

File Transfer EPM-FTP Using Integration Cloud

Sample OIC Integration Flow (File transfer to EPM Cloud from FTP location) Implementation Guide

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Introduction

This document describes step-by-step instructions on how to transfer a file from any FTP/SFTP location to EPM cloud using Oracle Integration Cloud (OIC). This flow is a scheduled orchestration. It makes use of a standard FTP and REST adapter in Oracle Integration Cloud.

The file is read from the FTP location and then transferred to EPM cloud via a REST adapter connection. Refer to EPM documentation for the REST service used in this flow.

<https://docs.oracle.com/cloud/latest/epm-common/PREST/toc.htm>

https://docs.oracle.com/cloud/latest/epm-common/PREST/upload.htm#PREST-lcm_rest_apis_3

This sample integration flow works on EPM Cloud release 18.03 or later and OIC 18.1.5 or later. In the package, there is an implementation guide, which has the step-by-step instructions. There is an OIC archive file - you import the archive to your OIC environment, make necessary configurations, and the integration will work.

To download the package, please access [this](#) article on Oracle Cloud Customer Connect. If it's your first time accessing Oracle Cloud Customer Connect, you will need to register by clicking the "Register" button at the top right.

This sample integration is not part of the standard Oracle product. Oracle will not maintain it for future changes or the particular requirements. If you need to update the integration, please refer to OIC documentation.

Pre-requisite

Oracle Integration Cloud 18.1.5

Oracle EPM Cloud 18.03

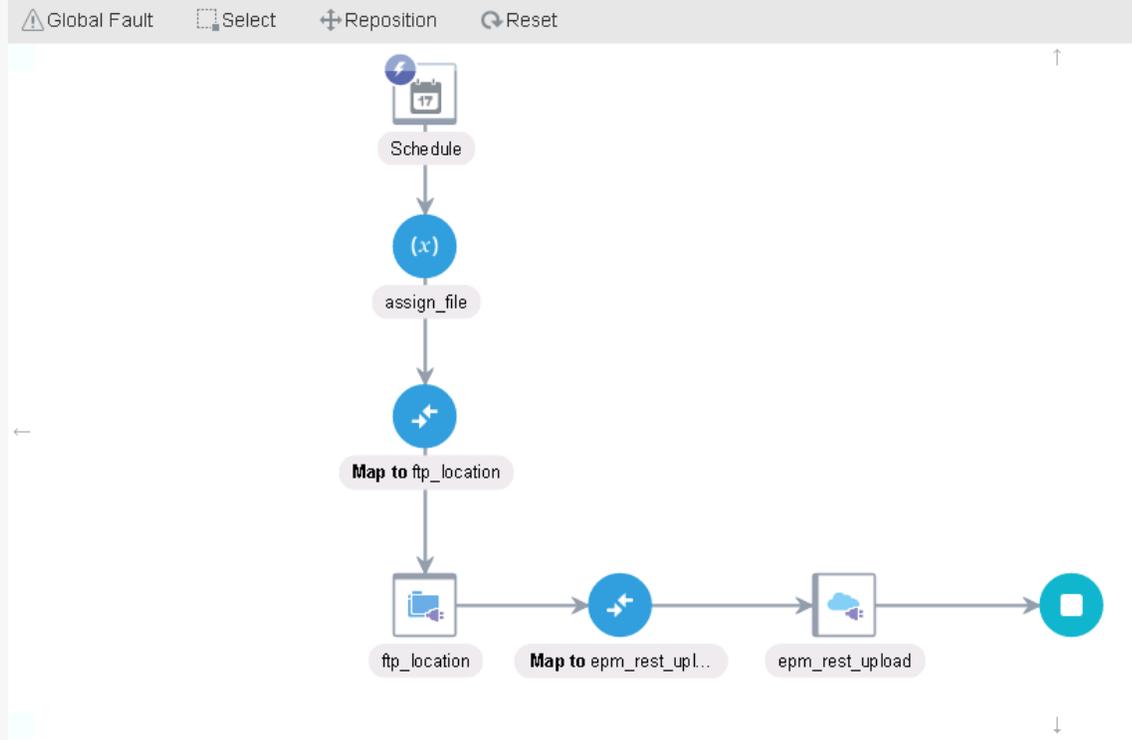
Publicly accessible FTP/SFTP server

Integration Flow

Below is the integration flow.

EPM_FILE_UPLOAD (1.0)

Scheduled Orchestration



It is a simple flow that is triggered by the schedule, downloads the file from the FTP location and then uploads it to EPM Cloud.

Configure the Integration

Import the Integration

The installation package contains “EPM_FILE_UPLOAD_01.00.0000.iar”, an OIC integration archive file.

Download the package to your local disk.

Log in to your OIC service and open the “Integrations” page.



Welcome icsadmin!

Create an integration to connect your cloud and on-premise applications in a continuous business flow. A great integration starts with creating connections to the applications you want to use, and then mapping information between those applications. [Show Me How >](#)

Start Here



Create Connections

Connections
Define connections to the cloud and on-premise applications you want to integrate.
[Learn More](#)
[Show Me](#)



Create and Activate your Integrations

Integrations
Connect two cloud applications, and define how they interact with each other.
[Learn More](#)
[Show Me](#)



Monitor Integrations on the Dashboard

Dashboard
View the current state of your running integrations and fix any errors that occur.
[Learn More](#)
[Show Me](#)

On the top right, click **Import**, then select “EPM_FILE_UPLOAD_01.00.0000.iar”. Click **Import** to import the archive to your OIC, as shown below.

Once imported you will see the following integration flow created.

Two connections with names “EPM_REST_CONNECTION” and “FTP_CONNECTION” will appear under the Connection page.

