# Oracle Financial Services External Scheduler Interface API Guide





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# Contents

## 1 External Scheduler Interface

	Rest API Status Codes	1
	Execution API	1
	Batch Execution API	2
	Batch Group Execution API	3
	Execution Status API	4
	Batch Execution Status API	4
	Batch Group Execution Status API	5
	Interrupt API	6
	Batch Interrupt API	7
	Batch Group Interrupt API	7
	Restart API	8
	Batch Restart API	8
	Batch Group Restart API	9
	Rerun API	10
	Batch Rerun API	10
	Batch Group Rerun API	11
2	Authenticating for Token Generation	
	Download the Application Certificate	1
	Get the OAuth Client ID and Client Secret	1
	Generate the Access Token	2
	Generate the Refresh Token	3
	Invoke the API using the Access Token	Δ

# External Scheduler Interface

External scheduler interface help you to execute the tasks using any Command line utility such as cURL commands. You won't require the application interface to execute the tasks.

You can also integrate the Batches with external schedulers, using the external Scheduler interface.

- Rest API Status Codes
- Execution API
- Execution Status API
- Interrupt API
- Restart API
- Rerun API

## Rest API Status Codes

Refer to the following table for Rest API status codes and their descriptions.

Table 1-1 Status Codes

Status Code	Description
0	Success
-1	Failure
-2	Interrupted
1	Not Started
2	Ongoing
3	Aborted
4	Excluded
5	Held
-3	Object does not exist
-4	Invalid arguments passed in request/not enough params in Request body
-5	Invalid request headers/request headers missing
-6	No executable job is present
-7	Job is already interrupted
-8	Job is not ongoing/aborted

## **Execution API**

The Execution (POST) API triggers a batch or a batch group.

HTTP Method - POST



- URL /SchedulerService/rest-api/v1/external/trigger
- Header Parameters
  - ofs\_tenant\_id Tenant ID of the Application
  - ofs\_service\_id Service ID of the Application
  - ofs\_workspace\_id Workspace ID of the Application. It is defaulted to "WS001" and same should be passed each time.
  - ofs\_remote\_user Used ID of the user. This parameter should be mapped to 'BATCH EXEC' function.
  - locale locale in languageCode-countryCode format. For example, en-US.
  - Authorization: Bearer <token> Access token required to authenticate the API. If this token is not provided, 401 Unauthorized error is generated. For more information about Bearer token, refer to Generate the Access Token.
- Sample cURL Command

### **Batch Execution API**

Use the Execution API to trigger a batch.

#### **Attributes**

- batchName The unique batch code
- batchType The object type. For Batch, the batch type should be set to rest.
- dynamicParamList List of run time parameters which should be overridden over actual values for this trigger. This is an optional parameter.
- excludedTasks and held task should be comma separated values

#### **Request Body**

```
{
    "batchName": "<BATCH_CODE>",
    "batchType": "rest",
    "excludedTasks": "",
    "heldTasks": "",
    "dynamicParamList":"{\"batchParams\":{\"$FICMISDATE$\":\"<MISDate(yyyy-mm-dd)>\"},\"taskRuntimeParams\":{\"<TASK CODE1>\":{},\"<TASK CODE2>\":{}}}"
}
```

#### Sample Response Body



The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
{
    "severity": "info",
    "summary": "Object triggered successfully with Run Id:
batch1_demo_ext_api_2023-12-06_1701839464230_1",
    "batchRunId": "batch1_demo_ext_api_2023-12-06_1701839464230_1",
    "details": "Object triggered successfully.",
    "status": "success",
    "statusCode": "0"
}
```

## **Batch Group Execution API**

Use the Execution API to trigger a batch group.

#### Attributes

- batchName The unique batch code.
- batchType The object type. For Batchgroup, the batch type should be set to group.
- dynamicParamList List of run time parameters which should be overridden over actual values for this trigger. This is an optional parameter.
- Exclude and held tasks should be comma separated values of batch code.

#### **Request Body**

