

# 1 Integrate

# REST API Guide

Product version: v 2.10

Document version: v 1.7

Document date: 11/06/2021



Copyright 2021 1Spatial plc and its affiliates.

All rights reserved. Other trademarks are registered trademarks and the properties of their respective owners.

No part of this document or any information appertaining to its content may be used, stored, reproduced or transmitted in any form or by any means, including photocopying, recording, taping, information storage systems, without the prior permission of 1Spatial plc.

1Spatial  
Tennyson House  
Cambridge Business Park  
Cambridge  
CB4 0WZ  
United Kingdom

**Phone:** +44 (0)1223 420414

**Fax:** +44 (0)1223 420044

**Web:** [www.1spatial.com](http://www.1spatial.com)

Every effort has been made to ensure that the information contained in this document is accurate at the time of printing. However, the software described in this document is subject to continuous development and improvement. 1Spatial plc reserves the right to change the specification of the software. 1Spatial plc accepts no liability for any loss or damage arising from use of any information contained in this document.

# Contents

---

|                                              |           |
|----------------------------------------------|-----------|
| <b>1 Integrate REST API</b>                  | <b>5</b>  |
| Notation                                     | 5         |
| Defaults                                     | 5         |
| <b>2 Authentication</b>                      | <b>6</b>  |
| <b>3 Basic Operations</b>                    | <b>8</b>  |
| Folder Listing                               | 8         |
| Retrieving Resources                         | 9         |
| Creating and Updating Resources              | 9         |
| Creating Folders or Updating Folder Metadata | 9         |
| Deleting Resources                           | 10        |
| Cloning Resources                            | 10        |
| <b>4 Resources</b>                           | <b>12</b> |
| Common                                       | 12        |
| <b>5 Sessions</b>                            | <b>13</b> |
| Session Properties                           | 15        |
| Session Extents                              | 18        |
| Session Parameters                           | 19        |
| Set and Retrieve individual Parameters       | 20        |
| Session Control                              | 21        |
| Check Session Status                         | 21        |
| Session Summary Results                      | 21        |
| Tasks                                        | 23        |
| OpenData                                     | 24        |
| BuildTopology                                | 27        |
| CheckRules                                   | 28        |
| ApplyActions                                 | 28        |
| ApplyActionMap                               | 29        |
| CopyTo                                       | 29        |
| Commit                                       | 31        |
| Pause                                        | 31        |
| <b>6 Data Stores</b>                         | <b>32</b> |
| Data store Resource Properties               | 33        |
| Data store Creation from File Upload         | 35        |
| Providing Export Mapping Files               | 38        |
| Data Store Creation from Credentials         | 38        |

|                                                 |           |
|-------------------------------------------------|-----------|
| Credentials Properties .....                    | 41        |
| MapInfo Tab (GDAL) .....                        | 41        |
| Oracle .....                                    | 42        |
| Esri Shape .....                                | 44        |
| Esri File Geodatabase (FILEGDB) .....           | 47        |
| PostGIS .....                                   | 49        |
| Other Data Store Formats .....                  | 51        |
| Password Properties .....                       | 52        |
| Automatic Schema Derivation .....               | 52        |
| Import Schema Derivation .....                  | 52        |
| Export Schema Derivation .....                  | 52        |
| Schema Mapping .....                            | 53        |
| Test and Refresh Mapping .....                  | 55        |
| User Defined Classes .....                      | 56        |
| CopyTo Task Output File Download .....          | 59        |
| <b>7 Rules .....</b>                            | <b>60</b> |
| <b>8 Actions .....</b>                          | <b>62</b> |
| Action Maps .....                               | 63        |
| <b>9 Results .....</b>                          | <b>64</b> |
| Task Summary .....                              | 64        |
| Detailed Non-conformance or Error Reports ..... | 65        |
| Summarised Error Reports .....                  | 66        |
| Summarised Folder Results .....                 | 66        |

# 1 1Integrate REST API

The REST API provides a simple integration point for 1Integrate. This allows resources (datastores, rules, actions, action maps, sessions) within the application to be created, edited and deleted in a similar manner to the main user interface. There are also endpoints for controlling a session (run, pause, stop), and getting session results (non-conformances, errors).

The REST API has been designed to be used with any client language or http client library.

The API requires authorisation headers and utilises a number of different request types such as POST and PUT, so responses cannot be tested using a web browser.

If you try and request a resource such as `http://[server]:[port]/1Integrate/rest/datastores` from a web browser, then the response will be an **HTTP 401 (unauthorised)** error.

 **Note:** Not all browsers will display the fact that an error has occurred.

To test the URL for the API connection it is recommended that you use your chosen REST client.

 **Note:** This document assumes knowledge of 1Integrate concepts; the concepts and capabilities are not described in detail within this document. For more information see the [1Integrate WebHelp](#).

## Notation

Within this document, the following colour-coding is used to demonstrate API requests and responses:

Green boxes represent example requests

Grey boxes represent example properties that can be passed in the request

Purple boxes represent example responses

## Defaults

Unless stated otherwise, both the Accept and Content-Type headers for all requests must be set to `application/json`.

## 2 Authentication

All calls to the rest service must be authenticated by using a JSON Web Token.

Tokens can be generated via a POST to the token service using an appropriate username and password. Note that the username must have the `rswsuser` role in order to access the API, an example request and example authorization header is show below:

```
POST http://<server>:<port>/1Integrate/rest/token
{"username":"user1", "password":"password1"}
```

This will return an *Authorization* header:

```
Authorization:
eyJraWQiOiJrMSIsImFsZyI6ImlJTMjU2In0.eyJpc3MiOiIxU3BhdGlhbCIsImV4cCI6MTUwMTI1Mjk4OCwianRpIjoisSjRXcGNYZVNtQzJ3aFVZMU9femhhdyIsImhhdCI6MTUwMTI0NTc4OCwic3ViIjoimVNWYXRpYWwiLCJyb2xlcYI6WyJyc19hZG1pbmMiLCJyc19lc2VycyIsInJzd3Nlc2VyIl0sInJlbWVtYmVyIjpudWxsQ.foylN1kCuQjk7zjgcqilJoxQxp6DQsO3FYrJs8Le79wQ3JPE6onTmz_X6DQxfjVyL9r9SSIgfpXzTrUt-04PQFvbjsVr_pbCBhLYaDr_luTnzQ0OrVZJEt9Avy2gRgvGmYhVycKOHpn0ZVQKwZAt_hJLkLUczsUR2AulxCYxITDotXte3j5Vy7ZhQRcJ4Eq-VNtSlRy6kYzlNAF-F_JpgEh5RNCDKIXyvbZj1R4jJSBWx_mOT7_coFuqpSyyTZcUfUvCo5NqFEZ-y0sXHzeVwSHxA24iyiJHg_U7NE9weEtcGgKzLI7vZgkxEJ8oNw5VSxvbNNtEMLAtBcMf-9bBA
```

Any subsequent API calls must have an *Authorization* entry in the header with the value of 'Bearer' followed by a space, followed by the token returned in the *Authorization* header of the call to the token service, as in the following example:

```
Authorization: Bearer
eyJraWQiOiJrMSIsImFsZyI6ImlJTMjU2In0.eyJpc3MiOiIxU3BhdGlhbCIsImV4cCI6MTUwMTI1Mjk4OCwianRpIjoisSjRXcGNYZVNtQzJ3aFVZMU9femhhdyIsImhhdCI6MTUwMTI0NTc4OCwic3ViIjoimVNWYXRpYWwiLCJyb2xlcYI6WyJyc19hZG1pbmMiLCJyc19lc2VycyIsInJzd3Nlc2VyIl0sInJlbWVtYmVyIjpudWxsQ.foylN1kCuQjk7zjgcqilJoxQxp6DQsO3FYrJs8Le79wQ3JPE6onTmz_X6DQxfjVyL9r9SSIgfpXzTrUt-04PQFvbjsVr_pbCBhLYaDr_luTnzQ0OrVZJEt9Avy2gRgvGmYhVycKOHpn0ZVQKwZAt_hJLkLUczsUR2AulxCYxITDotXte3j5Vy7ZhQRcJ4Eq-VNtSlRy6kYzlNAF-F_JpgEh5RNCDKIXyvbZj1R4jJSBWx_mOT7_coFuqpSyyTZcUfUvCo5NqFEZ-y0sXHzeVwSHxA24iyiJHg_U7NE9weEtcGgKzLI7vZgkxEJ8oNw5VSxvbNNtEMLAtBcMf-9bBA
```

The token needs to be added to the header with a 'Bearer' keyword, for example in Python:

```
url = 'http://localhost:18080/1integrate/rest/%
tokenResponse = requests.post(url % 'token', json=
{'username': '<user>', 'password': '<password>'}
```

```
tokenResponse.raise_for_status()
token = 'Bearer' + tokenResponse.headers['Authorization']

# Create a requests session to avoid having to specify headers on each
call.
requestSession = requests.Session()
requestSession.headers.update( {'Authorization': token, 'Accept':
'Application/JSON',
    'Content-Type': 'Application/JSON'}
)
```

An example in PowerShell script:

```
$Body = '{"username":"' + $Username + '", "password":"' + $Password + '"}'
$Response = Invoke-WebRequest -Uri
'http://<server>:8080/1Integrate/rest/token' -Method Post -Body $Body
# Read the token from the header
$Token = $Response.Headers.Authorization
# Now use the token returned in the header when sending requests
# Note, need to add 'Bearer ' before the token in the authorization header
$headers = @{}
$headers.Add("Authorization", "Bearer " + $Token)
```

By default the token will last 2 hours. When you use a token to access the 1Integrate REST API and the server detects that your token is about to expire, it will refresh your token and send the new token back with the response, again in the *Authorization* response header.

