' section expanded, with 'Integrations' selected. The main area shows a 'Training' folder under 'Integrations / Training /'. Below it, there are tabs: Header, Overview, Artifacts (1), Documents, and Tags. The 'Artifacts (1)' tab is active. A table lists one artifact: 'Exercise_01' (Integration Flow, Version 1.0.0, Created). The entire row for 'Exercise_01' is highlighted with an orange border. Action buttons for Add, Migrate, Delete, and Actions are at the top of the table, along with a search bar.

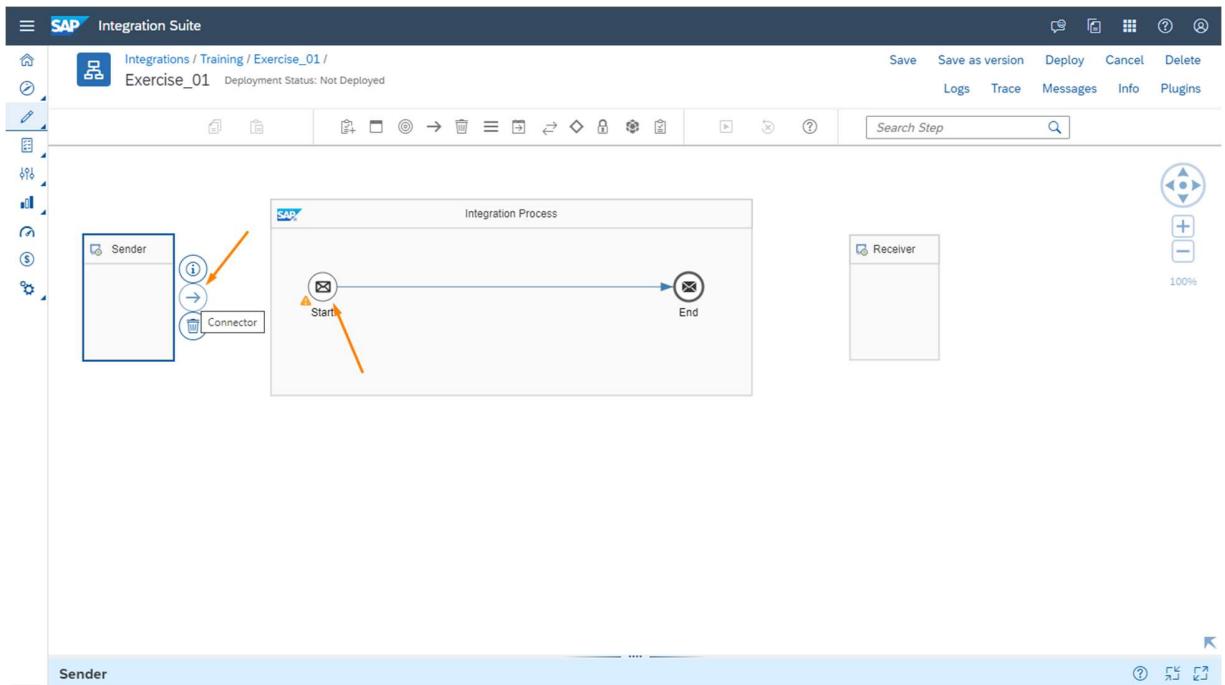
Name	Type	Version	Actions
Exercise_01	Integration Flow	1.0.0	

Click the “hamburger” button on the top left to restore the navigation so you have more space on your screen.

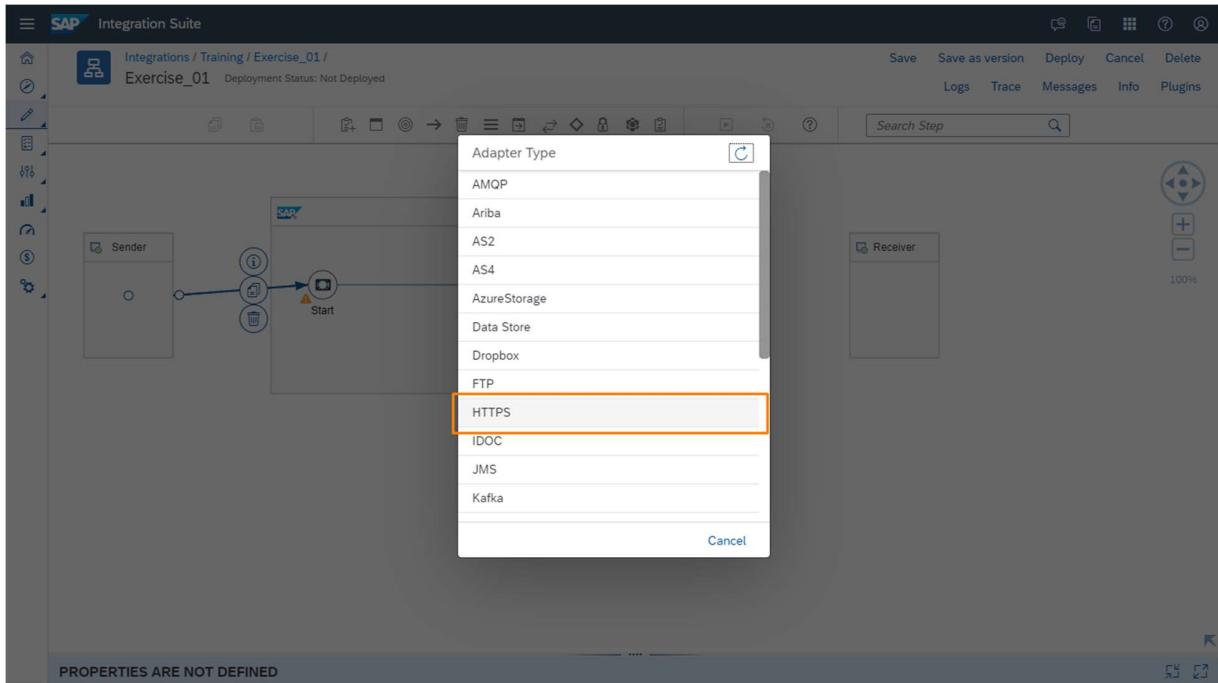
Click “Edit” button on the top right of the screen.



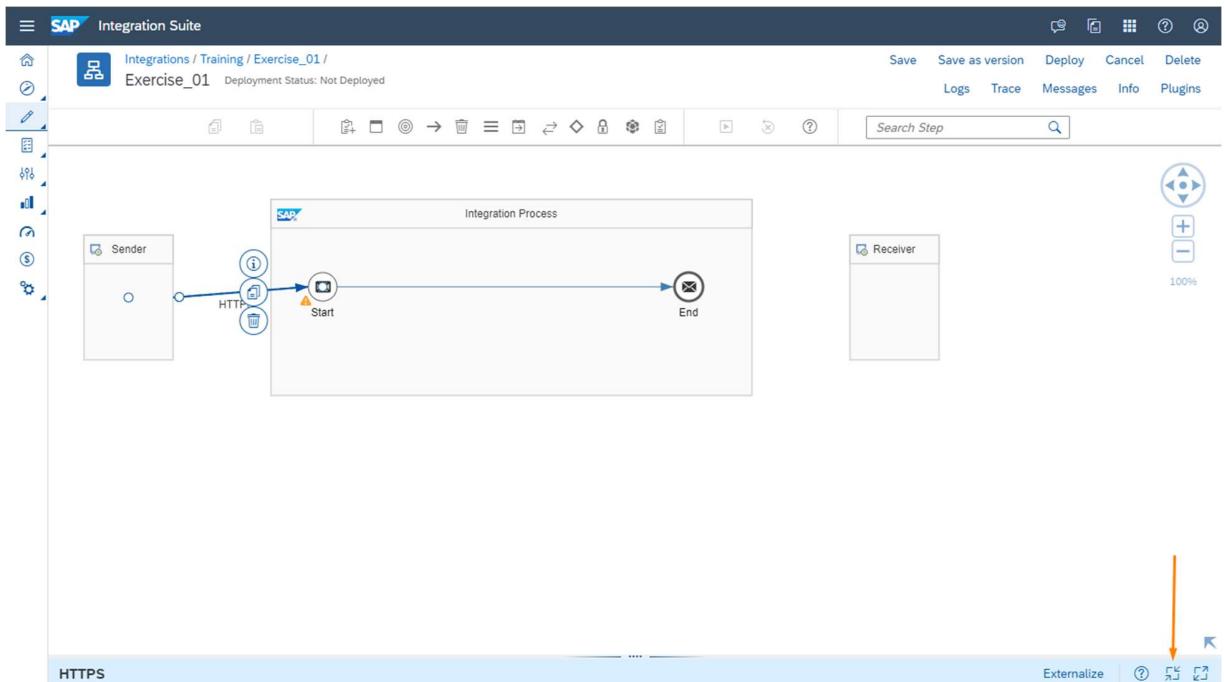
Click “Sender” participant, then click and drag the connector to the “Start” event.



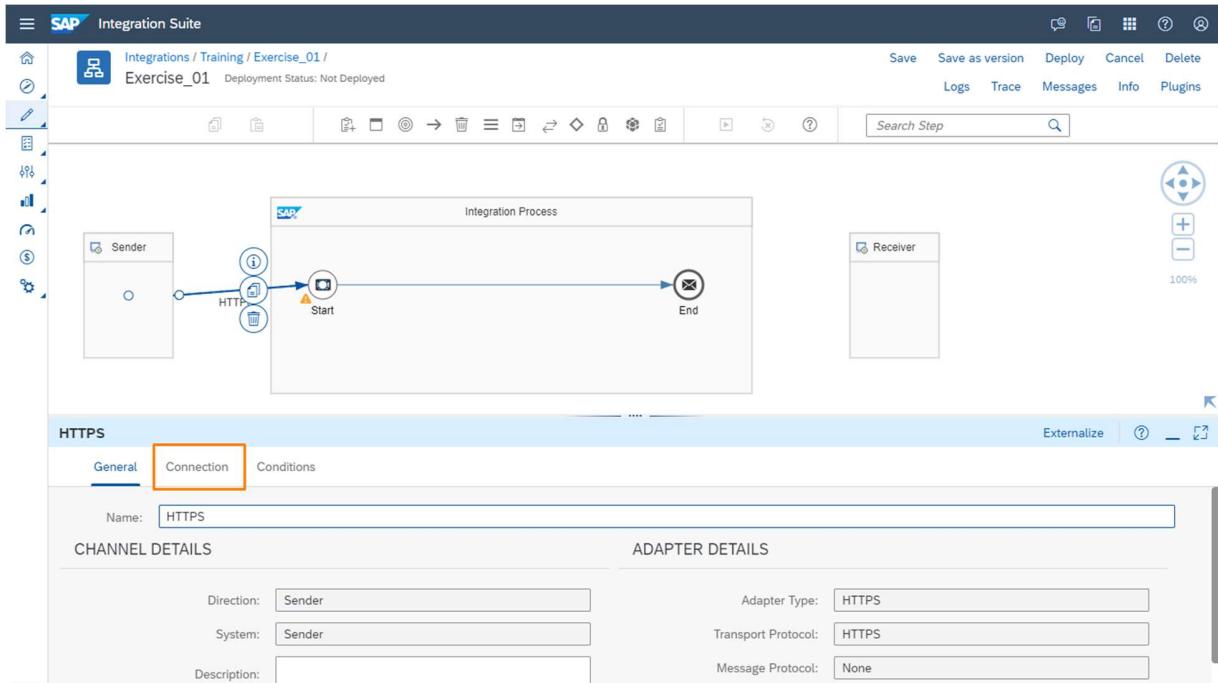
Select HTTPS.



