

HP Operations Orchestration

For the Windows and Linux

Software Version: 10.10

Application Program Interface (API) Guide

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Introduction

This document describes HP Operations Orchestration public Application Programming Interfaces (API).

The public API is HTTP-based.

All APIs are RESTful and use JavaScript Object Notation ([JSON](#)).

REST API Versions

HP OO 10.10 introduces a new version of the HP OO REST API - v1.0. The API's documented in this guide are updated for v1.0 unless indicated. Refer to the [API version 1.0 table](#) to view the changes. HP OO 10.10 supports backward compatibility.

Note: HP OO version 10.10 or later may introduce new optional fields to returned representations that are not considered as an API break.

Therefore, the client should be tolerant to new attributes when deserializing JSONs.

For example, when performing a GET operation on /test, the following is returned:

```
{  
  "msg" : "hello world"  
}
```

We may add a new attribute in the next version and then the GET on /test will return the following, in this case the client should not break:

```
{  
  "msg" : "hello world",  
  "msg2" : "It's a beautiful day!"  
}
```

Basic Concepts

See the Concepts Guide for more information on the basic concepts of HP Operations Orchestration.

RESTful APIs

All REST APIs have a prefix of `oo/rest/v1/`. For example, `POST/oo/rest/v1/executions`.

Request Headers

The content-type and accept headers are usually added for every request.

The content-type represents the MIME ([RFC2045](#)) type of the request body. The content-type is usually application/json unless otherwise stated in a specific API.

The accept header represents the requested format of the response from the Central server. The accept header is also usually application/json unless mentioned differently.

Some APIs provide application/rss+xml or application/atom+xml.

Integration Use Case

This chapter describes a common usage of the HP OO API and comes to demonstrate its capabilities. Keep in mind that use case described here is only one example on a common use case of HP OO platform integration. HP OO APIs allow much more than that.

Use Case Description

The most common use case when integrating with HP OO is allowing various types of end users to invoke automation using organizational portal or a third party application. For example, to remediate an incident, doing routine tasks like reset password for a user or creating a DB schema in Dev environment, and so on.

The following implementation is a suggestion and can be adopted at any level you see fit.

Use Case Implementation

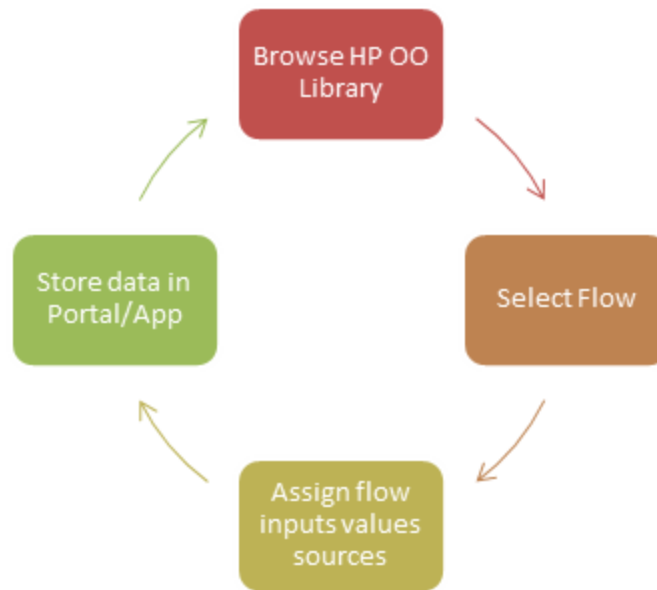
The integration includes two separate processes. These processes are described from the user perspective, but also describe the work to be done by the integration developer.

Portal/App Admin Process - Selecting Flows to Expose to Users

Process description

Before the user of the Organizational Portal/Application will be able to invoke flows from it, the Admin needs to determine which flows he would like to expose to the user and for each one of them to determine from where the user is able to invoke and assign data sources for the flow inputs.

The Admin experience is:

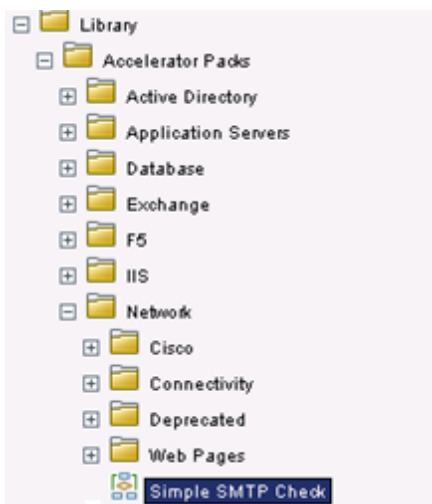


Process implementation

This process, if used as described, requires UI development on the portal/application side in order to allow the Admin to browse the library and select a flow.

For example:

- Drop down selection box that lists all the flows in the a specific folder in the library (means that the path will need to be decided in advance).
- A folders tree graphical window like the following:



Another option which is less usable for the Admin is only supplying the UI that allows the Admin to manually insert the flow UUID and input parameters value sources.

The following table describes how the implementation of the interactions with HP OO Central server look like.

Step: Browse HP OO Library

Admin Action: Browse the content library from the portal/application.

Integrator Actions (interaction with OO): Lists the folders and flows under a given path while the root of the path is the HP OO Content Library, which is 'Library/'. In this example, if the organizational portal team decides to implement in the UI the full library tree display (as shown in the image above), the integrator code is required to be recursive. That is, a REST call will be implemented for every branch that the end user clicks.

Looking at the example in the image above, the first REST call was to list the top level libraries, then when the user clicked on 'Accelerator Packs' a REST call was submitted to list the levels below it, and so on.

See API: [GET/flows/tree/level](#)

Step: Select Flow

Admin Action: Select flows to invoke in order to make them available in the portal/application and also define where.

Integrator Actions (interaction with OO): Get the selected flow details like UUID, Inputs, Description, etc. The details that will be collected depend on what information was decided to display to the Admin in the UI. For invoking the information needed is UUID and inputs information.

See API: [GET/flows/{uuid}](#)

Step: Assign flow inputs values sources

Admin Action: Bind value sources to the flow inputs. The sources will most likely be dynamic objects from the application data (like internal variable, called `SelectedItemHostname`) and not static values.

Integrator Actions (interaction with OO): Provide the capability for this in the portal/application.

Note: A validation will need to be implemented to make sure the Admin will provide value source to each of the flow inputs that are marked as `Prompt User`. Otherwise the flow will pause and will wait for inputs, for example, OO Admin will need to login to Central and enter them.

See API: [GET/flows/{uuid}/inputs](#)

Step: Store data in Portal/App

Admin Action: Store all the information in the Portal/Application.

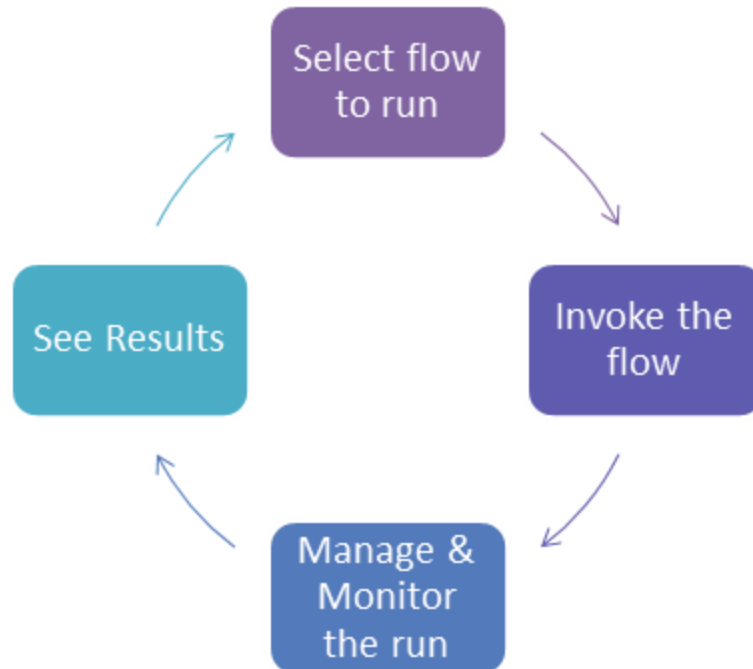
Integrator Actions (interaction with OO): Save the relevant data to the portal/application (in its DB/Forms/Files/etc.)

Note: The flow UUID, inputs and their value source must be kept on the Portal/Application side for the flow invocation.

End User process - Invoking and Monitoring Workflows

Process description

This process occurs in the organizational portal or the third party applications, on the area that is exposed to the end user. The best practice is to have one place that holds the functionality, like an internal service, so the other areas of the application that allow users to trigger flows calls it over and over.



Process implementation

The following table describes how the implementation of the interactions with HP OO Central server looks like.

The interaction is done through the HP OO REST API.

Refer to "[Flow Execution](#)" on page 28 for more technical details.

Step: Select flow to run.

End User Action: From the portal/application, the end user will select the flow to invoke from a predefined list or just click on a button that the admin made available.

Integrator Actions (interaction with OO): Collect the information to be used later for invoking the flow. This includes UUID of the flow selected and input parameters designated values.

API to use: None

Step: Invoke the flow.

End User Action : The workflow will be invoked while the portal/application will feed it with the needed input values.

Integrator Actions (interaction with OO): Use the REST API to invoke the flow. Use the UUID and the flow input parameters names and values. It is also recommended to use the `runName` invocation parameters in order to allow better troubleshooting later on. A suggested format for the `runName` can be:

`<InvokingAppName>:<InvokingUserName>:<TargetSystemName>:<ActionName>`

API to use: [Execute a Flow by UUID](#) POST/`executions`

Step: Manage and Monitor the run.

Integrator Actions (interaction with OO): Uses the following options:

1. A code that includes a loop that continuously calls HP OO to get the status summary.
2. For being able to display to the end user progress of the run in addition to the status, develop code that performs as stated above and in addition, for the progress, continuously requests the current running steps.

API to use:

1. Get a single execution's summary:
 - Use [GET/executions/{executionId}/summary](#).
 - You can also use [GET/executions/{executionId}/execution-log](#) to have the above with additional information on inputs and outputs.
2. Get status on set of executions:
 - To get a short run summary on a list of executions with filtering capabilities such as – status, run name, flow UUID, use the Get Executions API: [GET/Executions](#). This can be used for example for Grid view.
3. Get **Execution Steps (with Pagination and Filtering):**
 - To see run's execution steps, use the Get Execution Step (with Pagination and Filtering) API:
 - [GET/executions/{executionId}/steps](#).
 - This allows you to see all run's executed steps, get their inputs, outputs and more details. This information allows you to track current running execution and also use this to debug your run.

End User Action: Control the run (Optional).

Users can take the following actions on the run:

1. Pause the run.
2. Resume the run.
3. Cancel the run.

Integrator Actions (interaction with OO): Implementing some or all of this will provide more control to the end user, which can be very helpful to some end user types. But on the other hand need to have additional UI development on the portal/application side. When implementing Pause and Resume make sure to keep track on the run status after Resume action was activated.

API to use:

- [Change the Status of an Execution](#)

Basic Authentication

When user authentication is on, the client must provide their credentials when calling the REST APIs.

Central supports preemptive basic authentication.

The client should add a header with the following key/value:

- Key: Authorization
- Value: Basic base64 (username:password)

For example, the authorization value for admin:1234 is:

```
Basic YWRtaW46MTIzNA==
```

On an unsuccessful authentication attempt, the service returns an HTTP 401 code.

Backward Compatibility With HP OO 9.x APIs

Some SOAP and REST APIs from HP OO 9.x are supported by HP OO 10.x, and some are not.

Some of the APIs from HP OO 9.x have equivalent REST APIs for HP OO 10.x. We recommend using the REST APIs for HP OO 10.x.

- The base path for using HP OO 10.x REST API is: `http(s)://<OO Central Server Name / IP>:<PORT>/oo/rest/`.
- The URL for using HP OO 9.x SOAP API while working with OO 10.x Central is the same as in HP OO 9.x. That is, `https:// <OO Central Server Name / IP>:<PORT>/PAS/services/WSCentralService`.
- The URL for using HP OO 9.x REST API while working with OO 10.x Central is the same as in HP OO 9.x. That is, `https:// <OO Central Server Name / IP>:<PORT>/PAS/services/rest`.

SOAP

In the following table you can find information on what is supported, what is not, and the HP OO 10.x API that we recommend to use. For details on the HP OO 10.x REST requests, see the section below.

Functionality	9.x Request	10.x Support for 9.x Request	10.x Equivalent REST Request
Configurations	getLWSSOConfig	Not Supported	GET/authns/lwss-config
	updateLWSSOConfig	Not Supported	PUT/authns/lwss-config
Clusters	getClusterNodes	Not Supported	N/A
Flows	getFlowDetails	Supported	GET/flows/{uuid}
	getFlowGraph	Partially Supported. The request will succeed, but a static image is returned saying that this feature is not supported.	N/A
	getFlowInputDescriptions	Not Supported	GET/flows/{uuid}/inputs

Functionality	9.x Request	10.x Support for 9.x Request	10.x Equivalent REST Request
<p>Groups and User Management</p> <p>Note: In HP OO 10.x, user groups are called user roles.</p>	createGroup	Not Supported	POST/roles
	updateGroup	Not Supported	PUT/roles/{roleName}
	deleteGroup	Not Supported	DELETE/roles/{roleName}
	getUserGroups	Not Supported	GET/roles
	createUser	Not Supported	POST/users
	updateUser	Not Supported	PUT/users/{username}
	deleteUser	Not Supported	DELETE/users/{userIds}
<p>Repositories</p> <p>Note: In HP OO 10.x, the concept of repository was replaced with new concepts. See the <i>HP OO Concepts Guide</i>.</p>	getPermissions	Not Supported	In order to control content permissions, use: GET/roles/{rolesNames}/entitlements/** or PUT/roles/{roleName}/entitlements/** .
	setPermissions	Not Supported	
	getAttributes	Not Supported	
	renameRepoEntity	Not Supported	
	deleteRepoEntity	Not Supported	
	moveFlow	Not Supported	
	updateDescription	Not Supported	
	createFolder	Not Supported	
	moveFolder	Not Supported	
	list	Supported	GET/flows/tree GET/flows/tree/sub GET/flows/tree/level
search	Supported	N/A	

Functionality	9.x Request	10.x Support for 9.x Request	10.x Equivalent REST Request
Runs	getFlowsRunHistory	Not Supported	N/A
	getFlowRunHistory	Supported	GET/executions
	pauserun	Supported	PUT/executions/{executionId}/status
	resumerun	Supported	PUT/executions/{executionId}/status PUT/executions/{executionId}/status
	cancelrun	Supported	PUT/executions/{executionId}/status
	runFlow	Supported	POST/executions
	runFlowEx	Supported	POST/executions
	getRunStatus	Supported	GET/executions/{id} GET/executions/{executionIds}/summary
	getRunStatusEx	Supported	GET/executions/{id} GET/executions/{executionIds}/summary
	getStatusForRuns	Not Supported	N/A

Functionality	9.x Request	10.x Support for 9.x Request	10.x Equivalent REST Request
Scheduler	isScheduledFlowPaused	Not Supported	GET/schedules/ GET/schedules/{id}
	isSchedulerPaused	Not Supported	GET/schedules/ GET/schedules/{id}
	isSchedulerEnabled	Not Supported	GET/schedules/ GET/schedules/{id}
	getSchedulesForFlowCategory	Not Supported	N/A
	pauseScheduledFlow	Not Supported	/PUT/schedules/ {ids}/enabled
	pauseSchedule	Not Supported	PUT/schedules/{ids} /enabled
	resumeSchedule	Not Supported	PUT/schedules/{ids} /enabled
	scheduleFlow	Not Supported	POST/schedules
	getSchedule	Not Supported	GET/schedules/{id}
	deleteSchedule	Not Supported	DELETE/schedules/ {ids}
	getScheduledFlows	Not Supported	GET/schedules
	getSchedulesOfFlow	Not Supported	GET/schedules
	resumeScheduledFlow	Not Supported	PUT/schedules/{ids} /enabled
	deleteScheduledFlow	Not Supported	GET/schedules DELETE/schedules/ {ids}
Selection Lists	getSelectionList	Not Supported	N/A
	createSelectionList	Not Supported	N/A
Repositories	/list/{path}	Supported	N/A
Runs	/run/{flow path/uuid}	Supported	POST/executions

REST

Functionality	9.x Request	10.x Support for 9.x Request	10.x Equivalent REST Request
Repositories	/list/{path}	Supported	GET/flows/tree GET/flows/tree/sub GET/flows/tree/level
Runs	/run/{flow path/uuid}	Supported	POST/executions

API V1.0 Changes

The following table lists the updated changes to API version 1.0. Refer to the 10.02 API Guide for details of the previous API.

Functionality	API	Changes in V1
Authentication	GET/authns: Get Authentication Configurations	Properties added: <ul style="list-style-type: none">• boolean enable
	PUT/authns: Update Authentication Configurations	Properties added: <ul style="list-style-type: none">• List of available domains.

Functionality	API	Changes in V1
LDAP Configuration	POST/authns/ldap-config/: Create a New LDAP Configuration	Changes and additions in the attributes sent in the request body. See Create a New LDAP Configuration .
	PUT/authns/ldap-config/{id}: Update an Existing LDAP Configuration	Changes and additions in the attributes sent in the request body. See Update an Existing LDAP Configuration
	GET/authns/ldap-config/{ldapId}: Get LDAP Configurations	Changes and additions in the attributes returned in the response. See Get LDAP Configuration by ID .
	POST/authns/ldap-users: Test User Attributes	Deprecated. See Testing LDAP Configurations .
	POST/authns/ldap-groups: Test User Groups	Deprecated. See Testing LDAP Configurations .
	POST/authns/ldap-users/{ldapId}: Test User Attributes with Existing LDAP Password	Deprecated. See Testing LDAP Configurations .
	POST/authns/ldap-groups/{ldapId}: Test User Groups with Existing LDAP Password	Deprecated. See Testing LDAP Configurations .
	GET/authns/ldap-config: Get all LDAPs configurations .	Changes and additions in the attributes sent in the request body. See Get all LDAPs configurations .