If a longer lasting token is required, a 2 week long token can be created using the following request:

```
POST
http://<server>:<port>/1Integrate/rest/token?rememberMe=true
```

## 3 Basic Operations

The API is structured following the folder structure of resources within the main application.

### Folder Listing

A GET request to the path of a folder will retrieve the folder metadata and a listing of children of the folder.

```
GET http://<server>:<port>/1Integrate/rest/datastores
GET http://<server>:<port>/1Integrate/rest/rules
GET http://<server>:<port>/1Integrate/rest/actions
GET http://<server>:<port>/1Integrate/rest/actionmaps
GET http://<server>:<port>/1Integrate/rest/sessions
```

```
{
  "createdBy": "Radius Studio",
  "updated": 1487954201386,
  "created": 1487954201386,
  "contents": [
    {
      "isEmpty": false,
      "name": "Recycle Bin",
      "type": "folder"
    },
    {
      "name": "Empty Test",
      "type": "folder"
    },
    {
      "name": "New Session 1",
      "type": "paused_session"
    }
  ]
}
```



## Retrieving Resources

Resources can be retrieved with a GET request to the full resource path.

```
GET http://<server>:<port>/1Integrate/rest/datastores/
{path}
```

 **Note:** The easiest way to find the structure of the JSON for creating or updating items is to create them in the user interface and then GET them to inspect their structure.

The path to a resource is the folder structure from 1Integrate for the particular resource type. For example, for a Session called "A" that is within the folder structure "/X/Y/" then the path to that session is

```
http://<server>:<port>/1Integrate/rest/sessions/X/Y/A.
```

 **Note:** Session results are accessed from the results resource, using the path to the relevant session, and not from the sessions resource.

## Creating and Updating Resources

Resources are created or updated through PUT requests. These should contain the full JSON of the resource to be created.

If the parent folders in the request do not exist they will be created automatically.

For examples of each type of resource, see "Resources" on page 12.

## Creating Folders or Updating Folder Metadata

Folders can be created, or folder metadata (description, comments) can be updated using a PUT request to the folder path, with a query parameter `folder=true`.

```
PUT http://<server>:<port>/1Integrate/rest/sessions/
{path}?folder=true
```

```
{
  "description": "test description",
  "comments": "test comments"
}
```

```
{
  "comments": "test comments",
```

```

"created": 1501238675855,
"createdBy": "1Spatial",
"description": "test description",
"updated": 1501238675855,
"updatedBy": "1Spatial"
}

```

## Deleting Resources

Resources or folders can be deleted with a DELETE request.

Deleting a folder will recursively delete all items contained within the folder.

```
DELETE http://[server]:[port]/1Integrate/rest/sessions/
{path}
```

## Cloning Resources

Resources or folders can be cloned with a PUT request.

```
PUT http://<server>:<port>/1Integrate/rest/clone
```

```

[
{
"source" : "<Item to be copied e.g.
sessions/Production/Template Session>",
"destination" : "<Fully qualified path to copy item to
(e.g. /sessions/Folder1/Folder2/)or name of clone>"
"shortcut"=<true/false>
}
]

```



### Note:

"destination" is an optional property and can be defined as a path, a name or left blank:

- ▶ Defining a path will place a clone of the original resource in the specified location, the name of the original resource will be maintained.
- ▶ Defining a name alone will place the clone in the same location as the original resource.
- ▶ Leaving "destination" blank or omitting it entirely will mean the clone is placed in the same location as the original resource, with a name following the "Copy of [Name]" convention in the UI.



**Note:** "shortcut" is an optional boolean property, set as true or false. The property defaults to false, but setting to true will result in the cloned resources being created as shortcuts to the source element.

If copying a directory of resources as shortcuts, the directory is cloned and only the resources contained within are created as shortcuts.

If copying a directory of resources as shortcuts, the directory is cloned and only the resources contained within are created as shortcuts.

When requesting a single entity an example response would be:

```
[
{
  "clone": "<cloned resource name/location>"
}
]
```

When requesting multiple entities, responses will return as follows:

```
[
{
  "clone": "<location of clone if successful>",
  "status": 200
},
{
  "errorMessage": "<error message>",
  "status": "<status code of the error (e.g. 404 for not found)>"
}
]
```

# 4 Resources

The following types of resource can be managed within the REST API:

- ▶ Connections to datastores
- ▶ Rules
- ▶ Actions
- ▶ Action Maps
- ▶ Sessions (and Tasks)

## Common

All resource types have the following common contents.

 **Note:** Items may be omitted when they are default or not specified.

```
"createdBy": "1Spatial",  
"updated": 1488809081647,  
"created": 1488809081647,  
"version": 1,  
"updatedBy": "1Spatial"  
"description": ""  
"comments": ""
```

The creation and update timestamps and users are maintained automatically. They do not need to be specified for create or update operations, but will always be returned from the service.

The `version` property is used for optimistic locking to avoid concurrent users accidentally making conflicting edits. If multiple requests are made to update a resource with the same version then they will be rejected.

 **Note:** If you get a response with status `409 Conflict` when trying to update a resource, this means someone else has updated the resource before you. Perform a GET to get the latest version of the resource and retry the update using that version.

# 5 Sessions

Sessions contain a list of tasks, with varying content depending on the kind of task(s) they contain (see "Tasks" on page 23).

Responses containing session resources will include the common resource properties (see "Common" on page 12), as well as other session-specific properties (see "Session Properties" on page 15).



**Note:** Session results are accessible from the results resource, not the sessions resource (see below).

Sessions can also be created or updated via `PUT` requests.

```
GET http://[server]:[port]/1Integrate/rest/sessions/
{path}
```

```
{
  "comments": "Comments",
  "created": 1501237189979,
  "createdBy": "1Spatial",
  "description": "",
  "updated": 1501237290578,
  "updatedBy": "1Spatial",
  "tasks": [
    {
      "kind": "OpenData",
      "datastore": "/datastores/ds1",
      "classes": [
        {
          "name": "english"
        },
        {
          "disabled": true,
          "name": "luttuce"
        }
      ],
      "parameters": {},
      "topologyEnabled": true
    },
    {
```

```

    "kind": "CheckRules",
    "rules": [
      "/rules/rule1",
      "/rules/subfolder2/"
    ]
  },
  {
    "kind": "ApplyActionMap",
    "actionmap": "/action_maps/actionmap1"
  },
  {
    "kind": "ApplyActions",
    "actions": [
      "/actions/action1",
      "/actions/subfolder1/"
    ]
  },
  {
    "kind": "CopyTo",
    "datastore": "/datastores/ds1",
    "parameters": {}
  },
  {
    "kind": "BuildTopology",
    "model": "NETWORK",
    "snappingType": "SHARE_NODES",
    "tolerance": 0.042,
    "classes": [
      "english"
    ]
  },
  {
    "kind": "Pause"
  }
],
"status": "NOT_STARTED",
"version": 4,
"extentAsBoundingBox": {
  "maxX": 10000,

```

```

    "maxY": 10000,
    "minX": 0,
    "minY": 0
  }
}

```

## Session Properties

| Property Name | Data Type                                      | Optionality        | Description                                                                                                                                                                                                                        |
|---------------|------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| status        | <i>(Read only)</i>                             | <i>(Read only)</i> | One of: <ul style="list-style-type: none"> <li>▶ NOT_STARTED</li> <li>▶ RUNNING</li> <li>▶ PAUSED</li> <li>▶ FINISHED</li> <li>▶ WAITING</li> <li>▶ PAUSING</li> <li>▶ REWINDING</li> <li>▶ UNKNOWN</li> <li>▶ STOPPING</li> </ul> |
| tasks         | Array of task objects (See "Tasks" on page 23) | Optional           | Tasks to be run in the session.                                                                                                                                                                                                    |

| Property Name           | Data Type                        | Optionality                                    | Description                                                                                                                                                                                                                                                                                                                |
|-------------------------|----------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| runAsMultiplePartitions | Boolean                          | Optional<br>(default: false)                   | <p>True indicates the extent will be partitioned, and a separate session will be run for each partition. Only valid for 'Several Predefined Regions' sessions – see Session Extents section. Conversely, this must be false for all other extent types.</p> <p>Equivalent to UI checkbox 'Run as multiple partitions'.</p> |
| extentBuffer            | Double                           | Optional<br>(default: 0)                       | A Buffer can be set to consider data in a region that is larger than the selection. The buffer value is in dataset units.                                                                                                                                                                                                  |
| extentAsBoundingBox     | See "Session Extents" on page 18 | Optional<br>(See "Session Extents" on page 18) | See "Session Extents" on page 18                                                                                                                                                                                                                                                                                           |
| extentAsPolygon         | String                           |                                                |                                                                                                                                                                                                                                                                                                                            |
| extentFromDatastore     | See "Session Extents" on page 18 |                                                |                                                                                                                                                                                                                                                                                                                            |



| Property Name | Data Type | Optionality | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|-----------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| engineFilter  | String    | Optional    | <p>Use engineFilter to restrict the engines on which this session can run on. Use a combination of the labels set on the engines at the time of installation.</p> <p>The following operators are supported:</p> <ul style="list-style-type: none"> <li>▶ &amp;&amp;</li> <li>▶   </li> <li>▶ ==</li> <li>▶ !=</li> <li>▶ ! can be added to a label to check that it is not present</li> <li>▶ you can also group expressions together with ()</li> </ul> <p>For example to run the session on engines that have the label "fast" use <code>engineFilter=fast</code></p> <p>Or to run on engines that have both the "fast" and "slow" labels use <code>engineFilter=fast &amp;&amp; slow</code></p> |

