Execution Broker and DataModel

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This is the request that we are sending to the broker

```
name: notebook-test
executable:
  type: https://www.purl.org/ivoa.net/EB/schema/types/executable/docker-container-1.0
  image:
    locations:
      - "images.canfar.net/skaha/base-notebook:latest"
    digest: "0000"
schedule:
  requested:
    duration: PT10M
compute:
  type: https://www.purl.org/ivoa.net/EB/schema/types/compute/simple-compute-resource-1.0
  volumes:
    - name: "Input data"
      type: https://www.purl.org/ivoa.net/EB/schema/types/volume/simple-volume-mount-1.0
      path: /inputs/
      mode: READONLY
      resources:
        - example-data-01
        - example-data-02
data:
  - name: example-data-01
    type: https://www.purl.org/ivoa.net/EB/schema/types/data/skao-data-resource-1.0
    skao:
      namespace:  "testing"
      objectname: "zrq-test-20250509-082506"
  - name: example-data-02
    type: https://www.purl.org/ivoa.net/EB/schema/types/data/skao-data-resource-1.0
    skao:
      namespace:  "testing"
      objectname: "zrq-test-20250509-094501"
```


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We can split it into parts, first the executable thing we want to run.
In this case an instance of the base-notebook container image.

```
executable:
  type: https://www.purl.org/ivoa.net/EB/schema/types/executable/docker-container-1.0
  image:
    locations:
      - "images.canfar.net/skaha/base-notebook:latest"
    digest: "0000"
```

and how long we want to run it for

```
schedule:
  requested:
    duration: PT10M
```


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The compute resource we want, and volume mounts for our data

```
compute:
  type: https://www.purl.org/ivoa.net/EB/schema/types/compute/simple-compute-resource-1.0
  volumes:
    - type: https://www.purl.org/ivoa.net/EB/schema/types/volume/simple-volume-mount-1.0
      path: /inputs/
      mode: READONLY
      resources:
        - example-data-01
        - example-data-02
```


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and finally, two data resources from the SRCnet data lake

```
data:
  - name: example-data-01
    type: https://www.purl.org/ivoa.net/EB/schema/types/data/skao-data-resource-1.0
    skao:
      namespace:  "testing"
      objectname: "zrq-test-20250509-082506"
  - name: example-data-02
    type: https://www.purl.org/ivoa.net/EB/schema/types/data/skao-data-resource-1.0
    skao:
      namespace:  "testing"
      objectname: "zrq-test-20250509-094501"
```


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The service is responding with a list of offers

```
result: "YES"
uuid: "e60e04cf-636a-46d4-addd-1def6dfc05c3"
href: "http://127.0.0.1:8082/offersets/e60e04cf-636a-46d4-addd-1def6dfc05c3"
....
offers:
- uuid: "6f322859-d4fa-4e33-91c1-81a3633aa876"
  type: "https://www.purl.org/ivoa.net/EB/schema/types/session/execution-session-response-1.0'
  href: "http://127.0.0.1:8082/sessions/6f322859-d4fa-4e33-91c1-81a3633aa876"
  phase: "OFFERED"
  ....

- uuid: "5607f5f2-25c7-4ed5-b2fb-896f8c5851be"
  type: "https://www.purl.org/ivoa.net/EB/schema/types/session/execution-session-response-1.0'
  href: "http://127.0.0.1:8082/sessions/5607f5f2-25c7-4ed5-b2fb-896f8c5851be"
  phase: "OFFERED"
  ....
```


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each offer includes details of the compute resources that are available

```
compute:
  type: "https://www.purl.org/ivoa.net/EB/schema/types/compute/simple-compute-resource-1.0"
  uuid: "be6d7eab-5a30-468a-89a8-89e1cdfb9f39"
  cores:
    min: 2
    max: 2
  memory:
    min: 2
    max: 2
```


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details of the storage it will use

```
storage:

  - type: "https://www.purl.org/ivoa.net/EB/schema/types/storage/simple-storage-resource-1.0"
    uuid: "5a5b42da-a10a-4da9-ab93-f39ac2c1b234"
    name: "Storage for [example-data-01]"
    data:
      - "aeafe3ee-e25d-40f1-bf38-10a1b3ad8a60"

  - type: "https://www.purl.org/ivoa.net/EB/schema/types/storage/simple-storage-resource-1.0"
    uuid: "4bd58df3-0be1-4669-b125-1e6892db6c98"
    name: "Storage for [example-data-02]"
    data:
      - "d32212d0-55a6-45fa-8169-75bcb4608874"
```


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and details of where the data replicas are

```
data:
- type: "https://www.purl.org/ivoa.net/EB/schema/types/data/skao-data-resource-1.0"
  uuid: "aeafe3ee-e25d-40f1-bf38-10a1b3ad8a60"
  name: "example-data-01"
  storage: "5a5b42da-a10a-4da9-ab93-f39ac2c1b234"
  skao:
    namespace: "testing"
    objectname: "zrq-test-20250509-082506"
    datasize: 27487790694400
    replicas:
    - rsename: "AUSRC_STORM"
    - rsename: "JPSRC_STORM"
    - rsename: "SPSRC_STORM"
```


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and because this is an interactive task, each offer includes details of when the session will be available

```
schedule:
  preparing:
    start: "2025-11-06T11:09:50Z"
    duration: "PT2M10S"
  available:
    start: "2025-11-06T11:12:00Z/PT0S"
    duration: "PT20M"
  releasing:
    start: "2025-11-06T11:32:05Z"
    duration: "PT10S"
```


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Our test script is ignoring the details and just accepting the first offer in the list.

This is safe to do because all offers MUST meet the minimum criteria in the request.

So we we can pick any of the offers in the response knowing that it will have sufficient resources to run our job.

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Our test script accepts the first offer and then uses 'watch' to poll the session status.

The response to the status query includes the same details of the session, executable, compute, storage and data resources, but our test script is filtering out the parts we are not interested in.

```
session:
  phase: "PREPARING"
  connectors: []
executable:
  phase: "INITIALIZING"
compute:
  phase: "INITIALIZING"
storage:
  - name: "Storage for [example-data-01]"
    phase: "INITIALIZING"
  - name: "Storage for [example-data-02]"
    phase: "INITIALIZING"
data:
  - name: "example-data-01"
    phase: "INITIALIZING"
  - name: "example-data-02"
    phase: "INITIALIZING"
```


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At the end of the execution, the session status contains all of the details about what happened, including details of the session, executable, compute, storage and data resources.

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