Functionality	API	Changes in V1
Content Packs	GET/content-packs: Get Content Packs	<p>Properties added:</p> <ul style="list-style-type: none"> • @Mapping("uuid") private String id; • private String publisher; private String description; • private Long deploymentDate; @Mapping("owner") private String deployedBy;
Content Configuration	DELETE/content-config/{name:.+}?type={type}: Delete Content Configuration	<p>Response status code 200 to 204.</p> <p>Response status code 403 added.</p> <p>SYSTEM_ACCOUNT added.</p>
	POST/content-config: Create Content Configuration	Response code 403 added.
	PUT/content-config/{name:.+}?type={type}: Update Content Configuration	<p>Response status code 200 to 204.</p> <p>SYSTEM_ACCOUNT added.</p> <p>Response code 403 added.</p>
	GET/content-config: Get All Content Configurations	Response code 403 added.
	GET/content-config/{name:.+}: Get Content Configuration	<p>Request updated.</p> <p>Response status code 403 added.</p>

Functionality	API	Changes in V1
Flow Execution	GET/executions: Get Executions Summary (with pagination and filtering)	Request parameters updated. Run inputs, removed. Attributes added: <ul style="list-style-type: none"> • ownerDomain • triggeringSource
	GET/executions/{executionId}/execution-log: Get Execution Log	The properties ExecutionEnums.LogLevel, executionLogLevel and Map<String, String> flowInputs were removed.
	PUT/executions/{executionId}/status: Change the Status of an Execution	Response status code changed to 204.
	POST/executions: Execute a Flow by UUID	Return value deprecate
	POST/executions: Ad-hoc Flow Execution	Return value deprecated.
	GET/executions/{id}: Retrieve Feed Events	Removed for all executions except for runs that were triggered from the remote debugger, you can retrieve the executions events feed.

Functionality	API	Changes in V1
Flow Library	GET/flows/tree/sub: Get Partial Tree	Deprecated. Get/flows/library: Get Flows Library replaces deprecated API.
	GET/flows/tree: Find Tree Item By Path	Deprecated. Get/flows/library: Get Flows Library replaces deprecated API.
Scheduler	PUT/schedules/{ids}/enabled: Enable Flow-Schedule	Response status code 400 added.
	PUT/schedules/{id}: Update Flow-Schedule	Response status code 204 added.
	DELETE/schedules/{ids}: Delete Flow-Schedule	Response status code changed to 204.
	GET/schedules: Get Flow-Schedules	Attribute added: <ul style="list-style-type: none"> username
Deployment	GET/content-packs: Retrieve Details for Deployed Content Packs	Properties added: <ul style="list-style-type: none"> "id": "publisher": "description": "deploymentDate": "deployedBy"
Group Aliases	PUT/group-aliases/{name}: Update a Group Alias	Response status code changed to 204

Functionality	API	Changes in V1
Users	POST/users: Create New Internal User	Response status code 409 added.
	PUT/users/{username}: Update Existing User	
	DELETE/users/{userNames}: Delete an Internal User	userNames replaces userIds
Roles	GET/roles/{roleName}: Get Specified Role	Updated permissions.
	POST/roles: Create New Role	Response status code 409 added. New permissions added.
	PUT/roles/{roleName}: Update an Existing Role	Response code 404 added.

REST APIs

This section includes the RESTful APIs used in HP Operations Orchestration.

Flow Execution

These APIs enable you to execute flows.

Get Executions Summary (with pagination and filtering)

Request: GET/executions

Description: Returns a paginated list of executions summary, with filtering. The returned objects include the execution summary, detailed objects with data about the execution.

Request parameters:

Attribute	Type	Description	Required
pageNum	Integer	The number of the returned page.	Yes
pageSize	Integer	The size of the returned page.	Yes
flowPath	String	Return runs that their flow path contains this string.	No
status	Array of Predefined Values	Return runs with the following statuses. Possible values: RUNNING, COMPLETED, COMPLETED_RESOLVED, COMPLETED_DIAGNOSED, COMPLETED_ERROR, COMPLETED_NO_ACTION_TAKEN, SYSTEM_FAILURE, PAUSED, PAUSED_USER_PAUSED, PAUSED_INPUT_REQUIRED, PAUSED_SELECT_TRANSITION, PAUSED_DISPLAY, PAUSED_GATED_TRANSITION, PAUSED_HAND_OFF, PAUSED_INTERRUPT, PAUSED_NO_WORKERS_IN_GROUP, PAUSED_BRANCH_PAUSED, CANCELED	No
owner	String	Return runs when the owner name contains this string.	No
runName	String	Return runs with a run name that contains this string.	No

Attribute	Type	Description	Required
runId	String	Return runs when the run id contains this string.	No
flowUuid	String	Return runs where the flow UUID contains this string.	No
startedAfter	Long	Returns runs where the start time is after this time.	No
startedBefore	Long	Returns runs where the start time is before this time.	No

Examples:

GET /executions?pageNum=1&pageSize=100&flowUuid=4c&flowPath=Library/cp-filters&status=COMPLETED_RESOLVED&owner=anonymous&runName=getAllFilter&runId=30

GET /executions?pageNum=4&pageSize=15&status=PAUSED_INPUT_REQUIRED,PAUSED_HANDOFF

Response entity body:

An array which contains all of the executions summary which match the requested filters. Each element in the array represents an execution.

The returned array is ordered by descending starting times. Therefore, the execution that has the latest starting time will be first, and would be empty if no execution exists for the given filters.

Attribute	Type	Description	Comments
executionId	String	The run ID.	
branchId	String	The branch id (if it exists).	
startTime	Date	The run start time.	
endTime	Date	The run end time (if ended)	
status	Predefined Value	The status of the execution. Possible values: RUNNING, COMPLETED, SYSTEM_FAILURE, PAUSED, CANCELED See "Flow Execution Status" on page 60.	
resultStatusType	String	The run result (if ended).	

Attribute	Type	Description	Comments
resultStatusName	String	The run result (if ended).	Is null if status is not "COMPLETED"
pauseReason	Predefined Value	The reason for the pause. Possible values: USER_PAUSED, INPUT_REQUIRED, SELECT_TRANSITION, DISPLAY, GATED_TRANSITION, HAND_OFF, INTERRUPT, NO_WORKERS_IN_GROUP, BRANCH_PAUSED	Is null if status is not "PAUSED"
owner	String	The run owner.	
triggeredBy	String	The domain\user that triggered the execution. If the domain is an LDAP domain that was deleted from OO, the domain will be shown as N/A.	
flowUuid	String	The uuid of the flow which was executed.	
flowPath	String	The path of the flow which was executed.	
executionName	String	The name of the execution.	
roi	Double	The value of the ROI of the execution.	
ownerDomain	String	The name of the domain on which the run owner belongs to. If the domain is an LDAP domain that was deleted from OO, the ownerDomain will be N/A.	
triggeringSource	String	The source of which the run was triggered (scheduler, studio, etc).	

Example:

```
[
  {
```

```

    "executionId": "100749",
    "branchId": null,
    "startTime": 1371106274153,
    "endTime": 1371106277160,
    "status": "COMPLETED",
    "resultStatusType": "RESOLVED",
    "resultStatusName": "success",
    "pauseReason": null,
    "owner": "anonymousUser",
    "ownerDomain": null
    "triggeredBy": "anonymousUser",
    "flowUuid": "06fe8531-868b-4e79-aa7a-13a5e30a66ec",
    "flowPath": "Library/Utility Operations/Samples/Generate/Number.xml",
    "executionName": "Generate Random Number",
    "triggeringSource": "central"
    "roi": null
  },
  {
    "executionId": "100267",
    "branchId": null,
    "startTime": 1371104522563,
    "endTime": 1371104576253,
    "status": "COMPLETED",
    "resultStatusType": "ERROR",
    "resultStatusName": "failure",
    "pauseReason": null,
    "owner": "anonymousUser",
    "ownerDomain": null
    "triggeredBy": "anonymousUser",
    "flowUuid": "1901edde-3cac-4da6-915c-fd254e23169c",
    "flowPath": "Library/Multihost Connectivity Diagnostic.xml",
    "executionName": "Multihost Connectivity Diagnostic",
    "triggeringSource": "central"
    "roi": null
  }
]

```

Response status codes:

Code	Meaning	Returned When
200	OK	Returns empty list if nothing found or not viewable.
400	Bad Request	Illegal arguments. One of the arguments is not valid.

Get Execution Summary

Request: GET/executions/{executionId}/summary OR
GET/executions/100976,100876/summary

Description: Retrieves the details of a specific execution.

Example:

/executions/3332190961082830376,679861347442169334/summary

Request path variables:

Attribute	Description	Required
executionIds	The ids of the executions	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested execution log was.
403	Forbidden	
404	Not Found	The requested execution log was not found.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
[{
  "executionId": "3332190961082830376",
  "branchId": null,
  "startTime": 1371475041169,
  "endTime": null,
  "status": "PAUSED",
  "resultStatusType": "RESOLVED",
  "resultStatusName": "HAHA",
  "pauseReason": "USER_PAUSED",
  "owner": "anonymous",
  "ownerDomain": null,
  "triggeredBy": "anonymous",
  "flowUuid": "a8e8fc10-b584-4d39-921f-987b29c9dd19",
  "flowPath": null,
  "executionName": "mock flow",
  "branchesCount": 0,
  "triggeringSource": "central",
  "roi": null
},
{
  "executionId": "679861347442169334",
  "branchId": null,
  "startTime": 1371475041169,
  "endTime": null,
  "status": "PAUSED",
  "resultStatusType": "RESOLVED",
```



```
    "resultStatusName": "HAHA",  
    "pauseReason": "USER_PAUSED",  
    "owner": "anonymous",  
    "ownerDomain": null,  
    "triggeredBy": "anonymous",  
    "flowUuid": "a8e8fc10-b584-4d39-921f-987b29c9dd19",  
    "flowPath": null,  
    "executionName": "mock flow",  
    "branchesCount": 0,  
    "triggeringSource": "central"  
    "roi": null  
  }  
]
```

See returned items in the [Get Execution](#) API for more information.

Get Execution Step Count

Request: GET/executions/{executionId}/steps/count

Description: Returns the total number of executed steps for the given execution, including finished steps and currently executing (or paused) steps. If a step has been executed more than once (e.g., in a loop), this will be reflected in the result. The count includes virtual steps such as lanes.

This command is useful when retrieving steps with pagination. It allows one to compute the total number of pages, or the page number in which a given step could be found.

Request path variables:

Attribute	Description	Type
executionId	Execution ID whose steps to count.	String

Request parameters:

Attribute	Type	Description	Required	Default
upToPath	String	If provided, the result will only count steps positioned before this path (exclusive). <ul style="list-style-type: none">The given value is a step path in the execution tree: The paths of the steps at the top level of the flow are 0.0 for the 1st step, 0.1 for the 2nd and so on.If the 2nd step (0.1) is a subflow, then the paths of the steps in that subflow are 0.1.0, 0.1.1 and so on.	No	N/A

Example:

GET/executions/100300001/steps/count?upToPath=0.7.0.13

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Successful. If there are no results, the result will be empty, but this is still OK.
400	Bad Request	If any of the arguments are invalid.
404	Not Found	If the execution cannot be viewed or does not exist.

Get Execution Steps (with Pagination and Filtering)

Request: GET/executions/{executionId}/steps

Description: Returns a paginated list of executed steps, with optional filtering. If a step has been executed more than once (e.g., loop), this will be reflected in the result. The result includes virtual steps such as lanes.

The returned objects are step logs – detailed objects with all available data about the steps. Step logs are created as soon as the step begins to execute, and are updated with more data when the step finishes.

Request path variables:

Attribute	Description	Type
executionId	Execution ID whose steps to retrieve.	String

Request parameters – pagination (optional):

Attribute	Type	Description	Default
pageNum	Long	The wanted page number (1 or greater).	1
pageSize	Long	The size of each page – can be 1 to 10000.	50
order	Predefined Value	The order of the returned steps – asc for ascending or desc for descending. The order is by step path.	asc

Request parameters – filtering criteria:

General notes about filtering:

- All filtering parameters are optional
- Only steps that satisfy all of the given criteria will be returned
- Filtering is performed before the pagination. In other words, when filtering, the pagination will give you pages of search results.
- Filtering by text is case insensitive
- Range conditions (such as roiFrom and roiUpTo) are exclusive – see the example below for details.

Attribute	Type	Description
path	String	Get the step with this exact path. See Get Execution Step Count .

Attribute	Type	Description
pathFrom	String	Get steps whose paths are greater than this path. Greater refers to a collapsible tree representation of the execution, the greater path would show up lower in the tree. For example, 0.10.0 is greater than both 0.10 (its parent) and 0.9.99999.
pathUpTo	String	Get steps whose path is less than this path (also see pathFrom).
nameContains	String	Get steps whose names contain this substring.
types	Predefined Value	Get steps of the given types (comma-separated list, no spaces). The types are: operation, subflow, return_step, other. other represents special steps like Multi Instance, as well as lanes.
startTime	Long	Get steps that started at this exact timestamp. Timestamps are "Unix time" numbers with millisecond resolution (the number of milliseconds elapsed since 00:00:00 1 January 1970 UTC).
startTimeFrom	Long	Get steps that started after this timestamp.
startTimeUpTo	Long	Get steps that started before this timestamp.
durationSec	Long	Gets steps with this exact execution time (seconds).
durationSecFrom	Long	Get steps that took longer to execute than this value (seconds).
durationSecUpTo	Long	Get steps that took less time to execute than this value (seconds).
inputsContain	String	Get steps where any of the inputs contain this substring, in either the input name or its value. It is also possible to make a search in the form name=value. Note: Values over 4,000 bytes cannot be searched.
rawResultsContain	String	Get steps where any of the raw results contain this sub-string, in either the result name or its value. It is also possible to make a search in the form name=value. Note: Values over 4,000 bytes cannot be searched.

Attribute	Type	Description
responseTypes	Predefined Value	Get steps having one of the given response types (comma-separated list, no spaces). The types are: resolved, error, diagnosed, no_action_taken, exception. exception means the step's execution could not be completed.
transitionContains	String	Get steps whose outgoing transition messages contain this sub-string. The transition message is either the transition's description, or the transition's name if no description has been defined. Note: Transition descriptions over 4,000 bytes (for all locales combined) cannot be searched.
roi	Double	Get steps whose outgoing transitions have this exact ROI value.
roiFrom	Double	Get steps whose outgoing transitions have ROI values greater than this.
roiUpTo	Double	Get steps whose outgoing transitions have ROI values less than this.
currentFlowContains	String	Get steps that belong to flows whose names contain this sub-string.
userContains	String	Get steps that executed while the given Central user name (or a sub-string in it) was the execution owner.
workerIdContains	String	Get operation-type steps that were executed by the given worker UUID (or a sub-string in it).

Example:

```
GET/executions/100300001/steps?pageNum=3&pageSize=20&order=desc
    &pathFrom=0.7.2&pathUpTo=0.9&path=0.9
    &nameContains=ping
    &types=operation,subflow
    &startTime=1391359774000&startTimeFrom=1391359774000&startTimeUpTo=139135978000
0
    &durationSecFrom=300&durationSecUpTo=400&durationSec=400
    &inputsContain=localhost
    &resultsContain=ping+completed
    &responseTypes=resolved,diagnosed
    &transitionContains=success
    &roi=7.5&roiFrom=7.5&roiUpTo=30
    &currentFlowContains=My+Subflow
```

```
&userContains=jon
&workerIdContains=5c2002da
```

This will search execution 100300001 for steps satisfying all of the criteria, and return the 3rd page out of the result set (with 20 steps per result page). The steps will be searched in descending path order, starting with the step that has the greatest path (normally the main flow's return step).

The combination of these three conditions: `roi=7.5&roiFrom=7.5&roiUpTo=30`, will search for: $7.5 \leq roi < 30$.

Following are the possible search ranges:

Use paramaters...	To search for...
<code>roi=7.5</code>	<code>roi = 7.5</code>
<code>roiFrom=7.5</code>	<code>roi > 7.5</code>
<code>roi=7.5&roiFrom=7.5</code>	<code>roi ≥ 7.5</code>
<code>roiFrom=7.5&roiUpTo=30</code>	<code>7.5 < roi < 30</code>
<code>roi=7.5&roiFrom=7.5&roiUpTo=30</code>	<code>7.5 ≤ roi < 30</code>
<code>roiUpTo=7.5&roiFrom=30</code>	<code>roi < 7.5 or roi > 30</code>
<code>roiUpTo=7.5&roiFrom=7.5</code>	<code>roi ≠ 7.5</code>

Response Attributes:

StepInfo object:

This object is one of the attributes of a step. It represents a summary of the main step details.

Attribute	Type	Description	Comments
<code>stepId</code>	String	Step UUID	
<code>stepName</code>	String	Step name	
<code>path</code>	String	Step path within the execution tree.	See Get Execution Step Count for a description of step paths
<code>responseType</code>	Predefined Value	Same as in the <code>StepTransitionLog</code> object.	
<code>startTime</code>	Long	Step execution start time.	

Attribute	Type	Description	Comments
endTime	Long	Step execution end time.	
paused	Boolean	true if this step's execution is currently paused, false otherwise.	
orderNumber	String	Sortable hexadecimal representation of path.	
flowName	String	Name of the flow containing this step.	
flowId	String	UUID of the flow containing this step.	
type	Predefined Value	Step type. The list of possible types depends on the OO version. The current types are: OPERATION, SUBFLOW, RETURN_STEP, PARALLEL, MULTI_INSTANCE, NON_BLOCKING, BRANCH.	BRANCH is a virtual step, representing an execution branch such as a lane.
updateTime	Long	Time of the last update to this step's information	
transitionMessage	String	Same as transitionDescription, or same as transitionName if no description was set (both are in the StepTransitionLog object).	

StepTransitionLog object:

This object is one of the attributes of a step. It represents all information about the step's response and outgoing transition.

Attribute	Type	Description	Comments
transitionName	String	Outgoing transition name.	
transitionDescription	String	Outgoing transition description (if one was set in Studio).	

Attribute	Type	Description	Comments
responseName	String	Response name (given by the step's inner operation/flow).	
responseType	Predefined Value	Response type, can be one of: RESOLVED, ERROR, DIAGNOSED, NO_ACTION_TAKEN, EXCEPTION.	EXCEPTION means the step's execution could not be completed.
transitionValue	Double	Outgoing transition's ROI value.	

Full step object:

Attribute	Type	Description	Comments
stepInfo	Object	Represents a summary of the main step details. See StepInfo object.	
stepTransitionLog	Object	Represents all information about this step's response and outgoing transition. See StepTransitionLog object.	Only relevant to steps that have outgoing transitions.
description	String	Unused.	
stepPrimaryResult	String	Primary result of the step's inner operation/flow.	
operationGroup	String	Name of the worker group which the worker executing this step belongs to.	Only relevant to operation steps.
errorList	List of strings	If unexpected errors have occurred during the step's execution, they will be listed here.	
stepInputs	List of StepInput objects	The step's bound inputs. Each StepInputobject has three fields: name (String), value (String) and termName (currently unused).	
stepResult	Map (String to String)	A name-to-value map of the step results (the results defined in the step properties).	

Attribute	Type	Description	Comments
rawResult	Map (String to String)	A name-to-value map of the step's raw results (provided by the inner operation/flow).	
extraData	Map (String to String)	A name-to-value map of extra data (for example, subflow steps have a FLOW_UUID entry)	
executionId	String	ID of the execution this step is a part of.	
status	Predefined Value	Step execution status, can be one of: RUNNING, COMPLETED, ERROR, PAUSED, CANCELED	
workerId	String	UUID of the worker which executed this step.	Only relevant to operation steps.
user	String	User name of the OO user account which owned the execution at the time this step was executed.	

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Successful. If there are no results, the result will be empty, but this is still OK.
400	Bad Request	If any of the arguments are invalid
404	Not Found	The requested execution was not found or is not viewable.

Response entity body:

- **on success:** Returns a JSON array of steps (will be empty if there are no results). Each step is an object with the following format:

```
{
  "stepInfo":{
    "stepId":"93969d82-e4e7-48de-8b6f-bd3c7c9dec02",
    "stepName":"Chop",
    "path":"0.0",
    "responseType":"RESOLVED",
    "startTime":1396539495159,
    "endTime":1396539495162,
    "paused":false,
    "orderNumber":"0000000000",
```

```
    "flowName": "My Flow",
    "flowId": "7407b97b-fd42-47d2-a670-498278882b81",
    "type": "OPERATION",
    "updatedAt": 1396539495252,
    "transitionMessage": "success"
  },
  "stepTransitionLog": {
    "transitionName": "success",
    "transitionDescription": null,
    "responseName": "success",
    "responseType": "RESOLVED",
    "transitionValue": "100.0"
  },
  "description": null,
  "stepPrimaryResult": "bee",
  "operationGroup": "RAS_Operator_Path",
  "errorList": [

],
  "stepInputs": [
    {
      "name": "foo",
      "termName": null,
      "value": "bar"
    },
    {
      "name": "Field_1",
      "termName": null,
      "value": "beer"
    }
  ],
  "stepResult": {
    "step_result1": "example",
    "step_result2": "another example"
  },
  "rawResult": {
    "response": "success",
    "FailureMessage": null,
    "Result": "bee",
    "TimedOut": "false",
    "returnResult": "bee",
    "Field_1": "beer"
  },
  "extraData": {

},
  "executionId": "100337054",
  "status": "COMPLETED",
  "workerId": "f61428ff-e55a-4942-8351-f5b6b0b99b14",
```

```
"user": "anonymousUser"  
}
```

Get a Single Execution Step

Request: GET/executions/{executionId}/steps/{stepPath}

Description: Returns data about a single step of an execution. For more details, see [Get Execution Steps \(with Filtering and Pagination\)](#).

Request path variables:

Attribute	Description	Type
executionId	Execution ID whose step to retrieve.	String
stepPath	<p>The step's path in the execution tree.</p> <p>Step paths work as follows:</p> <ul style="list-style-type: none">• The paths of the steps at the top level of the execution are 0.0 for the 1st step, 0.1 for the 2nd and so on.• If the 2nd step (0.1) is a subflow, then the paths of the steps in that subflow will be 0.1.0, 0.1.1 and so on. <p>Note: Virtual steps such as lanes also have a path.</p>	String

Example:

GET/executions/100300001/steps/0.7.0.13

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Successful.
400	Bad Request	Any of the arguments are invalid.
404	Not Found	The requested step wasn't found in the given execution, or the execution is not viewable

Get Execution Steps as a CSV File

Request: GET/executions/{executionId}/steps?mediaType=csv

Description: Returns all executed steps for the given execution, as a CSV file.

Request path variables:

Attribute	Description	Type
executionId	Execution ID whose steps to retrieve.	String

Request parameters:

The `mediaType` parameter must be set to `csv`. Otherwise, the request will be treated as [Get Execution Step \(with Pagination and Filtering\)](#). There are no other parameters.

Example:

GET/executions/100300001/steps?mediaType=csv

Code	Meaning	Returned When
200	Successful (OK)	Successful. If there are no results, the result will be empty, but this is still OK.
404	Not Found	If the execution cannot be viewed or does not exist.
400	Bad Request	If any of the arguments are invalid.

Execution Pauses

Request: GET/executions/{executionId}/pauses

Description: Retrieves current pauses for the given execution id.

Request path variables:

Attribute	Type	Description	Required
executionId	String	The ID of the execution which the client wishes to retrieve its pauses.	Yes

Example:

GET/executions/100001/pauses

Response entity body:

An array which contains all the current pauses of the requested execution. Each element in the array represents a pause of a lane in the execution tree.

The returned array is not ordered and is empty if no pauses exist for the given execution id.

There are five possible reasons for pauses, which can be differentiated by inspecting the **pauseReason** attribute.

Note: There are different return attributes between the different types:

Reason 1: Input Required

Attribute	Type	Description	Comments
pauseReason	Predefined Value	The value INPUT_REQUIRED	
pauseId	Long	An ID for the returned pause.	
executionId	String	The execution ID	
branchId	String	The ID of the branch were the pause has occurred.	null ID represents the main branch.
stepId	String	The UUID of the step in which the pause has occurred.	
stepName	String	The name of the step in the flow.	
requiredInputs	FlowInput	See the FlowInput	

Example:

```
[
  {
    "pauseId":101100014,
    "executionId":"100100355",
    "branchId":null,
    "stepId":"fa351d72-d381-4159-b81b-5fff493f7e41",
    "stepName":"Parallel Split",
    "pauseReason":"INPUT_REQUIRED",
    "requiredInputs":[
      {
        "uuid":null,
        "name":"parallelInput",
        "valueDelimiter":null,
        "description":"Just checking",
        "encrypted":false,
        "multiValue":false,
        "mandatory":false,
        "sources":null,
        "type":"String",
        "validationId":null,
        "defaultValue":null
      }
    ]
  }
]
```

Reason 2: Display

Attribute	Type	Description	Comments
pauseReason	Predefined Value	The value DISPLAY	
pauseId	Long	An ID for the returned pause.	
executionId	String	The execution ID.	
branchId	String	The ID of the branch were the pause has occurred.	A null ID represents the main brach.
stepId	String	The UUID of the step in which the pause has occurred.	
stepName	String	The name of the step in the flow.	
title	String	The author's specified localized title for the prompt message that should be presented to the user.	

Attribute	Type	Description	Comments
text	String	The author's specified localized message that should be presented to the user	
height	String	For future use.	Ignore this field.
width	String	For future use.	Ignore this field.

Example:

```
[
  {
    "pauseId":101100010,
    "executionId":"100100312",
    "branchId":null,
    "stepId":"c12fc96a-f938-4a8c-81a1-5dbcc3b81e6d",
    "stepName":"Resolved : success",
    "pauseReason":"DISPLAY",
    "title":"Return Step title with input: value1",
    "text":"Return Step text:\ninput1: value1",
    "height":"0.0",
    "width":"0.0"
  }
]
```

Reason 3: Gated Transition

Attribute	Type	Description	Comments
pauseReason	Predefined Value	The value GATED_TRANSITION	
pauseId	Long	An ID for the returned pause.	
executionId	String	The execution ID.	
branchId	String	The ID of the branch were the pause has occurred.	A null ID represents the main brach.
stepId	String	The UUID of the step in which the pause has occurred.	
stepName	String	The name of the step in the flow.	
roleName	String	The role which the user is missing in order to pass the gated transition.	
userName	String	The user which is trying to pass through the gated transition.	

Example:


```
[
  {
    "pauseId":101100008,
    "executionId":"100100274",
    "branchId":null,
    "stepId":"2ba782f2-ea84-4f66-936d-4226d4bfa134",
    "stepName":"UUID Generator",
    "pauseReason":"GATED_TRANSITION",
    "roleName":"AUDITOR",
    "userName":"anonymousUser"
  }
]
```

Reason 4: Hand Off

Attribute	Type	Description	Comments
pauseReason	Predefined Value	The value HAND_OFF	
pauseId	Long	An ID for the returned pause.	
executionId	String	The execution ID.	
branchId	String	The ID of the branch were the pause has occurred.	A null ID represents the main brach.
stepId	String	The UUID of the step in which the pause has occurred.	
stepName	String	The name of the step in the flow.	

Example:

```
[
  {
    "pauseId":101100009,
    "executionId":"100100293",
    "branchId":null,
    "stepId":"70eaf376-72ca-4440-9f60-a743fcfa56b2",
    "stepName":"UUID Generator",
    "pauseReason":"HAND_OFF"
  }
]
```

Reason 5: No Workers In Group

Attribute	Type	Description	Comments
pauseReason	Predefined Value	The value NO_WORKERS_IN_GROUP	

Attribute	Type	Description	Comments
pauseId	Long	An ID for the returned pause.	
executionId	String	The execution ID	
branchId	String	The ID of the branch were the pause has occurred.	A null ID represents the main brach.
stepId	String	The UUID of the step in which the pause has occurred.	Would be null, please ignore
stepName	String	The name of the step in the flow.	Would be null, please ignore
groupName	String	The unavailable group.	

Example:

```
[
  {
    "pauseId":101100012,
    "executionId":"100100341",
    "branchId":null,
    "stepId":null,
    "stepName":null,
    "pauseReason":"NO_WORKERS_IN_GROUP",
    "groupName":"RAS_Operator_Path"
  }
]
```

Response status codes:

Code	Meaning	Returned When
200	OK	All requested pauses were returned.
404	Not Found	The provided execution ID doesn't exist.

Get Execution Log

Request: GET/executions/{executionId}/execution-log

Description: This API retrieves the extended summary of a specific execution. It is an extension of the Execution Summary API and holds additional information, such as the inputs and outputs of that execution.

Request path variables:

Attribute	Description	Required
executionId	The id of the execution	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested execution log was.
403	Forbidden	
404	Not Found	The requested execution log was not found or not viewable.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "executionSummary":{
    "executionId":"348246628680024354",
    "branchId":null,
    "startTime":1371366300297,
    "endTime":null,
    "status":"PAUSED",
    "resultStatusType":"RESOLVED",
    "resultStatusName":"HAHA",
    "pauseReason":"USER_PAUSED",
    "owner":"anonymous",
    "ownerDomain":null,
    "triggeredBy":"anonymous",
    "flowUuid":"a8e8fc10-b584-4d39-921f-987b29c9dd19",
    "flowPath":null,
    "executionName":"mock flow",
    "branchesCount":0,
    "triggeringSource:central"
    "roi":null
  },
  "flowVars":[
```

```

{
  "name":"flowVar0",
  "termName":"flowVar0TermName",
  "value":"flowVar0Value"
},
{
  "name":"flowVar1",
  "termName":"flowVar1TermName",
  "value":"flowVar1Value"
},
{
  "name":"flowVar2",
  "termName":"flowVar2TermName",
  "value":"flowVar2Value"
},
{
  "name":"flowVar3",
  "termName":"flowVar3TermName",
  "value":"flowVar3Value"
},
{
  "name":"flowVar4",
  "termName":"flowVar4TermName",
  "value":"flowVar4Value"
}
],
"flowOutput":{
  "flowOutput4":"flowOutput4Value",
  "flowOutput3":"flowOutput3Value",
  "flowOutput0":"flowOutput0Value",
  "flowOutput2":"flowOutput2Value",
  "flowOutput1":"flowOutput1Value"
}
}

```

Response Attributes

Attribute	Type	Description
executionSummary	Predefined Value	An array which contains all of the executions summary which match the requested filters.
flowVars	List of FlowInput objects	The flow's bound inputs. Each FlowInput object has three fields: name (String), value (String) and termName (domain term that the input is recorded under).
flowOutput	Map (String to String)	A name-to-value map of the flows outputs.

Change the Status of an Execution

Request: PUT/executions/{executionId}/status

Description: Update an existing execution status.

Request path variables:

Attribute	Type	Description	Required
executionId	String	The ID of the execution which the user wants to update the status.	Yes

Request entity body:

The execution status can be changed to one of the following states: CANCEL, PAUSE, REASSIGN, or RESUME.

The desired status should be set in the `action` attribute.

To cancel an execution:

Attribute	Type	Description	Required	Default value
action	Predefined Value	The value CANCEL	Yes	

Example:

```
{
  "action": "CANCEL"
}
```

To pause an execution:

Attribute	Type	Description	Required	Default value
action	Predefined Value	The value PAUSE	Yes	

Example:

```
{
  "action": "PAUSE"
}
```

For reassigning an execution to another user

Attribute	Type	Description	Required	Default value
action	Predefined Value	The value REASSIGN	Yes	
data	Key value	Contains the key <code>userName</code> and the reassigned user as value.	Yes	

Example:

```
{
  "action": "REASSIGN",
  "data": {
    "userName": "John"
  }
}
```

For resuming an execution

Attribute	Type	Description	Required	Default value
action	Predefined Value	The value "REASSIGN"	Yes	
data	Key value	<p>Should contain two key-value pairs:</p> <ul style="list-style-type: none"> branchId key for the branch that should be resumed. Null should be provided for the brach root. input_binding key is used to provide the required inputs for an execution which is waiting for inputs. The input_binding value must be an object using the format: <pre>{input_name : input_value}</pre> 		<ul style="list-style-type: none"> brachId is required. input_binding only required when resuming an execution which has the pauseReason INPUT_REQUIRED. See Execution Pauses

Examples:

- Resume without inputs:

```
{
  "action": "RESUME",
  "data": {
    "branchId": null
  }
}
```

- Resume with inputs:

```
{
  "action": "RESUME",
  "data": {
    "branchId": "f47ac10b-58cc-4372-a567-0e02b2c3d479:1",
    "input_binding": {
```

```

    "Input 1": "VALUE2",
    "Input 2": [
      "VALUE1",
      "VALUE2",
      "VALUE3"
    ],
    "Input 3": null,
    "Input 4": "434"
  }
}
}

```

Response status codes:

Code	Meaning	Returned When
204	Returned	NO_CONTENT
400	Bad request	If one of the parameters are invalid.
403	Forbidden	<p>The user attempting to execute this command is not allowed to update the status.</p> <p>In order to prevent this the following check that the following is set:</p> <ul style="list-style-type: none"> • The user has run privilege rights on this flow. • The user is the owner of the execution or has "manage others" permission. <p>In addition, when performing reassign to another user, the target user must have both RUN and VIEW privileges on the flow.</p>
409	Conflict	In case the status was already in the requested state.

Execute a Flow by UUID

Request: POST/executions

Description: Executes a flow specified by UUID.

Request entity body: The body of this request must include a JSON object with the following format:

```
{
  "uuid": "8d52dfc3-1de5-48d4-9c2a-887718de4696",
  "runName": "run1",
  "logLevel": "DEBUG"
  "inputs":
    {
      "input1": "value for input1",
      .
      .
      .
      "inputn": "value for inputn"
    },
}
```

inputs and runName, are optional and can be omitted.

Note: If the flows was defined with inputs which are either set as prompt user or/and are required , the flow will pause.

logLevel is also optional, the default log level is INFO.

The logLevel attribute receives one of these values: DEBUG, INFO, and ERROR.

Response status codes:

Code	Meaning	Returned When
201	Created	A new flow execution was created.
400	Bad Request	One of the arguments are not correct.

Response entity body:

- **on success:** Returns a JSON object of the created execution.

Note: The return value is deprecated and should not be used.

```
{
  "feedUrl": "http://localhost:8080/oo/rest/v1/executions/100302424/steps",
  "executionId": "100302424",
}
```



```
"errorCode": "NO_ERROR"  
}
```

The `feedUrl` is the link to the execution's status feed. It contains the host name or IP address and not `localhost`. In this example, the action was executed on the local Central server.

In addition, a `location` header containing a URI to retrieve the created execution for example:

```
/executions/ 78bec456-db6a-4c05-99ad-0675b230bfeb
```

Ad-hoc Flow Execution

Request: POST/executions

Description: Ad-hoc Flow execution enables executing a flow without the need to first deploy the flow by providing the AFL flow xml.

Note: This feature will work only when authentication is not enabled in Central.

Note: You can view the [afl_xml_schema.xsd](#) file, which describes the HP OO flow AFL (Automation Flow Language). You can view this file in the online help, or download it from **<online-help folder>/content/REST_API_Guide/**. You can also download this file from HPLN, located in the Operations Orchestration 10.x folder in the Resources Tab.

Request entity body:

The body of this request must include a JSON object with the following format:

```
{
  "aflContent": "AFL Flow",
  "runName": "run1",
  "logLevel": "DEBUG"
  "inputs":
    {
      "input1": "value for input1",
      .
      .
      "inputn": "value for inputn"
    },
}
```

The `aflContent` must include a JSON encoded AFL flow.

`inputs` and `runName`, are optional and can be omitted.

`logLevel` is also optional, the default log level is INFO.

The `logLevel` attribute receives one of these values: DEBUG, INFO, and ERROR.

Response status codes:

Code	Meaning	Returned When
201	Created	A new flow execution was created.
400	Bad Request	

Response entity body:

- **on success:** Returns a JSON object of the created execution.