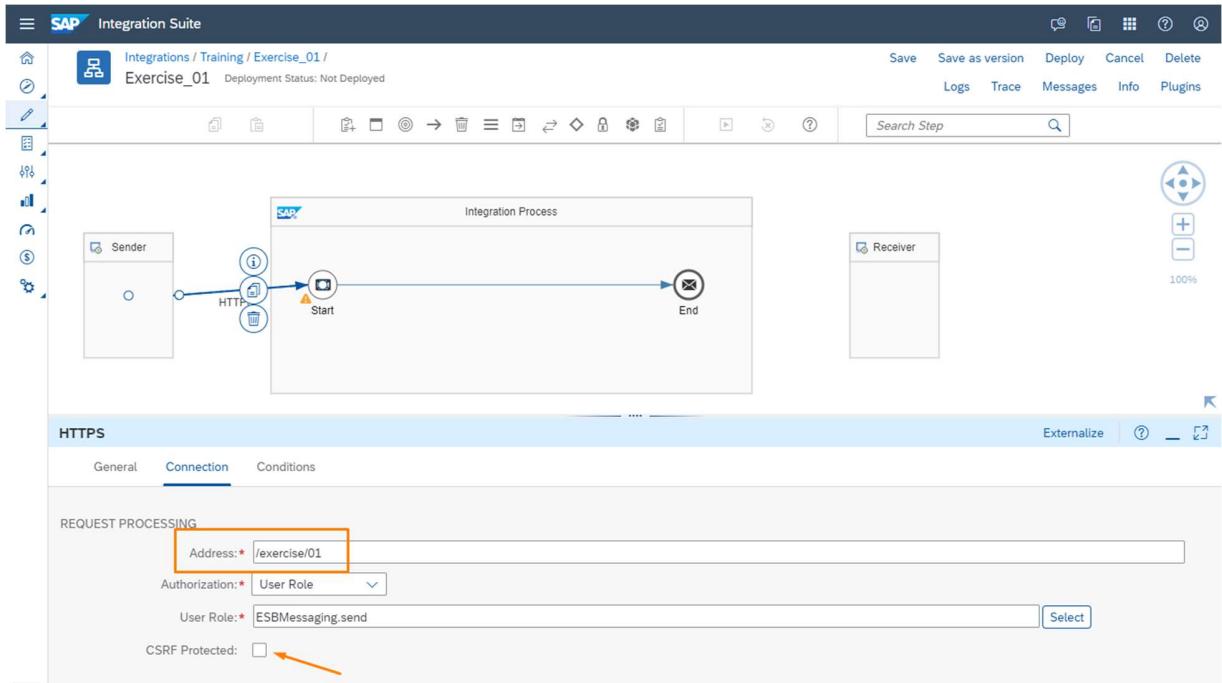
Click “Restore” button on the bottom right of the screen.



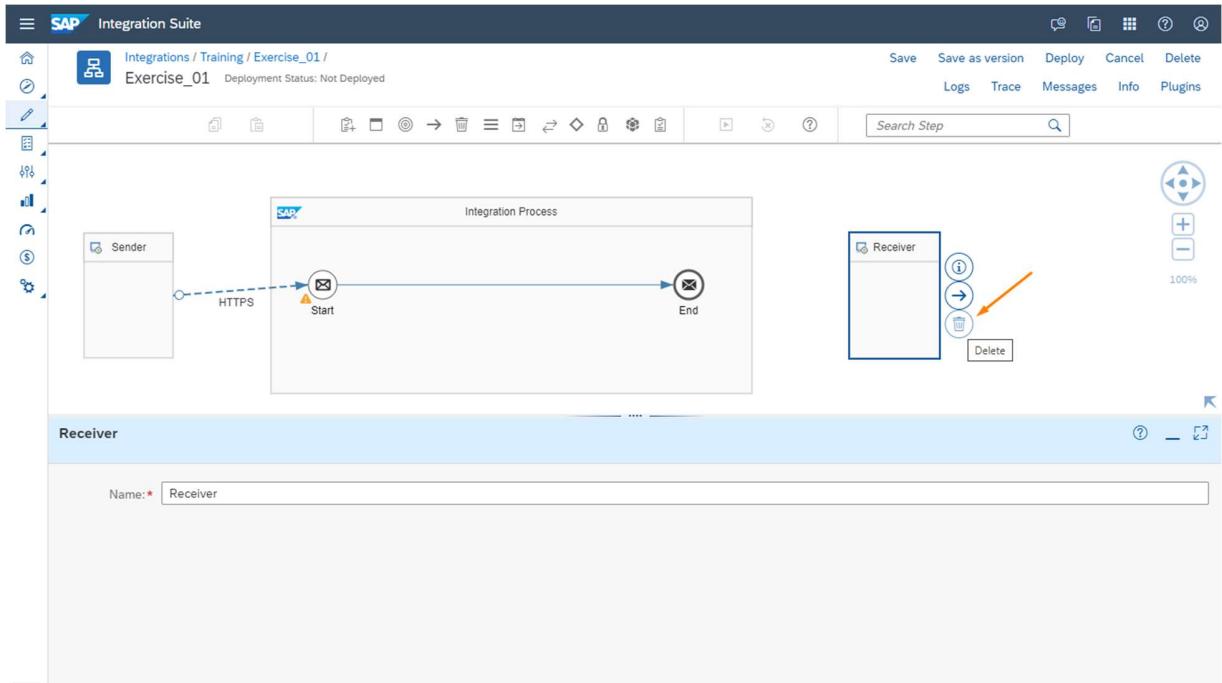
Click “Connection” tab.



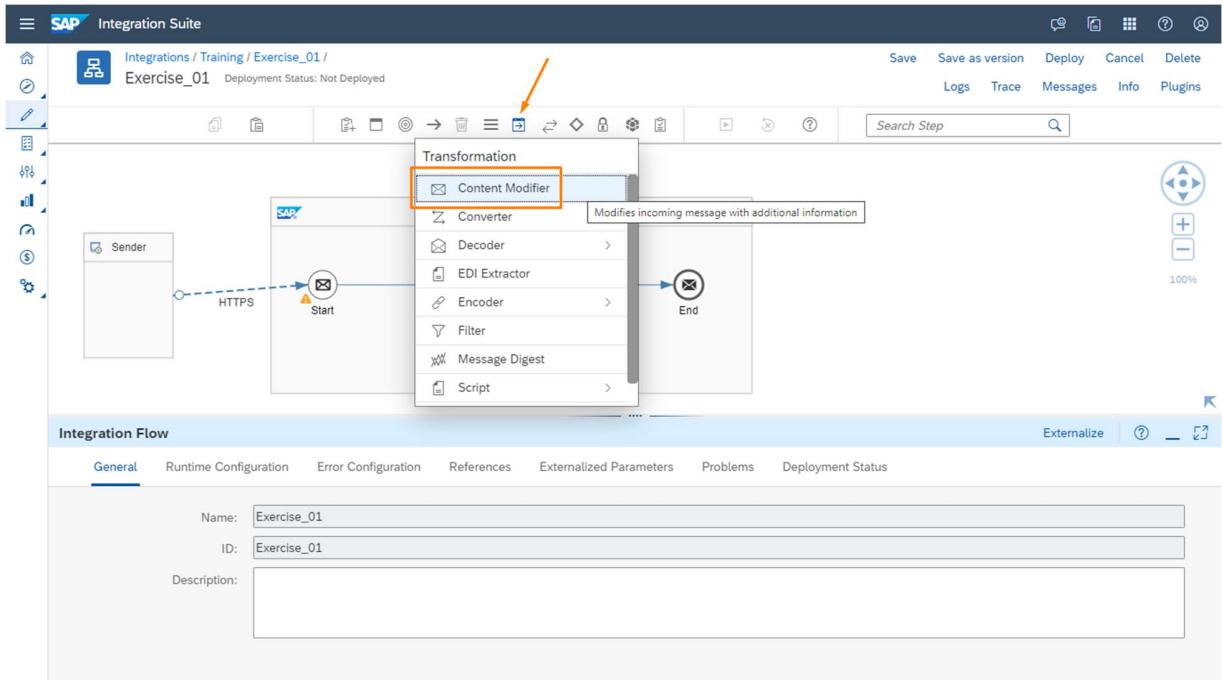
Set address as “/exercise/01” and uncheck “CSRF Protected”.



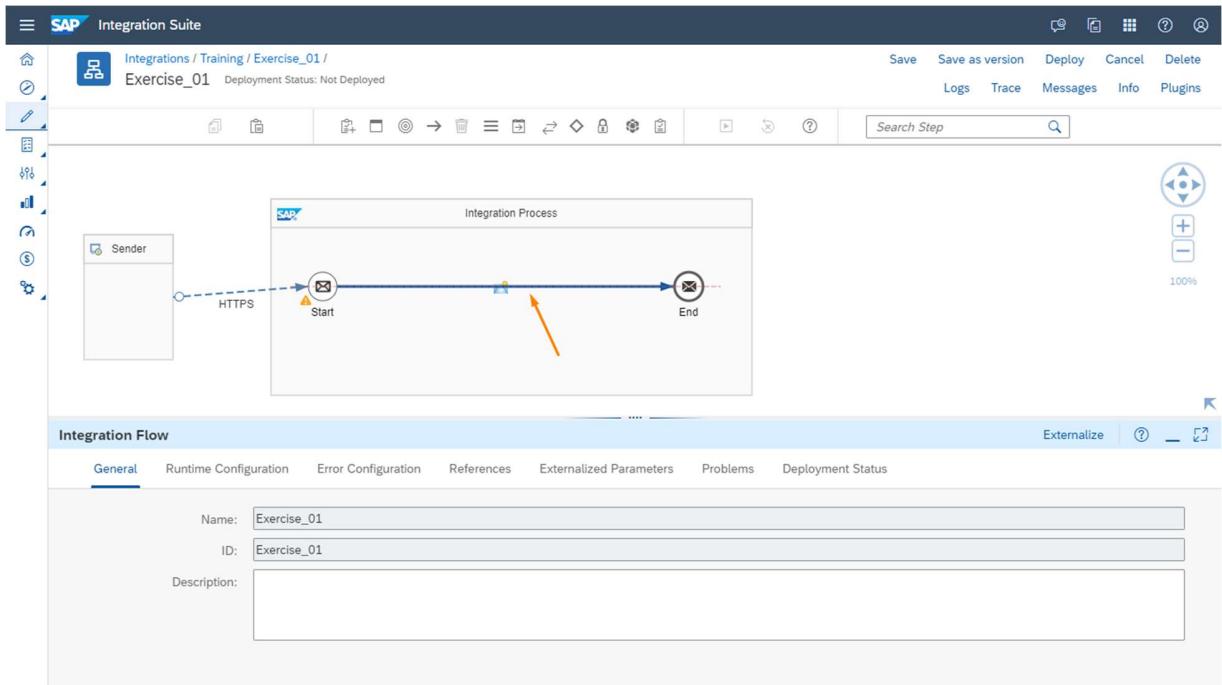
Click on “Receiver” participant and delete it.



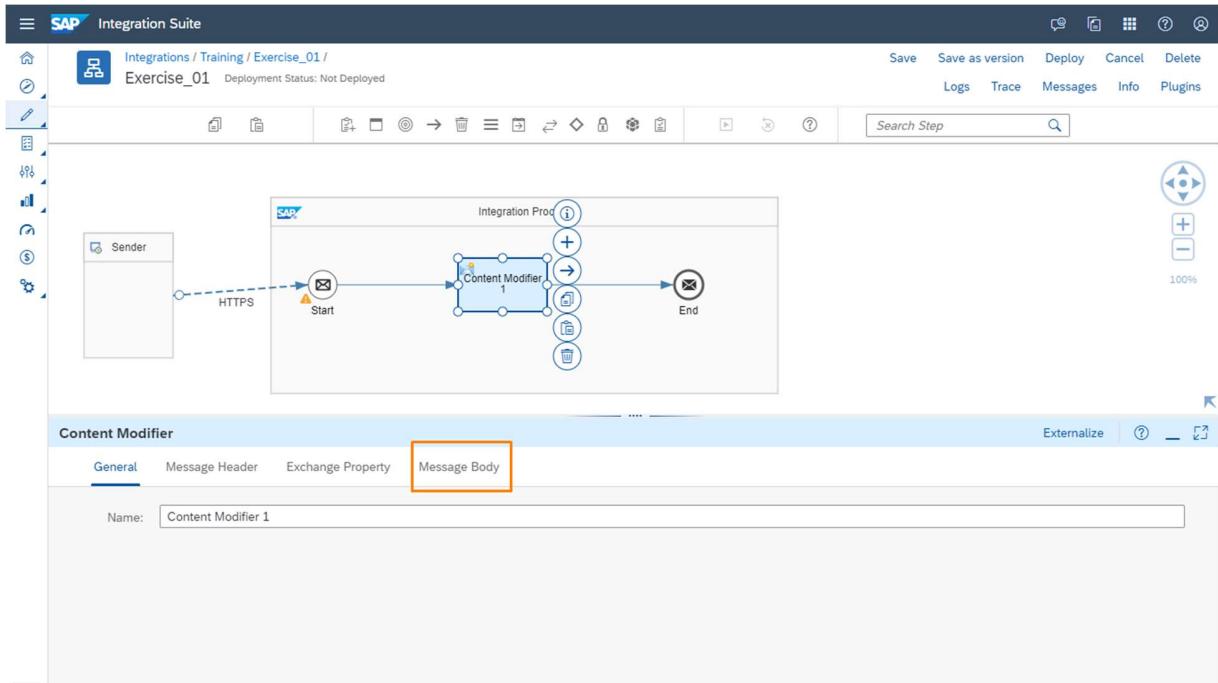
Click on pallet button “Transformation” and then “Content Modifier”.