```
{
    "batchName": "<BATCHGROUP CODE>",
    "batchType": "group",
    "excludedTasks": "",
    "heldTasks": "",
    "dynamicParamList":"[{\"batchName\":\"<BATCH_CODE1>\",\"batchParams\":{\"<TASK
CODE1>\":{},\"<TASK CODE2>\":{}}},
{\"batchName\":\"<BATCH_CODE2>\",\"batchParams\":{\"$FICMISDATE$\":\"<BATCH_CODE2>\",\"batchParams\":{\"$FICMISDATE$\\":\"<MISDate(yyyy-mm-dd)>\"},\"taskRuntimeParams\":{\"$TASK_CODE1>\":{}}}]"
}
```

#### Sample Response Body

The following Response body is a sample for Success: 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
{
    "severity": "info",
    "summary": "Object triggered successfully with Run Id:
batchGroup1_demo_ext_api_2023-12-06_1701840572429_1",
    "batchRunId": "batchGroup1_demo_ext_api_2023-12-06_1701840572429_1",
    "details": "Object triggered successfully.",
    "status": "success",
```



```
"statusCode": "0"
```

## **Execution Status API**

The Execution Status (POST) API provides the current run status of batch/batch group execution.

- HTTP Method POST
- **URL** /SchedulerService/rest-api/v1/external/status
- Header Parameters
  - ofs\_tenant\_id Tenant ID of the Application.
  - ofs\_service\_id Service ID of the Application.
  - ofs\_workspace\_id Workspace ID of the Application. It is defaulted to "WS001" and same should be passed each time.
  - ofs\_remote\_user Used ID of the user. This parameter should be mapped to 'BATCH\_EXEC' function.
  - locale locale in languageCode-countryCode format. For example, en-US.
  - Authorization: Bearer <token> Access token required to authenticate the API. If this token is not provided, 401 Unauthorized error is generated. For more information about Bearer token, refer to Generate the Access Token.
- Sample cURL Command

#### Topics:

- Batch Execution Status API
- Batch Group Execution Status API

## **Batch Execution Status API**

Use the Execution Status API to view the current run status of a batch execution.

#### **Attributes**

- batchRunId Execution ID generated while triggering the object and can be obtained in the response of Execution API.
- tasks List of Task Codes. This is an optional parameter.

#### **Request Body**

```
{
    "batchRunId": "<Batchrun_ID>",
}
```



#### Sample Response Body

The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

## Batch Group Execution Status API

Use the Execution Status API to view the current run status of a batch group execution.

Use the Execution Status API to view the current run status of a batch group execution.

#### **Attributes**

 batchRunId - Execution Id generated while triggering the object and can be obtained in the response of Execution API.

#### **Request Body**

```
{
"batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body

The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.



## Interrupt API

The Execution Status (POST) API Interrupts a batch/batch group execution.

- HTTP Method POST
- **URL** /SchedulerService/rest-api/v1/external/interrupt
- Header Parameters
  - ofs\_tenant\_id Tenant ID of the Application.
  - ofs\_service\_id Service ID of the Application.
  - ofs\_workspace\_id Workspace ID of the Application. It is defaulted to "WS001" and same should be passed each time.
  - ofs\_remote\_user Used ID of the user. This parameter should be mapped to 'BATCH\_EXEC' function.
  - locale locale in languageCode-countryCode format. For example, en-US.
  - Authorization: Bearer <token> Access token required to authenticate the API. If this
    token is not provided, 401 Unauthorized error is generated. For more information
    about Bearer token, refer to Generate the Access Token.
- Sample cURL Command

#### **Related Topics**

- Batch Interrupt API
   Use the Interrupt API to interrupt a batch execution.
- <u>Batch Group Interrupt API</u>
   Use the Interrupt API to interrupt a batch group execution.



## Batch Interrupt API

Use the Interrupt API to interrupt a batch execution.

#### **Attributes**

- batchName The unique batch code
- batchRunID Execution ID generated while triggering the object and can be obtained in the response of Execution API.

#### **Request Body**