## Session Extents

The extent to be used in a session can be determined using the same extent types available in the 1Integrate UI, by passing the properties (`extentAsBoundingBox`, `extentAsPolygon` and `extentFromDatastore`).

**Note:** The properties `extentAsBoundingBox`, `extentAsPolygon` and `extentFromDatastore` are mutually exclusive; requests using more than one of these properties will be refused.

| Extent Type            | How to achieve this in the REST API                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| All Data               | Do not provide any extent properties in the request.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Bounding Box           | <p>Provide an extent in terms of minimum and maximum X and Y values using the <code>extentAsBoundingBox</code> property.</p> <pre>"extentAsBoundingBox": {   "maxX": 10,   "maxY": 10,   "minX": 0,   "minY": 0 }</pre>                                                                                                                                                                                                                                                                                           |
| One Pre-defined Region | <p>Provide an <code>extentFromDatastore</code> property with <code>attributeName</code> populated.</p> <pre>"extentFromDatastore": {   "attributeName": "ID",   "attributeValue": "1",   "className": "ROADS",   "datastore": "/datastores/TestDatastore" }</pre> <p>These values correspond to the UI fields as follows:</p> <ul style="list-style-type: none"> <li>▶ Table is <code>className</code></li> <li>▶ Where is <code>attributeName</code></li> <li>▶ Equals is <code>attributeValue</code></li> </ul> |

| Extent Type                 | How to achieve this in the REST API                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Several Pre-defined Regions | <p>Provide an <code>extentFromDatastore</code> property without an <code>attributeName</code> populated.</p> <p>Requires the additional property <code>runAsMultiplePartitions</code> to be set to <code>true</code>.</p> <pre>"extentFromDatastore": {   {     "className": "ROADS",     "datastore": "/datastores/TestDatastore"   },   "runAsMultiplePartitions": true }</pre> <p>These fields correspond to the UI fields:</p> <p>► Table is <code>className</code></p> |
| Polygon                     | <p>Provide an <code>extentAsPolygon</code> property. This is Well-Known text in a string, and must be a polygon.</p> <pre>"extentAsPolygon": "POLYGON((0 0, 0 10, 10 10, 0 0)) "</pre>                                                                                                                                                                                                                                                                                      |

## Session Parameters

One or more named parameters can be set on a session, for use within rules or actions.

Using a GET request will return all parameters that have been set for the session.

```
GET http://[server]:[port]/1Integrate/rest/sessions/<session name>/parameters
```

This will return a list of each parameter available in the session, formatted as below:

```
[
  {
    "name": "ID_VALUE",
    "description": "<Example Description>",
    "type": "INTEGER",
    "value": "0"
  }
]
```

Using a PUT request will replace all parameters in the session with the one you supply

```
PUT http://[server]:[port]/1Integrate/rest/sessions/<session name>/parameters
```

```
[
{
  "name": "ID_VALUE",
  "description": "<Example Description>",
  "type": "INTEGER",
  "value": "0"
}
```

 **Note:** The supported types are: INTEGER, STRING, BOOLEAN, DOUBLE, or LONG. If a value has a different type than specified (e.g. a LONG value given an INTEGER type), an error will be encountered at runtime when the session definition is validated.

## Set and Retrieve individual Parameters

You can also set or retrieve the details of individual parameters within a session.

Using a GET request will return the details of the specified parameter.

```
GET http://[server]:
[port]/1Integrate/rest/sessions/<session
name>/parameters/<parameter name>
```

```
[
{
  "name": "<Specified parameter>",
  "description": "<Example Description>",
  "type": "INTEGER",
  "value": "0"
}
```

You can also use a PUT request to replace the parameter by providing new properties.

```
PUT http://[server]:
[port]/1Integrate/rest/sessions/<session
name>/parameters/<parameter name>
```

```
[
{
  "name": "<Optional as name is supplied in request>",
  "description": "<Example Description>",
  "type": "INTEGER",
```

```
"value": "0"
}
]
```

## Session Control

Sessions can be controlled via `POST` requests.

```
POST http://[server]:[port]/1Integrate/rest/sessions/
{path}?action=play
POST http://[server]:[port]/1Integrate/rest/sessions/
{path}?action=pause
POST http://[server]:[port]/1Integrate/rest/sessions/
{path}?action=stop
POST http://[server]:[port]/1Integrate/rest/sessions/
{path}?action=rewind&taskIndex=
```

The response for these requests will just be status code 202.

## Check Session Status

The status and results for a session are available from results resource that is parallel to the session resource. The same session path is used to access the results for the session. For example, if a session resource is at:

```
http://[server]:
[port]/1Integrate/rest/sessions/Folder1/MySession
```

Then, the results are available from:

```
http://[server]:
[port]/1Integrate/rest/results/Folder1/MySession
```

You can check the status of a session using a `GET` request.

```
GET http://[server]:[port]/1Integrate/rest/results/
{path}?detail=status
```

```
{
  "status": "PAUSED"
}
```

See "Session Properties" on page 15 for a list of possible values of the `status` property.

## Session Summary Results

Return the summary report of a session with all its tasks.

 **Note:** `taskIdIdentifier` is a string used to uniquely identify the task within a session. `customLabel` is optional string that can be assigned to a task to make it more recognisable to users.

GET `http://[server]:[port]/1Integrate/rest/results/{path}`

```
{
  "status": "PAUSED",
  "tasks": [
    {
      ";": 0,
      "count": 0,
      "customLabel": "Example Label 1",
      "duration": 1257,
      "errors": 0,
      "kind": "OpenDataTask",
      "processed": 3500,
      "reportCount": 0,
      "started": 1493119229050,
      "status": "FINISHED",
      "taskIdIdentifier": "4d7b4474-8095-4322-a554-70abef37ac90"
    },
    {
      ";": 0,
      "count": 0,
      "customLabel": "Example Label 2",
      "duration": 73,
      "errors": 0,
      "kind": "PauseTask",
      "processed": 0,
      "reportCount": 0,
      "started": 1493119230325,
      "status": "FINISHED",
      "taskIdIdentifier": "12dca560-45fc-4619-8c4e-693b34a5959a"
    },
    {
      "count": 246,
      "duration": 484,
```

```

    "errors": 0,
    "kind": "CheckRulesTask",
    "processed": 500,
    "reportCount": 246,
    "started": "1493119232968",
    "status": "FINISHED",
    "taskIdentifier": "e3d5a60b-f454-92b9-7c2cba568e65",
    "total": 500
  },
  {
    "count": 0,
    "duration": 16,
    "errors": 0,
    "kind": "PauseTask",
    "processed": 0,
    "count": 0,
    "started": 1493119233533,
    "status": "PAUSED",
    "taskIdentifier": "2ad248e5-722274be9-95a9-dd7b00c273f8",
    "total": 0
  }
]
}

```

## Tasks

Tasks are managed through sessions (see "Sessions" on page 13), and are placed in a sequence to determine the order in which they should be performed.

The `kind` property is common to all tasks types, and determines other configuration options for the task.



**Note:** `taskIdentifier` is a string used to uniquely identify the task within a session. `customLabel` is an optional string that can be assigned to a task to make it more recognisable to users. `id` is a string that uniquely identifies the task for the session (only visible from "session" GET requests, not in "results").

The following types of task can be included in a session:

- ▶ OpenData
- ▶ BuildTopology
- ▶ CheckRules
- ▶ ApplyActions
- ▶ ApplyActionMap
- ▶ CopyTo
- ▶ Commit
- ▶ Pause



**Note:** Once a task has run, you can return the summary of its results using a GET request (see "Task Summary" on page 64).