Put the content modifier anywhere on the horizontal line between Start and End Message events – be sure that the horizontal line turned blue before clicking.

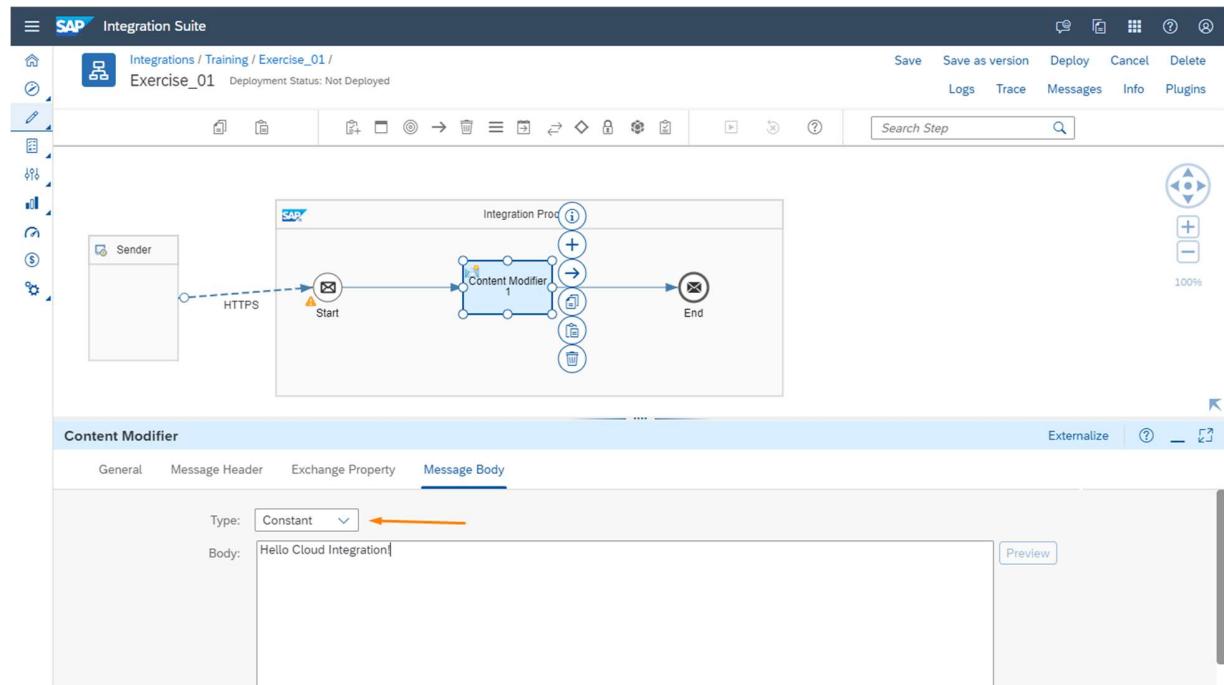


Click on “Message Body” tab.

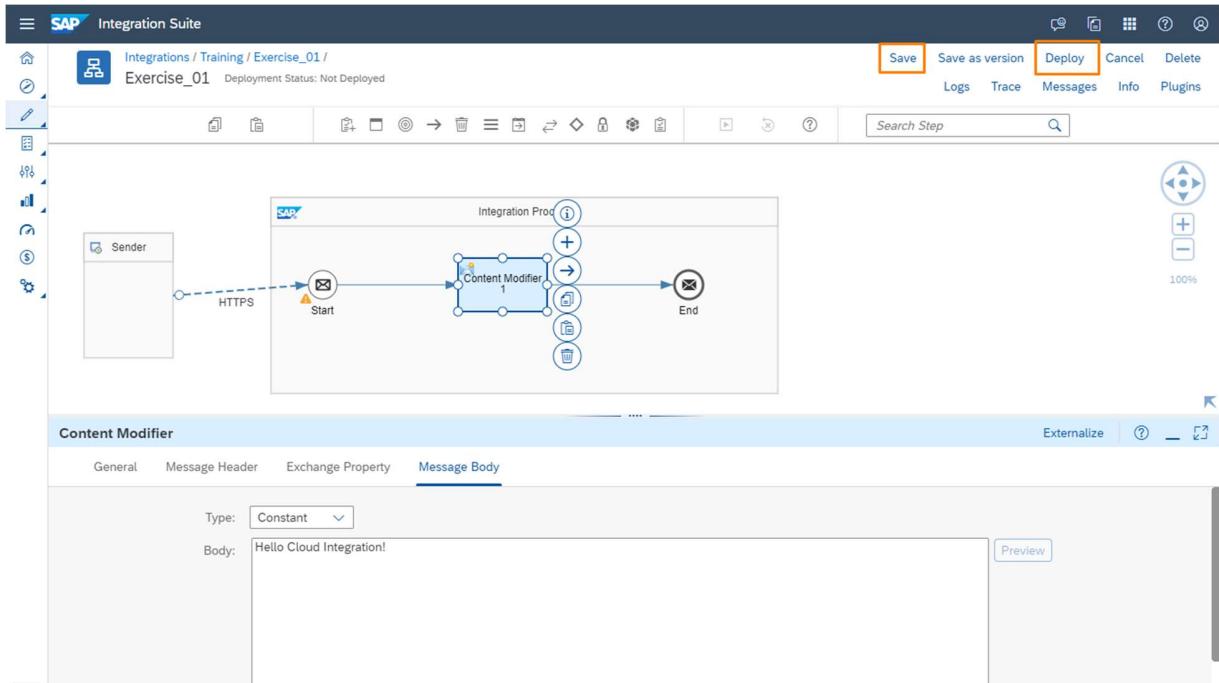


Type → “Constant”

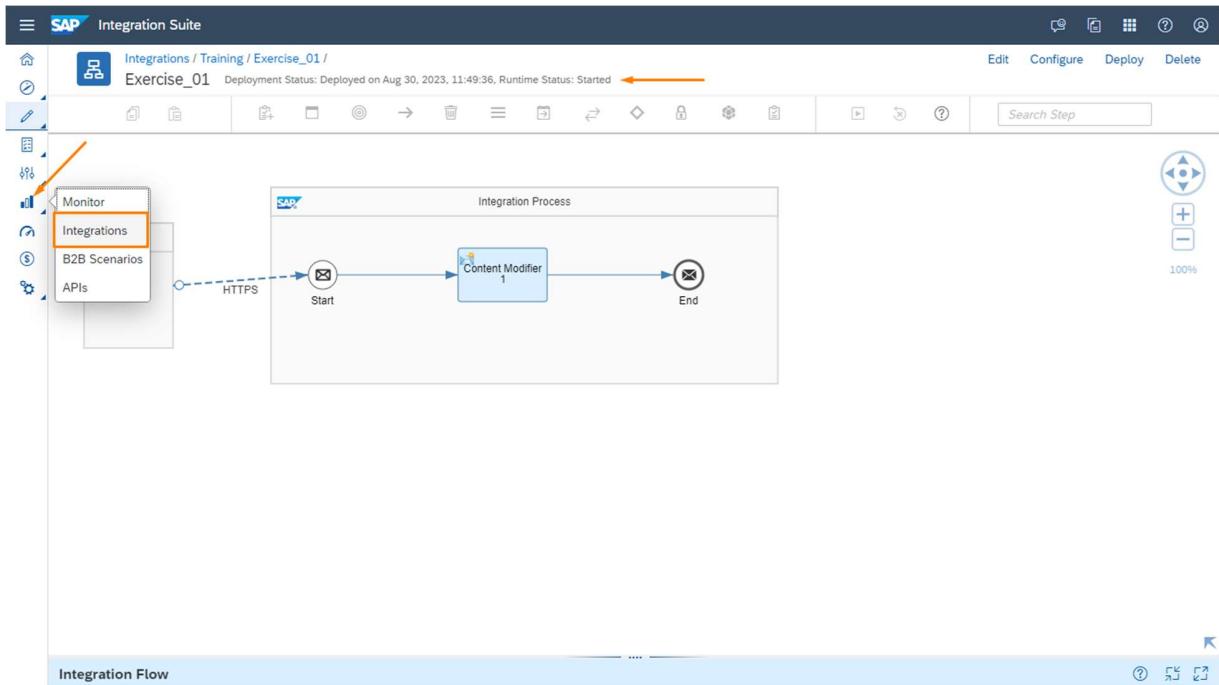
Body → “Hello Cloud Integration!”



Click on “Save” and “Deploy” on top right of the screen.



As soon as the iFlow is deployed (you can check the status on top center of the screen) then click on “Monitor Artifacts” and then “Integrations”.



Click "All/All" on Manage Integration Content.

The screenshot shows the SAP Integration Suite Overview page. The left sidebar contains navigation icons: Home, Monitor, Create, Delete, Overview, and Help. The main area is divided into three sections: Monitor Message Processing, Manage Integration Content, and Manage Security.

Monitor Message Processing: Displays four cards for the past hour: All Artifacts (0 Messages), Failed Messages (0), Retry Messages (0), and Completed Messages (+).

Manage Integration Content: Displays four cards: All (1 All), Started (1), Error (0), and +.

Manage Security: Displays six cards: Security Material (0 Artifacts), Keystore (7 Entries), PGP Keys (0 Keys), Access Policies (0 Artifacts), JDBC Material, and User Roles.

A red box highlights the 'All' card under 'Manage Integration Content' because it corresponds to the 'All/All' selection mentioned in the text.

Category	Sub-Category	Value
Monitor Message Processing	All Artifacts Past Hour	0
	Failed Messages	0
	Retry Messages	0
	Completed Messages	+
Manage Integration Content		
All	1	All
Started	1	Error
All	+	
Manage Security		
Security Material	0	Keystore
Artifacts	7	PGP Keys
Entries	0	Access Policies
JDBC Material	0	User Roles

Copy Exercise_01 iFlow endpoint.

The screenshot shows the SAP Integration Suite interface. On the left, there's a sidebar with icons for Home, Overview, Integration Content, Integration Flows, and Monitoring. The main area is titled "Overview / Manage Integration Content". It shows a list of "Integration Content (1)" with one item named "Exercise_01". The "Exercise_01" card displays deployment information: "Deployed On: Aug 30, 2023, 11:49:36", "ID: Exercise_01", "Package: Training", and "Version: 1.0.0". Below this, there are tabs for "Endpoints", "Status Details", "Artifact Details", and "Log Configuration". The "Endpoints" tab is active, showing the URL "https://ee23082ftrial.it-cpitrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01", which is highlighted with an orange border. Under "Status Details", a green box states "The Integration Flow is deployed successfully.". Under "Artifact Details", there are links to "Monitor Message Processing", "View deployed Artifact", and "Navigate to Artifact Editor". At the bottom, there's a "Log Configuration" section with a dropdown menu set to "Info".

Open Postman app, create a new request on Training collection, name it “Exercise 01”, change method from GET to POST and paste your iFlow endpoint on the address bar.

The screenshot shows the Postman application interface. At the top, there is a navigation bar with links for Home, Workspaces, API Network, and Explore. A search bar is located at the top right. Below the navigation bar, the main workspace shows a 'Training' collection on the left. Inside the 'Training' collection, there is a request named 'Exercise 01' which is highlighted with an orange border. The request details are visible in the center pane, showing a 'POST' method and the URL `https://ee23082trial.it-cpitrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01`. The 'Headers (8)' tab is selected. Below the headers, there is a 'Query Params' table with one row:

Key	Value	Description	Bulk Edit
Key	Value	Description	

At the bottom of the interface, there are various status indicators and links for Runner, Capture requests, Cookies, and Trash.