```
{
    "batchName": "<Batch_code>",
    "batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body

The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
{
    "severity": "info",
    "batchRunId": "B2001_2022-05-30_1653233511394_1",
    "details": "Execution interrupted successfully.",
    "statusCode": "0",
    "status": "success"
}
```

## Batch Group Interrupt API

Use the Interrupt API to interrupt a batch group execution.

#### **Attributes**

- batchName The unique batch code
- batchRunID Execution ID generated while triggering the object and can be obtained in the response of Execution API.

#### **Request Body**

```
{
    "batchName": "<Batchgroup_code>",
    "batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body



The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
{
    "severity": "info",
    "batchRunId": "B2001_2022-05-30_1653233511394_1",
    "details": "Execution interrupted successfully.",
    "statusCode": "0",
    "status": "success"
}
```

## Restart API

The Restart (POST) API restarts a batch/batch group execution.

- HTTP Method POST
- **URL** /SchedulerService/rest-api/v1/external/restart
- Header Parameters
  - ofs\_tenant\_id Tenant ID of the Application.
  - ofs\_service\_id Service ID of the Application.
  - ofs\_workspace\_id Workspace ID of the Application. It is defaulted to "WS001" and same should be passed each time.
  - ofs\_remote\_user Used ID of the user. This parameter should be mapped to 'BATCH\_EXEC' function.
  - locale locale in languageCode-countryCode format. For example, en-US.
  - Authorization: Bearer <token> Access token required to authenticate the API. If this token is not provided, 401 Unauthorized error is generated. For more information about Bearer token, refer to Generate the Access Token.
- Sample cURL Command

#### **Related Topics**

- Batch Restart API
  - Use the Restart API to restart a batch execution.
- <u>Batch Group Restart API</u>
   Use the Restart API to restart a batch group execution.

## **Batch Restart API**

Use the Restart API to restart a batch execution.

#### **Attributes**



- batchName The unique batch code
- batchRunID Execution ID generated while triggering the object and can be obtained in the response of Execution API.

#### **Request Body**

```
{
    "batchName": "<Batch_code>",
    "batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body

The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
{
    "severity": "info",
    "summary": "Object triggered successfully for restart with Run Id:
B0001_2022-04-30_1651731208588_1",
    "batchRunId": "B0001_2022-04-30_1651731208588_1",
    "details": "Object triggered successfully.",
    "statusCode": "0",
    "status": "success"
}
```

## Batch Group Restart API

Use the Restart API to restart a batch group execution.

#### **Attributes**

- batchName The unique batch code
- batchRunID Execution ID generated while triggering the object and can be obtained in the response of Execution API.

#### **Request Body**

```
{
    "batchName": "<Batchgroup_code>",
    "batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body

The following Response body is a sample for Success : 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
{
    "severity": "info",
    "summary": "Object triggered successfully for restart with Run Id:
B0001_2022-04-30_1651731208588_1",
```



```
"batchRunId": "B0001_2022-04-30_1651731208588_1",
   "details": "Object triggered successfully.",
   "statusCode": "0",
   "status": "success"
}
```

## Rerun API

The Rerun (POST) API helps to rerun a batch/batch group execution.

- HTTP Method POST
- **URL** /SchedulerService/rest-api/v1/external/rerun
- Header Parameters
  - ofs\_tenant\_id Tenant ID of the Application.
  - ofs\_service\_id Service ID of the Application.
  - ofs\_workspace\_id Workspace ID of the Application. It is defaulted to "WS001" and same should be passed each time.
  - ofs\_remote\_user Used ID of the user. This parameter should be mapped to 'BATCH EXEC' function.
  - locale locale in languageCode-countryCode format. For example, en-US.
  - Authorization: Bearer <token> Access token required to authenticate the API. If this token is not provided, 401 Unauthorized error is generated. For more information about Bearer token, refer to Generate the Access Token.
- Sample cURL Command

#### **Related Topics**

- Batch Rerun API
  - Use the Rerun API to rerun an existing batch execution.
- Batch Group Rerun API

Use the Rerun API to rerun an existing batch group execution.

## Batch Rerun API

Use the Rerun API to rerun an existing batch execution.

#### **Attributes**

- batchName The unique batch code
- batchRunID Execution ID generated while triggering the object and can be obtained in the response of Execution API.



#### **Request Body**