## OpenData

```
{
  "kind": "OpenData",
  "datastore": "/datastores/path/to/MyDatastore",
  "restrictToOpenedDataExtent": "[true/false]"
  "openedDataBufferDistance": "[XX Dataset Units]"
  "classes" :
  [
    {
      "disabled": true,
      "name": "ROAD"
    },
    {
      "name": "RAILWAY"
    }
  ],
  "parameters":
  {
    "someUnusedParameter": 0
  },
  "topologyEnabled": true;
}
```



| Property Name              | Data Type | Optionality | Description                                                                                   |
|----------------------------|-----------|-------------|-----------------------------------------------------------------------------------------------|
| datastore                  | String    | Mandatory   | Resource path of the datastore to connect to.                                                 |
| restrictToOpenedDataExtent | Boolean   | Optional    | Enable or disable to restrict the opening of data to classes selected in an Open Data task    |
| openedDataBufferDistance   | Integer   | Optional    | A buffer in dataset units around the extent opened by <code>restrictToOpenedDataExtent</code> |

| Property Name   | Data Type        | Optionality               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| classes         | Array of objects | Optional                  | <p>Enable or disable specific classes during load.</p> <p>Not providing this property will load from <i>all</i> classes as configured in the datastore.</p> <p>Each element of the array takes the form:</p> <pre>{   "disabled": true,   "name": "className" }</pre> <p>disabled defaults to false, so specifying the name of a class is enough to enable it. Both of the below are equivalent:</p> <pre>{   "name": "className" }</pre> <pre>{   "disabled": false,   "name": "className" }</pre> <p>If a class is configured in the datastore but not the <code>classes</code> array, it is effectively disabled.</p> |
| parameters      | Object           | Optional                  | Used for some niche functionality, such as connecting to a specific database version or workspace.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| topologyEnabled | Boolean          | Optional (default: false) | Equivalent to the UI checkbox <b>Enable Topology</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## BuildTopology

```
{
  "kind": "BuildTopology",
  "model": "NETWORK",
  "snappingType": "SHARE_NODES",
  "tolerance": 0.5
}
```

| Property Name | Data Type        | Optionality              | Description                                                                                                                                                                                                                                                                    |
|---------------|------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| model         | String           | Mandatory                | Valid inputs are <code>NETWORK</code> or <code>PLANAR</code> .<br>Equivalent to UI field <b>Model</b> .                                                                                                                                                                        |
| snappingType  | String           | Mandatory                | If model is <code>NETWORK</code> , can be one of: <code>SHARE_NODES</code> , <code>NODES_SPLIT_EDGES</code> or <code>EDGES_SPLIT_EDGES</code> .<br>If model is <code>PLANAR</code> , must be <code>EDGES_SPLIT_EDGES</code> .<br>Equivalent to UI field <b>Snapping type</b> . |
| tolerance     | Double           | Optional<br>(default: 0) | Topological tolerance to use during structuring.<br>A value of 0 will instead derive a tolerance from loaded data.                                                                                                                                                             |
| classes       | Array of Strings | Optional                 | Specify classes to be topologically structured.<br>Omitting this parameter will not structure any classes.                                                                                                                                                                     |

## CheckRules

```
{
  "kind": "CheckRules",
  "rules":
  [
    "/rules/path/to/MyRule",
    "/rules/path/to/MyOtherRule",
    "/rules/path/to/MyRuleFolder"
  ],
  "filterRule": "/rules/path/to/MyRule"
}
```

| Property Name | Data Type        | Optionality | Description                                      |
|---------------|------------------|-------------|--------------------------------------------------|
| rules         | Array of Strings | Optional    | Array of rule and/or rule folder resource paths. |
| filterRule    | String           | Optional    | Specify a filter rule.                           |

## ApplyActions

```
{
  "kind": "ApplyActions",
  "actions":
  [
    "/actions/path/to/MyAction",
    "/actions/path/to/MyOtherAction",
    "/actions/path/to/MyActionFolder"
  ],
  "filterRule": "/rules/path/to/MyRule"
}
```

| Property Name | Data Type        | Optionality | Description                                          |
|---------------|------------------|-------------|------------------------------------------------------|
| actions       | Array of Strings | Optional    | Array of action and/or action folder resource paths. |
| filterRule    | String           | Optional    | Specify a filter rule.                               |

## ApplyActionMap

```
{
  "kind": "ApplyActionMap",
  "actionmap": "/action_maps/path/to/MyActionMap",
  "filterRule": "/rules/path/to/MyRule"
}
```

| Property Name | Data Type | Optionality | Description                     |
|---------------|-----------|-------------|---------------------------------|
| actionmap     | String    | Mandatory   | Resource path of an action map. |
| filterRule    | String    | Optional    | Specify a filter rule.          |

## CopyTo

 **Note:** CopyTo properties are the same as the OpenData properties, but without `topologyEnabled`.

```
{
  "kind": "CopyTo",
  "datastore": "/datastores/path/to/MyDatastore",
  "classes" :
  [
    {
      "disabled": true,
      "name": "ROAD"
    },
    {
      "name": "RAILWAY"
    }
  ],
  "parameters":
  {
    "someUnusedParameter": 0
  }
}
```

| Property Name | Data Type        | Optionality | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| datastore     | String           | Mandatory   | Resource path of the datastore to connect to.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| classes       | Array of objects | Optional    | <p>Enable or disable specific classes during write.</p> <p>Not providing this property will write to <i>all</i> classes as configured in the datastore.</p> <p>Each element of the array takes the form:</p> <pre>{   "disabled": true,   "name": "className" }</pre> <p><code>disabled</code> defaults to <code>false</code>, so specifying the name of a class is enough to enable it. Both of the below are equivalent:</p> <pre>{   "name": "className" }</pre> <pre>{   "disabled": false,   "name": "className" }</pre> <p>If a class is configured in the datastore but not the <code>classes</code> array, it is effectively disabled.</p> |
| parameters    | Object           | Optional    | Used for some niche functionality, such as connecting to a specific database version or workspace.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Commit



**Note:** Commit properties are the same as the CopyTo properties, but without `classes`.

```
{
  "kind": "Commit",
  "datastore": "/datastores/path/to/MyDatastore",
  "parameters":
  {
    "someUnusedParameter": 0
  }
}
```

| Property Name | Data Type | Optionality | Description                                                                                        |
|---------------|-----------|-------------|----------------------------------------------------------------------------------------------------|
| datastore     | String    | Mandatory   | Resource path of the datastore to connect to.                                                      |
| parameters    | Object    | Optional    | Used for some niche functionality, such as connecting to a specific database version or workspace. |

## Pause

A Pause task is used to pause a session once it is running. It has no configurable properties.

```
{
  "kind": "Pause"
}
```

## 6 Data Stores

---

The full specification of a data store within 1Integrate is often a complex structure encapsulating an entire data model. The REST API provides a number of convenient methods for constructing a data store.

Responses containing datastore resources will include the common resource properties (see "Common" on page 12), as well as other datastore-specific properties (see "Data store Resource Properties" on the next page).

Data Stores can also be created or updated via `PUT` requests.

```
GET http://[server]:[port]/1Integrate/rest/datastores/  
{path}
```

```
"createdBy": "1Spatial",  
"updated": 1488809081647,  
"created": 1488809081647,  
"version": 1,  
"updatedBy": "1Spatial",  
"description": "",  
"comments": ""
```



# Data store Resource Properties

| Property Name | Data Type | Optionality | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------|-----------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| importType    | String    | Mandatory   | <p>Defines the datastore type to use for data reading.</p> <p>Can take the following values:</p> <ul style="list-style-type: none"> <li>▶ Autodesk AutoCAD DWG/DXF</li> <li>▶ Bentley MicroStation Design (V8)</li> <li>▶ Comma Separated Value (CSV)</li> <li>▶ Esri ArcGIS Server</li> <li>▶ Esri Enterprise Geodatabase</li> <li>▶ Esri File Geodatabase (GDAL)</li> <li>▶ Esri Geodatabase File (FILEGDB)</li> <li>▶ Esri Shape</li> <li>▶ ESRI Shape (GDAL)</li> <li>▶ MapInfo Tab (GDAL)</li> <li>▶ Microsoft SQL Server Spatial</li> <li>▶ PostGIS</li> <li>▶ Oracle</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p> <b>Note:</b> Be careful to use the exact spelling and capitalisation as given .</p> </div> |

| Property Name          | Data Type                 | Optionality                                           | Description                                                                                                                                                                                                                                                            |
|------------------------|---------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| import<br>Credentials  | Credentials<br>object     | Optional<br>(default:<br>empty object)                | Valid credentials depend<br>on <code>importType</code> .<br><br><div>  <b>Note:</b> All values<br/>are Strings, even if<br/>the value is really<br/>numeric or<br/>Boolean. </div>   |
| importClasses          | Array of<br>Class objects | Optional<br>(default: null)                           | Import schema and<br>mappings.                                                                                                                                                                                                                                         |
| exportType             | String                    | Optional<br>(default: “New<br>Export<br>Credentials”) | Defines the datastore to<br>use for data writing.<br>Equivalent to the UI drop-<br>down box <b>Data Store<br/>Type</b> on the Output<br>Details tab.                                                                                                                   |
| export<br>Credentials  | Credentials<br>object     | Optional<br>(default: null)                           | Valid credentials depend<br>on <code>exportType</code> .<br><br><div>  <b>Note:</b> All values<br/>are Strings, even if<br/>the value is really<br/>numeric or<br/>Boolean. </div> |
| exportClasses          | Array of<br>Class objects | Optional<br>(default: null)                           | Export schema and<br>mappings.                                                                                                                                                                                                                                         |
| userDefined<br>Classes | Array of<br>Class objects | Optional<br>(default: null)                           | User-defined schema and<br>mappings.                                                                                                                                                                                                                                   |

# Data store Creation from File Upload

Files can be uploaded to a datastore with a POST operation supplied with `Content-Type: application/octet-stream`, and the file (usually .zip) in the body.