Click on “Authorization” tab, change Authentication Type to OAuth 2.0.

The screenshot shows the Postman application interface. On the left, there's a sidebar with 'Training' selected, showing 'Collections' (with 'History' highlighted), 'Environments', and 'History'. The main workspace shows a collection named 'Training' with a single item 'Exercise 01' containing a GET request. The request details show 'POST Exercise 01' with the URL 'https://ee23082trial.it-cptrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01'. The 'Authorization' tab is selected, highlighted by an orange box and a red arrow pointing to it from the text below. The 'Type' dropdown is set to 'OAuth 2.0'. Below it, a note says: 'The authorization data will be automatically generated when you send the request. Learn more about authorization >'. There are buttons for 'Add authorization data to' and 'Request ...'. The right panel shows 'Current Token' settings for 'Token' (set to 'Available Tokens') and 'Header Prefix' (set to 'Bearer'). It also includes sections for 'Auto-refresh token' (disabled), 'Share token' (disabled), and 'Configure New Token' with fields for 'Token Name' (placeholder 'Enter a token name...'), 'Grant Type' (set to 'Client Credentials'), and 'Access Token URL' (placeholder 'https://example.com/login/oauth/access_token').

Go to your SAP BTP Cockpit tenant, access Instances and Subscriptions, scroll down and search for “Process Integration” Service with integration-flow Plan. Click on Credentials. Copy values of “Access Token URL”, “Client ID” and “Client Secret”.

The screenshot shows the SAP BTP Cockpit interface. The left sidebar has a navigation menu with the following items:

- Overview
- Services
- Service Marketplace
- Instances and Subscriptions** (highlighted with an orange box)
- Cloud Foundry
- HTML5 Applications
- Connectivity
- Security
- Users
- Role Collections
- Roles
- Trust Configuration
- Settings
- Entitlements
- Usage Analytics
- Help and Support
- Useful Links
- Legal Information

The main content area is titled "Subaccount: trial - Instances and Subscriptions". It shows the following sections:

- Subscriptions (2)**: Shows two entries: "323B8FA4-494" (Service Manager) and "default_it_rt_a" (Process Integrat...).
- Instances (3)**: Shows three entries: "323B8FA4-494" (Service Manager), "default_it_rt_a" (Process Integrat...), and "default_it_rt_in" (Process Integrat...). The "default_it_rt_in" row is highlighted with an orange box.
- Environments (2)**: Shows one entry: "ee23082ftrial" (Cloud Foundry Runtime).

A red arrow points from the text "Click on Credentials. Copy values of ‘Access Token URL’, ‘Client ID’ and ‘Client Secret’." to the "Credentials" column in the "Instances" table for the "default_it_rt_in" row.

Paste the values you copied and make sure Grant Type is “Client Credentials” and Client Authentication is “Send as Basic Auth header”. Click on “Get New Access Token”.

The screenshot shows the Postman interface with the following details:

- Authorization Tab:** The 'Authorization' tab is selected.
- Token Name:** Trial
- Grant Type:** Client Credentials
- Access Token URL:** https://ee23082trial.authentication.us10.hana.ondemand.com/http/exercise/01
- Client ID:** sb-a82cdf02-b6c4-4df8-a492-c2007d5
- Client Secret:** cc1ff403-987b-4fce-b1aa-cd54f1ec3161
- Scope:** e.g. read:org
- Client Authentication:** Send as Basic Auth header
- Buttons:** Clear cookies, Get New Access Token (highlighted with a red box and an orange arrow pointing to it).

Click “Use Token”.

The screenshot shows the Postman application interface. In the center, a modal window titled "MANAGE ACCESS TOKENS" is open. It lists a single token entry:

All Tokens	Delete
Trial	

Below the table, the token details are shown:

Token Name: Trial

Access Token: eyJhbGciOiJSUzI1NiIsImprdi5i6mh0dBz0i8vZWUyMzA4MmZ0cm... (A very long token string follows)

On the far right of the token details, there is a red button labeled "Use Token". An orange arrow points from the text above to this button. At the bottom of the modal, there are two buttons: "Clear cookies" and "Get New Access Token".

At the top of the main Postman interface, the tab "Training / Exercise 01" is selected. On the left sidebar, under "Collections", the "Training" collection is expanded, showing the "GET Exercise 01" request. The "Send" button is visible at the top right of the main workspace.

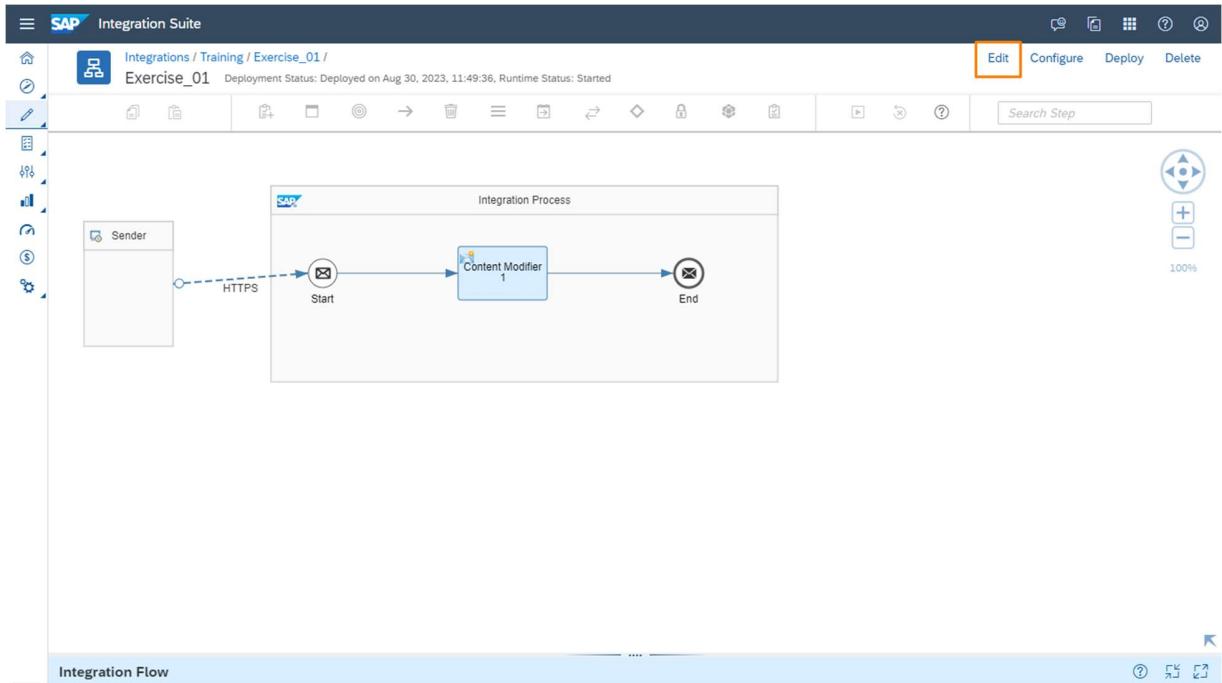
Click “Body” tab. It is blank this time. If “Response” is minimized, click on restore button on the bottom right of the screen.

The screenshot shows the Postman application interface. On the left, there's a sidebar with 'Training' selected, showing 'Collections' and 'Environments'. Under 'Environments', 'History' is listed. The main area displays a 'POST Exercise 01' request under the 'Training / Exercise 01' collection. The request URL is https://ee23082trial1t-cptrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01. The 'Body' tab is highlighted with a red box. Below the tabs, it says 'This request does not have a body'. At the bottom right of the screen, there's a vertical orange arrow pointing downwards, indicating where to click to restore the 'Response' tab if it's minimized.

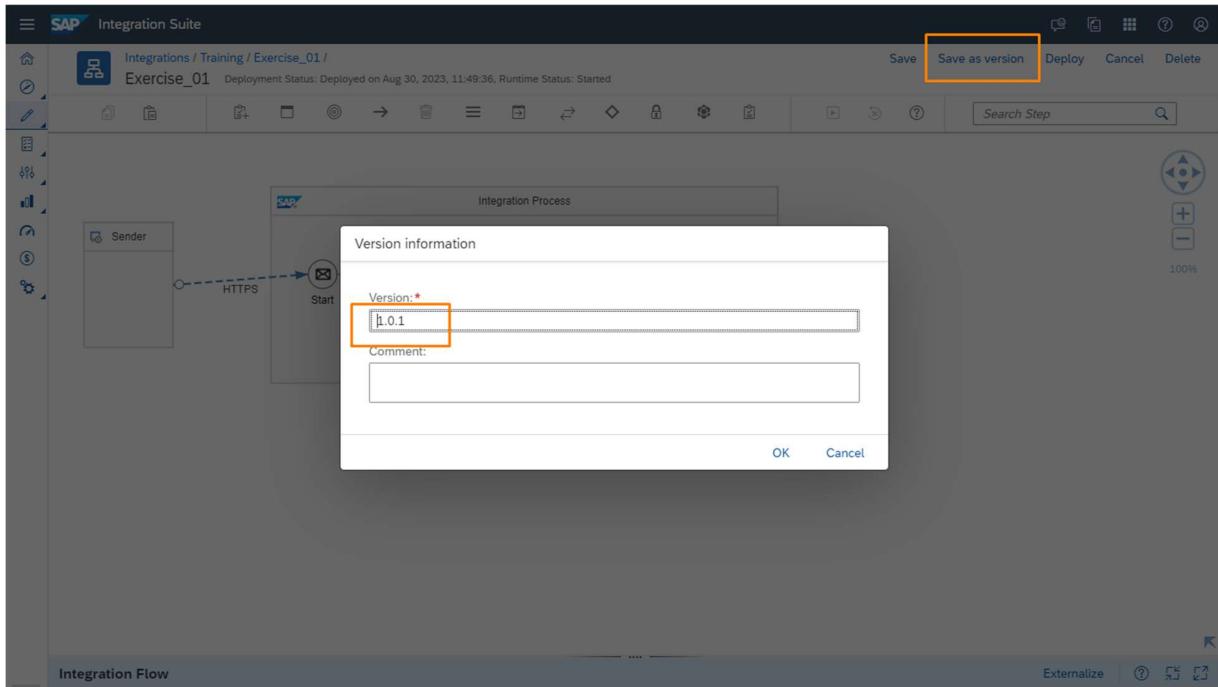
Click “Send” blue button on the top right and then you can see the response of this integration.

The screenshot shows the Postman application interface. On the left, there's a sidebar with 'Training' selected, showing 'Collections' (empty), 'Environments' (empty), and 'History'. The main workspace is titled 'Training / Exercise 01' and contains a single POST request named 'Exercise 01'. The request URL is `https://ee23082trial.it-cptrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01`. The 'Body' tab is selected, showing the response body: 'Hello Cloud Integration!'. The status bar at the bottom indicates 'Status: 200 OK Time: 68 ms Size: 547 B'. A large orange rectangle highlights the response body area.