```
{
    "batchName": "<Batch_code>",
    "batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body

The following Response body is a sample for Success: 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
Success Scenario: 200 OK
{
    "severity": "info",
    "summary": "Object triggered successfully for rerun with Run Id:
B2001_2022-05-30_1653223084727_1",
    "batchRunId": "B2001_2022-05-30_1653223084727_1",
    "details": "Object triggered successfully.",
    "statusCode": "0",
    "status": "success"
}
```

## Batch Group Rerun API

Use the Rerun API to rerun an existing batch group execution.

#### **Attributes**

- batchName The unique batch code
- batchRunID Execution ID generated while triggering the object and can be obtained in the response of Execution API.

#### **Request Body**

```
{
    "batchName": "<Batchgroup_code>",
    "batchRunId": "<Batchrun_ID>"
}
```

#### Sample Response Body

The following Response body is a sample for Success: 200 OK. For more information about status code in the response body, refer to Rest API Status Codes.

```
Success Scenario: 200 OK
{
    "severity": "info",
    "summary": "Object triggered successfully for rerun with Run Id:
B2001_2022-05-30_1653223084727_1",
    "batchRunId": "B2001_2022-05-30_1653223084727_1",
    "details": "Object triggered successfully.",
    "statusCode": "O",
```



"status": "success"

# **Authenticating for Token Generation**

An Authentication token is required to invoke an API to generate the File Upload/Download PAR URL. The Authentication Process for token generation, utilizes cURL Commands in a CLI Tool to generate the access token and invoke REST APIs.

The Authentication Token is generated through the OAuth Client ID and Secret Credentials created in IAM during Provisioning. The Authentication Token does not require that you log in to the required Cloud Service to invoke the REST APIs from external applications.

Ensure that you have the appropriate log-in credentials to access the required Cloud Service and the appropriate roles to perform specific operations using the API Resources. Below is a list of authentication steps, with subsequent sections offering detailed information:

- 1. Download application certificate
- 2. Get the OAuth Client ID and Client Secret
- 3. Generate the access token
- 4. Generate refresh token
- 5. Invoke API using the access token

# Download the Application Certificate

The Application Certificate is required for verification purposes when you use cURL commands.

You may choose not to download the certificate if you plan to turn off the cURL Certificate Verification and use an insecure connection (if you add the --insecure Flag to the cURL command).

To download the Application Certificate:

- 1. Log in to your Cloud service.
- 2. Click View site information/Verified by in the Browser URL Address Bar.
- 3. Select More information, to view the certificate.
- 4. Click View Certificate and then click PEM(cert) to download the certificate.

## Get the OAuth Client ID and Client Secret

An OAuth Cliend ID and Client secret are required to generate an access token.

To get the OAuth Client ID and Client Secret:

- Enter the Oracle Identity and Access Management (IAM) URL in the browser's Address bar to access the Oracle Cloud Account Sign In page.
- Log in to IAM portal.
- 3. Click Navigation to view a list of available functions.
- 4. Select Oracle Cloud Services.



For more information, see <u>Access Service Consoles</u> from **Administering Oracle Identity Cloud Service**.

- From the Oracle Cloud Services, select the required Cloud Service (in <Cloud\_service\_name> <tenant-id> format) from the list. For example, the cloud service name - AMLCS tenant-prd
- 6. Click the Configuration tab.

The Client ID and Client Secret Details are displayed in the General Information section.

- 7. Copy the Client ID and Client Secret.
- 8. Open a CLI Tool.
- 9. Proceed to generate the access token.

You can also get the OAuth client ID and client secret using Admin Console.

## Generate the Access Token

Access token is required to invoke API and you can generate an access token using cURL commands.

To generate the Access Token, add the Client ID, Client Secret, User Name, and Password using cURL Commands in the CLI Tool. You can use an insecure connection (if you add the -- insecure / -k Flag to the cURL command). The following is an example:

#### **Sample Code**