Connections

Apr 23, 2018 2:57:43 PM PDT  Search 

EPM_REST_CONNECTION REST Used by 1 Integrations Rest connection to Oracle EPM Cloud Service.	 Invoke
FTP_CONNECTION FTP Used by 1 Integrations	 Trigger and Invoke

Edit the Connections

Navigate to the Connections page and click the **Edit** menu to edit the connections as shown below.

EPM_REST_CONNECTION Connection

On the Edit connection page for “EPM_REST_CONNECTION”, click **Configure Connectivity**. Enter your EPM Cloud service URL, for example: <https://planning-xyzcom.stg-pbcs.us1.oraclecloud.com>. Click **OK** to close the dialog.

to configure connection details, such as email contact, connection properties, and connection login credentials. When complete, click Test to test your connection. If the connection test is successful, click Save.

REST

Rest connection to Oracle EPM Cloud Service.

Invoke

Connection Administrator
receive email notifications when pro

Properties
Connectivity to specify information

Connection Type REST

TLS Version

Connection URL http://slc05nhs.us.oracle.com:90000

Security to specify the login credentials to access your application/endpoint.

Connection Properties

Enter information so we can connect to your application/endpoint and process requests.

Property Name	Property Value
* Connection Type	REST API Base URL
TLS Version	< Please select an item from the list >
* Connection URL	http://slcar285.usdv1.oraclecloud.com:9316

OK Cancel

Configure Connectivity

Configure Security

Click **Configure Security** and then provide the user credentials for your EPM cloud service. Then click **OK**.



Credentials

You can configure the Security Policy for this connection. Please select the Security Policy.

Security Policy Basic Authentication

Your application/endpoint requires that users and services provide security credentials for access. Specify the login credentials below.

Property Name	Property Value
* Username	epm_user
* Password	*****
* Confirm Password	*****

OK Cancel

Click **Test**, **Save** and **Close**.

FTP_CONNECTION Connection

On the Edit connection page for "FTP_CONNECTION", click **Configure Connectivity**. Enter FTP/ SFTP server details and click **OK**.

Connection Properties

Enter information so we can connect to your application/endpoint and process requests.

Property Name	Upload File	Property Value
* FTP Server Host Address		slc10hej.us.oracle.com
* FTP Server Port		22
SFTP Connection		Yes
Host Key	<input type="checkbox"/>	Host Key of SFTP Server
SSL Certificate	<input type="checkbox"/>	Upload SSL Certificate
FTP Server Time Zone		< Please select an item from the list >

OK Cancel

Click **Configure Security** and provide the credentials/certificate details depending on the FTP/SFTP server you are using.

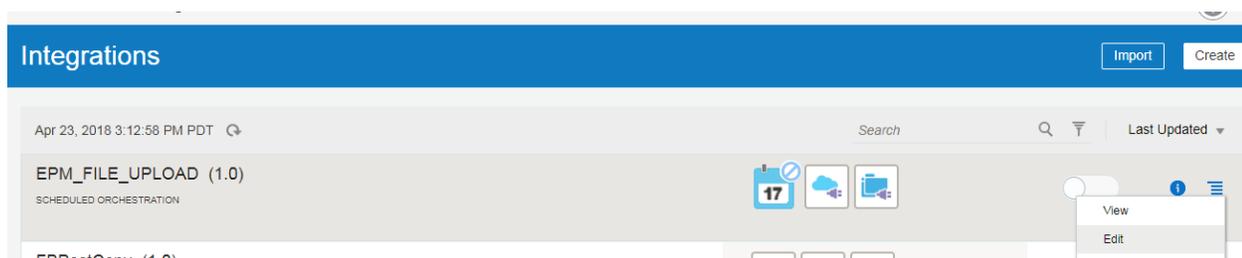
Property Name	Upload File	Property Value
* User Name		ababkuma
* Password		*****
* Confirm Password		*****
SSL Certificate Password		Enter SSL Certificate Password
Confirm SSL Certificate Password		Enter SSL Certificate Password
PGP Public Key	<input type="checkbox"/>	PGP public key is used for encrypting message payload
ASCII-Armor Encryption Format		< Please select an item from the list >
Cipher Algorithm		< Please select an item from the list >
PGP Private Key	<input type="checkbox"/>	PGP Private Key is used for decrypting message payload
PGP Private Key Password		PGP Private Key password is used for encrypting private key
Confirm PGP Private Key Password		PGP Private Key password is used for encrypting private key

Click **OK** to close the dialog.

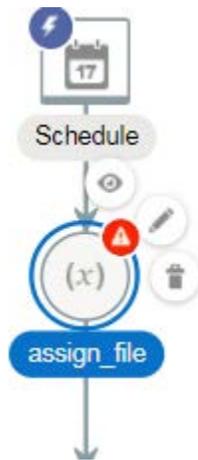
Then click **Test** and make sure the connection is successful. Click **Save and Close**.

Modify the Integration

Only a minor modification is needed to get this integration working. Navigate to the Integration page and click on **Edit** next to the integration name "EPM_FILE_UPLOAD"



Click on **"assign_file"** and then click the **Edit** icon.



The following variables need to be modified.

Name	Description	Sample value	Modification
assign_file_folder	This is the folder location on FTP server where the file is located.	'/Data/Jan/records'	Required
assign_file_name	This is the file which has to be downloaded from ftp location.	'dataFile.dat'	Required
assign_oic_location	This is the temporary location on OIC where the file would be downloaded.	'/tmp'	Optional
assign_epm_file_name	The name to be used while saving the file on EPM. By default it is equal to the file name on ftp location, for example <code>assign_file_name</code> . You can provide a new file name if desired.	<code>assign_file_name</code> or 'newDataFile.dat'	Optional
assign_epm_file_folder	The folder in EPM cloud where the file has to be uploaded. This is optional.	'inbox/Jan'	Optional

To modify any of these, click on the **Edit** icon on the table row under the Value column.

assign_file EPM_FILE_UPLOAD (1.0) Close

Assign

Assign variables to your integration. You can assign values to variables using the editor. Variable assignments can be a greater of complexity. For example, you can use assignments in other activities and in maps.