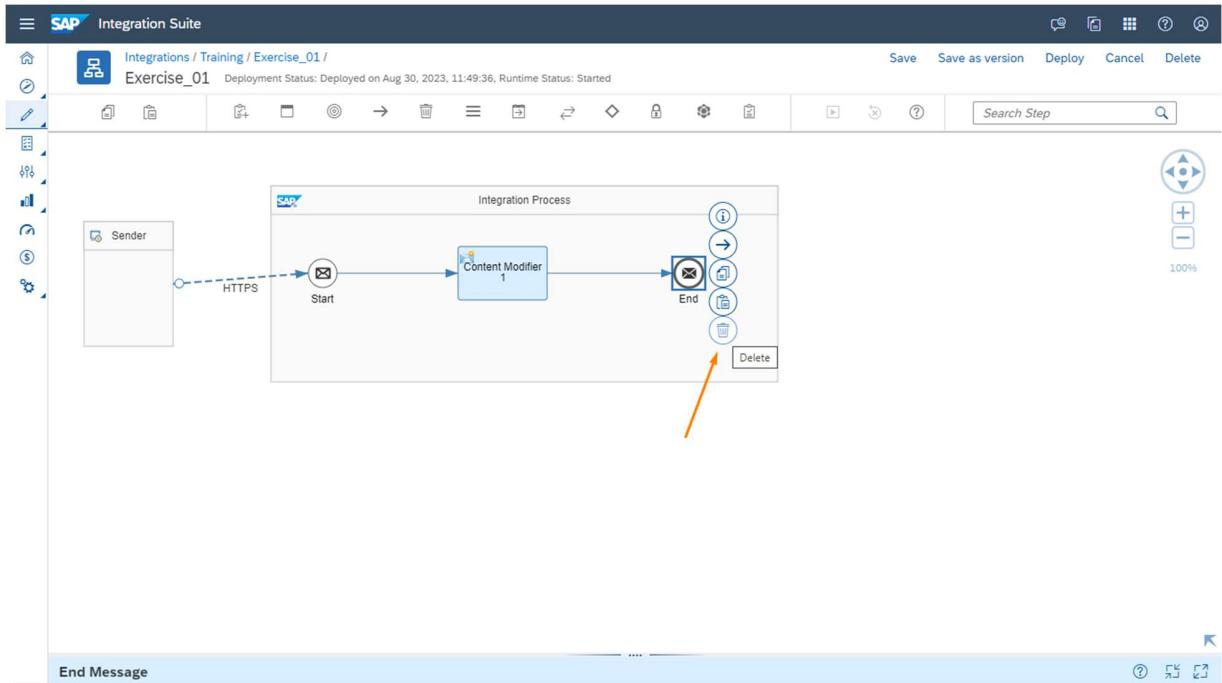
Go back to Cloud Integration, open iFlow “Exercise_01” and click on “Edit” button.



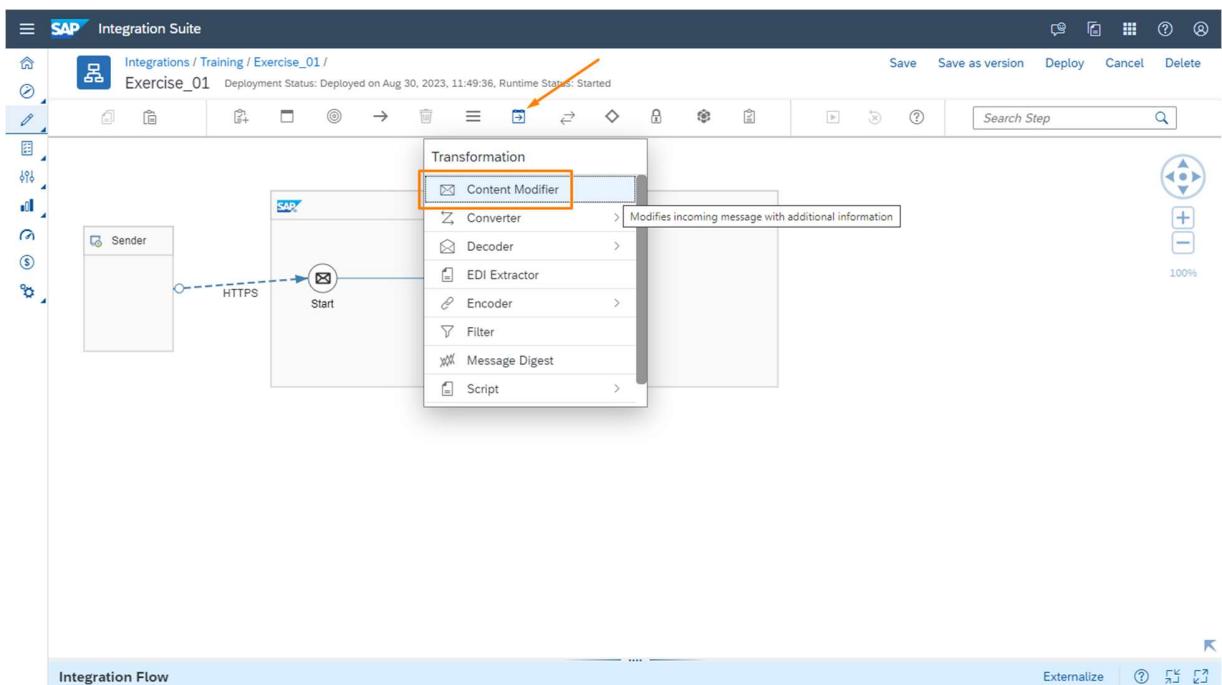
Click “Save as Version”, set it as 1.0.1 and click OK. Everything you have done so far on your iFlow will be saved to this version. As soon as you change it, it will be considered as “Draft” until you save another version.



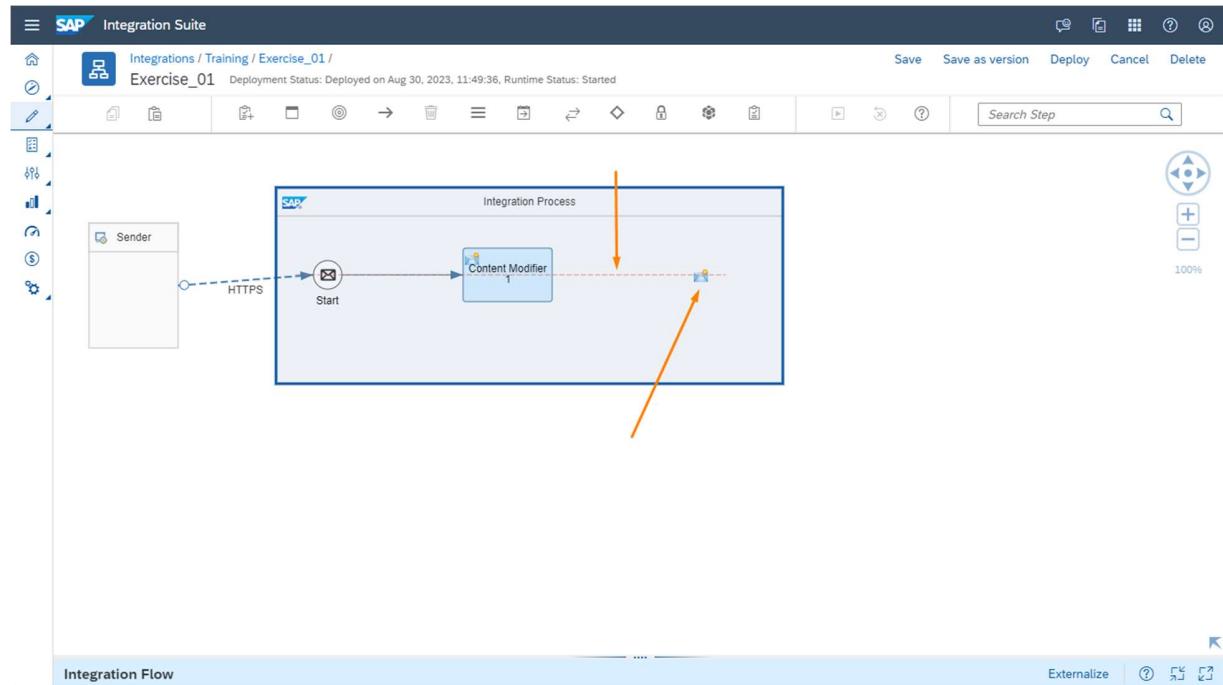
Click “End Message” event and then delete it.



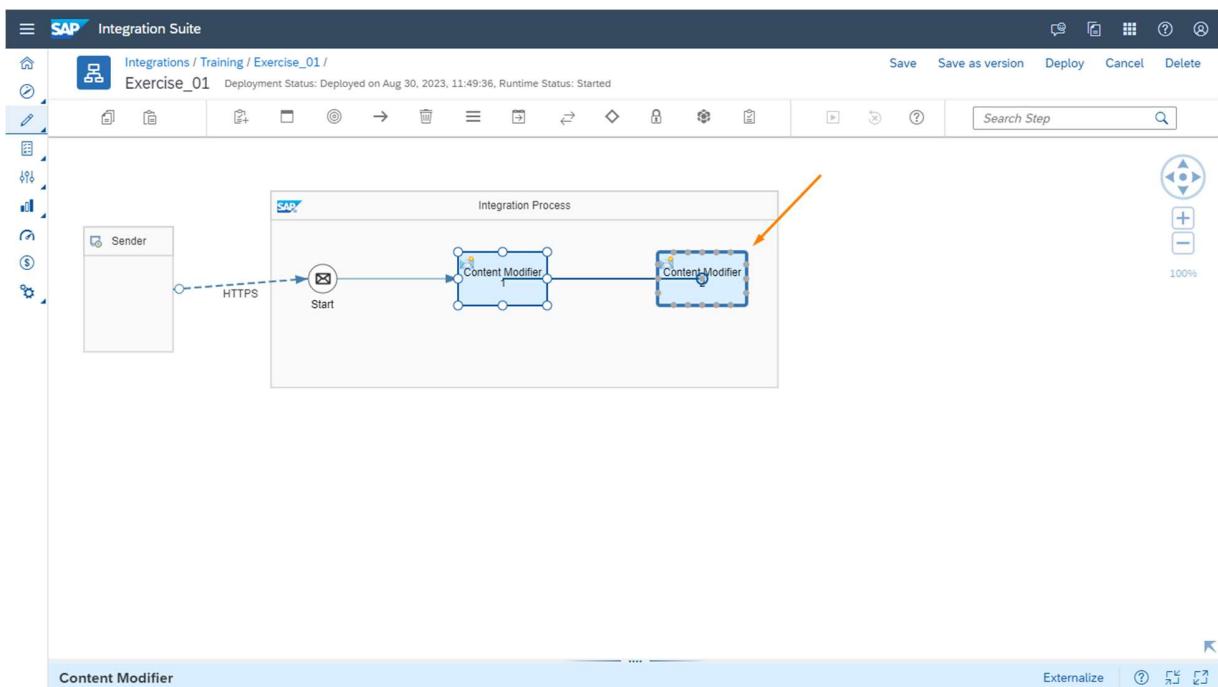
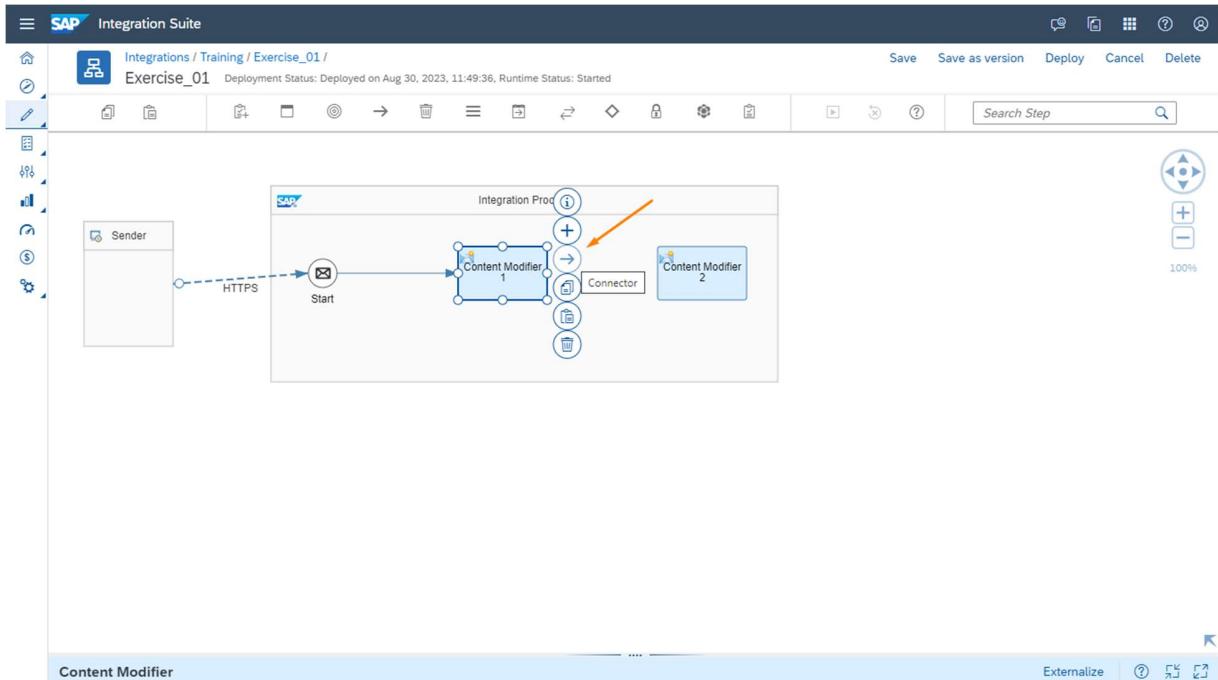
Click “Transformation” and “Content Modifier”.