Note: The return value is deprecated and should not be used.

The `feedUrl` is the link to the execution's status feed. See [Get Flow Execution Status](#) for more information.

In addition, a location header containing a URI to retrieve the created execution for example:

`/executions/ 78bec456-db6a-4c05-99ad-0675b230bfeb`

Flow Execution Status

The following are the possible values of the status attribute, which appears in the APIs:

Status	Description
RUNNING	The flow execution is in progress.
COMPLETED	The flow has finished. In order to understand the result (for example, success or failure) use the resultStatusType attribute.
SYSTEM_FAILURE	The execution failed due to an unexpected error in the system.
PAUSED	The flow execution paused. For pause reasons, see the Execution Pauses API.
PENDING_PAUSE	A flow execution pause request was submitted, and the system is waiting for an action to complete in order to enter the pause state.
CANCELED	The flow execution was canceled by the user.
PENDING_CANCEL	A flow execution cancel request was submitted, and the system is waiting for an action to complete in order to cancel the execution.

Flow Input

Defines for the client how an input should be presented to the end user.

Attribute	Type	Description	Comments
uuid	String	The UUID of this input.	null is possible
name	String	A unique name of this input.	
valueDelimiter	String	The expected delimiter in the value, in case this is a multiple value input.	null is possible
description	String	A localized description of this input, this provides more information to the user.	
encrypted	Boolean	Indicates whether this is a classified input. It is advised to mask the user input in the presentation.	
multiValue	Boolean	Indicates whether multiple values are expected. They will be delimited by the <code>valueDelimiter</code> attribute.	
mandatory	Boolean	Set if the user must provide this input. In this case the attribute is <code>true</code> and the user does not provide the required input, the operation which requests this input will fail.	
sources	Array	Suggested input values for the user.	null is possible
type	Predefined Value	String : Indicates that a free text input is expected. SelectionList: User should choose value/values from the supplied sources.	
validationId	String	For future use.	Would be null. Please ignore this attribute.
defaultValue	String	A default value for this input. This is a hint for the UI and could be used by the user.	null is possible

Example from Central UI:

input2, list_bool, list_char, multi_list_char are flow inputs.

The image shows a 'Run Flow' dialog box with the following fields and options:

- Flow:** Library/cp-flow-with-inputs/list.xml
- Run Name:** list
- input2:** please enter your email
- list_bool:** False (dropdown menu with True and False options)
- list_char:** UTF-8 (dropdown menu with UTF-8 selected, marked with a red asterisk)
- multi_list_char:** Shift_JIS, EUC-JP, UTF-8, UTF-32 (multi-select dropdown menu)

Buttons: Cancel, Run

Example:

```
[
  {
    "uuid": "8e1b1288-3f1a-45ef-b23b-cbdf21bb607b",
    "name": "input2",
    "valueDelimiter": ",",
    "description": "please enter your email",
    "encrypted": false,
    "multiValue": false,
    "mandatory": false,
    "sources": null,
    "type": "String",
    "validationId": null,
    "defaultValue": null
  },
  {
    "uuid": "fdd88ec2-b76f-4aec-a5af-509549bd41fb",
    "name": "list_bool",
    "valueDelimiter": ",",
    "description": "choose yes or no",
    "encrypted": false,
    "multiValue": false,
    "mandatory": false,
    "sources": [
      "True",
      "False"
    ]
  }
]
```

```
    ],  
    "type": "SelectionList",  
    "validationId": null,  
    "defaultValue": null  
  },  
  {  
    "uuid": "3406b528-a856-49d1-82b3-516b7c8243c5",  
    "name": "list_char",  
    "valueDelimiter": ",",  
    "description": "this is encrypted input",  
    "encrypted": false,  
    "multiValue": false,  
    "mandatory": true,  
    "sources": [  
      "Shift_JIS",  
      "EUC-JP",  
      "UTF-8",  
      "UTF-32",  
      "ISO-2022-JP",  
      "UTF-16",  
      "Windows-31J"  
    ],  
    "type": "SelectionList",  
    "validationId": null,  
    "defaultValue": null  
  },  
  {  
    "uuid": "c4bcf870-a7f9-4160-8be0-eea2fc4978d4",  
    "name": "multi_list_char",  
    "valueDelimiter": ",",  
    "description": "this is multi-select input",  
    "encrypted": false,  
    "multiValue": true,  
    "mandatory": false,  
    "sources": [  
      "Shift_JIS",  
      "EUC-JP",  
      "UTF-8",  
      "UTF-32",  
      "ISO-2022-JP",  
      "UTF-16",  
      "Windows-31J"  
    ],  
    "type": "SelectionList",  
    "validationId": null,  
    "defaultValue": null  
  }  
]  
]
```

Delete StepLog data

Request: DELETE/steps-log

Description: Purge step data according to time and amount of executions to purge.

Request parameters

Attribute	Type	Description	Default value	Required?
endedBefore	Long	The time in milliseconds to start purging	30 days back (in milliseconds)	
maxAmount	int	The max amount of executions on which step's data is purged	100	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The step data was deleted successfully.
400	Bad Request	

Response entity body:

- **on success:** Returns a JSON string of the number of executions that their step data has been purged.

Flow Library

APIs relating to the Flow Library

Get Flows Library

Request: GET/flows/library

Description: Retrieves all flows deployed in the system. This returns an ordered list, and contains all the folders and flows in the flow library, ordered according to the tree structure.

Response entity body:

A List of elements which contains all of the flows that exist in the system.

Attribute	Type	Description	Comments
id	String	The id of node.	For a non-leaf (folder) node, the id is the same as the path. For a leaf node (deployed entity), the id is the entity's id.
name	String	The name of the node.	Folder name or flow name.
parentId	String	The id of the parent node.	Null if this is a root node.
leaf	Boolean	Whether the node is a leaf or not.	leaf is a flow, not leaf = folder
path	String	The path of the node.	
runnable	Boolean	Whether the node is a runnable or not.	
childrenIds	Array of Strings	List of the the node's children id	

Example:

```
[{"id": "Library/cp-dotnet/InputsOutputsResponses/flows",  
"name": "flows",  
"parentId": "Library/cp-dotnet/InputsOutputsResponses",  
"leaf": false,  
"path": "Library/cp-dotnet/InputsOutputsResponses/flows",  
"runnable": false,  
"childrenIds": ["Library/cp-dotnet/InputsOutputsResponses/flows/DOTNET_Action
```

```
inputs and outputs 2 op.xml", "Library/cp-dotnet/InputsOutputsResponses/flows/DOTNET_Action inputs and outputs.xml"]}],
```

```
{"id": "0e98f028-3a59-4cce-9196-4690bd48ea95",  
"name": "DOTNET_Action inputs and outputs 2 op",  
"parentId": "Library/cp-dotnet/InputsOutputsResponses/flows",  
"leaf": true,  
"path": "Library/cp-dotnet/InputsOutputsResponses/flows/DOTNET_Action inputs and outputs 2 op.xml",  
"runnable": true,  
"childrenIds": []}]
```

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested library was returned.

Read Next Level of Library Tree

Request: GET/flows/tree/level

Description: Returns a flat list of all tree Items under the path (lazy loading).

Request path variables:

Attribute	Description	Required
path	The path that you want to get all tree items under it. Not required. Default value is "".	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested items were found

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
[
  {
    "id": "library/Accelerator Packs",
    "name": "Accelerator Packs",
    "leaf": false,
    "path": "Library/Accelerator Packs",
    "runnable": false,
    "children": null
  },
  {
    "id": "library/How Do I flows",
    "name": "How Do I flows",
    "leaf": false,
    "path": "Library/How Do I flows",
    "runnable": false,
    "children": null
  }
]
```

Get Flow Details

Request: GET/flows/{uuid}

Description: Returns flow properties by the uuid.

Request path variables:

Attribute	Description	Required
uuid	The flow uuid	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested flow was found.
404	Not Found	The requested flow was not found or the user does not have permission to view it or the uuid was empty

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "id": "1fe1be31-2c78-40dd-8326-b8ca527e5587",
  "name": "Recently Run",
  "path": "Library/Utility Operations/Date and Time/Recently Run.xml",
  "description": "flow description",
  "cpName": "HP00-oo-base",
  "version": "version111"
}
```

Get Flow Inputs

Request: GET/flows/{uuid}/inputs

Description: Retrieves a list of flow's inputs by its UUID.

Request path variables:

Attribute	Description	Required
uuid	The flow uuid	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested flow's inputs were found
404	Not Found	The requested flow was not found or the user does not have permission to view it or the uuid was empty

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
[
  {
    "uuid": "c4454566-6bb5-4be9-9824-2a08945f1574",
    "name": "message",
    "valueDelimiter": ",",
    "description": "",
    "encrypted": false,
    "multiValue": false,
    "mandatory": true,
    "sources": null,
    "type": "String",
    "validationId": null,
    "defaultValue": null
  },
  {
    "uuid": "cdac00b3-f550-4cd5-a3eb-f15d2f80fd78",
    "name": "title",
    "valueDelimiter": ",",
    "description": "",
    "encrypted": false,
    "multiValue": false,
    "mandatory": false,
    "sources": null,
    "type": "String",
```

```
        "validationId":null,  
        "defaultValue":"Status message"  
    }  
]
```

Get Flow Outputs

Request: GET/flows/{uuid}/outputs

Description: Retrieves a list of all the outputs defined for the flow with the requested uuid. The list of outputs retrieved will contain only outputs defined in the flow properties.

Request path variables:

Attribute	Description	Type	Required
uuid	The requested flow's uuid.	String	Yes

Example:

GET/flows/22de91c4-f651-42fd-a404-1bf0ca921f36/outputs

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested flow's inputs were found
404	Not Found	The requested flow was not found or the user does not have permission to view it or the uuid was empty

Response entity body:

An array which contains all of the outputs that are defined for the flow. Each element in the array represents an output of the flow.

The returned array is not ordered.

Attribute	Type	Description	Comments
name	String	The name of the output.	

Example:

```
[  
  {  
    "name": "Result"  
  },  
  {  
    "name": "output2"  
  },  
  {  
    "name": "output1"  
  }  
]
```

Scheduler

The scheduler API allows you to schedule flow executions. You can specify a schedule to run for a specific occasion. You can also setup recurring schedules for a flow for a repeated task. These APIs enable you to manage schedules, for example create new schedules.

Create New Flow-Schedule

Request: POST/schedules

Description: Add a new schedule for a flow execution.

Request entity body: The body of this request must include a JSON object with the following format:

JSON for a scheduled flow with a CRON triggering expression:

```
{
  "flowScheduleName": "Scheduled Flow Created By REST",
  "flowUuid": "c34de7d6-14cc-4a1c-b25e-85afbb064359",
  "triggerExpression": "0 10 10 ? * 6",
  "startDate": "1314079869000" ,
  "endDate": "1491302669536",
  "runLogLevel": "DEBUG",
  "timeZone": "Asia/Amman",
  "inputs":
    {
      "input1": "value for input1",
      .
      .
      .
      "inputn": "value for inputn"
    }
}
```

JSON for a scheduled flow with a simple triggering expression:

```
{
  "flowScheduleName": "Scheduled Flow Created By REST",
  "flowUuid": "c34de7d6-14cc-4a1c-b25e-85afbb064359",
  "triggerExpression": "*/60000",
  "startDate": "1314079869000",
  "endDate": "1491302669536",
  "username": "DavisJ",
  "numOfOccurrences": 5,
  "runLogLevel": "DEBUG",
  "timeZone": "Asia/Amman",
  "inputs":
    {
```



```
        "input1":"value for input1",  
        .  
        .  
        .  
        "inputn":"value for inputn"  
    }  
}
```

- If **endDate** is not set, by default, it receives a value of 0.
- If **username** is not set, by default, it receives a value of null.
- The trigger expression should be either a valid cron expression or a simple expression according to the pattern below.

If you use the cron expression, you can validate it using an [expression validity](#).

- If you want to use a simple trigger expression (every x minutes) you should use the syntax according to the following example:

`*/6000` = run every 6000 milliseconds (every minute)

Note: If you use a cron expression you cannot add the `numOfOccurrences` attribute as it may conflict with the `cronExpression`. In addition, if you use simple triggers and add both end time and number of occurrences, the triggering ends according to the number of occurrences.

Response status codes:

Code	Meaning	Returned When
201	Created	A schedule was created successfully.
400	Bad Request	
403	Forbidden	The user does not have Manage Schedules permission.

Response entity body:

- **on success:** Returns a JSON object of the created schedule with the following format:

```
{  
  "id": "1347298851037",  
  "flowScheduleName": "Scheduled Flow Created By REST",  
  "flowUuid": "c34de7d6-14cc-4a1c-b25e-85afbb064359",  
  "triggerExpression": "*/60000",  
  "startDate": "1314079869000" ,  
  "endDate": "1491302669536",  
  "username": "DavisJ",  
}
```

```
"numOfOccurrences":5,  
"runLogLevel": "DEBUG",  
"timeZone": "Asia/Amman",  
"nextFireTime":null,  
"prevFireTime":null,  
"enabled":false,  
  
"inputs":  
  {  
    "input1":"value for input1",  
    ...  
    inputn:"value for inputn"  
  }  
}
```

In addition, a location header containing a URI to retrieve the created schedule for example:
`/schedules/1347298851037`

```
{  
  "flowScheduleName":"Scheduled Flow Created By REST",  
  "flowUuid":"c34de7d6-14cc-4a1c-b25e-85afbb064359",  
  "triggerExpression":"*/60000",  
  "startDate":"1314079869000",  
  "endDate":"1491302669536",  
  "username":"DavisJ",  
  "numOfOccurrences":5,  
  "runLogLevel": "DEBUG",  
  "timeZone": "Asia/Amman",  
  "inputs":  
    {  
      "input1":"value for input1",  
      .  
      .  
      .  
      "inputn":"value for inputn"  
    }  
}
```

Enable or Disable Flow-Schedule

Request: PUT/schedules/{ids}/enabled

Description: Enable or disable existing flow-schedules.

Request path variables:

Attribute	Description	Required
ids	The identifiers of the flow-schedules to enable or disable.	Yes

Request entity body: The body of this request needs to include a JSON value of either `true` to enable the schedules or `false` to disable them.

Response status codes:

Code	Meaning	Returned When
200	OK	The flow-schedules were updated successfully.
400	Bad Request	
403	Forbidden	The user does not have Manage Schedules permissions.

Delete Flow-Schedule

Request: DELETE/schedules/{ids}

Description: Deletes flow-schedules according to the specified IDs.

Request path variables:

Attribute	Description	Required
ids	The identifiers of the flow-schedules to delete.	Yes

Response status codes:

Code	Meaning	Returned When
204	OK	The flow-schedules were deleted successfully.
400	Bad Request	
403	Forbidden	The user does not have Manage Schedules permissions.

Response entity body:

- **on success:** Returns a JSON string of the id of the schedule that was deleted

Get Flow-Schedules

Request: GET/schedules

Description: Returns all existing flow-schedules headers.

Response status codes:

Code	Meaning	Returned When
200	OK	The requested flow-schedules were found.
403	Forbidden	The user does not have View Schedules or Manage Schedules permission.

Response entity body:

- **on success:** Returns a JSON array, containing all existing flow-schedules headers, with the following format:

```
[
  {
    "id": "123",
    "enabled": true,
    "flowUuid": "78bec456-db6a-4c05-99ad-0675b230bfeb",
    "nextFireTime": 0,
    "prevFireTime": 0,
    "flowScheduleName": "schedule 1",
    "flowName": "flow1",
    "flowPath": "path0",
    "username": "admin"
    "triggerExpression": "0 10 10 ? * 6"
  },
  .
  .
  {
    "id": "567",
    "enabled": true,
    "flowUuid": "3d32e475g-ab54-fe21-df32-4743346ebabd",
    "nextFireTime": 0,
    "prevFireTime": 0,
    "flowScheduleName": "schedule n",
    "flowName": "flow3",
    "flowPath": "path2",
    "username": "admin"
    "triggerExpression": null
  }
]
```

Get Flow-Schedule Details

Request: GET/schedules/{id}

Description: Returns details about a flow-schedule specified by ID.

Request path variables:

Attribute	Description	Required
id	The identifier of the flow-schedule to retrieve.	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	The requested flow-schedule was found.
403	Forbidden	The user does not have View Schedules or Manage Schedules permission.
404	Not Found	The requested flow-schedule was not found.

Response entity body:

- **on success:** Returns a JSON object of the flow-schedule details with the following format:

```
{
  "id": "1399455773960",
  "flowScheduleName": "Scheduled Flow Created By REST",
  "flowUuid": "c34de7d6-14cc-4a1c-b25e-85afbb064359",
  "triggerExpression": "0 10 10 ? * 6",
  "startDate": 1399455780000,
  "endDate": 1491302669536,
  "numOfOccurrences": null,
  "timeZone": "Asia/Amman",
  "username": "admin",
  "runLogLevel": "DEBUG",
  "nextFireTime": 1399619400000,
  "prevFireTime": -1,
  "enabled": true,
  "inputs": {
    "input2": "value for input2",
    "input1": "value for input1"
  }
}
```

Update Flow-Schedule

Request: PUT/schedules/{id}

Description: Updates an existing flow-schedule. Includes a list of values that can be updated.

Request path variables:

Attribute	Description	Required
id	The identifier of the flow-schedule to update.	Yes

Request entity body: The body of this request needs to include a JSON object with the following format:

```
{
  "flowScheduleName": "Scheduled Flow Created By REST",
  "flowUuid": "c34de7d6-14cc-4a1c-b25e-85afbb064359",
  "triggerExpression": "0 10 10 ? * 6",
  "startDate": "1376072040000",
  "endDate": "1377334800000",
  "runLogLevel": "DEBUG",
  "timeZone": "Asia/Amman"
  "inputs":
    {
      "input1": "value for input1",
      .
      .
      .
      "inputn": "value for inputn"
    }
}
```

Response status codes:

Code	Meaning	Returned When
200	OK	Returned when update schedule successfully
400	Bad Request	
403	Forbidden	The user does not have Manage Schedules permission.

Response entity body:

- **on success:** Returns a JSON value: true

Dashboard

The Dashboard workspace reflects the system's ROI, and analyzed flow aggregation. It provides statistical information about the system (popular flows, result distribution, execution time, and so on) and financial information about the return on investment. This API allows you to get the statistic information in order to generate the reports for analyzing information.

Get Statistics

Request: GET/executions/statistics

Description: Returns a flows statistic info (list of FlowStatisticsDataVO): roi, number of executions, average execution time and result distribution.

Request path variables:

Attribute	Description	Required
measurements	Which statistics to display. If nothing is set then the four statistics are displayed. The following options are available: roi, numOfExecutions, avgExecutionTime, resultDistribution.	No
sortBy	If nothing is set then: <ul style="list-style-type: none">If the measurements list is empty, then the sort is set to numOfExecutions.If the Measurements are not empty, then nothing is sorted. If sortBy is set, then it should be contained in measurement (if supplied).	No
sortDescending	Default is descending.	No
endedBefore	Default is now.	No
endedAfter	Default is one week ago.	No

Response status codes:

Code	Meaning	Returned When
200	OK	Operation was successful

Code	Meaning	Returned When
400	Bad Request	<ul style="list-style-type: none"> Wrong <code>measurements</code> value. Wrong <code>sortByvalue</code>. It must be included in the measurements, unless it's empty. Ended after > Ended Before
403	Forbidden	The user does not have dashboard read permission.

Response entity body:

List<FlowStatisticsDataVO>:

```
[
  {
    "flowUuid" : 7f2f68-ef48-4a-4a91-bb11-5fadf44bebee",
    "flowPath" : "Library/Repo9x/Dev/ROI/ROI - Basic.xml"
    "flowRoi" : 30.0,
    "numberOfExecutions" : 3
    "averageExecutionTime" : 11000,
    "resultsDistribution" : [
      {
        "type" : "RESOLVED",
        "amount" : 3
      }
    ]
  },
  {
    "flowUuid" : "0b6d9c00-2a34-4c63-8534-4a364d64272",
    "flowPath" : "Library/Repo9x/Dev/ROI/ROI - subflow.xml",
    "flowRoi" : 1830.0,
    "numberOfExecution" : 3,
    "averageExecutionTime" : 1000,
    "resultsDistribution" : [
      {
        "type" : "SYSTEM_FAILURE",
        "amount" : 2
      },
      {
        "type" : "RESOLVED",
        "amount" : 3
      }
    ]
  }
]
```

Deployment

Deploy Content Packs

Request: PUT/content-packs/{name: .+}

Description: Deploys a content pack. The file extension should not be provided in the name.

Response status codes:

Code	Meaning	Returned When
201	Created	Deployment succeed
403	Forbidden	The user does not have Manage Content Packs permission.
417	Expectation Failed	Deployment failed

Example: /content-packs/base-cp

Request path variables:

Attribute	Description	Required
name	The name of the content pack to be deployed.	Yes

The body of the request should contain the contents of the content pack file to be deployed.

Response entity body:

- **on success:** Returns a JSON value: true

```
{
  "aggregatedSeverity": "Info",
  "contentPackResponses": {
    "content pack file name.jar": {
      "contentPackName": "content pack file name.jar",
      "message": "content pack file name.jar (author: , date:)",
      "responses": [
        {
          "contentPackName": "content pack file name.jar",
          "responseCategory": "Success",
          "level": "Info",
          "message": "Successfully deployed content pack file name.jar"
        }
      ]
    }
  }
}
```

The aggregatedSeverity and level attribute receives one of the following values: Info, Warning, and Error.

The responseCategory attribute receives one of the following values:

- Success: The content pack was deployed successfully.
- ContentPackFile: The content pack file was invalid.

- **FlowDependency:** Cannot deploy the content pack because of missing flow dependency.
 - **OperationDependency:** Cannot deploy the content pack because of missing operation dependency.
 - **Overwrite:** Cannot deploy the content pack because it can't overwrite the existed one because of flow/operation dependencies issues.
 - **ScheduledFlow:** A list of scheduled flows that will be affected/deleted if the deployment will be carried out (since the deployment is trying to delete a flow that is scheduled to run).
 - **Exception :** Cannot deploy the content pack because of an unexpected exception.
- **on error:** Returns a JSON value:

```
"aggregatedSeverity" : "Error",
"contentPackResponses" :{
  "cp.jar" : {
    "contentPackName":"cp.jar",
    "message":"cp.jar (author: , date: )",
    "responses":[
      {
        "contentPackName":"cp.jar",
        "responseCategory":"FlowDependency",
        "level":"Error",
        "message":"Missing 'operation'/'flow' with UUID d1bbf441-824a-450e-afae-
2ddec0e0f35e, which is required by the 'flow': 'Library/tesdt/flowwww.xml'."
      }
    ]
  }
}
```

How can I deploy content packs with progress?

1. [Create Deployments](#) – returns deploymentProcessId
2. [Upload the Deployment Process File](#) – to the given deploymentProcessId
3. [Run a Specific Deployment Process](#) – to the given deploymentProcessId
4. The next step is to request **Get the Deployment Process Object**. There are two kinds of responses:
 - a. "status":"RUNNING" – with data about the progress
 - b. "status":"FINISHED" – with data about the result

Upload the Deployment Process File

Request: POST/deployments/{deploymentProcessId}/files

Description: Upload the deployment file and save it into DB for specific deployment process.

Response status codes:

Code	Meaning	Returned When
200	OK	File was uploaded and saved into DB for specific deployment process object.
403	Forbidden	The user does not have Manage Content Packs permission.
404	Not Found	The deployment process object with the specific id does not exist.

JSON response example:

This maps the event of the delete to the URL in case you want to remove the content pack after it has uploaded.

```
{
  "files":
  [
    {
      "name": "oo10-business-applications-cp-1.0.117.jar",
      "size": 11718432,
      "fileUploadId": 101700001,
      "deleteUrl": "/deployments/100900001/files/101700001",
      "deleteType": "DELETE"
    }
  ]
}
```

Retrieve Details for Deployed Content Packs

Request: GET/content-packs

Description: Retrieves details for all deployed content packs.

Response entity body:

An array which contains all current deployed content packs. Each element in the array represents a single content pack.

The returned array is not ordered and appears empty if no content packs exist.

Attribute	Type	Description
name	String	The name of the content pack, as it shown in the cp.properties
version	String	The version of the content pack, as it shown in the cp.properties

Example:

```
{
  "name": "HP Solutions",
  "version": "1.0.134",
  "id": "2d6e4083-23c8-4737-ae15-79da71a5ac5c",
  "publisher": "Hewlett-Packard",
  "description": "HP 00 HP Solutions Content Pack",
  "deploymentDate": 1396782968694,
  "deployedBy": "anonymousUser"
}
```

Response status codes:

Code	Meaning	Returned When
200	OK	All deployed content packs metadata returned.
403	Forbidden	The user does not have the cpRead permission

Roll Back Last Deployment

Request: DELETE/content-packs/last

Description: Roll back the last content pack deployment.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The last deployed content pack had been removed
403	Forbidden	The user does not have Manage Content Packs permission.

Response entity body:

- **on success:** : Returns a Boolean value with that indicates whether the last content deployment was removed or not. False indicates that the last content pack was already removed in the past. Removing more than once in a row is not legal.

Create Deployments

Request: POST/deployments

Description: Create a deployment process object and return the id to the client. You can also use this process for [deleting content packs](#).

Response status codes:

Code	Meaning	Returned When
201	Created	Deployment progress object is created.
403	Forbidden	The user does not have Manage Content Packs permission.

JSON response example:

```
{  
  "deploymentProcessId":123  
}
```

Run a Specific Deployment Process / Delete Process

Request: PUT/deployments/{deploymentProcessId}

Description: Run the specific deployment process. Make sure that no other process is running.

Request path variables:

Attribute	Type	Description	Is required?	Default value
deploymentProcessId	String	The requested deployment process id. The id is returned when creating a new deployment process.	Yes	
force	Boolean	Deploy/delete even when there are warnings (for example, scheduled runs for a flow being deleted).	No	false

Examples:

PUT/deployments/12345?force=true

PUT/deployments/12345

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content packs were added to the deployment process.
403	Forbidden	The user who executed this command does not have permission to manage content packs.
404	Not Found	The requested deployment process is not found.
409	Conflict	Another deployment is in process.
500	Bad Request	<p>The deployment process status is not PENDING or there are no content packs for deployment and no content packs for deleting, or there are both content packs for deployment and content packs for delete.</p> <p>In addition:</p> <ul style="list-style-type: none"> • When this process is already running or finished. • There are no content pack files for deleting. • Both content pack files for deployment and content files for deleting exist together.

Get the Deployment Process Object

Request: GET/deployments/{deploymentProcessId}

Description: Get the deployment process object. This can also be used for [deleting a content pack](#).

Response status codes:

Code	Meaning	Returned When
200	OK	The specific deployment process was found.
403	Forbidden	The user does not have Read Content Packs or Manage Content Packs permission.
404	Not Found	The deployment process object with the specific id does not exist.

There are two kinds of responses:

- status:RUNNING – with data about the progress.
- status:FINISHED – with data about the result.
- status:PENDING – when the deployment was created and files are being uploaded, and before it has started running.

```
{
  "deploymentProcessId": 137100008,
  "status": "PENDING",
  "currentStep": "Downloading files ",
  "currentStepIndex": 0,
  "numOfSteps": 11,
  "numOfSubSteps": 0,
  "currentSubStep": 0,
  "deploymentResultV0": null
}
```

If your deployment process is still running , the JSON response appears as follows:

```
{
  "deploymentProcessId": 137100005,
  "status": "RUNNING",
  "currentStep": "Deploying artifacts",
  "currentStepIndex": 12,
  "numOfSteps": 16,
  "numOfSubSteps": 470,
  "currentSubStep": 409,
  "deploymentResultV0": null
}
```

If your deployment process has finished or failed, the JSON appears as follows:

```
{
  "deploymentProcessId": 137100005,
  "status": "FINISHED",
  "currentStep": "Committing data",
  "currentStepIndex": 16,
  "numOfSteps": 16,
  "numOfSubSteps": 1,
  "currentSubStep": 0,
  "deploymentResultVO": {
    "aggregatedSeverity": "Info",
    "contentPackResponses": {
      "fv11n-test-content-pack-10.10.182.jar": {
        "contentPackName": "fv11n-test-content-pack-10.10.182.jar",
        "message": "fv11n-test-content-pack-10.10.182.jar (author: , date: )",
        "responses": [{
          "contentPackName": "fv11n-test-content-pack-10.10.182.jar",
          "responseCategory": "Success",
          "level": "Info",
          "message": "Successfully deployed fv11n-test-content-pack-10.10.182.jar"
        }]
      }
    }
  }
}
```

Delete Content Pack from Deployment Process

Request: DELETE/deployments/{deploymentProcessId}/files/{fileId}

Description: Delete a specific content pack from a deployment process.

Response status codes:

Code	Meaning	Returned When
204	No Content	The specific file was deleted from deployment process.
403	Forbidden	The user does not have Manage Content Packs permission.
404	Not Found	The deployment process object with the specific id does not exist.

Deleting Content Packs

To delete a content pack(s), you need to perform the following:

1. [Create Deployments](#), returns the deploymentProcessId

Example: POST/deployments

JSON response example:

```
{  
  "deploymentProcessId":12345  
}
```

2. Enter the id of the content pack file that you want to delete, to the given deploymentProcessId. See [Adding Content Pack Files for Deleting](#).

Example: POST/ deployments/12345/cpsForDelete

3. [Run a Specific Deployment Process](#) to the given deploymentProcessId.

Example: PUT/deployments/12345

4. The next step is to request [Get the Deployment Process Object](#).

Adding Content Pack Files for Deleting

Request: POST/deployments/{deploymentProcessId }/cpsForDelete

Description: Add content pack files to the deployment process that you want deleted during the process.

Request path variables:

Attribute	Type	Description	Is required?	Default value
deploymentProcessId	String	The requested deployment process id. The id is returned when creating a new deployment process.	Yes	

Example:

POST/deployments/12345/cpsForDelete

Request entity body:

A string array which contains all of the ids of content packs that should be deleted. To acquire the content pack ID see [Get Content Packs](#).

Example:

```
["39d15573-aad6-44b3-a571-39c98c9bd508","a2c87d2a-2192-4087-8387-763d38246d26"]
```

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content packs were added to the deployment process.
403	Forbidden	The user who executed this command does not have permission to manage content packs.
404	Not Found	The requested deployment process is not found.
500	Bad Request	The requested content pack is not deployed or the deployment process status is not PENDING.

Content Packs

A content pack is a collection of flows, operations, configuration items (selection lists, system accounts, group aliases, and so on), as well as the binaries required to run actions. A content pack can be created in Studio by an author, or it can be provided by HP or a third party

The following table list the meta data for a content pack.

Attribute	Type	Description	Comments
id	String	The id of the content pack.	
name	String	The name of the content pack.	
version	String	The version of the content pack.	
publisher	String	The name of the publisher that created the content pack.	Can be null.
description	String	The description of the content pack.	Can be null.
deploymentDate	Long	Time-stamp in milliseconds when the deployment of the content pack started.	Can be null

Get Content Packs

Request: GET/content-packs

Description: Retrieves a list of all the deployed content packs and with the related details.

Request parameters:

Attribute	Type	Description	Is required?	Default value
active	Boolean	Whether to return only active content packs (that contain at least one deployed entity) or all content packs.	No	true
deployedBy	String	The user that deployed the content pack		

Example:

```
GET /content-packs  
GET /content-packs?active=false
```

Response entity body:

An array which contains all of the content packs which are deployed in the central.

Each element in the array represents a content pack. See the [content pack meta-data table](#).

The returned array is ordered by descending deployment times, in other words, the content pack that was deployed last will be first.

Example:

```
[
  {
    "id": "b137e165-f4f7-4201-b262-2265c8085d27",
    "name": "my-cp",
    "version": "1.0.0",
    "publisher": "John Smith",
    "description": "My first OO CP",
    "deploymentDate": 1387218013103,
    "deployedBy": "myUser"
  },
  {
    "id": "b32b3a3d-0d7a-4780-85a1-5438987803ef",
    "name": "Base",
    "version": "1.0.142",
    "publisher": "John Smith",
    "description": "HP OO Base Content Pack",
    "deploymentDate": 1371106274153,
    "deployedBy": "myUser"
  },
  {
    "id": "aa600104-239c-4570-9d67-50c346e312d3",
    "name": "Cloud",
    "version": "1.0.133",
    "publisher": "John Smith",
    "description": "HP OO Cloud Content Pack",
    "deploymentDate": 1371106274153,
    "deployedBy": "myUser"
  }
]
```

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content pack was returned.
403	Forbidden	The user who executed this command does not have permission to view content packs.

Get Single Content Pack Details

Request: GET/content-packs/{id}

Description: Retrieves details of the specified deployed content pack.

Request path variables:

Attribute	Type	Description	Is required?	Default value
id	String	The requested content pack's id. The id may be acquired by retrieving the list of all content packs and extracting the id of element of the required content pack by its name.	Yes	

Example:

GET /content-packs/b137e165-f4f7-4201-b262-2265c8085d27

Response entity body:

A content pack element which represent the details of requested Content Pack. See the [content pack meta-data table](#).

Example

```
{  
  "id": "b137e165-f4f7-4201-b262-2265c8085d27",  
  "name": "my-cp",  
  "version": "2.0.0",  
  "publisher": "John Smith",  
  "description": "My first OO CP - New major version",  
  "deploymentDate": 1387341256715,  
  "deployedBy": "myUser"  
}
```

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content pack was returned.
403	Forbidden	The user who executed this command does not have permission to view content packs.
404	Not Found	The requested content pack wasn't found.

Get Content Pack Contents Tree

Request: GET/content-packs/{id}/content-tree

Description: Returns a flat list that of the contents of the content pack in tree-nodes format.

Request path variables:

Attribute	Type	Description	Is required?	Default value
id	String	The requested content pack's id. The id may be acquired by retrieving the list of all content packs and extracting the id of element of the required content pack by its name.	Yes	

Example:

GET/content-packs/b137e165-f4f7-4201-b262-2265c8085d27/content-tree

Response entity body:

An array of elements which represents one or two trees that contain all of the entities contained in the content pack.

Each element in the array represents a tree node which is either a folder (which isn't a leaf and has children) or a content element (which is a leaf and doesn't not have children).

The returned array is ordered in the following way: first the tree whose root is the "Library" folder, then the tree whose root is the "Configuration" folder. Each tree is ordered alphabetically by the path attribute.

Attribute	Type	Description	Comments
id	String	The id of node.	For a non-leaf (folder) node, the id is the same as the path. For a leaf node (deployed entity), the id is the entity's id.
name	String	The name of the node.	Folder name or deployed entity name.
parentId	String	The id of the parent node.	Null if this is a root node.
leaf	Boolean	Whether the node is a leaf or not.	

Attribute	Type	Description	Comments
path	String	The path of the node.	
type	Predefined Value	The type of node. Possible values: FOLDER, FLOW, OPERATION, CATEGORY, DOMAIN_TERM, GROUP_ALIAS, ROLE_ALIAS, SCRIPTLET, SELECTION_LIST, SYSTEM_ACCOUNT, SYSTEM_EVALUATOR, SYSTEM_FILTER, SYSTEM_PROPERTY	

Example

```
[
  {
    "id": "Library",
    "name": "Library",
    "parentId": null,
    "leaf": false,
    "path": "Library",
    "type": "FOLDER"
  },
  {
    "id": "Library/MyFlows",
    "name": "MyFlows",
    "parentId": "Library",
    "leaf": false,
    "path": "Library/MyFlows",
    "type": "FOLDER"
  },
  {
    "id": "a3e6572a-8268-4124-9ccb-b3d7e46e5051",
    "name": "my-flow1",
    "parentId": "Library/MyFlows",
    "leaf": true,
    "path": "Library/MyFlows/my-flow1.xml",
    "type": "FLOW"
  },
  {
    "id": "ddee425f-f259-4012-b799-51e0fa40151a",
    "name": "my-flow2",
    "parentId": "Library/MyFlows",
    "leaf": true,
    "path": "Library/MyFlows/my-flow2.xml",
    "type": "FLOW"
  },
  {

```

```
"id": "Library/MyOperations",
"name": "MyOperations",
"parentId": "Library",
"leaf": false,
"path": "Library/MyOperations",
"type": "FOLDER"
},
{
  "id": "17c8bb11-bbd8-4b1b-bfaa-5c3f1ef90051",
  "name": "operation1",
  "parentId": "Library/MyOperations",
  "leaf": true,
  "path": "Library/MyOperations/my-operation.xml",
  "type": "OPERATION"
},
{
  "id": "Configuration",
  "name": "Configuration",
  "parentId": null,
  "leaf": false,
  "path": "Configuration",
  "type": "FOLDER"
},
{
  "id": "Configuration/Categories",
  "name": "Categories",
  "parentId": "Configuration",
  "leaf": false,
  "path": "Configuration/Categories",
  "type": "FOLDER"
},
{
  "id": "6a3a17c4-2c84-46c9-bef6-e043433878d6",
  "name": "my-category",
  "parentId": "Configuration/Categories",
  "leaf": true,
  "path": "Configuration/Categories/my-category.xml",
  "type": "CATEGORY"
},
{
  "id": "Configuration/Domain Terms",
  "name": "Domain Terms",
  "parentId": "Configuration",
  "leaf": false,
  "path": "Configuration/Domain Terms",
  "type": "FOLDER"
},
{
  "id": "2bc8c8e3-b742-43e5-8038-7c060dc8df77",
```

```
"name": "my-domain-term",  
"parentId": "Configuration/Domain Terms",  
"leaf": true,  
"path": "Configuration/Domain Terms/my-domain-term.xml",  
"type": "DOMAIN_TERM"  
}  
]
```

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content pack's contents were returned.
403	Forbidden	The user who executed this command does not have permission to view content packs.
404	Not Found	The requested content pack was not found.

Get Content Pack Changes

Request: GET/content-packs/{id}/changes

Description: Retrieves all deployed entities changes from the last deployment of this content pack.

Request path variables:

Attribute	Type	Description	Is required?	Default value
id	String	The requested content pack's id. The id may be acquired by retrieving the list of all content packs and extracting the id of element of the required content pack by its name.	Yes	

Example:

GET / content-packs/b32b3a3d-0d7a-4780-85a1-5438987803ef/changes

Response entity body:

An array which contains all of the deployed entities changes from the last deployment of this content pack.

Each element in the array represents a change to a deployed entity.

The returned array is not ordered .

Attribute	Type	Description	Comments
id	String	The id of the deployed entity.	
changeType	Predefined Value	The type of change that occurred. Possible values: ADD: The deployed entity was added. DEL: The deployed entity was deleted. MOD: The deployed entity was modified (name changed, moved, xml changed, value changed)	
oldCpName	String	The name of the content pack that the entity belonged to before the last deployment.	Null if the content pack name hasn't changed.

Attribute	Type	Description	Comments
oldPath	String	The path of the entity in the old content pack.	Null if the path has not changed.
currentPath	String	The current path of the entity.	
entityType	Predefined Value	The type of entity that changed. Possible values: FLOW, OPERATION, CATEGORY, DOMAIN_TERM, GROUP_ALIAS, ROLE_ALIAS, SCRIPTLET, SELECTION_LIST, SYSTEM_ACCOUNT, SYSTEM_EVALUATOR, SYSTEM_FILTER, SYSTEM_PROPERTY	
xmlChanged	Boolean	Whether the entity's xml was changed or not.	

Example

```
[
{
  "id": "c8100970-8044-4d70-abbe-72f1a4ace903",
  "changeType": "ADD",
  "oldCpName": null,
  "oldPath": null,
  "currentPath": "Library/cp-filters/Set of filters/ops/op - set of filters TC3 validation.xml",
  "entityType": "OPERATION",
  "xmlChanged": false},
{
  "id": "e3aac28a-b430-47e9-b285-342fa7e2310f",
  "changeType": "DEL",
  "oldCpName": null,
  "oldPath": "Library/my-flows/delete-this-flow.xml",
  "currentPath": null,
  "entityType": "FLOW",
  "xmlChanged": false
},
{
  "id": "1465b8aa-1ce6-4b2a-a3d3-d6214bd7b025",
  "changeType": "MOD",
  "oldCpName": "old-cp",
  "oldPath": "Library/my-flows/subflows.xml",
  "currentPath": "Library/events/Flow with subflows.xml",
  "entityType": "FLOW",
  "xmlChanged": false
}
```

```
}  
]
```

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content pack's changes were returned.
403	Forbidden	The user who executed this command does not have permission to view content packs.
404	Not Found	The requested content pack was not found.

Content Configurations

These APIs enable you to manage content configurations, such as create, delete, and update the content configuration.

Get All Content Configurations

Request: GET/content-config

Description: Retrieves all the content configurations.

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content configurations were found.
403	Forbidden	The user who executed this command does not have permission to view content configuration.

Response entity body:

- Returns a JSON object with the following format:

```
{
  "id": 140500001,
  "key": "sa",
  "type": "SYSTEM_ACCOUNT",
  "defaultValue": null,
  "customValue": "{\"username\":\"sa\", \"password\":\"{ENCRYPTED}Pjq0xr6BGXA5y
cpSryuA7g==\"}",
  "value": "{\"username\":\"sa\", \"password\":\"{ENCRYPTED}Pjq0xr6BGXA5y
cpSryuA7g==\"}"
},
{
  "id": 140500001,
  "key": "sa",
  "type": "SYSTEM_ACCOUNT",
  "defaultValue": null,
  "customValue": "{\"username\":\"sa\", \"password\":\"{ENCRYPTED}Pjq0xr6BGXA5y
cpSryuA7g==\"}",
  "value": "{\"username\":\"sa\", \"password\":\"{ENCRYPTED}Pjq0xr6BGXA5y
cpSryuA7g==\"}"
},
{
  "id": 111500054,
  "key": "scp copy Action",
  "type": "SELECTION_LIST",
```



```
        "defaultValue": "To|From",  
        "customValue": null,  
        "value": "To|From"  
    },  
    {  
        "id": 111500015,  
        "key": "Severity",  
        "type": "DOMAIN_TERM",  
        "defaultValue": "Information|Warning|Error|Critical",  
        "customValue": null,  
        "value": "Information|Warning|Error|Critical"  
    }  
}
```

Get Content Configuration

Request: GET/content-config/{name:.+}

Description: Retrieves the content configuration identified by the specified key name.

Request path variables:

Attribute	Description	Required
key	The name which identifies the requested content configuration.	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	The requested content configuration was found.
403	Forbidden	The user who executed this command does not have permission to view content configuration.
404	Not Found	The requested content configuration was not found.

Response entity body:

- Returns a JSON object with the following format:

```
[{  
  "id":123,  
  "key":"my.key1",  
  "type":"SYSTEM_PROPERTY",  
  "value":"value1"  
}]
```

Update Content Configuration

Request: PUT/content-config/{name:.+}?type={type}

Description: Updates the content configuration identified by the specified key name and type.

Request path variables:

Attribute	Description	Required
name	The name which identifies the content configuration to update.	Yes

Request entity body: The body of this request represents the new value of the content configuration. Write just the value, without wrapping it in JSON.

Request path parameters:

Parameter	Description	Required
type	The type of the content configuration. Valid values: SELECTION_LIST, SYSTEM_PROPERTY, DOMAIN_TERM, SYSTEM_ACCOUNT	Yes

Response status codes:

Code	Meaning	Returned When
204	Returned	NO_CONTENT
400	Bad Request	The content configuration was not found.
403	Forbidden	The user who executed this command does not have permission to manage content configuration

Create Content Configuration

Request: POST/content-config

Description: Creates a content configuration according to the specified key, type and value.

Request entity body: The body of this request needs to include a JSON object with the following format:

```
{  
  "value": "value1",  
  "key": "mykey1",  
  "type": "SYSTEM_PROPERTY"  
}
```

Request path parameters:

Parameter	Description	Required
key	The name which identifies the content configuration.	Yes
type	The type of the content configuration. Valid values: SELECTION_LIST, SYSTEM_PROPERTY, DOMAIN_TERM, SYSTEM_ACCOUNTS	Yes
value	The value of the content configuration. If the type is set to system account, then include in the value both the name and password.	No

Response status codes:

Code	Meaning	Returned When
201	Created	A content configuration was created successfully.
409	Conflict	A content configuration with the specified key already exists.
400	Bad Request	The request body was null.
403	Forbidden	The user who executed this command does not have permission to manage content configuration.

Response entity body:

- Returns a JSON object of the created content configuration with the following format:

```
{  
  "id": 140500006,  
  "key": "mykey1",  
  "type": "SYSTEM_PROPERTY",  
  "defaultValue": null,  
  "customValue": "value1",  
}
```

```
"value": "value3"  
}
```

Delete Content Configuration

Request: DELETE/content-config/{name:.+}?type={type}

Description: Deletes a content configuration according to the specified key and type.

Request path variables:

Attribute	Description	Required
name	The identifier of the content configuration to delete.	Yes

Request path parameters:

Parameter	Description	Required
type	The type of the content configuration. Valid values: SELECTION_LIST, SYSTEM_PROPERTY, DOMAIN_TERM, SYSTEM_ACCOUNT	Yes

Response status codes:

Code	Meaning	Returned When
204	Returned	NO_CONTENT
403	Forbidden	The user who executed this command does not have permission to manage content configuration.
404	Not Found	A content configuration with the requested name and type was not found.

Group Aliases

In addition to Workers groups, there is a further flexibility option to separate the authoring time definition of the group from the runtime definition. In previous versions, the author of a flow was exposed to the runtime topology when a Worker was defined for a specific step in the flow. In this situation, the hostname of the runtime Worker could not change without changing it in all the flows that used it, or it had to be overridden at runtime. See the Concepts Guide for more information.

Create a Workers Group Alias

Request: POST/group-aliases

Description: Create a Group Alias for an existing Workers Group.

Request entity body:

The body of this request must include a JSON object with the following format:

```
{  
  "name": "alias name",  
  "groupName": "associated RASes Group name"  
}
```

Where "name" is the new Group Alias name and "groupName" is the name of the associated Workers Group.

Response status codes:

Code	Meaning	Returned When
201	Created	A new Group Alias was created successfully.
400	Bad Request	The name attribute is missing.
403	Forbidden	The user doesn't have Manage Configuration Items permission.
409	Conflict	A Group Alias with the given name was already exist.

Response entity body:

- **on success:** Returns a JSON object of the created group alias with the following format:

```
{  
  "name": "alias name",  
  "groupName": "associated RASes Group name"  
}
```

Get All Groups Aliases

Request: GET/group-aliases

Description: Return a list of Group Aliases according to the given start page, page size, and sort direction ordered by name.

Response status codes:

Code	Meaning	Returned When
200	OK	
403	Forbidden	The user doesn't have View Configuration Items or Manage Configuration Items permission.

Response entity body:

- **on success:** Returns a JSON array of the Group Aliases with the following format:

```
[
  {
    "name": "alias1 name",
    "groupName": "associated group name"
  },
  {
    "name": "alias 2 name",
    "groupName": "associated group2 name"
  }
]
```

Where "name" is the Group Alias name and "groupName" is the name of the associated Workers Group.

Get Group Alias by Name

Request: GET/group-aliases/{name}

Description: Get the group alias with the given name.

Request path variables:

Attribute	Description	Required
name	The name of the Group Alias	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	
403	Forbidden	The user doesn't have View Configuration Items or Manage Configuration Items permission.
404	Not Found	The requested group alias is found

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{  
  "name": "alias1 name",  
  "groupName": "associated group name"  
}
```

Delete Group Aliases

Request: DELETE/group-aliases/{names}

Description: Delete aliases according to the given alias name, return number of deleted aliases.

Request path variables:

Attribute	Description	Required
names	A comma-delimited list of names of Group Aliases to be deleted.	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	
403	Forbidden	The user doesn't have Manage Configuration Items permission.

Response entity body:

- **on success:** Returns the number of Group Aliases which were successfully deleted.

Update a Group Alias

Request: PUT/group-aliases/{name}

Description: Update an alias according to the given groupAlias and alias name.

Request path variables:

Attribute	Description	Required
name	The name of the Group Alias to be updated	Yes

Request entity body:

The body of this request must include a JSON object with the following format:

```
{  
  "name": "new alias name",  
  "groupName": "associated RASes Group name"  
}
```

Response status codes:

Code	Meaning	Returned When
200	OK	
400	Bad Request	The name is missing or the name is empty.
403	Forbidden	The user doesn't have Manage Configuration Items permission.
404	Not Found	The requested Group Alias or Workers Group not found.
409	Conflict	A Group Alias with the specified name already exists.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{  
  "name": "alias1 name",  
  "groupName": "associated group name"  
}
```

Workers

Many deployments can benefit from having more than a single Worker in a specific environment. For example, this could be helpful if you are managing a remote data center in which you need Workers to be able to withstand the action execution load, or simply for high availability of the Workers in that data center. In previous versions, a load balancer would have been required to balance the load between two Workers, which Central would know as a single logical Worker. See the Concepts Guide for more information.

Update a Specific Worker

Request: PUT/workers/{workerId}

Description: Update an existing worker.

Request path variables:

Attribute	Description	Required
workerId	The ID of the worker to be updated.	Yes

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for the worker

```
{
  "groups": [
    "worker_operator_path"
  ],
  "active": false
}
```

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Updated the default role successfully.
403	Forbidden	The user doesn't have Manage Topology permission.
404	Not found	

Get All Workers

Request: GET/workers

Description: Retrieves all the workers.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested workers were found.
403	Forbidden	The user doesn't have View Topology or Manage Topology permission.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
[
  {
    "uuid": "a97e30da-179e-4f19-af93-453c33338f53",
    "installPath": "c:/jenkins/workspace/carmel-demo-deployment/oo/central",
    "os": "Windows Server 2008",
    "jvm": "1.7.0_13",
    "description": "a97e30da-179e-4f19-af93-453c33338f53",
    "dotNetVersion": "4.x",
    "hostName": "VMCNCDEV41.devlab.ad",
    "groups": [
      "worker_Operator_Path"
    ],
    "active": true
  },
  {
    "uuid": "4440c50e-79d1-45d2-a8dc-94bc42eb9b1f",
    "installPath": "c:\\jenkins\\workspace\\carmel-demo-deployment\\oo\\worke
r",
    "os": "Windows Server 2008",
    "jvm": "1.7.0_13",
    "description": "4440c50e-79d1-45d2-a8dc-94bc42eb9b1f",
    "dotNetVersion": "4.x",
    "hostName": "VMCNCDEV41.devlab.ad",
    "groups": [
      "Worker_Operator_Path"
    ],
    "active": false
  }
]
```

Get All Workers Groups

Request: GET/workers-groups

Description: Return a list of Workers groups.

Response status code:

Code	Meaning	Returned When
200	OK	
403	Forbidden	The user doesn't haveView Topology or Manage Topology permission.

Response entity body:

- **on success:** Returns a JSON array of the Workers Groups with the following format:

```
[  
  "RAS_Group_1",  
  "RAS_Group_2",  
  "RAS_Group_3"  
]
```

Assign Workers to a Workers Group

Request: PUT/workers-groups/{name}/workers/{workersUuids}

Description: Assign Workers to a group.

Request path variables:

Attribute	Description	Required
name	The name of the Workers group to add	Yes
WorkersUuids	The workersUuids of the Worker(s) to be added to the group	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	
400	Bad Request	
403	Forbidden	The user doesn't have Manage Topology permission.
404	Not Found	The requested worker is not found.

Remove Workers from a Workers Group

Request: DELETE/workers-groups/{name}/workers/{workersUuids}

Description: Remove Workers from a Workers Group.

Request path variables:

Attribute	Description	Required
name	The name of the Workers Group to remove from	Yes
workersUuids	The uuid of the Worker(s) to remove from the group	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	
400	Bad Request	
403	Forbidden	The user does not have Manage Topology permission.
404	Not Found	The requested worker is not found.

Delete a Worker

Request: DELETE/workers/{workersUuid}

Description: Delete workers.

Request path variables:

Attribute	Type	Description	Required
workersUuid	List of workers uuids	Delete workers	Yes

Response status codes:

Code	Meaning	Returned When
204	OK	No content, workers deleted successfully.
400	Bad Request	When you try to delete a worker that is still running.
403	Forbidden	The user doesn't have Manage Topology permission.
404	Not Found	The requested worker is not found.

LDAP Configuration

The LDAP API allows you to configure your organization's LDAP.

This enables users to log in with their organizational credentials and for the administrator to map LDAP groups to OO Roles.

The LDAP API includes a test API to verify configurations are going to be set correctly before saving them.

Note: It is recommended to set LDAP configurations when you want to authenticate users and not rely on the internal users feature, which are less secure.

Although with the LDAP API the configurations are set, you should enable the system authentication for them to take place.

In the case both the LDAP configurations and internal users were set, the LDAP settings override the internal user settings, if there is a collision between user IDs.

API supported with multiple LDAPs

If your organization works with multiple LDAP servers, it is now possible to configure Central to work with all of them. This includes LDAPs with different schemes and from different vendors. For example, you might have an Active Directory (Microsoft LDAP) implementation for one part of the organization and a Sun One (Oracle LDAP) implementation for another part.

Get LDAP Configuration by ID

Request: GET/authns/ldap-config/{id}

Description: Retrieves an LDAP configuration according to the specified ID.

Response entity body:

Attribute	Type	Description
id	String	The ID for the returned LDAP.
type	Predefined Value	The type of the LDAP. See the LDAP Appendix for more information.
domain	String	The domain of the LDAP.
addresses	An array of Address	The address of the LDAP and other addresses for the case of failover.
securedChannel	boolean	True if a secured channel is used (SSL).
enabled	boolean	Whether the returned LDAP is operational.