 **Note:** Any format defined by a single file (e.g. CSV or DWG) can be uploaded without being zipped (but zipped files are also supported). Any format defined by multiple files or folders (e.g Esri Shapefile, Esri FGDB) must *always* be uploaded as a single zip file.

POST `http://[server]:[port]/1Integrate/rest/datastores/{path}`

If the file is uploaded successfully, its schema will be populated and returned in the `importClasses` section. If the correct `exportType` and `exportCredentials` are provided, then the input schema will be copied and reversed to create the `exportClasses`, which will also be returned.

```
{
  "created": 1501246885833,
  "createdBy": "1Spatial",
  "updated": 1501246885833,
  "updatedBy": "1Spatial",
  "importType": "Esri Shape",
  "importCredentials": {
    "Coordinate Reference System": "",
    "_connection_use": "import",
    "Clip to envelope": "false",
    "Allow invalid geometries": "true",
    "Encoding": "",
    "Reverse coordinate axis order (y,x)": "false",
    "Trim preceding spaces": "true",
    "Dissolve holes": "true",
    "Import FME Log File": "",
    "Convert attribute names to upper case": "false",
    "Exposed attributes": "",
    "Fix ring direction and inclusion errors": "true",
    "Source Files (.shp)": "Glaisnock.zip",
    "Treat measures as elevation": "false"
  },
  "importClasses": [
```

```

{
  "attrs": [
    {
      "dataType": "fme_varchar",
      "mappedType": "String",
      "name": "ID",
      "params": {
        "length": "254"
      }
    },
    {
      "dataType": "fme_geometry{0}",
      "mappedType": "Geometry",
      "name": "geometry",
      "params": {
        "dimension_count": "2",
        "complex": "false",
        "type": "line",
        "unit_length": "1.0",
        "space": "British National Grid (ORD SURV GB)",
        "srid": "FME=_BritishNatGrid_0,EPG=27700"
      }
    }
  ],
  "name": "INFSEWER"
}
],
"exportType": "MapInfo TAB (MFAL)",
"exportCredentials": {
  "Coordinate Reference System": "",
  "_connection_use": "export",
  "Destination Files (.tab)": "",
  "Write region centroids": "false",
  "Export FME Log File": "",
  "Filename prefix": "",
  "Encoding": "",
  "Reverse coordinate axis order (y,x)": "false",
  "Bounds ([xmin] [ymin] [xmax] [ymax])": ""
},

```

```
"exportClasses": [  
  {  
    "attrs": [  
      {  
        "dataType": "fme_varchar",  
        "name": "ID",  
        "params": {  
          "length": "254"  
        }  
      },  
      {  
        "dataType": "fme_geometry{0}",  
        "name": "geometry",  
        "params": {  
          "dimension_count": "2",  
          "complex": "false",  
          "type": "line",  
          "unit_length": "1.0",  
          "space": "British National Grid (ORD SURV GB)",  
          "srid": "FME=_BritishNatGrid_0,EPSC=27700"  
        }  
      }  
    ],  
    "name": "INFSEWER"  
  }  
],  
"version": 4  
}
```

The following properties are common to all "File Upload" datastore types (see "Credentials Properties" on page 41 for individual datastore credential properties):

| Property Name               | Data Type | Optionality                                                                                                              | Description                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coordinate Reference System | String    |                                                                                                                          | <p>Defines the coordinate system of the source data.</p> <p>An empty string indicates this should be inferred from the data.</p> <p>See the <a href="#">1Integrate WebHelp</a> for more details on the format to specify the coordinate system.</p>                                                                 |
| Source Files (...)          | File path | Mandatory (and must be non-empty) before uploading data; optional afterwards, as long as no more data is to be uploaded. | <p>Formats vary by datastore (e.g. "Source Files (.shp)").</p> <p>This is an internally used label for the uploaded data which is placed into the repository. The UI uses the path of the uploaded file as the label. Re-using the same label tells the datastore that it can re-use the already uploaded data.</p> |

## Providing Export Mapping Files

You may be required to provide a file as an Input Parameter value for the export mapping of a datastore (e.g if you are using BigQuery).

```
POST http://[DatabasePath]/exportFile
```

## Data Store Creation from Credentials



**Note:** If credentials are supplied without a schema, 1Integrate can automatically connect to the datasource, fetch the schema and generate a default mapping (see "Automatic Schema Derivation" on page 52). This works for any combination of import credentials and/or export credentials.

Specific credentials to be supplied depend on the type of datastore required (see "Credentials Properties" on page 41).

```
PUT http://[server]:[port]/1Integrate/rest/datastores/
[path]
```

```
{
  "importType": "Esri Shape",
  "importCredentials": {
    "Coordinate Reference System": "",
    "_connection_use": "import",
    "Clip to envelope": "false",
    "Allow invalid geometries": "true",
    "Encoding": "",
    "Reverse coordinate axis order (y,x)": "false",
    "Trim preceding spaces": "true",
    "Dissolve holes": "true",
    "Import FME Log File": "",
    "Convert attribute names to upper case": "false",
    "Exposed attributes": "",
    "Fix ring direction and inclusion errors": "true",
    "Source Files (.shp)": "Glaisnock.zip",
    "Treat measures as elevation": "false"
  },
  "exportType": "MapInfo TAB (MFAL)",
  "exportCredentials":{
    "Coordinate Reference System": "",
    "_connection_use": "export",
    "Destination Files (.tab)": "",
    "Write region centroids": "false",
    "Export FME Log File": "",
    "Filename prefix": "",
    "Encoding": "",
    "Reverse coordinate axis order (y,x)": "false",
    "Bounds ([xmin] [ymin] [xmax] [ymax])": ""
  }
}
```

```
{
  "created": 1501246885833,
  "createdBy": "1Spatial",
  "updated": 1501246885833,
  "updatedBy": "1Spatial",
  "importType": "Esri Shape",
```

```

"importCredentials": {
  "Coordinate Reference System": "",
  "_connection_use": "import",
  "Clip to envelope": "false",
  "Allow invalid geometries": "true",
  "Encoding": "",
  "Reverse coordinate axis order (y,x)": "false",
  "Trim preceding spaces": "true",
  "Dissolve holes": "true",
  "Import FME Log File": "",
  "Convert attribute names to upper case": "false",
  "Exposed attributes": "",
  "Fix ring direction and inclusion errors": "true",
  "Source Files (.shp)": "Glaisnock.zip",
  "Treat measures as elevation": "false"
},
"exportType": "MapInfo TAB (MFAL)",
"exportCredentials": {
  "Coordinate Reference System": "",
  "_connection_use": "export",
  "Destination Files (.tab)": "",
  "Write region centroids": "false",
  "Export FME Log File": "",
  "Filename prefix": "",
  "Encoding": "",
  "Reverse coordinate axis order (y,x)": "false",
  "Bounds ([xmin] [ymin] [xmax] [ymax])": ""
},
"version": 1
}

```



## Credentials Properties

- ▶ All properties are optional unless stated otherwise.
- ▶ All optional Boolean properties default to false unless stated otherwise.
- ▶ All properties are represented as Strings in responses, but can be provided as either Strings or the real type of the property in requests.



**Note:** See the [1Integrate WebHelp](#) for more guidance on datastore import and export properties.

## MapInfo Tab (GDAL)

Take care to spell the datastore `importType` property as follows:

```
"importType": "MapInfo Tab (GDAL) "
```

### Import

| Property Name               | Data Type | Optionality | Description                                                      |
|-----------------------------|-----------|-------------|------------------------------------------------------------------|
| Coordinate Reference System | String    | Mandatory   | An empty string indicates this should be inferred from the data. |

| Property Name                                       | Data Type | Optionality                                                                                                                 | Description                                                                                                                                                                                                                                   |
|-----------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source Files<br>(.tab,.dat,.map,.id,.ind,.mif,.mid) | String    | Mandatory<br>(and must be non-empty) before uploading data; optional afterwards, as long as no more data is to be uploaded. | This is an internally used label for the uploaded data which is placed into the repository. The UI uses the path of the uploaded file as the label. Re-using the same label tells the datastore that it can re-use the already uploaded data. |
| Allow invalid geometries                            | Boolean   |                                                                                                                             |                                                                                                                                                                                                                                               |

## Export

| Property Name                                            | Data Type | Optionality | Description |
|----------------------------------------------------------|-----------|-------------|-------------|
| Destination Files<br>(.tab,.dat,.map,.id,.ind,.mif,.mid) | String    |             |             |

## Oracle

Take care to spell the datastore `importType` property as follows:

```
"importType": "Oracle"
```

Configuration of an Oracle datastore is complicated. Every parameter is individually optional, however there are some mandatory combinations.

*One* of the following connection configurations must be satisfied:

- ▶ JNDI Location
- ▶ Net Service Name, Username and Password
- ▶ Service Name, Host, Port, Username and Password

The above is the priority order in which a connection is attempted.

If you supply more than one type of configuration, only the first prioritised method will be used. For example, if JNDI Location and the Service Name parameters are provided but connection via JNDI fails, the request will fail without attempting to use the Service Name connection mode.

### Import

| Property Name             | Data Type            | Optionality | Description                           |
|---------------------------|----------------------|-------------|---------------------------------------|
| Username                  | String               |             |                                       |
| Password                  | String<br>(Password) |             | See "Password Properties" on page 52. |
| Net Service Name          | String               |             |                                       |
| Host                      | String               |             |                                       |
| Port                      | Integer              |             |                                       |
| Service Name              | String               |             |                                       |
| JNDI Location             | String               |             |                                       |
| Schema Name               | String               |             |                                       |
| Allow Invalid Geometries  | Boolean              |             | Note the capitalisation.              |
| Scale for Coordinate Data | Integer              |             |                                       |

### Export

| Property Name | Data Type            | Optionality | Description                           |
|---------------|----------------------|-------------|---------------------------------------|
| Username      | String               |             |                                       |
| Password      | String<br>(Password) |             | See "Password Properties" on page 52. |

| Property Name    | Data Type | Optionality | Description |
|------------------|-----------|-------------|-------------|
| Net Service Name | String    |             |             |
| Host             | String    |             |             |
| Port             | Integer   |             |             |
| Service Name     | String    |             |             |
| JNDI Location    | String    |             |             |
| Schema Name      | String    |             |             |

## Esri Shape



**Note:** Esri Shape datastores can be used with either GDAL or FME connections. Some of the following properties are only relevant to FME connections.

Take care to spell the datastore `importType` property as follows:

For FME connections:

```
"importType": "Esri Shape"
```

For GDAL connections:

```
"importType": "ESRI Shape (GDAL) "
```

## Import

| Property Name               | Data Type | Optionality | Description                                                      |
|-----------------------------|-----------|-------------|------------------------------------------------------------------|
| Coordinate Reference System | String    | Mandatory   | An empty string indicates this should be inferred from the data. |

| Property Name                                                                      | Data Type | Optionality                                                                                                            | Description                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source Files (.shp)                                                                | String    | Mandatory and must be non-empty before uploading data; optional afterwards, as long as no more data is to be uploaded. | This is an internally used label for the uploaded data which is placed into the repository. The UI uses the path of the uploaded file as the label. Re-using the same label tells the datastore that it can re-use the already uploaded data. |
| Allow invalid geometries                                                           | Boolean   |                                                                                                                        |                                                                                                                                                                                                                                               |
| <b>The following parameters are only necessary for FME connections (not GDAL):</b> |           |                                                                                                                        |                                                                                                                                                                                                                                               |
| Import FME Log File                                                                | String    |                                                                                                                        |                                                                                                                                                                                                                                               |
| Fix ring direction and inclusion errors                                            | Boolean   |                                                                                                                        |                                                                                                                                                                                                                                               |
| Reverse coordinate axis order (y,x)                                                | Boolean   |                                                                                                                        |                                                                                                                                                                                                                                               |
| Convert attribute names to upper case                                              | Boolean   |                                                                                                                        |                                                                                                                                                                                                                                               |
| Treat measures as elevation                                                        | Boolean   |                                                                                                                        |                                                                                                                                                                                                                                               |
| Encoding                                                                           | String    | Mandatory                                                                                                              |                                                                                                                                                                                                                                               |
| Clip to envelope                                                                   | Boolean   |                                                                                                                        |                                                                                                                                                                                                                                               |

| Property Name         | Data Type | Optionality | Description |
|-----------------------|-----------|-------------|-------------|
| Dissolve holes        | Boolean   |             |             |
| Trim preceding spaces | Boolean   |             |             |
| Exposed attributes    | String    | Mandatory   |             |

## Export

| Property Name                                                                      | Data Type | Optionality                                                                                                            | Description                                                      |
|------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Destination Files (.shp)                                                           | String    | Mandatory and must be non-empty before uploading data; optional afterwards, as long as no more data is to be uploaded. |                                                                  |
| <b>The following parameters are only necessary for FME connections (not GDAL):</b> |           |                                                                                                                        |                                                                  |
| Coordinate Reference System                                                        | String    | Mandatory                                                                                                              | An empty string indicates this should be inferred from the data. |
| Export FME Log File                                                                | String    |                                                                                                                        |                                                                  |
| Reverse coordinate axis order (y,x)                                                | Boolean   |                                                                                                                        |                                                                  |
| Convert attribute names to upper case                                              | Boolean   |                                                                                                                        |                                                                  |

| Property Name               | Data Type | Optionality | Description |
|-----------------------------|-----------|-------------|-------------|
| Treat measures as elevation | Boolean   |             |             |
| Encoding                    | String    | Mandatory   |             |
| Strict compatibility        | Boolean   |             |             |
| Surface and solid storage   | String    |             |             |

## Esri File Geodatabase (FILEGDB)

 **Note:** Esri File Geodatabase can be used with either GDAL or FME connections. Some of the following properties are only relevant to FME connections.

Take care to spell the datastore `importType` property as follows:

For FME connections:

```
"importType": "Esri Geodatabase File (FILEGDB) "
```

For GDAL connections:

```
"importType": "Esri File Geodatabase (GDAL) "
```

### Import

| Property Name               | Data Type | Optionality                                                                                                            | Description                                                                                                                                                                                                                                   |
|-----------------------------|-----------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coordinate Reference System | String    | Mandatory                                                                                                              | An empty string indicates this should be inferred from the data.                                                                                                                                                                              |
| Source Files (.gdb)         | String    | Mandatory and must be non-empty before uploading data; optional afterwards, as long as no more data is to be uploaded. | This is an internally used label for the uploaded data which is placed into the repository. The UI uses the path of the uploaded file as the label. Re-using the same label tells the datastore that it can re-use the already uploaded data. |

| Property Name                                                                      | Data Type | Optionality | Description |
|------------------------------------------------------------------------------------|-----------|-------------|-------------|
| Allow invalid geometries                                                           | Boolean   |             |             |
| <b>The following parameters are only necessary for FME connections (not GDAL):</b> |           |             |             |
| Import FME Log File                                                                | String    |             |             |
| Fix ring direction and inclusion errors                                            | Boolean   |             |             |
| Reverse coordinate axis order (y,x)                                                | Boolean   |             |             |
| Clip to envelope                                                                   | Boolean   |             |             |
| Exposed attributes                                                                 | String    | Mandatory   |             |

## Export

| Property Name                                                                      | Data Type | Optionality                                                                                                            | Description                                                      |
|------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Destination Files (.gdb)                                                           | String    | Mandatory and must be non-empty before uploading data; optional afterwards, as long as no more data is to be uploaded. |                                                                  |
| <b>The following parameters are only necessary for FME connections (not GDAL):</b> |           |                                                                                                                        |                                                                  |
| Coordinate Reference System                                                        | String    | Mandatory                                                                                                              | An empty string indicates this should be inferred from the data. |



| Property Name                       | Data Type | Optionality | Description |
|-------------------------------------|-----------|-------------|-------------|
| Export FME Log File                 | String    |             |             |
| Reverse coordinate axis order (y,x) | Boolean   |             |             |

## PostGIS

Take care to spell the datastore `importType` property as follows:

```
"importType": "PostGIS"
```

### Import

| Property Name                           | Data Type | Optionality | Description                                                      |
|-----------------------------------------|-----------|-------------|------------------------------------------------------------------|
| Coordinate Reference System             | String    | Mandatory   | An empty string indicates this should be inferred from the data. |
| Source Database                         | String    | Mandatory   |                                                                  |
| Import FME Log File                     | String    |             |                                                                  |
| Allow invalid geometries                | Boolean   |             |                                                                  |
| Fix ring direction and inclusion errors | Boolean   |             |                                                                  |
| Reverse coordinate axis order (y,x)     | Boolean   |             |                                                                  |
| Command timeout                         | Integer   | Mandatory   |                                                                  |
| Retrieve all schemas                    | Boolean   | Mandatory   | Must be set to true to do anything useful with the datastore.    |

| Property Name              | Data Type         | Optionality                           | Description |
|----------------------------|-------------------|---------------------------------------|-------------|
| Import host name           | String            | Mandatory                             |             |
| Import port number         | Integer           | Mandatory                             |             |
| Import username            | String            | Mandatory                             |             |
| Import password            | String (Password) | See "Password Properties" on page 52. |             |
| WHERE clause               | String            | Mandatory                             |             |
| Clip to envelope           | Boolean           |                                       |             |
| Read cache size            | Integer           | Mandatory                             |             |
| Assume one SRID per column | Boolean           |                                       |             |
| Exposed attributes         | String            | Mandatory                             |             |

## Export

| Property Name                       | Data Type | Optionality | Description                                                      |
|-------------------------------------|-----------|-------------|------------------------------------------------------------------|
| Coordinate Reference System         | String    | Mandatory   | An empty string indicates this should be inferred from the data. |
| Source Database                     | String    | Mandatory   |                                                                  |
| Export FME Log File                 | String    |             |                                                                  |
| Reverse coordinate axis order (y,x) | Boolean   |             |                                                                  |
| Command timeout                     | Integer   | Mandatory   |                                                                  |

| Property Name                                 | Data Type         | Optionality                                   | Description |
|-----------------------------------------------|-------------------|-----------------------------------------------|-------------|
| Export host name                              | String            | Mandatory                                     |             |
| Export port number                            | Integer           | Mandatory                                     |             |
| Export username                               | String            | Mandatory                                     |             |
| Export password                               | String (Password) | See "Password Properties" on the facing page. |             |
| Spatial type is geography (default: geometry) | Boolean           |                                               |             |
| Spatial column name                           | String            | Mandatory                                     |             |
| Orient polygons                               | Boolean           |                                               |             |

## Other Data Store Formats

The following formats are also supported by the REST API. Contact 1Spatial for further details.

► Comma Separated Value (CSV)

```
"importType": "Comma Separated Value (CSV)"
```

► Autodesk AutoCAD DWG/DXF

```
"importType": "Autodesk AutoCAD DWG/DXF"
```

► Bentley MicroStation Design (V8)

```
"importType": "Bentley MicroStation Design (V8)"
```

► Microsoft SQL Server Spatial

```
"importType": "Microsoft SQL Server Spatial"
```

► Esri Enterprise Geodatabase

```
"importType": "Esri Enterprise Geodatabase"
```

# Password Properties

Some credential properties are considered Passwords.

These:

- ▶ Will never appear in responses.
- ▶ Are optional in requests.



**Note:** If a password property has previously been set, and is not supplied with a request to update a resource, the existing password will be used.

## Automatic Schema Derivation

### Import Schema Derivation

Upon a `PUT` request, or a file upload to a datastore, the import schema will be derived from the import credentials if *all* of the following are true:

- ▶ Import credentials have been supplied.
- ▶ No import schema has been supplied.
- ▶ Import schema can be obtained from the supplied credentials.

### Export Schema Derivation

Upon a `PUT` request, or a file upload to a datastore, the export schema will be derived from the import schema and user-defined schema if *all* of the following are true:

- ▶ Import schema exists (was either supplied or derived as above).
- ▶ Export credentials were supplied.
- ▶ No export schema has been supplied.

# Schema Mapping

Schema mapping may be optionally supplied within the `importClasses` or `exportClasses` lists in a datastore.

Schema mapping elements are omitted by default for clarity but may be added to any class or attribute definition.

Valid options are:

- ▶ `mappedName` – custom name for the class or attribute
- ▶ `indexed` – if the attribute should be indexed
- ▶ `reported` – if the attribute should be included in any reports
- ▶ `disabled` – if the attribute should be displayed in the user interface, but not loaded into the system when running sessions



**Note:** The response you get back from this update request is almost identical to the request, but with different timestamps and version.

```
PUT http://[server]:[port]/1Integrate/rest/datastores/
{path}
```

```
{
  "importType": "RandomMockDataStore",
  "importCredentials": {
    "ClassCount": "7",
    "InstanceCount": "50",
    "StringAttributeCount": "12",
    "LongAttributeCount": "5",
    "Seed": "2",
    "DoubleAttributeCount": "3",
    "IntAttributeCount": "4"
  },
  "importClasses": [
    {
      "attrs": [
        {
          "indexed": true,
          "reported": true,
          "dataType": "int",
          "mappedType": "Integer",
          "disabled": true,
          "name": "force-int"
```

```

    },
    {
      "dataType": "geometry",
      "mappedType": "Geometry",
      "name": "geometry"
    }
  ],
  "name": "angora",
  "mappedName": "newclass"
}
],
"exportType": "New Export Credentials"
}

```

```

{
  "created": 1501168989408,
  "createdBy": "1Spatial",
  "updated": 1501249854206,
  "updatedBy": "1Spatial",
  "importType": "RandomMockDataStore",
  "importCredentials": {
    "ClassCount": "7",
    "InstanceCount": "50",
    "StringAttributeCount": "12",
    "LongAttributeCount": "5",
    "Seed": "2",
    "DoubleAttributeCount": "3",
    "IntAttributeCount": "4"
  },
  "importClasses": [
    {
      "attrs": [
        {
          "dataType": "int",
          "disabled": true,
          "indexed": true,
          "mappedType": "Integer",
          "name": "force-int",
          "reported": true
        }
      ]
    }
  ]
}

```

```
{
  "dataType": "geometry",
  "mappedType": "Geometry",
  "name": "geometry"
},
{
  "mappedName": "newclass",
  "name": "angora"
}
],
"exportType": "New Export Credentials",
"version": 3
}
```

## Test and Refresh Mapping

You can test your input and export mapping using your REST client.

### Test Input Mapping:

To test input mapping, make the following request:

```
GET http://[host]:[port]/1Integrate/rest/datastores/
[datastore_path]/import/test
```

This will return a “success” flag, as well as an optional “message” detailing any errors.

```
{
  "message": "Connection Failed: [message]",
  "success": false
}
```

### Test Output Mapping:

To test output mapping, make the following request:

```
GET http://[host]:8080/1Integrate/rest/datastores/
[datastore_path]/export/test
```

This will return a “success” flag, as well as an optional “message” detailing any errors.

```
{
  "message": "Connection Failed: [message]",
  "success": false
}
```

### Refresh Mapping:

To refresh mapping, make the following request:



**Note:** When refreshing via REST, all classes and attributes are automatically enabled.

```
PUT http://[host]:8080/1Integrate/rest/datastores/
[datastore_path]/refresh
```

```
{
  "import": [true|false],
  "export": [true|false]
}
```

This will return a “success” flag, as well as an optional “message” detailing any errors.

```
{
  "message": "Connection Failed: [message]",
  "success": false
}
```

## User Defined Classes

You can add temporary classes that are only used in the rules/actions to a datastore.

Note again that the response is almost identical to the request, just with different timestamps and version.



**Note:** The response is almost identical to the request, but with different timestamps and version.

```
PUT http://[server]:[port]/1Integrate/rest/datastores/
{path}
```

```
{
  "importType": "RandomMockDataStore",
  "importCredentials": {
    "ClassCount": "7",
    "InstanceCount": "50",
    "StringAttributeCount": "12",
    "LongAttributeCount": "5",
    "Seed": "2",
    "DoubleAttributeCount": "3",
    "IntAttributeCount": "4"
  },
  "importClasses": [
    {
```



```

    "attrs": [
      {
        "indexed": true,
        "reported": true,
        "dataType": "int",
        "mappedType": "Integer",
        "disabled": true,
        "name": "force-int"
      },
      {
        "dataType": "geometry",
        "mappedType": "Geometry",
        "name": "geometry"
      }
    ],
    "name": "angora",
    "mappedName": "newclass"
  }
],
"userDefinedClasses": [
  {
    "name": "AddedClass",
    "attrs": [
      {
        "name": "geometry",
        "dataType": "Geometry"
      },
      {
        "name": "AddedAttribute",
        "dataType": "Boolean"
      }
    ]
  }
],
"exportType": "New Export Credentials"
}
{
  "created": 1501168989408,
  "createdBy": "1Spatial",

```

```

"updated": 1501249854206,
"updatedBy": "1Spatial",
"importType": "RandomMockDataStore",
"importCredentials": {
  "ClassCount": "7",
  "InstanceCount": "50",
  "StringAttributeCount": "12",
  "LongAttributeCount": "5",
  "Seed": "2",
  "DoubleAttributeCount": "3",
  "IntAttributeCount": "4"
},
"importClasses": [
  {
    "attrs": [
      {
        "dataType": "int",
        "disabled": true,
        "indexed": true,
        "mappedType": "Integer",
        "name": "force-int",
        "reported": true
      },
      {
        "dataType": "geometry",
        "mappedType": "Geometry",
        "name": "geometry"
      }
    ],
    "mappedName": "newclass",
    "name": "angora"
  }
],
"userDefinedClasses": [
  {
    "name": "AddedClass",
    "attrs": [
      {
        "name": "geometry",

```

```

        "dataType": "Geometry"
      },
      {
        "name": "AddedAttribute",
        "dataType": "Boolean"
      }
    ]
  }
],
"exportType": "New Export Credentials",
"version": 4
}

```

## CopyTo Task Output File Download

The resulting data from a CopyTo task can be downloaded using a GET request, along with the path to the data store and `/outputFile`:

**GET** `http://[server]:[port]/1Integrate/rest/datastores/Test/outputFile`

This request will output a file with a default name `data` with no extension, to set a filename use the request:

`http://[server]:[port]/1Integrate/rest/datastores/Test/outputFile?fileName=[filename].[extension]`



**Note:** This request will produce `application/octet-stream` content. An `Accept: HTTP Header` is not required, but if included ensure it states `Accept: application/octet-stream`, any other content will not work.