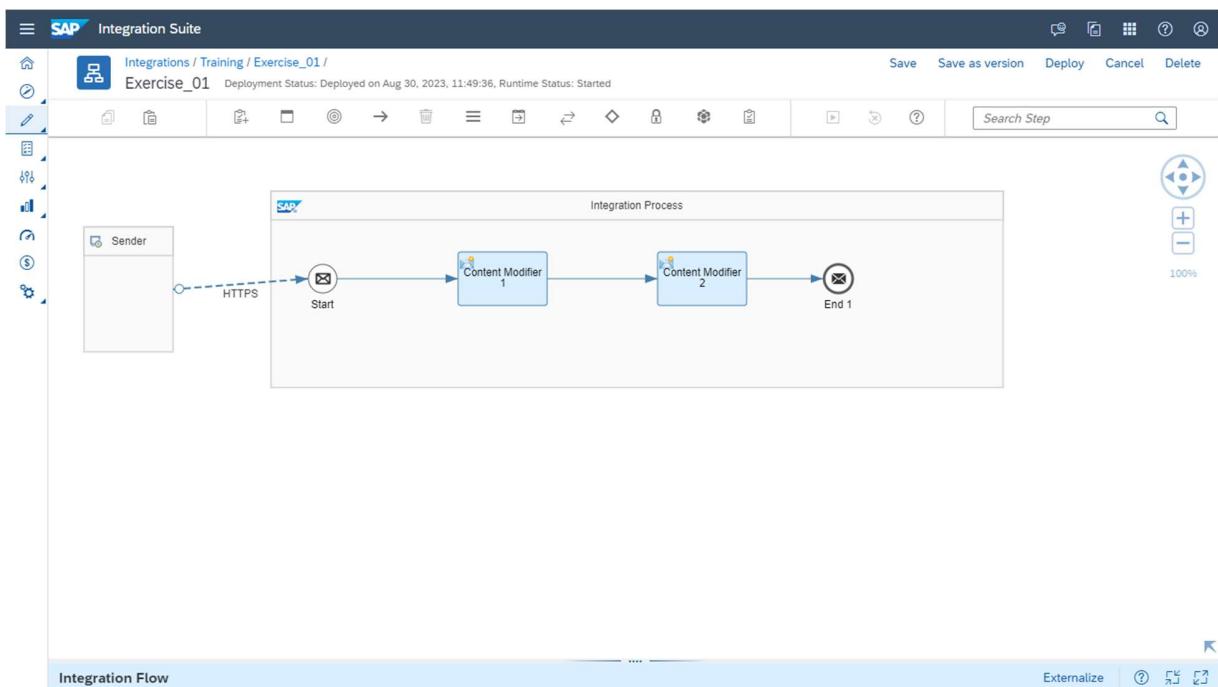
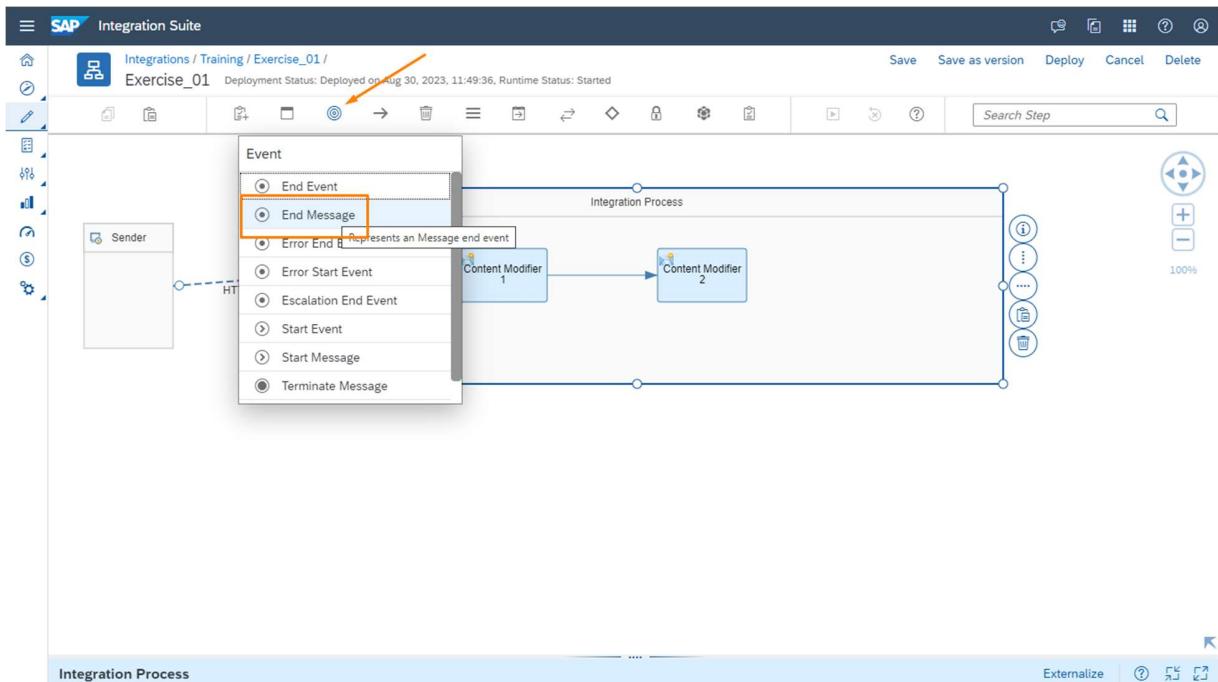
Add this new Content Modifier after the one that already exists. You can align all objects by observing the horizontal dashed line.



Select “Content Modifier 1”, click and drag “Connector” to “Content Modifier 2”.

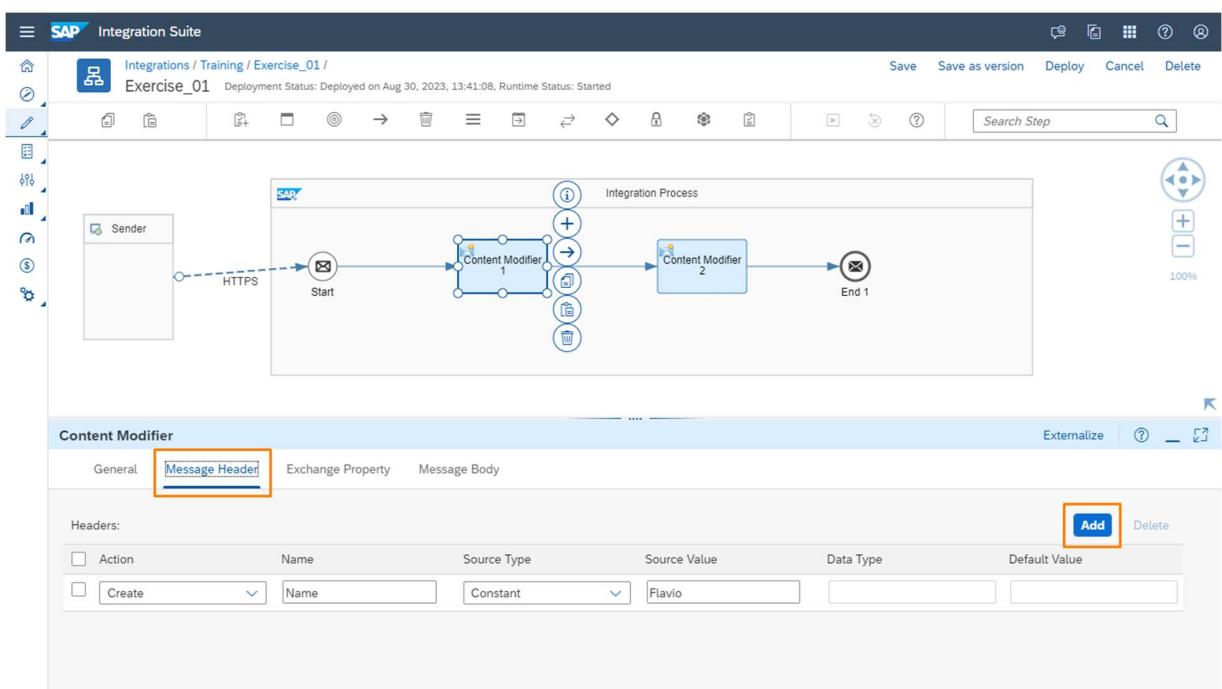


Click “Event”, select “End Message”, add it after “Content Modifier 2”, and connect both.



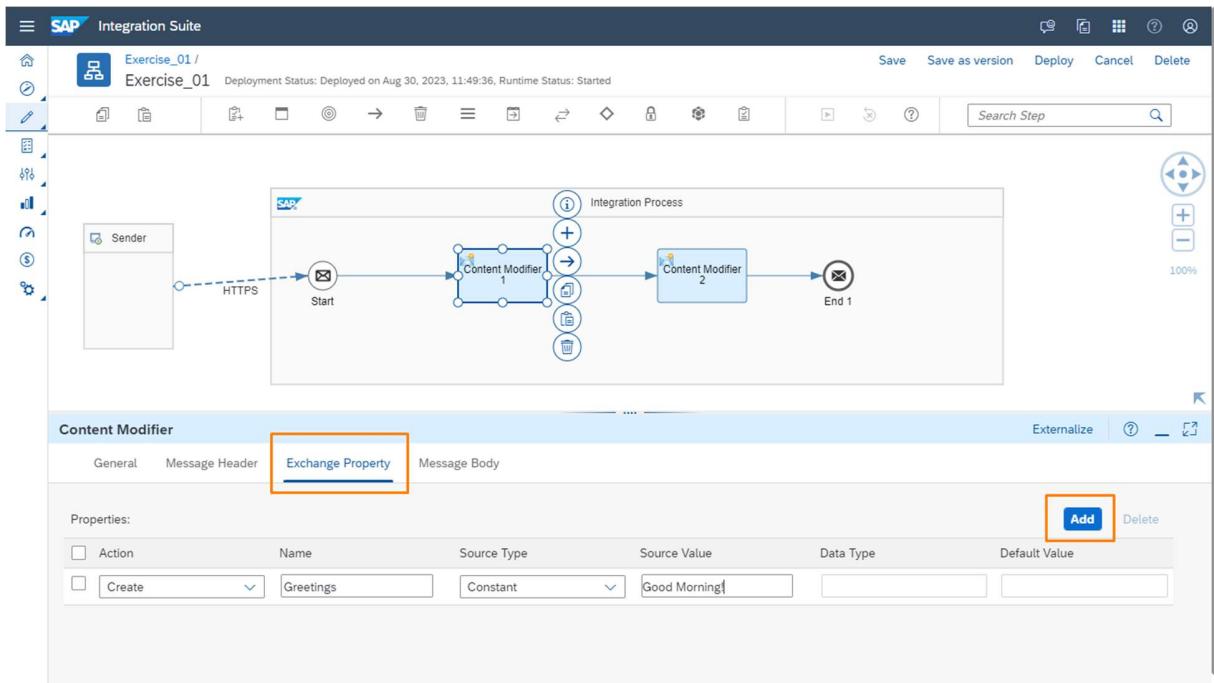
Another way to check any object property is double clicking on it. Try it with “Content Modifier 1”. Click on “Message Header” and add a new iFlow header.

Action Create
Name Name
Source Type Constant
Source Value [Your name]

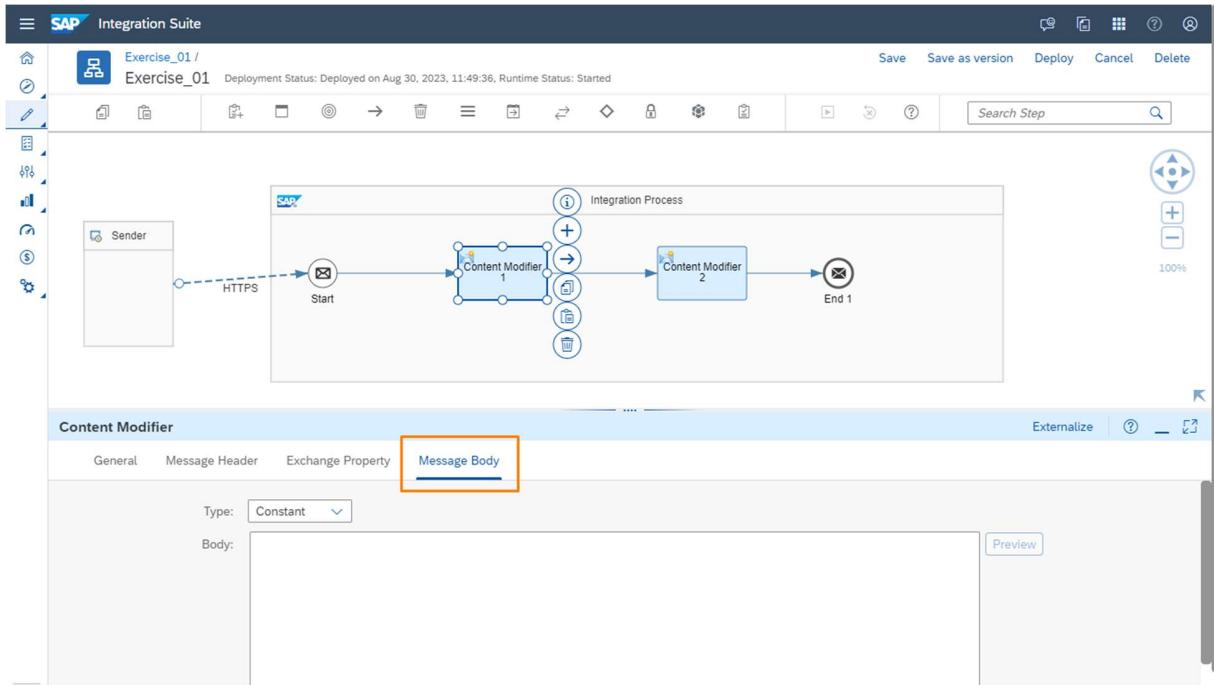


Then click on “Exchange Property” tab and add a new iFlow property:

Action	Create
Name	Greetings
Source Type	Constant
Source Value	Good Morning!



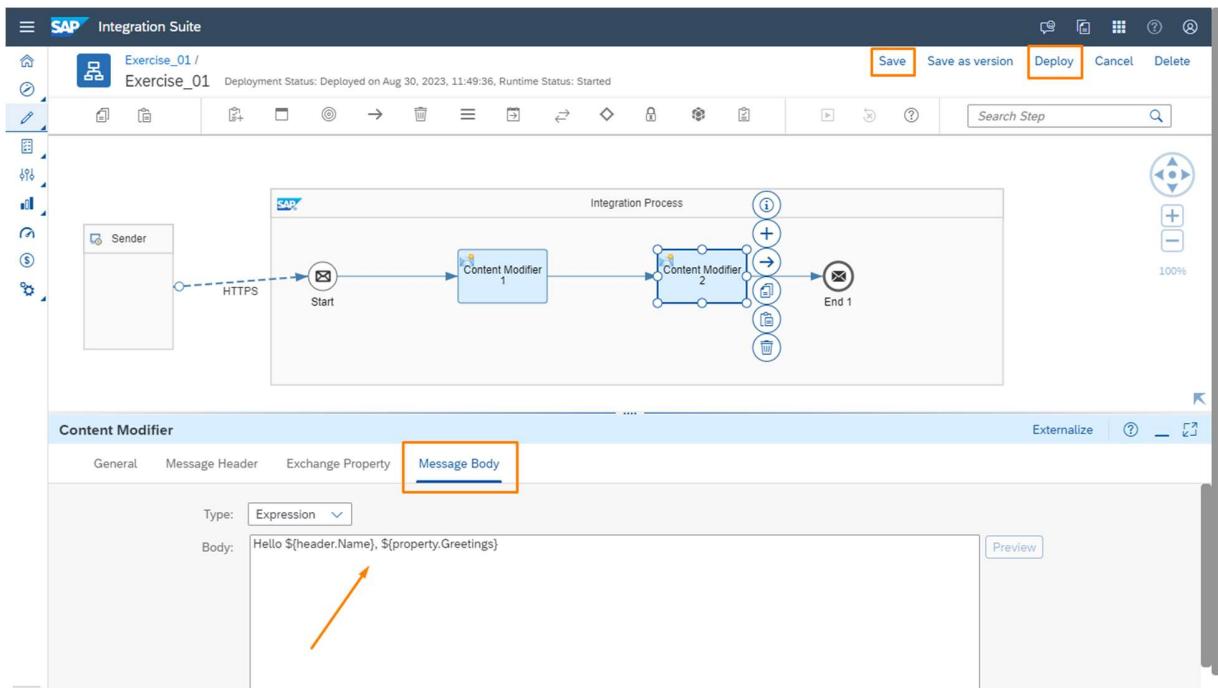
Click “Message Body” tab and clear its content.



Open “Content Modifier 2” properties and click “Message Body” tab.

Type Expression
Body Hello \${header.Name}, \${property.Greetings}

Save and deploy iFlow.



Go back to postman and click “Send”. Now you will have a new response body.

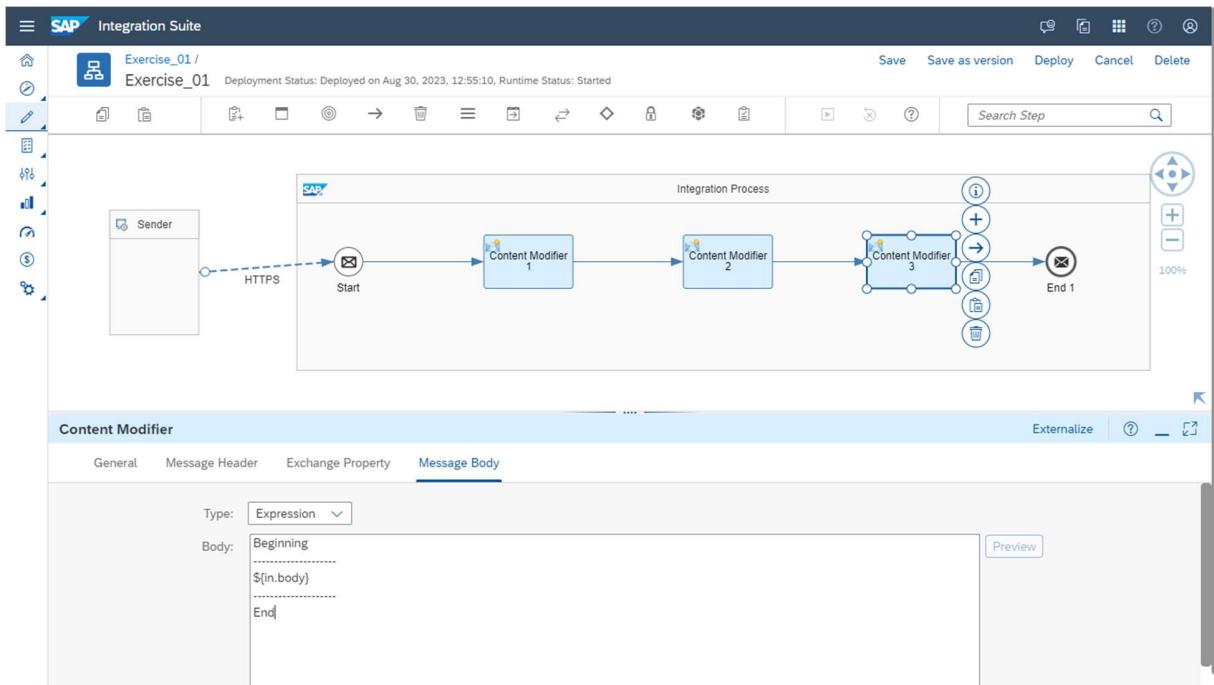
The screenshot shows the Postman application interface. On the left, there's a sidebar with 'Training' selected, showing 'Collections' (with a plus icon), 'Environments' (with a plus icon), and 'History'. The main workspace is titled 'Training / Exercise 01' and contains a single request: 'GET Exercise 01'. The request details show it's a POST request to 'https://ee23082trial.it-cptrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01'. The 'Body' tab is selected, showing the message 'This request does not have a body'. Below the request details, the response section is visible, showing a status of '200 OK', time '454 ms', size '564 B', and a preview of the response body which says 'Hello Flavio, Good Morning!'. A red arrow points from the text 'Now you will have a new response body.' in the previous step to the 'Visualize' button in the response preview area.

Add a new “Content Modifier”.

Type Expression
Body Beginning

\${in.body}

End



Go back to Postman and click “Send”.

The screenshot shows the Postman application interface. On the left, there's a sidebar with 'Training' selected, showing 'Collections', 'Environments', and 'History'. The main workspace is titled 'Training / Exercise 01' and contains a single GET request named 'Exercise 01'. The request details are as follows:

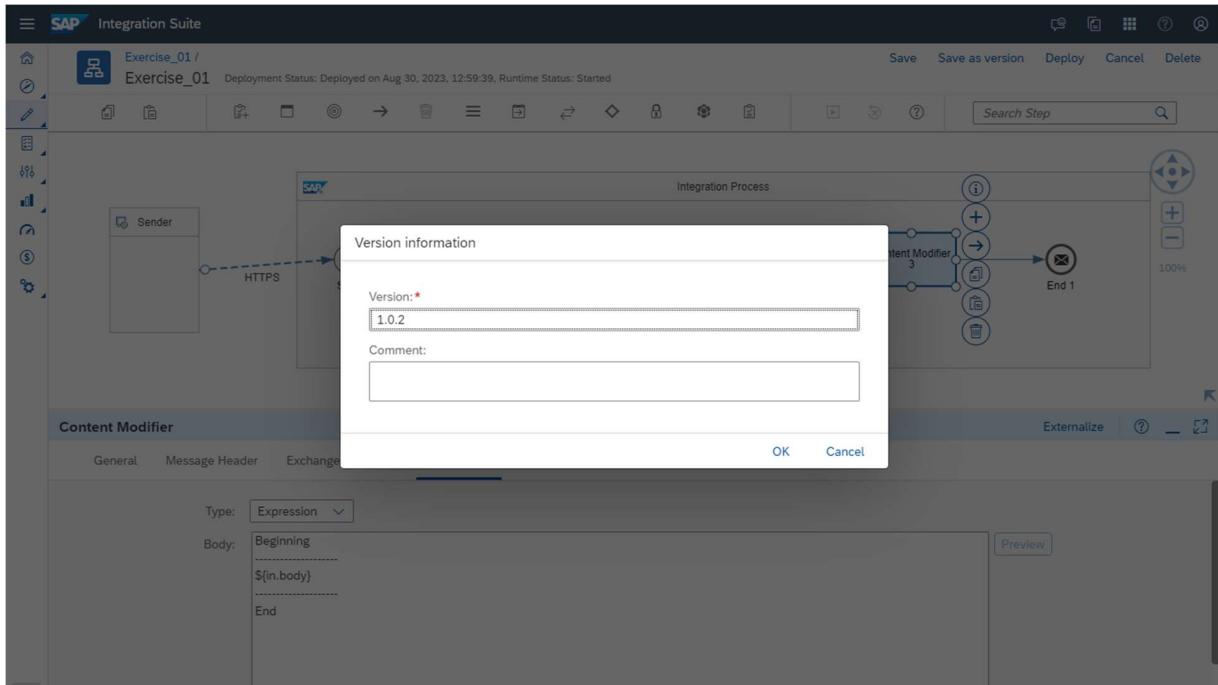
- Method: POST
- URL: <https://ee23082trial.it-cptrial06-rt.cfapps.us10-001.hana.ondemand.com/http/exercise/01>
- Headers: (9)
- Body: (selected)
- Params: none
- Authorization: (green dot)
- Pre-request Script: None
- Tests: None
- Settings: None

The response body is displayed below, showing the result of the API call:

```
1 Beginning
2 -----
3 Hello Flavio, Good Morning!
4 -----
5 End
```

At the bottom, the status bar shows: Status: 200 OK Time: 346 ms Size: 620 B. There are also buttons for 'Save as Example', 'Runner', 'Capture requests', 'Cookies', 'Trash', and a help icon.