Attribute	Type	Description
privilegedUser	String	The DN of a user with search capabilities on the provided User & Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name will be returned (and not a DN).
privilegedUserPassword	String	Indicates whether a password for the privileged user was provided. "*****" appears when a password was set.
groupsDns	String[]	The DNs on which to apply the groups filter for search.
groupsSearchRecursive	boolean	Whether groups search should be recursive.
groupsFilter	String	A search filter to apply on the groups DNs.
usersDns	String[]	The DNs on which to apply the users filter for search.
usersSearchRecursive	boolean	Whether users search should be recursive.
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.
userEmailAttribute	String	The attribute of the user which contains the mail address.
groupMembershipAttribute	String	In ACTIVE_DIRECTORY type, this represents the attribute of the user which contains the groups. In any other type, it is null.
groupNameAttribute	String	The attribute of the group which contains the group's name used for mapping Roles to Groups.
usersFilter	String	A search filter to apply on the users DNs.
customGroupsAttributesNames	String	Attribute names that will be used as groups. Separated by semicolon.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	LDAP was retrieved successful.

Code	Meaning	Returned When
403	Forbidden	User does not have view/manage security configurations permissions.
404	Not found	The requested LDAP does not exist.

Example

```
{
  "id": "72cdc1a7-1005-4800-a412-5e4a9b8f6bec",
  "type": "OPEN_DJ",
  "domain": "Indigo",
  "addresses": [
    {"port": 389, "host": "mysite.com"},
    {"port": 389, "host": "mysite.com"},
    {"port": 3021, "host": "mysite.com"}
  ],
  "securedChannel": false,
  "enabled": true,
  "privilegedUser": "uid=user,ou=people,dc=hp,dc=com",
  "privilegedUserPassword": "*****",
  "groupsDns": [
    "ou=products,dc=hp,dc=com"
  ],
  "groupsSearchRecursive": true,
  "groupsFilter": "(uniqueMember={})",
  "groupNameAttribute": "cn",
  "usersFilter": "(&(objectclass=person)(uid={}))",
  "usersDns": [
    "ou=people,dc=hp,dc=com"
  ],
  "usersSearchRecursive": true,
  "userCommonNameAttribute": "cn",
  "userEmailAttribute": "mail",
  "groupMembershipAttribute": null,
  "customGroupsAttributesNames": null
}
```

Create a New LDAP Configuration

Request: POST/authns/ldap-config

Description: Creates an LDAP configuration.

Request body:

Attribute	Type	Description	Required?	Default value
type	Predefined Value	The type of LDAP. See the LDAP Appendix for more information.	No	OTHER
domain	String	The domain of the LDAP. For Active Directory this must be a real domain that can be bound on. In all other cases any name is suitable.	Yes	
addresses	An array of Address	The address of the LDAP and other addresses for the case of fail-over.	Yes	See the LDAP Appendix for more information.
securedChannel	boolean	True if a secured channel should be used (SSL).	No	False
enabled	boolean	Whether the provided LDAP should be operational.	No	False

Attribute	Type	Description	Required?	Default value
privilegedUser	String	The DN of a user with search capabilities on the provided User and Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name should be provided (and not a DN). If the LDAP allows anonymous search, this field is not required.	No	None
privilegedUserPassword	String	The password of the privileged user.	No	None
groupsDns	String[]	The DNs on which to apply the groups filter for search.	Required for types other than ACTIVE_DIRECTORY and ALTERNATIVE_GROUP	
groupsSearchRecursive	boolean	Whether groups search should be recursive	No	False

Attribute	Type	Description	Required?	Default value
groupsFilter	String	A search filter to apply on the groups DNs.	Required for types other than ACTIVE_DIRECTORY and ALTERNATIVE_GROUP	
usersDns	String[]	The DNs on which to apply the users filter for search.	Yes	
usersSearchRecursive	boolean	Whether users search should be recursive	No	False
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.	Yes	
userEmailAttribute	String	The attribute of the user which contains the mail address	No	None
groupMembershipAttribute	String	In ACTIVE_DIRECTORY type, this represents the attribute of the user which contains the groups. In any other type, it is null.	Required only for ACTIVE_DIRECTORY type.	Mandatory for ACTIVE_DIRECTORY

Attribute	Type	Description	Required?	Default value
groupNameAttribute	String	The attribute of the group which contains the group's name used for mapping Roles to Groups.	Required for all types other than ALTERNATE_GROUP.	
usersFilter	String	A search filter to apply on the users DNs.	Yes	
customGroupsAttributesNames	String	Attribute names that will be used as groups. Separated by semicolon.	Required only for ALTERNATE_GROUP type	

Example:

```
{
  "type": "OPEN_DJ",
  "domain": "MyDomain",
  "addresses": [{"host": "mysite.com", "port": 389}]
  "securedChannel": false,
  "enabled": true,
  "privilegedUser": "uid=user,ou=people,dc=hp,dc=com",
  "privilegedUserPassword": "1234",
  "groupsDns": [
    "ou=products,dc=hp,dc=com"
  ],
  "groupsSearchRecursive": true,
  "groupsFilter": "(uniqueMember={0})",
  "groupNameAttribute": "cn",
  "usersFilter": "(&(objectclass=person)(uid={0}))",
  "usersDns": ["ou=people,dc=hp,dc=com"],
  "usersSearchRecursive": true,
  "userCommonNameAttribute": "cn",
}
```

Response entity body:

- `LdapConfig` for successful request. See the response entity table in [Get LDAP Configurations](#).
- `RestError` for unsuccessful response. See the [RestError table](#) in the Appendix.

Response status codes:

Code	Meaning	Returned When
201	Successful (Created)	LDAP was successfully created
400	Bad Request	Client didn't provide the mandatory field or provided some fields with wrong format.
403	Forbidden	User does not have manage security configuration permissions.
409	Conflict	The provided domain already exists.

Get All LDAP Configurations

Request: GET/authns/ldap-config

Description: Retrieves all the configured LDAPs.

Response entity body:

An array of LDAP configurations. An empty array if non exists.

Attribute	Type	Description
id	String	The ID for the returned LDAP.
type	Predefined Value	The type of the LDAP. See the LDAP Appendix for more information.
domain	String	The domain of the LDAP.
addresses	An array of Address	The address of the LDAP and other addresses for the case of failover.
securedChannel	boolean	True if a secured channel is used (SSL).
enabled	boolean	Whether the returned LDAP is operational.
privilegedUser	String	The DN of a user with search capabilities on the provided User & Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name will be returned (and not a DN).
privilegedUserPassword	String	Indicates whether a password for the privileged user was provided. "*****" is displayed when a password is set.
groupsDns	String[]	The DNs on which to apply the groups filter for search.
groupsSearchRecursive	boolean	Whether groups search should be recursive.
groupsFilter	String	A search filter to apply on the groups DNs.
usersDns	String[]	The DNs on which to apply the users filter for search.
usersSearchRecursive	boolean	Whether users search should be recursive.
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.

Attribute	Type	Description
userEmailAttribute	String	The attribute of the user which contains the mail address.
groupMembershipAttribute	String	In ACTIVE_DIRECTORY type, this represents the attribute of the user which contains the groups. In any other type, it is null.
usersFilter	String	A search filter to apply on the users DNs.
groupNameAttribute	String	The attribute of the group which contains the group's name used for mapping Roles to Groups.
customGroupsAttributesNames	String	Attribute names that will be used as groups. Separated by semicolon.

Response status codes:

Code	Meaning	Returned When
200	OK	LDAPs were retrieved successfully.
403	Forbidden	User does not have view/manage security configurations permissions.

Get Default LDAP

Request: GET/authns/ldap-config/default

Description: Retrieve the default LDAP.

Response entity body:

Attribute	Type	Description
id	String	The ID for the returned LDAP.
type	Predefined Value	The type of the LDAP. See the LDAP Appendix for more information.
domain	String	The domain of the LDAP.
addresses	An array of Address	The address of the LDAP and other addresses for the case of failover.
securedChannel	boolean	True if a secured channel is used (SSL).
enabled	boolean	Whether the returned LDAP is operational.
privilegedUser	String	The DN of a user with search capabilities on the provided User & Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name will be returned (and not a DN).
privilegedUserPassword	String	Indicates whether a password for the privileged user was provided. "*****" is displayed when a password is set.
groupsDns	String[]	The DNs on which to apply the groups filter for search.
groupsSearchRecursive	boolean	Whether groups search should be recursive.
groupsFilter	String	A search filter to apply on the groups DNs.
usersDns	String[]	The DNs on which to apply the users filter for search.
usersSearchRecursive	boolean	Whether users search should be recursive.
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.
userEmailAttribute	String	The attribute of the user which contains the mail address.

Attribute	Type	Description
groupMembershipAttribute	String	In ACTIVE_DIRECTORY type, this represents the attribute of the user which contains the groups. In any other type, it is null.
customGroupsAttributesNames	String	Attribute names that will be used as groups. Separated by semicolon.
groupNameAttribute	String	The attribute of the group which contains the group's name used for mapping Roles to Groups.
usersFilter	String	A search filter to apply on the users DNs.

Response status codes:

Code	Meaning	Returned When
200	OK	LDAPs were retrieved successfully.
403	Forbidden	User does not have read/manage security configuration permissions.
404	Not Found	A default LDAP does not exist.

Delete Default LDAP Marking

Request: DELETE/authns/ldap-config/default

Description: Deletes the default LDAP marking.

Note: The LDAP is not deleted.

Response status codes:

Code	Meaning	Returned When
204	No Content	No default LDAP marking exists anymore
403	Forbidden	User does not have manage security configuration permissions.

Create or Update a Default LDAP Marking

Request: PUT/authns/ldap-config/default or POST/authns/ldap-config/default

Description: Creates or updates default LDAP marking.

Request body:

Attribute	Type	Description	Required?	Default value
id	String	The ID that represents the LDAP to be marked as default	Yes	

Example:

```
{
  "id": "72cdc1a7-1005-4800-a412-5e4a9b8f6bec"
}
```

Response entity body:

Attribute	Type	Description
id	String	The ID for the returned LDAP.
type	Predefined Value	The type of the LDAP. See the LDAP Appendix for more information.
domain	String	The domain of the LDAP.
addresses	An array of Address	The address of the LDAP and other addresses for the case of failover.
securedChannel	boolean	True if a secured channel is used (SSL).
enabled	boolean	Whether the returned LDAP is operational.
privilegedUser	String	The DN of a user with search capabilities on the provided User & Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name will be returned (and not a DN).
privilegedUserPassword	String	Indicates whether a password for the privileged user was provided. Is displayed "*****" when a password is set.
groupsDns	String[]	The DNs on which to apply the groups filter for search.

Attribute	Type	Description
groupsSearchRecursive	boolean	Whether groups search should be recursive.
groupsFilter	String	A search filter to apply on the groups DNs.
usersDns	String[]	The DNs on which to apply the users filter for search.
usersSearchRecursive	boolean	Whether users search should be recursive.
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.
userEmailAttribute	String	The attribute of the user which contains the mail address.
groupMembershipAttribute	String	In ACTIVE_DIRECTORY type, this represents the attribute of the user which contains the groups. In any other type, it is null.
groupNameAttribute	String	The attribute of the group which contains the group's name used for mapping Roles to Groups.
customGroupsAttributesNames	String	Attribute names that will be used as groups. Separated by semicolon.
usersFilter	String	A search filter to apply on the users DNs.

Response status codes:

Code	Meaning	Returned When
200	OK	The default LDAP was set accordingly. There was a default LDAP before.
201	Created	The default LDAP was set accordingly. There was no default LDAP before.
400	Bad Request	The user did provide the mandatory field or provided fields with wrong format.
403	Forbidden	User does not have manage security configuration permissions.
404	No Found	The provided ID does not relate to some existing LDAP

Testing LDAP Configurations

Request: POST/authns/ldap-config/{id}/test

Description: Test an existing LDAP configuration.

Request: POST/authns/ldap-config/test

Description: Test an ad hoc LDAP configuration.

Request body:

Attribute	Type	Description	Required?	Default value
userName	String	The user to test the provided configurations with.	Yes	
userPassword	String	The password of the user. In case the password is not provided, there will be no authentication attempt.	No	None
type	Predefined Value	The type of the LDAP. See the LDAP Appendix for more information.	No	OTHER

Attribute	Type	Description	Required?	Default value
domain	String	The domain of the LDAP. In case of Active Directory this must be a real domain that can be bind on, in all other cases any name would fit.	Yes	
addresses	An array of Address	The address of the LDAP and other addresses for the case of fail-over.	Yes	See the LDAP Appendix for more information.
securedChannel	boolean	True if a secured channel should be used (SSL)	No	False

Attribute	Type	Description	Required?	Default value
privilegedUser	String	The DN of a user with search capabilities on the provided User & Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name should be provided (and not a DN). If the LDAP allows anonymous search, this field is not required.	No	None
privilegedUserPassword	String	The password of the privileged user. If the password of the existing LDAP should be used, displayed with asterisk ("*****"). Note: If you decided to provide the password itself, the /authns/ldap-config/test is more suitable (The ad-hoc API)	No	None

Attribute	Type	Description	Required?	Default value
groupsDns	String[]	The DNs on which to apply the groups filter for search.	Yes	
groupsSearchRecursive	boolean	Whether groups search should be recursive	No	False
groupsFilter	String	A search filter to apply on the groups DNs	Yes	
usersDns	String[]	The DNs on which to apply the users filter for search.	Yes	
usersSearchRecursive	boolean	Whether users search should be recursive	No	False
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.	Yes	
userEmailAttribute	String	The attribute of the user which contains the mail address	No	None

Attribute	Type	Description	Required?	Default value
groupMembershipAttribute	String	In ACTIVE_DIRECTOR Y type, this represents the attribute of the user which contains the groups. In any other type, it is null.	No	Mandatory for ACTIVE_DIRECTOR Y
groupNameAttribute	String	The attribute of the group which contains the group's name used for mapping Roles to Groups.	Required for all types other than ALTERNAT E_GROUP	
usersFilter	String	A search filter to apply on the users DNs.	Yes	
enabled	boolean	Whether the returned LDAP is operational	No	False
customGroupsAttributesNames	String	Attribute names that will be used as groups. Separated by semicolon.	Required only for ALTERNAT E_GROUP type	

Response body:

Attribute	Type	Description	Comments
authenticated	boolean	Whether or not the user was authenticated.	

Attribute	Type	Description	Comments
groupsNames	String[]	An array with the names of the groups the user belongs to.	
userAttributes	Attribute[]	An array with the attributes of the user.	See the LDAP Appendix for more information.

- **RestError for Bad Request** (400 code). See the [RestError table](#) for more information.

Response status codes:

Code	Meaning	Returned When
200	OK	The provided LDAP configurations were legal and a test was performed.
400	Bad Request	The provided configurations were bad or server encountered some error while performing the test.
403	Forbidden	User does not have read/manage security configuration permissions.
404	Not found	The provided LDAP id does not exist.

Get LDAP root Details

Request: POST/authns/ldap-root or PUT/authns/ldap-root

Description: Retrieves LDAP root details.

Request body:

Attribute	Type	Description	Required?	Default value
addresses	Address []	An array of addresses. See the LDAP Appendix for more information.	Yes	
securedChannel	boolean	Whether to establish a secured connection (SSL)	No	False

Example:

```
{
  "addresses": [
    { "host": "mydwbl0006g.isr.hp.com", "port": 389 },
    { "host": "mydwbl0126g.isr.hp.com", "port": 3089 }
  ],
  "securedChannel": false
}
```

Successful response body:

Attribute	Type	Description	Comments
rootDns	String[]	An array of DN's which represents the LDAP roots.	
serverAddress	Address	The address to which OO successfully connected. See the LDAP Appendix for more information.	
vendorName	String	The name of the vendor of this LDAP	Not all LDAPs support this functionality
vendorVersion	String	The version of this LDAP	Not all LDAPs support this functionality

Example:

```
{
  "rootDns": [
    "dc=mercury,dc=com",
    "dc=indigo,dc=com"
  ],
}
```

```
"serverAddress":  
{ "port":389, "host":"mysite.com"},  
"vendorName":"ForgeRock AS.",  
"vendorVersion":"OpenDJ 2.6.0"  
}
```

- **Bad Request** (400 Code) response. See the [RestError table](#) for more information.

Response status codes:

Code	Meaning	Returned When
200	OK	LDAPs were retrieved successfully
400	Bad Request	Client provided illegal/incorrect parameters.

Update an Existing LDAP Configuration

Request: PUT/authns/ldap-config/{ldapId}

Description: Update an existing LDAP configuration

Request body:

Attribute	Type	Description	Required?	Default value
type	Predefined Value	The type of LDAP. See the LDAP Appendix for more information.	Yes	
domain	String	The domain of the LDAP. For Active Directory this must be a real domain that can be bound on. In all other cases any name is suitable.	Yes	
addresses	An array of Address	The address of the LDAP and other addresses for the case of fail-over.	Yes	See the LDAP Appendix for more information
securedChannel	boolean	True if a secured channel should be used (SSL).	No	False
enabled	boolean	Whether the provided LDAP should be operational.	No	False

Attribute	Type	Description	Required?	Default value
privilegedUser	String	The DN of a user with search capabilities on the provided User and Group DNs. In case the LDAP type is ACTIVE_DIRECTORY the exact user name should be provided (and not a DN). If the LDAP allows anonymous search, this field is not required.	No	None
privilegedUserPassword	String	The password of the privileged user.	No	None
groupsDns	String[]	The DNs on which to apply the groups filter for search.	Yes	
groupsSearchRecursive	boolean	Whether groups search should be recursive	No	False
groupsFilter	String	A search filter to apply on the groups DNs	Yes	
usersDns	String[]	The DNs on which to apply the users filter for search.	Yes	
usersSearchRecursive	boolean	Whether users search should be recursive	No	False
userCommonNameAttribute	String	The attribute of the user which should be used for display purposes.	Yes	
userEmailAttribute	String	The attribute of the user which contains the mail address	No	None

Attribute	Type	Description	Required?	Default value
groupMembershipAttribute	String	In ACTIVE_DIRECTORY type, this represents the attribute of the user which contains the groups. In any other type, it is null.	No	Mandatory for ACTIVE_DIRECTORY

Response status codes:

Code	Meaning	Returned When
201	Successful (Created)	LDAP was successfully created
400	Bad Request	Client didn't provide the mandatory field or provided some fields with wrong format.
403	Forbidden	User does not have manage security configuration permissions.
409	Conflict	The provided domain already exists.

Example:

```
{
  "type": "SUN_ONE",
  "domain": "MyDomain",
  "addresses": [{"host": "mysite.com", "port": 389}],
  "securedChannel": false,
  "enabled": true,
  "privilegedUser": "uid=user,ou=people,dc=hp,dc=com",
  "privilegedUserPassword": "1234",
  "groupsDns": ["ou=products,dc=hp,dc=com"],
  "groupsSearchRecursive": true,
  "groupsFilter": "(uniqueMember={})",
  "groupNameAttribute": "cn",
  "usersFilter": "(&(objectclass=person)(uid={}))",
  "usersDns": ["ou=people,dc=hp,dc=com"],
  "usersSearchRecursive": true,
  "userCommonNameAttribute": "cn"
}
```

Users

The Users API allows you to retrieve, update, create and delete users.

Create New Internal User

Request: POST/users

Description: Adds a new internal user.

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for a user with a password and roles

```
{
  "password": "12345",
  "roles": [
    {
      "name": "EVERYBODY"
    },
    {
      "name": "PROMOTER"
    }
  ],
  "username": "mranderso"
}
```

If roles are provided with an empty array, the user is granted with the role that was set as the default.

Note: Do not use the me user name as this is reserved.

Response status codes:

Code	Meaning	Returned When
201	Successful (Created)	An internal user was created successfully.
400	Bad Request	When the wrong parameters are entered.
403	Forbidden	The user doesn't have Manage Security Configuration permission.
409	Conflict	When the user tries to create user that is already exists

Response entity body:

- **on success:** Returns a JSON object of the created Internal User with the following format:

```
{  
  "displayName":"mranderson",  
  "userId":"mranderson",  
  "emails":null,  
  "hasPassword":true,  
  "roles":[  
    "END_USER",  
    "PROMOTER",  
    "SYSTEM_ADMIN"  
  ],  
  "permissions":null  
}
```

The location header is returned containing a URI to retrieve the created user configuration, for example:

```
/users/mranderson
```

Update Existing User

Request: PUT/users/{username}

Description: Update an existing internal user

Request path variables:

Attribute	Description	Required
username	The name of the internal user to update.	Yes

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for an Internal User update with both optional and mandatory fields:

```
{
  "password": "12345",
  "roles": [{"name": "EVERYONE"}, {"name": "PROMOTER"}],
  "username": "mranderso"
}
```

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Updated the user successfully.
400	Bad Request	
403	Forbidden	The user doesn't have Manage Security Configuration permission.
409	Conflict	When the user tries to name the user in a name already exists.

Response entity body:

- **on success:** Returns a JSON object of the updated internal user.

```
{
  "displayName": "mranderson",
  "userId": "mranderson",
  "emails": null,
  "hasPassword": true,
  "roles": [
    "END_USER",
    "PROMOTER",
    "SYSTEM_ADMIN"
  ],
  "permissions": null
}
```

Delete an Internal User

Request: DELETE/users/{userNames}

Description: Deletes users according to a specific list of user ids.

Request path variables:

Attribute	Description	Required
userIds	The identifiers of the internal users to delete.	Yes

Response status codes:

Code	Meaning	Returned When
204	Successful (no-content)	The internal users no longer exist in the system.
403	Forbidden	The user doesn't have Manage Security Configuration permission.

Note: A logged in user cannot delete their own internal user account.

Get Users

Request: GET/users?origin=internal

Description: Retrieves users

Request parameters:

Attribute	Description	Default Value	Required
origin	The location from which the user's provider should be retrieved. Internal stands for internal users.	No	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Returned the requested users list.
403	Forbidden	The user doesn't have View Security Configuration or Manage Security Configuration permission.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
[
  {
    "displayName": "admin",
    "userId": "admin",
    "emails": null,
    "hasPassword": true,
    "roles": [
      "ADMIN"
    ],
    "permissions": null
  },
  {
    "displayName": "mranderson",
    "userId": "mranderson",
    "emails": null,
    "hasPassword": true,
    "roles": [
      "END_USER"
    ],
    "permissions": null
  },
]
```



```
{
  "displayName":"rothjohn",
  "userId":"rothjohn",
  "emails":null,
  "hasPassword":true,
  "roles":[
    "EVERYONE"
  ],
  "permissions":null
}
]
```

Get Session's User

Request: GET/users/me

Description: Retrieves this session's user.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The session's user was returned.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "displayName": "admin",
  "userId": "admin",
  "emails": null,
  "hasPassword": false,
  "roles": [
    "ADMIN"
  ],
  "permissions": [
    "cpManage",
    "cpRead",
    "topologyManage",
    "flowPermissionManage",
    "topologyRead",
    "securityConfigManage",
    "securityConfigRead",
    "systemSettingsRead",
    "systemSettingsManage",
    "scheduleManage",
    "scheduleRead",
    "configurationItemManage",
    "configurationItemRead",
    "othersRunsManage"
  ]
}
```

LW SSO

The LW SSO API allows you to configure LW SSO.

Get LW SSO Configuration

Request: GET/authns/lwso-config

Description: Retrieves the lightweight SSO configuration.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The session's user was returned.
403	Forbidden	The user doesn't have View Security Configuration or Manage Security Configuration permission.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "enabled":false,
  "initString":"*****",
  "domain":"mydomainnew1.com",
  "protectedDomains":[
    "mydomainnew1.com",
    "mydomainnew2.com"
  ]
}
```

Update LW SSO configuration

Request: PUT/authns/lwssso-config

Description: Updates the lightweight SSO configuration.

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for a LWSSO User update with both optional and mandatory fields:

```
{
  "enabled":false,
  "initString":"*****",
  "domain":"mydomainnew1.com",
  "protectedDomains":[
    "mydomainnew1.com",
    "mydomainnew2.com"
  ]
}
```

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Updated the LW SSO configurations successfully.
400	Bad Request	
403	Forbidden	The user doesn't have Manage Security Configuration permission.

Response entity body:

- **on success:** Returns a JSON object of the saved configurations.

```
{
  "enabled":false,
  "initString":"*****",
  "domain":"mydomainnew1.com",
  "protectedDomains":[
    "mydomainnew1.com",
    "mydomainnew2.com"
  ]
}
```

Authentication

The Authentication API allows to enable and disable user authentication.

Get Authentication Configurations

Request: GET/authns

Description: Retrieves the authentication status

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The authentication status we returned

Response entity body:

```
{  
    "enable":true,  
}
```

Update Authentication Configurations

Request: PUT/authns

Description: Updates the authentication configurations.

Request body:

```
{  
  "enable":true  
}
```

Response status codes:

Code	Meaning	Returned When
204	Successful (no-content)	The authentication configuration were updated.
403	Forbidden	The user doesn't have Manage Security Configuration permission.

Roles

The Roles API allows you to configure roles.

Get Specified Role

Request: GET/roles/{roleName}

Description: Retrieves a role according to the specified role name.

Request path variables:

Attribute	Description	Required
roleName	The name of the required role.	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested role was found.
403	Forbidden	The user doesn't have View Security Configuration or Manage Security Configuration permission.
404	Not Found	The requested role was not found.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "name": "ADMINISTRATOR",
  "description": "Administration Role",
  "permissions": [
    "flowPermissionManage",
    "cpManage",
    "dashboardRead",
    "configurationItemRead",
    "cpRead",
    "configurationItemManage",
    "scheduleManage",
    "systemSettingsManage",
    "scheduleRead",
    "securityConfigRead",
    "topologyRead",
    "flowDebug",
    "securityConfigManage",
```

```
"topologyManage",  
"systemSettingsRead",  
"othersRunsManage"  
],  
  "groupsNames": [  
  
  ]  
}
```

groupsNames attribute refers to the LDAP groups mapping. An empty array indicates that there is no mapping to any LDAP group.

Get All Roles

Request: GET/roles

Description: Retrieves all the existing roles.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested roles were found.
403	Forbidden	The user doesn't have View Security Configuration or Manage Security Configuration permission.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
[
  {
    "name": "ADMINISTRATOR",
    "permissions": [
      "securityConfigRead",
      "cpRead",
      "topologyManage",
      "securityConfigManage",
      "configurationItemRead",
      "scheduleManage",
      "topologyRead",
      "othersRunsManage",
      "configurationItemManage",
      "systemSettingsManage",
      "flowPermissionManage",
      "cpManage",
      "scheduleRead",
      "systemSettingsRead"
    ],
    "groupsNames": [
    ],
    "description": "Administration Role"
  },
  {
    "name": "EVERYBODY",
    "permissions": [
    ],
    "groupsNames": [
    ]
  }
]
```

```
    ],  
    "description": "Everybody Role"  
  },  
  {  
    "name": "PROMOTER",  
    "permissions": [  
      "configurationItemManage",  
      "cpRead",  
      "configurationItemRead",  
      "flowPermissionManage",  
      "cpManage"  
    ],  
    "groupsNames": [  
  
    ],  
    "description": "Promoter Role"  
  },  
  {  
    "name": "SYSTEM_ADMIN",  
    "permissions": [  
      "securityConfigRead",  
      "topologyRead",  
      "systemSettingsManage",  
      "topologyManage",  
      "securityConfigManage",  
      "systemSettingsRead"  
    ],  
    "groupsNames": [  
  
    ],  
    "description": "System Administrator Role"  
  },  
  {  
    "name": "END_USER",  
    "permissions": [  
  
    ],  
    "groupsNames": [  
  
    ],  
    "description": "End User Role"  
  }  
]
```

Create New Role

Request: POST/roles

Description: Adds a new role

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for a role configuration with both optional and mandatory fields:

```
{
  "name": "NEW_ROLE",
  "permissions": [
    "cpRead",
    "cpManage"
  ],
  "groupsNames": [
  ],
  "description": "New Role"
}
```

description and groupsNames are optional.

The groupsNames refers to the LDAP groups that should be mapped to this role.

Response status codes:

Code	Meaning	Returned When
201	Successful (Created)	A new role was created.
400	Bad Request	The data in the body is incorrect.
403	Forbidden	The user doesn't have Manage Security Configuration permission.
409	Conflict	When the user tries to add a role which is already exists.

Response entity body:

- **on success:** Returns a JSON object of the created role with the following format:

```
{
  "name": "Super Power",
  "description": "An all permissions role!",
  "permissions": [
    "flowPermissionManage",
    "cpManage",
    "dashboardRead",
    "configurationItemRead",
    "cpRead",
  ]
}
```

```
        "configurationItemManage",  
        "scheduleManage",  
        "systemSettingsManage",  
        "scheduleRead",  
        "securityConfigRead",  
        "topologyRead",  
        "flowDebug",  
        "securityConfigManage",  
        "topologyManage",  
        "systemSettingsRead",  
        "othersRunsManage"  
    ],  
    "groupsNames": [  
        "Super Group"  
    ]  
}
```

Update an Existing Role

Request: PUT/roles/{roleName}

Description: Update an existing role

Request path variables:

Attribute	Description	Required
roleName	The name of the role to update.	Yes

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for a Role update with both optional and mandatory fields:

```
{
  "description":"Not super power anymore",
  "groupsNames":[
    "Not Super Group"
  ],
  "name":"Not Super Power",
  "permissions":[
    "othersRunsManage",
    "flowPermissionManage",
    "securityConfigRead",
    "securityConfigManage"
  ]
}
```

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Updated the role successfully.
400	Bad Request	The JSON body is incorret.
403	Forbidden	The user doesn't have Manage Security Configuration permission.
404	Not Found	When the role does not exist.

Response entity body:

- **on success:** Returns a JSON object of the updated internal user.

```
{
  "description":"Not super power anymore",
  "groupsNames":[
    "Not Super Group"
  ]
}
```

```
],  
  "name": "Not Super Power",  
  "permissions": [  
    "othersRunsManage",  
    "flowPermissionManage",  
    "securityConfigRead",  
    "securityConfigManage"  
  ]  
}
```

Delete a Role

Request: DELETE/roles/{roleName}

Description: Deletes a role according to the specified role name.

Request path variables:

Attribute	Description	Required
roleName	The identifier of the role name to delete.	Yes

Response status codes:

Code	Meaning	Returned When
204	Successful (no-content)	The role was deleted successfully.
403	Forbidden	The user doesn't have Manage Security Configuration permission.
404	Not found	

Get the Default Role

Request: GET/roles/default-name

Description: Retrieves the default role.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The default role found.
403	Forbidden	The user doesn't have View Security Configuration or Manage Security Configuration permission.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{"defaultRole": "EVERYBODY"}
```

defaultRole attribute maps between the default role and an existing one.

Update the Default Role

Request: PUT/roles/default-name

Description: Update an existing role.

Request entity body:

Request entity body: The body of this request must include a JSON object with the following format:

```
{"defaultRole":"PROMOTER"}
```

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Updated the default role successfully.
403	Forbidden	The user doesn't have Manage Security Configuration permission.

Response entity body:

- **on success:** Returns a JSON object of the updated default role.

```
{  
  "defaultRole":"PROMOTER"  
}
```

Get Entitlements Per Path and Roles

Request: GET/roles/{rolesNames}/entitlements/**

Description: Retrieves a role according to the specified role name.

Example:

```
roles/ADMINISTRATOR%2CEVERYBODY%2CPROMOTER%2CSYSTEM_ADMIN%2CEND_USER/entitlements/Library/cp-parallel
```

Note: %2C is encoded comma.

Request path variables:

Attribute	Description	Required
rolesNames	The roles for which the entitlements are requested. Note: The entitlement path.	Yes

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	The requested entitlements was found.
400	Bad request	
403	Forbidden	The user doesn't have Manage Flow Permissions permission.
404	Not Found	The requested path was not found.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "ADMINISTRATOR": [
    "RUN",
    "VIEW"
  ],
  "EVERYBODY": [
  ],
  "END_USER": [
  ],
  "SYSTEM_ADMIN": [
  ],
}
```

```
    "PROMOTER": [  
      "RUN",  
      "VIEW"  
    ]  
  }
```

Update Path Entitlement Per Role

Request: PUT/roles/{roleName}/entitlements/**

Description: Update specific entitlement path per role.

Example:

```
roles/SYSTEM_ADMIN/entitlements/Library/cp-parallel
```

Request entity body:

The body of this request must include a JSON object with the following format:

JSON for an entitlement path update with both optional and mandatory fields:

```
{
  "privileges":[
    "VIEW",
    "RUN"
  ],
  "isRecursive":true
}
```

Note: The default value for `isRecursive` is false.

Response status codes:

Code	Meaning	Returned When
200	Successful (OK)	Updated the role successfully.
400	Bad Request	
403	Forbidden	The user doesn't have Manage Flow Permissions permission.

Response entity body:

- **on success:** Returns a JSON object of the updated path entitlement on the role.

```
{
  "privileges":[
    "VIEW",
    "RUN"
  ],
  "isRecursive":true
}
```

Configuration Items

These APIs enable you to manage the system configuration.

Create a System Configuration Item

Request: POST/config

Description: Creates a system configuration item.

Request entity body: The body of this request needs to include a JSON object with the following format:

```
{
  "value": "value",
  "key": "my.test.key"
}
```

Response status codes:

Code	Meaning	Returned When
201	Created	A system configuration item was created successfully.
403	Forbidden	The user doesn't have Manage System Settings permission.

Response entity body:

- **on success:** Returns a JSON object of the created system configuration item with the following format:

```
{
  "id": "1179648",
  "key": "myKey",
  "value": "value"
}
```

In addition, a location header containing a URI to retrieve the created system configuration item:
/config/myKey

Get All System Configuration Items

Request: GET/config

Description: Retrieves all system configuration items.

Response status codes:

Code	Meaning	Returned When
200	OK	All existing system configuration items were retrieved.
403	Forbidden	The user doesn't have View System Settings or Manage System Settings permission.

Response entity body:

- **on success:** Returns a JSON object with the following format:

```
{
  "key 1": "value 1",
  "key 2": " value 2",
  ...
  "key n": " value n"
}
```

Get a System Configuration Item

Request: GET/config/{key:.+}

Description: Retrieves a system configuration item by key.

Request path variables:

Attribute	Description	Required
key	The key of the requested system configuration item.	Yes

Response status codes:

Code	Meaning	Returned When
200	OK	The requested system configuration item was retrieved successfully.
403	Forbidden	The user doesn't have View System Settings or Manage System Settings permission.
404	Not Found	No system configuration was retrieved.

Response entity body:

- **on success:** Returns a JSON string with the value of the requested system configuration item.

Update System Configuration Item

Request: PUT/config/{key:.*}

Description: Updates an existing system configuration item.

Request path variables:

Attribute	Description	Required
key	The key of the system configuration item to update.	Yes

Request entity body: The body of this request needs to include a JSON string with the new value of the system configuration item.

Response status codes:

Code	Meaning	Returned When
202	Accepted	The system configuration item was updated successfully.
204	Returned	NO_CONTENT
403	Forbidden	The user does not have Manage System Settings permission.
404	Not Found	The requested system configuration item was not found.

Response entity body:

- **on success:** Returns a JSON value of the updated configuration item's ID.

Miscellaneous

Get HP OO Version

Request: GET/version

Description: Retrieves information about the HP OO version.

Response entity body:

- **on success:** Returns a JSON object with the HP OO version information:

```
{  
  "version": "1.1.1.1",  
  "revision": "1.1",  
  "build number": "123"  
}
```

Appendix

LDAP

Address:

Attribute	Type	Description	Comments
host	String	The IP or HOST name of the LDAP	
port	int	The port of the LDAP	

Attribute:

Attribute	Type	Description	Comments
name	String	The attribute name	
value	String	The attribute value	

LDAP Type:

Includes one of the following strings:

- ACTIVE_DIRECTORY
- SUN_ONE
- E_DIRECTORY
- OPEN_DJ
- OPEN_LDAP
- OTHER
- ALTERNATE_GROUP

General:

RestError

Attribute	Type	Description	Comments
message	String	A localized description of an error that occurred.	
Message can be presented to the end user.			

Documentation Revision Changes

Revision B

- Get Statistics API, response status codes description updated.