Add at least one named variable and specify its value by adding an expression

Variable	Data Type	Description	Operation	Value
(x) assign_file_folder	simple	Type a description		<i>Add an expression</i>
(x) assign_file_name	simple	Type a description		<i>Add an expression</i>
(x) assign_oic_location	simple	Type a description		"/tmp"
(x) assign_epm_file_name	simple	Type a description		Sassign_file_name
(x) assign_epm_file_folder	simple	Type a description		" "

Then enter the value under Expression text box and click **Close**.

assign_file_folder Close

Expression in "assign_file - EPM_FILE_UPLOAD (1.0)"

Inputs

View Filter Detach

Source Find...

- *schedule
- <> *startTime
- \$tracking_var_1
- \$tracking_var_2
- \$tracking_var_3

View Detach

Expression

'/scratch/ababikuma'

Expression Summary

"/scratch/ababikuma"

Repeat the steps for all the required/desired fields and then click **Close**.

Save the integration by clicking on **Save** and then click **Close** to close the integration.

Activate the Integration

On the Integration page, click on **Activate** to activate the integration flow.

Integrations Import Create

Apr 24, 2018 8:32:11 AM PDT Search Last Updated

EPM_FILE_UPLOAD (1.0) SCHEDULED ORCHESTRATION	  	<input type="checkbox"/>	 
FRPostConv (1.0)	  	<input type="checkbox"/>	 



The below dialog will pop-up, asking if you want to enable the tracing and include payload with Activation. "Include payload" will write the sensitive information into OIC log files. It could be used in the testing but is not recommended in production. Click **Activate** here; you can add the schedule later.

Activate Integration ?

EPM_FILE_UPLOAD (1.0)

Schedule: A schedule can be defined to run this integration. To add it now, click "Activate and Schedule...". You can also [add it later](#).

Recommendations Engine

Contribute integration mappings to Oracle Recommendations Engine.

i Oracle Integration Cloud leverages the collective intelligence to recommend which fields should be mapped while developing an integration. These recommendations are built based on the mappings contributed to Oracle Recommendations Engine anonymously. Unselect the checkbox if you do not wish to contribute the mappings. You may change this in recommendations page from settings menu.

[Learn More](#)

Tracing: When tracing is enabled, integration activity can be viewed in the Activity Stream.

Enable tracing

Include payload

! When payload is included, sensitive information from the payload is written into log files, which can be downloaded and viewed. This may pose a security risk, and also slow down your system. Not recommended in a production environment.

[Learn More](#)

|

On successful activation, the button will change to green.



ORACLE Integration Cloud

Integration EPM_FILE_UPLOAD (1.0) submitted for activation. Click refresh if status is in progress

- Go to Actions menu and click "Submit now" or "Add Schedule" to run this integration.
- Use POST API [https://cloud.integration/v1/integrations/EPM_FILE_UPLOAD%7C01.00.0000/schedule/jobs](#) from a REST client to trigger this integration, after activation succeeds.
- You can also go to **Runs** page to track runs for this integration.

Integrations Import Create

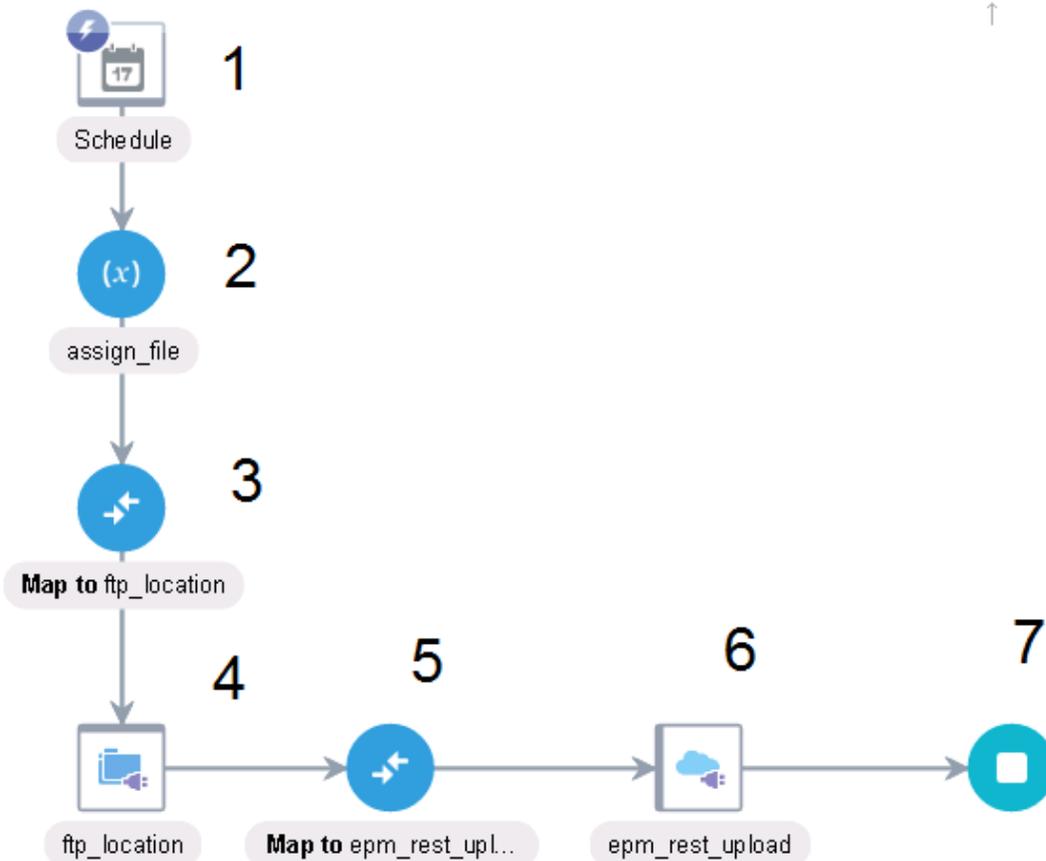
Apr 24, 2018 8:48:08 AM PDT Search Last Updated

EPM_FILE_UPLOAD (1.0)
SCHEDULED ORCHESTRATION

17 Cloud Integration Trace With Payload

Integration Steps

Below are the detailed steps of the sample integration. To configure or run the integration, you do not need to walk through all the steps. To update the integration or build more features upon the sample, you can go through each step.