```
curl -k -i -H "Authorization: Basic
YWFpdGVzdGRldjEwMDEtcHJkX0FQUElEOjQyYjJlYWVlLTY1OGEtNDgzYi1hMWI2LTBlYzU0MzBmYW
QwNQ==" -H "Content-Type: application/x-www-form-urlencoded; charset=UTF-8" --
request POST https://
iam-0cb0c2b3ba624afca67467fd5eb9db49.identity.c9dev2.oc9qadev.com:443/
oauth2/v1/token -d
"grant_type=password&scope=urn:opc:idm:__myscopes__+offline_access&username=cn
eadmin&password=Password@12345"
```

After generating the Access Token, invoke the API as shown in the following section.



The Access token expiry (in seconds) is configurable and can be set at the time of generating the access token. In the preceding example, it is set to 3600 seconds  $\sim 1$  hour. By default, the expiry is set to 3600 seconds  $\sim 1$  hour. You can configure this to a value of your choice up to a maximum value of 31536000 seconds  $\sim 1$  year.



The token is sent as a response. Store the token in a secure location.

#### Sample Access Token (Truncated example)

```
{"access_token":"eyJ4NXQjUzI1NiI6IlF5azRtb3pIakhuQjJoQnVWdmZXZUpVeVZrNHhUdWd6a WpHSClpV21xb1EilCJ4NXQiOiJDRFhHYVlWZXI3STVhQ11
...
DB_be0Rtw1aMxFYg8Ft0VaK14wOVFGhgg1Cr6GiNvbgeYRG5uwgJGqw","token_type":"Bearer","expires_in":3600,"refresh_token":"AgAgYjA1OGVlMjJiMWY2NGU3YWFkM2NjZWNlOTc2MjNiNDgIABBmZRHXpaHi12VBXkevFX-iAAAAMMq9uQDo86eVVVisw3kYn80iX8qRJ2m7hMLmMAh1dY9Wgy-ESu8WYzdTBXOsnwHr7A=="}
```

## Generate the Refresh Token

Refresh tokens are used to generate access tokens for invoking APIs.

To generate a Access token using Refresh token, use the following Curl command. You can use an insecure connection (if you add the --insecure / -k flag to the cURL command). The following is an example:

#### **Sample Code**

#### Sample Refresh Token (Truncated example)

```
{"access_token":"eyJ4NXQjUzI1NiI6IlF5azRtb3pIakhuQjJoQnVWdmZXZUpVeVZrNHhUdWd6a WpHSC1pV21xb1EiLCJ4NXQiOiJDRFhHYVlWZXI3STVhQ11...
...
token_type":"Bearer","expires_in":3600,"refresh_token":"AgAgYjA10GVlMjJiMWY2NGU3YWFkM2NjZWNl0Tc2MjNiNDgIABA4t8V_dYVyc51OuKezofTUAAAAMJrpmKRhDWf3-ejCreU8 Po5Bb95srwUDDs5cVlqT-x26twbAfp ffMCiEqjqGeDNw=="}
```



# Invoke the API using the Access Token

After creating an access token using OAUth Client ID and Client secret, you can invoke the Specific API.

To invoke the API using the generated Access Token, refer to the following example executed using cURL Commands in the CLI Tool: