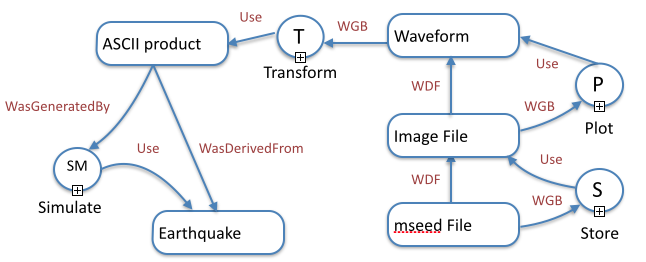
VERCE Provenance REST-ful WEB API

*Italics* denote optional parameters. Types are expressed in pseudo language.

By default parameters are provided as part of a JSON request. Parameters followed by \* denote HTTP parameters.

Below we present a sample schema, showing the provenance relationships among the processes and the data involved in a seismic simulation, according to the W3C-PROV model. (IP) methods in progress of improvements



# 1 Workflow Runs

## 1.1 Get workflow run input description

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /workflow/<run\_id> | | |
| Method | GET | | |
| Returns | Insertion Confirmation | json | JSON Document |

## 1.2 Insertion of lineage traces and workflow run description (IP)

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /workflow/insert/<run\_id> | | |
| Method | POST | PUT | | |
|  | Name | Type | Example |
| Parameters | doc\* | json | JSON Document |
| Returns | Insertion Confirmation | json | JSON Document |

## 1.3 Edit workflow run description

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /workflow/edit/<run\_id> | | |
| Method | POST | | |
|  | Name | Type | Example |
| Parameters | doc\* | json | JSON Document |
| Returns | Update Confirmation | json |  |

## 1.4 Delete workflow run

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /workflow/delete/<run\_id> | | |
| Method | POST/DELETE | | |
| Returns | Deletion Confirmation | json |  |

## 1.5 Retrieve and filter workflows run

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /workflow | | |
| Method | GET | | |
|  | Name | Type | Example |
|  | idlist | String (csv) |  |
|  | username\* | String | aspinuso |
| Parameters | start\* | int | 0 |
| limit\* | int | 1000 |
|  | activities | String (csv) | “InputGenerator” |
|  | keys\* | String (csv) | “magnitude,station” |
|  | maxvalues\* | String (csv) | “3,AQU” |
|  | minvalues\* | String (csv) | “5.6,AQU” |
| Returns | List of runs’ metadata | json |  |

## 1.6 Export Run

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /workflow/export/<run\_id> | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | start\* | int | 0 |
| limit\* | int | 1000 |
|  | format\* | String | “w3c-prov” |
|  | all | bool | True |
| Returns | List of run’s provenance traces in one of the selected formats | json |  |

# 2 Workflow Run Activities and Entities

## 2.1 Retrieve run’s activities metadata (improvement in progress)

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /activities/run | | |
| Method | GET | | |
|  | Name | Type | Example |
|  | runId | String |  |
| Parameters | start\* | int | 0 |
| limit\* | int | 1000 |
| Returns | List of run’s activities metadata | json |  |

## 2.2 Retrieve single entity

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /entities/<entity\_id> | | |
| >Method | GET | | |
|  | Name | Type | Example |
| Returns | Single entity metadata | json |  |

## 2.3 Retrieve data entities with filters

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /entities?method=( generatedBy | values-range | run) | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | run\_id | String | “scai-nordit0141138” |
|  | start\* | int | 0 |
|  | limit\* | int | 1000 |
|  | keys | String (csv) | “magnitude,station” |
|  | Maxvalues | String (csv) | “3,AQU” |
|  | Minvalues | String (csv) | “5.6,AQU” |
|  | mime-type (optional) | String | “video/mpeg” |
|  | activities | String(csv) |  |
|  | iterationId | String |  |
|  | dataid | String |  |
| Returns | List of data entities entities metadata |  |  |

## 2.4 Retrieve data entity from a run (same as 2.2, better performance)

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /entities?method=run | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | run\_id | String | “scai-nordit0141138” |
|  | dataid | String |  |
| Returns | List of data entities entities metadata |  |  |

## 2.5 Retrieve data entities based on their ancestors metadata

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /entities?method=hasAncestorWith | | |
| Method | GET | | |
|  | Name | Type | Example |
|  | dataId\* | String | “i19r01a03-27189-..” |
| Parameters | start\* | int | 0 |
| limit\* | int | 1000 |
|  | keys\* | String (csv) | “magnitude,station” |
|  | maxvalues\* | String (csv) | “3,AQU” |
|  | minvalues\* | String (csv) | “5.6,AQU” |
| Returns | List of data entities’ metadata | json |  |

## 2. 6 Filter a set of entity ids based on the entities’ ancestors metadata

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /entities?method=filterOnAncestorsValuesRange | | |
| Method | POST | | |
|  | Name | Type | Example |
|  | ids\* | String (csv) | “i19r01a03-27189-..” |
| Parameters | start\* | int | 0 |
| limit\* | int | 1000 |
|  | keys\* | String (csv) | “magnitude,station” |
|  | maxvalues\* | String (csv) | “3,AQU” |
|  | minvalues\* | String (csv) | “5.6,AQU” |
| Returns | List of filtered data entities’ ids | json |  |

# 3 Data Derivations

## 3.1 Navigates the data derivation graph starting from the current entity through all of the contributing entities, until a specified level or step (Backwards)

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /wasDerivedFrom/<entity\_id> | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | level\* | int | 2 |
| Returns | List of linked data dependencies | json |  |

## 3.2 Navigates the data derivation graph starting from the current entity through all of derived entities, until the specified level or step (Forward)

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /derivedData/<entity\_id> | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | level\* | int | 2 |
| Returns | List of linked data dependencies | json |  |

# 4 Summaries

## 4.1 Distribution of processing and data movements across the workers of an mpi cluster.

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /summaries?method=instances | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | runId | string |  |
| Returns | List of PE instances, workers and their connections | json |  |

## 4.2 Visualisation of workflow-runs interactions based on metadata values-range.

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | /summaries?method=vrange | | |
| Method | GET | | |
|  | Name | Type | Example |
| Parameters | keys\* | String (csv) | “magnitude,station” |
|  | maxvalues\* | String (csv) | “3,AQU” |
|  | minvalues\* | String (csv) | “5.6,AQU” |
|  | users\* | String (csv) | John,michael |
| Returns | Workflow runs and data-reuse connections according to meta-data values-range | json |  |