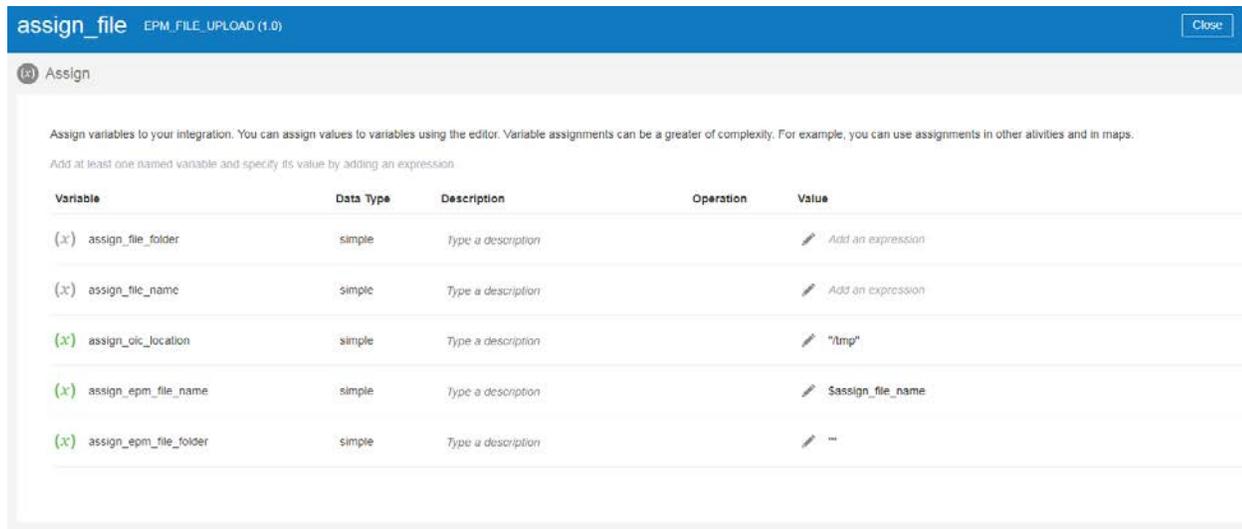


Step 1

Indicates this is a scheduled “Orchestration” type integration.

Step 2

This is the Assignment step to initialize a few variables used later in the integration flow.



assign_file EPM_FILE_UPLOAD (1.0) [Close]

Assign

Assign variables to your integration. You can assign values to variables using the editor. Variable assignments can be a greater of complexity. For example, you can use assignments in other activities and in maps.

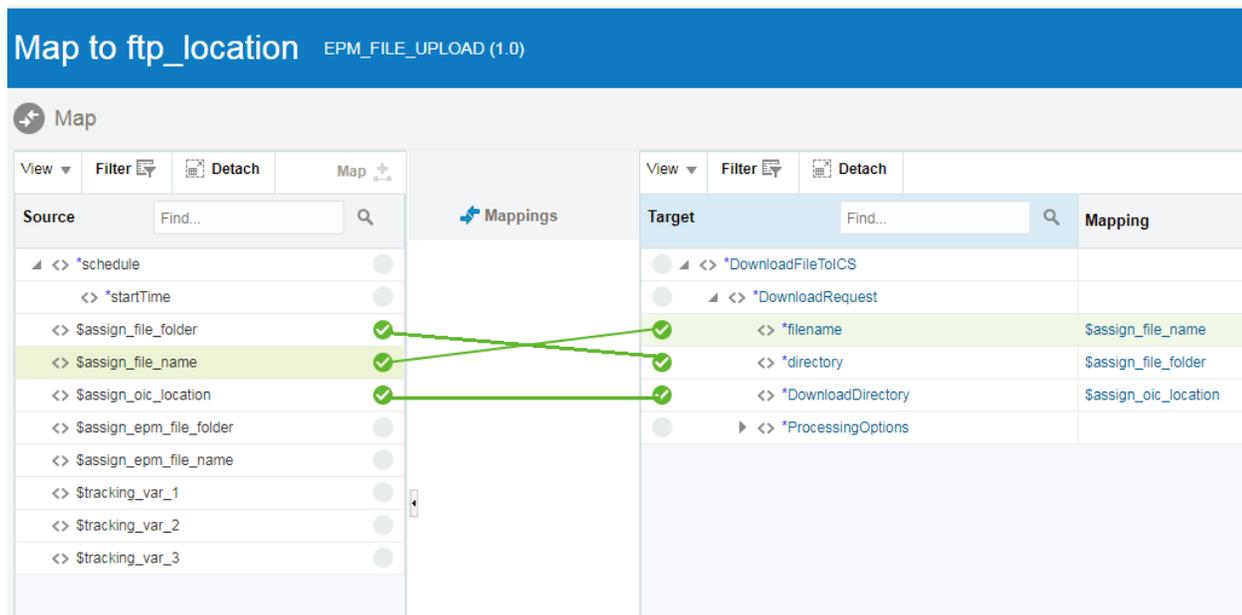
Add at least one named variable and specify its value by adding an expression.

Variable	Data Type	Description	Operation	Value
(x) assign_file_folder	simple	Type a description		Add an expression
(x) assign_file_name	simple	Type a description		Add an expression
(x) assign_oic_location	simple	Type a description		/tmp
(x) assign_epm_file_name	simple	Type a description		Sassign_file_name
(x) assign_epm_file_folder	simple	Type a description		

These variables are already covered in the section “Modify the integration”.

Step 3

This is mapping to the request schema for Download File Operation from FTP location. The variables initialized in previous steps are mapped directly to corresponding fields in Download File Request.



Map to ftp_location EPM_FILE_UPLOAD (1.0)

Map

View Filter Detach Map

Source Find...

Target Find...

Mappings

Source	Target	Mapping
<> *schedule	*DownloadFileToICS	
<> *startTime	*DownloadRequest	
<> \$assign_file_folder	*filename	\$assign_file_name
<> \$assign_file_name	*directory	\$assign_file_folder
<> \$assign_oic_location	*DownloadDirectory	\$assign_oic_location
<> \$assign_epm_file_folder	*ProcessingOptions	
<> \$assign_epm_file_name		
<> \$tracking_var_1		
<> \$tracking_var_2		
<> \$tracking_var_3		

Step 4

The FTP endpoint specifies:

- » Operation as “Download File”
- » Transfer mode is “Binary”.
- » The Input directory and File name are the folder and file name present in FTP location. These are optional and specified during mapping in previous step.
- » Download directory is the location in OIC where the file would be downloaded before sending to EPM.

The screenshot shows the 'Oracle Adapter Endpoint Configuration Wizard' window. The title bar includes 'Help', '< Back', 'Next >', 'Cancel', and 'Done'. The main content area is titled 'Configure the Operation Parameters for the Target FTP Endpoint' and contains the instruction: 'Select the operation to perform and define the parameters required for target FTP endpoint.' A left-hand navigation pane shows 'Basic Info', 'Operations' (selected), 'Schema', 'Format Definition', and 'Summary'. The 'Operations' section is active, displaying the following configuration options:

- * Select Operation: Download File (dropdown menu)
- * Select a Transfer Mode: ASCII Binary
- Input Directory: For example, /Oracle/input (text input field)
- File Name: For example, abc.txt (text input field)
- * Download Directory: /tmp (text input field)
- Unzip the file
- Decrypt the File

Step 5

This is the mapping to Request schema for REST service to upload the file to EPM.

- » The “File Reference” represents the stream of the file downloaded from FTP location. This is mapped directly to the “streamReference, for example the application-octet stream of the REST request used to upload the file to EPM.
- » The variable \$assign_epm_file_name is mapped to the path parameter “file_name” of the REST request.
- » There is a query parameter “q” required for REST request. The value of “q” is determined based on two parameters: “size” of the file, “\$assign_epm_file_folder” variable.
- » If the destination EPM folder where the file has to be uploaded is not specified, “\$assign_epm_file_folder” would be empty and then the value of q is constructed as following string:

```
{isLast:true,isFirst:true,chunkSize:size}
```

- » If the destination EPM folder is specified, “\$assign_epm_file_folder” would not be empty and then the value of q is constructed as following string:

```
{ isLast:true,isFirst:true,chunkSize:size, extDirPath: "$assign_epm_file_folder" }
```

Map to epm_rest_upload EPM_FILE_UPLOAD (1.0)

Map

Source	Target	Mapping
*DownloadResponse	*execute	
*ICSFiles	QueryParameters	
ICSFile	q	f(x) {isLast:true,isFirst:tru
*FileReference	TemplateParameters	
*Properties	*file_name	\$assign_epm_file_name
filetype	*streamReference	FileReference
directory	*ConnectivityProperties	
filename	RestAPI	
lastModifiedTime	Plugin	
creationTime		
size		
checksum		
\$assign_epm_file_name		
\$assign_epm_file_folder		
\$assign_file_folder		
\$assign_file_name		

If you click on "q", you can see the functions used to construct the value.

Mapping

Target Element: /execute/QueryParameters/q

Statement

```

<nsmpr3:q>
  <xsl:choose />
  <xsl:when test = 'string-length($assign_epm_file_folder) = 0.0'>
    <xsl:value-of select = "concat('[isLast:true,isFirst:true,chunkSize:', $ftp_location/nsmpr0:DownloadFileToICSRResponse/nsmpr1:DownloadResponse/nsmpr1:ICSFiles/nsmpr2:ICSFile/nsmpr2:FileReference/nsmpr2:Properties/nsmpr2:filetype/nsmpr2:directory/nsmpr2:filename/nsmpr2:lastModifiedTime/nsmpr2:creationTime/nsmpr2:size/nsmpr2:checksum,$assign_epm_file_name,$assign_epm_file_folder,$assign_file_folder,$assign_file_name]" />
  <xsl:otherwise />
  <xsl:value-of select = "concat('[isLast:true,isFirst:true,chunkSize:', $ftp_location/nsmpr0:DownloadFileToICSRResponse/nsmpr1:DownloadResponse/nsmpr1:ICSFiles/nsmpr2:ICSFile/nsmpr2:FileReference/nsmpr2:Properties/nsmpr2:filetype/nsmpr2:directory/nsmpr2:filename/nsmpr2:lastModifiedTime/nsmpr2:creationTime/nsmpr2:size/nsmpr2:checksum,$assign_epm_file_name,$assign_epm_file_folder,$assign_file_folder,$assign_file_name]" />
  
```

Step 6

This step specifies the REST endpoint details to upload the file to EPM. Refer to EPM documentation for details on the REST service used for upload.

https://docs.oracle.com/cloud/latest/epm-common/PREST/upload.htm#PREST-1cm_rest_apis_3

The EPM REST URL for upload is “/interop/rest/11.1.2.3.600/applicationsnapshots/{file_name}/contents” where {file_name} is a path parameter.

The operation action type is “POST”.

To specify the query parameter, “Add and review parameters for this endpoint” is checked.

To specify request payload type, “Configure a request payload for this endpoint” is checked.

To specify the response type and schema, “Configure this endpoint to receive the response” is checked.

The screenshot shows the 'Configure Oracle REST Endpoint' wizard. The left sidebar contains a navigation menu with the following items: 'Basic Info' (selected), 'Request Parameters', 'Request', 'Request Headers', 'Response', 'Response Headers', and 'Summary'. The main content area is titled 'Welcome to the Oracle REST Endpoint Configuration Wizard' and includes the following fields and options:

- * What do you want to call your endpoint?**: epm_rest_upload
- What does this endpoint do?**: Describe the endpoint's purpose and detail (text area)
- * What is the endpoint's relative resource URI?**: /interop/rest/11.1.2.3.600/applicationsnapshots/{file_name}/contents
- * What action does the endpoint perform?**: POST (dropdown menu)

Based on your selections, you can add parameters or configure a request and/or response for this endpoint.

Select any options that you want to configure:

- Add and review parameters for this endpoint
- Configure a request payload for this endpoint
- Configure this endpoint to receive the response

At the bottom, there are options for 'Configure Request Headers?' with 'Standard' and 'Custom' radio buttons.

EPM upload REST service has a request query parameter named “q”. The format of “q” is explained in the previous step.

Configure Oracle REST Endpoint

Configure the Request Query Parameters
Configure the request query parameters for this endpoint.

* Resource URI /interop/rest/11.1.2.3.600/applicationsnapshots/{file_name}/contents

Specify Query Parameters

Name	Data Type
q	string

Template Parameters

Displays the template parameters in the relative resource URI. Template parameters are determined by details you specify

Name file_name string

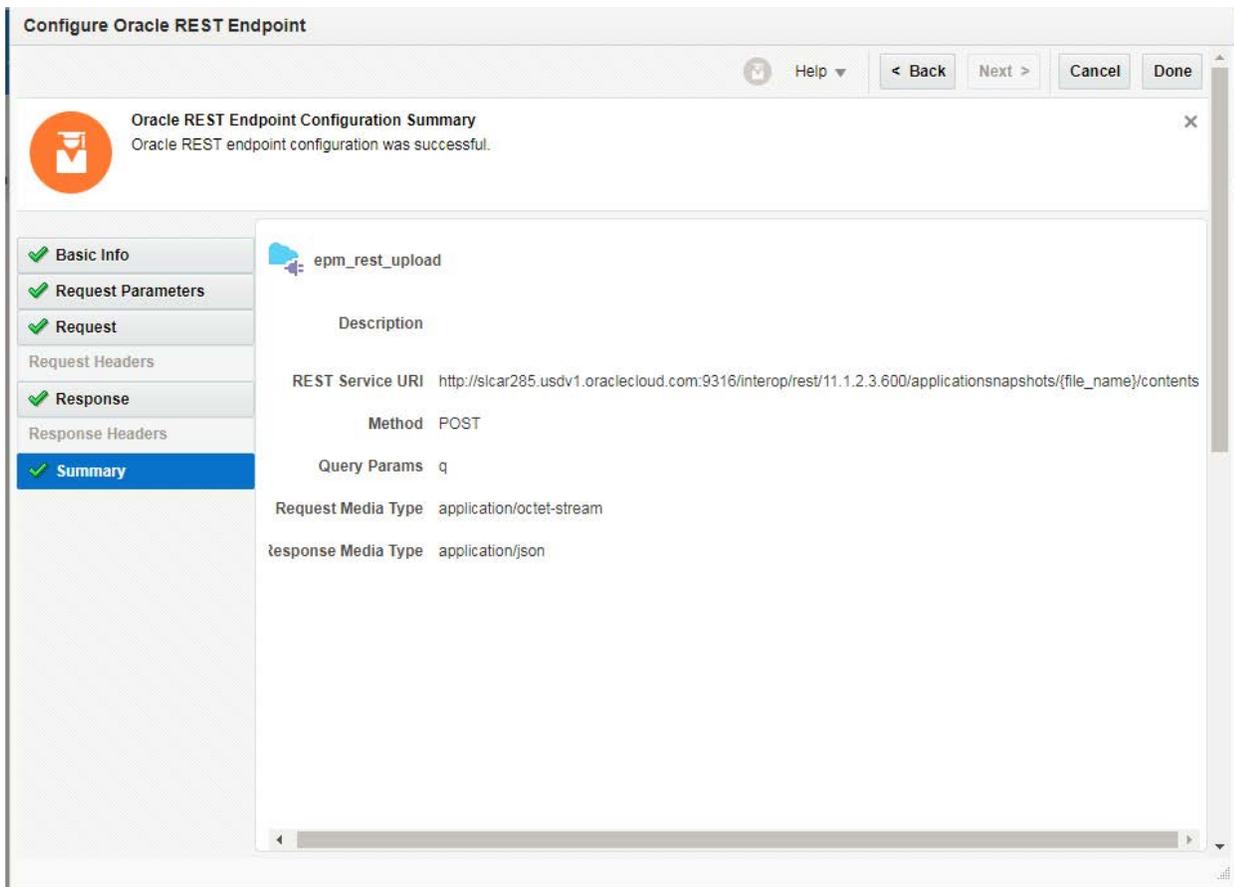
EPM upload REST service accepts file contents as “application/octet-stream”, so the payload format is selected as “Raw” and media type is specified as “application/octet-stream”.

The screenshot shows a configuration window titled "Configure Oracle REST Endpoint". The window has a navigation bar at the top with "Help", "< Back", "Next >", "Cancel", and "Done" buttons. The main content area is titled "Configure the Request Payload" and includes a sub-header "Configure the request payload details for this endpoint." On the left, a sidebar lists configuration steps: "Basic Info", "Request Parameters", "Request" (highlighted in blue), "Request Headers", "Response", "Response Headers", and "Summary". The "Request" section contains three main sections: "Select the attachment processing options" with checkboxes for "Send attachments in request" and "Request is HTML form"; "Select the request payload format" with radio buttons for "XML Schema", "JSON Sample", and "Raw" (selected); and "Select the type of payload with which you want the endpoint to send" with a dropdown menu showing "application/octet-stream". Below this is a "Media Type" field with a question mark icon and the text "For example, application/mp4". At the bottom, there is a checkbox for "Send query parameters as form data in message body".

EPM upload REST service returns a response as JSON content. Following is the sample JSON:

```
{
  "status":0,
  "details":null,
  "links":[
    {
      "data":null,
      "action":"POST",
      "href":"null",
      "rel":"self"
    }
  ]
}
```

Summary page looks like this:



Step 7

End of integration

Run the Integration

Prepare the file

Make sure the file you want to transfer and that you specified in the integration flow Step 2 is available in the FTP location within the specified folder.

Delete the File in EPM cloud

Make sure the file does not exist on EPM cloud. You can use the EPM Automate utility to remove the file from EPM Cloud if it already exists.

```
EPM Automate

C:\Oracle\EPM Automate\bin>epmautomate.bat deleteFile CloseManager.log
Processing...
deleteFile completed successfully

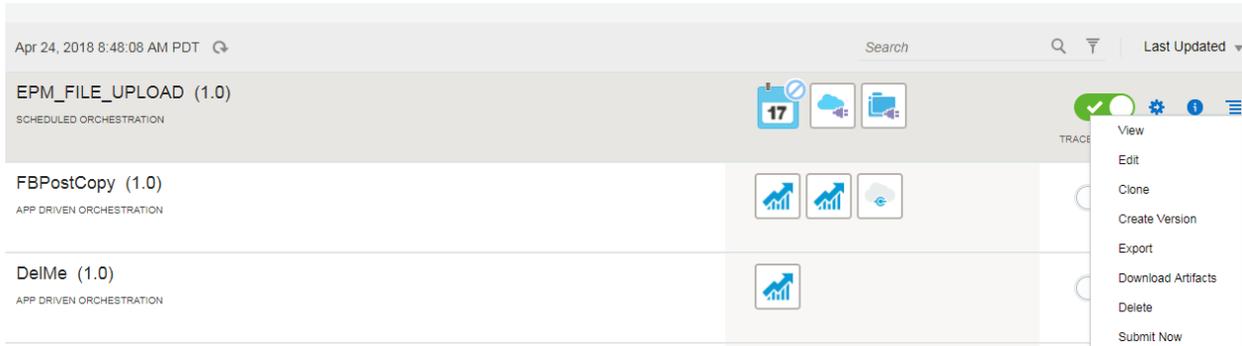
C:\Oracle\EPM Automate\bin>_
```

Refer to the following documentation for EPM Automate:

<https://docs.oracle.com/cloud/latest/epm-common/CEPMA/toc.htm>

Run the integration

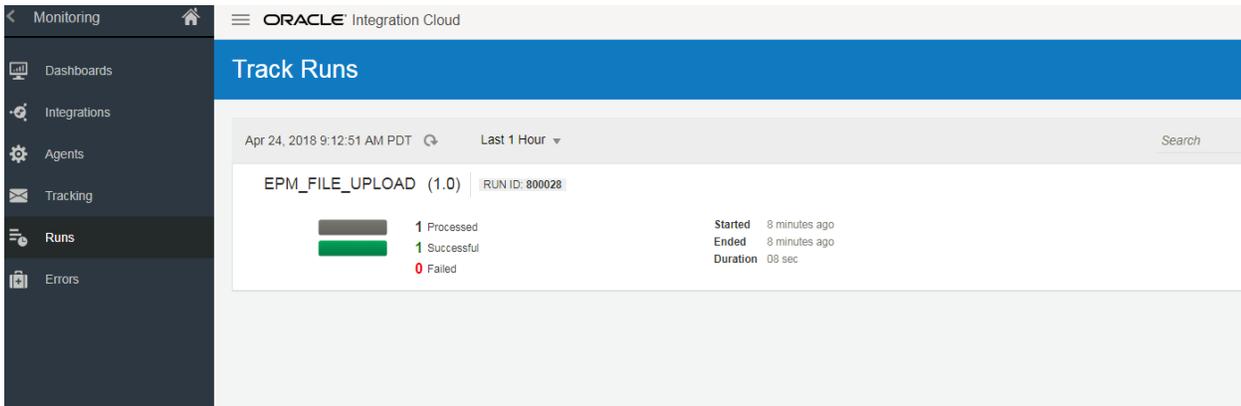
For testing purposes, click **Submit Now** from the menu to run the integration right away instead of scheduling. In production, you will define a schedule to run the integration regularly.



Check the Result

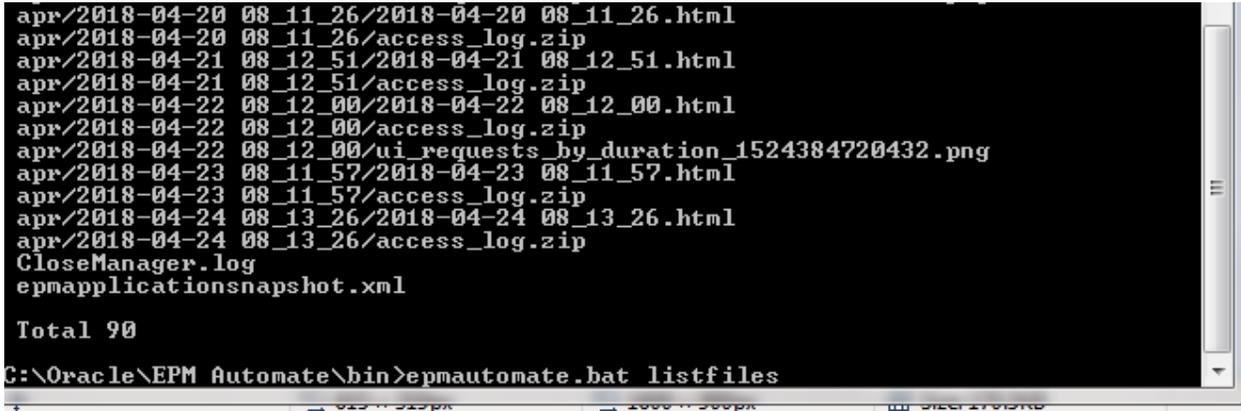
OIC

You can check the status of the integration from the Monitoring page in OIC.



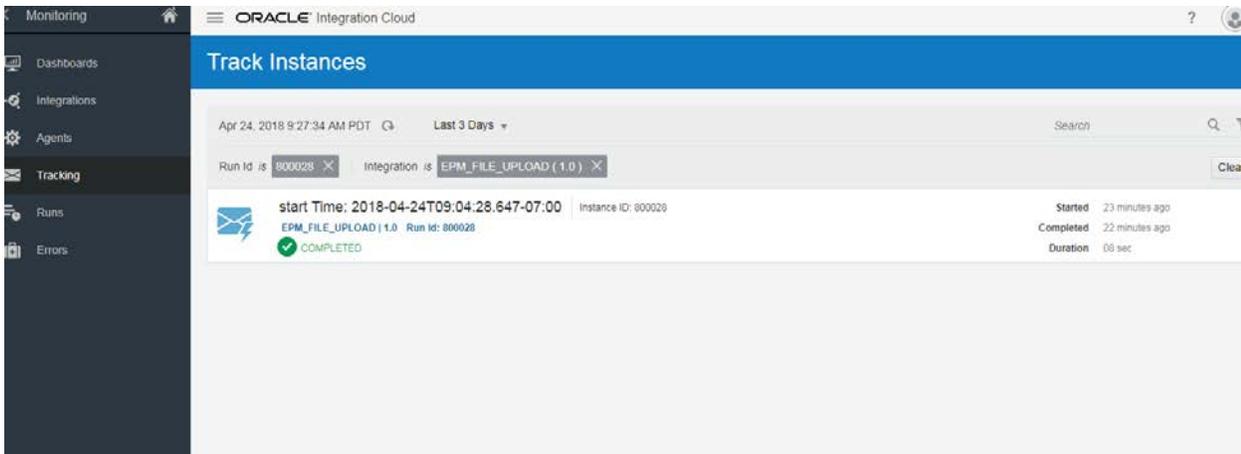
EPM

You can also check that the file is successfully uploaded to your EPM Cloud service using EPM Automate.



Debugging

You can view the messages generated during the flow execution by going to the Tracking page on OIC if tracing was enabled during activation.



Click on the business identifier, for example, “start time: xxxx”. Then click **View Activity Stream** from the menu.

The screenshot shows a user interface for viewing an integration flow's activity stream. At the top, a blue header displays the business identifier '47-07:00 | 800028' and a 'Close' button. Below this, a grey bar shows a green checkmark and the text 'Completed: 25 minutes ago'. A dropdown menu is open, listing several actions: 'Business Identifiers', 'View Errors', 'Discard', 'View Audit Trail', 'View Activity Stream' (which is highlighted), and 'Primary Info'. The main content area features a flow diagram with the following steps: 'Schedule' (with a calendar icon), 'assign_file' (with a file icon), 'Map to ftp_location' (with a location pin icon), 'ftp_location' (with a folder icon), 'Map to epm_rest_upl...' (with a map icon), 'epm_rest_upload' (with a cloud upload icon), and a final connector icon.

Inspect the messages flow between the steps of integration flow.



Activity Stream ?

Record count 20 ▼ ↕

process - Tue Apr 24 09:04:28 PDT 2018 - Integration execution begins.
 Trigger - Tue Apr 24 09:04:28 PDT 2018 - Schedule Triggered. - ScheduledTrigger.

▶ **View payload**

AssignmentActivity - Tue Apr 24 09:04:28 PDT 2018 - Assignment Operation Begins for assign_file.

AssignmentActivity - Tue Apr 24 09:04:28 PDT 2018 - Assignment Operation Completed for assign_file - assign_file.

MapActivity - Tue Apr 24 09:04:28 PDT 2018 - Map Operation Begins - Map.

▶ **View payload**

MapActivity - Tue Apr 24 09:04:28 PDT 2018 - Map Operation Ends - Map.

▶ **View payload**

DownloadFileToICS - Tue Apr 24 09:04:28 PDT 2018 - Request sent to ftp_location - ftp_loca

[Load More Items](#) 1 / 10 of 20 items

Close

Security

The below user accounts are used in the sample integration. It is the responsibility of the customer to manage the accounts and security.

User Account	Use to
FTP/SFTP user account	Access customer's FTP/SFTP site
OIC user account	Login, import, modify, and run the integration.
EPM Cloud user account	Invoke the REST service on EPM cloud to upload the file



Useful information

Integration Cloud

<https://docs.oracle.com/en/cloud/paas/integration-cloud-service>

EPM Cloud

<https://cloud.oracle.com/epm-cloud>

EPM REST service

<https://docs.oracle.com/cloud/latest/epm-common/PREST/toc.htm>

https://docs.oracle.com/cloud/latest/epm-common/PREST/upload.htm#PREST-lcm_rest_apis_3

EPM Automate

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