# 7 Rules

Rules are encoded in a simplified JSON form as used by the 1Integrate user interface.

**Note:** The format of rules is subject to change in future releases, therefore it is not recommended to develop significant dependencies on this structure.

Below is an example of a rule response from a GET request.

GET `http://[server]:[port]/1Integrate/rest/rules/{path}`

```
{
  "template": false,
  "rootTerm": {
    "predicates": [
      {
        "predicates": [
          {
            "predicates": [
              {
                "attributes": {
                  "objRef": "",
                  "classRef": "mandolin",
                  "propName": "expansion-long"
                },
                "kind": "DynamicValue"
              },
              {
                "kind": "LessRelation"
              },
              {
                "attributes": {
                  "value": "10",
                  "datatype": "integer"
                },
                "kind": "StaticValue"
              }
            ]
          }
        ]
      }
    ]
  }
}
```

```
        "kind": "RelationalPredicate"
      }
    ],
    "attributes": {
      "objLabel": "",
      "classLabel": "mandolin"
    },
    "kind": "RootPredicate"
  }
],
"kind": "Rule"
},
"createdBy": "1Spatial",
"updated": 1488809081761,
"created": 1488809081761,
"version": 1,
"updatedBy": "1Spatial"
}
```

# 8 Actions

As with rules, actions are encoded in a simplified JSON form as used by the 1Integrate user interface.

**Note:** The format of actions is subject to change in future releases, therefore it is not recommended to develop significant dependencies on this structure.

Below is an example of an action response from a GET request.

GET `http://[server]:[port]/1Integrate/rest/actions/{path}`

```
{
  "created": 1501160588903,
  "createdBy": "1Spatial",
  "updated": 1501160613182,
  "updatedBy": "1Spatial",
  "rootTerm": {
    "kind": "Action",
    "predicates": [
      {
        "kind": "RootOperation",
        "predicates": [
          {
            "kind": "AssignmentOperation",
            "predicates": [
              {
                "kind": "DynamicValue",
                "attributes": {
                  "objRef": "",
                  "propName": "test",
                  "classRef": ""
                }
              },
              {
                "kind": "StaticValue",
                "attributes": {
                  "datatype": "integer",
                  "value": "0"
                }
              }
            ]
          }
        ]
      }
    ]
  }
}
```

```

        }
    }
]
}
],
"attributes": {
    "classLabel": "",
    "objLabel": ""
}
}
]
},
"template": false,
"version": 2
}

```

## Action Maps

Action maps are lists of rule and action pairings.

```
GET http://[server]:[port]/1Integrate/rest/actionmaps/
{path}
```

```

{
  "pairs": [
    {
      "rule": "/rules/data test",
      "action": "/actions/New Action 1"
    },
    {
      "rule": "/rules/data test",
      "action": "/actions/action folder/"
    }
  ]
}

```

# 9 Results

**Note:** Session results can only be accessed if a session is paused or finished. Once a session has been stopped or reset, results are removed from the database and no longer accessible. Rewinding over a specific task will also delete the results of that task.

## Task Summary

The status and results for a session are available from a results resource that is parallel to the session resource.

The same session path is used to access the results for that session. For example, if a session resource is at:

```
http://[server]:[port]/1Integrate/rest/sessions/Folder1/MySession
```

The results are available from:

```
http://[server]:[port]/1Integrate/rest/results/Folder1/MySession
```

Return the summary of a specific task:

```
GET http://[server]:[port]/1Integrate/rest/results/{path}?detail=task&taskIdIdentifier=
```

```
{
  "kind": "ApplyActionTask",
  "started": 1501166280848,
  "duration": 100,
  "actions": [
    {
      "count": 0,
      "errors": 43,
      "path": "/actions/errorAction1",
      "processed": 43,
      "total": 0
    }
  ],
  "classes": [
    {
      "count": 0,
      "errors": 43,
```



```

    "name": "main__water_distribution_location",
    "processed": 43,
    "total": 43
  }
],
"count": 0,
"errors": 43,
"processed": 43,
"reportCount": 43,
"total": 43,
"status": "FINISHED"
}

```

## Detailed Non-conformance or Error Reports

Returns a detailed non-conformance report or an error report for a task.

```
GET http://[server]:[port]/1Integrate/rest/results/
{path}?detail=report&taskIdentifier=&start=0&count=1000
```

```

[
  {
    "featureId": "1004896203",
    "className": "pipe",
    "attributes": {
      "foxglove-int": {
        "value": "1004896203"
      },
      "geometry": {
        "y0": "242.0",
        "y1": "257.0",
        "x0": "77.0",
        "x1": "85.0"
      }
    },
    "nonconformances": [
      {
        "description": "____pipe.identifier is less than 10_
____",
        "path": "/rules/rule1"
      }
    ]
  }
]

```

```
"gothicId": "384"
}
]
```

## Summarised Error Reports

Returns the aggregated error report of a session (if `path` points to a session), or the aggregated error report of a folder of sessions (if `path` points to a folder).

 **Note:** Sub-directories are not supported

```
GET http://[server]:[port]/1Integrate/rest/results/
{path}?detail=aggregatedErrors
```

```
[
  {
    "cause":
    "com.onespatial.radius.studio.spatialengine.api.error.Int
egrationException",
    "index": 1,
    "instancesByClass": {
      "main__water_distribution_location": 43
    },
    "instancesBySession": {
      "errorSession1": 43
    },
    "message": "No value of this name has been defined in
the schema",
    "nativeStackTrace":
    "com.onespatial.gothic.util.WrappedGothicException",
    "stackTrace":
    "com.onespatial.radius.studio.spatialengine.api.error.Int
egrationException:
com.onespatial.gothic.util.WrappedGothicException:
NOSUCHVAL: No value of this name has been defined in the
schema",
    "tasktype": "ApplyActionTask"
  }
]
```

## Summarised Folder Results

Gives you the aggregated summary report of all sessions in a folder.

 **Note:** Sub-directories are not supported

```
GET http://[server]:[port]/1Integrate/rest/results/
{path}?detail=amalgamatedResults
```

```
[
  {
    "status": "PAUSED",
    "tasks": [
      {
        "kind": "OpenDataTask",
        "started": 1501166280195,
        "duration": 647,
        "classes": [
          {
            "count": 0,
            "errors": 0,
            "name": "main__water_distribution_location",
            "processed": 43,
            "total": 0
          }
        ],
        "count": 0,
        "errors": 0,
        "processed": 43,
        "reportCount": 0,
        "total": 0,
        "status": "FINISHED"
      },
      {
        "kind": "ApplyActionTask",
        "started": 1501166280848,
        "duration": 100,
        "actions": [
          {
            "count": 0,
            "errors": 43,
            "path": "/actions/errorAction1",
            "processed": 43,
            "total": 0
          }
        ]
      }
    ]
  }
]
```

```

    "classes": [
      {
        "count": 0,
        "errors": 43,
        "name": "main__water_distribution_location",
        "processed": 43,
        "total": 43
      }
    ],
    "count": 0,
    "errors": 43,
    "processed": 43,
    "reportCount": 43,
    "total": 43,
    "status": "FINISHED"
  },
  {
    "kind": "PauseTask",
    "started": 1501166280988,
    "duration": 29,
    "count": 0,
    "errors": 0,
    "processed": 0,
    "reportCount": 0,
    "total": 0,
    "status": "PAUSED"
  }
],
{
  "status": "PAUSED",
  "tasks": [
    {
      "kind": "OpenDataTask",
      "started": 1501166281495,
      "duration": 637,
      "classes": [
        {
          "count": 0,

```

```

        "errors": 0,
        "name": "main__water_distribution_location",
        "processed": 43,
        "total": 0
    }
],
    "count": 0,
    "errors": 0,
    "processed": 43,
    "reportCount": 0,
    "total": 0,
    "status": "FINISHED"
},
{
    "kind": "ApplyActionTask",
    "started": 1501166282136,
    "duration": 102,
    "actions": [
        {
            "count": 0,
            "errors": 43,
            "path": "/actions/errorAction2",
            "processed": 43,
            "total": 0
        }
    ],
    "classes": [
        {
            "count": 0,
            "errors": 43,
            "name": "main__water_distribution_location",
            "processed": 43,
            "total": 43
        }
    ],
    "count": 0,
    "errors": 43,
    "processed": 43,
    "reportCount": 43,

```

```
    "total": 43,  
    "status": "FINISHED"  
  },  
  {  
    "kind": "PauseTask",  
    "started": 1501166282278,  
    "duration": 26,  
    "count": 0,  
    "errors": 0,  
    "processed": 0,  
    "reportCount": 0,  
    "total": 0,  
    "status": "PAUSED"  
  }  
]  
}
```