Save a new iFlow version.

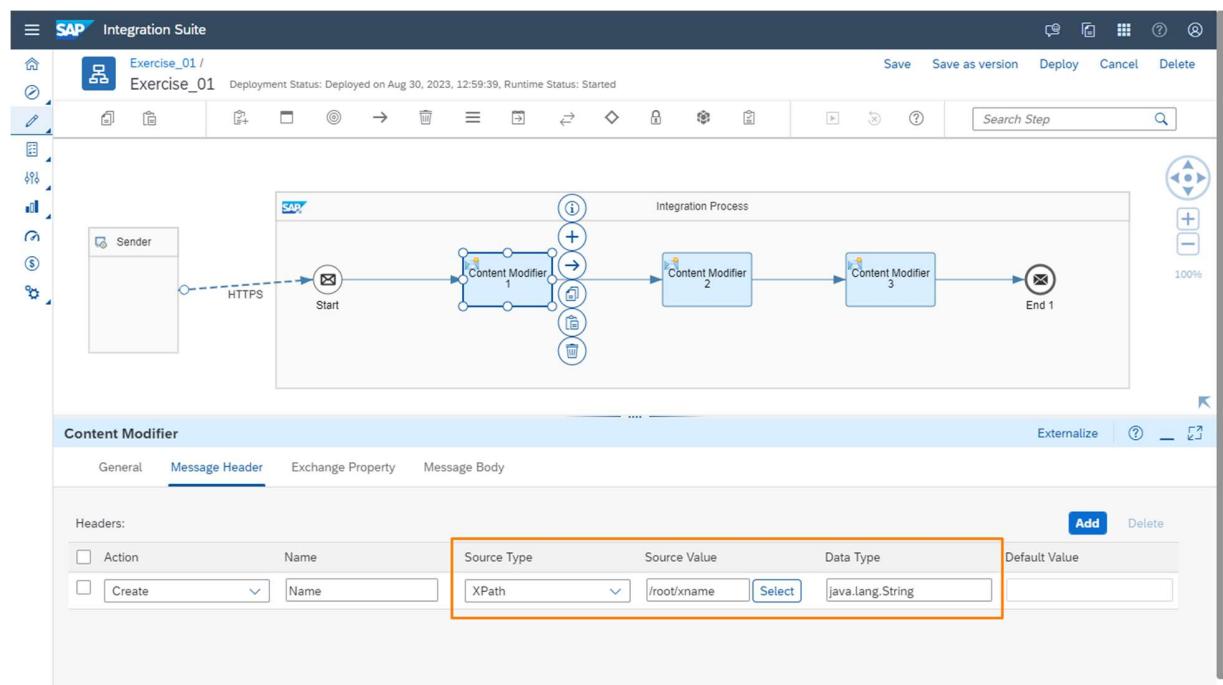


Modify Message Header “Name” from “Content Modifier 1”.

If you know the full XML structure, you can set XPath Value with single “/”.

Attention to Data Type as it is case-sensitive.

Action	Create
Name	Name
Source Type	XPath
Source Value	/root/xname
Data Type	java.lang.String

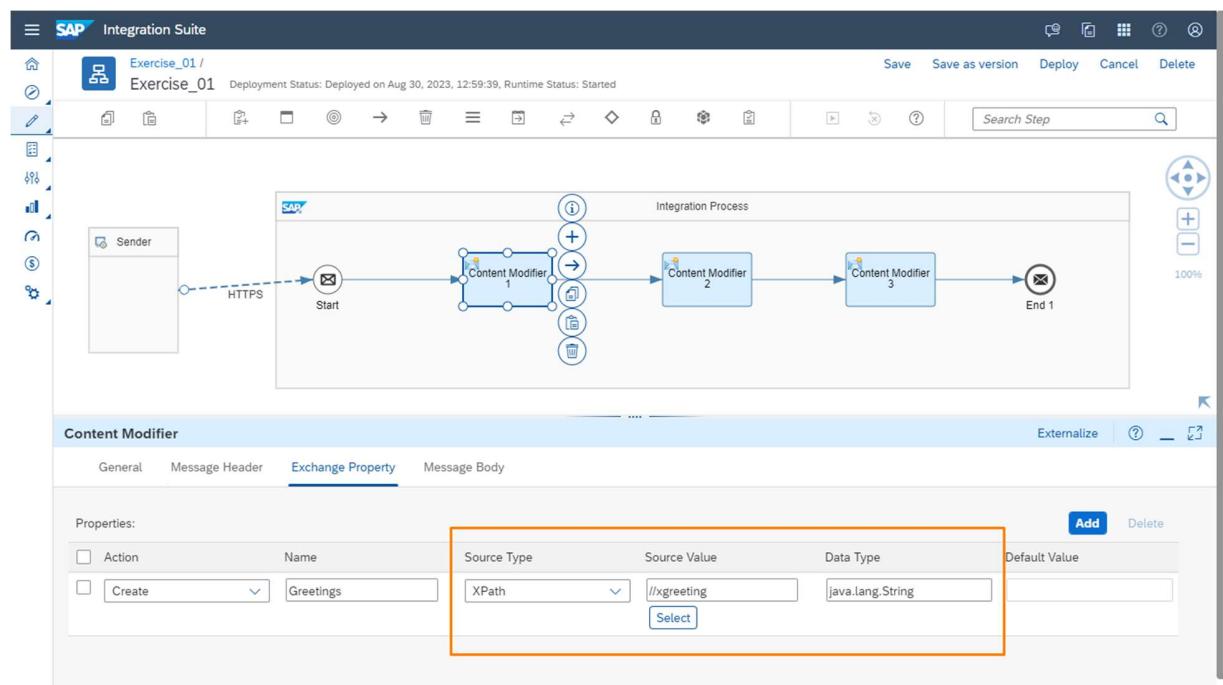


Modify Exchange Property “Greetings” from “Content Modifier 1”.

Another way to get an XPath value is using “//”. It will get the first occurrence of that specific field.

Attention to Data Type as it is case-sensitive.

Action	Create
Name	Greetings
Source Type	XPath
Source Value	//greeting
Data Type	java.lang.String



Now you need to change the body to “raw” and select “XML” on Postman.

Use this XML body and click “Send”.

```
<root>
  <xname>[Your lastname]</xname>
  <xgreeting>Hello!</xgreeting>
</root>
```

The screenshot shows the Postman application interface. On the left, there's a sidebar with 'Training' selected, showing 'Collections' and 'Environments'. The main area shows a 'POST Exercise 01' request under 'Training / Exercise 01'. The 'Body' tab is selected, showing the XML code:

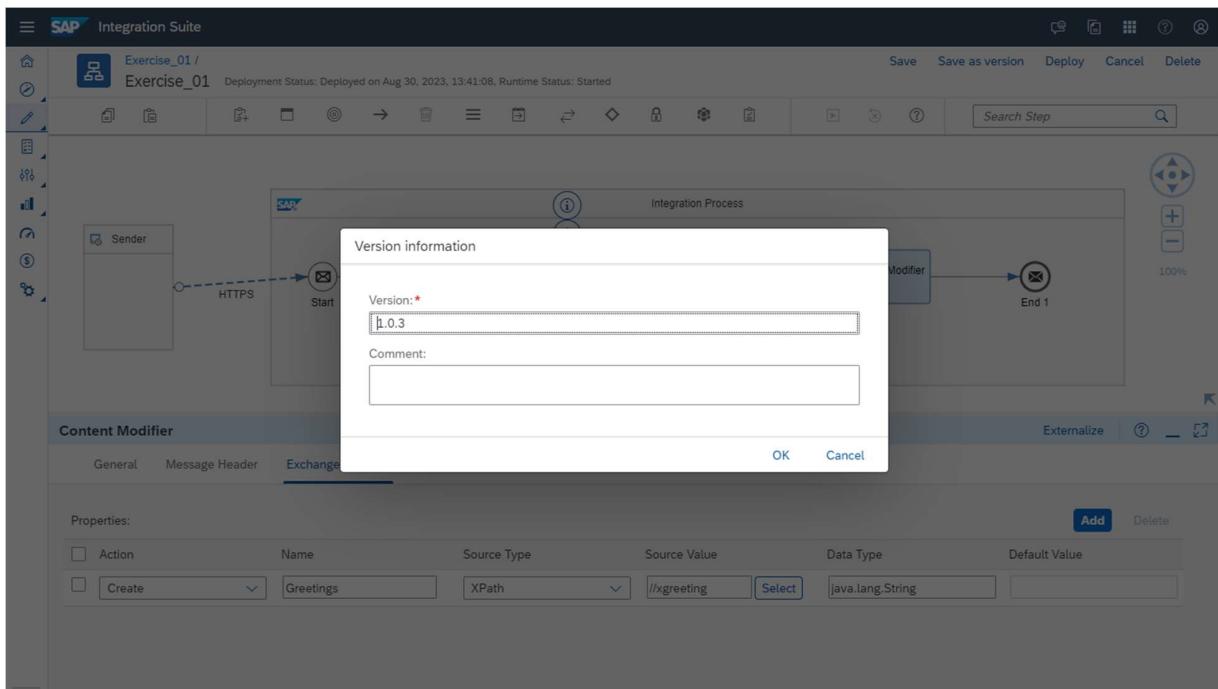
```
1 <root>
2   <xname>Philippi</xname>
3   <xgreeting>Hello!</xgreeting>
4 </root>
```

The 'Body' tab has a radio button for 'raw' selected. To its right, there are buttons for 'form-data', 'x-www-form-urlencoded', and 'XML'. The 'XML' button is also highlighted with an orange box. Below the body editor, the response pane shows the raw response content:

```
1 Beginning
2 -----
3 Hello Philippi, Hello!
4 -----
5 End
```

The response pane includes tabs for 'Pretty', 'Raw', 'Preview', 'Visualize', and 'Text'. At the top of the response pane, it says 'Status: 200 OK Time: 335 ms Size: 617 B'. There are also buttons for 'Save as Example', 'Runner', 'Capture requests', 'Cookies', 'Trash', and a help icon.

Create a new version for your iFlow and deploy it.



Going back to “Training” package, you can see the current selected iFlow version. The selected version not always is the deployed version.

The screenshot shows the SAP Integration Suite interface. At the top, there's a navigation bar with icons for Home, Refresh, and Help, followed by "SAP Integration Suite". Below the navigation bar, the breadcrumb path reads "Integrations / Training / Training". On the right side of the header, there are buttons for "Edit", "Export", and "Delete Package".

In the center, there's a summary section for the "Training" package, stating "Vendor: " and "Mode: Editable" with "Version: 1.0.0". Below this, there are tabs for "Overview", "Artifacts (1)", "Documents", and "Tags". The "Artifacts (1)" tab is currently selected.

Under the "Artifacts (1)" tab, there's a table with the following data:

Name	Type	Version	Actions
Exercise_01	Integration Flow	1.0.3	
Created			>

At the bottom of the table, there's a "Filter Artifacts" search bar with a magnifying glass icon.

You can make sure what version is deployed going to Monitor Artifacts > Integrations (the same screen where you got your iFlow endpoint).

The screenshot shows the SAP Integration Suite interface. On the left, there's a sidebar with various icons and a search bar labeled "Filter by Name or ID". The main area displays a table titled "Integration Content (1)" with one row for "Exercise_01". The table columns are "Name" and "Status". The status for "Exercise_01" is "Started". To the right of the table, there are deployment details: "Deployed On: Aug 30, 2023, 17:04:58", "ID: Exercise_01", "Package: Training", and "Version: 1.0.3" (which is highlighted with an orange box). Below these details are tabs for "Endpoints", "Status Details", "Artifact Details", and "Log Configuration". The "Status Details" tab shows a green message: "The Integration Flow is deployed successfully." The "Artifact Details" tab has links to "Monitor Message Processing", "View deployed Artifact", and "Navigate to Artifact Editor". The "Log Configuration" tab shows a dropdown for "Log Level" set to "Info".